Greater Dublin Drainage Project

Irish Water

Environmental Impact Assessment Report: Volume 2 Part A of 6

Chapter 1 Introduction

June 2018

Contents

1. Introduction

1.1 Purpose of this Report

This Environmental Impact Assessment Report (EIAR) presents the assessment of environmental impacts and applicable mitigation measures associated with the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project). This EIAR also complies with and exceeds the requirements of the Planning and Development Regulations 2001 (Statutory Instrument (S.I.) No. 600 of 2001, as amended) for the provision of an Environmental Impact Statement, which is the former title for an EIAR.

1.2 The Proposed Project

1.2.1 Project Overview

On 1 January 2014, Irish Water assumed responsibility for managing Ireland's water and wastewater investment and maintenance programmes. On that date, Irish Water also took over the management of the planning stage of the Proposed Project from Fingal County Council (FCC) (which previously led the Proposed Project on behalf of Dún Laoghaire-Rathdown County Council, Kildare County Council, Meath County Council, South Dublin County Council and Dublin City Council.

The largest and critical strategic catchment was identified as the contributing catchment to Ringsend Wastewater Treatment Plant (WwTP). The provision of additional wastewater treatment capacity therefore revolved around the ability of Ringsend WwTP to meet future needs. Given the constraints on the future expansion of Ringsend WwTP beyond its ultimate capacity, it was determined that the provision of additional wastewater treatment capacity would require the construction of an alternative wastewater treatment facility, or facilities, for the contributing catchment to Ringsend WwTP to augment the treatment capacity provided at the expanded Ringsend WwTP.

The Proposed Project is a significant component of a wider strategy to meet the need for additional wastewater treatment within the Greater Dublin Area (GDA) as identified in a number of national, regional and local planning policy documents as referenced in the Proposed Project *Planning Report* (AOS 2018). The Proposed Project will serve the estimated and planned wastewater needs of existing and future drainage catchments, up to a 2050 horizon in the north, west and north-west of the Dublin agglomeration (including Baldoyle, Portmarnock, Clonshagh (Clonshaugh), Darndale, Ballymun, Finglas, Blanchardstown, Mulhuddart, Ratoath, Ashbourne, Clonee and Dunboyne) and the Lower Liffey Valley catchment in north-east Kildare. The Proposed Project will also have the capacity to provide treatment for municipal wastewater sludge and domestic septic tank sludges, generated in Fingal.

The table below includes a summary of the Proposed Project elements. A full description of the Proposed Project is detailed within Volume 2 Part A, Chapter 4 Description of the Proposed Project of this EIAR and is illustrated in Figure 4.1 Proposed Project Overview.

Proposed Project Element	Outline Description of Proposed Project Element
Proposed Wastewater Treatment Plant (WwTP)	• WwTP to be located on a 29.8 hectare (ha) site in the townland of Clonshagh (Clonshaugh) in Fingal. • 500,000 population equivalent wastewater treatment capacity. • Maximum building height of 18m. • Sludge Hub Centre (SHC) to be co-located on the same site as the WwTP with a sludge handling and treatment capacity of 18,500 tonnes of dry solids per annum. • SHC will provide sustainable treatment of municipal wastewater sludge and domestic septic tank sludges generated in Fingal to produce a biosolid end-product. • Biogas produced during the sludge treatment process will be utilised as an energy source. • Access road from the R139 Road, approximately 400m to the southern boundary of the site. • Egress road, approximately 230m from the western boundary of the site, to Clonshaugh Road. • A proposed temporary construction compound to be located within the site boundary.
Proposed Abbotstown pumping station	• Abbotstown pumping station to be located on a 0.4ha site in the grounds of the National Sports Campus at Abbotstown. • Abbotstown pumping station will consist of a single 2-storey building with a ground level floor area of 305m^2 and maximum height of 10m and a below ground basement 17m in depth with floor area of 524m^2 incorporating the wet/dry wells. • The plan area of the above ground structure will be 305m^2 and this will have a maximum height of 10m. • A proposed temporary construction compound to be located adjacent to the Abbotstown pumping station site.
Proposed orbital sewer route	• The orbital sewer route will intercept an existing sewer at Blanchardstown and will divert it from this point to the WwTP at Clonshagh. • Constructed within the boundary of a temporary construction corridor. • 13.7km in length; 5.2km of a 1.4m diameter rising main and 8.5km of a 1.8m diameter gravity sewer. • Manholes/service shafts/vents along the route. • Odour Control Unit at the rising main/gravity sewer interface. • Proposed temporary construction compounds at Abbotstown, Cappoge, east of Silloge, Dardistown and west of Collinstown Cross to be located within the proposed construction corridor.
Proposed North Fringe Sewer (NFS) diversion sewer	• The NFS will be intercepted in the vicinity of the junction of the access road to the WwTP with the R139 Road in lands within the administrative area of Dublin City Council. • NFS diversion sewer will divert flows in the NFS upstream of the point of interception to the WwTP. • 600m in length and 1.5m in diameter. • Operate as a gravity sewer between the point of interception and the WwTP site.
Proposed outfall pipeline route (land based section)	• Outfall pipeline route (land based section) will commence from the northern boundary of the WwTP and will run to the R106 Coast Road. • 5.4km in length and 1.8m in diameter. • Pressurised gravity sewer. • Manholes/service shafts/vents along the route. • Proposed temporary construction compounds (east of R107 Malahide Road and east of Saintdoolaghs) located within the proposed construction corridor.
Proposed outfall pipeline route (marine section)	• Outfall pipeline route (marine section) will commence at the R106 Coast Road and will terminate at a discharge location approximately 1km north-east of Ireland's Eye. • 5.9km in length and 2m in diameter. • Pressurised gravity tunnel/subsea (dredged) pipeline. • Multiport marine diffuser to be located on the final section. • Proposed temporary construction compounds (west and east of Baldoyle Bay) to be located within the proposed construction corridor.
Proposed Regional Biosolids Storage Facility	• Located on an 11ha site at Newtown, Dublin 11. • Maximum building height of 15m. • Further details and full impact assessment are provided in Volume 4 Part A of this EIAR.

The total Construction Phase will be approximately 48 months, including a 12 month commissioning period to the final Operational Phase.

Further details in relation to the Proposed Project need can be found in Chapter 3 The Need for the Proposed Project.

1.2.2 Project History

The Proposed Project has its origins in the key findings of the Greater Dublin Strategic Drainage Study (GDSDS). The GDSDS took a high-level view of the wastewater drainage and treatment requirements of the GDA and its key findings were the subject of a *Strategic Environmental Assessment* (SEA) (FCC 2008). The purpose of the GDSDS (as modified by the SEA) was to guide the future provision of wastewater infrastructure in the GDA.

The key finding of the GDSDS *Final Strategy Report* (Dublin Drainage Consultancy 2005) was that the 2002 wastewater load, in terms of combined residential population, commercial, institutional and industrial sources, exceeded the installed wastewater treatment capacity in the GDA at that time. It also found that, even with the expansion of each of the existing WwTPs to their ultimate design capacity, which, it should be noted, is limited by either site and/or receiving water constraints at each WwTP, the projected combined growth (residential population, commercial, institutional and industrial sources) in the GDA would still require additional wastewater treatment capacity.

The largest and most critical strategic catchment identified in the GDSDS *Final Strategy Report* was the contributing catchment to Ringsend WwTP. The provision of additional wastewater treatment capacity therefore revolved around the ability of Ringsend WwTP to meet future needs. Given the constraints on the future expansion of Ringsend WwTP beyond its ultimate capacity, it was determined that the provision of additional wastewater treatment capacity would require the construction of an alternative wastewater treatment facility, or facilities, for the contributing catchment to Ringsend WwTP to augment the treatment capacity provided at the expanded Ringsend WwTP. The need for the Proposed Project originates from this finding. Both the Proposed Project and the Ringsend WwTP will serve the GDA for a combined treatment capacity design horizon of 2050.

A review of the GDSDS *Final Strategy Report* and its SEA by the project team in 2017 concluded that the findings and recommendations of these reports continue to be reasonable and correct.

Water Service Strategic Plan

In 2015, Irish Water developed a *Water Services Strategic Plan* (WSSP) (Irish Water 2015) that sets out strategic objectives for delivery of water services up to the year 2040. It detailed the challenges that the provision of water services faces and identifies priorities for the short-term and medium-term. The WSSP includes a commitment to '*complying with the Urban Wastewater Treatment (UWWT) Directive and, in particular, addressing the lack of wastewater treatment at 44 urban centres and improving treatment at the 38 larger urban areas which do not currently meet the required treatment standards*'. Furthermore, it commits to '*catering for future growth*'. The findings of the GDSDS were reviewed and endorsed during development of the WSSP.

National Sludge Management Plan

In addition to the WSSP, Irish Water developed a *National Wastewater Sludge Management Plan* (NWSMP) (Irish Water 2016) to set out the short-, medium- and long-term strategy for management of sludge produced at WwTPs under the control of Irish Water. This endorsed the 2013 review of the *Fingal Sludge Management Plan* (FCC 2013) which proposed that a Sludge Hub Centre (SHC) for the county should be co-located at the proposed WwTP site and should accept sludge from the Fingal area. The proposal for a SHC at the proposed WwTP site was reviewed by Irish Water and was considered to be the most appropriate option for an SHC in Fingal. In line with the NWSMP, the sludge is proposed to be treated using advanced anaerobic digestion.

The development of the proposed RBSF was also identified as one of the key objectives of the NWSMP. The NWSMP recommended that, where appropriate, biosolids storage facilities will be developed to serve a number of local WwTPs or a wider regional need. It is expected that, in the coming years, the quantity of biosolids being produced in the GDA will exceed the currently available storage capacity. The proposed RBSF is therefore required to support the upgrade to the Ringsend WwTP and the development of new wastewater facilities such as the Proposed Project in north County Dublin.

1.2.3 Alternative Site Assessment Process

During May 2011 and June 2011, the first non-statutory public consultation on the Proposed Project was held (refer to Diagram 1.1 for the Roadmap for the Proposed Project). This consultation focused on constraints which might make an area unsuitable as a location for the Proposed Project. Feedback from this consultation was incorporated into the preliminary screening exercise.

In October 2011, FCC published the *Alternative Sites Assessment* (ASA) – *Phase One: Preliminary Screening Outcomes Report* (Jacobs Tobin 2011). This report identified nine potential land parcels within which the proposed WwTP could be located, outlined potential pipeline corridors to and from the proposed WwTP and identified potential areas for an outfall pipeline to the Irish Sea. The conclusions of this report were then brought forward for the second round of public consultation during October 2011 and November 2011.

In May 2012, FCC published the *Alternative Sites Assessment and Route Selection Report (Phase 2): Emerging Preferred Sites and Routes* (Jacobs Tobin 2012) which identified Annsbrook, Clonshagh and Newtowncorduff as the emerging preferred site options. The three emerging preferred site options were brought forward for public consultation from May 2012 to July 2012 as Phase Three of the ASA process. The three preferred site options comprised:

- Annsbrook Option: proposed WwTP on an approximately 20ha site in the townland of Annsbrook, discharge of treated wastewater via a northern outfall approximately 1.5km to 2km offshore north of Loughshinny and south of Skerries, connected by approximately 49.7km of proposed pipeline routes;
- Clonshagh Option: proposed WwTP on an approximately 23ha site in the townland of Clonshagh, discharge of treated wastewater via a southern outfall approximately 6km offshore north of Ireland's Eye, connected by approximately 31.5km of proposed pipeline routes; and
- Newtowncorduff Option: proposed WwTP on an approximately 23ha site located in the townland of Newtowncorduff, discharge of treated wastewater via northern outfall approximately 1.5km to 2km offshore north of Loughshinny and south of Skerries, connected by approximately 49.7km of proposed pipeline routes.

During Phase 4 of the ASA process, each of the individual components (i.e. WwTP site, its associated marine outfall location, orbital sewers and outfall pipeline) of the three emerging preferred site options were assessed to determine the most and least favourable constraints in relation to the findings from Phase Two.

In addition, submissions received during Phase 3 and the findings of further investigative studies undertaken during Phase 4 were taken into consideration. Further investigative studies were undertaken as part of Phase 4 and consisted of site visits and walkovers. The findings from the assessment of the individual components of each site option were then combined into an overall emerging preferred site option matrix.

The ASA Phase 4 process determined that it was technically feasible to construct all three site options. All three sites were examined under a range of environmental, technical and cost criteria. The Clonshagh Option (WwTP site at Clonshagh, southern marine outfall and orbital sewers) was assessed to be the most environmentally,

technically and economically advantageous option of the three preferred site options. The assessment concluded the following:

- The Clonshagh site was identified as being of less ecological value when compared to the other two site options;
- The southern outfall exhibited better initial dilution and mixing characteristics for the treated effluent plume compared to the northern outfall;
- Tunnelling of the southern outfall was deemed to pose less technical difficulty than tunnelling of the northern outfall;
- The total length of pipeline routes required for the Clonshagh Option was less than that required for the other two site options, which would result in less of an ecological impact, fewer watercourse crossings, a lower number of crossings of key existing and proposed infrastructure, less potential to disrupt the landscape structure during construction and lower energy requirements; and
- Preliminary cost estimates indicated that the Clonshagh site would cost approximately €80m less than the other two site options.

The Clonshagh Option was therefore considered to be the most environmentally, technically and economically advantageous option. The findings of the Phase Four process were published in June 2013, in the *Alternative Sites Assessment and Route Selection Report (Phase 4): Final Preferred Site and Routes* (Jacobs Tobin 2013), with public consultation from June 2013 to August 2013.

As the assumptions and data supporting Phase 4 of the ASA have not changed significantly in the intervening years, it is our opinion that the findings and recommendation of Phase 4 of the ASA continue to be reasonable and correct.

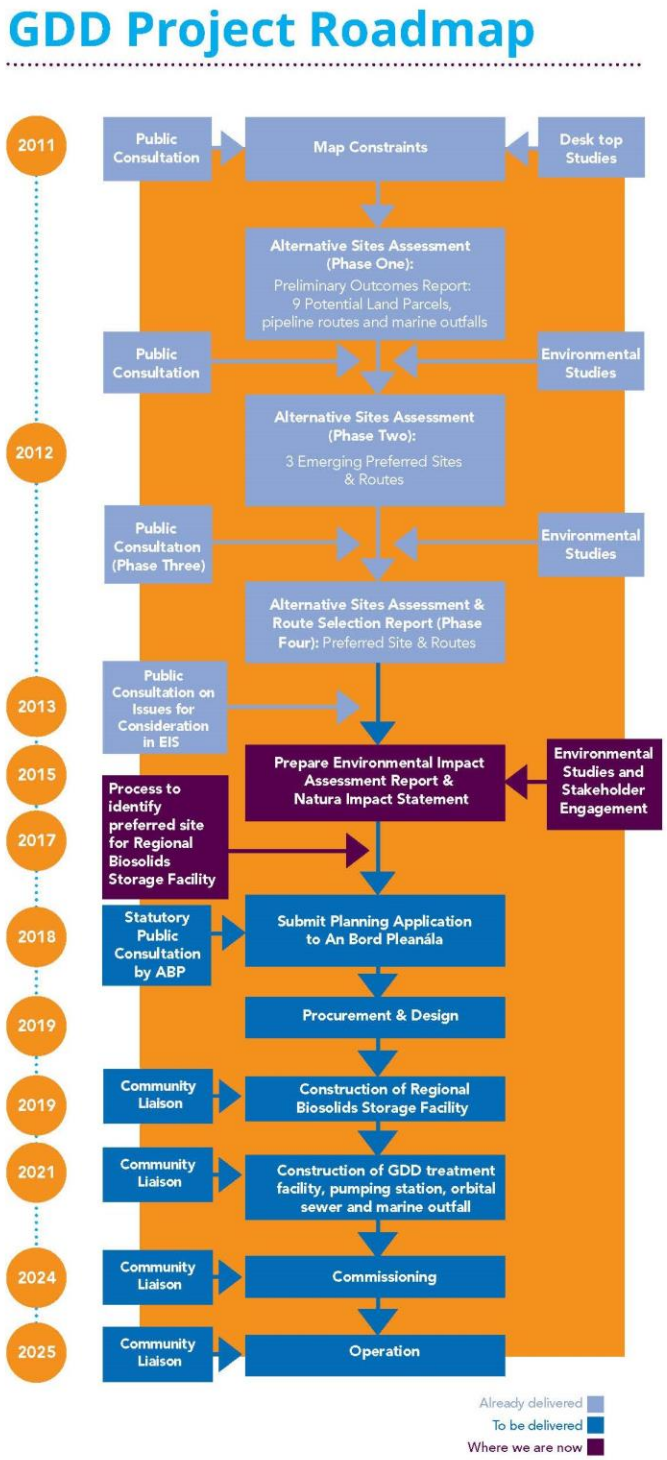

Diagram 1.1: Project Road Map Identifying the Current Stage for the Proposed Project

1.2.4 Final Preferred Site Option (Clonshagh Option)

The Proposed Project will generally be located along the southern fringe of Fingal in North County Dublin, between Blanchardstown and Baldoyle, and in the marine environment off North County Dublin between Baldoyle and the proposed discharge point located to the north-east of Ireland's Eye (refer to Diagram 1.2 and Figure 4.1 Proposed Project Overview).

The site for the proposed WwTP is located in the townland of Clonshagh in Fingal. It is situated in open agricultural land approximately 2.4km south-east of Dublin Airport and approximately 500m north of the R139 Road. The proposed SHC will be co-located with the proposed WwTP on the site at Clonshagh. The proposed outfall pipeline route will consist of a land based section (Clonshagh to Baldoyle) and a marine section (Baldoyle to Ireland's Eye).

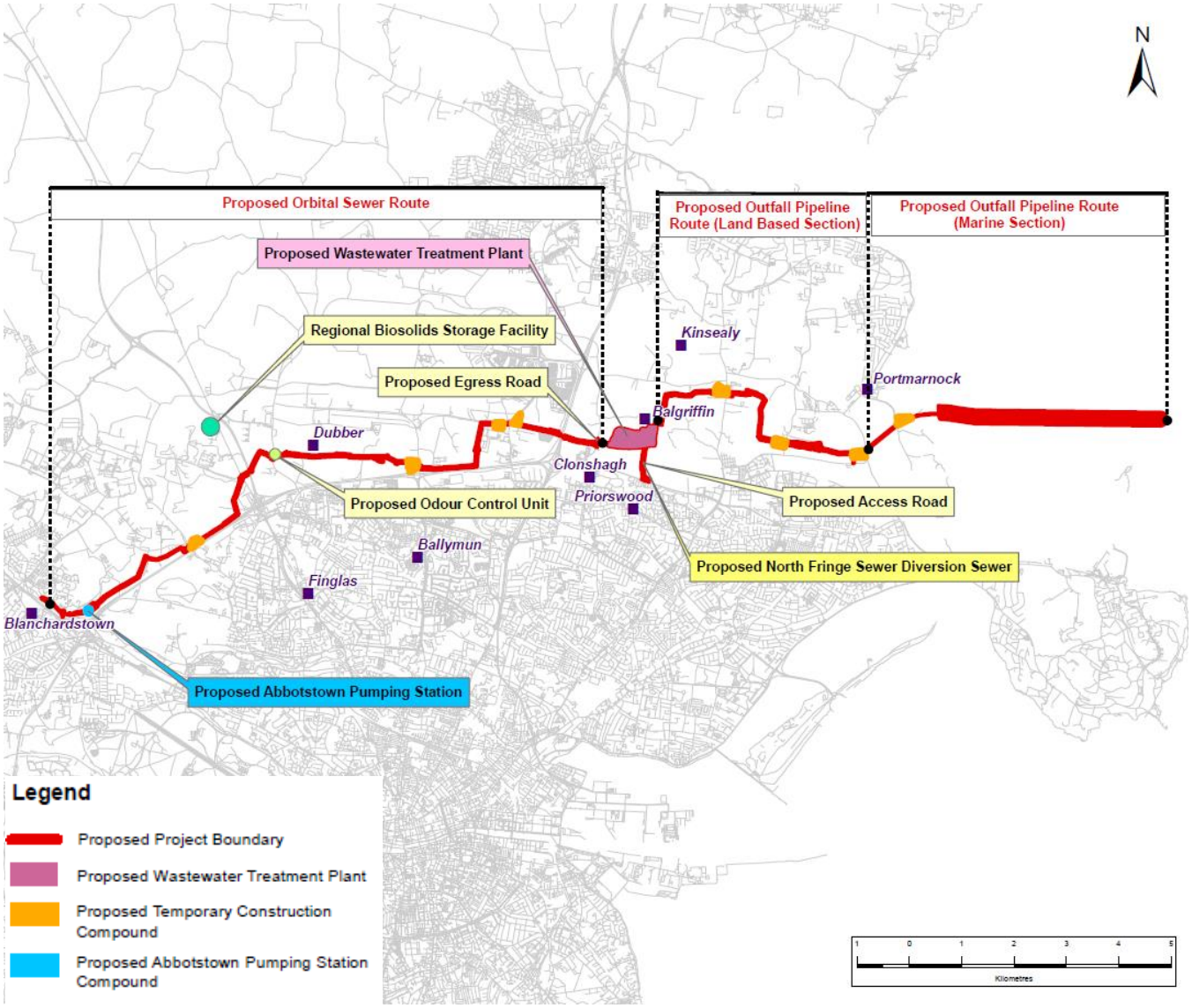

Diagram 1.2: Overview of the Proposed Project

1.2.5 Regional Biosolids Storage Facility

In 2016, within the NWSMP, Irish Water identified the need for a RBSF serving the GDA. The proposed RBSF is ultimately planned to serve the needs of the GDA to the year 2050, which is anticipated to be based upon approximately 3.6 million PE. However, this application for the development of the facility is based on a design horizon of 2040, which has an anticipated requirement of 3 million PE.

Irish Water have undertaken a site selection process, in order to identify a suitable site for the proposed RBSF, which is included in the planning application for this Proposed Project.

The proposed site for the RBSF is located in the townland of Newtown, Dublin 11 (refer to Diagram 1.3). It is 11ha in area, situated adjacent to the R135 Road and north-east of Huntstown power station. It has previously been partially developed to include some road infrastructure, drainage, power, boundary treatments, access/egress gates to the R135 Road and some administration buildings) by FCC for a waste recycling centre in accordance with planning permission PLO6F.EL.2045.

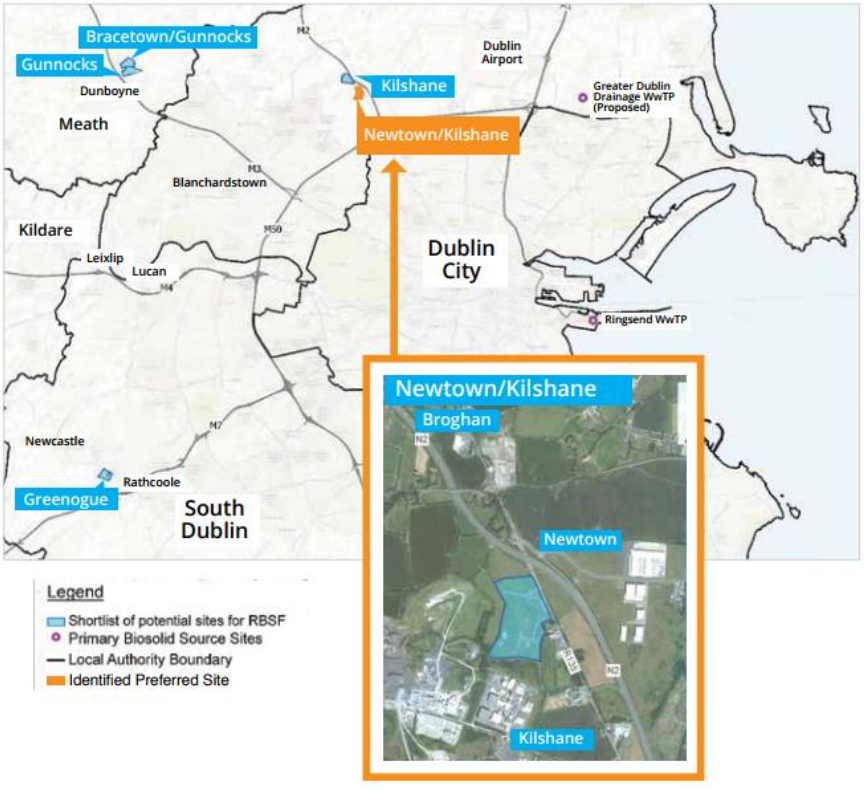

Diagram 1.3: Identified Preferred Regional Biosolids Storage Facility Site in the Townland of Newtown, Dublin 11 (Source: RBSF Stage 3 Public Consultation Newsletter (August 2017))

A full description and further details on each element of the Proposed Project are provided in Chapter 4 Description of the Proposed Project.

1.3 Planning Process

1.3.1 The Applicant for Planning Permission for the Proposed Project

The Water Services Act 2013 transferred the responsibility for providing water and wastewater services and infrastructure from the 31 Local Authorities of Ireland to Irish Water (Uisce Éireann), a subsidiary of Ervia (formerly known as Bord Gáis Éireann). While this project was initiated by FCC, its functions as a water services authority have been transferred to Irish Water, and Irish Water is the Applicant seeking permission for the Proposed Project. A separate letter of correspondence confirming this transfer of responsibilities was submitted to An Bord Pleanála (ABP) during the Pre-Planning Consultation process in February 2014.

This planning application has been confirmed by ABP to comprise Strategic Infrastructure Development and is submitted under Section 37E of the Planning and Development Act 2000, and as amended. The Proposed Project is 'Environmental Infrastructure' as specified in the Seventh Schedule, as inserted by the Strategic Infrastructure Act 2006. This class of development is described as:

'A waste water treatment plant with a capacity greater than a population equivalent of 150,000 and, for the purpose of this provision, population equivalent shall be determined in accordance with Article 2, point 6, of Council Directive 91/271/EEC'.[1]

On 16 May 2018 ABP confirmed that, in its opinion, the Proposed Project will:

- Be of strategic economic or social importance to the State or the region in which it will be situate;
- Contribute substantially to the fulfilment of any of the objectives in the National Spatial Strategy or in any regional spatial and economic strategy in force in respect of the area or areas in which it would be situate; and
- Have a significant effect on the area of more than one planning authority.

Accordingly, as required by Section 37A of the Planning and Development Act 2000, and as amended, the application for permission is being made to ABP and not to the planning authorities concerned.

1.4 Environmental Impact Assessment

Environmental Impact Assessment (EIA) is the process by which the anticipated effects on the environment of a proposed development or project are assessed. ABP and/or the relevant Planning Authority can then take account of these significant environmental effects when determining whether a project should be granted planning approval and what conditions should be included in such planning approval.

As the Proposed Project has been determined to require an application for permission to be made to ABP under Section 37E of the Planning and Development Act 2000 as amended, an EIAR is required to accompany the application.

This EIAR focuses on describing the existing environment, identifying the potential impacts associated with the Proposed Project, assessing the significance of potential impacts and describing any mitigation measures required to reduce or eliminate potential impacts.

[1] O.J. No. L135/40.30.5.1991

The EIAR is made available to consultees, including the public, through the statutory consultation process for the granting of planning permission.

1.5 Appropriate Assessment

The Directive 09/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Birds Directive) and the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) set out various procedures and obligations in relation to nature conservation management, and in particular the conservation of European Sites. 'European Site' replaced the term 'Natura 2000 site' under the European Union (Environmental Impact Assessment and Habitats) Regulations 2011 (S.I. No. 473 of 2011). European Sites comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). A key protection mechanism is the requirement to consider the possible nature conservation implications of any plan or project on European Sites. Appropriate Assessment (AA) is the process which considers the possible effects of a plan or project on the European Sites network.

In accordance with these requirements, the Proposed Project has been assessed to consider whether there are likely significant effects from the Proposed Project on European Sites. Screening concluded that likely significant effects could be excluded for a number of European Sites. Likely significant effects could not be excluded for Baldoyle Bay SPA and Baldoyle Bay SAC, Rockabill to Dalkey Island SAC and Lambay Island SAC and Ireland's Eye SPA.

An AA is required to conclude whether adverse effects upon the integrity of these European Sites will occur. An AA involves the submission of a Natura Impact Statement (NIS) by the developer to ABP, the publication of the NIS so that the public can offer submissions and observations and a determination by ABP as to whether or not the Proposed Project would adversely affect the integrity of a European Site. An NIS is a report comprising the scientific examination of a project and the relevant European Site(s), to identify and characterise any possible implications of the plan or project individually, or in combination with other plans or projects, in view of the conservation objectives of the European Site(s), and any further information including, but not limited to, any plans, maps or drawings, scientific information or data required to enable the carrying out of an AA. The NIS has been prepared for the Proposed Project and is being submitted to ABP, as the competent authority, as a separate document to the EIAR.

1.6 Separate Consent Processes

In addition to the planning permission, the consents and considerations described in the following subsections are also required for construction and operation of the Proposed Project.

1.6.1 The Waste Water Discharge (Authorisation) Regulations 2007

A system for the licensing or certification of wastewater discharges from areas served by local authority sewer networks was brought into effect on 27 September 2007 with the introduction of the Waste Water Discharge (Authorisation) Regulations 2007 (S.I No. 684 of 2007) and as amended by the Waste Water Discharge (Authorisation) (Amendment) Regulations 2010 (S.I. No. 231 of 2010), and further amended by the Waste Water Discharge (Authorisation) (Environmental Impact Assessment) Regulations 2016 (S.I. No. 652 of 2016). This licensing and certification process gives effect to a number of EU Directives by imposing restrictions or prohibitions on the discharge of dangerous substances and implementing measures required under the WFD, thus preventing or reducing the pollution of waters by wastewater discharges. All discharges to the aquatic

environment from sewerage systems owned, managed and operated by water service authorities require a wastewater discharge licence or certificate of authorisation from the EPA.

The authorisation process allows the EPA to place conditions on the operation of wastewater discharges to ensure that potential effects on the receiving water bodies are limited and controlled, with the aim of achieving good surface water status and good groundwater status by 2015 or, at the latest, by 2027.

The proposed WwTP will require a wastewater discharge licence to be granted by the EPA under the Waste Water Discharge (Authorisation) Regulations 2007 (S.I No. 684 of 2007) prior to commissioning. Wastewater discharges from the proposed WwTP must comply with this licence.

1.6.2 Foreshore Act 1933 (as amended)

The Foreshore Act 1933 (as amended) requires that before the commencement of any works or activity (including the erection of any structures) on State-owned foreshore a licence or lease must be obtained from the Minister for Housing, Planning and Local Government or the Minister for Agriculture, Food and the Marine, as appropriate. Such a lease or licence is subject to an annual rental payable to the Exchequer. Foreshore is the land and seabed between the high water of ordinary or medium tides (shown HWM on Ordnance Survey Maps) and the twelve-mile limit (twelve nautical miles is approximately 22.24 kilometres).

The proposed outfall pipeline route (marine section) will require a foreshore licence to be granted by the Minister for the construction and operation of the proposed outfall pipeline route (marine section).

1.6.3 Building Control (Amendments) Regulations 2014

The Building Control Act 1990 and the Building Control (Amendment) Regulations 2014, provide an enforcement framework to ensure improved quality in construction and health and safety of buildings. A Code of Practice has been issued by the Department of Environment, Community and Local Government outlining the necessary online certification steps required to ensure compliance with the applicable legislation. The certification is not aimed at water or effluent quality standards rather it aims to ensure compliance with building regulations and associated design and construction controls. A Certifier and any Assigned Certifiers will be appointed, by Irish Water, to ensure full compliance with the relevant legislation.

1.6.4 Waste Management (Registration of Sewage Sludge Facility) Regulations 2010 (as amended)

In addition to normal planning requirements, the RBSF will need to be registered with the Local Authority under the Waste Management (Registration of Sewage Sludge Facility) Regulations 2010 prior to the commencement of operation. The facility will subsequently be operated in accordance with any conditions that may be imposed as part of that Certificate of Registration.

Waste Permit and the Certificate of Registration Database register for waste facility permits and certificates of registration issued by local authorities has transferred to the National Waste Collection Permit Office (NWCPO). The register is hosted at http://facilityregister.nwcpo.ie/.

1.7 Structure of this Report

Table 1.1 sets out the structure of the EIAR along with a summary of what is included in each chapter. As far as is practicable, the chapters are written in a non-technical style to make it accessible to a wider, non-specialist

audience. Where technical terminology is used, an explanation is provided in the text and/or in the glossary of terms, which is provided at the beginning of Volume 2 of the EIAR.

Table 1.1: Structure of the Environmental Impact Assessment Report

Chapter No.	Title
Volume 1 Non-Technical Summary	
Summary of the EIAR in non-technical language	
Volume 2 Part A: Introduction	
1	Introduction
2	The Environmental Impact Assessment Process
3	The Need for the Proposed Project
4	Description of the Proposed Project
5	Consideration of Alternatives
Volume 2 Part B: Appendices	
Appendices relevant to Volume 2 Part A of the EIAR	
Volume 3 Part A: Main Report for the Proposed Project	
6	Population and Human Health: Population
7	Population and Human Health: Human Health
8	Marine Water Quality
9	Biodiversity (Marine)
10	Biodiversity (Marine Ornithology)
11	Biodiversity (Terrestrial and Freshwater Aquatic)
12	Landscape and Visual
13	Traffic and Transport
14	Air Quality, Odour and Climate
15	Noise and Vibration
16	Archaeological, Architectural and Cultural Heritage
17	Hydrology and Hydrogeology
18	Soils and Geology
19	Agronomy
20	Waste
21	Material Assets
22	Risk of Major Accidents and/or Disasters
23	Cumulative Impacts and Environmental Interactions
24	Summary of Mitigation Measures
25	Summary of Residual Impacts
Volume 3 Part B: Appendices	
Appendices relevant to Volume 3 Part A of the EIAR	
Volume 4 Part A: Main Report for the Regional Biosolids Storage Facility	

Chapter No.	Title
1	Existing Environment
2	Planning and Policy Context
3	Population and Human Health
4	Water
5	Biodiversity - Marine
6	Biodiversity - Terrestrial
7	Land and Soils
8	Air and Climate
9	Noise and Vibration
10	Odour
11	Cultural Heritage
12	Material Assets
13	Traffic
14	Landscape
15	Risk Management
16	Environmental Interactions
17	Summary of Mitigation
18	Summary of Residual Impacts
19	Summary of Cumulative Impacts
Volume 4 Part B: Appendices	
Appendices relevant to Volume 4 Part A of the EIAR	
Volume 5 Part A: Proposed Project Figures	
Figures relevant to Volume 2 and Volume 3 Part A of the EIAR	
Volume 5 Part B: Proposed RBSF Figures	
Figures relevant to Volume 4 Part A of the EIAR	
Volume 6: Proposed Project Photomontages	
Photomontages relevant to the Proposed Project	

Generally, the main EIAR chapters in Volume 3 and Volume 4 are presented with the same structure, which includes the following headings:

- Introduction;
- Methodology;
- Baseline Environment;
- Impact of the Proposed Project – Construction Phase;
- Impact of the Proposed Project – Operational Phase;
- Do-Nothing Impact;
- Mitigation Measures;

- Residual Impacts; and
- Difficulties Encountered in Compiling Required Information.

1.8 References

AOS (2018). Planning Report.

Dublin Drainage Consultancy (2005). Greater Dublin Strategic Drainage Study. Final Strategy Report, April 2005.

Fingal County Council (2008). Final Environmental Report for the Strategic Environmental Assessment of the Greater Dublin Strategic Drainage Study, May 2008.

Fingal County Council (2013). Final Sludge Management Plan.

Irish Water (2015). Water Services Strategic Plan, A Plan for the Future of Water Services, October 2015

Irish Water (2016). National Wastewater Sludge Management Plan, Asset Strategy

Jacobs Tobin (2011). Alternative Sites Assessment – Phase One: Preliminary Screening Outcomes Report

Jacobs Tobin (2012). Alternative Sites Assessment and Route Selection Report (Phase 2): Emerging Preferred Sites and Routes.

Jacobs Tobin (2013). Alternative Sites Assessment and Route Selection Report (Phase 4): Final Preferred Site and Routes.

Directives and Legislation

European Union (2009). Directive 09/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

European Union (1992). Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora [1992].

European Union (Environmental Impact Assessment and Habitats) Regulations 2011 – S.I. No. 473 of 2011

Planning and Development Act 2000

Planning and Development Regulations 2001 – S.I. No. 600 of 2001

Strategic Infrastructure Act 2006

Water Services Act 2013