



**DixonBrosnan**  
environmental consultants

Report in Support of Appropriate Assessment  
(AA) Screening

Establishment & Construction of Contractors Compound,  
Apple Operations Europe Ltd  
Hollyhill Industrial Estate, Hollyhill, Cork

On Behalf of  
Apple Operations International Limited

July 2023



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# DixonBrosnan

environmental consultants

<b>Project</b>	<b>Report in Support of Appropriate Assessment (AA) Screening Establishment &amp; Construction of Contractors Compound in lands adjoining Northern Lands carparks, Apple Operations International Limited Hollyhill Industrial Estate, Hollyhill, Cork</b>	
Client	Apple Operations International Limited	
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# 1. Introduction

## 1.1 Background

The information in this report has been compiled by DixonBrosnan Environmental Consultants, on behalf of the applicant. It provides information on and assesses the potential for the proposed works at Apple Operations International Limited, Hollyhill Industrial Estate, Hollyhill, Cork, to impact on any Natura 2000 sites within its likely Zone of Impact. This development, for a construction compound and site parking, is to facilitate expansion of the existing Apple campus which has been dealt with in a separate planning application.

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species across the EU. In Ireland, the Natura 2000 network of European sites comprises Special Areas of Conservation (SACs, including candidate SACs) and Special Protection Areas (SPAs, including proposed SPAs). SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites and from these the conservation objectives of the site are derived. The Birds and Habitats Directives set out various procedures and obligations in relation to nature conservation management in Member States in general, and of the Natura 2000 sites and their habitats and species in particular. A key protection mechanism is the requirement to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed. Not only is every new plan or project captured by this requirement but each plan or project, when being considered for approval at any stage, must take into consideration the possible effects it may have in combination with other plans and projects when going through the process known as Appropriate Assessment (AA).

The obligation to undertake Appropriate Assessment (AA) derives from Article 6(3) and 6(4) of the Habitats Directive, and both involve a number of steps and tests that need to be applied in sequential order. Article 6(3) is concerned with the strict protection of sites, while Article 6(4) is the procedure for allowing derogation from this strict protection in certain restricted circumstances. As set out in Section 177U of the Planning and Development Act 2000 as amended, a screening for appropriate assessment of an application for consent for the proposed development must be carried out by the competent authority to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on any European site. Each step in the assessment process precedes and provides a basis for other steps. The results at each step must be documented and recorded carefully so there is full traceability and transparency of the decisions made.

## 1.2 Aim of Report

The purpose of this report is to inform the AA process as required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant impacts on a Natura 2000 site. This report aims to inform the Appropriate Assessment process in

determining whether the development, both alone and in combination with other plans or projects, are likely to have a significant impact on the Natura 2000 sites in the study area, in the context of their conservation objectives and specifically on the habitats and species for which the sites have been designated.

- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* (European Commission (EC), 2018);
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission (EC), 2001);
- *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC* (European Commission, (EC) 2007);
- *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10* (Department of Environment, Heritage and Local Government, 2010);
- *Guidelines for Good Practice Appropriate Assessment of Plans under Article 6(3) Habitats Directive* (International Workshop on Assessment of Plans under the Habitats Directive, 2011);
- *Commission notice Guidance document on wind energy developments and EU nature legislation*, (EC 2020);
- *Communication from the Commission on the precautionary principle. European Commission* (2000)
- *Assessment of plans & projects in relation to N2K sites – Methodological Guidance* (EC 2021) and
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive* (EC 2021).

### **1.3 Authors of Report**

This report was prepared by Carl Dixon MSc (Ecological Monitoring) and Sorcha Sheehy PhD (Ecology/ornithology).

Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental Consultants in 2000, Carl set up and ran Core Environmental Services which included REPS planning for landowners and ecological assessments.

Carl has particular experience in freshwater ecology including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to badgers and bats. Other competencies include surveys for invasive species and bird surveys.

Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has particular experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

Sorcha Sheehy PhD (ecology/ornithology) is an ecologist and ornithologist who has worked for 15 years in environmental consultancy. She has worked on Screening/NISs for a range of small and large-scale projects with expertise in assessing impacts on birds.

Sorcha's PhD research focused on bird behaviour at airports, where she studied bird avoidance behaviour and collision risk to aircraft. Her research involved field observations, post-mortem analysis and radar surveys. Sorcha has worked on bird collision risk assessments at airports throughout Ireland including Dublin airport, Cork airport, Shannon airport and Kerry airport.

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During her consultancy work Sorcha carried out field-based surveys and environmental reports including NIS, AA screening and EIARs. Notable projects include the Arklow Bank Wind Park, Indaver Ireland Waste Management Facility at Ringaskiddy, Irving Oil Whitegate Refinery (IOWR), Shannon LNG and Greenlink Interconnector.

## **2. Regulatory Context and Appropriate Assessment Procedure**

### **2.1 Regulatory Context**

The Habitats Directive (Council Directive 92/43/EEC on the *Conservation of Natural Habitats and of Wild Fauna and Flora*) aims to maintain or restore the favourable conservation status of habitats and species of community interest across Europe. The requirements of these directives are transposed into Irish law through the European Communities (Birds and Natural Habitats Regulations; S.I. No. 477 of 2011).

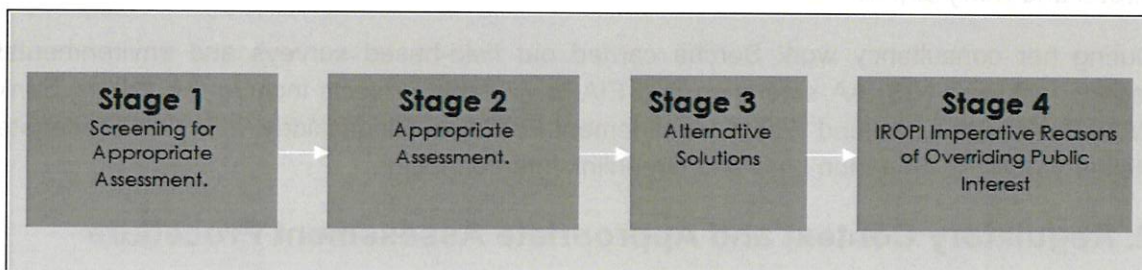
Under the Directive a network of sites of nature conservation importance have been identified by each Member State as containing specified habitats or species requiring to be maintained or returned to favourable conservation status. In Ireland the network consists of SACs and SPAs, and also candidate sites, which form the Natura 2000 network.

Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the *Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. A competent authority (e.g. the EPA or Local Authority) can only agree to a plan or project after having determined that it will not adversely affect the integrity of the site concerned.

The possibility of a significant effect on a designated or “European” site has generated the need for an appropriate assessment to be carried out by the competent authority for the purposes of Article 6(3). A Stage Two Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site. The first (Screening) Stage for appropriate assessment operates merely to determine whether a (Stage Two) Appropriate Assessment must be undertaken on the implications of the plan or project for the conservation objectives of relevant European sites.

## 2.2 Appropriate Assessment Procedure

The assessment requirements of Article 6(3) establish a stage-by-stage approach. This assessment follows the stages outlined in the 2001 European Commission publications “Assessment of plans and projects significantly affecting Natura 2000 sites: methodological guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC” (2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC (Draft) Office for Official Publications of the European Communities, Luxembourg (EC, 2015);



The stages are as follows:

**Stage One:** Screening — the process which identifies any appreciable impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

**Stage Two:** Appropriate assessment — the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site’s structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

**Stage Three:** Assessment of alternative solutions: The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site. It is confirmed that no reliance is placed by the developer on Stage Three in the context of this application for development consent;

**Stage Four:** Assessment where no alternative solutions exist and where adverse impacts remain — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of imperative reasons of overriding public interest). Again, for the avoidance of doubt, it is



confirmed that no reliance is placed by the developer on Stage Four in the context of this application for development consent.

It is the responsibility of the competent authority, to make a decision on whether or not the proposed development should be approved, taking into consideration any potential impact upon any Natura 2000 site within its likely Zone of Impact.

### 3. Receiving Environment

#### 3.1 Existing site

The Apple campus is located northwest of Cork City Centre at the periphery of the existing built-up area, in the district of Knocknaheeny and located within the Hollyhill Industrial Estate originally established by the IDA Ireland. The primary residential areas of Knocknaheeny, Gurrabraher, Sunday's Well and Shanakiel are nearby and provide local residential amenities (**Figure 1**).



**Figure 1. Site location | Source OSI**



Figure 2. Overview of proposed construction compound layout | Source PJ Hegarty

### 3.2 Proposed works

This section sets down the parameters to be adopted with regards to sequence of works.

1. The following method/sequence of works outlines the steps to be taken to establish a temporary construction compound in the Cork City Council lands adjoining the "Northern Lands Car Parks" that form part of the Apple Cork Campus Expansion (ACCE).
2. This compound is temporary in nature and required for the duration of the ACCE project which is scheduled to be completed by the 2<sup>nd</sup> quarter of 2025 at which point the compound will be demobilized and the lands returned to their current state. The area is as shown in **Appendix 2** of this report (i.e., Appendix 2 of the Developments issued and approved Construction Management Plan document number C1253-PJH-ZZ-ZZ-RP-W-0002 Rev 03).
3. The compound and carparking area will initially be secured with temporary Heras fencing before being replaced by 2-meter-high green mesh fencing. The area and layout required for the construction compound is detailed in the accompanying drawing to this construction statement titled "~~Proposed Construction Compound Layout 1:1000~~". See **Figure 5** below for details.
4. A construction entrance will then be formed off the David McCarthy Road in the location shown both in **Appendix 2** of this report.
5. As per one of the accompanying drawings to this construction statement titled in **Appendix 2** "Proposed Construction Compound Layout", the area within the red line for the site welfare units and carparking will then be stripped of topsoil.
6. The topsoil from this area will be stored for future reinstatement in Q2 as referenced in point number 2 above and in the area noted as topsoil storage in the other accompanying drawing "Proposed Construction Compound Layout 1:1000" (**Figure 2** above). This area will also be used to temporarily store topsoil from the adjacent northern lands car park site permitted by Cork City Council Reference 22/41121
7. The excavated topsoil shall be held in a manner such as to ensure that no silt or run-off from this stockpile enters any watercourse.
8. A Terram layer will be laid on the subsoil before spreading of suitable stone to separate the existing subsoil from the new stone for hard standing and enable more effective reinstatement later.
9. As the stone is delivered, spread, and compacted, a pit will be excavated for the placement of foul collection tanks. These tanks will be placed close to the planned location of the canteen and toilets and be sized appropriately for the anticipated numbers on site to allow pumping out of same by a foul waste disposal contractor at suitable intervals. This is a temporary measure as PJH have a plan to connect to the Irish Water foul system. This application to Irish Water has been made and granted.
10. When the hard standing area for the temporary welfare accommodation and car parking has been completed, the accommodation units will then be delivered and placed into

position as per the attached layouts. The office units along the David McCarthy Road will be double stacked with a walkway gantry on the inner side.

11. The meeting room and engineering hub will be double stacked with a staircase on either end for access to the upper levels.
  12. All other units including canteens, toilet blocks and storage containers will be single level and accessed via the hard standing.
  13. The zone at the rear of the compound is designated for Mechanical & Electrical Contractors. This will be populated with double stacked accommodation units later and most probably in Q4 of 2023.
  14. A double banded 100KVA Generator will be placed in the position shown with an attached double banded diesel tank. This is a temporary measure as a permanent mains power feed has been sourced from the Apple Campus and ducting has already been installed within the ACCE development up to its boundary ready to be brought into this proposed compound location.
  15. Electrical cabling will then be brought from this Generator to a Distribution board and from here cabling brought to the respective cabins. All cabling will be off the ground and secured and tagged to the welfare units.
  16. A satellite dish for 4G connection will be secured to one of the cabins and a cable brought from here to a router. From here all office cabins will be wired for 4G connectivity.
  17. The car park will be laid out as per the layout in the attached plans. Marker post and signage will be erected to set out the car parking bays and direct traffic to the appropriate zones.
  18. Lighting will be erected on the perimeter mesh fencing by way of LED lighting to provide adequate lighting both in the compound and the car park. The lighting will be erected so that it is turned in towards the car parking and compound areas. The lighting will only be on during the site planning hours when required in the morning and evenings during the shorter daylight days from October to April.
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19. Upon full completion of the ACCE development in Q2 of 2025 the construction compound will be decommissioned and demolished.
  20. The hard standing stone and Terram will be removed and disposed of to the appropriate waste facility.
  21. The area will then have the stored topsoil reinstated and the area seeded so that the land is returned to its previous state.
  22. The construction entrance will be removed and the kerb lines, pedestrian, and cycle walkway re constructed as a normal straight through pathway.

## 4. Screening

### 4.1 Introduction

This section contains the information required for the competent authority to undertake screening for AA for the proposed works.

The aims of this section are to:

- Determine whether the proposed works are directly connected with, or necessary to, the conservation management of any Natura 2000 Sites;
- Provide information on, and assess the potential for the proposed works to significantly effect on Natura 2000 Sites (also known as European sites); and
- Determine whether the proposed works, alone or in combination with other projects, is likely to have significant effects on Natura 2000 sites in view of their conservation objectives.

The proposed works are not directly connected with, or necessary to the conservation management of any Natura 2000 sites.

### 4.2 Zone of Impact

The likely Zone of Impact (Zol) comprises the area within which the proposed development may potentially affect the conservation objectives or qualifying interests (QI) of a Natura 2000 site. There is no recommended likely Zone of Impact, and guidance from the National Parks and Wildlife Service (NPWS) and CIEEM (2018) recommends that the distance should be evaluated on a case-by- case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects (cumulative).

In ecological and environmental impact assessment, for an effect to occur there must be a risk enabled by having a source (e.g., construction works at a proposed development site), a 'receptor' (e.g. SAC or other ecologically sensitive feature), and a pathway between the source and the receptor (e.g. a watercourse which connects the proposed development site to the SAC). A 'receptor' is defined as the Special Conservation Interest (SCI) of SPAs or Qualifying Interest (QI) of SACs for which conservation objectives have been set for the European sites being screened.

Consideration is therefore given to the source-pathway-receptor linkage and associated risks between the proposed development and Natura 2000 sites. For a significant effect to occur there needs to be an identified risk whereby a source (e.g., contaminant or pollutant arising from construction activities) affects a particular receptor (i.e. Natura 2000 site) through a particular pathway (e.g. a watercourse which connects the proposed development with the Natura 2000 site).

The identification of risk does not automatically mean that an effect will occur, nor that it will be significant. The identification of these risks means that there is a possibility of environmental or ecological damage occurring. The level and significance of the effect

depends upon the nature of the consequence, likelihood of the risk and characteristics of the receptor.

The precautionary principle is applied for the purposes of screening to ensure that consideration and pre-emptive action is undertaken where there is a lack of scientific evidence. It is noted that mitigation measures are not taken into account in the AA screening assessment process.

### 4.3 Field Study

Site surveys were carried out on 1<sup>st</sup> February and 9<sup>th</sup> of February 2023. DixonBrosnan previously carried out extensive surveys at the Apple campus and northern lands as part of a separate application for the Apple campus expansion. These site surveys were carried out on the 23<sup>rd</sup> December 2021, 24<sup>th</sup> January 2022, 3<sup>rd</sup> February 2022, 10<sup>th</sup> February 2022, 31<sup>st</sup> March 2022, 15<sup>th</sup> March 2022, 7<sup>th</sup> April 2022, 5<sup>th</sup> May 2022, 6<sup>th</sup> May 2022, 8<sup>th</sup> May 2022 and 10<sup>th</sup> May 2022 to identify the habitats, flora and fauna present at the site. Surveys relevant to this AA screening report are discussed below. The surveys assessed the potential for all Qualifying Interests (QIs)/ Special Conservation Interests (SCIs) of European sites and third schedule invasive species to occur within the proposed site.

### 4.4 Source-Pathway-Receptor Model

The likely effects of the proposed development on any European site has been assessed using a source-pathway-receptor model, where:

- A 'source' is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features and its conservation objectives.
- A 'pathway' is defined as the means or route by which a source can affect the ecological receptor.
- A 'receptor' is defined as the SCI of SPAs or QI of SACs for which conservation objectives have been set for the European sites being screened.

A source-pathway-receptor model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The source-pathway-receptor model was used to identify a list of European sites, and their QIs/SCIs, with potential links to European sites. These are termed as 'relevant' European sites/QIs/SCIs throughout this report.

### 4.5 Likely Significant Effect

The threshold for a Likely Significant Effect (LSE) is treated in the screening exercise as being above a de minimis level. The opinion of the Advocate General in CJEU case C-258/11 outlines:

*"the requirement that the effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European site are thereby excluded.*

*If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."*

In this report, therefore, 'relevant' European sites are those within the potential Zol of activities associated with the construction and operation of the proposed development, where LSE pathways to European sites were identified through the source-pathway-receptor model.

#### **4.6 Screening Process**

The Screening for Appropriate Assessment will incorporate the following steps:

Definition of the likely Zone of Impact for the proposed works;

- Identification of the European sites that are situated (in their entirety or partially or downstream) within the likely Zone of Impact of the proposed works;
- Identification of the most up-to-date QIs and SCIs for each European site within the likely Zone of Impact;
- Identification of the environmental conditions that maintain the QIs/SCIs at the desired target of Favourable Conservation Status;
- Identification of the threats/impacts – actual or potential that could negatively impact the environmental conditions of the QIs/SCIs within the European sites;
- Highlighting the activities of the proposed works that could give rise to significant negative impacts; and
- Identification of other plans or projects, for which in-combination impacts would likely have significant effects.

#### **4.7 Desktop Review**

A desktop review facilitates the identification of the baseline ecological conditions and key ecological issues relating to Natura 2000 sites and facilitates an evaluation assessment of potential in-combination impacts. Sources of information used for this report include reports prepared for the Cork City area and information from statutory and non-statutory bodies. The following sources of information and relevant documentation were utilised:

- National Parks & Wildlife Service (NPWS) - [www.npws.ie](http://www.npws.ie)
- Environmental Protection Agency (EPA) – [www.epa.ie](http://www.epa.ie)
- National Biodiversity Data Centre (NBDC) – [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- Cork City Heritage and Biodiversity Plan (2021-2026);
- *Cork City Development Plan 2022-2028* (Cork City Council 2022);
- Birdwatch Ireland - <http://www.birdwatchireland.ie/>
- Invasive Species Ireland - <http://www.invasivespeciesireland.com/>
- *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011)

- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority, 2009) and
- *Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)* European Union, 2017.

## 5. Natura 2000 Sites

### 5.1 Designated sites within Zone of Impact

In accordance with the European Commission Methodological Guidance (EC 2018), a list of Natura 2000 sites that can be potentially affected by the proposed works has been compiled. All candidate SAC's (cSAC) and SPAs sites within the likely Zone of Impact of the proposed works have been identified in **Table 1** and shown in **Figure 3**.

The River Bride, a tributary of the River Lee, is located approximately 410m north of the proposed works area. There is an existing open ditch and pipework, located adjacent to the western boundary of the Phase 1 access road. This forms part of the surface water drainage network serving the Apple campus and connects to the River Bride. The Lower Lee Estuary forms part of the Cork Harbour SPA. Therefore, the proposed works area is located approximately 10.6km upstream of the Cork Harbour SPA and potentially hydrologically connected to Cork Harbour SPA via the River Lee and River Bride.

Although unlikely given the distance involved, surface water run-off during the construction or operational phases of the proposed works could potentially flow into Cork Harbour SPA via the River Bride. As noted above temporary welfare/foul facilities will be stored/pumped offsite. This is a temporary measure as PJH have a plan to connect to the Irish Water foul system. Wastewater will ultimately be discharged to Lough Mahon/Cork Harbour via the Cork City wastewater treatment plant (WWTP). Habitats within or near the proposed works area could potentially provide *ex-situ* foraging grounds for SCI species outside the Cork Harbour SPA.

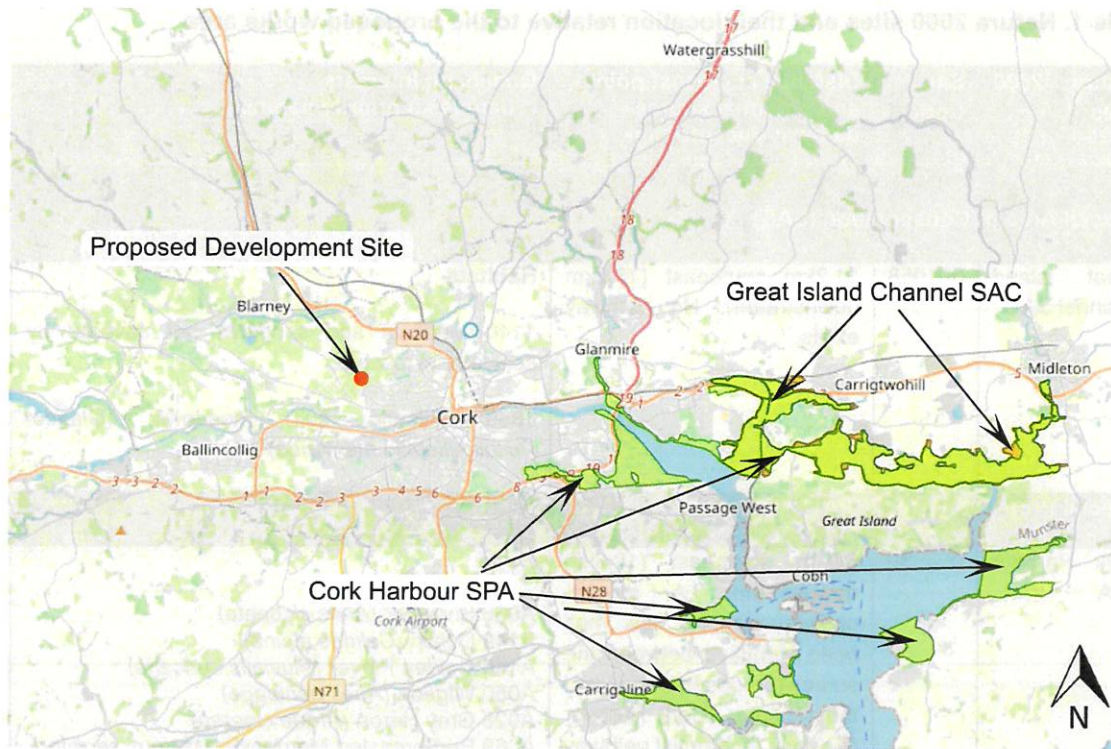
Therefore, a source-pathway-receptor link has been identified between the source (proposed works) and the receptor (Cork Harbour SPA) via a potential pathway (surface water runoff, the spread of invasive species and disturbance during construction/operational phase and wastewater discharge during the construction works). Further information on the Cork Harbour SPA is provided below and a full site synopsis included **Appendix 1**.

While the proposed works are potentially hydrologically connected to the Great Island Channel SAC via Cork Harbour, given distance involved (15.5km downstream) and the dilution capacity available within Cork Harbour/Great Island Channel and the robust nature of the estuarine qualifying habitats for the Great Island Channel SAC, no pathway for impact has been identified. Given the distances involved and the lack of hydrological connection, no pathway for impact has been identified between the proposed works and any other Natura 2000 site.



**Table 1. Natura 2000 sites and their location relative to the proposed works area**

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
<b>Special Area of Conservation (SAC)</b>			
Great Island Channel SAC	001058	11.7km southeast (15.5km downstream). No pathway exists.	<b>Habitats</b> 1140 Mudflats and sandflats not covered by seawater at low tide  1330 Atlantic salt meadows ( <i>Glaucopuccinellietalia maritimae</i> )
<b>Special Protection Area (SPA)</b>			
Cork Harbour SPA	004030	6.0km southeast (10.6km downstream). A source-pathway-receptor link has been identified between the source (proposed works) and the receptor (Cork Harbour SPA) via a potential pathway (impacts on water quality, disturbance or spread of invasive species during construction or operational phase and wastewater discharges during operation).	<b>Birds</b> A056 Shoveler ( <i>Anas clypeata</i> ) A149 Dunlin ( <i>Calidris alpina</i> ) A140 Golden Plover ( <i>Pluvialis apricaria</i> ) A050 Wigeon ( <i>Anas penelope</i> ) A028 Grey Heron ( <i>Ardea cinerea</i> ) A069 Red-breasted Merganser ( <i>Mergus serrator</i> ) A142 Lapwing ( <i>Vanellus vanellus</i> ) A130 Oystercatcher ( <i>Haematopus ostralegus</i> ) A141 Grey Plover ( <i>Pluvialis squatarola</i> ) A052 Teal ( <i>Anas crecca</i> ) A054 Pintail ( <i>Anas acuta</i> ) A157 Bar-tailed Godwit ( <i>Limosa lapponica</i> ) A162 Redshank ( <i>Tringa totanus</i> ) A183 Lesser Black-backed Gull ( <i>Larus fuscus</i> ) A179 Black-headed Gull ( <i>Chroicocephalus ridibundus</i> ) A004 Little Grebe ( <i>Tachybaptus ruficollis</i> ) A160 Curlew ( <i>Numenius arquata</i> ) A182 Common Gull ( <i>Larus canus</i> ) A048 Shelduck ( <i>Tadorna tadorna</i> ) A017 Cormorant ( <i>Phalacrocorax carbo</i> ) A193 Common Tern ( <i>Sterna hirundo</i> ) A005 Great Crested Grebe ( <i>Podiceps cristatus</i> ) A156 Black-tailed Godwit ( <i>Limosa limosa</i> )  <b>Habitats</b> Wetlands



**Figure 3. Natura 2000 sites within likely Zone of Impact of the proposed works area | Source EPA Envision Mapping | Not to scale**

### 5.2 Cork Harbour SPA (site code 004030) Site Synopses

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poul nabibe inlets.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Redbreasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Blackheaded Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour has a nationally important breeding colony of Common Tern (102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower.

A full site synopsis for the Cork Harbour SPA is included as **Appendix 1** of this report.

### 5.3 Natura 2000 sites – Features of interests and conservation objectives.

The EU Habitats Directive contains a list of habitats (Annex I) and species (Annex II) for which SACs must be established by Member States. Similarly, the EU Birds Directive contains lists of important bird species (Annex I) and other migratory bird species for which SPAs must be established. Those that are known to occur at a site are referred to as 'qualifying interests' and are listed in the Natura 2000 forms which are lodged with the EU Commission by each Member State. A 'qualifying interest (QI)' (or 'special conservation interest (SCI)' in the case of SPAs) is one of the factors (such as the species or habitat that is present) for which the site merits designation. The National Parks and Wildlife Service (NPWS) are responsible for the designation of SACs and SPAs in Ireland.

The conservation objectives for Cork Harbour SPA site are detailed in: NPWS (2014) *Conservation Objectives: Cork Harbour SPA 004030. Version 1*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and SACs and SPAs are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network. European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status sites designated as SACs and SPAs. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable. The species and habitats listed as SCIs for the Cork Harbour SPA and specific conservation objectives are included in **Table 2**.

**Table 2. Special Conservation Interests (SCIs) for Cork Harbour SPA**

Species code	Species		Conservation objective
A056	Shoveler	<i>Anas clypeata</i>	Maintain
A149	Dunlin	<i>Calidris alpina</i>	Maintain
A140	Golden Plover	<i>Pluvialis apricaria</i>	Maintain
A050	Wigeon	<i>Anas penelope</i>	Maintain
A028	Grey Heron	<i>Ardea cinerea</i>	Maintain
A069	Red-breasted merganser	<i>Mergus serrator</i>	Maintain
A142	Lapwing	<i>Vanellus vanellus</i>	Maintain
A130	Oystercatcher	<i>Haematopus ostralegus</i>	Maintain
A141	Grey plover	<i>Pluvialis squatarola</i>	Maintain
A052	Teal	<i>Anas crecca</i>	Maintain
A054	Pintail	<i>Anas acuta</i>	Maintain
A157	Bar-tailed Godwit	<i>Limosa lapponica</i>	Maintain
A162	Redshank	<i>Tringa totanus</i>	Maintain
A183	Lesser Black-backed gull	<i>Larus fuscus</i>	Maintain
A179	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Maintain
A004	Little Grebe	<i>Tachybaptus ruficollis</i>	Maintain
A160	Curlew	<i>Numenius arquata</i>	Maintain
A182	Common Gull	<i>Larus canus</i>	Maintain
A048	Shelduck	<i>Tadorna tadorna</i>	Maintain
A017	Cormorant	<i>Phalacrocorax carbo</i>	Maintain
A193	Common Tern	<i>Sterna hirundo</i>	Maintain
A005	Great crested grebe	<i>Podiceps cristatus</i>	Maintain
A156	Black-tailed Godwit	<i>Limosa limosa</i>	Maintain
A999	Wetlands and waterbirds		Maintain

Restore = Restore favourable conservation condition, Maintain = Maintain favourable conservation condition

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, "Wetland and Waterbirds" may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest. Thus, a further objective is to maintain or restore the favourable conservation condition of the wetland habitat within the Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

#### 5.4 Status of qualifying interests for the Cork Harbour SPA

Cork Harbour SPA is a large, sheltered bay system that is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top ten sites in the country. Owing to the sheltered conditions, the intertidal flats are often muddy in character but described principally as 'mixed sediment to sandy mud with polychaetes and oligochaetes'. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Peringia (Hydrobia) ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*, all of which provide a food source for many wintering waterbird species. Salt marshes are scattered through the site and these provide high tide roosts for waterbirds (NPWS 2014b).

The specific conservation objectives for the species listed as conservation interests for the Cork Harbour SPA (Table 3) are to maintain a favourable conservation condition of the non-

breeding/breeding waterbirds and to maintain the favourable conservation condition of the wetland habitat at Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

**Table 3. SCI species for which a potential impact has been identified – specific targets**

Species/Habitats	Attribute	Measure	Target
Little Grebe Great Crested Grebe Cormorant Grey Heron Shelduck	Population trend	Percentage change	Long term population trend stable or increasing
Wigeon	Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by each species, other than that occurring from natural patterns of variation
Teal Pintail Shoveler Red-breasted Merganser Oystercatcher Golden Plover Grey Plover Lapwing			
Dunlin Black-tailed Godwit Bar-tailed Godwit Curlew Redshank Black-headed Gull Common Gull Lesser Black-backed Gull			
Common Tern	Breeding population	Number	No significant decline

Species/Habitats	Attribute	Measure	Target
	abundance: apparently occupied nests (AONs)		
	Productivity rate: fledged young per breeding pair	Mean number	No significant decline
	Distribution: breeding colonies	Number; location; area (hectares)	No significant decline
	Prey biomass available	Kilogrammes	No significant decline
	Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase
	Disturbance at the breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population
Wetlands	Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,587 hectares, other than that occurring from natural patterns of variation

The Conservation Objectives Supporting document for Cork Harbour SPA (NPWS, 2014c) provides a review of the site conservation condition and population trends for Cork Harbour SPA with regard to species' all-Ireland and international trends. All-Ireland trends follow I-WeBS data 1994-2015 (Birdwatch Ireland 2022) while International trends follow Wetlands International (2012). The conservation status of Cork Harbour SPA's SCI birds are included in **Table 4**.

**Table 4. Conservation Status of SCI species within Cork Harbour**

Special Conservation Interests	BoCCI Category <sup>1</sup>	Site conservation condition <sup>2</sup>	Current All-Ireland Trend <sup>3</sup>	Current International Trend <sup>4</sup>
Shelduck	Amber	Unfavourable	Declining	Increasing
Wigeon	Amber	Unfavourable	Declining	Stable
Teal	Amber	Intermediate (Unfavourable)	Stable	Increasing
Pintail	Amber	Highly unfavourable	Stable	Increasing
Shoveler	Red	Highly unfavourable	Stable	Increasing
Red-breasted Merganser	Amber	Highly unfavourable	Stable	n/c
Little Grebe	Green	Favourable	Increasing	Increasing
Great Crested Grebe	Amber	Unfavourable	Stable	Declining?
Cormorant	Amber	Highly unfavourable	Stable	Increasing
Grey Heron	Green	Intermediate	Stable	Increasing
Oystercatcher	Red	Intermediate (unfavourable)	Stable	Declining
Golden Plover	Red	Favourable	Declining	Declining
Grey Plover	Red	Highly unfavourable	Declining	Declining?
Lapwing	Red	Highly unfavourable	Declining	Stable
Dunlin	Red	Unfavourable	Declining	Stable
Black-tailed Godwit	Red	Favourable	Increasing	Increasing
Bar-tailed Godwit	Red	Favourable	Stable	Increasing
Curlew	Red	Unfavourable	Declining	Declining
Redshank	Red	Unfavourable	Stable	Stable/increasing
Black-headed Gull	Amber	Highly unfavourable	n/c	n/c
Common Gull	Amber	Highly unfavourable	n/c	n/c
Lesser Black-backed Gull	Amber	Highly unfavourable	n/c	n/c

1. Gilbert et al. 2021. 2. NPWS, 2014c, 3. Birdwatch Ireland I-WeBS 1994-2015, 4. Wetlands International (2012)

## 6. Water Quality - River Basin Management Plan for Ireland 2022-2027 (3<sup>rd</sup> Cycle)

The Water Framework Directive (WFD) sets out the environmental objectives which are required to be met through the process of river basin planning and implementation of those plans. Specific objectives are set out for surface water, groundwater and protected areas. The challenges that must be overcome in order to achieve those objectives are very significant. Therefore, a key purpose of the River Basin Management Plan (RBMP) is to set out priorities and ensure that implementation is guided by these priorities.

The EPA has published an updated draft Catchment Assessment for each of our 46 catchments. These assessments provide an overview of the situation in the catchment, draw comparison between Cycle 2 and Cycle 3, and will help support the draft River Basin Management Plan 2022-2027 public consultation process. The third cycle RBMP, which was

published in July 2022, aims to build on the progress made during the second cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban wastewater on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first and second cycles.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are *At Risk* of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to the watercourses within the study area is provided in **Table 5** and the location of these shown in **Figure 4**.

**Table 5. WFD Status**

Catchment: Lee, Cork Harbour and Youghal Bay (Code 19)				
<p>This catchment includes the area drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy Battery, Co. Cork, draining a total area of 2,153km<sup>2</sup>. The largest urban centre in the catchment is Cork City. The other main urban centres in this catchment are Ballincollig, Macroom, Carrigaline, Crosshaven, Blarney, Glanmire, Midleton, Carrigtohill, Cobh, Passage West and Belvelly. The total population of the catchment is approximately 328,854 with a population density of 153 people per km<sup>2</sup>.</p>				
<p>Several small coastal rivers drain the area to the southeast of Cork Harbour and the area at the eastern extreme of the catchment is drained by the Womanagh River which flows into the sea on the western side of Youghal Bay.</p>				
<p>The Lee-Cork Harbour catchment comprises 18 sub-catchments with 92 river water bodies, three lakes, 13 transitional, six coastal water bodies and 16 groundwater bodies. There are five heavily modified and no artificial water bodies in the catchment.</p>				
<p>The sub catchment related to the site area is identified as Kiln_SC_010. Two out of three river water bodies within this sub catchment are unassigned but AT RISK due to elevated nutrients, Bride (Cork City)_010 and Bride (Cork City)_020. Glennamought Trib Bride_010 is under REVIEW due to its unassigned status.</p>				
<p>Diffuse urban appears to be the most significant pressure present within the sub catchment due to Cork City and its surrounds. Channelisation may also impact Bride (Cork City)_020 due to the presence of a drainage district scheme</p>				
Waterbodies relevant to the proposed project				
Waterbody	WFD Risk	WFD Status (2016-2021)	Significant Pressure	Pressure Category



Catchment: Lee, Cork Harbour and Youghal Bay (Code 19)				
BRIDE (Cork City)_010	At risk	Moderate	Yes	Hydromorphology, urban runoff
BRIDE (Cork City)_020	At risk	Poor	Yes	Urban runoff
Lee Cork Estuary_Upper	At risk	Moderate	Yes	Urban runoff, urban wastewater
Lee Cork Estuary_Lower	At risk	Moderate	Yes	Urban runoff, urban wastewater
Lough Mahon	At risk	Moderate	Yes	Urban runoff, urban wastewater

Source: EPA envision mapping and www.catchments.ie

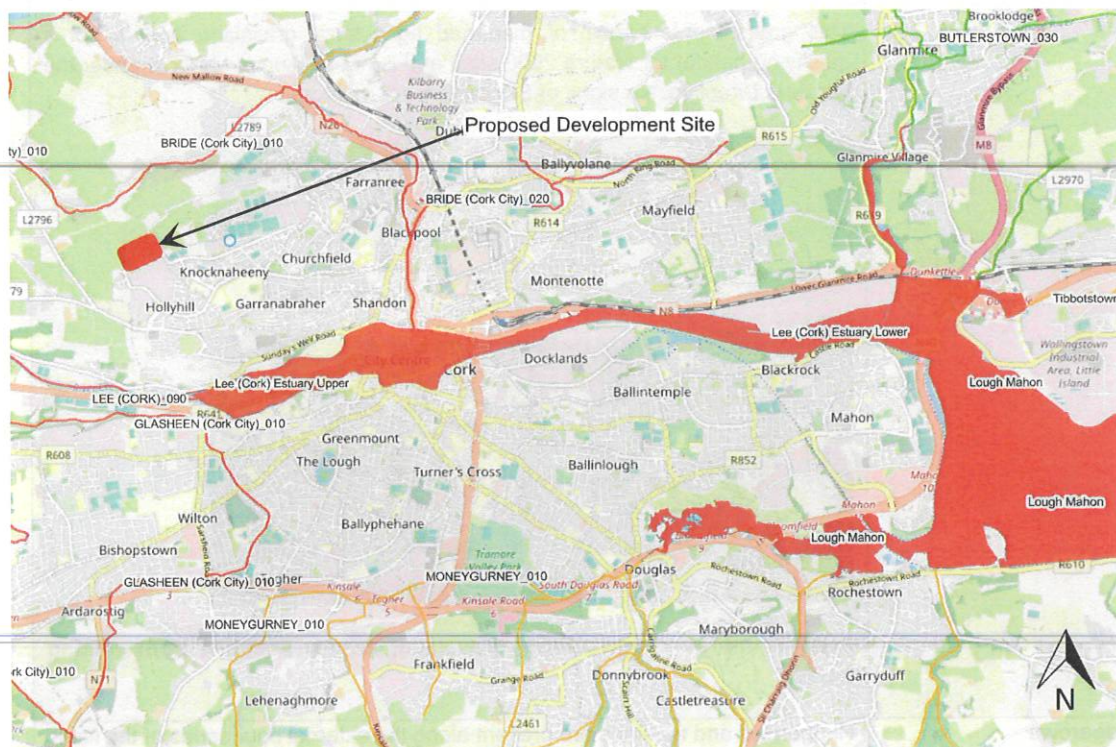


Figure 4. WFD waterbodies in the vicinity of the proposed works | Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | not to scale


## 7. Site Surveys


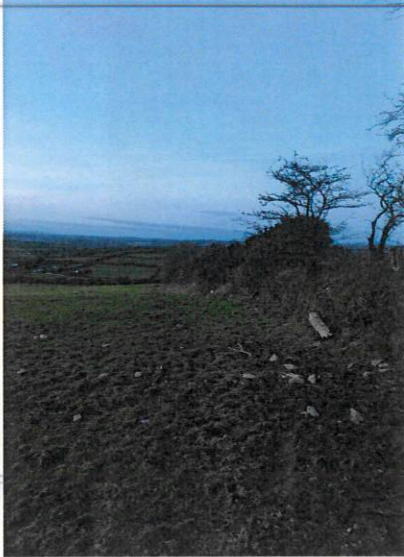

### 7.1 Habitats


Habitat surveys were carried out on the 1<sup>st</sup> February and 9<sup>th</sup> February 2023. Habitat mapping was carried out in line with the methodology outlined in the Heritage Council Publication, *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011). The terrestrial and aquatic habitats within the proposed works area were classified using the classification scheme outlined in the Heritage Council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex I Habitats where required.


The habitats recorded within and close to the proposed works area, along with their ecological value, are discussed in **Table 6**. The location of these habitats within the proposed works area boundary is illustrated in **Figure 5**. Site photographs are also included below.

**Table 6. Habitats recorded within proposed works area**

Habitat	Comments
Improved agricultural grassland (GA1)	<p>Fields of agricultural grassland are located within the proposed works area to the north of the existing Apple campus. The grassland is heavily poached in parts from grazing horses. Common grassland species were recorded including Perennial Rye-Grass <i>Lolium perenne</i> Yorkshire Fog <i>Holcus lanatus</i>, and Cocksfoot <i>Dactylis glomerata</i>. Broad-Leaved Dock <i>Rumex obtusifolius</i>, White Clover <i>Trifolium repens</i>, Dandelion <i>Taraxicum</i> spp, Creeping Buttercup <i>Ranunculus repens</i>, and Ribwort Plantain <i>Plantago lanceolata</i> were also recorded.</p> <p>This grassland is typical of managed agricultural grassland and is not a qualifying habitat for Natura 2000 sites and is not an Annex I habitat under the Habitats Directive. No signs of SCI birds were recorded.</p>  <p><b>Plate 1. Improved agricultural grassland, heavily poached from grazing horses</b></p>
Hedgerows (WL1)/Treelines (WL2) Stone walls and other stonework (BL1)/	<p>Hedgerows and treelines are present along the external boundaries of the fields north of the Apple campus and divide the site into separate fields. The hedgerows have matured without significant maintenance and are now tall with gaps starting to develop along the base. The most common species is Hawthorn <i>Crataegus monogynus</i> with Gorse <i>Ulex europaeus</i>, Bramble <i>Rubus fruticosus</i>, Elder <i>Sambucus nigra</i> and Goat Willow <i>Salix caprea</i> also noted. Dog violet <i>Viola riviniana</i>, Foxglove <i>Digitalis purpurea</i> and Honeysuckle <i>Lonicera periclymenum</i> were also recorded. Sycamore <i>Acer pseudoplatanus</i> is occasional as a semi-mature tree.</p> <p>Small sections of old stonewalls are visible along this boundary. Where the walls are exposed, some specialised species such as Polypody <i>Polypodium vulgare</i>, Maiden Hair Spleenwort <i>Asplenium trichomanes</i> and Wall Pennywort <i>Umbilicus rupestris</i> are growing.</p>

Habitat	Comments
	 <p data-bbox="517 813 1337 871"><b>Plate 2. Hedgerow/treeline separating the construction site compound from the northern lands to the east</b></p>
	 <p data-bbox="517 1485 1337 1543"><b>Plate 3. Hedgerow/treeline separating the construction site compound from the northern lands to the east</b></p>
	

Habitat	Comments
	<p><b>Plate 4. Small sections of stonewall still visible on boundary</b></p> <p>This habitat is not a qualifying habitat for Natura 2000 sites and is not an Annex I habitat under the Habitats Directive.</p>
Drainage ditch FW4	<p>A drainage ditch is located adjacent to the western boundary of the site compound. During the February 2023 site visit, this had a strong flow although it was of insufficient size to be a value for fish. North of the proposed works area, this drain is piped. Large parts of it are heavily shaded by the art bank tree line and hedgerow about dense band will scrub on the field side.</p> <p>This habitat is not a qualifying habitat for Natura 2000 sites and is not an Annex I habitat under the Habitats Directive.</p>  <p><b>Plate 5. Small drain running along field boundary with Hedgerows (WL1)/Treelines (WL2)/Scrub WS1/Earthbank BL2on border</b></p>
Hedgerows WL1/Treelines (WL2)/Scrub WS1/Earth bank BL2	<p>This habitat runs along the boundary of the drainage ditch on the western boundary of the site compound. Hedgerows and scrub are dominated by Bramble. with Hawthorn, Gorse, Hogweed <i>Heracleum sphondylium</i> and Soft Shield Fern <i>Polystichum setiferum</i>. Honeysuckle and Wood sage <i>Teucrium scorodonia</i> were also recorded.</p> <p>This habitat is not a qualifying habitat for Natura 2000 sites and is not an Annex I habitat under the Habitats Directive.</p>
Hedgerows (WL1)/Treelines (WL2) /Mixed broadleaved woodland WD1	<p>This area along David McCarthy Road planted woodland associated with the existing Apple campus. This includes Hazel and Hawthorn. Understorey species include Holly, Cleavers, Bramble and Ivy. All the trees are immature inside green palisade fencing. This habitat is of limited ecological value in its current form will increase in value as it matures very little under story are ground layer development heavily shaded.</p> <p>This habitat is not a qualifying habitat for Natura 2000 sites and is not an Annex I habitat under the Habitats Directive.</p>

Habitat	Comments
	 <p data-bbox="512 801 1302 835"><b>Plate 6. Band of planted treeline/woodland along David McCarthy Road</b></p>
Earth bank BL2	<p data-bbox="512 891 1335 952">A narrow earth bank separates grassland habitat at the construction compound from an area of grassland adjacent to David McCarthy Road.</p> <p data-bbox="512 981 1335 1041">This habitat is not a qualifying habitat for Natura 2000 sites and is not an Annex I habitat under the Habitats Directive.</p>

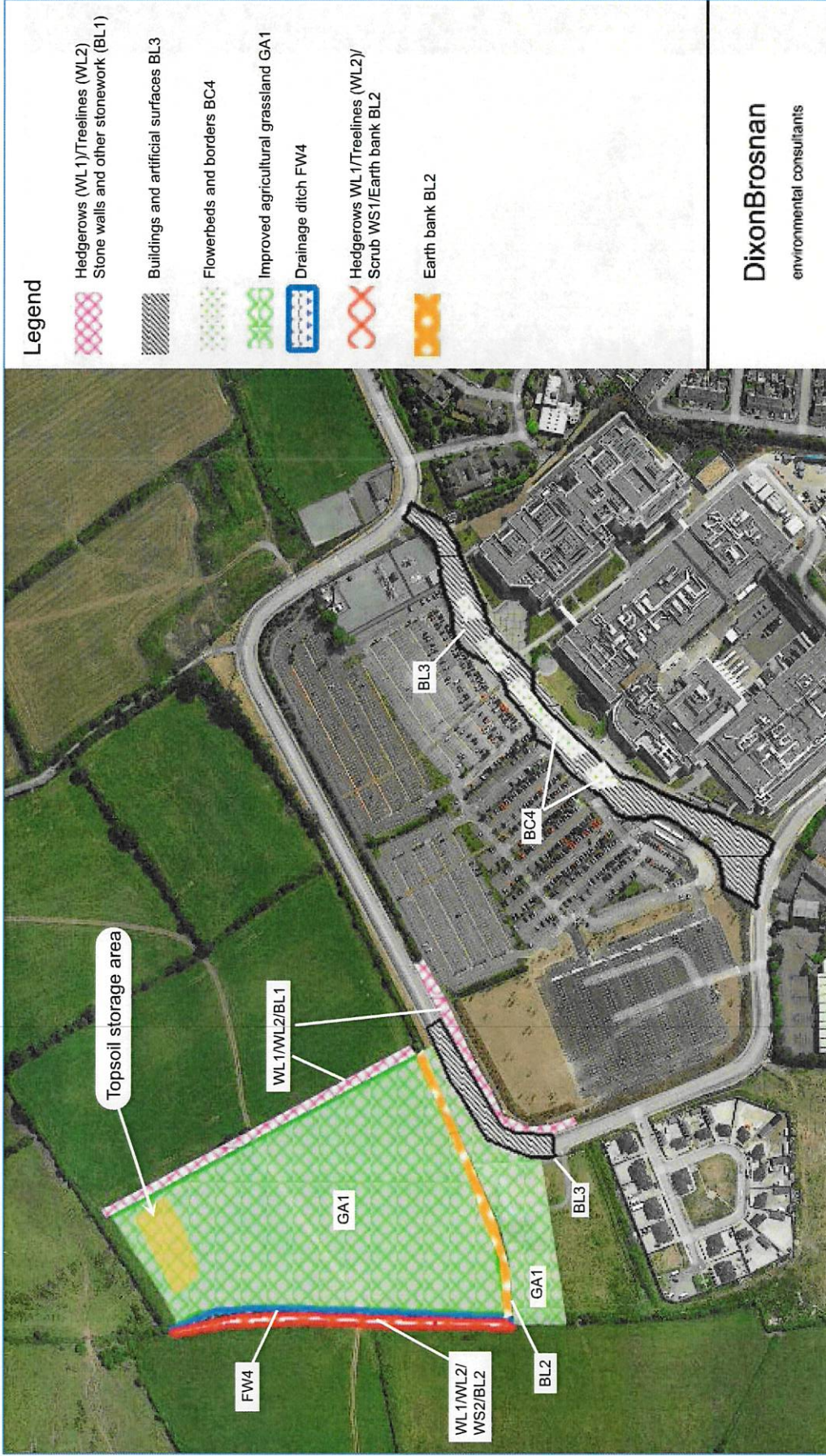


Figure 5. Habitats within proposed works area

## 7.2 Birds

### 7.2.1 Breeding Bird Surveys

General breeding bird surveys were carried out on the 31<sup>st</sup> March 2022 and 7<sup>th</sup> April 2022 on the lands to the immediate east of the construction compound. The breeding bird survey was based on the BTO Common Bird Census (CBC) methodology and Breeding Bird Survey (BBS) (Gilbert *et al.* 1998 and Bibby *et al.* 2000) which aims to capture a snapshot of breeding bird activity within the survey area. The survey area focused on habitats within the proposed works area boundary. The site was walked so that all habitats within 50m of all potential nesting features were surveyed. The ornithological surveyor slowly walked through the site, stopping at regular intervals to scan with binoculars and to listen for bird calls or song. Birds were identified by sight and song. All species seen or heard in the survey area and immediate environs were recorded including those in flight. Visits were made during favourable weather conditions. All species encountered during the survey were mapped and coded using standard BTO species codes and activity recorded using the BTO codes for breeding evidence. In an effort to minimise potential disturbance, no attempts were made to locate nests as observed behaviours are generally sufficient to determine probable or confirmed breeding. The conservation status of birds was also recorded. Species recorded within the site are shown in

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#### Table 7.

A total of 23 bird species were recorded during the breeding bird surveys. One red list species i.e., Redwing *Turdus iliacus* was recorded as well as four Amber List species i.e. Starling *Sturnus vulgaris*, Herring Gull *Larus argentatus*, Goldcrest *Regulus regulus* and Black-headed Gull *Chroicocephalus ridibundus*. However, only two BOCCI species i.e., Starling and Goldcrest were breeding at the proposed works area.

The remaining species recorded were common Green List species e.g. Blackbird *Turdus merula*, Robin *Erithacus rubecula* Wren *Troglodytes troglodytes*, Great tit *Parus major* etc. Most birds appeared to be nesting within the treeline habitat where mature trees provide valuable nest site for a range of bird species. The areas of grassland and patches of recolonising vegetation within site provide a range of foraging habitat for these woodland edge bird species.

Overall, the lands within and on the boundary of the construction compound provide valuable habitat for a range of common bird species.

### 7.2.2 Winter bird survey results

During the winter period, vantage point surveys were carried out to identify birds overflying/foraging at the site during the winter months (SNH 2014). One vantage point was used to observe lands within and in the vicinity of the proposed works area. The main focus of this survey was to determine if the grasslands at the site are used as winter foraging or roosting sites for birds, with a particular focus on Special Conservation Interests (SCI) for Cork Harbour SPA, however all birds were recorded. Vantage point surveys were carried out on 23<sup>rd</sup> December 2021, 24<sup>th</sup> January 2022, 10<sup>th</sup> February 2022 and 15<sup>th</sup> March 2022. During the 1<sup>st</sup> February site visit, all birds present were noted.

The results of the winter bird survey at the proposed works area indicate that this does not provide roosting or foraging habitat for SCI birds of Cork Harbour SPA or any other waterfowl

or wading birds. Common farmland species were recorded throughout the winter season. The proposed works area is largely used by common terrestrial bird species during the winter months, although the Red List species Snipe *Gallinago gallinago* and Redwing *Turdus iliacus* regularly use grassland habitats at the site during the winter months. Greenfinch *Chloris chloris* and Linnet *Linaria cannabina*, both Amber list finch species were also regularly recorded here during the winter surveys. While SCI gull species i.e., Herring Gull *Larus argentatus* and Black-headed Gull *Chroicocephalus ridibundus* were regularly recorded overflying the site during the winter months, the grasslands at the site do not provide regular roosting or foraging grounds for these or any other SCI species for the Cork Harbour SPA.

**Table 7. Bird species recorded during breeding bird survey of Northern Lands**

Common Name	31/03/2022	07/04/2022	Breeding Status	Highest Breeding Evidence Recorded	Conservation Status
Black-headed Gull	-	-	Non breeding	Flying over	Amber
Blackbird	10	9	Probable	Agitated Behaviour	n/a
Blue Tit	3	0	Probable	Male Singing	n/a
Bullfinch	1	0	Possible	Male singing	n/a
Buzzard	-	-	Non breeding	Flying over	n/a
Chaffinch	5	0	Probable	Male singing	n/a
Chiff Chaff	7	5	Possible	Suitable Habitat	n/a
Dunnock	3	1	Possible	Male Singing	n/a
Goldcrest	1	0	Possible	Male Singing	Amber
Goldfinch	3	4	Possible	Male Singing	n/a
Great Tit	6	9	Possible	Suitable Habitat	n/a
Herring Gull	-	-	Non breeding	Flying over	Amber
Hooded Crow	-	-	Non breeding	Flying over	n/a
Jack snipe	-	-	Non breeding	Species observed but suspected to be still on Migration	n/a
Jackdaw	10	8	Possible	Suitable habitat	n/a
Magpie	2	0	Probable	Pair present	n/a



Common Name	31/03/2022	07/04/2022	Breeding Status	Highest Breeding Evidence Recorded	Conservation Status
Pied Wagtail	0	7	Probable	Suitable Habitat	n/a
Redwing	-	-	Non breeding	Species observed but suspected to be still on Migration	Red
Robin	2	8	Probable	Male Singing	n/a
Song Thrush	2	1	Possible	Male Singing	n/a
Starling	6	7	Confirmed	Recently fledged young	Amber
Wood Pigeon	0	10	Probable	Pair present	n/a
Wren	6	2	Possible	Male Singing	n/a

### 7.3 Invasive Species

Non-native plants are defined as those plants which have been introduced outside of their native range by humans and their activities, either purposefully or accidentally. Invasive non-native species are so-called as they typically display one or more of the following characteristics or features: (1) prolific reproduction through seed dispersal and/or re-growth from plant fragments; (2) rapid growth patterns; and, (3) resistance to standard weed control methods.

Where a non-native species displays invasive qualities and is not managed it can potentially: (1) out compete native vegetation, affecting plant community structure and habitat for wildlife; (2) cause damage to infrastructure including road carriageways, footpaths, walls and foundations; and, (3) have an adverse effect on landscape quality. The NBDC lists a number of high impact invasive species which have been recorded within grid square W67 (**Table 8**).

**Table 8. NBDC list of high impact invasive species.**

Common Name	Latin Name
Canada Goose	<i>Branta canadensis</i>
Canadian Waterweed	<i>Elodea canadensis</i>
Cherry Laurel	<i>Prunus laurocerasus</i>
Curly Waterweed	<i>Lagarosiphon major</i>
<i>Fallopia japonica x sachalinensis = F. x bohemica</i>	
Giant Hogweed	<i>Heracleum mantegazzianum</i>
Giant-rhubarb	<i>Gunnera tinctoria</i>
Indian Balsam	<i>Impatiens glandulifera</i>
Japanese Knotweed	<i>Fallopia japonica</i>
Nuttall's Waterweed	<i>Elodea nuttallii</i>
<i>Rhododendron ponticum</i>	
Harlequin Ladybird	<i>Harmonia axyridis</i>
American Mink	<i>Mustela vison</i>
Brown Rat	<i>Rattus norvegicus</i>
Coypu	<i>Myocastor coypus</i>
Feral Ferret	<i>Mustela furo</i>
House Mouse	<i>Mus musculus</i>
Sika Deer	<i>Cervus nippon</i>

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The Birds and Natural Habitats Regulations 2011 (SI 477 of 2011), Section 49(2) prohibits the introduction and dispersal of species listed in the Third Schedule, which includes Japanese Knotweed and Himalayan Balsam, as follows: “any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [...] shall be guilty of an offence.”

No third schedule or other invasive species were recorded during site surveys.

## 8. Potential Impacts

Potential impacts could arise from the following:

- Potential impacts from loss of habitat.
- Potential impacts from noise and disturbance
- Potential impacts on water quality during construction
- Potential impacts on water quality during operation
- Spread of invasive species
- In-combination Impacts

### 8.1 Potential impacts from loss of habitat

The works area is located 6.0km northwest of the Cork Harbour SPA at its closest point. An ecological appraisal of the site indicates that it supports common habitats which are not of high value in the context of Natura 2000 designations. The habitats recorded within the works area do not correspond to habitats listed on Annex I of the Habitats Directive.

Winter bird surveys (2021/2022) determined that the grasslands at the site do not provide regular roosting or foraging grounds for any SCI species for the Cork Harbour SPA. There is nothing to differentiate the grassland habitats onsite from other similar habitats in the vicinity and they do not provide critical foraging or roosting habitats for SCI birds for the Cork Harbour SPA.

The short-term creation of the contractor's compound and parking area will not result in any significant deterioration in habitat quality or loss of habitat within the Cork Harbour SPA. Therefore, it is concluded that the proposed works will not result in any loss, deterioration or fragmentation of habitat within Natura 2000 sites.

### 8.2 Potential impacts from noise and disturbance

Potentially increased noise and disturbance associated with the site works could cause disturbance/displacement of fauna. If of sufficient severity, there could be impacts on reproductive success. Disturbance can cause sensitive species, such as birds, to deviate from their normal, preferred behaviour, resulting in stress, increased energy expenditure and, in some cases, species mortality.

The potential effects and impacts of disturbance have been widely recognised in wildlife conservation legislation, as has the need to develop conservation measures for birds whilst taking human activities into account. Article 4.4 of the Bird's Directive (79/409/EEC) requires member states to *"take appropriate steps to avoid... any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article"*. This specifically relates to conservation measures concerning Annex I species.

The wintering birds listed as qualifying interests for the Cork Harbour SPA are strongly associated with estuarine shoreline areas or wetlands - habitat types absent from the proposed works area.

It is noted that the proposed works area is located 6.0km from the SPA boundary and is located adjacent to existing urban and industrial developments. This area is subject to noise

disturbance and light pollution from surrounding residential developments. During the construction stage, there may be short-term increases in disturbance, but it will not be significant in the context of existing noise levels. During operation noise levels will be comparable to existing noise levels at the Hollyhill Industrial Estate.

No valuable habitat for SCI species was recorded within or adjacent to the proposed works area. The construction phase of the project will increase noise and disturbance. However, given the existing noise environment and the lack of valuable habitat for SCI species on or near the proposed works area no impact on birds listed as qualifying interests for the Cork Harbour SPA is predicted to occur.

### **8.3 Potential impacts from surface water**

Potential impacts on aquatic habitats which can arise from surface water emissions during the construction phase of the proposed works include increased silt levels in surface water run-off, inadvertent spillages of hydrocarbons from fuel and hydraulic fluid.

It is noted that environmental control measures will be implemented during construction in line with standard guidelines. Whilst the implementation of such measures during construction will assist in minimising impacts on the local environment, the implementation of these measures has not been taken into consideration in this screening report when reaching a conclusion as to the likely impact of the development on Natura 2000 sites.

Inadvertent spillages of hydrocarbon and/or other chemical substances during construction could introduce toxic chemicals into the aquatic environment via direct means, surface water run-off or groundwater contamination. Some hydrocarbons exhibit an affinity for sediments and thus become entrapped in deposits from which they are only released by vigorous erosion or turbulence. Oil products may contain various highly toxic substances, such as benzene, toluene, naphthenic acids and xylene which are to some extent soluble in water; these penetrate into the fish and can have a direct toxic effect. The lighter oil fractions (including kerosene, petrol, benzene, toluene and xylene) are much more toxic to fish than the heavy fractions (heavy paraffins and tars). In the case of turbulent waters, the oil becomes dispersed as droplets into the water. In such cases, the gills of fish can become mechanically contaminated and their respiratory capacity reduced (Svobodova *et al.* 1993).

High levels of silt can also impact on fish species. If of sufficient severity, adult fish could theoretically be affected by increased silt levels as gills may become damaged by exposure to elevated suspended solids levels. If of sufficient severity, aquatic invertebrates may be smothered by excessive deposits of silt from suspended solids. In areas of stony substrate, silt deposits may result in a change in the macro-invertebrate species composition, favouring less diverse assemblages and impacting on sensitive species. Cement can also affect fish, plant life and macroinvertebrates by altering pH levels of the water.

Aquatic plant communities may also be affected by increased siltation. Submerged plants may be stunted and photosynthesis may be reduced. Significant impacts on fish stocks could impact on piscivorous birds listed as SCIs for the Cork Harbour SPA i.e., Little Grebe, Great Crested Grebe, Cormorant, Grey Heron and Common Tern due to a reduction in prey availability. Such run-off if severe could potentially result in changes in the ecology of the estuary.

There is an existing surface water drainage system currently serving the Apple campus, that consists of four separated networks. Three of these discharge to the Cork City Council surface water drain on Harbour View Road. The fourth network, which drains the various at grade carparks to the north and west sides of the Main Campus, discharges via a 300mm diameter pipe which passes beneath the David McCarthy Road. This pipe then outfalls to an existing open ditch described above, which runs along the western boundary of the construction compound. The existing open ditch runs north and connects to the River Bride. Therefore, the proposed works area is potentially hydrologically connected to Cork Harbour SPA via the River Bride (and River Lee). As shown in **Figure 5**, the topsoil storage area is located over 70m from the open drain. In the absence of mitigation, sediment laden runoff would be largely captured by the surrounding ground/grassland prior to reaching the local drainage network. The proposed works area is located 10.6km upstream of the SPA. Given the large size of the Cork Harbour SPA, the dilution provided in the estuarine environment and naturally fluctuating levels of silt within these estuarine habitats, impacts are only likely to arise from extremely severe levels of siltation or major spills of hydrocarbons. The small scale of the proposed works means there is no significant risk of severe silt levels being generated or major spills of hydrocarbons. As noted above, environmental control measures will be implemented during construction in line with standard guidelines. Whilst the implementation of such measures during construction will assist in minimising impacts on the local environment, the implementation of these measures has not been taken into consideration in this screening report when reaching a conclusion as to the likely impact of the development on Natura 2000 sites.

The proposed works area is located a considerable distance from the Cork Harbour SPA (10.6km upstream). Given the small scale of the proposed works, the existing surface water drainage network, the distance upstream of the SPA and the subsequent dilution available in local watercourses and estuarine environment, there is no significant risk silt or hydrocarbon contamination within Cork Harbour SPA. Therefore, no impact on water quality within Natura 2000 sites during construction or operation is predicted to occur.

#### **8.4 Impacts on water quality from discharges of wastewater during operation**

The proposed works could potentially result in an increase in nutrients discharging to Cork Harbour via the Cork City Wastewater Treatment Plant (WWTP). Increased nutrients can potentially impact on estuarine habitats by changing baseline ecological conditions and increasing algal growth.

The proposed works could potentially result in an increase in nutrients discharging to Cork Harbour via the Lough Mahon discharge for the Cork City WWTP. Increased nutrients can potentially impact on estuarine habitats by changing baseline ecological conditions and increasing algal growth, which in turn could impact on feeding success for birds listed as qualifying interests for the Cork Harbour SPA.

The AER (2020) for Cork City WWTP notes that the WWTP does not have an observable negative impact on receiving water quality nor a negative impact on the Water Framework Directive Status. The short-term addition of the effluent discharge from the proposed works to the Cork City WWTP is well within its design capacity and will not comprise the operational capability of the WWTP to treat effluent to comply with emission limit values. Therefore, the

impacts from the proposed works will be negligible given the current operating conditions at the WWTP.

### 8.5 Spread of Invasive Species

No high-risk invasive species were recorded within the proposed works area. Therefore, there is no risk to Cork Harbour SPA via impacts from the spread of invasive species.

### 8.6 In-combination Impacts

In-combination impacts refer to a series of individually modest impacts that may in combination produce a significant impact. The underlying intention of this in combination provision is to take account of in-combination impacts from existing or proposed plans and projects and these will often only occur over time.

High negative threats, pressures and activities identified for the Cork Harbour SPA include roads, motorways, port areas, industrial or commercial areas, urbanised areas, human habitation and marine and freshwater aquaculture. Other developments near the proposed works area and their potential in-combination impacts are listed in **Table 9**.

**Table 9. Other developments near site and potential in-combination impacts**

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Impact
<b>River Basin Management Plan 2022-2027</b>	<p>The project should comply with the environmental objectives of the Irish RBMP which are to be achieved generally by 2027.</p> <ul style="list-style-type: none"> <li>• Ensure full compliance with relevant EU legislation</li> <li>• Prevent deterioration</li> <li>• Meeting the objectives for designated protected areas</li> <li>• Protect high status water</li> </ul>	<p>The implementation and compliance with key environmental policies, issues and objectives of this management plan will result in positive in-combination effects to European sites. The implementation of this plan will have a positive impact for the biodiversity. It will not contribute to in-combination or cumulative impacts with the proposed works.</p>
	<ul style="list-style-type: none"> <li>• Implement targeted actions and pilot schemes in focus sub-catchments aimed at: targeting water bodies close to meeting their objective and addressing more complex issues which will build knowledge for the third cycle.</li> </ul>	
<b>Inland Fisheries Ireland Corporate Plan 2021-2025</b>	<p>To ensure that Ireland's fish populations are managed and protected to ensure their conservation status remains favourable. That they provide a basis for a sustainable world class recreational angling product, and that pristine aquatic habitats are also enjoyed for other recreational uses.</p>	<p>The implementation and compliance with key environmental issues and objectives of this corporate plan will result in positive on-combination effects to European sites. The implementation of this corporate plan will have a positive impact for biodiversity of inland fisheries and</p>

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Impact
	<p>To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected.</p> <p>To grow the number of anglers and ensure the needs of IFI's other key stakeholders are being met in a sustainable conservation focused manner.</p> <p>EU (Quality of Salmonid Waters) Regulations 1988. All works during development and operation of the project must aim to conserve fish and other species of fauna and flora habitat; biodiversity of inland fisheries and ecosystems and protect spawning salmon and trout.</p>	<p>ecosystems. It will not contribute to in-combination or cumulative impacts with the proposed works.</p>
<b>Irish Water Capital Investment Plan 2020-2024</b>	<p>Proposals to upgrade and secure water services and water treatment services countrywide.</p>	<p>Likely net positive impact due to water conservation and more effective treatment of water.</p>
<b>Water Services Strategic Plan (WSSP, 2015)</b>	<p>Irish Water prepared a Water Services Strategic Plan (WSSP, 2015), under Section 33 of the Water Service No. 2 Act of 2013 to address the delivery of strategic objectives which will contribute towards improved water quality and biodiversity requirements through reducing:</p> <ul style="list-style-type: none"> <li>• Habitat loss and disturbance from new / upgraded infrastructure;</li> <li>• Species disturbance;</li> <li>• Changes to water quality or quantity; and</li> </ul>	<p>The WSSP forms the highest tier of asset management plans (Tier 1) which Irish Water prepare and it sets the overarching framework for subsequent detailed implementation plans (Tier 2) and water services projects (Tier 3). The WSSP also sets out the strategic objectives against which the Irish Water Capital Investment Programme is developed. The current version of the CAP outlines the proposals for capital expenditure in terms of upgrades and new builds within the Irish Water owned assets.</p>
	<ul style="list-style-type: none"> <li>• Nutrient enrichment /eutrophication.</li> </ul>	<p>Therefore, no adverse significant in-combination effects are envisaged.</p>
<b>NPWS Conservation Management Plans</b>	<p>Conservation Management Plans have not been fully prepared for the European sites being assessed. However, conservation objectives along with supporting documents for the Cork Harbour SPA</p>	<p>The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest.</p> <p>A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site. The</p>

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Impact
		<p>maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.</p> <p>The resultant effects of conservation objectives are a net positive and there is no potential for in combination effects on European sites.</p>
<b>WWTP discharges</b>	Carrigtwohill and Environs WWTP, Midleton WWTP, Whitegate-Aghada WWTP, Midleton WWTP, Ringaskiddy Village WWTP's, Cobh & North Cobh WWTP's, Passage-Monkstown WWTP.	Discharges from municipal WWTPs are required to meet water quality standards. Irish Water Capital Investment Plan proposes to upgrade water treatment services countrywide (see above). The long-term in-combination impact is predicted to be negligible.
<b>Applications within Apple Campus</b>	<p>The following developments have recently received planning permission within the Apple campus:</p> <p>Apple Operations Europe Limited (2240872). Permission for the construction of a new substation building consisting of a medium voltage switchroom and electrical distribution room and all associated site development works. Grant of permission by Cork County Council 11<sup>th</sup> April 2022.</p> <p>Apple Operations Europe Limited (2241121). Permission for the construction of a four storey over partial lower ground floor level office building providing office space, meeting rooms, staff welfare, service areas and all ancillary site development works. The proposed office building will be constructed within the existing carpark and will connect to an existing office building known as 'HH4' to the southeast by way of a cantilevered link corridor at first floor level resulting in façade amendments and internal reconfigurations to the existing 'HH4' building. A central pedestrian avenue will also be provided between the existing and proposed building. The proposed development includes a single storey commute hub building providing bicycle/scooter parking, storage and staff facilities serving the wider Apple campus, a single storey energy</p>	<p>There is potential for works to take place concurrently with the proposed works.</p> <p>Given the location and timing of the works, there is potential for cumulative impacts due to noise/visual disturbance local flora and fauna. Should this situation arise, construction activities will be planned and phased, in consultation with the relevant construction management team. These measures will ensure that no significant cumulative noise/disturbance effects or habitat loss for local flora and fauna.</p> <p>Given the distance from Natura 2000 sites, no in-combination impacts with water quality have been identified.</p>



Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Impact
	<p>centre building and 2 no. single storey security huts. A new surface car park on lands to the north of the David McCarthy Road is proposed to accommodate the relocation of the displaced car parking spaces resultant from the construction of the proposed office building and provision of additional car parking spaces, in addition to the reconfiguration of the existing car park to the south of the David McCarthy Road. The proposed carpark to the north of the David McCarthy Road will be linked with the main campus via a pedestrian underpass under David McCarthy Road and a covered pedestrian pathway. 2 no. new vehicular accesses are proposed off the David McCarthy Road. Ancillary site development works include hard and soft landscaping, boundary treatments, lighting, public realm upgrades, signage, plant and photovoltaic panels and all other site development works above and below ground. An Environmental Impact Assessment Report has been prepared in respect of the planning application. Grant of permission by Cork County Council 27<sup>th</sup> September 2022.</p>	

The area surrounding the proposed works area is also heavily populated with a mixture of industrial developments, residential estates and one-off dwellings and roads. Wastewater is also discharged from other settlements (e.g., Blarney, Douglas, Ringaskiddy) and local industry. However, in the absence of any significant impact associated with this project no in-combination impacts on water quality have been identified. Similarly, no significant in-combination impacts in relation to noise and disturbance have been identified.

## 9. Screening conclusion and statement

This AA screening report has been prepared to assess whether the proposed works, individually or in-combination with other plans or projects, and in view of best scientific knowledge, is likely to have a significant effect on any European site(s).

The screening exercise was completed in compliance with the relevant European Commission guidance, national guidance, and case law. The potential impacts of the proposed works have been considered in the context of the European sites potentially affected, their qualifying interests or special conservation interests, and their conservation objectives.

Through an assessment of the source-pathway-receptor model, which considered the Zol of effects from the proposed works and the potential in-combination effects with other plans or projects, the following findings were reported:

The proposed works at Apple Operations International Limited, Hollyhill Industrial Estate, Hollyhill, Cork, either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect any European Site, in light of their conservation objectives.

Therefore, a Stage 2 Appropriate Assessment is deemed not to be required.

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## Appendices

### Appendix 1 Site synopses

#### Cork Harbour Special Protection Area (Site Code 004030)

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poul nabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva lactuca* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Salt marsh species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Laxflowered Sea-lavender (*Limonium humile*) and Sea Arrowgrass (*Triglochin maritima*). Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Blacktailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. The two-year mean of summed annual peaks for the entire harbour complex was 55,401 for the period 1995/96 and 1996/97. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (905) and Redshank (1,782) - all figures given are average winter means for the two winters 1995/96 and 1996/97. At least 18 other species have populations of national importance, as follows: Little Grebe (51), Great Crested Grebe (204), Cormorant (705), Grey Heron (63), Shelduck (2,093), Wigeon (1,852), Teal (922), Pintail (66), Shoveler (57), Red-breasted Merganser (88), Oystercatcher (1,404), Golden Plover (3,653), Grey Plover (84), Lapwing (7,688), Dunlin (10,373), Bartailed Godwit (417), Curlew (1,325) and Greenshank (26). The Shelduck population is the largest in the country (over 10% of national total). The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145) and Turnstone (79). Other species using the site include Gadwall (13), Mallard (456), Tufted Duck (113), Goldeneye (31), Coot (53), Mute Swan (38), Ringed Plover (34) and Knot (38). Cork Harbour is a nationally important site for gulls in winter and autumn, especially Black-headed Gull (4,704), Common Gull (3,180) and Lesser Black-backed Gull (1,440).

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.

The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds.

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, there are at least 18 wintering species that have populations of national importance, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it.

## Appendix 2. Drawings

