Appendix 5A
Appropriate Assessment Screening

OIFIG na nOIBREACHA POIBLÍ
OFFICE OF PUBLIC WORKS

Lower Lee (Cork City) Drainage Scheme

APPROPRIATE ASSESSMENT SCREENING REPORT

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1 INTRODUCTION & BACKGROUND TO PROJECT

1.1 BACKGROUND

Ryan Hanley in partnership with McCarthy Keville O'Sullivan has been commissioned by the OPW to prepare a Stage 1 Appropriate Assessment (AA) Screening Report for the Lower Lee (Cork City) Drainage Scheme. The AA Screening report assesses Site Investigation works, construction works and the operational stage of the proposed drainage scheme. The proposed drainage scheme comprises of a combination of flood walls, embankments, culverting, road re-grading, a flow control structure and other minor works. The scheme will be designed to cater for the 1% Annual Exceedance Probability (AEP) fluvial flood event (also known as the 100 year fluvial flood event) and the 1 in 200 year tidal flood event. The design of the proposed works is adaptable for future climate change in accordance to Office of Public Works guidance in relation to climate change and also includes an allowance for freeboard.

The purpose of the AA screening is to determine the effects, if any, that the proposed works will have on Natura 2000 sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA), within the potential zone of influence of the works.

This report constitutes Appropriate Assessment Screening for proposed works for the Lower Lee (Cork City) Drainage Scheme in accordance with Article 6.3 of the EU Habitats Directive (92/43/EEC).

1.2 THE REQUIREMENT FOR APPROPRIATE ASSESSMENT

The requirement for Appropriate Assessment is set out in the EU Habitats Directive (92/43/EEC) in Article 6 (3) which states:

> *"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives."*

The Habitats Directive is transposed in Ireland by the European Communities (Birds and Natural Habitats) Regulations, 2011 (consolidating the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in recent CJEU Judgements) (hereafter referred to as the Habitats Regulations) and the Planning and Development (Amendment) Act, 2010.

1.3 THE AIM OF THIS REPORT

This Screening for Appropriate Assessment (Stage 1) has been prepared in accordance with current guidance and provides the information required in order to establish whether or not the proposed development is likely to have a significant impact on the Natura sites in the context of their conservation objectives and specifically on the habitats and species for which the Natura 2000 sites have been designated.

By undertaking the ecological impact assessment in a step by step manner in relation to the habitats and species of the Natura 2000 sites, this report seeks to inform the screening process required as the first stage of the process pursuant to Article 6.3 of the EU Habitats Directive.

2 THE APPROPRIATE ASSESSMENT PROCESS

2.1 GUIDANCE

Article 6(3) of the EU Habitats Directive (92/43/EEC) defines the requirement for Appropriate Assessment of certain plans and projects. In order to inform the requirements of this Screening Report the following guidance documents have been referred to:

- DoEHLG Circular NPWS 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.
- DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environmental Heritage and Local Government.
- European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- European Commission (2000) Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg. European Commission.
- 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
- European Commission (2006) Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg.
- European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/49/EEC; clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- European Commission (2013). Interpretation Manual of European Union Habitats. Version EUR 28. European Commission
- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No.477 of 2011).
- Ryan Hanley (2014a) Stage 1: Appropriate Assessment Screening Methodology for the Maintenance of Arterial Drainage Schemes. Prepared by Ryan Hanley on behalf of the Office of Public Works.
- Ryan Hanley (2014b) OPW Drainage Maintenance Categories Source » Pathway » Receptor Chains for Appropriate Assessment. Prepared by Ryan Hanley on behalf of the Office of Public Works

2.2 STAGES OF ARTICLE 6 ASSESSMENT

The European Commission's guidance promotes a staged process, as set out below, the need for each being dependent upon the outcomes of the preceding stage.

(1) Screening

(2) Appropriate Assessment

(3) Assessment of Alternative Solutions

(4) Assessment where no alternative solutions remain and where adverse impacts remain.

- The "IROPI test" (Imperative Reasons of Over-riding Public Interest) and compensatory measures.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures.

Stage 1 of the process is intended to identify whether the project is 'likely to have a significant effect' upon a European site, referred to as 'Screening for Appropriate Assessment'.

If the screening process identifies effects to be significant, potentially significant or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Screening is undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided though the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan or project. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact.

Section 177U of the Planning and Development Act 2010 states that; "*the competent authority shall determine that an appropriate assessment of the proposed development is not required if it can be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will not have a significant effect on a European site*."

Stage 2 of the process considers any potential impacts in greater detail including whether further mitigation measures are required. If an adverse impact upon the site's integrity cannot be ruled out, then Stage 3 will need to be undertaken to assess whether alternative solutions exist. If no alternatives exist that have a lesser effect upon the Natura 2000 site/s in question, the project can only be implemented if there are 'imperative reasons of overriding public interest', as detailed in Article 6(4). In essence, the work at Stage 1 will determine whether further stages of the process are required.

This report includes the testing required under Stage 1: Screening for Appropriate Assessment.

2.3 REPORT FORMAT

In complying with the obligations under Article 6(3) and to be consistent with the Guidance for Planning Authorities, this report has been structured as follows:

- Description of the Plan/Project;
- Identification of Natura 2000 sites, and the associated Conservation Objectives, which may be potentially affected;
- Identification and description of individual and cumulative impacts likely to result from the Plan/Project;
- Assessment of the significance of the impacts identified above on site integrity;
- Exclusion of site where it can be objectively concluded that there will be no significant effects.

3 DESCRIPTION OF THE PROJECT

3.1 STUDY AREA

The study area for the Lower Lee (Cork City) Drainage Scheme encompasses the channel, floodplain and immediate surrounding areas of the River Lee from the Innishcarra Dam extending along the main channel of the river to the Lee Estuary at Horgans Quay. The River Lee is joined by a number of small tributaries including the Bride West, Shournagh, Curragheen and Glasheen Rivers (see Figure 3.1). This area encompassed within the study area is approximately 17 kilometres of the River Lee from Innishcarra to Horgans Quay.

The River Lee is one of the largest rivers in southwest Ireland with a total catchment area covering approximately 2,000 square km. The catchment is defined by the land area drained by the River Lee, its tributaries and Cork Harbour. The catchment area of the River Lee, upstream of Waterworks Weir in Cork City, is approximately 1,150 square kilometres.

The study area for defence measures covers from Innishcarra dam through predominantly greenfield areas west of the city through to the urbanised areas of Carrigrohane Road and Victoria Cross. From here it covers the North Channel as far as and including Horgan's Quay and the south channel as far as Victoria Road.

Natura 2000 sites (SAC's or SPA's) in proximity to the study area are identified as follows:

- Great Island Channel SAC (Site Code:004219)
- Cork Harbour SPA (Site Code 004030)
- The Gearagh SAC (Site Code 000108)
- The Gearagh SPA (Site Code 004109)

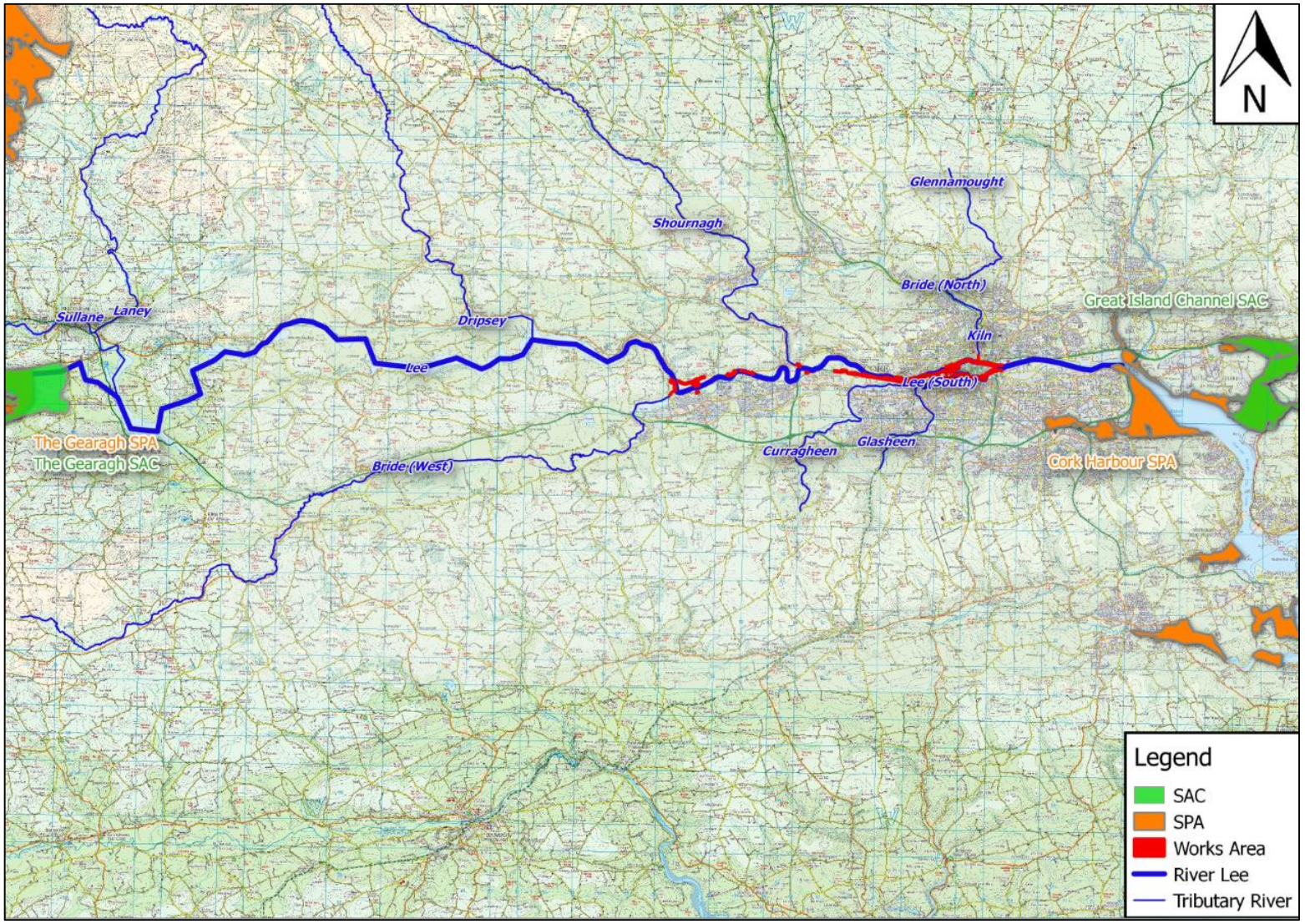

Figure 3.1: Study area and European sites

3.2 PROPOSED WORKS

The key features for the Lower Lee (Cork City) Drainage Scheme will comprise the following:

- Site Investigations and advanced works.
- A new Fluvial Flood Forecasting system based on both predictive and real time rainfall, and real time river flows and reservoir level data, to be utilised in combination with the existing harbour tidal flood forecasting system.
- A new flood warning system to effectively disseminate warnings and information to landowners and river users during major flood events.
- Designation of floodplains (washlands) upstream of Cork City. This along with the Flood Forecasting system will facilitate the use of revised dam operation procedures resulting in a more aggressive lowering of reservoir levels in advance of a predicted flood event to maximise available reservoir storage and thus provide increased attenuation to reduce the peak flow during major flood events.
- Direct defences (walls and embankments) from downstream of Innishcarra Dam through to Cork Harbour to defend against the design flood event.
- Flow Control structure at the upstream end of the South Channel to divert a greater proportion of flood flow along the higher capacity North Channel, thus minimising the extent of required direct defences on the Curragheen River and western end of the South Channel
- Demountable flood gates (tidal) at a limited number of key bridges and critical locations within the eastern part of Cork City.
- Re-grading of ground and road ramping at a number of locations.
- Associated groundwater cut off walls and back-of-defence drainage infrastructure to intercept and manage groundwater seepage.
- Bridge replacement.
- Associated drainage infrastructure (including non-return valves on drainage outlets) and pumping stations to manage surface water/groundwater at back of defences.
- Associated services/utility diversions.

3.2.1 Site Investigation

A detailed site investigation will take place in advance of the construction works to inform the detailed design of the drainage scheme. Trial pits, slit trenches, boreholes, rotary core boreholes and dynamic probes will be carried out along the footprint of the proposed works, in addition to utility identification.

3.2.2 Flood Forecasting and Warning System and Dam Operations

In the case of the Lower Lee (Cork City) Drainage Scheme, the flood forecasting system will provide sufficient advance warning of the type and scale of rainfall/storm events which have the potential to cause significant flooding and allow lowering of levels in Carrigadrohid and Innishcarra Reservoirs to maximise available storage ahead of and during major flood events.

For the vast majority of time, outside of flood events, the ESB will continue to operate the dams at Carrigadrohid and Innishcarra as at present, primarily as a hydroelectric enterprise.

Continuous monitoring and simulation of predicted rainfall using the new flood forecasting system will allow potentially significant flood events to be detected further in advance.

When a potentially significant event is detected by the forecasting system, the 'flood protocol' will be triggered and the reservoir levels can be safely drawn down to create storage in advance of the event. This will be achieved by allowing for greater discharges in advance of a forecasted event. This greater discharge will not result in the flooding of properties other than those washlands designated by the scheme, due to creation of downstream defences. In principle, the revised operation of the dams before and during a flood event will consists of the following stages:

- From 4 to 2 days prior to the flood event, safely draw both reservoirs down to pre-determined levels (which are being termed FRL (Flood Relief Level), whilst not exceeding the safe maximum draw down rate at Carrigadrohid and unless needed, limiting discharges to the current advance discharge limit of 150m^3/s from Innishcarra.
- In the period on the run up to a flood event, from 2 days prior to the start of the event, make increasingly large releases from Carrigadrohid and Innishcarra at discharge rates based on pre-determined rules. The rates will depend on the scale and nature of the forecasted event but could be up to 350m^3/s.
- Closer to and during the main event, use specific procudures to trim the peak off the Lee flows to maintain a flow less than design flow in Cork city (taking account of contributions from the Bride (West) and Shournagh).
- Restrict dam releases to pre-determined rates during extreme tidal events, so long as dam safety is not a concern.

The optimised procedures are being developed taking account of the following considerations.

- The normal range of operating levels in the dams are not amended (i.e. outside of 'flood protocol' times, ESB will continue to operate as normal)
- Minimum and maximum reservoir levels and/or seasonal variations in same, have not be amended so as to avoid impacting existing environmental receptors/constraints such as levels in the Gearagh, water supply requirements, fish life etc.
- Dam safety rules are not impacted, i.e. once levels in the reservoirs exceed ESB's safety thresholds, dam safety takes precedence and greater discharges will occur. In this scenario, emergency procedures will be put in place and warnings will be issued to advise of flooding as a result of a design exceedance event. These emergency measures will be under the control of the Local Authority (as the body responsible for emergency response) and the ESB (responsible for warning of flood events).
- The maximum draw down rate limit at Carrigadrohid remains for road embankment safety reasons.

3.2.3 Designation of floodplains (Washlands) upstream of Cork City

In creating washlands by pre-emptive advance spilling of water from the reservoirs at higher rates, 'artificial' or 'early' flooding of existing floodplains will occur. This will predominantly affect agricultural land to the west of the city. These lands will benefit from the scheme in terms of a reduction in the peak flows and thus magnitude of flooding from extreme events. However, as a result of the pre-emptive spilling of higher flows from the dams, these lands will be subject to a greater frequency of lower or medium flooding events. In addition, the proposed scheme will result in peak flows extending for a longer duration during a given flood event. See Appendix 3A for map of designated wash lands.

3.2.4 Direct Defences (flood walls and embankments)

Direct defences on the scheme consists of the following:

- Circa 6,420m of new earthen embankments generally between 1m and 2m in height at a number of locations within the study area but predominantly in rural areas to the west of Cork City at Innishcarra, north of Ballinacollig, Inchaggagin, the Lee Fields and to a lesser extent in the green areas from Fitzgerald's Park to Presentation College on the North Channel. Embankments will generally have 1 in 3 sides slopes, a 4m crest and be top soiled and grassed. The embankment crests will be reinforced to accept vehicular (for the purpose of maintenance) and pedestrian loading and some will be used as public amenity walks.
- Circa 3,075m of new reinforced concrete walls (suitably clad where relevant) with heights ranging up to circa 2m at various locations.
- Circa 1,815m of new sheet pile wall (suitably clad where relevant) with heights ranging up to circa 2m at various locations.
- Circa 3,000m of new parapet flood defence walls (suitably clad where relevant) built upon refurbished existing quay walls. All such defences on the lines of existing quay/river walls within the city centre are of heights at or less than guarding height of 1.2m so as to maintain the social connection with the river. This was a key constraint of the design.
- Circa 555m of glass flood defences in particularly sensitive amenity areas such as north of the Kingsley Hotel, the approach to Daly's Bridge, Fitzgerald's Park, Sundays Well Boating & Tennis Club, Lapp's Quay and shorter discrete sections along Union Quay, Georges Quay and Wandersford Quay.
- 115m of Demountable Flood Gates at 26 No. locations taking the form of both 'tilt-up' barriers and 'lift-hinge' gates.
- Circa 5365m of modifications/strengthening of existing bridge parapets on Griffith Bridge, Christy Ring Bridge, Brian Boru Bridge, Clontarf Bridge, St Finbarre's Bridge, Lancaster Bridge and the River Lee Hotel Bridge.
- Modifications to several of the existing stepped river accesses along the city quays.

Defence walls will be finished in one of the following ways: Fair faced concrete, timber cladding, (salvaged or new) random rubble masonry cladding, salvaged cut cork limestone, new cut limestone.

3.2.5 Flow Control Structure

A flow control structure is proposed and located on the south channel of the River Lee, downstream of the Salmon Weir. The proposed control will be closed when the River Lee is in flood to prevent (or reduce) flow entering the south channel and divert a greater proportion of the flow to the North Channel which has greater capacity. This measures avoids the need for large lengths of high walls along the south channel and Curragheen.

3.2.6 Ramps and Re-grading

At a number of locations, it is proposed to re-grade roads, footpaths of other areas of ground either to raise ground level above flood defence level (and so provide a direct flood defence) or in other instances reduce the effective height of a flood defence wall relative to the dry side ground level to retain the social amenity relationship with the river.

3.2.7 Drainage and Pumping Stations

At a number of locations in the city centre, existing quays have no parapet and drainage is either overland over open quays or else through discrete regular outfalls through the quay walls. In addition, a number of major piped or culverted drains outfall to the channel. The construction of raised parapets and flood defence walls will prevent the existing drainage systems from functioning at present either permanently or temporarily during a flood event. Therefore, to ensure that pluvial flooding is not worsened on the dry side of flood defences, new 'collector' drains and pumping stations will need to be constructed to safely discharge surface water during a flood event thus prevent back of wall surface water flooding. The pumping stations will require deep excavations of up to 5m in depth. Wet wells will typically be circa 3m to 4m internal diameter. Currently, it is envisaged that circa 36 No. pumping stations may be required.

3.2.8 Services/Utility Diversions.

Like all similar civil engineering projects undertaken in large historic urban areas, it will be necessary to locate, uphold or divert numerous existing services/utilities. The full extent of such work cannot be known until detailed design stage, but every effort will be made to minimise the impact to existing services and the need for any diversions or outages. Such works will be particularly significant along the city quays on the central island.

3.2.9 Culverts

The scheme involves the culverting or repair to culverts on a number of minor watercourses.

The design standard for culverts of have been established in consultation with the Office of Public Works.

Generally, culverts are constructed directly along the line of the watercourse being culverted and are not offset. However, there may be minor realignments. To prevent contamination of watercourses by silting, each watercourse will be either over pumped or temporarily diverted during the construction. All storm culverts flowing into the River Lee will be fitted with non-return valves.

The scheme will include construction or upgrade of new culverts at the following locations:

Table 3.1 Culvert Works

Location	Chainage	Description
Townland: Coolyduff	C01_13180 to C01_13200	Proposed 0.9m diameter concrete pipe culvert **20m** to be constructed under the proposed embankment. Culvert is to tie into the existing culvert at the western end. The existing culvert (**68m**) is to be pressurised during a flood event.
Townland: Lackenshoneen	C01_12861	Existing stream to be culverted. The **25m** culvert will be pressurised during a flood.
Lee Road	C01_5793	Existing culvert to be pressurised during a flood event (**17m**). Existing stream to be culverted in a 2.0m wide by 1.2m high rectangular culvert. This **17m** culvert will be pressurised during a flood event.
North City Link Road	C06_250 to C06_10	Existing **126m** culvert to be pressurised during flood event. Existing bridge joints (approximately 11 joints) to be resealed to prevent upward seepage.

Phoby's Quay	C02_1300	Existing **90m** culvert to be pressurised during a flood event. Repairs to the existing culvert and work to internal joints to be carried out where necessary. All drainage outfalls to be fitted with non-return valves.
Wandesford Quay	C03_0 to C03_135	Existing **105m** culvert to be pressurised during a flood event. Repairs to the existing culvert and work to internal joints to be carried out where necessary. All drainage outfalls to be fitted with non-return valves.

3.2.10 Bridges

Works are proposed to five bridges; three bridges require modification to the existing structure while one bridge will be a replacement vehicular bridge for the existing footbridge to be demolished.

Table 3.2 Bridge Works

Bridge	Chainage	Description
Clontarf Bridge	C02_250	Four no. proposed demountable pedestrian access gates to flood defence level of 3.50mOD across footpaths along Clontarf Bridge (no pedestrian access during flood event). Existing bridge structure to be modified to incorporate steel flood defence upstand circa 0.5m high to 3.50mOD between road and footpath.
Footbridge at Kingsley hotel/ Sacred Heart	C02_3540	Existing footbridge to be removed and replaced with a vehicular bridge adjacent to proposed flow control structure.
Brian Boru Bridge	C01_2050	Proposed steel flood defence parapet is to be constructed along bridge footpath to flood defence level of 3.50mOD. Parapet is to tie in with bridge steelwork. Demountable defences fitted along both footpaths to maintain historical bridge railings. Flooding will be contained on the bridge footpaths during a flood event.
Christy Ring Bridge	C01_2525	The existing steel bridge railing/parapet is to be removed and replaced with a new steel flood defence parapet, solid to flood defence level of 3.80mOD on west parapet with open railing above to 1.2m guarding height, to be sympathetic to existing bridge architecture.
Griffith Bridge	C01_3025	The existing steel bridge railing/parapet is to be removed and replaced with a new steel flood defence parapet, solid to flood defence level of 4.35mOD with open railing above to 1.2m guarding height, to be sympathetic to existing bridge architecture.

3.2.11 Services/Utility Diversions.

It will be necessary to locate, uphold or divert numerous existing services/utilities. The full extent of such work cannot be known until detailed design stage, but every effort will be made to minimise the impact to existing

services and the need for any diversions or outages. Such works will be particularly significant along the city quays on the central island.

3.3 ANTICIPATED CONSTRUCTION METHODS

3.3.1 Pre- Construction Works

The construction works will be preceded by geotechnical investigations, which will consist of a mixture of shell and augur boreholes, cable percussive boreholes, rotary drilled boreholes, trial pits and slit trenches at the locations of the proposed structures. In addition, it is proposed that archaeological investigation works including testing and any follow-on resolution works will be undertaken prior to the main works contract commencing on site.

Pre-construction works will also include certain diversion works of services and utilities, including electricity, gas, telecommunications, watermains and other sanitary services. Due to the nature of some of the diversions a number of these service diversions will only be possible during the main construction works.

Advanced tree clearance, hedgerow clearance, invasive species management, and fencing contracts may also be undertaken, dependant on the anticipated seasonal timing of the award of the main contract. If appropriate, these advance works contracts would be used as a means to clear the site of vegetation during permitted seasonal periods so as to enable the main construction contract to proceed with reduced impediment on the main works.

3.3.2 Main Construction Works

The main construction will involve the excavation and placement of material for the construction of embankments, walls, pump stations and flood control measures as well as the haulage of material and importation of materials to complete the flood scheme. Material will be required for the following:

- Embankments – construction of earthen embankments, made up of suitable cohesive materials such clays, which is clean, inert and uncontaminated, ideally locally sourced; supported by topsoil and unbound or bound trackways
- Structures – the construction of retaining/flood walls, piling works, pumping stations, construction of bridge and bridge elements including their foundations, piers, abutments and parapets
- The diversion and construction of utilities and services.
- Road works – sub base and base construction, bituminous pavement surfacing
- Ancillary reinstatement roadworks including the installation of public lighting, signage and road marking.

3.4 NATURA 2000 SITES

3.4.1 Designated Sites in the Vicinity of the Project

Section 3.2.3 of the Guidance for Planning Authorities states that the approach to screening can be different for different plans and projects and will depend on the scale and the likely effects of the project. A key variable that will determine whether or not a particular Natura 2000 site is likely to be negatively affected is its physical distance from the project site.

Furthermore, UK guidance (Scott Wilson et al., 2006) state that a distance of 15km is currently recommended in the case of plans. For projects, the distance could be much less than 15km and in some cases less than 100m, similary the activity may have an influence on works beyond 15km, but this must be evaluated on a case-by-case basis.

Given the nature of this project and the proposed construction methodology it is considered for the purpose of this screening exercise that the likely zone of impact is the zone immediately around the site of construction and both upstream and downstream of the site. However given the influence of ESB management at Innishcarra and Carrigadroghid Dams on upstream aquatic environments, European sites upstream of the works (i.e. upstream of Carrigadrohid Dam) is also considered for a distance of 20km.

A review of the National Parks and Wildlife Service database has identified the following Natura 2000 sites as potentially impacted by the proposed project, being in proximity, upstream or downstream of the works (See Figure 4.1):

- Great Island Channel SAC (Site Code:004219)
- Cork Harbour SPA (Site Code 004030)
- The Gearagh SAC (Site Code 000108)
- The Gearagh SPA (Site Code 004109)

3.4.2 Description of Natura 2000 sites and current trends in the absence of the proposed scheme.

Great Island Channel SAC

Stretching from Little Island to Midleton, with is southern boundary being framed by Great Island, Great Island Channel is a minimum distance of 9km by surface water from the proposed works.

The site 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. The site is designated as an SAC for the following Conservation Interests:

- Tidal Mudflats and Sandflats
- Atlantic Salt Meadows

Tidal Mudflats and sandflats are made up of mixed sediment to sand mud with polychaetes and oligochates community complex and are recorded throughout the intertidal and into the shallow subtidal area at this site. The closest area of mudflats and sandflats not covered by sea water at low tide are located over 9km from the proposed works.

The overall objective for Atlantic salt meadows in Great Island Channel SAC is to restore the favourable conservation condition. A total (ha) of Atlantic Salt meadows (including mosaics) within the SAC boundary is 18.90ha and is found at Harpers Island, Carrigtohil, Foaty, Bawnard.

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 Cork Harbour SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel (north of Great Island), the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poulnabibe inlets (NPWS, 2008). Cork Harbour SPA is an internationally important wetland

site regularly supporting over 20,000 wintering waterbirds. In addition to the total number of winter waterbirds it supports, Cork Harbour is internationally important for its populations of black-tailed godwit (*Limosa laponica*) and redshank (*Tringa totanus*) and of national importance for populations of 18 other species. The shelduck (*Tadorna tadorna*) population is the largest in the country with over 10% of the national total.

The following species are listed as conservation objectives for the SPA:

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

The Gearagh SAC

The Gearagh SAC is an area of woodland, river and reservoir in a wide, flat valley of the River Lee. It is noted for its alluvial and wet woodland within an anastomosing channel and is the only such site remaining

in Ireland or Great Britain. The alluvial woodland occurs on islands between the streams. The SAC is selected for four habitats listed on Annex I of the EU Habitats Directive:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]
- Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation [3270]
- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0]
- *Lutra lutra* (Otter) [1355]

The Gearagh woodland formerly extended to Lee Bridge, however, the area between that bridge and upstream of Annahala Bridge was felled and subsequently flooded for the River Lee hydro-electric scheme. The scheme was constructed during the period 1952 to 1957 and includes dams at Innishcarra and Carrigadrohid that created reservoirs stretching for approximately 23 km from the Gearagh to Innishcarra.

The Gearagh SPA

Located approximately 2km south west of Macroom, the SPA extends from Annahala bridge westwards to Toon Bridge. The principal habitat is a shallow lake or reservoir which is fringed by wet woodland, scrub and grassland that is prone to flooding. The Gearagh is a Nature Reserve, a Ramsar Convention site and a Council of Europe Biogenetic Reserve. The site is designed for the following birds:

- A050 Wigeon *Anas penelope*
- A052 Teal *Anas crecca*
- A053 Mallard *Anas platyrhynchos*
- A125 Coot *Fulica atra*

As Part of this screening assessment each conservation objective has been examined in turn to determine its zone of influence regarding the level of work proposed as part of the project and the nature of the conservation objective. With this consideration, conservation objects can be screened out at an early stage of development to allow for a focused Natura Impact Statement (if required) assessing the impact on those conservation objectives that are screened in. See Table 4.1 a list of the conservation objectives and treats/pressures for each European Site.

Table 4.1 Natura 2000 Sites and their Conservation Objectives, Habitats and Treats

Site Name	Code	Conservation Objectives	Threats to SAC / SPA (NPWS)
004030 Cork Harbour SPA	To maintain the favourable conservation condition of the following bird species:		
	A004	little grebe *(Tachybaptus ruficollis*	**Negative impacts** <u>High ranking threats</u> ▪ Urbanised areas, human habitation (outside) ▪ Roads, motorways (outside) ▪ Port areas (outside) ▪ Industrial or commercial areas (outside) ▪ Marine & freshwater aquaculture <u>Medium ranking threats</u> ▪ Walking, horse riding & non-motorised vehicles (inside) ▪ Skiing, off-piste (inside) ▪ Shipping lanes (inside) ▪ Fertilisation (outside) ▪ Nautical sports (inside) ▪ Leisure fishing (inside) <u>Low ranking threats</u> ▪ Dispersed habitation (outside) **Positive Impacts** <u>High ranking</u> ▪ Dispersed habitation (outside) <u>Medium ranking</u> ▪ Shipping lanes (inside) ▪ Leisure fishing (inside) ▪ Nautical sports (inside) <u>Low ranking:</u> ▪ Dispersed habitation (outside)
	A005	great crested grebe *(Podiceps cristatus)*	
	A017	cormorant *(Phalacrocorax carbo*	
	A028	grey heron *(Ardea cinerea)*	
	A048	shelduck *(Tadorna tadorna*	
	A050	wigeon *(Anas penelope*	
	A052	teal *(Anas crecca*	
	A054	pintail *(Anas acuta)*	
	A056	shoveler *(Anas clypeata*	
	A069	red-breasted merganser *(Mergus serrator)*	
	A130	oystercatcher *(Haematopus ostralegus)*	
	A140	golden plover *(Pluvialis apricaria)*	
	A141	grey plover *(Pluvialis squatarola)*	
	A142	lapwing *(Vanellus vanellus)*	
	A149	dunlin *(Calidris alpina)*	
	A156	black-tailed godwit *(Limosa limosa)*	
	A157	bar-tailed godwit *(Limosa lapponica)*	
	A160	curlew *(Numenius arquata)*	
	A162	redshank *(Tringa tetanus)*	
	A164	greenshank (*Tringa nebularia*)	
	A179	black-headed gull *(Chroicocephalus ridibundus)*	
	A182	common gull *(Larus canus)*	
	A183	lesser black-backed gull *(Larus fuscus)*	
	A193	common tern *(Sterna hirundo)*	
	A999	wetland habitat in Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it	

Site Name	Code	Conservation Objectives	Threats to SAC / SPA (NPWS)
001058 Great Island Channel SAC	1140	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater	**Negative impacts** High ranking: ▪ Roads/motorways (inside) ▪ Urbanised areas, human habitation (outside) ▪ Marine & freshwater aquaculture (inside) ▪ Reclamation of land from sea, estuary or marsh (inside) Medium ranking: ▪ Grazing (inside) ▪ Fertilisation (inside) ▪ Eutrophication (inside) **Positive impacts** Medium ranking: ▪ Grazing (inside)
	1130	To restore the favourable conservation condition of Atlantic salt meadows (GlaucoPuccinellietalia maritimae)	
000108 The Gearagh SAC	To maintain the favourable condition of:		
	1355	Otter *Lutra lutra*	**Negative impacts** High Ranking ▪ Human induced changes in hydraulic conditions (changes in waterbodies conditions) ▪ diffuse pollution to surface waters due to agricultural and forestry activities **Positive impacts** Low Ranking: ▪ None
	3260	Water courses of plain to montain levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	
	3270	Rivers with muddy banks with Chenopodion rubric p.p. and Bidention p.p. vegetation	
	91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	
	91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	
004109 The Gearagh SPA	To maintain or restore the favourable conservation condition of:		**Negative** High Ranking: ▪ Human induced changes in hydraulic conditions (changes in waterbodies conditions) ▪ Flooding modifications
	A080	Wigeon (Anas penelope)	
	A052	Teal (Anas crecca)	
	A053	Mallard (Anas platyrhynchos)	
	A125	Coot (Fulica atra)	

Site Name	Code	Conservation Objectives	Threats to SAC / SPA (NPWS)
		Wetland habitat as a resource for the regularly-occurring migratory waterbirds that utilise it.	Medium Ranking: ▪ Grazing by livestock Low Ranking: ▪ Hunting **Positive** High Ranking: ▪ Grazing by livestock ▪ Human induced changes in hydraulic conditions (changes in waterbodies conditions Medium ▪ Grazing by livestock

4 POTENTIAL IMPACTS ON NATURA 2000 SITES

In order to determine whether the project is likely to have a significant impact then the project and its potential impacts are assessed and followed by a determination of whether there is a risk that the effects identified could be significant. If the effects of a proposal are deemed to be significant, potentially significant or uncertain, or if the screening process becomes overly complicated then the process must proceed to a full Appropriate Assessment and the provision of a Natura Impact Statement.

There are a number of potential source » pathway » receptor chains, which could impact on the conservation objectives within the zone of influence of the proposed works.

Great Island Channel SAC and Cork Harbour SPA are located within 15km of the proposed Lower Lee (Cork City) Drainage Scheme. The Gearagh SAC and The Gearagh SPA are located > 20km upstream the proposed Scheme, however they are included within the screening for AA as they are considered to be within the zone of influence of the proposed Scheme during its operational stage (due to the potential for impacts on water levels as a result of the hydrological regime at Innishcarra and Carrigadrohid Dams).

Cork Harbour SPA comprises most of the main intertidal areas of Cork Harbour it is is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl.

The Great Island Channel SAC is located >9 km downstream of the works area. It stretches from Little Island to Middleton, with its southern boundary being formed by Great Island. The site is a Special Area of Conservation (SAC) selected for Tidal Mudflats and Sandflats and Atlantic Salt Meadows

The Gearagh SAC is located > 20km upstream of the proposed Scheme. The Gearagh has formed where the River Lee breaks into a complex network of channels (2 to 6 m wide) weaving through a series of wooded islands. The Gearagh represents the only extensive alluvial woodland in Ireland or west of the Rhine in Europe. The international importance of the site is recognised by its designation both as a Ramsar site and as a Biogenetic Reserve. The reservoir is also a Wildfowl Sanctuary (NPWS, 2013).

The Gearagh SPA extends from Annahala Bridge westwards to Toon Bridge and the following are designated as conservation interests: wigeon, teal, mallard and coot. The site supports nationally important populations of these species.

In assessing the proposed project the following general potential impact have been considered with regard to the screening for impact on the conservation objectives of the Natura 2000 sites:

- Drawing down or increasing water levels at the Gearagh.
- Runoff or water quality impact due to site investigation and construction phase works, including construction of new culverts, regrading of roads and bridges, construction of new flood walls and earthen embankments, construction of flow control, drainage works etc.
- Spread of invasive species downstream as a result of disturbance during site investigation and construction works, and maintenance activities during the operational stage.

Cork Harbour SPA

There will be no direct habitat loss within a Natura 2000 site as a result of the Lower Lee (Cork City) Scheme as the nearest Natura 2000 site, i.e. Cork Harbour SPA is located > 4km downstream of the proposed works. Similarly, there will be no disturbance to the wintering and breeding bird species which are Special Conservation Interests for Cork Harbour SPA. Protected foraging and roosting sites for these species within the SAC are located >4km downstream of the proposed works, however, bird species of special conservation

interest may utilise foraging and roosting sites upstream and outside of the SPA on the River Lee, e.g. oystercatcher are known to utilise the amenity grassland in the Lee Fields for foraging and are often seen flying upstream to suitable wet grassland outside of the SPA. Similarly heron and cormorant are known to utilise the Lee outside of the SPA. Large numbers of cormorants are known to use areas in proximity to Maradyke Bridge in the summer months. Any disturbance of foraging grounds will be temporary and small scale given the overall availability of habitat in the River Lee and downstream in the SPA. In addition, works within Cork City are located in highly urbanised and industrialised area where the level of disturbance is high and habituation to this disturbance is expected. Seasonal restrictions will be imposed in works areas (See also EIS for the Scheme) where SPA designated birds e.g. oyster catchers, cormorants are known outside of the SPA.

Cork Harbour SPA could potentially be impacted by the proposed Project via surface water pathways e.g. silt laden run off or other pollutants from the site which may enter watercourses or which may enter the storm drain network out falling into adjacent watercourses or via groundwater pathways e.g. percolation of pollutants into groundwater bodies. Cork Harbour SPA is connected to the proposed works areas by the adjacent River Lee. The nature and scale of the works within the city determine that the potential for impact on the SAC is not significant, the small scale of works is likely to produce a very limited impact on water quality which will be controlled by standard pollution control measures implemented during the construction phase. The impact of pollution impact is therefore considered imperceptible some 4km downstream of the works.

Invasive species are prolific along the River Lee and are located in places where works are proposed. Where required, an invasive species management plan will be prepared prior to commencement of the project construction. Biosecurity measures will be put in place as part of standard best practices during the construction phase of the scheme (See EIS for futher details on impact and mitigation). The impact of invasive species therefore is considered imperceptible within the SPA.

Great Island Harbour SAC

Great Island Harbour SAC is located a minimum distance of 9km by surface water from the proposed works. Great Island Channel SAC is also connected to the proposed works by the River Lee. The River Lee at the locations of the proposed works supports a number of water dependent Annex I habitats and Annex II species, however, it does not support any Qualifying Interests which are listed in the conservation objectives for Great Island Channel SAC. In addition, potential impacts, if any, on the habitats of Qualifying Interest in the Great Island Channel SAC, 9km downstream from a project of this nature and scale, would be considered imperceptible, in particular given the designations of Annex I habitats "Mudflats and sandflats not covered by seawater at low tide and Atlantic Salt meadow. Therefore, the assessment of any likely significant impacts and proposed avoidance and best practice pollution control measures will serve to protect the Great Island Channel SAC. As for Cork Harbour SPA above, the risk from invasive species is limited. Invasive species that are likely to significantly impact on the habitats present in the Great Island Harbour SAC (e.g. Spartina) are not present within the works area.

Given (1) the nature and scale of works; (2) the intention to implement best practice construction and operational design, standards and guidelines; and (3) distance by land and water there is no known vector, pathway or conduit for pollution between the proposed Project and Great Island Channel SAC. Therefore, the proposed works are highly unlikely to have any significant direct or indirect impacts on this Natura 2000 site.

The Gearagh SAC and SPA

The Gearagh SAC is located approximately 9.5km upstream from Carrigadrohid Dam while the SPA is located a further 1.3km from this. The sites are connected to the proposed flood scheme by the River Lee. The Natura 2000 form for the Gearagh SAC has identified threats, pressures and activities for the site which include the most important impacts and activities that have effects on the site. A high-ranking impact both positive and negative for the Gearagh SAC and SPA is listed as: Human induced changes in hydraulic conditions (changes in waterbodies conditions) and Flooding modifications.

As the European Sites are located upstream only hydraulic impacts (such as the effects of draw down) are considered when assessing the Gearagh SAC and SPA.

It is proposed that the ESB will continue to operate the dams at Carrigadrohid and Innishcarra as is at present for the majority of the time. However continuous monitoring and simulation of predicted rainfall will allow potentially significant flood events to be detected in advance. When a potentially significant event is detected by the forecasting system, the 'flood protocol' will be triggered and the reservoir levels can be safely drawn down to create storage in advance of the event. The following considerations have been included in the proposed flood forecasting system and dam operations:

- The normal range of operating levels in the dams are not amended.
- Minimum and maximum reservoir levels and/or seasonal variations in same, have not been amended so as to avoid impacting existing environmental receptors/constraints such as levels in the Gearagh, water supply requirements, fish life etc.
- The maximum draw down rate limit at Carrigadrohid remains for road embankment safety reasons.

It is therefore considered that, all but in extreme flood events, there will be no change to the levels of water in the Gearagh SAC and SPA and no impact is predicted as part of the proposed Lowe Lee (Cork City) Drainage Scheme.

4.1 CUMULATIVE IMPACTS WITH OTHER PLANS/PROJECTS

In order to fully assess the potential impact of the proposed development on Natura 2000 sites, the project must be assessed alone or in combination with existing activities and proposed plans for the region. Myplan.ie, Cork County Development Plan 2014 – 2020 and Cork City Development Plan 2015 - 2021 were consulted in order to determine if there were any other plans or projects in the area which could result in cumulative impacts.

The River Bride (Blackpool) Certified Drainage Scheme previously formed part of the larger Lower Lee (Cork City) Drainage Scheme, which is now divided into two Schemes. The River Bride (Blackpool) Certified Drainage Scheme is currently at public consultation stage. Both schemes are outside of any Natura 2000 site, the River Bride has been Screened for Appropriate Assessment and given its scale, location and distance from a European Site determined that alone and in combination with any other plans or projects (including this scheme) has no potential to impact on a Site.

The Lower Lee (Cork City) Drainage Scheme and the River Bride (Blackpool) Certified Drainage Scheme are identified within the Cork City Development Plan in order to address the flooding in the lower reaches of the River Lee and the River Bride in Blackpool and Ballyvolane. The Plan has been subject to Flood Risk Assessment and Appropriate Assessment Screening.

An AA Screening report was prepared for the Cork City Development Plan which identified the following potential impacts on the Cork Harbour SPA and the Great Island Channel SAC as a result of the implementation of the development plan:

- Direct loss of habitat from construction of new residential and other developments to cater for an increasing population within Cork's administrative area;
- Reduction in water quality due to new WWTP;
- Damage / Degradation of Habitats and Disturbance to Species due to construction and development activities in close proximity to Cork Harbour SPA;
- Reduction in water flows;
- Spread of invasive alien species disturbed during construction activities.

No developments within the Cork City Development Plan are proposed for within the boundaries of Cork Harbour SPA, therefore no direct loss of habitat through land take or fragmentation is anticipated. There are no plans for the construction of any major infrastructure. According to the AA Screening report "*it is the aim of the Council to ensure that the EU Water Framework Directive is implemented. This objective is to ensure that development would not have an unacceptable impact on water quality and quantity, which includes surface water, ground water, designated source protection areas, river corridors and associated wetlands, estuarine waters, coastal and transitional waters. Such water quality objectives will ensure that the River Lee, its tributaries, Cork Harbour SPA and Great Island Channel SAC are protected, and therefore, will not result in any indirect impacts on the Natura 2000 sites*". Measures to control and prevent the introduction and establishment of ecologically damaging alien invasive species, such as good site hygiene practices for the movement of materials into, out of and around the site and ensuring that imported soil is free of seeds and rhizomes of invasive plant species, will also be implemented as part of the development plan. The AA Screening concluded that there would be no negative impacts on Cork Harbour SPA or Great Island Channel SAC as a result of the development plan.

Cork County Development Plan does not propose any plans that have the potential to impact on the Gearagh SAC and SPA or Cork Harbour SPA and Great Island Channel SAC. An AA Screening for the development plan was carried out whereby the Gearagh SAC was screened out for impact at the draft development plan stage. The draft Plan was amended to ensure that there would be no impact on the Gearagh SPA when considering wind energy policy and provision of waste water infrastructure.

Cork Harbour SPA and Great Island Channel SAC were brought forward for NIS due to the potential for impacts identified relating to Port Activities. A series of objectives and policies have been put in place in order to protect the site from activities and development. There is no in combination impact as a result of the proposed Drainage Scheme.

Other plans and projects within the region include:

- Regional Planning Guidelines for the South-West Region 2010-2022;
- South-Western River Basin Management Plan 2009-2015;
- Cork Area Strategic Plan Update 2008;
- Draft Mahon Local Area Plan 2014-2020;
- South Docks Local Area Plan 2008-2018;
- Farranferris Local Area Plan 2009-2015;
- North-West Regeneration Masterplan2011;
- Water Services Investment Programme;

- IPPC Programme;
- Local Authority Discharge;
- Groundwater Pollution Reduction Programmes;
- Surface Water Pollution Reduction Programmes;
- Draft Lee Catchment Flood Risk Assessment and Management Study.

The plans identified above include policies and objectives aimed at protecting the natural environment, including Natura 2000 sites and all projects likely to have a significant effect on Natura 2000 sites will be subject to Appropriate Assessment Screening and projects will only be approved if they comply with the Habitats Directive. No other pathway has been identified by which any of the plans and programmes identified could have a significant 'in combination' effect on any of the Natura 2000 sites identified.

Furthermore, project/site specific best practice measures will be implemented for the site investigation and construction works and operational stage of the Lower Lee (Cork City) Drainage Scheme in order to avoid pollution and/or sedimentation of watercourses as a result of run-off from construction activities. Measures will also be put in place to ensure non-native invasive species within the works area are not disturbed and spread as a result of the proposed works. Where required, an invasive species management plan will be prepared with proposals for advanced works contracts (where necessary) in order to eradicate existing invasive species infestations. Therefore, no "in-combination" effect on any Natura 2000 site is anticipated as a result of the proposed project.

In consideration of Natura 2000 sites identified in Section 4 of this report, their qualifying interests and/or special conservation interests, trends, threats and pressures to the site and the nature of the proposed development, Table 5.1 below provides an assessment of the potential impact of the development on Natura 2000 sites and their conservation objectives in order to "Screen out the development from further assessment or determine the need for Natura Impact Assessment".

Table 5.1: Assessment of potential impacts on Natura 2000 sites

European Sites (SAC, SPA)	Qualifying Interest (Conservation Objective)	Presence within the SPA/Zone of influence	Potential Impact	In combination Impact	Screened for AA (NIS)
Cork Harbour SPA	Little grebe *(Tachybaptus ruficollis)*	Foraging and roosting sites within the SPA > 4km downstream. Species such as Grey Heron and Cormorant are likely to use the Lee within the footprint of the works, (outside of the SPA) however the main site for designated roosting and foraging sites is within the SPA. Oyster catcher are known to use the Lee Fields.	No predicted impact. SPA site is located > 4 km downstream of the proposed works. Reductions in sediment release not considered significant at known roosting sties. While many birds protected within the SPA will be found using the River Lee upstream of the SPA and where works are proposed they are habituated to disturbance and will not be significantly impacted by disturbance during the construction phase. Furthermore seasonal restrictions will be put upon the works where there is likely disturbance (See EIS for futher details and mitigation measures). There will be no works permitted during winter (October to March) in the Lee Fields in order to avoid disturbance to Oyster catcher. Proposed works in proximity to roosting cormorents will be surveyed prior to the commencement of works and will not commenceme withouth prior approval from the site ecologist.. Futhermore timber hoarding will be used on all works where there is likely visual and noise related disturbance.	None anticipated	Screened out
	Great crested grebe *(Podiceps cristatus)*			None anticipated	Screened out
	Cormorant *(Phalacrocorax carbo)*			None anticipated	Screened out
	Grey heron *(Ardea cinerea)*			None anticipated	Screened out
	Shelduck *(Tadorna tadorna)*			None anticipated	Screened out
	Wigeon *(Anas penelope)*			None anticipated	Screened out
	Teal *(Anas crecca)*			None anticipated	Screened out
	Pintail *(Anas acuta)*			None anticipated	Screened out
	Shoveler *(Anas clypeata)*			None anticipated	Screened out
	Red-breasted merganser *(Mergus serrator)*			None anticipated	Screened out
	Oystercatcher *(Haematopus ostralegus)*			None anticipated	Screened out
	Golden plover *(Pluvialis apricaria)*			None anticipated	Screened out
	Grey plover *(Pluvialis squatarola)*			None anticipated	Screened out

European Sites (SAC, SPA)	Qualifying Interest (Conservation Objective)	Presence within the SPA/Zone of influence	Potential Impact	In combination Impact	Screened for AA (NIS)
	Lapwing *(Vanellus vanellus)*			None anticipated	Screened out
	Dunlin *(Calidris alpina)*			None anticipated	Screened out
	Black-tailed godwit *(Limosa limosa)*			None anticipated	Screened out
	Bar-tailed godwit *(Limosa lapponica)*			None anticipated	Screened out
	Curlew *(Numenius arquata)*			None anticipated	Screened out
	Redshank *(Tringa tetanus)*			None anticipated	Screened out
	Greenshank (*Tringa nebularia*)			None anticipated	Screened out
	Black-headed gull *(Chroicocephalus ridibundus)*			None anticipated	Screened out
	Common gull *(Larus canus)*			None anticipated	Screened out
	Lesser black-backed gull *(Larus fuscus)*			None anticipated	Screened out
	Common tern *(Sterna hirundo)*			None anticipated	Screened out
	Wetlands	Wetland habitat within the SPA present > 4km downstream	No potential impact downstream. No wetland habitat present within the works area.	None anticipated	Screened out

European Sites (SAC, SPA)	Qualifying Interest (Conservation Objective)	Presence within the SPA/Zone of influence	Potential Impact	In combination Impact	Screened for AA (NIS)
Great Island Channel SPA	Mudflats and sandflats not covered by seawater at low tide	Not present within the zone of influence of the proposed works.	No potential impact. No habitat present within the works area. Known habitat is present > 9km downstream of the works.	None anticipated	Screened out
	Atlantic salt meadows (GlaucoPuccinellietalia maritimae)			None anticipated	Screened out
The Gearagh SAC	Otter *Lutra lutra*	Annex I habitats and Annex II species protected within the designated SAC are approximately 9.5km upstream of the dam operations.	There will be no change to dam operations under normal conditions. Increases and decreases in water levels in the Gearagh are limited to prior to and during flood events, no impact outside of flood events will occur to water levels.	None anticipated	Screened out
	Water courses of plain to montain levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation			None anticipated	Screened out
	Rivers with muddy banks with Chenopodion rubric p.p. and Bidention p.p. vegetation			None anticipated	Screened out
	Old sessile oak woods with Ilex and Blechnum in the British Isles			None anticipated	Screened out
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)			None anticipated	Screened out

European Sites (SAC, SPA)	Qualifying Interest (Conservation Objective)	Presence within the SPA/Zone of influence	Potential Impact	In combination Impact	Screened for AA (NIS)
The Gearagh SPA	Wigeon (Anas penelope)	Annex I birds and associated wetland habitat are protected within the SPA over 10km above the dam operations	There will be no change to dam operations under normal conditions. Increases and decrease in water levels in the Gearagh are limited to the time preceeding and during flood events, no impact outside of this time will occur to water levels.	None anticipated	Screened out
	Teal (Anas crecca)			None anticipated	Screened out
	Mallard (Anas platyrhynchos)			None anticipated	Screened out
	Coot (Fulica atra)			None anticipated	Screened out
	Wetland habitat as a resource for the regularly-occurring migratory waterbirds that utilise it.			None anticipated	Screened out

5 CONCLUSIONS

Potential impacts during the proposed Lower Lee (Cork City) Drainage Scheme Construction and Operational Stage have been considered in the context of 4 European sites: Cork Harbour SPA, Great Island Channel SAC, the Gearagh SAC and the Gearagh SPA and their Conservation Objectives.

The evaluation undertaken has identified that there will be no potential significant impact on any Special Conservation Interests and their conservation objectives, either alone or in-combination with any other plans and projects, for European sites given their distance either downstream or upstream of the proposed works and due to the operational proposals for the scheme.

Therefore, as a result of the assessment carried out, it is considered that the conservation objectives for the Natura 2000 site will not be compromised by the works and operations of the Drainage scheme, nor will the proposal have any significant impact on the designated species for which it has been assigned.

As a result of the assessment carried out, it is the considered view of the author that the site investigation works, construction works and operational stage of the Lower Lee (Cork City) Drainage Scheme will have no potential adverse effect on the integrity of any of the Natura 2000 sites listed, and as such this report returns a conclusion that there is no potential for significant effects on a Natura 2000 site. The works can be screened out under the Habitats Directive as not requiring a Stage 2 Appropriate Assessment.