Greater Dublin Drainage Project Addendum

Environmental Impact Assessment Report Addendum: Volume 3A Part A of 6

Chapter 17A Hydrology and Hydrogeology

Uisce Éireann

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Contents

17. Hydrology and Hydrogeology

17.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, we have reviewed Chapter 17 (Hydrology and Hydrogeology) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

Table 17.1 includes a summary of the project elements which were incorporated into the planning design for the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project) following direction at the Oral Hearing in 2019 and the subsequent planning conditions applied to the planning permission. A full description is included in Chapter 4A (Description of the Proposed Project) in Volume 2A Part A of the EIAR Addendum. The remaining elements of the Proposed Project included in the 2018 planning application remain unchanged.

Table 17.1: Updated Proposed Project Elements

Updated Element	Outline Description of Updated Element
Ultraviolet (UV) Treatment	• UV Treatment is to be included in the treatment process at the proposed wastewater treatment plant (WwTP) in the northern section of the WwTP site. • The UV treatment system will be designed for the expected flows at the plant and will be installed on the final effluent line. UV treatment will be in operation 24 hours a day, 365 days a year. • The UV system will consist of a minimum of three and a maximum of four treatment units located below or partially below ground level with an above-ground Motor Control Centre (MCC) (in a kiosk) along with minor maintenance and control equipment (e.g. shut-off button, frame for supporting, retracting and cleaning of UV lamps etc.).
River Mayne Culvert Extension	• Extension of the River Mayne Culvert on the proposed access road to the WwTP by 4m (from 21m to 25m) to cater for the full width of the future north south link road.

This EIAR Addendum Chapter should be read in conjunction with Chapter 17 (Hydrology and Hydrogeology) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application.

The updated assessments of hydrology and hydrogeology for the proposed Regional Biosolids Storage Facility are included in Section 4A (Water) and Section 7A (Land and Soils) in Volume 4A Part A of this EIAR Addendum.

17.2 Methodology

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). The updated EPA Guidelines have been considered in terms of the methodology applied in this Chapter of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines.

The other guidelines included in this Section of the EIAR in the 2018 planning application remain unchanged.

17.2.1 Desktop Study

A desk-based study was undertaken in December 2022 and updated and finalised in August 2023 to identify any changes to the hydrological and hydrogeological baseline for the Proposed Project since the 2018 planning application submission.

Updates to water quality data, River Basin Management Plans, catchments and designated biodiversity sites were sourced from the latest online EPA Mapper (EPA 2023). These datasets were reviewed and any changes to the baseline that have occurred since 2018 are outlined in Section 17.4.

In September 2021, the Minister for Housing, Local Government and Heritage (DHLGH), published the Draft River Basin Management Plan for Ireland 2022 - 2027 (hereafter referred to as the Draft RBMP) for public consultation (DHLGH 2021). The consultation period closed on 31 March 2022. The Draft RBMP sets out at the outset that it is published in the context of a rapidly changing policy landscape at European and International levels and against a backdrop of '*widespread, rapid and intensifying climate change*'.

17.2.2 Legislation

This Section of Chapter 17 (Hydrology and Hydrogeology) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application was reviewed in order to determine if there have been any updates to the legislation governing the assessment of hydrology and hydrogeology in the intervening period.

The following updates to legislation have occurred since the submission of the 2018 planning application:

- S.I. No. 722/2003 – European Communities (Water Policy) Regulations 2003 have been amended by S.I. No. 166/2022 - European Union (Water Policy) (Amendment) Regulations 2022; and
- S.I. No. 272/2009 - European Communities Environmental Objectives (Surface Waters) Regulations 2009 have been amended by S.I. No. 288/2022 - European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2022.

Both amended regulations have been considered and there are no material differences within these updated regulations in relation to the assessment completed as part of the 2018 planning application, and therefore, these regulations have no impact on the outcomes of the previous assessment carried out as part of the 2018 planning application.

17.2.3 Stakeholder Consultation

Following an Oral Hearing process, An Bord Pleanála (ABP) previously made a decision to grant the planning application for the Proposed Project by Order dated 11 November 2019 under reference number ABP-301908-18. That decision was quashed by Order of the High Court and the case was remitted by that Court to ABP for a fresh determination. Following the remittal Order, ABP decided that given the passage of time since the submission of the original planning application, and in accordance with Section 37F(1)(c) of the Planning and Development Act 2000 (as amended), Uisce Éireann should have the opportunity to update, where appropriate, the EIAR and Natura Impact Statement, and any other information submitted.

In light of this, ABP contacted those who had made submissions as part of the original consultation process in 2018 advising that the case had been reactivated under a new reference number (ABP-312131-21) and invited those interested parties to make any further general submissions / observations on the planning application by 30 September 2022. A total of 16 submissions were received and were reviewed. There were no significant comments relating to hydrology and hydrogeology that required any amendments to the assessment or the outcome of the assessment.

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.2.4 Groundwater Supplies – Surveys and Questionnaires

Previous surveys and questionnaires identified that the majority of the study area is serviced by public water mains. In addition, the previous assessment determined that there would be no impact on groundwater supplies as a result of the Proposed Project. Therefore, based on professional judgement, no updates to the previous surveys were deemed necessary, and therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.3 Attributes

The criteria for rating impacts were checked against the updated EPA Guidelines (EPA 2022). There are no changes required as a result of the updated EPA Guidelines, as the rating of impacts remains unchanged from the previous EPA Guidelines (EPA 2017).

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.4 Baseline Environment

In this Section, any changes to the baseline environment with regards to hydrology and hydrogeology since the original 2018 planning application were evaluated.

17.4.1 Study Area

There are no changes to the study area or the information presented in this Section of the EIAR in the 2018 planning application.

17.4.2 General Hydrology

There are no changes to the study area or the four dominant water bodies identified within the study area in this Section of the EIAR in the 2018 planning application. Therefore, no changes to the information presented in this Section of the EIAR in the 2018 planning application are required.

17.4.3 Rivers

The Water Framework Directive (WFD) status of water bodies have been updated by the EPA since the submission of the 2018 planning application (EPA 2023). The only change in status relevant to the study area for the Proposed Project is to the River Sluice which previously had an ‘unassigned’ status and is now classified as having a ‘Poor’ water quality status. Its risk of not achieving ‘Good’ water quality status is currently under review.

17.4.4 Coastal and Estuary Areas

The WFD status of water bodies have been updated since the submission of the 2018 planning application, with the following changes noted under coastal and estuarine water bodies:

- The status of Mayne Estuary (Baldoyle Estuary) was previously ‘under review’, but this has now been assigned a ‘Moderate’ water quality status;
- The status of Tolka Estuary was previously ‘Moderate’ but is now assigned a ‘Poor’ water quality status; and
- The transitional water body into which the River Santry discharges (North Bull Island transitional water body) is now classified as ‘Moderate’.

17.4.5 Flood Risk

The Flood Risk Assessment (FRA) Report submitted as a standalone document in the 2018 planning application was reviewed for any updates to legislation and guidance, source information and to assess whether the updates to the Proposed Project elements would require any changes to the FRA. The Revised FRA is included as a standalone document in this Addendum. However, following review, there are no changes to the outcome of the FRA submitted as part of the 2018 planning application or to the information presented in this Section of the EIAR in the 2018 planning application.

17.4.6 General Hydrogeology

The data sources for the hydrogeological environment (aquifer classification, aquifer vulnerability etc.) were reviewed on the Geological Survey of Ireland (GSI) Groundwater Data Viewer in August 2023 (GSI 2023). There has been no change to the hydrogeological baseline, and therefore, no changes were required to this Section of the EIAR in the 2018 planning application.

Please refer to Chapter 18A (Soils and Geology) in Volume 3A Part A of this EIAR Addendum for any updates in relation to geology.

17.4.7 Aquifer Classification

There have been no changes to aquifer classification since the submission of the EIAR in the 2018 planning application, and therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.4.8 Aquifer Vulnerability

There have been no changes to aquifer vulnerability classifications since the submission of the EIAR in the 2018 planning application, and therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.4.9 Groundwater Supplies

There have been no changes to the GSI mapping for groundwater since the submission of the EIAR in the 2018 planning application, and therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.4.10 Portmarnock Peninsula Irrigation Wells

The updated Proposed Project elements, as outlined in Section 17.1, will have no impact on the Portmarnock Peninsula Irrigation Wells as the updated elements are located at the proposed WwTP / access road to the proposed WwTP site, approximately 4.5km from Portmarnock Peninsula. There is therefore no potential for any additional impacts, above those outlined in Chapter 17 (Hydrology and Hydrogeology) in Volume 3 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.4.11 Groundwater Quality

Groundwater samples were collected from 11 of the site investigation (SI) boreholes and analysed for groundwater quality as part of the assessment for the original Chapter 17 (Hydrology and Hydrogeology) in Volume 3 Part A of the EIAR submitted in the 2018 planning application. This analysis provided a general indication of the groundwater quality and confirmed that the groundwater quality was typical of an urban environment. The general groundwater quality is considered unlikely to have changed in the interim and the existing information is considered sufficient to assess the impacts. The overall groundwater status remains good within the study area. In addition, in the previous assessment, the magnitude of the effect of the Proposed Project was assessed to be negligible, regardless of the existing groundwater quality.

Consequently, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.4.12 Groundwater Flow Direction and Water Levels

Water levels were collected in selected boreholes over the course of a year, as outlined in Chapter 17 (Hydrology and Hydrogeology) in Volume 3 Part A of the EIAR submitted in the 2018 planning application. The levels provided a baseline of the seasonal fluctuations in the water table and are still considered to provide an

appropriate baseline. The regional groundwater flow direction will continue to reflect the topography and is directed towards the east.

There are therefore no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.5 Embedded Mitigation

Following a review of the updated Proposed Project elements, as outlined in Section 17.1, there is no requirement to amend the embedded mitigation outlined in this Section of the EIAR in the 2018 planning application, as no additional impacts on hydrology and hydrogeology have been identified. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

17.6 Predicted Impacts

The predicted impacts listed in this Section of the EIAR in the 2018 planning application were reviewed in the context of the amended elements of the Proposed Project, as outlined in Section 17.1, namely:

- The proposed inclusion of Ultraviolet (UV) treatment; and
- The proposed River Mayne Culvert extension.

The proposed inclusion of UV treatment will result in an improvement on the bacteriological quality of the treated wastewater discharged into the Irish Sea. Any change in the predicted impact on marine water quality is addressed in Chapter 8A (Marine Water Quality) in Volume 3A Part A of the EIAR Addendum.

The proposed River Mayne Culvert will be extended by 4m, and is now designed as a 25m culvert, in accordance with all relevant standards. This will continue to ensure that there are no impacts on the flow regime within the River Mayne. The extension of the culvert by 4m will result in no material change to the effects outlined this Section of the EIAR in the 2018 planning application.

It should also be noted that the construction of these two components will not change the predicted Construction Phase impacts assessed in this Section of the EIAR in the 2018 planning application.

The predicted impacts listed in this Section of the EIAR in the 2018 planning application were also reviewed in the context of the changes to the hydrology and hydrogeology baseline environment, as discussed in Section 17.4. The changes in the designated WFD status of the surface water receptors described in Section 17.4.3 and Section 17.4.4 were considered in terms of the assessment, but do not necessitate a change to the impacts outlined in this Section of the EIAR in the 2018 planning application.

17.7 Mitigation Measures

The updates to the Proposed Project elements, as outlined in Section 17.1, and changes to the baseline environment were assessed and deemed not to result in any additional impacts, above those identified in the original Chapter 17 (Hydrology and Hydrogeology) included in Volume 3 Part A of the EIAR in the 2018 planning application. There is therefore no requirement for additional mitigation measures, above the measures outlined in the original Chapter 17 (Hydrology and Hydrogeology) included in Volume 3 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.8 Residual Impacts

The updates to the Proposed Project elements, as outlined in Section 17.1, and changes to the baseline environment were assessed and deemed not to result in any additional impacts, above those identified in the original Chapter 17 (Hydrology and Hydrogeology) included in Volume 3 Part A of the EIAR in the 2018 planning application. The residual impacts therefore remain, as presented in the original Chapter 17 (Hydrology

and Hydrogeology) included in Volume 3 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

17.9 Difficulties Encountered in Compiling Required Information

No difficulties were encountered in completing this Addendum Chapter.

17.10 Conclusion

This Addendum Chapter has considered all updates to infrastructural elements of the Proposed Project, and relevant hydrology and hydrogeology updates to the baseline environment, and to guidance and reference material, since the 2018 planning application submission. Following consideration, there are no changes to the assessment of hydrology and hydrogeology as a result of any of the updates discussed in this Addendum Chapter.

17.11 References

DHLGH (2021). Draft River Basin Management Plan for Ireland 2022 - 2027

EPA (2017). Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports

EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports

EPA (2023). EPA Maps [Online] Available at https://gis.epa.ie/EPAMaps/. Accessed August 2023

GSI (2023). Groundwater Data Viewer. [Online] Available at https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef. Accessed 2023.

Directives and Legislation

Planning and Development Act 2000 (as amended)

S.I. No. 722/2003 – European Communities (Water Policy) Regulations 2003

S.I. No. 272/2009 - European Communities Environmental Objectives (Surface Waters) Regulations 2009

S.I. No. 166/2022 - European Union (Water Policy) (Amendment) Regulations 2022

S.I. No. 288/2022 - European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2022