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Natura Impact Statement

Cara Partners Expansion,
Little Island Industrial Estate, Cork

22 December 2025



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Executive Summary

This *Natura Impact Statement* has been prepared by NM Ecology Ltd on behalf of Cara Partners regarding a masterplan for the expansion of their facility in the Little Island Industrial Estate. The masterplan includes *inter alia* the construction of a new production building, installation of a regenerative thermal oxidiser, provision of a combined heat and power (CHP) engine, provision of additional car parking, upgrades to on-site waste water treatment works, and other associated works.

In accordance with their obligations under the *European Communities (Birds and Natural Habitats) Regulations 2011* (SI 477/2011), the planning authority must assess whether the proposed development could have 'likely significant effects' on any European sites. This document provides supporting information to assist the authority with an Appropriate Assessment, including: details of European sites in the surrounding area, an appraisal of *source-pathway-receptor* relationships, an assessment of potential direct, indirect and in-combination impacts, and a mitigation strategy.

Two European sites were identified in the surrounding area: the *Cork Harbour* SPA and the *Great Island Channel* SAC. The proposed development will have no direct impacts on these or any other European sites. The Site is of no importance as an ex-situ habitat for birds associated with any SPAs. The proposed development will alter the air emissions of the Facility, but air emissions modelling has demonstrated that it will have no effect on any European sites. No other pathways (e.g. rivers / streams, groundwater) for indirect effects were identified.

If a precautionary approach is adopted, it is possible that pollutants (suspended sediments, concrete / cement and hydrocarbons) generated during construction works could be captured in the site's storm drainage network and discharged to Lough Mahon/Cork Harbour within the *Great Island Channel* SAC and *Cork Harbour* SPA. In a worst case scenario this could potentially affect the qualifying interests of one or both sites, either alone or in combination with other nearby projects. In response, a range of pollution-prevention measures will be implemented during the construction phase to avoid or minimise this risk.

Subject to the successful implementation of these measures, we conclude that the proposed development will not be likely to cause significant impacts on any European sites. The assessment can conclude at Stage 2 of the Appropriate Assessment process.

Table of Contents

1	Introduction	3
1.1	Background to Appropriate Assessment.....	3
1.2	Statement of authority	4
1.3	Methods	4
2	Existing Facility's Operations and Emissions	5
2.1	Overview of the Facility's operations.....	5
2.2	Industrial Emissions Licence.....	5
2.3	Environmental setting	7
3	Proposed Development	7
3.1	Description of the proposed development	7
3.2	Other nearby developments (potential in-combination effects).....	8
4	Stage 1: Screening for Appropriate Assessment.....	9
4.1	European sites within the Site boundary (potential direct effects)	10
4.2	Potential pathways for indirect effects	10
4.3	Treatment of process / foul water	12
4.4	Treatment of stormwater.....	13
4.5	Habitat suitability for SPA birds.....	13
4.6	Conclusion of Stage 1: Screening Statement.....	14
5	Stage 2: Appropriate Assessment.....	14
5.1	Site synopses	15
5.2	Conservation Objectives.....	17
5.3	Impact assessment	19
5.4	Proposed mitigation measures.....	21
5.5	Conclusion of Stage 2: Appropriate Assessment.....	23
	References	23

1 Introduction

1.1 Background to Appropriate Assessment

Approximately 14% of the land area of Ireland is included in the European Network of Natura 2000 sites (hereafter referred to as 'European sites'), which includes Special Protection Areas (SPAs) to protect important areas for birds, and Special Areas of Conservation (SACs) to protect habitats and non-avian fauna. Legislative protection for these sites is provided by the *European Council Birds Directive* (79/409/EEC) and *E.C. Habitats Directive* (92/43/EEC, as amended), which are transposed into Irish law by the *European Communities (Birds and Natural Habitats) Regulations 2011* (SI 477/2011).

In accordance with Article 42 of the national regulations, planning authorities must consider the potential impacts of any development on European sites. The first stage of this process is a simple screening exercise to determine whether the development could potentially affect any European sites. If there is a viable risk of impact (adopting a precautionary approach), the development should proceed to the second stage of the process, which is known as 'Appropriate Assessment' (AA). In Section 3.1 of *Appropriate Assessment of Plans and Projects in Ireland*, the second stage of the AA process is described as follows:

"This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The proponent of the plan or project will be required to submit a Natura Impact Statement [...] to identify and characterise any possible implications for the site in view of the site's conservation objectives, taking account of in-combination effects. This should provide information to enable the competent authority to carry out the appropriate assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to Stage 4, or the plan or project should be abandoned. The Appropriate Assessment is carried out by the competent authority, and is supported by the Natura Impact Statement."

This document is a Natura Impact Statement, which provides supporting information to assist competent authorities with stages 1 and 2 of the Appropriate Assessment process. It includes the following sections: a description of the project, details of nearby European sites, an appraisal of potential pathways for indirect effects, an assessment of potential impacts, a mitigation strategy, and a conclusion.

1.2 Statement of authority

This report was written by Nick Marchant, the principal ecologist of NM Ecology Ltd. He has eighteen years of professional experience, including fifteen years as an ecological consultant, one year as a local authority biodiversity officer, and two years managing an NGO overseas. He provides ecological assessments for developments throughout Ireland and Northern Ireland, including wind farms, infrastructural projects (roads, water pipelines, greenways, etc.), and a range of residential and commercial developments.

He has an MSc in Ecosystem Conservation and Landscape Management from NUI Galway and a BSc in Environmental Science from Queens University Belfast. He is a member of the Chartered Institute of Ecology and Environmental Management, and operates in accordance with their code of professional conduct.

1.3 Methods

This report has been prepared with reference to the following guidelines:

- *OPR Practice Note PN01: Appropriate Assessment Screening for Development Management* (Office of the Planning Regulator 2021)
- *Appropriate Assessment of Plans and Projects in Ireland* (Department of the Environment, Heritage and Local Government, 2009)
- *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4), E.C., 2021.*
- *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal* (CIEEM 2018)

Supporting data was collected from the following sources:

- Plans and specifications for the proposed development
- Appropriate Assessments for other recent developments in the surrounding area
- Qualifying interests / conservation objectives of European sites from www.npws.ie
- Bedrock, soil, subsoil, surface water and ground water maps from the Geological Survey of Ireland webmapping service, the National Biodiversity Data Centre, and the Environmental Protection Agency web viewer
- The *Cork County Development Plan 2022 - 2028*, and details of permitted or proposed developments from the local authority's online planning records

Desktop data from internet resources was accessed in October 2025, and a site inspection was carried out on 12 May 2025.

2 Existing Facility's Operations and Emissions

2.1 Overview of the Facility's operations

The Facility processes Ginkgo biloba to generate extracts for pharmaceutical use. Raw-leaf input undergoes a sequence of process steps including extraction with solvents, evaporation and purification. The final product is a bulk powdered herbal extract used as an active pharmaceutical ingredient (API). It is shipped to customers elsewhere in Europe (e.g. Germany and France) for formulation in medications for the treatment of circulation disorders and age-related physical / mental deterioration.

The 2023 Annual Environmental Report for the Facility (the latest available at the time of writing) states that total production for the year was 105.04 tonnes of Ginkgo biloba extract.

The current c. 8.6 ha site comprises 4 no. production related buildings, 3 no. warehouses, workshop/utilities, tank farms, admin and laboratory support and an onsite biological wastewater treatment plant (WWTP). A firewater retention pond is located to the northwest of the main site.

2.2 Industrial Emissions Licence

The Facility operates under Industrial Emissions Licence (IEL) P0017-02 issued by the Environmental Protection Agency (EPA). It covers all emissions from the Facility, including discharges to waters, discharges to sewers, emissions to air, noise, odour, waste and accidental leakages / spills. Relevant details from the IEL are presented below to inform the AA process.

The proposed masterplan will expand the Facility, but it is intended that it will continue to operate within the parameters of its IEL, subject to an IEL review application being made to the EPA.

Emissions to sewer

Process wastewater in liquid form is treated in an on-site waste water treatment plant (WWTP), which provides pH adjustment, aeration and settlement. The effluent from this plant is discharged to a local authority foul sewer, which conveys it to the Carrigrennan (Cork City) Wastewater Treatment Plant for further treatment. Discharge to the sewer is monitored as part of the Facility's IEL, with Emission Limit Values (ELVs) for Biological Oxygen Demand, Chemical Oxygen Demand, Suspended Solids, Lead and Zinc.

The Carrigrennan WWTP is managed by Uisce Éireann, and thus is outside the control of the applicant. It processes foul water from the public foul sewer network in Cork City, and discharges treated effluent to Lough Mahon, which is part of the Lee Estuary / Cork Harbour.

In the 2024 Annual Environmental Report for the Carrigrennan WWTP (the latest available at the time of writing) the WWTP was reported to have an organic capacity is 413,200 Population Equivalent (PE), with a current loading of 298,001 PE and remaining capacity of 115,199 PE. It was not compliant with its ELVs for total Nitrogen, and an upgrade will be required to improve treatment processes. Nonetheless, the treated effluent was not having an observable impact on water quality or Water Framework Directive status in the receiving waters of Cork Harbour. As noted above, the level of treatment provided by the WWTP is the responsibility of Uisce Éireann, as is the monitoring of potential impacts on receiving waters.

Emissions to water

As noted above, treated process waters from the Facility are discharged to sewer, not to surface water or groundwater.

Stormwater from gutters and sub-surface external storm drains around the Facility are attenuated in the firewater retention pond and discharged to transitional waters near the M8 / N25 interchange at Dunkettle via an existing Class 1 Full Retention Separator which captures hydrocarbons and silt. In general, the storm water runoff consists of unpolluted rainwater. However, it is possible that pollutants may enter storm drains from leaks or spills of products stored on external hard surfaces. To avoid this, an automated system monitors Total Organic Carbon and pH concentrations in storm water along with additional periodic sampling and monitoring for ammonia and visual inspection, and any samples that exceed trigger levels can be diverted and isolated.

Emissions to air

The IEL controls emissions to air from the following sources:

- TA Luft Class III Organics (volatile organic compounds) from Carbon Adsorption Units
- Total Organic Carbon from the Ammonium Sulphate Dryer Building
- Dust from the Production Buildings and Product Collection Chamber

All main emissions to air are from stacks or vents with appropriate emissions control solutions in place as per IEL requirements. Further details on the above referenced elements are detailed in relevant chapters elsewhere in this EIAR.

Appropriate Assessment of Emissions

There is no evidence on the Environmental Protection Agency's database that Appropriate Assessment screening was carried out as part of the IEL approval process in 2007; it was not standard practice at that time to publish screening reports. However, Appropriate Assessment screening for technical amendments to the IEL in 2015, 2016 and 2024 are available on the

Environmental Protection Agency's Licence and Enforcement Access Portal, and it was concluded in all cases that there would not be likely significant effects on any European sites.

2.3 Environmental setting

Site location and surroundings

The Cara Partners pharmaceutical facility (hereafter referred to as 'the Facility') is located in the Little Island Industrial Estate. It consists of a range of industrial buildings and artificial surfaces that are used for storage, processing, distribution, administration and waste management. There are some small patches of amenity grassland and other undeveloped land throughout the Facility, which may be used for future expansion. There are also some treelines and scrub woodland in the south of the site.

Geology and soils

The underlying bedrock is massive unbedded (Waulsortian) limestone, which supports a regionally-important karstified aquifer. Soils are made ground in most places, with coarse loam in undeveloped areas. The Site is broadly level, with no apparent topographical features, so it is expected that rainfall on green areas soaks to ground in situ.

Hydrology

No rivers, streams or other surface water features were identified within the Site.

The closest waterbody on the EPA database of rivers and streams is Lough Mahon, part of the River Lee Estuary, which is located approx. 400m south-west of the Site. It is part of Cork Harbour, a large natural harbour with multiple bays, islands and estuaries. There are extensive mudflats throughout the harbour in tidal areas.

3 Proposed Development

3.1 Description of the proposed development

The proposed development comprises various elements to be developed on a phased basis over a period of ten years. A proposed site layout drawing is presented in Drg. Ref. 5340-PLA-XXX-DR-DJF-AR-0010.

1. **Unit 1 Production Building** – Construction of a replacement, multi-storey Unit 1 Production building approx. 34m L x 23m W x 26m H (approx. 3,000m²).
2. **In Process Tank Farm Bund** – Modifications to the existing 'In Process Tank Farm' bund and ancillary plant and services related to same including pipe racks.
3. **Laboratory Gas Bottle Store** – Construction of a new Laboratory Gas Bottle Store approx. 4m L x 2m W x 4m H and ancillary plant and services related to same including pipe racks.

4. **Regenerative Thermal Oxidiser** – Provision of a new Regenerative Thermal Oxidiser, associated exhaust stack (approx. 10mAGL) and ancillary plant and services related to same including pipe racks.
5. **Process Cooling** – Provision of 1no. process cooling tower (approx. 5mAGL) to be installed to provide additional cooling for manufacturing processes and ancillary plant and services related to same including pipe racks.
6. **Combined Heat and Power Plant and Heat Recovery System** – addition of a new natural-gas fired containerised combined heat and power (CHP) plant (approx. 6 MW_{TH} Total Rated Thermal Input) and associated containerised waste heat boiler system with exhaust stack approx. 13mAGL and ancillary plant, kiosks and services related to same including pipe racks.
7. **Ethanol Storage Tank** – addition of a new ethanol storage tank (2.4m diameter x 7m H) in existing solvent tank farm bund and ancillary plant and services related to same including pipe racks.
8. **Car Park** – extension to existing car park including associated lighting to provide a net increase of additional 67no. permanent car parking spaces.
9. **Wastewater Treatment Plant (WWTP) Control and Blower Building** - Single storey building associated with WWTP expansion, approx. 11m L x 10m W x 4m H (approx. 90m²); and ancillary plant and services related to same including pipe racks.
10. **WWTP Chemical storage tanks and bund** – new concrete base and bund (approx. 45m²) with tanks approx. 3.5m H and ancillary plant and services related to same including pipe racks.
11. **WWTP Inlet works** – new screens, tanks up to approx. 9m H and ancillary plant and services related to same including pipe racks
12. **WWTP Dissolved Air Flotation tank** – new tank approx. 5m L x 2m W x 4m H and ancillary plant and services related to same including pipe racks.
13. **Site Works** – All associated site services, site development works and landscaping to facilitate the proposed development.

3.2 Other nearby developments (potential in-combination effects)

The Site is located within the Little Island Industrial Estate to the east of Cork City. It is zoned for 'mixed / general commercial / industrial / enterprise uses' under the *Cork County Development Plan 2022 - 2028*.

The applicant received planning permission in 2025 (planning reference 255753) for the demolition of existing process building 1, other modifications to the Facility, and the retention of a number of small structures.

The applicant received planning permission in 2024 (planning reference 244648) for an extension to an existing firewater retention pond located to the north-west of the Site. A Natura

Impact Statement was submitted as part of the application, which included pollution-prevention measures for the construction phase of the project. At the time of writing this development is under construction.

Live and recently-approved planning applications in the vicinity of the Site were reviewed on the online planning records of Cork County Council. There have been some recent applications at adjacent properties, which are summarised as follows:

- Planning references 244158, 245692: permission granted for extension and alterations to the DOSCO industrial facility to the south-west of the Site.
- Planning reference 225746: permission granted for electrical infrastructure associated with the former Mitsui Denman Site, including overhead wires alongside the eastern boundary of the Site
- Planning reference 255059: live retention application for various works at the EHS International facility to the east of the Site

Screening for Appropriate Assessment was carried out by Cork County Council for all of these developments as part of the planning consent process. An Appropriate Assessment was carried out for planning reference 244648 (extension of the firewater retention pond), as mitigation measures were considered necessary to avoid impact on receiving waters. In all cases, Cork County Council was concluded that the proposed developments would not have adverse impacts on the integrity of any European sites.

Nonetheless, potential in-combination effects from these developments are considered in Section 5.3.

4 Stage 1: Screening for Appropriate Assessment

In this section we identify European sites that could potentially be affected by the proposed development. The primary consideration is whether the proposed development is within the boundaries of any European sites, because this could lead to direct effects. This is discussed in Section 4.1.

It is also possible that the proposed development could cause indirect effects on European sites located outside the boundary. This is considered using the *source-pathway-receptor* model, which identifies potential *pathways* (e.g. surface water) between the *source* (the Site) and the *receptor* (a European site). This is discussed in Section 4.2.

Some of the bird species associated with SPAs can use secondary habitats outside the SPA boundaries, e.g. brent geese feeding on urban grasslands. The suitability of habitats within the Site for SPA bird species is discussed in Section 4.3.

To support the above assessments, a map of European sites in the surrounding area is shown in Figure 1, and details of sites shown on the map are provided in Table 1. For the avoidance of doubt, a defined zone of influence (e.g. 15 km) is not used in this assessment, as it is no longer considered best practice (OPR 2021).

Table 1: European site shown in Figure 1

Site Name	Distance	Qualifying Interests
Cork Harbour SPA (site code 4030)	0.4 km south-west	Key habitats: coastal wetlands Special conservation interests: little grebe, great crested grebe, cormorant, grey heron, shelduck, wigeon, teal, pintail, shoveler, red-breasted merganser, oystercatcher, golden plover, grey plover, lapwing, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, black-headed gull, common gull, lesser black-backed gull (overwintering populations), common tern (breeding population)
Great Island Channel SAC (1058)	2.3 km east	Annex I habitats: mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows Annex II species: none

4.1 European sites within the Site boundary (potential direct effects)

The Site is not within or adjacent to any European sites, so the proposed development poses no risk of direct impacts.

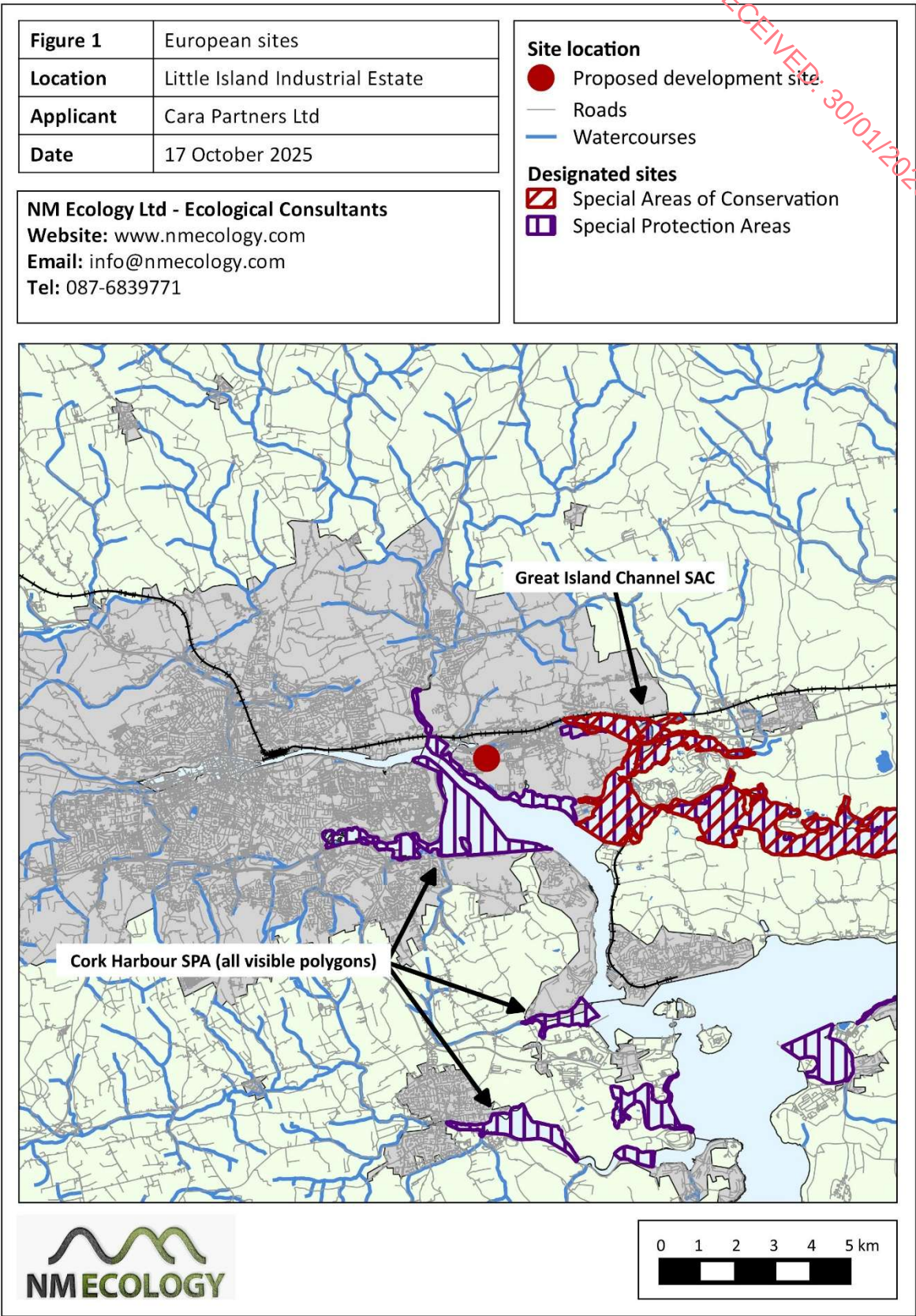
4.2 Potential pathways for indirect effects

In this section we identify potential *pathways* (e.g. surface water) between the *source* (the Site) and the *receptor* (a European site). The most common pathway is surface water, which typically occurs when a pollutant is washed into a river and carried downstream into a European site. Other potential pathways are groundwater, air (e.g. airborne dust or sound waves), or land (e.g. flow of liquids, vibration). The zone of effect for hydrological effects can be several kilometres, but for air and land it is typically much smaller.

It should be noted that pathways via man-made infrastructure (foul / process water and storm water) are considered separately in Sections 4.3 and 4.4.

Surface water

There are no rivers, streams or other surface water bodies connecting the Site to any European sites (Section 2.3, Figure 1), so a surface water pathway can be ruled out.



Groundwater

The Facility (including the features proposed for retention) does not currently have any discharges to groundwater. The proposed construction works will take place on existing made ground within the Facility boundary, and are not expected to cause the release of any pollutants to groundwater. Therefore, groundwater can be ruled out as a feasible pathway.

Land

There are a number of roads and other structures between the Site and the *Cork Harbour* SPA, which would intercept any overland flow in that direction. Therefore, there is no possibility that any pollutants could flow over land to reach any European sites.

Air

Emissions to air from the Facility are permitted as part of the Facility's Industrial Emissions Licence. There are a number of air emissions points from boilers, dryers, carbon adsorption units, etc. Two aspects of the proposed development – the Regenerative Thermal Oxidiser and Combined Heat and Power Engine – will alter the air emissions of the Facility. An assessment of potential impacts on the nearby SAC and SPA is complex, so it will be addressed at Stage 2 of the Appropriate Assessment process (Section 5.3).

Summary

In summary, a potential pathway via air was identified to the nearby SAC and SPA; it is considered in greater detail in Section 5.3 of this document. All other potential pathways were ruled out.

4.3 Treatment of process / foul water

Process and foul waters from the Facility receive initial treatment in an onsite wastewater treatment plant, and are then conveyed to the Carrigrennan (Cork City) Wastewater Treatment Plant for further treatment. Potential impacts of the treated WWTP discharge on European sites were assessed as part of the Carrigrennan's Wastewater Discharge Licence application, within which the relevant provisions of the Birds' Directive and Habitat's Directive were considered. The proposed development has not and will not materially alter the Facility's outputs of treated process or foul water (i.e. it is proposed that the discharge of treated wastewater from the site will remain within the existing treated wastewater discharge envelope of the current IEL), so it is not necessary to re-assess potential impacts via this pathway.

4.4 Treatment of stormwater

Stormwater from gutters and sub-surface external storm drains around the Facility are attenuated in the firewater retention pond and discharged to transitional waters near the M8 / N25 interchange at Dunkettle via an existing Class 1 Full Retention Separator which captures hydrocarbons and silt. In general, the storm water runoff consists of unpolluted rainwater. However, it is possible that pollutants may enter storm drains from leaks or spills of products stored on external hard surfaces. To avoid this, an automated system monitors Total Organic Carbon and pH concentrations in storm water along with additional periodic sampling and monitoring for ammonia and visual inspection, and any samples that exceed trigger levels can be diverted and isolated.

4.5 However, the construction of the proposed development may generate other pollutants such as suspended sediments, concrete products and / or hydrocarbons. Many components of the masterplan will take place on artificial surfaces with storm drains, so it is possible that these pollutants could enter the storm water drainage network. In the event of an excessive contamination event, they could exceed the existing mitigation measures and therefore could be discharged to the transitional waters in Lough Mahon. This will require further assessment at Stage 2 of the Appropriate Assessment process (Section 5.3).Habitat suitability for SPA birds

The *Cork Harbour* SPA is located approx. 0.4 km south-west of the Site. It was designated to protect internationally-important populations of a range of species associated with coastal wetlands: little grebe, great crested grebe, cormorant, grey heron, shelduck, wigeon, teal, pintail, shoveler, red-breasted merganser, oystercatcher, golden plover, grey plover, lapwing, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, black-headed gull, common gull, lesser black-backed gull, and common tern.

The primary habitats for these species are intertidal and coastal habitats within the SPA boundary, but some species also use secondary habitats outside the SPA boundary. This is commonly observed in a number of waders (e.g. oystercatcher, black-tailed godwit, curlew), which feed on soil invertebrates on playing fields and areas of marshy ground. These species typically favour large open areas that provide a good field of view of potential predators, and are usually only recorded on sites measuring at least the size of a football pitch (approx. 0.7 ha).

The applicant's landholding contains some small patches of amenity grassland, but the largest is approx. 0.3 ha, so it is of low suitability for any SPA species. There is a larger patch of overgrown grassland in the south-east of the Site, but the vegetation structure is unsuitable and fields of view are too restricted for it to be used by SPA birds.

Some black-headed gulls were observed during the site inspection. However, gulls are generalist species that can readily adapt to anthropogenic environments, and they will continue to use the

Site following the construction of the proposed development, so the proposed development will have no impact on them.

Therefore, the Site is considered to be of no importance for any of the birds associated with the *Cork Harbour* SPA.

4.6 Conclusion of Stage 1: Screening Statement

In Section 3 of *Appropriate Assessment Screening for Development Management* (OPR 2021), it is stated that the first stage of the AA process can have two possible conclusions:

- **No likelihood of significant effects:** Appropriate assessment is not required and the planning application can proceed as normal. Documentation of the screening process including conclusions reached and the basis on which decisions were made must be kept on the planning file.
- **Significant effects cannot be excluded:** Appropriate assessment is required before permission can be granted. A Natura Impact Statement (NIS) will be required in order for the project to proceed.

Potential pathways were identified to the *Great Island Channel* SAC and *Cork Harbour* SPA from the following sources:

- Pollutants generated during construction works could enter the storm drain network and be discharged to Cork Harbour via Lough Mahon
- Air emissions from the proposed development could potentially reach nearby European sites

Therefore, the second of the above conclusions must be reached in this case, as significant effects on the SAC cannot be ruled out at the screening stage. It will be necessary to proceed to Stage 2 of the Appropriate Assessment for detailed assessment and provision of mitigation measures.

All other potential impacts and pathways considered in Sections 4.1 – 4.5 can be ruled out at Stage 1 and do not need to proceed to Stage 2.

5 Stage 2: Appropriate Assessment

This section includes background information on the SAC and SPA, an impact assessment, mitigation measures and a conclusion.

5.1 Site synopses

Great Channel Island SAC

"The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and, compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (= priority; numbers in brackets are Natura 2000 codes):*

- [1140] Tidal Mudflats and Sandflats
- [1330] Atlantic Salt Meadows

*The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algal species occur on the flats, especially *Ulva lactuca* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly.*

*The saltmarshes are scattered through the site and are all of the estuarine type on mud substrate. Species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Greater Sea-spurrey (*Spergularia media*), Lax-flowered Sea-lavender (*Limonium humile*), Sea Arrowgrass (*Triglochin maritimum*), Sea Mayweed (*Matricaria maritima*) and Red Fescue (*Festuca rubra*).*

The site is extremely important for wintering waterfowl and is considered to contain three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point. Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end. Waders occur in the greatest density."

Cork Harbour SPA

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

*Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Some shallow bay water is included in the site. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.*

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

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (1,896) and Redshank (2,149) - all figures given are five year mean peaks for the period 1995/96 to 1999/2000. Nationally important populations of the following 19 species occur: Little Grebe (57), Great Crested Grebe (253), Cormorant (521), Grey Heron (80), Shelduck (2,009), Wigeon (1,791), Teal (1,065), Mallard (513), Pintail (57), Shoveler (103), Red-breasted Merganser (121), Oystercatcher (1,809), Golden Plover (3,342), Grey Plover (95), Lapwing (7,569), Dunlin (9,621), Bar-tailed Godwit (233), Curlew (2,237) and Greenshank (46). The Shelduck population is the largest in the country (over 10% of national total). Other species using the site include Mute Swan (38), Whooper Swan (5), Pochard (72), Gadwall (6), Tufted Duck (64), Goldeneye (21), Coot (53), Ringed Plover (73), Knot (26) and Turnstone (113). Cork Harbour is an important site for gulls in winter and autumn, especially Black-headed Gull (3,640), Common Gull (1,562) and Lesser Black-backed Gull (783), all of which occur in numbers of national importance. Little Egret

and Mediterranean Gull, two species which have recently colonised Ireland, also occur at this site.

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

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

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."

5.2 Conservation Objectives

The conservation objectives for the *Great Channel Island* SAC are available at www.npws.ie/protected-sites/sac/001058, and are reproduced in Table 2.

Table 2: Conservation Objectives for each qualifying interest of the *Great Channel Island* SAC

Attribute	Target	Notes
To restore the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in <i>Great Channel Island</i> SAC, which is defined by the following list of attributes and targets:		
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.
Community distribution	Hectares	Conserve the following community type in a natural condition: Mixed sediment to sandy mud with polychaetes and oligochaetes community complex.

Attribute	Target	Notes
To restore the favourable conservation condition of Atlantic salt meadows in Great Channel Island SAC, which is defined by the following list of attributes and targets:		
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Bawnard -0.29ha; Carrigatohil -1.01ha.
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward
Vegetation structure: vegetation cover	Percentage cover at a representative number of monitoring stops	Maintain more than 90% area outside creeks vegetated
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)
Vegetation structure: negative indicator species- <i>Spartina anglica</i>	Hectares	No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur

The conservation objectives for the *Cork Harbour* SPA are available at www.npws.ie/protected-sites/spa/004030, and are reproduced in Table 3. The Conservation Objectives for all Special Conservation Interests are all identical so they do not need to be reproduced in full; an example is provided in Table 3.

Table 3. Conservation Objectives for each of the special conservation interests of the *Cork Harbour* SPA

Attribute	Measure	Target
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation

5.3 Impact assessment

Potential indirect effects: changes in water quality (construction phase)

Construction works typically have the potential to generate a range of pollutants (suspended sediments, hydrocarbons, etc). It is possible that these pollutants could enter the Site's storm drainage network and be discharged to Cork Harbour, providing a connection to the *Cork Harbour* SPA and *Great Island Channel* SAC. This is considered to be a tenuous pathway, but is included in accordance with the precautionary principle.

An assessment of potential pollution incidents is impossible, because any potential impacts would vary depending on a number of variables that cannot be predicted, e.g. the type of pollutant, the quantity released, the time of year. It is likely that small pollution events would be diluted in receiving waters before they could affect the qualifying interests of the SAC or SPA. However, if a precautionary approach is adopted (as stipulated in the legislation), it is possible that an extreme or sustained pollution event could cause significant impacts on the SAC / SPA.

In the context of the conservation objectives for the SAC (Table 2), an extreme pollution incident could potentially alter plant / invertebrate communities in the mudflat and Atlantic salt marsh habitats. In the context of the conservation objectives for the SPA (Table 3), an extreme pollution incident could potentially alter the population trend or distribution of SCI species. Either would be considered an adverse impact on the integrity of the SAC. Therefore, mitigation measures will be required to avoid or minimise this risk.

Potential indirect effects: changes in air quality (construction phase)

A detailed assessment of air emissions from the proposed development is presented in **Chapter 6: Air Quality and Odour** of the Environmental Impact Assessment Report (EIAR) accompanying

this application. It was prepared by Dr. Jovanna Arndt, a Principal Environmental Consultant in the Air Quality & Climate section of AWN Consulting. The findings of the assessment are summarised below, but full technical results are presented in the EIAR chapter. Existing operational emissions (i.e. the do-nothing scenario) are covered by the Facility's Industrial Emissions Licence. The proposed development will result in the following changes to air emissions:

- Nitrogen Oxides (NOx) from a new Combined Heat and Power (CHP) engine
- NOx from a new regenerative thermal oxidiser (RTO)
- Total volatile organic compounds (TVOCs) from the new RTO (replacing existing Carbon Absorption Units)
- Removal of all existing lead-based processing onsite
- Relocating Unit 1 dust emission points (with stricter dust emission limit values)

Potential ecological impacts of these emissions are considered in Chapter 6 of the EIAR under the following headings: 'NOx', 'Nitrogen Deposition' and 'Acid Deposition (as N)'. Air dispersion modelling was used to determine whether these emissions could affect the qualifying interests of the *Cork Harbour SPA*, *Great Island Channel SAC* or any other European sites.

NOx emissions from the Facility will reach the *Cork Harbour SPA* in detectable levels, but when considered cumulatively with other emissions the Predicted Environmental Concentration (PEC) of NOx would be at most 26% of the annual limit value for the site. In simple terms, the cumulative NOx levels were substantially below the levels that could potentially have an effect on the Special Conservation Interests of the SPA, so 'likely significant effects' can be ruled out.

Potential effects of Nitrogen Deposition and Acid Deposition on European sites were considered to be unlikely, either when considered in isolation or cumulatively.

In summary, it has been confirmed by a specialist air quality consultant that the air emissions of the proposed development will not be likely to have significant effects on any European sites, either alone or in combination. No mitigation measures are required.

Potential in-combination effects

A number of live planning consents were identified in the vicinity of the Site, as outlined in Section 3.2. A Natura Impact Statement was submitted for one of these applications – an enlargement of the Facility's firewater retention pond, (planning reference 244648) which included pollution-prevention measures for the construction phase of the project. As some of these developments could also cause changes in water quality within the SAC / SPA, there could potentially be a risk of in-combination effects, particularly if the developments were constructed concurrently. Therefore, mitigation measures related to water quality will need to be implemented during the construction of the proposed development to avoid or minimise

any potential impacts of the proposed development, when considered in isolation. This will, in turn, prevent in-combination effects.

As noted previously, the air emissions assessment in **Chapter 6: Air Quality and Odour** of the EIAR considered the emissions from the proposed development both in isolation and cumulatively, and likely significant effects were ruled out.

5.4 Proposed mitigation measures

Cara Partners has engaged DJF Engineering Services Ltd. to prepare an Outline Construction Environmental Management Plan (CEMP) for the proposed development, which sets out a range of environmental considerations / measures for the construction phase of the proposed development. These measures, along with any additional mitigation measures or planning conditions imposed by the planning authority, will be brought forward into a final CEMP prepared by the construction contractor.

Storm water monitoring / diversion

It was established in Section 5.3 that the stormwater drainage network could potentially provide a pathway between the Site and the SAC / SPA in Cork Harbour. The following mitigation measures are in place:

- All storm water discharging to Lough Mahon passes through an existing Class 1 Full Retention Separator.
- The existing drainage system passes through a monitoring chamber where it is tested for Total Organic Content (TOC), pH and Ammonia and is subject to visual inspection. If the storm water is within acceptable trigger values, it continues and is discharged via the outfall. If the storm water is not within acceptable trigger values, it is diverted into the adjacent Fire Water Retention Pond, from where it may be further tested, and treated if necessary.
- Diversion of the storm water flow, into the Fire Water Retention Pond, may occur by automatic detection and / or manual override. This method of management ensures that the discharge to the outfall is closely monitored and maintained within approved parameters.
- The above method of management will continue in place during the construction phase, and on completion of the development.

Pollution-prevention measures

A Resource Waste Management Plan has been prepared and identifies waste material that may be generated during the construction of the proposed development and address its storage and appropriate removal from the site.

The following measures will apply to fuels / lubricants:

- Chemicals used will be stored in sealed containers.
- Chemicals shall be applied in such a way as to avoid any spillage or leakage.
- Fuelling and lubrication of equipment shall be carried out in bunded areas only which are located as far as possible away from any other drainage outfall.
- All refuelling, oiling and greasing will take place above drip trays or on an impermeable surface which provides protection to underground strata and watercourses and away from drains and watercourses as far as reasonably practicable. Vehicles will not be left unattended during refuelling.
- Storage areas, machinery depots and site offices will be located within the site boundary
- Spill kits will be made available, and all staff will be properly trained on correct use.
- All fuels, lubricants and hydraulic fluids required to be stored on site will be kept in secure containers within it.
- Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure will be put in place with all staff properly briefed. Any waste oils or hydraulic fluids will be collected, stored in appropriate containers and disposed of offsite in an appropriate manner.
- All plant shall be well maintained with any fuel or oil drips attended to on an ongoing basis. Any minor spillage during this process will be cleaned up immediately.
- Should any incident occur, the situation will be dealt with and coordinated by the nearest supervisor who will be responsible for instructions by the Local Authority.
- Fuels, lubricants and hydraulic fluids for equipment used on the construction site shall be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to current best practice (Enterprise Ireland BPGCS005).
- Any spillage of fuels, lubricants or hydraulic oils shall be immediately contained and the contaminated soil removed from the site and properly disposed of.
- Oil booms and oil soakage pads shall be kept on site to deal with any accidental spillage.
- Waste oils and hydraulic fluids shall be collected in leak-proof containers and removed from the site for disposal or re-cycling.
- Existing outfall monitoring chamber to be visually checked regularly for any evidence or indications of contaminants or water pollution e.g.
 - Change in water colour
 - Changes in water transparency
 - Oily sheen to water surface
 - Floating detritus
 - Scums and foams

The following measures will apply to concrete and related substances:

- Disposal of raw or uncured waste concrete will be controlled to ensure that Cork Harbour will not be impacted.

- Best practice in bulk-liquid concrete management addressing pouring and handling, secure shuttering / form-work, adequate curing times will be implemented.
- Washing of concrete equipment such as cleaning ready mix concrete lorries and mixers will not be permitted onsite.

The following measures relate to dust and air quality:

- Vehicles carrying loose aggregate and workings will be covered at all times.
- Material stockpiles (stored onsite pending removal off site) and exposed surfaces will be dampened down using a water spray to minimise the potential for wind pick-up.
- Regular inspection of access roadways to inspect for dust deposits will be undertaken and, if necessary, cleaning of access roadways and site boundaries will be undertaken.
- Where practicable, stockpiles of soils and materials will be located as far as possible from sensitive properties and ecological receptors, taking account of prevailing wind directions and seasonal variations in the prevailing wind.
- All construction plant and equipment is maintained in good working order and not left running when not in use.

5.5 Conclusion of Stage 2: Appropriate Assessment

The proposed mitigation measures in the CEMP will prevent waterborne pollutants leaving the site boundary, and thus avoid or minimise any potential pollution events. Subject to these measures, it can be objectively concluded that the proposed development will not adversely affect the integrity of the *Great Channel Island SAC*, *Cork Harbour SPA* or any other European site, either alone or in combination with other plans or projects. There is no scientific doubt in relation to this conclusion.

Air emissions of the proposed development will not affect any European sites, either alone or in combination. No mitigation measures were required in this regard.

This concludes Stage 2 of the AA process. Regulation 42(16) of the *EC (Birds and Natural Habitats) Regulations 2011* (as amended) states that “a public authority shall give consent for a plan or project, or undertake or adopt a plan or project, only after having determined that the plan or project shall not adversely affect the integrity of a European site”. The information presented in this NIS is sufficient for Cork County Council to reach this conclusion.

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