

## **Natura Impact Statement**

N59 Kentfield Road Safety  
Junction Improvement  
Scheme





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## APPENDICES

### Appendix 1: Construction Environmental Management Plan

# 1. INTRODUCTION

## 1.1 Background

MKO has been appointed to provide the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment of proposed road improvement works to the N59 National Secondary Road at Kentfield, Co. Galway (Grid Reference: M 26518 28358).

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

This Natura Impact Statement (NIS) has been prepared in accordance with the European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) as well as the Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010) and the Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin 7, Ireland OPR (2021).

## 1.2 Statement of Authority

A baseline ecological survey was undertaken on the 16<sup>th</sup> of May 2023 by Patrick O'Boyle (B.Sc., M.Sc.) and Keith Costello (B.Sc.) of MKO. This report has been prepared by Patrick O'Boyle and Pádraig Desmond (B.Sc.) and reviewed by Kate O'Donnell (B.Sc., ACIEEM). Patrick and Keith are experienced ecologists with sufficient consultancy experience while Pádraig and Kate have over 3- and 4-years' professional experience, respectively, in ecological consultancy. Both have extensive experience undertaking ecological surveys in a range of habitats and have worked on Appropriate Assessment and Ecological Impact Assessment for a wide range of projects.

## 1.3 Structure and Format of this NIS

The points below set out the structure and format of this NIS:

- Section 2 provides a full description of all elements of the Proposed Development;
- In Section 3, the characteristics of the receiving environment are fully described;
- In Section 4, a Stage 1 Screening is undertaken to identify any European Sites upon which there is a potential for a likely significant effect to occur, either individually or in combination with other plans and projects, as a result of the Proposed Development;
- Section 5 provides a detailed consideration of the screened-in European Sites and identifies the relevant qualifying features and how they may be affected in light of their conservation objectives;
- Section 6 provides an assessment of the potential for adverse effects on the identified European Sites as a result of the Proposed Development and in the absence of mitigation. This section also prescribes mitigation to robustly block any identified pathways for impact or effect;
- Section 7 provides an assessment of residual effects, taking into consideration the proposed mitigation;

- In Section 8, the potential in-combination effects of the Proposed Development on European Sites, when considered in combination with other plans and projects, are assessed;
- A concluding statement is provided in Section 9.

## 2. DESCRIPTION OF PROPOSED DEVELOPMENT

### 2.1 Site Location

The site of the Proposed Development incorporates elements of an approx. 245–metre stretch of the existing N59 National Secondary Road and 45m of the L-5381 Local Road, in the townland of Kentfield, Co. Galway, approx. 4.5 km from Galway City and in close proximity to the Glenlo Abbey Hotel (Grid Reference: M 26518 28358).

The location site of the Proposed Development is shown in Figure 2-1.

### 2.2 Characteristics of the Proposed Development

#### 2.2.1 Description of the Project

The works comprise alterations to the existing road alignment of the N59 and L-5381 at Kentfield Co. Galway. The following outlines the planned works required at N59 Kentfield:

- The N59 carriageway will be realigned and upgraded to a Type 2 single carriageway along the 245m section of the N59;
- On approach to the simple priority junction along the N59 a nearside passing of 2m will be provided at the junction;
- The L-5381 carriageway will be realigned and widened for approx. 45m to incorporate a carriageway width of 6m and a 2m footpath;
- Grass verges will be provided at 3m width along the western length of the N59 with existing hedgerow maintained and varying widths of grass verge between 8 – 12m along the eastern length of the N59 carriageway;
- A 2m footpath will be provided along the N59 on the south-western side of the scheme and extended westwards along the L-5381 for approximately 50m;
- 1 no. Domestic entrance on the N59 will be maintained and upgraded to current standards including resting walls and piers;
- 2 no. Field access will be maintained along the N59 and upgraded to current standards;
- 240m of stone wall will be constructed on the eastern side of the scheme, with approx. 60m stone wall to be constructed on the western side of the scheme;
- All existing land drainage and culverts will be maintained with new land drainage connected to the existing network;
- A sealed drainage system comprising of kerb and gully system, which discharges through a petrol interceptor and underground tank, where runoff is attenuated and treated before discharged to the local drainage network is proposed;
- 220m of vegetation clearance along the eastern side of the N59 and 50m of vegetation clearance will be required on the L-5381 to facilitate the works and to provide for visibility; and
- All ancillary works required to deliver the proposed scheme.

The road traffic will remain live with a traffic management plan implemented by the Contractor. The Contractor will be responsible for ensuring temporary traffic measures and signs for roadworks are in accordance with Guidance. The site compound will be located off the local road L-5381. Galway County Council will have identified an area suitable for a site compound to be used by the Contractor.

The layout of the Proposed Development is provided in Figure 2-2.



### 2.2.1.1 Drainage

The Proposed Development will result in increased hard standing surfaces and therefore, increased surface water drainage measures are to be implemented. The proposed drainage system will be a kerb and gully system connected to a proposed underground storage tank to control the quantity and quality of runoff into the wider environment. From attenuation, surface water will be discharged to a stream within Glenlo Abbey via an outfall point. A petrol interceptor will be installed upstream from the outfall and discharge rates will be limited to estimated greenfield flood runoff rates. These measures meet the requirements of Sustainable Urban Drainage Systems (SUDS).

Attenuation storage volume will be designed to cater for a minimum storm return period of 1 in 100 years. A climate change allowance of 20% will be added to all attenuation volumes. The proposed drainage system and underground storage tank are shown in Figure 2-3 below.

Proposed drainage is fully detailed in the Design Report prepared by Galway County Council and is included in this application.

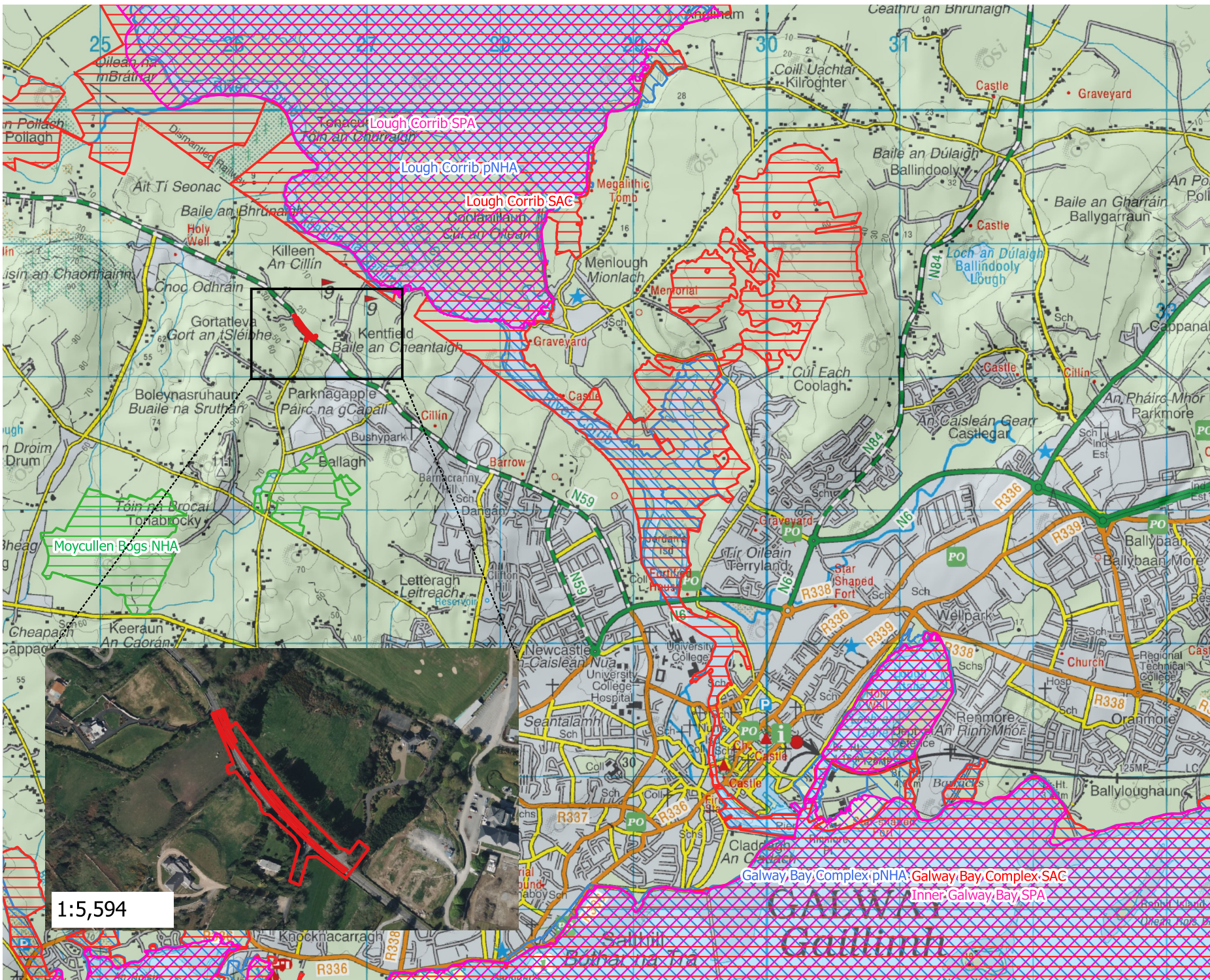
The principal objectives for the proposed road drainage system include:

- To ensure the speedy removal of surface water from the road pavement to provide safe driving conditions,
- To mimic, in as far as is practical, the existing road drainage regime, particularly in relation to runoff rates and watercourse outfalls,
- To ensure that the impact of the drainage outfalls on the receiving waters is negligible,
- To minimise the impact of runoff on the receiving environment, and
- To provide effective sub-surface drainage to maximise the longevity of the road pavement and associated earthworks.






The preliminary drainage proposals have been developed in accordance with the TII Design Manual for Roads and Bridges and in particular in accordance with the TII Drainage systems for National Roads.

As part of the Sustainable Urban Drainage Systems (SUDS) requirements attenuation and flow control will be provided upstream of the outfall to limit the discharge to estimated greenfield flood runoff rates.

There is no historical flooding, as per the Operation of Public Works (OPW) mapping, within the Proposed Development site and therefore, flooding risk is minimal.



### Map Legend

-  Site Location
-  Special Protection Area (SPA)
-  Special Area of Conservation (SAC)
-  Natural Heritage Area (NHA)
-  Proposed Natural Heritage Area (pNHA)



Drawing Title

### Site Location

Project Title

### N59 Kentfield

Drawn By

JS

Checked By

KOD

Project No.

220950

Drawing No.

Figure 2.1

Scale

1:37,101

Date

19.06.2023



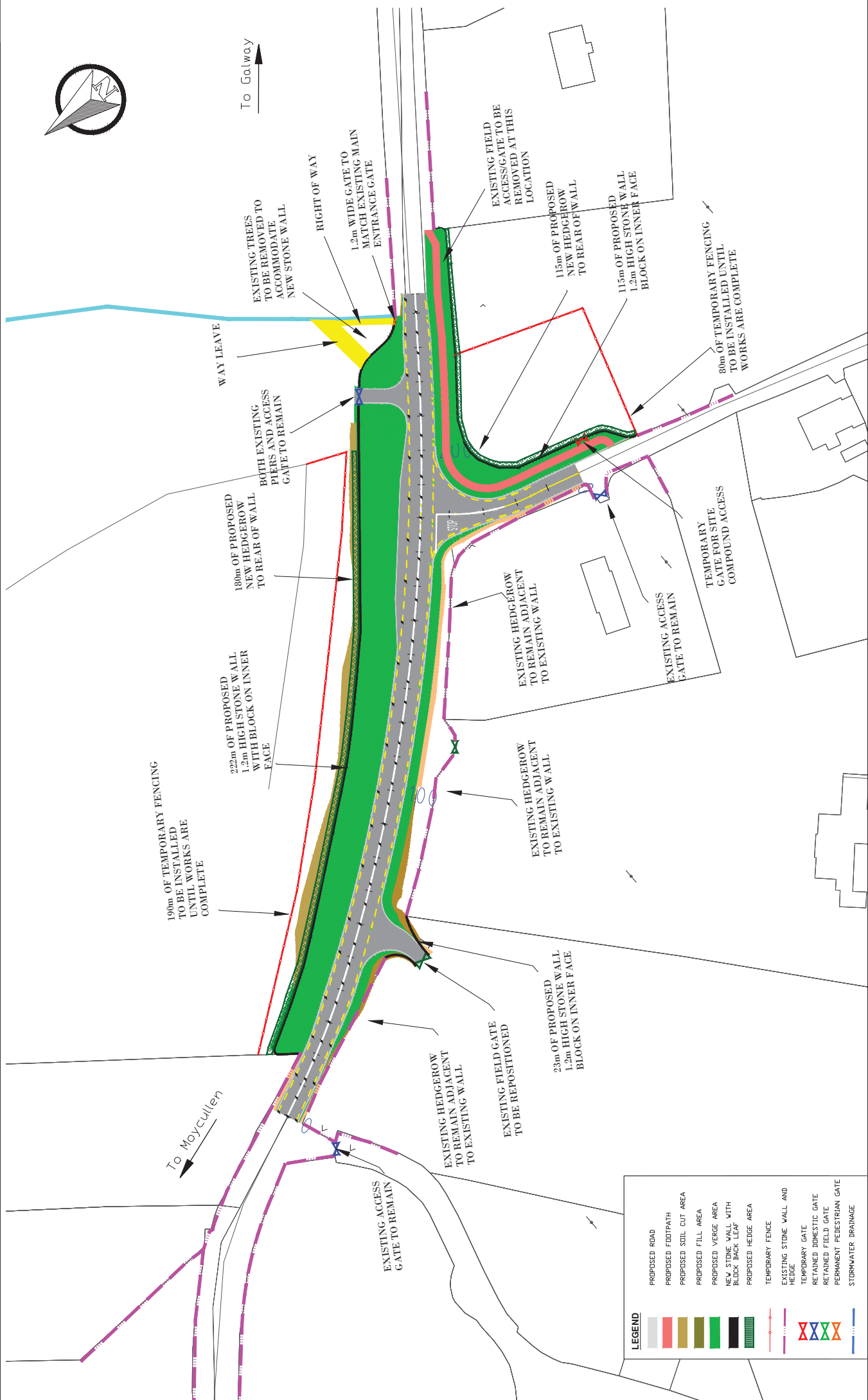
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To Galway

To Moycullen



REVISION	MADE BY	DATE
1	ID	21.01.2024
2	ID	22.02.2024
3	ID	27.02.2024

PROPOSED ROAD	PROPOSED FOOTPATH	PROPOSED SOIL CUT AREA	PROPOSED FILL AREA	PROPOSED VERGE AREA	NEW STONE WALL WITH BLOCK BACK LEAF	PROPOSED HEDGE AREA	TEMPORARY FENCE	EXISTING STONE WALL AND HEDGE	TEMPORARY GATE	RETAINED DOMESTIC GATE	RETAINED FIELD GATE	PERMANENT PEDESTRIAN GATE	STORMWATER DRAINAGE
[Grey line]	[Red line]	[Yellow line]	[Green line]	[Dark Green line]	[Black line]	[Green line]	[Red dashed line]	[Purple line]	[Blue X]	[Green X]	[Red X]	[Blue line]	[Blue line]

PROJECT	N59 Keatfield	
COMPONENT	Design Drawings	
TITLE	Accommodation Works	
DESIGNED BY	S.B.	FILE NO.
DRAWN BY	ID	SCALE 1:500 @ A1
CHECKED BY	S.B.	DATE
DATE	2024/02/27	
PROJECT NO.	DP-01-GG/19/18753	

REVISION	MADE BY	DATE
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3	ID	27.02.2024

National Roads Design Office,  
Galway County Council,  
Corporate House,  
Balthasar Business Park,  
Galway.

**Comhairle Chontae na Gaillimhe**  
Galway County Council
















**TII**  
Transport Infrastructure Institute


**Project Ireland 2040**  
Building Ireland's Future



**LEGEND**

-  PROPOSED PETROL INTERCEPTOR
-  PROPOSED SURFACE WATER GULLY
-  PROPOSED SURFACE WATER MANHOLE
-  PROPOSED STEEL PALISADE SECURITY FENCING PALISADE TO CC-SCD-00317
-  PROPOSED SURFACE WATER SEWER
-  EXISTING STREAM OUTLINE
-  PROPOSED DRAINAGE KERB OUTLINED IN BLACK
-  PROPOSED ATTENUATION TANK STORMTECH MC-3500
-  PROPOSED ROAD
-  PROPOSED FOOTPATH
-  PROPOSED SOIL CUT AREA
-  PROPOSED FILL AREA
-  PROPOSED VERGE AREA




**Comhairle Chontae na Gaillimhe**  
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REVISION:	MADE BY:	DATE:
1	ET	25/05/23
2	LD	31/01/2024

<b>PROJECT:</b>	N59 Kentfield		
<b>COMPONENT:</b>	Design Drawings		
<b>TITLE:</b>	Proposed Drainage Layout		
<b>DESIGNED BY:</b>	S.B.	<b>FILE NO.:</b>	
<b>DRAWN BY:</b>	J.D.	<b>SCALES:</b>	1:500 @ A1
<b>CHECKED BY:</b>	S.B.	<b>DATE:</b>	January 2024
		<b>DRAWING NO.:</b>	DR-01-GC/19/18753

### 3. CHARACTERISTICS OF THE RECEIVING ENVIRONMENT

#### 3.1 Ecological Survey Methodologies

A comprehensive survey of the biodiversity of the site was undertaken by Patrick O’Boyle and Keith Costello of MKO on the 16<sup>th</sup> of May 2023. The following sections describe the ecological surveys that have been undertaken and provide details of the methodologies, survey dates, and guidance followed.

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM, 2018).

##### 3.1.1 Multidisciplinary Ecological Walkover Survey

A multidisciplinary ecological walkover survey was conducted on the 16<sup>th</sup> of May 2023 in line with NRA (2009) guidelines (‘Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes’). The walkover survey was designed to detect the presence, or likely presence, of a range of protected species. The survey included a search of all potentially suitable habitat for the presence or potential presence of protected species that are likely to occur in the vicinity of the site of the Proposed Development. The survey was undertaken during the optimal time of year for habitat surveys, i.e., April to September (Smith *et al.*, 2011) and all habitats within the site were readily identifiable at the time of the site visit.

Habitats were identified in accordance with the Heritage Council’s ‘A Guide to Habitats in Ireland’ (Fossitt, 2000). Plant nomenclature for vascular plants follows ‘New Flora of the British Isles’ (Stace, 2019), while mosses and liverworts nomenclature follows ‘Mosses and Liverworts of Britain and Ireland - A Field Guide’ (British Bryological Society, 2010).

During the multidisciplinary survey, a search for invasive alien species (IAS), with a particular focus on those listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011), was conducted.

#### 3.2 Results of Baseline Ecological Surveys

The site of the Proposed Development consists predominantly of a 245-m stretch of the N59 National Secondary Road, incorporating elements of the Gortacleva Road and Gortacleva Junction, all categorised as **Buildings and artificial surfaces (BL3)** (Plate 3-1).

The existing road was predominantly delineated by various sections of verge and boundary habitats including **Dry meadows and grassy verges (GS2)** (Plate 3-2) and ivy (*Hedera helix*) covered **Stone walls and other stonework (BL1)**. The stone wall was often recorded in combination with **Hedgerow (WL1)** and or **Treeline (WL2)** of ash (*Fraxinus excelsior*) (Plate 3-3). Minor damage to small stretches of these grassy verges was evident, resultant from vehicle trampling. Reduced grassy verges were present along the Gortacleva Road. Species recorded in these verges included Perennial Ryegrass (*Lolium perenne*), Creeping Buttercup (*Ranunculus repens*), Common Dandelion (*Taraxacum officinale*), Great Hairy Willow-herb (*Epilobium hirsutum*), Bush Vetch (*Vicia sepium*), Silverweed (*Argentina anserina*), Meadow Dock (*Rumex × pratensis*), Plantain (*Plantago monosperma*), Yorkshire Fog (*Holcus lanatus*), Herb-Robert (*Geranium purpureum*), Wildflower Cleavers (*Galium aparine*), Daisy (*Bellis perennis*), Meadow Foxtail (*Alopecurus pratensis*), Maidenhair Spleenwort (*Asplenium trichomanes*), and Adria Bellflower (*Capanula portenschlagiana*). Encroachment on these grassy verges from species associated

with the stone walls, including Bramble (*Rubus fruticosus* agg.), Bracken (*Pteridium* spp.), and Persian Ivy (*Hedera colchica*) was evident.

The remainder of the site of the Proposed Development is comprised of a stretch of land set back from the eastern boundary of the N59, dominated by dense stands of Bramble encroaching on grassland, and categorised for the purpose of this assessment as **Scrub (WS1)** (Plate 3-4). In addition to the bramble, species recorded here included Bracken (*Pteridium* spp.), Wildflower Cleavers (*Galium aparine*), Germander Speedwell (*Veronica chamaedrys*), Pignut (*Conopodium majus*), regenerating Pedunculate Oak (*Quercus robur*), Plantain (*Plantago monosperma*), Yorkshire Fog (*Holcus lanatus*), Herb-Robert (*Geranium purpureum*), and Bush Vetch (*Vicia sepium*).



Plate 3-1 Paved surfaces at the junction of the N59 and L5381 roads, categorised as Buildings and artificial surfaces (BL3).



Plate 3-2: Roadside verge present along the western boundary of the N59 road, categorised as Dry meadows and grassy verges (GS2).



Plate 3-3 Typical section of road verge showing ivy covered stone wall, treeline and hedgerow.



Plate 3-4 large section of Scrub recorded set back from the existing N59.

A small unmapped watercourse, referred to for the purposes of this report as the Glenlo Stream, drains northeast across the N59, along the southern boundary of the site of the Proposed Development. This watercourse was classified as an **Upland/eroding stream (FW1)**.

No Annex I listed habitats, supporting habitat for Annex II species, Red Listed vascular plants or Flora Protection Order species were identified on-site during the site visit.

No invasive species, including those listed on the Third schedule of the European Communities Regulations 2011 (S.I. 477 of 2011), were identified on-site during the site visit.

## 4. STAGE 1 SCREENING – IDENTIFICATION OF RELEVANT EUROPEAN SITES

### 4.1 Identification of European Sites Within the Likely Zone of Impact

The following methodology was used to establish any European Sites upon which there is a potential for a likely significant effect to occur either individually or in combination with other plans and projects as a result of the Proposed Development:

- Initially, the most up-to-date GIS spatial datasets for European Sites and water catchments were downloaded from the NPWS website ([www.npws.ie](http://www.npws.ie)) and the EPA website ([www.epa.ie](http://www.epa.ie)) on the 17/05/2024. The datasets were utilised to identify European Sites which could feasibly be affected by the Proposed Development.
- All European Sites that could potentially be affected were identified using a source-pathway-receptor model. To provide context for the assessment, European Sites surrounding the Proposed Development are shown in Figure 4-1. Information on these European Sites with regard to their conservation objectives is provided in Table 4-1. European Sites that were further away from the Proposed Development were also considered and no complete source-pathway-receptor chain for significant effect was identified for any other European Site.
- The catchment mapping was used to establish or discount potential hydrological connectivity between the Proposed Development and any European Sites. The hydrological catchments are also shown in Figure 4-1.
- In relation to Special Protection Areas, in the absence of any specific European or Irish guidance in relation to such European Sites, the Scottish Natural Heritage (SNH) Guidance, ‘Assessing Connectivity with Special Protection Areas (SPA)’ (2016) was consulted. This document provides guidance in relation to the identification of connectivity between Proposed Developments and Special Protection Areas. The guidance takes into consideration the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.
- Table 4-1 provides details of all relevant European Sites, as identified in the preceding steps, and assesses the potential for likely significant effects on each. The assessment considers any likely direct or indirect impacts of the Proposed Development, both alone and in combination with other plans and projects, on European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning were considered in this screening assessment.
- The site synopses and conservation objectives of these European Sites, as per the NPWS website ([www.npws.ie](http://www.npws.ie)), were consulted and reviewed at the time of preparing this report;
- Where potential pathways for significant effect are identified, the European Site is included within the Likely Zone of Impact and further assessment is required.

### 4.2 Hydrological Desk Study

The EPA web-mapper (<http://gis.epa.ie/EPAMaps/>) was consulted on the 17/05/2024 regarding the water quality and the status of watercourses in the vicinity of the site of the Proposed Development with connectivity to European Sites. The Biotic Index of Water Quality (BIWQ) was developed in Ireland

by the Environmental Protection Agency (EPA). Q-Values are assigned using a combination of habitat characteristics and structure of the macroinvertebrate community within the waterbody. Individual macroinvertebrate families are classified according to their sensitivity to organic pollution and the Q-Value is assessed primarily on their relative abundance within a sample.

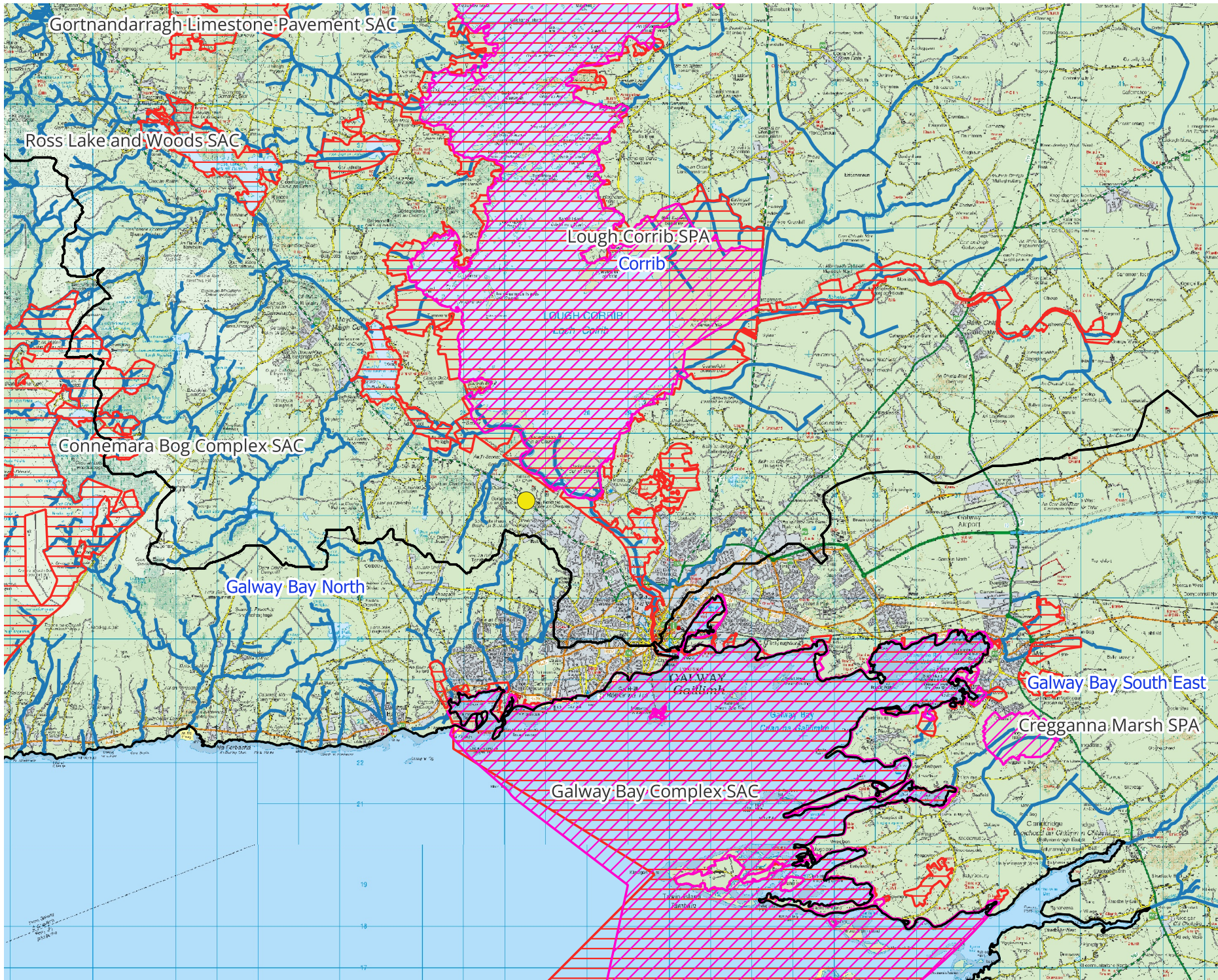
The site of the Proposed Development is located entirely within the Corrib WFD Catchment, Hydrometric Area 30, and the Corrib\_SC\_010 WFD Sub catchment.

An unmapped watercourse, the Knocknacarragh Stream, drains in a north-easterly direction across the existing N59 road prior to discharging to the River Corrib via a swallow hole, constituting hydrological connectivity with Lough Corrib SAC and Lough Corrib SPA. The River Corrib also has further downstream connectivity to Galway Bay Complex SAC and Inner Galway Bay SPA. As per the EPA web-mapper, the River Waterbody WFD Status 2016-2021 for the River Corrib (Corrib\_020) is 'good'. The River Corrib has been assigned with a good Q value status of 4 from the latest River Q Values taken from the Salmon-Weir Bridge, Galway.

The site of the Proposed Development is located within the Lough Corrib Fen 2 groundwater catchment. This groundwater body has been identified as 'good' (as per the Water Framework Directive risk score), with a risk status assessed as 'Not at Risk'.

No information on the water quality of the unmapped watercourse, the Knocknacarragh Stream, within the Proposed Development site was available.





### Map Legend

- Site Location
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Water Catchments
- Waterways



North

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<b>European Designated Sites</b>	
<b>Project Title</b>	
<b>N59 Kentfield</b>	
<b>Drawn By</b>	<b>Checked By</b>
JS	KOD
<b>Project No.</b>	<b>Drawing No.</b>
220950	Figure 3.1
<b>Scale</b>	<b>Date</b>
1:120,220	21.06.2023



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Table 4-1: European Sites Within the Likely Zone of Impact.

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
<p>Lough Corrib SAC (000297)</p> <p><b>Distance:</b> approx. 0.6 km</p>	<ul style="list-style-type: none"> <li>➤ [1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)</li> <li>➤ [1092] White-clawed Crayfish (<i>Austropotamobius pallipes</i>)</li> <li>➤ [1095] Sea Lamprey (<i>Petromyzon marinus</i>)</li> <li>➤ [1096] Brook Lamprey (<i>Lampetra planeri</i>)</li> <li>➤ [1106] Salmon (<i>Salmo salar</i>)</li> <li>➤ [1303] Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)</li> <li>➤ [1355] Otter (<i>Lutra lutra</i>)</li> <li>➤ [1393] Slender Green Feather-moss (<i>Hamatocaulis vernicosus</i>)</li> <li>➤ [1833] Slender Naiad (<i>Najas flexilis</i>)</li> <li>➤ [3110] Oligotrophic waters containing very few minerals of sandy plains <i>Littorelletalia uniflorae</i>)</li> <li>➤ [3130] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncea</i></li> <li>➤ [3140] Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.</li> <li>➤ [3260] Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation</li> <li>➤ [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates</li> </ul>	<p>Detailed site-specific conservation objectives for this European Site (Version 1, April 2017) were reviewed as part of this assessment and are available at www.npws.ie.</p>	<p>There will be no direct effects on Lough Corrib SAC as the site of the Proposed Development is located entirely outside of this European Site.</p> <p>No QI habitat or supporting habitat for any QI species for which this SAC has been designated was recorded within or adjacent to the Proposed Development site and therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site.</p> <p>Taking a precautionary approach, potential surface-water and groundwater connectivity exists between the site of the Proposed Development and Lough Corrib SAC. An unmapped watercourse, the Knocknacarragh Stream, draining northeast across the existing N59 road, prior to discharging to the River Corrib via a swallow hole, is hydrologically connected to this European Site. Furthermore, both the site of the Proposed Development and Lough Corrib SAC are underlain by the GWDTE-Lough Corrib Fen 2 (SAC000297) Groundwater Body (GWB). Therefore, potential significant effects, in the form of both surface-water runoff and the percolation of pollutants through the extremely vulnerable aquifer underlying the site of the Proposed Development, were identified during construction.</p> <p>Considering the drainage design of the proposed Development, as detailed in Section 2.2.1 of this report, which incorporates best practice Sustainable Drainage Systems (SUDs), there is no</p>

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
	<p>(<i>Festuco-Brometalia</i>) (* important orchid sites)</p> <ul style="list-style-type: none"> <li>➤ [6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</li> <li>➤ [7110] Active raised bogs</li> <li>➤ [7120] Degraded raised bogs still capable of natural regeneration</li> <li>➤ [7150] Depressions on peat substrates of the <i>Rhynchosporion</i></li> <li>➤ [7210] Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i></li> <li>➤ [7220] Petrifying springs with tufa formation (<i>Cratoneurion</i>)</li> <li>➤ [7230] Alkaline fens</li> <li>➤ [8240] Limestone pavements</li> <li>➤ [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</li> <li>➤ [91D0] Bog woodland</li> </ul>		<p>potential for significant impacts on this SAC during the operational phase of the Proposed Development.</p> <p><b>A complete source pathway receptor chain was identified during the construction phase of the Proposed Development and in the absence of mitigation, there is potential for Likely Significant Effects on this European Site. Therefore, the European Site is located within the Likely Zone of Impact and is considered further in this assessment.</b></p>
<p>Galway Bay Complex SAC (000268)</p> <p><b>Distance:</b> approx. 4.4 km</p>	<ul style="list-style-type: none"> <li>➤ [1140] Mudflats and sandflats not covered by seawater at low tide</li> <li>➤ [1150] Coastal lagoons</li> <li>➤ [1160] Large shallow inlets and bays</li> <li>➤ [1170] Reefs</li> <li>➤ [1220] Perennial vegetation of stony banks</li> <li>➤ [1310] <i>Salicornia</i> and other annuals colonising mud and sand</li> </ul>	<p>Detailed site-specific conservation objectives for this European Site (Version 1, April 2013) were reviewed as part of this assessment and are available at www.npws.ie.</p>	<p>There will be no direct effects on Galway Bay Complex SAC as the site of the Proposed Development is located entirely outside of this European Site.</p> <p>No QI habitat or supporting habitat for any QI species for which this SAC has been designated was recorded within or adjacent to the Proposed Development site and therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site.</p>

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
	<ul style="list-style-type: none"> <li>➤ [1330] Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>)</li> <li>➤ [1355] Otter (<i>Lutra lutra</i>)</li> <li>➤ [1365] Harbour seal (<i>Phoca vitulina</i>)</li> <li>➤ [1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</li> <li>➤ [3180] Turloughs</li> <li>➤ [5130] <i>Juniperus communis</i> formations on heaths or calcareous grasslands</li> <li>➤ [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (*important orchid sites)</li> <li>➤ [7210] Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i></li> <li>➤ [7230] Alkaline fens</li> </ul>		<p>Taking a precautionary approach, potential surface-water connectivity exists between the site of the Proposed Development and Galway Bay Complex SAC. An unmapped watercourse, the Knocknacarragh Stream, drains northeast across the existing N59 road and discharges to the River Corrib, which is hydrologically connected to this European Site, approx. 5.3 km downstream.</p> <p>Therefore, potential significant effects, in the form of both surface-water runoff and the percolation of pollutants through the extremely vulnerable aquifer underlying the site of the Proposed Development, were identified.</p> <p>Considering the drainage design of the proposed Development, as detailed in Section 2.2.1 of this report, which incorporates best practice Sustainable Drainage Systems (SUDs), there is no potential for significant impacts on this SAC during the operational phase of the Proposed Development.</p> <p><b>A complete source pathway receptor chain was identified during the construction phase of the Proposed Development and in the absence of mitigation, there is potential for Likely Significant Effects on this European Site. Therefore, the European Site is located within the Likely Zone of Impact and is considered further in this assessment.</b></p>
Connemara Bog Complex SAC (002034)	<ul style="list-style-type: none"> <li>➤ [1065] Marsh Fritillary (<i>Euphydryas aurinia</i>)</li> <li>➤ [1106] Salmon (<i>Salmo salar</i>)</li> </ul>	Detailed site-specific conservation objectives for this European Site (Version 1, October 2015) were	There will be no direct effects on Connemara Bog Complex SAC as the site of the Proposed Development is located entirely outside of this European Site.

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
<p><b>Distance:</b> approx. 9.3 km</p>	<ul style="list-style-type: none"> <li>➤ [1150] Coastal lagoons</li> <li>➤ [1170] Reefs</li> <li>➤ [1355] Otter (<i>Lutra lutra</i>)</li> <li>➤ [1833] Slender Naiad (<i>Najas flexilis</i>)</li> <li>➤ [3110] Oligotrophic waters containing very few minerals of sandy plains <i>Littorelletalia uniflorae</i>)</li> <li>➤ [3130] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncea</i></li> <li>➤ [3160] Natural dystrophic lakes and ponds</li> <li>➤ [3260] Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation</li> <li>➤ [4010] Northern Atlantic wet heaths with <i>Erica tetralix</i></li> <li>➤ [4030] European dry heaths</li> <li>➤ [6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</li> <li>➤ [7130] Blanket bogs (* if active bog)</li> <li>➤ [7140] Transition mires and quaking bogs</li> <li>➤ [7150] Depressions on peat substrates of the <i>Rhynchosporion</i></li> <li>➤ [7230] Alkaline fens</li> <li>➤ [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</li> </ul>	<p>reviewed as part of this assessment and are available at www.npws.ie.</p>	<p>No QI habitat or supporting habitat for any QI species for which this SAC has been designated was recorded within or adjacent to the Proposed Development site and therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site.</p> <p>No surface-water or groundwater connectivity was identified between the site of the Proposed Development and Connemara Bog Complex SAC. The SAC is located upgradient of the Proposed Development site and they are within separate hydrological sub catchments. Furthermore, the site of the Proposed Development is underlain by a different groundwater body than this European Site.</p> <p>No complete source-pathway-receptor chain for indirect effects on the QI habitats and QI species associated with this European Site was identified.</p> <p>Connemara Bog Complex SAC is <b>not</b> considered to be within the Likely Zone of Impact of the Proposed Development and no further assessment is required.</p>

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
Ross Lake and Woods SAC (001312)  <b>Distance:</b> approx. 9.6 km	<ul style="list-style-type: none"> <li>➤ [1303] Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)</li> <li>➤ [3140] Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.</li> </ul>	Detailed site-specific conservation objectives for this European Site (Version 1, October 2018) were reviewed as part of this assessment and are available at www.npws.ie.	<p>There will be no direct effects on Ross Lake and Woods SAC as the site of the Proposed Development is located entirely outside of this European Site.</p> <p>No QI habitat or supporting habitat for any QI species for which this SAC has been designated was recorded within or adjacent to the Proposed Development site and therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site.</p> <p>No pathway for significant effect on this SAC was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. There is no hydrological connectivity between the Proposed Development and the SAC, which are located in separate hydrological sub-catchments and groundwater catchments. Given the nature and scale of the Proposed Development, the distance between the development and the SAC, and the absence of connectivity, no potential for indirect effects on the SAC were identified.</p> <p>The site of the Proposed Development is located outside of the 2.5 km core foraging range for the nearest Lesser Horseshoe Bat roost for which Ross Lake and Woods SAC is designated (NPWS, 2018). Therefore, there is no potential for the Proposed Development to result in any effects on this QI species in the form of disturbance or loss or deterioration of habitat quality.</p>

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
			<p>No complete source-pathway-receptor chain for indirect effects on the QI habitats and QI species associated with this European Site was identified.</p> <p>Ross Lake and Woods SAC is <b>not</b> considered to be within the Likely Zone of Impact of the Proposed Development and no further assessment is required.</p>
<p>Gortnandarragh Limestone Pavement SAC (001271)</p> <p><b>Distance:</b> approx. 12.8 km</p>	<p>➤ [8240] Limestone pavements</p>	<p>Detailed site-specific conservation objectives for this European Site (Version 1, April 2019) were reviewed as part of this assessment and are available at www.npws.ie.</p>	<p>There will be no direct effects on Gortnandarragh Limestone Pavement SAC as the site of the Proposed Development is located entirely outside of this European Site.</p> <p>No QI habitat for which this SAC has been designated was recorded within or adjacent to the Proposed Development site and therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site.</p> <p>No pathway for significant effect on this SAC was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. The SAC is designated for a QI which is entirely terrestrial. Given the nature and scale of the Proposed Development, the distance between the development and the SAC, and the terrestrial nature of the single QI of the SAC, no potential for indirect effects on the SAC were identified.</p>

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
			<p>No complete source-pathway-receptor chain for indirect effects on the QI habitats and QI species associated with this European Site was identified.</p> <p>Gortnandarragh Limestone Pavement SAC is <b>not</b> considered to be within the Likely Zone of Impact of the Proposed Development and no further assessment is required.</p>
<b>Special Protection Area (SPA)</b>			
<p>Lough Corrib SPA (004042)</p> <p><b>Distance:</b> approx. 0.6 km</p>	<ul style="list-style-type: none"> <li>&gt; [A059] Pochard (<i>Aythya ferina</i>)</li> <li>&gt; [A061] Tufted Duck (<i>Aythya fuligula</i>)</li> <li>&gt; [A194] Arctic Tern (<i>Sterna paradisaea</i>)</li> <li>&gt; [A065] Common Scoter (<i>Melanitta nigra</i>)</li> <li>&gt; [A182] Common Gull (<i>Larus canus</i>)</li> <li>&gt; [A140] Golden Plover (<i>Pluvialis apricaria</i>)</li> <li>&gt; [A082] Hen Harrier (<i>Circus cyaneus</i>)</li> <li>&gt; [A125] Coot (<i>Fulica atra</i>)</li> <li>&gt; [A051] Gadwall (<i>Anas strepera</i>)</li> <li>&gt; [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>)</li> <li>&gt; [A056] Shoveler (<i>Anas clypeata</i>)</li> <li>&gt; [A193] Common Tern (<i>Sterna hirundo</i>)</li> <li>&gt; [A395] Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>)</li> <li>&gt; [A999] Wetlands</li> </ul>	<p>First-order site-specific conservation objectives for this European Site (Version 1, October 2022) were reviewed as part of this assessment and are available at www.npws.ie.</p>	<p>There will be no direct effects on Lough Corrib SPA as the site of the Proposed Development is located entirely outside of this European Site.</p> <p>No significant supporting habitat for any SCI of the SPA was recorded within or adjacent to the Proposed Development site and no SCI of the SPA was recorded during the site visit. Therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site as a result of habitat loss, disturbance, or displacement.</p> <p>Taking a precautionary approach, potential surface-water and groundwater connectivity exists between the site of the Proposed Development and Lough Corrib SPA. An unmapped watercourse, the Knocknacarragh Stream, draining northeast across the existing N59 road prior to discharging to the River Corrib via a swallow hole, is hydrologically connected to this European Site. Furthermore, both the site of the Proposed Development and Lough Corrib SPA are underlain by the</p>



European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
			<p>GWDTE-Lough Corrib Fen 2 (SAC000297) Groundwater Body (GWB). Therefore, potential significant effects on supporting wet land habitat for the SCIs of the SPA, in the form of both surface-water and runoff and the percolation of pollutants through the extremely vulnerable aquifer underlying the site of the Proposed Development, were identified during construction.</p> <p>Considering the drainage design of the proposed Development, as detailed in Section 2.2.1 of this report, which incorporates best practice Sustainable Drainage Systems (SUDs), there is no potential for significant impacts on this SAC during the operational phase of the Proposed Development.</p> <p><b>A complete source pathway receptor chain was identified during the construction phase of the Proposed Development and in the absence of mitigation, there is potential for Likely Significant Effects on this European Site. Therefore, the European Site is located within the Likely Zone of Impact and is considered further in this assessment.</b></p>
<p>Inner Galway Bay SPA (004031)</p> <p><b>Distance:</b> approx. 4.6 km</p>	<ul style="list-style-type: none"> <li>&gt; [A002] Black-throated Diver (<i>Gavia arctica</i>)</li> <li>&gt; [A003] Great Northern Diver (<i>Gavia immer</i>)</li> <li>&gt; [A017] Cormorant (<i>Phalacrocorax carbo</i>)</li> <li>&gt; [A028] Grey Heron (<i>Ardea cinerea</i>)</li> <li>&gt; [A046] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)</li> <li>&gt; [A050] Wigeon (<i>Anas penelope</i>)</li> <li>&gt; [A052] Teal (<i>Anas crecca</i>)</li> </ul>	<p>Detailed site-specific conservation objectives for this European Site (Version 1, May 2013) were reviewed as part of this assessment and are available at www.npws.ie.</p>	<p>There will be no direct effects on Inner Galway Bay SPA as the site of the Proposed Development is located entirely outside of this European Site.</p> <p>No significant supporting habitat for any SCI of the SPA was recorded within or adjacent to the Proposed Development site and no SCI of the SPA was recorded during the site visit. Therefore, there is no potential for direct <i>ex-situ</i> effects on this</p>

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
	<ul style="list-style-type: none"> <li>&gt; [A069] Red-breasted Merganser (<i>Mergus serrator</i>)</li> <li>&gt; [A137] Ringed Plover (<i>Charadrius hiaticula</i>)</li> <li>&gt; [A140] Golden Plover (<i>Pluvialis apricaria</i>)</li> <li>&gt; [A142] Lapwing (<i>Vanellus vanellus</i>)</li> <li>&gt; [A149] Dunlin (<i>Calidris alpina</i>)</li> <li>&gt; [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>)</li> <li>&gt; [A160] Curlew (<i>Numenius arquata</i>)</li> <li>&gt; [A162] Redshank (<i>Tringa totanus</i>)</li> <li>&gt; [A169] Turnstone (<i>Arenaria interpres</i>)</li> <li>&gt; [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>)</li> <li>&gt; [A182] Common Gull (<i>Larus canus</i>)</li> <li>&gt; [A191] Sandwich Tern (<i>Sterna sandvicensis</i>)</li> <li>&gt; [A193] Common Tern (<i>Sterna hirundo</i>)</li> <li>&gt; [A999] Wetland and Waterbirds</li> </ul>		<p>European Site as a result of habitat loss, disturbance, or displacement.</p> <p>Taking a precautionary approach, potential surface-water and groundwater connectivity exists between the site of the Proposed Development and Inner Galway Bay SPA. An unmapped watercourse, the Knocknacarragh Stream, draining northeast across the existing N59 road prior to discharging to the River Corrib via a swallow hole, is hydrologically connected to this European Site. The River Corrib then flows into Inner Galway Bay SPA approximately 5.3 km downstream. Therefore, potential significant effects on supporting wet land habitat for the SCIs of the SPA was identified via the runoff of pollutants into surface waters, arising from the construction phase of the Proposed Development.</p> <p>Considering the drainage design of the proposed Development, as detailed in Section 2.2.1 of this report, which incorporates best practice Sustainable Drainage Systems (SUDs), there is no potential for significant impacts on this SAC during the operational phase of the Proposed Development.</p> <p><b>A complete source pathway receptor chain was identified during the construction phase of the Proposed Development and in the absence of mitigation, there is potential for Likely Significant Effects on this European Site. Therefore, the European Site is located within the Likely Zone of Impact and is considered further in this assessment.</b></p>

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
<p>Cregganna Marsh SPA (004142)</p> <p><b>Distance:</b> approx. 12.4 km</p>	<p>➤ [A395] Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>)</p>	<p>First-order site-specific conservation objectives for this European Site (Version 1, October 2022) were reviewed as part of this assessment and are available at www.npws.ie.</p>	<p>There will be no direct effects on Cregganna Marsh SPA as the site of the Proposed Development is located entirely outside of this European Site.</p> <p>No significant supporting habitat for any SCI of the SPA was recorded within or adjacent to the Proposed Development site and no SCI of the SPA was recorded during the site visit. Therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site as a result of habitat loss, disturbance, or displacement.</p> <p>No pathway for significant effect on this SPA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. This SPA is located over 12 km from the Proposed Development site, which is outside the core foraging range of Greenland White-fronted Goose (5-8 km) (SNH, 2016). Given the nature and scale of the Proposed Development, the distance between the development and the SPA, and the absence of connectivity and significant supporting habitat for the SCIs of the SPA, no potential for indirect effects on the SPA were identified.</p> <p>Cregganna Marsh SPA is <b>not</b> considered to be within the Likely Zone of Impact of the Proposed Development and no further assessment is required.</p>

European Sites and Distance from Proposed Development	QIs/SCIs for Which the European Site Has Been Designated (Sourced from NPWS Online Conservation Objectives, www.npws.ie, on the 17/05/2024	Conservation Objectives	Identification of Source-Pathway-Receptor Chain for Significant Effect
<b>Special Areas of Conservation (SACs)</b>			
<p>Connemara Bog Complex SPA (004181)</p> <p><b>Distance:</b> approx. 14.2 km</p>	<ul style="list-style-type: none"> <li>&gt; [A098] Merlin (<i>Falco columbarius</i>)</li> <li>&gt; [A017] Cormorant (<i>Phalacrocorax carbo</i>)</li> <li>&gt; [A140] Golden Plover (<i>Pluvialis apricaria</i>)</li> <li>&gt; [A182] Common Gull (<i>Larus canus</i>)</li> </ul>	<p>First-order site-specific conservation objectives for this European Site (Version 1, October 2022) were reviewed as part of this assessment and are available at www.npws.ie.</p>	<p>There will be no direct effects on Connemara Bog Complex SPA as the site of the Proposed Development is located entirely outside of this European Site.</p> <p>No significant supporting habitat for any SCI of the SPA was recorded within or adjacent to the Proposed Development site and no SCI of the SPA was recorded during the site visit. Therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site as a result of habitat loss, disturbance, or displacement.</p> <p>No pathway for significant effect on this SPA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. This SPA is located over 14 km from the Proposed Development site, which is outside the core foraging range for the SCIs of the SPA (SNH, 2016). Given the nature and scale of the Proposed Development, the distance between the development and the SPA, and the absence of connectivity and significant supporting habitat for the SCIs of the SPA, no potential for indirect effects on the SPA were identified.</p> <p>Connemara Bog Complex SPA is <b>not</b> considered to be within the Likely Zone of Impact of the Proposed Development and no further assessment is required.</p>

### 4.3 **Likely Cumulative Impact of the Proposed Development on European Sites, In Combination With Other Plans and Projects**

A search and review in relation to plans and projects that may have the potential to result in cumulative and/or in-combination impacts on European Sites was conducted. This included a review of online Planning Registers (refer to Section 8.1 and 8.2) and served to identify past and future plans and projects, their activities, and their predicted environmental effects. The potential for cumulative impacts on screened-in European Sites, i.e., those for which a potential pathway for significant impact on was identified in Table 4-1, above, is fully considered in Section 8. No potential for the Proposed Development to contribute to any impacts on any other European Sites when considered in combination with any other development was identified.

### 4.4 **Stage 1 Appropriate Assessment Concluding Statement**

It cannot be excluded beyond reasonable scientific doubt, in view of best-scientific knowledge, on the basis of objective information, and in light of the conservation objectives of the relevant European Sites, that the Proposed Development, individually or in combination with other plans and projects, would be likely to have a significant effect on Lough Corrib SAC (000297), Lough Corrib SPA (004042), Galway Bay Complex SAC (000268), and Inner Galway Bay SPA (004031).

It can be concluded, on the basis of objective information, that the Proposed Development, individually or in combination with other plans or projects, will not have a significant effect on any other European Site.

As a potential pathway for significant effect on Lough Corrib SAC, Lough Corrib SPA, Galway Bay Complex SAC, and Inner Galway Bay SPA, was identified, an Appropriate Assessment is required, and a Natura Impact Statement is provided in Section 5 below.

5.

## STAGE 2 NATURA IMPACT STATEMENT (NIS)

This Natura Impact Statement (NIS) provides an analysis of the potential adverse effects on the integrity of the European Sites for which a potential pathway for significant effect was identified at the Appropriate Assessment Screening stage. Potential adverse effects are assessed in view of best-scientific knowledge, based on objective information in relation to the Proposed Development, including the proposed avoidance, reduction, and preventive measures that are described in Section 6.3, below. The following sections provide a review of the potential impact pathways for the ‘screened-in’ European Sites, identified in the Appropriate Assessment Screening assessment in Section 4, above.

The potential for likely significant effects on the following European Sites in the absence of any mitigation, individually or cumulatively with other plans or projects, was identified in the preceding section:

- Lough Corrib SAC (000297)
- Lough Corrib SPA (004042)
- Galway Bay Complex SAC (000268)
- Inner Galway Bay SPA (004031)

The following sections consider each European Site individually to:

1. Determine which individual qualifying features have the potential to be adversely affected by the Proposed Development.
2. Provide information with regard to the Conservation Objectives and site-specific pressures and threats for those qualifying features that have the potential to be adversely affected.
3. Provide the results of any additional survey work that was necessary to inform an impact assessment.

5.1

### Identification of Relevant Qualifying Features of ‘Screened-In’ European Sites

5.1.1

#### Lough Corrib SAC (000297)

The potential for impacts on this SAC were identified in Table 4-1 in Section 4 above. The identified pathways for effect include the following:

- There is potential for indirect impacts via deterioration of water quality arising from the runoff or percolation of pollutants to surface or ground waters as a result of the Proposed Development.

The Conservation Objectives document and Natura 2000 Data Form for this designated site were reviewed during this assessment.

Table 5-1 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

### 5.1.1.1 Identification of Individual Qualifying Interests with the Potential to be Affected.

Table 5-1 Assessment of Qualifying features potentially affected in Lough Corrib SAC

Qualifying feature	Conservation Objective  (NPWS, Version 1, April 2017),	Rationale	Potential for Adverse Effects Y/N
[3110] Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )	To restore the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> ) in Lough Corrib SAC.	Although the Proposed Development site and this SAC are within the same hydrological catchment, there is no direct surface water connectivity to areas potentially supporting this QI i.e., lake areas within the SAC. As per the Site- Specific Conservation Objectives (SSCOs) the known extent of this QI habitat within the SAC is located upgradient from the Proposed Development site and within separate ground water catchments. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[3130] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i>	To restore the favourable conservation condition of Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoëto-Nanojuncetea</i> in Lough Corrib SAC.	Although the Proposed Development site and this SAC are within the same hydrological catchment, there is no direct surface water connectivity to areas potentially supporting this QI i.e., lake areas within the SAC. As per the Site- Specific Conservation Objectives (SSCOs) the known extent of this QI habitat within the SAC is located upgradient from the Proposed Development site and within separate ground water catchments. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[3140] Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	To restore the favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. in Lough Corrib SAC.	Although the Proposed Development site and this SAC are within the same hydrological catchment, there is no direct surface water connectivity to areas potentially supporting this QI i.e., lake areas within the SAC. As per the Site- Specific Conservation Objectives (SSCOs) the known extent of this QI habitat within the SAC is located upgradient from the Proposed Development site and within separate ground water catchments. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[3260] Water courses of plain to montane levels with the <i>Ranunculion</i>	To maintain the favourable conservation condition of Water courses	As per the Site- Specific Conservation Objectives (SSCOs) for the SAC, the full extent of this QI habitat is unknown within the SAC. Hydrological connectivity to the SAC has been identified via an unmapped watercourse, the Knocknacarragh Stream, recorded	Yes

Qualifying feature	Conservation Objective  (NPWS, Version 1, April 2017),	Rationale	Potential for Adverse Effects Y/N
<i>fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation in Lough Corrib SAC.	within the Proposed Development site boundary. Taking a precautionary approach, there is potential for deterioration of water quality in the River Corrib via the runoff of pollutants into surface water systems arising from the construction phase of the Proposed Development. Therefore, potential for indirect effects on this QI habitat have been identified and it is assessed further in this NIS.	
[6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco-Brometalia</i> ) (* important orchid sites)	To maintain the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco-Brometalia</i> ) (* important orchid sites) in Lough Corrib SAC.	The site of the Proposed Development is located approximately 06 km from the SAC and this QI was not recorded within or adjacent to the development site. Given the separation distance between the SAC and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinia caeruleae</i> )	To maintain the favourable conservation condition of <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinia caeruleae</i> ) in Lough Corrib SAC.	The site of the Proposed Development is located approximately 0.6 km from the SAC and this QI was not recorded within or adjacent to the development site. Given the separation distance between the SAC and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[7110] Active raised bogs*	To restore the favourable conservation condition of Active raised bogs* in Lough Corrib SAC.	The site of the Proposed Development is located approximately 0.6 km from the SAC and this QI was not recorded within or adjacent to the development site. Given the separation distance between the SAC and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[7120] Degraded raised bogs still	The long-term aim for	The site of the Proposed Development is located approximately 0.6 km from the SAC and this QI was not	No



Qualifying feature	Conservation Objective  (NPWS, Version 1, April 2017),	Rationale	Potential for Adverse Effects Y/N
capable of natural regeneration	Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Lough Corrib SAC.	recorded within or adjacent to the development site. Given the separation distance between the SAC and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	
[7150] Depressions on peat substrates of the Rhynchosporion	Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Lough Corrib SAC.	The site of the Proposed Development is located approximately 0.6 km from the SAC and this QI was not recorded within or adjacent to the development site. Given the separation distance between the SAC and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[7210] Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	To maintain the favourable conservation condition of Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> in Lough Corrib SAC.	As per the SSCOs for the SAC, the full extent of this QI habitat is unknown within the SAC. The Proposed Development site and the SAC are partially located within the same groundwater catchment. Taking an extremely precautionary approach, there is potential for deterioration of water quality via the percolation of pollutants into ground water systems arising from the construction phase of the Proposed Development. Therefore, potential for indirect effects on this QI habitat have been identified and it is assessed further in this NIS.	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, April 2017),	Rationale	Potential for Adverse Effects Y/N
[7220] Petrifying springs with tufa formation ( <i>Cratoneurion</i> )*	To maintain the favourable conservation condition of Petrifying springs with tufa formation ( <i>Cratoneurion</i> )* in Lough Corrib SAC.	As per the SSCOs for the SAC, the full extent of this QI habitat is unknown within the SAC. The Proposed Development site and the SAC are partially located within the same groundwater catchment. Taking an extremely precautionary approach, there is potential for deterioration of water quality via the percolation of pollutants into ground water systems arising from the construction phase of the Proposed Development. Therefore, potential for indirect effects on this QI habitat have been identified and it is assessed further in this NIS.	Yes
[7230] Alkaline fens	To maintain the favourable conservation condition of Alkaline fens in Lough Corrib SAC.	As per the SSCOs for the SAC, the full extent of this QI habitat is unknown within the SAC. The Proposed Development site and the SAC are partially located within the same groundwater catchment. Taking an extremely precautionary approach, there is potential for deterioration of water quality via the percolation of pollutants into ground water systems arising from the construction phase of the Proposed Development. Therefore, potential for indirect effects on this QI habitat have been identified and it is assessed further in this NIS.	Yes
[8240] Limestone pavements*	To maintain the favourable conservation condition of Limestone pavements* in Lough Corrib SAC.	The site of the Proposed Development is located approximately 0.6 km from the SAC and this QI was not recorded within or adjacent to the development site. Given the separation distance between the SAC and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	To maintain the favourable conservation condition of Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles in Lough Corrib SAC.	The site of the Proposed Development is located approximately 0.6 km from the SAC and this QI was not recorded within or adjacent to the development site. Given the separation distance between the SAC and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[91D0] Bog woodland	To maintain the favourable conservation condition of Bog woodland* in Lough Corrib SAC.	The site of the Proposed Development is located approximately 0.6 km from the SAC and this QI was not recorded within or adjacent to the development site. Given the separation distance between the SAC and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source- pathway- receptor chain for any effect on this	No

Qualifying feature	Conservation Objective  (NPWS, Version 1, April 2017),	Rationale	Potential for Adverse Effects Y/N
		habitat as a result of the Proposed Development was identified. No further assessment is required.	
[1029] Freshwater Pearl Mussel ( <i>Margaritifera margaritifera</i> )	To restore the favourable conservation condition of Freshwater Pearl Mussel in Lough Corrib SAC.	As per the SSCOs for the SAC, there is no direct hydrological connectivity between the Proposed Development site and this aquatic dependant QI species of the SAC. The SAC is designated for populations of freshwater pearl mussel within the Owenriff catchment, which is located approximately 32 km upgradient from the Proposed Development site. The Proposed Development site is located in separate hydrological sub-catchment and groundwater catchment to the known extent of this QI. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[1092] White-clawed Crayfish ( <i>Austropotamobius pallipes</i> )	To maintain the favourable conservation condition of White-clawed Crayfish in Lough Corrib SAC.	White-clawed crayfish is found in Lough Corrib itself, as well as the four main tributaries of the River Clare. There are also records from the tributaries of the Abbart, Grange, Dalgan, and Sinking Rivers. As per the SSCOs for the SAC, the exact distribution of this species in the SAC is uncertain. A potential pathway for effect via deterioration of water quality within this SAC has been identified above. Therefore, taking an extremely precautionary approach, a complete source-pathway-receptor chain for adverse effects on this species was identified. This is due to the possibility of the species occurring in a portion of Lough Corrib SAC that lies in the same groundwater catchment as the Proposed Development site. Therefore, it is considered further in this NIS.	Yes
[1095] Sea Lamprey ( <i>Petromyzon marinus</i> )	To restore the favourable conservation condition of Sea Lamprey in Lough Corrib SAC.	There is potential for this species to occur within the Corrib River, which is located approximately 0.6 km downgradient from the Proposed Development site. The Corrib River is partially located within the same ground water catchment as the development site. Therefore, following the precautionary principle, a potential pathway for deterioration of water quality in the River Corrib exists via the runoff or percolation of pollutants into surface or ground water systems arising from the construction phase of the Proposed Development. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI species was identified and it is assessed further in this NIS.	Yes
[1096] Brook Lamprey ( <i>Lampetra planeri</i> )	To maintain the favourable conservation condition of Brook Lamprey in Lough Corrib SAC.	There is potential for this species to occur within the Corrib River, which is located approximately 0.6 km downgradient from the Proposed Development site. The Corrib River is partially located within the same ground water catchment as the development site. Therefore, following the precautionary principle, a potential pathway for deterioration of water quality in the River Corrib	Yes

Qualifying feature	Conservation Objective  (NPWS, Version 1, April 2017),	Rationale	Potential for Adverse Effects Y/N
		exists via the runoff or percolation of pollutants into surface or ground water systems arising from the construction phase of the Proposed Development. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI species was identified and it is assessed further in this NIS.	
[1106] Salmon ( <i>Salmo salar</i> )	To maintain the favourable conservation condition of Atlantic Salmon in Lough Corrib SAC.	There is potential for this species to occur within the Corrib River, which is located approximately 0.6 km downgradient from the Proposed Development site. The Corrib River is partially located within the same ground water catchment as the development site. Therefore, following the precautionary principle, a potential pathway for deterioration of water quality in the River Corrib exists via the runoff or percolation of pollutants into surface or ground water systems arising from the construction phase of the Proposed Development. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI species was identified and it is assessed further in this NIS	Yes
[1303] Lesser Horseshoe Bat ( <i>Rhinolophus hipposideros</i> )	To restore the favourable conservation condition of Lesser Horseshoe Bat in Lough Corrib SAC.	Lough Corrib SAC has been selected for lesser horseshoe bats because of the presence of one important summer roost, located on the northern shores of Lough Corrib located over 30 km from the Proposed Development site. The Proposed Development site is outside the identified core foraging range (2.5 km) of the lesser horseshoe bat population for which the SAC is designated. No complete source- pathway- receptor chain for any effect on this QI species as a result of the Proposed Development was identified. No further assessment is required.	No
[1355] Otter ( <i>Lutra lutra</i> )	To maintain the favourable conservation condition of Otter in Lough Corrib SAC.	<p>There is potential for this species to occur within the Corrib River, which is located approximately 0.6 km downgradient from the Proposed Development site. The Corrib River is partially located within the same ground water catchment as the development site. Therefore, following the precautionary principle, a potential pathway for deterioration of water quality in the River Corrib exists via the runoff or percolation of pollutants into surface or ground water systems arising from the construction phase of the Proposed Development. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI species was identified and it is assessed further in this NIS.</p> <p>No suitable habitat for otter was identified within or adjacent to the Proposed Development site. The closest mapped watercourses, the Corrib River, is located approximately 0.6 km from the development and the unmapped watercourse previously mentioned is culverted under the road. Therefore, there is no potential pathway for disturbance to otter, as a result of the Proposed Development.</p>	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, April 2017),	Rationale	Potential for Adverse Effects Y/N
[1393] Slender Green Feather-moss ( <i>Drepanocladus vernicosus</i> )	To maintain the favourable conservation condition of Slender Green Feather-moss (Shining Sicklemoss) in Lough Corrib SAC.	The Proposed Development site is located approximately 0.6 km from the SAC. The known extent of this QI within the SAC occurs northwest of Gortachalla Lough, approximately 10 km north of the Proposed Development site. Given the separation distance between the known location of the QI and the Proposed Development site and the terrestrial nature of the QI, there is no identifiable habitat, surface or ground water connection with this QI habitat. No complete source-pathway-receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[1833] Slender Naiad ( <i>Najas flexilis</i> )	To restore the favourable conservation condition of Slender Naiad in Lough Corrib SAC.	The Proposed Development site is located approximately 0.6 km from the SAC. The known suitable habitat for this QI is located over 40 km upgradient from the Proposed Development site, while potential suitable habitat is located over 20 km upgradient. No complete source-pathway-receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No

### 5.1.1.2 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures, and activities with potential to impact on the European Site were reviewed and considered in relation to the Proposed Development. These are provided in Table 5-2.

Table 5-2 Site-specific threats, pressures, and activities on Lough Corrib SAC

Negative Impacts		
Rank	Threats and Pressures	Inside/Outside/Both
H	A02.01 Agricultural intensification	b
H	C01.03.02 Mechanical removal of peat	i
H	G05 Other human intrusions and disturbances	i
H	H01.08 Diffuse pollution to surface waters due to household sewage and waste	o
H	I01 Invasive non-native species	i
L	C01.01 Sand and gravel extraction	o
L	E03.01 Disposal of household/ recreational facility waste	i
M	A04.03 Abandonment of pastoral systems, lack of grazing	i
M	A08 Fertilisation	b
M	A10.01 Removal of hedges and copses or scrub	i
M	B01 Forest planting on open ground	b
M	D01 Roads, paths and railroads	i
M	D03.01.02 Piers/ tourist harbours or recreational piers	i
M	E01.01 Continuous urbanisation	o
M	E01.03 Dispersed habitation	i
M	J02.01.03 Infilling of ditches, dykes, ponds, pools, marshes or pits	i
M	J02.15 Other human induced changes in hydraulic conditions	b

Rank: H = high, M = medium, L = low i = inside, o = outside, b = both

### 5.1.1.3 Annex I Habitats of Lough Corrib SAC

Annex I habitats in Lough Corrib SAC (000297) whereby a complete source-pathway-receptor chain for effect was identified in Table 5-1 above are discussed further in the following sections.

#### Water courses plain to montane levels with *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation [3260]

According to the detailed SSCOs (NPWS, 2017), site-specific objectives for this habitat concentrate upon high conservation value sub-types. According to the Natura 2000 Data Form (NPWS, 2020) the extent of this habitat within Lough Corrib SAC is estimated as 252.48ha, using OSI data. Little is known about the characteristics or distribution or sub-types in Lough Corrib SAC. Any high-conservation value sub-types will be associated with natural, fast, and highly variable flows.

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

According to the SSCOs (NPWS, 2017), the full extent of this habitat within the SAC is currently unknown. According to the Natura 2000 Data Form (NPWS, 2020) the extent of this habitat within Lough Corrib SAC is estimated as 252.48ha, using OSI data. While the full extent of Annex I fen habitats (both this habitat and Alkaline fens [7230]) within the SAC is currently unknown, their area is extensive and they often occur in association with and transitional to other habitats including *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410], Active raised bogs [7110], Petrifying springs with tufa formation (*Cratoneurion*) [7220] and Limestone pavements [8240]. Maintenance of groundwater, surface water flows and water table levels within natural ranges is essential for this wetland habitat.

#### Petrifying springs with tufa formation (*Cratoneurion*) [7220]

According to the SSCOs (NPWS, 2017), the full extent of this habitat within the SAC is currently unknown. However, it is often associated with other habitats including Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (7210), Alkaline fens (7230) and Limestone pavements (8240). According to the Natura 2000 Data Form (NPWS, 2020) the extent of this habitat within Lough Corrib SAC is estimated as 252.48ha, using OSI data. Maintenance of groundwater, surface water flows and water table levels within natural ranges is essential for this wetland habitat.

#### Alkaline fens [7230]

According to the SSCOs (NPWS, 2017), the full extent of this habitat within the SAC is currently unknown. According to the Natura 2000 Data Form (NPWS, 2020) the extent of this habitat within Lough Corrib SAC is estimated as 252.48ha, using OSI data. While the full extent of Annex I fen habitats (both this habitat and Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (7210)) within the SAC is currently unknown, their area is extensive and they often occur in association with and transitional to other habitats including *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) (6410), Active raised bogs (7110), Petrifying springs with tufa formation. Maintenance of groundwater, surface water flows and water table levels within natural ranges are essential for this wetland habitat.

### 5.1.1.4 Annex II Species of Lough Corrib SAC

Annex II species in Lough Corrib SAC (000297) whereby a complete source-pathway-receptor chain was identified in Table 5-1 above are discussed further in the following sections.

#### White-clawed crayfish (*Austropotamobius pallipes*) [1092]

As per the detailed SSCOs (NPWS, 2017), white-clawed crayfish is known to occur within the aquatic habitat of the SAC. A distribution map is available for this species within the SSCO (Map 10). White-clawed crayfish (*Austropotamobius pallipes*) is recorded from the entire lengths of the four main

tributaries of the River Clare, all of which are located upgradient from the Proposed Development site. however, its total distribution is unknown.

#### Sea Lamprey (*Petromyzon marinus*) [1095]

As per the detailed SSCOs (NPWS, 2017), sea lamprey is known to occur within the aquatic habitat of the SAC. No specific map is available for this species within the SSCO. Sea lamprey (*Petromyzon marinus*) traditionally congregate and build spawning nests in the River Corrib in Galway city, both up and downstream of the Salmon Weir Bridge. Their further upstream passage can be impeded by the regulating weir immediately upstream.

#### Brook Lamprey (*Lampetra planeri*) [1096]

As per the detailed SSCOs (NPWS, 2017), brook lamprey is known to occur within the aquatic habitat of the SAC. No specific distribution map is available for this species within the SSCO. According to the SSCOs document, artificial barriers can block or cause difficulties to brook lampreys' migration both up and downstream, thereby possibly limiting species to specific stretches, restricting access to spawning areas and creating genetically isolated populations.

#### Salmon (*Salmo salar*) [1106]

As per the detailed SSCOs (NPWS, 2017), Atlantic salmon is known to occur within the aquatic habitat of the SAC. No specific distribution map is available for this species within the SSCO, however there are no barriers to its migration in Lough Corrib SAC. Salmon are known to spawn in the headwaters of Lough Corrib tributaries. According to the Natura 2000 Form, reproducing salmon populations are common within the SAC.

#### Otter (*Lutra lutra*) [1355]

As per the detailed SSCOs (NPWS, 2017), otter is known to occur within the aquatic habitat of the SAC. A distribution map is available for this species within the SSCO (Map 12). The area is mapped to include a 10m buffer along shoreline and riverbanks identified as critical for otters.

The individual pathways for effect that were identified in Table 4-1, above, and the QIs with the potential to be affected are described below.

### 5.1.2 Galway Bay Complex SAC (000268)

The potential for impacts on this SAC were identified in Table 4-1 in Section 4 above. The identified pathways for effect include the following:

- There is potential for indirect impacts via deterioration of water quality arising from the runoff or percolation of pollutants to surface or ground waters as a result of the Proposed Development.

The Conservation Objectives document and Natura 2000 Data Form for this designated site were reviewed during this assessment.

Table 5-3 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur

### 5.1.2.1 Identification of Individual Qualifying Interests with the Potential to be Affected.

Table 5-3 Identification of Qualifying features potentially affected in Galway Bay complex SAC.

Qualifying feature	Conservation Objective  (NPWS, Version 1, April 2017)	Rationale	Potential for Adverse Effects Y/N
[1140] Mudflats and sandflats not covered by seawater at low tide	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Galway Bay Complex SAC.	<p>This SAC, and the known extent of this QI habitat within the SAC, as per the SSCOs, is located downstream of the River Corrib, which is approximately 0.6 km northeast from the Proposed Development site. Hydrological connectivity to the river Corrib was identified via an unmapped watercourse, the Knocknacarragh Stream, recorded in the southern section of the Proposed Development.</p> <p>Taking a precautionary approach, a potential pathway for deterioration of water quality within the River Corrib via run-off of and percolation of pollutant to surface and groundwater was identified. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI habitat was identified and it is assessed further in this NIS.</p>	Yes
[1150] Coastal lagoons*	To restore the favourable conservation condition of Coastal lagoons in Galway Bay Complex SAC.	<p>This SAC, and the known extent of this QI habitat within the SAC, as per the SSCOs, is located downstream of the River Corrib, which is approximately 0.6 km northeast from the Proposed Development site. Hydrological connectivity to the river Corrib was identified via an unmapped watercourse, the Knocknacarragh Stream, recorded in the southern section of the Proposed Development.</p> <p>Taking a precautionary approach, a potential pathway for deterioration of water quality within the River Corrib via run-off of and percolation of pollutant to surface and groundwater was identified. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI habitat was identified and it is assessed further in this NIS.</p>	Yes
[1160] Large shallow inlets and bays	To maintain the favourable conservation condition of Large shallow inlets and bays in Galway Bay Complex SAC.	<p>This SAC, and the known extent of this QI habitat within the SAC, as per the SSCOs, is located downstream of the River Corrib, which is approximately 0.6 km northeast from the Proposed Development site. Hydrological connectivity to the river Corrib was identified via an unmapped watercourse, the Knocknacarragh Stream, recorded in the southern section of the Proposed Development.</p> <p>Taking a precautionary approach, a potential pathway for deterioration of water quality within the River Corrib via run-off of and percolation of pollutant to surface and groundwater was identified. Therefore, a complete source-pathway-receptor chain for adverse</p>	Yes



Qualifying feature	Conservation Objective (NPWS, Version 1, April 2017)	Rationale	Potential for Adverse Effects Y/N
		effects on this QI habitat was identified and it is assessed further in this NIS.	
[1170] Reefs	To maintain the favourable conservation condition of Reefs in Galway Bay Complex SAC.	<p>This SAC, and the known extent of this QI habitat within the SAC, as per the SSCOs, is located downstream of the River Corrib, which is approximately 0.6 km northeast from the Proposed Development site. Hydrological connectivity to the river Corrib was identified via an unmapped watercourse, the Knocknacarragh Stream, recorded in the southern section of the Proposed Development.</p> <p>Taking a precautionary approach, a potential pathway for deterioration of water quality within the River Corrib via run-off of and percolation of pollutant to surface and groundwater was identified. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI habitat was identified and it is assessed further in this NIS.</p>	Yes
[1220] Perennial vegetation of stony banks	To maintain the favourable conservation condition of Perennial vegetation of stony banks in Galway Bay Complex SAC.	The site of the Proposed Development is located approximately 4.5 km from the SAC with no identifiable habitat, surface or ground water connection with this terrestrial QI habitat. No complete source-pathway-receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[1310] <i>Salicornia</i> and other annuals colonising mud and sand	To maintain the favourable conservation condition of <i>Salicornia</i> and other annuals colonising mud and sand in Galway Bay Complex SAC.	This SAC, and the known extent of these QI habitats within the SAC, as per the SSCOs, is located downstream of the River Corrib, which is approximately 0.6 km northeast from the Proposed Development site. Hydrological connectivity to the river Corrib was identified via an unmapped watercourse, the Knocknacarragh Stream, recorded in the southern section of the Proposed Development.	Yes
[1330] Atlantic salt meadows ( <i>Glaucopuccinellietalia maritima</i> )	To restore the favourable conservation condition of Atlantic salt meadows ( <i>Glaucopuccinellietalia maritima</i> ) in Galway Bay Complex SAC.	Taking a precautionary approach, a potential pathway for deterioration of water quality within the River Corrib via run-off of and percolation of pollutant to surface and groundwater was identified. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI habitat was identified and it is assessed further in this NIS.	Yes
[1410] Mediterranean salt meadows ( <i>Juncetalia maritima</i> )	To restore the favourable conservation condition of Mediterranean salt		Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, April 2017)	Rationale	Potential for Adverse Effects Y/N
	meadows ( <i>Juncetalia maritimi</i> ) in Galway Bay Complex SAC.		
[3180] Turloughs*	To maintain the favourable conservation condition of Turloughs in Galway Bay Complex SAC.	As per the SSCOs the mapped turlough habitats within Lough Corrib SAC are situated in a different groundwater catchment (Clarinbridge) to the Proposed Development site. No hydrological connectivity was identified between the Proposed Development and the mapped locations of these habitats. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[5130] <i>Juniperus communis</i> formations on heaths or calcareous grasslands	To restore the favourable conservation condition of <i>Juniperus communis</i> formations on heaths or calcareous grasslands in Galway Bay Complex SAC.	The site of the Proposed Development is located approximately 4.5 km from the SAC with no identifiable habitat, surface or ground water connection with this terrestrial QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco Brometalia</i> ) (*important orchid sites)	To maintain the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco Brometalia</i> ) in Galway Bay Complex.	The site of the Proposed Development is located approximately 4.5 km from the SAC with no identifiable habitat, surface or ground water connection with this terrestrial QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[7210] Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> *	To maintain the favourable conservation condition of Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> in Galway Bay Complex SAC	The Proposed Development site is located approximately 4.5 km from this SAC and is located within separate hydrological and ground water catchments to the SAC. Considering the nature and scale of the Proposed Development and the intervening distance between the works and SAC, no complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	No
[7230] Alkaline fens	To maintain the favourable conservation condition of Alkaline fens in Galway Bay Complex SAC	The Proposed Development site is located approximately 4.5 km from this SAC and is located within separate hydrological and ground water catchments to the SAC. Considering the nature and scale of the Proposed Development and the intervening distance between the works and SAC, no complete source- pathway- receptor chain for any effect	No

Qualifying feature	Conservation Objective (NPWS, Version 1, April 2017)	Rationale	Potential for Adverse Effects Y/N
		on this habitat as a result of the Proposed Development was identified. No further assessment is required.	
[1355] Otter ( <i>Lutra lutra</i> )	To restore the favourable conservation condition of Otter in Galway Bay Complex SAC.	<p>The Corrib River, which discharges into this SAC, is partially located within the same ground water catchment as the development site and is located 0.6 km downgradient from the site. Therefore, following the precautionary principle, a potential pathway for deterioration of water quality in the River Corrib exists via the runoff or percolation of pollutants into surface or ground water systems arising from the construction phase of the Proposed Development. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI species was identified and it is assessed further in this NIS.</p> <p>No suitable habitat for otter was identified within or adjacent to the Proposed Development site. The closest mapped watercourses, the Corrib River, is located approximately 490m from the development site. Therefore, there is no potential pathway for disturbance to otter, as a result of the Proposed Development.</p>	Yes
[1365] Harbour seal ( <i>Phoca vitulina</i> )	To maintain the favourable conservation condition of Harbour Seal in Galway Bay Complex SAC.	<p>The Corrib River, which discharges into this SAC, is partially located within the same ground water catchment as the development site and is located 0.6 km downgradient from the site. Therefore, following the precautionary principle, a potential pathway for deterioration of water quality in the River Corrib exists via the runoff or percolation of pollutants into surface or ground water systems arising from the construction phase of the Proposed Development. Therefore, a complete source-pathway-receptor chain for adverse effects on this QI species was identified and it is assessed further in this NIS.</p> <p>No suitable habitat for harbour seal was identified within or adjacent to the Proposed Development site as this species is predominantly marine.</p>	Yes

### 5.1.2.2 Site Specific Pressures and Threats

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

Table 5-4 Site-specific threats, pressures, and activities on Galway Bay Complex SAC

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside/Both
H	D03	Shipping lanes, ports, marine constructions	i
H	D03.01.04	Industrial ports	i

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside/Both
H	H01.05	Diffuse pollution to surface waters due to agricultural and forestry activities	b
H	H01.08	Diffuse pollution to surface waters due to agricultural and forestry activities	b
H	J02.12.01	Sea defence or coast protection works, tidal barrages	i
L	D01.01	Paths, tracks, cycle paths	i
L	D03.01.01	Slipways	i
L	E03.03	Disposal of inert materials	i
L	F02.03.01	Bait digging/ collection	i
L	G01.01.02	Non-motorized nautical sports	i
L	G02.01	Golf course	i
L	J02.02.02	Estuarine and coastal dredging	i
L	J02.05.01	Modification of water flow (tidal and marine currents)	b
M	A02.01	Agricultural intensification	i
M	A04.02.01	Non-intensive cattle grazing	i
M	A04.02.02	Non-intensive sheep grazing	i
M	C01.01	Sand and gravel extraction	i
M	C01.01.02	Removal of beach materials	i
M	D02.02	Pipelines	i
M	F01	Marine and freshwater aquaculture	b
M	F06	Hunting, fishing or collecting activities not referred to above	i
M	I01	Invasive non-native species	b
M	J02.01.02	Reclamation of land from sea, estuary or marsh	i

Rank: H = high, M = medium, L = low i = inside, o = outside, b = both

### 5.1.2.3 Annex I Habitats of Galway Bay Complex SAC

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

The extent of this habitat is illustrated on Map 3 of the Site-Specific Conservation Objectives (SSCOs) document (NPWS, 2013). According to the SSCOs (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 744ha, using OSI data. The Annex I habitat Large shallow inlets and bays is a large physiographic feature that may wholly or partly incorporate other Annex I habitats including mudflats and sandflats and reefs within its area.

#### Coastal lagoons \* [1150]

As per the detailed Site-Specific Conservation Objectives document (NPWS, 2013), Coastal lagoons are known to occur within the SAC. A distribution map is available for this habitat within the SSCO (Map 4). According to the Natura 2000 Form, 76.67ha of this habitat are present within the SAC.

#### Large shallow inlets and bays [1160]

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

#### Reefs [1170]

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

#### Salicornia and other annuals colonising mud and sand [1310]

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

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

The extent of this habitat is illustrated on Map 9 of the SSCOs (NPWS 2013). According to the SSCOs (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 114.612ha, based on data from the Saltmarsh monitoring Project (SMP) (McCorry and Ryle, 2009). This habitat was recorded at ten of the ten sub-sites surveyed with Galway Bay Complex SAC.

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

The extent of this habitat is illustrated on Map 9 of the SSCOs (NPWS 2013). According to the SSCOs (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 114.472 ha, based on data from the Saltmarsh monitoring Project (SMP) (McCorry and Ryle, 2009). This habitat was recorded at six sub-sites surveyed within Galway Bay Complex SAC.

### 5.1.2.4 Annex II Species of Galway Bay Complex SAC

#### Otter (*Lutra lutra*) [1355]

The extent of terrestrial commuting otter habitat is illustrated on Map 11 of the SSCOs (NPWS 2013). According to the SSCOs (NPWS, 2013) the extent of terrestrial habitat within Galway Bay Complex SAC is above high-water mark. These areas are mapped to include a 10m terrestrial buffer above the high-water mark along shorelines.

#### Harbour seal *Phoca vitulina* [1365]

The extent of important terrestrial commuting harbour seal habitat is illustrated on Map 12 of the SSCOs (NPWS 2013). According to the SSCOs (NPWS, 2013) the extent of these habitats is predominantly limited to secluded islands within Galway Bay Complex SAC, above high-water mark.

### 5.1.3 Lough Corrib SPA

The potential for impacts on this SPA were identified in Table 4-1 in Section 4 above. The identified pathways for effect include the following:

- There is potential for indirect impacts via deterioration of water quality arising from the runoff or percolation of pollutants to surface or ground waters as a result of the Proposed Development.

The Conservation Objectives document and Natura 2000 Data Form for this designated site were reviewed during this assessment.

Table 5-5 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

Table 5-5 Assessment of Qualifying features potentially affected in Lough Corrib SPA

Qualifying feature	Conservation Objective (NPWS, Version 1, May 2013)	Rationale	Potential for Adverse Effects Y/N
A051 Gadwall <i>Anas strepera</i>	To restore the favourable conservation condition of gadwall in Lough Corrib SPA	<p>The site of the Proposed Development is located approximately 0.6 km from the SPA. As the Proposed Development site does not provide significant suitable habitat for these SCIs and given the terrestrial distance between the development site and the SPA, no potential pathway for effect via disturbance or displacement on these SCIs as a result of the Proposed Development was identified. No further assessment is required.</p> <p>With the exception of hen harrier and Greenland White-fronted Goose, there is potential for indirect effects on these SCIs of the SPA via deterioration of supporting wetland and waterway habitats. This is considered under the [A999] Wetland below.</p>	No
A056 Shoveler <i>Anas clypeata</i>	To restore the favourable conservation condition of Shoveler in Lough Corrib SPA		No
A059 Pochard <i>Aythya ferina</i>	To restore the favourable conservation condition of Pochard in Lough Corrib SPA		No
A061 Tufted Duck <i>Aythya fuligula</i>	To restore the favourable conservation condition of Tufted Duck in Lough Corrib SPA		No
A065 Common Scoter <i>Melanitta nigra</i>	To maintain the favourable conservation condition of Common Scoter in Lough Corrib SPA		No
A082 Hen Harrier <i>Circus cyaneus</i>	To restore the favourable conservation condition of Hen Harrier in Lough Corrib SPA		No
A125 Coot <i>Fulica atra</i>	To restore the favourable conservation condition of Coot in Lough Corrib SPA		No
A140 Golden Plover <i>Pluvialis apricaria</i>	To maintain the favourable conservation condition of Golden		No

Qualifying feature	Conservation Objective (NPWS, Version 1, May 2013)	Rationale	Potential for Adverse Effects Y/N
	Plover in Lough Corrib SPA		
A179 Black-headed Gull <i>Chroicocephalus ridibundus</i>	To restore the favourable conservation condition of Black-headed Gull in Lough Corrib SPA		No
A182 Common Gull <i>Larus canus</i>	To restore the favourable conservation condition of Common Gull in Lough Corrib SPA		No
A193 Common Tern <i>Sterna hirundo</i>	To restore the favourable conservation condition of Common Tern in Lough Corrib SPA		No
A194 Arctic Tern <i>Sterna paradisaea</i>	To restore the favourable conservation condition of Arctic Tern in Lough Corrib SPA		No
A395 Greenland White-fronted Goose <i>Anser albifrons flavirostris</i>	To restore the favourable conservation condition of Greenland White-fronted Goose in Lough Corrib SPA		No
A999 Wetlands	To maintain the favourable conservation condition of wetlands in Lough Corrib SPA		Yes

### 5.1.3.1 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures, and activities with potential to impact on the European Site were reviewed and considered in relation to the Proposed Development. These are provided in Table 5-6.

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

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside/Both
H	F03.01	Hunting	i
H	F02.03	Leisure Fishing	i
L	A04	Grazing	o
H	E01	Urbanised areas, human habitation	o
L	G01.01	nautical sports	i
M	B	Sylviculture, forestry	o
L	A08	Fertilization	o

Rank: H = high, M = medium, L = low i = inside, o = outside, b = both

### 5.1.3.2 Special Conservation Interests' Specific Information

#### Wetlands and waterbirds

According to the site-specific conservation objectives the extent of wetland habitat within the SPA was estimated as 13,267ha, using OSi data and relevant orthophotographs (NPWS, 2013). The following relevant extracts have been gleaned from the NPWS site synopsis and Natura 2000 Data Form for the SPA:

*“Lough Corrib is an internationally important site that regularly supports in excess of 20,000 wintering waterbirds including an internationally important population of wintering Pochard (10,107) – except where indicated all figures are five year mean peaks for the period 1995/96 to 1999/2000. The site also supports nationally important populations of wintering Greenland White-fronted Goose (160 - five year mean peak for the period 1994/95 to 1998/99), Gadwall (48), Shoveler (90), Tufted Duck (5,486), Coot (14,426) and Golden Plover (1,727). Other species which occur include Mute Swan (182), Whooper Swan (35), Wigeon (528), Teal (74), Mallard (155), Goldeneye (74), Lapwing (2,424) and Curlew (114).*

*In winter nationally important numbers of Hen Harrier (8 - four year mean peak count between 2006 and 2009) also utilise the site as a communal roost. Lough Corrib is also a traditional breeding site for gulls and terns, with various islands being used for nesting each year. There are important colonies of Common Tern (37 pairs in 1995) and Arctic Tern (60 pairs in 1995). The site supports substantial colonies of Black-headed Gull (431 pairs in 2000) and Common Gull (186 pairs in 2000), these representing 3% and 11% of the respective all-Ireland totals. Small numbers of Lesser Black-backed Gull, Great Black-backed Gull and Herring Gull have also been recorded breeding within the site.*

*The site supports approximately half of the national population of nesting Common Scoter (30 pairs in 1995); Lough Corrib was colonised by this rare, Red Data Book species only as recently as the late 1970s/early 1980s.*

*Lough Corrib SPA is an internationally important site which supports in excess of 20,000 wintering waterbirds, including a population of Pochard that is, itself, of international importance. A further six species of wintering waterfowl have populations of national importance. The site also contains a nationally important communal roost site for Hen Harrier. Lough Corrib is the most important site in the country for breeding Common Scoter. Its populations of breeding gulls and terns are also notable, with nationally important numbers of Black-headed Gull, Common Gull, Common Tern and Arctic Tern occurring. It is of note that several species which regularly occur are listed on Annex I of the E.U.*



*Birds Directive, i.e. Whooper Swan, Greenland White-fronted Goose, Hen Harrier, Golden Plover, Common Tern and Arctic Tern. Lough Corrib is a Ramsar Convention site.”*

### 5.1.4 Inner Galway Bay SPA (004031)

The potential for impacts on this SPA were identified in Table 4-1 in Section 4 above. The identified pathways for effect include the following:

- There is potential for indirect impacts via deterioration of water quality arising from the runoff or percolation of pollutants to surface or ground waters as a result of the Proposed Development.

The Conservation Objectives document and Natura 2000 Data Form for this designated site were reviewed during this assessment.

Table 5-7 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

*Table 5-7 Assessment of Qualifying features potentially affected in Inner Galway Bay SPA*

Qualifying feature	Conservation Objective (NPWS, Version 1, May 2013)	Rationale	Potential for Adverse Effects Y/N
[A046] Light-bellied Brent Goose ( <i>Branta bernicla hrota</i> )	To maintain the favourable conservation condition of Light-bellied Brent Goose in Inner Galway Bay SPA	The site of the Proposed Development is located approximately 4.6 km from the SPA. As the Proposed Development site does not provide significant suitable habitat for these SCIs and given the terrestrial distance between the development site and the SPA, no potential pathway for effect via disturbance or displacement on these SCIs as a result of the Proposed Development was identified. No further assessment is required.  With the exception of Light-bellied Brent Goose, there is potential for indirect effects on these SCIs of the SPA via deterioration of supporting wetland and waterway habitats. This is considered under the [A999] Wetland below.	No
[A149] Dunlin ( <i>Calidris alpina</i> )	To maintain the favourable conservation condition of Dunlin in Inner Galway Bay SPA		No
[A069] Red-breasted Merganser ( <i>Mergus serrator</i> )	To maintain the favourable conservation condition of Red-breasted Merganser in Inner Galway Bay SPA,		No
[A162] Redshank ( <i>Tringa totanus</i> )	To maintain the favourable conservation condition of Redshank in Inner Galway Bay SPA		No

Qualifying feature	Conservation Objective (NPWS, Version 1, May 2013)	Rationale	Potential for Adverse Effects Y/N
[A182] Common Gull ( <i>Larus canus</i> )	To maintain the favourable conservation condition of Common Gull in Inner Galway Bay SPA		No
[A003] Great Northern Diver ( <i>Gavia immer</i> )	To maintain the favourable conservation condition of Great Northern Diver in Inner Galway Bay SPA		No
[A017] Cormorant ( <i>Phalacrocorax carbo</i> )	To maintain the favourable conservation condition of Cormorant in Inner Galway Bay SPA		No
[A169] Turnstone ( <i>Arenaria interpres</i> )	To maintain the favourable conservation condition of Turnstone in Inner Galway Bay SPA		No
[A142] Lapwing ( <i>Vanellus vanellus</i> )	To maintain the favourable conservation condition of Lapwing in Inner Galway Bay SPA		No
[A050] Wigeon ( <i>Anas penelope</i> )	To maintain the favourable conservation condition of Wigeon in Inner Galway Bay SPA		No
[A179] Black-headed Gull ( <i>Chroicocephalus ridibundus</i> )	To maintain the favourable conservation condition of Black-headed Gull in Inner Galway Bay SPA		No

Qualifying feature	Conservation Objective (NPWS, Version 1, May 2013)	Rationale	Potential for Adverse Effects Y/N
[A160] Curlew (Numenius arquata)	To maintain the favourable conservation condition of Curlew in Inner Galway Bay SPA		No
[A140] Golden Plover (Pluvialis apricaria)	To maintain the favourable conservation condition of Golden Plover in Inner Galway Bay SPA		No
[A157] Bar-tailed Godwit (Limosa lapponica)	To maintain the favourable conservation condition of Bar-tailed Godwit in Inner Galway Bay SPA		No
[A052] Teal (Anas crecca)	To maintain the favourable conservation condition of Teal in Inner Galway Bay SPA		No
[A191] Sandwich Tern (Sterna sandvicensis)	To maintain the favourable conservation condition of Sandwich Tern in Inner Galway Bay SPA		No
[A137] Ringed Plover (Charadrius hiaticula)	To maintain the favourable conservation condition of Ringed Plover in Inner Galway Bay SPA		No
[A193] Common Tern (Sterna hirundo)	To maintain the favourable conservation condition of Common Tern in Inner Galway Bay SPA		No

Qualifying feature	Conservation Objective (NPWS, Version 1, May 2013)	Rationale	Potential for Adverse Effects Y/N
[A028] Grey Heron ( <i>Ardea cinerea</i> )	To maintain the favourable conservation condition of Grey Heron in Inner Galway Bay SPA		No
[A056] Shoveler ( <i>Anas clypeata</i> )	To maintain the favourable conservation condition of Shoveler in Inner Galway Bay SPA		No
[A999] Wetlands	To maintain the favourable conservation condition of wetland habitat in Inner Galway Bay SPA	The Corrib River, which discharges into this SPA, is partially located within the same ground water catchment as the development site and is located 490m downgradient from the site. Therefore, following the precautionary principle, a potential pathway for deterioration of water quality in the River Corrib exists via the runoff or percolation of pollutants into surface or ground water systems arising from the construction phase of the Proposed Development. Therefore, a complete source-pathway-receptor chain for adverse effects on supporting wetland habitat for the SCIs of the SPA was identified and it is assessed further in this NIS.	Yes

### 5.1.4.1 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures, and activities with potential to impact on the European Site were reviewed and considered in relation to the Proposed Development. These are provided in Table 5-8.

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

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside/Both
M	G01.02	Walking, horseriding and non-motorised vehicles	i
M	J02.12	Dykes, embankments, artificial beaches, general	i
M	E02	Industrial or commercial areas	o
L	F03.01	Hunting	i
M	F01	Marine and Freshwater Aquaculture	i
H	J02.01.02	Reclamation of land from sea, estuary or marsh	i
M	G01.01	Nautical sports	i
L	A04	Grazing	i
H	E01	Urbanisation, human habitation	o
H	E03	Discharges	i
M	F02.03	Leisure fishing	i
M	D01.02	Roads, motorways	o
M	A08	Fertilisation	o

Rank: H = high, M = medium, L = low i = inside, o = outside, b = both

### 5.1.4.2 Special Conservation Interests' Specific Information

#### Wetlands and waterbirds

According to the site-specific conservation objectives the extent of wetland habitat within the SPA was estimated as 13,267ha, using OSi data and relevant orthophotographs (NPWS, 2013). The following relevant extracts have been gleaned from the NPWS site synopsis and Natura 2000 Data Form for the SPA:

*“Inner Galway Bay SPA is a very large, marine-dominated site situated on the west coast of Ireland. The inner bay is protected from exposure to Atlantic swells by the Aran Islands and Black Head. Subsidiary bays and inlets (e.g. Poul-na-clough, Aughinish and Kinvarra Bays) add texture to the patterns of water movement and sediment deposition, lending variety to the marine habitats and communities. The terraced Carboniferous limestone platform of the Burren sweeps down to the shore and into the sublittoral. The long shoreline is noted for its diversity, and comprises complex mixtures of bedrock shore, shingle beach, sandy beach and fringing salt marshes. Intertidal sand and mud flats occur around much of the shoreline, with the largest areas being found on the sheltered eastern coast between Oranmore Bay and Kinvarra Bay. A number of small islands and rocky islets in the Bay are included within the site.”*

## 6. ASSESSMENT OF POTENTIAL EFFECTS AND ASSOCIATED MITIGATION

This section of the NIS assesses the potential effects of the Proposed Development on the identified relevant Qualifying Interests/Special Conservation Interests. This assessment is undertaken in the absence of any mitigation and in respect of the conservation objectives of the European Site/s. The Conservation Objectives each of the European Sites assessed were reviewed on the 17/05/2024. The Conservation Objectives for these sites are available at the following locations:

- Lough Corrib SAC (000297):  
[https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO000297.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000297.pdf)
- Galway Bay Complex SAC (000268):  
[https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO000268.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000268.pdf)
- Lough Corrib SPA (004042):  
[https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO004042.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004042.pdf)
- Inner Galway Bay SPA (004031):  
[https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO004031.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004031.pdf)

Following the initial impact assessment, best practice and mitigation is prescribed where necessary to avoid adverse effects on the Conservation Objectives of the relevant QIs and SCIs. This is listed underneath the effect that it mitigates.

### 6.1 Do Nothing Effect

The site of the Proposed Development consists predominantly of existing road infrastructure classified as Buildings and artificial surfaces (BL3). If the Proposed Development were not to go ahead, it is likely that the development site would remain under its current management regime of a public national road.

### 6.2 Potential for Direct Effects on the European Sites

There will be no direct effects on the QIs/SCIs of Lough Corrib SAC, Galway Bay Complex SAC, Lough Corrib SPA, and Inner Galway Bay SPA. The proposed works are located entirely outside of the boundaries of these European Sites. The proposed works are 0.6 km from Lough Corrib SAC, 4.5 km from Galway Bay Complex SAC, 0.6 km from Lough Corrib SPA, and 4.6 km from Inner Galway Bay SPA. There are no Annex I habitats associated with any of these European Sites within the Proposed Development site. No significant habitat for Annex II protected species associated with any European Sites is present within or adjacent to the site boundary. The nearest mapped watercourse is the River Corrib which is located 0.6 km to the northeast of the site. The site does not support significant suitable habitat for SCI bird species associated with any European Site. No potential for direct effects on any European Site exists.

## 6.3 Potential for Indirect Effects on the European Sites

### 6.3.1 Deterioration in Water Quality

Taking a precautionary approach, a potential pathway for indirect effects on the below listed aquatic QIs/SCIs of Lough Corrib SAC (000297), Galway Bay Complex SAC (000268), Lough Corrib SPA (004042), and Inner Galway Bay SPA (004031) was identified as a result of deterioration of water quality via the runoff or percolation of polluting materials to surface water or to ground waters via porous limestone bedrock underlying the site during the construction phase of the development.

QIs/SCIs of the relevant European Sites on which a potential pathway for indirect effects as a result of deterioration of water quality has been identified:

#### Lough Corrib SAC [000297]

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation [3260]
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]
- Petrifying springs with tufa formation (*Cratoneurion*) [7220]
- Alkaline fens [7230]
- White-clawed Crayfish (*Austropotamobius pallipes*) [1092]
- Sea Lamprey (*Petromyzon marinus*) [1095]
- Brook Lamprey (*Lampetra planeri*) [1096]
- Salmon (*Salmo salar*) [1106]
- Otter (*Lutra lutra*) [1355]

#### Galway Bay Complex SAC (000268)

- Mudflats and sandflats not covered by seawater at low tide [1140]
- Coastal lagoons\* [1150]
- Large shallow inlets and bays [1160]
- Reefs [1170]
- Salicornia and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Otter (*Lutra lutra*) [1355]
- Harbour seal (*Phoca vitulina*) [1365]

#### Lough Corrib SPA (004042)

- Wetlands and waterbirds [A999]

#### Inner Galway Bay SPA (004031)

- Wetlands and waterbirds [A999]

### 6.3.1.1 Construction Phase

The construction of the Proposed Development will involve excavations and earth moving which create the potential for pollution in various forms, i.e. the generation of suspended solids and the potential for spillage of fuels associated with the refuelling of excavation machinery. There is a risk that pollutants will percolate down into groundwater or runoff into surface water. Taking a precautionary approach

and in the absence of mitigation, the works have potential to impact on water quality within the above European Sites, potentially having an adverse effect on the QIs/SCIs of the relevant European sites.

## Mitigation

As the potential adverse impacts on European Sites has been identified via deterioration of water quality, the following mitigations have been provided to block any such pathway of effect and are also included in the accompanying CEMP in **Appendix 1**.

These include comprehensive detail regarding site set up, pollution prevention including pollution, hydrocarbon management, disturbance limitation, construction monitoring and biosecurity.

### Site Set-up

- As per the CEMP (**Appendix 1**), prior to the commencement of earthworks, silt fencing will be erected around the boundary of the Proposed Development site. This will be embedded into the ground adjacent to the perimeter boundary.
- The silt fence will comprise wooden posts with geotextile membrane buried approximately 250mm below ground level. This fence will be kept in good repair and will be routinely inspected.
- The silt fences will be left in place throughout construction until all exposed soil has revegetated.
- The appointed contactor will be fully briefed by an ecologist as to the sensitive nature of the site and the required mitigation measures.
- A site compound will be established within the site boundary. The exact location of the site compound will be established by the contractor and will be located a minimum of 15m from any watercourses or waterbodies. The compound will be used for storage of material, machinery, fuel, and workers facilities.
- In addition to the boundary of the Proposed Development, silt fencing will also be erected around the site compound.
- All construction materials and substances will be stored in the site compound.
- The Proposed Development site will be fenced off using heras fencing.

### Environmental Monitoring

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

### Pollution Prevention

- Prior to the commencement of earthworks, silt fencing will be erected around the boundary of the Proposed Development site.
- Excavated spoil (if any) will be stockpiled and contained entirely within the confines of the site boundaries.
- During earthwork activities, the following mitigations will be adhered to:
  - Material that is not re-used will be transported off site to a designated waste facility.
  - Suitable stone material will be imported to the site to be used as backfill.
  - Stockpiling of soil during construction, should it be required, will take place in designated areas within the site boundary away from any watercourses or waterbodies.
- All diesel or petrol pumps required onsite will be operated within bunded units.
- Exposed surfaces will be re-vegetated as soon as possible following construction.



- The minimum number of soil/subsoils and bedrock material will be removed from site. Soil may be reused for landscaping elsewhere on the site.
- Where possible, earthworks will not be carried out during periods of heavy rainfall.
- As construction advances there may be a requirement to collect and treat surface water within the site. This will be carried out using settlement tanks which will be monitored for hydrocarbons and suspended solids. If required water will be pumped from the settlement tanks into sediment bags prior to overland discharge allowing water to percolate naturally to ground;
- If ground water is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary. Discharge to ground will be via a silt bag which will filter any remaining sediment from the pumped water;
- Daily monitoring and inspections of site drainage during construction will be completed by the appointed environmental officer;
- Good construction practices such wheel washers and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2001), which provides information on these issues. This will ensure that surface water arising during the course of construction activities will contain minimum sediment.

#### **Cement Based Products**

- No batching of wet-cement products will occur on site.
- Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place.
- Where possible, pre-cast elements for concrete works will be used.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site.
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible.
- No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete.
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.

#### **Refuelling, Fuel and Hazardous Materials Storage**

- Storage/refuelling will be located in and carried out in a designated area of the proposed site, located a suitable distance from excavation works. Bunded tanks will be used, and these will be inspected for leaks regularly. Spill kits will be available on site and staff will be trained in their use and in spill control. All spills shall be diverted for collection.
- Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment.
- No hazardous substance shall be permitted to be left unattended at any time when taken outside the secured storage.
- Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Off-site refuelling will occur at a controlled fuelling station.
- On-site refuelling will take place by direct refuelling from the delivery truck or from fuel stored within a bunded fuel tank. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations.

- Vehicles will never be left unattended during refuelling. Only dedicated trained and competent personnel will carry out refuelling operations and plant refuelling procedures shall be detailed in the contractor's method statements.
- Storage bunds/trays, if required will be constructed of an impermeable membrane (HDPC Plastic) and will have the adequate capacity to contain the volume of the liquids contained therein, if a leak/spillage does occur from one of the storage vessels.
- All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off site.
- Potential impacts caused by spillages etc. during the construction phase will be reduced by keeping spill kits and other appropriate equipment on-site.
- Spill kits will be used to deal with any accidental spillage in and outside the refuelling area. Spill control measures as outlined fully in the CEMP accompanying this application will be adhered to.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling.

### Spill Control Measures

In the event of minor spills and leaks from road vehicles and the onsite machinery, the following steps provide the procedure to be followed in the event of any significant spill or leak.

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident.
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill.
- If possible, cover or bund off any vulnerable areas where appropriate such as drains or watercourses.
- If possible, clean up as much as possible using the spill control materials.
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.
- Notify the applicant immediately giving information on the location, type and extent of the spill so that they can take appropriate action and further investigate the incident to ensure it has been contained adequately.
- External consultants will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.
- The applicant will notify the appropriate regulatory body such as Galway County Council if deemed necessary.

### Waste Management

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

### Wastewater Disposal

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

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

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

### 6.3.1.2 Operational Phase

The operational phase of the Proposed Development will result in the production of surface water runoff from additional hardstanding areas. However, surface water drainage systems have been incorporated into the design of the Proposed Development, which is fully detailed in Section 2.2.1 of this report. It includes for a kerb and gully system connected to a proposed attenuation pond to control the quantity and quality of runoff into the wider environment. From attenuation, surface water will be discharged to a stream within Glenlo Abbey via an outfall point. A petrol interceptor will be installed upstream from the outfall and discharge rates will be limited to estimated greenfield flood runoff rates. These measures meet the requirements of Sustainable Urban Drainage Systems (SUDS).

Given the project design regards surface water runoff, no potential for adverse impacts on any European Site due to deterioration of water quality during the operational phase of the development exists.

### 6.3.1.3 Decommissioning Phase

The proposed project is considered permanent. No decommissioning is anticipated and there is no potential for impact.

## 7. ASSESSMENT OF RESIDUAL ADVERSE EFFECTS

The sections provided below detail the site-specific residual impact assessment in relation to the relevant QIs and SCIs of the EU Sites in light of their site-specific targets and attributes. The assessment takes into consideration the proposed measures to avoid, reduce and block identified pathways for impact.

### 7.1 Lough Corrib SAC

The potential for adverse effects on each of the individual Qualifying Interests that were identified as being at risk of potential effects is assessed in this section in view of the Conservation Objectives of those QI habitats and species.

#### 7.1.1 Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation [3260]

The conservation objective for Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation [3260] is:

*‘To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation in Lough Corrib SAC, which is defined by the following list of attributes and targets.’*

The attributes and targets for Water courses of plain to montane levels with the Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* as per the Site-Specific Conservation Objectives (SSCOs) for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-1 below.

Table 7-1: Targets and attributes for Water courses of plain to montane levels with *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation [3260]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The Proposed Development is located 0.6 km from the SAC.
Habitat distribution	No decline, subject to natural processes.	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Hydrological regime: river flow	Maintain appropriate hydrological regimes	There will be no changes to hydrological regime or water quality of the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.
Hydrological regime: groundwater discharge	Maintain appropriate hydrological regimes	
Substratum composition: particle size range	Maintain appropriate substratum particle size range, quantity and	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in

Attribute	Target	Assessment
	quality, subject to natural process	Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Water quality	Maintain appropriate water quality to support the natural structure and functioning of the habitat	
Vegetation composition: typical species	Typical species of the relevant habitat sub-type should be present and in good condition	There will be no changes to vegetation composition within the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Floodplain connectivity: area	The area of active floodplain at and upstream of the habitat should be maintained	There will be no changes or reduction in floodplain connectivity or riparian habitat as a result of the within the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Riparian habitat: area	Maintain the area and condition of fringing habitats necessary to support the habitat and its sub-types	

7.1.2

## Calcareous fens with *Cladium mariscus* and species of the *Caricion davalliana* [7210]

The conservation objective for Calcareous fens with *Cladium mariscus* and species of the *Caricion davalliana* [7210] is:

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

The attributes and targets for Calcareous fens with *Cladium mariscus* and species of the *Caricion davalliana* as per the Site-Specific Conservation Objectives (SSCOs) for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-2 below.

Table 7-2: Targets and attributes for *Calcareous fens with Cladium mariscus and species of the Caricion davallianae* [7210]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The Proposed Development is located 0.6 km from the SAC.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Habitat distribution	No decline, subject to natural processes.	
Ecosystem function: hydrology	Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	There will be no changes to hydrology, peat forming ability or water quality of the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Ecosystem function: peat formation	Maintain active peat formation, where appropriate	
Ecosystem function: water quality	Maintain vegetation cover of typical species including brown mosses and vascular plants	
Vegetation structure: typical species	Maintain appropriate water quality to support the natural structure and functioning of the habitat	There will be no changes to vegetation structure or species composition within the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: non-native species	Cover of non-native species less than 1%	
Vegetation composition: trees and shrubs	Cover of scattered native trees and shrubs less than 10%	
Physical structure: disturbed bare ground	Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%	
Physical structure: drainage	Areas showing signs of drainage as a result of drainage ditches or heavy trampling not more than 10%	
Indicators of local distinctiveness	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	

7.1.3

## Petrifying springs with tufa formation (*Cratoneurion*) [7220]

The conservation objective for Petrifying springs with tufa formation (*Cratoneurion*) [7220] is:

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

The attributes and targets for Petrifying springs with tufa formation (*Cratoneurion*) as per the SSCOs for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-3 below.

Table 7-3: Targets and attributes for Petrifying springs with tufa formation (Cratoneurion) [7220]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The Proposed Development is located 0.6 km from the SAC.
Habitat distribution	No decline, subject to natural processes.	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Hydrological regime: height of water table; water flow	Maintain appropriate hydrological regimes	There will be no changes to the hydrological regime or water quality of the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.
Water quality - nitrate level	No increase from baseline nitrate level and less than 10mg/l	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Water quality - phosphate level	No increase from baseline phosphate level and less than 15µg/l	
Vegetation composition: positive indicator species	At least three positive/high quality indicator species as listed in Lyons and Kelly (2016) and no loss from baseline number	There will be no changes to vegetation or physical structure within the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: negative indicator species	Potentially negative indicator species should not be Dominant or Abundant; invasive species should be absent	
Vegetation structure: sward height	Field layer height between 10cm and 50cm (except for bryophyte-dominated ground)	
Physical structure: trampling/dung	Cover should not be Dominant or Abundant	

### 7.1.4 Alkaline fens [7230]

The conservation objective for Alkaline fens [7230] is:

*‘To maintain the favourable conservation condition of Alkaline fens in Lough Corrib SAC, which is defined by the following list of attributes and targets.’*

The attributes and targets for Alkaline fens as per the SSCOs for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-4 below.



Table 7-4: Targets and attributes for Alkaline fens [7230]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	<p>There will be no reduction in habitat area or distribution. The Proposed Development is located 0.6 km from the SAC.</p> <p>Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.</p>
Habitat distribution	No decline, subject to natural processes.	
Ecosystem function: soil nutrients	Maintain soil nutrient status within natural range	
Ecosystem function: peat formation	Maintain active peat formation, where appropriate	<p>There will be no changes to physical structure, water quality or hydrology of the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.</p>
Ecosystem function: hydrology	Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	
Ecosystem function: water quality	Maintain appropriate water quality, particularly nutrient levels, to support the natural structure and functioning of the habitat.	
Community diversity	Maintain variety of vegetation communities, subject to natural processes	<p>There will be no changes to vegetation structure, composition or diversity within the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.</p>
Vegetation composition: number of positive indicator species (brown mosses)	Number of brown moss species present at each monitoring stop is at least one	
Vegetation composition: number of positive indicator species (vascular plants)	Number of positive vascular plant indicator species present at each monitoring stop is at least two for small-sedge flushes and at least three for black bog-rush ( <i>Schoenus nigricans</i> ) flush and bottle sedge ( <i>Carex rostrata</i> ) fen	
Vegetation composition: cover of positive indicator species	Total cover of brown moss species and positive vascular plant indicator species at least 20% for small-sedge flushes and at least 75% cover for black bog-rush ( <i>Schoenus nigricans</i> ) flush and bottle sedge ( <i>Carex rostrata</i> ) fen	

Attribute	Target	Assessment
Vegetation composition: negative indicator species	Total cover of negative indicator species less than 1%	
Vegetation composition: non-native species	Cover of non-native species less than 1%	
Vegetation composition: native trees and shrubs	Cover of scattered native trees and shrubs less than 10%	
Vegetation composition: soft rush and common reed cover	Total cover of soft rush ( <i>Juncus effusus</i> ) and common reed ( <i>Phragmites australis</i> ) less than 10%	
Vegetation structure: height	Proportion of live leaves and/or flowering shoots of vascular plants that are more than 5cm above the ground surface should be at least 50%	
Physical structure: disturbed bare ground	Cover of disturbed bare ground less than 10%	There will be no change to the physical structure within the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Physical structure: drainage	Area showing signs of drainage as a result of drainage ditches or heavy trampling less than 10%	
Physical structure: tufa formations	Disturbed proportion of vegetation cover where tufa is present is less than 1%	
Indicators of local distinctiveness	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	

## 7.1.5 Otter (*Lutra lutra*) [1355]

The conservation objective for Otter (*Lutra lutra*) [1355] is:

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

The attributes and targets for Otter as per the SSCOs for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the species is provided in Table 7-5 below.

Table 7-5: Targets and attributes for Otter (*Lutra lutra*) [1355]

Attribute	Target	Assessment
Distribution	No significant decline	There will be no decline in distribution. The proposed works are located 0.6 km from the SAC. No otter habitat is present within the Proposed Development site and the development will not impact on otter or otter distribution.
Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 1,054ha along riverbanks/ lake shoreline/around ponds	There will be no decline in the extent of terrestrial habitat. The proposed works are located 0.6 km from the SAC and no watercourses present within the Proposed Development site
Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 314.2km	There will be no decline in the extent of freshwater habitat. The proposed works are located 0.6 km from the SAC and no otter habitat is present within or adjacent to the development site boundary.
Extent of freshwater (lake) habitat	No significant decline. Area mapped and calculated as 4,178ha	There will be no decline in the extent of lake/lagoon habitat.
Couching sites and holts	No significant decline	There will be no decline in couching sites and holts. The site does not support suitable habitat for otter.
Fish biomass available	No significant decline	There will be no decline in fish biomass. There are no watercourses within or adjacent to the Proposed Development.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Barriers to connectivity	No significant increase.	The Proposed Development will not result in any increase in barriers to connectivity.

7.1.6

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

The conservation objective for White-clawed crayfish (*Austropotamobius pallipes*) [1092] is:

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

The attributes and targets for White-clawed Crayfish as per the SSCOs for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the species is provided in Table 7-6 below.

Table 7-6: Targets and attributes for White-clawed crayfish (*Austropotamobius pallipes*) [1092]

Attribute	Target	Assessment
Distribution: rivers	No reduction from baseline.	<p>There will be no decline in distribution., from rivers or Lough Corrib The proposed works are located 0.6 km from the SAC. No white-clawed crayfish habitat is present within the Proposed Development site and the development will not impact on otter or otter distribution.</p> <p>Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.</p> <p>There will be no changes to population structure, recruitment or increase in negative indicator or dieses species as a result of the development. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.</p>
Distribution: Lough Corrib	No reduction from baseline	
Population structure: recruitment	Juveniles and/or females with eggs in all occupied tributaries and occupied parts of Lough Corrib	
Negative indicator species	No alien crayfish species	
Disease	No instances of disease	
Water quality	At least Q3-4 at all sites sampled by EPA	<p>There will be no changes to water quality or habitat quality of the SAC. The Proposed Development is located 0.6 km from the SAC.</p> <p>Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.</p>
Habitat quality: heterogeneity	No decline in habitat heterogeneity or habitat quality	

7.1.7

## Brook Lamprey (*Lampetra planeri*) [1096]

The conservation objective for Brook lamprey (*Lampetra planeri*) [1096] is:

*‘To maintain the favourable conservation condition of Brook Lamprey in Lough Corrib SAC, which is defined by the following list of attributes and targets.’*

The attributes and targets for Brook lamprey as per the SSCOs for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the species is provided in Table 7-7 below.

Table 7-7: Targets and attributes for Brook lamprey (*Lampetra planeri*)

Attribute	Target	Assessment
Distribution	Access to all watercourses down to first order streams	There will be no decline in distribution. The proposed works are located 0.6 km from the SAC. No brook lamprey habitat is present within the Proposed Development site and the development will not impact on brook lamprey distribution.

Attribute	Target	Assessment
		Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Population structure of juveniles	At least three age/size groups of brook/river lamprey present	There will be no changes to population structure or juvenile density species as a result of the development. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.
Juvenile density in fine sediment	Mean catchment ammocoete density of brook/river lamprey at least 5/m <sup>2</sup>	
Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	There will be no changes to the extant and distribution of spawning or juvenile habitat of the development. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.
Availability of juvenile habitat	More than 50% of sample sites positive	

7.1.8

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

The conservation objective for Sea lamprey (*Petromyzon marinus*) [1095] is:

*‘To restore the favourable conservation condition of Sea Lamprey in Lough Corrib SAC, which is defined by the following list of attributes and targets.’*

The attributes and targets for Sea lamprey as per the SSCOs for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the species is provided in Table 7-8 below.

Table 7-8: Targets and attributes for sea lamprey (*Petromyzon marinus*) [1095]

Attribute	Target	Assessment
Distribution: extent of anadromy	Greater than 75% of main stem length of rivers accessible from estuary	There will be no decline in distribution. The proposed works are located 0.6 km from the SAC. No sea lamprey habitat is present within the Proposed Development site and the development will not impact on sea lamprey distribution.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Population structure of juveniles	At least three age/size of groups present	There will be no changes to population structure or juvenile density species as a result of the development. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.
Juvenile density in fine sediment	Mean catchment juvenile density at least 1/m <sup>2</sup>	
Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	There will be no changes to the extant and distribution of spawning or juvenile habitat of the

Attribute	Target	Assessment
Availability of juvenile habitat	More than 50% of sample sites positive, with a minimum of four positive sites in a catchment, which are at least 5km apart	development. The Proposed Development is located 0.6 km from the SAC and no works which could alter physical structure are proposed.

### 7.1.9 Salmon (*Salmo salmo*) [1106]

The conservation objective for Salmon (*Salmo salar*) [1106] is:

*‘To maintain the favourable conservation condition of Atlantic Salmon in Lough Corrib SAC, which is defined by the following list of attributes and targets.’*

The attributes and targets for Salmon as per the SSCOs for Lough Corrib SAC (NPWS Version 1, April 2017) and an assessment of the Proposed Development against the nominated attributes and targets for the species is provided in Table 7-9 below.

Table 7-9: Targets and attributes for Salmon (*Salmo salar*) [1106]

Attribute	Target	Assessment
Distribution: extent of anadromy	100% of river channels down to second order accessible from estuary	There will be no decline in distribution. The proposed works are located 0.6 km from the SAC. No salmon habitat is present within the Proposed Development site and the development will not impact on salmon distribution.
Adult spawning fish	Conservation limit (CL) for each system consistently exceeded	There will be no decline in spawning adult fish. The proposed works are located 0.6 km from the SAC. The development will not impact on the distribution of spawning habitat.
Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling	There will be no changes to population fry or smolt abundance species as a result of the development. The Proposed Development is located 0.6 km from the SAC and no works which could alter population abundances of this QI species.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Out-migrating smolt abundance	No significant decline	
Number and distribution of redds	No decline in number and distribution of spawning redds due to anthropogenic causes	There will be no changes or reduction to the distribution of redds within the SAC. The Proposed Development is located 0.6 km from the SAC and no works which could disturb or

Attribute	Target	Assessment
		alter reed structure or distribution within the SAC are proposed.
Water quality	At least Q4 at all sites sampled by EPA	There will be no changes to water quality SAC. The Proposed Development is located 0.6 km from the SAC.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.

### 7.1.10 Determination on Potential for Adverse Effects on Lough Corrib SAC

Based on the above review of the individual Qualifying Interests and following implementation of best practice and mitigation measures described in Section 6.3 of this report, it can be concluded, in view of best scientific knowledge and based on objective information, that the Proposed Project will not adversely affect this SAC.

## 7.2 Galway Bay Complex SAC

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

The conservation objective for Mudflats and sandflats not covered by seawater at low tide [1140] is:

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

The attributes and targets for Mudflats and sandflats not covered by seawater at low tide as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, April 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-10 below.

Table 7-10: Targets and attributes for Mudflats and sandflats not covered by seawater at low tide [1140]

Attribute	Target	Assessment
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	There will be no decline in habitat area with the proposed project. The proposed works are located entirely outside of the SAC boundary. The community types subject to conservation will not be affected as a result of the Proposed Development. Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Community distribution	Conserve the following community types in a natural condition: Intertidal sandy mud community	

Attribute	Target	Assessment
	complex; and Intertidal sand community complex.	

## 7.2.2 Coastal lagoons [1150]

The conservation objective for Coastal lagoons [1150] is:

*‘To restore the favourable conservation condition of coastal lagoons in Galway Bay Complex SAC’.*

The attributes and targets for Large shallow inlets and bays as per the Site-Specific Conservation Objectives (SSCOs) for Galway Bay Complex SAC (NPWS Version 1, April 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-11 below.

Table 7-11: Targets and attributes Coastal lagoons [1150]

Attribute	Target	Assessment
Habitat area	Area stable, subject to slight natural variation. Favourable reference area 76.7ha	There will be no reduction in habitat area or distribution. The proposed works are located 4.5 km from the SAC.
Habitat Distribution	No decline, subject to natural processes	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Salinity regime	Median annual salinity and temporal variation within natural ranges	There will be no alterations to the hydrological/salinity regime. No structures/works which could result in changes to hydrology are proposed.
Hydrological regime	Annual water level fluctuations and minima within natural ranges	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Barrier: connectivity between lagoon and sea	Appropriate hydrological connections between lagoons and sea, including where necessary, appropriate management	The proposed works will not result in any barrier to connectivity between lagoons and the sea.
Water quality: Chlorophyll a	Annual median chlorophyll a within natural ranges and less than 5µg/L	There will be no deterioration of water quality. The proposed works are located 4.5 km from the SAC.
Water quality: Molybdate Reactive Phosphorus (MRP)	Annual median MRP within natural ranges 0.1mg/L	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.



Attribute	Target	Assessment
Water quality: Dissolved Inorganic Nitrogen (DIN)	Annual median DIN within natural ranges and less than 0.15mg/L	
Depth of macrophyte colonisation	Macrophyte colonisation to at least 2m depth	There will be no changes to the depth of macrophyte colonisation. There will be no changes to the hydrology of Galway Bay Complex SAC and indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Typical plant species	Maintain number and extent of listed lagoonal specialists, subject to natural variation	There will be no changes to plant, animal or negative indicator species composition.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Typical animal species	Maintain listed lagoon specialists, subject to natural variation	
Negative indicator species	Negative indicator species absent or under control	

### 7.2.3 Large shallow inlets and bays [1160]

The conservation objective for Large shallow inlets and bays [1160] is:

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

The attributes and targets for Large shallow inlets and bays as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, April 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-12 below.

Table 7-12: Targets and attributes for Large shallow inlets and bays [1160]

Attribute	Target	Assessment
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	<p>There will be no reduction in habitat area or distribution. The proposed works are located 4.5 km from the SAC.</p> <p>Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.</p>
Community extent	Maintain the extent of the <i>Zostera</i> -dominated community complex and the maërl-dominated community, subject to natural processes.	<p>There will be no changes to community extent. The proposed works are located 4.5 km from the SAC.</p> <p>Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.</p>
Community structure: <i>Zostera</i> density	Conserve the high quality of <i>Zostera</i> -dominated communities, subject to natural processes	<p>There will be no changes to community structure or the community distribution. The proposed works are located 4.5 km from the SAC and will not result in changes to the character or hydrology of Galway Bay Complex SAC.</p> <p>Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.</p>
Community structure: Biological composition	Conserve the high quality of the maërl-dominated community, subject to natural processes	<p>Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.</p>
Community Distribution	Conserve the following community types in a natural condition: Intertidal sandy mud community complex; Intertidal sand community complex; Fine to medium sand with bivalves community complex; Sandy mud to mixed sediment community complex; Mixed sediment dominated by Mytilidae community complex; Shingle; Fucoid-dominated community complex;	

Attribute	Target	Assessment
	Laminaria-dominated community complex; and Shallow sponge-dominated community complex.	

## 7.2.4 Reefs [1170]

The conservation objective for Reefs [1170] is:

*‘To maintain the favourable conservation condition of reefs in Galway Bay Complex SAC’.*

The attributes and targets for Reefs as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, April 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-13 below.

Table 7-13: Targets and attributes for Reefs [1170]

Attribute	Target	Assessment
Distribution	The distribution of reefs is stable or increasing, subject to natural processes.	There will be no changes in the distribution of this habitat as a result of the Proposed Development. The proposed works are located 4.5 km from the SAC.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	There will be no reduction in habitat area. The proposed works are located 4.5 km from the SAC.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Community extent	Maintain the extent of the <i>Mytilus</i> -dominated reef community, subject to natural processes.	There will be no changes to the community extent. The Proposed Development is located 4.5 km from the SAC.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Community structure: <i>Mytilus</i> density	Conserve the high quality of the <i>Mytilus</i> -dominated communities, subject to natural processes	There will be no changes to community structure. The proposed works are located 4.5 km from the SAC and will not result in changes to the character or hydrology of Galway Bay Complex SAC.

Attribute	Target	Assessment
Community structure: Biological composition	Conserve the following community types in a natural condition: Furoid dominated community complex; Laminaria dominated community complex; and Shallow sponge-dominated community complex	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.

## 7.2.5 **Salicornia and other annuals colonising mud and sand [1310]**

The conservation objective for *Salicornia* and other annuals colonising mud and sand [1310] is:

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

The attributes and targets for this habitat as per the SSCOs for Galway Bay Complex SAC (NPWS, 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-14 below.

Table 7-14: Targets and attributes for *Salicornia* and other annuals colonising mud and sand [1310]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Barna House - 0.067ha, Seaweed Point - 0.003ha, Roscam West and South - 0.023ha, Kilcaimin - 0.015, Kileenaran - 0.007ha, Kinvara West - 0.017ha, Scanlan's Island - 0.117ha, Tawin Island - 1.098ha	There will be no reduction in habitat area or distribution. The proposed works are located 4.5 km from the SAC.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	
Physical structure: sediment supply	Maintain/restore, natural circulation of sediments and organic matter, without any physical obstructions	There will be no changes to physical structure of the SAC as a result of the Proposed Development. The proposed works are located 4.5 km from the SAC and no works which could alter physical structure are proposed.
Physical structure: creeks and pans	Maintain, or where necessary restore creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Maintain natural tidal regime	

Attribute	Target	Assessment
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	There will be no changes to vegetation structure within the SAC. The proposed works are located 4.5 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation structure: vegetation height	Maintain structural vegetation within sward	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species and subcommunities	Maintain the range of species-poor communities with typical species listed in SMP (McCorry and Ryle, 2009)	There will be no changes to vegetation composition or structure within the SAC. The proposed works are located 4.5 km from the SAC and no works which could disturb vegetation or alter vegetation composition or structure within the SAC are proposed.
Vegetation structure: negative indicator species – <i>Spartina anglica</i>	There is currently no common cordgrass ( <i>Spartina anglica</i> ) in this SAC. Prevent establishment of cordgrass	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase. Strict biosecurity measures will be in place onsite.

### 7.2.6 Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330]

The conservation objective for Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330] is:

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

The attributes and targets for this habitat as per the SSCOs for Galway Bay Complex SAC (NPWS, 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-15 below.

Table 7-15: Targets and attributes for Atlantic salt meadows (*Glauco-Puccinellietalia maritima*)

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Barna House – 2.33haha, Seaweed Point – 1.41ha, Roscam West and South – 3.3ha, Oranmore North – 4.24ha, Kilcaimin – 6.82ha, Tawin Island – 53.85ha, Tyrone House-Dunbulcaun Bay – 9.83ha, Kileenaran – 15.37ha, Kinvara West –	There will be no reduction in habitat area or distribution. The proposed works are located 4.5 km from the SAC.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.

Attribute	Target	Assessment
	13.33ha, Scanlan's Island – 4.13ha	
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	
Physical structure: sediment supply	Maintain/restore, natural circulation of sediments and organic matter, without any physical obstructions	There will be no changes to physical structure of the SAC. The proposed works are located 4.5 km from the SAC and no works which could alter physical structure are proposed.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Maintain natural tidal regime	
Vegetation structure: zonation	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	There will be no changes to vegetation structure within the SAC. The proposed works are located 4.5 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation structure: vegetation height	Maintain structural vegetation within sward	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species and subcommunities	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)	There will be no changes to vegetation composition or vegetation structure within the SAC. The proposed works are located 4.5 km from the SAC and no works which could disturb vegetation or alter vegetation composition structure within the SAC are proposed.
Vegetation structure: negative indicator species – <i>Spartina anglica</i>	There is currently no common cordgrass ( <i>Spartina anglica</i> ) in this SAC. Prevent establishment of cordgrass	Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.

### 7.2.7 Mediterranean salt meadows (*Juncetalia maritimi*) [1410]

The conservation objective for Mediterranean salt meadows (*Juncetalia maritimi*) [1410] is:

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

The attributes and targets for this habitat as per the SSCOs for Galway Bay Complex SAC (NPWS, 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the habitat is provided in Table 7-16 below.

Table 7-16: Targets and attributes for Mediterranean salt meadows (*Juncetalia maritimi*) [1410].

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Barna House – 0.282ha, Seaweed Point – 0.931ha, Kilcaimin – 0.005ha, Tawin Island – 1.799ha, Tyrone House-Dunbulcaun Bay – 8.184ha, Kileenaran – 0.271ha	There will be no reduction in habitat area or distribution. The proposed works are located 4.5 km from the SAC.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	
Physical structure: sediment supply	Maintain/restore, natural circulation of sediments and organic matter, without any physical obstructions	There will be no changes to physical structure of the SAC. The proposed works are located 4.5 km from the SAC and no works which could alter physical structure are proposed.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Maintain natural tidal regime	
Vegetation structure: zonation	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	There will be no changes to vegetation structure within the SAC. The proposed works are located 4.5 km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.  Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Vegetation structure: vegetation height	Maintain structural vegetation within sward	
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species and subcommunities	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)	There will be no changes to vegetation composition or vegetation structure within the SAC. The proposed works are located 4.5 km from the SAC and no works which could disturb vegetation or alter vegetation composition, structure within the SAC are proposed. Strict biosecurity measures will be adhered to while onsite.
Vegetation structure: negative indicator species – <i>Spartina anglica</i>	There is currently no common cordgrass ( <i>Spartina anglica</i> ) in this SAC. Prevent establishment of cordgrass	
		Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in

Attribute	Target	Assessment
		Section 6.3 of this report are in place to avoid all water pollution during the construction phase.

## 7.2.8 Otter (*Lutra lutra*) [1355]

The conservation objective for Otter (*Lutra lutra*) [1355] is:

*‘To restore the favourable conservation condition of otter in Galway Bay Complex SAC’.*

The attributes and targets for Otter as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, April 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the species is provided in Table 7-17 below.

Table 7-17: Targets and attributes for Otter (*Lutra lutra*) [1355].

Attribute	Target	Assessment
Distribution	No significant decline	The site does not support suitable habitat for otter. There will be no decline in the distribution of the otter population for which the SAC has been designated as a result of the Proposed Development.
Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 262ha above high water mark (HWM); 14ha along riverbanks/ around ponds	The site does not support suitable habitat for otter. The Proposed Development will not result in the loss of any habitat anywhere within or outside of the SAC.
Extent of marine habitat	No significant decline. Area mapped and calculated as 2040ha	
Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 4km	
Extent of freshwater (lake/lagoon) habitat	No significant decline. Area mapped and calculated as 21ha	
Couching sites and holts	No significant decline	The site does not support suitable habitat for otter. There will be no loss of holting or couching sites within or outside of the SAC
Fish biomass available	No significant decline	There will be no decline in availability of fish biomass associated with the proposed project. Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.
Barriers to connectivity	No significant increase.	The Proposed Development will not result in any barriers to movement at a local level and thus no potential for barrier effect within the SAC.



## 7.2.9 Harbour Seal (*Phoca vitulina*) [1365]

The conservation objective for Harbour Seal (*Phoca vitulina*) [1365] is:

*‘To maintain the favourable conservation condition of harbour seal in Galway Bay Complex SAC.’*

The attributes and targets for Otter as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, April 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the species is provided in Table 7-18 below.

Table 7-18: Targets and attributes for Harbour Seal (*Phoca vitulina*) [1365].

Attribute	Target	Assessment
Access to suitable habitat	Species range within the site should not be restricted by artificial barriers to site use.	The site does not support suitable habitat for harbour seal. There will be no decline in access to suitable habitat or changes to behaviour to this QI as a result of the Proposed Development. As there is no suitable habitat in proximity to the Proposed Development site, there is no potential for disturbance to this QI.
Breeding behaviour	Conserve breeding sites in a natural condition.	
Moulting behaviour	Conserve moult haul-out sites in a natural condition	
Resting behaviour	Conserve resting haul-out sites in a natural condition.	
Disturbance	Human activities should occur at levels that do not adversely affect the harbour seal population at the site	

## 7.2.10 Determination on Potential for Adverse Effects on Galway Bay Complex SAC

Based on the above review of the individual Qualifying Interests and following implementation of best practice and mitigation measures described in 6.2 of this report, it can be concluded, in view of best scientific knowledge and based on objective information, that the Proposed Development will not adversely affect this SAC.

## 7.3 Lough Corrib SPA

### 7.3.1 Wetland and waterbirds [A999]

The conservation objective for Wetland and waterbirds is:

*‘To maintain the favourable conservation condition of wetlands in Lough Corrib SPA.’*

The attributes and targets for Wetland as per the SSCOs for Lough Corrib SPA (NPWS Version 1, January 2023) and an assessment of the Proposed Development against the nominated attributes and targets for the Wetland and waterbirds is provided in Table 7-18 below.

Table 7-19 Targets and attributes associated with nominated site-specific conservation objectives for Wetland and Waterbirds.

Attribute	Target	Assessment
Wetland habitat area	No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation	The Proposed Development is located entirely outside the boundary of the SPA, approximately 0.6 km to the southwest of the SPA. Therefore, there will be no reduction in habitat area.  Indirect pathways including water pollution that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures outlined in Section 6-2 of this report, are in place to avoid all potential impacts caused by deterioration in water quality during the construction phase.
Wetland habitat quality and functioning	No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation	There will be no decline quality or functioning of the wetland habitat within the SPA associated with the proposed project. Indirect pathways that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures, outlined in Section 6.3 of this report are in place to avoid all water pollution during the construction phase.

### 7.3.1.1 Determination on Potential for Adverse Effects on Lough Corrib SPA

Based on the above review of the individual SCIs and following the implementation of the best practice and mitigation measures described in Section 6.3 of this report, it can be concluded, in view of best-scientific knowledge and based on objective information, that the Proposed Development will not have an adverse effect on the integrity of Inner Galway Bay SPA, in light of its site-specific conservation objectives.

## 7.4 Inner Galway Bay SPA

### 7.4.1 Wetland and waterbirds [A999]

The conservation objective for Wetland and waterbirds is:

*‘To maintain the favourable conservation condition of the wetland habitat at Inner Galway Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.’*

The attributes and targets for Wetland and waterbirds as per the SSCOs for Inner Galway Bay SPA (NPWS Version 1, May 2013) and an assessment of the Proposed Development against the nominated attributes and targets for the Wetland and waterbirds is provided in Table 7-19 below.

Table 7-20 Targets and attributes associated with nominated site-specific conservation objectives for Wetland and Waterbirds.

Attribute	Target	Assessment
Habitat area	The permanent area occupied by wetland habitat should be stable other than	The Proposed Development is located entirely outside the boundary of the SPA, approximately 4.5

	<p>that occurring from natural patterns of variation.</p>	<p>km to the north of the SPA. Therefore, there will be no reduction in habitat area.</p> <p>Indirect pathways including water pollution that would allow impacts to occur were considered in the design of the Proposed Development and a range of measures outlined in Section 6-2 of this report, are in place to avoid all potential impacts caused by deterioration in water quality during the construction phase.</p>
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### 7.4.1.1 Determination on Potential for Adverse Effects on Inner Galway Bay SPA

Based on the above review of the individual SCIs and following the implementation of the best practice and mitigation measures described in Section 6 of this report, it can be concluded, in view of best-scientific knowledge and based on objective information, that the Proposed Development will not have an adverse effect on the integrity of Inner Galway Bay SPA, in light of its site-specific conservation objectives.

## 7.5 Conclusion of Residual Impact Assessment

Based on the above, in view of best scientific knowledge, on the basis of objective information, the Proposed Development will not adversely affect water quality in the area during either construction or operation of the Proposed Development. Nor will there be significant impacts as a result of disturbance. There is no potential for adverse effect on the identified QIs/SCI and their associated targets and attributes, or on any European Site via the identified pathways, which have been robustly blocked through measures to avoid impacts and the incorporation of mitigation measures into the development design.

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

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

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

The conservation status will be taken as ‘favourable’ when:

*Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*

*§The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*

*§There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.’*

Based on the above, it can be concluded in view of best scientific knowledge, on the basis of objective information that the Proposed Development will not adversely affect the Qualifying Interests/Special Conservation Interest associated with any European site, including the following:

- Lough Corrib SAC (000297)
- Galway Bay Complex SAC (000268)
- Lough Corrib SPA (004042)
- Inner Galway Bay SPA (004031)

## 8. CUMULATIVE EFFECTS

A search and review in relation to plans and projects that may have the potential to result in cumulative and/or in-combination impacts on European Sites was conducted. This assessment focuses on the potential for cumulative in-combination effects on the European Sites where potential for adverse effects was identified in Section 4 of this report. This included a review of online Planning Registers, development plans, and other available information, and served to identify past and future plans and projects, their activities, and their predicted environmental effects.

### 8.1 Review of other plans and projects

#### 8.1.1 Review of plans

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

- Galway County Council Development Plan 2022-2028
- Northern and Western Regional Assembly – Regional Spatial and Economic Strategy 2020 – 2032
- Ireland’s 4<sup>th</sup> National Biodiversity Action Plan 2023-2030

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage. Policies and objectives relating to sustainable land use were also reviewed.

Table 8-1 Review of Plans.

Plans	Key Policies/Issues/Objectives Directly Related to European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of development compliance with policy
<p><b>Galway County Council Development Plan 2022-2028</b></p>	<p><b>Policy Objective NHB 1 – Natural Heritage and Biodiversity of Designated Sites, Habitats and Species</b></p> <ul style="list-style-type: none"> <li>➤ Protect and where possible enhance the natural heritage sites designated under EU Legislation and National Legislation (Habitats Directive, Birds Directive, European Communities (Birds and Natural Habitats) Regulations 2011 and Wildlife Acts) and extend to any additions or alterations to sites that may occur during the lifetime of this plan.</li> <li>➤ Protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (Habitats and Birds Directive) and protected under national Legislation (European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), Wildlife Acts 1976-2010 and the Flora Protection Order (SI 94 of 1999).</li> </ul> <p>Support the protection, conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of European sites, that form part of the Natura 2000 network, the protection of Natural Heritage Areas, proposed Natural Heritage Areas, Ramsar Sites, Nature Reserves, Wild Fowl Sanctuaries (and other designated sites including any future designations) and the promotion of the development of a green/ ecological network.</p>	<p>The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified.</p> <p>There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites as outlined in Section 6.3 of this report. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.</p> <p>No potential for negative cumulative impacts when considered in conjunction with the current proposal were identified.</p>
<p><b>Northern and Western Regional Assembly – Regional Spatial and Economic Strategy 2020 – 2032</b></p>	<p><b>Growth Ambition 2: Environment – Natural Region</b></p> <p><b>RPO 5.4</b> - Encourage the prioritisation of Site-Specific Conservation Objectives (SSCO) for all sites of Conservation Value, designated in EU Directive (i.e., SACs, SPAs) to integrate with the development objectives of this Strategy.</p> <p><b>RPO 5.5</b> - Ensure efficient and sustainable use of all our natural resources, including inland waterways, peatlands, and forests in a manner which ensures a healthy society a clean environment and there is no net contribution to biodiversity loss arising from development supported in this strategy. Conserve and protect designated areas and natural heritage area. Conserve and protect European sites and their integrity.</p>	<p>The plans were comprehensively reviewed with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified.</p> <p>There will be no impact on designated site or other natural heritage interests as a result of deterioration of water quality. Best practice preventative measures will be implemented to avoid effects on water quality as outlined in Section 6.3 of this report. There will be no</p>

	<p><b>RPO 5.6</b> - Develop awareness and create a greater appreciation of the benefits of our natural heritage, including on the health, wealth and well-being of the region’s ecosystem services.</p> <p><b>RPO 5.7</b> - Ensure that all plans, projects and activities requiring consent arising from the RSES are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate.</p>	<p>adverse effects on sensitive aquatic receptors listed as QIs/SCIs of European Sites as a result of deterioration in water quality.</p>
<p><b>Ireland’s 4<sup>th</sup> National Biodiversity Action Plan 2023-2030</b></p>	<ul style="list-style-type: none"> <li>➤ <b>Objective 1: Adopt a Whole-of Government, Whole of-Society Approach to Biodiversity.</b> Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan.</li> <li>➤ <b>Objective 2: Meet Urgent Conservation and Restoration Needs.</b> Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government.</li> <li>➤ <b>Objective 3: Secure Nature’s Contribution to People.</b> Actions highlight the relationship between nature and people in Ireland. These include recognising the tangible and intangible values of biodiversity, promoting nature’s importance to our culture and heritage and recognising how biodiversity supports our society and our economy.</li> <li>➤ <b>Objective 4: Enhance the Evidence Base for Action on Biodiversity.</b> This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts.</li> <li>➤ <b>Objective 5: Strengthen Ireland’s Contribution to International Biodiversity Initiatives.</b> Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity.</li> </ul>	<p>The Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the biodiversity, protected species and designated sites. The Proposed Development has been designed in order to avoid any potential fragmentation of habitats or commuting corridors.</p> <p>There will be no adverse effects on designated sites or biodiversity as a result of the Proposed Development. The Proposed Development will not impact on connectivity within the wider area.</p> <p>No Invasive species were present within Proposed Development site, and the Proposed Development will not contribute to the spread of invasive species.</p>

## 8.2 Other Projects

The Proposed Development was considered in combination with other plans and projects in the area that could result in cumulative impacts on European Sites. The online National Planning Application and An Bord Pleanála Map Viewers were consulted on the 17/05/2024 for the area surrounding the site of the Proposed Development and considered all projects including exempted developments, SIDs, road schemes and anything else that may have cumulative impacts with the Proposed Development. Additional projects identified in the area include:

- **Planning Ref 22526:** Permission for the following at the existing Glenlo Abbey Hotel (Protected Structures no. 3441 and 3952). Amendments to the development permitted under Ref 21/1313 as follows: - Change of design to the reception/store building (associated with the holiday lodges permitted under Ref 20/1242) resulting in an increase of overall floor area from 60.5 sqm to 101 sqm. - Weather protective canopy to the side. - Provision of solar PV panel array to roof. - All associated site works. Gross floor space of proposed works: 101 sqm.
- **Planning Ref. 22623:** Permission for the following at the existing Glenlo Abbey Hotel (Protected Structures no. 3441 and 3952). Demolition of the existing walls storage shed and associated yard area north of the existing Pullman (train) Restaurant. Change of use of the existing kitchen area within the Pullman (train) Carriage to a dining carriage and construction of a new single storey commercial kitchen of circa 115sqm, linked to the existing Pullman (train) Restaurant, together with all associated plant/services and ancillary works. A Natura Impact Statement (NIS) will be submitted to the planning authority with this application.
- **Planning Ref. 22992:** Permission for the following at the existing Glenlo Abbey Hotel (Protected Structures no. 3441 and 3952). Demolition of the existing driving range building and associated 22 No. driving range bays. Construction of new single storey Golf Academy to include 30 No. covered Driving Range Bays, Pro Golf Shop, Changing Facilities, High Performance Golf Training Facility, Restaurant, Retail Store, Kitchens, along with Hotel Administration Offices, Staff Canteen and Ancillary Accommodation, together with all associated services and ancillary site works, including alteration and extension of the adjacent carpark. A Natura Impact Statement (NIS) will be submitted to the planning authority with this application. Gross floor space of proposed works: 1102 sqm.
- **Planning Ref. 21411:** Permission for the construction of a single storey granny flat extension to the side/rear of our dwelling (85 sqm) and to include all associated site works. Gross floor space of proposed works: 85 sqm.
- **Planning Ref. 191373:** Permission for the construction of a domestic garage with all associated services and site works. Gross floor space of proposed works: Garage = 52 sqm.
- **Planning Ref. 2260140:** Permission for a Dwelling house, garage and private wastewater treatment system with all associated works and ancillary services. Gross floor space of proposed works 290sqm.
- **Planning Ref. 19191:** Outline Permission is sought for a single storey over basement dwelling house and shed, and wastewater treatment system and associated polishing filter bed, including new access road and all associated site services and landscaping works, to lands.
- **Planning Ref. 21317:** Permission for development which will consist of the change of house design (from previously granted outline permission Ref. 19/191 and consequent permission Ref 21/47) of new dwelling house (206m<sup>2</sup>) and shed (32m<sup>2</sup>), new wastewater treatment system and associated polishing filter bed, including new access road and all associated site services and landscaping works, includes minor façade and fenestration revisions to front, side and rear elevations, replacing roof with monopitch roof solution, addition of 3m<sup>2</sup> to rear service block.
- **Planning Ref. 2147:** Permission Consequent on the of outline permission for development (previously granted outline permission 19/191) which will consist of a new Dwelling house (203sqm) and Shed (32sqm).
- **Planning Ref. 20354:** Outline Permission for development which will consist of for a new dwelling house, garage and new wastewater treatment system and associated site works.



- **Planning Ref. 2182:** Permission for development which will consist of construction of a new dwelling house, new domestic garage, new waste water treatment, new percolation area and associated site works.
- **Planning Ref. 2217:** Permission for development which will consist of renovations, upgrades and extensions to an existing dwelling. The development will include 1). Partial demolition and reconstruction of the existing substandard lower ground floor level, flat roof terrace and balustrades to the rear of the dwelling 2). Construction of a new natural stone wall and 4 no. bay windows along the perimeter of the new reconstructed lower ground floor level 3). Partial demolition of the substandard western pitched roof, followed by its reconstruction and rise to meet existing adjacent pitched roof profile 4). Modifications of 2 no. chimneys and demolition of 1 no. chimney 5). Extension to the side elevation of the small porch and pantry (9.5 sqm) 6). Construction of a new open porch along with alterations to the existing roof to the front of the dwelling 7). Glass conservatory type extension to the rear of the ground floor (19sqm) 8). Conversion of an existing fuel store into a carport, including an extension (16.6 sqm) and roof replacement 9). Construction of a new garage at the south-westerly part of the site 10). External wall insulation to all remaining external walls 11). Modification and alterations of overall fenestration openings throughout with the removal and replacement of all windows, roof windows and doors including additional windows, roof windows and doors 12). Existing concrete roof tiles to be removed throughout existing roof finish to be replaced with natural slate tiles and zinc 13). Modifications of all balustrades and external columns to the rear of the dwelling 14). Decommissioning of existing septic tank and addition of a new wastewater treatment and disposal systems 15). Refurbishment of existing site entrance gate way 16). All ancillary site works, services and landscaping to facilitate the development.
- **Planning Ref. 2297:** Permission for development which will consist of the construction of a 3 bedroom dwelling house, ancillary garage and all associated site works including a new entrance and treatment plant system.
- **Planning Ref. 2043:** Planning permission is sought for the construction of a new replacement roof with a steeper pitch including dormer windows to the front and side of the main roof, flat roof windows to the rear and side, new window in the first floor gable end which would change this existing detached single storey house to a detached storey and a half dormer house plus all associated works and internal modifications.

## 8.3 Conclusion of Cumulative Assessment

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

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

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

## 9. **CONCLUDING STATEMENT**

This NIS has provided an assessment of all potential direct or indirect adverse effects on European Sites, whether considered individually, or in combination with other plans and projects.

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

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

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## APPENDIX 1

# CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN



Bonneagar Iompair Éireann  
Transport Infrastructure Ireland

# Construction Environmental Management Plan for Galway County Council

N59 Kentfield

Road Safety Junction Improvement Scheme

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*GC/19/18753*



Comhairle Chontae na Gaillimhe  
Galway County Council



Bonneagar Iompair Éireann

Date: 01/04/2024

## Document Control Sheet

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# 1 Introduction

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## 1.1 Project Overview

Galway County Council are undertaking the realignment of a section of the N59 National Road and upgrade of the existing N59/L-5381 Junction. This Construction Environmental Management Plan (CEMP) has been prepared as supporting documentation for the Planning Application to An Bord Pleanála under section 177AE of the Planning and Development Act 2000, as amended. The section of the N59 and its intersection with local road L-5381 to be improved is located at a bend which contains a hidden dip along the road. The existing road conditions falls well below the standard of the TII Publications (Standards) in terms of horizontal and vertical alignment, visibility, cross-section, and safety on the route is compromised as a result. In addition, the existing N59/L-5381 priority T junction is particularly a contributing factor to the high number of rear end collisions at this location. The existing road on this section of the N59 has a restricted capacity due to its limited cross section and sub-standard alignment. There are also a multitude of hazards within the clear zone of the road resulting in unforgiving roadsides that can significantly increase the level of injury severity should a vehicle leave the road. The section has been assessed under the AM-STY-06044 Road Safety Inspection and was identified as a site having road safety problems needing further assessment to identify if there is a treatable engineering solution. The provision of an improved section of road, designed to contemporary standards and providing safe stopping sight distances, will increase the overall consistency and efficiency of the route and provide safer journeys as well as more reliable and reduced journey times. Access, in terms of Vulnerable Road Users such as pedestrians and cyclists is quite limited, due to the existing road cross section, with little or no verges and no hard shoulders. The provision of an improved section of road, designed to contemporary standards will provide safer access for Vulnerable Road Users (VRUs). In the interest of road safety, the improvement works to the N59/L-5381 Junction at Kentfield are necessary.

## 1.2 Purpose of this Outline Construction Environmental Management Plan

The purpose of this CEMP is to document and describe the main activities that will be undertaken to facilitate the project and to provide a framework of environmental protection measures that will be implemented prior to commencement of, and throughout the duration of, the proposed road improvement works.

The proposed realignment and upgrade work at N59 / L-5381 Junction will be undertaken by a Contractor appointed by Galway County Council. This CEMP will be provided to the appointed Contractor prior to the commencement of works and will form the basis of the Contractor's CEMP and Method Statements, which the appointed Contractor will be required to develop and prepare for approval by Galway County Council prior to commencement of

any works. The Contractor's CEMP and Method Statements will set out the approach and methodology which they will follow in scheduling and undertaking the work. This CEMP outlines the control measures in relation to environmental protection associated with the activities and disturbance to road users. It is the responsibility of Galway County Council to ensure that the requirements of this CEMP and any requirements associated with the Contractor's Method Statements and CEMP are implemented in full.

### **1.3 Legislation and Other Requirements**

The CEMP summaries the requirements from legislation and Codes of Practice which apply to the works being undertaken. An example non-exhaustive list of such requirements is provided below:

- Safety, Health, and Welfare at Work Act, 2005
- Safety, Health, and Welfare at Work (Construction) Regulations, 2013
- Safety, Health, and Welfare at Work (General Application) Regulations 2007 – 2016, SI No. 229
- Safety, Health, and Welfare at Work (Confined Spaces) Regulations, 2001
- European Union (Drinking Water) Regulations 2014
- European Communities (Surface water) Regulations, 2009 (as amended)
- European Communities (Groundwater) Regulations, 2010 (as amended)
- European Communities (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations, 2022
- Local Government (Water Pollution) Act, 1977 and associated Regulations
- European Communities (Birds and Natural Habitats) Regulations 2011
- Wildlife Act 1976 - 2021
- Best Practice Guidelines on the preparation of resource & waste management plans for construction & demolition projects
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI, 2016)
- CIRIA C648 Control of water pollution from linear construction projects Technical Guidance (CIRIA 2006)

### **1.4 Roles and Responsibilities**

This initial issue of the CEMP identifies the key roles for the construction works. The appointed contractor will update the CEMP and will set out detailed roles and responsibilities (including named individuals) and an organogram of the team structure.

#### **1.4.1 Galway County Council (Employer)**

Galway County Council National Roads Project Office are the Employer for the proposed development and have the following responsibilities following the submission of the Planning Application to An Bord Pleanála:

- Post consent management: manage the process towards construction including liaison with key environmental agencies and stakeholders and the public.
- Engineering function: Ensures that the design is delivered as per the planning drawings and that the delivery of the proposed development meets the required design standards.
- Communication: Continued liaison with the public and local residents on the progress of the proposed development.

#### **1.4.2 Contractor**

A Contractor will be appointed following a tendering process and will be responsible for the implementation of all mitigation as set out in Section 4 and the completion of the works to the satisfaction of the Employer.

#### **1.4.3 Site Manager**

The Site Manager will be responsible for the day to day running of the site and will direct and oversee the activities of contractor staff and any subcontractors under the Contractor's control throughout the works. The Site Manager will be responsible for programming of the works and will consult regularly with the Employer and will maintain site safety.

#### **1.4.4 Contractor Environmental Clerk of Works**

The Contractor's Environmental Clerk of Works (EnCoW) will have suitable environmental qualifications and the necessary experience and knowledge appropriate to the role. The EnCoW will be delegated sufficient powers under the construction contract so that they will be able to instruct works to stop and to direct the carrying out of emergency mitigation / clean-up operations. The EnCoW will also manage consultation with environmental bodies/stakeholders. The EnCoW will be responsible for ensuring that all control measures in Section 4 of this report and those within the Contractor's CEMP are fulfilled and are in adherence with applicable standards and legislation.

Figure 1.1: Proposed Scheme



## 2 Project Description

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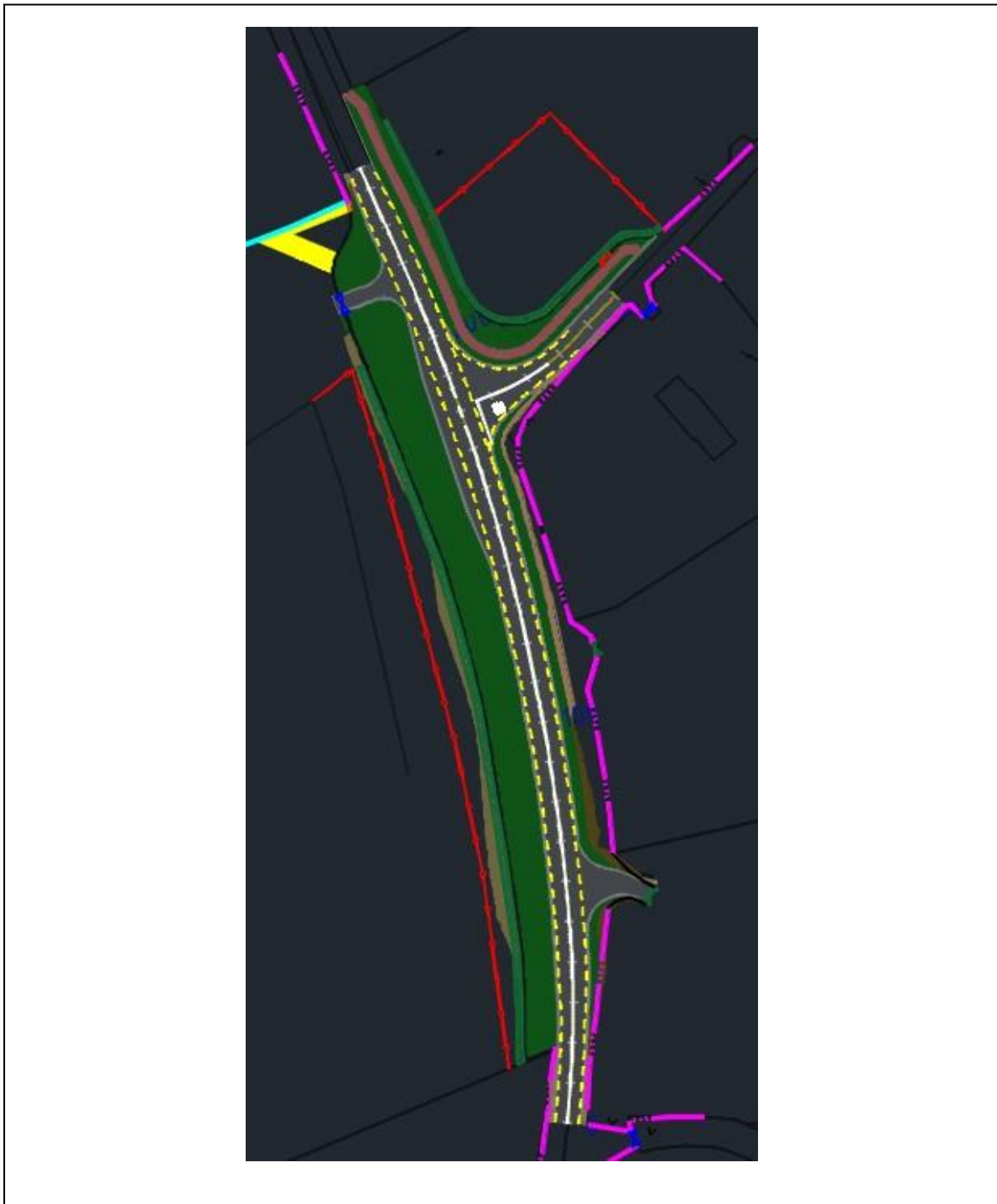
### 2.1 Project Description

The works comprise alterations to the existing road alignment of the N59 and L-5381 at Kentfield Co. Galway. There will be no change in traffic levels as a result of the proposed development or other operational phase impacts. The following outlines the planned works required at N59 Kentfield:

- The N59 carriageway will be realigned and upgraded to a Type 2 single carriageway along the 245m section of the N59;
- On approach to the simple priority junction along the N59 a nearside passing of 2m will be provided at the junction.
- The L-5381 carriageway will be realigned and widened for approx. 45m to incorporate a carriageway width of 6.0m and a 2m wide footpath;
- Grass verges will be provided at 3m width along the western length of the N59 with existing hedgerow maintained and varying widths of grass verge between 8 – 12m along the eastern length of the N59 carriageway;
- A 2m wide footpath will be provided along the N59 on the south-western side of the scheme and extended westwards along the L-5381 for approximately 123m
- 1no. Domestic entrance on the N59 will be maintained and upgraded to current standards including resting walls and piers;
- 2no. Field access will be maintained along the N59 and upgraded to current standards.
- 240m of stone wall will be constructed on the eastern side of the scheme, with approx. 60m stone wall to be constructed on the western side of the scheme.
- All existing land drainage and culverts will be maintained with new land drainage connected to existing network;
- Proposed sealed drainage system comprising of kerb and gully system, which discharges through a petrol interceptor and underground tank, where runoff is attenuated and treated before discharged to the local drainage network;
- 220m of vegetation clearance along the eastern side of the N59 and 50m of vegetation clearance will be required on the L-5381 to facilitate the works and to provide for visibility;
- All ancillary works required to deliver the proposed scheme.

The road traffic will remain live with a traffic management plan implemented by the contractor. The Contractor will be responsibly to ensure temporary traffic measures and signs for roadworks are in accordance with chapter 8. The Site compound will be located off the local road L-5381. Galway County Council will have identified an area suitable for a site compound to be used by the Contractor.

Figure 2.1: Proposed Scheme Looking in Direction of Galway City/East



- Start of the Scheme N59 at Ch 0m.
- Chainage Ch 0m – Ch 245m along N59.
- Local road L-5381 Approx. 45m in length.
- 1No Residential Entrance.
- 2No. Agricultural Accesses.
- Black lines indicate existing boundaries.
- Grey lines indicate proposed walls.

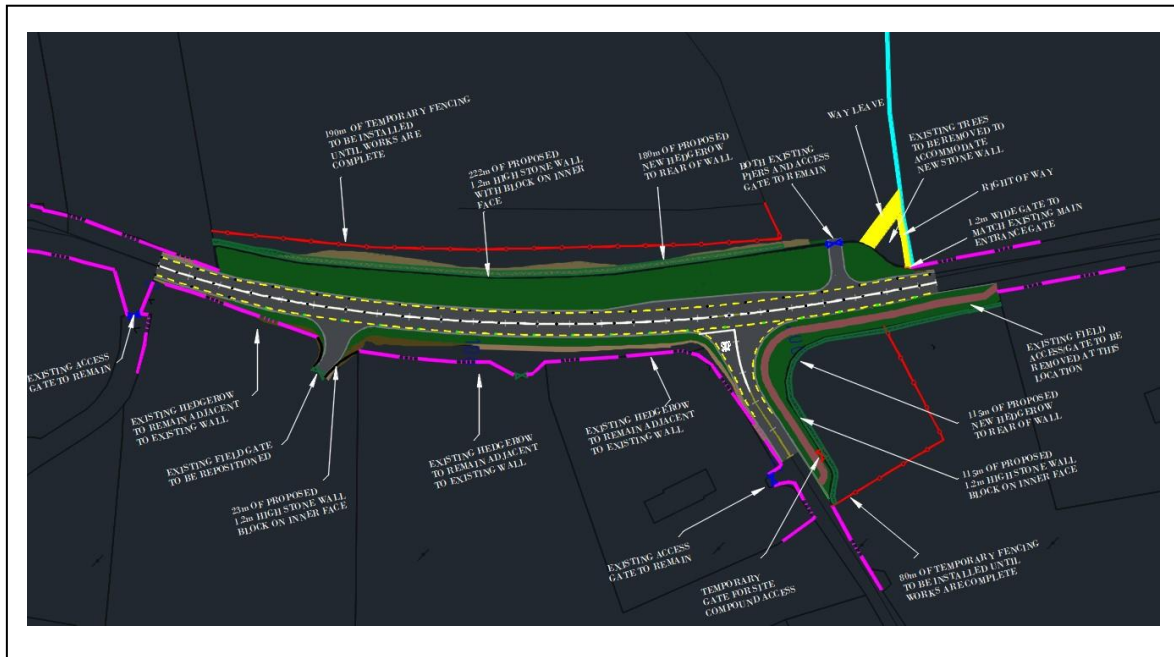


Figure 2.2: Proposed Scheme Looking in Direction of Moycullen/West



- End of Scheme on N59 at Ch245m
- Chainage Ch 0m – Ch 245m along N59
- Local road L-5381 Approx. 45m in length.
- 1No Residential Entrance.
- 2No. Agricultural Accesses.
- Black lines indicate existing boundaries.
- Grey lines indicate proposed walls.

Figure 2.3: Proposed Scheme Looking North



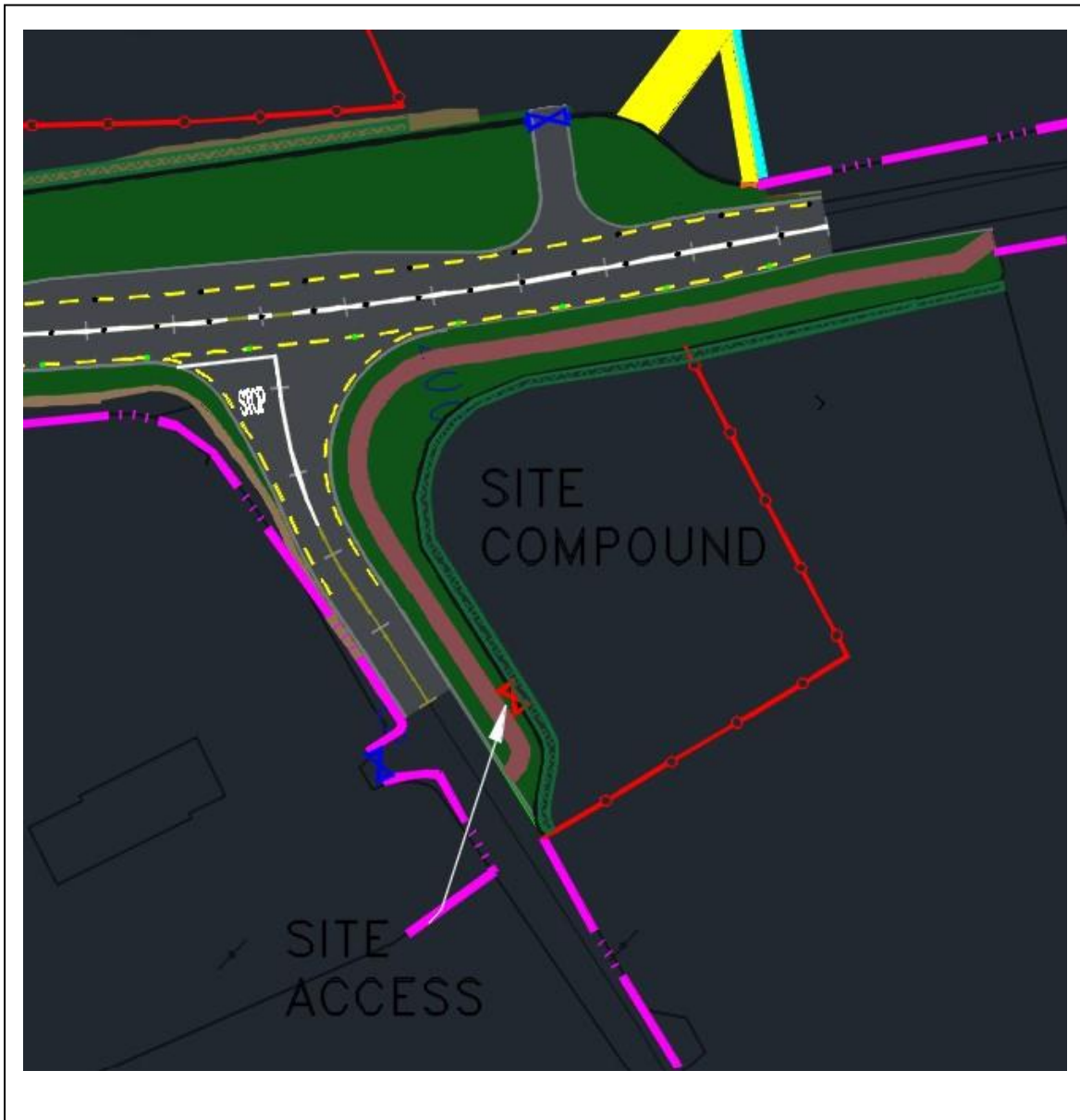
- Extents of the proposed scheme looking North towards the Lough Corrib.
- Red Blocks indicate Residential Buildings/Golf Building

Figure 2.4: Proposed Scheme Looking South



- Extents of the proposed scheme looking South towards Barna.
- Red Blocks indicate Residential Buildings.

Figure 2.5: Proposed Site Compound & Access



- Site Compound located off Local Road L-5381.

## 3 Proposed Activities

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### 3.1 Construction Programme

The commencement date is subject to approval by Galway County Council and any changes which may occur following resolution by An Bord Pleanála to vary or modify the planning application. The proposed construction works are anticipated to commence in Q3 2024. Table 3.1 details the stages of the 10-week construction programme which is based on experience of similar projects and is meant to be indicative rather than a definitive programme.

**Table 3.1: Indicative Construction Programme**

Construction Stage	Duration	Description
1 – Site Establishment	1 week	Install site office, Canteen, Welfare/Hygiene facilities, Car Park, Signage, Survey area, Identify Services, Mobilisation of Plant, Temporary Traffic Management
2 - Site Clearance	1 week	Removal of trees, hedgerow and vegetation required for road realignment
3 - Earthworks	4 weeks	Striping Topsoil, Cut & Fill Material, Road Formation Verges, Land Drainage
4 – Pavement Foundation	3 weeks	Compact Subgrade, Subbase Course, Base Course, Binder Course, Surface Course, Kerbing
5 – Accommodation Works	7 weeks	Foundations, Stone wall construction.
6 - Drainage	2 weeks	Excavate trench, lay gully pots & pipes, petrol interceptor, underground tank, pipes, Out fall pipe, Culvert upgrade & Headwall
7 – Ancillary Works	1 week	Road markings, Signage, Construct Footpath

The construction working hours will be restricted to the following:

- Monday to Friday: 07:00 – 19:00
- Saturday: 08:00 – 14:00
- Sunday or Bank Holiday: No construction works programmed

### **3.2 Site Establishment**

The site will be accessed off the existing local road L-5381. Prior to the commencement of any works the site entrance will need to be fully established with all security gates and the provision of a parking for construction worker's vehicles. For the duration of the project all vehicles will be parked within the confines of the site.

An excavator operator will strip the topsoil from the area of ground where the compound will sit. This topsoil will be stockpiled for reuse on site. Terram will be rolled out and rock fill placed and tracked in to provide a sound base for the compound and vehicular traffic within it.

The Contractor shall commence mobilisation of the offices and stores which are to be located onsite and transported by a licensed haulage contractor. The Contractor shall then start positioning the pedestrian fencing to establish safe routes between offices to segregate staff from vehicular traffic. In addition, the Contractor shall delineate designated parking areas for staff vehicles and site works vehicles.

The Contractor shall install an enclosed wastewater storage tank adjacent the toilet facilities which will be emptied on a regular basis. The tank will be decommissioned and removed at the end of the contract. The Contractor shall ensure that water discharge from the office/welfare sinks is discharged separately into a surface water discharge point.

An Electrician shall complete the electrical connections for the compound upon mobilization of the site-based generator; the double banded generator shall be positioned on an appropriate drip tray for environmental concerns.

Perimeter security fencing will be placed at areas of particular importance around the site as the development progresses, as a barrier to unauthorised public access. The fencing will be well maintained, and appropriate signage will also be put in place to alert drivers of the works

### **3.3 Site Clearance and Preparation**

Tree hedgerow and vegetation removal will be limited to only essential areas. The trees and hedgerow are programmed to be felled outside the bird nesting season (in accordance with the Wildlife Act 1976, as amended). If a change occurs to the planned construction schedule and works occur during the bird nesting season, 1st March to 31st August inclusive, then a bird nesting survey will be required for any trees identified for felling.

Evidence of invasive species listed within Part 1 of the Third Schedule of S.I No. 477 of 2011, European Communities (Birds and Natural Habitats) Regulations 2011 was included in an ecological survey completed In May 2023 by MKO Ecologists. No invasive species were identified. It is considered that the establishment of invasive species is unlikely to occur before the commencement of these works and no pre-construction confirmatory invasive species survey is required (where construction works are not subject to significant delay).

## 3.4 Construction Works Phasing

### 3.4.1 Earthworks

Soil Stripping and temporary stockpiling of soils and subsoils will be required around the site as the proposed development progresses. While these works occur, the following will apply:

- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies i.e., ESB Networks, Eir, Irish Water, Galway County Council etc. will be contacted and all drawings for all existing services sought.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- All plant operators and general operatives will be inducted and informed as to the identification of invasive species.
- A tracked 360-degree excavator will be used to strip the topsoil, and a dumper will be used to move the excavated materials to the temporary stockpile location.
- All excavated material will be reused for future landscaping works or for backfill of excavations.
- All stockpiles will be damped down or covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation.
- A silt filtration system will be used as appropriate to prevent contamination of any watercourse

### 3.4.2 Pavement Foundation

The strength of the foundation layer is dependent upon the three factors applicable to all pavement engineering design.

- The support provided by the underlying material, in this case the subgrade.
- The strength of the foundation material itself.
- The thickness of the layer.

A detailed pre-construction geotechnical site investigation will be carried out in order to assess a number of design issues, in particular the stiffness (CBR) of the material, its moisture sensitivity and if necessary, its suitability for earthworks and stabilisation to form capping layer, sub-base or road base material.

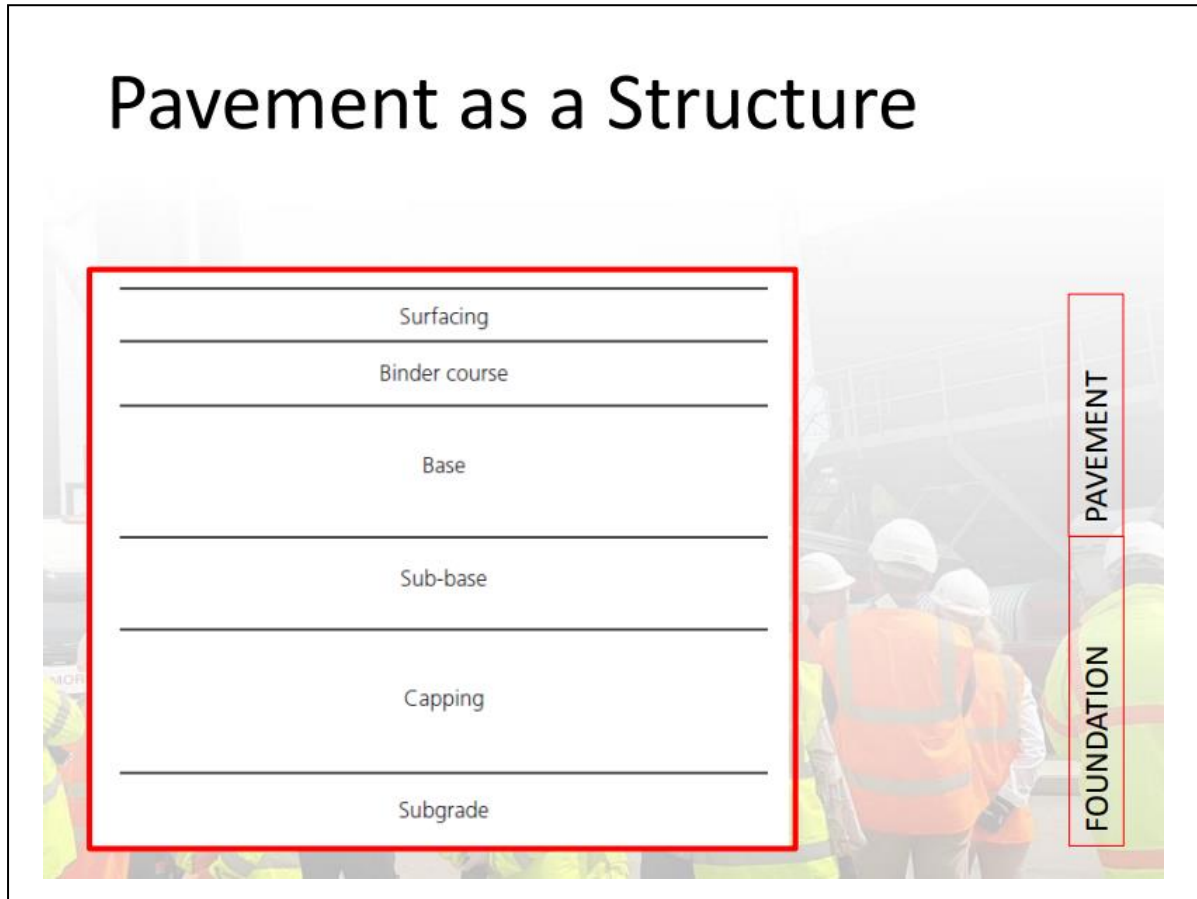
The pavement foundation will be constructed along the realigned section of the N59 for 245m. The extent of the foundation design will be in accordance with a Type 2 Single Carriageway. The Local Road L-5381 will be constructed for approx. 45m in accordance with a Type 3 Single Carriageway.

The Pavement Foundation will consist of the following:

- Subgrade
- Capping
- Sub-base
- Base

- Binder course
- Surfacing

Figure 2.6: Cross Section of Pavement Structure



The N59 Kentfield road safety junction improvement scheme will rely on heavy-duty machinery to successfully deliver the project such as:

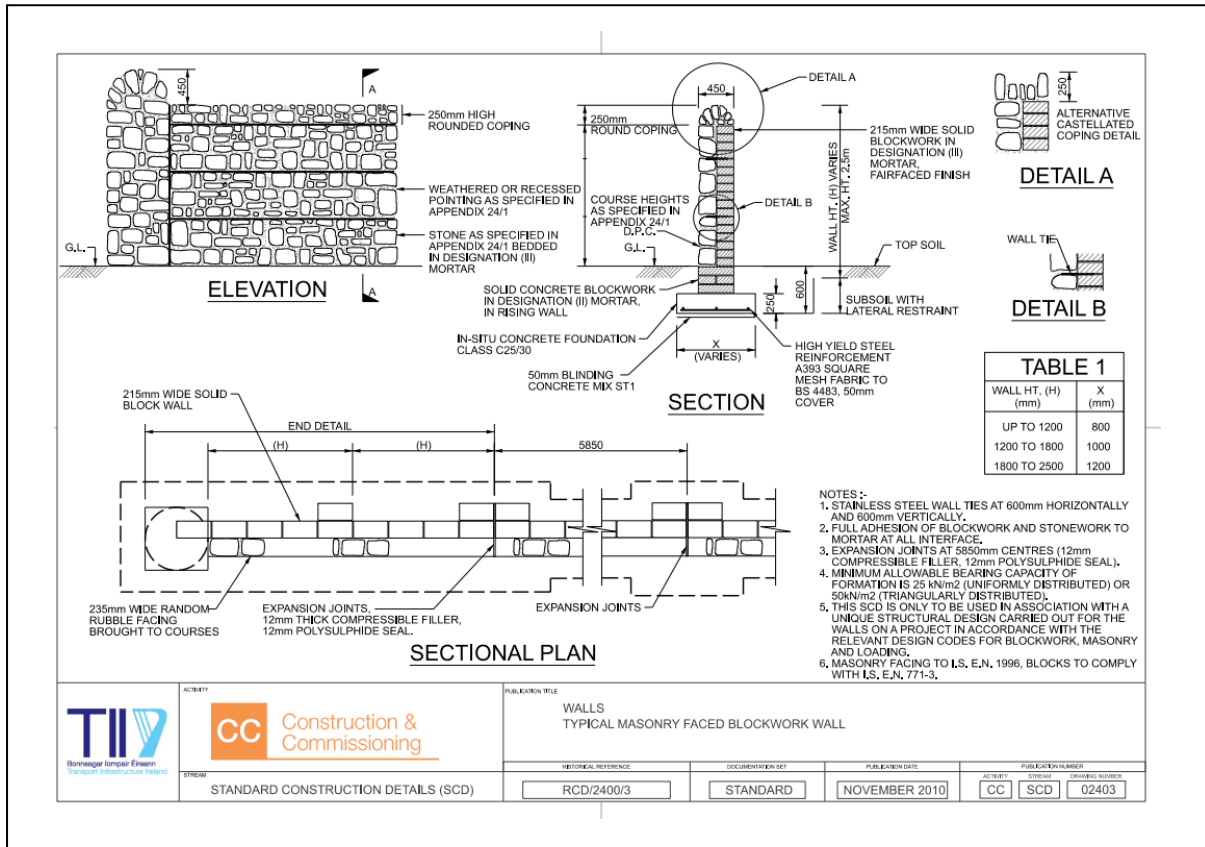
- 360-degree excavators
- Dump trucks
- Rollers
- Pavers

### 3.4.3 Accommodation Works

Accommodation works to be provided for the scheme:

- Single sided stone wall on the northern section along the N59, consisting of approx. 212.
- Single sided stone wall of approx. 58m connecting the N59 and L-5381

Figure 2.7: Single Sided Stone Wall Detail





#### **3.4.4 Drainage**

The proposed carriageway drainage system will consist of a gully and pipe system which will be installed as part of the works. All carriageway runoff is collected along the full proposed scheme from Ch 0m – Ch 245m. The carriageway drainage is kept separate from the land drainage. The carriageway runoff flows through a petrol interceptor before entering an underground storage tank, which allows the runoff to attenuate over a period of time before being discharged to an outfall stream at Ch 245m.

#### **3.4.5 Ancillary Works**

Other works to complete the improvement scheme include:

- New footpath on L-5381 to connect with existing N59 footpath.
- Road lining over the new realigned section of road to facilitate the safe passage of vehicles through the realignment scheme.
- Installation new road signage.
- Prior to completion of works on the development site, the landscaping works will be carried out. These works will involve the use of plant and machinery in order to carry out tasks such as earth moving. Materials which have been stockpiled for the task will be used as much as possible, and material will only be imported where it is required. During site preparation works, where topsoil is stripped prior to excavation, this material will be retained on site for use in landscaping

## 4 Control Measures

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### 4.1 Introduction

The following sections detail the minimum control measures that will be implemented prior to commencement and throughout the duration of the proposed works.

### 4.2 General Environmental Rules during Construction

- Report any signs of pollution or environmental damage to the site foreman no matter how small;
- Report any spills, incidents or near misses that occur on site immediately to the site foreman;
- Refuel only in designated areas with spill kits available;
- All waste must be stored in the designated site waste management areas;
- Do not throw litter, all waste must be sent to site waste management contractor;
- Do not divert plant or machinery outside the authorised working boundaries of the site;
- The Contractor will ensure ongoing compliance with the recognised Environmental Management System Standard to which it is registered (e.g. EN ISO 14001 or equivalent European Standards);
- The Contractor will develop Environmental Procedures to control the potential impacts from the construction phase of the development. These procedures will be made available in the main site office and at the main Environment, Health and Safety information points on site;
- All personnel will be familiar with the Environmental Policy which will be made available in the main Contractor office;
- An emergency contact list will be prepared and made available to all construction staff employed. The contact list will be displayed prominently on site as well as at suitable locations where construction activity is being carried out around working areas. The contact list will include key environmental representatives that may need to be contacted in the event of an incident. A 24-hour emergency phone number will be maintained for the duration of the construction works. This number will be noted on temporary signage at each works area for cable works, and at the site entrance, at a minimum.

### 4.3 Vegetation Clearance

Only essential areas of vegetation removal, hedgerow and tree clearance will be actioned as required to carry out the realignment and junction improvement works. All verges will be landscaped, and areas grass seeded on completion of programmed site works.

## 4.4 Pollution Control

### 4.4.1 General

Pollution control measures to prevent impacts to surface waters (the Skanagore stream runs beneath the R605 and is a tributary of the River Bandon) will be designed, installed, and maintained in accordance with CIRIA guidance for 'Environmental Good Practice on Site' (C741) and 'Control of water pollution from linear construction projects. Technical guidance' (C648) and as per the IFI guidance (2016) 'Guidelines on protection of Fisheries During Construction Works in and Adjacent to Waters'. General pollution control measures also including the scheduling of works for dry conditions to reduce the risk of run off. In the event of adverse weather events work will be halted.

### Hydrocarbons

All mobile equipment required for the works (e.g. generators), will be housed in the Contractor's compound in a suitably sized bund / plant nappy so that any leaks / spills are contained. Bund specification will conform to the current best practice for oil storage such as 'Best Practice Guide BPGCS005 Oil Storage Guidelines' Enterprise Ireland.

Drip trays will be placed beneath any standing machinery to prevent discharge of oils and fuel. All waste fuels / oils, and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Acts 1996, as amended. Spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment. Any contaminated material used to clean a spill will be correctly disposed of as a hazardous waste and brought to a licenced waste handing site by a licenced waste contractor. Welfare / hygiene facilities will be located at the Contractor's compound only. All water from wheel washes will be removed from site and disposed of in line with Waste Legislation.

### Bitumen and concrete materials

A description of how bitumen and concrete will be utilised for the proposed development to prevent run-off are summarised below (concrete culvert will be a pre-cast structure delivered to site);

- No on-site batching will be permitted at the proposed works areas. Concrete will be transported to the site by concrete truck.
- Quick setting concrete mixes will be used to reduce the risk of contaminated run-off to the watercourse.
- Concrete trucks will only be washed down in a sealed mortar bin / skip which has been examined in advance for any defects. This requirement will be communicated to each concrete truck driver prior to entering into the works area.
- Where concrete pours are to take place instream (e.g., for blinding for the culvert) they will only take place within an isolated, dry, works area.

- Where the isolated working area requires constant pumping to maintain a dry works area, pumps shall be turned off during the pour, and remain off until concrete has hardening negating a run-off risk; and such that the discharge will not result in a change in pH of +/-0.5 units. This can only take place where it is confirmed that there is no flow of water through the location of the pour, and out into the watercourse downstream
- Where concrete pours are required within the watercourse, the EnCoW will regularly monitor the pH of the watercourse during concrete works. Should any change in pH +/-0.5 be detected concrete works shall immediately be ceased (handheld monitors will have maximum variance of +/- 0.1). The entry point to the watercourse will then be identified and implement appropriate measures to prevent further escape to the environment.
- It will be ensured that covers are available for freshly poured concrete to avoid wash off in the event of rain.
- Waste concrete slurry will be allowed to dry and taken to a licensed waste depot for disposal.
- Concrete works will be scheduled during dry weather conditions to reduce the elevated risk of runoff.
- NPWS and IFI will be notified immediately of any concrete spills into watercourses.

## Sediment

- Prior to the works commencing, the measures prescribed in this section shall be installed to prevent the downstream transportation of surface water run off associated with vegetation clearance. This may be through the use of features like straw bales or silt booms. Monitoring of these measures to ensure their continued effectiveness will take place on an on-going basis while the works are proceeding.
- The clearance of riparian vegetation will be kept to the minimum required for the facilitation of the works such that no unnecessary exposure of riverbanks occurs.
- Works to clear vegetation to facilitate the culvert shall take place from the bank with vegetation pulled back towards the land. The vegetation removed shall be transported off site and disposed of appropriately.
- Following the vegetation clearance, a dry works area to allow for the culvert placement shall be established. The measures required to achieve this must be appropriate for the size and flow associated with the watercourse and consider the potential for increased flow due to rainfall events.
- The dry works area may be achieved by isolating the entire watercourse and over pumping the flow.
- Should pumping out of the isolated area be required to maintain the dry works area, it shall be ensured that any discharge is treated appropriately prior to entering the watercourse. This may be achieved by discharging to a treatment system such as a silt buster or similar, discharge to a silt bag, or discharging to an area of the watercourse that is protected by a silt boom. These measures shall be used in combination where ground conditions are such that just one measure is not achieving sufficient

protection. The success of these measures shall be monitored regularly by the Contractor's EnCoW as works proceed.

- Where the implementation of these measures fails, or are found to be inadequate, the Contractor will implement adapted measures (for example replacement sediment treatment system) in agreement with the Contractor's EnCoW and the Employers Representative Team.
- Any diversion or over pumping of watercourses shall be sized such that they will accommodate a 1% AEP flood event over the period in question, so as to prevent the overtopping of work areas.
- Silt fences will be placed along the banks of the stream to prevent surface-water runoff from entering the watercourse

## Dust

The proposed works will result in a short-term increase in dust. The following measures will be employed in order to minimise the levels of dust on the site and its potential dispersion:

- Site roads with the potential to give rise to dust as a result of the works will be regularly watered as appropriate.
- All water used for damping of dust will be brought on to site in a tank.
- Material handling systems and material storage areas will be designed to reduce exposure to wind, which will include appropriate placing of hoarding and covering of material.
- Transport of materials with the potential to generate dust will be undertaken in tarpaulin covered vehicles.

## 4.5 Pollution Control

In advance of enabling works, the Contractor's ECoW will complete pre-construction confirmatory surveys of the following protected species:

1. Otter - A confirmatory otter survey will be undertaken in advance of the commencement of any works. This will incorporate an area within 150m of the works areas as per "Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes". This will allow for the identification of any holts have been established prior to commencement of works.
2. Badger - Surveys will be conducted having regard to Surveying Badgers (Harris et al.1989) and record signs of badgers including tracks, hair, latrines and setts. The extent of survey area will be defined with regard to "Guidelines for the Treatment of Badgers during the Construction of National Road Schemes" (NRA, 2006) as 150m beyond all works areas within suitable habitat.
3. Bats - Prior to felling of any trees, a confirmatory bat survey of trees to be felled will be undertaken, by a licensed qualified specialist, to assess the suitability of the tree to contain bat roosts as per "Bat Surveys for Professional Ecologists: Good Practice Guidelines2.

4. Red Squirrel - Prior to works commencing in areas of suitable habitat (woodland and scrub habitat) a targeted survey for the species will be carried out prior to any works taking place. Surveys may include observation surveys, drey counts and feeding remain searches.
5. Breeding Birds - Pre-construction confirmatory surveys will be carried out for kingfisher and other riparian breeding bird species including dipper and yellow wagtail. These will incorporate a survey area of approximately 100m upstream and downstream of the works where suitable habitat exists, which is an extensive enough survey area to include the possible zone of influence of the project. Features likely to be of note to kingfisher and other breeding riparian bird species will be recorded and watches of suitable nest areas undertaken. If actual nest sites (i.e. confirmed or presumed) are present at the culvert, the NPWS will be consulted regarding the potential requirement to stop works.

Subsequent to the pre-construction confirmatory surveys the protection measures listed in Table 4.1, where applicable, will require to be adhered to.

**Table 4.1: Protected Species Protection Measures**

Protected Species	Protection Measures
<b>Otter</b>	<p>Should holts be identified within 150m of the proposed development the following will, at a minimum, be employed, unless otherwise agreed with the NPWS:</p> <ul style="list-style-type: none"> <li>• No works will be undertaken within 150m of holts where breeding females or cubs are present.</li> <li>• Works within 150m of such a holt can only take place following consultation and in agreement with the NPWS</li> <li>• No wheeled or tracked vehicles of any kind will be used within 20m of active but nonbreeding holts</li> <li>• No light work such as digging by hand or scrub will take place within 15m of such holts except under license from NPWS</li> <li>• The identified exclusion zones will be fenced and clearly marked on site prior to any invasive works.</li> <li>• All contractors on site will be made fully aware of the procedures in relation to the holts by the EnCoW</li> </ul>
<b>Badger</b>	<ol style="list-style-type: none"> <li>a. Prior to works commencing, sett activity at any identified setts within 150m will be confirmed. This may be confirmed through the use of camera monitoring, setting of footprint traps, soft blocking of the sett entrance or similar. Any risk of disturbance to badger will be subject to disturbance license requirements.</li> <li>b. A description of the setts i.e. main sett, annex sett, or outlier sett will be provided by the ECoW along with the level of activity at the sett. This will allow for an understanding of the</li> </ol>

<p><b>Badger</b></p>	<p>importance of the setts in the wider context of the local population.</p> <ul style="list-style-type: none"> <li>c. As per the Guidelines for the Treatment of Badgers during the Construction of National Road Schemes (NRA, 2006), where setts have been confirmed, no heavy machinery will be used within 30m of badger setts (unless carried out under licence from the NPWS). Lighter machinery (generally wheeled vehicles) will not be used within 20m of a sett entrance; light work, such as digging by hand or scrub clearance will not take place within 10m of sett entrances.</li> <li>d. Unless otherwise agreed, and under license from the NPWS, during the breeding season (December to June inclusive), none of the above works will be undertaken within 50m of active setts nor blasting or pile driving within 150m of active setts. An assumption that the sett is active will apply unless proven otherwise during the course of investigation.</li> <li>e. All identified exclusion zones as outlined above will be clearly marked out on site and communicated to all site staff prior to works commencing.</li> </ul>
<p><b>Bat</b></p>	<ul style="list-style-type: none"> <li>a. Trees with suitability for roosting bats will not be felled in advance of surveying for bats, unless in agreement with the ECoW, and NPWS as relevant. Trees identified with potential roost features of a Moderate to High value will be thoroughly examined, under licence from the NPWS, to ascertain the presence or absence of roosting bats. This will be conducted by an experienced bat expert. The trees will be examined for the presence or absence of bats / bat roosts immediately prior to felling. Where timing facilitates it (i.e. when felling is being undertaken during the active season for bats), emergence surveys may be carried out to confirm presence or absence of roosting bats. Where felling does not occur within one day of the examination, the trees will be re-assessed</li> <li>b. Where evidence of a roost, or roosting bats has been determined, a license for destruction of a roost and/or exclusion of bats will be required from the NPWS. The procedures for the exclusion of bats and destruction of roost as detailed in the license document will be obeyed, at all times, by the Contractor.</li> <li>c. Where bat exclusions are required, they will be undertaken in accordance with the requirements of the bat specialist. They will not be carried out unless under license from the NPWS. Where the felling of trees found to be suitable as bat roosts cannot be avoided, appropriate mitigation will be agreed with the NPWS and put in place at least one month in advance of any felling or disturbance.</li> </ul>

<b>Red Squirrel</b>	<ul style="list-style-type: none"> <li>• Any dreys not confirmed or likely (given sightings) to be those of red squirrel will be removed under license from NPWS. These dreys will be replaced using artificial dreys. Any additional measures outlined by the NPWS under the terms of their license will also be incorporated.</li> </ul>
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#### 4.6 Noise Control Measures

There will be a short-term increase in noise during the construction phase of the proposed works. The immediate area surrounding the proposed works area is considered to be agricultural grassland, however, a number of residential dwellings occur in proximity to proposed development. Noise reduction measures will be implemented during construction. These measures will comply with British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites, which include but are not limited to:

- Construction works will be restricted to those permissible under planning consent;
- Revving of engines will be avoided and equipment will be switched off when not in use;
- Use of effective exhaust silence systems or acoustic engine covers as appropriate;
- Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading will also be carried out away from such areas;
- Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturers specifications.
- Local screening will be provided where considered necessary;
- Noisy plant will be located as far as possible from noise sensitive receptors;
- Adjacent neighbours will be kept informed on the expected construction works programme;
- A person will be appointed with responsibility for maintaining noise levels within acceptable limits investigating any complaints arising and liaison with the local authority, as appropriate, in relation to noise related issues, and
- Noisy construction works will be limited and will not be undertaken outside of normal working hours.



#### **4.7 Traffic**

A Traffic Management Plan will be prepared by the appointed Contractor which conforms fully to Article 9(1) (a) (iii) and (xi) of the Planning and Development Regulations, 2001, as amended.

The Traffic Management Plan will be prepared in consultation with Galway County Council Roads Department and will provide a temporary traffic management system to maintain live traffic during road construction and identify possible road closures with traffic diversions required only for short durations during off peak hours to complete road construction tie ins as required to complete the project.

#### **4.8 Environmental Emergency Preparedness and Response Plan**

An Environmental Emergency and Response Plan (EERP) will be completed by the Contractor for inclusion in the Contractor's Method Statement which will outline details of the appropriate prevention and control measures relating to potential accidents or emergency situations. These measures will be conveyed to all staff on site during inductions, toolbox talks and method statement briefings.

These plans will detail the key personnel responsible for responding to an incident so that the relevant parties can be informed in the event of one occurring. The Environmental Incident Register will be updated by the Contractor following any incident or near miss on site and discussed with the Employers Representative at any team meetings.

The Environmental Emergency and Response Plan will address the following:

- Containment measures;
- Emergency discharge routes;
- List of appropriate equipment and clean-up materials;
- Maintenance schedule for equipment;
- Details of trained staff, location, and provision for 24-hour cover;
- Details of staff responsibilities;
- Notification procedures to inform the Employer, Environmental Protection Agency (EPA) or Environmental Department of Cork County Council;
- Audit and review schedule;
- Telephone numbers of statutory water consultees; and
- List of specialist pollution clean-up companies and their telephone numbers.

## 4.9 Training and Environmental Awareness Induction

The Contractor's Method Statement will detail the environmental awareness training and induction which is required to be undertaken by all staff, including sub-contractors. This will ensure that they are acutely aware of their responsibilities detailed within the CEMP and the associated sub-plans, as well as the Environmental Control Measures in place to ensure that the commitments / requirements are met throughout construction. This will ensure that during construction all personnel will exercise due diligence regarding environmental matters.

- Training of all site staff and personnel will include as a minimum;
- Induction training including environmental requirements of all operatives and subcontractors;
- More detailed training for staff or sub-contractors with specific environmental responsibilities;
- Toolbox talks will reflect the type of works being undertaken and the environmental impacts that may result from these activities e.g., training on water pollution prevention before works near watercourses. Training to be given will include the contents of this CEMP incorporating the following as appropriate:
  - Protected species/habitats;
  - Invasive species;
  - Environmental incidents;
  - Water pollution prevention;
  - Spill control and spill kits;
  - Dust and air quality;
  - Noise;
  - Erosion and sediment control; and
  - Storage and use of petrol, diesel and oils.
- Any contract specific information will be briefed to all staff and displayed on notice boards. Training records regarding any environmental training will be provided on site by the Contractor.
- Any works which require a site-specific method statement will require a toolbox talk to be provided to all personnel involved. This is to ensure that the Environmental Control Measures in place are understood and practiced.

## 5 Conclusion

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### 5.1 Conclusion

This Construction Environmental Management Plan has been developed to outline the environmental principles to be adopted to ensure that potential environmental impacts associated with the construction processes are effectively prevented, managed, minimised and / or eliminated based on the information available.

This CEMP will be developed and updated by the appointed Contractor prior to the commencement of the works and in agreement with Galway County Council.



