

Appendix 6.5

Screening Report for Appropriate Assessment

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environmental consultants

Project				
Appropriate Assessment Screening Provision of Information for AA Screening for the Douglas Flood Relief Scheme, Co. Cork				
Client		Arup		
Project ref	Report no	Client ref		
1722	1722	-		
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1. Introduction

The purpose of Appropriate Assessment Screening is to determine, the appropriateness, or otherwise, of the proposed development with respect to the likelihood of significant impacts on any European sites (in view of their conservation objectives, either individually or in combination with other plans or projects, and on the basis of objective information)

This report, contains information to assist the competent authority to undertake screening for AA in respect of the Douglas Flood Relief Scheme (including Togher culvert). This report identifies whether the proposed Douglas Flood Relief Scheme (including Togher culvert) is likely to have a significant effect on Natura 2000 site(s) (European sites). The project is not directly connected with or necessary to the management of any Natura 2000 sites. This report provides information on and appraises the potential for, in view of best scientific knowledge the proposed development to have significant effects, either individually or in combination with other plans or projects, on any European Sites.

The report was prepared by Dixon Brosnan Environmental Consultants.

This report should be read in conjunction with all documentation accompanying the application for consent for the proposed development.

2. Background and legislative context

Article 6(3) of *Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. For the purposes of the application for permission in respect of the proposed project, the requirements of Article 6(3) have been transposed into Irish law by Part XAB of the Planning and Development Act 2000, as amended.

The possibility of there being a significant effect on a designated or "European" site will generate the need for an appropriate assessment to be carried out by the competent authority for the purposes of Article 6(3). As set out in Section 177U of the Planning and Development Act 2000 as amended, a screening for appropriate assessment of an application for consent for the proposed development must be carried out by the competent authority to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on any European site. A Stage Two Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site. The first (Screening) Stage for appropriate assessment operates merely to determine whether a (Stage Two) Appropriate Assessment must be undertaken on the implications of the plan or project for the conservation objectives of relevant European sites.

2.2 Appropriate Assessment Procedure

The assessment requirements of Article 6(3) establish a stage-by-stage approach. This assessment follows the stages outlined in the 2001 European Commission publications "*Assessment of plans and projects significantly affecting Natura 2000 sites: methodological*

guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC” (2001) and *Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC (Draft)* Office for Official Publications of the European Communities, Luxembourg (EC, 2015);

The stages are as follows:

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

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

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

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

Documentation/guidelines of relevance to this report include the following:

- European Commission, 2001. *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC*. Office for Official Publications of the European Communities, Brussels (EC, 2001);
- European Commission, 2000a. *Communication from the Commission on the Precautionary Principle.*, Office for Official Publications of the European Communities, Luxembourg (EC, 2000a);
- *Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC (Draft)* Office for Official Publications of the European Communities, Luxembourg (EC, 2015);
- *Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC (EC, 2000)*
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission; (EC, 2007);
- *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities.* Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a);

- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities (DEHLG, 2010b);
- *Interpretation Manual of European Union Habitats. Version EUR 28.* European Commission (EC, 2013);
- Guidelines for Ecological Impact Assessment in the United Kingdom (Institute of Ecology and Environmental Assessment, 2006)

This AA screening report provides the relevant ecological information on the proposed project to assist the planning authority to screen the project, to determine if an Appropriate Assessment is required and ultimately to make a determination in relation to the likely impact on Natura 2000 sites. This report was prepared by Carl Dixon MSc. (Ecological Monitoring) who has prepared Screening/NIS's for a range of small and large scale projects.

The screening for AA test has been addressed in this report as follows:

- Establishing whether the proposed development is directly connected with or necessary to the conservation management of any European Sites;
- Describing the proposed development;
- Defining the Zone of Influence (Zol) of the proposed development. The Zol is defined through identifying potential impact pathways between the proposed development and any European Sites, in consideration of the nature of the proposed development and how it could affect European Sites' conservation objectives.
- Identifying the European Sites which lie within the Zol of the proposed development and are potentially, or likely, to be subject to significant effects in view of their conservation objectives which, in general terms, relate to maintaining or restoring the favourable conservation condition of the species and habitats for which the European Sites are designated; and
- Identifying any other plans or projects that may act in-combination to significantly affect any European Sites

2.3 Desktop Study

A desktop review facilitates the identification of the baseline ecological conditions and key ecological issues relating to Natura 2000 sites and facilitates an assessment of potential in-combination impacts. Sources of information used for this review include information from statutory and non-statutory bodies. The sources of information and relevant documentation which were utilised are as follows:

- National Parks & Wildlife Service (NPWS) - www.npws.ie including qualifying interests and conservation objectives for Natura 2000 sites.
- Environmental Protection Agency (EPA) – www.epa.ie
- Cork City Council Cork City Development Plan 2015-2021
- National Biodiversity Data Centre – www.biodiversityireland.ie
- Google Maps aerial photography
- Douglas Flood Relief Scheme (including Togher Culvert) EIS (Arup May 2017)
- County Cork Biodiversity Action Plan 2009-2014 (Cork County Council, 2009);

3. Screening of proposed development

The proposed development is not directly connected with or necessary to the conservation management of any European Sites.

3.1 Proposed development

The proposed flood relief scheme areas will be located in Togher along the Tramore River and in Douglas along the Grange Stream and Ballybrack Stream. The Grange and Ballybrack streams are tributaries to the Tramore River, which flows to Lough Mahon in Cork Harbour. Refer to **Figure 1.1**. The proposed works area in Togher is approximately 2.8km south of Cork city centre. The proposed works area in Douglas is to the south and within Douglas village and approximately 3.4km southeast of Cork city centre. All of these waterways flow through heavily urbanised areas with residential housing estates, industrial estates, shopping centres, sports facilities and public parks. The proposed scheme drawings are presented in **Appendix 3.1** of the EIS.

The proposed works will impact on existing structures including river bank walls, culverts, bridges and roads and will impact on bankside vegetation. Excavation of soil and river bank material will be required for foundations, regrading, river widening and deepening, and trash screen construction. Channel realignment will require excavation and regrading of the existing channel. Excavated material will be reused on-site or in the wider flood relief works areas where possible, for example in embankments. A detailed description of the scheme is presented in **Chapter 3 (Description of the Proposed Scheme)** in the EIS prepared for this project.

The main aspects of the proposed flood relief scheme comprise construction works entailing the following:

- Construction of new flood defence walls and/or replacement of existing walls with new flood defence walls
- Replacement of and/or extension of existing culverts
- Removal of and/or replacement of bridges
- Removal of existing trash screens and construction of new coarse screens
- Local channel widening, deepening, realignment and regrading of river channel
- Construction of new earthen flood defence embankment
- Provision of civil works such as road/footpath re-grading at a number of locations;
- Removal of vegetation and trees to facilitate construction works
- Protecting drainage outlets along the line of flood defence works with non-return flap valves;
- Once construction is completed, ongoing maintenance of the river channel, trash screens etc.

The following precautionary measures will be implemented as part of the project design. These measures are implemented as standard for construction projects of this type. This will be developed further prior to construction into a detailed Construction and Environmental Management Plan (CEMP) by the appointed Contractor. No impediments to the effective implementation of these measures have been identified.

Protection of habitats

- To prevent incidental damage by machinery or by the deposition of spoil during the site clearance stage, any trees earmarked for retention will be securely fenced early

in the construction phase. A tree survey has been carried out for the site which specifies which trees should be retained where it is feasible to do so. All of the trees which can be retained will be clearly marked with hazard tape and the contractor will be made aware of the necessity of protecting the root structure from machinery damage.

- Inadvertent damage to river banks on the margins of the works area or damage to vegetation can destabilise river banks and result in long term erosion and siltation. It is important therefore that the works area is adequately fenced and that works are confined to the works area. Access routes will also be clearly defined.

Invasive species

- The preferred treatment method for Japanese Knotweed is to treat an infestation in situ as this minimises the risk of spreading the plant. Surveys in 2016 and 2017 indicate that the initial treatments did not kill off this species where it occurs, with some regrowth noted. However, further treatments would be expected to significantly reduce the vigour of this species and may be sufficient to eradicate it from the works area before works commence.
- To minimise risks in the longer term a monitoring programme will be put in place for three years following the completion of site works. Where Japanese Knotweed re-emerges within the works area an in-situ herbicide treatment programme will be implemented.
- The required measures for prevention of the spread of this species will be specified by an invasive species management plan based on the most up to date information prior to the commencement of treatment.
- The management plan will make reference to and use of relevant guidelines including Best Practice Management Guidelines – Invasive Species Ireland (Maguire et al. 2008), NRA (2010), Best Practice Management Guidelines Japanese knotweed *Fallopia japonica* (2008) prepared for NIEA and NPWS as part of Invasive Species Ireland. Appropriate methods are also outlined in Irish Water guidelines, (Irish Water Report Information and Guidance Document on Japanese Knotweed Asset Strategy and Sustainability).
- The management plan will take account of a range of factors including the timeframe in which the work needs to be completed, structural or environmental/ecological features (e.g. watercourses, treelines nesting birds), designated sites, availability of storage areas for contaminated spoil on or off site, access issues and agreement with landowners, seasonal restrictions to work and financial constraints.

Protection of water quality

The employment of good construction management practices will minimise the risk of pollution of soil, storm water run-off, seawater or groundwater. The Construction Industry Research and Information Association (CIRIA) in the UK has issued a guidance note on the control and management of water pollution from construction sites, *Control of Water Pollution from Construction Sites, guidance for consultants and contractors (Masters-Williams et al 2001)*. Additional guidance is provided in the CIRIA technical guidance on *Control of Water Pollution from Linear Construction Projects (Murnane et al 2006)*. Measures

that will be implemented to minimise the risk of spills and contamination of soils and waters, include:

- Training of site managers, foremen and workforce, including all subcontractors, in pollution risks and preventative measures,
- Careful consideration will be given to the location of any fuel storage facilities. These will be designed in accordance with guidelines produced by CIRIA, and will be fully bunded.
- Vehicles will not be left unattended during refuelling.
- All vehicles and plant will be regularly inspected for fuel, oil and hydraulic fluid leaks. Suitable equipment to deal with spills will be maintained on site.
- Where feasible, soil excavation will be completed during dry periods and undertaken with excavators and dump trucks. Topsoil and subsoil will not be mixed together.
- Adequately size spill kits will be provided.
- Silt curtains will be installed within the works area during instream works. These silt curtains must be effectively installed and must be monitored and maintained during works to ensure they are operating effectively.
- Ensure that all staff are trained and follow vehicle cleaning procedures. Wash down from machinery and concrete trucks must be prevented from entering watercourses. Wash-down should take place well away from the river or in the site compound area provided a sedimentation area is provided.
- Construction works, especially works that involve the pouring of concrete must be conducted under dry conditions.
- Any stripping of areas of topsoil is to be avoided unless absolutely necessary and if unavoidable, the areas concerned are to be kept to a minimum.
- Where temporary stockpiling of topsoil or riverbed material is required, the material should be stockpiled in areas which are not liable to flood and where the risk to water quality is minimised. Geotextile should be used to cover stockpiles to prevent erosion.
- Weather forecasts will be checked daily to allow appropriate measures to be taken to mitigate against any negative impact resulting from heavy rainfall.
- Works will be carried out in line with the specifications of detailed method statements.
- The works will be supervised by a suitably qualified ecologist who will ensure that adequate mitigation is being implemented and who can advise on changes to same where required.

Waste management

- A construction and demolition waste management plan will be developed and maintained by the main contractor prior to construction works commencing on site.

The Plan will meet the requirements of the DoEHLG *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects*.

3.2 Natura 2000 sites

The proposed development is not directly connected with, or necessary for, the management of any Natura 2000 site. No habitat loss will occur within any Natura 2000 site as a result of this proposed development.

Natura 2000 sites (European sites) are only at risk from significant effects where a source-pathway-receptor link exists between a proposed development and a Natura 2000 site(s). This can take the form of a direct impact (e.g. where the proposed development and/or associated construction works are located within the boundary of the Natura 2000 site(s) or an indirect impact where impacts outside of the Natura 2000 site(s) affect ecological receptors within (e.g. impacts to water quality which can affect riparian habitats at a distance from the impact source).

Considering the Natura 2000 sites present in the region, their Qualifying Interests (QIs) and conservation objectives, and any potential impact pathways that could link those sites to the proposed development area, a distance of 15km was considered appropriate to encompass all Natura 2000 sites potentially within the Zone of Influence (Zoi) of the proposed development.

Thus any appreciable direct, indirect or cumulative impacts which could arise from the proposed development in relation to the designated sites within this zone were considered. Given the limited scale of this proposed development, any adverse impacts on Natura 2000 sites are considered highly unlikely. It is noted that local potential ecological impacts within the development site itself, which is not designated as a European site, are considered in detail by Chapter 6 (Biodiversity) of the EIS which was submitted for this project.

The closest Natura 2000 site to the proposed works are the Cork Harbour SPA (Site code 004030) and Great Island Channel SAC (Site code 001058). Site synopses for these sites are included in **Appendix 1**. There is a direct hydrological connection between the proposed works and these designated sites. A list of the Natura 2000 sites within 15km of the proposed development area is given below in **Table 2**. The approximate location of the proposed works area, in relation to the closest designated sites, is shown in **Figure 1**.

Table 2 Designated areas and their location relative to the proposed works area.

Site Name	Designation	Code	Distance from Togher works area	Distance from Douglas works area	Distance from closest works area
Special Protection Area (SPA)					
Cork Harbour	SPA	004030	3.8km E	0.4km E	0.4km E
Special Area of Conservation (SAC)					
Great Island Channel	SAC / pNHA	001058	10.5km E	6.9km E	6.9km E

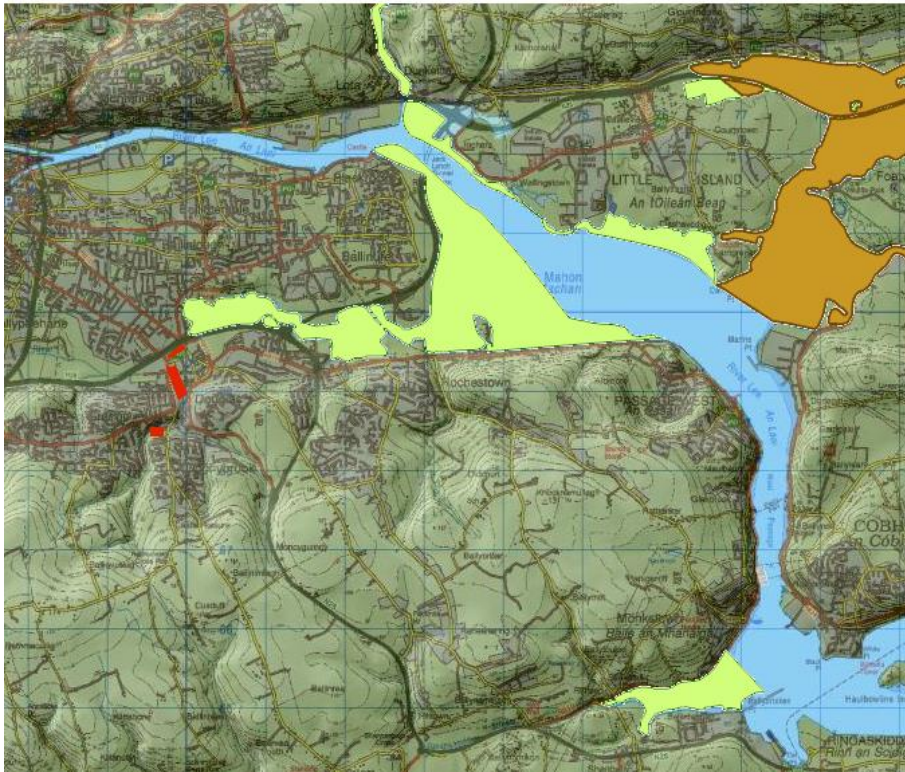


Figure 1 shows the approximate location of the closest works area in Douglas (shaded red, not to scale) in relation to the Cork Harbour SPA (shaded yellow) and Great Island Channel SAC (shaded orange).

3.3 Natura 2000 sites – Features of interests and conservation objectives.

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

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

The favourable conservation status of a species is achieved when population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis. The species listed as qualifying interests for the Cork Harbour SPA and specific

conservation objectives are included in **Table 2** below. The qualifying interests for the Great Island Channel SAC and the relevant conservation objectives are listed in **Tables 3** below.

Table 2: Qualifying Species and Conservation Objectives.

Name	Species		Conservation Objective
Cork Harbour SPA	Little Grebe	<i>Tachybaptus ruficollis</i>	Maintain
Cork Harbour SPA	Great Crested Grebe	<i>Podiceps cristatus</i>	Maintain
Cork Harbour SPA	Cormorant	<i>Phalacrocorax carbo</i>	Maintain
Cork Harbour SPA	Grey Heron	<i>Ardea cinerea</i>	Maintain
Cork Harbour SPA	Shelduck	<i>Tadorna tadorna</i>	Maintain
Cork Harbour SPA	Wigeon	<i>Anas penelope</i>	Maintain
Cork Harbour SPA	Teal	<i>Anas crecca</i>	Maintain
Cork Harbour SPA	Pintail	<i>Anas acuta</i>	Maintain
Cork Harbour SPA	Shoveler	<i>Anas clypeata</i>	Maintain
Cork Harbour SPA	Red-breasted Merganser	<i>Mergus serrator</i>	Maintain
Cork Harbour SPA	Oystercatcher	<i>Haematopus ostralegus</i>	Maintain
Cork Harbour SPA	Golden Plover	<i>Pluvialis apricaria</i>	Maintain
Cork Harbour SPA	Grey Plover	<i>Pluvialis squatarola</i>	Maintain
Cork Harbour SPA	Lapwing	<i>Vanellus vanellus</i>	Maintain
Cork Harbour SPA	Dunlin	<i>Calidris alpina</i>	Maintain
Cork Harbour SPA	Black-tailed Godwit	<i>Limosa limosa</i>	Maintain
Cork Harbour SPA	Bar-tailed Godwit	<i>Limosa lapponica</i>	Maintain
Cork Harbour SPA	Curlew	<i>Numenius arquata</i>	Maintain
Cork Harbour SPA	Redshank	<i>Tringa totanus</i>	Maintain
Cork Harbour SPA	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Maintain
Cork Harbour SPA	Common Gull	<i>Larus canus</i>	Maintain
Cork Harbour SPA	Lesser Black-backed Gull	<i>Larus fuscus</i>	Maintain
Cork Harbour SPA	Common Tern	<i>Sterna hirundo</i>	Maintain
Cork Harbour SPA	Wetland and Waterbirds		Maintain

Table 3. Qualifying interests for the Great Island Channel SAC (001058)

Habitat Code	Habitat	Conservation objectives
1140	Mudflats and sandflats not covered by seawater at low tide	Maintain
1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	Restore

4. Water Quality Data

There is no biological data available for the Tramore River, Grange Stream and Ballybrack stream (i.e EPA Q values) as these watercourses are not included in the standard EPA water monitoring programme. However, the Tramore River is believed to have suffered a degree of water quality impairment in the past. An overview of the hydrological features within the study area is shown below in **Figure 2**.

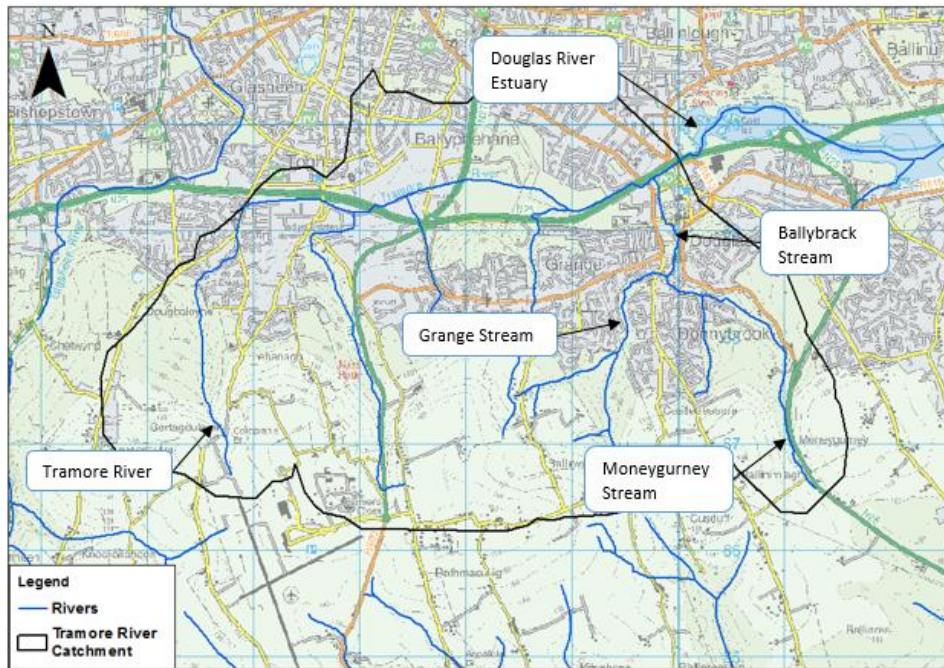


Figure 2 Hydrological Features

The Kinsale Road Landfill is located at the Tramore Valley Park, off the Kinsale Road and the Tramore River flows around the southern section of the site before flowing through Douglas. Information from three sampling events at three locations in 2015 is generally indicative of satisfactory water quality with only one slightly elevated BOD reading (4.3 mg/l). A high degree of variation was recorded in pH levels, however results do not indicate significant water quality issues.

Table 4. Surface water quality results (summarised). Source: Kinsale Road Landfill AER (2015) under the EPA waste licence No. W0012-03.

Sampling Point	Sampling Date	pH	BOD (mg/l)
EM2	11/03/2015	7.67	1
	08/09/2015	8.06	1.7
	01/12/2015	7.71	1.2
EM10	11/03/2015	7.71	2.5
	08/09/2015	8.33	2.9
	01/12/2015	7.53	1.6
EM11	11/03/2015	7.22	4.3
	08/09/2015	8.41	1.1
	01/12/2015	8.11	1.2

In estuarine waterways, the EPA rates water quality as Unpolluted, Intermediate, Potentially Eutrophic and Eutrophic. The former two are indicative of acceptable estuarine water quality, while the latter two water quality ratings are considered as unsatisfactory. **Table 5** displays the results for Lough Mahon into which the relevant watercourses ultimately discharge.

Table 5. EPA Water Quality Status

Area	Water quality status
Lough Mahon	Estuarine & coastal water quality – Intermediate

Source: EPA Envision map system

The Water Framework Directive (WFD) is a key initiative aimed at improving water quality throughout the EU. It applies to rivers, lakes, groundwater, and coastal waters. The Directive requires an integrated approach to managing water quality on a river basin basis; with the aim of maintaining and improving water quality. The Directive requires that management plans be prepared on a river basin basis and specifies a structured approach to developing those plans. It requires that a programme of measures for improving water quality be brought into effect.

Specifically, the WFD aims to: protect/enhance all waters (surface, ground and coastal waters); achieve "good status" for all waters, manage water bodies based on river basins (or catchments); involve the public; and streamline legislation.

The Water Frameworks Directive assesses the water quality of rivers and ranks their status as follows: High, Good, Moderate, Poor, Bad and Yet to be determined. The Water Frameworks Directive also determines the "Risk" level of a river as follows: 1a – At risk of not achieving Good Status, 1b – Probably at risk of not archiving Good Status, 2a – Expected to achieve Good Status and 2b – strongly expected to achieve Good Status. Relevant data for surface waters within the study area, where available, are given in **Table 6**.

Table 6. WFD data

Watercourse	Status	Risk
Lough Mahon	Moderate	1a – At risk of not achieving Good Status
SW_Coastalt2_Tramore_1Lower (Includes the lower sections of the Tramore River and the Ballybrack River)	Moderate	1a – At risk of not achieving Good Status

(Source: EPA Envision map system)

5. Site inspections

5.1 Habitat mapping

Terrestrial habitat mapping was carried out in line with the methodology outlined in the Heritage Council Publication *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011). All habitats within the study area were classified to level 3 of the classification scheme outlined in *A Guide to Habitats in Ireland* (Fossit, 2000) and cross-referenced with habitats listed under Annex I of the Habitats Directive. More detail on the habitats recorded during site surveys are including in **Chapter 6 (Ecology)** of the EIS for this project. No rare or threatened floral species were recorded on, or in the vicinity of the site, nor are they expected to occur given that the habitats within the study area are common and highly modified. All of the terrestrial habitats which were recorded within the construction

area are relatively common and are not of high ecological value. The following habitats were recorded:

- Treelines WL2
- Hedgerow WL1
- Dry meadow and grassy verge GS2
- Stonewalls and other stonework BL1
- Wet willow-alder-ash woodland WN6
- Mixed broadleaved woodland WD1
- Amenity grassland GA2
- Scattered trees and parkland WD5
- Buildings and artificial surfaces BL3
- Immature woodland WS2

Impacts on these habitats, which range from minor to moderate, will not have a perceptible impact on the qualifying interests and conservation objectives for Natura 2000 sites.

5.2 Invasive species

Detailed surveys for invasive species were carried out in 2015 and survey results were updated in 2016. Japanese Knotweed, which was recorded within part of the works area is listed on both the “Most Unwanted: Established Threat” and on the “High Risk: Recorded Species” list compiled by Invasive Species Ireland a joint initiative by the Northern Ireland Environment Agency and NPWS. It is listed under Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011.

Japanese Knotweed, which was recorded within part of the works area is listed on both the “Most Unwanted: Established Threat” and on the “High Risk: Recorded Species” list compiled by Invasive Species Ireland a joint initiative by the Northern Ireland Environment Agency and NPWS.

Japanese Knotweed is a highly invasive, non-native species which was originally introduced as an ornamental plant but has since spread along transport routes and rivers to become a serious problem. From an ecological viewpoint, it out-competes native species by forming dense stands which suppresses growth of other species. It grows extremely vigorously and can penetrate through small faults in tarmac and concrete and thus can damage footpaths, roads and flood defence structures. As it can survive in poor quality soils, including spoil, it often thrives in brownfield sites and in urban areas.

Herbicide treatment of Japanese Knotweed within the proposed works area has been carried out in proximity to the Ballybrack River within and upstream of the Douglas Community Park. This area was sprayed twice during 2015 as part of a specialised management programme in line with the relevant guidelines. Observations by DixonBrosnan in October 2016 and April 2017 indicate that regrowth has occurred but is less vigorous. An additional area of Japanese Knotweed was also recorded within the works area upstream of the Donnybrook Commercial Centre. The treatment programme will be continued via two treatments in 2017. Refer also to Appendix 4.1 of the EIS which details an outline invasive species management plan for the construction phase.

5.3 Aquatic habitats

The Tramore is a small river, approximately 7.5km in length, which discharges to Cork Harbour in via the Douglas River estuary. Most of its 21km² catchment area lies with urban/suburban areas on the outskirts of Cork City and the river has been extensively culverted in Togher. The main channel runs west to east with a low gradient and is joined by a number of tributaries flowing from higher agricultural grassland to the north. Due to a low

gradient, it has a relatively sluggish flow along most of its length. The Grange and Ballybrack streams are tributaries to the Tramore River, which flows to Lough Mahon in Cork Harbour.

Works at St Patrick's Mills will occur adjacent to a tidal section of the river which is characterised by softer substrate with some areas of gravel. Fluctuating silt levels are typical of the tidal sections of rivers. An electrofishing survey of sections of the Tramore River was carried out by DixonBrosnan in 2014. It recorded Brown Trout, European Eel and Three-Spined Stickleback within the main channel.

The Ballybrack Stream is formed by the confluence of the Grange and Moneygurney Streams. It has a relatively natural flow pattern with areas of gravel suitable for salmonid spawning and a well-developed riparian zone. It supports a population of brown trout.

The Grange stream is a small watercourse which runs through a narrow and wooded valley before joining the Ballybrack Stream. Due to its limited size and depth and culverting along part of its length, it has limited fisheries potential.

Aquatic habitats within the study area were classified to level 3 of the classification scheme outlined in *A Guide to Habitats in Ireland* (Fossit, 2000) and cross-referenced with habitats listed under Annex I of the Habitats Directive. The Tramore River is classified as Depositing Lowland River FW1/Tidal River CW2. The Ballybrack Stream and Grange Stream are classified as Depositing Lowland River FW1.

5.4 Bird surveys

Bird surveys were carried out by DixonBrosnan during the period from June to October 2016 in conjunction with habitat surveys. Additional observations were made in April 2017. The bird species noted within the study area consist of a mix of common terrestrial bird species which typically occur in a suburban landscape and more specialised species associated with aquatic habitats. Common bird species recorded during site surveys included Bullfinch, Hooded Crow, Rook, Jackdaw, Magpie, Woodpigeon, Swallow, Dunnock, Great Tit, Long Tailed Tit, Song Thrush, Blue Tit, Greenfinch, Goldfinch, Wren, Robin, Pied Wagtail, Grey Wagtail, Mallard and Blackbird. Overall, the study area is of local value for a range of terrestrial bird species that are relatively common in the Irish countryside. The presence of watercourses provides additional habitat for more specialised species.

Two species were recorded which are listed as qualifying interests for the Cork Harbour SPA, namely Grey Heron and Cormorant. Cormorant was recorded over flying the study area and the relatively shallow watercourses affected by the proposed works are of low value for this species. Heron feed on fish stocks within the Ballybrack Stream and Tramore Rivers.

7. Assessment of Potential Impacts

The potential impacts associated with the proposed development are discussed in the following section with respect to their likelihood to have significant impacts on Natura 2000 sites. As part of the assessment direct, indirect and cumulative impacts were considered. Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development. Indirect and secondary impacts do not have a straight-line route between cause and effect, and it is potentially more challenging to ensure that all the possible indirect impacts of the project/plan - in combination with other plans and projects have been established. As part of the assessment the potential for impacts associated with the development were reviewed as outlined below:

- Direct Impact-Loss of Habitat

- Indirect impacts from noise and disturbance
- Direct Impact / Indirect -Impacts on water quality and aquatic ecology
- Impacts from the spread of invasive species.
- Cumulative Impacts

7.1 Loss of habitat

Any habitat loss of Natura 2000 sites or deterioration in habitat quality would reduce the extent of habitat available for species. This would decrease the viability of existing habitats and increase the pressure on existing habitat and may result in further deterioration.

The works will be located on small watercourses upstream of Cork Harbour. Thus, there will be no direct impacts on Annex 1 Habitats or habitats listed as qualifying interests for the Great Island Channel SAC. The works will not result in any loss of habitat within Natura 2000 sites.

During works, there will a short-term net loss of feeding habitat for Grey Heron within the works area. However, the loss of habitat is not considered significant in the context of available habitat elsewhere within the same watercourses and within Cork Harbour. Following completion of works fish populations are expected to recover thus restoring habitat value for piscivorous bird species. Therefore, the short-term impact on Grey Heron is predicted to be minor and the long term impact is predicted to be negligible. The overall impact on bird populations within the Cork Harbour SPA is predicted to be negligible.

7.2 Impacts from noise and disturbance

Potentially increased noise and disturbance associated with the site works could cause disturbance/displacement of bird species. If of sufficient severity, there could be impacts on reproductive success.

Theoretically disturbance of important qualifying bird species could occur during construction works. Predicting potential impacts on birds from disturbance can be problematic. Although there are many instances where waterfowl and people appear to co-exist on estuaries, there are widespread examples where effects and impacts of varying severity have been described. Optimal foraging theory is a useful basis from which to understand likely effects of disturbance on feeding. Many studies have shown that birds concentrate where feeding is best. If birds are forced temporarily or permanently to leave these places then there is an increased risk that their foraging ability will suffer. However, the severity of this type of situation and the way in which birds respond; vary in a very complex way. The multiplicity of variables underlying the observed interactions between birds and people makes it difficult to assess the cause and implications of a particular instance of disturbance. The magnitude of disturbance to birds may arise from synergistic effects of more than one activity.

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

During the construction stage, there will be short-term increases in noise and activity.

It is noted that the works areas are located in a built-up environment with relatively high existing levels of background noise. The closest works area is located 0.4km from the Cork Harbour SPA. There may be short-term disturbance/displacement of Grey Heron feeding within the Tramore River and Ballybrack Stream, however any such impact will be minor in the short-term and negligible in the long-term.

Given the distance of the proposed development from the Cork Harbour SPA and the background levels of noise to which birds will have become habituated, no impact on bird species listed as qualifying interests for the Cork Harbour SPA will occur.

7.3 Impacts on Water Quality

Potential impacts on aquatic habitats which can arise from this type of development consist of increased silt levels in surface water run-off and inadvertent spillages of hydrocarbons from fuel and hydraulic fluid. Impacts can also arise from cement contamination.

A range of standard environmental control measures will be implemented as part of the project design to reduce the levels of silt reaching the aquatic environments and the levels of silt generated by works will be not be significant in the context of the dilution provided in with the estuary. Estuarine habitats are robust and naturally encounter extreme fluctuations in silt levels to which flora and fauna are naturally habituated.

Given the distance of the Great Island Channel SAC from the proposed works area (6.9km), robust nature of qualifying habitats for this Natura 2000 site (Mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) and the dilution provided in the estuary environment the ecological impact on this SAC is predicted to be negligible.

If of sufficient severity, high levels of silt in surface water run-off can impact on fish species. If of sufficient severity, adult fish which provide food for piscivorous fish listed as qualifying interests for the Cork Harbour SPA (Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Red Breasted Merganser, Common Tern) could theoretically be affected. Hunting success for piscivorous birds could also potentially be affected by increased turbidity associated with silt run-off from the proposed works. Algal plant communities may also be affected by increased siltation and photosynthesis may be reduced. Given the limited nature of the works however, the robust nature of qualifying habitats and the dilution provided in the estuarine environment any impacts on the Cork Harbour SPA due to elevated silt levels is considered negligible.

High turbidity levels during construction may impact on feeding success for Grey Heron within the Tramore River and Ballybrack Stream. Such an event is unlikely and standard precautionary measures will be implemented during site works. Any such impact will be temporary and minor and will not have a long-term impact on feeding resources for Grey Heron within these watercourses.

Inadvertent spillages of hydrocarbons or other substances during construction could introduce toxic chemicals into the aquatic environment. However, given the distance from estuarine environment, the robust nature of qualifying habitats and the dilution provided in the estuarine environment, any impacts on water quality due to such spills during construction is considered negligible. Nonetheless best practice environmental control measures will be employed as standard during the construction phase of the development as part of the project.

It is concluded therefore that the proposed development will not result in a deterioration in water quality and will not impact on qualifying interests for the Great Island Channel SAC

(Mudflats and sandflats not covered by seawater at low tide Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)) or on habitats supporting bird species listed as qualifying interests for the Clonakilty Estuary SPA (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, Common Tern and Wetland and Waterbirds).

7.4 Impacts from the spread of invasive species.

It is noted that the qualifying interests for the Great Island Channel SAC (Mudflats and sandflats not covered by seawater at low tide Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)) will not be affected by Japanese Knotweed. Similarly, Japanese Knotweed will not become established on mudflat habitat within the Cork Harbour SPA on which important bird populations feed. Although potentially fragments of Japanese Knotweed could become established on the peripheral terrestrial areas of the Cork Harbour SPA this is considered a low risk. A treatment programme is being implemented to control Japanese Knotweed within the works area and this will be continued in 2017. The entire works area will be resurveyed immediately prior to the commencement of works. Refer to Appendix 4.1 of the EIS which details an outline invasive species management plan for the construction phase. The long-term impact from invasive species is predicted to be negligible.

7.5 Cumulative Impacts

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

The area surrounding the proposed development is heavily populated with a mixture of residential estates, shops and dwellings. However, in the absence of any significant impact associated with this project due to impacts on water quality or increased noise and disturbance, no potential cumulative impacts have been identified.

8. Conclusions

The proposed works area does not support the habitats or significant numbers of the species for which the Natura 2000 sites were selected. Based on the above, the project does not present any risk of a direct adverse impact on the habitats for which the relevant Natura 2000 sites were selected.

The habitats recorded within the proposed development site boundary are not of significant value for birds listed as qualifying interests for the Cork Harbour SPA. There may be some short-term minor disturbance of Grey Heron along the Tramore River and Ballybrack Stream outside the boundary of the SPA. However, the long-term impact will be negligible.

Given the limited scope of the proposed works, the distance from designated sites, the implementation of standard environmental control measures and the dilution provided in the estuary the impact on water quality is predicted to be negligible.

It is therefore the opinion of Dixon Brosnan Environmental Consultants that it is possible to rule out likely significant impacts on any Natura 2000 site. It is concluded by the authors of this report therefore that the proposed development will not have a significant impact on qualifying interests and conservation objectives for Natura 2000 sites, and that the integrity of these sites will not be adversely affected. No significant direct, indirect or cumulative

impacts on Natura 2000 sites have been identified. It is the opinion of Dixon Brosnan Environmental Consultants that it is not necessary to undertake any further stage of the Appropriate Assessment process.

Appendix 1 Site Synopses

Cork Harbour Special Protection Area (Site Code 004030)

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

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

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

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

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

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

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

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

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, there are at least 18 wintering species that have populations of national importance, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it. (NPWS, 2008).

Site synopsis Great Island Channel SAC (Site Code: 001058)

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 Rosslare 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 north of Rosslare, with Dunlin, Godwit, Curlew and Golden Plover the commonest species. A population of about 80 Grey Plover is a notable feature of the area. All the mudflats support feeding birds; the main roost sites are at Weir Island and Brown Island, and to the north of Fota at Killacloyne and Harper's Island. Ahanes supports a roost also but is subject to disturbance. The numbers of Grey Plover and Shelduck, as given above, are of national importance.

The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. Overall, Cork Harbour regularly holds over 20,000 waterfowl and contains internationally important numbers of Black-tailed Godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive.

While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments.

The site is of major importance for the two habitats listed on Annex I of the E.U. Habitats Directive, as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna. (NPWS, 2013).