Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

UISCE ÉIREANN : IRISH WATER

Grand Canal Storm Water Outfall Extension

EIA Screening Report

June 2020

BARRY & PARTNERS
consulting engineers

CIVIL • STRUCTURAL • ENVIRONMENTAL • TRANSPORTATION

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SECTION 1: Introduction

The Grand Canal Tunnel was constructed in the early 1970's (Figure 1.1) in order to:

- Convey foul sewerage from the newly expanding suburbs in the west of the city to the Ringsend Wastewater Treatment Plant in Ringsend.
- Provide a conduit for the overflows from the existing combined foul and storm sewers.
- To convey storm relief flows from the Poddle and Swan Rivers thereby reducing the risk of flooding in those areas.

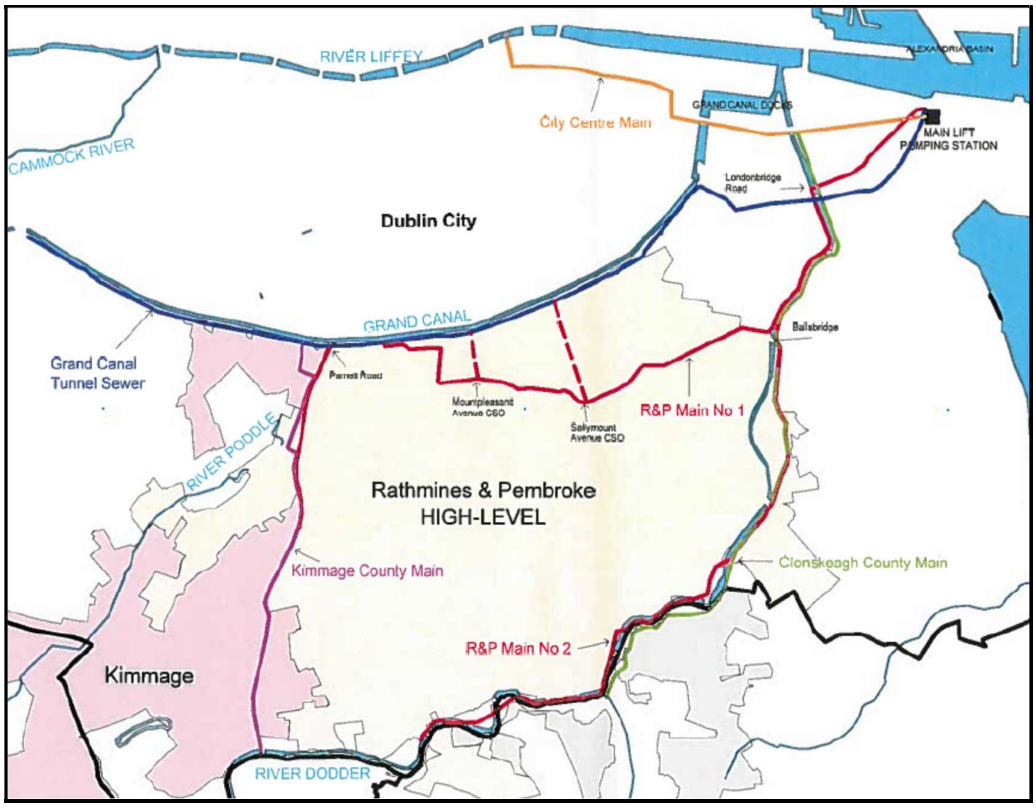

Figure 1.1 Grand Canal Tunnel

The existing tunnel is 4.8km in length and has a diameter of 3.6m in diameter. The tunnel is partitioned off into two separate sections. The smaller compartment of the cross section caters for the foul and with remaining larger section catering for storm water. At Northumberland Road (Manhole 1) the tunnel splits with the foul component being conveyed to Ringsend while the stormwater component is piped to the Grand Canal Basin in a 3.2m diameter pipe. The Basin, in this report refers to the waterbody within Grand Canal Docks. The Docks, in this report refers to the overall area encompassing the Basin, quayside, and surrounding area.

The Grand Canal Docks consists of an enclosed harbour where the Grand Canal terminates before it meets the River Liffey in Dublin, Ireland. This area is a hub of modern apartment buildings and office spaces which has been zoned as a Strategic Development Regeneration Area in the Dublin City Council Development Plan, 2016 – 2022. The development of water-based recreational activity within the Basin is part of the rejuvenation programme. During heavy rainfall events the flow in the foul element will exceed its capacity and will overflow to the storm compartment and discharge at the southern end of the Grand Canal Basin. Bacteriological contamination of the Basin (in excess of the bathing water standards) after heavy rainfall events has been identified by Waterways Ireland from water quality testing and they have urged Irish Water/ Dublin City Council to extend the outfall to the River Liffey as has been proposed.

Irish Water, Dublin City Council, and Waterways Ireland agreed, in 2017, to establish a Joint Working Group to examine the issue. Extensive water quality analysis and monitoring of the impact of the surface water overflows into the Basin from the Irish Water combined sewer network for a period of one year has demonstrated, to the satisfaction of the Working Group, that the primary source of pollution of the waters in the Basin is the discharge from the surface water section of the Grand Canal Tunnel.

Since the discharge cannot be closed off, a possible solution is to relocate the discharge point to a location outside the Basin. The preferred suitable alternative location for the discharge point is the River Liffey.

Dublin City Council and Irish Water have agreed to jointly complete the Planning and Statutory Approvals for the extension of the outfall pipe. Dublin City Council will be making the application. Irish Water have procured J. B. Barry and Partners as the consultant and Dublin City Council will provide a Project Manager.

J. B. Barry and Partners has been commissioned by Dublin City Council and Irish Water to prepare this Environmental Impact Assessment (EIA) Screening Report for the proposed development. The principal requirement of this report is to assist the Applicant in forming an opinion as to whether the proposed Grand Canal Dock Storm Water Outfall should be subject to an Environmental Impact Assessment and, if so, whether an Environmental Impact Assessment Report (EIAR) should be prepared in respect of the development.

This report presents the findings of an assessment to determine the requirement for an Environmental Impact Assessment (EIA) for the scheme. It has been prepared by J. B. Barry and Partners with the assistance of specialist environmental sub-consultants generally in accordance with the following guidelines:

- Department of Environment, Heritage and Local Government (DoEHLG), Environmental Impact Assessment (EIA) - Guidance for Consent Authorities regarding Sub-threshold Development, 2003.
- Department of Housing, Planning and Local Government (DoHPLG), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, 2018.
- EPA, Guidelines on the information to be contained in Environmental Impact Assessment Report – Draft, 2017
- European Commission, Environmental Impact Assessment of Projects, Guidance on Screening, 2017.

SECTION 2: Description of proposed development

2.1 Site location

The development is located in the Grand Canal Docks, Dublin, Ireland. This area is a hub of modern apartment buildings, and office and retail spaces which has been zoned as a Strategic Development Regeneration Area (SDRA) in the Dublin City Council Development Plan, 2016 – 2022, see Figure 2.1. The area is also known as a Key Developing Area (KDA) within the Development Plan and also a Strategic Development Zone (SDZ) within the North Lotts and Grand Canal Planning Scheme, 2013.

The project will begin at its most southern point in the Grand Canal Docks at the Grand Canal Tunnel Outfall. The works will involve constructing a pipeline from the Grand Canal Tunnel Outfall, near the Grand Canal Dock Dart Station, north through the Basin where it will pass through a section of Hanover Quay. It will then link up with an existing culvert on Asgard Road, built in 2002 for the purposes of this project. At the end of this existing culvert, pipeline will be constructed underneath Sir John Rogerson's Quay and an outfall at the River Liffey. The storm water will therefore have bypassed its previous outfall within the Basin and will terminate in the River Liffey/ Lower Liffey Estuary.

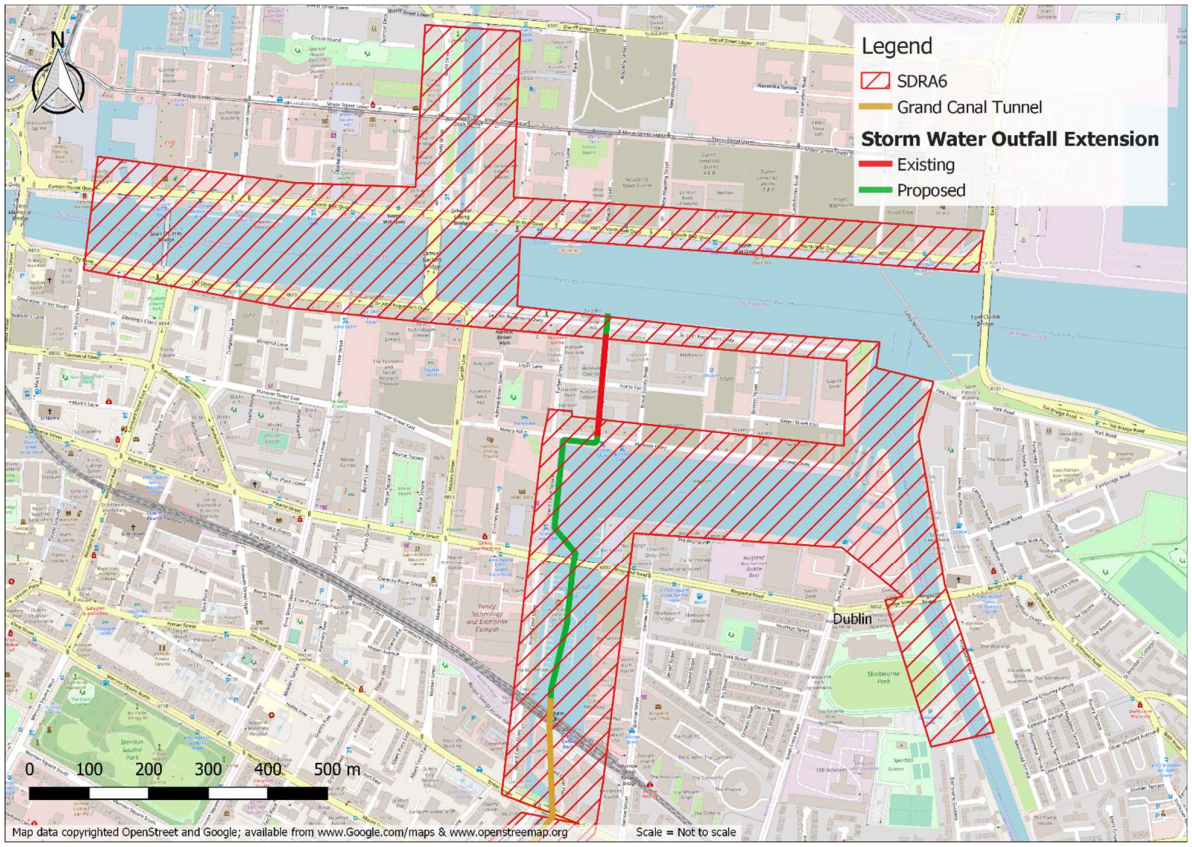

Figure 2.1 Site Location in context of the Strategic Development Regeneration Area (Dublin City Council Development Plan, 2016)

The Grand Canal Docks are set in an urban environment (Figure 2.2) and the proposed development interacts with properties zoned as:

- SDRA6.
- Conservation Areas.
- Z6 "to provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

- Z15 "to seek the social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and "Z6" would be the predominant uses".

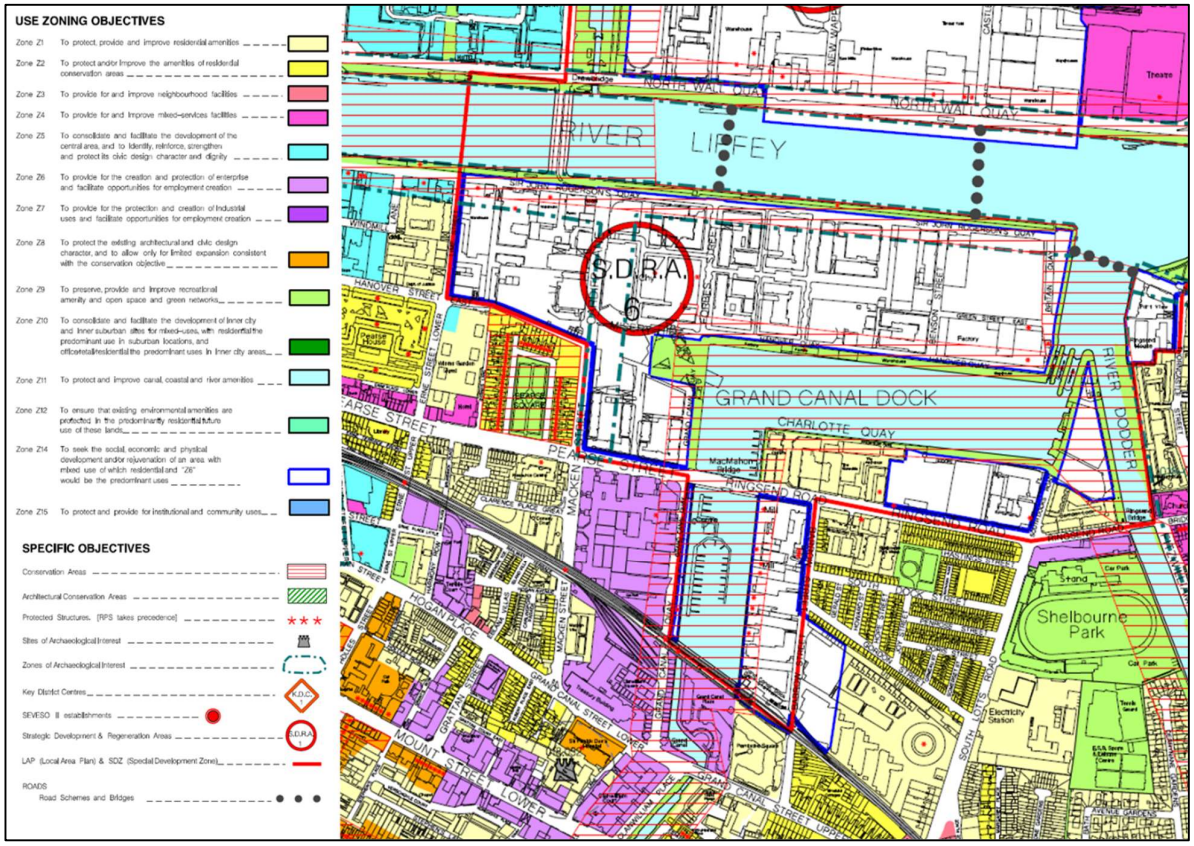

Figure 2.2 Map extract from Dublin City Development Plan 2016 - 2022 Map E Use Zoning Objectives (DCC, 2016)

2.2 Description of the proposed works

The proposed works for the scheme consists of the following:

- Construction of Transition Chamber 1 at chainage Ch.+0m (Starting at southernmost point of development at existing storm water outfall.
- Construction of 5.0m x 1.5m diameter pipes from chainage Ch.+7.26 – Ch.+310.00m.
- Construction of Transition Chamber 2 at chainage Ch.+310.00 – Ch.+320.00m.
- Construction of Twin 2.4m dimeter pipes from chainage Ch.+320.00 – Ch.+490.00m.
- Construction of Transition Chamber 3 at chainage Ch.+490.00m.
- Construction of 4m wide 2.7m high (internal diameter) pipe on Hanover Quay.
- Construction of new outfall structure at Sir John Rogerson's Quay on the River Liffey.

The total length of the pipeline to be constructed is 550m. The proposed works involve 450m of development on the silt bed of the Basin within the Grand Canal Docks, and 100m along existing road and pedestrian infrastructure, see Figure 2.3 to Figure 2.4. The bed of the Basin is largely flat and gentle undulating; a maximum depth of 3.9m was observed by the Archaeological Diving Company (ARDCO) during a dive survey completed in 2008.

Three temporary cofferdams will be built at each of the transition chambers including;

- Transition Chamber 1 at the existing Grand Canal Tunnel Outfall;

- Transition Chamber 2 at the transition point from the 5 No. 1.5m diameter pipeline to 2 No. 2.4m diameter pipeline; and
- Transition Chamber 3 at Hanover Quay.

The route is proposed to traverse underwater through the centre of the southern portion of the Basin, pass underneath the MacMahon Bridge, then bear close to the western wall of the Basin. The pipeline will enter Transition Chamber 3 at Hanover Quay and will run underground along the quay before adjoining with the existing pipeline on Asgard Road, see drawings Appendix A.

Particular constraints for the construction phase of the project include:

- Meeting canal draught requirements in terms of navigation; 1.9m minimum clearance.
- Avoiding the existing >100years old 8foot (2.4m) diameter sewer underneath the Basin.
- Minimising discharge velocities into the River Liffey.
- Minimising risk of damage to the extension pipe which could cause rapid drawdown of the Grand Canal Basin.

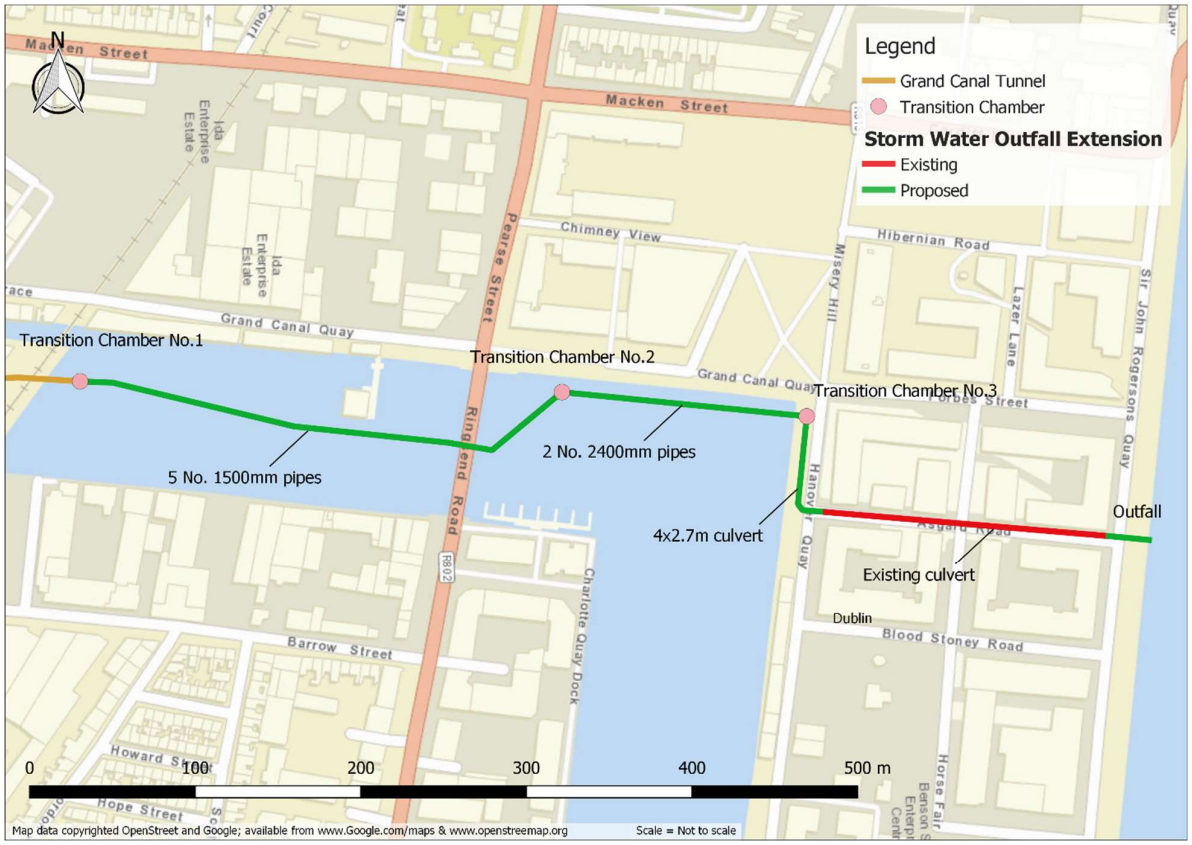

Figure 2.3 Grand Canal Storm Water Outfall pipeline within the Grand Canal Docks

The proposed development will result in the intermittent discharge (rainfall related) of polluted combined sewage stormwater overflow from the south Dublin Sewer system to the River Liffey. These discharges will contain high concentrations of Faecal Coliform, BOD, Nutrients and Suspended Solids.

The capacity of the proposed culverts was checked using the outputs from the Greater Dublin Strategic Drainage Study (GDSDS) and modelled using InfoWorks.

- 1 in 1 year storm (9.7m^3/s flow) with the modified 100 year tide (i.e. estimated future 100 year tide (3.4mOD Malin Head) and;
- 1 in 20 year storm (18.6m^3/s flow) and a MHWS tide (2.25mOD Malin Head).

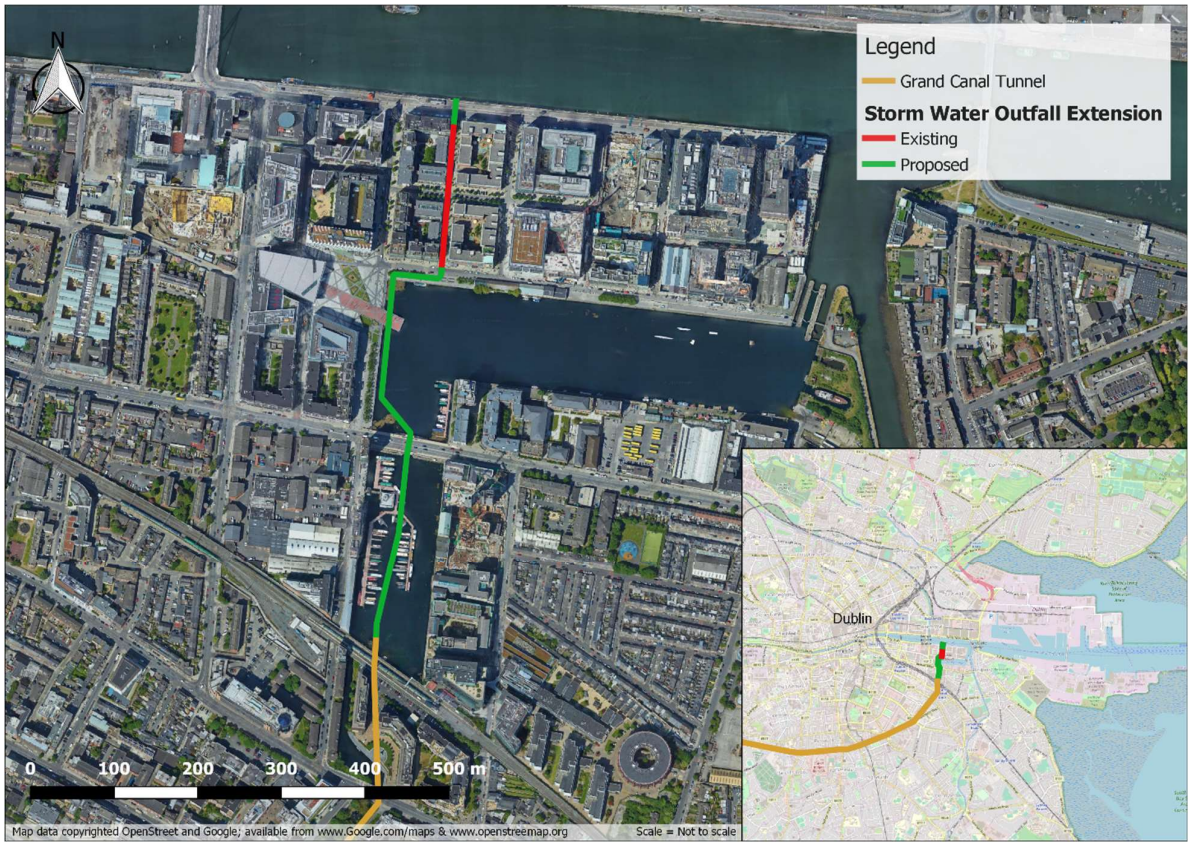

Figure 2.4 Overview of Grand Canal Storm Water Outfall Pipeline

2.3 Need for the scheme

In the early 1990's, arising from development and upgrading of the Grand Canal Docks and its environs, the Office of Public Works (who had responsibility for dock maintenance/operation) requested that the storm water discharge from the Grand Canal Tunnel be removed from the Docks. A study, carried out by J. B. Barry and Partners in 1992, identified possible alternative options for re-routing the storm water discharge away from the Docks into the River Liffey. A preferred option was identified, cost estimates were prepared, and a report submitted recommending implementation of the proposed works.

In October 2000 Dublin Corporation instructed J. B. Barry and Partners to carry out a review of the Extension of the Grand Canal Surface Water Outfall through the Grand Canal Docks to a new Outfall at the River Liffey.

This project began in 2002 where Phase 1 saw the construction of a 170m long 4.0x2.7m box culvert underneath Asgard Road, between Hanover Quay and Sir John Rogerson's Quay. Phase 2 of this project involves the connection of the Grand Canal Tunnel to the box culvert completed as part of Phase 1, and the construction of the outlet structure in the River Liffey. The design prepared for Phase 2 proceeded to tender but was put on hold in 2012, and a Section 25 certificate was granted by the Dublin Docklands Development Authority. However, the project was not progressed primarily due to the economic downturn. In 2015 the Dublin Docklands Development Authority dissolved, and the Section 25 certificate was void. In 2017 a feasibility study was completed to consider three more alternative pipeline routes and assess the most appropriate. It was decided that the original option was the optimal solution.

The primary drivers were:

- Flooding at Lock Gates and surrounding areas.
- Pollution risk to Docks.
- Enhanced amenity value of Docks.
- Improved use of capacity in Grand Canal Tunnel.

Water quality in the Grand Canal Docks has been adversely affect over recent years by the existing stormwater outfall discharging foul sewerage into the southern end of the Grand Canal Docks (also known as the Inner Docks) during periods of high rainfall. The long retention time and low throughput of water through the Docks make it vulnerable to pollution after these events. In 2016 the impact on water quality in the Grand Canal Docks resulted in complaints being made to the EPA by Waterways Ireland. Waterways Ireland, who are the owners of the Grand Canal and Grand Canal Docks, had reported that there is a substantial body of data available, including microbiological data that indicates the water quality of the Docks is regularly impacted by microbiological pollution. The majority of instances of microbiological contamination occurred in the Inner Docks in close proximity to the existing surface water outfall.

Correspondence from Waterways Ireland indicated that the licence for the outfall would be withdrawn and that compensation due to impact of commercial activities would be sought.

In 2017 Irish Water, Dublin City Council and Waterways Ireland agreed to establish a Joint Working Group to examine the issue. Extensive water quality analysis and monitoring of the impact of the surface water overflows into the Basin from the Irish Water combined sewer network for a period of one year has demonstrated, to the satisfaction of the Working Group, that the primary source of pollution of the waters in the Basin is the discharge from the surface water section of the Grand Canal Tunnel.

It was concluded that if the Grand Canal Docks is to be usefully developed as an Amenity in accordance with current policy, the existing discharge point of the Grand Canal Tunnel surface water outfall into the Basin must be removed.

The solution involves the extension of the existing storm water outfall pipe from the 3.2m diameter Grand Canal Tunnel near the Docklands Railway Station. The existing surface water outfall will be intercepted in Transition Chamber No. 1 in the Inner Dock and then continue via 5 No. 1.5m diameter pipelines as far as a Transition Chamber No. 2 in the Outer Dock. At this point 2 No. 2.4m diameter pipelines will be constructed under the platform as far as Transition Chamber No. 3 located in Hanover Quay. From here a 4.0x2.7m box culvert will be constructed as far as the existing Phase 1 culvert in Asgard Road. Thereafter, the culvert travels the length of Asgard Road to Sir John Rogerson's Quay where a new tie in will be constructed, along with outfall structure on the River Liffey.

Primary objective:

- Extension of the Grand Canal Surface Water Outfall through the Grand Canal Docks to a new outfall at the River Liffey.

Primary drivers:

- Flooding at the Lock Gates and surrounding areas.
- Pollution risk to the Grand Canal Basin.
- Enhanced amenity value of the Grand Canal Docks.

SECTION 3: Legislative context, screening assessment criteria

3.1 Introduction

One of the earliest phases in planning a project such as this Grand Canal Docks Storm Water Outfall is to determine whether the project should be subject to Environmental Impact Assessment (EIA).

The first step is to determine whether the development falls within a class as set out in Schedule 5 of the Planning and Development Regulations 2001 – 2018. These regulations have broadly been transposed into Irish legislation from the EU Directive 2014/52/EU (EIA Directive) as amended.

The regulations set out two parts within Schedule 5 as per Annex I and Annex II of the EIA Directive. Part 1 developments require mandatory EIA, and Part 2 developments have national thresholds set, above which projects require mandatory EIA. If a development is considered within a class in Part 2 but does not exceed any given threshold(s), a process known as 'Screening' must be undertaken.

The overriding consideration in determining whether a project should be subject to EIA is the likelihood of significant environmental effects. Significant effects may arise by virtue of the type of project, the scale or extent of the project and the location of the project in relation to sensitive environments.

In screening a project or development for EIA, the process will take place within a legislative framework, as set out by the EIA Directive and National Legislation.

3.2 EIA Directive

EIA requirements derive from EU Directive 2014/52/EU. Known as the EIA Directive, it amends the previous directive (2011/92/EU) on the assessment of the effects of certain public and private projects on the environment. It is defined under Article 1(2)(g) as follows:

> *"Environmental impact assessment means a process consisting of:*
>
> *i) the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);*
>
> *ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;*
>
> *iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;*
>
> *iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and*
>
> *v) the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.'"*

Article 4(1) and Annex I of the EIA Directive lists projects for which an EIA is mandatory, whereas Article 4(2) and Annex II lists project types and thresholds over which an EIA is required. For Annex II projects, Member States may set national thresholds and/or examine such projects on a case-by-case basis. Criteria to determine whether projects listed in Annex II should be subject to an EIA are set out in Article

4(3) and Annex III of the directive and include the characteristics of projects, the location of projects and the type and characteristics of the potential impact.

The 2014 EIA Directive amended Article 4(4) and strengthened screening procedures to determine whether EIA is required in respect of development consent proposals. In this regard, there are new requirements on the information to be provided by the developer to the competent authority for the purposes of a screening determination (Annex IIA of the Directive), and expanded selection criteria to be used by the competent authority in making a screening determination (Annex III). Where a structured screening determination on the foregoing basis is not required, it will be necessary, in the case of each planning application or appeal, for the competent authority to conclude, based on a preliminary examination, that there is no real likelihood of significant effects on the environment arising from the proposed works.

3.3 National legislative framework for EIA

The EIA Directive(s) have been transposed into Irish legislation by the Planning and Development Acts 2000 to 2019 (the "Planning Acts") and the Planning and Development Regulations, 2001 - 2018. Section 172 of the Planning Acts sets out the statutory basis for the requirements for Environmental Impact Assessment. It provides as follows:

> *"172.— (1) An Environmental Impact Assessment shall be carried out by the planning authority or the Board, as the case may be, in respect of an application for consent for proposed development where either—*
> *(a) the proposed development would be of a class specified in—*
> *(i) Part 1 of Schedule 5 of the Planning and Development Regulations 2001, and either—*
> *such development would exceed any relevant quantity, area or other limit specified in that Part, or*
> *no quantity, area or other limit is specified in that Part in respect of the development concerned,*
> *or*
> *(ii) Part 2 of Schedule 5 of the Planning and Development Regulations 2001 and either—*
> *such development would exceed any relevant quantity, area or other limit specified in that Part, or*
> *no quantity, area or other limit is specified in that Part in respect of the development concerned,*
> *or*
> *(b)*
> *(i) the proposed development would be of a class specified in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 but does not exceed the relevant quantity, area or other limit specified in that Part, and*
> *(ii) the planning authority or the Board, as the case may be, determines that the proposed development would be likely to have significant effects on the environment."*

The most recent 2014 EIA Directive has been transposed into Irish Legislation, through the European Union (Planning and Development) (Environmental Impact Assessment) Regulations (S.I. 296 of 2018). The partial enactment of these Regulations on the 1st September 2018 was accompanied by a circular letter issued by Department of Housing, Planning, Community and Local Government (dated 27th August 2018, PL 05/2018) to planning authorities and An Bord Pleanála.

Projects for which an EIA is mandatory under Annex I of the Directive have been listed under Part 1 of Schedule 5 of the Planning and Development Regulations 2001 - 2018. Similarly, Part 2 of Schedule 5 outlines thresholds for other projects which also require EIA, as per Annex II of the Directive.

Projects requiring Environmental Impact Assessment are transposed from the EU EIA Directive into Irish Legislation through Section 172 of the Planning Acts. An initial determination is to be undertaken to

examine whether the proposal is a project as understood by this transposition of the directive. If a proposed project is not of a type covered, there is no statutory requirement for it to be subject to Environmental Impact Assessment. In determining if the proposed project is of a type it is also necessary to go beyond the general description of the project and to consider the component parts of the project and/or any processes arising from it (EPA, 2017).

Consequently, whether or not the project falls within the scope of or exceeds the thresholds set out in the legislation must be determined.

SECTION 4: EIA screening

Environmental Impact Assessment (EIA) is the process for anticipating the effects (both positive and negative) from a proposed development or project on various environmental receptors. If the anticipated effects are unacceptable, design measures or other relevant mitigation measures can be taken to reduce or avoid those effects. The Environmental Impact Assessment Report (EIAR) is the output which records the details of this assessment.

The first step in the EIA process is to determine if an EIA needs to be undertaken or not. An initial determination establishes whether the proposal is a *'project'* as understood by the Directive, i.e. does it comprise development, works or activity, as defined in the relevant Irish legislation. The relevant classes of developments that require an EIA are set out in Schedule 5 of the Planning and Development Regulations 2001 - 2018.

4.1 Mandatory EIA

As mentioned, Schedule 5 of the Planning and Development Regulations 2001 – 2018 details the types and thresholds of development which require an EIA. Potentially relevant development types have been extracted from Part 1 and Part 2 of Schedule 5 and are shown in Table 1 below. Development types which were deemed to not be relevant have not been included in the table.

Table 1: Schedule 5 Part 1 and Part 2 EIA Thresholds

Planning and Development Regulations 2001 - 2018 Schedule 5,	**Assessment**
Part 1 – Class 13	
Waste water treatment plants with a capacity exceeding 150,000 population equivalent as defined in Article 2, point (6), of Directive 91/271/EEC.	**Does not apply**
Part 2: Class 11 (c)	
Waste water treatment plants with a capacity greater than 10,000 population equivalent as defined in Article 2, point (6), of Directive 91/271/EEC not included in Part 1 of Schedule V.	**Does not apply**
Part 2: Class 13 *Changes, extensions, development and testing*	
(a) Any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension referred to in Part 1) which would: (i) result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule, and (ii) result in an increase in size greater than – 25 per cent, or an amount equal to 50 per cent of the appropriate threshold, whichever is the greater.	The proposal is not of a scale or nature to exceed the mandatory EIA thresholds. **Does not apply**
(b) Projects in Part 1 undertaken exclusively or mainly for the development and testing of new methods or products and not used for more than 2 years. (In this paragraph, an increase in size is calculated in terms of the unit of measure of the appropriate threshold.)	The proposal is not a project in Part 1 undertaken exclusively or mainly for the development and testing of new methods. **Does not apply**
(c) Any change or extension of development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule, which would result in the demolition of structures, the demolition of which had not previously been authorised, and	The proposal is not of a scale or nature to exceed the mandatory EIA thresholds. There are no significant demolition works

Planning and Development Regulations 2001 - 2018 Schedule 5,	Assessment
where such demolition would be likely to have significant effects on the environment, having regard to the criteria set out under Schedule 7.	associated with the project that are likely to have a significant effect on the environment. **Does not apply**
Part 2: Class 10	
Infrastructure projects (b) (iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere. (In this paragraph, "business district" means a district within a city or town in which the predominant land use is retail or commercial use)	The development is likely to comprise 1.05 hectares and is located within a business district. Therefore, it is considered a sub-threshold development. See detailed assessment below. **Does apply (sub threshold)**
Part 2: Class 15	
Any project listed in this Part which does not exceed a quantity, area or other limit specified in this Part in respect of the relevant class of development, but which would be likely to have significant effects on the environment, having regard to the criteria set out in Schedule 7.	The proposed project falls within Part 2 Class 10 (b) (iv) but does not exceed the relevant threshold, as described below in further detail. Subsequently, it is to be subject to Screening in respect of the criteria set out in Schedule 7 of the Planning and Development Regulations 2001 – 2018. **Does apply (sub threshold)**

The proposed development is not considered to have a mandatory requirement for an EIA as it does not fall within any of the categories within Part 1 of Schedule 5 of the Planning and Development Regulations, 2001 - 2018. These regulations have been amended to set out the updated criteria in accordance with the requirements of the EU Directive 2014/52/EU.

Part 2: Class 10 (b) (iv) sets out a requirement for EIA for projects as above. The proposed development is considered an urban infrastructure project, as it involves the construction of a stormwater overflow pipeline and discharge structure, and it is located in a built up urban environment. The predominant land use here is identified as commercial, retail, and residential. The proposed development interacts with areas zoned as SDRA6, and Z6, "to provide for the creation and protection of enterprise and facilitate opportunities for employment creation".

The relevant threshold to trigger a mandatory EIA for an infrastructure development within an urban business district is one which involves an area greater than 2ha. The Regulations define a business district as a "district within a city or town in which the predominant land use is retail or commercial use". The proposed development is likely to comprise 1.05ha and therefore is below the relevant threshold. It should be noted that the scale of the project is significant (>10 million Euro capital cost).

Subsequently, the proposed development is identified as being a sub threshold development under Part 2, Class 10 (b) (iv), as it is infrastructural development within an urban environment, and it does not exceed the relevant threshold. As a sub threshold development, the project does not automatically require an EIA, but will still need to be screened to determine if an EIA is required. The need for subthreshold (Part 2 Class 15) screening is justified on the basis that the project value, its scale, nature, and setting in a built up urban environment and the composition of the discharge, it can be considered a significant urban development, and should be subject to the criteria set out in Schedule 7 of the Planning and Development Regulations 2001 - 2018. The overriding consideration in determining whether a project should be subject to EIA is the likelihood of significant environmental effects.

SECTION 5: Sub threshold screening

5.1 Introduction

This chapter details the screening assessment used in determining whether the development would or would not be likely to have significant effects on the Environment.

Where a decision is being made on whether a proposed development would be likely to have significant effects on the environment, regard must be given to the following broad categories as outlined in Annex III of the EIA Directive 2014/52/EU;

(i) Characteristics of the project

(ii) Location of proposed development

(iii) Type and characteristics of the potential impacts.

Each category is broken down into sections a number of subsections, in accordance with DoHPLG guidelines (2018). Where potentially significant impacts have been identified, design measures have been developed and included in the design or construction method to avoid or minimise impacts.

5.2 Characteristic of the proposed development

5.2.1 Size and design of the whole project

The total length of the culvert to be constructed is 550m. The proposed works involve 450m of development within the Grand Canal Docks, and 100m along existing road and pedestrian infrastructure, see Figure 2.4.

The works to take place within the Docks will involve the sinking of a pipeline into the water to lie atop the existing silt bed of the Basin, and the construction of transition chambers between different sizes of pipeline, see drawings in Appendix A. The bed of the Basin is largely flat and gentle undulating; a maximum depth of 3.9m was observed by the Archaeological Diving Company (ARDCO) during a dive survey completed in 2008. Construction works within the Basin will involve 450m of pipeline and there will be minimal disturbance in the displacement of sediment on the silt bed of the Basin. Three temporary cofferdams will be built at each of the transition chambers:

- Transition Chamber 1 at the existing Grand Canal Tunnel Outfall.
- Transition Chamber 2 the transition point from the 5 No. 1.5m diameter pipeline to 2 No. 2.4m diameter pipeline.
- Transition Chamber 3 at Hanover Quay.

The route is proposed to traverse underwater through the centre of the southern portion of the Basin, pass underneath the MacMahon Bridge, then bear close to the western wall of the Basin. The pipeline will enter Transition Chamber 3 at Hanover Quay and will run underground along the quay before adjoining with the existing pipeline on Asgard Road, see Figure 2.3.

The following sizes of pipeline will be lowered into the water to the desired depth to lie atop the silt bed of the Basin:

- 5 No. 1.5m diameter pipes.
- 2 No. 2.4m diameter pipes.

The 2 No. 2.4m diameter pipe from the Dock will enter Transition Chamber 3 where it will link with a 4.0m x 2.7m box culvert on Hanover Quay. This will run a total length of 75m, where it will join up with an existing culvert section underneath Asgard Road built for the purpose of this project. This was

previously completed in 2002 as part of the previous planning application. The existing section on Asgard Road consists of a 170m long 4.0m x 2.7m concrete culvert. A further 25m of pipeline will be constructed on Sir john Rogerson's Quay between the existing culvert on Asgard Road and the proposed outfall at the River Liffey.

The bottom of the outfall structure will be positioned at -4.8mOD, and the top will be positioned at +0.4mOD. The structure will be predominantly below the mean low water spring level (MLWS) of -2mOD, as shown in the Drawings in Appendix A.

Construction works will also include reinstatement on Hanover Quay with the replacement of a small number of trees and street furniture. Excavation on Sir John Rogerson's Quay will require the retention of surface material to be replaced to preserve its heritage value.

The construction duration is estimated to be 12 -18 months

5.2.2 Cumulation with other existing and/or approved projects

A number of sources have been reviewed to determine the potential for cumulative effects with other plans and projects. These sources include:

- Dublin City Development Plan 2016 - 2022 (DCC, 2016).
- The National Planning Application database (www.myplan.ie - accessed November 2019).
- An Board Pleanála database (www.pleanala.ie - accessed November 2019).
- EIA Portal (www.housinggovie.maps.arcgis.com, accessed November 2019).
- EPA Appropriate Assessment Tool Mapping Resource (https://gis.epa.ie/EPAMaps/AAGeoTool - accessed November 2019).

A number of existing and approved projects in the vicinity of the Grand Canal Storm Water Outfall project have been identified.

The Dublin City Development Plan 2016 – 2022 outlines the study area as within Strategic Development Regeneration Area 6 (SRDA6). The plans for this build upon The North Lotts and Grand Canal Planning Scheme, 2013. In these plans, Section 4.5.1.2. states the objectives, "to ensure that the character of the Docklands is retained and enhanced", and "the active use of the public realm in the Docklands to host events and the use of the waterbodies such as the Grand Canal Docks, for active leisure or recreational uses significantly enhances the vitality of this evolving urban environment". The section of proposed pipeline located on Hanover Quay is located within a corridor zoned as Zone Z9, "to preserve, provide and improve recreational amenity and open space and green networks". The location of the outfall in the River Liffey also crosses an area within Zone Z9. The Dublin City Development Plan 2016 – 2022, has the Objective RD25, which aims to "facilitate the development of a new district centre and ancillary retail hubs as articulated in the North Lotts and Grand Canal Dock strategic development zone".

The Ringsend Wastewater Treatment Plant Upgrade project was granted permission in 2019 (An Bord Pleanála Ref No. 29N.YA0010, as amended by 29N.YM0002 and 29N.YM0004) and involves the upgrade of facilities to increase the treatment capacity to serve the Greater Dublin Area and to ensure compliance with national and EU standards. The Ringsend Wastewater Treatment Plant is located 2.5km east of the proposed development.

The Dublin Eastern Bypass project proposes to build a motorway around the eastern side of Dublin City. It is to be located approx. 630m east of the proposed outfall at Sir John Rogerson's Quay. The bypass route proposes to travel across the Dublin Port area by underground tunnel or at-grade road and bridge. The route is proposed to travel along south the East Wall Road, along the alignment of the Tom Clarke Bridge (East Link Toll Bridge) and the R131. The Draft Transport Strategy published by The National Transport Authority (2016) up until 2025 does not indicate the inclusion of the Dublin Eastern Bypass project, so it is not expected to be built before then.

The South Campshire Flood Defence Wall project which was completed in 2017 saw the construction of a flood defence wall along George's Quay, City Quay, and Sir John Rogerson's Quay along the River

Liffey. The flood defence wall is set back at varying distances from the River Liffey on Sir John Rogerson's Quay. The plan included a cycle lane and allowed for the future integration of a Bus Connects route which will pass Asgard Road and cross the alignment of the Grand Canal Storm Water Outfall project. The cycleway, in the future, will continue eastward and will utilise a new bridge at Blood Stoney Road. This pedestrian and cyclist bridge will cross the River Liffey from Blood Stoney Road at Sir John Rogerson's Quay to New Wapping Street, North Wall Quay and is located approximately 75m from the proposed outfall location at Sir John Rogerson's Quay. The new bridge is to be completed by 2023 and makes up part of a continuation of the Campshire environment for cyclists and pedestrians. The design for the bridge was first seen in 2012 as part the agenda for the North Lotts and Grand Canal Dock Strategic Development Zone.

There is also a Dublin City Council plan for the replacement of services along MacMahon Bridge which will affect Eircom, ESB, and storm sewerage. The ESB services underneath the canal are to be rerouted over the north side of the bridge.

The National Planning Application Database (www.myplan.ie accessed January 2020) and the Dublin City Council Planning Permission Online Map Viewer (www.dublincity.ie accessed January 2020) have on record a number of other small developments in the vicinity. These include:

- Permission for development on protected structure, The Malt House South and No.1-4 Malt House Apartments, Grand Canal Quay, Dublin 2, Ref DSDZ4160/19, 05/11/2019
- Permission for development at site at Block G, Capital Dock, Ref DSDZ4159/19, 11/11/2019
- Permission for demolition and development of 4 additional floors of office space at 1 Grand Canal Quay, Dublin 2, Ref 3395/19, 06/08/2019

5.2.3 The use of natural resources, in particular land, soil, water and biodiversity

The use of natural resources in the construction of the scheme includes the importation of construction aggregate material to site. The amounts are expected to be minor. All construction activities are to take place within the proposed route extents, as given in the drawings Appendix A. There will be some demolition of existing pavement at the edge of Hanover Quay and leading towards Asgard Road, and on Sir John Rogerson's Quay. There will be some felling of semi-mature Ash trees along Hanover Quay only where necessary. These will be re-planted following construction.

Sinking of precast concrete segments will take place within the Basin. The segments will be lowered into place on the silt bed of the basin. Where displaced, silt will be replaced along the alignment of the pipeline and will not be removed from the basin.

5.2.4 The production of waste

The land based works will involve open trench excavation resulting in the removal of approximately 3,900m^3 of waste material. It is estimated that approximately 2,340m^3 of this will be hazardous, and the remaining 1,560m^3 will be non-hazardous. Waste will be generated in the construction of the 4.0m x 2.7m culvert on Asgard Road and Sir John Rogerson's Quay and along with the construction of the outfall. Other activities generating waste include the removal of semi-mature trees on Asgard Road and improvement works to paths, roads, and quay walls. There will likely be an interaction with contaminated waste when digging near Asgard Road and this material will need to be properly disposed of. Site investigations consisting of terrestrial boreholes, underwater boreholes, trial pits, and physical and chemical samples were undertaken in 1996 (IGSL, 2002 (Geotech), and 2008 (Glovers, Site Investigations Ltd). This investigation campaign determined that there was contaminated material in the Dock and in the Campshires. The allowable waste disposal limits were exceeded in a number of samples taken. Elevated results were identified in Total Petroleum Hydrocarbon (TPH), Polycyclic Aromatic Hydrocarbon (PAH), Lead (Pb), and Mercury (Hg). Materials exceeding the relevant waste disposal limit cannot be disposed of normally and require specialist treatment in a licenced facility in compliance with the Waste Management Act 1996 and amendments.

On site materials that cannot be used construction and reinstatement will be disposed of in accordance with all relevant legislation and guidance including the Waste Management Acts (1996, as amended),

Waste Management Permit Regulations, and the Guidelines for the Management of Waste from National Road Construction Projects (NRA, 2014).

There will be no removal of sediments from the Grand Canal Basin during the works.

5.2.5 Pollution and nuisances

During construction, material spillage has the potential to enter the basin and the River Liffey and cause pollution. There is also the potential for the displacement of silt and sediments within the Basin. Noise and dust arising from construction works may affect local property owners in the Docks, residents, tourists, aquatic fauna, birds, and the conservation interests of nearby European sites (Natura 2000).

As a result of this project water quality in the Grand Canal Basin will be improved, however, water quality in the River Liffey will be reduced. The assimilative capacity of the River Liffey is likely to be greater than that of the Grand Canal Basin. Notwithstanding this, water quality modelling and hydrological monitoring will need to be employed to quantify the extent of the impact on the receiving waters.

5.2.6 The risk of major accidents and/or disasters which are relevant to the project concerned, including those caused by flooding or climate change, in accordance with scientific knowledge

There is a risk that damage to the extension pipe or the 8ft Trunk Sewer underneath MacMahon Bridge during the construction works would cause rapid drawdown of the Grand Canal Basin. This would be considered a major accident and would be very difficult to mend considering the spatial constraints and the fact that it's underwater. A minimum of 0.5m clearance over the sewer will need to be employed. It is unlikely for major accidents to occur given that best construction practices are implemented during the project.

From consultation with Gas Networks Ireland it has been determined that there is an existing High Pressure Transmission Pipe located on Sir John Rogerson's Quay. It will be necessary to verify the exact location of the gas distribution network through site investigations with Gas Networks Ireland. The detailed design and construction methodology works will be undertaken in consultation with Gas Networks Ireland and shall only proceed with their approval and supervision as required. All works in the vicinity of the High Pressure Transmission Pipe must follow relevant Gas Networks Ireland (GNI) best practice guidelines including Code of Practice for Working in the Vicinity of the Transmission Network (GNI, 2015), and Safety Advice for working in the vicinity of natural gas pipelines (GNI, 2019).

No other risks of major accidents and/or disasters that are relevant to the project have been identified.

5.2.7 The risks to human health (for example due to water contamination or air pollution)

The discharge location from the Grand Canal Tunnel will be moved to the River Liffey. It is expected that it will improve the water quality within the Grand Canal Basin, and reduce water quality within the River Liffey. The extent to which the discharge may affect the water in the River Liffey will need further assessment through hydrological modelling. The project will allow for the safer use of the waters in the Basin for recreation and amenity purposes. It is also known that the receiving waters in the River Liffey and Dublin Bay are used for bathing and amenity purposes at areas such as the Poolbeg Yacht Club, Dollymount Strand, Sandymount Strand, Merrion Strand, and Seapoint.

5.2.8 The risks to the dispersal and introduction of invasive alien species

An invasive species survey will need to be carried out to identify and record locations of possible invasive species, and to record the ecological presence along the route of the proposed scheme. In 2011, A freshwater and estuarine ecological survey was undertaken which found no species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations (S.I. 477 of 2011) within or adjacent the proposed works area. A more up to date survey will need to be undertaken to determine the presence and risk of the spread of invasive alien species. However, it is not expected that there will be any invasive species found in the study area.

The entire proposed development is planned within an existing urban developed area and the potential for the dispersal and introduction of invasive species in the baseline environment is low.

Using the National Biodiversity Data Centre (www.records.biodiversityireland.ie) one stand of Japanese Knotweed was recorded approximately 200m south of the proposed development in 2017. This is not expected to be interacted with as a result of construction works of the proposed scheme. However, all construction works relating the developments of the proposed scheme will be undertaken in accordance with the National Roads Authority (NRA) Guidelines for the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads, 2010.

To avoid the introduction of invasive species any material imported to the site should be screened for invasive species and all machinery should be thoroughly cleaned down prior to arriving on site.

5.3 Location of the proposed development

5.3.1 The existing and approved land use

The proposed development lies entirely within a well-developed and highly modified area. The proposed works involve 450m of development within the Grand Canal Basin, and 100m along existing road and pedestrian infrastructure, before connecting to the existing tunnel pipeline on Asgard Road.

5.3.2 The relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground

The Grand Canal is considered to be of significant value for habitats and species, most notably in the diversity of species along its linear habitats. However, the proposed development is located within a well-developed area containing highly modified and man-made habitats of low conservation value. The proposed scheme will traverse through the Basin, under the MacMahon Bridge and will bear close to the western wall of the Basin, which will keep the majority of the Basin available for amenity and use of aquatic species.

In 2001, A freshwater and estuarine ecological study was undertaken in the Grand Canal Basin and the River Liffey, see Appendix B. The species recorded in the Basin were dominated by gastropod snails, leeches, the water louse and caddis fly. The species recorded in the River Liffey included two macro-fauna, an unidentified leech, *hirudinea indet*, and a crustacean *Asellus aquaticus*. No species of conservation importance were identified within the River Liffey or the Basin. It should be noted that the River Liffey substrata was found to be considerably deoxygenated, consisting of black mud, and to smell strongly of hydrogen sulphide.

5.3.3 The absorption capacity of the natural environment, paying particular attention to the following areas

(a) Wetlands, riparian areas, and river mouths

The proposed development will take place within the Grand Canal Docks and will run near the River Dodder outfall and will discharge to the lower Liffey estuary at Sir John Rogerson's Quay.

The proposed scheme is within the Liffey and Dublin Bay Catchment (09) and the Water Framework Directive (WFD) Dodder_SC_010 sub-basin catchment (Code 10_16).

In the period from 2013-2018 the WFD Status for the River Liffey at the location of the proposed outfall, Liffey Estuary Lower (Code IE_EA_090_0300) was classified as "Good". In the period from 2013-2018 the WFD Status for Dublin Bay (Code IE_EA_090_0000) was classified as "Good".

Groundwater for this location, Dublin (Code IE_EA_G_08) is currently classified as "Not at risk".

The Dodder River (Code IE_EA_09D010900) is located approx. 580m to the east of the scheme and is classified in this area as "At risk". The River Basin Management Plan considers the Dodder River (Dodder_050) nearby as an Area for Action.

The Lower Liffey Estuary transitional waterbody is classified as a Nutrient Sensitive Area under the Urban Waste Water Treatment Directive, Code: IE_EA_090_0300.

(b) Coastal zones and the marine environment

The proposed development will move the existing stormwater and combined sewage overflows outfall in the Grand Canal Docks to the River Liffey. This proposed outfall location is in the Lower Liffey Estuary, which ultimately then flows in Dublin Bay.

(c) Mountain and forest areas

None affected by the proposed scheme.

(d) Nature and reserve parks

None affected by the proposed scheme.

(e) Areas classified or protected under national legislation, including areas classified or protected under national legislation; Natura 2000 areas designated by Member States pursuant to Directive 92/43/EEC and Directive 2009/147/EC; special protection areas designated pursuant to Directives 2009/147/EC and 92/43/EEC.

The proposed development is located near a number of European Designated Sites. It is connected to the following sites via the hydrological pathway, River Liffey and Dublin Bay:

- South Dublin Bay and River Tolka SPA (Site Code 004024): 3.5km.
- North Bull Island SPA (Site Code 004006): 5.9km.
- North Dublin Bay SAC (Site Code 000206): 5.1km.
- South Dublin Bay SAC (Site Code 000210): 7km.
- Rockabill to Dalkey Island SAC (Site Code 003000): 9.7km.
- Howth Head SAC (Site Code 000202): 10km.
- Baldoyle Bay SPA (Site Code 004016): 20km.
- Baldoyle Bay SAC (Site Code 000199): 18km.

The proposed development is intended to take place within the proposed Natural Heritage Area, Grand Canal pNHA (Site Code 002103).

In accordance with Article 6(3) of the EU Habitats Directive (92/43/EEC), an Appropriate Assessment Screening Report was prepared for the proposed development (J. B. Barry and Partners, 2020) with a conclusive finding that the proposed development alone or in combination with other projects/ plans, may have the potential to result in significant effects on the designated European Sites; It has been determined that the proposed project shall proceed to Stage 2 of the Appropriate Assessment process with the preparation of a NIS to determine the likelihood of significant effects.

(f) Areas in which there has already been a failure to meet the environmental quality standards laid down in legislation of the EU have already been exceeded. Union Legislation and relevant to the project, or in which it is considered there is such a failure

The Tolka Estuary (Code IE_EA_090_0200) located approx. 3km north east of the scheme has a WFD status of "Moderate" during the period from 2013-2018. This area is connected to the proposed scheme via a 3.8km long hydrological pathway.

(g) Densely populated areas

The Grand Canal Docks consists of a high density of residential and commercial premises. The Grand Canal Basin are currently used by houseboats, the Waterways Ireland Centre, recreational vessels, watersports activities and the general public on the surrounding quays. The immediate vicinity has many shops, restaurants, cafes, The Bord Gáis Energy Theatre, The Grand Canal Hotel, Marker Hotel, Grand Canal Dock Dart Station, banks, post offices, and businesses including Facebook, Accenture and Google. The proposed scheme is expected to result in an improvement to the amenity of the area and the public domain by improving the water quality of the Grand Canal Basin.

The construction works will take place in such a way to preserve as much of the Docks as possible for recreational and transport usage. In the northern portion of the Basin, the route will bear to the west alongside the quay wall to allow for nautical vehicles to use the remaining area.

(h) Landscapes and sites of historical, cultural or archaeological significance

An underwater archaeological assessment was undertaken in February – March 2008 by The Archaeological Diving Company Ltd (ADCO). Diving was completed along the full length of the proposed pipeline as well as a visual inspection of the discharge outlet for the pipeline on Sir John Rogerson's Quay. A visual inspection and magnetometer survey along the route of the pipeline and 10m either side of the alignment was carried out with the conclusion that further archaeological assessment in advance of construction works is not required.

A number of historically significant structures are listed in the Record of Monuments and Places (RMP) within the surrounding area of the proposed development including Custom House Quay (Du 018:020-564), City Quay (Du 018:020-479), Sea Wall (Du 018:066) and Revenue House Site (Du 018:053-1). Both the Custom House Quay and City Quay are located within the zone of archaeological potential defined for the historic city of Dublin, RMP (Du 018:020). There are no sites in the immediate area of the proposed development.

The National Inventory of Architectural Heritage and the Archaeological Survey of Ireland National Monuments Service have datasets available for public viewing online on the Historic Environment Viewer website (www.webgis.archaeology.ie). There are a number of recorded architectural items in the area, including The Grand Canal Docks (Reg No.50020499) itself, an industrial redbrick chimney (Reg No.50020490), the Diving Bell (Reg No.50020468), and Sir Rogerson's Quay (Reg No.50020465/ Du 018:020(201)). Sir Rogerson's Quay is an ashlar granite quay wall, erected in c.1870 with ashlar granite coping, cast-iron mooring hooks and mooring rings. The proposed works will involve breaking through of a section of this wall to result in a 6.5m diameter outlet structure. The Grand Canal Docks is a protected architectural structure built in 1796. Quay walls are constructed from limestone withs calp and granite coping. The proposed works will involve breaking through a section of this to allow the construction of Transition Chamber No.3 on Hanover Quay.

An Archaeological Appraisal Report was carried out by Margaret Gowen & Co in April 2006, see Appendix B, to conclude that archaeological monitoring should take place during the construction of the outfall pipe at Sir John Rogerson's Quay. Consultation should also be made with the conservation officer from Dublin City Council with reference to the possibility of extracted stone material from the quay wall and its use elsewhere within the proposed scheme. All cobbling, metal tracks, bollards, stone sets, and features of the quays removed during the laying of the pipeline should be replaced after construction. Consultation should also be made with the Underwater Unit of the Department of Environment, Heritage, and Local Government (DoEHLG). All historic finds must be notified to the National Museum of Ireland and DoEHLG. In 2005 a review was made of this Archaeological Appraisal Report to consider whether changes were required to update the report to comply with current legislation. This made no changes to the conclusion of the report.

5.4 Type and characteristics of the potential impacts

This section describes the potential impacts of the proposed development in relation to the criteria as set out under sections 5.2 and 5.3 of this report. Potential impacts are considered in light of the headings listed in Annex III of the amended EIA Directive 2014/52/EU:

- The magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected).
- The nature of the impact.
- The transboundary nature of the impact.
- The intensity and complexity of the impact.
- The expected onset, duration, frequency and reversibility of the impact.
- The cumulation of impact with the impact of other existing and/or approved projects.
- The possibility of effectively reducing the impact.

5.4.1 Population and human health

The total length of the pipeline to be constructed is 550m. The proposed works involve 450m of development within the Grand Canal Docks, and 100m along existing road and pedestrian infrastructure, excluding the existing culvert section on Asgard Road. Construction works, road improvement works, and all associated waterway cordoning within the Docks are relatively non-intensive and simple. The key aspects of the proposed development are considered to be the installation of 3 No. temporary cofferdams within the Docks at the 3 No. Transition Chambers, and the construction of the outfall in the River Liffey at Sir John Rogerson's Quay. These developments are slightly more complex in their design and implications for the users of the Docks. It will be necessary to impose controls on areas of the Docks, including temporary closures of roads and diversions of water traffic within the Basin itself. The impacts as a result of the development in the construction phase are expected to be temporary, negative, and local in character.

The proposed development will result in the intermittent discharge (rainfall related) of polluted combined sewage stormwater overflow from the south Dublin Sewer system to the River Liffey. These discharges will contain high concentrations of Faecal Coliform, BOD, Nutrients and Suspended Solids. During the operational phase, the proposed development is expected to improve the amenity of the Grand Canal Docks, however, the discharge to the Lower Liffey Estuary has the potential to impact adversely on users of Dublin Bay for amenity and bathing purposes etc. Amenity areas and bathing waters in the River Liffey/ Dublin Bay include the Poolbeg Yacht Club, Dollymount Strand, Sandymount Strand, Merrion Strand, and Seapoint.

To determine the significance and magnitude of the impact on the receiving waters hydrological water quality modelling and flow monitoring will need to be carried out.

5.4.2 Biodiversity

A freshwater and estuarine ecological survey completed in 2001 by EcoServe (Appendix B) concluded that there were no species of conservation importance in the study area. It was also concluded that the proposed project is unlikely to have a negative long-term impact on the flora and fauna of the Grand Canal Docks.

There will be a permanent loss of substrate habitat under the footprint of the proposed pipeline along the bed of the Basin. The freshwater and estuarine ecological study carried out by EcoServe in 2001 (Appendix B) has deemed that this impact is minimal, and a new hard strata will be created posing a new habitat for colonization of species. There were no sensitive ecological receptors found during the freshwater and estuarine survey, and there are no expected significant impacts associated with ecology in the Basin or the outfall area in the River Liffey. As this report was completed in 2001, a new survey will be required to provide a more up to date determination of the ecological impact of the proposed development. Overall, there is expected a minimal impact on ecology due to loss of habitats and species from the construction phase of the proposed project.

It is recommended that in order to minimise the loss of subtidal habitats and species in the Grand Canal Docks and Lower Liffey Estuary, the area of construction be kept to a minimum. Furthermore, disturbed areas must be restored to as close as possible to their predevelopment status after construction. It also recommends that efforts must be made to minimise the amount of suspended solids released into the water during construction. EcoServe conclude that a long-term monitoring program be established post-

commissioning of the scheme to confirm the predictions of their report. Whereby, monitoring should focus on the bacteriological status of the water entering the River Liffey.

Consultation has taken place with Inland Fisheries Ireland in 2007 and in January 2020. It has been noted that the River Liffey is an important salmonid system, and monitoring carried out by Inland Fisheries Ireland under the Water Framework Directive in 2010 has recorded a total of 17 fish species including Atlantic Salmon (listed under Annex II and V of the EU Habitats Directive) Lamprey, Sea trout, and Brown trout. The proposed extension of the stormwater outfall will transfer potentially polluting storm water loads into the River Liffey, the impacts of which will require further assessment. The magnitude of the impact on the receiving waters will need to be quantified through hydrological water quality modelling and flow monitoring.

The proposed development may impact upon nearby European sites (Natura 2000). As discussed previously, they include South Dublin Bay and River Tolka SPA, North Bull Island SPA, North Dublin Bay SAC and South Dublin Bay SAC. An Appropriate Assessment Screening Report was prepared (J. B. Barry and Partners, 2020) to consider the effects of the proposed development on European sites. Currently, water is discharged into the Grand Canal Basin which then ultimately ends up in the River Liffey. It is expected that the water quality will be negatively impacted in the immediate area of the new discharge point at Sir John Rogerson's Quay. However, the outfall will only be utilised during periods of very large flow due to heavy rain where the storm water overflow is engaged.

5.4.3 Water

During the operational phase of the proposed development, heavy rainfall events will cause the flow in the foul element of the pipeline to exceed its capacity and overflow into the storm compartment, discharging to the Lower Liffey Estuary. As a result of this, the proposed development has the potential to have significant impacts on the receiving waters of the River Liffey and downstream flora and fauna and its WFD water body status.

The extent of the impact on the receiving waters will need to be determined through hydrological water quality modelling and flow monitoring. The development is not expected to interact with the River Dodder.

The Lower Liffey is a designated nutrient sensitive water body.

During the construction phase of the proposed development, there will be activity within the Basin itself and on the quayside. It will be necessary to avoid any potential spillage of material or hydrocarbons etc. into the waters of the Basin or the River Liffey. A Construction and Environmental Management Plan will be developed in advance of construction works to ensure that all key environmental obligations are communicated to contractors and sub-contractors involved in the project.

5.4.4 Land, soils and geology

There are no significant impacts anticipated on land, soil or geology as a result of the proposed development. The development takes place in areas that are already highly modified or artificial in nature. No sediments or material will be removed from the basin during the construction of the proposed development.

Some quantities of waste will be generated from works on Hanover Quay and Sir John Rogerson's Quay. There will likely be an interaction with contaminated waste when digging near Asgard Road and this material will need to be properly disposed of. On site materials that cannot be used construction and reinstatement will be disposed of in accordance with all relevant legislation and guidance including the Waste Management Acts (1996, as amended), Waste Management Permit Regulations, and the Guidelines for the Management of Waste from National Road Construction Projects (NRA, 2014).

5.4.5 Air quality and climate

An air quality assessment was carried out by Fehily Timoney & Co. in 2001 (Appendix B) which concluded that the predicted impacts from the construction of the proposed development will be dust and odour.

However, no significant impact is anticipated with the implementation of control mechanisms to minimise particulate emissions from the construction works. A Construction and Environmental Management Plan will be developed in advance of construction works.

Impacts due to construction such as dust and traffic emissions are not expected to have a significant impact on air quality and climate. As this report was completed in 2001, a new assessment will be required to provide a more up to date determination of the impacts on air quality and climate from the proposed development.

5.4.6 Noise and vibration

A Noise and Vibration Assessment was carried out by Fehily Timoney & Co. in 2001 (Appendix B) which concluded that the predicted impact from the construction of the proposed development will be high in the immediate vicinity of the works area. It is noted that the works area will change as the works progress through the Basin and on Hanover Quay and Sir John Rogerson's Quay. Particularly sensitive receptors are located along the western side of the Docks in the southern section of the route including office buildings and residential areas. As this report was completed in 2001, a new assessment will be required to provide a more up to date determination of the impacts of noise and vibration from the proposed development.

There is the potential for significant negative temporary impacts during the construction phase which will be local in character from noise and vibration. These impacts will arise from construction movements in the Grand Canal Docks area.

5.4.7 Traffic and transport

A traffic Assessment was carried out by J. B. Barry and Partners in 2001 (Appendix B) which concluded that there would be no anticipated significant impacts due to traffic from the proposed development in the construction phase. It noted that a Traffic Management Plan must be implemented. As this report was completed in 2001, a new assessment will be required to provide a more up to date determination of the impacts of traffic from the proposed development.

It will be necessary to impose controls on areas of the Docks and temporary closures of roads which will affect those commuting for work, those who live in the Docks, and those passing through the area. Consequently, impacts due to traffic may be significant, temporary and local in character.

Similarly, for water traffic within the Basin itself, there will be restrictions imposed during construction (cordoning off sections, temporary moving of berthing areas/ pontoons etc.). This has the potential to have a significant impact on the users of the Grand Canal Basin.

5.4.8 Archaeology and cultural heritage

During construction the proposed development will require digging up cobblestone work and metal tracks on Sir john Rogerson's Quay (a protected structure). This is likely to have a permanent moderate negative impact. The proposed works will also involve breaking through of a section of the quay wall to construct a 6.5m diameter outlet structure. An Archaeological Appraisal Report was carried out by Margaret Gowen & Co in 2006 (Appendix B) which noted that archaeological monitoring should take place during this activity and the material removed should be put aside during digging and replaced afterwards. It also recommended that consultation should be made with the conservation officer from Dublin City Council with reference to the possibility of the use of extracted stone material from the quay wall being used elsewhere within the proposed scheme.

The proposed development is not expected to have significant impacts on underwater archaeology. However, the underwater archaeological assessment undertaken 2008 by ADCO (Appendix B) recommends that archaeological monitoring of all disturbances to the Grand Canal Docks or the riverbed at Sir John Rogerson's Quay be undertaken during construction works. It also recommends that consultation should also be made with the Underwater Unit of the Department of Environment, Heritage, and Local Government (DoEHLG).

As these report were completed in 2001-2008, new assessments will be required to provide a more up to date determination of the impacts on archaeology and cultural heritage from the proposed development.

5.4.9 Waste management

The works will involve tunnelling and open trench excavation resulting in the removal of approximately 3,900m^3 of waste material. It is estimated that approximately 2,340m^3 of this will be hazardous, and the remaining 1,560m^3 will be non-hazardous. There is the potential for interaction with contaminated waste in the areas of Hanover Quay and Sir John Rogerson's Quay. The presence of contaminated material has been confirmed from a site investigation programme between 1996 – 2008 (IGSL; Glovers; and Site Investigation Ltd). Waste removed from this area will need to be disposed of in a licenced facility. Actions regarding waste removal will be undertaken as per Guidelines for the Management of Waste from National Road Construction Projects (NRA, 2014). Waste generated by the works is not likely to result in a significant impact on the surrounding environment.

5.4.10 Material assets

There is a risk that damage to the extension pipe or the 8ft Trunk Sewer underneath MacMahon Bridge during the construction works would cause rapid drawdown of the Grand Canal Docks. If damage occurred to this underwater sewer there would be a very significant impact on the receiving environment. A minimum of 0.5m clearance over the sewer will need to be employed. It is unlikely for major accidents to occur given that best construction practices are implemented during the project.

There is an existing High Pressure Transmission Pipe located on Sir John Rogerson's Quay. It will be necessary to verify the exact location of the gas distribution network through site investigations with Gas Networks Ireland. The presence of Gas Networks Ireland personnel may be required during construction. If damage occurred to this high pressure transmission pipe an explosion may be caused which would result in a very significant impact on the receiving environment. It is unlikely for major accidents to occur given that best construction practices are implemented during the project.

5.4.11 Landscape and visual impact

A Visual and Landscape Assessment was carried out by Bray Shipmann Martin in 2001 (Appendix B) concluded that there will be temporary moderate negative impacts on views from public roads, quaysides, railway and from boats during the construction phase of the proposed development. During the operational phase, there will be a slight negative visual impact due to the new outfall structure in the River Liffey. As this report was completed in 2001, a new assessment will be required to provide a more up to date determination of the impacts landscape and visual impact from the proposed development.

The proposed development is expected to result in a permanent slight negative impact on the visual appearance of Sir Rogerson's Quay. This will arise from breaking through a section of the quay wall and construction of a new outfall structure. The surround for the outlet structure will be reinstated using the same material that was removed. Excess material may be used elsewhere as advised following consultation with the conservation officers from Dublin City Council (Margaret Gowen & Co, 2006).

5.4.12 Interactions between the above

There are a number of interactions of impacts between the above criteria, however, there are no expected significant interactions of impacts.

5.4.13 The cumulation of impact with the impact of other existing and/or approved projects.

The Grand Canal Docks are located within the Strategic Development Regeneration Area 6 (SRDA6) under the Dublin City Development Plan 2016 – 2022. The plans for this build upon The North Lotts and Grand Canal Planning Scheme, 2013. In these plans, Section 4.5.1.2. states the objective, "To ensure that the character of the Docklands is retained and enhanced", "The active use of the public realm in the

Docklands to host events and the use of the waterbodies such as the Grand Canal Docks, for active leisure or recreational uses significantly enhances the vitality of this evolving urban environment"

The section of pipeline located on Hanover Quay, after travelling along the bed of the Basin, is located in a corridor zoned as Zone Z9, "To preserve, provide and improve recreational amenity and open space and green networks". The location of the outfall in the River Liffey crosses another corridor within Zone Z9. However, only a very small amount of the pipeline is within areas zoned as Zone Z9. This area will only be disturbed during the construction phase, and thereafter, will result in a permanent positive effect on the local area, and is in agreement with the objective of Z9.

One of the objectives as set out in the Development Plan is Objective RD25, "to facilitate the development of a new district centre and ancillary retail hubs as articulated in the North Lotts and Grand Canal Docks strategic development zone". The improvement of the amenity of the Grand Canal Docks by moving the outfall to the River Liffey supports Objective RD25 as set out in the Dublin City Development Plan. It is not expected that the proposed development will arise in any significant negative cumulative effects with this objective as set out in the Development Plan; it is expected that it will result in a permanent positive effect on the local area.

The Ringsend Wastewater Treatment Plant Upgrade was granted permission in 2019 to involve the upgrade of the facilities to increase the treatment capacity to serve the Greater Dublin Area and to ensure compliance with national and EU standards. It is expected that the discharge from the extended outfall has the potential to result in cumulative effects on water quality in Dublin Bay when taken in conjunction with the discharge from the Ringsend Wastewater Treatment Plant Upgrade. Further assessment will be required to quantify the cumulative impact on water quality.

The Dublin Eastern Bypass is a project involving the construction of a motorway on the eastern side of Dublin City Centre. A Feasibility Study was completed by Thoir Consult in 2007, and a Corridor Protection Study has been completed in 2014. This Corridor Protection Study outlines a specific area whereby development should generally not be permitted as it may impeded the deliverability of the Eastern Bypass project. The bypass proposes to cross the River Liffey nearby the East Link Bridge, approximately 650m to the east of the proposed development in Grand Canal Docks. The cumulation of the proposed development and the Dublin Eastern Bypass is not expected to give rise to significant impacts.

The South Campshire Flood Defence Wall project which was completed in 2017 saw the construction of a flood defence wall along George's Quay, City Quay, and Sir John Rogerson's Quay along the River Liffey. The flood defence wall is set back at varying distances from the River Liffey on Sir John Rogerson's Quay. The plan included a cycle lane and allowed for the future integration of a Bus Connects route which will pass Asgard Road and cross the alignment of the Grand Canal Storm Water Outfall project. This development is consistent with the North Lotts and Grand Canal Docks Planning Scheme, 2013, and Dublin City Development Plan 2016 - 2022. The cumulative impacts of the proposed development and the South Campshire Cycle Lane is not expected to give rise to significant impacts.

The cycleway that makes up part of the plans for the South Campshire Flood Defence Wall project, in the future, will continue eastward and will utilise a new bridge at Blood Stoney Road. This pedestrian and cyclist bridge will cross the River Liffey from Blood Stoney Road at Sir John Rogerson's Quay to New Wapping Street, North Wall Quay and is located approximately 75m from the proposed outfall location at Sir John Rogerson's Quay. The new bridge is to be completed by 2023 and makes up part of a continuation of the Campshire environment for cyclists and pedestrians. The design for the bridge was first seen in 2012 as part the agenda for the North Lotts and Grand Canal Dock Strategic Development Zone. A planning application for this project has not been submitted, and the design is still currently underway. There is the potential for a deterioration in the integrity of the architectural heritage of Sir John Rogerson's Quay, owing to the construction of a new outfall structure and disruption of the footpath from the construction of the proposed project, and the new pedestrian/ cyclist bridge. This may give rise to cumulative, permanent, moderate, negative impacts. The archaeological appraisal report (Margaret Gowen and Co., 2006) has stated that all cobbling and metal tracks that are removed during the construction of the outfall at Sir John Rogerson's Quay should be replaced after backfilling. Further assessment is required regarding the potential cumulative impacts on the built heritage and archaeological environments.

There is also a Dublin City Council plan for the replacement of services along MacMahon Bridge which will affect Eircom, ESB, and storm sewerage. The ESB services underneath the canal are to be rerouted over the north side of the bridge. A planning application for this project has not been submitted, and the design is still currently underway. Due to this, there are no expected potential impacts as a result of the cumulation of the proposed project and the plan for the replacement of services along MacMahon Bridge during the operational phase as of yet. The only potential impact that may be foreseen at this stage is an overlap in construction timelines.

The National Planning Application Database (www.myplan.ie accessed January 2020) and the Dublin City Council Planning Permission Online Map Viewer (www.dublincity.ie accessed January 2020) have on record a number of developments in the vicinity. These include:

- Permission for development on protected structure, The Malt House South and No.1-4 Malt House Apartments, Grand Canal Quay, Dublin 2, Ref DSDZ4160/19, 26/11/2019.
- Permission for development on protected structure, The Former Boland's Mill incorporating 33 and 34 Barrow Street and 35A and 35 Barrow Street, Ref DSDZ4334/19, 04/12/2019.
- Permission for development at site at Block G, Capital Dock, Ref DSDZ4159/19, 11/11/2019.
- Permission for development of 7 storey over basement office building, Ref DSDZ3835/17, 19/9/2017.
- Permission for demolition and development of 4 additional floors of office space at 1 Grand Canal Quay, Dublin 2, Ref 3395/19, 06/08/2019.

These planning applications do not geographically overlap with the proposed development. However, construction timelines may give rise to cumulative impacts with regard to traffic movements in the area.

SECTION 6: Conclusion

A need for the proposed Grand Canal Docks Storm Water Outfall Extension Project has been identified. The project has been identified as a sub-threshold development under Schedule 5 of the Planning and Development Regulations (as amended).

The total length of the pipeline to be constructed is 550m. The proposed works involve 450m of development within the Grand Canal Docks, and 100m along existing road and pedestrian infrastructure. The main implications for significant impacts on the environment include:

- A possible reduction in the water quality of the River Liffey during the operational phase.
- Excavation works to be carried out within a protected Structure
- Noise, dust, and vibration during the construction phase.
- Traffic disruption during the construction phase.

The project has been screened in the context of the Planning and Development Acts 2000 to 2019 (as amended), the Planning and Development Regulations 2001 to 2018 (as amended), and with regard to Annex IIA and III of the EIA Directive, 2014/52/EU (Amending EIA Directive). It is our opinion that it cannot be concluded that there is no real likelihood of significant effects on the environment associated with the Grand Canal Docks Stormwater Outfall Extension Project. Consequently, adopting the precautionary principal, we would conclude that in the interests of providing a quantified statement of any impacts to the Board the project be subject to a full Environment Impact Assessment as prescribed under the EIA Directive 2014/52/EU) and that an EIAR should accompany the application.

A detailed water quality modelling exercise should be undertaken (as part of the EIAR) to assess the magnitude of any potential impacts on the receiving environment.

Dublin City Council Planning Department were consulted in 2017 regarding the planning requirements for the project and provided the following response:

The proposed project is contained in the North Lotts and Grand Canal Dock SDZ Planning Scheme and it is the objective of the plan to complete as a priority, the relocation of the Grand Canal Surface Water Outfall from the Grand Canal Dock Basin to the River Liffey (SI3). As such a planning application under the North Lotts and Grand Canal SDZ or an application under the Strategic Infrastructure Development provision is required.

With regards to the Environmental Studies/Assessments required, it is considered that an EIAR, NIS and Flood Risk Assessment are necessary for the following reason;

<u>Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS)</u>

Although the proposed development is sub-threshold (Schedule 5 of the Planning and Development Regulations 2015) it is considered that the development would require the benefit of EIAR and NIS because it cannot be concluded at this time that the development will not have a significant impact on the environment and on the conservation objectives of EU designated sites in Dublin Bay.

The North Lotts and Grand Canal SDZ Planning Scheme has been prepared in accordance with the Planning and Development (Strategic Environmental Assessment) Regulations 2004 and Article 6 of the Habitats Directive 92/43/EEC. The Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) processes, undertaken in tandem with the preparation of the Planning Scheme, have ensured full integration and consideration of environmental issues throughout each stage of the preparation process. For the proposed development to be in compliance with the environmental mitigatory objectives integrated in Planning Scheme, an EIAR and NIS would be required.

SECTION 7: References

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