Client:

Project:

Greater Dublin Drainage Project Addendum

Report:

Regional Biosolids Storage Facility Engineering Design Report Addendum

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SECTION 1: INTRODUCTION

There has been no material change to the design of Regional Biosolids Storage Facility (RBSF) presented in the 2018 planning application. There have been, however, changes to baseline information on which the design is based. This Addendum to the Engineering Design Report for RBSF (hereafter referred to as the 'Report') explains these changes and why they have not resulted in any change to the design.

1.1 Need for Storage Facility

The need for the RBSF is set out the National Wastewater Sludge Management Plan (Irish Water, 2016) (NWSMP). There has been no update to the NWSMP and the plan remains valid. Therefore, there are no changes to the information presented in this Section of the Report in the 2018 planning application.

1.2 Biosolids Description

Existing and proposed methods of sludge treatment have not changed since the 2018 planning application, which means the nature of the Biosolids material that is intended to be stored at the RBSF has not changed. Therefore, there are no changes to the information presented in this Section of the Report in the 2018 planning application.

1.3 Proposed Site

1.3.1 Site Selection Process

The site selection process to identify a site for the Proposed RBSF Component was completed in 2017 and there has been no change to the intention to use the site for the development of the Proposed RBSF Component since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report in the 2018 planning application.

1.3.2 Existing Development at Site

Since the 2018 planning application, ownership of the site transferred from Fingal County Council to Uisce Éireann. Development of the RBSF on the site was granted planning permission by An Bord Pleanála (ABP) (Case Reference Number PA29S.301798), as part of the Ringsend Wastewater Treatment Plant Upgrade Project in April 2019. There has been no development at the site since the 2018 planning application.

SECTION 2: BIOSOLIDS PRODUCTION

2.1 Future Wastewater Design Capacity and Loads

The *Greater Dublin Drainage Strategy; Overview & future Strategic Needs* (GDDS) published in 2017 formed the basis for the most likely projected growth scenario within the Ringsend catchment. These growth scenarios were adopted in the Report for the design of biosolids storage provision at the time of the 2018 planning application. It was stated in the Report that "the loadings on the Ringsend catchment are projected to reach approximately 2.4 million PE by 2024 depending on the actual growth realised in the catchment." The projected loadings for the Ringsend catchment were shown in Figure 2-1 of the Report.

Projected loadings have been reviewed and updated since the 2018 planning application. The review, as presented in Chapter 3 Volume 2A Part A of the EIAR Addendum, considered the current loading at Ringsend Wastewater Treatment Plant (WwTP), existing population derived from the available information from Census 2022 (CSO, 2023), population growth rates, and projected industrial and commercial/institutional loading. As a result of the review, the revised projections predict that Ringsend and GDD wastewater treatment plants (WwTPs) will produce sludge equating to a design PE (population equivalent) of 2.110 million and 0.483 million respectively by the 2040 design horizon. The remainder of the projected sludge arisings will be imports from smaller WwTPs in the Fingal area, along with some septic tanks sludges with an equivalent PE of 0.225m. Overall, this is a reduction of approximately 100,000 PE since the estimate provided in the Report submitted with the 2018 planning application.

The revised projected loadings for the Ringsend catchment for the revised design horizon and interim milestone years are shown in Table 2-1 in section 2.4 below.

2.2 Biosolids Production at Ringsend WwTP

There are no changes to the sludge treatment processes at Ringsend WwTP presented in this Section of the Report in the 2018 planning application.

2.3 Biosolids Production at GDD WwTP

There are no changes to the proposed sludge treatment processes at the Sludge Hub Centre (SHC) to be co-located with the WWTP for the Proposed GDD Project presented in this Section of the Report in the 2018 planning application.

2.4 Storage Requirements

The design horizon years and interim milestone dates for development of Ringsend and GDD WWTPs adopted in this Section of the Report have changed since the 2018 planning application. As discussed in Section 2.1 above, the projected loadings for the Ringsend catchment have also changed. As a result, the estimated production of biosolids and storage volumes presented in Table 2-1 of the Report have been updated. An updated version of Table 2-1 is provided below. For the 2040 design horizon, the estimated storage requirement for the 'Most Likely Scenario' has reduced by approximately 1,200 m^3 (3.4%) since the Report submitted with the 2018 application. The change is not material to the design presented in the Report.

Table 2-1 Storage volume requirement for all scenarios

Year	Source	Population Equivalent (PE)m	Total Treated Sludge (tDS/yr)	Biosolid	Annual Production (Tonnes)			Storage Volume (m^3)		
					High Volume Scenario	Low Volume Scenario	Most Likely Scenario	High Volume Scenario	Low Volume Scenario	Most Likely Scenario
2022	Ringsend WwTP	1.840	20,972	Biofert	0	22,796	16,630	0	16,607	**12,116**
				Biocake	80,662	0	21,816	24,625	0	**6,660**
	Catchment Total	1.840	20,972		80,662	22,796	38,446	24,625	16,607	**18,776**
2031	Ringsend WwTP	1.986	22,639	Biofert	0	24,607	16,630	0	17,927	**12,116**
				Biocake	87,073	0	28,226	26,582	0	**8,617**
	GDD WwTP	0.461	5,886	Biofert	0	0	0	0	0	**0**
				Biocake	23,542	23,542	23,542	7,187	7,187	**7,187**
	Imported Sludges	0.209	2,664	Biocake	10,655	10,655	10,655	3,253	3,253	**3,253**
	Catchment Total	2.655	31,188		110,615	48,150	68,399	37,022	28,367	**31,172**
2040	Ringsend WwTP	2.110	24,056	Biofert	0	26,148	16,630	0	19,049	**12,116**
				Biocake	92,524	0	33,678	28,246	0	**10,281**
	GDD WwTP	0.483	6,167	Biofert	0	0	0	0	0	**0**
				Biocake	24,667	24,667	24,667	7,530	7,530	**7,530**
	Imported Sludges	0.225	2,874	Biocake	11,495	11,495	11,495	3,509	3,509	**3,509**
	Catchment Total	2.818	33,097		128,686	62,310	86,471	39,286	30,089	**33,437**

Notes:
1.Figures are rounded.
2.Biofert is 92% dry solids with a bulk density of 440kg/m^3.
3.Biocake is 26% dry solids with a bulk density of 1050kg/m^3.

SECTION 3: STORAGE BUILDING DESIGN

3.1 Operational Requirements

The operational requirements of the Proposed RBSF Component have not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

3.2 Storage Building Sizing

The estimated storage requirements for milestone dates and the design horizon year were shown in Table 3-1 in this section of the Report. The milestone dates of 2021 (first storage building complete), 2024 (second storage building complete), and 2040 (design horizon) have changed to 2025, 2029, and 2040, respectively, since the 2018 application.

The corresponding agglomeration loading (Population Equivalent) in Table 3-1 for the latest dates has reduced by a minor amount as shown in Table 2-1 in the previous section. These changes do not materially change the storage requirements shown in Table 3-1. Therefore, there is no change to the designed storage building size presented in this Section of the Report in the 2018 planning application.

3.3 Architectural Design

The architectural design of the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

3.4 Structural Design

The structural design of the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

3.5 Mechanical and Electrical Systems

The mechanical and electrical systems design of the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

3.6 Odour Control

The odour control design of the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

3.7 Fire

The fire protection design of the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

3.8 Energy

The solar panel design of the Proposed RBSF Component has not changed since the 2018 planning application.

The Glint and Glare Study carried out in 2018 to determine if there were potential impacts due to the solar panel installation on the roof of the storage building has been reviewed. The conclusion in that report was that there is no reason to suggest that there will be any adverse impacts on receptors from the proposed solar installation. While the air traffic control tower (ATCT) at Dublin Airport (a sensitive receptor for this type

of study) has been constructed since the 2018 planning application, the ATCT had been included in the Glint and Glare Study as it had been permitted for development at the time. The conclusion of the Glint and Glare Study remains unchanged.

Therefore, there are no changes to the information presented in this Section of the Report.

SECTION 4: ANCILLARY BUILDINGS

4.1 Administration & Welfare Building

The design of the administration and welfare building has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

4.2 Electricity Substation

The design of the electricity substation has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

SECTION 5: TRANSPORTATION

5.1 Local Road Network

This section of the Report described the road network near the site of the Proposed RBSF Component. There are no changes to the road network described in this Section of the Report since the 2018 planning application.

5.2 Predicted Traffic Levels

The delivery programme for the Proposed RBSF Component has been updated since the 2018 planning application. In the Report, future year flows were established by factoring up traffic flow figures contained in the baseline model to the design years 2020, 2024, 2025 and 2040 using central growth rates contained within TII (NRA) Project Appraisal Guidelines: Unit 5.3 - Travel Demand Projections.

Future year flows have been reviewed for revised design years 2024, 2028, 2029 and 2044. The traffic flow figures contained in the 2023 baseline model were factored up to account for traffic growth for the revised design years using central growth rates contained within the Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections (TII 2021). This version of the guideline is an update to the version adopted in the Report in the 2018 planning application.

5.2.1 Total Trip Generation

Table 5-1 in this section of the Report showed the predicted daily trip generation for Biosolids delivery vehicles (referred to as HGVs) over the course of a year during the operational phase of the Proposed RBSF Component for each design year. As result of the above-mentioned change to delivery programme, the design years shown in Table 5-1 of the Report would change accordingly. The daily trip generation figures shown in Table 5-1 of the Report were based on Biosolids production. As shown in Section 2, the estimated Biosolids production is estimated to reduce slightly over the design life of the RBSF. However, this slight reduction does not materially change the figures presented in Table 5-1 of the Report.

Table 5-2 in this section of the Report showed the predicted peak daily trips generated during construction and operational phase of the Proposed RBSF Component for each design year. It is based on the peak figures presented in Table 5-1 in the Report. As result of the change to delivery programme, the design years shown in Table 5-2 would change accordingly. However, the predicted daily trip figures have not materially changed since the 2018 planning application.

5.3 Current Traffic Levels

A new traffic survey was carried since the traffic survey presented in this Section of the Report in the 2018 planning application. The latest traffic survey was carried out on 26 April 2023 at the same locations and under the same criteria for the traffic survey in the Report submitted with the 2018 planning application. The annual average daily traffic (AADTs) derived from Traffic Count Data presented in Table 5-3 of the Report have been updated based new traffic information since the 2018 planning application and are shown in Table 5-3 below. The changes are not material to the design provided in the Report.

Table 5-1 2023 AADTs Derived from Traffic Count Data (Updated)

Link	12 Hour Flow (Vehicles)	AADT
N2	39,580	43,277
R135	5,863	6,411

5.3.1 Future Year Traffic Flows

Table 5-4 in this section of the Report showed the AADT for the pre and post development scenarios of the Proposed RBSF Component for each design year. The table showed that the estimated increase AADT over the design life of the Proposed RBSF Component was 1.2 – 1.5 % on the R135 and 0.3 – 0.4 % on the N2.

As a result of the change to delivery programme, the design years shown in Table 5-4 have changed as outlined at the start of Section 5. In addition, the derived AADT shown in Table 5-4 has been reviewed for the latest traffic survey since the 2018 planning application.

The revised change in AADT for the pre and post development scenarios over the design life of the Proposed RBSF Component has been recalculated as 0.6 – 1.1 % on the R135 and 0.2 – 0.3 % on the N2. This reduction is not material change to the design of the Proposed RBSF Component.

5.3.2 Site Access and Egress Arrangements

The site access and egress design at the site of the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

SECTION 6: SITE DEVELOPMENT

6.1 Demolition Works

The proposed demolition works at the site of the Proposed RBSF Component have not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

6.2 Earthworks

Since the 2018 planning application, a further site investigation was carried out on the site. It took place in 2020 in advance of a planned temporary use of the site as a heavy goods vehicle (HGV) parking area. The planned parking area was part of the Government's Brexit preparations, but the works did not proceed. The investigation comprised 13 trial pits and 13 dynamic cone penetration tests. Results of the investigation took the form of resident engineer notes taken during observation of the works. A factual report was not prepared, and lab testing was not carried out. The reported results are generally consistent with the findings of the two previous investigations carried out in 2001 and 2017. An update of Table 6-1 in the Report is provided below.

Table 6-1: Site Investigation Summary (Updated)

Contractor	SI Report References	Description of Investigation	Details of Investigation	Date of Works
TES Ltd. (with Glovers Site Investigations conducting boreholes and laboratory testing)	TES Ltd., Trial Pit and Borehole Logs for the Recycling Park at Kilshane Cross (2001) Glovers Site Investigations Ltd., Kilshane N2, Ground Investigation, Geotech Laboratory Test Results Report No. 4389 (January 2002)	Site investigations for Kilshane Cross Recycling Park	7 No. Trial pits 3 No. Boreholes (air rotary/odex drilling) Laboratory testing on soil samples	2001
Priority Geotechnical Ltd.	Priority Geotechnical Limited, Regional Biosolids Storage Facility, Site Investigation – Factual Report (Report No. P17148, 2018)	Regional Biosolids Storage Facility Site Investigations	11 No. Trial Pits 6 No. Slit Trenches 3 No. Rotary Coreholes 8 No. Cable Percussion Boreholes Laboratory testing on soil and rock samples	2017
Jons Civil Engineering Company Limited	Field notes	Planned temporary use as HGV parking area	TP depths range between 0.6m to 1m below ground level (mBGL).	2020

6.3 Surface Water Drainage

The surface water drainage design for the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

6.4 Wastewater Drainage

The wastewater drainage design for the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

6.5 External Lighting Design

The external lighting design for the Proposed RBSF Component has not changed since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the Report.

Appendix 1: List of Drawings

There are no changes to the information presented in this Appendix of the Report in the 2018 planning application.

Appendix 2: Strategic Fire Safety Report

There are no changes to the information presented in this Appendix of the Report in the 2018 planning application.

Appendix 3: Microdrainage Analysis

There are no changes to the information presented in this Appendix of the Report in the 2018 planning application.

Appendix 4: External Lighting Design

There are no changes to the information presented in this Appendix of the Report in the 2018 planning application.