



# Ringaskiddy IDA

Natura Impact Statement

IDA Ireland

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## 1. Introduction

AECOM Ireland Limited ('AECOM') was commissioned by IDA Ireland to produce this Natura Impact Statement (NIS) to inform An Bord Pleanála's (ABP) Appropriate Assessment (AA) of the proposed development of foul water and stormwater improvements on lands at Ringaskiddy, Co. Cork.

Broadly, the foul water and stormwater improvements (hereafter referred to as the 'Proposed Development'), comprise construction and operation of a new foul pumping station and low lift storm pumping station with pipelines and ancillary elements. The Proposed Development is required in order to provide improved foul water and stormwater infrastructure to service IDA-owned lands in the wider area which are currently zoned for industrial development (Cork County Council (CCC) 2014).

The European Communities (EC) Habitats Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (more commonly referred to as the 'Habitats Directive') provides, in Article 6 (3), the legal basis for Appropriate Assessment (AA) at European level. The requirement for AA Screening (and, if required, AA) under the Habitats Directive is transposed into Irish national law by the European Communities (Birds and Natural Habitats) Regulations 2011 (the 'Habitats Regulations').

AECOM has been commissioned to produce this NIS following a request from ABP. On review of an AA Screening Report (EirEco 2018a), ABP concluded that in the absence of mitigation there is potential for the operation of the Proposed Development to impact the integrity of Cork Harbour Special Protection Area (SPA) via discharges from storm water and foul water. All other impact pathways were deemed to pose no likely significant effect. This NIS therefore focusses solely on the possible impacts of the operation of the Proposed Development on the SPA, in the absence of mitigation and then applies mitigation measures to ensure there is no adverse effect on the integrity of the SPA.

### 1.1 Overview of Proposed Development

The Proposed Development is located on lands at Ringaskiddy, Co. Cork. The pumping stations are proposed to be located on IDA land to the south of R613 road with the associated rising main, extending approximately 3 km west to connect to the existing Shanbally wastewater treatment plant (WwTP). The Proposed Development is to serve the IDA Ireland Ringaskiddy landbanks (approximately 75 ha) as described in the Ballincollig Carrigaline Municipal District Local Area Plan (LAP) (CCC 2017) to facilitate further development.

The Proposed Development is located on greenfield land and in close proximity to existing pharmaceutical production campuses. A foul water emergency overflow is proposed to tie in with an existing IDA outfall pipeline which discharges to Lough Beg approximately 250 m east. A storm rising main is also proposed to alleviate existing flooding issues and this water will also discharge to the existing IDA storm water outfall pipe.

### 1.2 Statement of Authority

This NIS was originated by Maeve Riley BSc, MSc, MCIEEM. Maeve is a Consultant Ecologist at AECOM and has 7 years' professional experience as an ecological consultant and AA practitioner.

This NIS was checked by Tony Marshall BSc (Hons) MCIEEM, an ecologist with ten years' experience, and particular experience in drafting and reviewing AA documents.

This NIS was verified by Dr. James Riley BSc (Hons), MSc, PhD, CEnv, MCIEEM. James is the Technical Director at AECOM who leads the company's technical practice regarding NIS and has been working as a consultant in this field since 2003.

## 2. Appropriate Assessment

The process required by Articles 6(3) and 6(4) of the Habitats Directive is stepwise and must be followed in sequence.

The first step in the sequence of tests is to establish whether an AA is required. This is often referred to as an AA Screening. The purpose of AA Screening is to determine, in view of best available scientific knowledge, whether a plan or project, either alone or in combination with other plans or projects, could have Likely Significant Effects (LSE) on a European designated site, in view of that site's Conservation Objectives.

For this purpose and as a result of case law 'likely' means 'possible'. Under Section 177U (1) of the Planning Acts, an AA Screening shall be carried out by the competent authority to assess, in view of best scientific knowledge, whether the Proposed Development, either individually or in combination with other plans or projects, will have LSE(s) on any European sites. If the competent authority determines that there are no LSEs (including 'in combination' effects from other plans or projects), then no further assessment is necessary and the plan or project can, subject to any other issues, be taken forward. If, however, the Competent Authority determines that there are LSE, or if there is reasonable scientific doubt, then the next step in the process must be initiated and a detailed Appropriate Assessment undertaken.

Having regard for relevant European and national guidance an AA Screening exercise was carried out by EirEco (EirEco 2018a) for the Proposed Development. This screening report concluded that there would be no impact on Cork Harbour SPA where storm water discharge was considered not to contain any additional level of contaminants than is already entering Lough Beg. The likelihood of contaminants from entering the SPA was considered to be only on rare occurrence and measures were incorporated into the design so as to not rely on the emergency overflow.

However, on review of the associated Screening Report An Bord Pleanála (ABP) concluded that the Proposed Development should be 'Screened in' to the requirement for an AA. ABP concluded that in the absence of mitigation measures, significant effects on Cork Harbour Special Protection Area (SPA) (site code 4030), located downstream of the Proposed Development, during operation of the Proposed Development could not be excluded on the basis of objective information, individually or in combination with other plans or projects.

The AA process is provided for under Article 6 (3) of the Habitats Directive to determine whether a project or plan could 'adversely affect the integrity' of any European sites, either alone or in-combination with other plans or projects, in light of the Conservation Objectives of the European sites in question.

Under Section 177U (5) of the Planning Acts, the competent authority (in this case, ABP) shall determine that an AA of a Proposed Development is required if it *cannot be excluded* (emphasis added), 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(s).

The statutory definition of an NIS is provided in Section 3. The methodology for completing the NIS is provided in Section 4.

## 3. Key Definitions

### 3.1 European sites

In the Republic of Ireland, European sites comprise:

- SPAs designated for bird species and their habitats;
- Special Areas of Conservation (SAC) designated for habitats, plants, and non-bird species; and,
- 'Candidate' sites including 'cSACs'.

The process of designating cSACs as SACs is ongoing in Ireland. The term SAC is used throughout this report for both SACs and cSACs, given they are subject to equal protection.

The designation features of SPAs are referred to as Special Conservation Interests (SCI), and these comprise bird species, as well as wetland bird habitats.

The designation features of SACs are referred to as Qualifying Interests (QI), and these comprise both species (excluding birds), and habitats.

The designation features of European sites are identified in the Statutory Instruments for European sites where such sites have completed the designation process. In all cases, designation features are also identified in Conservation Objectives published by the National Parks and Wildlife Service (NPWS). Any Conservation Objectives referred to in this NIS are referenced to identify the date of publication and version number.

### 3.2 Natura Impact Statement

Under Section 177T of the Planning Acts (177T), a NIS is defined as:

*"A statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a Proposed Development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites".*

The NIS must *"include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites"*.

### 3.3 Zone of Influence

Irish departmental guidance on AA (DoEHLG, 2010) requires European sites within the "zone of impact" of a plan or project to be identified. In relation to the zone of impact, the guidance states:

*"For projects, the distance could be much less than 15 km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects" (DoEHLG, 2010; p.32, para 1).*

In this NIS, the term Zone of Influence (Zoi) is used in lieu of "zone of impact". The detailed method used to identify the Zoi is outlined in Section 4.5.



## 4. Methodology for NIS

### 4.1 Guidance

This NIS has been prepared in accordance with the European Commission guidance document 'Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC' (EC, 2001) and the Department of the Environment's Guidance on the 'Appropriate Assessment of Plans and Projects in Ireland' (December 2009, amended February 2010).

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

- *Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*, (EC, 2018);
- Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission; and,
- NPWS (2010) *Appropriate Assessment under Article 6 of the Habitats Directive 92/43/EEC: Guidance for Planning Authorities. Circular Letter NPWS 1/10 & PSSP 2/10* (NPWS, 2010)

The European Commission (EC) has published guidance on the provisions of Article 6 of the Habitats Directive 92/43/EEC, including Appropriate Assessment (EC, 2018). This updates the original EC guidance on Article 6 (EC, 2001), but should be read in conjunction with this and other EC guidance available online<sup>1</sup>. As stated by EC (EC 2018) the updated guidance "incorporates the large body of rulings that have been issued by the CJEU over the years on Article 6".

There have also been substantial changes to AA practice since the last formal guidance document published by the Department of the Environment, Heritage and Local Government (DoEHLG, 2010), arising from rulings in European and Irish courts, and associated changes in statute. The updated EC (EC 2018) guidance has therefore been followed during this NIS in lieu of the 2010 DoEHLG guidance, supplemented by relevant online guidance produced by National Parks & Wildlife Service (NPWS)<sup>2</sup>, most notably Circular Letter NPW 1/10 & PSSP 2/10 (NPWS, 2010).

The approach to referencing of guidance and other sources in this NIS Report is to include published reports in the References Section, and legislation and websites as footnotes where relevant. Abbreviations are written in full at first mention, unless in tables, within which abbreviations are written in full or detailed within a table footnote.

The methodology informing this NIS also draws on and has evolved from guidance and recommendations from international AA practitioners (Levett-Therivel, 2009; Chvojková *et al.*, 2013).

For instance, following Levett-Therivel (2009) "*the precautionary principle should be used with reasonableness, and should be commensurate with the level of risk and the level of uncertainty concerned. Time-consuming and costly ecological research should be required only in rare circumstances*".

### 4.2 The Precautionary Principle

The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as:

*"When human activities may lead to morally unacceptable harm (to the environment) that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgment of plausibility should be grounded in scientific analysis"*.

Reasoned application of the 'Precautionary Principle' is fundamental to AA. In this report, adverse effects to European site integrity would be presumed without evidence to the contrary, in the event where there was evidence of possible effects on a European site(s) from the proposed works, but uncertainty remained.

<sup>1</sup> [http://ec.europa.eu/environment/nature/natura2000/management/guidance\\_en.htm](http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm) Accessed December 2019

<sup>2</sup> <https://www.npws.ie/guidance-appropriate-assessment-planning-authorities> Accessed December 2019

### 4.3 Steps in Producing the NIS

The following steps for the NIS are compliant with the EC and DoEHLG guidance detailed above and are used as the basis for this NIS:

1. Information Required (Section 7.1), informed by consultation responses (Section 4.4), and use of field and desktop studies (Section 4.4) to identify the relevant baseline environment relating to European sites (Section 6.1);
2. Conservation Objectives (Section 7.2);
3. Prediction of Effects (Section 7.3);
4. Mitigation Measures (Section 8); and,
5. Conclusion (Section 9).

### 4.4 Desktop and Field Study Methods

#### 4.4.1 Desktop Study

This assessment was informed by a desktop study, which investigated the potential for all QIs, SCIs, and secondary features of European sites to occur within the ZOI, given their ecological requirements identified by Balmer *et al.* (2013) for SCI (i.e. birds), and the NPWS for QI (i.e. habitats and species (excluding bird species); NPWS, 2019a and b).

This review takes into account the ecological requirements of QI and SCI informed by various desktop information sources consisting of online datasets (NPWS<sup>3</sup>, Environmental Protection Agency (EPA)<sup>4</sup>, Geological Survey of Ireland (GSI<sup>5</sup>)), online databases (National Biodiversity Data Centre (NBDC)<sup>6</sup>, NPWS, Irish Wetland Bird Survey (I-WeBS)<sup>7</sup>), GIS spatial datasets and published and unpublished literature sources (i.e. Balmer *et al.* (2013) and NPWS, (2019c)).

SCI birds and mobile QI species can travel great distances beyond their core foraging, resting and breeding areas. The desktop study assessed the potential presence of such species beyond the boundary of European sites for which the species are designated. Desktop study had particular regard for the following information sources:

- lists of SCI and QI for the European sites relevant to this report were obtained from the NPWS website;
- information on ranges of mobile QI populations in Volume 1 NPWS' Status of EU Protected Habitats and Species in Ireland (NPWS, 2019c), and associated digital shapefiles obtained from the NPWS Research Branch;
- information on likely distribution (Balmer *et al.*, 2013) and range (Scottish Natural Heritage (SNH) 2016) of mobile SCI bird populations, excluding birds of prey whose ranges were determined with reference to Hardey *et al.* (2013);
- mapping of European site boundaries and description of Conservation Objectives for relevant sites in County Cork and beyond, as relevant, available online from the NPWS;
- distribution records for mobile populations of distant European sites held online by the NBDC<sup>6</sup>;
- details of QI / SCI of European sites within the Cork County Development Plan 2014 (CCC, 2014);
- data including surface and ground water quality status, and river catchment boundaries available from the online database of the EPA<sup>4</sup>;
- national and regional surveys of semi-natural habitats, including grasslands (O'Neill *et al.*, 2013), saltmarsh (McCorry and Ryle, 2009), and woodland (Perrin *et al.*, 2008); and,

<sup>3</sup>Available from [webgis.npws.ie/npwsviewer/](http://webgis.npws.ie/npwsviewer/) Accessed December 2019

<sup>4</sup>Available from [gis.epa.ie/EPA/Maps/](http://gis.epa.ie/EPA/Maps/) Accessed December 2019

<sup>5</sup>Available from [www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx](http://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx) Accessed December 2019

<sup>6</sup>Available from [maps.biodiversityireland.ie/Map](http://maps.biodiversityireland.ie/Map) Accessed December 2019

<sup>7</sup>Available from [birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/](http://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/) Accessed December 2019

- bird count data for European sites available online from Birdwatch Ireland's Wetland Bird Survey (IWeBS) Programme (Lewis *et al*, 2019)

The desktop study also included a review of existing reports which were provided as part of the original planning application for the Proposed Development with CCC (reference 186038). These included the AA Screening Report (EirEco 2018a), Ecological Impact Assessment (EclA) (EirEco 2018b) and Flood Risk Assessment (FRA) (Nicholas O'Dwyer 2018)

#### 4.4.2 Field Study

This NIS was also informed by a single field survey on 03 December 2019 to:

- assess if any changes to habitats had occurred from those recorded in the EclA (EirEco 2018b) published as part of the CCC planning application reference 186038;
- search for invasive species scheduled (Third Schedule) to the Habitats Regulations were present within the Proposed Development<sup>8</sup> (hereafter 'scheduled invasive' species).

The lands within and adjacent to the Proposed Development were walked over, where accessed allowed. The survey assessed the habitats on site and also checked for the presence or potential presence of invasive species, which, if present, could pose a risk to European site integrity.

## 4.5 Consultation

Birdwatch Ireland (BWI) were contacted on 25 November 2019 to request recent wintering bird records for Cork Harbour (i.e. winter periods of 2012/2013 to 2016/2017, inclusive). Results of this consultation were received on 25 November 2019.

The Heritage Officer of CCC was contacted on 25 November 2019 to invite commentary on the scope of the ecological assessment. At the time of writing (December 2019) there had been no response from the Heritage Officer.

NPWS Development Applications Unit (DAU) and Scientific Unit (SU) was contacted on 25 November 2019 to invite comment and request records held on relevant habitats and species within the Proposed Development boundary and the wider area. Results of the consultation with the SU were received on 05 December 2019. At the time of writing (January 2020), no formal response had been received from the DAU.

## 4.6 Identification of Relevant European Sites

An AA Screening Report was completed for the Proposed Development (EirEco 2018a) which found that there was one relevant European site, Cork Harbour SPA with potential to be impacted by the Proposed Development. This NIS regards Cork Harbour SPA as the only relevant European site, based on the findings of the AA Screening and the request of APB to further address the potential impacts of the Proposed Development, during operation, on Cork Harbour SPA.

# 5. Proposed Development

## 5.1 General Description

The Proposed Development is located in Lough Beg, Ringaskiddy, Co. Cork, approximately 4.5 km west of Carrigaline. Flood events have been recorded along the L6518 road and within an industrial facility (Moog), located approximately 150 m north west. A flood risk assessment (Nicholas O'Dwyer 2018) determined the flooding was caused as a result of the existing IDA storm water pipeline becoming inundated during periods of simultaneous intense rainfall and high tides which result in the tidelocking of the pipeline. Foul and stormwater improvements, therefore, have been designed to improve the level of service provided by the existing IDA Ireland infrastructure. The Proposed Development comprises a number of elements, namely the construction of:

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<sup>8</sup> Under the Habitats Regulations (save in accordance with a licence) any person who "plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place" any species scheduled to the Habitats Regulations is guilty of an offence.

1. a foul water pumping station and a foul rising pipeline with an emergency overflow;
2. a storm water pumping station and ancillary pipework;
3. ancillary elements such as chambers to manage water flow; and,
4. demolition of an existing derelict bungalow

These proposed arrangement of these elements of the Proposed Development are outlined in Figure 1 Appendix A.

#### 5.1.1 Foul Water Pumping Station, Rising Main and Emergency Overflow

The proposed site for the pumping station is serviced by the L6518 road (The Marsh) from the R613 located to the north. The pumping station will house four foul water pumps proposed to service future developments of the IDA landbanks. The pumping station is proposed on a predominantly greenfield site with a derelict bungalow (to be demolished as part of the Proposed Development).

The emergency overflow pipe (approximately 65 m) is proposed to connect the pumping station with an existing outfall (east of the proposed pumping station site), via penstock chambers (Section 5.1.3). This outfall currently discharges to Lough Beg Marsh (a nationally designated site for wetland habitats and supported fauna) in Cork Harbour SPA. A 6 mm mesh screen is proposed within the emergency outfall to prevent solids discharging to Lough Beg Marsh.

A rising main is proposed to extend from the pumping station, west across grassland and recently developed lands (for approximately 3 km) before reaching the existing Shanbally WwTP. The pipelines are proposed to be laid below ground using open trench techniques. Connection to the existing WwTP will not be made until the WwTP is upgraded to accommodate additional input.

#### 5.1.2 Storm Water Pumping Station and Pipework

A storm inlet (approximately 24 m) is proposed from the pumping station to allow waters from the existing storm water drain to be diverted to the pumping station during flood risk periods (i.e. high tide and heavy rainfall). A proposed storm rising main (approximately 47.5 m) will extend from the storm pumping station to the east of the site connecting to the existing storm water drainage. The pumping station will pressurise the water from the inlet pumping it through the rising main to allow it to overcome the tidal head at the outfall alleviating flooding. The outfall discharges (via a tidal flap) to a headwall at Lough Beg Estuary.

A hydrocarbon interceptor is proposed to be installed within the pipework for the storm water to capture contaminants before discharge.

#### 5.1.3 Ancillary Works

Two reinforced concrete manhole chambers (3 m X 3 m each) are proposed for Proposed Development. Chamber one will contain two penstocks (sluice/gate) which will be used to divert water to the pumping station as is necessary to minimise flood events. Chamber one will be connected with the emergency overflow line from the foul water pumping station (Section 5.1.1). Chamber 1 will replace an existing manhole.

Chamber two is proposed to be used as a connection point for the storm water pumping station rising main (Section 5.1.2).

Actuators used to manage the penstocks are proposed to be above ground, while the penstocks will be within the chamber.

#### 5.1.4 Demolition of Existing Bungalow

There is an existing derelict bungalow located within the Proposed Development which will be demolished to accommodate the works.

This NIS assesses the impacts of the operation on Cork Harbour SPA, other works, such as preliminary ground investigations and construction works are not assessed.

## 5.2 Surface Water Management

### 5.2.1 Existing

There is an existing storm water network and watermain within the boundary of the Proposed Development. The watermain is located to the east of the Proposed Development along Marsh road and the existing storm network is located in agricultural land further east again of Marsh road. This storm network is considered to currently drain water (predominantly pluvial) from the Proposed Development. The existing storm network is connected to an outfall which discharges to Cork Harbour via the existing tidal flap valve. The existing stormwater pipe is a 750 mm diameter pipe with a flow capacity of 2,041 L/sec (Malachy Walsh and Partners, 2016). It discharges to a concrete channel which extends into the estuarine muds for a distance of approximately 20m after which it forms a meandering channel through the estuarine muds of the inner bay during low water. The concrete channel prevents scouring of the substrates during high flow periods. This outfall will not be modified as part of the Proposed Development.

### 5.2.2 Proposed

The storm water network will be improved as per the description in Section 5.1.2. A watermain is proposed to take the water from the hard surfaces (roofs) and will connect with the existing watermain along the Marsh road.

## 5.3 Foul Water

### 5.3.1 Existing

There is currently no public wastewater network within the Proposed Development. It is considered that the existing pharmaceutical, industrial campuses and residential developments utilise private foul water treatment services.

### 5.3.2 Proposed

A foul water pumping station is proposed as part of the Proposed Development and is described in Section 5.1.1. A foul emergency overflow pipeline (c. 65m in length, of which 9 m will be in Lough Beg Marsh) from the foul pumping station is proposed to connect with the existing IDA storm water outfall pipeline which currently discharges to Lough Beg. This high-level emergency overflow will only be required, as a back-up, in the event of pump failure.

The Proposed Development has been designed to accommodate all the lands within the industrial zoned catchment<sup>9</sup> proposed for development (Nicholas O'Dwyer 2018b). In this catchment, there is an approximate area of 75 ha which can potentially be served by the proposed pumping station.

## 5.4 Flood Risk

The Ballincollig and Carrigaline Municipal District Local Area Plans 2017 (CCC 2017) indicate that the site is within lands designated as Flood Zone A.

The Office of Public Works (OPW) flood risk website<sup>10</sup> indicates that the closest recorded flooding event is approximately 2 km east of the Proposed Development.

Hydraulic modelling was carried out to inform this planning application (Nicholas O'Dwyer 2018) which found that the Proposed Development and adjacent lands are prone to flooding during hightide events which coincide with high rainfall. The pumping station is proposed on lands which are designated as Flood Zone A (CCC 2017).

The Lee catchment flood risk assessment and management (CFRAM) study<sup>11</sup> indicates that tidal flooding of the Proposed Development is probable for the future and current scenarios for events above a 10% annual exceedance probability (AEP) i.e. 1 in 10 chance in any given year).

The two key sources of flooding for Proposed Development site for the pumping stations are existing storm water network inundation and tidal flooding (Nicholas O'Dwyer 2018).

<sup>9</sup> Available online at <http://corklocalareaplans.com/wp-content/uploads/2017/08/Ballincollig-Carrigaline-MD-LAP.pdf>  
Accessed December 2019

<sup>10</sup> [www.floodmaps.ie](http://www.floodmaps.ie) Accessed November 2019

<sup>11</sup> <https://www.opw.ie/en/leecframs/> Accessed November 2019

## 6. Baseline Description

This Section describes the desktop and field survey results, in order to describe the relevant baseline environment of the Proposed Development. The relevant baseline environment relates to anything that may be directly or indirectly related to the reasons for designation for, or protection of, European sites.

### 6.1 European Sites

An AA Screening Report was completed for the Proposed Development (EirEco 2018a) which found that there was one relevant European site, Cork Harbour SPA with potential to be impacted by the Proposed Development. This NIS regards Cork Harbour SPA as the only relevant European site, based on the findings of the AA Screening and the request of APB to further address the potential impacts of the Proposed Development, during operation, on Cork Harbour SPA.

Cork Harbour SPA is located approximately 275 m south. The Proposed Development is hydrologically connected to Cork Harbour SPA via surface water flows (via flooding), which ultimately discharge to Cork Harbour. There are no flowing watercourses within the Proposed Development which are hydrologically connected to a European site. Table 1 outlines the SCIs for Cork Harbour SPA. All species listed as SCI for this SPA are for wintering only, with the exception of common tern *Sterna hirundo*, which is listed for breeding.

The boundary of this European site is shown in Figure 2 (Appendix A)

**Table 1. Cork Harbour SPA SCIs**

European Site and Code	SCI	SCI Code	
Cork Harbour SPA (4030)	Bar-tailed godwit	<i>Limosa lapponica</i>	A157
	Black-headed gull	<i>Chroicocephalus ridibundus</i>	A179
	Black-tailed godwit	<i>Limosa limosa</i>	A156
	Common gull	<i>Larus canus</i>	A182
	Common tern	<i>Sterna hirundo</i>	A193
	Cormorant	<i>Phalacrocorax carbo</i>	A017
	Curlew	<i>Numenius arquata</i>	A160
	Dunlin	<i>Calidris alpina</i>	A149
	Golden plover	<i>Pluvialis apricaria</i>	A140
	Great-crested grebe	<i>Podiceps cristatus</i>	A005
	Grey heron	<i>Ardea cinerea</i>	A028
	Grey plover	<i>Pluvialis squatarola</i>	A141
	Lapwing	<i>Vanellus vanellus</i>	A142
	Lesser black-backed gull	<i>Larus fuscus</i>	A183
	Little grebe	<i>Tachybaptus ruficollis</i>	A004
	Oystercatcher	<i>Haematopus ostralegus</i>	A130
	Pintail	<i>Anas acuta</i>	A054
	Red-breasted merganser	<i>Mergus serrator</i>	A069
	Redshank	<i>Tringa totanus</i>	A162
	Shelduck	<i>Tadorna tadorna</i>	A048
Shoveler	<i>Anas clypeata</i>	A056	

European Site and Code	SCI	SCI Code
	Teal	<i>Anas crecca</i>
	Wigeon	<i>Anas penelope</i>
	Wetland and Waterbirds	A999

### 6.1.1.1 Known Threats to Relevant Sites

#### 6.1.1.2 Cork Harbour SPA

The Natura Standard Data Form for Cork Harbour SPA (NPWS, 2017b) ranks the following activities as posing a threat of 'High' importance to the SAC:

- marine and freshwater aquaculture (F01);
- industrial and commercial areas (E02);
- roads and motorways (D01.02);
- urban areas and habitation (E01); and
- port area (D03.01).

In addition, the following activities are ranked as posing a threat of 'Medium' importance to the SPA:

- nautical sports (G01.01);
- walking and horse-riding (G01.02);
- fertilisation (agricultural) (A08); and
- leisure fishing (F02.03)

The Proposed Development does not constitute an activity which falls under the high or medium level of known threats to Cork Harbour SPA. (Pollution from any source (Natura 2000 Form Code H) is not listed as either a threat or positive impact (under management) for Cork Harbour SPA. However, it cannot be discounted that agricultural fertilisation is listed as a medium threat to the SPA. The effects of run-off from this type of nutrient input is considered to have a similar effect to that of discharge of foul water on the SPA.

## 6.2 Existing Reports

Taking account of the request from ABP this NIS assesses the effects of the Proposed Development during operation only on the integrity of Cork Harbour SPA in terms of pollution. All other LSEs (i.e. during construction) are taken in to account in the existing AA Screening Report (EirEco 2018a).

Detailed habitat descriptions are outlined in the existing reports (EclA, EirEco 2018b) and are summarised within this section, updated, where required, from results of the site walkover on 03 December 2019.

## 6.3 Habitats

### 6.3.1 Terrestrial Habitats

The habitats of the pumping stations, rising main, storm main and penstock chambers are located on terrestrial habitats described in this section. They are not considered to link with overall functionality of Cork Harbour SPA. These baseline descriptions are based on a combination of results of the single site walkover (03 December 2019) and descriptions in the EclA report (EirEco, 2018b). The habitats are described as per Fossitt guidelines (Fossitt, 2000) with relevant code in brackets.

#### 6.3.1.1 Pumping Station

The pumping station is proposed on lands dominated by scrub (WS1), dry meadow and grassy verge (GS2) and a derelict house (proposed to be demolished). This habitat has managed grassy pathways (GA2) bounded by scrub (WS1) which lead to an apiary to the east of the house.

### 6.3.1.2 Penstock Chambers, Emergency Overflow and Storm Rising Main

The chambers are proposed on lands dominated by wet grassland (GS4) which is grazed by European rabbit *Oryctolagus cuniculus*. The proposed location of these services is Lough Beg Marsh (a nationally designated site for wetland habitats and associated fauna). The storm rising main and emergency overflow are proposed to cross Marsh road (a minor road) (BL3) and intersect an existing treeline (WL2).

### 6.3.1.3 Rising Main to WwTP

The route of this pipeline extends from the pumping station, west, to agricultural lands. The proposed pipeline crosses arable fields (BC1), tilled lands (BC3) and improved agricultural lands (GA1), intersecting potentially three different hedgerows (WL1). It then follows the R613 road (BL3) in to agricultural fields (GA1) further intersecting hedgerow (WL1) before reaching the proposed connection point at Shanbally WwTP.

### 6.3.2 Marine/Coastal Habitats

The existing IDA storm water outfall discharges through a tidal flap located within a seawall (CC1) which marks the boundary of Cork Harbour SPA. South of the sea wall is open mudflat habitat (LS4), exposed at low tide, and upper saltmarsh (CM2) habitat.

### 6.3.3 Aquatic Habitats

There are no flowing watercourses recorded within the Proposed Development. Freshwater habitats are restricted to areas of standing / pooling water. These are considered to be transient in nature and present only during high rainfall events based on the habitats present within (i.e. not aquatic vegetation). These habitats are located along the treeline (WL2) within the wet grassland habitat (GS4) (proposed location for Penstock Chambers) and also adjacent to the sea wall (CC1).

Lough Beg Marsh is located east of the Proposed Development and to the north of the seawall (CC1). It is dominated by freshwater marsh (GM1) (approximately 4 ha) with a brackish lagoon (CW1) (approximately 0.3 ha) also present. The lagoon receives tidal input via the outfall located within the seawall.

### 6.3.4 Annex I Habitats

There were no habitats listed under Annex I of the EU Directive on the Conservation of Habitats, Flora and Fauna (92/43/EEC) ('the Habitats Directive') recorded within the Proposed Development or described from the NPWS SU Consultation. The NPWS SU consultation found that there is potential *Spartina* swards (LS4) recorded within Cork Harbour SPA, approximately 400 m from the Proposed Development. This habitat is potentially linked to Annex I Habitat, mudflats and sandflats not covered by seawater at low tide (EU Habitat code 1140). However, it is not a designated feature associated with Cork Harbour SPA.

### 6.3.5 Invasive Species

There were no invasive species listed species listed on the "Third Schedule" of the S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011<sup>10</sup> recorded within the Proposed Development.

## 6.4 Mobile species

### 6.4.1 Birds

The NBDC data search recorded birds listed as SCIs for Cork Harbour SPA within 2 km of the Proposed Development. These are summarised in Table 2.

Table 2. Cork Harbour SPA SCI Birds Recorded from NBDC

Species	Date of Latest Record
Eurasian teal	2016
Little grebe	2011
Northern shoveler	2011
Black-headed gull	2017
Black-tailed godwit	2017



Species	Date of Latest Record
Eurasian oystercatcher	2017
Great cormorant	2017
Northern lapwing	2017
Dunlin	2016

#### 6.4.1.1 Wintering Wetland Birds

There is one I-WeBS subsite located directly downstream of the Proposed Development, Lough Beg reference OL453. The results of the I-WeBS consultation for this subsite are summarised in Appendix B. Results cover survey periods between 2012 to 2016 inclusive. SCIs for Cork Harbour SPA recorded during the I-WeBS surveys are outlined in Table 3.

Table 3. Peak SCI Bird Counts for Cork Harbour SPA from I-WeBS Data

Subsite Code	Subsite Name	Grid reference	Species	1% of National Population*	1% of International Population**	2012 / 13	2013 / 14	2014 / 15	2015 / 16	4-year Peak
0L453	Lough Beg	W780630	Common shelduck	100	2500	37	52	52	38	52
0L453	Lough Beg	W780630	Eurasian wigeon	560	14000	37	43	31	12	43
0L453	Lough Beg	W780630	Eurasian teal	360	5000	58	67	70	87	87
0L453	Lough Beg	W780630	Northern pintail	20	600				2	2
0L453	Lough Beg	W780630	Shovler	20	650	10	2		9	10
0L453	Lough Beg	W780630	Red-breasted merganser	25	860		2	4		4
0L453	Lough Beg	W780630	Little grebe	20	4700	11	4	6	6	11
0L453	Lough Beg	W780630	Great crested grebe	30	6300	13	8	6	8	13
0L453	Lough Beg	W780630	Great cormorant	110	1200	9	17	8	10	17
0L453	Lough Beg	W780630	Grey heron	25	5000	4	8	14	8	14
0L453	Lough Beg	W780630	Eurasian oystercatcher	610	8200	173	79	178	179	179
0L453	Lough Beg	W780630	Grey plover	30	2000	18	9	12	8	18
0L453	Lough Beg	W780630	Northern lapwing	850	72300	16	12			16
0L453	Lough Beg	W780630	Dunlin	460	13300	120	66	300	220	300
0L453	Lough Beg	W780630	Black-tailed godwit	200	1100	179	364	91	450	450
0L453	Lough Beg	W780630	Bar-tailed godwit	170	1500	19	18	2		19
0L453	Lough Beg	W780630	Eurasian curlew	350	7600	161	148	162	136	162
0L453	Lough Beg	W780630	Common redshank	240	2400	114	110	145	210	210

0L453	Lough Beg	W780630	Black-headed gull	29	86	99	210	210
0L453	Lough Beg	W780630	Common gull	90	58	127	296	296
0L453	Lough Beg	W780630	Lesser black-backed gull	8	17	23	21	23
**1% National				1% of the all-Ireland population, based on the most recent estimates for Ireland, namely Crowe and Holt (2013)				
**1% International				1% of flyway population based on Wetlands International (2017)				

## 6.5 Water Quality

Analysis of the EPA online mapper<sup>12</sup> identified that the site is located within the Lee, Cork Harbour and Youghal Bay Catchment and Owenboy (Cork) sub-catchment. There are seven rivers named within this sub-catchment two of which are 'At Risk' due to poor biological status. One is of 'Good' ecological status and others are under review.

There are no watercourses within the Proposed Development. The closest waterbody is the Owenboy River which flows to Owenboy Estuary approximately 2 km south of the Proposed Development at the closest point.

The status of Cork Harbour as a coastal waterbody is described as 'Moderate' and Lough Beg as a transitional waterbody is under review<sup>12</sup>.

### 6.5.1 Groundwater

The groundwater status of the Proposed Development is deemed to be of "Good" status<sup>12</sup>. Within the WFD Catchment, Lee Valley Gravels is the groundwater body classes as at Risk and this is located approximately 5 km to the north of the Proposed Development.

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<sup>12</sup> Available from: <https://www.catchments.ie/maps/> Accessed December 2019

## 7. Appropriate Assessment

### 7.1 Step 1: Information Required

#### 7.1.1 Information on the Proposed Development

The Proposed Development has been described in Section 5.

#### 7.1.2 Information on European Sites

Having regard for the Zol for pollution there is one European site within the Zol of the Proposed Development: Cork Harbour SPA.

No effect pathways have been identified between the Proposed Development and any other European sites located in the wider surroundings.

This judgement has been informed by review of best available scientific knowledge on the known and potential distribution of European site designation features in Section 6.1.

#### 7.1.3 Source-Pathway-Receptor Links

##### 7.1.3.1 Operational Phase

###### 7.1.3.1.1 Pollution

A potential pollution effect pathway exists between the Proposed Development and Cork Harbour SPA during the operational phase. The Proposed Development indicates that flood water from the storm pumping station and the emergency overflow from the foul pumping station will discharge via the existing IDA storm outfall which discharges directly in to Cork Harbour SPA. In absence of mitigation, including mitigation inherent in the design, there is potential that contaminants will be directly released in to Cork Harbour SPA. This impact is further assessed against the Conservation Objectives of Cork Harbour SPA in Section 7.2.

#### 7.1.4 Identification of Relevant SCIs

##### 7.1.4.1 Cork Harbour SPA

The SCIs of the Cork Harbour SPA for which source-pathway-receptor links were identified as a result of the operation of the Proposed Development.

The Source-Pathway-Receptor links identified are similar for all SCIs. The link has been identified as there being potential for pollutants and contaminants generated during flood events to be carried into the emergency outflow and storm water outfall and downstream into Cork Harbour SPA, potentially reducing prey abundance or diversity.

All SCI's with the exception of golden plover and common tern were recorded by I-WeBS in Lough Beg which is within the Zol of pollution effects.

Golden plover was not recorded from I-WeBS in Lough Beg subsite or adjacent subsites. The closest record is approximately 6.5 km north. However, there are habitats within the Zol for pollution effects suitable to support this species, predominantly for roosting, however, may also support foraging birds at times.

Common tern was not recorded from I-WeBS in Lough Beg subsite or adjacent subsites. The closest record is approximately 3 km north. Although there are no suitable breeding habitats within or adjacent to the Proposed Development, there are habitats considered suitable to support foraging bird during the breeding season within the Zol for pollution effects.

##### 7.1.4.2 Summary Descriptions of Cork Harbour SPA

The following extract from the NPWS site synopsis for Cork Harbour SPA (NPWS, 2015) summarises the importance of the SPA with regards to the Proposed Development :

*"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.*

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates...

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, it supports nationally important wintering populations of 22 species, 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, Little Egret, Golden Plover, Bar-tailed Godwit, Ruff, Mediterranean Gull and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it. Cork Harbour is also a Ramsar Convention site and part of Cork Harbour SPA is a Wildfowl Sanctuary."

#### 7.1.5 Conservation Status of Cork Harbour SPA

The conservation status of SCIs and potential threats to relevant SCIs of the Cork Harbour SPA are presented in Table 4.

The same primary site level threat from the Proposed Development is described as Discharges for all SCIs. This is based on applying professional judgement to the information provided in the Natura 2000 Standard Data Form (NPWS 2017b)

**Table 4. Cork Harbour SPA: Conservation Status, Population Trends and Threats**

SCI and Code	Site-Level Conservation Status (NPWS, 2017b)	'Short-Term' National Population trend (EIONET 2015)	'Long-Term' National Population trend (EIONET 2015)
Little grebe A004	Not determined	Good	Unknown
Great crested Grebe A005	Excellent	Fluctuating	Unknown
Cormorant A017	Excellent	Fluctuating	Increasing
Grey heron A028	Not determined	Stable	Unknown
Shelduck A048	Excellent	Fluctuating	Stable
Wigeon A050	Excellent	Decreasing	Decreasing
Teal A052	Excellent	Stable	Unknown
Pintail A054	Excellent	Fluctuating	Unknown
Shoveler A056	Excellent	Fluctuating	Unknown
Red-breasted merganser A069	Excellent	Fluctuating	Decreasing
Oystercatcher A130	Excellent	Stable	Unknown
Golden plover A140	Good	Decreasing	Unknown
Grey plover A141	Excellent	Decreasing	Unknown
Lapwing A142	Excellent	Decreasing	Decreasing
Dunlin A149	Excellent	Decreasing	Decreasing
Black-tailed godwit A156	Excellent	Increasing	Increasing
Bar-tailed godwit A157	Good	Increasing	Decreasing
Curlew A160	Excellent	Decreasing	Decreasing
Redshank A162	Excellent	Stable	Increasing
Black-headed gull A179	Excellent	Unknown	Unknown
Common gull A182	Excellent	Unknown	Unknown

SCI and Code	Site-Level Conservation Status (NPWS, 2017b)	'Short-Term' National Population trend (EIONET 2015)	'Long-Term' National Population trend (EIONET 2015)
Lesser black-backed gull A183	Excellent	Unknown	Unknown
Common tern A193	Good	Decreasing	Decreasing
Wetland and waterbirds A999	N/A	N/A	N/A

## 7.2 Step 2: Conservation Objectives

### 7.2.1 Cork Harbour SPA

Detailed Conservation Objectives for Cork Harbour SPA have been published by NPWS (2014 and 2014b). This Section identifies the Conservation Objectives that could be adversely affected by the Proposed Development (Table 5).

**Table 5. Potential Impacts on Attributes of Cork Harbour SPA**

Relevant SCI and Code	Conservation Objective (CO)	Relevant Attributes with Potential for Significant Impacts	Assessment of Potential Significant Adverse Impacts
Little grebe A004	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	This species is highly reliant on wetland habitat to forage (NPWS 2014b) and in the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat during the operation of the Proposed Development, thereby affecting Conservation Objective attributes.
Great crested Grebe A005	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	This species has high site fidelity and is moderately reliant on intertidal habitat for foraging (NPWS 2014b). This species will utilise other adjacent habitats at certain times such as at high tide. In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes.
Comorant A017	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	A highly specialised species in terms of foraging - piscivorous and adaptable to moving between sites, i.e. will utilise the site as and when is required (NPWS 2014b). With this in mind, the impact of pollution from operation on this species is not considered to impact the overall population trend and distribution of cormorant in terms of the overall population for Cork Harbour SPA. Pollution during operation has potential to impact this species on a short term level in absence of control and mitigation measures.
Grey heron A028	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	Lough Beg subsite supports regularly occurring roosting and foraging populations of this species (2011 survey, NPWS 2014b). This species has a narrow food range species in terms of foraging and adaptable to moving between sites, i.e. will utilise the site as and when is required (NPWS 2014b). With this in mind, the impact of pollution from operation on this species is not considered to impact the overall population trend and distribution of grey heron in terms of the population for Cork Harbour SPA. Pollution during operation has potential to impact this species on a short term level in absence of control and mitigation measures.



**Assessment of Potential Significant Adverse Impacts**

**Relevant Attributes with Potential for Significant Impacts**

**Conservation Objective (CO)**

**Relevant SCI and Code**

Relevant SCI and Code	Conservation Objective (CO)	Relevant Attributes with Potential for Significant Impacts	Assessment of Potential Significant Adverse Impacts
Shelduck A048	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring roosting populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has high site fidelity and is totally reliant on intertidal habitat for foraging within the Cork harbour SPA (NPWS 2014b).</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species.</p> <p>Lough Beg subsite supports regularly occurring populations of this species (2011 survey, NPWS 2014b)</p>
Wigeon A050	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has a narrow food range species in terms of foraging, is adaptable to moving between sites, i.e. will utilise the site as and when is required and a weak site fidelity (NPWS 2014b). With this in mind, the impact of pollution from operation on this species is not considered to impact the overall population trend and distribution of wigeon in terms of the population for Cork Harbour SPA.</p> <p>Pollution during operation has potential to impact this species on a short term level in absence of control and mitigation measures.</p>
Teal A052	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring roosting populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has a wide food range species in terms of foraging, is totally reliant on intertidal habitat within Cork Harbour SPA for foraging and has weak site fidelity (NPWS 2014b). With this in mind, the impact of pollution from operation on this species is not considered to impact the overall population trend and distribution of teal in terms of the population for Cork Harbour SPA.</p> <p>Pollution during operation has potential to impact this species on a short term level in absence of control and mitigation measures.</p>
Pintail A054	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>This species has a wide food range species in terms of foraging, is adaptable to moving between sites, i.e. will utilise the site as and when is required and a weak site fidelity (NPWS 2014b). With this in mind, the impact of pollution from operation on this species is not considered to impact the overall population trend and distribution of pintail in terms of the population for Cork Harbour SPA.</p> <p>Pollution during operation has potential to impact this species on a short term level in absence of control and mitigation measures.</p>

### Relevant SCI and Code      Conservation Objective (CO)      Relevant Attributes with Potential for Significant Impacts      Assessment of Potential Significant Adverse Impacts

Relevant SCI and Code	Conservation Objective (CO)	Relevant Attributes with Potential for Significant Impacts	Assessment of Potential Significant Adverse Impacts
Shoveler A056	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging and roosting populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has moderate site fidelity and is totally reliant on subtidal habitat for foraging within Cork Harbour SPA (NPWS 2014b).</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species.</p>
Red-breasted merganser A069	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>A highly specialised species in terms of foraging - piscivorous and adaptable to moving between sites, i.e. will utilise the site as and when is required (NPWS 2014b). With this in mind, the impact of pollution from operation on this species is not considered to impact the overall population trend and distribution of cormorant in terms of the overall population for Cork Harbour SPA.</p> <p>Pollution during operation has potential to impact this species on a short term level in absence of control and mitigation measures.</p>
Oystercatcher A130	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring roosting and foraging populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has high site fidelity and is moderately reliant on intertidal habitat for foraging (NPWS 2014b). This species will utilise other adjacent habitats at certain times such as at high tide.</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species</p>
Golden plover A140	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>This species forages mainly within agricultural and arable lands adjacent to the SPA with tidal flats utilised as roosting habitat. Intertidal feeding is recorded here during cold weather periods when agricultural lands have frozen over (NPWS 2014b). This species is recorded roosting, predominantly, at low tide (NPWS 2014b). Golden plover, at Cork Harbour SPA, have moderate site fidelity and somewhat reliant on the intertidal habitats to roost and rarely to forage.</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of roosting habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species</p>
Grey plover A141	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has high site fidelity and is totally reliant on intertidal habitat for foraging (NPWS 2014b).</p>

**Assessment of Potential Significant Adverse Impacts**

**Relevant Attributes with Potential for Significant Impacts**

**Conservation Objective (CO)**

**Relevant SCI and Code**

Relevant SCI and Code	Conservation Objective (CO)	Relevant Attributes with Potential for Significant Impacts	Assessment of Potential Significant Adverse Impacts
Lapwing A142	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species.</p> <p>Lough Beg subsite supports regularly occurring roosting populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has moderate site fidelity and is moderately reliant on intertidal habitat for foraging (NPWS 2014b). This species will utilise other adjacent habitats at certain times such as at high tide.</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species</p>
Dunlin A149	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring roosting populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has high site fidelity and is totally reliant on intertidal habitat for foraging (NPWS 2014b).</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species.</p>
Black-tailed godwit A156	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has high site fidelity and is moderately reliant on intertidal habitat for foraging (NPWS 2014b). This species will utilise other adjacent habitats at certain times such as at high tide.</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species</p>
Bar-tailed godwit A157	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging and roosting populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has moderate site fidelity and is totally reliant on subtidal habitat for foraging (NPWS 2014b).</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species.</p>
Curlew A160	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Population trend</li> <li>Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has high site fidelity and is moderately reliant on intertidal habitat for foraging (NPWS 2014b). This species will utilise other adjacent habitats at certain times such as at high tide.</p>

**Relevant SCI and Code**      **Conservation Objective (CO)**      **Relevant Attributes with Potential for Significant Impacts**

**Assessment of Potential Significant Adverse Impacts**

In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species

Redshank A162	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>• Population trend</li> <li>• Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging and roosting populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has moderate site fidelity and is moderately reliant on intertidal habitat for foraging (NPWS 2014b). This species will utilise other adjacent habitats at certain times such as at high tide.</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species</p>
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Black-headed gull <i>Chroicocephalus ridibundus</i> A179	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>• Population trend</li> <li>• Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has moderate site fidelity and is moderately reliant on intertidal habitat for foraging (NPWS 2014b). This species will utilise other adjacent habitats at certain times such as at high tide.</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species</p>
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Common gull A182	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>• Population trend</li> <li>• Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has moderate site fidelity and is moderately reliant on intertidal habitat for foraging (NPWS 2014b). This species will utilise other adjacent habitats at certain times such as at high tide.</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this species</p>
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Lesser black-backed gull A183	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>• Population trend</li> <li>• Distribution</li> </ul>	<p>Lough Beg subsite supports regularly occurring foraging populations of this species (2011 survey, NPWS 2014b)</p> <p>This species has a wide food range species in terms of foraging, is adaptable to moving between sites, i.e. will utilise the site as and when is required and a weak site fidelity (NPWS 2014b). With this in mind, the impact of pollution from operation on this species is not considered to impact the overall population trend and distribution of lesser black-backed gull in terms of the population for Cork Harbour SPA.</p> <p>Pollution during operation has potential to impact this species on a short term level in absence of control and mitigation measures.</p>
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**Relevant SCI and Code**      **Conservation Objective (CO)**      **Relevant Attributes with Potential for Significant Impacts**      **Assessment of Potential Significant Adverse Impacts**

Common tern A193	To maintain the favourable conservation condition	<ul style="list-style-type: none"> <li>Breeding population abundance; apparently occupied nests (AON)</li> <li>Productivity rate: fledged young per breeding pair</li> <li>Distribution: breeding colonies</li> <li>Prey availability</li> <li>Barriers to connectivity</li> <li>Disturbance at the breeding site</li> </ul>	<p><u>Prey Biomass Availability</u></p> <p>Although this species is not recorded nesting within the Proposed Development, there is potential for breeding populations to forage within the intertidal habitats of the SPA which are within the ZOI for pollution effects.</p> <p>In the absence of appropriate control measures and mitigation, there is potential for deterioration of foraging habitat (via pollution incidences) during the operation of the Proposed Development, thereby affecting Conservation Objective attributes and overall SPA population for this common tern.</p>
Wetland and waterbirds A999	To maintain the favourable conservation condition of wetland habitats	<ul style="list-style-type: none"> <li>Habitat Area</li> </ul>	<p><u>Habitat Area</u></p> <p>The Conservation Objectives state that there should be no loss of permanent area occupied by the wetland habitat. Where there will be no land take from the SPA, wetland habitat may be impacted by pollution in absence of mitigation and control measures.</p>

### 7.3 Step 3: Prediction of Effects

The prediction of potential effects from the Proposed Development (alone) to the integrity of Cork Harbour SPA is presented in this Section. Possible in-combination effects from the Proposed Development interacting other plans or projects are presented in Section 7.3.2.

The Proposed Development is predicted, during operation, to affect the integrity of Cork Harbour SPA via nutrient inputs from foul and stormwater pollution.

#### 7.3.1 Nutrient Input

Research has shown that improvements in sewage treatment may lead to declines in coastal waterbird numbers (Pringle and Burton 2017, MacDonald 2006, Burton *et al.* 2002).

Nutrient loading can increase the infaunal biomass (MacDonald 2006) but overloading / hypernutrification can cause an increase in algal mats which can eventually lead to anoxic conditions causing a decline, in the long term, of invertebrate assemblages (Pringle and Burton, 2017 and Burton *et al.* 2002). Improvements in sewage treatment has been seen to cause a decrease in prey biomass for waterbirds but an increase in invertebrate diversity (Green *et al.* 1992, MacDonald 2006).

Pringle and Burton (2017) report that wigeon, shelduck, pintail and dunlin will forage at algal mats which form from nutrient loading. This report states that at moderate levels (not quantified) effluent does not lead to depletion of oxygen sufficient to cause a decrease in invertebrate availability. The presence of sewerage discharge points may be positively correlated to grey plover and black-backed gull abundances (MacDonald 2006 and Rosa *et al.* 2003).

Piscivorous birds such as grey heron and cormorant may benefit from improved management of foul water (Pringle and Burton 2017).

#### 7.3.2 Storm Water Pollution

In the absence of mitigation, pollution from storm water flooding is considered to be minimal. For the most part the storm water flooding will be from existing lands described in Section 6.3. There is one minor road adjacent to the Proposed Development from which hydrocarbon pollutants may travel, however, this is not a through road and not regularly used except by local residents and landowners.

#### 7.3.3 Concluding Statement: Prediction of Effects

General conclusions around the overall impact of untreated nutrient on coastal waterbirds (at low levels) is positive (Pringle and Burton 2017, MacDonald 2006, Rosa *et al.* 2003, Burton *et al.* 2002). Various research studies have shown that low to moderate levels of nutrient input can be beneficial to waterbirds by increasing prey abundance. However, excessive input is likely to cause algal mats to form and, in the long-term, for anoxic conditions to develop. This can reduce invertebrate prey availability.

The level of hydrocarbon runoff in stormwaters is considered to be low based on the land use of the immediate area.

#### 7.3.4 In-Combination Effects

##### 7.3.4.1 Introduction

This assessment has particular regard for developments potentially affecting Cork Harbour SPA, given the close proximity to the Proposed Development, and because, in the absence of mitigation, including inherent mitigation, adverse effects from the Proposed Development alone were predicted to affect this site. The ZoI for in-combination effects is considered to be areas surrounding Cork Harbour SPA, downstream of the Proposed Development and for developments of a similar scale with potential to impact Cork Harbour SPA.

##### 7.3.4.2 Planning Application Search

A search was conducted of planning applications within the ZoI of the Proposed Development to identify applications which could act in-combination with the proposed works to impact European sites, namely:

- the National Planning Application Map Viewer<sup>13</sup> for private applications. The search was limited to the 5 year period preceding the date of issue of this report (due to the typical five-year lifetime of permission). Retention applications (i.e. typically local-scale residential or commercial developments where an impact has already occurred) and withdrawn and refused applications (including refusals on appeal), were excluded; and,
- the list of 'Part 8' local authority-led developments currently being progressed by CCC<sup>14</sup>.

The projects outlined in Table 6 were identified within the potential ZOI of the Proposed Development and focused on areas hydrologically connected to Cork Harbour SPA.

**Table 6. Summary Results of Planning Application Search**

Planning Application Reference Number	Location Name	Brief Development Description	Application Status/ Outcome	Approximate distance and direction from Proposed Development	Date Planning Application Granted
166365	Barnahely, Raheens East, Ringaskiddy, Co. Cork	A BioPark and all ancillary site development works including landscaping, fencing and signage. The proposed site development works include a security building, pump house, water chiller tower, the relocation of overhead wires, 4 no. generators, ESB compound, water balancing tank farm, fire water tank, utility water tank, Bord Gais compound, internal access roads, car parking and a fire water retention pond. Primary access to the proposed development is from the R613 with a secondary access via an existing entrance from the L2496.	Conditional	Northern site boundary	08/03/2017
155184	Raheens East, Ringaskiddy, Co. Cork	Construction of a single storey laboratory extension, a single storey administration office block extension, ancillary car-parking spaces and associated site works on an Integrated Pollution Control (IPC) licensed site	Conditional	630 m west	31/08/2015
176351	Carrigaline East Church Road Carrigaline Co. Cork	A 10 MW solar farm comprising approximately 44,400 photovoltaic panels on ground mounted frames within a site area of 25.8 hectares, 4 no. single storey inverter/transformer stations, 2 no. single storey delivery stations, security fencing, CCTV, and all associated ancillary development works.	Conditional	2 km west	08/11/2018
186720	Loughbeg, Ringaskiddy, Co. Cork	The construction of 2 no. car parks providing 187 permanent car parking spaces and associated site works for use ancillary to their existing production facility.	Conditional	1.5 km south east	05/03/2019
166219	Ringaskiddy Co. Cork	The development will consist of the extraction of approximately	Conditional	1.3 km north east	02/12/2016

<sup>13</sup> Available online at [www.myplan.ie](http://www.myplan.ie). Accessed December 2019.

<sup>14</sup> Available online at <https://www.corkcoco.ie/en/housing-infrastructure-implementation-team/public-consultation-part-8s> Accessed December 2019.

Planning Application Reference Number	Location Name	Brief Development Description	Application Status/ Outcome	Approximate distance and direction from Proposed Development	Date Planning Application Granted
		134,000m <sup>3</sup> of materials comprising of topsoil and subsoil from an area of approximately 9.3 hectares within an overall site area 12.1 hectares; on-site screening and crushing of some excavated material; transport of approximately 114,000m <sup>3</sup> of material off site to East Tip, Haulbowline Island, Ringaskiddy; remediation, reprofiling and landscaping of site with retained material post extraction.			
Part 8	Glanmire	Glanmire Road Improvements and Sustainable Transport Works	Part 8	9.5 km north	TBC

The applications listed in Table 6 (including the Part 8 application) for the most part do not have potential to pose any in-combination effect on the integrity of Cork Harbour SPA in terms of pollution. The projects have been assessed individually in terms of pollution control and have measures in place to ensure no impact on Cork Harbour SPA during construction works and operation in terms of pollution.

CCC Planning application reference 166365 is located within the industrial zoned lands which will be served by the Proposed Development. This application (approximately 13 ha) has been accounted for within calculations for the Proposed Development capacity (Nicholas O'Dwyer, 2018b) (see Section 8.1.1). The engineers report for this planning application (Malachy Walsh and Partners, 2016) states that all foul water will be treated on site before being discharged to the exiting Irish Water wastewater network. It is considered in the proposed foul water flow will be less than 1 l/s, based on an 8 hour working day.

Storm water for this planning application (CCC, 166365), will pass through four independent surface water networks / catchments through full retention hydrocarbon interceptors within the site before being discharged to Lough Beg.

An AA Screening and Ecological Impact Assessment (EclA) have been completed for the Glanmire Road Improvements and Sustainable Transport Works project. There is no predicted impact from the project on European sites in the wider area and a Construction Environmental Management Plan (CEMP) has been completed which includes measures to protect habitats during all stages of works minimising the impacts on Cork Harbour SPA and other designated sites.

An AA Screening Report completed for planning application reference 176351 states no likely significant effects from the project on European sites in the wider area.

### 7.3.4.3 Plans

#### Project Ireland 2040

The Project Ireland 2040 National Planning Framework (NPF<sup>15</sup>) (Department of Housing Planning and Local Government, 2018b) is the overarching policy and planning framework for the social, economic and cultural development of Ireland. The Project Ireland 2040 NPF for the south west of Ireland <sup>16</sup> outlines the plans located within the wider Ringaskiddy area (Table 7):

<sup>15</sup> Available online at <http://npl.ie/> Accessed December 2019.

<sup>16</sup> Available online at <https://assets.gov.ie/8349/2cfac8570b61460e8ed5a0c5f4b2822d.pdf> Accessed December 2019



**Table 7. National Plans in the Zol and Wider Area**

Project Name	Brief Project Description	County	Commencement Date	Completion Date
Ringaskiddy Port Redevelopment	The proposed development includes a new container terminal with an initial 360m berth at Ringaskiddy East, internal road improvements and improvements to the external road entrance into the existing Deepwater Berth and the construction of a new amenity area, including a new public pier and slipway at Paddy's Point.	Cork	Commenced 2018	2020
M28 Ringaskiddy Project	The M28 Cork to Ringaskiddy Project is the upgrade of approximately 12.5km of the N28 National Primary Route from the N40 South Ring Road, at Bloomfield Interchange, to Ringaskiddy, Co. Cork.	Cork	Not commenced, under review	yet TBC judicial

The Ringaskiddy Port Development commenced in 2018. The potential impacts for this plan on designated sites have been assessed in detail through a detailed Environmental Impact Statement (EIA) with mitigation put in place to ensure no effect on the integrity of Cork Harbour SPA or other designated sites such as pollution control, water quality monitoring, control of sediment and cementitious material entering any watercourse.

Construction works for the M28 Cork to Ringaskiddy project has not yet commenced. An EIS and NIS have been completed for the project which have assessed the impacts of the development on designated sites. Mitigation measures to avoid indirect impacts of the works on Cork Harbour SPA include drainage design and settlement / attenuation ponds, pollution prevention measures, management of concrete use to avoid material entering any waterbody, constructing culverts to avoid flooding and invasive species management.

#### Cork County Development Plan

The Cork County Development Plan 2014 (CCDP)<sup>17</sup> highlights Ringaskiddy as an important economic area in Cork County, particularly focussed around Ringaskiddy Port with objective TM 5-2 outlining that appropriate road transport capability is available the Port development.

Chapter 11 of the CCDP relates to Wastewater Disposal. An NIS for the North Channel of Cork Harbour was carried out and concluded that the conservation status of the harbour will not be compromised by the proposed population targets of the CCDP and Plan Objective WS 2-1 indicates that development may only proceed where appropriate wastewater treatments is available that will meet the requirements of the Water Framework directive (WFD) and the Habitats Directive.

#### Ballincollig Carrigaline Municipal District – Local Area Plan

Ringaskiddy is highlighted as one of the key employment locations in County Cork in the Ballincollig Carrigaline Municipal District Local Area Plan (LAP)<sup>9</sup> The areas surrounding the Proposed Development are largely zoned for Industrial Development<sup>Error: Bookmark not defined.</sup> with continued growth as a Strategic Employment Area predicted to continue.

The LAP indicates that most industries have their own on-site treatment sites which are treated before discharge to the IDA outfall however there is no secondary treatment system causing, at time, effluent to discharge through the outfall.

To alleviate flooding, the LAP indicates that all new developments will include attenuation measures in accordance with Sustainable Drainage Systems (SuDS).

#### **7.3.4.4 Concluding Statements: In-Combination Effects**

Following review of the projects and plans (Section 7.3.2), no significant in-combination effects are predicted to interact with the Proposed Development to adversely affect Cork Harbour SPA.

Projects and plans outlined in Section 7.3.2 have been assessed individually in terms of potential impacts of works (construction and operation) on European sites which for the most part include Cork Harbour SPA. Where

<sup>17</sup> Available online at <http://corkcocodevplan.com/> Accessed December 2019

impacts were predicted, specific mitigation was put in place to ensure no impact on European sites therefore no in-combination effect is predicted with these plans and projects and the Proposed Development.

This assessment also has regard to the legal protection of Cork Harbour SPA as designated a European site, through legislation at national level, and policy initiatives at national, county (i.e. policies and objectives outlined in the CCDP and LAP including for wastewater and flood management. CCC have a legal requirement to ensure that the conservation objectives of European sites, including Cork Harbour SPA are met and that there is no deterioration of the SCIs for the SPA.

## 8. Mitigation Measures

In the absence of mitigation, Sections 7.2 and 7.3 of this NIS identified adverse effects likely to arise from the operation of the Proposed Development on the attributes associated with the SCI for Cork Harbour SPA via excessive nutrient inputs from flooding of foul and storm water.

Section 7.3 describes the literature research around the effects of nutrient inputs on coastal water birds. General conclusions drawn from research indicates that, at low levels, nutrients may be beneficial to foraging waterbirds, however, at excessive levels they can be detrimental.

### 8.1 Project Design

The project adopts a number of design measures that avoid affecting the integrity of Cork Harbour SPA. The measures outlined in this section have been incorporated in to the design. Applying these measures, it is not predicted that the effect during operation will affect the integrity of Cork Harbour SPA based on the recent research on impacts of nutrient inputs on coastal waterbirds (Section 7.3).

#### 8.1.1 Foul Water

The proposed foul pumping station has design features incorporated to ensure the requirement to use the proposed emergency overflow is a last option fall back. These include:

- The foul pumps are designed on a Duty Pump / Standby Pump setup, meaning that the duty pumps are the main pumps used for operation. If these duty pumps fail, the standby pumps are activated and are used until the duty pump(s) are functioning again. This set up reduces the potential impact of complete failure of the system that may lead to adverse effect on Cork Harbour SPA.
- A permanent standby generator will be provided at the pumping station. During periods of power outage, the operation of the pumping station will be provided via the generator.
- Alarm systems will notify operatives of power outage and / or pump failure
- Overflow storage tank (540m<sup>3</sup>) is proposed as an additional back-up measure should back-up generator fail during a power outage (Image 3). The overflow storage tank is sized to account for two hours Dry Weather Flow (DWF) storage which will provide operatives with an opportunity to repair any faults before an overflow occurs. The DWF figure used in this calculation is based on all the lands within the industrial zoned catchment<sup>9</sup> being proposed for development. In this catchment, there is an approximate area of 75 ha which can potentially be served by the proposed pumping station.
- Should the emergency overflow be required, a 6 mm screen is proposed at the overflow pipe to ensure that no solids enter the pipe and outfall to the SPA. It is not expected that this emergency overflow should ever need to operate and therefore if it does operate it will be a rare event such that nutrient inputs to the SPA on these occasions will not materially affect algal growth.

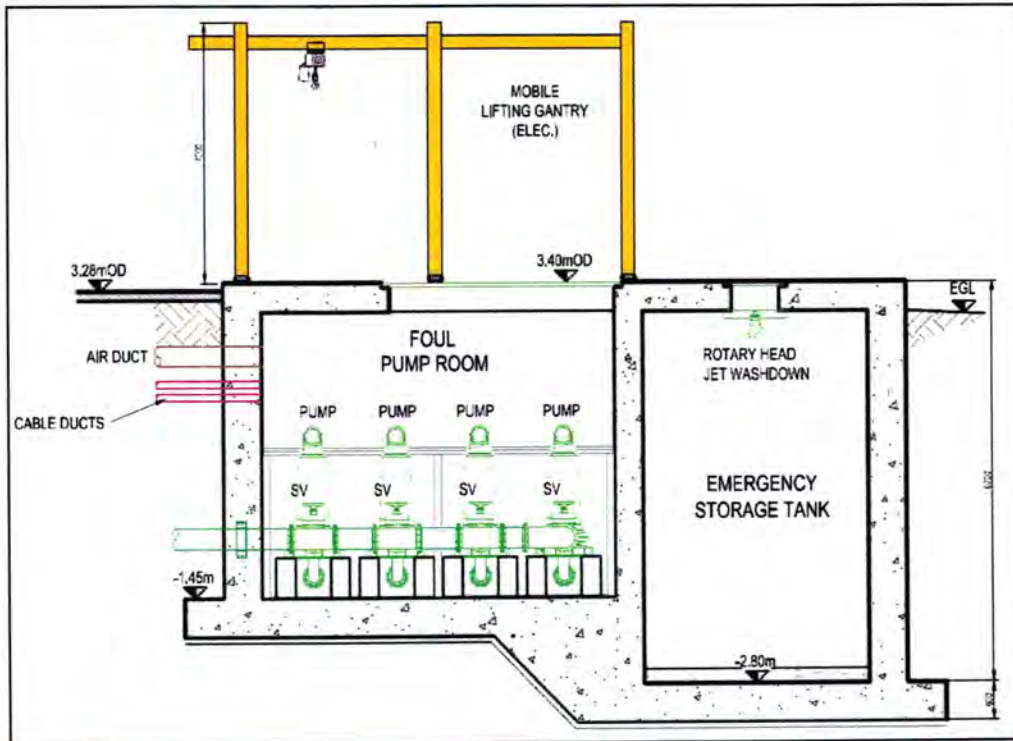


Image 3. Proposed Foul Pump Room Layout (extracted from Drawing Number: 20650-PP-C2-11)

### 8.1.2 Storm Water

Although the potential of pollutants from storm water affecting the integrity of Cork Harbour SPA are considered to be low, mitigation is included in the project design to minimise the impact further. A Klargester Class 1 Bypass Separator (hydrocarbon interceptor) is proposed to be included in the storm water rising main. This is proposed to mitigate the impacts of hydrocarbons from surface water (stormwater) reaching Lough Beg via the existing outfall.

## 8.2 Operational Phase Mitigation

### 8.2.1.1 Pollution

During the operation of the Proposed Development there is limited potential for discharges to impact the integrity of Cork Harbour SPA. The inherent design considerations reduce the likelihood of pollution incidences impacting Cork Harbour SPA and it is considered that should low levels of nutrient input be allowed to pass through the system the impact of this will not be at a level as to impact the integrity of Cork Harbour SPA. Monitoring systems, such as the alarm system, will minimise the likelihood of excessive nutrient loading to Cork Harbour SPA.

To further minimise impacts on the integrity of Cork Harbour SPA, no connection to Shanbally WwTP can be made until the WwTP has been upgraded to support proposed industrial development in the wider area which will utilise the Proposed Development.

To avoid overcharging the pumping station the foul and storm water systems will be separated. The foul pumping station is to be set up to cater for a network which is not yet in place. With this in mind, regular monitoring and checks will be required to ensure that as the network is connected to future developments, that the proposed system is capable of taking on the additional feed. No connection to the network will be made until it is clarified that the pumping station will have capacity to manage the additional loads.

## 9. Concluding Statement

The mitigation measures prescribed in Section 8 will provide for the protection of the relevant SCI for Cork Harbour SPA present within the Zol of the Proposed Development.

The NIS has been prepared based on best scientific knowledge and in accordance with the requirements and provisions under the Habitats Directive, Habitat Regulations and Planning and Development Act, most up to date case law and published guidance. It can be determined beyond all reasonable scientific doubt that Proposed Development will not adversely affect the integrity of Cork Harbour SPA. All identified pathways with potential for adverse impacts are robustly blocked through the use of best practice, avoidance and appropriate design as set out in this report.

Following implementation of mitigation measures, it is the view of AECOM that the Proposed Development, individually and/or in combination with other plans and projects, will not adversely affect the integrity of any European site.

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## Appendix A Figures

### Figure: 1 Proposed Development



**NOTES**

1. This plan shows the proposed layout of the site and is a preliminary design. It is intended to provide a general guide to the site and is not intended to be used for construction purposes. It is the responsibility of the client to ensure that the site is suitable for the proposed use and that all necessary permissions and consents are obtained.

2. The client is responsible for ensuring that the site is suitable for the proposed use and that all necessary permissions and consents are obtained.

3. The client is responsible for ensuring that the site is suitable for the proposed use and that all necessary permissions and consents are obtained.

4. The client is responsible for ensuring that the site is suitable for the proposed use and that all necessary permissions and consents are obtained.

**LEGEND**

- PROPOSED SITE BOUNDARY
- LAND OWNERSHIP BOUNDARY
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- PROPOSED FOUL SEWER
- PROPOSED STORM SEWER
- PROPOSED WATERMAIN
- PROPOSED CHEMICAL DRAINAGE
- PROPOSED FUEL LINE
- PROPOSED ESB SUPPLY
- PROPOSED CABLE DUCTS
- PROPOSED AIR DUCTS
- PROPOSED FOUL PUMPING STATION & EMERGENCY STORAGE TANK PUMPING STATION
- PROPOSED STORM WATER PUMPING STATION
- EXISTING GROUND LEVEL CONTOURS
- PROPOSED GRADING SPOT LEVELS

REV	DATE	DESCRIPTION	D	C	A

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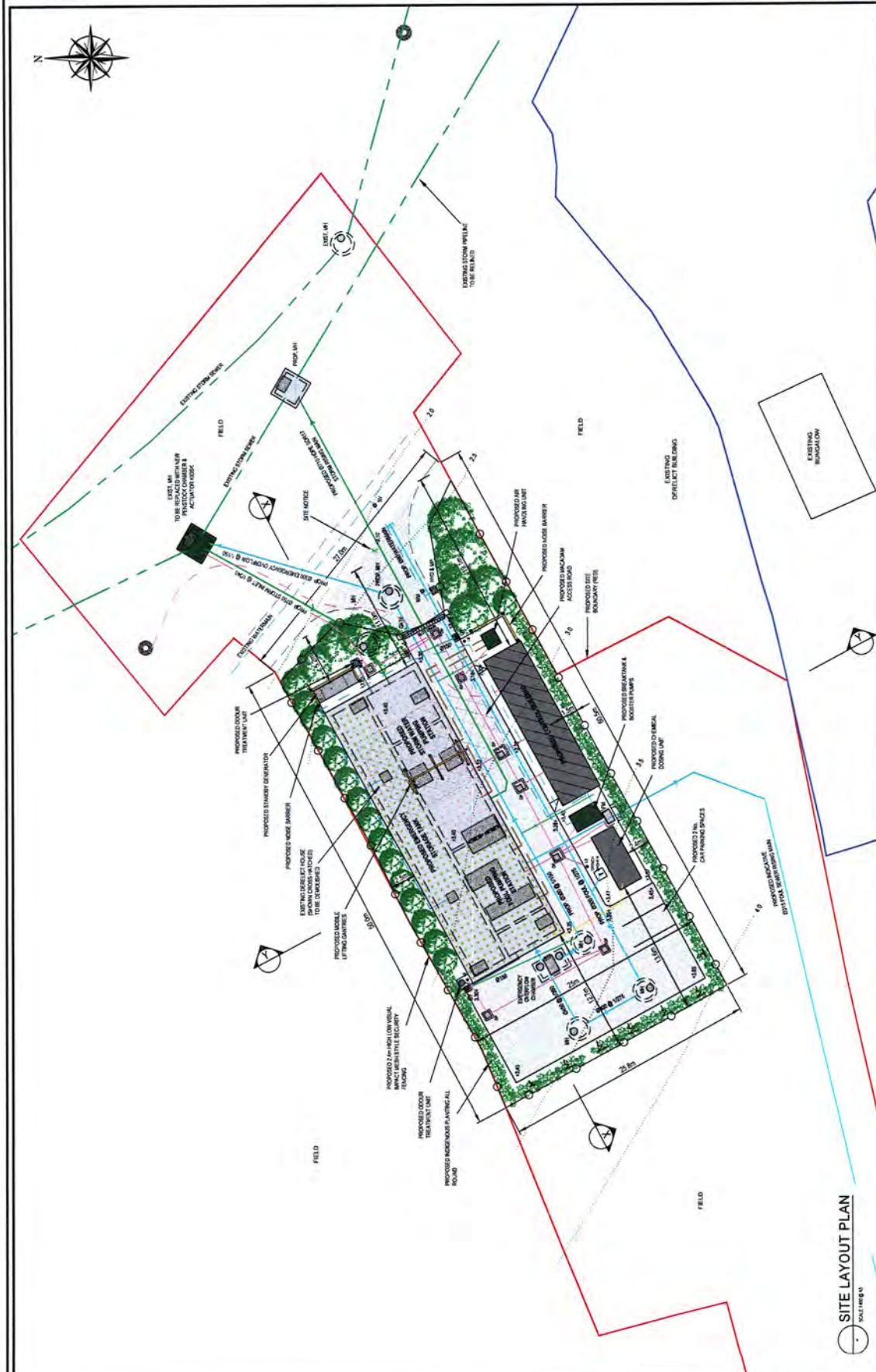
**IDA Ireland**

PROJECT  
IDA MASTERPLAN  
RINGASKIDDY SHANBALLY

**PROPOSED PUMPING STATIONS  
PROPOSED SITE LAYOUT PLAN  
& SITE SECTIONS**

SCALE	DRAWN	CHECKED	APPROVED
1:200 @ A1 1:400 @ A2	D. Brennan	M. Hickey	E. Collins
	01.08.2018	01.08.2018	01.08.2018

DRAWN BY: 20650-PP-C2-09



**Figure: 2 European Designated Sites**



Filename: ida-ma-202-kommission-co-uk-0-in-job-0-ecology-Project-Ringaskiddy-Corkm-gp-10-1502-Maps20191204-Figure 1 - European Sites as Discussed in Natura Impact Statement\_V2.mxd

## Appendix B I-WeBS Data for Lough Beg Subsite (Code 0L453)

Species	Scientific Name	1% of National Population	1% of International Population	2012 / 13	2013 / 14	2014 / 15	2015 / 16	4-year Peak
Mute swan	<i>Cygnus olor</i>	90	100	2	2	2	2	2
Light-bellied Brent goose	<i>Branta bernicla</i>	350	400	34	24	51	37	51
Common Shelduck	<i>Tadorna tadorna</i>	100	2500	37	52	52	38	52
Eurasian Wigeon	<i>Mareca penelope</i>	560	14000	37	43	31	12	43
Gadwall	<i>Mareca strepera</i>	20	1200	5			8	8
Green-winged teal	<i>Anas carolinensis</i>						1	1
Eurasian Teal	<i>Anas crecca</i>	360	5000	58	67	70	87	87
Mallard	<i>Anas platyrhynchos</i>	280	53000	93	57	52	83	93
Northern Pintail	<i>Anas acuta</i>	20	600				2	2
Northern Shoveler	<i>Anas clypeata</i>	20	650	10	2		9	10
Greater Scaup	<i>Aythya marila</i>	25	3100	1				1
Red-breasted merganser	<i>Mergus serrator</i>	25	860		2	4		4
Great northern diver	<i>Gavia immer</i>	20	50		1	1		1

Species	Scientific Name	1% of National Population	1% of International Population	2012 / 13	2013 / 14	2014 / 15	2015 / 16	4-Year Peak
Little grebe	<i>Tachybaptus ruficollis</i>	20	4700	11	4	6	6	11
Great crested grebe	<i>Podiceps cristatus</i>	30	6300	13	8	6	8	13
Black-necked grebe	<i>Podiceps nigricollis</i>			1				1
Great Cormorant	<i>Phalacrocorax carbo</i>	110	1200	9	17	8	10	17
Shag	<i>European shag</i>			2	2		1	2
Little egret	<i>Egretta garzetta</i>	20	1100	6	7	4	13	13
Grey heron	<i>Ardea cinerea</i>	25	5000	4	8	14	8	14
Water rail	<i>Rallus aquaticus</i>			1		2		2
Common Moorhen	<i>Gallinula chloropus</i>			6	3	4	6	6
Eurasian Coot	<i>Fulica atra</i>	190	15500	7	4		2	7
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	610	8200	173	79	178	179	179
Common Ringed Plover	<i>Charadrius hiaticula</i>	120	540		4		18	18
Grey plover	<i>Pluvialis squatarola</i>	30	2000	18	9	12	8	18
Northern Lapwing	<i>Vanellus vanellus</i>	850	72300	16	12			16

Species	Scientific Name	1% of National Population	1% of International Population	2012 / 13	2013 / 14	2014 / 15	2015 / 16	4-year Peak
Red Knot	<i>Calidris canutus</i>	160	5300	17		2	17	
Dunlin	<i>Calidris alpina</i>	460	13300	120	66	300	220	300
Ruff	<i>Calidris pugnax</i>			1				1
Snipe	<i>Common snipe</i>			2		1	2	
Black-tailed godwit	<i>Limosa limosa</i>	200	1100	179	364	91	450	450
Bar-tailed godwit	<i>Limosa lapponica</i>	170	1500	19	18	2		19
Whimbrel	<i>Numenius phaeopus</i>			3	1	2	1	3
Eurasian Curlew	<i>Numenius arquata</i>	350	7600	161	148	162	136	162
Spotted redshank	<i>Tringa erythropus</i>			3	1	2	1	3
Common Greenshank	<i>Tringa nebularia</i>	20	3300	8	16	17	9	17
Common Redshank	<i>Tringa totanus</i>	240	2400	114	110	145	210	210
Ruddy Turnstone	<i>Arenaria interpres</i>	95	1400	24	16	8	14	24

Species	Scientific Name	1% of National Population	1% of International Population	2012 / 13	2013 / 14	2014 / 15	2015 / 16	4-year Peak
Mediterranean gull	<i>Ichthyæetus melanocephalus</i>				1	2		2
Black-headed gull	<i>Chroicocephalus ridibundus</i>			29	86	99	210	210
Common gull	<i>Larus canus</i>			90	58	127	296	296
Lesser black-backed gull	<i>Larus fuscus</i>			8	17	23	21	23
European Herring Gull	<i>Larus argentatus</i>			12	18	12	34	34
Great black-backed gull	<i>Larus marinus</i>			2	25	2	12	25
Sandwich tern	<i>Thalasseus sandvicensis</i>			76	190	89	56	190
Arctic tern	<i>Sterna paradisaea</i>			2				2
Common Kingfisher	<i>Alcedo atthis</i>						1	1





**AN BORD PLEANÁLA**

LDG- \_\_\_\_\_

ABP- \_\_\_\_\_

31 JAN 2020

Fee: € \_\_\_\_\_ Type: \_\_\_\_\_

Time: \_\_\_\_\_ By: \_\_\_\_\_

