MWP

Natura Impact Statement

Inis Cealtra Visitor Experience, Mountshannon, County Clare

Clare County Council

December 2024

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21760	6035	A	November 2024	Úna Williams Orla van der Noll			DRAFT
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Summary of Findings

Project Title	Inis Cealtra Visitor Experience, Mountshannon, County Clare.
Project Proponent	Clare County Council
Project Location	The proposed development is located partly in Mountshannon Village in the townland of Mountshannon in northeast County Clare and partly on Inis Cealtra, an island on the western side of Lough Derg, approximately 1.7 kilometres southwest of Mountshannon Harbour.
Natura Impact Statement	In cases where an Appropriate Assessment is required, a Natura Impact Statement (NIS) is prepared and includes a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications of a proposal, individually, or in combination with other plans or projects, for European site(s) in view of the conservation objectives of the site(s).
Conclusion	For the reasons set out in detail in this NIS, and based on best scientific knowledge, the proposed development will not, either alone or in combination with other plans and projects, adversely affect (directly or indirectly) the integrity of two identified European sites, considering the specific conservation objectives of the sites. The NIS contains information which the competent authority may consider in making its own complete, precise and definitive findings and conclusions, and upon which the competent authority can determine that all reasonable scientific doubt has been removed as to the effects of the project on the integrity of the relevant European sites. Provided that the mitigation measures are implemented in full, it is considered that the proposed development, either individually, or in combination with other plans/projects, will not affect the integrity of the following two European sites: ▪ Lough Derg (Shannon) SPA (004058) ▪ Lower River Shannon SAC (002165)

1. Introduction

1.1 Purpose of the Assessment and Legislative Context

Appropriate Assessment is the consideration of the impact of a project on the integrity of a European site[1], either alone or in combination with other plans or projects, with respect to the site's ecological structure and function, and in view of the site's conservation objectives. The conservation objectives of European sites are site specific and based on the ecological requirements of the species and habitats present. They define the desired conservation condition of certain species and habitat types for the site. Conservation objectives are defined using attributes and targets that are based on parameters as set out in the Habitats Directive for defining favourable status, namely area, range, structure and function. The conservation objectives may be either to maintain or restore the favourable conservation condition of a habitat/species.

Article 6(3) of Directive 92/43/EEC stipulates that certain projects and plans must be subjected to an "appropriate assessment" of their effects on the integrity of European site(s). Article 6(3) provides in full:

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

A screening for Appropriate Assessment report was completed for the proposed development - the Inis Cealtra Visitor Experience - to establish whether the project is likely to have a significant effect on any European site(s). The screening for Appropriate Assessment report determined that a full Appropriate Assessment of the proposed development is required, as it could not be excluded based on objective information that the proposed development, individually or in combination with other plans or projects, will not have a significant impact on any European sites, in view of the sites' conservation objectives.

It was concluded that the construction and/or operation of the proposed Inis Cealtra Visitor Experience is likely to have a significant effect, or the potential for significant effects cannot be ruled out (at the screening stage), in the absence of mitigation on the following European sites:

- Lough Derg (Shannon) SPA (004058); and,
- Lower River Shannon SAC (002165).

Refer to **Appendix 1** for the Screening for Appropriate Assessment report.

An Appropriate Assessment of the project is required; hence, this Natura Impact Statement (NIS) has been prepared to detail the scientific examination of evidence and data and to identify and classify any implications for European sites likely to have a significant effect in view of the conservation objectives of those sites. The aim of the assessment is to provide a sufficient level of information to the competent authority on which to base their appropriate assessment of the project. Additionally, mitigation measures to avoid or reduce ecological effects were considered. The project is fully described in **Section 4**, below, and includes details on all elements of the project, particularly in relation to the aspects that could interact with the surrounding environment.

This NIS identifies the aspects of the proposed development that will interact with the ecological requirements or sensitivities of the habitats and species listed in **Sections 7.2.2** and **7.3.2**, below, and determines whether these

[1] 'European sites' are defined in Section 177R of Part XAB of the Planning and Development Act 2000 and include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) at all stages of designation.

will result in adverse effects for the species and/or habitats for which the European sites listed above are designated. Mitigation measures to avoid or reduce ecological effects are provided in Section 8, below.

1.2 Statement of Competency

This Natura Impact Statement has been prepared by Úna Williams (MSc. BSc.), Ecologist and Environmental Scientist, and Orla van der Noll (MSc. BSc.), Ecologist, both of Malachy Walsh and Partners (MWP) Engineering and Environmental Consultants in County Kerry.

Úna has worked at MWP for more than five years and is an experienced field ecologist. She is familiar with various ecological survey methodologies including habitat/survey mapping and zoological surveys and has worked on research teams both in Ireland and abroad. She has undertaken assessments for a wide variety of projects including renewable energy developments, and infrastructural and coastal developments. Úna has designed and carried out several Avian Collision Risk Models for proposed wind farms and has authored many ecological reports including Screening for Appropriate Assessment (AA) Reports (Stage 1), Natura Impact Statements (NIS) (Stage 2), Ecological Impact Assessments (EcIA), and Environmental Impact Assessments (EIA). She graduated from Queen's University Belfast in 2018 with an MSc in Animal Behaviour and Welfare, and from Trinity College Dublin in 2008 with an Environmental Science degree.

Orla has worked at MWP since September 2022 and has been working within the Ecology sector since March 2021. She has completed numerous ecological reports including Screening for Appropriate Assessment Reports, Natura Impact Statements, and Ecological Impact Assessments for a range of projects across Ireland. In 2020, she qualified with a first-class honours Master's degree in Marine Biology from Bangor University in Wales, and graduated from University College Cork in 2018 with a Bachelors (Hons) degree in Ecology and Environmental Biology. Since January 2022, Orla has been a trainee bird ringer under the British Trust for Ornithology (BTO) ringing scheme in Ireland. She is registered with the Chartered Institute of Ecology and Environmental Management (CIEEM) as a Qualifying member.

1.3 Project Overview

The proposed project will consist of the installation and operation of new facilities on Inis Cealtra (Holy Island) on Lough Derg, and the construction and operation of a new Inis Cealtra Visitor Centre with support services and appropriate infrastructure at two locations on the mainland in Mountshannon Village on the western shores of the lake. Refer to Figure 1, below, for an overview of the various elements of the proposed development and their locations. Once completed, all elements of the proposed development will collectively form the Inis Cealtra Visitor Experience, delivering a high-quality visitor attraction for northeast County Clare.

Works on Inis Cealtra will include the demolition of one minor existing concrete structure and the installation of a new floating jetty, pedestrian paths, and three welfare facility 'pods'. On the mainland overlooking Mountshannon Harbour, a new semi-circular Visitor Centre with a total gross floor area of 1,594 m^2 (0.159 hectares) and maximum height of 7.8 metres will be constructed to include a café and a series of incorporated spaces to facilitate the Inis Cealtra Visitor Experience. Public realm works in front of the Visitor Centre and a reconfiguration of the existing Mountshannon Harbour car park are also proposed. At a second location on the mainland – the north side of Main Street – a new public car park providing 169 No. car parking spaces and coach/bicycle parking facilities will be constructed.

MWP was commissioned by McCutcheon Halley Chartered Planning Consultants on behalf of Clare County Council (CCC) to complete a Screening for Appropriate Assessment (AA) Report and Natura Impact Statement (NIS). An Environmental Impact Assessment Report (EIAR) has been prepared and is submitted with the planning application pack.

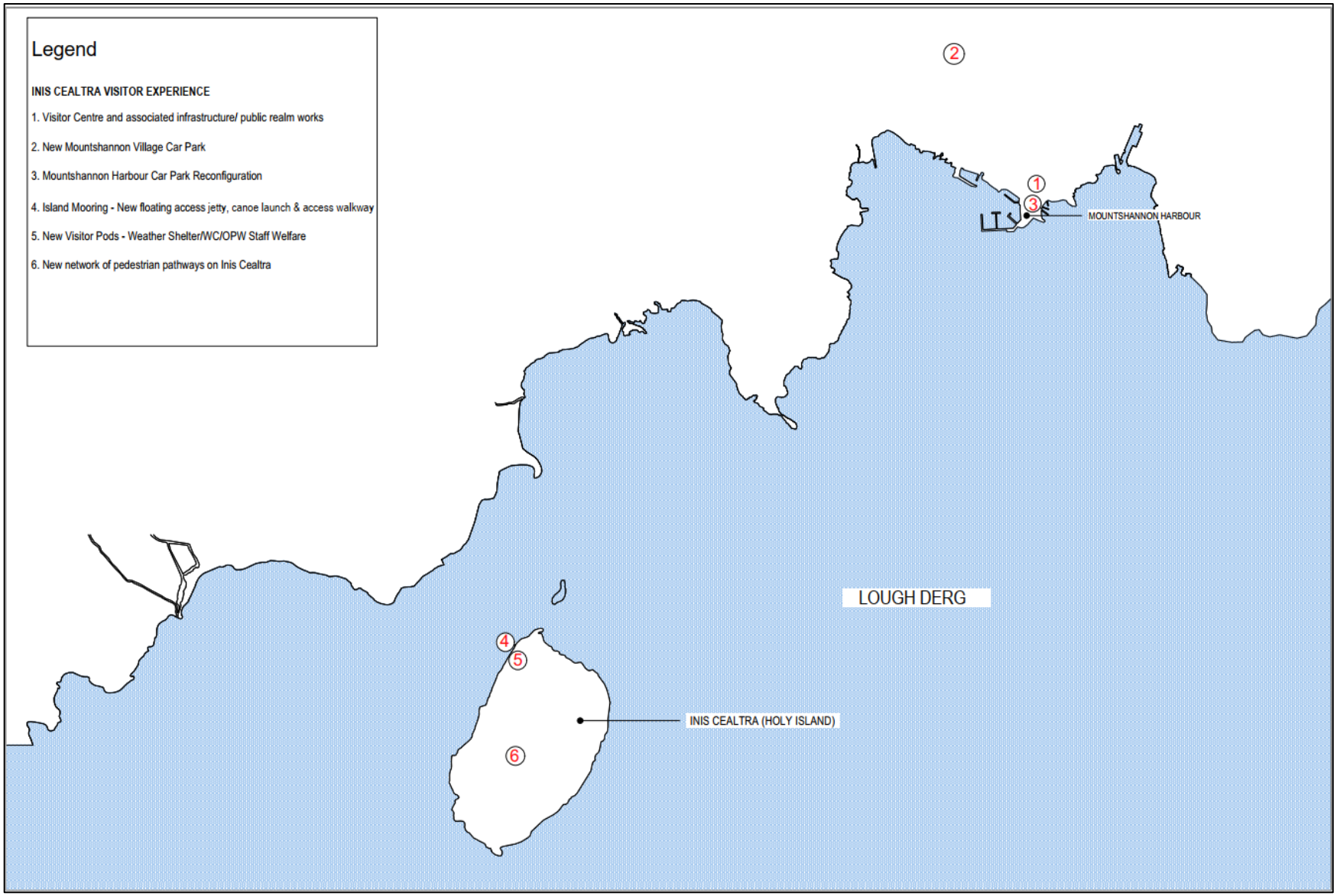

Figure 1: Location of the different elements of the proposed Inis Cealtra Visitor Experience [Adapted from McCullough Mulvin Architects drawings].

Within this report, the main elements of the proposed development are divided into Mainland and Island, as follows (see also **Figure 1**, above):

Mainland

- Visitor Centre and Public Realm Upgrades
- New Mountshannon Village Car Park at Main Street
- Reconfiguration of Existing Mountshannon Harbour Car Park

Inis Cealtra (Holy Island)

- Three New Welfare Pods
- New Floating Access Jetty, Canoe Launch Jetty and Access Walkway
- Series of Pedestrian Walkways

1.4 The 'Old Rectory Site'

The proposed Visitor Centre is to be located within Mountshannon Village in the southern part of the 'Old Rectory site', a site that measures approximately 1.35 hectares and encompasses the Old Rectory building and surrounding open space and landscaped gardens – refer to **Figure 2**, below.

A Record of Protected Structures in Volume 4 of the Clare County Development Plan 2017 – 2023[2] describes the Old Rectory[3] building as a 'detached four-bay two-storey red brick rectory built in approximately 1905' and is categorised as being of special interest for its 'Architectural, Detail/Design' value. The original use of the building was as rectory/glebe/vicarage/curator's house and until recently was used as a residential dwelling before becoming vacant and unoccupied.

The Old Rectory site has been the subject of previous successful planning applications to Clare County Council (CCC) with the most recent summarised in **Table 1**, below. Works to change the Old Rectory building into an Interpretive Centre have already commenced with the expectation that the building will become operational in 2025. While more than half the Old Rectory site is within the redline boundary for this proposed project (see **Figure 2**, below), the Old Rectory building itself is not and is not considered further within this NIS.

Table 1. Previous successful planning application involving works at the Old Rectory site.

CCC planning application no.	Development	Date granted
238001	Alterations, modifications and change of use of existing Old Rectory from Residential to Tourism Interpretive Centre and Café uses on a site measuring 1.35ha, consisting of: **i.** Demolition of existing outbuilding (157sq.m) to the north-east of the site; **ii.** Construction of 57 sq.m single-storey ground floor extension to the north-west of building (double height space) with a maximum height of 6.4m (and lift height 7.8m) above ground level and new internal stair access; **iii.** At ground floor level, exhibition and educational spaces, with supporting uses including reception area, welfare facilities and plant room; **iv.** At first floor, a café, ancillary retail/office spaces with welfare facilities and storage area; **v**. A new lift in footprint of existing building to provide universal access to 1st floor level; **vi.** At ground floor level, new opening in northern and western wall of existing building to provide access to proposed extension, new and enlarged opening to internal walls between existing kitchen and utility room, new openings between existing hallway and lounge, removal of wall between existing WC and office and between existing kitchen and hallway;	09/08/23

[2] Clare County Development Plan 2017 - 2023: Volume 4: Record of Protected Structures (clarecoco.ie) Accessed: 15th October 2024
[3] Record of Protected Structure (RPS) Number: 464, and National Inventory of Architectural Heritage (NIAH) Number: 20300502

CCC planning application no.	Development	Date granted
	vii. At first floor level, new openings and removal of internal partitions, an opening in the roof to provide access to lift and new opening in northern wall at first floor level to provide access to café; **viii.** Cleaning and repointing works to existing brickwork, repair and replacement of any damaged roof slates with natural slate, replacement of PVC windows with double-glazed timber sash windows and removal of modern internal additions (flooring and cornices); **ix**. Resurfacing of existing internal vehicular access road and construction of a new vehicle passing bay along the existing internal access road; **x.** Provision of 2 new dedicated pedestrian access points from Harbour Road including 1 at existing site entrance and 1 to the south-west of site, together with construction of a 1.8m wide pedestrian footpath to the west of existing internal vehicular access road and a new public footpath to the south of Old Rectory site with new pedestrian crossing connecting to existing path to the south of Harbour Road; **xi**. Provision of a new pedestrian connection to Aistear Park to the west of the site; **xii.** Regarding existing levels to the front (south side) of building to achieve universal access consistent with Part M of the Building Regulations; **xiii.** Provision of 12 carparking spaces (with 2 disabled access spaces and 2 EV charging points), to north and east of building and inclusion of 1 set down space to east; **xiv**. Provision of 20 secure bicycle parking spaces for visitors; **xv**. Construction of ancillary structure comprising 15sq.m single-storey maintenance shed (max. height - 3.246m) to north of site, a semi-covered seating area to the west of the Old Rectory Building, and a 6 sq.m ESB Unit Substation (2.2m in height) to the north-east of Old Rectory building; and, **xvi**. All ancillary site works including public lighting, landscaping, drainage, connections to public services and undergrounding of an existing ESB overhead line.	

Figure 2: The proposed development boundary in relation to the Old Rectory building and Old Rectory site boundary of previous planning application (CCC Planning Reference: 238001).

2. Methodology

2.1 Appropriate Assessment Guidance

This NIS has been prepared in accordance with the European Commission (EC) Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC, 2021), the European Commission Guidance '*Managing Natura 2000 sites*' (EC, 2019), the Office of the Planning Regulator (OPR) Practice Note '*Appropriate Assessment Screening for Development Management*' (OPR, 2021), and guidance prepared by the National Parks and Wildlife Service (NPWS) '*Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities'* (DoEHLG, 2010).

2.2 Consultation

Pre-application stage meetings were held with several different relevant bodies.

In June 2022, two meetings were held with Irish Water (now known as Uisce Éireann) to discuss water connection applications for the Old Rectory building and the proposed Visitor Centre and the requirement for increased future wastewater treatment. These meetings were initially carried out to inform the Planning Application detailed in Table 1, above, but are also relevant for this project.

Two meetings were held with the National Monuments Service (NMS), a subdivision of the Department of Housing, Local Government and Heritage, in relation to Inis Cealtra. In July 2023, the new mooring point was discussed, and a high-level overview of the proposed island works was provided. The proposed pedestrian pathways and pod locations were discussed in July 2024, as were future site investigations such as trial pits on the island and boreholes at the proposed mooring point.

Also consulted several times throughout 2023 and 2024 were representatives from Waterways Ireland (WWI) and the Office of Public Works (OPW). These meetings were in relation to numerous different aspects of the project including the locations, design and construction methodologies for the new mooring point and the pods, navigational route around the island and queries regarding potential ecological/archaeological design constraints.

2.3 Data Requests

The proposed development site at Inis Cealtra lies within Ordnance Survey National Grid hectad[4] R68 while the proposed mainland elements of the development at Mountshannon are located within hectad R78. Concise and site-specific information on species records available in these hectads was retrieved from the NBDC on-line database and reviewed.

A request was made to NPWS for records of rare or protected species from hectads R68 and R78 on 2nd March 2021, and the information was provided by NPWS on 10th March 2021. A follow up request was made for more recent data, if any, on 4th September 2024, and the information was provided by NPWS on 5th September 2024.

A request was made to BirdWatch Ireland on 16th October 2024 for Irish Wetland Bird Survey (I-WeBS) count data for relevant survey subsites within and around Lough Derg and the proposed development sites. All requested information was provided by BirdWatch Ireland on 21st October 2024.

Information received via the NPWS, NBDC, and BirdWatch Ireland was used to help inform the impact assessment in relation to the proposal.

[4] Unit of land area measuring 10 km x 10 km

2.4 Limitations/Difficulties Encountered

This Stage 2 Appropriate Assessment of the construction and operation of the proposed Inis Cealtra Visitor Experience is based on project details that were made available at the time of writing (up to and including the 20th of November 2024).

2.5 Desktop Study

To complete the NIS, certain information on the existing environment is required. A desktop study was carried out to collate information available on the proposed development site's natural environment. This comprised a review of relevant publications, data and datasets from the following sources:

- Ordnance Survey Ireland (OSI) aerial photography, 1:50,000 mapping, GeoHive and online satellite imagery sources;
- National Parks and Wildlife Service (NPWS);
- National Biodiversity Data Centre (NBDC) (online map-viewer);
- Central Statistics Office (CSO);
- BirdWatch Ireland and I-WeBS data;
- Geological Survey Ireland (GSI) area maps (including Teagasc soil maps);
- Environmental Protection Agency (EPA) waterbody and water quality data;
- Water Action Plan 2024: A River Basin Management Plan for Ireland[5];
- Inland Fisheries Ireland (IFI) online fish sampling reports and fish data;
- Review of requested records from NPWS Rare and Protected Species database;
- Clare County Development Plan (2023 – 2029)[6]; and
- Other sources and research listed in **Section 11**, below, and as footnotes throughout the report.

2.6 Study Area and Zone of Influence (ZOI) of the Proposed Project

The zone of influence (ZOI) for the proposed development is the geographical area over which construction and/or operation of the proposed development has the potential to affect the receiving environment in such a manner as to significantly affect the Qualifying interests (QI) of a European site. The area over which ecological features may be affected by biophysical changes because of the proposed project and associated activities is likely to extend beyond the project site where, for example, there are ecological or hydrological links beyond the site boundaries (CIEEM, 2018). Consequently, and to ensure completion of an integrated assessment, the study area for this project included the entire proposed development site (on the mainland at Mountshannon and on Inis Cealtra) and adjoining habitats (including Lough Derg).

For details on the Zone of Influence (ZOI) of the proposed development and the use of the Source-Pathway-Receptor (SPR) model in determining which European sites are further assessed, refer to **Section 7.1**, below.

2.7 Field Surveys

Field surveys carried out on-site in support of the development application include the following:

[5] gov.ie - River Basin Management Plan 2022 - 2027 (www.gov.ie) Accessed: 16th October 2024
[6] Clare County Development Plan 2023-2029 | Planning, heritage and conservation | Services | Clare County Council (clarecoco.ie) Accessed: 16th October 2024

- Habitat surveys and mapping;
- Non-volant mammal[7] surveys;
- Invasive alien plant species (IAPS) surveys;
- Freshwater aquatic ecology surveys;
- Breeding bird surveys; and
- Wintering bird surveys.

Ecological field surveys and aquatic ecology surveys were undertaken at the proposed development site on multiple dates between 2021 and 2024 to establish the site's ecological features and resources, particularly for any rare or protected species and habitats present within the study area. Multidisciplinary walkover surveys were carried out to identify any ecological features and resources that may potentially be impacted by the proposed development.

Survey methodologies and dates are summarised in the following sub-sections while results of surveys relevant to this document are summarised in Section 3, below.

2.7.1 Habitats and Flora

Delichon Ecology, Ecological and Environmental Consultancy in County Galway, completed a habitat survey of Inis Cealtra on 10th June 2021.

MWP ecologists completed habitat and flora surveys of the Old Rectory site and Mountshannon Harbour on 27th July 2021 and on 10th May 2022, and of the site of the new proposed car park at the northern side of the village on 30th May 2022.

All habitat surveys were carried out in accordance with guidelines contained in '*Best Practice Guidance for Habitat Survey and Mapping*' (Smith *et al.* 2011). Habitats were recorded and classified according to the classification scheme outlined in the Heritage Council's publication '*A Guide to Habitats in Ireland*' (Fossitt, 2000).

When completing the habitat survey on 10th June 2021 at Inis Cealtra, Delichon Ecology concurrently carried out a botanical survey using a 'look-see' search methodology (NRA, 2009) within habitat features considered likely to support protected plant species to ascertain the presence of any plant species considered to be rare in both a national and local context (Scannell & Synnott, 1987).

Plant nomenclature for vascular plants followed '*New Flora of the British Isles*' (Stace, 2019) and for mosses and liverworts followed '*Mosses and Liverworts of Britain and Ireland: a field guide*' (Atherton *et al.* 2010).

During habitat and flora surveys of the study area, any invasive alien plant species (IAPS) were recorded, with a focus on those species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015). Any infestations encountered were recorded with regard to species, location and extent of infestation, and a photographic record made.

2.7.2 Non-volant Mammals

Non-volant mammals and/or evidence of their activity such as prints, faecal pellets/droppings, burrow-holes/dens and food caches, activity trails and disturbed vegetation were looked for during walkover surveys. In general, '*Animal Tracks and Signs*' (Bang & Dahlstrom, 2004) and the Mammal Society publication '*How to Find and Identify Mammals*' (Muir *et al.* 2013) were followed. Evidence of otter was looked for at any watercourse/drain crossings encountered and '*Monitoring the Otter* Lutra lutra' (Chanin, 2003a) and '*Ecology of the European Otter*' by Chanin

[7] Non-volant mammals are land-based mammals incapable of flight i.e. all land-based mammals excluding bats.

(2003b) were consulted for guidance on identification of otter signs including spraints, footprints, tracks, couches, and holts.

Non-volant mammal surveys were carried out at the Visitor Centre site and Mountshannon Harbour on 10th February 2021 with a subsequent survey of these areas completed on 7th April 2023. The new car park site to the north of Mountshannon was surveyed for non-volant mammals on 30th May 2022.

On Inis Cealtra, non-volant mammal surveys were undertaken on 31st January, 28th February and 16th March 2021 with further general non-volant mammal surveys completed on the island in June and July 2021.

Wildlife cameras (Model: Browning Trail Camera – Dark Ops Unit) were deployed on Inis Cealtra at the locations summarised in **Table 2** and shown in **Figure 3**, below. The cameras were deployed under NPWS Licence (215/2022) on the 31st January 2022 and collected on the 28th February 2022 before the footage was reviewed.

Table 2. Irish Transverse Mercator (ITM) grid coordinates for each of the wildlife trail cameras deployed on Inis Cealtra in January 2022 (and as illustrated in Figure 3, below).

Camera Number	Location	ITM Grid Coordinates for Deployed Cameras	
		X	Y
1	Eastern shore of island, approximately 92 m east of St. Caiman's Church	569943	685086
2	Eastern shore of island, approximately 80 m east of St. Caiman's Church	569934	685087
3	Western shore of island, approximately 265 m northwest of St. Mary's Church	569522	684995

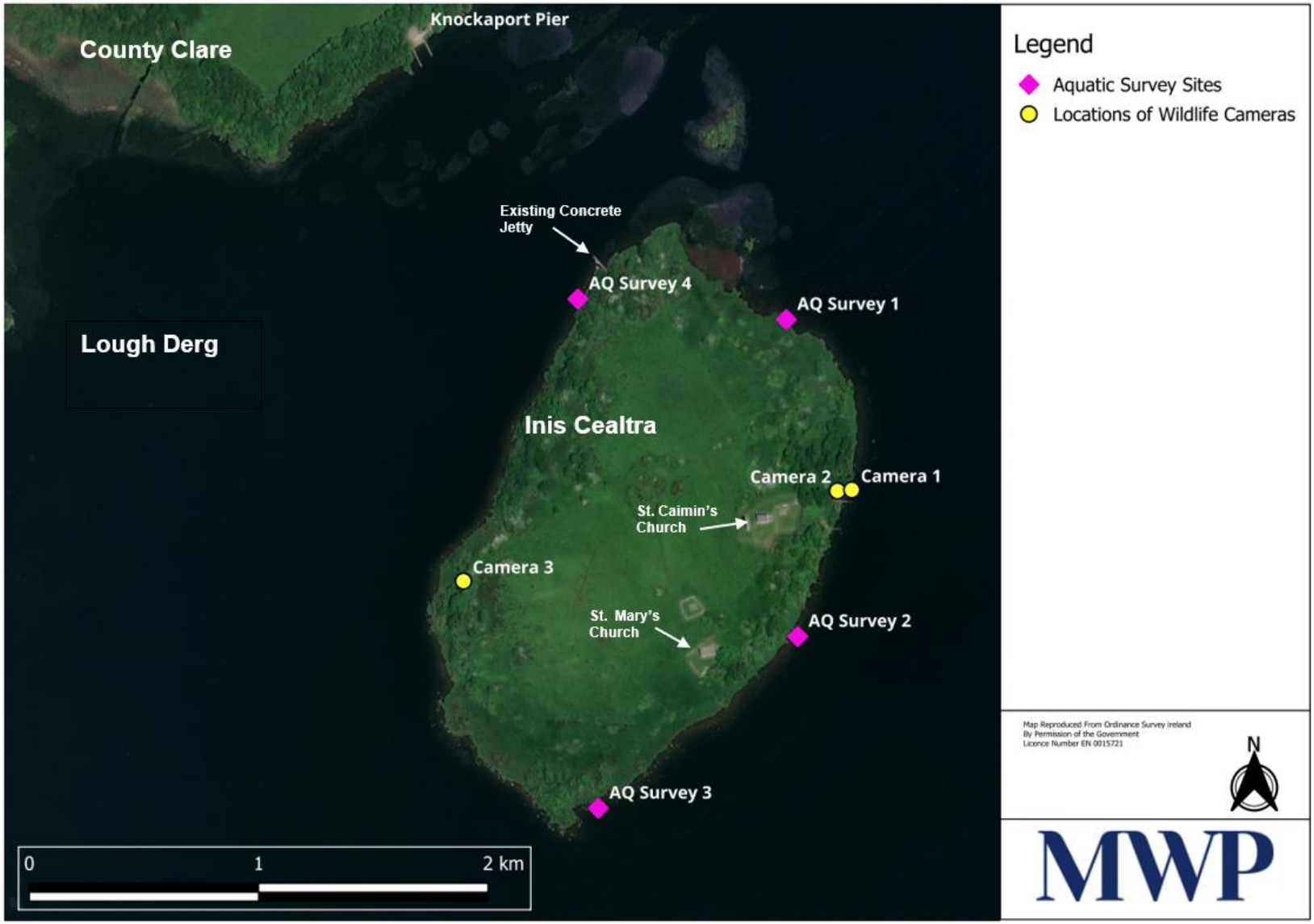

Figure 3: Locations on Inis Cealtra of deployed wildlife cameras, and the four sites where aquatic surveys were completed.

2.7.3 Freshwater Ecology

The freshwater ecology surveys involved aquatic assessments at four representative Aquatic Survey Sites on Inis Cealtra at locations detailed in **Figure 3**, above, and **Table 3**, below, in addition to a habitat assessment of the entire lake shore.

A general survey for macroinvertebrates was carried out at Aquatic Survey Site 1 while white-clawed crayfish (*Austropotamobius pallipes*) surveys were carried out at all four Aquatic Survey Sites.

Any fish captured during biological sampling and snorkelling were recorded, and any fish captured were identified with reference to the Freshwater Biological Association's publication '*Keys to the freshwater fish of Britain and Ireland, with notes on their distribution and ecology*' (Maitland, 2004) and other referenced sources.

2.7.3.1 Lakeshore Habitat Survey

The entire lakeshore around Inis Cealtra was surveyed on 5th May and 3rd June 2021. The lake habitats were categorised according to the classification scheme outlined in the Heritage Council's publication '*A Guide to Habitats in Ireland*' (Fossitt, 2000) after a qualitative assessment of substrate types with reference to particle size, topography, and plant species diversity and vegetation structure. Any submerged plants were photographed and identified using plant identification keys including '*Aquatic plants in Britain and Ireland*' (Preston & Croft, 1997) and '*New flora of the British Isles*' (Stace, 2019).

The presence of any invasive alien species (terrestrial and aquatic) was noted.

2.7.3.2 Macroinvertebrates – General

At Aquatic Survey Site 1 (see **Figure 3**, above, and **Table 3**, below), a survey for littoral macroinvertebrates was carried out to a depth of one metre with reference to particle size ranges in Fossitt (2000) and the Environmental Protection Agency (EPA) manual '*Ecological assessment of Irish lakes*' (Irvine *et al*., 2001).

Based on the methodology described in Murray-Bligh & Griffiths (2022), invertebrates were collected using a 'kick-sampling' method whereby the substratum was disturbed (kicked) and a hand net[8] was passed through the water above the disturbed area. All habitats at Aquatic Survey Site 1 were sampled within a 3-minute period. A one-minute sweep was undertaken before kick-sampling to collect surface-dwelling invertebrates while a one-minute manual search was undertaken after the kick-sampling to capture any invertebrates attached to submerged plant stems, stones, logs or other solid surfaces.

All macroinvertebrates collected from Aquatic Survey Site 1 were combined and sorted from debris on a white tray and identified to at least family level with the aid of a hand lens and keys.

2.7.3.3 Macroinvertebrates – White-clawed Crayfish (*Austropotamobius pallipes*)

White-clawed crayfish (*Austropotamobius pallipes*) surveying was carried out on 5th May 2021 within littoral habitats at the four Aquatic Survey Sites around Inis Cealtra as shown in **Figure 3**, above, and as summarised in **Table 3**, below. Prior to survey commencement, a survey licence for the species was obtained from NPWS under Licence Number C144/2021. Surveying for white-clawed crayfish was done in two ways – searching the lakebed by hand and setting refuge traps for the species.

Surveying by hand was carried out during bright weather and calm conditions on 5th May 2021 using methodology outlined in '*Monitoring the White-clawed Crayfish* Austropotamobius pallipes' (Peay, 2003) and '*A technical manual for monitoring of the White-clawed Crayfish* Austropotamobius pallipes *in Irish lakes*' (Reynolds *et al*.

[8] Measuring 350 mm in diameter with a mesh net of 500 µm (microns).

2010). Crayfish refuge traps were placed beside boulders or larger substrate aggregations on 5th May 2021 and were retrieved on 3rd June 2021 before being examined for the presence of invertebrates.

Table 3. Irish Transverse Mercator (ITM) grid coordinates for each of the four Aquatic Survey Sites illustrated in Figure 3, above.

Aquatic Survey Site	Location	ITM Grid Coordinates	
		X	Y
1	Northern shore at proposed new mooring point	569874	685275
2	Northeastern shore	569890	684930
3	Near southern end of island	569666	684747
4	Approximately 80 m south of pier on northwest shore	569647	685300

As an adjunct, European eel (*Anguilla anguilla*) are known to occur in Lough Derg and, like white-clawed crayfish, seek refuge under rocks during daylight hours, therefore, the hand surveys for crayfish were also considered targeted European eel surveys.

2.8 Ornithological Surveys

Ornithological distribution and abundance field surveys were undertaken on Inis Cealtra and at various sites on the mainland within County Clare on various dates between March 2021 and March 2024, inclusive.

The ornithological survey programme for the proposed project consisted of the following two types of surveys:

1) Transect walkover surveys, and
2) Shorecount surveys.

Prior to commencement of survey work, a list of bird species was drawn up that would become the focus of the surveys. This target species list included, but was not limited to, bird species that are afforded a higher level of legislative protection such as Red-listed Birds of Conservation Concern (BoCCI) 2020-2026[9], species listed on Annex I of the Birds Directive[10], and Special Conservation Interest (SCI) species of SPAs within the ZOI of the proposed development. Species relevant to this Appropriate Assessment fall into the latter category and are those for which the Lough Derg (Shannon) SPA is designated, namely the following species:

- Cormorant (*Phalacrocorax carbo*)
- Tufted Duck (*Aythya fuligula*)
- Goldeneye (*Bucephala clangula*)
- Common Tern (*Sterna hirundo*)

Survey results with respect to these four SCI bird species are summarised in **Section 3.11**, below, while further information on each species and on Lough Derg (Shannon) SPA is presented in **Section 7.2**, below.

Full details of the bird survey methodologies and survey results are outlined in **Chapter 10, Biodiversity**, in **Volume II** of the **EIAR** and in the **Bird Survey Report** in **Appendix 10.1** in **Volume III** of the EIAR.

[9] Factor determined by most recent listing of species on the BOCCI list (Gilbert *et al.*, 2021). All commonly occurring species are given a status of Red (high concern), Amber (medium concern) or Green (all other species), depending on a combination of threat categories.

[10] Annex I lists 194 species and sub-species of birds that are particularly threatened. EU Member States must designate Special Protection Areas (SPAs) for them and all migratory bird species.

2.8.1 Transect Walkover Surveys

A transect survey is a survey along a defined route within an area to ascertain and assesses the general distribution of birds throughout a site and to gather data on how birds use the site. On Inis Cealtra, a circular route around the island was chosen to ensure habitats covered were representative of the island overall and to ensure areas of suitable avian breeding and/or foraging habitat were included in the survey. Transect surveys were carried out on Inis Cealtra only and not on the mainland, with the transect route measuring approximately 1.6 kilometres in length - refer to **Figure 4**, below.

Transect surveys were completed on Inis Cealtra on 26 separate occasions between March 2021 and March 2024, inclusive, and were based on the methodology of Bibby, *et al* (2000). The transect route was slowly walked once on each survey date and all bird species seen or heard on the island or within 500 metres of the shore in the surrounding lake waters were recorded.

2.8.2 Waterfowl Counts from County Clare Mainland

Informal waterfowl counts at different suitable locations on the County Clare mainland were carried out intermittently from March 2021 to September 2022 during the first half of the survey period. From October 2022 onwards, dedicated waterfowl counts were incorporated into the bird survey programme.

Regular counts were carried out at Knockaphort Pier and at Mountshannon Harbour and were based on I-WeBS survey methodology guidelines[11]. The count location at Knockaphort Pier was chosen specifically to target Inis Cealtra and the surrounding lake area while at Mountshannon Harbour the survey location offered views of the jetties as well as Mountshannon Bay to the northwest (see **Plate 1**, below).

Plate 1. View southeastwards from Knockaphort Pier to Inis Cealtra (left), and view of Mountshannon Bay from the jetty at Mountshannon Harbour (right).

Counts were also carried out at two agricultural grassland locations – 'Field 1' and 'Field 2' - on the mainland that are known as traditional foraging sites for wintering swan and goose species. Field 1 is located within Meenross on the northern shore of Scarriff Bay adjacent to the Bow River, approximately 350 metres north of Lough Derg and 2.1 kilometres west of Inis Cealtra. Field 2 is situated on the opposite side of Scarriff Bay in Ballynagleragh between PicNic Carrowena and Aughinish Streams, approximately 860 metres south of Lough Derg and 2.7 kilometres south of Inis Cealtra. Refer to **Figure 4**, below.

[11] Irish Wetland Bird Survey Training Resources - BirdWatch Ireland Accessed: 30th September 2024

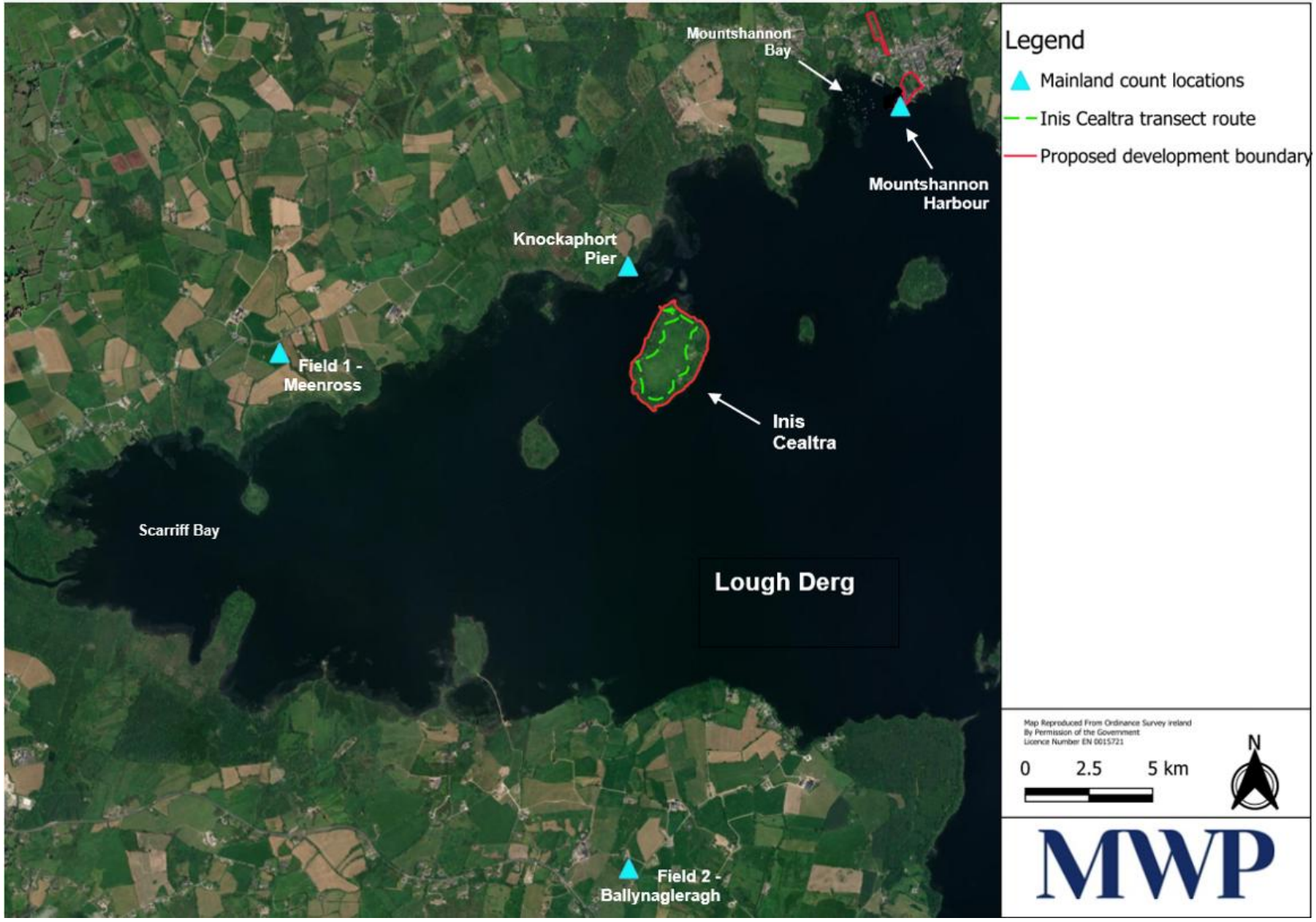

Figure 4: Locations of the four waterbird count sites on the County Clare mainland with map of walkover transect route on Inis Cealtra.

2.8.3 Survey Effort Summary

The following table provides a summary of the suite of ornithological surveys carried out during the survey period of March 2021 to March 2024, inclusive:

Table 4. Summary of what month each bird survey* was carried out within the survey period of March 2021 to March 2024, inclusive.

	Breeding (Summer)						Non-breeding (Winter)					
	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
2020/21	X	X	X	X	X	X	X	X	X	X	X	TR
2021/22	-	TR	TR	-	-	-	-	TR	TR	TR	-	TR
2022/23	-	TR	TR	TR	TR	TR	TR K&H F1&2	TR K&H F1&2	TR K&H F1&2	TR K&H F1&2	TR K&H F1&2	TR K&H F1&2
2023/24	-	TR K&H	TR K&H	TR K&H	TR K&H	TR K&H	-	-	-	TR K&H F1&2	TR K&H F1&2	TR K&H F1&2

***TR** - Transect Survey on Inis Cealtra
K&H –Knockaphort Pier and Mountshannon Harbour Counts
F1&2 – Field 1 and Field 2 Counts

2.9 Assessment of Potentially Significant Effects

Upon completion of the Screening for Appropriate Assessment report (see **Appendix 1**), it was concluded that the project could have significant effects, or significant effects could not be ruled out, for the following two European sites:

- Lough Derg (Shannon) SPA (004058); and,
- Lower River Shannon SAC (002165).

On this basis, it was necessary to proceed to Appropriate Assessment, and an NIS was required for the proposed development. Consequently, an evaluation was undertaken to determine which of the Special Conservation Interest (SCI) species of the SPA and the Qualifying Interests (QI) of the SAC potentially lie within the zone of influence of the proposed project and required further assessment in the NIS (see **Section 7,** below). This was done through a scientific examination of the ecological evidence and data from the resources listed above in **Section 2.5** or referenced within the text, together with the ecological field survey results (**Section 3**).

The conservation objectives of a European site are site specific, are based on the ecological requirements of the species and habitats present and define the desired conservation condition of these species and habitat types for the site. For defining favourable status, conservation objectives are identified using attributes and targets that are based on parameters as set out in the Habitats Directive, namely area, range, structure and function. The conservation objectives may either be to maintain or to restore the favourable conservation condition of a habitat.

The effects of the proposed wind farm project on the SCI species of the SPA and QI of the SAC that are potentially within the zone of influence were assessed against the measures designed to achieve the conservation objectives. This was done by way of a focussed and detailed examination, analysis, and evaluation of the implications of the proposed development, alone and in combination with other plans and projects, on the integrity of the relevant European sites in view of the sites' conservation objectives.

3. Description of the Existing Site

3.1 Site Location and Context

The proposed Inis Cealtra Visitor Experience development will be located partly in Mountshannon Village in the townland of Mountshannon in northeast County Clare and partly on Inis Cealtra, an island on the western side of Lough Derg, approximately 1.7 kilometres southwest of Mountshannon Harbour in the village. The proposed mainland development sites in Mountshannon Village encompass an area of approximately 2.185 hectares while on Inis Cealtra the works will occur within the footprint of the entire island that measures approximately 18.12 hectares.

Mountshannon Village is located at a slight elevation on the banks of Lough Derg, approximately 32.5 kilometres northeast of Limerick City centre, 17 kilometres northwest of Nenagh town centre and 7.3 kilometres northeast of Scarriff Village. The terrain slopes south and downwards to the lake from an elevation of approximately 70 metres above ordnance datum (AOD) at Derrycon to approximately 33 metres AOD at Mountshannon Harbour.

The R352 Regional Road runs through Mountshannon village from west to east linking Ennis to Portumna, while the L4034 Local Road connects the R352 to Mountshannon Harbour and Lough Derg. Inis Cealtra can be reached by boat from either Mountshannon Harbour or from Knockaphort Pier, the latter of which is located approximately 315 metres northwest of the island's existing jetty. Knockaphort Pier can be accessed from the R352 via the L8070. Refer to **Figure 5**, below.

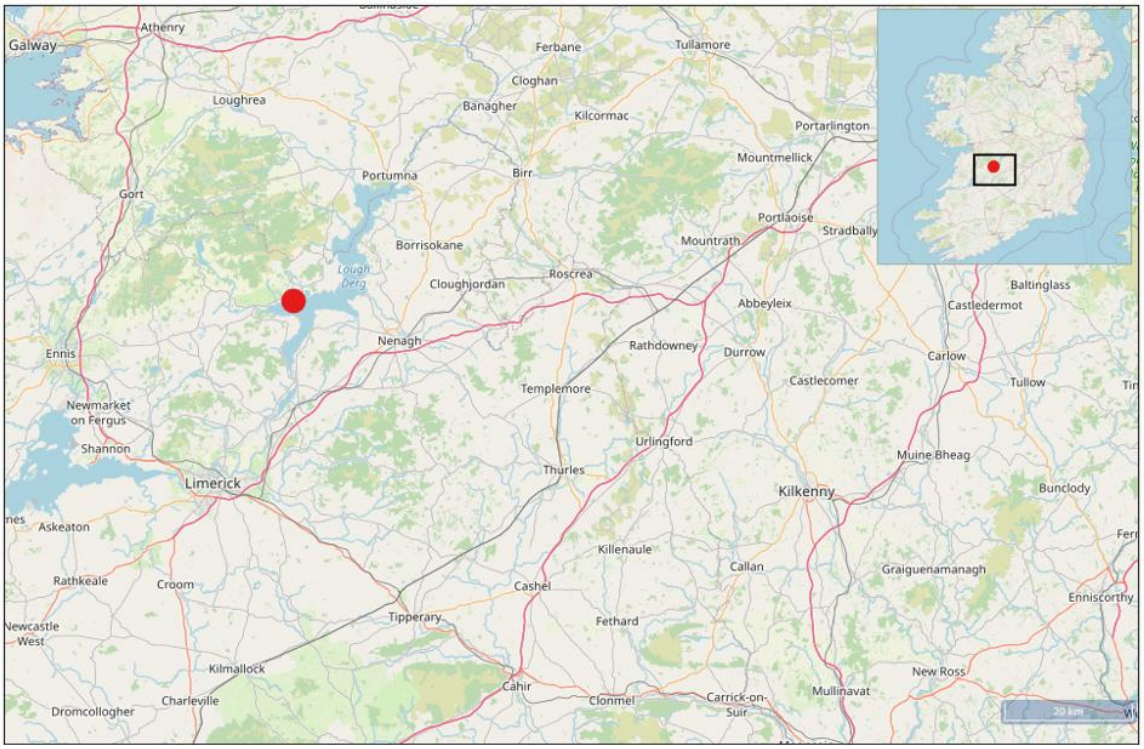

Figure 5. Approximate location of the proposed development site at Mountshannon and Inis Cealtra on Lough Derg in northeast County Clare.

3.2 Brief Project Description

Located in the southwest corner of Lough Derg in County Clare, Inis Cealtra (Holy Island) is an important historical and cultural site that, along with two principal areas on the mainland at Mountshannon village, is the proposed location for development of the Inis Cealtra Visitor Experience.

Works on the island will include installation of three welfare 'pods', new pedestrian paths, and a new floating access jetty at the northwest of the island to provide a safer mooring point for vessels and become the principal arrival point for visitors to the island.

On the mainland at Mountshannon Village, a part-one-storey, part-two-storey Visitor Centre is proposed to be constructed within the southern part of the Old Rectory site, fronting Harbour Road and facing Mountshannon Harbour and Lough Derg. Within the Visitor Centre, there will be a café and a series of spaces for interpretation, exhibition and education associated with the Inis Cealtra Visitor Experience.

The proposed development also includes a reconfiguration of the existing Mountshannon Harbour car park to increase the number of parking spaces and provide additional amenities such as a seating area. Finally, at a site on the north side of Main Street in Mountshannon Village, a new public car park will be installed with capacity for cars, coaches, and bicycles along with accessible car parking spaces, electric vehicle (EV) charging points and an overflow car parking area.

The characteristics of the project and the project design are described in detail in **Section 4.2** below, and in **Chapter 2**, **Development Description**, in **Volume II** of the **EIAR**.

3.3 Purpose of the Proposed Development

The purpose of the proposed development is to deliver an immersive visitor attraction, namely the Inis Cealtra Visitor Experience, that is fit for purpose within Mountshannon Village and on Inis Cealtra (Holy Island), thereby, expanding the attractiveness of the area as a significant cultural destination for visitors to East Clare and the wider Mid-Western region.

3.4 General Existing Site Description

Mountshannon Village is located within the Electoral Division (ED) of 'Mountshannon' (ED 37121) while Inis Cealtra is located within the ED 'Inishcaltra North' (ED 37068). During the 2022 census, 'Mountshannon' ED was found to have a total population of 463 residents, residing primarily within Mountshannon Village. The 'Inishcaltra North' ED was found to have a total of 374 persons resident and comprised mainly of one-off housing and ribbon development along the local road network[12].

The proposed Visitor Centre site (Old Rectory site) is bounded to the north by Mountshannon Court residential development and to the east by Árd na hAbhainn residential development. Adjacent to the site's western boundary is Aistear Park, a public park of approximately 1.8 hectares that contains a playground, outdoor exercise facilities, a maze, picnic areas, and during the summer months, a tourist information office. Approximately 25 metres to the south and southwest of the Old Rectory site is Mountshannon Harbour and jetty on the western shores of Lough Derg. This south-facing harbour is used predominantly for recreational and touristic purposes including for swimming, kayaking, sailing, and as the starting point for boat tours to Inis Cealtra and flights over the lake. Shannon International Airport, located approximately 60 kilometres southwest of Mountshannon, is easily accessible using the M18 Motorway and the R352.

The CORINE[13] (2018) land cover category for Mountshannon Harbour, the Old Rectory site and the southern half of the proposed new car park off Main Street is 'Discontinuous urban fabric' while Inis Cealtra and the western tip of Mountshannon jetty are classed as 'Water bodies'. The northern half of the proposed new car park and all lands immediately surrounding Mountshannon Village are categorised as 'Land principally occupied by agriculture with significant areas of natural vegetation'. Further north are areas of 'Coniferous forests', and 'Transitional

[12] Interactive Data Visualisations | CSO Ireland Accessed: 24th October 2024
[13] **C**o-**OR**dinated **IN**formation on the **E**nvironment – data series initiated in 1985 by the European Commission to gather environmental data.

woodland scrub' while to the west and east are 'Mixed forests', and within the wider surrounding area, 'Pastures' dominate[14]. Refer to **Figure 6**, below.

A review of bedrock mapping determined that the Ballysteen Formation consisting of a band of 'dark, muddy limestone, shale' running east to west is the geological unit underlying all areas of the proposed development site. To the north, there is a band of 'mudstone, siltstone, conglomerate' of the Ayle River Formation while to the south, there is a band of 'sandstone, mudstone & thin limestone' of the Lower Limestone Shale unit. In relation to soils at the proposed development site, there is 'Grey Brown Podzolics, Brown Earths' (Deep well-drained mineral, mainly basic) at Inis Cealtra; 'Acid Brown Earths, Brown Podzolics' (Deep well-drained mineral, mainly acidic) at Mountshannon Harbour; and, 'Surface water Gleys, Ground water Gleys' (Mineral poorly drained and mainly acidic) at the Old Rectory site and the proposed new car park site[15].

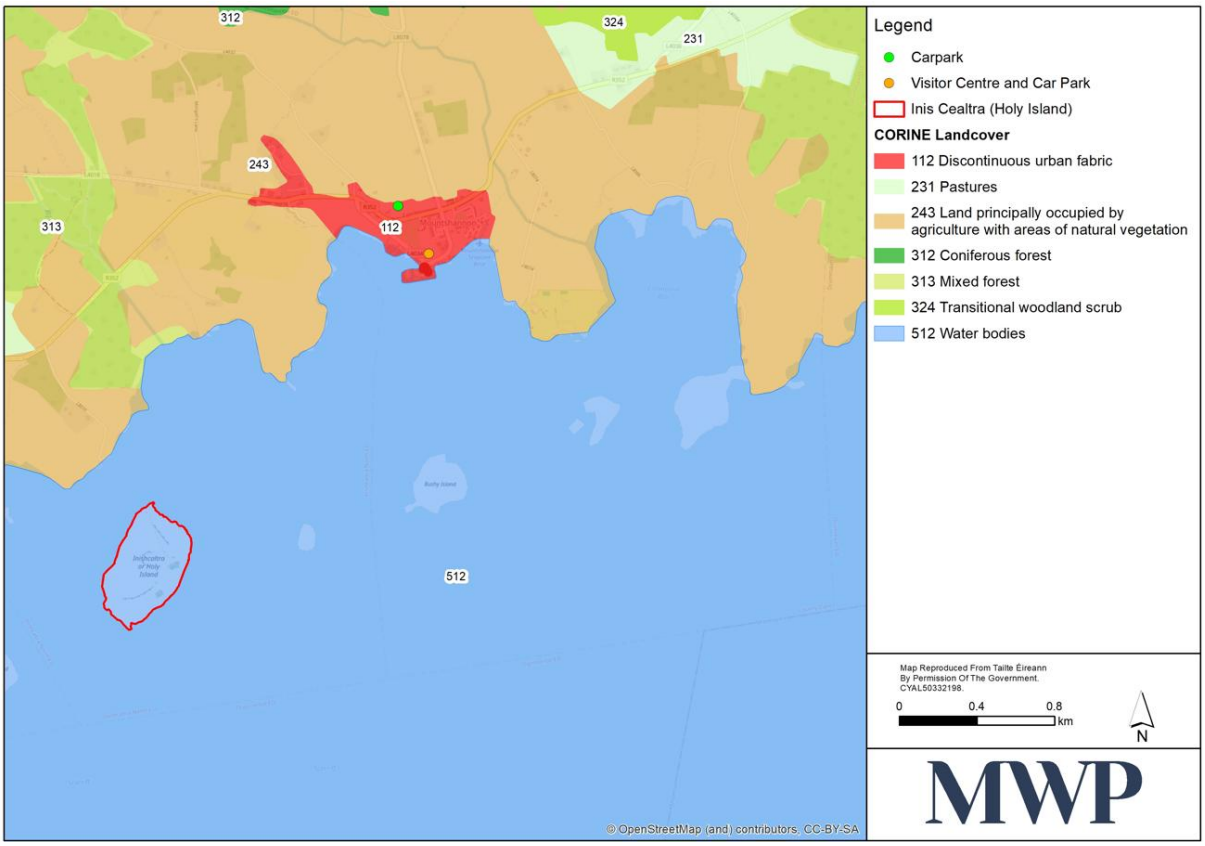

Figure 6: CORINE land cover categories of the proposed development site in County Clare.

3.5 Hydrology and Hydrogeology

All areas of the proposed development site are located within the Water Framework Directive (WFD) Shannon[Lower]_SC_070 sub-catchment which in turn is located within the Lower Shannon Catchment (25C). A review of the EPA map-viewer determined that there are no watercourses traversing any element of the proposed development apart from very a small area of the Lough Derg Lake Waterbody (EPA-registered name - 'Derg TN')[16] on which the jetty at Inis Cealtra is located – refer to **Figure 7**, below.

There are several small watercourses located near Mountshannon Village draining from north to south into Lough Derg, namely the Dooros 25 Stream, the Derrycon Lower River, the Kilrateera Upper River, and the Woodpark

[14] EPA Maps Accessed 25th October 2024
[15] Geological Survey Ireland Spatial Resources Accessed 25th October 2024
[16] Derg TN EPA Lake Waterbody Code: IE_SH_25_191a

Curratober Stream. The Dooros 25 Stream is located within the Shannon[Lower]_SC_070 sub-catchment while the latter three watercourses are all located within the Bow_SC_010 sub-catchment.

The small 1st Order Dooros 25 Stream is located approximately 340 metres west of the proposed new car park site off Main Street and measures only 0.9 river kilometres (rkm)[17] in total from its source to where it empties into Lough Derg. The 2nd Order Derrycon Lower River flows past Mountshannon Village and at its nearest point is located approximately 460 metres northeast of the Old Rectory site's southeasternmost corner before continuing for approximately 0.45 river kilometres and draining into Lough Derg. Finally, the 1st Order Woodpark Curratober Stream merges with the 2nd Order Kilrateera Upper River which drains into Lough Derg at a location approximately 665 metres north of Inis Cealtra. Refer to **Figure 7**, below.

The Dooros 25 Stream is part of the Shannon(Lower)_040 River Waterbody[18] while the Derrycon Lower and Kilrateera Upper Rivers, and the Woodpark Curratober Stream are all constituents of the Kilrateera_Upper_010 River Waterbody[19]. Outflow from Lough Derg is southwards via the River Shannon flowing through Killaloe town into the smaller, southern part of Lough Derg (EPA-registered name – 'Derg HWMB')[20] and eventually draining into the transitional waterbody Limerick Dock[21], almost 40 river kilometres downstream from Inis Cealtra.

Figure 7: Watercourses and lake nearest the proposed development site at Lough Derg in County Clare.

Compliance with the reporting requirements of the WFD (Directive 2000/60/EC) obliges each European Union (EU) member state to publish reports providing summary information about individual waterbodies relating to their status, risks and objectives. The WFD Status (2016–2021) of the Shannon(Lower)_040 River Waterbody is 'Good' while the Kilrateera_Upper_010 River Waterbody and the Derg TN Lake Waterbody both have a status of

[17] River kilometres (rkm): measure of the distance in kilometres along the path of a watercourse (as opposed to a linear measure such "as the crow flies").
[18] EPA River Waterbody Code: IE_SH_25A050100
[19] EPA River Waterbody Code: IE_SH_25K720870
[20] 'Derg HMWB' EPA Lake Waterbody Code: IE_SH_25_191b
[21] EPA Transitional Waterbody Code: IE_SH_060_0900

'Moderate'. The nearest two EPA water quality monitoring stations[22] to Inis Cealtra are both located on the 4th Order Bow River, that drains into Lough Derg between two and four kilometres west of Inis Cealtra. The latest river Q-values[23] at both these stations are 'Q4-5, High' and were recorded by the EPA in 2023. Closest to Mountshannon Village, there is an EPA water quality monitoring station[24] on the 3rd Order Derrainy 25 River, approximately 3.4 kilometres north of the proposed new Mountshannon car park at Main Street. The latest river Q value at this location is 'Q4, Good' recorded by the EPA in 1993.

Both the Shannon(Lower)_040 and the Kilrateera_Upper_010 River Waterbodies have been assigned a WFD risk status of 'Review'[25] while Lough Derg (Derg TN) is classed as being 'At risk'[26]. The WFD (2016 – 2021) Transitional Waterbody status of Limerick Dock into which the River Shannon drains is 'Poor'.

3.6 Habitats

Refer to **Appendix 2** of this document for a map of the existing habitat-types of Inis Cealtra, and to **Figure 8**, below, for the existing habitats found at the mainland components of the proposed development (Visitor Centre, Mountshannon Harbour, and new car park at Main Street).

3.6.1 Inis Cealtra

Improved and semi-improved grassland habitats within the central elevated areas of Inis Cealtra are influenced by grazing livestock while wetland habitats at the lower-lying island margins are subjected to the rising and receding waters of Lough Derg. There are also numerous ecclesiastical monuments on the eastern side of the island including a round tower and several churches and graveyards.

The following ten habitats[27] were identified as occurring on Inis Cealtra and are discussed in further detail in the subsequent sub-sections:

- Improved agricultural grassland (GA1)
- Dry meadows and grassy verges (GS2)
- Wet grassland (GS4)
- Scrub (WS1)
- Oak-ash-hazel woodland (WN2)
- Stone walls and other stoneworks (BL1)
- Amenity grassland (GA2)
- Marsh (GM1)
- Buildings and artificial surfaces (BL3)
- Calcareous spring (FP1)

[22] EPA Monitoring Station Codes: RS25B100200; RS25B100100
[23] Quality Rating (Q) System devised by Toner *et al.* (2005). This method categorises invertebrates into one of five groups (A-E), depending on their sensitivity to pollution. Q values range from Q1-Q5 with Q1 being the poorest quality and Q5 being pristine/unpolluted conditions. The system is used by the EPA and is the standard biological assessment technique used when surveying rivers in Ireland under the WFD.
[24] EPA Monitoring Station Code: RS25D100100
[25] *Review* – either additional information is needed to ascertain the waterbody's status, or measures have been undertaken but the results have not yet been monitored (EPA Maps Accessed: 15th October 2024).
[26] *At risk* - either the waterbody is currently not achieving its WFD environmental objective of Good or High Ecological Status, or there is an upward trend in nutrients/ammonia, and should this trend continue, the waterbody Status will decline and fail to meet WFD objectives by 2027. EPA Maps Accessed: 11th November 2024.
[27] Habitats as categorised by Fossitt (2000), available at A Guide to Habitats in Ireland - Fossitt.pdf (npws.ie) Accessed: 19th October 2024

3.6.1.1 Improved Agricultural Grassland (GA1)

Mainly confined to central regions and higher sections of the island, the dominant habitat at Inis Cealtra is **Improved agricultural grassland (GA1)** (refer to **Plate 2**, below) maintained through livestock grazing and with no evidence of ongoing improvement measures such as fertilisation and/or reseeding. Consequently, the sward supports a moderate diversity of plant species including sweet vernal grass (*Anthoxanthum odoratum*), red fescue (*Festuca rubra*), perennial rye grass (*Lolium perenne*), common sorrel (*Rumex acetosa*), creeping thistle (*Cirsium arvense*), common mouse-ear (*Cerastium fontanum*), creeping bent (*Agrostis stolonifera*), germander speedwell (*Veronica chamaedrys*) and localised occurrences of common rush (*Juncus effusus*).

3.6.1.2 Dry Meadows and Grassy Verges (GS2)

Due to an absence of any recent mowing and/or grazing, there is a small pocket of **Dry meadows and grassy verges (GS2)** occurring in mosaic with agricultural grassland at the northeastern corner of the island. Plant species composition includes rank and overgrown red fescue and cock's-foot (*Dactylis glomerata*), and meadow foxtail (*Alopecurus pratensis*).

3.6.1.3 Wet Grassland (GS4)

Wet grassland (GS4) occurs locally on the island with the largest tract of the habitat located at the southern end. In areas to the north of the island, wet grassland forms narrow transitionary strips between the island's marshy margins and the higher, less wet areas of improved grassland near the centre of the island (refer to **Plate 2**, below). Plant species composition within the wet grassland habitats include compact rush (*Juncus conglomeratus*), common rush, yellow iris (*Iris pseudacorus*), brown sedge (*Carex disticha*), sweet vernal grass, marsh pennywort (*Hydrocotyle vulgaris*), common spotted orchid (*Dactylorhiza fuchsii*), water mint (*Mentha aquatica*), water parsnip (*Berula erecta*), hard rush (*Juncus inflexus*), carnation sedge (*Carex panicea*), common spike rush (*Eleocharis palustris*), marsh thistle (*Cirsium palustre*), greater bird's foot trefoil (*Lotus pedunculatus*), hairy sedge (*Carex hirta*), cuckooflower (*Cardamine pratensis*) and tall fescue (*Schedonorus arundinaceus*).

Where yellow iris cover is reduced, the wet grassland habitat supported localised abundances of sharp flowered rush (*Juncus articulatus*) with occasional to locally frequent meadowsweet (*Filipendula ulmaria*), brown sedge, marsh bedstraw (*Galium palustre*), crested dog's tail (*Cynosurus cristatus*) and lesser stitchwort (*Stellaria graminea*).

Another strip of yellow iris abundant wet grassland habitat occurs near the northern boundary of the site on sloping ground.

Plate 2. Northern shore of island with 'Wet grassland (GS4)' in the foreground and 'Marsh (GM1)' in the background (left), and to the west of the island, 'Improved agricultural grassland (GA1)' in the foreground with 'Scrub (WS1)' and 'Oak-ash-hazel woodland (WN2)' behind (right).

3.6.1.4 Scrub (WS1)

Pockets of **Scrub (WS1)** are found throughout the island but predominantly occur where woodland habitats on the fringes of the island meet the higher drier areas of improved grassland near the centre of the island. Scrub plant species composition includes extensive and spreading bramble (*Rubus fruticosus* agg.) and nettle (*Urtica dioica*) with cleavers (*Galium aparine*). These areas of scrub also support localised occurrences of elder (*Sambucus nigra*) and blackthorn (*Prunus spinosa*) - refer to **Plate 2**, above.

3.6.1.5 Oak-ash-hazel Woodland (WN2)

Apart from northern and southeastern sections, most areas along the island's margins support young **Oak-ash-hazel woodland (WN2)** with the majority of these woodland habitats recently established and comprising tall, thin ash (*Fraxinus excelsior*) trees.

The woodland to the northeast of the island is relatively undeveloped with a canopy that is open and poorly defined and characteristic of scrub transitioning to young woodland. The structure comprises ash and locally frequent sycamore (*Acer pseudoplatanus*) trees overtopping elder, hawthorn (*Crataegus monogyna*), bramble and nettle. The ground layer is mostly dry and supports an extensive spread of nettle and bramble in addition to localised occurrences of cowslip (*Primula veris*), bush vetch (*Vicia sepium*), wood dock (*Rumex sanguineus*), cleavers, ground ivy (*Glechoma hederacea*), herb Robert (*Geranium robertianum*), broad buckler fern (*Dryopteris dilatata*) and hart's tongue fern (*Asplenium scolopendrium*). The shoreline fringe of this woodland habitat supports a strip of yellow iris and occasional hemlock water-dropwort growing on shoreline rocks.

Another area of emerging and establishing oak-ash-hazel woodland occurs near the island's southern margins. The woodland canopy is again poorly formed and supports young ash trees overtopping extensive bramble with frequent and dense blackthorn, hawthorn, elder and buckthorn (*Rhamnus cathartica*) within the shrub layer.

The western and southwestern margins of the island support the largest areas of oak-ash-hazel woodland – see **Plate 3**, below. This woodland is larger and is structurally better established, as evidenced by the almost continuous canopy cover of young, semi-mature ash trees and the early stages of woodland ground layer development. The woodland vegetation composition is similar to those previously described, comprising maturing ash overtopping sycamore, grey willow (*Salix cinerea* subsp. *oelifolia*) and goat willow (*Salix caprea*) trees. Alder occurs occasionally near the lakeshore margins with locally frequent buckthorn.

The understorey shrub layer is open and is somewhat disturbed by cattle grazing and poaching. The shrub layer supports occasional hawthorn and elder, in addition to localised spreading of nettle and bramble in the understorey, particularly near the drier margins along the eastern boundary. Much of the ground layer is poorly developed, but localised occurrence of woodland ground layer species occur and include wood avens (*Geum urbanum*), lords and ladies (*Arum maculatum*), wood dock (*Rumex sanguineus*), butterbur (*Petasites hybridus*), nettle, ground ivy, herb Robert (*Geranium robertianum*), rough meadow grass (*Poa trivialis*), germander speedwell, sanicle (*Sanicula europaeus*), wood sedge (*Carex sylvatica*), bluebell (*Hyacinthoides non-scripta*), bush vetch, cleavers (*Galium aparine*), creeping buttercup (*Ranunculus repens*), common chickweed (*Stellaria media*), broad buckler fern and wood speedwell (*Veronica montana*). Sycamore regeneration was noted in the woodland ground layer.

Plate 3. 'Oak-ash-hazel woodland (WN2)' at southwestern fringes of the island (left), and some of the island's religious stone constructions categorised as 'Stone walls and other stonework (BL1)' surrounded by 'Amenity grassland (GA2)' (right).

3.6.1.6 Stone Walls and Other Stonework (BL1)

The ecclesiastical buildings and stone walls on the island are categorised as **Stone walls and other stonework (BL1)** – see **Plate 3**, above. Plant species cover is sparse and restricted to epiphytes and bryophytes including rustyback (*Ceterach officinarum*), wall rue (*Asplenium ruta-muraria*), hart's tongue (*Asplenium scolopendrium*), red fescue, dandelion (*Taraxacum* agg.), herb Robert (*Geranium robertianum*) and bryophyte species including *Brachythecium rutabulum*, *Thamnobryum alopecurus* and *Tortula muralis*.

3.6.1.7 Amenity Grassland (GA2)

The areas surrounding the ecclesiastical buildings are maintained as **Amenity grassland (GA2) –** see **Plate 3,** above. These areas support a shortened sward, maintained by frequent cutting and/or strimming. Plant species composition includes perennial rye grass, red fescue, sweet vernal grass, white clover (*Trifolium repens*), selfheal (*Prunella vulgaris*) and the mosses *Rhytidiadelphus squarrosus* and *Calliergonella cuspidata*.

3.6.1.8 Marsh (GM1)

Providing the interface between terrestrial and aquatic habitats, **Marsh (GM1)** occurs in extensive but narrow sections along the southeastern, western and northern fringes on shoreline rocks and on loosely stabilised, open substrate further inland - refer to **Plate 2**, above, and **Plate 4** and **Plate 6**, below.

Localised abundances of yellow iris characterise the areas of marsh along the northern and eastern fringes of the island. Where yellow iris cover is reduced, the following broadleaved herbs and graminoids occur; hemlock water dropwort (*Oenanthe crocata*), creeping buttercup, greater bird's foot trefoil (*Lotus pedunculatus*), water mint (*Mentha aquatica*), gypsywort (*Lycopus europaeus*), brown sedge, lesser water parsnip (*Berula erecta*), meadowsweet, water horsetail (*Equisetum fluviatile*), curled dock (*Rumex crispus*), sneezewort (*Achillea ptarmica*), water forget-me-not (*Myosotis scorpioides*), tall fescue, tufted vetch (*Vicia cracca*), silverweed (*Potentilla anserina*), hard rush, brooklime (*Veronica beccabunga*), common fleabane (*Pulicaria dysenterica*), locally frequent common sedge (*Carex nigra*), marsh pennywort, ragged robin (*Silene flos-cuculi*), carnation sedge, marsh marigold (*Caltha palustris*), lesser spearwort (*Ranunculus flammula*), angelica (*Angelica sylvestris*), yellow pimpernel (*Lysimachia nemorum*), and occasional bogbean (*Menyanthes trifoliata*).

Bryophyte species within this habitat included *Pseudoscleropodium purum*, *Calliergonella cuspidata*, *Cratoneuron filicinum*, *Brachythecium rutabulum* and *Climacium dendroides*. Species composition changes slightly where this habitat is in transition to drier grassland habitat at higher elevations (as seen in the marsh near the southern boundary of the site), with noted reductions in broadleaved herb cover and the occurrence of hard rush, red

fescue, bird's foot trefoil (*Lotus corniculatus*), occasional quaking grass (*Briza media*), locally frequent carnation sedge as well as common spotted orchid, meadowsweet, water mint and greater bird's foot trefoil.

Openings of marsh habitats occur near the southwestern and western fringes. These areas are again characterised by yellow iris, with meadowsweet, hemlock water dropwort, angelica, greater tussock sedge (*Carex paniculata*), tall fescue, bogbean, water horsetail, water mint, yellow pimpernel and lesser water parsnip. A locally flushed area near the southwestern corner of the island supports a noted reduction in large herb cover and the occurrence of occasional black bog rush (*Schoenus nigricans*) in addition to water cress (*Nasturtium officinale* agg.), meadowsweet, marsh pennywort, carnation sedge, common valerian (*Valeriana officinalis*), water mint, marsh speedwell (*Veronica scutellata*) and marsh thistle. Locally elevated areas of outcropping rock support quaking grass, hairy sedge (*Carex hirta*), ladies bedstraw (*Galium verum*), red fescue, crested dog's tail, square stalked St John's wort (*Hypericum perforatum*), yellow rattle (*Rhinanthus minor*) and bugle (*Ajuga reptans*).

Marsh habitat occurring on the island corresponds to the EU Annex I habitat 'Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430)' under the Habitats Directive (92/43/EEC). This classification ensures that marsh habitats are recognised as habitats of European conservation importance. Specific marsh habitats in Ireland, particularly those in or near SACs, are managed and protected to maintain their ecological integrity, prevent degradation, and support species reliant on these environments.

Plate 4. Strip of 'Marsh (GM1)' on the northern fringe of the island characterised by abundant yellow iris (*Iris pseudacorus*) (left), and area of 'Marsh (GM1)' at southeastern edge of island (right).

3.6.1.9 Buildings and Artificial Surfaces (BL3)

Categorised as **Buildings and artificial surfaces (BL3)**, the existing island jetty is a concrete structure subject to wave action of the lake water and is located at the northwestern corner of Inis Cealtra. The stone structure of St. Mary's Well is also classified as an artificial surface.

Two existing structures on the island also fall under this category of habitat – the small concrete structure to be demolished near the existing jetty at the northwest of the island (see **Plate 14**, below), and the OPW staff hut located northeast of the Round Tower on the eastern side of the island.

3.6.1.10 Calcareous Spring (FP1)

Due to the island's small land mass and the free-draining nature of its ground surface, there are no significant surface water features on Inis Cealtra. St Mary's Well is an artificial feature inset into the ground approximately 35 metres southeast of St. Mary's Church (refer to **Figure 3**, above) on the eastern side of the island. The well is the only permanent surface water feature on the island and is associated with a **Calcareous spring (FP1)** that rises at the well. The spring water seeps eastwards down a slight slope to the lakeshore with other seepage zones occurring a short distance to the southeast of the well. See **Plate 5**, below.

The vegetation occurring at the well and spring is dominated by *Apium nodiflorum,* duckweed *Lemna* sp. *and Nasturtium officinale.* Other species at the spring include *Lysimachia vulgaris, Berula erecta, Succisa pratensis, Cardamine pratensis, Myosotis secunda, Myosotis laxa, Epilobium palustre, Plagiomnium elatum, Plagiomnium undulatum, Calliergonella cuspidate* and *Dichodontium pelluedium.*

Plate 5. St. Mary's Well and associated 'Calcareous spring (FP1)' choked with duckweed (*Lemna* sp.) surrounded by 'Stone walls and other stonework (BL1)' (left), and an eastward view from the well with water seepage visible in the middle ground (right).

3.6.2 Lough Derg

As mentioned in Section 3.6.1.10, above, there are no significant surface water features on Inis Cealtra. During periods of heavy rainfall, and for a relatively short amount of time afterward the rain event, some low-gradient parts of the island can become saturated leading to some small areas of surface water. However, these features are ephemeral and considered seasonal.

The following two habitats were identified as occurring on within Lough Derg surrounding the Inis Cealtra and are discussed in further detail in the subsequent sub-sections:

- Reed and large sedge swamps (FS1)
- Limestone-marl lakes (FL3)

3.6.2.1 Reed and Large Sedge Swamps (FS1)

Areas of **Reed and large sedge swamps (FS1)** occur within Lough Derg at the island's northern end between Inis Cealtra and the small island of Illaunaskirtaun. Larger areas of the habitat also occur between Inis Cealtra and Knockaphort on the mainland. The habitat is dominated by common club-rush (*Schoenoplectus lacustris*) but other emergent plant species such as water horsetail (*Equisetum fluviatile*) and common reed (*Phragmites australis*) may also be present in places. Yellow iris *(Iris pseudacorus)* occurs in varying degrees of abundance in shallower areas nearer the shoreline. Refer to Plate 6, below.

3.6.2.2 Limestone-marl Lakes (FL3)

Surrounding Inis Cealtra, Lough Derg is classified as **Limestone-marl lakes (FL3),** typical of a limestone area and containing sediment rich in marl, a white clay-like precipitate of calcium carbonate. Aquatic surveys carried out by MWP (described in Section 2.7.3, above) found the substrate within the waters surrounding Inis Cealtra to be large which is likely due to the island's aspect relative to the prevailing southwesterly winds and associated episodic high-energy environment during unsettled periods of weather. The effects of the resulting bathymetric characteristics have ensured that the northern shore of the island is more sheltered and shallower than other shores and that the adjacent lake habitat has a greater proportion of finer sediments and emergent macrophytes (see Plate 6, below).

Additionally, some random massive boulders strewn around the northern shoreline provides a limited amount of shelter from wave action for the shoreside plant communities (see **Plate 6**, below) which includes the species yellow iris, marsh horsetail (*Equisetum palustre*), meadowsweet (*Filipendula ulmaria*), marsh marigold *(Caltha palustris)* and hemlock water-dropwort *(Oenanthe crocata)*. The terrestrial plant community and the aerial portion of emergent aquatic plant species are important resting and breeding sites for the terrestrial life stages of aquatic insects.

Plate 6. Random boulders strewn around island's northern shore providing shelter for plant communities and 'Reed and large sedge swamp (FS1)' (left), and soft substrate of 'Limestone-marl lake (FL3)' with a stand of common club-rush (*Schoenoplectus lacustris*) also visible (right).

3.6.3 Visitor Centre

The dominant habitat at the site of the proposed Visitor Centre in Mountshannon Village is a maintained lawn categorised as **Amenity grassland (GA2)** running either side of a crushed limestone driveway running from Harbour Road to the Old Rectory building (refer to **Section 1.4** and **Figure 2**, above). Plant assemblage of this grassland comprises mainly rye-grasses (*Lolium* spp.). The driveway has a very low degree of vegetative cover as does the area immediately surrounding the Old Rectory building and is, therefore, classified as **Spoil and bare ground (ED2)**. Although not part of the proposed development, the Old Rectory building itself is classed as **Buildings and artificial surfaces (BL3)**. See **Plate 7**, below.

Plate 7. Driveway of 'Spoil and bare ground (ED2)' from Harbour Road through site (left), and Old Rectory building categorised as 'Buildings and artificial surfaces (BL3)' with 'Amenity grassland (GA2)' to the south, 'Mixed broadleaved/conifer woodland (WD2)' to the west and 'Treelines (WL2)' to the east (right).

Stone walls and other stonework (BL1) form the southern and western boundaries of the site occurring in mosaic with **Hedgerows (WL1)** of beech (*Fagus sylvatica*) trees along the southern side. A narrow strip of **Dry meadows and grassy verges (GS2)** occurs within the southeastern corner in an area not subject to regular maintenance. **Mixed broadleaved/conifer woodland (WD2)** occurs along the southwestern boundary walls and features a mix of species including fir (*Abies* spp.), beech, ash (*Fraxinus excelsior*), holly (*Ilex aquifolium*) and sycamore (*Acer pseudoplanatus*) with an understorey flora consisting mainly of ivy (*Hedera helix*) and lesser celandine (*Ficaria*

verna). There is an approximately 15 metre stretch of **Treelines (WL2)** within a northeastern area of the site comprised of non-native species of low ecological value. See **Plate 7**, above. See Habitat Map in **Figure 8**, below.

3.6.4 Mountshannon Harbour and Existing Car Park

The entire harbour area and existing car park are categorised as **Buildings and artificial surfaces (BL3)** comprised of asphalt, kerbing and other synthetic materials - see **Plate 8**, below. Features such as receptacles for glass recycling are also located within the area. The harbour area is bordered to the south by Lough Derg and to the north by the Old Rectory site. See Habitat Map for the site in **Figure 8**, below.

Plate 8. 'Buildings and artificial surfaces (BL3)' at Mountshannon Harbour - Westward view from jetty (left), and north-facing view of existing Harbour car park (right).

3.6.5 New Mountshannon Car Park at Main Street

The site of the proposed new car park at Main Street on the northern side of Mountshannon Village is made up predominantly of maintained **Improved agricultural grassland (GA1)** that has a low species diversity. The grassland habitat is bordered on the north, east and west by **Treelines (WL2)** mostly comprising sycamore and ash, some being mature. Refer to **Plate 9**, below.

There is a maintained **Hedgerow (WL1)** running generally in a north-south direction through the centre of the site featuring whitethorn (*Cratageus monogyna*), willow (*Salix* spp.) and elder (*Sambucus nigra*) with frequent bramble (*Rubus fruticosa* agg.) and occasional honeysuckle (*Lonicera periclymenum*). A short section of **Stone walls and other stonework (BL1)** separates the southern tip of the site from Main Street. Refer to **Plate 9**, below.

See Habitat Map for the site in **Figure 8**, below.

Plate 9. View southeastwards to Main Street from the proposed new car park site consisting of 'Improved agricultural grassland (GA1)', 'Hedgerows (WL1)' and 'Treelines (WL2)' (left), and 'Stone walls and other stonework (BL1)' separating the new car park site from Main Street (right).

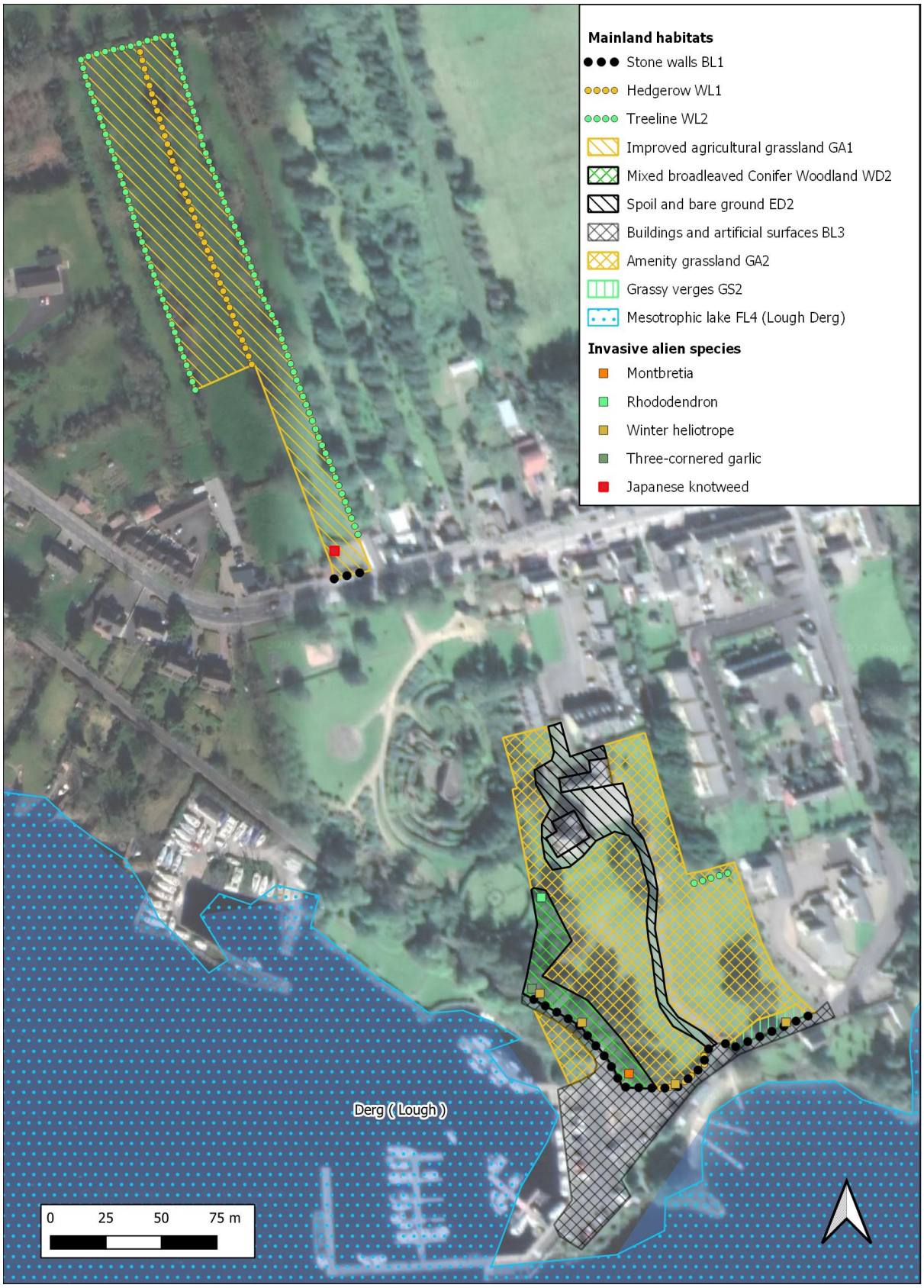

Figure 8: Habitat map for the mainland components of the proposed development and locations of invasive alien plant species recorded during ecological surveys at the sites.

3.7 Rare and Protected Flora

No rare or protected flora species were recorded during any of the ecological surveys.

3.8 Invasive Alien Plant Species (IAPS)

3.8.1 Visitor Centre Site

Several invasive alien plant species (IAPS) were recorded at the proposed Visitor Centre site, namely montbretia (*Crocosmia x crocosmiiflora*), three-cornered leek (*Allium triquetrum*), winter heliotrope (*Petasites fragrans*), rhododendron (*Rhododendron ponticum*) and snowberry (*Symphoricarpos albus*). Refer to **Figure 8**, above.

Three-cornered leek cover at the Visitor Centre site was extensive within the mixed broadleaved/conifer woodland floor along the site's western boundary. A stand of rhododendron measuring approximately 0.5 metres wide was recorded within the northwestern corner of the proposed Visitor Centre site. See **Plate 10**, below. Both three-cornered leek and rhododendron are listed on the Third Schedule of the European Communities (Birds and Habitats Regulations 2011 (S.I. 477/2011) and there are restrictions set out regarding their introduction and/or dispersal.

With regards the other three IAPS at the Visitor Centre site, montbretia and winter heliotrope were recorded occasionally at various locations within the mixed broadleaved/conifer woodland, while a small stand of snowberry was observed at the western border. Winter heliotrope was also recorded at the stone wall along the site's southern boundary.

Plate 10. Three-cornered garlic (*Allium triquetrum*) and winter heliotrope (*Petasites fragrans*) to the west of the Visitor Centre site (left), and rhododendron (*Rhododendron ponticum*) in the northwest corner of the Visitor Centre site (right).

3.8.2 New Mountshannon Car Park Site at Main Street

A stand of Japanese knotweed (*Fallopia japonica*) was recorded at the southwestern corner of the proposed new Mountshannon car park site at Main Street. Canes of the plant were recorded during the growing season, so it was considered that it was being treated chemically.

3.8.3 Lough Derg

The NBDC holds a record of the perennial floating aquatic least duckweed (*Lemna minuta*) for the area between Inis Cealtra and Knockaphort as part of the National Invasive Species Database. Least duckweed can form dense, floating mats of vegetation in a relatively short period of time which can then out-compete native aquatic species

for valuable resources and possibly alter aquatic habitats structure via a reduction in light penetration/vulnerability to submerged macrophytes.

Nuttall's pondweed (*Elodea nuttallii*) was first recorded in Lough Derg in 2005 at the southern end of the lake. This species is a highly invasive plant that has undergone rapid expansion so that it now occurs in most harbours of Lough Derg and in some shallow, isolated bays to a maximum depth of 3.2 metres (limited by light levels). The plant is considered a nuisance species due to its ability for prolific growth and its proclivity for clogging up sheltered, shallow areas of waterbodies as the plant grows and spreads to the surface forming tangled masses that can impede boat traffic. Chopped strands and fragments created by boat propellers or waterbirds can accumulate on beaches and form foul-smelling accumulations at bathing areas. Anglers who have fished for many years on Lough Derg stated that 2006 was the first year that some areas of the lake could not be fished on account of the extent of the pondweed present (LDSG, 2007).

Canadian waterweed (*Elodea canadensis*), a perennial submerged plant found in mesotrophic and eutrophic still and slow flowing waters, also occurs at Lough Derg. It can occupy a wide range of water depths from shallow margins to waters more than three metres deep and it develops large, dominant stands. It prefers high levels of silt but can tolerate a range of mineral conditions and can persist in anaerobic substrates. The pathways for its spread include the horticultural and aquarium trade, boating, angling and other water activities, natural spread from habitats where already present especially when seasonal flooding occurs (Millane & Caffrey, 2014). Fragments have high survival rates, which allow them to be dispersed over long distances, therefore increasing their invasion capabilities.

The invasive alien plant and animal species encountered within Lough Derg during the MWP aquatic surveys are described in **Section 3.10.5**, below.

3.9 Non-volant Mammals

The importance of the proposed development site is discussed hereunder with respect to otter (*Lutra lutra*). Evidence of other terrestrial mammals was recorded during the MWP surveys and is discussed in more detail in Section 10.6.3 in **Chapter 10**, **Biodiversity**, in **Volume III** of the **EIAR**.

3.9.1 Otter (*Lutra lutra*)

No evidence of otter was recorded at any proposed development mainland sites - Visitor Centre, Mountshannon Harbour and the new Mountshannon car park at Main Street - during any of the MWP ecological field surveys. No otter breeding/resting places were identified at these sites nor were any prints or spraints found there.

On Inis Cealtra, an otter spraint was recorded at the eastern side of the island on 16th March 2021 on a boulder. However, this was the only occasion where any evidence of otter was recorded during the suite of ecological surveys carried out by MWP on Inis Cealtra. Additionally, no otter was recorded on any of the wildlife cameras deployed on Inis Cealtra (see **Section 2.7.2**, above). Other targeted otter surveys carried out in 2016 by Doherty Environmental (DE, 2016) also found no holts or breeding couches on the island but did encounter spraints at two locations, one to the south and one to the north of the island.

The results of the MWP surveys coupled with the other previous findings by Doherty Environmental in 2016, suggests that Lough Derg plays only a limited role in supporting otter populations. A possible reason for this is the recent and ongoing sheep/cattle grazing on the island which may have reduced the suitability of fringing habitat for otter by limiting cover along the shores due to grazing/trampling of vegetation (DE, 2016).

There are no documented records of otter held by the NBDC or the NPWS for any area within the footprint of the proposed development site. There are records of otter from within the surrounding area as summarised in **Table 5**, below.

Table 5. Summary of most recent records held by NBDC and NPWS for otter occurring within five kilometres of the proposed development (Maps - Biodiversity Maps Accessed: 31st October 2024).

Date of record	Record type	Dataset	ITM Grid Coordinates		Hectad	Approx. distance from proposed development
			X	Y		
23rd Sep 2009	Spraint	Atlas of Mammals in Ireland 2010-2015	571453	687029	R78	400 m northeast of Visitor Centre site
30th Dec 2015	Live animal sighting	Atlas of Mammals in Ireland 2010-2015	572953	686029	R78	1.8 km southeast of Visitor Centre site
13th Oct 2010	Spraint	Atlas of Mammals in Ireland 2010-2015	567353	685129	R68	2.1 km west of Inis Cealtra
21st Aug 2009	Spraint	Atlas of Mammals in Ireland 2010-2015	569647	685300	R78	2.2 km southeast of Inis Cealtra
21st May 2016	Live animal sighting	Mammals of Ireland 2016-2025	571453	682829	R78	2.6 km southeast of Inis Cealtra
14th Sep 2009	Spraint	Atlas of Mammals in Ireland 2010-2015	566453	687029	R68	3.7 km northwest of Inis Cealtra
13th Oct 2010	Spraint	Atlas of Mammals in Ireland 2010-2015	564453	683829	R68	5.1 km southwest of Inis Cealtra

There are no records for otter on Inis Cealtra held by the NBDC or NPWS - Table 5, above. On the mainland, the nearest record is an otter spraint observed at the outskirts of Mountshannon Village in September 2009, approximately 0.4 kilometres northeast of the proposed Visitor Centre site. The most recent record is that of a live sighting of otter in May 2016 at Aughinish Point on the opposite side of Scarriff Bay, more than 2.5 kilometres southeast of Inis Cealtra.

The rivers and streams draining the areas of the proposed development site on the County Clare mainland (see Figure 7, above) are all limited in size and are classifies as either 1st or 2nd Order watercourses, and although they may have some potential as otter foraging or commuting habitat, they do not support any notable fish populations that would make it energetically feasible for foraging otter and are considered to comprise sub-optimal habitat for the species. However, as described in Section 3.10.3, below, the waters of Lough Derg around Inis Cealtra are suitable fish habitat and support species such as brown trout (*Salmo trutta*) and three-spined stickleback (*Gasterosteus aculeatus*), and when considered in conjunction with the results of the MWP surveys and the data summarised in Table 5, above, Inis Cealtra is considered to be a moderately significant site for resting and/or foraging and/or commuting otter.

3.10 Freshwater Aquatic Ecology

3.10.1 Macroinvertebrates - General

The mesotrophic and calcium-rich conditions of Lough Derg provide the minerals required for mollusc shell growth while the variety of substrates and depths creates suitable habitats for a range of aquatic macroinvertebrates.

Overall, 27 aquatic macroinvertebrate families were recorded during MWP aquatic surveys carried out at Survey Site 1 (see Figure 3, above) in May 2021. It is noted that macroinvertebrates recorded at Survey Site 1 can be reasonably expected to occur in comparable microhabitats in other areas around the shores of Inis Cealtra.

The macroinvertebrate assemblage recorded at Survey Site 1 was dominated by those of pollution sensitivity Group B (less tolerant) and Group C (pollution tolerant) (Toner *et al.*, 2005). The only Group A (pollution sensitive) species recorded was the green drake mayfly *(Ephemera danica*) which was numerous at larval stage with a

considerable hatch observed during surveys carried out in May 2021. The only other mayfly species recorded was *Caenis* sp. (few – 1 to 5% relative abundance).

The crustaceans *Gammarus duebeni* and *Asellus aquaticus* were the most frequently encountered species. Also well-represented were cased caddisfly (Limnephilidae) at larval stage and the molluscs wandering snail (*Radix peregra*), great pond snail (*Lymnaea stagnalis*), keeled ramshorn snail (*Planorbis carinatus*), margined ramshorn snail (*Planorbis planorbis*), common bithynia snail (*Bithynia (Bithynia) tentaculate*) and freshwater nerite snail (*Theodoxus fluviatilis*). Numerous zebra mussel (*Dreissena polymorpha*) was recorded, and although some swan mussel (*Anodonta cygnea*) shells were encountered, no live specimens were observed – see empty shells in **Plate 11**, below.

The bugs *Aphelocheirus aestivalis* and Corixidae, water mite (Order Hydracarina), aquatic earthworm (Lumbriculidae), flatworm (Planaridae) and alderfly larvae (*Sialis* sp.) were among the other macroinvertebrates recorded.

3.10.2 Macroinvertebrates - White-clawed Crayfish (*Austropotamobius pallipes*)

No white-clawed crayfish were recorded during the MWP targeted crayfish surveys carried out at the four Survey Sites described in **Section 2.7.3.3** and **Figure 3**, above. Owing to the complex ecological relationship between crayfish and the lake, it is difficult to give a definitive reason as to why no crayfish were recorded during the surveys.

Significant algal growth due to increased enrichment/siltation of lake waters is one possibility for the lack of crayfish recorded during the MWP surveys. Algal growth was recorded at all four Survey Sites with levels increasing substantially between May and June. This likely creates competition for light and other resources between the algae and other aquatic plant species which ultimately reduces the overall abundance of aquatic flora on which the white-clawed crayfish feed, thereby, impacting crayfish abundance.

The proliferation of non-native species, both plant and animal, at Lough Derg has also likely had an impact on the white-clawed crayfish populations – refer to **Section 3.10.5**, below, for further details of invasive alien aquatic species at Lough Derg.

3.10.3 Fish

Four fish species - brown trout (*Salmo trutta*), roach (*Rutilus rutilus*), three-spined stickleback (*Gasterosteus aculeatus*), and perch (*Perca fluviatilis*) - were recorded in the lake waters around Inis Cealtra during the MWP surveys described in **Section 2.7.3**, above.

Brown trout was observed taking insects from the surface of Lough Derg during the MWP aquatic surveys, and the lake is considered an optimal habitat for adult trout because of an abundance of aquatic prey available to the species. However, since Lough Derg is a lake and, therefore, does not have significant variations in water flow, depth, gradient or substrate, it is not deemed to contain suitable salmonid[28] spawning habitat (Hendry & Cragg-Hine, 2003). Higher gradient streams such as the Annacarriga, Nenagh and Graney are more suitable for salmonid reproduction and early life stage rearing.

The submerged aquatic plants and hard substrata of the lake at Inis Cealtra are used by spawning coarse fish and, juvenile roach were recorded in abundance within the shallow waters around Inis Cealtra during the MWP aquatic surveys. At Survey Site 1, fish eggs found attached to a crayfish trap were identified as likely being those of roach – see **Plate 11**, below. No European eel was recorded during any of the hand searches of potential under rock refuges carried out as part of the white-clawed crayfish surveys.

[28] Salmonidae is the family of ray-finned fish species that includes salmon, trout and chars (*Salvelinus* spp.), known collectively as salmonids.

Plate 11. Male three-spined stickleback (*Gasterosteus aculeatus*) in an empty swan mussel (*Anodonta cygnea*) shell (left), and possible roach (*Rutilus rutilus*) eggs attached to a white-clawed crayfish (*Austropotamobius pallipes*) trap at Survey Site 1 (right).

3.10.4 Biological Water Quality

Using two biotic indices – BMWP and ASPT - the various benthic macroinvertebrates recorded during the MWP aquatic surveys were used to classify biological water quality at Survey Site 1 and serve as an indicator of the water quality of Lough Derg around Inis Cealtra.

Biological Monitoring Working Party (BMWP): Each macroinvertebrate family is assigned a score based on the pollution sensitivity of the family and the characteristics of the site in which the invertebrates were found. The BMWP score for each sample site is the sum of the individual scores of the families recorded at that site. Generally, the higher the final BMWP score, the better the water quality; a score of over 100 is indicative of extremely good water quality, while a score of less than 10 indicates a heavily polluted watercourse.

Macroinvertebrate diversity at Survey Site 1 was high and a BMWP score of 105.5 was calculated. This score has a corresponding WFD water quality status of 'Good' and a Q-rating of 'Q4, unpolluted'.

Average Score Per Taxa (ASPT): This is the BMWP score divided by the number of families/taxa represented in the sample. Index values range from 1 to 10 – a value of more than 5.5 indicates water of excellent quality with a high ecological value, while less than 3.5 is indicative of poor-quality water. This index is deemed a more accurate gauge of water quality as it is more robust and unambiguous than just a BMWP score.

For Survey Site 1, an ASPT score of 5.3 was assigned which has a corresponding WFD water quality status of 'Moderate' and a Q-rating of 'Q3, moderately polluted'.

3.10.5 Invasive Alien Aquatic Plant and Animal Species

Numerous invasive alien plant and animal species are found within Lough Derg and their spread is usually via movement of live vegetative material on boating and fishing equipment. Two such invasive species were recorded during the MWP freshwater aquatic ecology surveys, namely Canadian pondweed (*Elodea canadensis*) and zebra mussel (*Dreissena polymorpha*).

Seven invasive alien aquatic plant species have previously been recorded in Lough Derg (Minchin & Boelens, 2011). These are water fern (*Azolla filiculoides*), Canadian pondweed, Nuttall's waterweed (*Elodea nuttallii*), water violet (*Hottonia palustris*), common duckweed (*Lemna minuta*), water soldier (*Stratiotes aloides*) and water lily (*Nymphaea* cultivar). The *Elodea* species, water fern and water solider are listed on the Third Schedule of the European Communities Birds and Habitats Regulations 2011 (S.I. 477/2011) where there are restrictions set out regarding their introduction and/or dispersal.

Zebra mussel was recorded regularly during the MWP aquatic surveys and at all four aquatic Survey Sites – refer to **Figure 3**, above. Indeed, Lough Derg is where the first zebra mussels were introduced (unintentionally) into Ireland in 1994, most likely on the hulls of imported boats (Flynn *et al.*, 2023), and the species was well established throughout the lake by 1998 (Minchin *et al.*, 2002). Native to the Caspian and Black Seas regions, the zebra mussel has expanded its range within Lough Derg so prolifically in recent years that native mussel species appear to have declined. Evidence of this was observed on the northern shores of Inis Cealtra where only swan mussel shells were recorded without any live specimens apparently within the area.

3.11 Ornithology

The following subsections provide tabulated results summaries of the Inis Cealtra transect surveys and the shore count surveys at Knockaphort Pier and Mountshannon Harbour described in **Section 2.8**, above, and carried out during the months outlined in **Table 4**, above, for the four SCI species for which Lough Derg (Shannon) SPA is designated. A summary for each species is provided in **Section 3.11.5**, below.

Survey counts were also undertaken from two fields – Field 1 and Field 2 – during winter months from October 2022 onwards (see **Section 2.8.2**, above), however, no SCI species for which the Lough Derg (Shannon) SPA is designated were counted from these fields. Consequently, the results of these counts are not provided here.

3.11.1 Transect Surveys

Table 9, below, presents summaries of the peak counts of the four SCI species for which the Lough Derg (Shannon) SPA is designated (listed in **Section 2.8**, above) that were seen and/or heard on Inis Cealtra or within 500 metres of the shore in the surrounding lake waters during the transect surveys carried out on the island.

3.11.2 Knockaphort Pier Counts

These surveys were carried out from Knockaphort Pier on the mainland of County Clare as the surveyor faced southeastwards with a view of Inis Cealtra and the intervening lake waters (see **Plate 1**, above). Results are summarised in **Table 6**, below.

Table 6. Peak counts of SCI species for which Lough Derg (Shannon) SPA is designated recorded from Knockaphort Pier on the County Clare mainland from October 2022 to March 2024, inclusive.

	Winter 2022/23						Summer 2023					Winter 2023/24		
	Oct	Nov	Dec	Jan	Feb	Mar	May	Jun	July	Aug	Sep	Jan	Feb	Mar
Common tern	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Cormorant	0	0	0	1	2	1	0	0	0	8	0	1	3	1
Goldeneye	0	8	12	0	0	0	0	0	0	0	0	0	0	0
Tufted duck	1	122	0	38	33	18	0	0	0	0	6	0	9	0

3.11.3 Mountshannon Harbour Counts

These surveys were carried out from Mountshannon Harbour on the mainland of County Clare with the surveyor facing towards Lough Derg and Mountshannon Bay to the west (see **Plate 1**, above). The results of these shore counts are summarised in **Table 7**, below.

Table 7. Peak counts of SCI species for which Lough Derg (Shannon) SPA is designated recorded from Mountshannon Harbour on the County Clare mainland from October 2022 to March 2024, inclusive.

	Winter 2022/23						Summer 2023					Winter 2023/24		
	Oct	Nov	Dec	Jan	Feb	Mar	May	Jun	July	Aug	Sep	Jan	Feb	Mar
Common tern	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cormorant	2	6	2	1	2	0	1	0	1	1	1	1	1	3
Goldeneye	0	0	11	6	1	0	0	0	0	0	0	0	0	0
Tufted duck	34	28	41	21	38	12	0	0	0	0	0	40	15	6

3.11.4 SCI Species Recorded During Informal Counts

Prior to regular mainland shore counts from Knockaphort Pier and Mountshannon Harbour being added to the schedule of bird surveys for the proposed development, several informal counts were carried out at suitable locations on the shore of Lough Derg during the months of winter 2021/22. Table 8, below, summarises the results of these counts to include the SCI species of the Lough Derg (Shannon) SPA only.

Table 8. Peak counts of SCI species for which Lough Derg (Shannon) SPA is designated recorded during informal shore counts at Lough Derg during the winter of 2021/22.

	Scarriff Bay		Mountshannon Bay
	25th November 2021	15th December 2021	31st January 2022
Cormorant	32	4	0
Goldeneye	0	0	8
Tufted duck	0	160	16

Table 9. Peak counts of designated SCI species of Lough Derg Shannon (SPA) that were recorded during Inis Cealtra transect surveys from March 2021 to March 2024, inclusive.

	2021	Summer 2021		Winter 2021/22				Summer 2022					Winter 2022/23						Summer 2023					Winter 2023/24		
	Mar	May	June	Nov	Dec	Jan	Mar	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	May	June	July	Aug	Sep	Jan	Feb	Mar
Common tern	0	38	1	0	0	0	0	4	4	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cormorant	10	10	5	1	2	0	4	2	0	5	1	3	2	0	2	1	2	1	0	1	0	1	1	2	0	2
Goldeneye	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tufted duck	12	0	0	68	0	48	25	0	0	0	0	0	2	0	0	1	0	2	0	0	0	0	0	0	26	5

3.11.5 Summary of SCI Bird Species Recorded During All Ornithological Surveys

Common Tern (*Sterna hirundo*)

As expected, common tern was only recorded during the summer months and was the least frequently recorded SCI species overall. During the May 2021 transect on Inis Cealtra, a peak count of 38 common tern was recorded to the west of the island towards Scarriff Bay. Smaller numbers of the species were recorded at the island in May, June and July (4, 4, 10, respectively) of the following summer, however, during the summer of 2023, no common tern was seen during any of the five transect surveys carried out at the island.

Common tern was not recorded at all at Mountshannon Harbour. From Knockaphort Pier, a single common tern was observed in each May and June of 2023 with these being the last recorded sightings of the species during the MWP surveys. No evidence for the presence of common tern breeding colonies was recorded at any location during any survey.

Cormorant (*Phalacrocorax carbo*)

Cormorant was the most frequently observed SCI bird species across all surveys completed at the proposed development site and was recorded relatively consistently throughout all months of the year. However, no evidence of a cormorant breeding colony within the proposed development site or its environs was recorded.

Of the 26 transect surveys undertaken on Inis Cealtra, at least one cormorant was recorded during 20 (77 %) of these surveys. A maximum peak count of 10 cormorant was reported in both March 2021 and in May 2021 during the transect surveys of the island.

Similarly, cormorant was observed consistently during the shore counts from Mountshannon Harbour and was absent only 14 % of the time. The species was much less frequently recorded from Knockaphort Pier and surrounding lake waters and was predominantly present during the winter months only at this location.

Informal counts of waterfowl at Scarriff Bay to the west of Inis Cealtra reported a peak count of 32 cormorant in November 2021.

Goldeneye (*Bucephala clangula*)

Goldeneye was observed rarely overall and, as expected, during the winter months only. Of the 26 transect surveys completed on Inis Cealtra, the species was observed in just one month - November 2021 - with a peak count of two recorded.

The species was more frequently recorded and in roughly similar numbers during the shore counts at Mountshannon Harbour and Knockaphort Pier, although only in the winter 2022/23 months with none recorded during the winter 2023/24 counts. Additionally of note, goldeneye at Knockaphort Pier were absent from the area by the end of 2022, whereas a male goldeneye was observed still at Mountshannon Bay on 8th February 2023.

An informal waterfowl count at Mountshannon Bay recorded eight goldeneye at the end of January 2022.

Tufted Duck (*Aythya fuligula*)

This species was observed relatively frequently, and often in high numbers particularly during the winter months. During the transect surveys on Inis Cealtra, tufted duck was recorded regularly each winter (peak count of 68 in November 2021) - apart from winter 2022/23 when there was a combined peak count of only five across the six months of transect surveys.

Conversely, throughout the winter 2022/23 shore counts, tufted duck was recorded in relatively high numbers immediately northeast of Knockaphort Pier (peak count of 122 in November 2022) and within the reed beds at Mountshannon Bay (peak count of 41 in December 2022).

An informal waterfowl count at Scarriff Bay a recorded peak number of 160 tufted duck in December 2021 and 16 tufted duck at the end of January 2022.

4. Proposed Inis Cealtra Visitor Experience

4.1 Summary of Project Components and Infrastructure

The proposed development has a total footprint of approximately 20.3 hectares and will comprise four main elements, namely the works on Inis Cealtra, construction of the Visitor Centre in Mountshannon Village, the reconfiguration of Mountshannon Harbour car park, and construction of a new public car park at the northern side of Mountshannon Village - refer to map in **Figure 1**, above.

4.1.1 Proposed Mainland Components of the Development

The mainland components of each proposed element of the project for which consent is being sought and all other associated project components comprise the following:

Visitor Centre in Mountshannon Village

- Site clearance, vegetation/tree removal, erection of 1 No. temporary construction compound.
- Construction of Visitor Centre (gross floor area approximately 0.159 hectares in total) containing a café and various other facilities including those associated with the Inis Cealtra Visitor Experience.
- Installation of pedestrian access route through Aistear Park and realignment of existing Old Rectory access track.
- Implementation of construction phase drainage system.
- Implementation of a stormwater management system during operation of the Visitor Centre.
- Landscaping of area at front of the building's main façade.

Reconfiguration of Mountshannon Harbour Car Park and Public Realm Upgrades

- Site clearance, vegetation/tree removal, erection of 1 No. temporary construction compound.
- Reconfiguration of existing car park at Mountshannon Harbour to accommodate 46 No. standard spaces and 3 No. accessible spaces on the existing footprint of approximately 0.265 hectares.
- Installation of additional amenities and public realm enhancements including seating area, bin store, new paving and finishes.
- New tree planting and additional green areas.

New Mountshannon Village Public Car Park

- Construction of new public car (and coach and bicycle) park on the north side of Main Street in Mountshannon Village measuring approximately 0.87 hectares.
- Installation of slow-charging electric vehicle (EV) charging points.
- Minor cut back of some vegetation but retention of most existing trees and hedgerows with landscaping of additional trees/planting.
- Erection of 1 No. temporary construction compound.
- Implementation of a two-way traffic system and installation of traffic calming measures (such as speed bumps) at appropriate intervals.

4.1.2 Proposed Works on Inis Cealtra

The proposed works to be carried out on Inis Cealtra comprise the following components:

Inis Cealtra (Holy Island)

- Demolition of existing concrete shelter (16 m^2) adjacent to existing pier.
- Construction of 1 No. new L-shaped floating access jetty comprising three main parts – a stone/concrete causeway, a floating breakwater jetty and canoe launch jetty, and a steel access ramp.
- Development of a series of 2-metre-wide mown grass pedestrian paths around the island.
- Erection of 3 No. new staff and public welfare facility pods.
- Erection of 1 No. Temporary construction site compound.
- Cut back of scrub/vegetation to facilitate mown paths and allow access to various areas of the island.
- Implementation of Landscape and Conservation Management Plan including a sheep grazing regime and path maintenance plan.

4.2 Characteristics of the Proposed Development

4.2.1 Visitor Centre in Mountshannon Village

4.2.1.1 Siting and Design of Visitor Centre

It is proposed that the Visitor Centre building will be constructed within the southern section of the Old Rectory site (see **Section 1.4**, above) adjoining Harbour Road and will have a total gross floor area (GFA) of 0.16 hectares. It will be a part-one-storey, part-two-storey building with a maximum height of 7.8 metres above ground level and has been designed in a circular form orientated to face Lough Derg and Mountshannon Harbour, thereby, establishing a strong visual link with Inis Cealtra.

The existing Old Rectory site slopes up relatively steeply from south to north, rising from approximately 32 metres AOD (above ordnance datum) at its southern boundary to approximately 40 metres AOD at the Old Rectory building itself. To mediate for the significant level change and to minimise its visual impact, the Visitor Centre will be partially set back into the sloped landscape of the Old Rectory site with a design that ensures the external ground level rises around the building as it moves from south to north. This design strategy helps reduce massing of the building when viewed from the elevated position of the rectory and, therefore, helps retain the strong visual connection between the Old Rectory building and the lake below.

This siting strategy also ensures a direct pedestrian link between the northern side of the Old Rectory site and the new Mountshannon car park at Main Street via Aistear Park.

4.2.1.2 Building Design, Uses and Facilities

Taking inspiration from the composition, form and materiality of ancient Irish tombs and monastic settlements, the proposed Visitor Centre building will have a circular form reminiscent of ancient passage tombs at Newgrange and Knowth and of the monastic settlement on Inis Cealtra itself. Each hemisphere of the circular design of the Visitor Centre (building and public realm) will accommodate differing components – the Visitor Centre building will occupy the northeastern hemisphere while the open public realm space that links to Mountshannon Harbour will occupy the southwestern hemisphere. Refer to **Figure 9** and **Figure 10**, below.

The Visitor Centre plan sees the building split into two sides, east and west of the external grand stairs, although both sides are connected via the external circulation route that circumnavigates the northern boundary of the building. To the east of the stairs, will be the Inis Cealtra Visitor Experience (Visitor Centre) and associated spaces, while to the west of the stairs will be the café and back of house (BOH) support spaces.

Figure 9: Extract of proposed Visitor Centre at Mountshannon Harbour [adapted from McCullough Mulvin Architects Drawings].

4.2.1.2.1 Ground Floor

The total ground floor plan area is 1426 m^2 (0.14 hectares) with spaces arranged so that visitors can move through each of them following the interpretation narrative in a clear and sequential route. See Figure 10, below.

In addition to smaller spaces such as those for storage or deliveries, the ground floor Visitor Centre plan east of the stairs is comprised principally of the following:

- Entrance Foyer and ticketing area;
- Interpretation, exhibition and education spaces - including audiovisual, exhibition and education rooms;
- Inis Cealtra Experience Zones (1 to 5);
- Visitor facilities including retail area, waiting spaces, island briefing and preparation areas and management facilities; and,
- Office and Administration.

The ground floor Visitor Centre plan for the area west of the stairs predominantly consists of the following:

- Main café dining room and event space;
- Servery area and kitchen;
- Toilets; and,
- General BOH facilities including plant rooms, kitchen, delivery bay, bins, management areas, and storage.

4.2.1.2.2 First Floor

The total first floor plan area measures 168 m^2 (0.0168 hectares) with internal accommodation housed in two of five independent volumes (or 'pop-ups') rising above the lower roof level from the harbour side. A pop-up space over the café provides a mezzanine area that can be used by café patrons or separately for functions/events; a second pop-up space provides areas for research, while the final three pop-up areas enclose double-height spaces below.

The lower roof of the Visitor Centre building will be a publicly accessible terrace that will be level with the building's northern external ground floor. The terrace will be accessible from the mezzanine level of the café or from the northern side of the building.

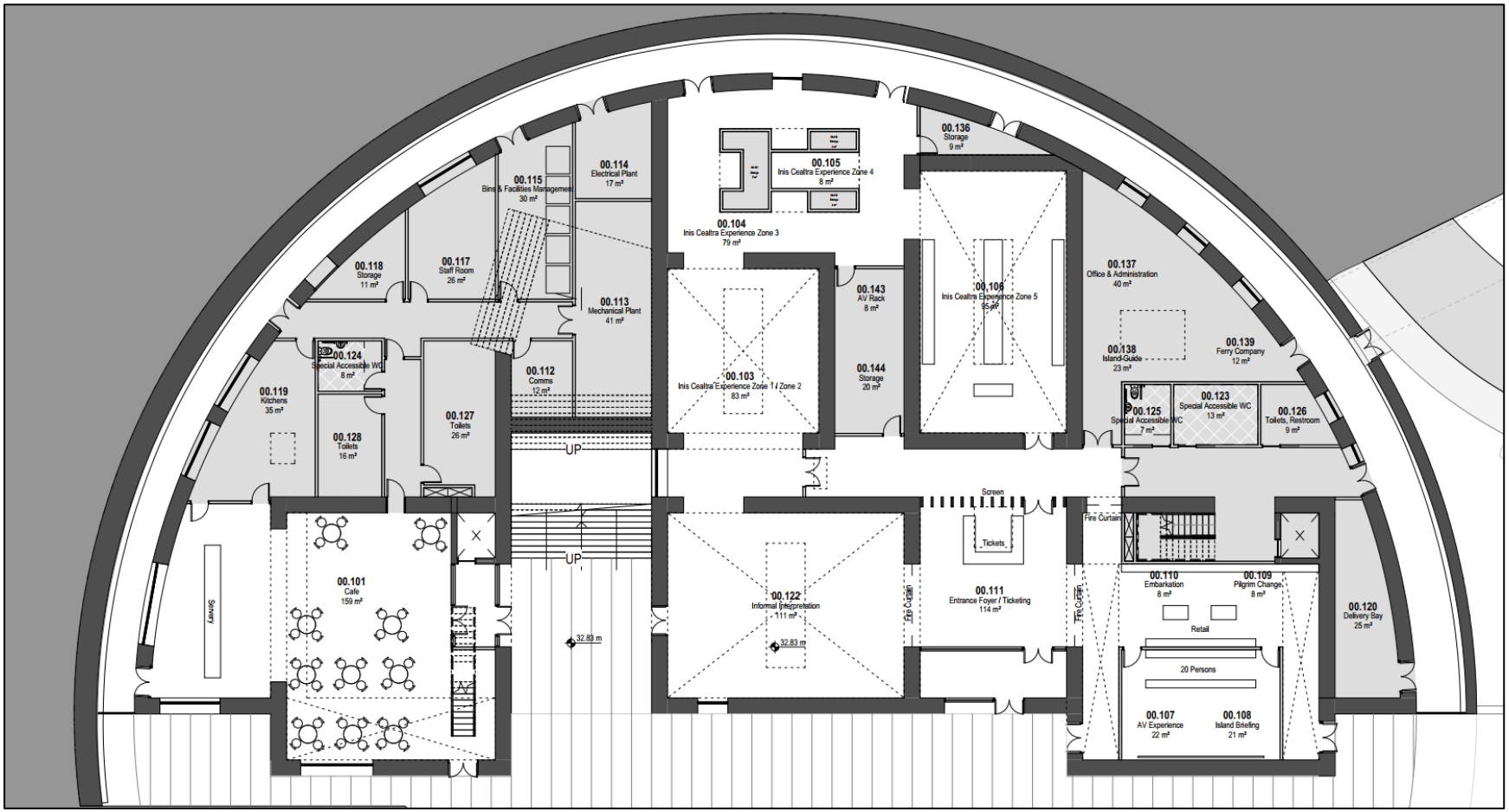

Figure 10. Ground floor plan extract of proposed Inis Cealtra Visitor Centre in Mountshannon Village.

4.2.1.3 Access

Pedestrian access arrangements between the proposed new car park at Main Street and the Visitor Centre site have been carefully considered.

To the west of the Old Rectory site, the proposed new car park at Main Street will be linked to the Visitor Centre via a pedestrian path through Aistear Park where visitors will be able to access the Visitor Centre through an opening in the boundary between the Old Rectory site and the park. The new Visitor Centre will allow for pedestrian access directly to the proposed shared space in the reconfiguration of the Harbour car park.

Cyclist and vehicular access will be through an existing vehicular entrance on Harbour Road which will be maintained. The existing access track serving the Old Rectory will be realigned as part of the proposed development to accommodate the Visitor Centre.

4.2.2 Mountshannon Harbour Car Park and Public Realm

Currently providing 46 No. parking spaces, inclusive of 2 No. accessible spaces, the proposed works involve the reconfiguration of the existing car park at Mountshannon Harbour to increase capacity to 49 No. car parking spaces (46 No. standard spaces and 3 No. accessible spaces) on the existing car park area of 2,647 m^2 (0.26 hectares). Additional amenities, including a seating area, bin store and new tree planting will also be provided, as will new paving and finishes throughout.

It is anticipated that reconfiguration of the existing Mountshannon Harbour car park will improve traffic circulation around the harbour and create a shared space that will allow vulnerable road users to access the proposed Visitor Centre from Mountshannon Harbour and vice versa. Traffic calming features will be implemented to reduce the risk to vulnerable road users and the speed limit in the area will be reduced to accommodate the proposed development. The reconfigured Mountshannon Harbour car park has been subjected to a swept path analysis of a jeep and boat trailer to confirm that proposed reconfiguration will not negatively affect vehicular access to the slipway from where boats are launched.

4.2.3 New Mountshannon Village Car Park at Main Street

Construction and operation of a new public car park measuring 8,685 m^2 (0.87 hectares) is proposed for a site at the north side of Main Street at the northern end of Mountshannon Village. See **Figure 11**, below.

The car park has been designed to provide parking as follows:

- 6 No. coach parking spaces
- 11 No. accessible car parking spaces
- 105 No. car parking spaces
- 53 No. overflow car parking spaces on reinforced grass at the northern end of the site
- 40 No. bicycle parking spaces

Additionally, 20% of parking spaces (34 No.) will have slow-charging electric vehicle (EV) charging points installed of which 2 No. are to be universally accessible. Ducting will also be installed to allow for future connection of an additional 18 No. EV parking spaces. All chargers will be slow charging.

The car park has been designed to ensure the finish is of a densely planted area made up of a variety of surface materials to project the feeling of a soft-edged, rural space well-suited to a site that is surrounded by an existing natural boundary of mature trees and hedgerows. Much of the existing boundary vegetation will be retained while additional trees and planting will be placed between the parking areas as part of the final Landscaping.

Surface finishes will be varied throughout the area, ranging from tarmac on the carriageway, to compacted gravel in the parking bays and pedestrian paths, to reinforced grass in the overflow parking area. Sheffield cycle stands will be positioned within the car park, close to the site entrance on either side of the accessway, ensuring secure bicycle parking is easily available to serve the development.

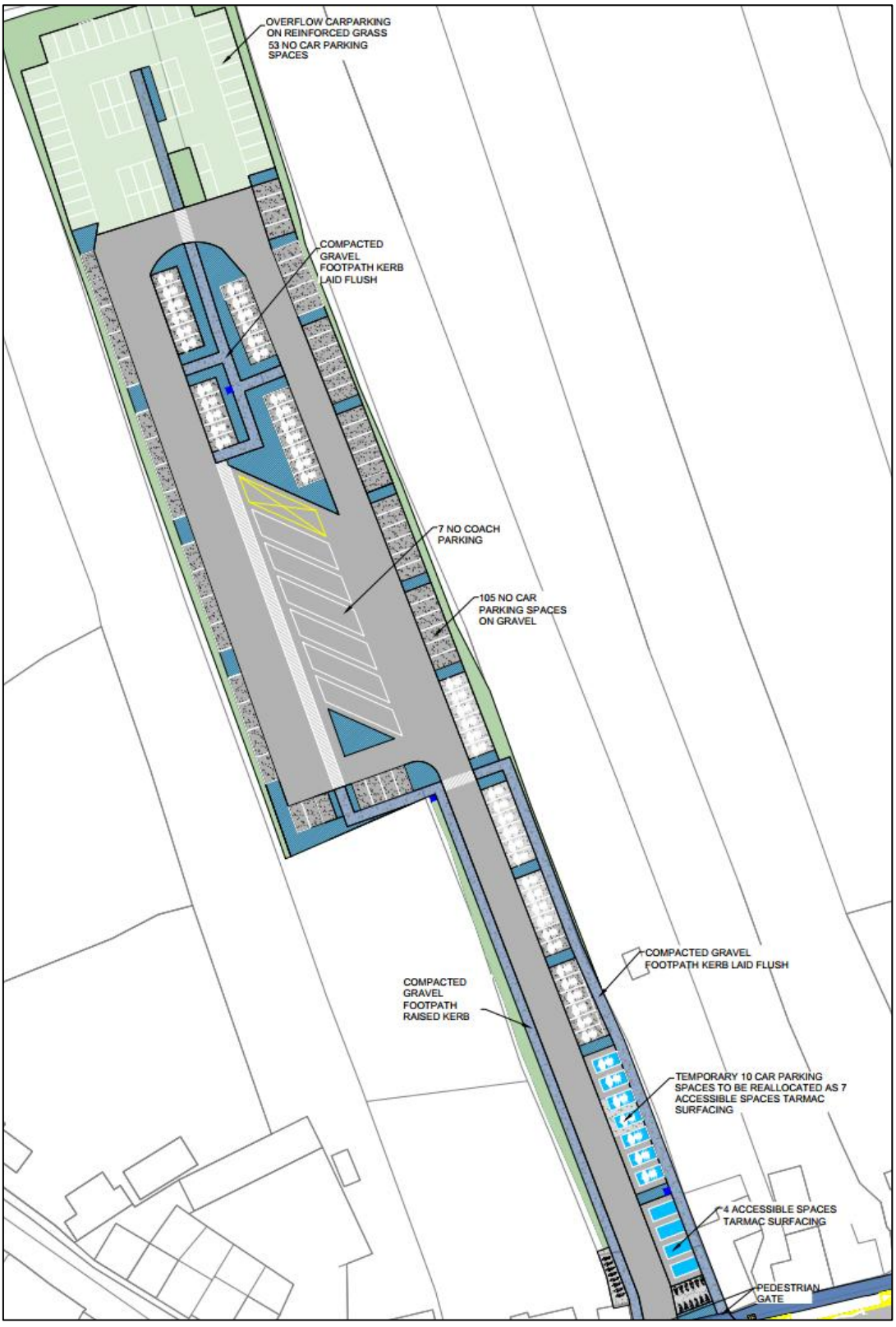

Figure 11: Extract of proposed site layout drawing of new Mountshannon Village car park at Main Street.

4.2.4 Inis Cealtra (Holy Island)

4.2.4.1 Jetty and Mooring Point

The existing concrete landing point on Inis Cealtra (see **Plate 12**, below) is located at the north-northwest shore of the island and extends only a short distance of approximately ten metres into the lake resulting in relatively shallow waters around the landing point where only smaller boats can successfully land. To remedy this and allow larger boats to moor at the island, the proposed works involve the installation of a new L-shaped floating jetty that will extend out for approximately 53 metres into deeper lake water. The design of the jetty will ensure it breaks most of a wave's crest and provides a safer mooring on the inner jetty area and a more convenient passage between Mountshannon Harbour and Inis Cealtra (see **Figure 16**, below, for existing navigational route). Once constructed and operational, it will become the principal point of arrival and departure for visitors to the island.

The existing concrete landing point will remain in place and a new causeway will be constructed over it. A new seven-metre-long access ramp and canoe launch jetty are also included within the overall design of the new jetty.

Plate 12: North-facing view of existing slipway at the northwestern shore of Inis Cealtra in Lough Derg.

4.2.4.2 Island Welfare Pods

There are two existing structures on Inis Cealtra - a concrete shelter adjacent to the existing pier at the northwest side of the island, and a timber-framed cabin close to St. Caimin's Church and Round Tower. As part of the proposed works on the island, the concrete shelter will be demolished, and three new staff and public welfare facility pods will be installed to meet the minimum needs of staff and visitors. Siting of the pods was carefully considered to ensure minimal visual impact and to provide facilities that are geographically convenient for visitors and staff. All pods are to be erected in the shelter of existing woodland or scrub. See **Table 10**, below, for summary details of the three proposed pods, and **Figure 12**, below, for map showing pod locations.

The existing timber-framed cabin will remain in place and serve OPW staff who visit the island periodically to carry out essential maintenance works.

Table 10. Summary details of the three proposed pods to be installed on Inis Cealtra.

	Approximate gross floor area of pod	Pod location	Pod function/details
Weather Shelter Pod	23 m^2	Close to new jetty, at site of demolished concrete shelter.	Provide shelter for those waiting for the boat. Approximate capacity - 30 no. persons seated.
WC Pod	16 m^2	Northern part of island, close to new jetty.	Will contain 2 no. dry WCs for emergency use only. No water supply or foul drainage required.
Staff Pod	23 m^2	Near new jetty and the proposed Weather Shelter Pod.	Provide shelter and place of rest for island guides and ushers. Will contain tea station, first aid equipment and lockers.

4.2.4.3 New Pedestrian Paths

A network of new two-metre-wide grass pathways is proposed for the island to allow visitors to safely and efficiently explore the island. The proposed path network will focus on existing paths, such as Path 1 and Path 8, to facilitate visitation of the island's monuments and heritage sites. Additional paths will create a series of looped walks on the island of varying lengths.

The paths will be mown and will seek to follow existing ground levels and contours that strike a balance between accessibility, wayfinding, readability of landscape, and protection of the island's archaeological and ecological heritage while minimising visual impact.

The layout and location of the paths (shown as P1, P2, P3…..) are presented in **Figure 12**, below, and are defined by the following:

- **Path 1** and **Path 8** – Existing path locations, provide access to main monuments.
- **Path 11** and **Path 12** – Less direct route to monuments on the eastern shores (Lady's Well and the Bargaining Stone) but with a gentler slope.
- **Path 2** - A looped walk taking in grassland and woodland before returning to the mooring point.
- **Path 3** - Similar to Path 2 but is a shorter loop.
- **Path 4** – A short connection path linking Path 3 and Path 2 providing an increase in route options.
- **Path 6** – Route along ecclesiastical enclosure. Enclosure is not visible above ground and is considered to be the site's 'hidden history'.

Figure 12: Locations of the proposed new pods and layout of the proposed pedestrian pathway network around Inis Cealtra [adapted from the Inis Cealtra Landscape Design Report prepared by Mitchell + Associates, Glasnevin].

4.3 Construction Phase

This section describes the methods that will be implemented when constructing each element of the proposed Inis Cealtra Visitor Experience summarised in **Section 4.1**, above. Detailed method statements will be developed and implemented by the appointed Main Contractor in advance of construction works commencing. The construction phase of the development begins with site preparation works and is complete when all elements of the proposed development are built and ready for commission. Refer to **Chapter 2 Description of the Proposed Development**, in **Volume II** of the **EIAR** for more details of the construction phase

4.3.1 Phasing and Duration of Construction

The current indicative phasing strategy suggests that construction of the entire proposed Inis Cealtra Visitor Experience project will be split over two phases – refer to **Table 11** and **Figure 13**, below. The phased manner of works will minimise disruption to local communities, minimise environmental impact and create the safest working conditions possible. These phases are based upon the information currently available, and it is not proposed nor intended that the applicant or contractor(s) is bound by these proposals which may change depending on the timing and circumstances that pertain at the time of construction.

Table 11. Phases of the proposed development with anticipated duration of works and completion period.

	Element of proposed works	Duration of works	Expected completion
Phase 1	Works at Inis Cealtra including: ▪ Mooring point ▪ Demolition of existing visitor shelter ▪ Network of pedestrian pathways ▪ Welfare Pods New Mountshannon Village car park in Mountshannon Village at Main Street	12 months	Q1 of 2028
Phase 2	Visitor Centre at Mountshannon Village and public realm upgrades Reconfiguration of Mountshannon Harbour car park.	Visitor Centre - 18 months Harbour - 6 months	Q3 of 2042

PHASE 1

New Village Car Park at Main Street

- Pre-commencement activities including site investigation work and pre-construction surveys.
- Pre-construction activities.
- Site clearance works.
- Construction of temporary site construction compound.
- Construction of new public car park on a site to the north of Main Street at the northern side of Mountshannon Village and all associated ancillary site works.
- Complete site works, tidy up site, landscaping, restoration.
- Demobilisation of site compound facilities.

Inis Cealtra

- Pre-commencement activities including site investigation work and pre-construction surveys.

- Pre-construction activities including demolition of one existing concrete structure on the island.
- Site clearance works.
- Construction of temporary site construction compound.
- Construction of new floating access jetty, canoe launch jetty and walkway at northwest of island at location of existing mooring point.
- Construction of 3 no. new staff and public welfare facility pods on the island.
- Construction of new pedestrian paths on the island.
- Complete site works, tidy up site, landscaping, restoration.
- Demobilisation of site compound facilities.

PHASE 2

Mountshannon Harbour Car Park Reconfiguration

- Pre-commencement activities including site investigation work and pre-construction surveys.
- Pre-construction activities and site setup.
- Construction of temporary site construction compound.
- Reconfiguration of existing Mountshannon Harbour car park, and all associated ancillary site works.
- Complete site works, tidy up site, landscaping, restoration.
- Demobilise site compound facilities.

Visitor Centre

- Pre-commencement activities including site investigation work and pre-construction surveys.
- Site preparation and pre-construction activities.
- Environmental measures.
- Construction of temporary site construction compound.
- Construction traffic routes.
- Site construction drainage system.
- Construction of proposed Visitor Centre at the southern end of the Old Rectory site.
- Complete site works, tidy up site, landscaping, restoration.
- Demobilisation of site compound facilities.
- Landscaping

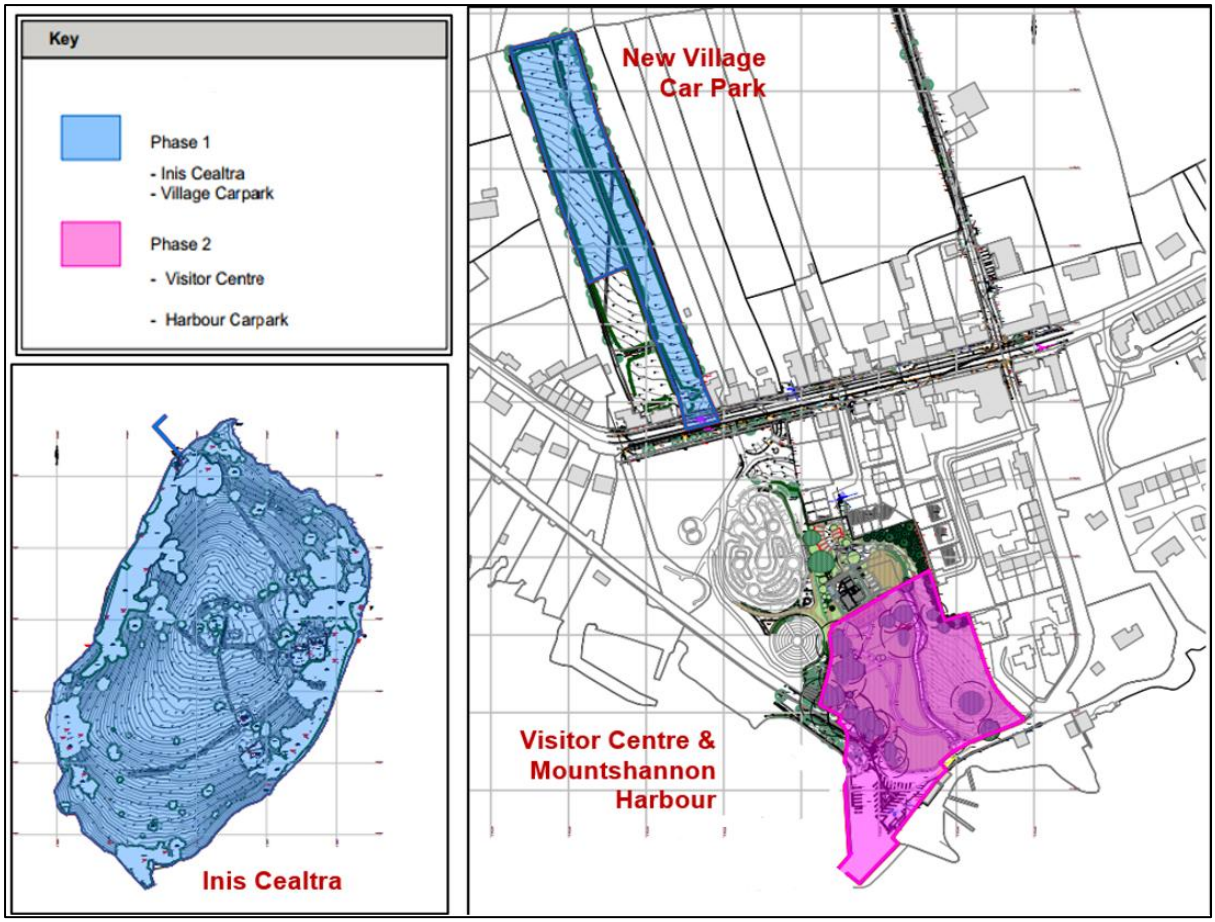

Figure 13: Phasing site plans for the different elements of the proposed development [Adapted from McCullough Mulvin Architects drawings].

4.3.2 Temporary Construction Compounds

Prior to construction phase commencement, a temporary construction compound will be instated at pre-determined locations for each element of the proposed Visitor Centre works, Mountshannon Harbour car park reconfiguration works, and Inis Cealtra

Each temporary construction compound will be used as a secure storage area for construction materials, excess spoil, waste materials, and as a concrete washout area. Temporary site cabins within the compound will provide welfare facilities such as an office space, meeting rooms, canteen area and mobile sanitary facilities.

The temporary compounds will also include an enclosed wastewater management system capable of handling the demand during construction of the various elements of the development. A holding tank within the compound will be emptied on a regular basis by a licensed permitted contractor only. Upon completion of the project, the compounds will be removed once commissioning is complete.

4.3.2.1 Inis Cealtra

On Inis Cealtra, a temporary site construction compound will be erected for the duration of the construction works beside the existing slipway at the north-northwest shores of the island.

4.3.2.2 Mainland

At the mainland development sites within Mountshannon Village, a temporary construction compound will be erected within the Old Rectory site for the duration of the Visitor Centre construction period. In relation to the

proposed new car park at Main Street, the temporary construction compound will be erected at the location indicated in **Figure 14**, below.

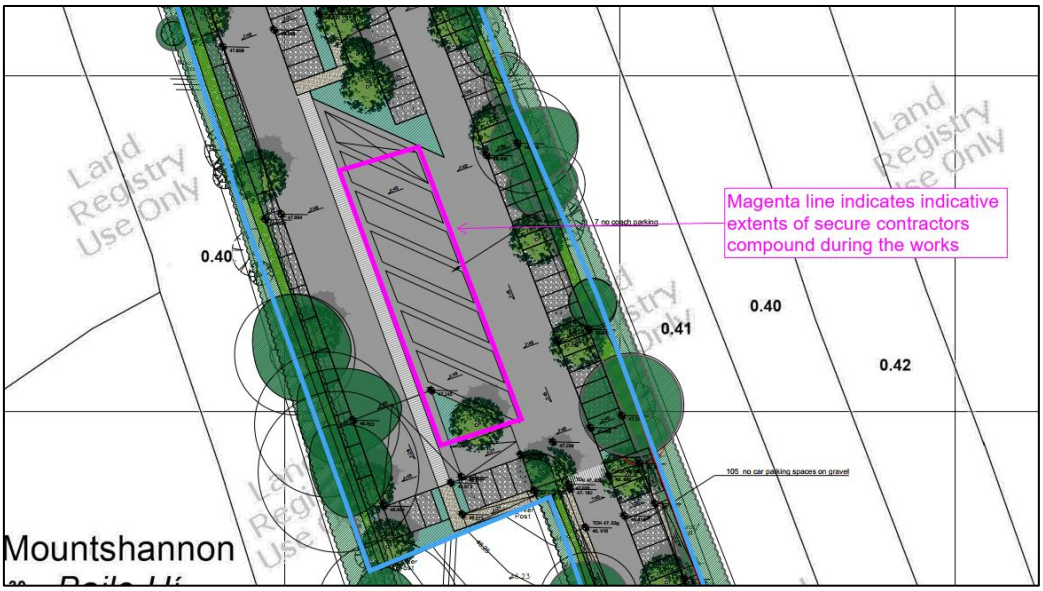

Figure 14: Approximate locations of the temporary construction compounds for the construction phases of the Visitor Centre, and Mountshannon Harbour jetty upgrade works and car park reconfiguration.

4.3.3 Site Preparation and Pre-Construction Activities

4.3.3.1 Mainland Sites

Site enabling works for the Visitor Centre construction, Mountshannon Harbour public realm upgrade works, and construction of the new Mountshannon Village car park at Main Street will include but will not be limited to the following:

- Completion of Traffic Management Plan prior to commencement of works. The plan will be agreed between the Contractor and Clare County Council to ensure safe management of traffic during works;
- Securement of site and erection of fencing, hoarding, and signage as required;
- The proposed works areas will be clearly marked out using ranging rods or wooden posts;
- All plant operators and general operatives will be inducted and informed as to the location of any services;
- Location and termination of existing live services where required;
- Any surface water management, waste management measures etc. will be put in place at the outset;
- Installation of bunding and/or run-off controls where required such as suitable protection (e.g., silt curtain) around the site boundaries to control and treat any run-off during the works;
- Identification of temporary stockpiling and storage areas;
- Identification of areas of Japanese knotweed (see **Section 3.8.1**, above) and fencing off the stands with a buffer. A treatment programme of spraying will be conducted if timelines permit, otherwise, the affected area will be excavated, segregated from other waste generated, and removed to an appropriate waste disposal site;
- Erection of temporary construction compound (see **Section 4.3.2**, below) and welfare facilities and water management measures;

- Erection of signage and information boards for the general public, site employees and truck drivers transporting materials to/from the site; and,
- Provision of temporary power, lighting and water services.

4.3.3.2 Inis Cealtra

Site enabling works for the development works on Inis Cealtra will include but are not limited to the following:

- Securing site and erection of fencing, hoarding, and signage as required;
- Locate and terminate existing live services where required;
- Installation of any bunding and/or run-off controls where required;
- Identification of temporary stockpiling and storage areas;
- Set up of temporary Contractor welfare facilities and site accommodation;
- Provision of temporary power, lighting and water services;

Additional topographical surveys, archaeological surveys, ground investigations, environmental surveys, vegetation surveys and wildlife habitat surveys may occur in advance of the site clearance works to complement those that have already been carried out on the island.

4.3.3.2.1 Site Investigation Works

Prior to commencement of the main construction works on Inis Cealtra, a geotechnical investigation will be carried out at the proposed new jetty location at the northwest of the island (see Figure 1, above) to determine the sub-lakebed soil profile for piling conditions. These investigations have informed the detailed design for the new jetty and comprise the following steps:

- The 26-metre Waterways Ireland (WWI) workboat, the 'Coill an Eo', will transport the drilling rig shown in Plate 13, below, to the proposed new jetty site at Inis Cealtra where the rig will be placed on a 16-unit pontoon raft.
- The drilling rig will be secured to the pontoon raft before the raft is moved to each of the three Ground Investigation (GI) locations shown in Figure 15, below, namely, GI1, GI2, and GI3.
- Boreholes will be drilled at each GI location, and the samples obtained sent for analysis at a laboratory.

Plate 13. Example of drilling rig to be used for geotechnical investigations on Inis Cealtra.

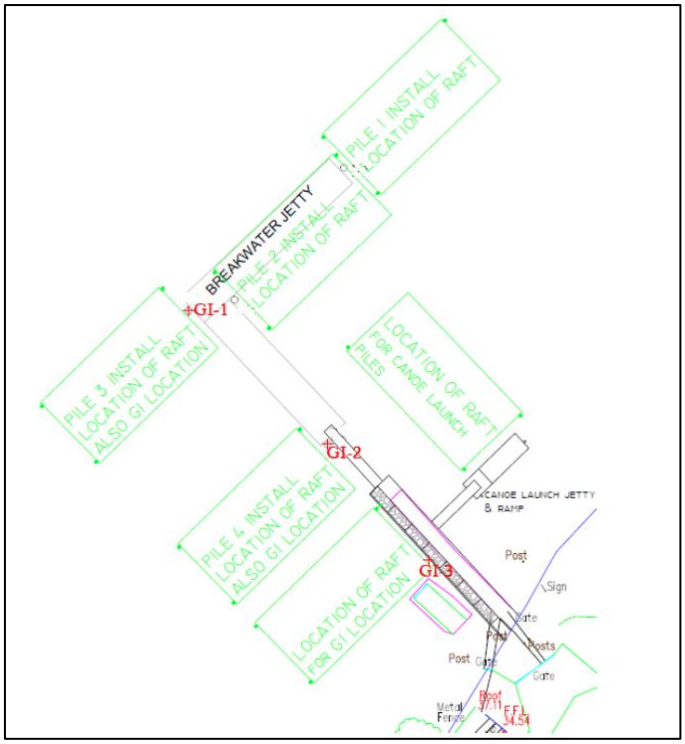

Figure 15: Ground Investigation (GI) locations (1, 2, and 3) and pontoon raft locations for the geotechnical studies at the proposed new jetty site at Inis Cealtra.

4.3.4 Construction Traffic

A Traffic Management Plan (TMP) outlining the required traffic management procedures to be implemented on the public roads during the construction of the proposed development and delivery of concrete, steel, stone aggregate and ancillary materials to the site is included as an Appendix in Volume III of the EIAR. Should planning be approved for the proposed development, the final TMP will address the requirements of any relevant planning conditions, including any additional mitigation measures. The TMP will be updated at the construction stage (or the update commenced during planning compliance stage) to ensure controls are in place with all suppliers coming to the project site.

A road safety and courtesy protocol will be implemented for the duration of the construction works. All companies delivering to the site will have to sign up to this protocol as part of their supply contract. The protocol will consist of restricted delivery hours and speed limits along public roads and within the site. Fundamental to the protocol is courtesy for other road users. In this, construction vehicles will always give way to oncoming public traffic and will always slow down or stop as appropriate for pedestrians and cyclists.

4.3.5 Visitor Centre Construction, Public Realm Upgrade and Car Park Reconfiguration

4.3.5.1 General Methodology

Construction of the Visitor Centre, the reconfiguration works of Mountshannon Harbour car park, and the upgrade/improvement works to the public realm at the Harbour will broadly align with the following general works methodology (it should be noted that these works may happen in a phased manner to accommodate various weather conditions, ground conditions and Contractor's sequencing):

- Necessary site clearance will be carried out including activities such as clearing, grubbing and removing any required trees and surface vegetation (topsoil/sub-soil/shrubs/etc.) that will be stripped and collected using an excavator and/or dump truck.

- Measuring approximately 45.5 metres in total, two sections of existing masonry wall running along the southern perimeter of the proposed Visitor Centre site will be demolished and then removed by hand. This material will be reused where reasonably practicable within the site and the remainder sent to an appropriate waste facility.
- The existing surface of the Harbour Car Park will be milled down to the depth required for resurfacing works to occur with a road planer. The waste generated will be reused where reasonably practicable within the site with the remainder being sent to an appropriate waste disposal facility.
- Topsoil stripping of approximately 1,600 m^3 will be excavated to depths agreed upon and in conjunction with the site specifications and design drawings issued. This material will be carefully segregated and transported to an agreed temporary deposition point. This material would then be removed from the site with a minor amount may be kept on site in a temporary storage area for later use in landscaping.
- Bulk excavation of approximately 6,200 m^3 for the Visitor Centre building and front courtyard, and 1,000 m^3 for realigned access track and other external areas of the Old Rectory site will then occur to the required sub formation levels using excavators and dumpers. This material may be temporarily stockpiled on the site prior to being removed from the site.
- All excavated material will be brought to a licence waste facility for final disposal. All potential waste shall be appropriately sampled and tested for waste assessment using the HazWasteOnlineTM Tool and Waste Acceptance Criteria (WAC) criteria. The assessment of potential soil waste would occur in situ, in advance of excavation during the initial site investigation and take account of the waste acceptance criteria for soil recovery facilities and/or waste landfills. All soil sampling, waste classification and reporting will be conducted by a suitably qualified person.
- Soil proposed to be re-used for landscape and fill purposes should be assessed in advance to determine the suitability for re-use with reference to the proposed site end-use.

  <u>Visitor Centre Construction and Public Realm Upgrades</u>

  - The excavated areas will then be formed on competent subgrade of the underlying subsoil/rock and will comprise locally obtained stone aggregate laid, where necessary, on a geotextile filter membrane.
  - The formation stratum will be examined and signed off by a Chartered Engineer with geotechnical competence.
  - Layers of imported stone aggregate material of approximately 600 m^3 under the proposed building and 150 m^3 in external areas will then be provided and compacted in layers on a geotextile. The depth will be dependent on the area in question. The final formation will be validated with plate bearing tests carried out by a competent testing agency.
  - An *in-situ* reinforced concrete foundation slab with a thickness of 450 millimetres will be poured to the required dimensions across the footprint of the Visitor Centre building.
  - Scaffolding, formwork and falsework will then be erected with rebar placed for *in-situ* reinforced concrete elements. The various column, walls, beam and slab elements will have their concrete poured in a sequential manner to allow concrete to develop its strength before the element supported by it is cast. The scaffolding, formwork and falsework will be adjusted as required during this process. The finishes, insultation, glazing and waterproofing will be applied in line with the Architect's specifications.

  <u>Harbour Car Park Reconfiguration</u>

- The area to be resurfaced in the Harbour Car Park will be milled with a road planer to the required depth. A structural inlay of asphalt will then be placed over the prepared milled surface before compaction using rollers.
- Utilities including surface water drainage and electrical ducts for Electric Vehicle (EV) charging will be placed on site as denoted on the Engineers drawings.
- Kerbing will be placed on the site, this may be precast, plastic or in-situ concrete kerbs.
- Layers of imported asphalt material will then be provided and compacted in layers as per the Engineering drawings. Non-destructive testing will be conducted on placed asphalt to verify it meets the design requirements.
- The final surface gravel will be placed on gravel footpaths.
- Where grasscrete is proposed, concrete will be poured and sand/cement mortar placed on the concrete slab before grasscrete blocks are laid. Levels will be checked, and sand/compost mix placed in the blocks and compacted.
- Drainage works including gullies and manholes are installed.

- Green areas will have subsoil and topsoil placed and then seeded. Areas will be landscaped according to the Landscape Architect's specification (Refer to **Landscape Design Report** in **Volume III** of the **EIAR**).
- Lighting and CCTV will be installed, line marking conducted and finishing works concluded.
- Finally, the Contractor will demobilise from the site.

4.3.5.2 Site Access and Construction Traffic

Access to the proposed Visitor Centre site will be via Harbour Road (L4034) located along the southern perimeter of the proposed Old Rectory site. Harbour Road connects onto the R352 which runs through Mountshannon village from west to east linking Ennis to Portumna.

Traffic at the proposed development site during construction of the Visitor Centre, public realm upgrades, and reconfiguration of the Harbour Car Park will include:

- Heavy goods vehicles (HGVs) importing materials such as concrete, road build-up materials, building materials, drainage/ducting materials, structural steel, cabling, site boundary fencing, etc.
- HGVs exporting waste/spoil/demolition materials.
- HGVs delivering plant/cranes and fuel.
- Traffic associated with on-site construction personnel.

Reasonable efforts will be made to minimise the impact of the works on local residents and users of the public road networks. It is expected that daily traffic on the network will be minimal and will have a negligible impact on the local road network at proposed development the site, and on the R352, the construction traffic will be interspersed and minimal when compared with the existing traffic. This is subject to phasing of the works and on the assumption that the Visitor Centre works will not proceed concurrently with the other works.

It is envisaged that the haul route for the delivery of materials associated with works at Mountshannon Harbour and the Old Rectory site will be on Harbour Road (L4034) via the R352, however, the final haul route will be detailed in the TMP. Refer also to **Section 4.3.4**, above, and the Traffic Management Plan (TMP) in **Volume II** of the **EIAR**.

4.3.6 Construction of New Mountshannon Village Car Park at Main Street

4.3.6.1 General Methodology

Construction of the proposed new Mountshannon Village car park at Main Street at the northern side of the village will broadly align with the following general works methodology (it should be noted that these works may happen in a phased manner to accommodate various weather conditions, ground conditions and Contractor's sequencing):

- The proposed development site will be cleared to the required extent and will include the clearance or cutting-back of some trees, hedgerows and any surface vegetation (topsoil / sub-soil/ shrubs/ etc) to be stripped and collected using an excavator and dump truck.
- An existing masonry wall running north to south through the centre of the site and measuring approximately 254 metres in length will be demolished by construction plant and subsequently disposed of off-site at an appropriately licenced facility.
- Approximately 13 metres of a second existing masonry wall fronting Main Street at the site's entrance will be removed by hand and machinery and the material reused where reasonably practicable on the site with the remainder disposed of off-site at an appropriately licenced facility. The remaining section of existing stone wall will be retained with a pedestrian gate.
- Topsoil stripping will be excavated to depths agreed upon and in conjunction with the site specifications and design drawings issued. This volume, of approximately 3,200 m^3 of material will be carefully segregated and transported to an agreed temporary deposition point. This material will then be removed from site, although a minor amount may be kept on site in a temporary storage area for later use in landscaping.
- Bulk excavation of a volume of approximately 6,000 m^3 will then occur to the required sub-formation levels using excavators and dumpers. This material may be temporarily stockpiled on the site prior to being removed from the site.
- All excavated material that is not reused will be brought to an off-site licenced waste facility for final disposal. All potential waste shall be appropriately sampled and tested for waste assessment using the HazWaste OnlineTM Tool and Waste Acceptance Criteria (WAC) criteria. The assessment of potential soil waste would occur in-situ, in advance of excavation during the initial site investigation and take account of the waste acceptance criteria for soil recovery facilities and/or waste landfills. All soil sampling, waste classification and reporting will be conducted by a suitably qualified person.
- Soil proposed to be re-used for landscape and fill purposes should be assessed in advance to determine the suitability for re-use with reference to the proposed site end-use.
- The new car park area will be formed on competent subgrade of the underlying subsoil/rock comprised of locally obtained stone aggregate laid on a geotextile filter membrane, where necessary.
- The formation stratum will be examined and signed off by a Chartered Engineer with geotechnical competence.
- Layers of imported stone aggregate material of approximately 4,200 m^3 will then be provided and compacted in layers on geotextile. The depth will be dependent on the area in question. The final formation will be validated with plate bearing tests carried out by a competent testing agency.
- Boundary treatment will be erected including retaining walls.
- The overhead lines on the site will be removed and undergrounded in conjunction with the Electricity Supply Board (ESB) with existing poles and wires removed from the site and disposed of at an appropriate waste disposal facility.

- Utilities including drainage for surface water and electrical ducts for ducting and EV charging will be placed on the site as denoted on the Engineers drawings.
- Kerbing will be placed on the site and may be precast, plastic or *in-situ* concrete kerbs.
- Layers of imported asphalt material of an approximate volume of 1,000 m^3 will then be provided and compacted in layers as per the Engineering drawings. Non-destructive testing will be conducted on placed asphalt to verify it meets the design requirements.
- The final surface gravel will be placed on areas of gravel footpaths.
- Grasscrete will be used mainly for the overflow parking area at the northern end of the proposed new car park. For this, approximately 400 m^3 of concrete will be poured to form a suitable base. Sand/cement mortar will be placed on the concrete slab before approximately 160 m^3 grasscrete blocks are placed.
- Levels will be checked, and sand/compost mix placed in the blocks and compacted.
- Drainage works including gullies and manholes will be installed.
- Green areas will have subsoil and topsoil placed and then seeded. Areas will be landscaped to the Landscape Architect's specification (Refer to **Landscape Design Report** in **Volume III** of the **EIAR**).
- Public lighting, CCTV, and EV charging points will be installed, line marking conducted and finishing works concluded.
- Finally, the Contractor will demobilise from the site.

4.3.6.2 Site Access and Construction Traffic

Access to the proposed new Mountshannon car park site will be via the existing Main Street (R352) entrance located beside The Snug Pizzeria and approximately 15 metres north of Aistear Park.

Traffic at the proposed development site during construction of the new car park at Main Street will include:

- HGVs importing materials such as concrete, road build-up materials, building materials, drainage/ducting materials, structural steel, cabling, site boundary fencing, etc.
- HGVs exporting waste/spoil/demolition materials.
- HGVs delivering plant/cranes and fuel.
- Traffic associated with on-site construction personnel.

Refer also to **Sections 4.3.4** and **4.3.5.2**, above, and the Traffic Management Plan (TMP) in **Volume II** of the **EIAR**.

4.3.7 Works on Inis Cealtra

4.3.7.1 Demolition of Existing Shelter

As part of the proposed works on Inis Cealtra, the concrete shelter adjacent to the existing pier at the northwest side of the island will be demolished. The structure consists of mass concrete walls and floor, with a flat roof, a single window and a door. The principal dimensions of the structure are 4.830 metres x 3.244 metres x 2.57 metres (width x length x height) with a gross floor area (GFA) of 16 m^2. See **Plate 14**, below.

The structure will be dismantled from the top down using hand tools such as a jack hammer to break the existing concrete and timber into sections that can be manually handled. Dismantling will start with the removal of the roof, followed by removal of the window and door, dismantling of walls, breaking out the floor slabs and removal of foundations (if any). The waste material generated will be sorted and readied for disposal/recycling before removal from the island by boat and disposed of by a licensed waste contractor.

Plate 14. Existing concrete shelter to be demolished near the northwestern shores of Inis Cealtra.

4.3.7.2 Access to Island During Construction Phase

The first phase of the works on the island will be to modify the existing concrete slipway to the northwest of the island and to construct the new floating jetty (refer to Section 4.3.7.4, below). Upon completion of these works, the new floating jetty will provide access to the island for personnel/ materials via boat/ barge to facilitate the proposed works associated with the paths and welfare pods.

Boats travelling from Mountshannon Harbour to Inis Cealtra, landing at the new jetty will travel via the established and regularly used navigational channels shown in Figure 16, below.

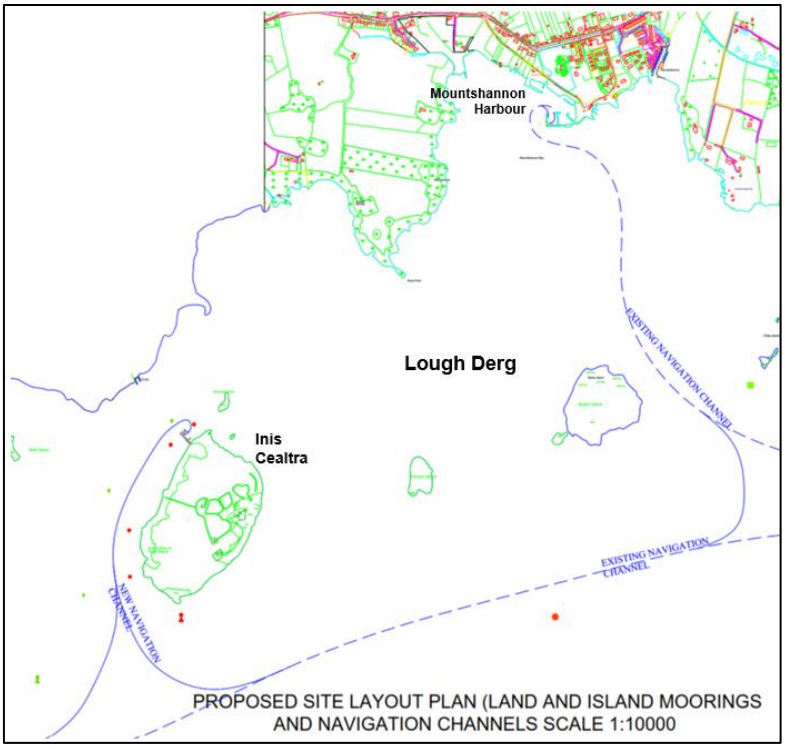

Figure 16: Existing Lough Derg boat navigation channels linking Mountshannon Harbour to Inis Cealtra.

4.3.7.3 Island Welfare Pods

The three new welfare pods to be installed on the island – weather shelter pod, WC, and OPW pod – have been designed as lightweight, timber-framed and timber clad structures with corrugated metal roofs and metal clad timber box inserts (refer also to Section 4.2.4.2, above). New raised timber walkways resting on mini-pile foundations will provide level access to the pods.

While each pod serves a distinct function, all three have been designed as freestanding, timber pavilions, raised on timber legs, and are constructed using similar methods with no excavation works required. There will be two distinct elements to the pods: i) a lightweight, prefabricated timber (oak) exo-frame resting on mini-pile foundations and, ii) an oak-framed, oak-clad pod structure that will sit into the exo-frame.

Photovoltaic (PV) panels will be installed on all roofs to power essential equipment, including lighting and a small pump in the WC pod.

To minimise any potential construction impacts, the pod components will be prefabricated off-site and assembled on the island. Furthermore, the pods have been designed to be dismantled and removed if required and ensuring little trace of them is left on the landscape.

4.3.7.3.1 Site Preparation – Cut Back of Vegetation

The pods will be erected in the shelter of existing woodland or scrub to ensure their minimal visual impact, and although their siting was carefully considered to avoid any vegetation removal, there may be some scrubby vegetation and/or grass at the proposed pod locations. Should this be the case, scrub and grass will be cleared using a flair mower and lawnmower, respectively. This work will be performed outside of the bird nesting season to ensure no disturbance occurs. The area will then be landscaped to the Landscape Architect's specification in the Landscape Conservation and Management Plan in Volume III of the EIAR.

4.3.7.3.2 Weather Shelter Pod and OPW Pod

Foundations

The foundations of the weather shelter pod and OPW pod will both be supported by a series of screw piles installed to a depth sufficient to ensure a stable load-bearing capacity. Installation will be carried out using a tracked mini-digger equipped with a screw pile anchor drive attachment. The use of screw piles rather than concrete piles ensures quick and efficient installation without any requirement for excavations.

Timber Structural Frame

The structural frames of the weather shelter pod and OPW pod will both be built on-site using treated timber. The timber will be transported to the island from the mainland by boat from Mountshannon Harbour, unloaded at the new jetty, and stored nearby. When required, it will then be transferred to the proposed weather shelter pod and OPW pod locations where it will be assembled into the structural frames of the pods. See Figure 17, below.

Cladding and Finishes

The structural frames of the pods will be clad with timber inside and out, including the walls, floor, and roof. Timber used for cladding will be taken from the same timber store as that used for the structural frames of the pods as mentioned in the previous paragraph. The pods' envelope will be insulated and fitted with necessary membranes to ensure it is airtight and weatherproof. Timber windows and doors will also be installed.

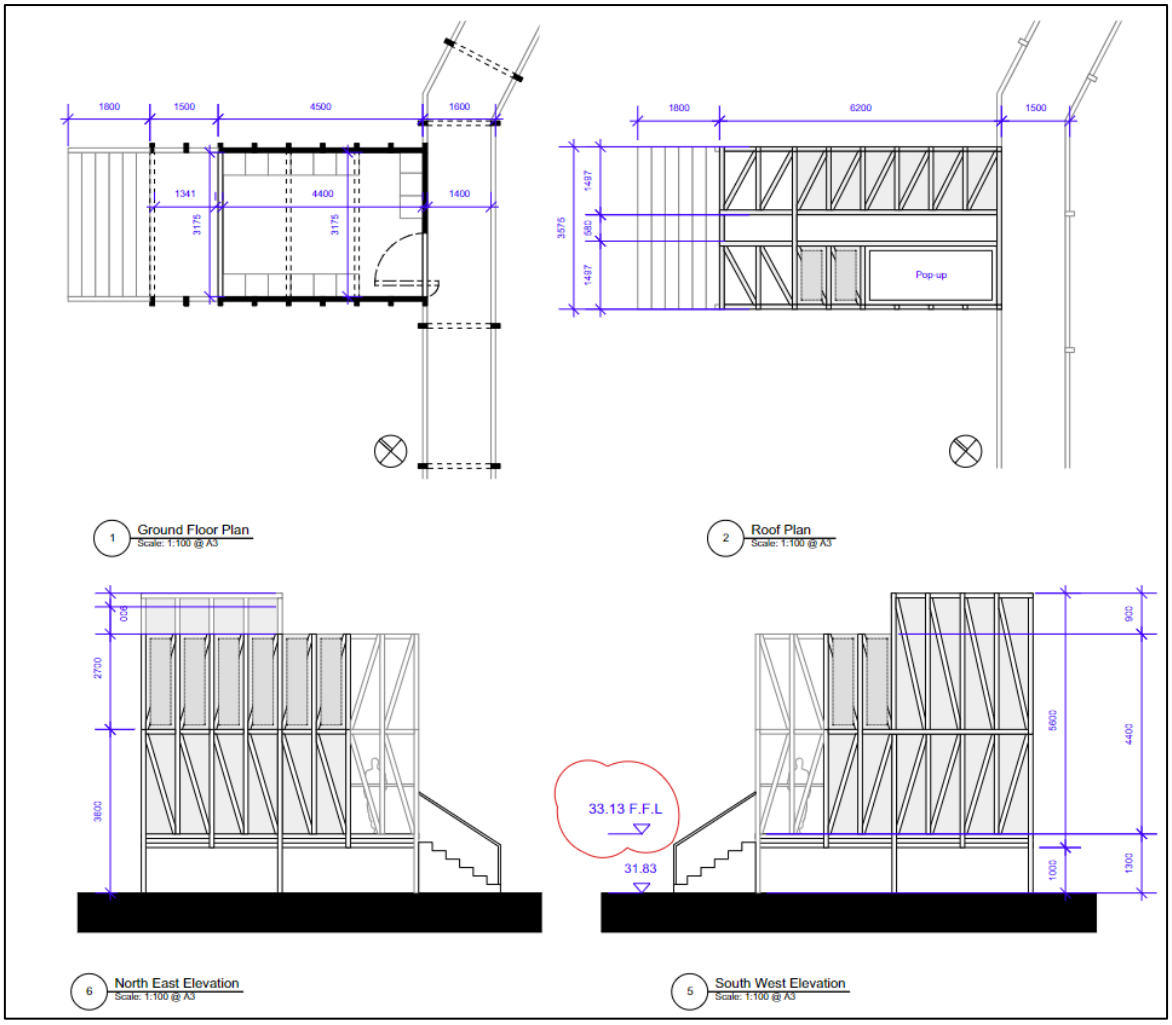

Figure 17: Layout drawings of the proposed Weather Shelter Pod to be located near the new mooring point at the northwest shores of Inis Cealtra.

4.3.7.3.3 WC Pod

The dry WC pod will consist of the following five separate, prefabricated elements:

1) A fully sealed high-density polyethylene (HDPE) tank;
2) A ventilation chimney attached to the tank;
3) A WC enclosure with a toilet;
4) A wormery; and,
5) An oxygenation box for pre-treatment of waste products.

The foundations and structural frame of the WC pod will be almost identical to those described in the preceding paragraphs in relation to the weather shelter pod and the OPW pod.

In a dry toilet system, the HDPE tank is usually installed underground, however, in this case, due to the archaeological sensitivity of the island, the tank will be placed at ground level and new ground mounded up to more than 850 millimetres around the tank to conceal it. The ventilation chimney and WC enclosure will be constructed on top of the concealed tank while the wormery and oxygenation box will be placed on the ground behind the WC. A separate timber-framed and clad structure will be constructed around this.

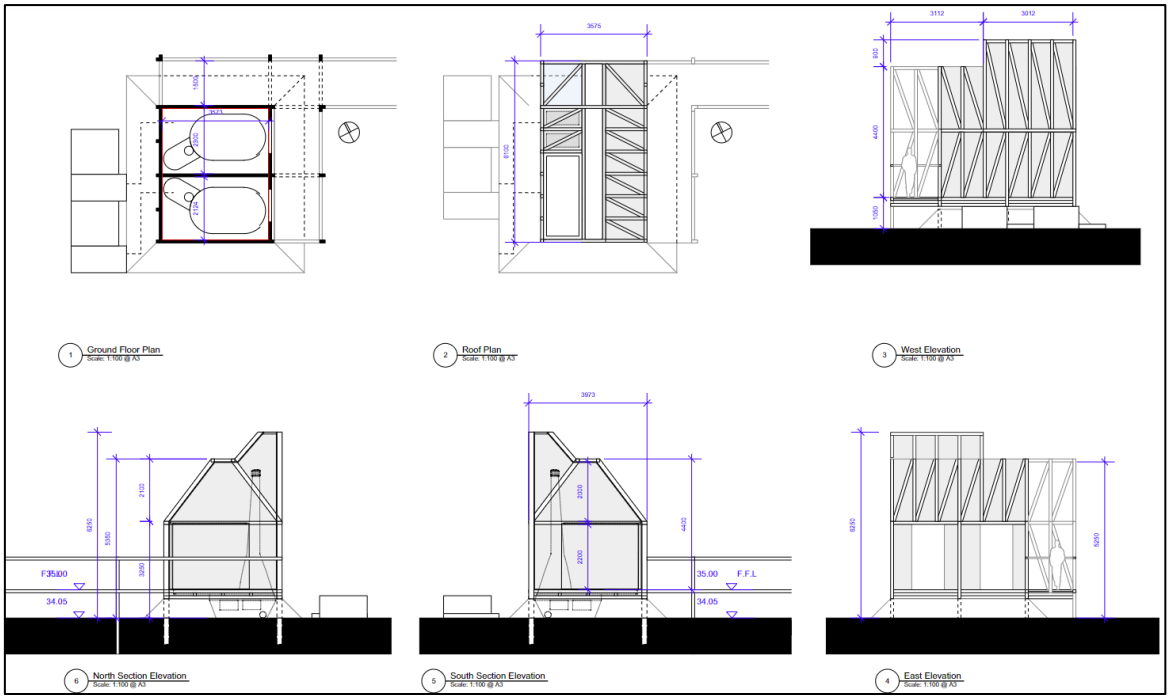

Figure 18: Layout drawings of the proposed WC Pod to be located within northern regions of Inis Cealtra.

Plate 15. Indicative dry toilet typical configuration.

4.3.7.4 Floating Access Jetty, Canoe Launch and Access Walkway

A new floating access jetty will be installed at the site of the existing concrete landing point (see Plate 12, above) on the northwestern shore of Inis Cealtra. The new L-shaped jetty, which has been designed as a breakwater jetty to provide safer mooring, will be made up of three principal parts – a floating breakwater jetty, a stone and concrete causeway, and a steel access ramp connecting the two. Refer to extract of Waterways Ireland (WWI) drawing in Figure 19, below.

The floating jetty will be approximately four metres wide and held in position using 4 no. 800 mm diameter steel piles. The existing concrete landing place will remain in-situ on the shore and the causeway constructed over it.

The causeway will consist of a concrete anchor platform, held in place using 4 no. 203 mm H- piles, around which stone gabions will be placed and built up to provide a three-metre-wide level surface before finally being paved with stone. To connect the new jetty with the causeway, a nine-metre-long steel access ramp will be fitted between them. A second smaller access ramp will connect a new canoe launch jetty to the causeway.

Further details of the methodologies to be utilised for construction of the new floating access jetty, canoe launch and access walkways are set out in the following sub-sections.

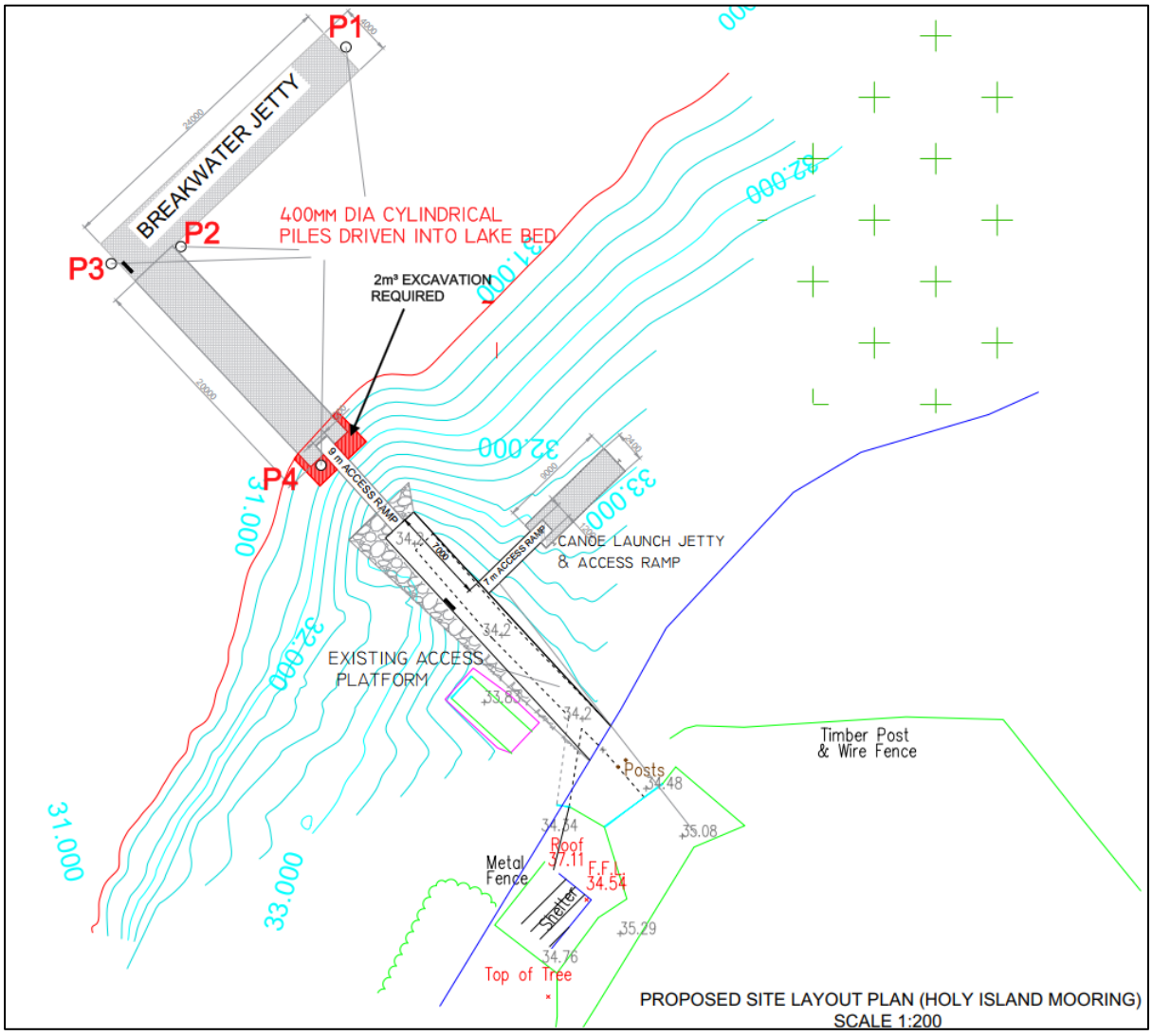

Figure 19: Extract from Waterways Ireland site layout plan (Drawing Number: T01/WSS/P/02) for proposed new jetties and visitor mooring at Inis Cealtra.

4.3.7.4.1 Methodology for Construction of the New Causeway

An excavator fitted with a piling attachment will be secured to a pontoon raft in a similar manner to that already described in Section 4.3.3.2.1, above, with the raft held in place using two spud legs[29] pushed into the lakebed to prevent any movement or drifting. From the pontoon raft, the excavator will vibrate/drive the H piles and outer trench sheet piles into the bed before tracking off the pontoon raft and onto pre-placed timber mats at the southwest side of the access causeway from where the remaining trench piles can be driven.

Gabion mattresses (1 m x 2 m x 0.9 m), pre-filled on the mainland with broken washed stone, will be placed by the excavator on the exposed side of the existing causeway structure and inside the trench sheet wall. Loose

[29] Spud-leg: a barge pin-anchor system for securing floating work platforms to the watery bed to prevent general movement and drifting from the work area. JENAL Sud-Legs - The mooring legs that make JENAL secure Accessed: 14th November 2024.

stone will also be transported out from the mainland on the pontoon raft in 1 m^3 bags to be used as infill where required during construction of the causeway.

Four no. 254 x 254 H piles, driven by a piling attachment on the excavator and vibrated into the lakebed, will support a concrete anchor block overlaying the trench-sheet-finished front face of the causeway. This concrete platform will be constructed and poured only after shuttering of the anchor base area. A timber fender will be bolted to the top of the trench sheet piles to act as a screed for the concrete finish

Concrete for the base will be delivered ready-mixed to Knockaphort Port where it will be poured into small skips that are then placed on the pontoon raft for delivery to the construction area. Once *in-situ*, the excavator will pour the concrete from the skips into the shuttered area. This concrete platform will be the anchor point for the ramp to the floating jetty. The causeway will be finished with a rough concrete brushed finish with a 1:75 gradient.

The exposed southwest facing side of the causeway will be faced with large stone (300 to 600 mm) that will act as wave breakers – see **Figure 20**, below. These large stones will be placed on the pontoon raft at Knockaphort Pier and shunted by workboat to the construction site.

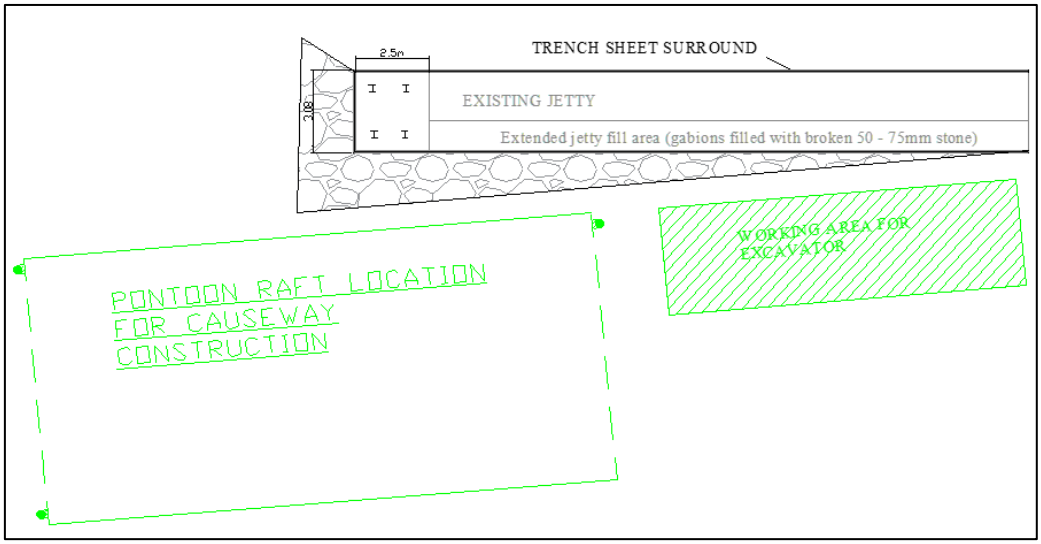

Figure 20: Proposed set up of pontoon raft for installation of breakwater rocks during construction of the causeway at the northwest shore of Inis Cealtra.

4.3.7.4.2 Methodology for Construction of New Floating Jetty and Canoe Launch Jetty

The floating jetty will be delivered in sections to Mountshannon Harbour where it will be assembled over water and then towed by the 'Coill an Eo' to the proposed new jetty site at the northwest of Inis Cealtra. A core drilled rig will also be brought to the site after being loaded onto the pontoon raft at Mountshannon slipway.

From the pontoon locations indicated in **Figure 15**, above, the four no. jetty piles will be core drilled into the lakebed at the locations shown as P1, P2, P3, and P4 in **Figure 19**, above.

Some limited excavation of the lakebed will also be required on the southern end of the breakwater jetty. This will involve using the excavator digging shovel to remove approximately 2 m^3 of material from the lakebed, placing the excavated material into a skip on the pontoon raft and then removing from site and disposing of in a correct manner. During the excavation process, a silt curtain will be placed around the excavation area. The floating jetty will then be towed into place using the WWI tugboat before being anchored with pile guide brackets.

For construction of the canoe launch jetty on the eastern side of the proposed new causeway (refer to **Section 4.3.7.4.1**, above, for causeway construction details), two no. H piles will be driven into the lakebed by the excavator fitted with a piling attachment from the pontoon raft. Once completed, the canoe launch jetty will have a freeboard of 300 millimetres to the water line.

It is envisaged that the programme of works will take approximately 5 to 6 weeks to complete.

4.3.7.5 New Pedestrian Paths on Inis Cealtra

As discussed in Section 4.2.4.3, above, a network of two-metre-wide mown grass pathways will be installed on the island to enable visitors to explore Inis Cealtra and to access areas of the island that may otherwise have been inaccessible. Refer to Figure 12, above, for the proposed layout of the new pedestrian pathways.

To ensure the path network has minimal visual impact and to avoid any potential effects on subterranean archaeological features, the paths are all proposed as mown paths to existing ground levels. Path 1, which connects the proposed new mooring point to the Round Tower at the east of the island (see Figure 12, above), is expected to be the most frequently used path and, consequently, repairs where necessary to the path's existing stone base are also proposed.

On Path 1 and on other paths where footfall is expected to be heaviest, it is proposed to place a layer of crushed aggregate on the path covered with topsoil so that sufficient air and moisture is available to allow grass development even with heavier footfall. This method will limit topsoil erosion and will only expose the aggregate in extreme situations. No plastics, geotextile or edging are being proposed for use on the island.

4.3.7.5.1 Cut Back of Vegetation

On Inis Cealtra, some small areas of vegetation will be altered/cut back to assist with the interpretation of the landscape, particularly along the alignment of the ecclesiastic enclosures and space around the Lady Well on the southeastern side of the island. Overall, approximately 0.308 hectares of 'Wet grassland (GS4)' and 0.0066 hectares of 'Marsh (GM1)' will be cut back/altered to enable installation of the pedestrian pathway network on the island. Cut back of scrub may also be necessary along the western edge and northern tip of the island to allow space for the mown grass path.

4.3.8 Construction Working Hours

Typically, construction will occur within the following hours:

- 08.00 to 19.00, Monday to Friday, inclusive, and
- 08.00 to 13.00 on Saturdays.

There is to be no work on Sundays or Bank Holidays without pre-approval from the Local Authority.

Since the concrete pours need to occur continuously, the working day may extend outside normal working hours to limit traffic impact on other road users, particularly peak period school and work commuter traffic. Such activities are limited to the day(s) of concrete pours. Working hours will be confirmed at the outset of the project and any changes in hours will be agreed with the Local Authority.

4.3.9 Construction Personnel

During the construction phase of the proposed development, the number of onsite construction personnel will vary for each element of the development. Construction personnel required may include site contractors, on-site vehicle and plant operators, engineers, materials delivery personnel, environmental personnel, health and safety personnel. Table 12, below, lists the anticipated number of construction personnel required during peak construction phase for each element of the proposed Inis Cealtra Visitor Experience development.

Table 12. Anticipated number of construction personnel required during peak construction periods for each element of the proposed development.

Element of development	Number of construction personnel
Inis Cealtra	25

Element of development	Number of construction personnel
New Mountshannon Village Car Park	20
Visitor Centre, Mountshannon Harbour Public Realm Upgrades and Car Park Reconfiguration	50

4.4 Operational Phase

4.4.1 Visitor Centre

4.4.1.1 Building Uses and Facilities

The proposed Visitor Centre will include a series of spaces and facilities to serve visitors, staff and members of the community as follows:

- Entrance foyer and ticketing area.
- Interpretation, exhibition, and education spaces, including audiovisual, exhibition and education rooms – intention is to cater for tourists (domestic and international), school groups, special interest groups, and corporate groups.
- Flexible café/event space located on the building's western side and accommodating a ground floor dining room and servery space with additional seating at an upper mezzanine level - this can be used for functions either with the café or independently.
- Visitor facilities including retail area, waiting spaces, island briefing and preparation areas, and management facility.
- Research Centre and facilities for the support of the white-tailed sea eagle (*Haliaeetus albicilla*) project.
- Office and Administration area.
- Back-of-house facilities include plant rooms, kitchen, delivery bay, bins, facilities management, storage.
- Circulation area including two stair/lift cores.

4.4.1.2 Landscape

The area to the front of the new building, in front of its main façade has been designed as a semi-circular plaza. The generosity of the space will provide a comfortable place for people while they wait to board a boat, to gather after they have returned from the island, or to sit out and enjoy purchases from the café. The area will be paved in natural stone, with its geometry continuing the curved form of the building to complete the circle.

The roof terrace of the Visitor Centre will be accessible from the building itself and from the Old Rectory building via a gently-sloping, winding path. There will also be a significant amount of visual access between the Old Rectory building and the new visitor centre with the instalment of a mown reinforced grass strip for pedestrian use which will also connect to the Old Rectory formal garden.

Where the public realm intersects with the existing road, it will be a shared space with cars, with its slightly raised level helping to control vehicular speeds and ensuring pedestrian safety.

4.4.1.3 Access

A pedestrian route through Aistear Park to the west of the Old Rectory site incorporated within the permitted Part 8 development (Planning Application Number: 238001) (refer also to **Section 1.4**, above), will ensure pedestrian access between the proposed new car park at Main Street and the Visitor Centre site through an

opening in the boundary of the site. The new Visitor Centre will allow for pedestrian access directly to the shared space being created in the Mountshannon Harbour Car Park.

Cyclist and vehicular access will be through the existing vehicular entrance on Harbour Road which will be maintained. The existing access track serving the site will be realigned as part of the proposed development to accommodate the Visitor Centre. This revised internal road layout of the Visitor Centre site has been subjected to a swept path analysis of a bin lorry and a fire engine.

Sheffield stands providing 32 secure bicycle parking spaces will be installed in front of the Visitor Centre to serve staff and visitors. This bicycle parking is additional to the 20 bicycle parking spaces provided further north within the Old Rectory site to serve the new Interpretive Centre (Planning Application Number: 238001) (refer also to Section 1.4, above) and the 40 bicycle parking spaces within the new Village car park at Main Street which forms part of this project.

A full description of the proposed access arrangements is contained in the Architectural Design Statement and Civil Utilities Planning Report in Volume III of the EIAR that accompanies this application.

4.4.1.4 Drainage

4.4.1.4.1 Storm Water

There is an existing storm water system on the site attenuating discharge from the Old Rectory building. Once operational, the proposed system will attenuate flows generated from the impermeable surfaces within the Visitor Centre development. This will utilise a separate attenuation system with a hydrobrake downstream restricting flows to the greenfield runoff rate.

The proposed drainage network will incorporate sumps within manholes for silt removal and a bypass petrol interceptor prior to discharge.

4.4.1.4.2 Wastewater

The site is currently served by a wastewater/foul system that was installed as part of the redevelopment of the Old Rectory building which includes a treatment unit. This treatment unit reduces the biological load from the effluent prior to discharging into the public sewer on Harbour Road.

It is proposed that the foul water generated within the Visitor Centre will be treated by the existing on-site treatment unit prior to discharge by an existing connection to the foul sewer in Harbour Road. Uisce Éireann have confirmed that this connection is feasible. More information is included within the Civil Utilities Planning Report that accompanies the Planning Pack.

4.4.1.5 Water Supply

An existing 150 mm diameter water main is located on Harbour Road, south of the proposed Visitor Centre. A 100 mm diameter pipe will connect to this water main via an existing T-junction installed at the site entrance. The T-junction is split into two branches: the western branch will be reserved for connection to the Visitor Centre, pending planning approval, and the eastern branch will serve the Old Rectory building. The existing network and the Uisce Éireann confirmed feasibility for this new connection is shown in the Confirmation of Feasibility document within the Civil Utilities Planning Report that accompanies the Planning Pack.

4.4.1.6 Services

4.4.1.6.1 Electrical Supply

There is an existing Electricity Supply Board (ESB) substation located on the Old Rectory site. As part of the works associated with the new Interpretive Centre in the Old Rectory building, a new ESB mini pillar has been installed

inside the main entrance gate, and a three-phase electrical supply to the proposed Visitor Centre will be fed from this mini pillar.

4.4.1.6.2 Telecommunications

The existing Eir network enters the Old Rectory site from Mountshannon Court to the north. As part of the works to the Old Rectory building to facilitate a new Interpretive Centre, a spare communications duct was installed from the Eir chamber in Mountshannon Court to the main entrance gate. A new duct will tee off from this existing duct to provide a Broadband connection to the Visitor Centre.

4.4.2 New Mountshannon Village Car Park at Main Street

4.4.2.1 Access, Parking and Circulation

The new car park has been designed to accommodate the expected fluctuations in vehicular volumes and projected visitor numbers where full-capacity (or near-full) will only be required during the busiest summer months. Consequently, the design has split the car park between a permanent parking and an overflow parking area at then north of the site to be operated during the busiest periods only (see **Figure 11**, above).

A two-way traffic system will operate within the permanent car park area at the southern section of the site which will allow buses/coaches to enter and exit the site without the need for reversing. Furthermore, the design has incorporated an area that provides means by which buses can traverse through the car park should all available coach-parking spaces be occupied.

When operational, traffic calming measures such as speedbumps will be installed at appropriate intervals to reduce the speed of motor traffic using the new Mountshannon Village car park. This will assist with reducing speeds and increase driver awareness of vulnerable road users/pedestrians within the car park. The sightlines at the car park entrance at Main Street have been developed taking cognisance of traffic calming measures including speed cushions, pedestrian crossings, and carriageway narrowing which have been installed on Main Street to reduce the design speed to 30 km/hr.

4.4.2.2 Drainage

Once operational, the storm drainage management regime at the new Mountshannon Village car park at Main Street will be served by both hard and soft engineering solutions. A traditional stormwater sewer system will operate in combination with Sustainable Drainage Systems (SuDS)[30] measures to manage the stormwater runoff generated by the proposed site. The site has been split into multiple sub-catchments within the main catchment of the overall car park development. Surface water runoff from these sub-catchments will be captured via a combination of stormwater gullies and filter drains. The SuDS features such as filter drains have been designed and integrated within the car park development while taking cognisance of the four main pillars of SuDs - water quantity, water quality, amenity and biodiversity. The storm water management system will tie into a combined public sewer located on Main Street (R352).

Discharge from the site will be limited to greenfield runoff rates. Reinforced Grasscrete paving in the overflow car park will allow for ground infiltration of rainfall once the car park is operational. Furthermore, the access road through the site will be sloped eastwards and a dry swale put in place to allow any surface water runoff to infiltrate naturally to the ground.

[30] Sustainable Drainage Systems (SuDS) is a way of managing rainfall that minimises the negative impacts on the quantity and quality of runoff whilst maximising benefits of amenity and biodiversity for people and the environment using permeable paving, swales, green roofs, rainwater harvesting, detention basins, ponds, wetlands, and other methods. Sustainable Drainage Systems - SDCC Accessed: 14th November 2024.

4.4.2.3 Water

There is no requirement to install a water supply connection to the new car park. Similarly, there will be no need for a foul sewer system during the operational phase of the new Mountshannon Village car park.

4.4.3 Mountshannon Harbour Car Park

Once operational, the reconfigured Mountshannon Harbour car park will improve circulation around the harbour and create a shared space that has been designed to allow all road users, including those that are vulnerable, to easily cross between the Visitor Centre and Mountshannon Harbour. Traffic calming features will be implemented to reduce the risk to road users, and the speed limit will be reduced locally to accommodate the development.

The disposal of stormwater at the car park will not change the site's existing hydraulic regime – existing outfalls will be maintained, and the addition of green areas will assist with reducing the rate runoff from the area. There is no requirement for a water connection to serve the area nor is there a need for the installation of a wastewater/foul system.

Operational lighting at Mountshannon Harbour will be designed according to IS EN 12464-2:2014, the National Standards Authority of Ireland exterior lighting installations requirements.

4.4.3.1 Water Supply

There is no proposal to install a water supply connection to the new Mountshannon Village car park.

4.4.3.2 Wastewater

There is no requirement for a foul sewer system within the new Mountshannon Village car park. Visitors will have access to toilet facilities within the Visitor Centre (and on Inis Cealtra in case of emergencies).

4.4.4 Inis Cealtra

4.4.4.1 Storm Water

Stormwater generated on the island will be managed at its source by dispersing the runoff through the natural vegetation of Inis Cealtra and the use of permeable materials to maximise the use of SUDS measures where reasonably practicable. There are no plans to implement an underground sewer system.

4.4.4.2 Wastewater

A dry toilet system will be implemented to overcome the logistical challenges of removing solids and liquids. Deposited waste will be separated into liquid and solid form. This waste will then be stored in a holding container as part of the dry toilet set-up. A contractor will be appointed to manage the maintenance of the foul system and waste removal from the island. The designated maintenance contractor will ensure that the waste is delivered to the appropriate Uisce Éireann treatment facility, where it will be processed in accordance with Uisce Éireann standards. Uisce Éireann has advised that the effluent collected will likely be taken by an authorised and licenced tankard wastewater haulier to Bunlicky Wastewater Treatment Plant (WWTP) in Limerick City.

4.4.4.3 Water Supply

It is not feasible to establish a direct water supply connection to the existing Uisce Éireann network to serve Inis Cealtra due to its inherent constraints. In this instance, it is proposed to serve the island with a bottled potable water supply that will meet the needs of island staff and medical needs of visitors, if required. Regular boat trips

will be scheduled to transport sufficient potable water to meet the needs of staff and visitors. This method of water delivery will be carefully managed to maintain availability and uphold health and safety standards.

4.4.5 Operating Hours

4.4.5.1 Visitor Centre

The Visitor Centre will operate seasonally, from March to September. On opening, operating hours will be seven days per week as follows:

- March to June - 09:00 until 17:00
- July to September - 09:00 until 18:00

Outside of these times, the Visitor Centre may open for groups, school tours or private bookings, according to demand. The season may expand to meet future demand in the years ahead.

4.4.5.2 New Mountshannon Village Car Park

The new car park will always be operational and will have a barrier system implemented to control traffic, maintain security, and enhance operational efficiency.

4.4.5.3 Inis Cealtra Walking Trails and Tours

The island tours will operate seasonally, from March to September, inclusive, and operating hours will be seven days per week as follows:

- March to June - 09:00 until 17:00
- July to September - 09:00 until 18:00

In the event, that the Visitor Centre operates outside these designated hours to accommodate additional demand, no additional boat tours will be offered.

4.4.6 Visitor Numbers and Boat Trips

Boat tours to Inis Cealtra from Mountshannon Harbour will operate between March and September, inclusive. Between two and eight daily round trip boat services during low and high season, respectively. One 45-minute guided tour of the island per boat is proposed with an optional self-exploration of the island limited to two hours.

The maximum daily capacity for boat and island tours will be 400 with no more than 100 visitors permitted on the island at any one time. It is estimated that by year five of the project's implementation, there will be approximately 45,000 visitors annually via boat from Mountshannon to Inis Cealtra.

4.4.7 Management Structures

Clare County Council via Clare Tourism Development DAC[31] will manage and operate the Inis Cealtra Visitor Experience, inclusive of the Visitor Centre, new Mountshannon public car park facilities off Main Street, and the welfare facilities on Inis Cealtra. The café in the Visitor Centre will be operated by lease.

Aistear Park, through which visitors will walk from the new Mountshannon public car park at Main Street to the Visitor Centre, is owned and managed by Mountshannon Community Council.

[31] Clare Tourism Development Designated Activity Company (DAC) is a subsidiary company of Clare County Council that oversees the management, development, and promotion of a portfolio of signature visitor attraction sites throughout County Clare.

Currently, the Minister for Housing, Local Government and Heritage is responsible for the protection of the archaeological remains on Inis Cealtra. The local authority also has responsibility for municipal burial grounds located on the island. The Office of Public Works (OPW) is responsible for the management of the national monuments on Inis Cealtra and the National Monuments Service (NMS) is responsible for the conservation and recording of the site.

Waterways Ireland (WWI) has responsibility for the management, development and promotion of Lough Derg and the Shannon Navigation, including Mountshannon Harbour and the jetty on Inis Cealtra. There will be no change to the role of the statutory bodies responsible for the national monuments and conservation measures on Inis Cealtra, nor the role of Waterways Ireland.

Primary access to Inis Cealtra will be via guided boat tours operated by licenced boat operators. Licences will be awarded by tender by Clare County Council on a 3-year basis. Subject to demand, licences will be awarded to a single or multiple operators. A concessionary rate will be available to existing boat hire companies such as the five boats from Lakeside Holiday Park in Mountshannon. Members of the local community and members of Lough Derg Anglers will be able to land for free with a permit-style approach. Guided tours on the island will be operated by Clare Tourism DAC, staffed by Inis Cealtra Visitor Experience. Their role will also include monitoring and surveying of visitor impacts.

Key stakeholders involved in the management of Inis Cealtra will form a representative group, the Inis Cealtra Management Group, to have oversight both in terms of the strategic management of the island and the operational management of the island. This group, led by Clare County Council, will include OPW, NMS, Waterways Ireland and Department of Housing, Local Government and Heritage. Inis Cealtra Community Forum will be established to represent the local community in the management of Inis Cealtra and the delivery of the new visitor experience. Its role will be to facilitate local community input and linkages as the project develops, ensuring the socio-economic benefits of this project are reflected across East Clare. It will also serve as a liaison with Clare County Council in managing local access to Inis Cealtra.

4.5 Decommissioning Phase

Since the design life of all elements of the proposed development is greater than 60 years, the development is considered permanent. Consequently, a decommissioning phase is not assessed in this report and the phase will not be considered further in the NIS.

5. Identification of Other Plans, Projects and Activities

5.1 Introduction

A cumulative impact arises from incremental changes caused by other past, present or reasonably foreseeable actions, together with the project. A review was undertaken of relevant existing and proposed projects, activities and plans occurring in the environs of the proposal site that could act in combination with the proposed development to determine whether any potential significant cumulative effects may arise, and the results are presented in the following subsections. In-combination impacts will be considered in Section 7.7, below.

The main pressures that could act in combination with the proposed Inis Cealtra Visitor Experience in its various phases (construction and operation) relate to land management. The lands at the proposed development site at Mountshannon are predominantly located within the urbane fabric of the village while lands at Inis Cealtra and the surrounding lake waters are mainly managed for historic/cultural purposes and recreational activities.

5.2 Plans

Published in July 2017, the Inis Cealtra Visitor Management and Sustainable Tourism Development Plan[32], was commissioned by Clare County Council to ensure the long-term conservation of Inis Cealtra as a profoundly significant historic and cultural site whilst simultaneously establishing the island as a successful yet sustainable tourist destination.

Additionally, a Tourism Masterplan for the Shannon (2020–2030) entitled '*The Shannon Mighty River of Ireland: Reimagining the River Shannon and Shannon Erne Waterway*'[33], commissioned by Waterways Ireland in strategic partnership with Fáilte Ireland, sets out an integrated framework for sustainable tourism development along the entire Shannon River. Geographically well-positioned and easily accessed by motorway and national roads, Inis Cealtra and Mountshannon feature prominently within the Masterplan as attractive and interesting touristic destinations. Developed in parallel with the Masterplan, the Lough Derg Visitor Experience Plan (2020-2024)[34] frames Inis Cealtra as the focal point within a series of interconnected water and land trails that link to 'a necklace of historic lakeside villages and harbours' on both western and eastern shores of Lough Derg. Other plans relevant to the proposed development are the Clare County Development Plan (2023-2029)[35], and the Clare Biodiversity Action Plan (2024-2030)[36] which is currently in the latter stages of preparation.

[32] Inis Cealtra: Volume 1: Visitor Management and Sustainable Tourism Development Plan Accessed:2nd November 2024
[33] Tourism-Masterplan-for-the-Shannon 2020-30.pdf Accessed: 2nd November 2024
[34] Lough Derg_Visitor Experience Development Plan 2020_191120.pdf Accessed: 2nd November 2024
[35] Clare County Development Plan 2023-2029 | Planning, heritage and conservation | Services | Clare County Council (clarecoco.ie) Accessed: 12th December 2023
[36] clare-biodiversity-action-plan-2024-2030-issues-paper-54864.pdf Accessed: 2nd November 2024

5.3 Other Permitted and Proposed Developments in the Locality

A search of Clare County Council's (CCC) online planning enquiry system for granted or on-going planning applications for the townland of Mountshannon, Inis Cealtra, and western shores of Lough Derg at Knockaphort was undertaken on 2nd November 2024, the results of which are presented in **Table 13**, below.

Table 13. List of granted and/or on-going planning applications within the vicinity of the proposed development site.

Application No.	Applicant	Location	Proposed Development	Decision and Date
23597	Brett and Marcha Cox	Main St, Mountshannon	Retain use of former office as shop and coffee shop, retain garden room erected alongside coffee shop and house, and permission for change of use of garden room to coffee roaster, toilet and all associated site works.	Granted: 05/03/24
2360172	Jamie and Rachel Keating	No. 3, Harbour View, Mountshannon.	Renovation and extension of existing dwelling house to include (1) Removal of existing balcony and replace with new balcony area (2) Significant Alterations to North, South and West elevations and all associated site works.	Granted: 23/08/23
238001	Clare County Council	The Old Rectory, Mountshannon	See **Table 1** in **Section 1.4**, above.	Granted: 09/08/23
CCC: 22123 ABP: 313431	Mountshannon Community Council	Aistear Park, Mountshannon	Erect a Pavilion (a roofed open structure) for communal, cultural, education and events and gatherings and all associated site works.	CCC Granted: 07/04/22 Appealed to ABP: 27/04/22 ABP Granted: 24/07/23
22269	Inis Housing Association CLG	Mountshannon	Development of 11 no. dwelling houses of varying size and design, 1 no. building containing 2 no. apartments, new site entrance, development access roads paths, landscaping, service connections and associated site works & services.	Granted: 03/05/23
22688	Josephine O'Brien	Mountshannon	Entrance and front boundary wall as constructed and all associated site works	Granted: 27/10/22
22340	Paul Knapp	The Old School House & Church, Mountshannon	Development to existing building (protected structure (RPS No. 130)); (a) Retain change of use of building from church/school to single private residential unit; (b) Permission to replace existing roof covering with natural slate, re-render exterior of building with lime render, provide three no. new conservation roof windows to rear of roof and all associated ancillary site works.	Granted: 13/07/22
22124	Dermot O'Sullivan	Mountshannon	Retention of porch as constructed to the front of the house and retain two sheds erected at rear of house and all associated site works.	Granted: 11/05/22
21985	Josephine O'Brien	Mountshannon	Garage/shed as erected to rear of house and all associated site works.	Granted: 15/12/21
21968	Pat Sweeney	Mountshannon	Construction of a garage/shed.	Granted: 08/12/21

Application No.	Applicant	Location	Proposed Development	Decision and Date
21555	Adrian Dooley	Millpool Road, Mountshannon	Erect a dwelling house, garage, driveway, install effluent treatment system and polishing filter and all associated site works.	Granted: 19/11/21
21253	Mary Teresa Ryan	Old Rectory, Mountshannon	Retain demolition works and alterations to existing out-buildings (part of Old Rectory Protected Structure (RPS No.464)) and retain the constructed works to same incorporating garage and storage sheds.	Granted: 23/06/21
218000	Clare County Council	The Old Rectory, Mountshannon	Alterations, modifications and partial change of use of Old Rectory on site measuring 1.17ha, consisting of: i. Construction of 57sqm single-storey ground floor extension to northwest of building (double height space) - max. height of 6.4m (lift height 7.8m) above ground level for Education/Enterprise space of 30sqm, new internal stair access; ii. Ground floor change of use from residential to a) Education/Enterprise Facilities (2 no. rooms with total GFA of 79sqm) b). Reception Area (26sq.) c) Welfare Facilities (5sqm) d) Storeroom (2sqm) e) Plant (3sqm) iii. First floor partial change of use from residential to: a) Community Facility/Co-working Space (16sqm) b) Welfare Facilities (7sqm) iv. 1-bedroom apartment (87sqm) with private amenity space of 50sqm; v. New lift within footprint of existing building; vi. Ground floor - new opening in north and west wall of existing building, new and enlarged openings to internal walls between existing kitchen/utility room and between existing hallway/lounge; vii. First floor - new openings/removal of internal partitions, opening in roof for access to lift and new opening in north wall at first floor; viii. Clean/repoint existing brickwork, repair/replacement of damaged roof slates with natural slate, replacement of PVC windows with double-glazed timber sash windows, removal of modern internal additions (flooring, cornices); ix. Resurface existing vehicular access, construct new vehicle passing bay; x. Construct 1.8m-wide pedestrian footpath west of existing vehicular access; xi. Demolish new build section existing splayed entrance, reinstatement of splayed entrance.	Granted: 27/05/21
20941	Gerry Cantrell	4 Harbour View, Harbour Road, Mountshannon	Retain minor elevational changes to the existing dwelling house.	Granted: 08/03/21

5.4 Environmental Protection Agency (EPA) Facilities

A review of the EPA online mapping tool[37] determined that there are no IPPC, IPC or IEL[38] facilities within the immediate vicinity of Mountshannon Village or Inis Cealtra. The nearest EPA licensed facilities are located in Scarriff Village approximately five kilometres southwest of Inis Cealtra.

There are several other licensed waste facilities and active Industrial Pollution Control (IPC) sites located within twenty kilometres of the proposed development sites at Mountshannon and on Inis Cealtra – see **Table 14,** below.

Table 14. Licensed waste facilities and active licensed Industrial Pollution Control (IPC) sites within 20 km of the proposed development site.

License type	Name	Active license number	Facility address	Approx. distance from nearest point of proposed development site
Waste	Bord Na Móna Recycling Limited	W0240-01	Solsborough, Springfort Cross, Nenagh, Tipperary	16.3 km southeast of Inis Cealtra
Integrated Pollution Control (IPC) (formerly IPPC)	Fair Green Environmental Limited	P0022-03	Scarriff, Clare	5.6 km southwest of Inis Cealtra
	Procter & Gamble (Manufacturing) Ireland Limited.	P0067-01	Gortlandroe Industrial Estate, Nenagh, Tipperary	15.7 km southeast of Mountshannon Harbour
	Beckman Coulter Ireland Inc. Unlimited Company	P1131-01	Lismeehan, O'Callaghan's Mills, Ennis	17.5 km southwest of Inis Cealtra
Industrial Emissions Licence (IEL)	Molloy Woodcrafts Limited	P0534-01	Killaloe Road, Scarriff, Clare	5.1 km southwest of Inis Cealtra
	Anglo Beef Processors Ireland Unlimited Company t/a ABP Nenagh	P0184-01	Grange, Nenagh, Tipperary	16.5 km southeast of Mountshannon Harbour
	Arrabawn Co-operative Society Limited	P0791-03	Stafford Street, Nenagh, Tipperary	17.4 km southeast of Mountshannon Harbour
	John Godfrey, Patrick Gallagher & Francis Costello t/a The Lisbunny Partnership	P0118-02	Lisbunny Industrial Estate, Nenagh, Tipperary	18 km southeast of Mountshannon Harbour

There are five urban wastewater treatment plants (UWWTP) located within the Lower Shannon (25C) Catchment - summary details of each are listed in **Table 15,** below, along with approximate distances and locations.

Table 15. Summary of urban wastewater treatment plants located in the Lower Shannon (25C) Catchment.

Facility name	Facility type[39]	Active license number	Approximate distance and location from proposed development site
Scarriff	1,001 to 2,000 p.e.	D0319-01	5.2 km west of Inis Cealtra
Nenagh	> 10,000 p.e.	D0027-01	17.3 km southeast of Mountshannon Harbour
Borrisokane	1,001 to 2,000 p.e.	D0326-01	21.2 km northeast of Mountshannon Harbour
Portumna	2,001 to 10,000 p.e.	D0196-01	21.8 km northeast of new car park site at Main St.
Cloughjordan	500 to 1,000 p.e.	D0475-01	25.8 km east of Mountshannon Harbour

[37] EPA Maps Accessed: 19th October 2024
[38] Integrated Pollution Control (IPC) Licence (formerly IPPC Licence), and Industrial Emissions Licence (IEL)
[39] Defined using population equivalent value (p.e.)

There are eighteen smaller sewage treatment plants within the Lower Shannon (25C) Catchment that treat sewage produced by less than 500 people (< 500 p.e.) - summary details of the five nearest of these plants to the proposed development site are presented in **Table 16**, below.

Table 16. Summary details of the five nearest smaller sewage plants (< 500 p.e.) within the Lower Shannon (25C) Catchment.

Facility name	Active license number	Treatment type	Sub-catchment	Approximate distance and location from proposed development site
Mountshannon	A0064-01	2 - Secondary Treatment	Shannon[Lower]_SC_070	0.27 km west of proposed new car park site at Main St.
Whitegate	A0077-01	2 - Secondary Treatment	Bow_SC_010	4 km east of Mountshannon Harbour
Portroe	A0182-01	2 - Secondary Treatment	Youghal[Tipperary]_SC_010	9 km southeast of Inis Cealtra
Dromineer	A0186-01	2 - Secondary Treatment	Nenagh_SC_020	10.6 km east of Mountshannon Harbour.
Newtown	A0195-01	2 - Secondary Treatment	Youghal[Tipperary]_SC_010	11 km southeast of Inis Cealtra

5.5 Existing Land-use and On-going Activities

Agriculture and forestry are the chief land-use activities within the Lower Shannon (25C) Catchment that could act in combination with the proposed development to negatively affect water quality. Other land-uses include peat/mineral extraction, one-off housing, village settlements such as Mountshannon, Scarriff and Dromineer, and urban settlements such as Borrisokane and Nenagh. On-going activities occurring within the catchment that have the potential to cumulatively interact with the proposed development are mainly those associated with the recreational and touristic activities on Lough Derg and along its shoreline.

As mentioned in **Section 3.5**, above, the WFD (2016–2021) ecological statuses of both river waterbodies nearest the proposed development site, namely the Kilrateera_Upper_010 Waterbody and the Shannon (Lower)_040 Waterbody (refer to **Figure 7**, above), are 'Good'. Additionally, both waterbodies have been assigned a WFD risk status of 'Review'[40]. The WFD (2016–2021) ecological status for the lake waterbody Derg TN (Lough Derg) is 'Moderate' and it has been assigned a WFD risk status of 'At Risk'[41]. Refer to **Figure 21**, below.

Lough Derg and all elements of the proposed Inis Cealtra Visitor Experience are located within the Shannon[Lower]_SC_070 sub-catchment. The main pressures exerted on waterbodies within this sub-catchment are those associated with agriculture (specifically pasture), hydromorphological changes (including dams, barriers, locks and weirs), urban wastewater, and invasive species, as well as other unknown anthropogenic pressures (EPA, 2024; 2019). Almost all watercourses draining the mainland areas around the proposed development are located within the Bow_SC_010 sub-catchment. The main pressures exerted on waterbodies within this sub-catchment are agriculture and forestry (particularly the excess sedimentation they create), domestic wastewater systems, and peat extraction and bog drainage (EPA, 2024; 2018a).

An EPA report published in May 2024 regarding the WFD Cycle 3 period (data up to 2021), reported that 62% of the river waterbodies within the Lower Shannon Catchment (25C) are classified as 'At risk' of not meeting their water quality objectives while 15% are in 'Review'. Excess nutrient levels and morphological issues are the most

[40] *Review* – either additional information is needed to ascertain the waterbody's status, or measures have been undertaken but the results have not yet been monitored. EPA Maps Accessed: 15th October 2024.
[41] *At risk* - either the waterbody is currently not achieving its WFD environmental objective of Good or High Ecological Status, or there is an upward trend in nutrients/ammonia, and should this trend continue, the waterbody Status will decline and fail to meet WFD objectives by 2027. EPA Maps Accessed: 11th November 2024.

prevalent impacts of significant pressures, affecting 48% and 30% of the catchment's river waterbodies, respectively. Other significant impacts to river waterbodies within the catchment include sediment pollution, organic pollution, hydrological impacts, and chemical pollution. Also categorised as 'At risk', the main pressures on Lough Derg are invasive species (including zebra mussel) and agriculture (EPA, 2024). Refer to **Figure 21**, below.

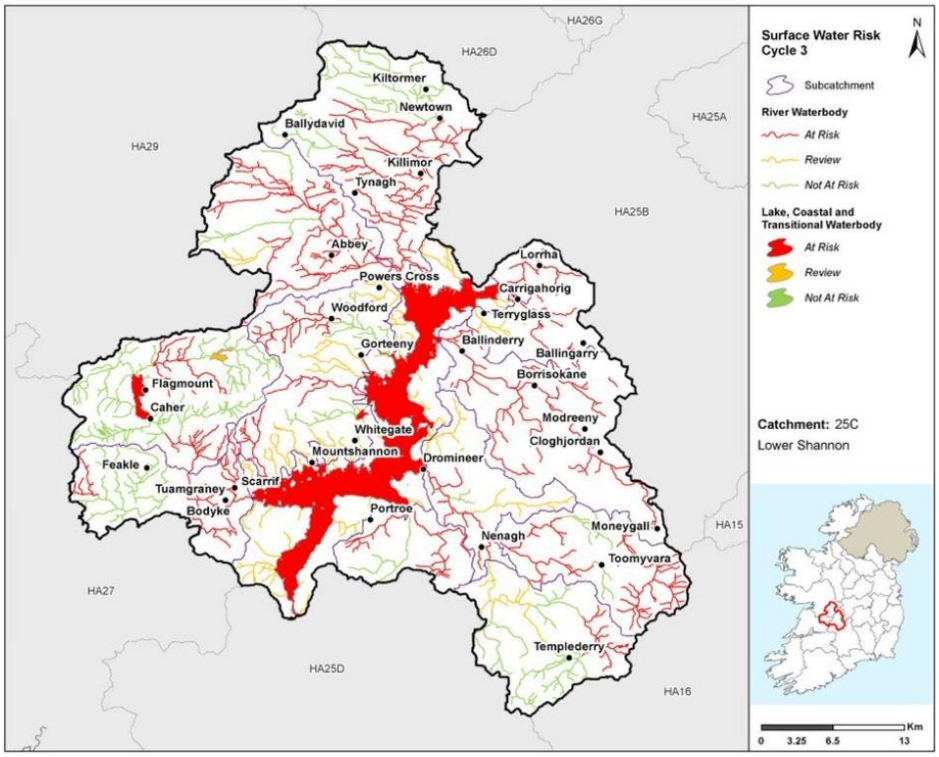

Figure 21: Risk status of waterbodies within Lower Shannon (25C) Catchment of not meeting EPA water quality objectives (Lough Derg is large 'At Risk' lake waterbody in centre) [adapted from EPA, 2021].

5.5.1 Agriculture, Hydromorphology and Drainage

Agriculture has been identified as a significant pressure in 39% of river waterbodies and 60% of lake waterbodies within the Lower Shannon (25C) Catchment. Nutrient enrichment of surface waters via direct discharge of phosphorous and/or nitrogen, or via runoff from compacted surfaces (yards, roadways) or poorly draining soils is the dominant pressure exerted on waterbodies throughout the catchment with intensive dairy and pig farming being particularly problematic in terms of nutrient loss. Other agricultural pressures include chemical pollution linked to pesticide and herbicide use, and excessive sediment resulting from animal access or stream crossings (EPA, 2024; 2019).

Excessive hydromorphological modifications are the second most significant pressure on waterbodies within the Lower Shannon (25C) Catchment. Practices intended to improve land for agricultural purposes and prevent flooding such as deepening of drains and channelisation can change the morphological character of watercourses and result in alteration of flows and substrate composition. Impacts to water quality resulting from dams, barriers, locks, weirs, bank erosion and embankments have also been noted within the catchment (EPA, 2024).

Due to the combined pressures of agricultural practices and extensive morphological alterations of watercourses, the ongoing issues for many waterbodies within the Lower Shannon (25C) Catchment include excessive nutrient loss, high siltation levels and hydromorphological regime changes. There is potential for the construction and operation of the proposed Inis Cealtra Visitor Experience to act in combination with these agricultural and/or hydromorphological issues in such a manner that would negatively affect water quality of watercourses and/or physically alter their integrity.

5.6 Potential for Significant In-combination Effects

It is considered that agriculture, hydromorphological pressures, forestry, and to a lesser extent, quarries and one-off rural residential developments comprise the other land-uses and pressures which could potentially interact synergistically with the proposed development to result in significant cumulative or in-combination effects.

The potential in-combination effects are discussed further in **Section 7.7,** below.

6. Identification of Potential Effects

Potential likely direct, indirect or secondary ecological impacts arising from the proposed development (either alone or in combination with other plans or projects) are identified in **Table 17** and **Table 18**, below.

Table 17. Description of elements of the project likely to give rise to potential ecological impacts.

Construction Phase
Mainland ▪ Clearing and/or removing any required trees, scrub and surface vegetation (topsoil/sub-soil/shrubs/etc.). Removal of existing masonry wall sections and/or other landscape features. ▪ Topsoil stripping, bulk excavations and earth works, and heavy engineering required to construct the Visitor Centre building, its exterior and the new Mountshannon Village car park. ▪ Surface milling of existing Mountshannon Harbour car park and resurfacing works. ▪ General construction activity. ▪ Machinery: The on-site presence and sustained use of heavy and light plant machinery, albeit at variable rates and numbers, during daylight hours for the duration of the works. ▪ Use of fuels/oils/lubricants, concrete and other such substances considered harmful to the aquatic environment. ▪ Human presence: Sustained increase in human activity, albeit at variable rates and numbers, during daylight hours for the duration of the works. ▪ Increased noise and air emissions associated with construction activity. ▪ Temporary storage of excavated spoil/material. Inis Cealtra ▪ Borehole drilling at the proposed new jetty location as part of site investigation works. ▪ Piling and excavations for installation of new jetty and mooring point. ▪ Cut back of vegetation/scrub and mowing of paths on the island. ▪ The presence and sustained use of light machinery on the island and pontoon raft, albeit at variable rates, during daylight hours for duration of works. ▪ Use of fuels/oils/lubricants, concrete and other such substances considered harmful to the aquatic environment. ▪ Human presence: Sustained increase in human activity, albeit at variable rates and numbers, during daylight hours for the duration of the works. ▪ Increased noise and air emissions associated with construction activity. ▪ Temporary storage of excavated spoil/material. ▪ Generation of waste/spoil/construction run-off.
Operational Phase
Mainland ▪ Increased artificial lighting/noise/traffic. ▪ Increased human presence, particularly during summer months and holiday time. ▪ Maintenance of site infrastructure and landscaped gardens around Visitor Centre. ▪ Permanent surface water management systems. ▪ Generation of waste streams and effluents from Visitor Centre and café. Inis Cealtra ▪ Increased noise and human presence on the island. ▪ Maintenance of island pods and correct disposal of WC pod waste. ▪ Maintenance of pathways and island infrastructure. ▪ Permanent surface water management systems.

Table 18. Description of potential direct, indirect or secondary ecological impacts of construction and/or operational phases (either alone or in combination with other plans or projects).

Describe any likely direct, indirect or secondary ecological impacts of the project (either alone or in combination with other plans/projects) by virtue of: ▪ *Size and scale;* ▪ *Land-take;* ▪ *Distance from European Site or key features of Site;* ▪ *Resource requirements;* ▪ *Emissions;* ▪ *Excavation requirements;* ▪ *Transportation requirements;* ▪ *Duration of construction, operation etc; and,* ▪ *Other.*	**Mainland - Construction Phase** ▪ There is no spatial overlap of any of the proposed development's mainland sites with any European site, and therefore, there will be no direct loss/alteration/land-take within any European site. ▪ There will be loss and direct alteration of habitat (mainly agricultural/amenity grassland and artificial surfaces) within construction footprint. ▪ Potential for species disturbance/displacement impacts due to construction activities including fugitive noise emissions from machinery, human activity. ▪ The mainland development sites are indirectly hydrologically connected to two European sites – Lough Derg (Shannon) SPA [004058] and Lower River Shannon SAC [002165] – by virtue of their proximity to Lough Derg. ▪ Potential for water quality impacts via erosion and run-off of silt, and/or ingress of fuels/oils, cementitious material, or other substances via overland flow and/or proposed drainage network to local watercourses and Lough Derg. ▪ Potential for groundwater contamination through spillage of oils, fuels and chemicals. ▪ Potential for indirect alteration of habitats that are outside of but are hydrologically linked to the development site. ▪ Potential for indirect species disturbance/displacement due to *in-situ* or *ex-situ* habitat loss/alteration impacts, increased noise/human presence, impairment of water quality and/or impacts on prey availability. ▪ Potential for spread of invasive alien plant and animal species. **Inis Cealtra - Construction Phase** ▪ Inis Cealtra is located entirely within Lough Derg (Shannon) SPA, therefore, there will be some direct loss/alteration of SPA's habitat. There will be limited land-take (non-qualifying habitats) from within the construction footprint of the SPA. ▪ Potential for species disturbance/displacement due to construction activities including fugitive noise emissions from machinery, boats, human activity. ▪ There is a direct hydrological link between Inis Cealtra and Lough Derg (Shannon) SPA, and an indirect hydrological link between Inis Cealtra and the Lower River Shannon SAC [002165] via Lough Derg and the River Shannon. ▪ Potential water quality impacts via erosion and silt run-off, ingress of fuels/oils and/or cementitious material or other substances via overland flow to Lough Derg. ▪ Potential for direct water quality impacts to Lough Derg and the SPA during installation/construction of the new jetty and mooring point. ▪ Potential species disturbance impacts due to construction activities including fugitive noise emissions from machinery, boats, human activity. ▪ Potential for groundwater contamination through spillage of oils, fuels and chemicals. ▪ Potential for species disturbance/displacement due to *in-situ* or *ex-situ* habitat loss/alteration impacts, increased noise/human presence, impairment of water quality and/or impacts on prey availability. ▪ Potential for spread of invasive alien plant and animal species. **Operational Phase**

	▪ Potential for species disturbance/displacement (direct and indirect habitat loss) due to operation/maintenance of the entire Inis Cealtra Visitor Experience including the proposed Visitor Centre and Inis Cealtra itself. ▪ Potential for species displacement whereby a species is deterred from using normal routes to access breeding, foraging or roosting habitats. ▪ Potential for direct and indirect water quality impacts through the erosion and run-off of silt, and/or ingress of fuels/oils via overland flow and/or the drainage network to local watercourses and Lough Derg. ▪ Potential for groundwater contamination through spillage of oils, fuels and chemicals. ▪ Potential for indirect alteration of habitats outside of but hydrologically linked to the development site. ▪ Potential for indirect species disturbance/displacement due to impairment of water quality and/or impacts on prey availability. ▪ Potential for direct species disturbance/displacement at Inis Cealtra due to habitat loss/alteration impacts, increased noise/human presence, impairment of water quality and/or impacts on prey availability. ▪ Potential for spread of invasive alien plant and animal species.

7. Stage 2: Natura Impact Statement

7.1 Stage 1 of the Appropriate Assessment Process

To establish which European sites are located within the ZOI, the Source-Pathway-Receptor (SPR) model was applied during the screening stage of AA because, according to the Office of the Planning Regulator (OPR) guidelines (OPR, 2021), 'a European site will only be at risk from likely significant effects where the Source-Pathway-Receptor link exists between the proposed development and the European site'.

The SPR model firstly considered the nature, size and location of the proposed development and identified characteristics that may provide a source of direct (e.g. water, habitat loss) or indirect (e.g. impact to prey species of a QI) ecological impacts. Secondly, any pathways (e.g. watercourses) linking the proposed development site to the European sites were identified before, finally, 'the location, nature and sensitivities of the qualifying species/habitats, the ecological conditions underpinning their survival, and the conservation objectives specified to maintain or restore favourable conservation status' were established (OPR, 2021).

Following this, in view of best scientific knowledge, an assessment was made to ascertain whether the proposed development, individually or in combination with other plans/projects, was likely to have a significant effect on the European sites in view of the sites' conservation objectives. It could not be objectively concluded during the screening stage of AA for the proposed construction and operation of the Inis Cealtra Visitor Experience development at Mountshannon Village and Lough Derg in County Clare that significant effects on two European sites listed in Table 19, below, could be ruled out. It was, therefore, advised that the project proceed to Stage 2 of the AA process and an NIS be produced.

The Screening for Appropriate Assessment Report is included in Appendix 1 of this report.

Table 19. European sites included for Stage 2 Appropriate Assessment and their connection to the proposed development.

Designated sites & codes	Approximate distances of nearest points of development to designated sites	Hydrological/ecological connection?
Lough Derg (Shannon) SPA (004058)	▪ Inis Cealtra is located entirely within SPA. ▪ Southern corner of Visitor Centre site is located 0.03 km northwest of SPA. ▪ New Mountshannon Village public car park located 0.15 km northeast of SPA.	Yes, all elements of proposed development have either a direct or indirect hydrological and/or ecological connection to the SPA.
Lower River Shannon SAC (002165)	▪ Inis Cealtra is located 11.7 km north of SAC. ▪ Mountshannon Harbour is located 13.3 km north of SAC.	Yes, SAC is 14 river km downstream of Inis Cealtra via the River Shannon (15.2 rkm downstream of Mountshannon Harbour), therefore, tenuous hydrological connection provided.

Identifying a risk that could, in theory, cause an impact does not automatically mean that the risk event will occur or that it will cause or create an adverse impact. However, identification of the risk does mean that there is a latent possibility of ecological or environmental damage occurring, with the level and significance of the impact depending upon the nature of the risk, the extent of the exposure to the risk and the characteristics of the receptor. Therefore, bearing in mind the scope, scale, nature and size of the project, its location relative to the distribution of QI species and habitats, and the degree of connectedness that exists between the project and potential receptors, it is considered that not all are within the zone of potential impact of the proposal.

An evaluation based on these factors to determine which species and habitats are the plausible ecological receptors for potential impacts of the unmitigated proposal has been conducted in Section 7.2.2 and Section

7.3.2, below, for the proposed development in County Clare. This evaluation determined the specific qualifying features of the SPA and SAC (listed below in Table 20 and Table 21, respectively), that should be selected for further assessment as plausible ecological receptors.

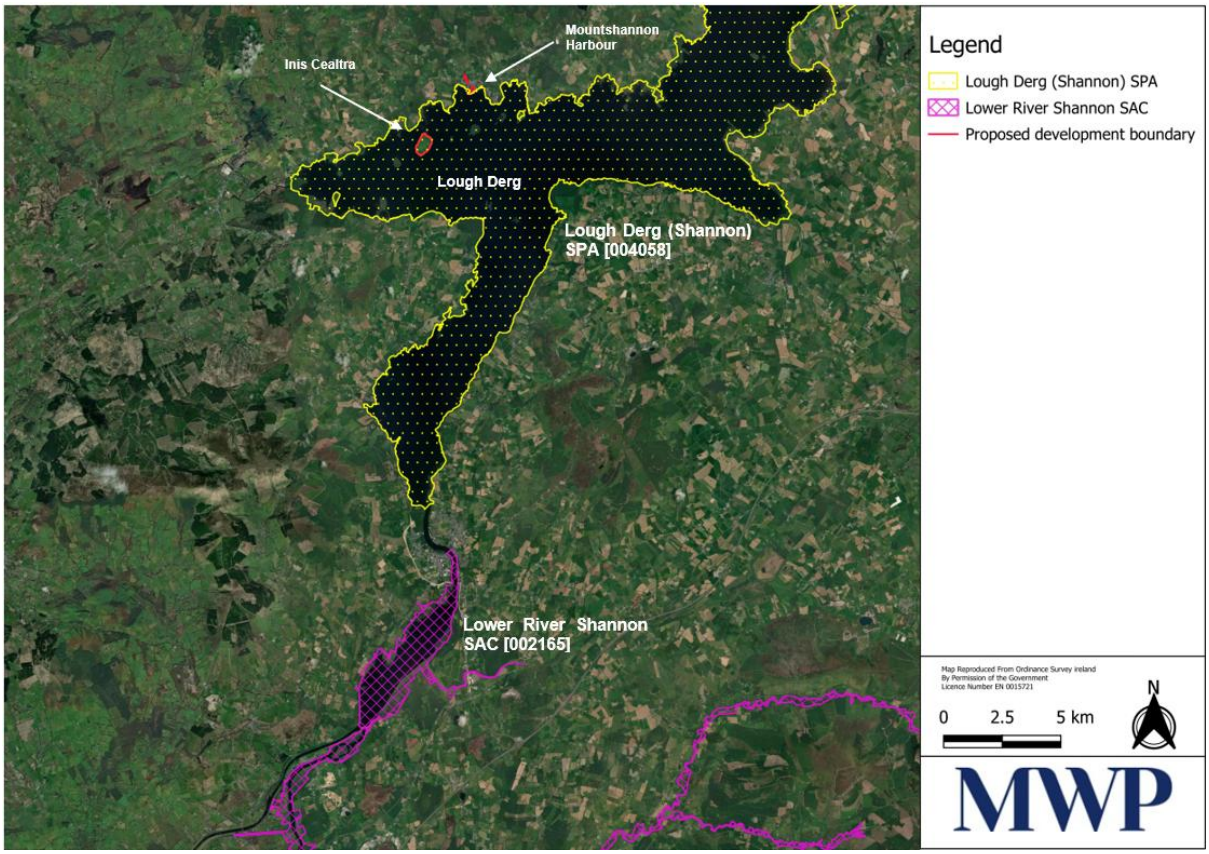

Figure 22: Connection of the proposed development to Lough Derg (Shannon) SPA (004058) and Lower River Shannon SAC (002165) and their proximities to one another.

7.2 Lough Derg (Shannon) SPA [004058]

7.2.1 Description of the European Site

The following text summarises the Natura 2000 Standard Data Form for the site[42]. Refer also to Figure 22, above.

Lough Derg is a large, narrow freshwater lake on the River Shannon measuring approximately 40 kilometres in length with an average width of less than five kilometres. It is the largest of the River Shannon's lakes, and stretches over parts of counties Tipperary, Clare and Galway. The lake varies in depth from six metres at the relatively shallow northern end, which is surrounded by flat, agricultural land to a maximum depth of 34 metres at the narrow, southern end that is enclosed by the Slieve Aughty Mountains to the west and the Arra Mountains to the east. The lake has a mainly limestone catchment basin and, therefore, exhibits high hardness water levels with an alkaline pH.

The lake is dotted with numerous small islands, particularly along its western and northern sides, and has a shoreline that is often fringed with reed beds and swamp vegetation including a range of charophyte (algae) species. The lake is an important resource for both breeding and wintering birds. It supports nationally important breeding colonies of common tern (*Sterna hirundo*), cormorant (*Phalacrocorax carbo*), and great crested grebe (*Podiceps cristatus*), and during winter, nationally important populations of goldeneye (*Bucephala clangula*) and

[42] N2K IE0004058 dataforms Accessed: 23rd October 2024

tufted duck occur. Other species of note often occurring at the lake include whooper swan (*Cygnus cygnus*), teal (*Anas crecca*), lapwing (*Vanellus vanellus*), coot (*Fulica atra*), and a nationally important population of mute swan (*Cygnus olor*).

The Lough Derg (Shannon) SPA is designated for the protection of the following qualifying features of conservation interest:

- Cormorant (*Phalacrocorax carbo*) [A017] Breeding
- Tufted Duck (*Aythya fuligula*) [A061] Wintering
- Goldeneye (*Bucephala clangula*) [A067] Wintering
- Common Tern (*Sterna hirundo*) [A193] Breeding
- Wetlands [A999]

7.2.2 Identification of Potentially Significant Impacts to Qualifying Features

Table 20, below, lists the qualifying features of Lough Derg (Shannon) SPA and evaluates through a scientific examination of evidence and data whether these features should or should not be selected for further assessment. When explaining the rationale behind each selection, information in the recently published Conservation Objectives Series for the SPA (NPWS, 2024) is considered together with IWeBS data provided by BirdWatch Ireland (see Section 2.3, above). Additionally, results of the MWP bird surveys (see Sections 2.8 and 3.11, above) are also used in this section to determine if further assessment of the SPA's qualifying features is necessary.

Table 20. Selection of qualifying features of the Lough Derg (Shannon) SPA (004058) for impact assessment.

Qualifying Feature	Potential for Significant Impacts?	Rationale
Cormorant (*Phalacrocorax carbo*) [A017]	Yes	Lough Derg supports a nationally important breeding colony of cormorant that have bred on different small islands within the lake across all constituent counties. Since 1985, however, the most significant of these colonies have all tended to be in the Galway regions of the lake with a 'near complete survey in 2024' recording 121 pairs, all within Galway (NPWS, 2024). A complete survey in 2018 also recorded most cormorant colonies as occurring in Galway, however, one small colony in the Clare section of the lake was also reported (Burnell *et al*., 2023). In addition, cormorant was seen regularly during the MWP transects and shore counts on Inis Cealtra, on the surrounding lake waters and at Mountshannon Harbour (see QI species survey results summary in Section 3.11.5, above). The proposed development is located both within and adjacent to the SPA and is hydrologically/ecologically linked to the SPA. Therefore, there is potential for significant impacts to the SPA's water quality, and thus, potentially to the habitat, distribution and feeding opportunities of the cormorant population there. Additionally, since cormorant were frequently recorded within and around Lough Derg and at Inis Cealtra, there is also potential for disturbance/displacement impacts to the species due to fugitive noise emissions from machinery and/or increased human activity during both the construction and operational phases of the proposed development. Based on this, cormorant is deemed to be within the zone of potential influence of the proposal and will be considered further in the NIS.
Tufted Duck (*Aythya fuligula*) [A061]	Yes	Tufted duck were regularly seen during the MWP winter transect and shore count surveys on Inis Cealtra, on the surrounding lake waters and at Mountshannon Harbour (see QI species survey results summary in Section 3.11.5, above). Congregations of the species were recorded within reeds and fringe habitats immediately northwest of Knockaphort Pier and within Mountshannon Bay. Informal counts also recorded a peak count of 160 tufted duck at Scarriff Bay to the west of Inis Cealtra. The proposed development is located both within and adjacent to the SPA and is hydrologically/ecologically linked to the SPA. Therefore, there is potential for significant impacts to the SPA's water quality, and thus, potentially to the habitat, distribution and feeding opportunities of the tufted duck populations there. Additionally, since tufted duck were regularly recorded in relatively high numbers within and around Lough Derg and at Inis Cealtra, there is also potential for disturbance/displacement impacts to the species due to fugitive noise emissions from machinery and/or increased human activity during both the construction and operational phases of the proposed development. Based on this, tufted duck is deemed to be within the zone of potential influence of the proposal and the species will be considered further in the NIS.

Qualifying Feature	Potential for Significant Impacts?	Rationale
Goldeneye (*Bucephala clangula*) [A067]	Yes	The wintering population of goldeneye within the SPA is considered of national importance, particularly as the species is red-listed in Ireland because of a long term trend for large declines in the national population (Kennedy *et al*., 2023). The species generally spends little time on land and prefers open water where visibility is good and there is no emergent, floating or dense submerged vegetation (Eadie *et al*., 2020). This was evident during the MWP Inis Cealtra transect surveys, where goldeneye was recorded only in November 2021 with a peak count of two, whereas during the shore count surveys, the species was recorded more often and in larger numbers from Mountshannon Harbour and Knockaphort Pier where the open waters of the lake were more visible to the surveyor (see QI species survey results summary in **Section 3.11.5**, above). The proposed development is located both within and adjacent to the SPA and is hydrologically/ecologically linked to the SPA. Therefore, there is potential for significant impacts to the SPA's water quality, and thus, potentially to the habitat, distribution and feeding opportunities of the goldeneye population there. Additionally, since goldeneye was recorded within Lough Derg during the MWP surveys, there is also potential for disturbance/displacement impacts to the species due to fugitive noise emissions from machinery and/or increased human activity during both the construction and operational phases of the proposed development. Based on this, the species is deemed to be within the zone of potential influence and will be considered further in the NIS.
Common tern (*Sterna hirundo*) [A193]	Yes	Common tern breeding colonies typically occur in open areas of islands or beaches less than five metres above the high-water mark but more than 100 metres from the water's edge on loose substrate with intermittent vegetation present to provide some cover for the ground-nesting birds and their chicks (Arnold *et al*., 2020). The SPA is designated for a nationally important breeding tern colony that has almost exclusively been located on Goat Island (NPWS, 2024), a tiny narrow strip of land located approximately 11.5 km and 13.5 km northeast of the Old Rectory site and Inis Cealtra, respectively. During the MWP bird surveys, common tern were almost completely absent from the shore count results. However, the species was recorded in relatively high numbers during the Inis Cealtra summer transect surveys of 2021 and 2022 (see QI species survey results summary in **Section 3.11.5**, above). The proposed development is located both within and adjacent to the SPA and is hydrologically/ecologically linked to the SPA. Therefore, there is potential for significant impacts to the SPA's water quality, and thus, potentially to the habitat, distribution and feeding opportunities of the common tern population there. Additionally, since common tern was recorded within Lough Derg during the MWP surveys, albeit only at Inis Cealtra, there is potential for disturbance/displacement impacts to the species due to fugitive noise emissions from machinery and/or increased human activity during the construction and operational phases of the proposed development. Based on this, common tern is deemed within the zone of potential influence and will be considered further in the NIS
Wetlands [A999]	Yes	Inis Cealtra and the 'Wetland' habitats surrounding it (see **Section 3.6.1**, above) are located entirely within the SPA. Additionally, the mainland elements of the proposed development are all indirectly hydrologically connected to Lough Derg via any surface water run-off/drains. Therefore, 'Wetlands' lies within the zone of potential influence of the proposal and will be considered further in the NIS.

It has been determined in **Table 20**, above, that the proposed development has the potential to result in significant effects to the conservation objectives of the following Special Conservation Interest (SCI) species of Lough Derg (Shannon) SPA:

- Cormorant (*Phalacrocorax carbo*) [A017] Breeding
- Tufted Duck (*Aythya fuligula*) [A061] Wintering
- Goldeneye (*Bucephala clangula*) [A067] Wintering
- Common Tern (*Sterna hirundo*) [A193] Breeding
- Wetland [A999]

7.3 Lower River Shannon SAC [002165]

7.3.1 Description of European Site

The following text summarises the Natura 2000 Standard Data Form for the site[43]. Refer also to **Figure 22**, above, and the site synopsis in NPWS (2012a).

The Lower River Shannon SAC is a large, narrow site that measures approximately 14 kilometres wide and 120 kilometres long. It encompasses the Shannon River Estuary, the broader River Fergus Estuary and several smaller estuaries such as Poulnasherry Bay along with the freshwater lower reaches of the Shannon River between Killaloe and Limerick and some freshwater stretches within the Feale and Mulkear catchments. The SAC also includes a marine area at the mouth of the Shannon estuary with high rocky cliffs to the north and south; ericaceous heath on Kerry Head and Loop Head; and several lagoons.

The underlying geology ranges from Carboniferous limestone (east of Foynes) to Namurian shales and flagstones (west of Foynes) to Old Red Sandstone (at Kerry Head). The ebb and flood of the tide and annual seasonal rainfall fluctuations ensure that the salinity of the system varies daily.

The Lower River Shannon SAC contains many Annex I habitats including the most extensive area of estuarine habitat in the country. A wide range of Annex II species are also present within the SAC including all three Irish species of lamprey, a good population of Atlantic salmon, and the only known resident population of Common bottlenose dolphin in Ireland. Many bird species listed on the EU Birds Directive either winter or breed at the site. The site is internationally important for waterfowl with more than 50,000 individuals occurring in winter. Several plant species listed in the Irish Red Data Book are also found within the SAC including two species of stonewort (*Chara canescens* and *Chara cf. connivens*) at Shannon Airport Lagoon, and the only known Irish populations of triangular club-rush (*Scirpus triqueter*).

The Lower River Shannon SAC is designated for the protection of the following qualifying features of conservation interest:

Habitats

- Sandbanks which are slightly covered by sea water all the time [1110];
- Estuaries [1130];
- Mudflats and sandflats not covered by seawater at low tide [1140];
- Coastal lagoons [1150];
- Large shallow inlets and bays [1160];

[43] N2K IE0002165 dataforms (europa.eu) Accessed: 26th October 2024

- Reefs [1170];
- Perennial vegetation of stony banks [1220];
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230];
- *Salicornia* and other annuals colonising mud and sand [1310];
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330];
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410];
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260];
- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]; and
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0].

Species

- Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1029];
- Sea Lamprey (*Petromyzon marinus*) [1095];
- Brook Lamprey (*Lampetra planeri*) [1096];
- River Lamprey (*Lampetra fluviatilis*) [1099];
- Atlantic Salmon (*Salmo salar*) [1106] (QI status pertains only to freshwater phases of life cycle);
- Common Bottlenose Dolphin (*Tursiops truncatus*) [1349]; and
- Otter (*Lutra lutra*) [1355].

7.3.2 Identification of Potentially Significant Impacts to Qualifying Features

Table 21, below, lists the qualifying features of the Lower River Shannon SAC and evaluates through a scientific examination of evidence and data whether these features should or should not be selected for further assessment in the NIS. In relation to the distances listed in Table 21, below, the term 'proposed development site' includes both Inis Cealtra and the mainland sites of the proposed development unless otherwise stated.

Table 21. Selection of qualifying features of the Lower River Shannon SAC (002165) for impact assessment.

Qualifying features	Potential for significant impacts	Rationale
Sandbanks which are slightly covered by seawater all the time [1110] Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140]	No	The likely extent of sandbanks [1110] within the SAC has been mapped as south of Rinevella Point, Co. Clare and west of Ballybunion, Co. Kerry within the mouth of the Shannon Estuary (NPWS, 2012b), over 90 km southwest of the proposed development site (or more than 120 river km downstream). The extent of the estuary [1130] has been mapped as occurring eastwards from Carrig Island on the southern shores of Shannon Estuary to Aylevarroo Point on the northern shore (NPWS, 2012b). Distribution mapping for the SAC shows the closest estuarine habitat to the proposed development site is located nearly 40 river km downstream from the proposed development site. Both the Fergus and inner Shannon Estuaries feature vast expanses of intertidal mudflats [1140]. Within the SAC, mudflats are mapped as occurring south of Ballybunion at Bunaclugga Bay, Querrin Point and Poulnasherry Bay. Other areas of mudflats occur further east within the estuary channel at Limerick City (NPWS, 2012b). The closest area of this habitat [1140] to the proposed development site is located more than 46 river km downstream from the proposed development site. Given the intervening distances between the proposed development site and each of these three marine/coastal habitats, it is considered that no element of the proposed project has the potential for significant effects on these designated habitats. The Shannon Estuary is approximately 45 km long and is well-connected to the Atlantic Ocean, meaning that exchange rates of water within the estuary can be expected to be very high with an almost constant movement of water into and out of the estuary. Any change to the water quality of Lough Derg and the River Shannon draining into the estuary from the proposed development site would be considered imperceptible/undetectable given the large volumes of freshwater entering the estuary at each low tide and the volume of saline/brackish water filling the estuary on each flooding tide. Thus, the construction and operation of the proposed development will not affect the conservation objectives for the designated habitats 'Sandbanks which are slightly covered by seawater all the time', 'Estuaries' or 'Mudflats and sandflats not covered by seawater at low tide' and these habitats are not considered further in the NIS.

Qualifying features	Potential for significant impacts	Rationale
Coastal lagoons [1150]	No	There are four coastal lagoons within the SAC, namely Quayfield and Poulaweala Loughs, Shannon Airport Lagoon, Scattery Lagoon, and Cloonconneen Pool (NPWS, 2012b). Coastal lagoons are areas of shallow, coastal salt water, wholly or partially separated from the sea by sandbanks, shingle or rocks. Given the intervening distance of more than 63 river km between the nearest area of this habitat at Shannon Airport and the proposed development site, and because this habitat type is confined to coastline above the high tide mark and is therefore outside the zone of influence of any potential impact arising from the proposed development's construction/operation, there will not be a significant impact to 'Coastal lagoons' and this habitat type is not considered further in the NIS.
Large shallow inlets and bays [1160] Reefs [1170]	No	The habitat 'large shallow inlets and bays' is a large physiographic feature that may wholly or partly incorporate other Annex I habitats including reefs, sandbanks and mudflats and sandflats within its area. In contrast to estuaries, large shallow inlets and bays have limited freshwater influence. The site supports an excellent example of a large shallow inlet and bay. Littoral sediment communities in the mouth of the Shannon Estuary occur in areas that are exposed to wave action and in areas extremely sheltered from wave action. The entire mouth of the Shannon Estuary extending eastwards as far as Carrig Island is mapped as 'Large shallow inlets and bays' and has an estimated area of approximately 25,000 hectares within the SAC (NPWS, 2012b). At its nearest point, this habitat is mapped as occurring at a location approximately 55 km southwest of the proposed development site (or nearly 80 river km downstream). The intertidal reefs within the Shannon Estuary are exposed or moderately exposed to wave action and are subject to moderate tidal streams. The infralittoral reefs range from sloping platforms with some vertical steps, to ridged bedrock with gullies of sand between the ridges, to ridged bedrock with boulders or a mixture of cobbles, gravel and sand. The communities found are tolerant to sand scour and tidal streams. 'Reefs' occur throughout the Shannon and Fergus estuaries, mainly as scattered and isolated pockets within inner estuarine areas but covering extensive areas at the mouth of the Shannon estuary (NPWS, 2012b). A review of available mapping determined that the closest examples of this habitat to the proposed development site are the numerous small patches of 'Reefs' located within the eastern regions of the estuary towards Limerick City, more than 55 river km downstream of the proposed development site. Consequently, given the extent of the intervening distances between the proposal site and both these habitats, in conjunction with very high exchange rates of water within the Shannon and Fergus estuaries, it is considered that the proposed development does not have potential for significant effects on these habitats. Thus, the project will not affect the conservation objectives for 'Large shallow inlets and bays' or 'Reefs' and these habitats are not considered further in the NIS.

Qualifying features	Potential for significant impacts	Rationale
Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	No	'Perennial vegetation of stony banks' occurs along the coast where shingle (cobbles/pebbles) and gravel have accumulated to form elevated ridges/banks above the high tide mark. This habitat is mapped as occurring in nine locations along the Shannon River and estuary, scattered throughout the hard coastline with the nearest mapped area to the proposed development site occurring at Ballymacrinan Bay, more than 74 km to the southwest (or more than 100 river km downstream) (NPWS, 2012b). 'Vegetated sea cliffs of the Atlantic and Baltic coasts' are steep slopes fringing hard or soft coasts, created by past or present marine erosion, and supporting a wide diversity of vegetation types with variable maritime influence. Most of the SAC west of Kilcredaun Point/Kilconly Point is bounded by high rocky sea cliffs, including Kilclogher, Loop Head, Ballybunion and Kerry Head. Cliff-top vegetation usually consists of either grassland or maritime heath. The boulder clay cliffs further up the estuary tend to be more densely vegetated (NPWS, 2012b). The nearest mapped area of this habitat to the proposed development site occurs at Burrane, more than 70 km to the southwest (or more than 105 river km downstream). Given the characteristics of the proposed development and the distances intervening, both these habitats are deemed to be outside the zone of influence of any potential impact arising from the proposed development's construction/operation and there is no potential for significant impacts to these habitats. Therefore, the project will not affect the conservation objectives for either 'Perennial vegetation of stony banks' or 'Vegetated sea cliffs of the Atlantic and Baltic coasts' and the habitats are not considered further in the NIS.
Salicornia and other annuals colonising mud and sand [1310]	No	This is a coastal habitat where pioneer salt-marsh vegetation colonises intertidal mud and sandflats in areas protected from strong wave action. It is an important precursor to the development of more stable saltmarsh vegetation and develops at the lower reaches of saltmarshes where the vegetation is frequently flooded by the tide. Within Lower River Shannon SAC the areas of *Salicornia* habitat are limited (NPWS, 2012b). A review of habitat mapping and supporting documents available for the SAC determined that of the ten sub-sites surveyed as part of the Saltmarsh Monitoring Project (McCorry & Ryle, 2009) the closest occurring area of *Salicornia* habitat to the proposed development site is the 'Inishdea, Owenshere' sub-site (SMP code: 0083), located within the Fergus estuary, more than 43 km southwest of the proposed development site. Within the sub-site, *Salicornia* habitat is not well-developed, occupying a single patch of ground of 0.003 ha (NPWS, 2012b). Given the characteristics of the project including the nature, extent and scale of the proposed works, and the distance intervening, it is not considered that the proposed development has any potential to significantly impact on this habitat-type. Thus, the project will not affect the conservation objectives for '*Salicornia* and other annuals colonising mud and sand' and the habitat is not considered further in the NIS.
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	No	'Atlantic salt meadows' (ASM) generally occupy the widest part of the saltmarsh gradient and develop when halophytic vegetation colonises soft intertidal sediments of mud and sand in areas protected from strong wave action. This vegetation forms the middle and upper reaches of saltmarshes where tidal inundation still occurs but with decreasing frequency and

Qualifying features	Potential for significant impacts	Rationale
Mediterranean salt meadows (*Juncetalia maritimi*) [1410]		duration. 'Mediterranean salt meadows' (MSM) occupy the upper zone of salt marshes and usually occur adjacent to the boundary with terrestrial habitats. They are widespread on the Irish coastline; however, they are not as extensive as Atlantic salt meadows. This habitat includes salt marshes in the Mediterranean basin dominated by *Juncus* (rushes), especially *Juncus maritimus* (sea rush) tolerant of saline soils. A review of habitat mapping and the coastal habitats supporting document available for the SAC determined that of the ten sub-sites surveyed, mapped and assessed as part of the Saltmarsh Monitoring Project (SMP) (McCorry & Ryle, 2009), the closest occurring areas of both ASM habitat and MSM habitat are at the 'Bunratty' sub-site (SMP code: 0081) (NPWS, 2012b). 'Bunratty' saltmarsh is located within the upper part of the Shannon Estuary in County Clare, approximately 35 km southwest of the proposal area (more than 55 river km downstream). ASM is the dominant saltmarsh habitat at the site with approximately 27 ha recorded SMP surveys. Typically, it occurs within this sub-site as a narrow band at the landward side of the brackish vegetation. MSM are usually more restricted in their distribution and size than ASM, and this is indeed true of the 'Bunratty' sub-site where MSM is not particularly well developed and is confined to narrow, fragmented patches. With an area measuring approximately 0.87 ha, MSM represents less than 0.2% of the total marsh area surveyed at the sub-site (McCorry & Ryle, 2009). Given the characteristics of the proposed development including the nature, extent and scale of the proposed works, and the distance intervening, both these habitats are deemed to be outside the zone of influence of any potential impact arising from the proposed development's construction/operation and it is not considered that the proposal has any potential to significantly impact upon these habitat-types. Thus, the project will not affect the conservation objectives of either 'Atlantic salt meadows' or 'Mediterranean salt meadows' and the habitats are not considered further in the NIS.
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	**Yes**	This annexed habitat has a broad definition, covering from upland, flashy, oligotrophic, bryophyte- and algal-dominated rivers, to tidal reaches dominated by higher plants. Floating river vegetation characterised by species of water-crowfoot (*Ranunculus* spp.), pondweeds (*Potamogeton* spp.) and the moss *Fontinalius antipyretica* are present throughout the major river systems within the SAC. In Ireland, this particular habitat sub-type is associated with tidal reaches of rivers and other periodically disturbed watercourses (e.g. canals and drains) although also occurs in more inland reaches of watercourses (NPWS, 2012b). Since the full distribution of this habitat and its sub-types within the SAC is currently unknown, a precautionary approach will be taken. Inis Cealtra is located within Lough Derg, approximately 14 river km upstream of the SAC's northern boundary at Killaloe and, via the River Shannon, a direct hydrological link exists between the proposed new jetty at Inis Cealtra and the SAC downstream. Furthermore, the southern corner of the proposed Visitor Centre development lies approximately 0.03 km from the shores of Lough Derg which, by virtue of proximity and potential over land flow/drainage into the lake, provides an indirect hydrological link with the SAC located approximately 15.2 river km downstream. See **Figure 22**, and **Table 19**, above.

Qualifying features	Potential for significant impacts	Rationale
		Due to these hydrological connections and as a precaution, the northern reaches of the SAC are deemed to be within the potential ZOI of the proposed development and, therefore, so are any areas of the QI habitat [3260] that occur there. There is potential for water quality impacts to occur, particularly during the construction phase of the proposed development, and therefore, there is also potential for significant impacts to the QI habitat 'Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation' so the habitat will be considered further in the NIS.
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]	No	*Molinia* meadows are found mainly on moist, moderately base-rich, peats and peaty gley soils, often with fluctuating water tables. They usually occur as components of wet pastures or fens, and often form mosaics with dry grassland, heath, mire and scrub communities. The current full extent of this habitat within the SAC is not mapped within the conservation objectives mapping; however, the site synopsis states that *Molinia* meadows occur in several parts of the site with an especially noteworthy example at Worldsend on the River Shannon (NPWS, 2012b). Alluvial woodland occurs on the banks of the Shannon, in the valley bottoms of the tributaries and on seepage zones on valley sides within the site (NPWS, 2012a). The most prominent woodland type is gallery woodland where white willow (*Salix alba*) dominates the tree layer with occasional alder (*Alnus glutinosa*). This habitat can occur on islands in river channels or low-lying wetlands alongside the channels and is characterised by periodic inundation of water. As there is no hydrological connection between the proposed development site and mapped areas of these habitats within the SAC, and since the habitat types are confined to restricted terrestrial locations above the high tide mark, they are outside the ZOI of any potential impact arising from the proposed development. Therefore, no significant impacts to the conservation objectives for either '*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)' or for 'Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*' are anticipated and these habitats are not considered further in the NIS.
Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1029]	No	The freshwater pearl mussel is a large, long-lived bivalve mollusc found in clean, fast-flowing, well-oxygenated rivers with unconsolidated substrates. Stable, clean gravel and sand with adequate availability of dissolved oxygen provides ideal habitat for juveniles. Water pH and hardness is also important with distribution mainly restricted to acidic, soft waters over-lying non-calcareous rock-types. Low nutrient status is also critical such that excess macrophyte and algal growth is prevented, therefore oligotrophic waterbodies are required. Conservation objectives for this species within the SAC apply to the freshwater pearl mussel population in the Cloon River, Co. Clare. This population is confined to the main channel and distributed from Croany Bridge to upstream of Clonderalaw Bridge (NPWS, 2012a). The Cloon River enters the main Shannon Estuary at a point more than 62 km southwest of the proposed development site. Given the characteristics and location of the project, and species' ecology, it is not considered that the proposal has any potential to significantly impact on freshwater pearl mussel. Thus, the project will not affect the conservation objectives for 'Freshwater Pearl Mussel' and the species is not considered further in the NIS.

Qualifying features	Potential for significant impacts	Rationale
River Lamprey (*Lampetra fluviatilis*) [1099] Sea Lamprey (*Petromyzon marinus*) [1095]	**Yes**	The life cycles of sea lamprey and river lamprey contain both a marine phase and a freshwater phase. Both species spend their adult life in marine and estuarine waters, living as external parasites on other fish species before migrating up rivers in spring to spawn in areas of clean gravel, after which they die. Sea lamprey and river lamprey often spawn in the lower reaches of rivers but can also migrate up to 50 miles upstream (Kurz & Costello, 1999). Sea and river lampreys are poor swimmers (Reinhardt *et al*., 2009) and are generally considered unable to navigate past weirs and other barriers meaning that both lamprey species are usually restricted to the lower, more estuarine reaches of a river. However, within the SAC, the barriers to lamprey movement have apparently given rise to a situation in Lough Derg that is unique in an Irish context - a self-sustaining landlocked population of sea lamprey that feed in the lake and do not complete a seaward migration (Kelly *et al*, 2017; NPWS, 2014). Neither lamprey species was recorded during any of the aquatic surveys described in **Section 2.7.3**. The SAC's northern boundary is located at Killaloe Bridge approximately 14 river km downstream from Inis Cealtra. This hydrological connection to the SAC via the River Shannon means it is highly probable that some sea lamprey in Lough Derg are part of the SAC's sea lamprey population. Furthermore, while it is unlikely due to the presence of barriers further downstream, it is possible that river lamprey and/or sea lamprey migrate the 40 river km upstream to Lough Derg from the estuarine waters of Limerick City. Through these hydrological links there is potential for water quality impacts to occur, particularly during the construction phase of the proposed development. Therefore, based on this and the precautionary principle, it is deemed that there is potential for significant impacts to the conservation objectives for sea and/or river lamprey so both species will be considered further in the NIS.
Brook Lamprey (*Lampetra planeri*) [1096]	**Yes**	Brook lamprey is the smallest of the three lamprey species native to Ireland. Unlike sea and river lamprey, it is not parasitic and is non-migratory, spending its entire life in freshwater. Species distribution within river catchments is dependent on the availability of suitable habitat; adults require fine sand/gravel areas in which to spawn while the juvenile form needs clean, fine sediment into which to burrow (King *et al*., 2011). Brook lamprey was not recorded during any of the aquatic surveys described in **Section 2.7.3**, above. However, the SAC's northern boundary is located at Killaloe Bridge approximately 14 river km downstream from Inis Cealtra creating a hydrological connection to the SAC via the River Shannon. Through this hydrological link there is potential for water quality impacts to occur, particularly during the construction phase of the proposed development. Therefore, based on this and the precautionary principle, it is deemed that there is potential for significant impacts to the conservation objectives for brook lamprey and the species will be considered further in the NIS.
Atlantic Salmon (*Salmo salar*) [1106]	**Yes**	Salmon is an anadromous species, living in freshwater for at least the first two or three years of life before migrating to sea. Salmon has been observed spawning in the lower Shannon and its tributaries. Adult salmon occur in the Shannon Estuary prior

Qualifying features	Potential for significant impacts	Rationale
		to returning to natal streams to spawn, and smolts occur in the estuary on their journey from influent rivers to the sea (NPWS, 2012b). Salmon was not recorded during any of the aquatic surveys described in **Section 2.7.3**, above, and the lake is not considered optimal salmonid spawning habitat due to a lack of significant variations in water flow, depth, gradient or substrate. However, the lake is likely suitable for later stage salmon and, considering the SAC's northern boundary is 14 river km downstream from Inis Cealtra, some of the SAC's salmon population are likely to also be found in Lough Derg. Through this hydrological link there is potential for water quality impacts to occur, particularly during the construction phase of the proposed development. Therefore, based on this, it is deemed that there is potential for significant impacts to the conservation objectives for salmon so the species will be considered further in the NIS.
Common Bottlenose Dolphin (*Tursiops truncatus*) [1349]	No	The only known resident population of bottlenose dolphin in Ireland are found within the Shannon Estuary. Most of the estuary comprises suitable habitat for this Annex II species, apart from the inter-tidal areas of the Fergus Estuary and the inner estuary channel near Shannon town stretching east towards Limerick - a review of on-line species records shows that sightings are concentrated in the outer channel. Within the SAC two 'critical areas' of habitat used preferentially by the species have been identified – one near Tarbert/Killimer and the second further west near Ballybunion and Kilcredaun Point (NPWS, 2012a). Given the nature, extent, scale and location of the proposed development, the dilution potential of the River Shannon and estuary, and the distribution of bottlenose dolphin habitat and records within the estuary, it is not considered that the proposal has the potential to significantly impact on this species. Thus, the project will not affect the conservation objectives for bottlenose dolphin and the species is not considered further.
Otter (*Lutra lutra*) [1355]	**Yes**	Otter has a widespread distribution throughout Ireland and can be found in a variety of aquatic habitats such as lakes, rivers, streams, estuaries, and along the coast. They are mainly solitary animals and highly territorial, and although their diet primarily comprises fish, they prey on a wide variety of vertebrate and invertebrate species. The amount of time spent within different parts of an individual's home range is related to prey abundance. During the ecological field surveys described in **Section 2.7.3**, above, evidence of otter was found on one occasion only when a spraint was recorded on the eastern shores of Inis Cealtra in 2021 (refer to **Section 3.9.1**, above), and while there are no documented records of otter held by the NBDC for Inis Cealtra, there are several NBDC records for otter at various locations on the mainland (see **Table 5**, above). The boundary of the SAC is approximately 11 km south (or 14 river km downstream) of Inis Cealtra and through this hydrological link there is potential for water quality impacts to occur, particularly during the construction phase, creating potential for otter to be indirectly affected through a reduction in prey source and habitat availability. Thus, there is potential for significant impacts to the conservation objectives for otter so the species will be considered further in the NIS.

It has been determined (see **Table 21**, above) that the proposed development has the potential to result in significant effects to the conservation objectives of the following Qualifying Interests (QIs) of the Lower River Shannon SAC:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260];
- River Lamprey (*Lampetra fluviatilis*) [1099];
- Sea Lamprey (*Petromyzon marinus*) [1095];
- Brook Lamprey (*Lampetra planeri*) [1096];
- Atlantic Salmon (*Salmo salar*) [1106]; and
- Otter (*Lutra lutra*) [1355].

7.4 Assessment of Potentially Significant Effects

There follows an evaluation of potentially significant effects which may arise because of the proposed development on the qualifying features that have been selected for impact assessment in **Sections 7.2.2** and **7.3.2,** above, together with the potential effects identified in **Section 6,** above. Following this, a determination is made as to whether the proposal is likely to have adverse effects on the integrity of the European sites selected for assessment.

The likelihood of adverse effects to a European site from the proposed development has been determined based on the following indicators:

- Water quality;
- Habitat loss or alteration;
- Disturbance/displacement of species; and
- Habitat or species fragmentation.

The likelihood of significant cumulative/in-combination effects is assessed in **Section 7.7,** below.

7.4.1 Water Quality

On the County Clare mainland, the proposed works sites are in Mountshannon Village on the shores of Lough Derg - the southern corner of the proposed Visitor Centre is closest to the lakeshore, situated approximately 0.03 kilometres to the northwest. As discussed in **Section 3.5** and illustrated in **Figure 7**, above, there are no watercourses traversing any element of the proposed development, so although there is no direct hydrological connection between the proposed mainland works and Lough Derg (SPA), the proximity of the proposed works sites provides the possibility, albeit it remote, for an indirect hydrological connection via any surface water run-off/drainage that may occur during the construction and/or operational phases of the mainland elements of the proposed development. This indirect hydrological link also creates a tenuous indirect hydrological link between the mainland works at Mountshannon and the Lower River Shannon SAC located approximately 15.2 river kilometres downstream via the River Shannon.

Inis Cealtra is located entirely within Lough Derg (Shannon) SPA and is surrounded completely by Lough Derg itself. Consequently, a direct hydrological link connecting the SPA with the proposed new floating access jetty, canoe launch and access walkway (described in **Section 4.3.7.4**, above) will be created during the construction and operational phases of the proposed works on Inis Cealtra. This also creates a direct, albeit tenuous, hydrological link to the Lower River Shannon SAC located approximately 14 river kilometres downstream via the River Shannon.

7.4.1.1 Construction Phase

7.4.1.1.1 Mainland

During a development's construction phase, works in general can pose a risk to the aquatic environment via several different sources in the absence of any pollution prevention controls.

Erosion and overland transport of sediment from areas exposed during site set-up, vegetation clearance, preliminary groundworks, excavation areas or other disturbed ground, material storage areas or from other potential sources such as construction vehicles/plant can result in suspension of soil sediment particles in site run-off and overland flow that may eventually reach Lough Derg by virtue of the lake's proximity to the proposed works areas and the natural lakeward-sloping topography of the proposed mainland development sites in Mountshannon. Where sediment laden run-off enters a waterbody, it can result in siltation within the aquatic environment. Soil disturbance can also result in leaching of nutrients such as phosphorous which can be bound to soil of maintained grassland/gardens such as those at the Old Rectory site and the proposed new car park site at Main Street. Excessive nutrient ingress to a waterbody poses a eutrophication risk or aquatic habitat pollution.

Use of plant and machinery poses a risk of accidental ingress of fuel, oils, lubricants, and other such substances considered harmful to the aquatic environment to the lake during construction of the proposed Visitor Centre and reconfiguration of the Mountshannon Harbour car park and public realm upgrades via run-off, overland flow or the existing drainage network. Use of concrete and other cementitious materials, generation of washout and use of chemicals also poses a risk to water quality. In general, such materials can enter the aquatic environment via direct discharges to drainage features, overland flow and/or leaching to groundwater in the event of a spillage/leakage. Use of temporary on-site welfare facilities will generate effluent/wastewater. Treatment of invasive plant species via chemical herbicide can also, in general, pose a risk to the aquatic environment.

Potential sedimentation, nutrient-enrichment, or other aquatic pollution, which could arise in the absence of effective water quality protection measures, would impact on the freshwater ecology of Lough Derg and on the SCI bird species of Lough Derg (Shannon) SPA. Additionally, in the absence of appropriate mitigation measures, there is also potential, albeit slight, for significant water quality impacts within the Lower River Shannon SAC as this site is a downstream receptor with respect to watercourses draining Lough Derg.

Water quality is a key environmental factor underpinning the conservation condition of the complex of wetland habitats and species that the Lough Derg (Shannon) SPA and the Lower River Shannon SAC are both selected for. During their construction, the proximity of the proposed Visitor Centre site and Mountshannon Harbour car park to Lough Derg provides an indirect hydrological pathway to these two European sites. It is unlikely that significant water quality impacts will occur in Lough Derg during construction of the new Mountshannon car park at Main Street due to its location and the intervening urban and parkland surfaces. However, as a precautionary measure, water quality mitigation measures are recommended for all mainland elements of the proposed development during the construction phase.

Given the pollution risk associated with the construction phase of the mainland works and the identified indirect hydrological pathways, it is considered that without appropriate mitigation measures, there is potential for some localised reduction in water quality of the Lough Derg (Shannon) SPA and/or the Lower River Shannon SAC. Water quality mitigation measures have been set out in Section 8.3.4, below.

7.4.1.1.2 Inis Cealtra

Pods, Pathways and Land-based Works

The proposed works on the footprint of the island itself are of a much smaller scale and scope than those proposed for the mainland elements of the development and, therefore, the potential for significant effects to water quality are considered to be of a much lesser magnitude than those summarised in Section 7.4.1.1.1, above. As described

in Section 4.3.7, above, there will be no excavation necessary on the island because works will only involve installation of prefabricated pod components and establishment of the mown pedestrian path system. There will be no introduction of concrete or cementitious material onto the island during construction works, and only limited quantities of fuel/oils, lubricants, and other such substances considered harmful to the aquatic environment required for hand tools and lawnmower. Furthermore, there is no watercourse on the island to provide a hydrological connection linking Lough Derg (and by default, the Lough Derg (Shannon) SPA, and the Lower River Shannon SAC) with the proposed pod sites, and therefore no pollution pathway to Lough Derg.

However, use of temporary on-site construction welfare facilities will generate effluent/wastewater that will need to be removed and disposed. Additionally, any cut back of vegetation/scrub and/or mowing of the proposed grass pathway network will generate vegetative waste/off-cuts which, if windy and improperly stored, have the potential to be blown into the lake waters.

Floating Access Jetty, Canoe Launch, and Access Walkway

Construction of the new floating access jetty, canoe launch, and access walkway (described in Section 4.3.7.4, above) will take place within and adjacent to Lough Derg and will provide the most potential for any significant adverse water quality impacts to occur during the proposed Inis Cealtra works. The use of an excavator, drilling rig, workboat, and any other plant and machinery introduces the risk of accidental ingress of fuel, oils, lubricants, and other such substances directly into the aquatic environment of the Lough Derg (Shannon) SPA and possibly the Lower Shannon SAC located approximately 14 river kilometres further downstream. Standard best practice guidelines will be adhered to such that the risk posed by such substances to the aquatic environment is minimised. Nevertheless, there is still a need for appropriate fuel management measures and pollution prevention controls to be in place during the construction phase - see Section 8.3.4, below.

Cylindrical piles driven into the lake and vibrated into place followed by the excavation of 2 m^3 from the lakebed during installation of the new causeway and jetties will cause a local increase in the volume of suspended sediments and turbidity levels of the lake water within the Lough Derg (Shannon) SPA. There is potential also for any increased sediments released during the piling and excavation works at Inis Cealtra to affect the water quality of the Lower Shannon SAC located approximately 14 river kilometres downstream from the proposed jetty construction site. Given that the excavations and piling will occur directly within the aquatic environment of the SPA, and because the site is hydrologically connected to the downstream SAC, significant water quality impacts due to increased suspended sediments have the potential to occur and a recommended programme of water quality mitigation measures has been set out in Section 8.3.4, below, to ensure the integrity of both European sites remains intact.

Conclusion

In conclusion, there is a risk that without a programme of mitigation measures, the construction works of all elements of the proposed development may potentially result in adverse water quality impacts within the Lough Derg (Shannon) SPA and the Lower River Shannon SAC. Adverse water quality impacts, should they arise, could then exert indirect impacts on aquatic/water-dependant habitats and species protected within the SPA and SAC, which could adversely affect the integrity of these sites.

Section 8.3.4, below, outlines a programme of mitigation measures designed to control and eliminate the point and diffuse pollution sources identified and to ameliorate the potential adverse water quality impacts that might ensue because of the construction of the proposed mainland and island elements of the development. Residual impacts are assessed in Section 9, below.

7.4.1.2 Operational Stage

During the operational phase of the mainland elements of the proposed development, the most likely sources of indirect water quality impacts potentially resulting in secondary effects on receiving aquatic habitats and/or species are those arising from wastewater discharge and from surface water run-off.

For the operational phase of the Inis Cealtra elements of the proposed development, the most likely sources of water quality impacts are those arising directly from operation of boat tours and those arising indirectly during island tours and the maintenance of the dry toilet system within the WC Pod.

7.4.1.2.1 Village Car Park

The levels of surface water run-off generated during the operational phase of the proposed new Mountshannon Village car park at Main Street will be higher than current levels due to the construction of impermeable hard surfaces and the loss of the existing greenfield conditions. Therefore, there is a theoretical risk to the water quality in the receiving watercourses via storm run-off from built areas which has the potential to result in ingress of fuel and oil residues, sediment/silt to the aquatic environment. This risk is heightened during periods of heavy rainfall. In the absence of appropriate mechanisms to control both the rate and quality of storm run-off from the operational car park, stormwater generated has the potential to impair water quality within the receiving waterbody - Lough Derg (and Lough Derg (Shannon) SPA), in this case - which could impact on aquatic species/habitats.

However, management of surface water during the operational phase of the new Mountshannon Village car park at Main Street has been considered in detail at the project design stage and has been designed to replicate, insofar as is practicable, the same run-off characteristics for the developed site as existed for pre-development conditions. The proposed drainage design has incorporated several widely used Sustainable Drainage Systems (SuDS) mechanisms to alleviate any potential detrimental effects of stormwater drainage, and these are discussed further in Section 8.2.2.1, below.

Once operational, the new car park's storm water management system will tie into a combined public sewer located on the R352 with no requirement for a foul sewer system - visitors will have access to toilet facilities within the proposed Visitor Centre.

7.4.1.2.2 Visitor Centre

In a similar manner to the new car park discussed in Section 7.4.1.2.1, above, the levels of surface water run-off generated during the operational phase of the proposed new Visitor Centre will be higher than current levels due to the construction of impermeable hard surfaces and the loss of the existing greenfield conditions at the Old Rectory site and therefore, there is similar potential for water quality impacts due to storm water run-off. This includes ingress of sediment/silt and/or fuels/oils/cementitious material to the aquatic environment of Lough Derg (and Lough Derg (Shannon) SPA) which has potential, in the absence of appropriate mitigation measures, to adversely impact the aquatic species/habitats of the lake and, consequently, the SCI bird species and wetland habitat for which the SPA is designated.

However, management of surface water during the operational phase of the new Visitor Centre has been considered in detail at the project design stage and has been designed to replicate, insofar as is practicable, the same run-off characteristics for the developed site as existed for pre-development conditions. The proposed drainage design has incorporated several widely used Sustainable Drainage Systems (SuDS) mechanisms to alleviate any potential detrimental effects of stormwater drainage, and these are discussed further in Section 8.2.2.1, below.

The proposed Visitor Centre site is currently served by an on-site wastewater/foul system and treatment unit installed previously as part of the Old Rectory redevelopment. Once operational, wastewater from the proposed

Visitor Centre will be treated at the on-site treatment unit to reduce its biological load prior to discharge to the public foul sewer network on Harbour Road via an existing 750 mm diameter combined sewer manhole. The public wastewater system will discharge to Mountshannon Wastewater Treatment Plant (Licence Number: A0064-01) (see Table 16, above) where, following secondary treatment, the treated effluent will eventually empty to Lough Derg at Mountshannon Bay. In response to a pre-connection enquiry, Uisce Éireann (UÉ) (formerly Irish Water) noted in a Confirmation of Feasibility (COF) letter that 'the existing sewer on the local road serving this site can facilitate wastewater' generated during operation of the proposed Visitor Centre and no infrastructure upgrade is necessary. UÉ also note within the letter that 'there is capacity at the Mountshannon Water Treatment Plant to supply this development' and that optimisation works at the Plant have been completed.

Bearing in mind that the wastewater generated during operation of the proposed Visitor Centre will connect to the existing public foul system, and that Mountshannon Wastewater Treatment Plant has sufficient processing capacity, and considering the degree of mixing and dilution of final treated effluent naturally occurring within the Lough Derg and the River Shannon following discharge from Mountshannon Wastewater Treatment Plant, significant impacts to the water quality of Lough Derg (and Lough Derg (Shannon) SPA) due to wastewater generated during operation of the proposed Visitor Centre will not occur. On this basis and considering the scale and location of the proposed Visitor Centre, it is objectively concluded that the proposal to treat and dispose of operational phase wastewater on-site will not result in significant water quality impacts and the integrity of European sites will not be affected.

In summary, direct water quality impacts will not arise during the operational phase of the proposed Visitor Centre. However, significant indirect impacts to water quality have the potential to occur due to storm water run-off from the site and, therefore, mitigation measures in relation to stormwater drainage and management are recommended, and are discussed further in Section 8.2.2.1, below.

7.4.1.2.3 Mountshannon Harbour Car Park Reconfiguration and Public Realm

Once operational, the reconfigured Mountshannon car park and public realm upgrades will retain the existing hydraulic regime without any change to the stormwater disposal. The existing outfalls will be maintained, and additional green areas will aid in the reduction of run-off rate from the area. Furthermore, there is no requirement for either a water connection to serve the area or wastewater/foul system to be installed at this location during its operation.

Taking this into account and considering the very limited operational changes that will occur when compared to the existing operational regime of the Mountshannon Harbour car park and surrounding public realm, it is objectively concluded that the operation of these elements of the proposed development will not result in significant water quality impacts and the integrity of European sites will not be affected.

7.4.1.2.4 Inis Cealtra

Once operational, there will be no requirements for any changes to the island's existing hydrological regime. Implementation of an underground sewer system will not be necessary, and stormwater generated on the island will be managed at source via dispersal through existing vegetation.

The dry toilet system (see Section 4.2.4.2, above) on the island will not require a water source since the waste will be separated into liquid and solid form, stored in a secured holding container at the pod, before it is removed and correctly disposed of off-site by an appointed contractor. Hand sanitising gel will be provided within the WC pod without any water required. There is potential, however, for accidental spillage of the dry toilet system's waste contents when collection and removal of the waste is taking place, thereby, increasing the risk of water quality impacts occurring that may significantly affect the SCI bird species and wetland habitat for which the Lough Derg

(Shannon) SPA is designated. Consequently, recommended water quality mitigation measures for the collection and removal of the dry toilet system waste have been set out in Section 8.3.4, below.

Boats and tour boats travelling between Mountshannon and Inis Cealtra, and boats stored at Mountshannon Harbour, whether moored in the water or stored on land, pose similar risks to water quality as for the construction phase due to the presence of fuels and oils within individual vessel fuel tanks, or stored on vessels/land. Washdown of boats in dry dock areas also poses a risk of run-off of hydrocarbons, silts, and potentially invasive species material to the aquatic environment.

The proposed Phase 1 (see Table 11, above) boat service to and from Inis Cealtra will be seasonal with between two and eight daily round trip boat services during low and high season, respectively. This is of the same order as typical existing boat traffic levels. A Traffic and Transport Assessment in Volume III of the EIAR indicates there will be no increase in total boat traffic generated during the operation of Phase 1. Once the proposed Visitor Centre (Phase 2) is operational, the expected boat service will increase to between six and fourteen daily round trip boat services during low and high season, respectively. This rise in the number of boats and visitors on the lake will increase the risk of direct discharge or run-off of hydrocarbons, silts, and other such substances to the lake. Furthermore, increased boat traffic and human presence on the lake also increases the potential for the inadvertent introduction of invasive alien plant and/or animal species to the lake and/or island and/or shoreline.

In conclusion, there is a risk that without a programme of mitigation measures, the operation/maintenance of the island's proposed dry toilet system, and the proposed Phase 2 increase in boat traffic of the Inis Cealtra Visitor Experience may potentially result in direct and indirect water quality impacts within Lough Derg (Shannon) SPA and Lower River Shannon SAC, respectively. Adverse water quality impacts, should they arise, could then exert indirect impacts on the aquatic/water-dependant habitats and species protected within the SPA and SAC, which could significantly affect the integrity of these designated sites.

Section 8.3.4, below, outlines a programme of mitigation measures designed to control and eliminate the point and diffuse pollution sources identified and to ameliorate the potential adverse water quality impacts that may ensue. Residual impacts are assessed in Section 9, below. The potential for in-combination water quality effects is discussed in Section 7.7, below.

7.4.2 Habitat Loss/Alteration

7.4.2.1 Mainland

There is no spatial overlap between the Lough Derg (Shannon) SPA and the proposed mainland elements of the development, listed in Section 4.1.1, above, and, therefore, there will be no direct loss/alteration of habitat from within the SPA.

The habitats that make up the proposed development sites on the County Clare mainland at Mountshannon are generally unsuitable for the four SCI bird species for which the SPA is designated, namely cormorant, tufted duck, goldeneye, and common tern (see Table 20, above). All four species require open water for roosting and foraging and have a diet that mainly consists of varying types of aquatic invertebrates, molluscs and/or fish. With regards to suitable nesting/breeding habitat, common tern breeding colonies are found in open areas of sand/shingle, while inland cormorant breeding colonies are usually located within trees beside or surrounded by freshwater bodies. A fifth QI of the SPA is wetland habitat of which there is none within the footprint of the proposed mainland works sites (NPWS, 2024). Furthermore, none of these four SCI species were observed on the ground within the footprint of the proposed mainland development sites. For these reasons, the development sites for the proposed mainland elements listed in Section 4.1.1, above, are not considered to be of significant value to

the SPA's populations of cormorant, tufted duck, goldeneye, or common tern nor do the sites hold any areas of wetland habitat within them.

However, as discussed in Sections 7.4.1.1 and 7.4.1.2, above, the construction and operation of the mainland elements listed in Section 4.1.1, above, does have the potential to indirectly effect the water quality within the Lough Derg (Shannon) SPA via contamination of surface water run-off to Lough Derg. This creates potential for significant indirect alteration of the 'Wetlands [A999]' habitat for which the SPA is designated and is of particular importance to the SPA's four designated SCI bird species listed in Table 20, above. During the ornithological surveys carried out by MWP (described in Sections 2.8 and 3.11, above), the QI species tufted duck (peak count of 41 in December 2022) and goldeneye (peak count of 11 in December 2022) were recorded roosting and foraging in the wetland habitats fringing the lakeshore at Mountshannon Bay within 350 metres of Mountshannon Harbour. This wetland habitat is also a critical resource for other regularly occurring migratory waterbird species.

Additionally, since there is tenuous hydrological connection of approximately 15.2 river kilometres linking Mountshannon Harbour with the downstream Lower River Shannon SAC via the River Shannon, it is also possible that any water quality effects within the SPA may also affect the QI habitat 'Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]' for which the SAC is designated. This creates potential for significant indirect alteration/loss of the aquatic habitat within the SAC in the absence of mitigation.

Furthermore, contaminated water entering the SAC creates potential for habitat alteration (or indirect habitat loss) of riverbeds downstream due to sediments suspended in overland flows that may clog up gravels suitable for spawning salmon and/or lamprey because of the unmitigated proposal. Otter habitat may be indirectly affected by a reduction in water quality which can significantly alter the suitability of a site for otters and their requirements. However, this impact is deemed to be limited given the localised nature of the construction and operation of the proposed mainland elements of the development and the wide availability of similar suitable habitat in the vicinity and because the proposed mainland sites are of relatively little ecological value to otter.

To conclude, there is potential for the indirect loss/alteration of the 'Wetlands' [A999] habitat for which the Lough Derg (Shannon) SPA is designated during the construction and/or operational phases via a reduction in water quality which in turn can then adversely affect the SCI species of the SPA listed in Table 20, above. There is also potential via adverse water quality impacts for indirect habitat loss/alteration of the habitat 'Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]' for which the Lower River Shannon SAC is designated. The risk of occurrence however can be adequately prevented by the implementation of standard best management practices and controls. Therefore, certain mitigation measures are recommended with regards to protection of water quality and Section 8, below, outlines a programme of mitigation measures designed to ameliorate potential adverse water quality impacts from the proposed development and the indirect habitat impacts that might ensue.

7.4.2.2 Inis Cealtra

There will be direct loss/alteration of habitat from within Lough Derg (Shannon) SPA during both the construction and operational phases of the proposed Inis Cealtra elements of the development. On the island, there will be some limited cut back of approximately 0.058 hectares of scrubby vegetation to facilitate installation of the welfare pods. To accommodate the island's pedestrian pathway network, approximately 0.32 hectares of habitat (0.3 ha wet grassland; 0.007 ha marsh; 0.004 ha woodland) will be cut back or altered. Wet grassland, woodland and scrub are generally not considered to be of significant foraging/nesting/roosting value to any of the four SCI species that the SPA is designated for, namely cormorant, tufted duck, goldeneye, and common tern, because as mentioned in Section 7.4.2.1, above, these species mainly forage and roost in open water, while breeding colonies of common tern use open areas of sand/single and, although inland cormorant breeding colonies do use trees

beside water, there are no colonies of breeding cormorant currently found on Inis Cealtra (NPWS, 2024). Marsh may be of some value for roosting waterbirds but as the area to be altered is only approximately 0.007 hectares, the potential for significant impacts to the QI species of the SPA is considered low. 'Marsh (GM1)' also corresponds to the QI habitat 'Wetlands [A999]' for which the SPA is designated, and while the loss of this designated habitat will be permanent, it will be localised and is of such a limited scale and scope as to be considered insignificant.

In general, the terrestrial habitats available within the footprint of the proposed development on Inis Cealtra are not similar or ecologically analogous to the habitats preferred by the SCI species and therefore, the site does not have the ecological resources required to attract nor support these SCI species. Consequently, it is considered that any loss of habitats from within the footprint of the proposed Inis Cealtra development boundary will not significantly affect the conservation objectives for the SCI bird species of Lough Derg (Shannon) SPA when other habitats of equal or greater suitability located within the surrounding areas are considered.

During installation of the new floating access jetty, canoe launch jetty, and access walkway (refer to Section 4.3.7.4, above), there will be a loss of approximately 0.001 hectares of 'Reed and large sedge swamp (FS1)' from the northern side of the island. This corresponds to the QI habitat 'Wetlands [A999]' for which the SPA is designated, and while the loss of this designated habitat will be permanent, it will be localised and is of such a limited scale and scope as to be considered not significant. However, as discussed in Sections 7.4.1.1.2 and 7.4.1.2.4, above, without mitigative actions, the construction and operational phases of the proposed works on Inis Cealtra have the potential to cause significant direct water quality impacts within the SPA. This creates potential for significant alteration of the 'Wetlands [A999]' habitat for which the SPA is designated and is a critical resource for the SPA's designated SCI bird species listed in Table 20, above.

Additionally, since there is a tenuous hydrological connection of approximately 14 river kilometres linking Inis Cealtra with the downstream Lower River Shannon SAC via the River Shannon, it is also possible that any water quality effects within the SPA may also affect the QI habitat 'Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]' for which the SAC is designated. This creates potential for significant indirect alteration/loss of the aquatic habitat within the SAC in the absence of mitigation. Furthermore, contaminated water entering the SAC creates potential for habitat alteration (or indirect habitat loss) of riverbeds downstream due to sediments suspended in overland flows that may clog up gravels suitable for spawning salmon and/or lamprey because of the unmitigated proposal.

The waters of Lough Derg around Inis Cealtra are optimal foraging grounds for otter whose diet is dominated by fish, particularly salmonids, eels and sticklebacks. Brown trout and three-spined stickleback were both recorded in waters at the northern shores of the island during the MWP aquatic surveys described in Sections 2.7.3 and 3.10.3, above, and an otter spraint was recorded on the eastern side of the island during mammal surveys (Section 3.9.1, above). Otter is a QI for the Lower Shannon SAC located approximately 14 river kilometres downstream of the proposed works at Inis Cealtra and, therefore, the otter that use the island may be part of the SAC's otter population. As described in Sections 7.4.1.1.2 and 7.4.1.2.4, above, without a programme of mitigation there is potential for a reduction in water quality at Inis Cealtra during the construction and operational phases of the development. This can significantly alter the suitability of the site for otters and their requirements and affect the conservation objectives for the otter population of the SAC.

To conclude, there is potential for the loss/alteration of the 'Wetlands' [A999] habitat for which the Lough Derg (Shannon) SPA is designated during the construction and operational phases of the proposed development via a reduction in water quality which in turn can then adversely affect the SCI species of the SPA as listed in Table 20, above. Similarly, the proposed development may potentially result in indirect alteration of the habitat 'Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]' and alteration/loss of otter foraging/resting habitat within the Lower River Shannon SAC via a reduction in water quality. The risk of occurrence, however, can be adequately prevented through the implementation of standard

best management practices and controls. Therefore, certain mitigation measures are recommended with regards to protection of water quality. Section 8, below, outlines a programme of mitigation measures designed to ameliorate potential adverse water quality impacts from the proposed development and the indirect habitat impacts that might ensue.

7.4.3 Disturbance/Displacement of Species

7.4.3.1 Lough Derg (Shannon) SPA

Disturbance to the four SCI species for which Lough Derg (Shannon) SPA is designated can occur through direct habitat loss or via indirect effects such as displacement (sometimes called indirect habitat loss) or barrier effects in which birds are deterred from using normal routes to feeding/roosting/breeding grounds.

As outlined in Section 7.4.2.2, above, there will be direct loss/alteration of habitat from within the SPA but the magnitude and type of habitat to be lost/altered is not considered to be of significant ecological value to the four SCI species of the SPA when surrounding habitats are considered. Therefore, construction and operation of the proposed Inis Cealtra Visitor Experience is unlikely to result in any significant disturbance of SCI bird species from within the SPA due to direct habitat loss/alteration.

However, at all stages of the construction and operation of the proposed development, there is potential for indirect disturbance/displacement effects of the four SCI bird species both on Inis Cealtra and at the proposed mainland development locations due to a reduction in water quality. As discussed in Section 7.4.1, above, without mitigative actions, the construction and operational phases of the proposed works have the potential to cause significant direct and/or indirect water quality impacts within the SPA due to surface water run-off or through the accidental release of pollutants such as fuels, oils, silt, chemicals or other hydrocarbons. Siltation of the substrate and potential eutrophication could lead to increased biomass of filamentous algae which would reduce the availability of suitable habitat and increase the potential for significant displacement effects of the SCI bird species for which the SPA is designated.

There is also potential for disturbance/displacement effects due to fugitive noise emissions generated during the construction phase of the proposed mainland elements of the development. During the construction phase, groundworks to prepare the Visitor Centre site and new car park at Main Street, and the surface milling of the existing Mountshannon Harbour car park are expected to comprise the main activities with potential to generate noise emissions. However, such activities will be temporary and restricted to the mainland within the urban fabric of Mountshannon village and are, therefore, not expected to be significantly over and above existing ambient noise levels. Similarly, despite a predicted increase in visitor numbers and traffic to the village during the summer months, the operational phase of the proposed development's mainland elements is not expected to generate greatly increased noise emissions over existing levels.

Once operational, an increase in boats travelling between Inis Cealtra and Mountshannon Harbour passing the wetland habitats located along the edge of the lake could potentially disturb/displace the SCI bird species for which the SPA is designated. However, as detailed in Section 4.4.5, above, boat tours will only be carried out from March to September, inclusive, and are, therefore, not expected to cause significant disturbance/displacement effects to the wintering populations of tufted duck and goldeneye for which the SPA is designated.

The other two SCI species of the SPA – common tern and cormorant – are designated for their breeding populations. However, there is no suitable habitat for breeding tern located along the boat route (see Figure 16, above) and, furthermore, breeding tern colonies within the SPA have been almost exclusively located at Goat Island, approximately 16 river kilometres upstream of Mountshannon Harbour (NPWS, 2024). Breeding colonies of cormorant within the SPA are usually located on one of the many vegetated/tree-covered small islands. As

shown in **Figure 16**, above, the route for the Inis Cealtra boat tours is an existing navigation channel, and, therefore, while the tours will pass some small islands that have potential to support breeding cormorant colonies, the disturbance from the boats is not anticipated to be significantly over and above existing levels.

On Inis Cealtra, installation of the new floating access jetty, canoe launch and access walkway will provide the most potential to disturb/displace SCI bird species due to fugitive noise emissions from activities such as piling and use of machinery and plant such as the WWI workboat, drilling rig, and excavator. The disturbance effects will be temporary, however, and restricted to the existing jetty location. Installation of the welfare pods and pedestrian pathway network will also have the potential to disturb/displace SCI bird species due to fugitive noise emissions from small machinery such as the lawnmower, jackhammer, and mini-digger.

Lough Derg and other areas of fringing wetland habitat of the lake comprise suitable foraging/roosting habitat for many different wintering waterbird species, therefore, where works were potentially undertaken during the winter period, migratory waterbird species have the potential to be subjected to some degree of direct/indirect disturbance/displacement during the construction or operational phases of the development through either noise, human activity or potential water quality impacts. In relation to fugitive noise emissions and increased human activity associated with either phase of the development, as Mountshannon Harbour comprises an existing operational jetty/marina and Inis Cealtra has a small but functional slipway/jetty, it is expected that wintering waterbird species potentially foraging/roosting within the vicinity will have acquired some level of habituation to anthropogenic activity. Disturbance/displacement impacts arising from this aspect of the works on migratory waterbird species are expected to be temporary in nature.

To conclude, there is potential for disturbance/displacement effects to occur during the construction and operational phases of the proposed development of the SCI bird species for which Lough Derg (Shannon) SPA is designated (listed in **Table 20**, above) via a reduction in water quality and an increase of fugitive noise emissions. The risk of occurrence, however, can be adequately prevented through the implementation of a programme of mitigation measures as recommended in **Section 8**, below, that are designed to ameliorate potential impacts from the proposed development and the disturbance/displacement impacts that may ensue.

7.4.3.2 Lower River Shannon SAC

The Lower River Shannon SAC is designated for the protection of several aquatic species, and one semi-aquatic species - otter. **Table 22**, below, outlines the qualifying interest (QI) species for the SAC which have been selected for impact assessment.

Table 22. Qualifying Interest (QI) species for Lower River Shannon SAC selected for impact assessment.

Qualifying Interest (QI) Species	Distribution within the SAC
Sea lamprey (*Petromyzon marinus*) [1095]	Freshwater aquatic
Brook lamprey (*Lampetra planeri*) [1096]	Freshwater aquatic
River lamprey (*Lampetra fluviatilis*) [1099]	Freshwater aquatic
Atlantic salmon (*Salmo salar*) [1106]	Freshwater aquatic
Otter (*Lutra lutra*) [1355]	Freshwater/coastal/terrestrial [semi aquatic]

As discussed in **Section 7.4.1**, above, the Lower River Shannon SAC is linked to the proposed development site primarily through a hydrological connection measuring approximately 14 river kilometres. This creates potential for indirect disturbance or displacement of salmon and lamprey arising from potential pollutants entering Lough Derg and the River Shannon during both the construction and operational phases of the proposed development. Spawning salmon and lamprey require a clean, well-aerated riverbed substrate to survive. Siltation of the substrate and eutrophication leading to increased biomass of filamentous algae could reduce the availability of

suitable habitat. Therefore, a reduction of water quality within the water column can reduce the suitability of the river for adult salmon and lamprey resulting in disturbance/displacement of the species. Additionally, although the proposed development is unlikely to result in any direct displacement of otter, there is potential for indirect displacement of the species through a reduction in water quality leading to a reduction of the available prey biomass for otter whose diet is predominantly made up of fish.

Regarding otter and the potential for disturbance or displacement impacts because of noise and/or human activity associated with the proposed construction and operation of the development, it is noted that apart from one record of an otter spraint on the eastern shores of the Inis Cealtra in 2021, there was no other evidence of otter on the island or at any of the mainland development sites following a suite of ecological surveys carried out by MWP ecologists on multiple dates between 2021 and 2024 (see Section 2.7, above). Although there is some potential for otter to occur, any disturbance or displacement impacts that arise due to fugitive noise from machinery and/or human activity during site preparation and construction will be temporary and will be restricted to the immediate vicinity of the proposed development site. Furthermore, the mainland elements of the proposed development are all located in Mountshannon Village in highly modified/maintained areas that have an existing ambient level of anthropogenic urban noise. Operational noise/activity levels of the proposed development are not expected to exceed existing levels considering the scale and location of the development within Mountshannon Village and on Lough Derg.

It has been determined in Section 7.4.1, above, that there is a risk, without a programme of mitigation measures to control any potential emissions from site preparation works and construction/operational activities, that the point/diffuse sources of pollution that could ensue from the proposed development may exert an impact on water quality. Section 8, below, outlines a programme of mitigation measures designed to ameliorate potential adverse water quality impacts and thus indirect disturbance or displacement of aquatic species that might ensue because of the proposed development. Residual impacts are assessed in Section 9, below.

7.4.4 Invasive species

Construction and operational activity have the potential to result in the inadvertent introduction and/or spread of invasive species. Several terrestrial and aquatic invasive plant species listed on the Third Schedule of the EC Birds and Habitats Regulations 2011, were recorded within the proposed development site, including within the proposed works footprint, during baseline ecological surveys (See Sections 3.8 and 3.10.5, above).

Plant/machinery, tools/equipment, workers clothing/footwear and imported building and other materials including soil and fill can all potentially be contaminated with infested soil, seed or other viable material from external locations. Soil disturbance and movement associated with groundworks, construction excavations and general construction/maintenance activity including movement of plant, machinery, equipment and materials could also potentially result in spread of invasives/increased levels of infestation within the site. Movement of plant and machinery could inadvertently move viable seed from one area of the site to another.

These aspects of the proposal could potentially result in the introduction of previously unrecorded invasive species to the development site and/or contribute to an increase in the overall distribution of known invasives within the site, which could adversely affect the various terrestrial and aquatic species/habitats for which the Lough Derg (Shannon) SPA and Lower River Shannon SAC are designated. Accidental spread of invasive plants and animals to outside the subject site could also potentially occur through accidental removal from the site of invasive material on plant, machinery, equipment, clothing etc.

In the absence of appropriate controls, it is considered that proposed works have the potential to result in indirect habitat and species impacts via potential introduction and/or spread of invasive species.

Due to the nature of the proposed development, and the overlap between the proposed development site and the SPA, it is concluded that, in the absence of mitigation, there is potential for adverse effects on the integrity of the Lough Derg (Shannon) SPA and Lower River Shannon SAC with respect to the sites' ecological structures and functions, and in view of the sites' conservation objectives.

Mitigation measures are therefore proposed in relation to protection of qualifying habitats/species from the risk posed by invasive species, to avoid adverse effects on the integrity of the SPA and SAC. Section 8.3.8, below outlines a programme of detailed mitigation measures designed to ameliorate the potential impacts that might ensue as a result of the unmitigated proposal in relation to invasive species.

7.4.5 Habitat or Species Fragmentation

Habitat fragmentation has been defined as 'reduction and isolation of patches of natural environment' (Franklin *et al*., 2002; Morrison *et al*., 2012) usually due to an external disturbance that alters the habitat and 'create[s] isolated or tenuously connected patches of the original habitat' (Wiens, 1989). This results in spatial separation of habitat units which had previously been in a state of greater continuity. Negative effects of habitat fragmentation on species or populations can include increased isolation of populations or species which can detrimentally impact on the resilience or robustness of the populations reducing overall species diversity and altering species abundance.

7.4.5.1 Mainland

The construction and operation of the mainland elements of the proposed development listed in Section 4.1.1, above, do not overlap with either of the relevant European sites – Lough Derg (Shannon) SPA and Lower River Shannon SAC – and will not result in any direct habitat loss/alteration within either. Therefore, significant habitat or species fragmentation impacts are not envisaged for these European sites as a result of the mainland elements of the proposed development. However, a programme of mitigation measures pertaining to protection of water quality is recommended (see Section 8, below). Residual impacts are assessed in Section 9, below.

7.4.5.2 Inis Cealtra

With regards to the removal of minor areas of non-qualifying habitat within Lough Derg (Shannon) SPA, comprising largely habitats such as agricultural grassland, amenity grassland and scrub, as well as minor pockets of woodland and wet grassland, these do not comprise habitats of ecological value for the SPA's SCI bird species listed in Table 20, above. Removal of minor areas of these habitats is not expected to result in significant species or habitat fragmentation impacts within the SPA, nor is it expected to result in significant *ex-situ* species fragmentation impacts for QIs of the Lower River Shannon SAC listed in Table 21, above.

It has been determined in Section 7.4.2.2, above, that approximately 0.001 hectares of reedbeds will be removed/altered from the north of the island to facilitate piling works required for installation of the new floating access jetty and canoe launch jetty. The loss of this habitat is limited and is not expected to result in significant habitat or species fragmentation impacts within the SPA or the SAC.

It has been determined that general construction and operational activities of the proposed development have the potential to result in the introduction and/or spread of invasive alien plant and animal species within the SPA and/or the SAC and/or indirect impacts on qualifying habitats and species. While this aspect of the project is not considered to have the potential for significant habitat or species fragmentation impacts within the SPA and/or the SAC, both general and site-specific mitigation measures designed to prevent either the introduction and/or spread of invasive alien plant and animal species are recommended.

A series of two-metre-wide mown grass pedestrian pathways is proposed for Inis Cealtra to allow visitors to explore the island and its archaeological features. The proposed pathways will be restricted to areas of improved grassland apart from small sections crossing wet grassland and fringing marsh habitat to the southeast of the island. Overall, approximately 0.308 hectares of 'Wet grassland (GS4)' and 0.0066 hectares of 'Marsh (GM1)' will be cut back/altered to enable installation of the pedestrian pathway network on the island which may potentially result in wetland habitat fragmentation. However, any habitat fragmentation will be minor and is unlikely to have significant effects on the designated 'Wetlands (A999)' of the SPA nor the SCI bird species for which the SPA is designated.

Mitigation measures in relation to protection of the prevention of introduction/spread of invasive alien plant and animal species, and mitigation pertaining to the protection of wetland habitats are outlined in Section 8, below. Residual impacts are assessed in Section 9, below.

7.5 Assessment of Effects on the Conservation Objectives of Lough Derg (Shannon) SPA [004058]

An evaluation was undertaken to identify which of the Special Conservation Interests (SCI) of the Lough Derg (Shannon) SPA (see Section 7.2.2 above) potentially lie within the zone of influence of the proposed development and require further assessment in the NIS. This was done through a scientific examination of ecological evidence and data listed in Section 2, above, or referenced, as well as the results of the ecological field surveys (Section 3, above). In this case, all five SCIs were selected for further assessment (listed in Table 20, above).

Following this, the potentially significant effects that may arise because of the proposed development were assessed in Section 7.4, above, and a determination was made as to whether the integrity of the SPA is likely to be adversely affected by the proposal. The SCI species of the SPA have been assessed against the measures designed to achieve the conservation objectives of the site and the outcome of this assessment is presented in the following sections.

7.5.1 Cormorant [A017]

Cormorant is a resident species in Ireland and breeds in colonies mainly on offshore islands and rocky coastlines although there are some inland breeding populations such as on the islands within Lough Derg. This diving species feeds on fish, foraging mainly in shallow waters (<30m depth) and may roost in intertidal or supratidal areas. Cormorant is one of two qualifying species with a breeding population within the Lough Derg (Shannon) SPA (NPWS, 2024). The species is amber-listed in Ireland due to a localised breeding population.

The conservation objective for cormorant is to restore the Favourable conservation condition of this species in the Lough Derg (Shannon) SPA. The specific species Attributes and Targets for cormorant defined in relation to the achievement of the Conservation Objectives for the SPA are presented in **Table 23,** below. An assessment of the effects of the project against these measures is also included.

Table 23. Assessment of effects on conservation objectives of 'Cormorant [A017]' (NPWS, 2024).

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Breeding population size/ Number of Apparently Occupied Nests (AONs)	Long term SPA population trend is stable or increasing	Cormorant breeding colonies at Lough Derg are usually found in suitable trees on one of the lake's many small islands. Habitats at the proposed development site are not considered optimal for nesting cormorant colonies. It was established during MWP ornithological surveys (see QI species survey results summary in **Section 3.11.5**, above) that habitats at the proposed development site are not currently used by cormorant for breeding. A 2024 survey of almost the entire lake recorded 121 cormorant pairs all located at the northwestern corner of the lake in Galway (NPWS, 2024) while Burnell, *et al.* (2023) reported that the nearest breeding colony to the proposed development site was found on Scilly Island, located approximately 3.3 km southeast of Inis Cealtra. The proposed development is not expected to cause a significant decline in the breeding population of cormorant, but water quality impacts and/or disturbance of the species are possible which could potentially affect the breeding population and range. While no significant effects to this measure are expected, mitigation regarding water quality protection will be applied as a precaution.	**Yes** – see **Section 8**
Productivity rate/ Number of fledged young per AON	Sufficient to maintain a stable or increasing population	Potential degradation of water quality and disturbance impacts to cormorant could potentially effect food availability and food procurement by cormorant leading to an impact on productivity rate of breeding cormorant at Lough Derg. While no significant effects to this measure are expected, mitigation regarding water quality protection will be applied as a precaution.	**Yes** – see **Section 8**
Distribution: extent of available nesting options within the SPA/ Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population	Habitats within the footprint of the proposed development are not considered optimal for breeding cormorant colonies and cormorant are not currently known to occupy breeding colonies within at least three kilometres of Inis Cealtra. While no significant effects to this measure are expected, mitigation regarding water quality protection will be applied as a precaution.	**Yes** – see **Section 8**

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Forage spatial distribution, extent, abundance and availability/ Location and hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support population target	Cormorant are a piscivorous species that use the waters of Lough Derg around Inis Cealtra and Mountshannon for foraging. Reduced water quality could impact prey items of this specialist species while invasive species may disrupt fish stocks and reduce quality/availability of cormorant foraging resources. Furthermore, an estimate of mean foraging distance of 7 km for the species has been posited by Woodward *et al*. (2019), thereby making Inis Cealtra and Mountshannon Harbour within foraging distance of the nearest known colony located approximately 3.3 km southeast of Inis Cealtra, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Disturbance at the breeding site/ Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on birds at the breeding site	Habitats at the proposed development site are not considered optimal for nesting cormorant colonies. During MWP ornithological surveys (see QI species survey results summary in **Section 3.11.5**, above), it was established that habitats at the proposed development site are not currently used by cormorant for breeding. A 2024 survey of almost the entire lake recorded 121 cormorant pairs all located at the northwestern corner of the lake in Galway (NPWS, 2024) while Burnell, *et al.* (2023) reported that the nearest breeding colony to the proposed development site was on Scilly Island, located approximately 3.3 km southeast of Inis Cealtra. While the proposed development is not expected to cause any significant disturbance at cormorant breeding sites, water quality impacts are possible which could potentially affect this attribute, therefore, mitigation regarding water quality protection will be applied as a precaution.	**Yes** – see **Section 8**
Disturbance at areas ecologically connected to the colony/ Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on breeding population	Cormorant are known to use areas near their colonies for non-site-specific maintenance behaviours such as bathing, preening, wing-drying and courtship. During MWP ornithological surveys, cormorant was observed carrying out such behaviours on rocks and islets at Mountshannon Bay and Inis Cealtra, and on Mountshannon Harbour infrastructure. Reduced water quality could adversely impact the ability of cormorant to carry out such maintenance behaviours, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Barriers to connectivity/ Number; location; shape; area (hectares)	No significant increase	Applies to breeding colonies of cormorant - the species often utilise extensive areas of freshwater for foraging. Cormorant was recorded frequently at Inis Cealtra and Mountshannon during the MWP ornithological surveys and the species is considered to use the lake waters around the proposed development area as foraging grounds and/or as a corridor to other nearby foraging grounds. While it is unlikely the proposed development will present a significant barrier to connectivity, a reduction of water quality could impact prey items and reduce quality/availability of cormorant foraging resources, therefore, mitigation regarding water quality protection will be applied as a precautionary measure.	**Yes** – see **Section 8**

7.5.2 Tufted Duck [A061]

Tufted duck is a resident and winter visitor species in Ireland occurring in lowland freshwater lakes, town lakes, canals and slow-moving rivers. This species tends to breed in large open lakes in lowland areas, where nests are built in waterside vegetation. This medium-sized diving duck predominantly feeds on mussels, and to a lesser extent on crustaceans, insect larvae (particularly caddisfly) and bryozoans. The species is amber-listed in Ireland because of declining numbers, and Lough Derg (Shannon) SPA is an important wintering site for tufted duck. It is the wintering population of the species that is the qualifying interest for this SPA (NPWS, 2024).

The conservation objective for tufted duck is to maintain the Favourable conservation condition of this species in the Lough Derg (Shannon) SPA. The specific species Attributes and Targets for tufted duck defined in relation to the achievement of the Conservation Objectives for the SPA are presented in **Table 24**, below. An assessment of the effects of the project against these measures is also included.

Table 24. Assessment of effects on conservation objectives of 'Tufted Duck [A061]' (NPWS, 2024).

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Winter population trend/ Percentage change in number of individuals	Long term winter population trend is stable or increasing	Based on annual counts collected as part of the I-WeBS programme for monitoring population trends for wintering waterbirds, the long-term (23-year) national trend for tufted duck is a decrease of nearly 18% based on data collected between 1994/95 and 2019/20 (Kennedy *et al*., 2023). During the MWP ornithological surveys, tufted duck were seen in relatively large numbers throughout most of the winter counts (see QI species survey results summary in **Section 3.11.5**, above), particularly in reed beds around Knockaphort Pier and Mountshannon Bay. The project is not expected to cause a significant decline in the wintering population of tufted duck, but water quality impacts and/or disturbance of this species is possible which could potentially affect the population trend, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Winter spatial distribution/ Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. Land management and other human activities can affect the spatio-temporal patterns of habitat use by tufted duck in the area. Anthropogenic recreational activities on the lake such as boating, angling, kayaking etc. can potentially reduce the quantity/quality of locations and habitat available to tufted duck. However, the frequency of these activities at Inis Cealtra and Mountshannon Village will peak during summer months and are, therefore, not likely to significantly affect the winter spatial distribution of tufted duck. During the MWP ornithological surveys, tufted duck were seen in relatively large numbers throughout most of the winter counts (see QI species survey results summary in **Section 3.11.5**, above), particularly in the reed beds around Knockaphort Pier and Mountshannon Bay. The project is not expected to cause a significant decline in the wintering spatial distribution of tufted duck, but water quality impacts and/or disturbance of	**Yes** – see **Section 8**

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
		this species is possible which could potentially affect the amount available suitable habitat, therefore, mitigation regarding water quality protection will be applied.	
Disturbance at wintering site/ Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution	Disturbance contributes to increased energetic expenditure by SCI species which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain) and can negatively impact population trends. Anthropogenic recreational activities on the lake such as boating, angling, kayaking etc. can potentially disturb tufted duck and affect population trends and spatial distribution. However, the frequency of these activities at Inis Cealtra and Mountshannon Village will peak during summer months and are, therefore, not likely to significantly disturb tufted duck at their wintering sites. During MWP ornithological surveys, tufted duck were seen in relatively large numbers throughout most winter counts (see QI species survey results summary in **Section 3.11.5**, above), particularly in reed beds around Knockaphort Pier and Mountshannon Bay. The project is not expected to significantly disturb tufted duck at their wintering sites, but water quality impacts and/or disturbance of the species is possible, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Barriers to connectivity and site use/ Number, location, shape and hectares	Barriers do not significantly impact wintering population's access to SPA or other ecologically important sites outside SPA	Barriers that limit the wintering population of tufted duck from accessing the SPA or other ecologically important sites outside the footprint of the SPA will ultimately affect the species' ability to achieve population trend and/or spatial distribution targets. Factors such as the number, location, shape and area of potential barriers can affect potential impact to a population and are considered during assessment. Seabirds can often use many different areas of the SPA to engage in various maintenance behaviours (e.g bathing, preening) and, while it is unlikely the proposed development will present a significant barrier to connectivity given its limited scale and scope, reduced water quality could adversely impact the ability of tufted duck to carry out such maintenance, thereby, limiting its ability to use the site. Consequently, and as a precaution, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Forage spatial distribution, extent and abundance/ Location, hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	This species is omnivorous and forages primarily in open freshwater or brackish waterbodies. Molluscs are the main food source for the species, but fish, insects, amphibians and various plant materials are also consumed. Tufted duck feed primarily by diving, but to a lesser extent will also feed at the surface of waterbodies, wade in shallows, and forage onshore. Fugitive noise from machinery and/or human activity during the construction phase will largely be restricted to the immediate vicinity of the proposed development site, and while there is some potential for disturbance to tufted duck forage locations, they will be temporary due to the nature of the works and unlikely to significantly affect the availability and quality of foraging habitat for tufted duck within the SPA. During MWP ornithological surveys, tufted duck were seen foraging in relatively large numbers throughout most of the winter counts (see QI species survey results summary in **Section 3.11.5**, above), particularly in the reed beds around Knockaphort Pier and shorelines at Mountshannon Bay. Reduced water quality could impact prey items of tufted duck while invasive species may disrupt fish stocks and reduce quality/availability of tufted duck foraging resources, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Roost spatial distribution and extent/ Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Sufficient, good quality roosting habitat is a critical ecological requirement for the wintering population of tufted duck. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use. Fugitive noise from machinery and/or human activity during the construction phase will largely be restricted to the immediate vicinity of the proposed development site, and while there is some potential for disturbance to tufted duck roost locations, they will be temporary due to the nature of the works and unlikely to significantly affect the availability and quality of roosting habitat for tufted duck within the SPA. During MWP ornithological surveys, tufted duck were seen roosting in relatively large numbers throughout most of the winter counts (see QI species survey results summary in **Section 3.11.5**, above), particularly in the reed beds around Knockaphort Pier and shorelines at Mountshannon Bay. Impacts on water quality could reduce the quality/availability of tufted duck roosting resources, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**

7.5.3 Goldeneye [A067]

Goldeneye is a winter visitor to Ireland, occurring between November and April in both freshwater and saltwater, particularly lowland freshwater lakes and sea loughs. This medium-sized diving duck does not breed in Ireland and is red-listed due to its vulnerability to poor water quality and because of competition for food with introduced fish species. It is the wintering population of the species that is the qualifying interest for this SPA (NPWS, 2024).

The conservation objective for goldeneye is to maintain the Favourable conservation condition of this species in the Lough Derg (Shannon) SPA. The specific species Attributes and Targets for goldeneye defined in relation to the achievement of the Conservation Objectives for the SPA are presented in **Table 25**, below. An assessment of the effects of the project against these measures is also included.

Table 25. Assessment of effects on conservation objectives of 'Goldeneye [A067]' (NPWS, 2024).

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Winter population trend/ Percentage change in number of individuals	Long term winter population trend is stable or increasing	Based on annual counts collected as part of the I-WeBS programme for monitoring population trends for wintering waterbirds, the long-term (23-year) national trend for goldeneye is a decrease of nearly 67% based on data collected between 1994/95 and 2019/20 (Kennedy *et al*., 2023). During MWP ornithological surveys, goldeneye were recorded only very rarely during winter counts and were not present at all during the winter 2023/24 counts (see QI species survey results summary in **Section 3.11.5**, above). The project is not expected to cause a significant decline in the wintering population of goldeneye, but water quality impacts and/or disturbance of this species is possible which could potentially affect the population trend, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Winter spatial distribution/ Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. Land management and other human activities can affect the spatio-temporal patterns of habitat use by goldeneye within the area. Anthropogenic recreational activities on the lake such as boating, angling, kayaking etc. can potentially reduce the quantity/quality of locations and habitat available to goldeneye. However, the frequency of these activities at Inis Cealtra and Mountshannon Village will peak during summer months and are, therefore, not likely to significantly affect the winter spatial distribution of goldeneye. During the MWP ornithological surveys, goldeneye were recorded only very rarely during winter counts and were not present at all during the winter 2023/24 counts (see QI species survey results summary in **Section 3.11.5**, above). The project is not expected to cause a significant decline in the wintering spatial distribution of goldeneye, but water quality impacts and/or disturbance of this species is possible which could potentially affect the amount available suitable habitat, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Disturbance at wintering site/ Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution	Disturbance contributes to increased energetic expenditure by SCI species which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain) and can negatively impact population trends. Anthropogenic recreational activities on the lake such as boating, angling, kayaking can potentially disturb goldeneye and affect the species' population trend and spatial distribution. However, the frequency of these activities at Inis Cealtra and Mountshannon Village will peak in summer months and are, therefore, unlikely to significantly disturb goldeneye at their wintering sites. During MWP ornithological surveys, goldeneye were recorded only very rarely during winter counts and were not present at all during winter 2023/24 counts (see QI species survey results summary in **Section 3.11.5**, above). The project is not expected to significantly disturb goldeneye at their wintering sites, but water quality impacts and/or disturbance of this species is possible which could potentially increase disturbance levels, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Barriers to connectivity and site use/ Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside SPA	Barriers that limit the wintering population of goldeneye from accessing the SPA or other ecologically important sites outside the SPA footprint will ultimately affect the species' ability to achieve population trend and/or spatial distribution targets. Factors such as the number, location, shape and area of potential barriers can affect the potential impact to a population and are considered during assessment. Seabirds can often use many different areas of the SPA to engage in various maintenance behaviours (e.g bathing, preening) and, while it is unlikely the proposed development will present a significant barrier to connectivity given its limited scale and scope, reduced water quality could adversely impact the ability of goldeneye to carry out such maintenance, thereby, limiting its ability to use the site. Consequently, and as a precaution, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Forage spatial distribution, extent and abundance/ Location, hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	Goldeneye are a diving omnivorous duck that feed primarily on crustaceans, molluscs and insects and prefer to forage over waters that contain a mix of substrate-size. The species favours open water with good visibility and without emergent or dense submerged vegetation (NPWS, 2024). During MWP ornithological surveys, goldeneye was recorded only very rarely during winter counts and were not present at all during winter 2023/24 counts (see QI species survey results summary in **Section 3.11.5**, above). Reduced water quality may impact prey items of goldeneye while invasive species may disrupt fish stocks and reduce quality/availability of goldeneye foraging resources, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Roost spatial distribution and extent/ Location and	Sufficient number of locations, area and availability of suitable	Sufficient, good quality roosting habitat is a critical ecological requirement for the wintering population of goldeneye. A lack of sufficient and suitable roosting habitat can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use.	**Yes** – see **Section 8**

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
hectares of roosting habitat	roosting habitat to support the population target	Fugitive noise from machinery and/or human activity during construction phase will largely be restricted to the immediate vicinity of the proposed development site, and while there is some potential for disturbance to goldeneye roost locations, it will be temporary due to the nature of works and unlikely to significantly affect the availability and quality of roosting habitat for goldeneye within the SPA. During MWP ornithological surveys, goldeneye were recorded only very rarely during winter counts and were not present at all during the winter 2023/24 counts (see QI species survey results summary in **Section 3.11.5**, above). Impacts on water quality could reduce the quality/availability of goldeneye roosting resources, therefore, mitigation regarding water quality protection will be applied.	

7.5.4 Common Tern [A193]

Common tern is a summer visitor species to Ireland occurring over the sea or over large inland lakes such as Lough Derg. This species tends to breed colonially on the ground from August to October at the coast and on islets inland within freshwater lakes. This tern species predominantly feeds on fish. The Annex II species (under the E.U. Birds Directive) is amber-listed in Ireland for both moderate and long-term declines. Lough Derg (Shannon) SPA is a nationally important breeding site for common tern, and it is the breeding population of the species that is the qualifying interest for this SPA (NPWS, 2024).

The conservation objective for common tern is to restore the Favourable conservation condition of this species in the Lough Derg (Shannon) SPA. The specific species Attributes and Targets for common tern defined in relation to the achievement of the Conservation Objectives for the SPA are presented in **Table 26**, below. An assessment of the effects of the project against these measures is also included.

Table 26. Assessment of effects on conservation objectives of 'Common Tern [A193]' (NPWS, 2024).

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Breeding population size/ Number of Apparently Occupied Nests (AON)	Long term SPA population trend is stable or increasing	Common tern breeding colonies within the SPA have almost exclusively been located on Goat Island, approximately 15.7 river km and 16.6 river km upstream of Mountshannon Harbour and Inis Cealtra, respectively (or, over land, 11.5 km and 13.5 km northeast of the Old Rectory site and Inis Cealtra, respectively). A 2024 count by NPWS indicated a complete breeding population collapse of common tern within the SPA (NPWS, 2024), contrary to the long-term (23-year) national population trend where an increase of 91% was reported for data between 1998-2002 and 2015-2021 (Burnell *et al*., 2023). During MWP ornithological surveys, common tern was recorded only very rarely during summer counts and were not present at all at Mountshannon Harbour. No evidence for the presence of breeding tern colonies at	**Yes** – see **Section 8**

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
		the proposed development site was recorded (see QI species survey results summary in **Section 3.11.5**, above). The proposed development is not expected to cause a significant decline in the breeding population size of common tern, but water quality impacts and/or disturbance of this species is possible which could potentially affect the breeding population trend, therefore, mitigation regarding water quality protection will be applied.	
Productivity rate/ Number of fledged young per AON	Sufficient to maintain a stable or increasing population	Potential degradation of water quality and disturbance impacts to common tern could potentially effect food availability and food procurement by the species leading to an impact on productivity rate of breeding common tern at Lough Derg. While no significant effects to this measure are expected, mitigation measures regarding water quality protection will be applied as a precaution.	**Yes** – see **Section 8**
Distribution: extent of available nesting options within the SPA/ Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population	Habitats within the footprint of the proposed development are not considered optimal for breeding common tern colonies, and the species are not currently known to have historically occupied breeding colonies within at least 11 km of Mountshannon Harbour. While no significant effects to this measure are expected, any adverse water quality impacts could limit the availability of suitable common tern nesting sites within the SPA, and therefore, mitigation regarding water quality protection will be applied as a precaution.	**Yes** – see **Section 8**
Forage spatial distribution, extent, abundance and availability/ Location and hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	Common tern feed mainly on a variety of small fish, sand eel and sprat, which are caught by diving from a height and, although the species was only very rarely observed during the MWP ornithological surveys (see QI species survey results summary in **Section 3.11.5**, above), the waters at Mountshannon Bay and around Inis Cealtra are used by foraging common tern. Reduced water quality could impact the species' prey items while invasive species may disrupt fish stocks and reduce quality/availability of common tern foraging resources, therefore, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Disturbance at the breeding site/ Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on birds at the breeding site	Habitats at the proposed development site are not considered optimal for nesting common tern colonies. During MWP ornithological surveys (see QI species survey results summary in **Section 3.11.5**, above), it was established that habitats at the proposed development site are not currently used by breeding common tern. Common tern breeding colonies within the SPA have almost exclusively been located on Goat Island, approximately 15.7 river km and 16.6 river km upstream of Mountshannon Harbour and Inis Cealtra, respectively (or, over land, 11.5 km and 13.5 km northeast of the Old Rectory site and Inis Cealtra, respectively). Any reduction in water quality as a result of the proposed development will be localised and highly unlikely to cause disturbance at common tern breeding sites given the intervening distance between the proposed development site and Goat Island located at least 15 river km upstream. Therefore, potential effects to this attribute are not expected because of the proposed development.	No

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Disturbance at areas ecologically connected to the colony/ Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact on breeding population	Common tern, as many seabird species, use areas near their breeding colonies for non-site-specific maintenance behaviours such as bathing, preening, wing-drying and courtship and may use areas outside the breeding colony but not in water for some behaviours such as roosting. During MWP ornithological surveys (see QI species survey results summary in **Section 3.11.5**, above), common tern was not observed carrying out such behaviours at any location. However, since a reduction in water quality could adversely impact the ability of common tern to carry out such maintenance behaviours, mitigation regarding water quality protection will be applied.	**Yes** – see **Section 8**
Barriers to connectivity/ Number; location; shape; area (hectares)	No significant increase	Common tern, as many seabird species, require access to areas of water ecologically connected to their breeding colonies for foraging and maintenance behaviours. Common tern breeding colonies within the SPA have almost exclusively been located on Goat Island, approximately 15.7 river km and 16.6 river km upstream of Mountshannon Harbour and Inis Cealtra, respectively (or, over land, 11.5 km and 13.5 km northeast of the Old Rectory site and Inis Cealtra, respectively). Common tern was infrequently recorded in low numbers during MWP ornithological surveys (see QI species survey results summary in **Section 3.11.5**, above), however, the species is considered to use the lake waters around the proposed development area as foraging grounds and/or as a corridor to other nearby foraging grounds. Although there is no known historical breeding colony located within 11 km of Mountshannon Harbour, an estimate of mean foraging distance of 6.4 km for the species has been posited by Power *et al*. (2021), thereby making the waters at Inis Cealtra and Mountshannon Harbour within foraging distance of the colony. While it is unlikely the proposed development will present a significant barrier to connectivity, a reduction of water quality could impact prey items and reduce quality/availability of common tern foraging resources, therefore, mitigation regarding water quality protection is recommended.	**Yes** – see **Section 8**

7.5.5 Wetlands [A999]

The conservation objective for 'Wetlands' is to maintain the Favourable conservation condition of Wetland habitats within the Lough Derg (Shannon) SPA as a resource for the regularly occurring migratory waterbirds that utilise these areas. The specific Attributes and Targets for the habitat defined in relation to the achievement of the Conservation Objectives for the SPA are presented in **Table 27,** below. An assessment of the effects of the project against these measures is also included.

Table 27. Assessment of effects on conservation objectives of 'Wetlands [A999]' (NPWS, 2024).

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Wetland habitat area/ Hectares Wetland habitat quality and functioning/ Quality and function of wetland habitat	No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation. No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation.	The wetland habitats contained within the Lough Derg (Shannon) SPA are identified as being of conservation importance for the regularly occurring migratory waterbirds that frequent the lake. Wetlands are important for, amongst other things, maintaining lake water quality, providing shelter for waterbirds and spawning grounds for fish which in turn provides a food source for birds. Wetland habitats present at the proposed development site include marsh, wet grassland and reedbeds. There will be some direct loss/alteration (approx. 0.007 ha) of wetlands because of the proposed works at Inis Cealtra which is located within the footprint of the SPA. The area of loss which will arise because of the proposed development is not considered to be significant in the context of the overall size of the SPA and extent of comparable habitat. There is potential for water quality to be adversely affected. This may result in habitat loss and loss of habitat quality and/or functioning, therefore, mitigation regarding water quality protection is recommended.	**Yes** – see **Section 8**

7.6 Assessment of Effects on the Conservation Objectives of Lower River Shannon SAC [002165]

An evaluation was undertaken to determine which of the Qualifying Interests (QIs) of the Lower River Shannon SAC (see Section 7.3.2, above) potentially lie within the zone of influence of the proposed development and required further assessment in the NIS. This was done through a scientific examination of ecological evidence and data listed in Section 2, above, or referenced, as well as the results of the ecological field surveys (Section 3, above). Following this, an assessment of the potentially significant effects that may arise due to the proposed development was carried out in Section 7.4, above, and a determination was made as to whether the integrity of the SAC is likely to be adversely effected by the proposal.

In this case, one qualifying aquatic habitat and five qualifying aquatic/water-dependant species were selected for further assessment. The remaining QI habitats and species were deemed to be outside the zone of influence of the proposed development and were not selected for further assessment in the NIS. The effects of the project on the qualifying interests potentially within the zone of influence of the proposed development have been assessed against the measures designed to achieve the conservation objectives of the site. The outcome of the assessment has been presented in the following sub-sections and tables.

7.6.1 Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]

The conservation objective for 'Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation' is to maintain the favourable conservation condition of this habitat within the Lower River Shannon SAC. The specific habitat Attributes and Targets for this QI defined in relation to the achievement of the Conservation Objectives for the SAC are presented in **Table 28,** below. An assessment of the effects of the proposed development against these measures is also included.

Table 28. Assessment of effects on conservation objectives of 'Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]' (NPWS, 2012b).

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Habitat area/ Kilometres	Area stable or increasing, subject to natural processes. Three sub-types of high conservation value are known to occur in the SAC.	The full distribution or area of this habitat and its sub-types within the SAC are unknown and the definition of the habitat is broad. In Ireland, the highest riverine conservation interest is associated with lowland depositing and tidal rivers and unmodified, fast-flowing, low-nutrient rivers. While not all variants of the river habitat require low nutrient conditions, eutrophication can affect some (NPWS, 2019). Construction and operation activities of the proposed development could potentially result in release of pollutants into watercourses and affect the quality of the water, which may in turn effect habitat area and distribution.	Yes Refer to **Section 8**
Habitat distribution/ Occurrence	No decline, subject to natural processes.		
Hydrological regime: river flow/ metres per second	Maintain appropriate hydrological regimes	A natural flow regime is required for both plant communities and channel geomorphology to be in favourable condition. Construction and operation activities of the proposed development will not alter the hydrological regime of downstream watercourses. No effects to conservation measure anticipated.	No
Hydrological regime: tidal influence/ Daily water level fluctuations - metres	Maintain natural tidal regime	Tidal regime appears to be an important influence on the distribution of certain pondweed. Construction and operation activities of the scale of the proposed development will not alter the hydrological regime or natural tidal influence of downstream waterbodies. No effects to conservation measure anticipated.	No
Hydrological regime: freshwater seepages/ metres per second	Maintain appropriate freshwater seepage regimes	There will be no alteration of hydrological regime or freshwater seepages regime of the habitat within the SAC. Thus, no effects to conservation measure anticipated.	No
Substratum composition: particle size range/ Millimetres	The substratum should be dominated by the particle size ranges, appropriate to the habitat sub-type (frequently sands, gravels, cobbles)	Sediment laden run-off may arise from disturbed areas during groundworks or from construction vehicles/plant. When combined with heavy rainfall these activities pose a risk of silt runoff into Lough Derg and the River Shannon downstream of the site and hydrologically connected to the SPA. Such impacts may occur at proposed construction site in the absence of appropriate controls.	Yes Refer to **Section 8**

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Water quality: nutrients/ Milligrams per litre	The concentration of nutrients in water column should be sufficiently low to prevent changes in species composition or habitat condition. The specific targets may vary among sub- types	Nutrient enrichment typically leads to increased filamentous algal biomass and consequent changes in algae, bryophyte and macrophyte species composition and abundance. Excess algal growth can lead to oxygen depletion in aquatic environments. Sediment-laden run-off may arise from exposed areas during groundworks or from construction vehicles/plant. These are potential sources of nutrients which could discharge into watercourses. Accidental fuel/oil spills or uncontrolled emissions of cementitious material/wastewater or other harmful substances also pose a risk to water quality and habitat condition in the absence of appropriate controls.	Yes Refer to **Section 8**
Vegetation composition: typical species/ Occurrence	Typical species of relevant habitat sub-type should be present and in good condition	The sub-types of this habitat include higher plants, bryophytes and microalgae. Water quality impacts are possible which could potentially affect this attribute, therefore, mitigation regarding water quality protection will be applied as a precaution.	Yes Refer to **Section 8**
Floodplain connectivity/ Area	The area of active floodplain at and upstream of the habitat should be maintained	River connectivity with the floodplain is essential for the functioning of this habitat and is particularly important in terms of sediment sorting and nutrient deposition. The proposed development will not affect floodplain connectivity within the catchment. Thus, this attribute will not be adversely affected by the project.	No
Riparian habitat/ Area	The area of riparian woodland at and upstream of the bryophyte-rich sub-type should be maintained	The proposed development will not result in any loss in area of riparian woodland. Thus, this attribute will not be adversely affected by the project.	No

7.6.2 Sea Lamprey [1095]

The conservation objective for sea lamprey is to restore the favourable conservation condition of this QI species within the Lower River Shannon SAC. The specific species Attributes and Targets for sea lamprey defined in relation to the achievement of the Conservation Objectives for the SAC are presented in **Table 29,** below. An assessment of the effects of the project against these measures is also included.

Table 29. Assessment of effects on conservation objectives of 'Sea lamprey [1095]' (NPWS, 2012b)

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Distribution: extent of anadromy/ % of river accessible	Greater than 75% of main stem length of rivers accessible from estuary	The proposed project will not result in the physical impediment to the migration of fish. No significant effects to conservation objective anticipated.	No
Population structure of juveniles/ Number of age/size groups	At least three age/size groups present	Juvenile sea lamprey can be present in the SAC for several years before transforming into adults. The newly grown adults can then remain within the SAC for a period before migrating to the sea, while adults returning after a life at sea may spend several months in the SAC before spawning. adverse water quality effects arising because of the proposed development could impact on the population structure of juveniles within the SAC located approx. 14 rkm downstream from the proposed development site.	Yes Refer to **Section 8**
Juvenile density in fine sediment/ Juveniles/m^2	Juvenile density at least 1/m^2	Earthworks and excavations during could potentially release sediment that silts up clean gravels in the River Shannon reducing oxygen levels to the eggs. Juveniles live buried in silt beds so there is potential for construction activities to release pollutants into Lough Derg and affect water quality of silt beds within the lake and further downstream within the SAC. Some sea lamprey encountered within Lough Derg are highly likely to form part of the SAC sea lamprey population. Therefore, there is potential for this conservation objective to be negatively affected and mitigation regarding water quality protection will be applied as a precaution.	
Extent and distribution of spawning habitat/ m^2 and occurrence	No decline in extent and distribution of spawning beds	Lampreys require areas of clean gravels to spawn. Potential adverse water quality effects which may arise because of the proposed development could impact on spawning habitat potentially located downstream of the site and could result in a decline in spawning habitat extent within the SAC.	Yes Refer to **Section 8**
Availability of juvenile habitat/ Number of positive sites in 3rd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive	Juvenile lamprey require areas of clean sand/silt in which to develop and mature. Potential adverse water quality effects which may arise due to the proposed development could impact on juvenile lamprey habitat condition and availability in watercourses downstream of the site within the SAC.	Yes Refer to **Section 8**

7.6.3 River Lamprey [1099] and Brook Lamprey [1096]

The conservation objective for river and brook lamprey is to maintain the favourable conservation condition of these species in the Lower River Shannon SAC. The specific species Attributes and Targets for river and brook lamprey defined in relation to the achievement of the Conservation Objectives for the SAC are presented in **Table 30,** below. An assessment of the effects of the project against these measures is also included.

Table 30. Assessment of effects on conservation objectives of 'River lamprey [1099]' and 'Brook lamprey [1096]' (NPWS, 2012b)

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Distribution/ % of river accessible	Access to all watercourses down to 1st order streams	The proposed development will not result in any change in distribution or accessibility of watercourses for river/brook lamprey. Thus, this attribute will not be adversely affected by the project.	No
Population structure of juveniles/ Number of age/size groups	At least three age/size groups of brook/river lamprey present	Potential adverse water quality effects which may arise because of the proposed development could impact on the population structure of juvenile river/brook lamprey within the SAC.	Yes Refer to **Section 8**
Juvenile density in fine sediment/ Juveniles/m^2	Mean catchment juvenile density of river/brook lamprey at least $2m^2$	Potential adverse water quality effects which may arise because of the proposed development could impact on juvenile lamprey habitat condition and mean catchment juvenile density within the SAC.	Yes Refer to **Section 8**
Extent and distribution of spawning habitat/ m^2 and occurrence	No decline in extent and distribution of spawning beds	Both species of lamprey tend to spawn in sandy or gravelly sediment (Kurz & Costello, 1999). Potential adverse water quality effects which may arise because of the proposed development could impact on spawning habitat potentially located downstream of the site and could result in a decline in spawning habitat extent within the SAC.	Yes Refer to **Section 8**
Availability of juvenile habitat/ Number of positive sites in 2nd order channels (and greater) downstream of spawning areas	More than 50% of sample sites positive	Juvenile habitat for both species consists of silt beds in slower-flowing reaches of the river in which they can develop and mature. Potential adverse water quality effects which may arise because of the proposed development could impact on juvenile lamprey habitat condition and availability in watercourses downstream of the site within the SAC.	Yes Refer to **Section 8**

7.6.4 Atlantic Salmon [1106]

The conservation objective for Atlantic salmon is to restore the favourable conservation condition of this species in the Lower River Shannon SAC. The specific species Attributes and Targets for Atlantic salmon defined in relation to the achievement of the Conservation Objectives for the SAC are presented in **Table 31,** below. An assessment of the effects of the project against these measures is also included.

Table 31. Assessment of effects on conservation objectives of 'Atlantic Salmon [1106]' (NPWS, 2012b).

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Distribution: extent of anadromy/ % of river accessible	100% of river channels down to 2nd order accessible from estuary	The proposed development will not result in any change in distribution or accessibility of rivers for salmon. Thus, this attribute will not be adversely affected by the proposed project.	No
Adult spawning fish/ Number	Conservation Limits (CL) for each system consistently exceeded	The Shannon (Upper) within the Limerick District, encapsulating the stretch of River Shannon from Parteen Weir at Ardnacrusha upstream to Killaloe, is listed as a watercourse with a salmon Conservation Limit (CL) of 49,638. The most recent five-year data for the average salmon count for this watercourse is 1,458 which corresponds to a 5% proportion of CL achieved with no data available on whether the river is meeting the Catchment-wide electrofishing (CWEF) mean minimum threshold of ≥17 salmon fry per 5 minutes of electrofishing (TEGOS[44], 2023). The proposed development has the potential to result in indirect water quality impacts that may affect adult spawning fish, salmon fry or out-migrating smolts, and number of redds. A reduction in water quality may also indirectly affect the CL during the early life stages (spawning and movement of alevins upwards through gravels) of this species should sediment and associated nutrients result in the loss/alteration of gravel habitats. Therefore, there is potential for negative effects to these attributes and mitigation regarding water quality protection will be applied.	Yes Refer to **Section 8**
Salmon fry abundance/ Number of fry/ 5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling		
Out-migrating smolt abundance/ Number	No significant decline		
Number and distribution of redds/ Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes		
Water quality/ EPA Q value	At least Q4 at all sites sampled by EPA		

[44] TEGOS – Technical Expert Group on Salmon. TEGOS and its parent body the cross-border North South Standing Scientific Committee on Inland Fish (NSSSCIF) provide independent scientific advice to Inland Fisheries Ireland (IFI) for Atlantic salmon conservation work. Technical Expert Group on Salmon | TEGOS | Inland Fisheries Ireland Accessed: 27th November 2024.

7.6.5 Otter [1355]

The conservation objective for otter is to restore the favourable conservation condition of this species in the SAC. The specific species Attributes and Targets defined in relation to the achievement of Conservation Objectives for the SAC are presented in **Table 32,** with an assessment of the effects of the project against these measures.

Table 32. Assessment of effects on conservation objectives of 'Otter [1355]' (NPWS, 2012b)

Attribute/Measure	Target	Assessment of Potentially Significant Effects	Mitigation Required
Distribution/ percentage positive survey sites	No significant decline	The waters around Inis Cealtra and Mountshannon Harbour are considered optimal otter foraging habitat and it is very likely that some of the SAC otter population use these waters as foraging grounds. The proposed development has potential to result in water quality impacts that may affect otter prey biomass and indirectly affect otter distribution. Therefore, there is potential for negative effects to this attribute and mitigation regarding water quality protection will be applied.	Yes Refer to **Section 8**
Extent of terrestrial habitat/ ha	No significant decline. Area mapped as 596.8 ha above high-water mark, 958.9 ha along riverbanks/around ponds	The proposed development will not result in any significant decline in the extent of terrestrial/ marine/freshwater (river) or freshwater (lake/lagoon) habitat for otter. Thus, these attributes are unlikely to be negatively affected by the proposed development.	No
Extent of marine habitat/ ha	No significant decline. Area mapped as 4,461.6 ha		
Extent of freshwater (river) habitat/ km	No significant decline. Length mapped as 500.1 km		
Extent of freshwater (lake/lagoon) habitat/ ha	No significant decline. Area mapped as 125.6 ha		
Couching sites and holts/ number	No significant decline	While MWP field surveys identified spraints on the eastern side of Inis Cealtra, no holts or breeding habitat were identified and no decline in the number of couching sites and holts for otter are anticipated. However, the proposed development has potential to adversely impact water quality that may affect availability of suitable couching sites and holts. Therefore, there is potential for negative effects to this attribute and mitigation regarding water quality protection will be applied.	Yes Refer to **Section 8**
Fish biomass available/ kilograms	No significant decline	Ample food supply is normally associated with high water quality. Construction activities could potentially result in release of pollutants and/or sediments and affect otter prey biomass. Therefore, there is potential for this attribute to be negatively affected, mitigation regarding water quality protection will be applied.	Yes Refer to **Section 8**
Barriers to connectivity/ number	No significant increase.	The project is confined to the proposed development sites at Inis Cealtra and Mountshannon on the mainland and will not impede the movement of otter. No effects to this attribute are anticipated.	No

7.7 Assessment of Potentially Significant Cumulative Effects

When in-combination impacts are assessed, it is necessary to identify the types of impacts that may ensue from the project under consideration and from other sources in the existing environment that cumulatively are likely to affect aspects of the structure and function of the relevant European sites (EC, 2021).

The EC (2021) guidelines on the provision of Article 6 of the Habitats' Directive state that the phrase 'in combination with other plans or projects' in Article 3(3) of the Habitats Directive refers to the cumulative effects due to plans or projects 'that are currently under consideration together with the effects of any existing or proposed projects or plans.' Relevant plans and projects have been identified in **Section 5,** above.

7.7.1 Ongoing Activities

7.7.1.1 Introduction

Irish waterbodies are frequently subjected to various anthropogenic activities and pressures that can adversely impact upon water quality. Indeed, more than half of affected waterbodies are impacted upon by more than one pressure type. Agriculture is the dominant pressure source in the country, effecting 53% of Irish waterbodies from 2013 to 2018 (O'Boyle *et al.*, 2019), mainly through nutrient pollution (nitrogen and phosphorus) which can cause excessive plant growth and increase the likelihood of harmful algal blooms.

Significant issues in surface waterbodies classified as 'At Risk' of not meeting surface waterbody environmental objectives within the Lower Shannon Catchment (25C) by 2027 are identified in EPA (2021). Agriculture is the most significant pressure on waterbodies within the catchment due mainly to diffuse phosphorous and nitrogen loss to surface waters and intensive dairy and pig farming. Other pressures include hydromorphological changes, forestry, domestic and urban wastewater, urban run-off, extractive industries, invasive species, and other impacts[45].

Many watercourses in the catchment are also subject to significantly increased levels of sediment-loading due to forestry activities, mineral/peat harvesting and bank erosion. Forestry and peat extraction can cause ecological problems through increased erosion rates, siltation and nutrient loss. Phosphorus losses come primarily from wastewater discharges, and runoff losses from agriculture on poorly draining soils (O'Boyle *et al.*, 2019). Habitat condition in the catchment is compromised due to hydrological and morphological modifications to the waterbodies particularly in areas where barriers, locks or weirs may be in use. The primary pressures in the Shannon[Lower]_SC_070 sub-catchment and the adjacent Bow_SC_010 sub-catchment, are considered to result from agriculture, wastewater, forestry and other anthropogenic activities.

As defined in the Natura 2000 Data Form[46] and listed in **Table 33,** below, recreational anthropogenic activities and agricultural fertilisation have been identified as the main pressures within the Lough Derg (Shannon) SPA.

[45] 'Abstractions, aquaculture, atmospheric, anthropogenic pressures, historically polluted sites, wastewater treatment and invasive species' (EPA, 2021)
[46] N2K IE0004058 dataforms Accessed: 23rd October 2024

Table 33. Most important impacts and activities with high effect on the Lough Derg (Shannon) SPA as defined in the associated Natura 2000 Data Form.

Threat Level	Threats and Pressures Code	Reference
High	G01.01	Nautical sports
Medium	F03.01	Hunting
Medium	F02.03	Leisure fishing
High	A08	Fertilisation

For the Lower River Shannon SAC, anthropogenic activities and agricultural intensification have been identified as medium impact pressures, while forestry and peat-harvesting have been classed as low-level pressures, as listed in **Table 34**, below[47].

Table 34. Most important impacts and activities with high effect on the Lower River Shannon SAC as defined in the associated Natura 2000 Data Form.

Threat Level	Threats and Pressures Code	Reference
Medium	E01	Urbanised areas, human habitation
Medium	K02.03	Eutrophication (natural)
Medium	J02.01.02	Reclamation of land from sea, estuary or marsh
Low	C01.01.02	Removal of beach materials
Low	F01	Marine and freshwater Aquaculture
Medium	E03	Discharges
Low	J02.10	Management of aquatic and bank vegetation for drainage purposes
Medium	A08	Fertilisation
Medium	H04	Air pollution, air-borne pollutants
Medium	A08	Fertilisation
Low	F03.01	Hunting
Medium	A04	Grazing
Low	B	Sylviculture, forestry
Low	J02.12.01	Sea defence or coast protection works, tidal barrages
Low	G01.01	Nautical sports
Medium	J02.01.01	Polderisation
Low	D01.01	Paths, tracks, cycling tracks
Low	C01.03.01	Hand cutting of peat
Low	I01	Invasive non-native species

[47] N2K IE0002165 dataforms (europa.eu) Accessed: 20th October 2024

7.7.1.2 Agriculture

The main impacts of farming are the loss of excess nutrients, sediment and pesticides to water. Excess ammonium may also be a problem in some waterbodies. These losses arise from point sources such as farmyards or from diffuse sources such as spreading of fertilisers and manures. Excess phosphorus and sediment are typical issues for rivers and lakes, and too much nitrogen is the main issue for estuaries and coastal waters (O'Boyle *et al*., 2019).

In the 3rd Cycle Lower Shannon Catchment (25C) Report (EPA, 2024), agriculture was identified as a significant pressure in 34 waterbodies (66% of *At Risk* waterbodies) within the catchment (including three lake waterbodies – Loughs Alewnaghta, Graney, and Derg TN). When this figure is compared to the 23 waterbodies within the catchment affected by agriculture during the 2nd Cycle monitoring period (EPA, 2018b), the continued and increasing pressure on waterbodies exerted by agriculture is evident. Farming-related impacts within the catchment mainly involve the loss of phosphorus and nitrogen to surface waters from, for example, direct discharges, or runoff from yards, roadways or other compacted surfaces, or runoff from poorly draining soils. It takes only very small amounts of phosphorus to be lost, relative to the amounts used in agriculture, to cause a water quality problem. Sediment from land drainage works and bank erosion because of animal access also impact upon water quality. In the 2016-2021 EPA Water Quality Report, Trodd *et al.*, (2021) reported the Lower Shannon Catchment (25C) as being one of seven catchments 'with the highest number of river sites with increasing nitrogen concentration' primarily because of forestry and intensively farmed areas with more free-draining soil that is more susceptible to nitrate leaching.

The water quality effects of the proposed development during the construction and operational phases, together with the previously discussed effects of agricultural practices, could exacerbate potential impacts associated with the project within the catchment and undermine the conservation objectives for the qualifying features of Lough Derg (Shannon) SPA and Lower River Shannon SAC as discussed in Sections 7.2 and 7.3, above, respectively.

7.7.1.3 Hydromorphology and Drainage

Hydromorphology is the study of the physical character and processes that occur within a waterbody. Hydromorphological modification is a physical alteration to the conditions of a habitat or to the natural functioning of a waterbody that can change flow patterns and have an ecological impact. Changes may be caused by various activities such as the dredging and straightening of rivers (channelisation), land drainage, or hard infrastructure such as dams, weirs, culverts, or other obstructions (O'Boyle *et al*., 2019).

According to EPA (2024), hydromorphological modification is a significant pressure in eighteen river waterbodies and one lake waterbody (Derg TN/Lough Derg) within the Lower Shannon (25C) Catchment due mainly to the presence of drainage issues and the resulting increased levels of siltation. Land drainage was responsible for detrimental impacts to eight river waterbodies while channelisation was identified as an impact in nine river waterbodies. Barriers to fish migration, such as dams, barriers, locks, and/or weirs, are on ongoing issue impacting three waterbodies - Lough Derg (Derg TN), Cappagh (Galway)_010 and Lisduff (Kilcrow)_010).

The water quality effects of hydromorphological modifications could exacerbate potential impacts associated with the proposed development within the Lower Shannon Catchment (25C) and undermine the conservation objectives for the qualifying features of the Lough Derg (Shannon) SPA and the Lower River Shannon SAC as discussed in Sections 7.2 and 7.3, above, respectively.

7.7.1.4 Mines, Quarries and Industry

The water quality of various river habitats and waterbodies can be adversely affected by quarrying via the generation of elevated levels of silt and dust which can eventually accumulate within watercourses resulting in excessive sedimentation of river channels followed by ecological deterioration. Mining operations mainly impact

on the quality of water through the dewatering process used for mineral extraction. This drainage and extraction of minerals can lead to a release of ammonia and fine-grained suspended sediments and can bring about changes to the hydromorphological condition of rivers[48]. Ecological problems caused by quarrying and mining include increased erosion rates, siltation and nutrient loss (O'Boyle *et al*., 2019).

Mines have been identified as exerting a significant pressure in four river waterbodies within the Lower Shannon Catchment (25C), namely Ardcrony Stream_010, Ballyfinboy_010, Ballyfinboy_060, and Ollatrim_010. The historic Tynagh Mine within the northern region of the catchment is a significant pressure on one river waterbody - Lisduff(Kilcrow)_020 – and one groundwater body – Historic Mine (Tynagh) – where impacts include chemical pollution, toxicity, and elevated heavy metal concentrations from the historic zinc mine (EPA, 2024).

An EPA-licensed industrial facility in Nenagh, Arrabawn Co-operative Society Limited (Active industrial emissions licence (IEL) number: P0791-03), an agri-based organisation that produces various dairy products has been identified as a significant pressure on the Nenagh_060 river waterbody where elevated orthophosphate and ammonia are the most significant issues related to this point source discharge (EPA, 2024).

The water quality effects of the proposed development during the construction and operational phases, together with the previously discussed effects of mining, quarrying, and industrial practices could exacerbate potential impacts associated with the project within the catchment and undermine the conservation objectives for the qualifying features of the Lough Derg (Shannon) SPA and the Lower River Shannon SAC as detailed in Sections 7.2 and 7.3, above, respectively.

7.7.1.5 Domestic Wastewater and Diffuse Urban Run-off

Domestic wastewater discharged by households predominantly originates from human metabolism or from day-to-day human activities within single houses that are not connected to sewers, usually in rural settings where wastewater is treated on-site in septic tank systems or in individual wastewater treatment systems. If not correctly located, designed, installed and well-maintained, untreated effluent can leak into surrounding waters resulting in elevated nutrient concentrations and posing a significant ecological threat (EPA, 2013).

Within the Lower Shannon (25C) Catchment, domestic wastewater has been identified as a significant pressure in two river waterbodies (Ballyfinboy_030 and Cloghaun_010) due to inadequate domestic wastewater systems, many of which are mapped on areas of high susceptibility to phosphate transfer, causing enrichment and microbial/organic contamination of local surface waters and decreased water quality as a result. Septic tank systems and communal system discharges are highly vulnerable to the transfer of phosphorus via surface pathways. Domestic wastewater is also a significant issue for one groundwater body within the catchment, namely GWDTE-Rahasane Turlough (SAC000322).

Pollution from diffuse urban run-off can also exert significant pressure on the integrity of waterbodies. Sources include run-off from paved/unpaved areas, domestic plumbing misconnections and leaking sewers which can result in the release of untreated effluent into receiving waterbodies causing elevated nutrient levels and ecological deterioration (O'Boyle *et al*., 2019). There are five river waterbodies within the Lower Shannon (25C) Catchment that have been identified as being under significant pressure due to diffuse urban run-off, with elevated concentrations of nutrients and organic pollution being the significant issues - Ardgregane Stream_020, Graney (Shannon)_050, Ballyfinboy_030, Ballyfinboy_040, and Nenagh_060 (EPA, 2024). None of these identified river waterbodies from the catchment are located in the Shannon[Lower]_SC_070 sub-catchment, however.

The water quality effects of the proposed development during the construction and operational phases, together with the previously discussed effects of domestic wastewater and diffuse urban run-off, could exacerbate

[48] *Water Action Plan 2024: A River Basin Management Plan for Ireland*. gov.ie - River Basin Management Plan 2022 - 2027 Accessed: 20th November 2024.

potential impacts associated with the project within the catchment and undermine the conservation objectives for the qualifying features of the Lough Derg (Shannon) SPA and the Lower River Shannon SAC as detailed in Sections 7.2 and 7.3, above, respectively.

7.7.1.6 Wastewater Treatment

Since 2013, the national population has increased by almost a quarter of a million people with a resultant increase in the amount of wastewater requiring treatment. Works are ongoing by Uisce Éireann to improve the level of wastewater treatment nationally; however, the level of treatment is still inadequate at 120 locations around the country and raw sewage from 36 towns and villages is being released into rivers at five locations and into coastal waters at 31 locations (O'Boyle *et al*., 2019). As mentioned in Section 5.4, above, there are five urban wastewater treatment plants (UWWTP) (Table 15, above) and 18 smaller sewage treatment plants (see Table 16, above, for details of the five nearest) located within Lower Shannon (25C) Catchment. Of these treatment plants, two have been identified as exerting a significant pressure on an 'At Risk' waterbody within the catchment – refer to Table 35, below.

Table 35. Details of wastewater treatment plants identified as significant pressure in 'At Risk' waterbodies within the Lower Shannon (25C) Catchment (EPA, 2024).

Facility name	Facility type[49]	Active license no.	Waterbody impacted	2016-21 ecological status	Expected completion[50]
Cloughjordan	500 to 1,000 p.e.	D0475	Ballyfinboy_030	Moderate	N/A
Borrisokane	1,000 to 2,000 p.e.	D0326	Ballyfinboy_050	Moderate	N/A

Without mitigation measures, the water quality effects of the proposed development during the construction and operational phases, together with the previously discussed effects of wastewater treatment, could exacerbate potential impacts associated with the project within the Lower Shannon Catchment (25C) and undermine the conservation objectives for the qualifying features of the Lough Derg (Shannon) SPA and the Lower River Shannon SAC as discussed in Sections 7.2 and 7.3, above, respectively.

7.7.1.7 Forestry

Poorly managed and inappropriately sited forestry operations can adversely affect water quality and aquatic habitats and species. The release of sediment and nutrients and the impacts of acidification are the most common water quality issues arising from forestry. Forestry may also bring about changes in stream flow regimes caused by associated land drainage (O'Boyle *et al*., 2019). Forestry has been identified as a significant pressure in fourteen river waterbodies and one lake waterbody (Lough Graney) within the Lower Shannon Catchment (25C) (EPA, 2024) - none of the identified river waterbodies from the catchment under pressure from forestry practises are located in the Shannon[Lower]_SC_070 sub-catchment. The significant issues are a combination of the general forestry pressures of clear-felling and associated operations, and an increased sediment/nutrient loading to surface waterbodies that affects habitats. Construction of the proposed development will involve excavations and earthworks that can mobilise silt and nutrients, however, no part of the proposed development occurs in or adjacent to any areas of conifer plantation.

During the construction phase of the proposed development, there is potential for negative water quality impacts on downstream waterbodies due mainly to earthworks and the release of sediment. There is potential for the project to contribute to a cumulative impact on water quality in local watercourses, within and downstream of the site, by way of sediments and other pollutants potentially entering the watercourses. These water quality

[49] Defined using population equivalent value (p.e.)
[50] Expected completion date for upgrades scheduled under Uisce Éireann's Capital Investment Programme (CIP) (2020-2024) as of February 2021 and may be subject to change (EPA, 2021).

effects, coupled with the abovementioned forestry effects, could exacerbate potential impacts associated with the proposed development within the Lower Shannon Catchment (25C) and undermine the conservation objectives for the qualifying features of the Lough Derg (Shannon) SPA and the Lower River Shannon SAC as discussed in Sections 7.2 and 7.3, above, respectively.

8. Mitigation

8.1 Introduction

As outlined in the impact assessment of the preceding sections, the construction and operation of the proposed Inis Cealtra Visitor Experience has the potential to cause temporary direct and/or indirect and/or significant impacts to the SCI bird species and QI wetland habitat for which the Lough Derg (Shannon) SPA is designated, and to the QI species and habitat for which the Lower Shannon SAC is designated, and therefore, adversely impact the integrity of these two European sites. Consequently, several planned mitigation measures are proposed below 'to remove, pre-empt or reduce the impacts identified in the appropriate assessment to a level where they will no longer affect the integrity of the site(s)' (EC, 2021).

Refer to Section 4, above, and Chapter 2, Development Description, and Chapter 6, Water & Hydrology, in Volume II of the EIAR for full details.

8.2 Mitigation by Design

Consultations and meetings between the Design Team - including the Project Manager, Engineers, Architects, Ecologists and Archaeologists - and the Applicant occurred frequently and continuously during the design phases of all components of the proposed Inis Cealtra Visitor Experience.

Habitat surveys and ecological mapping were considered when identifying ecological constraints during the early design stages of the project to enable the Design Team to draw up a project design that would avoid, prevent and/or minimise any potential significant ecological impacts, in as much as was practicably possible. Cognisance was given to more sensitive ecological features to ensure minimal ecological effects arise because of the proposed development and to limit, where possible, the footprint of the proposed development on more ecologically valuable habitats.

8.2.1 Inis Cealtra

From the outset and throughout all stages, the proposed development on Inis Cealtra has been designed with due consideration to the highly sensitive nature of the island and its profound natural, cultural, historical and ecclesiastical importance.

Early in the development's design process, several potential locations for the proposed new island jetty were considered. However, after baseline ecological surveys identified the habitats 'Marsh (GM1)' (see Section 3.6.1.8, above) and 'Reed and large sedge swamps (FS1)' (see Section 3.6.2.1, above) at several potential northeastern shoreline areas, these locations were then excluded from the developable area of the project due to their potential links tom Annex I. Subsequently, the existing concrete landing point at the northwest of the island was selected as the location for the new floating access jetty to avoid/reduce any potential impacts effecting the ecological integrity of the wetland habitats within the SPA.

Similarly, the route selected for the proposed seeded/mown gravel pedestrian paths on the island has been selected to avoid more ecologically sensitive habitats and instead will principally traverse the less ecologically valuable habitats of 'Improved agricultural grassland (GA1') and 'Amenity grassland (GA2)'.

The design of the welfare pods to be installed on the island has also been carefully considered and largely utilises a prefabricated construction approach to substantially reduce the need for *in-situ* works and to ensure minimisation of any potential on-site environmental impacts. The pod design is further discussed hereunder.

8.2.1.1 Construction Design of Pods

Each pod has been designed to be freestanding and raised on timber legs to ensure minimal contact with the ground without the need for any excavation works, thereby, ensuring the natural habitat beneath their footprint is largely maintained. The primary interaction between the pod structures and underlying habitats is via the mini-screw piles installed for the pods' timber leg support columns that each have a diameter of approximately 180 millimetres. Using mini-screw piles rather than concrete piles ensures no excavation works are required and only minimal disruption to the underlying habitat. The lightweight timber external frames of each pod will be prefabricated off-site before delivery to the island where they will only require assembly. Additionally, the pods have been designed in such a way that allows for their dismantling and removal from the landscape with little trace of them remaining.

Siting of the pods has been carefully considered during the detailed design process to minimise their visual, archaeological and ecological impacts on the landscape while also being geographically convenient for visitors and staff. Also considered were construction materials and the finished external appearances of the pods. In this regard, the principal use of timber (oak) for their construction and cladding ensures the pods remain visually unobtrusive within the woodland and scrub of the island.

8.2.2 Mainland

Hydrology was an important constraint during the design stage of the proposed Visitor Centre and new Mountshannon car park at Main Street and associated infrastructure and their siting and design were constraint-driven to avoid or reduce adverse operational phase hydrological impacts.

All design and works in proximity to waterbodies shall follow the best practice guidance outlined in the following documents:

- *Guidelines on Protection of Fisheries during Construction Works in and adjacent to Waters* (IFI, 2016).
- *Control of Water Pollution from Linear Construction Projects* (Murnane *et al.,* 2006).
- *Guidelines for the crossing of Watercourses during Construction of National Road Schemes* (NRA[51], 2008).

8.2.2.1 Operational Design of Surface Water Drainage System

As discussed in Section 7.4.1, above, and summarised in Table 19, above, the proximity of the mainland sites to Lough Derg and the topography of the land at Mountshannon creates the potential for a tangible impact pathway linking the proposed mainland development sites to two down-gradient European sites – firstly, the Lough Derg (Shannon) SPA, located approximately 0.03 kilometres southeast of the proposed Visitor Centre site and 0.15 kilometres southwest of the new car park site, and secondly, the Lower River Shannon SAC located approximately 15.2 river kilometres downstream of Mountshannon Harbour. There is, therefore, a risk of potentially significant impacts to the Qualifying Interest species and habitats of both these European sites should contaminated surface water run-off enter Lough Derg when the sites are operational.

[51] National Roads Authority, now known as Transport Infrastructure Ireland (TII)

The storm water drainage systems for the proposed Visitor Centre and new Mountshannon car park sites have been designed to attenuate the greenfield runoff rate for the 1-year, 30-year and 100-year return periods. This is in accordance with Appendix E, Design of Stormwater Storage, of the Greater Dublin Strategic Drainage Strategy[52] and will minimise any potential operational phase impacts of surface water runoff. Furthermore, sustainable drainage systems (SuDS) features have been incorporated into the design of the development as standard best practice.

In summary, the storm water management system has been designed based on the following criteria:

- Pipes reach self-cleansing velocity in the one in two-year event.
- Sewers not surcharging in the two-year event.
- Sewers not flooding in the 100-year event with 20% climate change.
- Incorporation of Class 1 bypass petrol interceptors.
- Sub-surface attenuation systems for storage of a 1-in-100-year storm plus a 20 % climate change factor.
- Inclusion of an emergency overflow in case of blockage at the hydrobrake.

8.3 Construction Phase Mitigation by Management

Mitigation measures which are recommended for the protection of the Lough Derg (Shannon) SPA and the Lower River Shannon SAC are provided in the following subsections and in the CEMP included in the Planning Application pack. Measures are presented in accordance with Section 3.2.4 of the European Commission Notice 2021/C 437/01 '*Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*' guidance document.

8.3.1 Construction Environmental Management Plan (CEMP)

A Construction and Environmental Management Plan (CEMP) has been prepared and is included in the Planning Application Pack**.** The CEMP will be a key construction contract document that will ensure all mitigation measures considered necessary to protect the environment, prior to construction, during construction and during operation of the proposed development are implemented. The CEMP will collate and manage the proposed and agreed mitigation measures, any monitoring and follow-up arrangements, and the management of environmental impacts. The environmental commitments of the project will be managed through the CEMP and will be secured in contract documentation and arrangements for construction and later development stages.

The CEMP will mainly address the construction phase, however, where monitoring is to continue into the operational phase, these commitments will be communicated and transcribed into operational process documentation. The CEMP will be updated as required through pre-construction and construction to address, for example, any conditions stipulated in the planning permission. The primary objective of the CEMP is to provide a framework for actions, responsibilities and protocols associated with environmental management which the appointed Contractor(s) is required to adhere to, ensuring the construction of the proposed development in accordance with regulatory requirements and to reduce and/or avoid any adverse environmental impacts.

All mitigation measures outlined in this document are to be incorporated into the CEMP and fully implemented on-site. Construction method statements will be prepared prior to commencement of construction and

[52] ViewDocument Accessed: 29th November 2024

incorporated into the CEMP which will be submitted to Clare County Council for agreement and approval prior to commencement of any construction activity.

The construction works will be strictly managed in line with the Contractor's CEMP, which will include measures for the management of fuel, concrete, stockpiles, run-off, spills and the provision of emergency procedures. The CEMP and associated pollution control measures have been devised with reference to the following (and other guidance, where relevant):

- Construction Industry Research and Information Association (CIRIA) *C692: Environmental Good Practice on Site*. (Audus *et al*., 2010).
- *The Management of Invasive Alien Plant Species on National Roads (GE-ENV-01104)*. Transport Infrastructure Ireland (TII) (2020).
- *Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters*. Inland Fisheries Ireland (IFI, 2016).
- *Bats and Artificial Lighting at Night. Guidance Note 08/23*. Bat Conservation Trust and Institute of Lighting Professionals. Bat Conservation Trust (BCT, 2023).
- *Control of water pollution from construction sites. Guidance for consultants and contractors* (Masters-Williams *et al*., 2001).

8.3.2 Project Ecologist/Ecological Clerk of Works (ECoW)

A suitably qualified and experienced project ecologist/Ecological Clerk of Works (ECoW) will be employed during the construction phase of the project to ensure all environmental impact prevention controls relevant to construction activities occurring at the time are in place. Duties will include, but are not limited to, a review of all method statements to ensure works are undertaken in compliance with the CEMP and the Conditions of Planning; delivery of toolbox talks; and monitoring of construction phase activities to ensure all environmental controls and EIAR mitigation is implemented in full. The ECoW will be awarded a level of authority and will be allowed to stop construction activities if he/she deems it necessary.

8.3.3 Environmental Officer

Routine environmental inspections of construction activity and the development site will be carried out on a regular basis throughout the construction phase by a suitably qualified member of contractor personnel to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place. These environmental inspections are to ensure that the works are undertaken in compliance with the CEMP and that the requirements of the Conditions of Planning, the NIS and associated documentation are being adhered to during construction. Only suitably trained staff are to undertake environmental inspections of the construction site.

8.3.3.1 Construction Works Within Lough Derg (Shannon) SPA

All operatives and new personnel visiting the proposed works sites at Inis Cealtra and on the mainland will be made aware of the sensitive nature of the works/site through toolbox talks to be given by the Environmental Officer and/or ECoW. These talks will explain how Inis Cealtra and the lake waters surrounding it are located within a protected area (Lough Derg (Shannon) SPA) and the proximity of qualifying wetland habitats to the proposed works areas will be highlighted.

The extent of the construction areas on Inis Cealtra are to be clearly marked out using temporary, secure stakes and robust, high-visibility tape/bunting such that the construction zones, including extent of access for all construction personnel and equipment, site compound and materials storage areas, are defined and clearly visible to all contractor staff. Movement of construction plant/materials is to be restricted as much as is practicably possible to within the extent of works' footprint on Inis Cealtra.

Similarly, all operatives and personnel involved with construction of the proposed new floating access jetty, canoe launch and access walkway should be made aware of the extra sensitivities involved when working within/on water with regards the qualifying waterbirds and wetland habitats. Personnel should also be made aware of the hydrological connection, albeit tenuous, with the Lower River Shannon SAC located further downstream.

8.3.4 Timing of Works

To avoid the times of migration of salmon smolts, works should be carried out in the period July to September, inclusive. The proposed construction works, and the timing of instream works will be agreed with Inland Fisheries Ireland (IFI) prior to the commencement of works.

8.3.5 Protection of Water Quality

The main pathway by which adverse ecological impacts could potentially occur and affect the integrity of both relevant European sites – Lough Derg (Shannon) SPA, and Lower River Shannon SAC – is by hydrological means, either directly or indirectly into Lough Derg.

The risk to water quality arises from the potential for ingress of sediment or accidental fuel/oil spillages discharging directly into the SPA or indirectly into the SPA via existing drainage systems and/or surface flow run-off. Any pollutants entering the lake have the potential, albeit remote, to then be transferred downstream via the River Shannon to the freshwater regions of the Lower River Shannon SAC located approximately 14 river kilometres downstream from Inis Cealtra and 15.2 river kilometres downstream from Mountshannon Harbour.

These risks are particularly acute during excavation and construction activities. Consequently, mitigation measures will be implemented to ensure that pollutants and sediment are not transferred to receiving waterbodies via surface water and run-off on the site. Furthermore, the drainage system proposed for the operational phase of the development has been designed to cause minimal disturbance to the current hydrological regime by maintaining diffuse flows.

As discussed in Section 7.4.1, above, water quality is a crucial environmental factor underpinning the conservation condition of the complex of wetland habitats and aquatic species and birds that the Lough Derg (Shannon) SPA and the Lower River Shannon SAC are selected for. Increased sediment levels, nutrient-enrichment, and other aquatic pollution, which could arise in the absence of effective water quality protection measures, would impact on the freshwater ecology of Lough Derg and downstream watercourses.

The following subsections provide further detail on the various mitigation measures that will be incorporated into the proposed development to avoid or minimise any water quality impacts that could significantly affect the Conservation Objectives of the Lough Derg (Shannon) SPA and/or Lower River Shannon SAC.

8.3.5.1 Temporary Site Compounds and Parking

A temporary construction compound will be provided at the new Visitor Centre site for the Visitor Centre construction works, another at the Harbour Car Park site for the Harbour Car Park works, and another within the new Mountshannon Village car park site for the construction of the new Mountshannon Village car park (see

Figure 14, above). On Inis Cealtra, the temporary site compound will be erected beside the existing slipway for the duration of the construction phase.

All construction staff parking on the mainland in Mountshannon will take place only within designated parking areas within the relevant temporary construction compound at least fifty metres from Lough Derg or any other watercourse/drain.

8.3.5.2 Management of Fuel/Oil

Site management should include the checking of equipment, materials storage areas, drainage structures and their attenuation ability on a regular basis during the construction phase of the project. The purpose of this management control is to ensure that the measures in place are operating effectively, to prevent accidental leakages, and to identify potential breaches in the protective retention and attenuation network during earthworks operations.

Appropriate fuel management for construction of the proposed mainland components of the development will include the following elements:

- Tanks and drums will be stored in secure, impermeable storage areas on flat ground a minimum distance of 50 metres from Lough Derg or any other watercourse or water-conducting feature(s) e.g. drains.
- Fuel containers will be stored within a secondary containment system e.g., bund for static tanks or a drip tray for mobile stores. Chemicals will be bunded and where applicable, stored within double-skinned tanks/containers with the capacity to hold 110% of the volume of chemical contents.
- Ancillary equipment such as hoses and pipes will be contained within the bund.
- Taps, nozzles and valves will be fitted with a lock system and regularly inspected for leaks or signs of damage. Fuel/oil stores including tanks and drums will also be inspected regularly for the same reasons.
- Where required, refuelling of plant on-site will only be carried out at a designated area within the temporary construction site compound with the use of a delivery fuel truck, operated by appropriately trained personnel. Only designated trained operators will be authorised to refuel plant on site.
- Rigid and articulated vehicles will be fuelled off-site as will all site vehicles (jeeps, cars and vans).
- Only mechanically sound plant will be permitted to gain access to the site.
- Controls will be regularly inspected and maintained. Regular cleaning and servicing of bunds, gullies, pipe work, oil interceptors will be carried out to ensure this system is operating at its optimum.
- Procedures and contingency plans will be set up to deal with emergency accidents or spills. An emergency spill kit with oil boom and absorbers will be kept on site in the event of an accidental spill. The contents of the kit will be replenished as used and will be checked on a scheduled basis during environmental inspections and audits. All crews will be fully trained in the use of spill kit equipment.
- All emergency procedures and equipment will be in place prior to the commencement of any works.
- For major oil spills, a rapid response emergency service should be on standby. Contact details should be readily available in the site office.

Refuelling of Boat

- In the unlikely event that the WWI workboat, the 'Coill an Eo', needs refuelling, it will be undertaken by a specialised fuel delivery truck on the mainland at Mountshannon Harbour. The harbour has a protocol for how fuelling is undertaken, and best practice measures are in place to avoid fuel spills meaning the risk of accidental fuel spillage is low and the process is manageable within context of the proposed works.

- All fuelling equipment on the boat shall be regularly inspected and serviced and spill kits available onboard.

8.3.5.3 Management of Concrete

There will be a requirement for concrete works during construction of all mainland components of the proposed development. Wet concrete is silty and very alkaline (high pH). It is important to prevent concrete from accidentally entering the aquatic environment, including groundwater.

The following measures will be implemented during concrete works of the mainland components of the proposed development:

- A designated trained operator that is experienced in working with concrete will be employed during the concrete-pouring phase and pouring will be supervised by the Construction Manager, a suitably qualified Engineer, and the Environmental Manager/ECoW.
- The area of the pour should be completely drained of water before a pour commences. There will be no pouring of concrete during extreme/prolonged rainfall or forecasted heavy rainfall.
- Incidental rainfall from light showers during pour period is typically absorbed into the concrete matrix but heavier showers can result in some runoff from the top surface of the concrete pour. If runoff is encountered, the Environmental Manager will block outflow to retain or treat the runoff until the pH is neutral before discharge to the drainage network.
- Any small volumes of incidental wash generated from cleaning hand tools, cement mixers or other plant, as required, will be trapped on-site to allow sediment to settle out and reach neutral pH before clarified water is released and allowed to percolate to ground. The settled concrete solids will be removed regularly and disposed of appropriately off-site.
- Washout of concrete trucks will not occur at the site.

8.3.5.4 Excavations

All necessary excavations and construction will be supervised by a suitably qualified and experienced engineer. The Contractor's method statements for each element of work will be reviewed and approved by the engineer prior to site operations.

Bulk excavations will be done during periods of dry weather to avoid run off from exposed excavation areas. Weather will be monitored during the project and no excavation works will be allowed during severe or heavy rainfall events. All temporary cuts/excavations will be carried out such that they are stable or adequately supported. Where appropriate and necessary, cuts and excavations will be protected against ingress of water or erosion using cut-off drains around the excavation works. Temporary works will be such that they do not adversely interfere with existing drainage channels/regimes. Plant and materials will be stored in temporary site compounds only and will not be positioned or trafficked in a manner that would surcharge existing or newly formed slopes.

All soils generated from excavation works within the proposed development site such as from construction of the Visitor Centre and new Mountshannon car park at Main Street will be retained on site and reused in bunding, landscaping and restoration. No soils will be removed from the site. Stockpiling of soils will be avoided on site. After completion of the construction phase works, no permanent stockpiles will be left on site.

Appropriate siltation measures will be put in place prior to excavations. Stockpiles will be temporarily stored on level ground at a remove of at least 50 metres from Lough Derg and any other waterbodies or drains. Silt-retaining

measures (silt fence/silt curtain or other suitable materials) employed to reduce the risk of silt run-off will be installed along the downgradient edges of any stockpiled earth materials.

8.3.5.5 Storage

The storage of materials, containers, stockpiles and waste, however temporary, will follow best practice at all times and be stored at designated areas only within the demarcated extent of the works footprint. All containers will be stored upright and clearly labelled. Sufficient storage will be supplied near all working areas. All material stockpiles should be inspected for invasive alien species growth as part of regular site inspections by the Environmental Officer.

Storage will always be located as follows:

- At least 50 metres from Lough Derg and any other waterbodies or drains;
- On an impermeable base;
- Under cover to prevent damage from the elements;
- In secure areas;
- Well away from moving plant, machinery and vehicles.

8.3.5.6 In-Stream Piling and Excavation Works for New Inis Cealtra Mooring Point

Piling of the lakebed will be necessary during installation of the new breakwater jetty and associated infrastructure. Additionally, excavation of approximately 2 m^3 of the lakebed will be required at the south end of the main breakwater jetty (refer to extract of Waterways Ireland (WWI) drawing in **Figure 19**, above). These works will create a direct hydrological pathway through which uncontrolled sediment release may occur raising the potential for adverse water quality impacts within the Lough Derg (Shannon) SPA to occur, while also creating potential for indirect water quality effects within the Lower River Shannon SAC located approximately 14 river kilometres downstream via the River Shannon.

To avoid or minimise impacts to the water quality of Lough Derg during piling and excavation of the lakebed, management measures involving the use of a silt curtain to trap and contain any sediment released are recommended and should be overseen by an experienced ECoW to ensure their effective implementation. Site biosecurity measures to reduce the risk of introduction or spread of invasive species are highly recommended and, therefore, the silt curtain should be disinfected before being brought to site as detailed in **Section 8.3.8**, below.

Before commencement of excavations, a continuous silt curtain should be assembled and installed around the relevant area (see **Figure 19**, above) at the existing slipway at the northwest of Inis Cealtra. The silt curtain will be constructed as a single, joint-free length and will be moored in place using concrete blocks and ropes.

The silt curtain will be comprised of:

- A 100mm-diameter medium density polyethylene (MDPE) flexible watermain float.
- A solvent-weldable EPDM[53] rubber curtain.
- A continuous chain sinker incorporated into the hem that will sit on the lakebed and will contain any silty water generated during construction.

As the silt curtain will encompass the works area completely leaving no gaps, electrofishing will be carried out within the silt-curtained-area before any works commence to ensure any fish trapped inside can be collected and

[53] Ethylene propylene diene monomer (EPDM) – an extremely durable synthetic rubber.

transplanted from the proposed construction area. Electrofishing must always be undertaken by an experienced surveyor with the appropriate licence and equipment.

As it is excavated, the soft material of the lakebed will be placed in a skip on the pontoon raft before being removed from site and disposed of in an appropriate manner.

Once piling and excavation works begin, visual inspections of the silt-curtained-area should be regularly undertaken while turbidity and pH levels of the water both inside and outside the silt curtain should be frequently taken using handheld monitors. Should any discolouration of the lake water outside the silt curtain be observed, works will be stopped immediately so the issue can be identified and rectified before works continue.

8.3.6 Management of Construction Waste

- Appropriate storage of all non-hazardous and hazardous wastes on-site will be undertaken to minimise potential for environmental impacts.
- All wastes are to be removed from site by relevant, licenced waste contractors to suitable waste facilities.
- If required, dedicated bunded storage containers will be provided for any hazardous wastes which may arise such as batteries, paints, oils, chemicals etc.
- In the unlikely event that any buried waste or potentially contaminated material is encountered, it will be segregated from clean, inert material, tested and classified before being transported off-site for treatment/recovery or exported abroad for disposal in suitable facilities.

8.3.7 Construction Noise and Disturbance

Noise during construction can cause disturbance of birds, otters and other fauna. Measures for the management of impacts from construction noise are as follows:

- Where reasonably practicable, noisy plant or processes will be replaced by less noisy alternatives.
- Plant will be properly and regularly maintained.
- Compressors, if needed, will be 'sound-related' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever machines are in use.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers.

To reduce disturbance levels, construction activities will be restricted to between 08.00 and 19.00, Monday to Friday, inclusive, and between 08.00 and 13.00 on Saturdays (see Section 4.3.8, above). Construction work will not take place outside of these hours unless in exceptional circumstances.

Habitat disturbance to fauna will be limited by controlling the movement of vehicles and personnel. Construction vehicles, plant and personnel will not encroach onto habitats beyond the proposed development footprint.

8.3.8 Biosecurity

Best Practice and mitigation measures to avoid the spread of invasive alien species (IAS) are incorporated into the CEMP. All management and control measures implemented on-site during the construction phase will be carried out strictly in accordance with best practice guidance as set out in '*The Management of Noxious Weeds and Non-native Invasive Species on National Roads*' (NRA, 2010) and best practice management guidelines for various species published by Invasive Species Ireland[54]. Non-native species control will be practised according to '*IFI*

[54] Resources - Invasives.ie Accessed: 25th November 2024

Biosecurity Protocol for Field Survey Work' (IFI, 2010) noting that some works components are located within and/or close to Lough Derg.

The following measures are recommended in relation to site biosecurity and reducing the risk of introduction or spread of invasive species within the area.

- Prior to being brought to site, validation should be provided by all suppliers that construction plant, machinery and vehicles are free from invasive species. Similarly, certification is to be obtained from suppliers that all raw materials to be imported to site including soil, fill, sand, gravel and landscaping materials are free from invasive species.
- All vehicles, machinery and equipment/tools are to arrive to site clean and steam washed. Visual inspections are to take place. All Personal Protective Equipment (PPE) brought to site is to be clean and dry with any attached vegetation or debris removed.
- Where there is a requirement for IAS control areas, all vehicles, equipment/tools, footwear etc. used in these areas will be thoroughly cleaned at a designated point once works in that area are complete. The use of tracked machinery within IAS-infested areas is to be prohibited. The use of tracked machinery within close proximity of IAS-infested areas is to be strictly controlled. This should be undertaken with direction from the ECoW.
- All footwear/waders and equipment that are to be placed (or could possibly be placed) within the water will be treated before using to prevent foreign flora and/or fauna entering the water, and they will be treated after use to prevent the spread of IAS to other catchments.

8.3.8.1 Zebra Mussel (*Dreissena polymorpha*)

Prior to commencement of any works and before bringing any materials and/or machinery onsite, biosecurity measures should be in-place for all plant, equipment, PPE and machinery, regardless of whether it will enter the water or not. Similarly, these biosecurity measures should also be applied before removing plant from site and moving to another location.

A "Boot-Bath" containing a Virkon (multi-purpose disinfectant) solution should be set up at site entrances to ensure all personnel disinfect their footwear when entering and leaving the site. A Boot-Bath should also be established on any boats transporting personnel to and from Inis Cealtra to disinfect footwear upon boarding and before disembarkation. A Boot-Bath's Virkon solution should be replenished on a weekly basis.

The Check-Clean-Dry Guidelines[55] should be adhered to:

- Check all boats, equipment, clothing/footwear for any plant or animal material, including seeds, spores and soil, before arriving on site. Particular attention should be paid to damp or awkward to inspect areas.
- Clean all equipment using power washers - ideally steam clean above 60°C - prior to arrival and before removing from site. Clean and wash all footwear and clothes thoroughly.
- Dry all equipment, PPE, boots etc. for at least 48 hours, if feasible, to ensure items are thoroughly dried out.
- Disinfect all external PPE and machinery if complete drying out is not possible. Use disinfectant such as Virkon Aquatic (3mg/L), Proxitane (30mg/L) or an iodine-based product for 30 minutes. Items difficult to soak can be sprayed or wiped down with disinfectant.

[55] Check-Clean-Dry – National Biodiversity Data Centre 6th December 2024

8.3.8.2 Management of Invasive Alien Plant Species (IAPS)

All management and control measures implemented on-site during the construction phase are to be carried out in accordance with the following best practice guidance:

- '*The Management of Invasive Alien Plant Species on National Roads (GE-ENV-01104)'* (TII, 2020)
- '*The Management of Noxious Weeds and Non-native Invasive Species on National Roads*' (NRA, 2010)
- '*Best Practice Management Guidelines Rhododendron* Rhododendron ponticum *and Cherry Laurel* Prunus laurocerasus*'* (Maguire *et al*., 2008)
- '*Best Practice Management Guidelines Japanese Knotweed* Fallopia japonica' (Kelly, *et al*., 2015)
- '*Managing Japanese Knotweed on Development Sites: The Knotweed Code of Practice*' (Environment Agency (EA) UK, 2006).

A pre-construction survey for IAPS will be carried out by a suitably qualified ecologist prior to commencement of any site works. Where IAPS occur within the works' footprint, the appointed Contractor(s) will develop and implement an appropriate method statement regarding the on-site management of IAPS during construction to include the following:

- A schedule of regular site inspections for invasive species is to be prepared and undertaken for the duration of the construction works. These inspections are to encompass the IAPS growing season for the duration of the construction works programme to monitor existing IAPS growth, identify any new IAPS stands, inspect materials storage areas and monitor implementation of IAPS management measures on-site, where required such as fencing, signage etc.
- Where any IAPS is identified within/adjacent to the works footprint, fencing and/or advisory signage is to be erected around stands (minimum 7 metre buffer in the case of Japanese knotweed).
- No non-essential ground maintenance or any other ground disturbance should take place within IAPS-fenced areas.
- Where works are required within/adjacent to infested areas, the appointed contractor is to develop and implement an appropriate method statement for managing IAPS on-site and ensuring bio-security compliance. This should be done in consultation with a suitably qualified specialist.
- Where application of herbicides is required to treat IAPS on-site, the proximity of ecological receptors is to be considered. Herbicide use is to be minimised as much as possible and targeted to the specific IAPS. Where use of herbicides is required, non-residual, aquatic approved herbicides are to be used. Herbicides are to be applied strictly in accordance with the manufacturer's recommendations and by competent, experienced and licenced personnel registered as a Professional Pesticides User.

8.3.9 Otter – Protection of Species

A suitably qualified ecologist will conduct otter surveys prior to commencement of any construction works on Inis Cealtra to ensure that any newly established holts do not occur within the works area otter or within 150 metres of the works area. The survey will follow the guidelines outlined in the '*Guidelines for the Treatment of Otter Prior to the Construction of National Road Schemes*' (NRA, 2006) and should be undertaken no more than 10 to 12 months in advance of construction and should be supplemented by a further inspection immediately prior to site works to ensure that no new holts have been created in the intervening period.

In the event that an otter holt is identified at pre-construction stage:

- No works shall be undertaken within 150 metres of any holts at which breeding females and/or cubs are present. Following consultation with NPWS, works closer to such breeding holts may take place – provided appropriate mitigation measures are in place, e.g. screening and/or restricted working hours on site.
- No wheeled or tracked vehicles (of any kind) shall be used within 20 metres of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance shall not take place within 15 metres of such holts, except under the appropriate NPWS licence.
- The prohibited working area associated with otter holts will, where appropriate, be fenced with temporary fencing prior to any possibly invasive works. Appropriate awareness of the purpose of the enclosure shall be conveyed through notification to site staff and sufficient signage should be placed on each exclusion fence. All contractors or operators on site shall be made fully aware of the procedures pertaining to each affected holt.
- Where holts are present in close proximity to invasive construction works but are determined not to require destruction, construction works may commence once recommended alternative mitigation measures to address otters have been complied with.

Mitigation measures set out in Section 8.3.5, above, regarding protection of water quality should be followed to protect otter from any significant effects that a reduction in water quality could incur. The timing of the works (July to September) stated in Section 8.3.4, above, is vital and will reduce negative impacts on salmonids, lamprey and other otter prey. The works will not involve blocking any part of the lake completely and there are no large pipes or deep excavations proposed for any part of the development that might risk otter entrapment; therefore, connectivity will not be significantly affected.

8.3.10 Tree Felling and Vegetation Removal

Felling of trees is required to accommodate construction within the proposed new Mountshannon car park site at Main Street and within the proposed Visitor Centre site[56].

All tree felling will be undertaken in accordance with a tree felling licence, using good working practices as outlined by the Department of Agriculture, Food and the Marine (DAFM) '*Standards for Felling and Reforestation*' (DAFM, 2019). These standards deal with sensitive areas, buffer zone guidelines for aquatic zones, ground preparation and drainage, chemicals, fuel and machine oils. Tree felling will also comply with all measures prescribed in the CEMP and in accordance with the proposed surface water management for the project. All conditions associated with a proposed felling licence will be complied with.

Where possible, tree felling and vegetation clearance will only take place before or after the bird breeding season (1st April to August 31st, inclusive). Construction work will commence before the breeding season begins (1st April) to ensure that incubating birds or birds with young are not displaced by the disturbance work commencing during the breeding season.

Should it be necessary to remove vegetation during the breeding season, for instance where bramble and ephemeral plant species have become established on ground cleared earlier, this will be surveyed by an ornithologist up to ten days before any clearance. Should an active nest be located, the area will be restricted from works by a distance where it is considered that the works would not cause disturbance or abandonment of the nest. Such distances will vary according to species and local topography and will be determined by the ornithologist. The restriction will be maintained until it is established that any young birds present have fledged.

[56] Details of the amount/species/condition of trees to be felled were not available at time of writing. However, a Tree Removal Plan will be included in the final Planning Application Pack.

8.3.11 Weather Reports

Weather forecasts should be checked daily, which will assist in planning the work and anticipating high water levels, therefore, ensuring works are carried out in a safer manner.

8.3.12 Risk of Accidents

Given the temporary nature of the construction stage and the scale of the proposed project, as well as the environmental controls that will be implemented from the outset, the risk of disasters (typically considered to be natural catastrophes e.g. a very severe weather event) or accidents (e.g. fuel spill, traffic accident) is considered low. To minimise environmental risk, no concrete pours will take place during severe weather events such as during flooding or heavy rainfall (10 mm/hr).

Best construction practice, including that for Health and Safety, will be employed to minimise the risk of any accidents occurring. All construction work within the proposed development areas both on Inis Cealtra and the mainland will be carried out in compliance with the Safety, Health and Welfare at Work Act 2005, the Safety, Health and Welfare at Work (Construction) Regulations 2013, and all relevant Legislation and Work Practice to ensure that the construction areas, site environs and public roads remain safe for all users.

8.4 Operational Phase

There are expected to be increased rates of surface water run-off at the new Mountshannon car park at Main Street and Visitor Centre due to the increased amount of hard surface areas of the development. However, as discussed in Section 8.2.2.1, above, the development has been designed in full accordance with Sustainable Urban Design Principles. Surface water run-off from the proposed Visitor Centre and new Mountshannon car park will be routed through a series of onsite Sustainable Urban Drainage System (SuDS) elements, which have been incorporated into the project at design stage to reduce the run-off rate of any stormwater discharge. SuDS elements are widely used to alleviate detrimental effects of urban stormwater drainage on receiving watercourses.

The proposed drainage network will incorporate sumps within manholes for silt removal and a bypass petrol interceptor prior to discharge. During operation of the Visitor Centre, foul water generated will be treated by the existing on-site treatment unit prior to discharge by an existing connection to the foul sewer at Harbour Road.

8.4.1 Public Lighting – Visitor Centre

Given the location of the proposed Visitor Centre, the design philosophy is to provide sufficient lighting to guide people along either the driveway or the pathway to the property entrance while also ensuring safe access and egress from the building. The proposed light fittings will all only provide downward light output to ensure that there is no adverse light pollution on the surrounding environs. All lanterns specified will be designed to operate at 3000 K (Kelvin) to minimise any unfavourable effects on the local wildlife and natural environment.

Lighting shall comply with Clare County Council's Public Lighting Policy.

8.4.2 Public Lighting – New Mountshannon Public Car Park

LED Lanterns mounted on six-metre-columns will operate in the new Mountshannon public car park. Each lantern will be controlled via an individual photocell, with the overall lighting scheme controlled via an astronomical time clock to enable lights to be switched off when the car park is not in use. To minimise or negate any adverse light pollution within the surrounding environs, the proposed light fittings will only provide downward light output and

will operate at 3000 K to minimise or negate any adverse light pollution and/or unfavourable ecological effects within the surrounding environs.

The car park lighting shall be designed in accordance with Chartered Institution of Building Services Engineers (CIBSE) guidelines and National Standards Authority of Ireland exterior lighting installations requirements (IS EN 12464-2) for parking areas to a minimum level of 10 lux for medium-traffic areas.

8.4.3 Inis Cealtra Pathway Network

The network of pedestrian pathways on Inis Cealtra will follow existing paths where possible and existing ground levels and contours for minimum visual impact and to avoid any subterranean archaeological features.

Along with the addition of a crushed aggregate layer proposed during construction of certain paths summarised in Section 4.3.7.5, above, the following mitigation measures are proposed to prevent path erosion and strengthen soil structure:

- To ensure footfall is spread, several path options are proposed including looped paths. This will give scope to phase use of paths during different seasons as intensity of use is recorded. The ability to phase path access or to close/restrict access during peak periods will minimise path erosion.
- Path 1 is an existing pathway leading directly from the mooring point to the Round Tower and, therefore, is expected to be the most heavily used path. To reduce the environmental impact of the increased footfall, the existing stone base to Path 1 should be regularly inspected and repaired as necessary.
- All pathways will be mown to two metres wide. However, on more intensively used pathways, it is recommended that an extra one metre on either side (four metre width in total) of the path is mown during the busiest periods to allow visitors to spread over a wider width of path and reduce the risk of path degradation – see Figure 23, below. A six-week mowing regime is recommended during the summer for the additional one-metre strips.

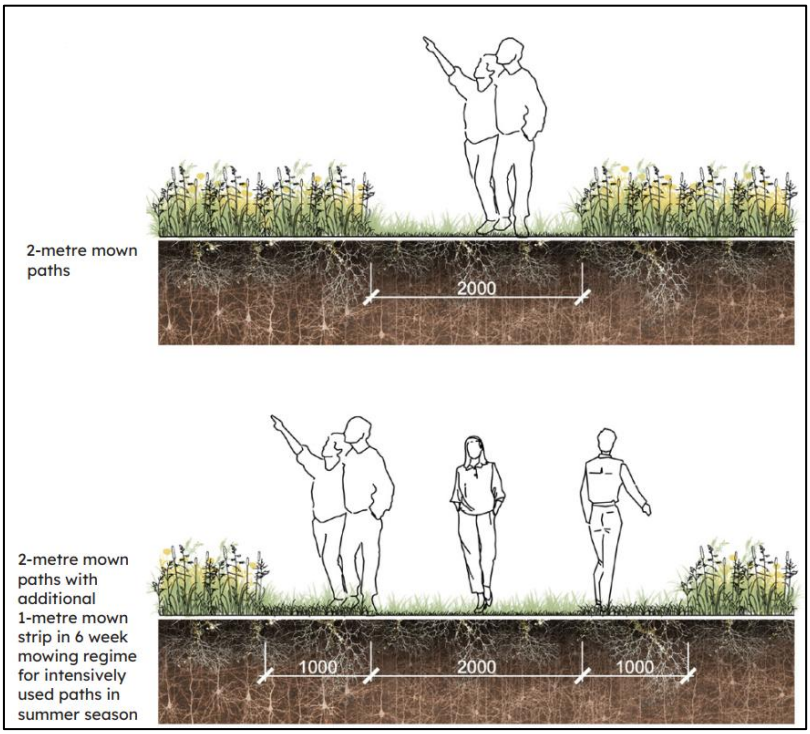

Figure 23: Illustration of additional path width for intensively used pathways to be implemented during the summer season to reduce risk of path degradation.

9. Residual Impacts

Based on the best scientific information available, it has been determined that in the absence of mitigation, the construction and/operation of the proposed Inis Cealtra Visitor Experience development has potential for significant adverse water quality and/or direct/indirect species disturbance/displacement impacts within the Lough Derg (Shannon) SPA and the Lower River Shannon SAC. Detailed mitigation measures have been prescribed with regards to the protection of water quality, wetland habitat, waterbird species and water-dependant species during both the construction and operational phases.

With the implementation of recommended mitigation measures outlined in **Section 8**, above, it is objectively concluded that significant adverse residual impacts on the conservation objectives of either identified European sites evaluated herein, namely the Lough Derg (Shannon) SPA and the Lower River Shannon SAC, will not occur as a result of the proposed development, either independently or in combination with other plans or projects.

10. Conclusion

The Habitats Directive 92/43/EEC provides legal protection for species and habitats of European importance via the selection of geographical areas considered to be of particular importance to a region's most valuable and threatened species. This pan-European Natura 2000 network of protected areas, otherwise known in Ireland as 'European sites', includes Special Areas of Conservation (SACs) designated for habitats, plants and non-avian species, and Special Protection Areas (SPAs) designated for avifauna and their habitats (under the Birds Directive (79/409/ECC as codified by Directive 2009/147/EC)). To ensure the longevity of these European sites and to maintain or restore the favourable conservation statuses of the habitats and species within them, Articles 6(3) and 6(4) of the Habitats Directive set out a series of steps/stages that must be applied to plans and projects that may have a significant effect on a European site.

A Screening for Appropriate Assessment (Stage 1) was undertaken to identify whether the proposed Inis Cealtra Visitor Experience development is likely to have significant direct or indirect impacts (or significant impacts could not be ruled out) on European sites identified as being within the zone of impact influence of the proposed development. The zone of impact was ascertained through the application of the Source-Pathway-Receptor (SPR) model and as a precautionary measure, all European sites located within 15 kilometres of the proposed development site were considered. The screening process concluded that the proposed construction and operation phases of Inis Cealtra Visitor Experience were not likely to have significant direct or indirect effects, either individually or in combination with other plans or projects, on five European sites within the zone of influence. However, the same conclusion could not be reached with regards two European sites, namely Lough Derg (Shannon) SPA and Lower River Shannon SAC, and significant effects because of the proposed development could not be ruled out. Consequently, the project proceeded to Stage 2 of the Appropriate Assessment process and a Natura Impact Statement was produced.

This Natura Impact Statement (Stage 2) has considered the impact of the proposed development on the integrity of two European sites, namely Lough Derg (Shannon) SPA and Lower River Shannon SAC, either alone or in combination with other plans or projects, in relation to the structure, function and conservation objectives of each site. Following an examination, analysis and evaluation of the relevant information and best scientific knowledge, including in particular the nature of the predicted impacts from the proposed development, and with the implementation of the mitigation measures proposed, it has been determined the proposed construction and operation of the Inis Cealtra Visitor Experience on Inis Cealtra in Lough Derg and at Mountshannon Village on the County Clare mainland will not adversely affect (either directly or indirectly) the integrity of either Lough Derg (Shannon) SPA or Lower River Shannon SAC, either alone or in combination with other plans or projects, in light of the specific conservation objectives of each site

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Appendix 1

Screening for Appropriate Assessment Report

MWP

Screening for Appropriate Assessment Report

Inis Cealtra Visitor Experience, Mountshannon, County Clare

Clare County Council

December 2024

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Project No.	Doc. No.	Rev.	Date	Prepared By	Checked By	Approved By	Status
21760	6033	A	September 2024	Orla van der Noll	Hazel Dalton		DRAFT
21760	6033	B	October 2024	Orla van der Noll	Úna Williams		DRAFT
21760	6033	C	December 2024	Úna Williams	Hazel Dalton	Hazel Dalton	FINAL

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Summary of Findings

Project Title	Inis Cealtra Visitor Experience, Mountshannon, County Clare.
Project Proponent	Clare County Council
Project Location	The proposed development is located partly in Mountshannon Village in the townland of Mountshannon in northeast County Clare and partly on Inis Cealtra, an island on the western side of Lough Derg, approximately 1.7 kilometres southwest of Mountshannon Harbour.
Screening for Appropriate Assessment	The Screening for Appropriate Assessment is undertaken to determine the potential for likely significant effects of a proposed Inis Cealtra Visitor Experience, individually, or in combination with other plans or projects, in view of the conservation objectives of certain European sites identified within this report.
Conclusion	It has been objectively concluded during the screening process that significant effects on the following European sites are not likely to occur because of the proposed development: ▪ Slieve Aughty Mountains SPA (004168) ▪ Lough Derg, North-east Shore SAC (002241) ▪ River Shannon and River Fergus Estuaries SPA (004077) However, it cannot be objectively concluded, at this stage, that the proposed Inis Cealtra Visitor Experience will not result in likely significant effects on the following designated European sites: ▪ Lough Derg (Shannon) SPA (004058) ▪ Lower River Shannon SAC (004077) Therefore, an Appropriate Assessment is required, and a Natura Impact Statement is necessary to assess the implications of the project alone and in-combination with other plans and projects on the integrity of the European sites in view of their conservation objectives.

1. Introduction

1.1 Purpose of the Assessment

This Screening for Appropriate Assessment (AA) report has been undertaken to determine whether a proposed Inis Cealtra Visitor Experience development, either alone or in-combination with other plans/projects, is likely to have a significant effect on any European site[1] (i.e. Natura 2000 sites), in view of the sites' conservation objectives.

This report has been prepared in order to provide a sufficient level of information to the Competent Authority, in this case An Bord Pleanála (ABP), on which to base an Appropriate Assessment of the proposed development described in Sections 3.2 and 3.3, below.

The report comprises a description of the proposed development, particularly the aspects that could interact with the receiving environment, the identification in Section 3.7 of the impacts that are reasonably foreseeable as potentially ensuing from it, and a determination as to whether these predicted impacts, either alone or in combination with the other plans or projects identified in Section 3.5, are likely to have significant direct and/or indirect effects on the European sites identified in Section 3.6, in view of those sites' conservation objectives.

1.2 Statement of Competency

This Screening for Appropriate Assessment report was authored by Orla van der Noll (MSc. BSc.), Ecologist, and Úna Williams (BSc. MSc.), Ecologist and Environmental Scientist, both of Malachy Walsh and Partners (MWP) Engineering and Environmental Consultants in County Kerry.

Orla has worked at MWP since September 2022 and has been working within the Ecology sector since March 2021. She has completed numerous ecological reports including Screening for Appropriate Assessment Reports, Natura Impact Statements, and Ecological Impact Assessments for a range of projects across Ireland. In 2020, she qualified with a first-class honours Master's degree in Marine Biology from Bangor University in Wales, and graduated from University College Cork in 2018 with a Bachelors (Hons) degree in Ecology and Environmental Biology. Since January 2022, Orla has been a trainee bird ringer under the British Trust for Ornithology (BTO) ringing scheme in Ireland. She is registered with the Chartered Institute of Ecology and Environmental Management (CIEEM) as a Qualifying member.

Úna has worked at MWP for more than five years and is an experienced field ecologist. She is familiar with various ecological survey methodologies including habitat/survey mapping and zoological surveys and has worked on research teams both in Ireland and abroad. She has undertaken assessments for a wide variety of projects including renewable energy developments, and infrastructural and coastal developments. Úna has designed and carried out several Avian Collision Risk Models for proposed wind farms and has authored many ecological reports including Screening for Appropriate Assessment (AA) Reports (Stage 1), Natura Impact Statements (NIS) (Stage 2), Ecological Impact Assessments (EcIA), and Environmental Impact Assessments (EIA). She graduated from Queen's University Belfast in 2018 with an MSc in Animal Behaviour and Welfare, and from Trinity College Dublin in 2008 with an Environmental Science degree.

1.3 Project Overview

The proposed project will consist of the installation and operation of new facilities on Inis Cealtra (Holy Island) on Lough Derg, and the construction and operation of a new Inis Cealtra Visitor Centre with support services and

[1] 'European sites' are defined in Section 177R of Part XAB of the Planning and Development Act 2000 and include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) at all stages of designation.

appropriate infrastructure at two locations on the mainland in Mountshannon Village on the western shores of the lake. Refer to **Figure 1**, below, for an overview of the various elements of the proposed development and their locations. Once completed, all elements of the proposed development will collectively form the Inis Cealtra Visitor Experience, delivering a high-quality visitor attraction for northeast County Clare.

Works on Inis Cealtra will include the demolition of one minor existing concrete structure and the installation of a new floating jetty, pedestrian paths, and three welfare facility 'pods'. On the mainland overlooking Mountshannon Harbour, a new semi-circular Visitor Centre with a total gross floor area of 1,594 m^2 (0.159 hectares) and maximum height of 7.8 metres will be constructed to include a café and a series of incorporated spaces to facilitate the Inis Cealtra Visitor Experience. Public realm works in front of the Visitor Centre and a reconfiguration of the existing Mountshannon Harbour car park are also proposed. At a second location on the mainland – the north side of Main Street – a new public car park providing 169 No. car parking spaces and coach/bicycle parking facilities will be constructed.

MWP was commissioned by McCutcheon Halley Chartered Planning Consultants on behalf of Clare County Council (CCC) to complete a Screening for Appropriate Assessment (AA) Report and Natura Impact Statement (NIS). An Environmental Impact Assessment Report (EIAR) has been prepared and is submitted with the planning application pack.

Within this report, the main elements of the proposed development are divided into Mainland and Island, as follows (see also **Figure 1**, below):

Mainland

- Visitor Centre and Public Realm Upgrades
- New Mountshannon Village Car Park at Main Street
- Reconfiguration of Existing Mountshannon Harbour Car Park

Inis Cealtra (Holy Island)

- Three New Welfare Pods
- New Floating Access Jetty, Canoe Launch Jetty and Access Walkway
- Series of Pedestrian Walkways

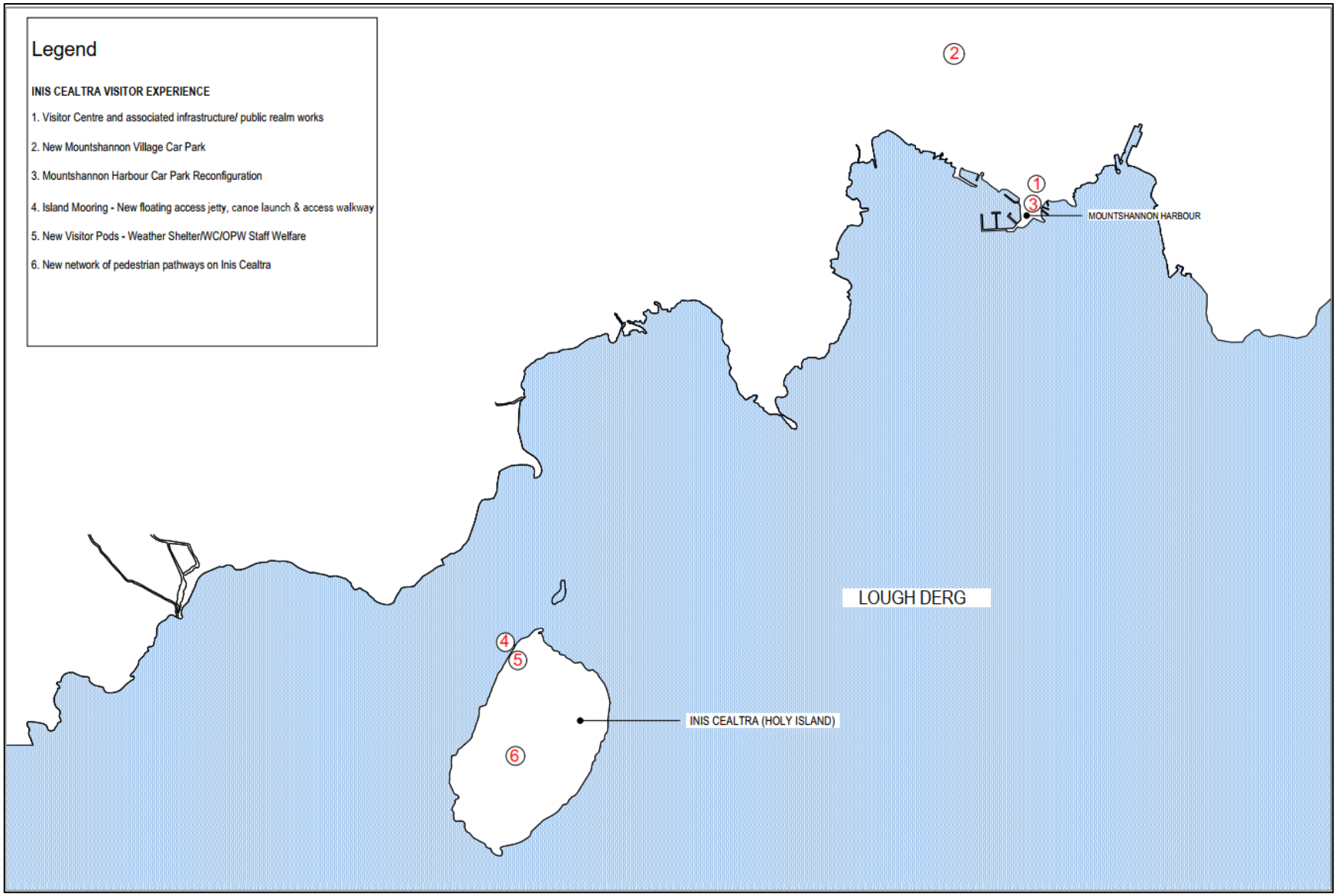

Figure 1. Location of the different elements of the proposed Inis Cealtra Visitor Experience [Adapted from McCullough Mulvin Architects drawings].

1.4 The 'Old Rectory Site'

The proposed Visitor Centre is to be located within Mountshannon Village in the southern part of the 'Old Rectory site', a site that measures approximately 1.35 hectares and encompasses the Old Rectory building and surrounding open space and landscaped gardens – refer to **Figure 2**, below.

A Record of Protected Structures in Volume 4 of the Clare County Development Plan 2017 – 2023[2] describes the Old Rectory[3] building as a 'detached four-bay two-storey red brick rectory built in approximately 1905' and is categorised as being of special interest for its 'Architectural, Detail/Design' value. The original use of the building was as rectory/glebe/vicarage/curator's house and until recently was used as a residential dwelling before becoming vacant and unoccupied.

The Old Rectory site has been the subject of previous successful planning applications to Clare County Council (CCC) with the most recent summarised in **Table 1**, below. Works to change the Old Rectory building into an Interpretive Centre have already commenced with the expectation that the building will become operational in 2025. While more than half the Old Rectory site is within the redline boundary for this proposed project (see **Figure 2**, below), the Old Rectory building itself is not and is not considered further within this NIS.

Table 1. Previous successful planning application involving works at the Old Rectory site.

CCC planning application no.	Development	Date granted
238001	Alterations, modifications and change of use of existing Old Rectory from Residential to Tourism Interpretive Centre and Café uses on a site measuring 1.35ha, consisting of: **i.** Demolition of existing outbuilding (157sq.m) to the north-east of the site; **ii.** Construction of 57 sq.m single-storey ground floor extension to the north-west of building (double height space) with a maximum height of 6.4m (and lift height 7.8m) above ground level and new internal stair access; **iii.** At ground floor level, exhibition and educational spaces, with supporting uses including reception area, welfare facilities and plant room; **iv.** At first floor, a café, ancillary retail/office spaces with welfare facilities and storage area; **v**. A new lift in footprint of existing building to provide universal access to 1st floor level; **vi.** At ground floor level, new opening in northern and western wall of existing building to provide access to proposed extension, new and enlarged opening to internal walls between existing kitchen and utility room, new openings between existing hallway and lounge, removal of wall between existing WC and office and between existing kitchen and hallway; **vii.** At first floor level, new openings and removal of internal partitions, an opening in the roof to provide access to lift and new opening in northern wall at first floor level to provide access to café; **viii.** Cleaning and repointing works to existing brickwork, repair and replacement of any damaged roof slates with natural slate, replacement of PVC windows with double-glazed timber sash windows and removal of modern internal additions (flooring and cornices); **ix**. Resurfacing of existing internal vehicular access road and construction of a new vehicle passing bay along the existing internal access road; **x.** Provision of 2 new dedicated pedestrian access points from Harbour Road including 1 at existing site entrance and 1 to the south-west of site, together with construction of a 1.8m wide pedestrian footpath to the west of existing internal vehicular access road and a new public footpath to the south of Old Rectory site with new pedestrian crossing connecting to existing path to the south of Harbour Road; **xi**. Provision of a new pedestrian connection to Aistear Park to the west of the site;	09/08/23

[2] Clare County Development Plan 2017 - 2023: Volume 4: Record of Protected Structures (clarecoco.ie) Accessed: 15th October 2024
[3] Record of Protected Structure (RPS) Number: 464, and National Inventory of Architectural Heritage (NIAH) Number: 20300502

CCC planning application no.	Development	Date granted
	xii. Regarding existing levels to the front (south side) of building to achieve universal access consistent with Part M of the Building Regulations; **xiii.** Provision of 12 carparking spaces (with 2 disabled access spaces and 2 EV charging points), to north and east of building and inclusion of 1 set down space to east; **xiv**. Provision of 20 secure bicycle parking spaces for visitors; **xv**. Construction of ancillary structure comprising 15sq.m single-storey maintenance shed (max. height - 3.246m) to north of site, a semi-covered seating area to the west of the Old Rectory Building, and a 6 sq.m ESB Unit Substation (2.2m in height) to the north-east of Old Rectory building; and, **xvi**. All ancillary site works including public lighting, landscaping, drainage, connections to public services and undergrounding of an existing ESB overhead line.	

Figure 2: The proposed development boundary in relation to the Old Rectory building and Old Rectory site boundary of previous planning application (CCC Planning Reference: 238001).

1.5 Legislative Context

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora through the designation of Special Areas of Conservation (SACs), while the Birds Directive (2009/147/EC) seeks to protect bird species of special importance by the designation of Special Protected Areas (SPAs). It is the responsibility of each European Union member state to designate SPAs and SACs that form part of Natura 2000, a network of protected sites throughout the European Community. The European Communities (Birds and Natural Habitats) Regulations 2011-2021 transpose the Habitats Directive and the Birds Directive into Irish law. The requirement for Appropriate

Assessment of the implications of plans and projects on the Natura 2000 network of sites comes from the Habitats Directive (Article 6(3)). Further information is available at:

http://ec.europa.eu/environment/nature/legislation/habitatsdirective/

http://www.npws.ie/planning/appropriateassessment/

The current assessment was conducted within this legislative framework and in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021), the European Commission Notice '*Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*' (EC, 2019), '*Appropriate Assessment of Plans & Projects - Guidance for Planning Authorities'* prepared by the National Parks and Wildlife Service (NPWS) (DoEHLG, 2010), and the Office of the Planning Regulator (OPR) Practice Note '*Appropriate Assessment Screening for Development Management*' (OPR, 2021). As outlined in these, it is the responsibility of the proponent of the project, in this case Clare County Council ('the Applicant'), to provide a comprehensive and objective screening for Appropriate Assessment report which can then be used by An Bord Pleanála to assist them in completing their screening exercise.

If it is determined that an Appropriate Assessment should be required in respect of the construction and operation of the proposed development, a Natura Impact Statement (NIS) must be prepared. The NIS will assist the competent authority to conduct the Appropriate Assessment for the project.

1.6 Stages of Appropriate Assessment

The Appropriate Assessment process is a four-stage process with issues and tests at each stage. The purpose of the screening assessment is to record in a transparent and reasoned manner the likely effects on European sites of a proposed development. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. The stages are set out in Appendix A of this report. This proposal has proceeded as far as Stage 2.

2. Methodology

2.1 Appropriate Assessment Guidance

A plan or project can only be authorised by a competent authority if it has made certain that it will not adversely affect the integrity of the European sites relevant to the project in view of their conservation objectives, either alone or in combination with other plans and projects. This can only be the case where "no reasonable scientific doubt remains as to the absence of such effects"[4].

As set out in the NPWS guidance, the task of establishing whether a plan or project is likely to influence a European site(s) is based on a preliminary impact assessment using available information and data, including that outlined above, and other available environmental information, supplemented as necessary by local site information and ecological surveys (DoEHLG, 2010). This is followed by a determination of whether it is likely that the effects identified could be significant. The precautionary principle approach is required.

Once the potential impacts that may arise from the proposal are identified, the significance of these is assessed using the following key indicators:

[4] European Court of Justice Case C-127/02 Landelijke Vereniging tot Behoud van de Waddenzee

- Water quality and resource;
- Habitat loss or alteration;
- Disturbance and/or displacement of species; and
- Habitat or species fragmentation.

2.2 Consultation

Pre-application stage meetings were held with several different relevant bodies.

In June 2022, two meetings were held with Irish Water (now known as Uisce Éireann) to discuss water connection applications for the Old Rectory building and the proposed Visitor Centre and the requirement for increased future wastewater treatment. These meetings were initially carried out to inform the Planning Application detailed in Table 1, above, but are also relevant for this project.

Two meetings were held with the National Monuments Service (NMS), a subdivision of the Department of Housing, Local Government and Heritage, in relation to Inis Cealtra. In July 2023, the new mooring point was discussed, and a high-level overview of the proposed island works was provided. The proposed pedestrian pathways and pod locations were discussed in July 2024, as were future site investigations such as trial pits on the island and boreholes at the proposed mooring point.

Also consulted several times throughout 2023 and 2024 were representatives from Waterways Ireland (WWI) and the Office of Public Works (OPW). These meetings were in relation to numerous different aspects of the project including the locations, design and construction methodologies for the new mooring point and the pods, navigational route around the island and queries regarding potential ecological/archaeological design constraints.

2.3 Data Requests

The proposed development site at Inis Cealtra lies within Ordnance Survey National Grid hectad[5] R68 while the proposed mainland elements of the development at Mountshannon are located within hectad R78. Concise and site-specific information on species records available in these hectads was retrieved from the NBDC on-line database and reviewed.

A request was made to NPWS for records of rare or protected species from hectads R68 and R78 on 2nd March 2021, and the information was provided by NPWS on 10th March 2021. A follow up request was made for more recent data, if any, on 4th September 2024, and the information was provided by NPWS on 5th September 2024.

A request was made to BirdWatch Ireland on 16th October 2024 for Irish Wetland Bird Survey (I-WeBS) count data for relevant survey subsites within and around Lough Derg and the proposed development sites. All requested information was provided by BirdWatch Ireland on 21st October 2024.

Information received via the NPWS, NBDC, and BirdWatch Ireland was used to help inform the impact assessment in relation to the proposal.

[5] Unit of land area measuring 10 km x 10 km

2.4 Limitations/Difficulties Encountered

This Stage 1 Screening for Appropriate Assessment for the construction and operation of the proposed Inis Cealtra Visitor Experience is based on project details that were made available at the time of writing (up to and including the 20th of November 2024).

2.5 Desktop Study

To complete the Screening for Appropriate Assessment report, certain information on the existing environment is required. A desktop study was carried out to collate information available on the proposed development site's natural environment. This comprised a review of the following publications, data and datasets:

- Ordnance Survey Ireland (OSI) aerial photography, 1:50,000 mapping, GeoHive and online satellite imagery sources;
- National Parks and Wildlife Service (NPWS);
- National Biodiversity Data Centre (NBDC) (online map-viewer);
- Central Statistics Office (CSO);
- BirdWatch Ireland and I-WeBS data;
- Geological Survey Ireland (GSI) area maps (including Teagasc soil maps);
- Environmental Protection Agency (EPA) waterbody and water quality data;
- Water Action Plan 2024: A River Basin Management Plan for Ireland[6];
- Inland Fisheries Ireland (IFI) online fish sampling reports and fish data;
- Review of requested records from NPWS Rare and Protected Species database;
- Clare County Development Plan (2023 – 2029)[7]; and
- Other sources and research listed in **Section 4**, below, and as footnotes throughout the report.

2.6 Study Area and Zone of Influence (ZOI) of the Proposed Project

The zone of influence (ZOI) for the proposed development is the geographical area over which construction and/or operation of the proposed development has the potential to affect the receiving environment in such a manner as to significantly affect the Qualifying interests (QI) of a European site. The area over which ecological features may be affected by biophysical changes because of the proposed project and associated activities is likely to extend beyond the project site where, for example, there are ecological or hydrological links beyond the site boundaries (CIEEM, 2018). Consequently, and to ensure completion of an integrated assessment, the study area for this project included the entire proposed development site (on the mainland at Mountshannon and on Inis Cealtra) and adjoining habitats (including Lough Derg).

For details on the Zone of Influence (ZOI) of the proposed development and the use of the Source-Pathway-Receptor (SPR) model in determining which European sites are further assessed, refer to **Section 3.6.1**, below.

[6] gov.ie - River Basin Management Plan 2022 - 2027 (www.gov.ie) Accessed: 16th October 2024
[7] Clare County Development Plan 2023-2029 | Planning, heritage and conservation | Services | Clare County Council (clarecoco.ie) Accessed: 16th October 2024

2.7 Field Surveys

Ecological field surveys and aquatic ecology surveys were undertaken at the proposed development site on multiple dates between 2021 and 2024 to establish the site's ecological features and resources, particularly for any rare or protected species and habitats present within the study area. Multidisciplinary walkover surveys were carried out to identify any ecological features and resources that may potentially be impacted by the proposed development.

Field surveys carried out on-site in support of the development application include the following:

- Habitat surveys and mapping;
- Non-volant mammal[8] surveys;
- Invasive alien plant species (IAPS) surveys;
- Freshwater aquatic ecology surveys;
- Breeding bird surveys; and
- Wintering bird surveys.

Full details of survey methodologies have been presented in **Chapter 10**, **Biodiversity**, in **Volume II** of the **EIAR.**

3. Screening for Appropriate Assessment

The purpose of the screening assessment is to record in a transparent and reasoned manner the direct and indirect likely effects, on relevant European sites, of the project, either alone or in combination with other plans and projects, and whether these likely effects are significant. Screening for Appropriate Assessment (Stage 1) determines the need for a full Appropriate Assessment (Stage 2) and consists of several steps, each of which is addressed in the following sections of this report:

3.1 Establish whether the project is necessary for the management of a European site(s).

3.2 Description of the proposed development (construction and operation of the Inis Cealtra Visitor Experience in County Clare).

3.3 Description of the existing site's ecological characteristics and a summary of the results of the field surveys.

3.4 Identification of other plans, projects and activities with which the proposed development could interact to create in-combination effects.

3.5 Identification of European site(s) potentially affected.

3.6 Identification and description of potential individual and cumulative impacts (in-combination effects) of the project.

3.7 Assessment of the significance of potential impacts on European site(s).

3.8 Conclusion of screening stage.

[8] Non-volant mammals are land-based mammals incapable of flight i.e. all land-based mammals excluding bats.

3.1 Management of European Sites

The proposal is not connected with or necessary to the conservation management of a European site.

3.2 Description of Proposed Project

3.2.1 Site Location and Context

The proposed Inis Cealtra Visitor Experience development will be located partly in Mountshannon Village in the townland of Mountshannon in northeast County Clare and partly on Inis Cealtra, an island on the western side of Lough Derg, approximately 1.7 kilometres southwest of Mountshannon Harbour in the village. The proposed mainland development sites in Mountshannon Village encompass an area of approximately 2.185 hectares while on Inis Cealtra the works will occur within the footprint of the entire island that measures approximately 18.12 hectares.

Mountshannon Village is located at a slight elevation on the banks of Lough Derg, approximately 32.5 kilometres northeast of Limerick City centre, 17 kilometres northwest of Nenagh town centre and 7.3 kilometres northeast of Scarriff Village. The terrain slopes south and downwards to the lake from an elevation of approximately 70 metres above ordnance datum (AOD) at Derrycon to approximately 33 metres AOD at Mountshannon Harbour.

The R352 Regional Road runs through Mountshannon village from west to east linking Ennis to Portumna, while the L4034 Local Road connects the R352 to Mountshannon Harbour and Lough Derg. Inis Cealtra can be reached by boat from either Mountshannon Harbour or from Knockaphort Pier, the latter of which is located approximately 315 metres northwest of the island's existing jetty. Knockaphort Pier can be accessed from the R352 via the L8070. Refer to **Figure 3**, below.

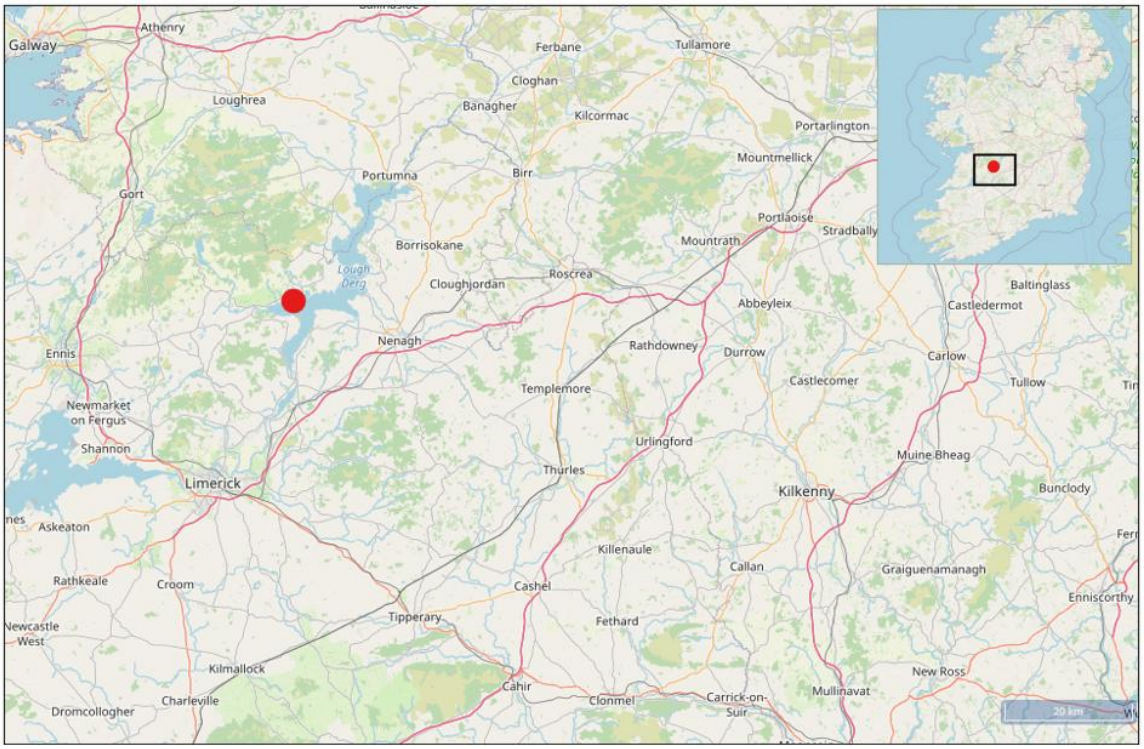

Figure 3. Approximate location of the proposed development site at Mountshannon and Inis Cealtra on Lough Derg in northeast County Clare.

3.2.2 Brief Project Description

Located in the southwest corner of Lough Derg in County Clare, Inis Cealtra (Holy Island) is an important historical and cultural site that, along with two principal areas on the mainland at Mountshannon village, is the proposed location for development of the Inis Cealtra Visitor Experience.

Works on the island will include installation of three welfare 'pods', new pedestrian paths, and a new floating access jetty at the northwest of the island to provide a safer mooring point for vessels and become the principal arrival point for visitors to the island.

On the mainland at Mountshannon Village, a part-one-storey, part-two-storey Visitor Centre is proposed to be constructed within the southern part of the Old Rectory site, fronting Harbour Road and facing Mountshannon Harbour and Lough Derg. Within the Visitor Centre, there will be a café and a series of spaces for interpretation, exhibition and education associated with the Inis Cealtra Visitor Experience.

The proposed development also includes a reconfiguration of the existing Mountshannon Harbour car park to increase the number of parking spaces and provide additional amenities such as a seating area. Finally, at a site on the north side of Main Street in Mountshannon Village, a new public car park will be installed with capacity for cars, coaches, and bicycles along with accessible car parking spaces, electric vehicle (EV) charging points and an overflow car parking area.

The characteristics of the project and the project design are described in Section 3.3, below, and in Chapter 2, Development Description, in Volume II of the EIAR.

3.2.3 Purpose of the Proposed Development

The purpose of the proposed development is to deliver an immersive visitor attraction, namely the Inis Cealtra Visitor Experience, that is fit for purpose within Mountshannon Village and on Inis Cealtra (Holy Island), thereby, expanding the attractiveness of the area as a significant cultural destination for visitors to East Clare and the wider Mid-Western region.

3.3 Characteristics of the Project

The proposed development has a total footprint of approximately 20.3 hectares and will comprise four main elements, namely the works on Inis Cealtra, construction of the Visitor Centre in Mountshannon Village, the reconfiguration of Mountshannon Harbour car park, and construction of a new public car park at the northern side of Mountshannon Village - refer to map in Figure 1, above.

3.3.1 Proposed Mainland Components of the Development

The mainland components of each proposed element of the project for which consent is being sought and all other associated project components comprise the following:

Visitor Centre in Mountshannon Village

- Site clearance, vegetation/tree removal, erection of 1 No. temporary construction compound.
- Construction of Visitor Centre (gross floor area approximately 0.159 hectares in total) containing a café and various other facilities including those associated with the Inis Cealtra Visitor Experience.
- Installation of pedestrian access route through Aistear Park and realignment of existing Old Rectory access track.
- Implementation of construction phase drainage system.
- Implementation of a stormwater management system during operation of the Visitor Centre.

- Landscaping of area at front of the building's main façade.

Reconfiguration of Mountshannon Harbour Car Park and Public Realm Upgrades

- Site clearance, vegetation/tree removal, erection of 1 No. temporary construction compound.
- Reconfiguration of existing car park at Mountshannon Harbour to accommodate 46 No. standard spaces and 3 No. accessible spaces on the existing footprint of approximately 0.265 hectares.
- Installation of additional amenities and public realm enhancements including seating area, bin store, new paving and finishes.
- New tree planting and additional green areas.

New Mountshannon Village Public Car Park

- Construction of new public car (and coach and bicycle) park on the north side of Main Street in Mountshannon Village measuring approximately 0.87 hectares.
- Installation of slow-charging electric vehicle (EV) charging points.
- Minor cut back of some vegetation but retention of most existing trees and hedgerows with landscaping of additional trees/planting.
- Erection of 1 No. temporary construction compound.
- Implementation of a two-way traffic system and installation of traffic calming measures.

3.3.2 Proposed Works on Inis Cealtra

The proposed works to be carried out on Inis Cealtra comprise the following components:

Inis Cealtra (Holy Island)

- Demolition of existing concrete shelter (16 m^2) adjacent to existing pier.
- Construction of 1 No. new L-shaped floating access jetty comprising three main parts – a stone/concrete causeway, a floating breakwater jetty and canoe launch jetty, and a steel access ramp.
- Development of a series of 2-metre-wide mown grass pedestrian paths around the island.
- Erection of 3 No. new staff and public welfare facility pods with total footprint of approximately 60 m^2.
- Erection of 1 No. Temporary construction site compound.
- Cut back of scrub/vegetation to facilitate mown paths and allow access to various areas of the island.
- Implementation of Landscape and Conservation Management Plan including a sheep grazing regime and path maintenance plan.

3.4 Description of Existing Site

3.4.1 General Site Description

Mountshannon Village is located within the Electoral Division (ED) of 'Mountshannon' (ED 37121) while Inis Cealtra is located within the ED 'Inishcaltra North' (ED 37068). During the 2022 census, 'Mountshannon' ED was found to have a total population of 463 residents, residing primarily within Mountshannon Village. The 'Inishcaltra North' ED was found to have a total of 374 persons resident and comprised mainly of one-off housing and ribbon development along the local road network[9].

The proposed Visitor Centre site (Old Rectory site) is bounded to the north by Mountshannon Court residential development and to the east by Árd na hAbhainn residential development. Adjacent to the site's western boundary is Aistear Park, a public park of approximately 1.8 hectares that contains a playground, outdoor exercise facilities, a maze, picnic areas, and during the summer months, a tourist information office. Approximately 25 metres to the south and southwest of the Old Rectory site is Mountshannon Harbour and jetty on the western

[9] Interactive Data Visualisations | CSO Ireland Accessed: 24th October 2024

shores of Lough Derg. This south-facing harbour is used predominantly for recreational and touristic purposes including for swimming, kayaking, sailing, and as the starting point for boat tours to Inis Cealtra and flights over the lake. Shannon International Airport, located approximately 60 kilometres southwest of Mountshannon, is easily accessible using the M18 Motorway and the R352.

The CORINE[10] (2018) land cover category for Mountshannon Harbour, the Old Rectory site and the southern half of the proposed new car park off Main Street is 'Discontinuous urban fabric' while Inis Cealtra and the western tip of Mountshannon jetty are classed as 'Water bodies'. The northern half of the proposed new car park and all lands immediately surrounding Mountshannon Village are categorised as 'Land principally occupied by agriculture with significant areas of natural vegetation'. Further north are areas of 'Coniferous forests', and 'Transitional woodland scrub' while to the west and east are 'Mixed forests', and within the wider surrounding area, 'Pastures' dominate[11].

A review of bedrock mapping determined that the Ballysteen Formation consisting of a band of 'dark, muddy limestone, shale' running east to west is the geological unit underlying all areas of the proposed development site. To the north, there is a band of 'mudstone, siltstone, conglomerate' of the Ayle River Formation while to the south, there is a band of 'sandstone, mudstone & thin limestone' of the Lower Limestone Shale unit. In relation to soils at the proposed development site, there is 'Grey Brown Podzolics, Brown Earths' (Deep well-drained mineral, mainly basic) at Inis Cealtra; 'Acid Brown Earths, Brown Podzolics' (Deep well-drained mineral, mainly acidic) at Mountshannon Harbour; and 'Surface water Gleys, Ground water Gleys' (Mineral poorly drained and mainly acidic) at the Old Rectory site and the proposed new car park site[12].

3.4.2 Hydrology and Hydrogeology

All areas of the proposed development site are located within the Water Framework Directive (WFD) Shannon[Lower]_SC_070 sub-catchment which in turn is located within the Lower Shannon Catchment (25C). A review of the EPA map-viewer determined that there are no watercourses traversing any element of the proposed development apart from very a small area of the Lough Derg Lake Waterbody (EPA-registered name - 'Derg TN')[13] on which the jetty at Inis Cealtra is located – refer to **Figure 4**, below.

There are several small watercourses located near Mountshannon Village draining from north to south into Lough Derg, namely the Dooros 25 Stream, the Derrycon Lower River, the Kilrateera Upper River, and the Woodpark Curratober Stream. The Dooros 25 Stream is located within the Shannon[Lower]_SC_070 sub-catchment while the latter three watercourses are all located within the Bow_SC_010 sub-catchment.

The small 1st Order Dooros 25 Stream is located approximately 340 metres west of the proposed new car park site off Main Street and measures only 0.9 river kilometres (rkm)[14] in total from its source to where it empties into Lough Derg. The 2nd Order Derrycon Lower River flows past Mountshannon Village and at its nearest point is located approximately 460 metres northeast of the Old Rectory site's southeasternmost corner before continuing for approximately 0.45 river kilometres and draining into Lough Derg. Finally, the 1st Order Woodpark Curratober Stream merges with the 2nd Order Kilrateera Upper River which drains into Lough Derg at a location approximately 665 metres north of Inis Cealtra. Refer to **Figure 4**, below.

The Dooros 25 Stream is part of the Shannon(Lower)_040 River Waterbody[15] while the Derrycon Lower and Kilrateera Upper Rivers, and the Woodpark Curratober Stream are all constituents of the Kilrateera_Upper_010 River Waterbody[16]. Outflow from Lough Derg is southwards via the River Shannon flowing through Killaloe town

[10] **C**o-**OR**dinated **IN**formation on the **E**nvironment – data series initiated in 1985 by the European Commission to gather environmental data.
[11] EPA Maps Accessed 25th October 2024
[12] Geological Survey Ireland Spatial Resources Accessed 25th October 2024
[13] Derg TN EPA Lake Waterbody Code: IE_SH_25_191a
[14] River kilometres (rkm): measure of the distance in kilometres along the path of a watercourse (as opposed to a linear measure such "as the crow flies").
[15] EPA River Waterbody Code: IE_SH_25A050100
[16] EPA River Waterbody Code: IE_SH_25K720870

into the smaller, southern part of Lough Derg (EPA-registered name – 'Derg HWMB')[17] and eventually draining into the transitional waterbody Limerick Dock[18], almost 40 river kilometres downstream from Inis Cealtra.

Figure 4: Watercourses and lake nearest the proposed development site at Lough Derg in County Clare.

Compliance with the reporting requirements of the WFD (Directive 2000/60/EC) obliges each European Union (EU) member state to publish reports providing summary information about individual waterbodies relating to their status, risks and objectives. The WFD Status (2016–2021) of the Shannon(Lower)_040 River Waterbody is 'Good' while the Kilrateera_Upper_010 River Waterbody and the Derg TN Lake Waterbody both have a status of 'Moderate'. The nearest two EPA water quality monitoring stations[19] to Inis Cealtra are both located on the 4th Order Bow River, that drains into Lough Derg between two and four kilometres west of Inis Cealtra. The latest river Q-values[20] at both these stations are 'Q4-5, High' and were recorded by the EPA in 2023. Closest to Mountshannon Village, there is an EPA water quality monitoring station[21] on the 3rd Order Derrainy 25 River, approximately 3.4 kilometres north of the proposed new Mountshannon car park at Main Street. The latest river Q value at this location is 'Q4, Good' recorded by the EPA in 1993.

Both the Shannon(Lower)_040 and the Kilrateera_Upper_010 River Waterbodies have been assigned a WFD risk status of 'Review'[22] while Lough Derg (Derg TN) is classed as being 'At risk'[23]. The WFD (2016 – 2021) Transitional Waterbody status of Limerick Dock into which the River Shannon drains is 'Poor.

[17] 'Derg HMWB' EPA Lake Waterbody Code: IE_SH_25_191b
[18] EPA Transitional Waterbody Code: IE_SH_060_0900
[19] EPA Monitoring Station Codes: RS25B100200; RS25B100100
[20] Quality Rating (Q) System devised by Toner *et al.* (2005). This method categorises invertebrates into one of five groups (A-E), depending on their sensitivity to pollution. Q values range from Q1-Q5 with Q1 being the poorest quality and Q5 being pristine/unpolluted conditions. The system is used by the EPA and is the standard biological assessment technique used when surveying rivers in Ireland under the WFD.
[21] EPA Monitoring Station Code: RS25D100100
[22] *Review* – either additional information is needed to ascertain the waterbody's status, or measures have been undertaken but the results have not yet been monitored (EPA Maps Accessed: 15th October 2024).
[23] *At risk* - either the waterbody is currently not achieving its WFD environmental objective of Good or High Ecological Status, or there is an upward trend in nutrients/ammonia, and should this trend continue, the waterbody Status will decline and fail to meet WFD objectives by 2027. EPA Maps Accessed: 11th November 2024.

3.4.3 Field Survey Results

3.4.3.1 Habitats[24]

3.4.3.1.1 Inis Cealtra

Mainly confined to central regions and higher sections of the island, the dominant habitat (refer to **Figure 5**, below) at Inis Cealtra is **Improved agricultural grassland (GA1)** maintained through livestock grazing and, with no evidence of ongoing improvement measures, the sward supports a moderate diversity of plant species such as sweet vernal grass (*Anthoxanthum odoratum*) and perennial rye grass (*Lolium perenne*). **Wet grassland (GS4)** occurs locally with the largest tract located at the southern end with a typical species composition that includes common rush (*Juncus effusus*), yellow iris (*Iris pseudacorus*) and brown sedge (*Carex disticha*). **Marsh (GM1)** occurs in extensive but narrow sections along the southeastern, western and northern fringes. Localised abundances of yellow iris characterise the areas of marsh along the northern and eastern fringes with broadleaved herbs such as water mint (*Mentha aquatica*), creeping buttercup (*Ranunculus repens*) and brown sedge also present.

Apart from northern and southeastern sections, most areas along the island's margins support young **Oak-ash-hazel woodland (WN2)** with the majority of these woodland habitats recently established and comprising tall, thin ash (*Fraxinus excelsior*) trees. Pockets of **Scrub (WS1)** are found throughout the island but predominantly occur where woodland habitats on the fringes meet higher and drier areas of improved grassland near the centre of the island. Scrub plant species composition includes extensive and spreading bramble (*Rubus fruticosus* agg.) and nettle (*Urtica dioica*). The ecclesiastical buildings and stone walls on the island are categorised as **Stone walls and other stonework (BL1)** while the areas surrounding these buildings are maintained as **Amenity grassland (GA2)**.

St Mary's Well on the eastern side of the island is associated with a **Calcareous spring (FP1)** that rises at the well. The existing concrete jetty and the two existing modern structures – the OPW staff hut and the concrete shed at the jetty – are categorised as **Buildings and artificial surfaces (BL3)**. Due to an absence of any recent mowing and/or grazing, there is a small pocket of **Dry meadows and grassy verges (GS2)** occurring in mosaic with agricultural grassland at the northeastern corner of the island.

3.4.3.1.2 Lough Derg

Areas of **Reed and large sedge swamps (FS1)** dominated by common club-rush (*Schoenoplectus lacustris*) occur within Lough Derg at the island's northern end between Inis Cealtra and the small island of Illaunaskirtaun with larger areas also occurring between Inis Cealtra and Knockaphort. Surrounding Inis Cealtra, Lough Derg is classified as **Limestone-marl lakes (FL3),** typical of a limestone area and containing sediment rich in marl, a white clay-like precipitate of calcium carbonate.

[24] Habitats as categorised by Fossitt (2000), available at A Guide to Habitats in Ireland - Fossitt.pdf (npws.ie) Accessed: 19th October 2024

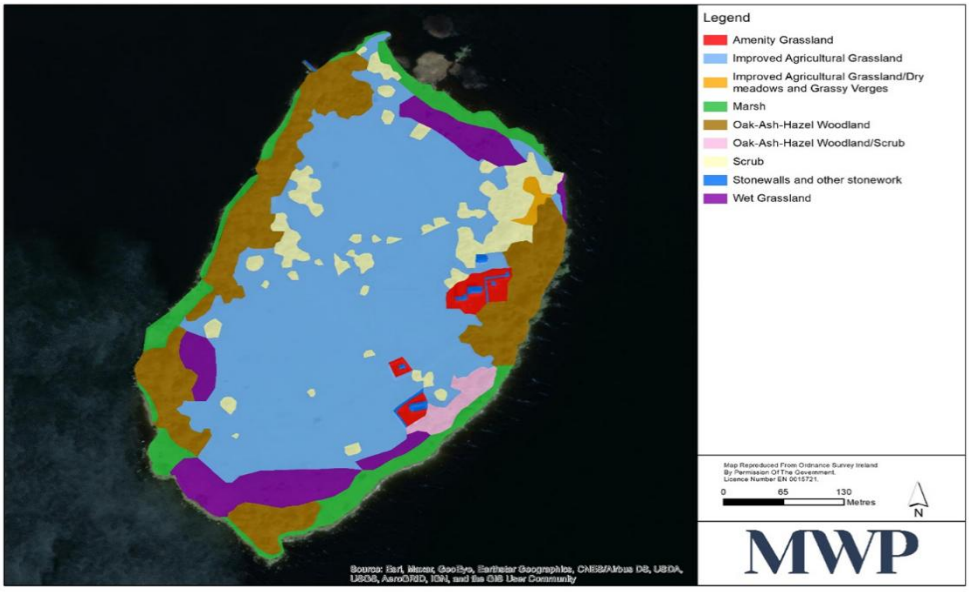

Figure 5: Habitat map of Inis Cealtra.

3.4.3.1.3 Visitor Centre

The dominant habitat at the site of the proposed Visitor Centre in Mountshannon Village is a maintained lawn categorised as **Amenity grassland (GA2)** with the driveway running through the centre classified as **Spoil and bare ground (ED2). Stone walls and other stonework (BL1)** form the southern and western boundaries of the site occurring in mosaic with **Hedgerows (WL1)** of beech (*Fagus sylvatica*) trees along the southern side. A narrow strip of **Dry meadows and grassy verges (GS2)** occurs within the southeastern corner in an area not subject to regular maintenance. **Mixed broadleaved/conifer woodland (WD2)** occurs along the southwestern boundary walls. See **Figure 6**, below.

3.4.3.1.4 Mountshannon Harbour and Existing Car Park

The entire harbour area and existing car park are categorised as **Buildings and artificial surfaces (BL3)** comprised of asphalt, kerbing and other synthetic materials. See **Figure 6**, below.

3.4.3.1.5 New Mountshannon Car Park at Main Street

The site of the proposed new car park at Main Street is made up predominantly of maintained **Improved agricultural grassland (GA1)** bordered on the north, east and west by **Treelines (WL2)** mostly comprising sycamore (*Acer pseudoplatanus*) and ash. There is a maintained **Hedgerow (WL1)** running generally in a north-south direction through the centre of the site featuring whitethorn (*Cratageus monogyna*), willow (*Salix* spp.) and elder (*Sambucus nigra*). A short section of **Stone walls and other stonework (BL1)** separates the southern tip of the site from Main Street. See **Figure 6**, below.

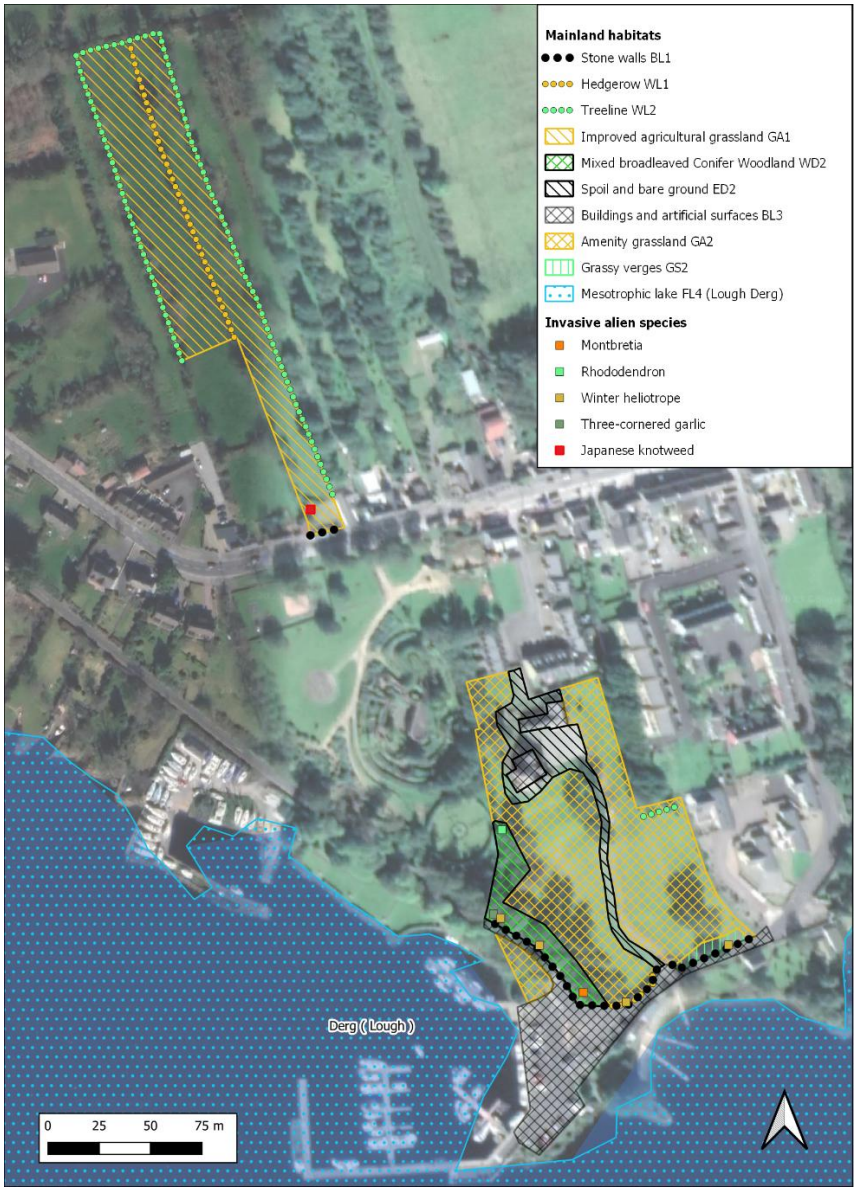

Figure 6: Habitat map for the mainland components of the proposed development and locations of invasive alien plant species recorded during ecological surveys at the sites.

3.4.4 Invasive Alien Species

Documented NBDC records of high/medium impact invasive plant species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended) exist within hectads R68 and R78 encompassing the study area. Hectad records exist for nine high-impact invasive alien plant species (IAPS) and ten medium-impact IAPS. Nine IAPS are listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended).

Several IAPS were recorded at the proposed Visitor Centre site, namely montbretia (*Crocosmia x crocosmiiflora*), three-cornered leek (*Allium triquetrum*), winter heliotrope (*Petasites fragrans*), rhododendron (*Rhododendron ponticum*) and snowberry (*Symphoricarpos albus*). Additionally, canes of Japanese knotweed (*Fallopia japonica*) were recorded at the southwestern corner of the proposed new Mountshannon car park site at Main Street. Refer to Figure 6, above.

The NBDC holds records for the following invasive alien aquatic plant species within hectads R68 and R78 - least duckweed (*Lemna minuta*), Nuttall's pondweed (*Elodea nuttallii*) and Canadian waterweed (*Elodea canadensis*).

During the MWP freshwater aquatic ecology surveys, Canadian waterweed and zebra mussel (*Dreissena polymorpha*) were both recorded within Lough Derg.

3.4.5 Rare and Protected Flora

No rare or protected flora species were recorded during any of the ecological surveys.

3.4.6 Otter

No evidence of otter was recorded at any proposed development mainland sites - Visitor Centre, Mountshannon Harbour and the new Mountshannon car park at Main Street - during any of the MWP ecological field surveys. No otter breeding/resting places were identified at these sites nor were any prints or spraints found there.

On Inis Cealtra, an otter spraint was recorded at the eastern side of the island on 16th March 2021 on a boulder. However, this was the only occasion where any evidence of otter was recorded during the suite of ecological surveys carried out by MWP on Inis Cealtra. Other targeted otter surveys carried out in 2016 by Doherty Environmental (DE, 2016), also found no holts or breeding couches on the island but did encounter spraints at two locations, to the south and to the north of the island. There are no documented records of otter held by the NBDC or the NPWS for any area within the footprint of the proposed development site. The nearest record involves spraints at the outskirts of Mountshannon Village in September 2009, approximately 0.4 kilometres northeast of the proposed Visitor Centre site.

The results of the MWP surveys coupled with the other previous findings by Doherty Environmental in 2016, suggests that Lough Derg plays only a limited role in supporting otter populations. A possible reason for this is the recent and ongoing sheep/cattle grazing on the island which may have reduced the suitability of fringing habitat for otter by limiting cover along the shores due to grazing/trampling of vegetation (DE, 2016). However, the waters of Lough Derg around Inis Cealtra and Mountshannon support fish species such as European eel (*Anguilla anguilla*) and brown trout (*Salmo trutta*) favoured by foraging otter.

3.4.7 Freshwater Ecology

Four fish species - brown trout (*Salmo trutta*), roach (*Rutilus rutilus*), three-spined stickleback (*Gasterosteus aculeatus*), and perch (*Perca fluviatilis*) - were recorded in the lake waters around Inis Cealtra during the MWP surveys. Brown trout was observed taking insects from the surface of Lough Derg and the lake is considered an optimal habitat for adult trout because of an abundance of aquatic prey available to the species. However, since Lough Derg is a lake and, therefore, does not have significant variations in water flow, depth, gradient or substrate, it is not deemed to contain suitable salmonid[25] spawning habitat (Hendry & Cragg-Hine, 2003).

The mesotrophic and calcium-rich conditions of Lough Derg provide the minerals required for mollusc shell growth while the variety of substrates and depths creates suitable habitats for a range of aquatic macroinvertebrates. However, no white-clawed crayfish (*Austropotamobius pallipes*) were recorded during the MWP targeted crayfish surveys carried out.

For more details, refer to the Aquatic Ecology and Fish Survey Report in **Appendix 10.2** of **Volume III** of the **EIAR**, and to **Chapter 10 Biodiversity**, of **Volume II** of the **EIAR**.

[25] Salmonidae is the family of ray-finned fish species that includes salmon, trout and chars (*Salvelinus* spp.), known collectively as salmonids.

3.4.8 Ornithology

The following subsections provide a summary of the four SCI bird species of the Lough Derg (Shannon) SPA recorded during the suite of ornithological surveys carried out at the proposed development site from March 2021 to March 2024 that included transect surveys of Inis Cealtra, counts from the mainland at Knockaphort Pier and Mountshannon Harbour, and informal counts at nearby Scarriff and Mountshannon Bays.

For further details of survey methodologies and results, refer to the Ornithology Report in Appendix 10.1 in Volume III of the EIAR, and to Chapter 10 Biodiversity, in Volume II of the EIAR.

3.4.8.1 Common Tern (*Sterna hirundo*)

As expected, common tern was only recorded during the summer months and was the least frequently recorded SCI species overall. During the May 2021 transect on Inis Cealtra, a peak count of 38 common tern was recorded to the west of the island towards Scarriff Bay. Smaller numbers of the species were recorded at the island in May, June and July (4, 4, 10, respectively) of the following summer, however, during the summer of 2023, no common tern was seen during any of the five transect surveys carried out at the island.

Common tern was not recorded at all at Mountshannon Harbour. From Knockaphort Pier, a single common tern was observed in each May and June of 2023 with these being the last recorded sightings of the species during the MWP surveys. No evidence for the presence of common tern breeding colonies was recorded at any location during any survey.

3.4.8.2 Cormorant (*Phalacrocorax carbo*)

Cormorant was the most frequently observed SCI bird species across all surveys completed at the proposed development site and was recorded relatively consistently throughout all months of the year. However, no evidence of a cormorant breeding colony within the proposed development site or its environs was recorded.

Of the 26 transect surveys undertaken on Inis Cealtra, at least one cormorant was recorded during 20 (77 %) of these surveys. A maximum peak count of 10 cormorant was reported in both March 2021 and in May 2021 during the transect surveys of the island.

Similarly, cormorant was observed consistently during the shore counts from Mountshannon Harbour and was absent only 14 % of the time. The species was much less frequently recorded from Knockaphort Pier and surrounding lake waters and was predominantly present during the winter months only at this location.

Informal counts of waterfowl at Scarriff Bay to the west of Inis Cealtra reported a peak count of 32 cormorant in November 2021.

3.4.8.3 Goldeneye (*Bucephala clangula*)

Goldeneye was observed rarely overall and, as expected, during the winter months only. Of the 26 transect surveys completed on Inis Cealtra, the species was observed in just one month - November 2021 - with a peak count of two recorded.

The species was more frequently recorded and in roughly similar numbers during the shore counts at Mountshannon Harbour and Knockaphort Pier, although only in the winter 2022/23 months with none recorded during the winter 2023/24 counts. Additionally of note, goldeneye at Knockaphort Pier were absent from the area by the end of 2022, whereas a male goldeneye was observed still at Mountshannon Bay on 8th February 2023.

An informal waterfowl count at Mountshannon Bay recorded eight goldeneye at the end of January 2022.

3.4.8.4 Tufted Duck (*Aythya fuligula*)

This species was observed relatively frequently, and often in high numbers particularly during the winter months. During the transect surveys on Inis Cealtra, tufted duck was recorded regularly each winter (peak count of 68 in November 2021) - apart from winter 2022/23 when there was a combined peak count of only five across the six months of transect surveys.

Conversely, throughout the winter 2022/23 shore counts, tufted duck were recorded in relatively high numbers immediately northeast of Knockaphort Pier (peak count of 122 in November 2022) and within the reed beds at Mountshannon Bay (peak count of 41 in December 2022).

An informal waterfowl count at Scarriff Bay a recorded peak number of 160 tufted duck in December 2021 and 16 tufted duck at the end of January 2022.

3.5 Identification of Other Plans, Projects and/or Activities

3.5.1 Introduction

A review of relevant existing and proposed projects, plans and activities occurring within the wider geographical area around the proposed development site was conducted and the results are presented in the following sub-sections. In-combination impacts will be considered in Section 3.8.7.

3.5.2 Plans

Published in July 2017, the Inis Cealtra Visitor Management and Sustainable Tourism Development Plan[26], was commissioned by Clare County Council to ensure the long-term conservation of Inis Cealtra as a profoundly significant historic and cultural site whilst simultaneously establishing the island as a successful yet sustainable tourist destination.

Additionally, a Tourism Masterplan for the Shannon (2020–2030) entitled '*The Shannon Mighty River of Ireland: Reimagining the River Shannon and Shannon Erne Waterway*'[27], commissioned by Waterways Ireland in strategic partnership with Fáilte Ireland, sets out an integrated framework for sustainable tourism development along the entire Shannon River. Geographically well-positioned and easily accessed by motorway and national roads, Inis Cealtra and Mountshannon feature prominently within the Masterplan as attractive and interesting touristic destinations. Developed in parallel with the Masterplan, the Lough Derg Visitor Experience Plan (2020-2024)[28] frames Inis Cealtra as the focal point within a series of interconnected water and land trails that link to 'a necklace of historic lakeside villages and harbours' on both western and eastern shores of Lough Derg. Other plans relevant to the proposed development are the Clare County Development Plan (2023-2029)[29], and the Clare Biodiversity Action Plan (2024-2030)[30] which is currently in the latter stages of preparation.

[26] Inis Cealtra: Volume 1: Visitor Management and Sustainable Tourism Development Plan Accessed:2nd November 2024
[27] Tourism-Masterplan-for-the-Shannon 2020-30.pdf Accessed: 2nd November 2024
[28] Lough Derg_Visitor Experience Development Plan 2020_191120.pdf Accessed: 2nd November 2024
[29] Clare County Development Plan 2023-2029 | Planning, heritage and conservation | Services | Clare County Council (clarecoco.ie) Accessed: 12th December 2023
[30] clare-biodiversity-action-plan-2024-2030-issues-paper-54864.pdf Accessed: 2nd November 2024

3.5.3 Other Permitted and Proposed Developments in the Locality

A search of Clare County Council's (CCC) online planning enquiry system for granted or on-going planning applications for the townland of Mountshannon, Inis Cealtra, and western shores of Lough Derg at Knockaphort was undertaken on 2nd November 2024, the results of which are presented in **Table 2**, below.

Table 2. List of granted and/or on-going planning applications within the vicinity of the proposed development site.

Application No.	Applicant	Location	Proposed Development	Decision and Date
23597	Brett and Marcha Cox	Main St, Mountshannon	Retain use of former office as shop and coffee shop, retain garden room erected alongside coffee shop and house, and permission for change of use of garden room to coffee roaster, toilet and all associated site works.	Granted: 05/03/24
2360172	Jamie and Rachel Keating	No. 3, Harbour View, Mountshannon.	Renovation and extension of existing dwelling house to include (1) Removal of existing balcony and replace with new balcony area (2) Significant Alterations to North, South and West elevations and all associated site works.	Granted: 23/08/23
238001	Clare County Council	The Old Rectory, Mountshannon	See **Table 1** in **Section 1.4**, above.	Granted: 09/08/23
CCC: 22123 ABP: 313431	Mountshannon Community Council	Aistear Park, Mountshannon	Erect a Pavilion (a roofed open structure) for communal, cultural, education and events and gatherings and all associated site works.	CCC Granted: 07/04/22 Appealed to ABP: 27/04/22 ABP Granted: 24/07/23
22269	Inis Housing Association CLG	Mountshannon	Development of 11 no. dwelling houses of varying size and design, 1 no. building containing 2 no. apartments, new site entrance, development access roads paths, landscaping, service connections and associated site works & services.	Granted: 03/05/23
22688	Josephine O'Brien	Mountshannon	Entrance and front boundary wall as constructed and all associated site works	Granted: 27/10/22
22340	Paul Knapp	The Old School House & Church, Mountshannon	Development to existing building (protected structure (RPS No. 130)); (a) Retain change of use of building from church/school to single private residential unit; (b) Permission to replace existing roof covering with natural slate, re-render exterior of building with lime render, provide three no. new conservation roof windows to rear of roof and all associated ancillary site works.	Granted: 13/07/22
22124	Dermot O'Sullivan	Mountshannon	Retention of porch as constructed to the front of the house and retain two sheds erected at rear of house and all associated site works.	Granted: 11/05/22
21985	Josephine O'Brien	Mountshannon	Garage/shed as erected to rear of house and all associated site works.	Granted: 15/12/21

Application No.	Applicant	Location	Proposed Development	Decision and Date
21968	Pat Sweeney	Mountshannon	Construction of a garage/shed.	Granted: 08/12/21
21555	Adrian Dooley	Millpool Road, Mountshannon	Erect a dwelling house, garage, driveway, install effluent treatment system and polishing filter and all associated site works.	Granted: 19/11/21
21253	Mary Teresa Ryan	Old Rectory, Mountshannon	Retain demolition works and alterations to existing out-buildings (part of Old Rectory Protected Structure (RPS No.464)) and retain the constructed works to same incorporating garage and storage sheds.	Granted: 23/06/21
218000	Clare County Council	The Old Rectory, Mountshannon	Alterations, modifications and partial change of use of Old Rectory on site measuring 1.17ha, consisting of: i. Construction of 57sqm single-storey ground floor extension to northwest of building (double height space) - max. height of 6.4m (lift height 7.8m) above ground level for Education/Enterprise space of 30sqm, new internal stair access; ii. Ground floor change of use from residential to a) Education/Enterprise Facilities (2 no. rooms with total GFA of 79sqm) b). Reception Area (26sq.) c) Welfare Facilities (5sqm) d) Storeroom (2sqm) e) Plant (3sqm) iii. First floor partial change of use from residential to: a) Community Facility/Co-working Space (16sqm) b) Welfare Facilities (7sqm) iv. 1-bedroom apartment (87sqm) with private amenity space of 50sqm; v. New lift within footprint of existing building; vi. Ground floor - new opening in north and west wall of existing building, new and enlarged openings to internal walls between existing kitchen/utility room and between existing hallway/lounge; vii. First floor - new openings/removal of internal partitions, opening in roof for access to lift and new opening in north wall at first floor; viii. Clean/repoint existing brickwork, repair/replacement of damaged roof slates with natural slate, replacement of PVC windows with double-glazed timber sash windows, removal of modern internal additions (flooring, cornices); ix. Resurface existing vehicular access, construct new vehicle passing bay; x. Construct 1.8m-wide pedestrian footpath west of existing vehicular access; xi. Demolish new build section existing splayed entrance, reinstatement of splayed entrance.	Granted: 27/05/21
20941	Gerry Cantrell	4 Harbour View, Harbour Road, Mountshannon	Retain minor elevational changes to the existing dwelling house.	Granted: 08/03/21

3.5.4 EPA Licenced/Registered Facilities

A review of the EPA online mapping tool[31] determined that there are no IPPC, IPC or IEL[32] facilities within the immediate vicinity of Mountshannon Village or Inis Cealtra. The nearest EPA licensed facilities are in Scarriff Village approximately five kilometres southwest of Inis Cealtra, namely Molloy Woodcrafts Limited (IEL Number: P05034-01) and Fair Green Environmental Limited (IPC Licence Number: P0022-03).

There are five urban wastewater treatment plants (UWWTP) located within the Lower Shannon (25C) Catchment with the nearest to the proposed development site also located in Scarriff. This is a 1,001 to 2,000 p.e.[33] facility type (Active licence number: D0319-01) and has a plant design capacity of 1397 with an agglomeration p.e. of 1061. The smaller Mountshannon sewage treatment plant (< 500 p.e.) (Active licence number: A0064-01) is located 0.27 kilometres west of the proposed new Mountshannon car park with an agglomeration p.e. of 169.

3.5.5 Existing Land-use and On-going Activities

Agriculture and forestry are the chief land-use activities within the Lower Shannon (25C) Catchment that could act in combination with the proposed development to negatively affect water quality. Other land-uses include peat/mineral extraction, one-off housing, village settlements such as Mountshannon, Scarriff and Dromineer, and urban settlements such as Borrisokane and Nenagh. On-going activities occurring within the catchment that have the potential to cumulatively interact with the proposed development are mainly those associated with the recreational and touristic activities on Lough Derg and along its shoreline.

3.5.6 Potential for Significant In-combination Effects

It is considered that agriculture, hydromorphological pressures, forestry, and to a lesser extent, quarries and one-off rural residential developments comprise the other land-uses and pressures which could potentially interact synergistically with the proposed development to result in significant cumulative or in-combination effects.

The potential in-combination effects are discussed further in Section 3.8.7, below.

3.6 Identification of European Sites

3.6.1 Zone of Impact Influence and Selection of European Sites

As discussed in Section 2.6, above, the ZOI for the proposed development is the geographical area over which there is potential for the Qualifying interests (QI) of a European site to be affected by biophysical changes arising from the construction and/or operation of the proposed Inis Cealtra Visitor Experience. To establish which European sites are located within the ZOI, the Source-Pathway-Receptor (SPR) model is applied during the screening stage of AA, since according to the Office of the Planning Regulator guidelines (OPR, 2021), 'a European site will only be at risk from likely significant effects where the Source-Pathway-Receptor link exists between the proposed development and the European site'.

The SPR model firstly considers the nature, size and location of the proposed development and then identifies characteristics that may provide a source of direct (e.g. water, noise, habitat loss) or indirect (e.g. collision risk,

[31] EPA Maps Accessed: 19th October 2024
[32] Integrated Pollution Control (IPC) Licence (formerly IPPC Licence), and Industrial Emissions Licence (IEL)
[33] Defined using population equivalent value (p.e.)

impact to the prey species of a QI) ecological impacts. Secondly, any pathways (e.g. watercourses) that exist linking the proposed development site to the European site(s) are identified, before, finally, establishing 'the location, nature and sensitivities of the qualifying species and habitats, the ecological conditions underpinning their survival and the conservation objectives specified to maintain or restore favourable conservation status' (OPR, 2021).

Following this, and in view of best scientific knowledge, an assessment is made to ascertain whether the proposed development, individually or in combination with other plans/projects, is likely to have a significant effect on a European site(s) in view of the site's conservation objectives. If there are any significant, potentially significant, or uncertain effects, it will be necessary to proceed to Appropriate Assessment and submit an NIS.

With regards the proposed Inis Cealtra Visitor Experience development and the identification of potentially affected European sites, adoption of the SPR risk assessment principle and use of the precautionary approach, has led to the inclusion of all European sites within a 15-kilometre radius of the proposed development and/or European sites with a hydrological/ecological connection to the proposed development, details of which are included in Table 3 and Figure 7.

Table 3. European sites within 15 kilometres of the proposed development site and/or European sites with a hydrological/ecological connection to the proposed development site.

Designated site & code	Approximate distance of designated site from subject site	Hydrological/ Ecological connection?
Lough Derg (Shannon) SPA (004058)	- Inis Cealtra is located entirely within SPA. - Southern corner of Visitor Centre site is located 0.03 km northwest of SPA. - New Mountshannon Village public car park located 0.15 km northeast of SPA.	**Yes**, all elements of proposed development have either a direct or indirect hydrological and/or ecological connection to the SPA.
Slieve Aughty Mountains SPA (004168)	- New Mountshannon Village public car park located 0.3 km southwest of SPA. - Inis Cealtra is 1.7 km south of SPA.	SPA is hydrologically connected to Lough Derg but is located upstream from the proposed development site.
Lough Derg, North-east Shore SAC (002241)	- Visitor Centre site is 10.2 km southwest of SAC - Inis Cealtra is 12.4 km southwest of SAC	SAC is hydrologically connected to the proposed development site but is located upstream and up-gradient.
Lower River Shannon SAC (002165)	- Inis Cealtra is located 11.7 km north of SAC. - Mountshannon Harbour is located 13.3 km north of SAC	**Yes**, SAC is 14 rkm downstream of Inis Cealtra via River Shannon (15.2 rkm from Mountshannon Harbour), therefore, tenuous hydrological connection provided
River Shannon and River Fergus Estuaries SPA (004077)	- Inis Cealtra is located 30.5 km northeast of SPA. - Mountshannon Harbour is located 32.8 km northeast of SPA.	Hydrological connection exists as SAC is 44 rkm downstream from proposed development site via Lough Derg and the River Shannon.

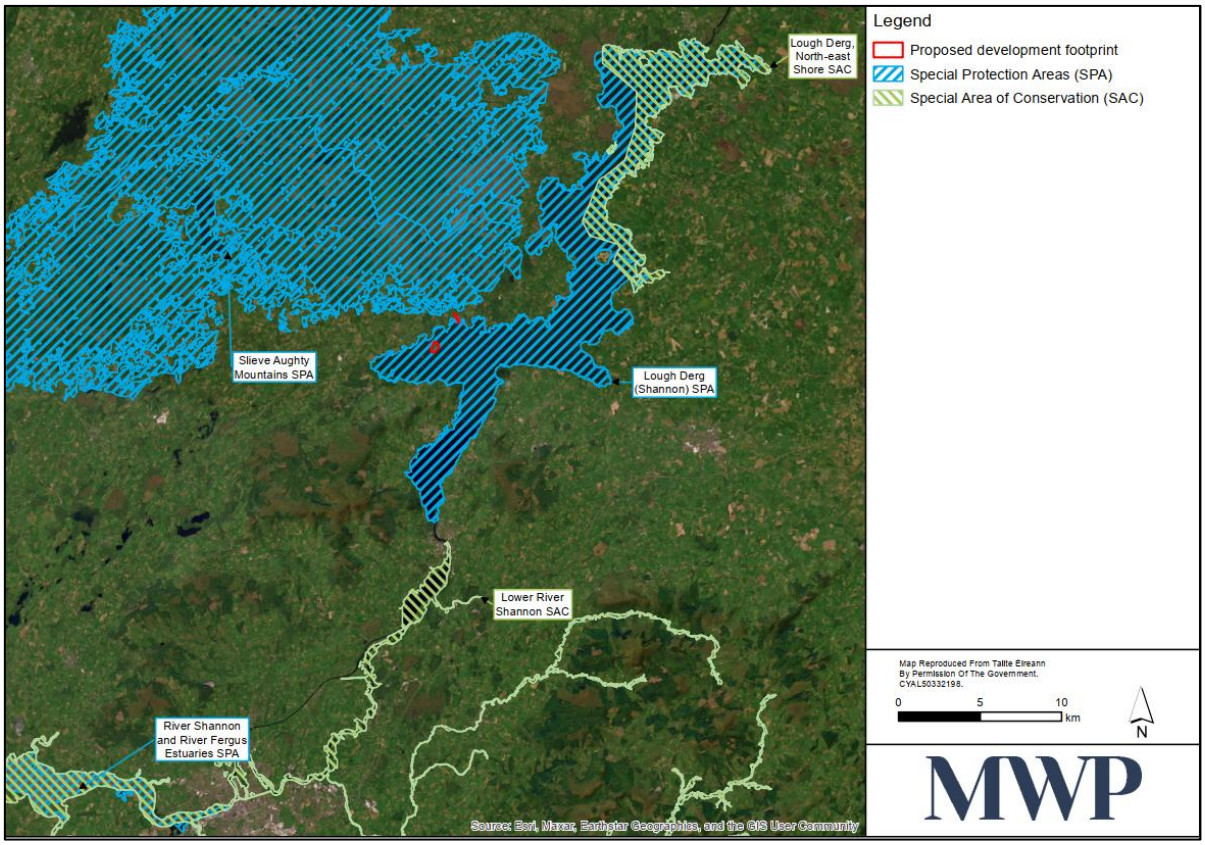

Figure 7: European sites within a 15-kilometre radius of the proposed development and/or European sites with a hydrological/ecological connection to the proposed development site.

3.6.2 Characteristics of European Sites

The following table lists the qualifying features of conservation interest for the European sites identified in the previous table. Information pertaining to the European sites is from the site synopses, conservation objectives and other information available on Protected Sites in Ireland | National Parks & Wildlife Service (npws.ie).

Table 4. European sites located within 15 km of the proposed development and/or European sites with a hydrological/ecological connection to the proposed development, and their associated qualifying interests (QI) or special conservation interest (SCI) species.

Designated site and code	Qualifying features of conservation interest[34]
Lough Derg (Shannon) SPA (004058)	▪ Cormorant (*Phalacrocorax carbo*) [A017] ▪ Tufted Duck (*Aythya fuligula*) [A061] ▪ Goldeneye (*Bucephala clangula*) [A067] ▪ Common Tern (*Sterna hirundo*) [A193] ▪ Wetland and Waterbirds [A999]
Slieve Aughty Mountains SPA (004168)	▪ Hen Harrier (*Circus cyaneus*) [A082] ▪ Merlin (*Falco columbarius*) [A098]
Lough Derg, North-east Shore SAC (002241)	▪ Juniperus communis formations on heaths or calcareous grasslands [5130] ▪ Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210] ▪ Alkaline fens [7230] ▪ Limestone pavements [8240]

[34] Asterisk (*) denotes a priority habitat considered to be in danger of disappearance.

Designated site and code	Qualifying features of conservation interest[34]
	▪ Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] ▪ *Taxus baccata* woods of the British Isles [91J0]
Lower River Shannon SAC (002165)	▪ Sandbanks which are slightly covered by sea water all the time [1110] ▪ Estuaries [1130] ▪ 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] ▪ Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] ▪ *Salicornia* and other annuals colonising mud and sand [1310] ▪ Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] ▪ Mediterranean salt meadows (*Juncetalia maritimi*) [1410] ▪ Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] ▪ *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] ▪ Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] ▪ Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1029] ▪ Sea Lamprey (*Petromyzon marinus*) [1095] ▪ Brook Lamprey (*Lampetra planeri*) [1096] ▪ River Lamprey (*Lampetra fluviatilis*) [1099] ▪ Atlantic Salmon (*Salmo salar*) [1106] QI status applies only to freshwater phases of lifecycle. ▪ Common Bottlenose Dolphin (*Tursiops truncatus*) [1349] ▪ Otter (*Lutra lutra*) [1355]
River Shannon and River Fergus Estuaries SPA (004077)	▪ Cormorant (*Phalacrocorax carbo*) [A017] Wintering and breeding ▪ Whooper Swan (*Cygnus cygnus*) [A038] Wintering ▪ Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Wintering ▪ Shelduck (*Tadorna tadorna*) [A048] Wintering ▪ Wigeon (*Anas penelope*) [A050] Wintering ▪ Teal (*Anas crecca*) [A052] Wintering ▪ Pintail (*Anas acuta*) [A054] Wintering ▪ Shoveler (*Anas clypeata*) [A056] Wintering ▪ Scaup (*Aythya marila*) [A062] Wintering ▪ Ringed Plover (*Charadrius hiaticula*) [A137] Wintering ▪ Golden Plover (*Pluvialis apricaria*) [A140] Wintering ▪ Grey Plover (*Pluvialis squatarola*) [A141] Wintering ▪ Lapwing (*Vanellus vanellus*) [A142] Wintering ▪ Knot (*Calidris canutus*) [A143] Wintering ▪ Dunlin (*Calidris alpina*) [A149] Wintering ▪ Black-tailed Godwit (*Limosa limosa*) [A156] Wintering ▪ Bar-tailed Godwit (*Limosa lapponica*) [A157] Wintering ▪ Curlew (*Numenius arquata*) [A160] Wintering ▪ Redshank (*Tringa totanus*) [A162] Wintering ▪ Greenshank (*Tringa nebularia*) [A164] Wintering ▪ Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Wintering ▪ Wetland and Waterbirds [A999]

3.6.3 Conservation Objectives

According to the Habitats Directive, the *conservation status of a natural habitat* will be taken as 'favourable' within its biogeographic range when:

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

According to the Habitats Directive, the *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. The conservation status will be taken as 'favourable' within its biogeographical range 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.

The conservation objectives for each European site listed in **Table 4**, above, were accessed online on the 19th October 2024. Management plans are not currently available for any of the designated sites.

Site-specific conservation objectives were available for the following sites:

- Lough Derg (Shannon) SPA (004058). Version 1. Produced August 2024.
- Slieve Aughty Mountains SPA (004168). Version 1. Produced December 2022.
- Lough Derg, North-east Shore SAC (002241). Version 1. Produced April 2019
- Lower River Shannon SAC (002165). Version 1.0. Produced August 2012.
- River Shannon and River Fergus Estuaries SPA (004077). Version 1.0. Produced September 2012.

3.7 Identification of Potential Impacts of the Project

Potential likely direct, indirect or secondary ecological impacts arising from the proposed development (either alone or in combination with other plans or projects) are identified in this section.

Table 5. Identification of the impacts of the proposed Inis Cealtra Visitor Experience development.

Description of elements of the project likely to give rise to potential ecological impacts sites.	Construction Phase – Mainland ▪ Clearing and/or removing any required trees, scrub and surface vegetation (topsoil/sub-soil/shrubs/etc.). Removal of existing masonry wall sections and/or other landscape features. ▪ Topsoil stripping, bulk excavations and earth works, and heavy engineering required to construct the Visitor Centre building, its exterior and the new Mountshannon Village car park. ▪ Surface milling of existing Mountshannon Harbour car park and resurfacing works. ▪ General construction activity.

	▪ Machinery: The on-site presence and sustained use of heavy and light plant machinery, albeit at variable rates and numbers, during daylight hours for the duration of the works. ▪ Use of fuels/oils/lubricants, concrete and other such substances considered harmful to the aquatic environment. ▪ Human presence: Sustained increase in human activity, albeit at variable rates and numbers, during daylight hours for the duration of the works. ▪ Increased noise and air emissions associated with construction activity. ▪ Temporary storage of excavated spoil/material. Construction Phase – Inis Cealtra ▪ Borehole drilling at the proposed new jetty location as part of site investigation works. ▪ Piling and excavations for installation of new jetty and mooring point. ▪ Cut back of vegetation/scrub and mowing of paths on the island. ▪ The presence and sustained use of light machinery on the island and pontoon raft, albeit at variable rates, during daylight hours for duration of works. ▪ Use of fuels/oils/lubricants, concrete and other such substances considered harmful to the aquatic environment. ▪ Human presence: Sustained increase in human activity, albeit at variable rates and numbers, during daylight hours for the duration of the works. ▪ Increased noise and air emissions associated with construction activity. ▪ Temporary storage of excavated spoil/material. ▪ Generation of waste/spoil/construction run-off Operational Phase - Mainland ▪ Increased artificial lighting/noise/traffic. ▪ Increased human presence, particularly during summer months and holiday time. ▪ Maintenance of site infrastructure and landscaped gardens around Visitor Centre. ▪ Permanent surface water management systems. ▪ Generation of waste streams and effluents from Visitor Centre and café. Operational Phase – Inis Cealtra ▪ Increased noise and human presence on the island. ▪ Maintenance of island pods and correct disposal of WC pod waste. ▪ Maintenance of pathways and island infrastructure. ▪ Permanent surface water management systems.
Describe any likely direct, indirect or secondary ecological impacts of the project (either alone or in combination with other plans or projects) by virtue of: ▪ *Size and scale* ▪ *Land-take* ▪ *Distance from European Site or key features of the site*	Mainland - Construction Phase ▪ There is no spatial overlap of any of the proposed development's mainland sites with any European site, and therefore, there will be no direct loss/alteration/land-take within any European site. ▪ There will be loss and direct alteration of habitat (mainly agricultural/amenity grassland and artificial surfaces) within construction footprint. ▪ Potential for species disturbance/displacement impacts due to construction activities including fugitive noise emissions from machinery, human activity. ▪ The mainland development sites are indirectly hydrologically connected to two European sites – Lough Derg (Shannon) SPA [004058] and Lower River Shannon SAC [002165] – by virtue of their proximity to Lough Derg. ▪ Potential for water quality impacts via erosion and run-off of silt, and/or ingress of fuels/oils, cementitious material, or other substances via overland flow and/or proposed drainage network to local watercourses and Lough Derg. ▪ Potential for groundwater contamination through spillage of oils, fuels and chemicals.

- *Resource requirements*
- *Emissions*
- *Excavation requirements*
- *Transportation requirements*
- *Duration of construction, operation etc.*
- *Other.*

- Potential for indirect alteration of habitats that are outside of but are hydrologically linked to the development site.
- Potential for indirect species disturbance/displacement due to *in-situ* or *ex-situ* habitat loss/alteration impacts, increased noise/human presence, impairment of water quality and/or impacts on prey availability.
- Potential for spread of invasive alien plant and animal species.

Inis Cealtra - Construction Phase

- Inis Cealtra is located entirely within Lough Derg (Shannon) SPA, therefore, there will be some direct loss/alteration of SPA's habitat. There will be minimal land-take (non-qualifying habitats) from within the construction footprint of the SPA.
- Potential for species disturbance/displacement due to construction activities including fugitive noise emissions from machinery, boats, human activity.
- There is a direct hydrological link between Inis Cealtra and Lough Derg (Shannon) SPA, and an indirect hydrological link between Inis Cealtra and the Lower River Shannon SAC [002165] via Lough Derg and the River Shannon.
- Potential water quality impacts via erosion and silt run-off, ingress of fuels/oils and/or cementitious material or other substances via overland flow to Lough Derg.
- Potential for direct water quality impacts to Lough Derg and the SPA during installation/construction of the new jetty and mooring point.
- Potential species disturbance impacts due to construction activities including fugitive noise emissions from machinery, boats, human activity.
- Potential for groundwater contamination through spillage of oils, fuels and chemicals.
- Potential for species disturbance/displacement due to *in-situ* or *ex-situ* habitat loss/alteration impacts, increased noise/human presence, impairment of water quality and/or impacts on prey availability.
- Potential for spread of invasive alien plant and animal species.

Operational Phase

- Potential for species disturbance/displacement (direct and indirect habitat loss) due to operation/maintenance of the entire Inis Cealtra Visitor Experience including the proposed Visitor Centre and Inis Cealtra itself.
- Potential for species displacement whereby a species is deterred from using normal routes to access breeding, foraging or roosting habitats.
- Potential for direct and indirect water quality impacts through the erosion and run-off of silt, and/or ingress of fuels/oils via overland flow and/or the drainage network to local watercourses and Lough Derg.
- Potential for groundwater contamination through spillage of oils, fuels and chemicals.
- Potential for indirect alteration of habitats outside of but hydrologically linked to the development site.
- Potential for indirect species disturbance/displacement due to impairment of water quality and/or impacts on prey availability.
- Potential for direct species disturbance/displacement at Inis Cealtra due to habitat loss/alteration impacts, increased noise/human presence, impairment of water quality and/or impacts on prey availability.
- Potential for spread of invasive alien plant and animal species.

3.8 Assessment of Significance of Potential Impacts

This section considers the list of sites identified in Table 4, above, together with the potential ecological impacts identified in Table 5, above, and determines whether the project is likely to have significant effects on a European site. As discussed in Section 3.6.1, when assessing impact, European sites are only considered relevant where a credible or tangible source-pathway-receptor link exists between the proposed development and a protected species or habitat type. For an impact to occur there must be a risk initiated by having a 'source' (e.g. excavation) and an impact pathway between the source and the receptor (e.g. a waterbody which connects the proposal site to the protected species or habitats). An evaluation based on these factors to determine which European sites are the plausible ecological receptors for potential impacts of the proposed development will be conducted in Sections 3.8.1 and 3.8.2. The evaluation takes cognisance of the scope, scale, nature and size of the project, its location relative to the European sites listed in Table 3, and the degree of connectedness that exists between the project and each European site's potential ecological receptors.

3.8.1 European Sites Outside the Zone of Potential Impact after Application of SPR Model

With regards to the proposal, it is considered that the works do not include any element that has the potential to significantly affect the conservation objectives for which certain European sites are designated. Although located within 15 kilometres of the proposed development site and/or are hydrologically connected, these European sites are deemed to be outside the zone of potential impact influence of the proposed development due to the absence of plausible impact pathways when the SPR model was applied (see Section 3.6.1 for summary of the model). Therefore, it is objectively concluded that significant effects on the conservation objectives of these sites are not reasonably foreseeable because of the proposed development described at Section 3.3. These sites are listed in Table 6, along with their approximate distances from the subject site and the rationale for their exclusion, and therefore will not be considered further in this report.

Table 6. European sites excluded from further assessment including rationale for their exclusion.

Designated site and code	Approximate distance from proposal site	Rationale for exclusion from further assessment
Slieve Aughty Mountains SPA (004168)	New Mountshannon public car park located 0.3 km southwest of SPA. Inis Cealtra is 1.7 km south of SPA.	- Designated for merlin and hen harrier. - Neither species observed during MWP bird surveys. - No spatial overlap with the proposal site. - Habitat at proposed development site not considered optimal for either QI species. - No plausible impact pathway linking the proposed development site to the SPA located upstream/upgradient of the proposed development.
Lough Derg, North-east Shore SAC (002241)	Visitor Centre site is 10.2 km southwest of SAC Inis Cealtra is 12.4 km southwest of SAC	- Designated for six terrestrial habitats. - No spatial overlap with the proposal site. - SAC located upstream/upgradient of the proposed development so no plausible impact pathway linking the two.
River Shannon and River Fergus Estuaries SPA (004077)	6.4 km to the northwest	- Designated for waterbird species and wetland habitats. - No spatial overlap with the proposal site. - Proposal site located nearly 45 rkm upstream of SPA. Outside project ZOI and core foraging ranges of species (SNH, 2016). - Proposal site is in separate WFD catchment to SPA - no plausible impact pathway linking the two.

3.8.2 European Sites Within the Zone of Potential Impact after Application of SPR Model

The assessment of significance of potential impacts that follows focuses on the two remaining European sites identified in Table 7. When the SPR framework discussed in Section 3.6.1, is applied, these sites are deemed to have the potential to be impacted by the proposal described in Section 3.3, due to the existence of plausible impact pathways linking the proposed development site (source) to the Qualifying Interest species and habitats (receptors) of the European sites. Therefore, it is objectively concluded that significant effects on the conservation objectives of these two European sites because of the proposed development described at Section 3.3, have the potential to occur and cannot be ruled out at this stage. These sites are listed in Table 7, along with their approximate distances from the subject site and will be subjected to further assessment in this report.

Table 7. European sites within the likely zone of impact and rationale for inclusion.

Designated site and code	Approximate distance from subject site	Rationale for inclusion for assessment
Lough Derg (Shannon) SPA (004058)	Inis Cealtra located entirely within SPA. 0.03 km southeast of Visitor Centre site. 0.15 km southwest of new Mountshannon public car park.	- Designated for two wintering waterfowl species, two breeding waterfowl species and wetland habitats. - Spatial overlap with proposed development on Inis Cealtra. - Direct hydrological link with Lough Derg via the proposed new jetty works at Inis Cealtra. - Indirect hydrological connection of the SPA with all mainland elements of proposed development by virtue of their proximity to Lough Derg and the gentle lakeward-leaning proclivity of the mainland sites. - Potential for significant effects to the SPA. - Further assessment is required.
Lower River Shannon SAC (002165)	11.7 km south of Inis Cealtra. 14 rkm downstream from Inis Cealtra. 13.3 km south of Mountshannon Harbour. 15.2 rkm downstream of Mountshannon Harbour.	- Designated for wide variety of aquatic and terrestrial habitats and species. - No spatial overlap: however, Lough Derg drains into the SAC via the River Shannon. - Direct hydrological connection between the proposal site and the SAC, located approximately 14 rkm downstream from Inis Cealtra. - Habitats within the proposal site suitable for some QI's. - Potential for significant effects to the SAC. - Further assessment is required.

The likelihood of significant effects from the project to the European sites outlined above was determined based on several indicators including:

- Water quality;
- Habitat loss/alteration;
- Habitat or species fragmentation; and
- Disturbance and/or displacement of species.

The likelihood of significant in-combination effects is assessed in Section 3.8.7, below.

3.8.3 Water Quality

During a development's construction phase, works in general can pose a risk to the aquatic environment via several different sources in the absence of any pollution prevention controls. Erosion and overland transport of sediment from areas exposed during site set-up, vegetation clearance, preliminary groundworks, excavation areas or other disturbed ground, material storage areas or from other potential sources such as construction vehicles/plant can result in suspension of soil sediment particles in site run-off and overland flow. Potential also exists for accidental ingress of fuel and oils, concrete and cementitious material and other such substances considered harmful to the aquatic environment via overland flow, direct discharges to the lake and/or leaching to groundwater in the event of a spillage/leakage.

During the operational phase of the mainland elements of the proposed development, the most likely sources of indirect water quality impacts potentially resulting in secondary effects on receiving aquatic habitats and/or species are those arising from wastewater discharge and from surface water run-off. For the operational phase of the Inis Cealtra elements of the proposed development, the most likely sources of water quality impacts are those arising directly from operation of boat tours and those arising indirectly during island tours and the maintenance of the dry toilet system within the WC Pod.

Water quality is a key environmental factor underpinning the conservation condition of the complex of aquatic and wetland habitats and species that support the qualifying features for which the Lough Derg (Shannon) SPA and the Lower River Shannon SAC are classified. A direct hydrological link connecting the SPA with the proposed new floating access jetty, canoe launch and access walkway will be created during the construction and operational phases of the proposed works on Inis Cealtra. This also creates a direct, albeit tenuous, hydrological link to the Lower River Shannon SAC located approximately 14 river kilometres downstream via the River Shannon.

On the County Clare mainland, the proposed works sites are in Mountshannon Village on the shores of Lough Derg - the southern corner of the proposed Visitor Centre is closest to the lakeshore, situated approximately 0.03 kilometres to the northwest. There is no direct hydrological connection between the proposed mainland works and Lough Derg (SPA), however, the proximity of the proposed works sites provides the possibility, albeit it remote, for an indirect hydrological connection via any surface water run-off/drainage that may occur during the construction and/or operational phases of the mainland elements of the proposed development. This indirect hydrological link also creates a tenuous indirect hydrological link between the mainland works at Mountshannon and the Lower River Shannon SAC located approximately 15.2 river kilometres downstream via the River Shannon.

There is a hydrological connection between the proposed development site and both European sites via Lough Derg and the River Shannon. Given the pollution risk associated with the construction phase of the works and the hydrological pathways, and the proximity of the works proposed, it is considered that in the absence of mitigation potential significant effects on water quality to the Lough Derg (Shannon) SPA and Lower River Shannon SAC arising from the impacts identified in Section 3.7, above, have the potential to occur and further assessment is required

3.8.4 Habitat Loss and Alteration

3.8.4.1 Lough Derg (Shannon) SPA

The Lough Derg (Shannon) SPA is designated for the protection of the habitat and species complex 'Wetlands and waterbirds [A999]' which requires the conservation of wetland habitat within the SPA as a resource for regularly occurring migratory waterbirds. As discussed in Section 3.8.3, above, there is potential for the loss/alteration of the 'Wetlands' [A999] habitat for which the Lough Derg (Shannon) SPA is designated during the construction and

operational phases of the proposed development via a reduction in water quality which in turn can then adversely affect the SCI species of the SPA. Consequently, in the absence of mitigation, it is objectively concluded that significant loss and/or alteration of habitats within Lough Derg (Shannon) SPA arising from the impacts identified in Section 3.7, above, have the potential to occur and further assessment is required.

3.8.4.2 Lower River Shannon SAC

Since there is tenuous hydrological connection of approximately 14 river kilometres linking Inis Cealtra with the downstream Lower River Shannon SAC via the River Shannon, it is also possible that any water quality effects within the SPA may also affect the QI habitats for which the SAC is designated. This creates potential for significant indirect alteration/loss of the aquatic habitat within the SAC in the absence of mitigation and further assessment is required.

3.8.5 Disturbance and/or Displacement of Species

3.8.5.1 Lough Derg (Shannon) SPA

Lough Derg (Shannon) SPA is classified for four species of Special Conservation Interest (SCI), namely cormorant, tufted duck, common tern, and wintering goldeneye, as well as wetland and waterbird species. Habitats within the proposed development site are known to host SCI species associated with the Lough Derg (Shannon) SPA.

Each SCI species relies on the aquatic environment of Lough Derg for foraging and other ecological requirements. Any disturbance effects including lighting, noise, increased human activity, use of plant and machinery, water pollution (water quality impacts), tour boats and increased casual visitors to the lake and island associated with the construction and operational stages are likely to disturb and/or displace both breeding and wintering populations of SCI species.

It has been determined in the sections above, that potentially significant effects on water quality and wetland habitat within the SPA associated with the construction and operational phases of the proposed development cannot be ruled out at this stage. Any potential impacts on water quality and the conservation condition of wetland habitat in the SPA could also negatively impact upon SCI species or other regularly occurring migratory waterbird species which the wetland habitat supports.

It has been determined in Section 0 above that the proposed new Mountshannon car park and Visitor Centre on the mainland do not contain important wetland habitat for SCI species. Important wetland habitats (marsh and reedbeds) for waterbirds are present in the lake and its shorelines near Mountshannon Harbour and many waterbirds, including two SCI species (tufted duck and cormorant) were recorded using these habitats (see Section 3.4.8). Disturbance impacts such as noise and increased human activity could impact SCI species during the construction phase on the mainland. Therefore, disturbance and/or displacement of SCI species associated with mainland construction works cannot be ruled out at this stage.

Bird surveys carried out for the project between March 2021 and March 2024, inclusive, recorded all SCI species associated with the SPA at Inis Cealtra. During surveys, the SCI species for which the SPA is designated were observed at the reedbeds and marsh habitats in and around the island foraging, roosting, and breeding throughout the year. Disturbance impacts such as noise and increased human activity could impact SCI species during the construction and operational phases at Inis Cealtra. Therefore, disturbance and/or displacement of SCI species associated with the proposed development cannot be ruled out at this stage.

Overall, given the location and nature of the proposed works and operational activities at Inis Cealtra and Mountshannon Harbour, potentially significant effects to SCI species for which Lough Derg (Shannon) SPA is

designated as a result of works undertaken associated with direct and indirect disturbance/displacement of avian species cannot be ruled out, and thus further assessment is required.

3.8.5.2 Lower River Shannon SAC

The Lower River Shannon SAC, located approximately 14 river kilometres downstream of Inis Cealtra and 15.2 river kilometres downstream of Mountshannon Harbour, is designated for the following species:

- Freshwater pearl mussel (*Margaritifera margaritifera*) [1029];
- Sea lamprey (*Petromyzon marinus*) [1095];
- Brook lamprey (*Lampetra planeri*) [1096];
- River lamprey (*Lampetra fluviatilis*) [1099];
- Atlantic salmon (*Salmo salar*) [1106] (QI status pertains only to freshwater phases of life cycle);
- Bottlenose dolphin (*Tursiops truncates*) [1349]; and
- Otter (*Lutra lutra*) [1355].

All these QIs are exclusively aquatic in nature and/or dependant on aquatic habitats (i.e. otter) and require an adequate level of water quality to be maintained within their environments. As discussed in Section 3.8.3, significant indirect impacts to the water quality of the SAC have the potential to occur which subsequently creates the potential for an indirect loss and/or alteration of habitats within the SAC located downstream.

Lamprey species are known to occur in Lough Derg and the lake contains an apparently self-sustaining landlocked population of sea lamprey. Therefore, Lough Derg has the potential to support lamprey species and otter, which may be constituents of the SAC's QI populations. Therefore, there is potential for indirect disturbance and/or displacement of these species to occur via impairment of water quality and the resulting impacts on prey availability, and/or the indirect alteration of habitats located downstream. Such impacts could affect these QIs within Lough Derg which occur outside the SAC, as well as within the SAC boundary located downstream from the proposed development site.

It has already been concluded in Section 3.8.3, above, that because of the proposal and in the absence of water quality protection mitigation measures, there is potential for significant impacts to the water quality of Lough Derg and the River Shannon draining the lake, and the SAC located approximately 14 river kilometres downstream.

3.8.6 Habitat or Species Fragmentation

Habitat fragmentation has been defined as 'reduction and isolation of patches of natural environment' (Franklin *et al*., 2002; Morrison *et al*., 2012) which results in spatial separation of habitat areas which had previously been in a state of greater continuity. Adverse effects of habitat fragmentation on species include the increased isolation of populations which can detrimentally impact upon the resilience or robustness of the populations.

The preceding Sections 3.8.3, 3.8.4 and 3.8.5 have concluded that habitat loss and alteration impacts, water quality impacts and disturbance/displacement impacts cannot be ruled out for the Lough Derg (Shannon) SPA and the Lower River Shannon SAC because of the proposed development. Therefore, significant habitat or species fragmentation on these European sites also cannot be ruled out at this stage and further assessment is required.

3.8.7 Cumulative/In-combination Effects

As set out in the preceding sections, there is potential for the proposed development to cause indirect habitat loss/alteration, water quality impacts, disturbance/displacement of species, and/or habitat/species fragmentation impacts to the QI species and habitats for which two European sites are designated, namely the Lough Derg (Shannon) SPA and the Lower River Shannon SAC. However, as established in Section 3.6, above, no

plausible pathway exists to connect either the Lough Derg (Shannon) SPA nor the Lower River Shannon SAC with the European sites located outside the zone of impact (listed in Table 6, above) and, therefore, the potential for cumulative impacts with other European sites is negligible.

There is, however, the potential that any or all the possible effects to the Lough Derg (Shannon) SPA and the Lower River Shannon SAC could cause significant cumulative/in-combination impacts with other developments, plans and activities within the area identified in Section 3.5, above. Further assessment is required to determine whether significant cumulative/in-combination impacts will ensue from the proposed development

3.9 Conclusion of Screening Stage

In conclusion, to determine any potential impacts of the proposed project on nearby European sites, a screening process for Appropriate Assessment was undertaken. Five European sites were deemed to be located within the potential zone of impact influence of the proposed project.

It has been objectively concluded during this screening process that the proposed construction and operation of the Inis Cealtra Visitor Experience at Mountshannon and Lough Derg in County Clare, either individually or in combination with other plans or projects, is not likely to have significant effects on the following three European sites in view of those sites' Conservation Objectives, and further assessment is deemed unnecessary:

- Slieve Aughty Mountains SPA (004168)
- Lough Derg, North-east Shore SAC (002241); and,
- River Shannon and River Fergus Estuaries SPA (004077).

It cannot be objectively concluded at this stage that the proposed development at Mountshannon and Lough Derg in County Clare will not result in significant effects on the following two designated European sites due to the impacts identified in Sections 3.8.3 to 3.8.7, above:

- Lough Derg (Shannon) SPA (004058); and,
- Lower River Shannon SAC (002165).

Therefore, it has been concluded that, in respect of these European sites, the project should proceed to Stage 2 of the Appropriate Assessment process and as such, a Natura Impact Statement is required. It is concluded that all other European sites have been correctly screened out or excluded from further consideration based on objective information that the project, individually or in-combination with other plans or projects, will have no, or no appreciable, effects on those sites.

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Appendix A

Stages of Appropriate Assessment

Stage 1 - Screening

This is the first stage of the Appropriate Assessment process and is undertaken to determine the likelihood of significant direct and indirect effects on Natura 2000 sites, in light of their conservation objectives, because of a proposed project or plan, individually or in-combination with other plans or projects. It determines the need for a full Appropriate Assessment.

If it can be concluded that no significant direct and indirect impacts to Natura 2000 Sites are likely, in light of their conservation objectives, either individually or in-combination with other plans or projects, then the assessment can stop here. If not, it must proceed to Stage 2 for a more detailed assessment.

Stage 2 - Natura Impact Statement (NIS)

The second stage of the Appropriate Assessment process assesses the impact of the proposal (either alone or in combination with other projects or plans) on the integrity of the Natura 2000 Site(s) with respect to the conservation objectives of the site(s) and its ecological structure and function. This is a much more detailed assessment than Stage 1. A Natura Impact Statement containing a professional scientific examination of the proposal is required and includes any mitigation measures deemed necessary to avoid, reduce or offset negative impacts.

If the outcome of Stage 2 is negative i.e. adverse impacts to the Natura 2000 site(s) cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned.

Stage 3 - Assessment of alternative solutions

A detailed assessment must be undertaken to determine whether alternative ways of achieving the objective of the project/plan exists.

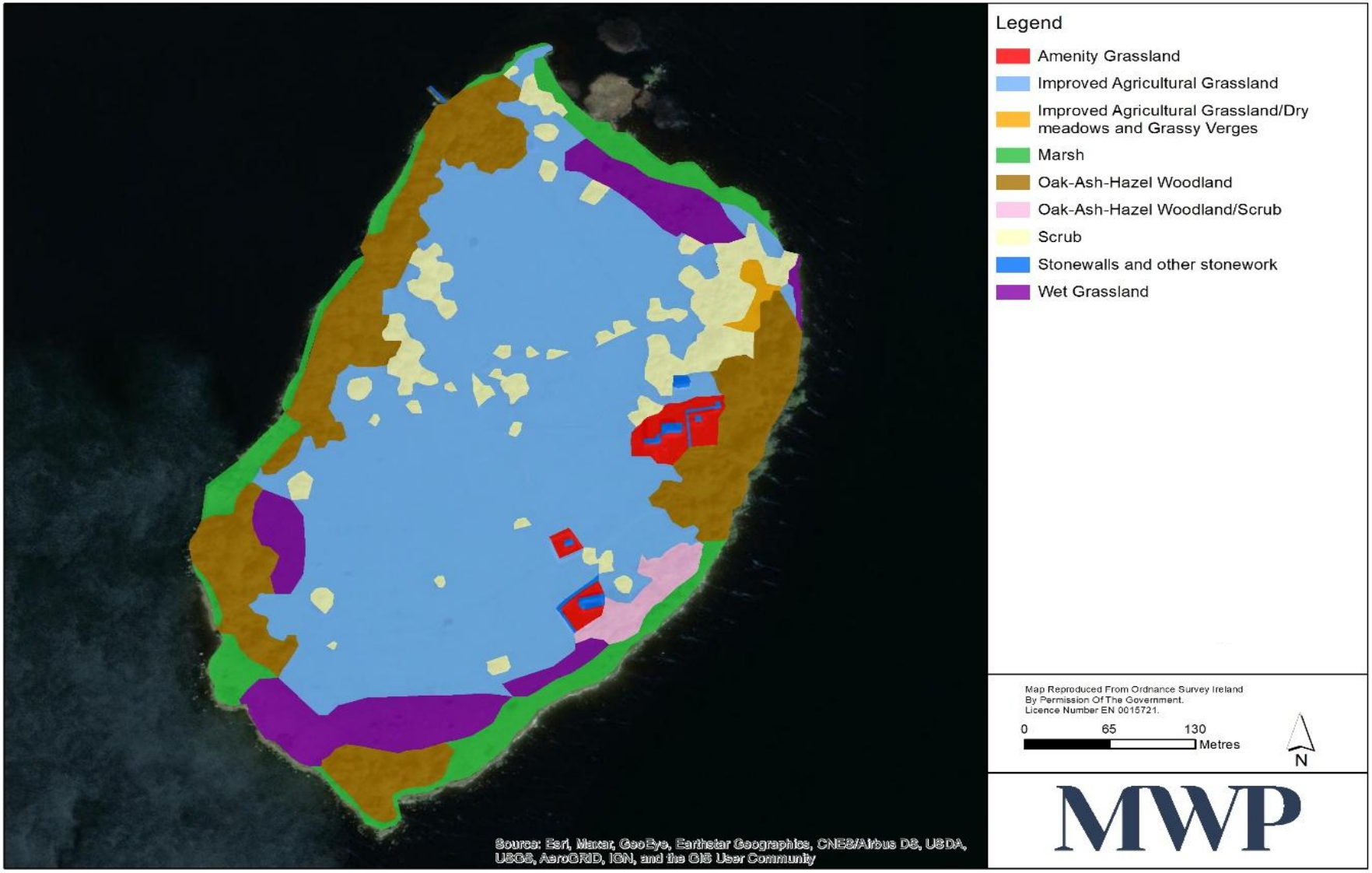
Where no alternatives exist, the project/plan must proceed to Stage 4.

Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain

The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a Natura 2000 Site where no less damaging solution exists.

Appendix 2

Habitat Map of Inis Cealtra


Legend
Amenity Grassland
Improved Agricultural Grassland
Improved Agricultural Grassland/Dry meadows and Grassy Verges
Marsh
Oak-Ash-Hazel Woodland
Oak-Ash-Hazel Woodland/Scrub
Scrub
Stonewalls and other stonework
Wet Grassland
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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65
130
Metres
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