cubic metres of hazardous waste material, as well as other made ground with marine sediments, which could lead to negative impacts if not appropriately handled.

12.4.7. Piling works proposed have the potential to create vertical pathways in which potentially contaminated soils, sediment and groundwater could migrate downwards. However, as stated above, the underlying aquifer is not a potable groundwater resource.

12.4.8. Dewatering abstractions would require sheet piling to prevent groundwater inflows during excavations. However, no significant volumes of water are intended to be abstracted and the dewatering is not therefore considered to result in significant effects on the hydrogeological environment.

12.4.9. A 'do-nothing' approach to the Japanese Knotweed would result in a significant permanent negative impact. It is submitted that the control of the Japanese Knotweed would need to be addressed regardless or not of whether the Proposed WwTP Component proceeds.

12.4.10. Proposals for the removal of Japanese Knotweed is planned and it would be appropriate to condition same.

12.4.11. Potential impacts could occur from accidental spillages of pollutants or hydrocarbons during construction.

12.4.12. During the operation phase no direct discharges to the soil or hydrological environment are proposed and as such no significant impacts are anticipated.

12.4.13. When compared to the LSOT option, the AGS option would result in significantly less excavations. It is stated that the LSOT would have generated 850,000 tonnes of spoil during construction (and associated c. 70,000 truck movements) over an 18-month period. In addition, the current AGS option allows for the recovery of most of the phosphorous from the wastewater as distinct from the LSOT option in which c. four times as much phosphorous would have been discharged 9km out to sea. Therefore, in terms of waste recovery, the AGS option can be deemed to bring significantly greater benefits.

Mitigation Measures

12.4.14. The proposed CEMP is the overarching mitigation embedded in the project design and delivery and, if implemented appropriately, would ensure good construction management and best practice and accordingly minimise the potential for harmful impacts on the land and soils environment.

12.4.15. A site-specific waste management plan is also proposed to be prepared by the contractor and agreed in advance of the works. Disposal of unusable soils and waste materials encountered would be the responsibility of the contractor, who would be required to comply with statutory obligations. Three waste facilities with operational licences for acceptance of non-hazardous waste have been identified. Hazardous waste would be required to be exported overseas. Contaminated soils would be removed from the site for safe treatment and therefore no impact is predicted regarding waste disposal. It is stated that a project waste manager would be appointed by the contractor to oversee the implementation and adherence to the plan during the construction phase of the Proposed WwTP Component.

12.4.16. The appointed contractor would be required to provide a method statement for the dewatering of excavation below the water table.

12.4.17. Management of construction induced settlement would form part of the contract documents and these would include condition surveys and physical monitoring of settlements.

12.4.18. In order to mitigate potential impacts associated with the spread of invasive species, contract documents for the proposed WwTP are proposed to include a requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species management plan and monitor the success of the mitigation measures post-construction.

12.4.19. No specific mitigation is proposed for the operational phase apart from adherence to best practice.

Residual Impacts

12.4.20. I am satisfied that with mitigation in place, no significant negative impacts are likely

to arise on land and soils as a result of the Ringsend WwTP component. As contaminated soils would be removed from site, the predicted impact on the land and soils environment would result in a slight positive permanent impact. The removal of Japanese Knotweed currently on site would also result in a slight positive permanent impact.

Monitoring

12.4.21. No monitoring is proposed for land and soils outside of monitoring for the success of invasive species removal and monitoring for construction induced settlement. I consider this to be acceptable.

12.4.22. **Water - Ringsend WwTP**

Introduction and Existing Environment

12.4.23. This section of my report should be read in conjunction with the section – Principle and water quality set out under the planning assessment above. Section 4 of the EIAR in Volume 3 addresses the water environment at the Ringsend WwTP. The assessment of water focuses on the discharge from the treatment plant and considers the impact that would arise from the increase in flow and the improvement in the effluent quality. Groundwater/hydrogeology is considered separately under Section 7 (Land and Soils) of the EIAR (Volume 3) and I have dealt with this under the heading of Land and Soils above. The principal wastewater discharge point is located in the Poolbeg power station cooling water discharge channel in the Liffey Estuary and a stormwater overflow discharge point is located at Pigeon House harbour.

12.4.24. The required standards for the final effluent discharge are set out in the EIAR and are presented in Table 1 within the planning assessment section above. While the required ELVs relate to total Nitrogen (N) and total Phosphorous (P), water quality legislation and the assessment carried out in the computer modelling considered the parameters DIN and MRP. DIN is related to total Nitrogen as it represents the soluble organic fraction in water, available for biological uptake. Similarly, MRP is related to total Phosphorous representing the soluble organic fraction available for biological uptake. Total N and Total P include insoluble inorganic and soluble organic fractions which are not measured as part of DIN and MRP. The future DIN is

estimated to be between 80% and 90% of Total N and the future MRP is estimated to be between 70% and 80% of Total P.

12.4.25. The computer models used in the assessment included DHI MIKE 3 FM model and CEFAS CDPM model. The DHI MIKE 3 FM model is a hydrodynamic model and was used to analyse how the final effluent discharge disperses within the receiving water, while the CEFAS DCPM model was used to analyse the biological response (chlorophyll and macroalgae) to the final nutrients (nitrogen and phosphorous) inputs in the effluent being discharged into the receiving water. The CEFAS DCPM model focused on the Tolka Estuary, as the DHI MIKE3 model identified the Tolka Estuary as experiencing the highest impact from the Ringsend WwTP final effluent discharge. Both models drew on available scientific data and data collected from marine surveys. Water quality in the receiving water is monitored on an ongoing basis by the EPA and Dublin City Council and is therefore well understood. The MIKE 3 model was constructed from available data and refined and calibrated using additional marine survey results. It was then validated by comparing ongoing field sampling of the receiving waters (BOD, DIN and MRP). The DCPM model was calibrated from the boundary conditions identified in the MIKE 3 model at the entrance to the Tolka estuary.

Potential Impacts

12.4.26. The main changes in water quality arising from the upgraded Ringsend WwTP would be positive in that there would be a higher quality of treated effluent achieved and a reduction in pollutants released to the water environment.

12.4.27. The proposal to omit the LSOT and associated diffuser point 9 km out to sea would mean that there would be no deterioration of water quality at this location.

12.4.28. It was assessed through the modelling that as a result of the Ringsend WwTP upgrade, once complete and operational, there is a predicted positive imperceptible impact on the receiving water environment in respect of BOD and SS. In respect of ammonia, there is a predicted positive moderate impact. A reduction in the total DIN load discharged from the Ringsend WwTP is predicted and would be experienced primarily in the Tolka Estuary. The overall impact from the change in DIN discharge is considered positive and imperceptible. The impact of the Proposed WwTP

component in respect of the MRP parameter is also predicted as being positive and moderate.

12.4.29. It is also predicted that there would be a positive and not significant impact from the Proposed WwTP Component, in respect of the E.Coli parameter, both during normal operation and during storm events. A neutral impact is predicted on designated bathing areas as a result of E.coli.

12.4.30. During the construction phase, in the winter of 2019/2020, as stated above some processes would be removed on a phased basis resulting in reduced treatment capacity and hence a reduction in the final effluent quality is predicted. It is submitted that the nutrient (DIN and MRP) levels are not as critical during the winter months. It is also predicted that there would be a negative imperceptible and temporary impact with regard to the BOD and SS during this period. In terms of BOD, the quality standard is predicted as remaining below the 4 mg/l which is the parameter for 'good status' in transitional waters. This has been rated in the EIAR as having minor or slight significance on water. Similar to my consideration of the impact on recreational water based activities (and as assessed under the heading of population and human health), I would be more inclined to conclude that this impact would be 'moderate' rather than 'slight' in terms of significance on the water environment as it is stated in the EIAR, under the heading of Population and Human Health, that the impact would be largely dependent on overall water quality in the area at the time of the works which is stated to be largely carried out over a winter period but with an overlap of nine months.

Mitigation Measures

12.4.31. As the impacts on water quality of the receiving waters are identified as positive, no mitigation is proposed or necessary which, noting the intention of the development is to approve quality of effluent to the required standards is acceptable. I am mindful that there is an expected temporary moderate negative impact during the construction phase arising from the removal of some processes as outlined above over winter 2019/2020. While this could be mitigated by extending the specific works over a longer timescale, I accept the point made regarding the benefit of completing the construction over the intended shorter timeframe would bring positive benefits

earlier in the timeline that would outweigh any negative impacts were the timeline to be extended.

Residual Impacts

12.4.32. The residual impact of the Proposed WwTP component with respect to water quality would clearly be significantly positive in the long-term, arising from the improved final effluent and the proposed development would ensure the upgraded plant would be consistent with the UWWTD. In addition, the development would serve to protect the status of the receiving waters as required under the WFD and the BWD. As stated above, during the winter of 2019/2020 there would be a moderate impact on water quality for a short period during the period of decommissioning tanks. No long-term impacts beyond positive impacts are anticipated to arise because of these works. Accordingly, a short term moderate impact is acceptable.

Monitoring

12.4.33. The final effluent would be monitored in accordance with the terms of the Wastewater Discharge Authorisation (EPA Licence D0034-01) for the plant and this licence would likely be reviewed. Beyond this, no additional monitoring is proposed, which I consider is acceptable.

12.4.34. **Air and Climate - Ringsend WwTP component**

Introduction and Existing Environment

12.4.35. Baseline data and data available from similar environments indicates background concentrations in the vicinity of the Ringsend WwTP (2017) as follows:

- Nitrogen dioxide (NO_2) = 32 $\mu g/m^3$
- Particulates (PM_{10}) = 15 $\mu g/m^3$
- Particulates ($PM_{2.5}$) = 10.05 $\mu g/m^3$
- Benzene = 1 $\mu g/m^3$
- Carbon Monoxide (CO) = 0.44 mg/m^3

12.4.36. These all lie below the National and EU ambient air quality standard limits. Records

on prevailing winds were examined from the nearest representative weather station at Dublin airport, located 10 km north of the site.

Potential Impacts

12.4.37. Dust deposition arising from the construction phase has the potential to cause temporary slight local impacts at nearby residential properties within a separation distance of up to 200m. The closest residence to the main construction works is c.950m and I am satisfied that the residential receptors are unlikely to be affected by dust emissions from the WwTP site.

12.4.38. Vehicles transporting material also have potential to lead to dust generation along haul routes to and from the site. Four residential receptors were identified and modelled to establish the air quality and predicted impacts. Their locations are shown on Figure 8.2 within Section 8 of Volume 3 of the EIAR. I am satisfied that as submitted by the applicant, receptor R03 at Seán Moore Road would be representative of residential development that may be delivered at the Poolbeg SDZ.

12.4.39. The maximum impact identified is a predicted increase of 4.6% of NO_2 at receptor R2, deemed to be a slight adverse impact during construction. The potential impact is considered to be insignificant at all other receptor locations. The predicted impact of the proposed WwTP component during the construction phase with regard to PM_{10} and $PM_{2.5}$, CO and Benzene is predicted to be imperceptible, short-term and reversible at all four of the receptors assessed and the impact would inevitably decrease post completion of construction works.

12.4.40. During the operation phase, there is potential for a number of emissions to be released to the atmosphere. Emissions of NOx ($NO + N_2O$) from the nitrifying and denitrifying cycles within the plant could cause an impact to local air quality. However, it is stated that these emissions currently occur on site without issue and with the improved AGS process and improved process control, this would limit the volume of NOx released.

12.4.41. In the operation phase, impacts on air quality would potentially arise as a result of increased traffic volumes which could lead to increased quantities of air pollutants. This impact has been assessed by modelling emissions from the traffic generated. In

this regard impacts of the proposed WwTP component during operation from release of air pollutants (NO_2, PM_{10} and $PM_{2.5}$, CO and Benzene) are predicted to be imperceptible.

12.4.42. Greenhouse gas emissions produced during construction phase of the proposed WwTP are expected to account for 0.03% of Ireland's EU 2020 target. The AGS option is predicted to give rise to a lower emissions during construction particularly because of lower level of excavations and HGV movements and associated energy consumption.

12.4.43. During operation, an overall comparison of power consumptions for both the LSOT and AGS options found that the energy consumption during operation is expected to be comparable for both options. In terms of energy management, it is stated that the WwTP currently operates Ringsend WwTP to energy management standard ISO 50001 and would continue with improvements to achieve economic and energy efficiency including the recovery of renewable energy.

Mitigation Measures

12.4.44. During construction, no mitigation is proposed apart from adherence to good practice and the overarching CEMP, including dust minimisation measures. No site-specific mitigation measures are required during the operational phase of the proposed Ringsend WwTP component.

Residual Impacts

12.4.45. The assessment concludes that once dust minimisation measures are employed during construction, no negative residual impacts are predicted on the Air and Climate environment as a result of the Ringsend WwTP component. Neither are any residual impacts anticipated during the operational phase of the Proposed WwTP Component. I am satisfied that with the Ringsend WwTP component in place, air pollutants in the local area would be below the National and EU ambient air quality standard maximum limits.

Monitoring

12.4.46. During the construction phase, dust deposition monitoring using the Bergerhoff Gauge is proposed such as to ensure dust mitigation measures are adequately

controlling emissions. The TA Luft limit value of 350 mg/m^2/day would be applied during the monitoring period of between 28 - 32 days. No monitoring of dust is proposed during the operational phase, which, given that all biosolids would be stored indoors, is acceptable.

12.4.47. **Noise and Vibration - Ringsend WwTP component**

Introduction and Existing Environment

12.4.48. Noise and Vibration are considered together under Section 9 of Volume 3 of the EIAR. The residential receptors most sensitive to noise are identified as including houses along Strand Road (R131), which are located approximately 950m to 1,250m from the nearest boundary of the WwTP. The assessment considered the impacts on these receptors and also Poolbeg West SDZ lands, which have been identified for residential development, where the nearest receptor (R03) would be located 600m from the construction compound (C1). BS 5228-1:2009+A1:2014 sets out guidance on permissible noise levels relative to the existing noise environment and based on this, the proposed threshold for the Ringsend WwTP proposal would be 70 $L_{Aeq(1\ hour)}$ dB (daytime), $65_{Aeq(1\ hour)}$ dB (evening) and 55 $_{Aeq(1\ hour)}$ dB (night-time) at the nearest noise sensitive receptor.

12.4.49. By reference to BS8233:2014, during the operational phase, the following noise limits would apply at the façades of residential properties closest to the Ringsend WwTP project:

- Daytime (07:00 to 23:00 hours) 55 dB $_{LAeq,16hour}$;
- Night-time (23:00 to 07:00 hours) 45 dB $_{LAeq,8hour}$.

12.4.50. Vibration was considered across the category of human comfort and cosmetic damage. The allowable vibration limits were applied to nine residential receptors, marked R01 to R08 and R11 on Figure 9-2 Vibration Sensitive Receptors within Section 9 of Volume 3 of the submitted EIAR. Vibration impacts on Pigeon House Fort (a protected structure immediately partially within the site) and Old Pigeon House Hotel (a protected structure located further north) were also considered.

Potential Impacts

12.4.51. Typical construction noise is predicted to arise during the construction phase, which

due to the size of the site and the scale of the works, could be significant during daytime. Construction hours proposed are 08:00 to 18:00 for week days and from 08:00 to 13:00 on Saturdays. These are standard and acceptable. The predicted external construction noise levels are predicted to fall within the relevant noise criteria over the construction phase during both the capacity upgrade and the proposed retrofit works to incorporate AGS technology.

12.4.52. The level of construction traffic noise would be significantly below the prevailing existing daytime noise levels and just slightly above evening time noise levels. Overall, the impact of construction-related traffic on public roads is regarded as insignificant.

12.4.53. Noting the distance of the piling works from the closest sensitive structure (the wall of Pigeon House Fort), the expected vibration levels are estimated to be significantly below the limits recommended to prevent cosmetic damage to sensitive buildings or structures. Vibration impacts arising out of construction traffic are deemed to be insignificant.

12.4.54. For the operational phase, noise models predict noise levels would be in the region of 15dB to 35dB at nearby residential receptors. Such levels are at or below existing background noise levels and well below the 45dB night time threshold set out in the British Standard BS8223:2014.

12.4.55. During the operation phase, the proposed AGS reactor block is stated would provide additional acoustic screening to the existing plant items on the site. It is envisaged that a reduction in operational noise level of between 3 and 5dB could result once the reactor block is in place and the impact of the proposed WwTP component during operation can therefore be considered slight positive. Noise associated with traffic during operation is assessed as insignificant.

12.4.56. No impacts are expected to occur as a result of vibration during operation.

12.4.57. Discussion on the potential noise impacts of the development on local fauna is dealt with above under the heading Biodiversity – Terrestrial.

Mitigation Measures

12.4.58. During construction, the appointed contractor would be required to prepare and adhere to a Noise and Vibration Management Plan (NVMP) which would include measures to manage and remove or reduce any significant noise and vibration impacts arising at construction stage.

12.4.59. Mitigation for the operation phase would include a number of items, such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant.

Residual Impacts

4.60. The assessment concludes that once best practice measures are employed during construction and operation phases, noise and vibration generated would fall within acceptable limits which is acceptable. For further assurances in this regard, these should be regulated by condition.

Monitoring

12.4.61. The assessment concludes with a recommendation that the appointed contractor monitor levels of noise and vibration at nearby sensitive locations and/or development site boundaries.

12.4.62. **Odour - Ringsend WwTP component**

Introduction and Existing Environment

12.4.63. It is well reported that the Ringsend WwTP caused an odour nuisance to the local community in the early years. More recently, a number of measures were put in place to control odour and this coupled with odour management are stated to have been successful in significantly reducing odour nuisance at the plant.

12.4.64. It is stated that further works are ongoing including the recent provision of the three new Bord na Móna Odour Control Units (OCUs).

Potential Impacts

12.4.65. The potential odour impact is assessed by reference to two standards which are:

1. **Ringsend Project Odour Goal** – This standard is specific to the Ringsend WwTP and requires that odour emanating from the site shall not exceed 10 ou_E/m^3 as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site. The plant storm tanks are not included in the assessment of this odour goal.
2. **Ringsend Odour Target** - This is a general standard and relates to EPA Guidance in which an odour limit of 3 ou_E/m^3 is set at sensitive receptor locations on a 98th percentile of hourly averages. Once odour concentrations lie below this level, odour annoyance is unlikely to occur. The plant storm tanks are included in the assessment of this odour goal.

12.4.66. The likely odour to occur was assessed using the United States Environmental Protection Agency (US EPA) approved AERMOD model, which is a dispersion model based on the Gaussian theory of plume dispersion. I am satisfied that this method is widely used in Ireland and internationally for assessment of odour and is appropriate for the current proposals.

12.4.67. It is reasonable to accept the applicant's assertion that there is no likely significant odour impact anticipated as a result of construction activity. Post construction, the assessment concludes that the maximum predicted concentrations at the site boundary would fall between 6.20 and 7.30 ou_E/m^3, as the 99.4th percentile of hourly averages, which is less than 75% of the assessment criterion 'Project Odour Goal' of 10 ou_E/m^3. The improvements in odour due to the expected reduced odour emission from the open sources is predicted to reduce the odour concentration by between 5% and 13% compared to the future 'baseline/without project' scenario.

12.4.68. The results of the odour assessment found that the predicted odour concentrations at all areas of long-term public exposure and potential areas of future residential use, including the Poolbeg West SDZ, would lie below the adopted limit of 3 ou_E/m^3 as the 98th percentile of hourly averages. The area occupied by the construction compound C1, included in the Poolbeg West SDZ is designated for mixed uses, predicted to have an odour concentration of between 1 and 8.5 ou_E/m^3 as the 98th percentile of hourly averages. These lands are stated to be in the ownership of Dublin Port and based on examination of the Dublin Port Masterplan, the lands shown are currently proposed to be redeveloped to support cargo handling activities.

The primary planned use of these lands is set out in the masterplan as one which would provide sufficient land capacity for the throughput of the new 600-metre-long container terminal quay wall. In its report to the Board on the current application, Dublin City Council SDZ team state that the lands are proposed to be utilised for cargo storage. I am satisfied that such a use would not be sensitive to odour and is well understood in advance of its development.

12.4.69. It is also of particular relevance to note that in comparing the implementation of the proposed WwTP component scenario to the future 'without project' scenario, the proposed WwTP component would result in an imperceptible positive impact as a result of a slight reduction in odour concentration at existing receptor locations.

Mitigation Measures

12.4.70. It is submitted that the principles of the site Odour Management Procedures (OMP) would be followed to include odour management for the construction phase of the new processes.

12.4.71. During operation, the site OMP would be updated to reflect odour management of new processes and identification of new odour emission sources for operational, management and maintenance procedures. Certain new sources associated with the upgrade would be covered and treated.

Residual Impacts

12.4.72. It has been demonstrated through the assessment that once mitigation and best practice measures are employed during construction and operation, negative impacts are not predicted on the environment as a result of odour emanating from the Ringsend WwTP upgrade.

12.4.73. Dublin City Council's Parks and Landscape Service considered the issue of odour impact to the adjacent nature reserve and coastal recreational area and concluded that as the facility is designed to achieve appropriate odour standards and that odour nuisance is not expected to occur. I am satisfied that this has been determined through assessment.

Monitoring

12.4.74. It is proposed to monitor odour sources at the Ringsend WwTP to ensure the effective management of the facility including olfactometry survey of elements, of the converted AGS reactors.

12.4.75. **Land and Soils - RBSF component**

Introduction and Existing Environment

12.4.76. Site investigations carried out in 2001 and 2017 revealed that the RBSF site comprises cohesive glacial tills underlain by sand/gravel on silt (with organics) on a layer of made ground. Bedrock comprising weathered limestone was encountered at depths between 13m and 22.3m bgl. No contaminated soil was encountered at the site. Huntstown Quarry to the south west of the site is a county geological site, designated because the limestone quarry face exposes the base of Tober Colleen, an important geological formation.

12.4.77. According to the GSI mapping, the aquifer classification is Li (locally important). The water quality status in the area is rated as 'good' and it is not considered at risk of deterioration. Groundwater varies from 2.6m to 10.1m in depth below ground across the site with groundwater flows towards the south west and stated to be influenced by the dewatering activities in the Huntstown quarry.

12.4.78. The GIS groundwater mapping classifies the groundwater vulnerability as 'Extreme' (<3m of overburden), though it is stated that the bedrock aquifer is in fact greater than 10m of low permeability glacial till and, accordingly, can be reclassified as 'low', which indicates that infiltration is low and runoff is high. The are no groundwater supply wells within a 10km radius of the site. It is submitted that the site has been determined as not suitable for quarry reserves.

Potential Impacts

12.4.79. There would be no alteration to the existing groundwater flow regime or impact on the available groundwater resource as a result of the development and I am satisfied that no such impacts would therefore arise.

12.4.80. Unsuitable material excavated for foundations and site levelling would be reused on

site for bunding and landscaping. Accordingly, no significant impacts are likely as a result of earthworks.

12.4.81. During construction and as a result of excavations, there is potential for an increase in aquifer vulnerability due to a reduction in depth of overburden in those construction and excavation areas and this may lead to potential for migration of contaminants (from accidental spills) to the underlying bedrock aquifer. However, due to the thickness of overburden, stated to be 19.3 m - 22.3 m, in the vicinity of the areas where excavations would occur and the low groundwater vulnerability classification based on site specific information, I am satisfied with the conclusion put forward by the applicant that the impact arising out of a reduction in overburden depth on the groundwater quality would be imperceptible.

12.4.82. During the operational phase, the development is not predicted to impact on the geological heritage site within Huntstown quarry. The impact on the groundwater resource due to loss in recharge area would be imperceptible. The impact of accidental spillages on soils is also assessed as imperceptible.

12.4.83. The development would also lead to indirect positive effects regarding land spreading by providing storage for periods when land spreading is not permitted (due to seasonal restrictions) and therefore ensuring avoidance of adverse environmental impacts on receiving waters in accordance with Nutrient Management Plans.

Mitigation Measures

.4.84. For the construction phase, the overarching mitigation measure is the implementation of a CEMP, which would ensure good construction management and protection of the environment. A site-specific waste management plan would be required to be prepared and adhered to by the contractor. Measures set out in the CIRIA guidance document on 'control and management of water pollution from construction sites' are stated to be adhered to. Suitable excavated materials would be utilised for landscaping and screening bunds. No operational impacts are anticipated on the land, soils and hydrogeological environments and, as such, no specific mitigation is proposed with regard to the RBSF component.

Residual Impacts

12.4.85. I am satisfied with the conclusion drawn on the applicant's assessment that with mitigation in place, no negative impacts beyond imperceptible are predicted on land and soils for either the construction of operation phases of the RBSF component.

Monitoring

12.4.86. No monitoring is proposed, which I am satisfied is acceptable.

12.4.87. **Water - RBSF component**

Introduction and Existing Environment

12.4.88. A tributary of the Huntstown Stream, which itself is a tributary of the River Ward, borders the site to the west and south. The drainage from the Huntstown Quarry, located to the south west of the site, also feeds into this network. These are shown in Figure 4-1 (Proposed RBSF Site Location) within Section 4 of Volume 4 of the EIAR. There is a surface water pipe traversing the site in an east-west direction which drains an adjoining site. It is planned to relocate this pipe to allow for the development of the RBSF facility.

12.4.89. Water samples were taken from the stream adjoining the western boundary of the site to provide baseline data on the water quality upstream and downstream of the proposed discharge point for the surface water runoff from the proposed RBSF Component. The analysis revealed elevated calcium and sulphate concentrations, which it states is reflective of activities at Huntstown quarry, including cement leaching. It is concluded that the stream is already quite polluted at the upper perimeter of the proposed RBSF component site due to upstream pressures. This is at variance to the 'good' status assigned under the WFD, which it is stated is based on samples collected in the Ward River at Owens Bridge, located c. 1.7km downstream to the north east.

Potential Impacts

12.4.90. In the absence of control measures, potential impacts could arise during construction from an increase in suspended solids and pollutants reaching watercourses. During construction, no hydromorphological impacts are predicted on streams or rivers as

there are no proposals for excavations within or altering the receiving stream. During operation, it is submitted that no impacts would arise from fluvial flooding as the site is located in Flood Zone C (based on the Flood Risk Guidelines) and also no risk would arise from pluvial flooding as the drainage design would include attenuation measures resulting in no increase in the risk of pluvial flooding from the site. I have dealt with the issue of flood risk in greater detail within the Planning Assessment section of this report.

12.4.91. The main impact that could potentially arise on the receiving stream would be as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter. Given the inherent control measures including hydrocarbon interceptors, silt traps/sedimentation and attenuation prior to discharge to the watercourse, impacts would be no greater than imperceptible in significance.

12.4.92. During operation, in the event of a fire, the firefighting water could become contaminated and enter the receiving water through the drainage system. The significance of this potential impact is predicted as slight negative and temporary in duration.

Mitigation

12.4.93. In the construction stage, the overarching measure proposed is the adherence to the site-specific CEMP and standard best practice such that would protect water quality. It is submitted that measures set out in the CIRIA on the 'control and management of water pollution from construction sites' would be implemented and that construction works in the vicinity of the stream on the western boundary of the site would be undertaken in accordance with the requirements of the IFI 'Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters' (2016).

12.4.94. During operation, the drainage has been designed to follow best practice and includes mitigation measures embedded in the design in the form of attenuation, adoption of SuDS and incorporation of hydrocarbon interceptors to capture hydrocarbons / chemicals that might otherwise enter the adjoining receiving water. A shut-off valve is proposed to be installed on the outlet to the stream, which would be used to contain any contaminated runoff in the event of a major environmental

accident on site. In the event of a fire, water used for fire-fighting would be contained in the attenuation storage system.

Residual Impacts

12.4.95. I am satisfied that the residual impact on the hydrology and the receiving water environment following the implementation of this mitigation measure would be neutral and imperceptible.

Monitoring

12.4.96. No monitoring is proposed, which I am satisfied is acceptable.

12.4.97. **Air and Climate - RBSF component**

Introduction and Existing Environment

12.4.98. Baseline data and data available from similar environments indicates background concentrations in the vicinity of the RBSF as:

- Nitrogen dioxide (NO_2) = 29 $\mu g/m^3$
- Particulates (PM_{10}) = 18 $\mu g/m^3$
- Particulates ($PM_{2.5}$) = 11.9 $\mu g/m^3$
- Benzene = 1 $\mu g/m^3$
- Carbon Monoxide (CO) = 0.5 mg/m^3

12.4.99. These all lie below the National and EU ambient air quality standards limits. Records of prevailing winds were examined from the nearest representative weather station at Dublin Airport, located 4.5 km east of the site.

Potential Impacts

12.4.100. Dust deposition arising from the construction phase has the potential to cause temporary slight local impacts at nearby residential properties within a 200m radius from the site. At the time of the applicant's assessment there were three residential properties located less than 50m from the proposed site along with two commercial premises located within 300m of the site. The risk of dust impacts arising from the

proposed RBSF component was assessed as being no greater than low. It is noted in the EIAR that subsequent to the assessment of Air and Climate, two of the three residential receptors (houses) were demolished and a residential development comprising eight houses and community building had since commenced. I accept, that as submitted by the applicant, this change would not alter the outcome of the assessment carried out.

12.4.101. Greenhouse gas emissions produced during the construction phase for the RBSF are expected to account for 0.00075% of Ireland's EU 2020 target and, therefore, impacts are stated would be imperceptible.

12.4.102. In the operational phase, I would agree that the transport of biosolids material would give rise to the greatest source of dust emissions with potential to impact on the nearby sensitive receptors including the existing houses and the residential development that is under construction. As the internal access roads are proposed to be paved, the overall risk of dust soiling is predicted to be low.

12.4.103. It is predicted that any potential impacts to climate as a result of the proposed operation phase of the RBSF component would be imperceptible. I note that solar panels are proposed to be incorporated on the roof of one of the buildings and would generate substantial portion (c.40%) of the energy requirements for the proposed RBSF component.

Mitigation Measures

.4.104. During construction, a schedule of dust control measures has been incorporated into the CEMP and the adherence to the measures of the CEMP would be a requirement. Vehicles delivering biosolids material would be enclosed and the vehicles would have restricted speeds. Roads outside of the site are stated would be cleaned on an ongoing basis, as necessary.

12.4.105. During the operation phase, there is potential for dust emissions as a result of the storage of biosolids material. Measures taken to reduce the risk of dust impacts off - site would include loading and unloading of biosolids within sealed buildings and, if necessary, the establishment of a wheel-wash facility.

12.4.106. The impact of the proposed RBSF component on climate would be imperceptible,

therefore, no site-specific mitigation is proposed, which based on my assessment, is acceptable.

Residual Impacts

12.4.107. The assessment concludes that once dust minimisation measures are employed during construction and operation, impacts on the Air and Climate environment have been assessed to be insignificant as a result of the RBSF component. In addition, there are no residual impacts to air quality or climate envisaged as a result of the operation of the proposed RBSF Component.

Monitoring

12.4.108. During the construction phase of the Proposed RBSF Component monitoring of construction dust deposition would be put in place to ensure emissions are controlled.

12.4.109. **Noise and Vibration - RBSF component**

Introduction and Existing Environment

12.4.110. Baseline data for noise relating to the RBSF site was found to be typical of a suburban setting and close to a busy regional road network and aircraft flightpaths. The nearest noise sensitive receptors include the house and the residential units under construction to the south east of the site.

Potential Impacts

12.4.111. With employment of best practice, construction noise is expected to fall within acceptable noise limits set out in BS 5228-1:2009+A1:2014. Noise impact is therefore considered to be insignificant to slight negative and short term. It is submitted that construction related traffic noise would lie below the prevailing road traffic noise levels.

12.4.112. Vibration during the construction phase is not expected to result in any perceptible changes at the nearest receptors.

12.4.113. Increase in noise levels during the operation phase is predicted to be less than one dBA, which can be rated as insignificant.

12.4.114. Vibration during the operational phases is not expected to result in any perceptible changes at the nearest receptors and has been assessed as insignificant.

Mitigation Measures

12.4.115. All construction works would be required to be completed in accordance with best practice standards.

12.4.116. The contractor would be required to prepare and adhere to a Noise and Vibration Management Plan (NVMP), which would deal with measures concerning noise and vibration arising from the construction phase.

12.4.117. Noise would be required to meet the following limits at the nearest sensitive receptor during construction:

- 70 $_{LAeq\ (1\ hour)}$ dB – Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)
- 65 $_{LAeq\ (1\ hour)}$ dB – Evening (19:00 – 23:00)
- 55 $_{LAeq\ (1\ hour)}$ dB – Night time (23:00 – 07:00)

12.4.118. Mitigation for the operation phase would include a number of items such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant. During the operational phase, noise arising from the facility would be required to achieve the following limits, when measured at the nearest noise sensitive receptor:

- 55 dB $_{LAr,T}$ Daytime (07:00 to 19:00 hrs);
- 50 dB $_{LAr,T}$ Evening (19:00 to 23:00 hrs);
- 45 dB $_{LAr,T}$ Night-time (23:00 to 07:00 hrs).

Residual Impacts

12.4.119. The assessment concludes that once mitigation and best practice measures are employed during construction and operation, no negative impacts beyond imperceptible are predicted on the environment from noise and vibration emanating from the RBSF component as it is predicted that levels would all fall within appropriate limits.

Monitoring

12.4.120. A recommendation is put forward that the appointed contractor would monitor levels of noise and vibration at nearby sensitive locations and/or the proposed RBSF component site boundaries during the construction phase and at commissioning stage.

12.4.121. **Odour - RBSF component**

Introduction and Existing Environment

12.4.122. The area immediately surrounding the proposed RBSF site including the residential properties would be the most sensitive receptors to odour impacts. The wider area is largely considered to be free from odour-generating sources.

Potential Impacts

12.4.123. I am satisfied that there would not be any noticeable odour emissions during the construction phase of the development. All potential odour impacts are limited to the operational phase.

12.4.124. The material to be stored is that of treated, de-watered and stable biosolids in a manner that is highly regulated. It would be stored indoors under a controlled environment.

12.4.125. The applicant's odour assessment concluded that the odour effects would not be significant as odour concentrations at all receptor locations were identified as falling below 3 ou_E/m^3 as the 98^{th} percentile of hourly averages.

Mitigation Measures

12.4.126. I am satisfied that no mitigation is required for the construction phase. During operation, the facility would employ an odour management regime that would ensure that physical systems and operational practices minimise the potential for odour emissions.

Residual Impacts

12.4.127. No residual impacts are predicted for the construction stage. During operation, the adopted odour annoyance criterion of 3 ou_E/m^3 as the 98^{th} percentile of hourly

averages is not predicted to be exceeded at any receptor location, which is acceptable.

Monitoring

12.4.128. It is proposed to monitor odour sources at the RBSF during the operational phase to ensure that actual emissions do not exceed those predicted within the assessment. The monitoring would include Olfactometry testing.

12.4.129. **Conclusion on Land, Soils, Water, Air and Climate**

12.4.130. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Land, soils, water, air and climate.**

12.5. **Materials Assets, Cultural Heritage and Landscape**

12.5.1. **Material Assets - Ringsend WwTP**

Introduction and Existing Environment

12.5.2. The land around the Ringsend WwTP site comprises industrial and storage facilities. The Dublin Waste to Energy Plant lies immediately west of the site. The ESB power generation plant and Synergen Dublin Bay Power Plant are located proximate to the Ringsend WwTP. Dublin Port is located across the Liffey and existing passenger ship facilities at Alexandra Basin are currently being upgraded as part of a redevelopment programme.

12.5.3. The Poolbeg Peninsula is an important amenity used by members of the public for walking, cycling and water-based leisure activities. The Great South wall is a particular focus of leisure activity in the area. Clanna Gael Fontenoy GAA club, situated at Seán Moore Park lies c.1km from Ringsend WwTP. Irishtown athletics track and stadium are also close by, c.1.4km to the west. North of the bay there are recreational facilities and clubs in the Clontarf/Sutton/Howth area. Dublin Bay has become popular for water-based activities.

12.5.4. As stated earlier, the neighbouring site has been designated as the Poolbeg West 'Strategic Development Zone' (SDZ). Irishtown, Ringsend and Sandymount villages are the main residential and commercial areas within a two kilometre radius of the site. There are no residential areas or retail properties within 500 metres of the site.

12.5.5. The site is serviced by water, electricity, telecoms and gas utilities. The National Oil Reserves Agency manages Ireland's emergency oil stocks, through holding tanks at Pigeon House road, c.300 metres from the perimeter of Ringsend WwTP site.

12.5.6. The existing road network includes: Pigeon House road, Shellybanks Road, Whitebank road, South Bank road, R131 Seán Moore road, York Road, R131 East Link Bridge, North Wall Quay and East Link road. Traffic is described and impacts relating to traffic are assessed under the heading of Traffic, as set out in my Planning Assessment above.

Potential Impacts

12.5.7. During construction, the road network surface is predicted as experiencing a moderate short-term negative impact due to wear of road surfaces and periods of roadworks as a result of additional construction traffic anticipated. Impacts on the road network during operation has been assessed as having no greater than imperceptible impact.

12.5.8. Potential negative impacts on existing public utilities could arise due to the severing of existing utility networks (including electricity or gas) during the construction phase of the Proposed WwTP component, thus disrupting supply to the WwTP and to the surrounding facilities.

12.5.9. During operation, I am satisfied that potential for impacts on material assets would be no greater than imperceptible.

12.5.10. When completed the upgrade of the Ringsend WwTP would result in a significant long term positive impact, because of the provision of increased wastewater treatment capacity and the improved quality of treated effluent, thus facilitating future sustainable growth of the Greater Dublin Region.

Mitigation Measures

12.5.11. Mitigation measures would include the preparation and adherence to a Traffic Management Plan for the construction phase. Any damage arising to the road network is stated would be addressed in conjunction with Dublin City Council roads department. The appointed contractor would be required to engage with public utility providers in advance of any excavation in the vicinity of such services.

12.5.12. Apart from preparation of method statements to ensure public utilities are protected and communication with public utility providers ahead of construction, I would agree that no specific mitigation is required during the operation phase. Method statements would be developed during the construction phase to ensure underground services are well understood in advance of onsite excavations.

Residual Impacts

12.5.13. Following the implementation of mitigation measures, the residual impacts of the material assets arising out of the construction and operation phases of the proposed Ringsend WwTP component are stated to be no greater than imperceptible.

12.5.14. Significant positive remaining impacts on wastewater treatment would result.

Monitoring

12.5.15. No monitoring is proposed and I am satisfied that there is no such monitoring requirement in terms of material assets.

12.5.16. **Cultural Heritage - Ringsend WwTP component**

Introduction and Existing Environment

12.5.17. One protected structure, RPS Ref. 6794 (remnants of Pigeon House Fort) lies partially within the Ringsend WwTP site. There are three others in the vicinity of the site (the former Pigeon House Hotel RPS Ref. 6795, Pigeon House power station RPS Ref. 6796 and Great South Wall RPS Ref. 6798).

12.5.18. The area around Pigeon House Harbour to the east of the site is designated as a Conservation Area under the Dublin City Development Plan. A small area located between the principal WwTP and the storm tanks to the north is a designated Zone

of Archaeological interest.

12.5.19. There are two Recorded Monuments located partly within the Ringsend WwTP site which include DU019-027 (Dublin South City Blockhouse) and DU019-029002 (Dublin South City Sea wall).

Potential Impacts

12.5.20. Construction activities including excavations and vibrations from driving piled foundations could impact on Pigeon House Fort and Pigeon House Harbour. There is also potential to cause accidental vehicular damage to the structure of the Fort Wall. The access works within the interior of the Pigeon House Fort would require topsoil stripping for the access road and have the potential to uncover material associated with the fort. In addition, cranes would be located within the footprint of Pigeon House Fort and would require the placement of hardstanding materials which could impact on subsurface archaeological material. During construction, works in the area of construction compound C3 has the potential to cause accidental vehicular damage to a paved area east of Pigeon House power station.

12.5.21. The development is proposed to omit the construction of the undersea tunnel / LSOT and therefore, I am satisfied that no underwater survey is required for the current proposal. No potential impacts on cultural heritage during the operational phase of the proposed WwTP component have been identified.

Mitigation Measures

12.5.22. During construction, vibration from piling would not exceed allowable vibration limits for sensitive buildings. The walls of Pigeon House Fort would be protected with concrete barriers during construction. The site preparation within the interior of the Pigeon House Fort, including topsoil stripping for the access road and hardstanding areas, would be subject to archaeological monitoring which I propose should be strengthened by way of a planning condition.

12.5.23. As no impacts on cultural heritage are predicted during the operational phase, no mitigation measures are required or proposed, which is acceptable.

Residual Impacts

12.5.24. The assessment concludes that once mitigation measures are employed during the construction phase, no negative impacts are predicted on the cultural heritage as a result of the Ringsend WwTP component.

Monitoring

12.5.25. Certain aspects of construction work that could impact on Pigeon House Fort would be monitored by a suitably qualified archaeologist, as outlined under the mitigation measures above. Beyond this, no further monitoring is proposed.

12.5.26. **Landscape – Ringsend WwTP**

Introduction and Existing Environment

12.5.27. The proposed Ringsend WwTP component is located on the site of the existing Ringsend WwTP, which is on the Poolbeg peninsula. The site is of a low landscape and visual sensitivity and does not have any specific landscape or visual-related designations, however and as set out above, the peninsula is important as an amenity and recreational resource. The proposal would result in an extension to the existing wastewater utility. The existing facility is more readily visible from local views, including those from the nature park south of the plant and those from Shellybanks Road and Shellybanks beach to the east. A planted belt on a mound of c.3m high provides for a landscape and visual buffer along the majority of the eastern and northern boundaries of the Ringsend WwTP site.

12.5.28. Dublin Bay has been awarded Biosphere Designation by UNESCO and the site is located in an area known as a Transition Zone. No national landscape or visual designations pertain to the site. There are multiple policies and objectives contained in the Dublin City Development Plan 2016-2022 concerning landscape and visual amenities, including policies to maintain the character of the coastline and Dublin Bay.

Potential Impacts

12.5.29. Construction activity would be most visible from local areas adjoining the site. There would be views of construction activity and cranes during the construction phase,

which is planned for up to a 10-year period. Construction activities are normal in this area and I am satisfied that in terms of landscape and visual impacts, these can be rated for the most part as slight short-term impacts at a local level along the adjoining public roads. The use of the southern construction compound area, C1, could give rise to temporary slight to moderate landscape and visual impacts to Irishtown Nature park to its south. The formation of a new entrance off Pigeon House Road would require the removal of a small area of semi-mature planting, which I consider would give rise to slight visual impact at a local level. Moving away from the site, the proposed development would result in imperceptible landscape and visual impacts.

12.5.30. During the operation stage, new structures would be consistent with the character of the existing development. Some new structures including the proposed phosphorous facility measuring c. 40m x 20m x 20m in height would be visible from Irishtown Nature Park and from Shellybanks Road/Beach. I have examined the photomontages presented from nine viewpoints. I am satisfied that where views of the development would be discernible, these would continue to be consistent with the current WwTP facility. The site is for the most part characterised by heavy industrial and port uses and the proposed WwTP component would not have any other direct impacts on landscape or visual character of the area.

Mitigation

12.5.31. During construction, screening is proposed to be erected/maintained in place on the southern and eastern site boundaries and around temporary compounds, which I am satisfied would also serve as a security barrier. Existing trees and shrub planting located along Pigeon House Road is proposed to be retained and protected. Additional shrubs and trees would be added in accordance with a landscape plan and I propose that such a requirement would be attached by way of a planning condition in the event of a grant of planning.

12.5.32. Following construction, all construction compound areas are stated would be required to be fully reinstated.

12.5.33. For the operational phases, proposed landscape works would be maintained and replaced as necessary.

Residual Impacts

12.5.34. It is concluded in the assessment that once planting is reinstated and matures, the residual landscape and visual effects would be imperceptible in the wider area post construction. Locally, some degree of visual change would be discernible, however, this would continue to be consistent with the existing visual environment.

12.5.35. I would therefore conclude that the landscape and visual impact resulting from the proposed development would be imperceptible and acceptable.

Monitoring

12.5.36. No monitoring is proposed.

12.5.37. **Material Assets - RBSF**

Introduction and Existing Environment

12.5.38. The area in the vicinity of the proposed RBSF is within a mix of agricultural and industrialised areas, interspersed with commercial and residential properties, including those under construction.

12.5.39. Public utilities such as water, telecoms and partially developed foul and surface water drainage networks exist on the site and both a 38 kV and a 110 kV electricity supply lines traverse the site. A gas transmission line has been completed to serve the adjacent Huntstown Power station, but this line lies outside of the RSBF site. The site is 1.5 km west of Dublin Airport. Recreational facilities and amenities within the immediate area are limited and include the Ward River, three golf clubs and St. Margaret's GAA club. Swords lies c.10 km from the site and Ashbourne is c.12 km from the site.

Potential Impacts

12.5.40. There is a temporary negative impact predicted on the road network surface quality and minor roadworks during construction due to HGV traffic. Traffic is further considered under my planning assessment above. Negative impacts are not predicted on land utilisation, utilities, water and drainage infrastructure during the construction phase.

12.5.41. During operation, potential for impacts on material assets would be no greater than imperceptible.

Mitigation Measures

12.5.42. During the construction phase, mitigation measures proposed include the preparation and adherence to a Traffic Management Plan for the construction phase. Specific wheel-washing facilities are proposed to be installed on site, to allow all HGVs exiting the site to be cleaned prior to leaving site. The appointed contractor would be required to prepare and adhere to a contract-specific Construction Environmental Management Plan (CEMP). Method statements on the detection of underground services and drainage infrastructure and the protection of such services would also be a requirement.

12.5.43. During operation, wheel-wash facilities are proposed to be installed and all HGVs would be cleaned prior to leaving the site.

Residual Impacts

12.5.44. Once mitigation measures have been implemented, no negative residual impacts are predicted on material assets during the construction or operation phases for the RBSF component.

Monitoring

12.5.45. No monitoring is proposed and I am satisfied that none is required.

12.5.46. **Cultural Heritage - RBSF Component**

Introduction and Existing Environment

12.5.47. There are no protected structures within the site. There is one such structure within the study area, the remains of Kilshane Motte (Ref: 0662), which was demolished in 1952. The site has been assessed for archaeology by the carrying out of test excavations and no archaeological material was identified.

12.5.48. The closest recorded monument to the application site is Newtown Castle, a Motte and Bailey (RMP DU014-013), located 30m north of the site. It is stated to have been demolished in 1952 and now survives as a cropmark and central raised oval area.

Other recorded monuments are located beyond 200m of the site and these are considered to be too far from the site to be impacted on.

12.5.49. There are two undesignated monuments, i.e. Sites and Monuments recorded (SMR) sites, outside of the site, but within the study area, the closest of which is a Ring-ditch in Newtown townland (SMR DU014-0100---). This monument is situated 560m north-east of the Site and I am satisfied that it is too far distant to be impacted by the proposed RBSF Component.

Potential Impacts

12.5.50. The construction or operational phases would not have direct impacts on any items of cultural heritage, archaeology or heritage interest on site or in the vicinity of the Proposed RBSF Component. The main storage buildings within the overall development site would be situated greater than 100m south of the neighbouring Motte and Bailey, which would be protected by a landscape buffer zone and no impact is therefore likely.

Mitigation measures

12.5.51. As no impacts (direct or indirect) have been identified following assessment, no mitigation measures during construction or operational phases are proposed, which I am satisfied is acceptable.

Residual Impacts

.5.52. No negative residual impacts are predicted for the RBSF component.

Monitoring

12.5.53. No monitoring is deemed to be required.

12.5.54. **Landscape and Visual - RBSF Component**

Introduction and Existing Environment

12.5.55. The landscape at the RBSF Component site is relatively flat and open and surrounding land uses include industrial and business developments with houses to the south east adjoining the site. The site is zoned 'HI' in the Fingal Development Plan with a corresponding objective to provide for heavy industry uses. The

proposed site has no specific landscape or visual designations in the Fingal Development Plan 2017-2023. The site was previously partly developed and the proposed construction works would not be out of the ordinary in this utility/industrial landscape setting.

Potential Impacts

12.5.56. During construction, visual impacts have been assessed as significant and temporary from the adjacent houses on the R135. Visual impacts on passing views from elevated sections of the N2 are assessed as slight negative for the construction phase. It is submitted, and I would agree, that the works would be consistent with the nature and scale of works that would be expected to arise in any event as a result of the landuse zoning for the proposed site and its environs.

12.5.57. Construction works would not have any impact on landscape character, landscape setting, or on views away from the immediate site boundaries or from nearby elevated sections of the N2.

12.5.58. In the longer term, while the buildings would be prominent initially, once planting matures and given that buildings of such a nature would not be out of character, I am satisfied that the development would read as part of the emerging and developing landscape.

Mitigation

12.5.59. During construction, hoarding (2.4m in height) is proposed to be erected adjoining the sensitive houses, including housing under construction, and construction compounds would be kept away from the south-eastern corner. Landscape measures including a low-level landscaped berm and extensive planting would be completed as part of the construction works. Landscaping would be augmented and managed during the operation phase. Lighting standards are stated to be fitted with horizontal cut-off fittings to avoid light spill.

Residual Impacts

12.5.60. No negative residual landscape or visual impacts are predicted for the RBSF component either during construction or operation. The RBSF component would be consistent with the existing land use zoning for the site.

Monitoring

12.5.61. During construction, landscape works are proposed to be monitored by a qualified landscape architect.

12.5.62. **Conclusion on Material Assets, Cultural Heritage and Landscape**

12.5.63. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Material Assets, Cultural Heritage and Landscape**.

12.6. **Vulnerability of projects to Major Accidents and/or Natural Disasters**

12.6.1. The EIA Directive requires consideration on the vulnerability of projects to major accidents and/or natural disasters. This is considered in Section 15 of Volumes 3 (Ringsend WwTP component) and 4 (RBSF component) in the EIAR under the heading of Risk Management. Drawing from the information available and the requirements of the EIA Directive, this matter is considered under.

12.6.2. **Ringsend WwTP component**

12.6.3. At the Ringsend WwTP site, risks of major accident and / or natural disasters could include:

- Damage or breakdown leading to a plant shutdown during construction or operation leading to direct untreated effluent discharge to sensitive waters
- Fire or explosion resulting in significant or widespread damage, including environmental damage on site;
- Incident at adjacent Seveso sites or caused by activities in the harbour and port area leading to shutdown of the WwTP during construction stage;
- Highly-concentrated toxic influent discharged into Ringsend WwTP Network resulting in WwTP shutdown due to breakdown of biological treatment process.

12.6.4. While risk of traffic collisions has also been included by the applicant, I am satisfied that such risks are governed by both construction safety and road safety legislation and noting construction safety requirements and traffic management, they would not fall within the specific category envisaged for the consideration on the vulnerability of this element of the project to major accidents and/or natural disasters. I have therefore excluded these from this aspect of this section of my assessment. Traffic impacts including impacts on road safety have been considered in the planning assessment section of this overall report. It is of relevance to also note that when compared to the LSOT option approved and which is now proposed to be omitted.

12.6.5. It is put forward in the Risk Assessment that the vulnerability of the Ringsend WwTP to major accident or natural disasters would be medium due to its location proximate to Seveso establishments. I have excluded risk from coastal flooding having regard to the conclusions reached in my assessment of Flood Risk in the planning assessment above that the Ringsend WwTP component would not have any noticeable impact on the existing flood regime.

12.6.6. Mitigation measures include those inherent in the project design, fire safety and emergency response plans and safety management systems and environmental incident response plan are outlined. Storm tanks would provide short term storage of effluent discharge. Mitigation considered relevant also includes the Dublin City Council Major Emergency Plan 2010 and the Dublin Port Emergency Management Plan 2013.

12.6.7. Post mitigation, the likelihood of risks from each of the above fall into the categories of 'unlikely' and 'very unlikely'. Having reviewed the information on file, I am satisfied that risks from major accident and/or natural disaster and their consequences have been adequately considered. It is the applicant's conclusion that post mitigation, the vulnerability of the Ringsend WwTP component to major and / or natural disasters accidents would remain as medium due to the site location adjacent to a Seveso establishment. I would be inclined to conclude that the adjoining Seveso establishment and others in the area would be operated in accordance with the Seveso / COMAH regulations and I have dealt with this in more detail under the heading of 'Seveso Considerations' in my Planning Assessment above. Given that the proposed site is not itself a Seveso establishment I would therefore rate the

vulnerability as low. I also note and agree with the findings of the assessment that the proposed works would not alter the risk profile of the site or the adjacent Seveso sites, which are regulated under Seveso/COMAH regulations.

12.6.8. It is submitted that activities on site would be monitored to ensure risk does not increase over time at the site. In conclusion, I am satisfied that the risk of a major accident or natural disaster have both been adequately considered and given the nature of the development, the low probability of such an occurrence and the mitigation measures proposed, it is not likely that significant effects on the environment would arise in this regard.

12.6.9. **RBSF component**

12.6.10. Risks of major accident and / or natural disasters identified which would result in a medium risk score (pre-mitigation) have been identified to include:

- Fire resulting in significant or widespread damage on site;
- Damage to high voltage overhead powerlines crossing the site.

12.6.11. Similar to my considerations of the Ringsend WwTP development, I have excluded traffic collisions for the consideration of accidents and/or natural disasters, noting that these risks are governed by separate legislation in terms of construction safety and road safety and are considered in the traffic section of the planning assessment section above.

6.12. Mitigation measures include those inherent in the design of the RBSF component design, including fire safety and emergency response plans, safety management systems, adequate water supply for fire-fighting and preparation and adherence to an environmental incident response plan.

12.6.13. Post mitigation, the likelihood of risks of each of the above fall into the categories of 'unlikely' and 'very unlikely'. Having reviewed the information on file, I am satisfied that risks of major accident and their consequences have been adequately considered and post mitigation, the vulnerability of the RBSF Component to major and / or natural disasters would be low.

12.6.14. It is submitted that activities on site would be monitored to ensure risk does not

increase over time at the site.

12.7. Environmental Interactions

12.7.1. Environmental interactions are addressed within each of the individual sections of both EIAR Volumes 3 and 4 and mitigation and environmental standards are recommended.

12.7.2. Table 16-1 (Summary of Interactions) tabulates the interactions, providing a useful tool in understanding the interactions likely to arise with a summary of same provided in Section 16.2 of both Volume 3 (Ringsend WwTP component) and Volume 4 (RBSF component) of the EIAR. For example, water has potential to interact with other environmental factors such as biodiversity, material assets and population and human health. The potential arises for population and human health to interact with all of the other factors (biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape). I have examined the interactions throughout each section of the EIAR for the development proposed at each of the Ringsend WwTP (set out in Volume 3) and RBSF components (set out in Volume 4). I am satisfied that the EIAR documents has satisfactorily addressed interactions. I am also satisfied that the proposed development, including both components, is not, in my view, likely to result in significant adverse impacts in terms of the interaction of individual environmental factors.

12.8. Cumulative Impacts

12.8.1. Cumulative impacts have been undertaken by each specialist and addressed in each section of the EIAR across Volumes 3 and 4. The assessment focussed on where the impacts of the proposed development have been assessed to be of slight significance or worse, but when combined with the impact of other concurrent or future developments the overall impact may worsen. Where such impacts are identified, additional mitigation measures may be required.

12.8.2. Cumulative impacts considered in respect of the Ringsend WwTP in combination with other projects in the area include: discharges to the Liffey Estuary and Dublin Bay, as well as noise, odour, traffic and air quality. Projects that were considered

include: Dublin Waste to Energy, Alexandra Basis Redevelopment, ESB Site Poolbeg Power station, National Oil Reserves Agency, Greater Dublin Drainage and the Poolbeg West SDZ. The EIAR considered cumulative impacts arising from both the construction and operational phases of the Ringsend WwTP component in accordance with the EIA Directive.

12.8.3. When all impacts are examined in combination with other projects in the local area and beyond, it is submitted that the proposed upgrade project is not likely to give rise to any significant environmental effects in combination with existing and/or permitted projects in the area.

12.8.4. The RBSF was considered in combination with other projects in the area and cumulative impacts are stated to include noise, odour, traffic and air quality.

12.8.5. Projects that were considered with respect of the RBSF include: Huntstown Quarry, Huntstown Power Station, Dublin Airport Authority development, Huntstown BioEnergy Limited and the Greater Dublin Drainage project.

12.8.6. The cumulative assessment for the RBSF also considered cumulative elements from the GDD project and the proposed Ringsend WwTP Upgrade projects and the existing and/or approved projects associated with the NWSMP.

12.8.7. It is also of note that the assessment itself considered the entire project referred to as the 'proposed upgrade project' meaning the totality of the proposed development and the elements of the 2012 approval being progressed.

12.8.8. When all impacts are examined in combination with other projects in the local area and beyond, it is submitted that the proposed RBSF is not likely to give rise to any significant cumulative effects when taken in combination with existing and/or permitted projects in the area, including those outlined above. It is also submitted that the proposed RBSF component has been designed to accommodate the biosolids volumes from both the GDD WwTP and the proposed Ringsend WwTP upgrade project components, in a manner that would not give rise to significant environmental effects on the environment.

12.8.9. Having reviewed the information on file and considered all of the impacts identified

above, I am satisfied that the proposed upgrade project incorporating the proposed development would not give rise to any unacceptable significant cumulative effects on the environment.

12.9. **Conclusion on EIA**

12.9.1. I have carried out an examination of environmental information contained above in which I have had regard to the EIAR and supplementary information provided by the applicant and the reports and submissions from Planning Authorities, prescribed bodies and observers in the course of the application. Following on from this assessment, it is considered that the main significant direct and indirect effects (positive and negative) of the proposed development on the environment are those arising from the impacts listed below. A Construction Environmental Management Plan (CEMP) is the overarching general mitigation embedded in the project design and delivery for the construction stage. In addition, plans relating to Waste Management, Invasive Species Management, Traffic Management, Monitoring Plans and Emergency Response Plans are also proposed. The remaining impacts, both positive and negative likely to arise on such as would potentially give rise to significant effects on the environment are:

- Benefits/positive impacts to **population and human health** arising as a result of the overall project upgrade due to providing increased treatment infrastructural capacity and improved level of treatment which would improve compliance with EU Directives and corresponding legislation and would be pivotal in supporting planned residential and economic growth in Dublin city and the region.

- Negative temporary impact on **population and human health** (recreational swimmers/water based sporting activities) because of a deterioration in water quality during a nine-month period of decommissioning of aspects of the WwTP (during construction) and a corresponding temporary loss of recreational amenity which would be partially mitigated by carrying out the works in winter period when the recreational water based activities are at seasonally low levels;

- Benefits/positive impacts on the environment **(soils, traffic, water quality, climate)** as a result of reduction in excavation and truck movements (estimated to be 70,000 HGV movements over an 18-month period) which would otherwise have been required to remove and transport rock and spoil during the construction phase of the undersea tunnel. During the operation phase, the proposal to omit the tunnel and associated diffuser point 9 km out to sea would also mean that there would be no deterioration of water quality at this location.

- Impacts arising on **land and soils** as a result of spread of invasive species (Japanese Knotweed) present on the Ringsend wastewater treatment site and which would be mitigated by the preparation and implementation of an Invasive Species Management Plan and method statement for the control of disturbance of soils containing Japanese Knotweed and the requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species Management Plan and monitor the success of the mitigation measures post-construction;

- Risk of pollution of **receiving water environment** as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter during the construction and operational phases. The impacts would be mitigated by measures within a Construction and Environmental Monitoring Plan (CEMP) and adherence to best practice construction measures and incorporation of appropriate drainage facilities. Measures set out in the CIRIA guidance document on 'control and management of water pollution from construction sites' would be implemented. The guidelines provided by the Inland Fisheries Ireland (2016) on the protection of fisheries habitats during construction projects would also be adhered to.

- **Noise** impacts for the construction and operation phases which would be mitigated by the requirements to prepare and adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits which are set out in the EIAR in respect of the development at Ringsend wastewater treatment plant and the development of the regional

biosolids facility.

- **Odour impacts** for the operational phase which would be mitigated by the following:
    - Ringsend WwTP: odour from the wastewater treatment plant (excluding storm tanks) would be required not to exceed 10 ouE/m^3 as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site. The adopted odour annoyance criterion of 3 ouE/m^3 as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location. The Odour Management Plan would be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.
    - RBSF: The adopted odour annoyance criterion of 3 ouE/m^3 as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location.

13.0 Appropriate Assessment

13.1. Introduction

13.1.1. Special Areas of Conservation (SACs) / candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs) are part of the Natura 2000 network considered to be of international importance. In the Irish context, they are referred to as European sites. SACs/cSACs are designated under the EU Habitats Directive (92/43/EEC). SPAs are designated under the EU Birds Directive (79/409/EEC) amended by EU Directive 2009/147/EC. Article 6(3) of the Habitats Directive requires that any plan or project not directly connected with or necessary to the management of a European site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site(s) in view of the site(s) conservation objectives. The Habitats Directive has been transposed into Irish law by the European Union (Birds and Natural Habitats) Regulations 2011, as amended, the later which consolidates earlier Regulations.

13.1.2. In accordance with these requirements and noting the Board's role as the competent authority who must be satisfied that the proposal would not adversely affect the integrity of the European sites, this section of my report assesses in view of best scientific knowledge, if the project, individually or in combination with other plans or projects, is likely to have a significant effect on any European Site, in view of the sites' conservation objectives.

13.1.3. The applicant submitted an Appropriate Assessment (AA) Screening Report and a Natura Impact Statement and I refer to both of these documents in my assessment below, as well as drawing from information on relevant European sites available from the NPWS website and other documentation, including the EIAR, submitted with the planning application. I am satisfied that the information submitted is sufficient to allow the Board to carry out an AA. The NPWS were evidently consulted by the applicant at scoping stage in which issues of relevance were discussed. During the course of the application, the wider DCHG were consulted and I note that no response was received in respect of the European sites.

13.1.3.1. Count data from the Irish Wetland Bird Survey (I-WeBS) 2013/14 and information from the Waterbird Survey Programme of 2011/12 (NPWS, 2014) were used by the applicant as was data from the Dublin Bay Birds Project carried out by BirdWatch Ireland with support from Dublin Port Company (2013-2016).

13.1.3.2. Field surveys of the habitats on the construction site and immediate surrounds were undertaken in 2015 and 2016 (Ringsend WwTP) and 2017 (RBSF). A biological survey of the stream that borders the RBSF site was undertaken in December 2017 and a breeding bird survey of the RBSF site was undertaken in May 2018.

13.2. Appropriate Assessment - Stage 1 (Screening)

13.2.1. In relation to Stage 1 screening, the issue to be addressed is whether the project is likely to have a significant effect, either individually or in combination with other plans and projects on European sites in view of the sites' conservation objectives.

13.2.2. A description of the proposed development is set out in Section 4 of this report. In essence, it would comprise revised upgrade works at Ringsend WwTP and the construction of the RBSF at Newtown in North Dublin.

13.2.3. In deciding on the zone of influence of the proposal, guidance contained in 'Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, DoEHLG 2009' recommends that 'the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects'. The applicant refers to its use of the Source-Pathway-Receptor model in order to determine the geographic extent to which the proposed development may result in the rise of significant effects. The 'source' of impact was identified as comprising activities or emissions that may be associated with the construction and operation of the proposed development. Receptors are European sites or their qualifying interests for which conservation objectives have been set and the pathway is that which exists between the source and receptor, for instance waterbodies connecting the proposed development to a European site. I would agree with the applicant's assertion that the likelihood for significant effects depends upon the characteristics and relationship between all three elements (Source, Receptor and Pathway) and that the presence of a pathway does not automatically mean that significant effects would arise.

13.2.4. **European Sites: Component 1 - Ringsend WwTP**

13.2.5. With regard to the Ringsend WwTP component, a zone of influence of 10 km was chosen. It is stated that this has been determined following examination of the EIAR that accompanied the planning application together with the NPWS maps and datasets. It is also stated that the zone of influence was considered appropriate having regard to objective information such as output from water quality models and construction noise estimates. In this regard, I have examined the water quality models presented in the EIAR which are also provided in Appendix 2 of the Appropriate Assessment Screening and NIS Report. Regarding construction noise, it has been estimated that construction may be audible for a distance of 2.5km from the site. A 10km buffer was applied to cater for all other identified potential significant effects. Having regard to the output from the water quality models and to audible noise distances referred to above, I am satisfied that the10km distance around the WwTP and its associated existing effluent outfall which was selected as the zone of interest to be reasonable in this instance. A map showing the zone of influence of the

WwTP component and the European sit boundaries is presented in Fig 1 in the applicant's Appropriate Assessment Screening report and NIS.

13.2.6. The applicant listed eight European sites within this 10-km zone of influence around the Ringsend WwTP and its associated outfall, comprising four cSACs and four SPAs All of the sites are located either wholly or partly within Dublin Bay and include the following:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- South Dublin Bay cSAC (site code 000210)
- North Bull Island SPA (site code 004006)
- North Dublin Bay cSAC (site code 000206)
- Howth Head Coast SPA (site code 004113)
- Howth Head cSAC (site code 000202)
- Dalkey Islands SPA (site code 004172)
- Rockabill to Dalkey Island cSAC (site code 003000)

13.2.7. In addition, and noting that both Baldoyle SPA (site code 004016) and Baldoyle cSAC (site code 000199) are located 7.6km NE from the Ringsend WwTP component and therefore within the selected 10km zone of influence selected, I also propose to include these two sites in my assessment.

13.2.8. Table 5 below sets out details of each of the 10 sites including conservation objectives set out on the NPWS website at the time of carrying out this assessment together with listed qualification interests, the distance and location of the site relative to the Ringsend WwTP and the connectivity using the source-pathway-receptor model. The consequent potential for significant adverse effects on each of the sites having regard to the sites' conservation objectives is also included. Where marked with an astrix (*) this indicates that those qualification interests are a priority habitat under the Habitats Directive.

Table 5 – Relevant European sites for the purposes of Appropriate Assessment Screening (Component 1 – Ringsend WwTP).

European site (SAC/SPA)	Conservation Objectives and Qualifying Interests (Habitats and Species)	Distance of European Site to WwTP	Connectivity (Source-Pathway-Receptor) with potential to result in significant adverse effects.
South Dublin Bay and River Tolka Estuary SPA (004024)	**Conservation Objectives** Version 1.0 (09/03/2015) To maintain the favourable conservation condition of (qualifying interests individually listed) in South Dublin Bay and River Tolka Estuary SPA, which is defined by a list of attributes and targets. **Qualifying Interests:** A046 Light-bellied Brent Goose *Branta bernicla hrota* A130 Oystercatcher *Haematopus ostralegus* A137 Ringed Plover *Charadrius hiaticula* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A179 Black-headed Gull *Chroicocephalus ridibundus* A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* A999 Wetlands	Directly adjacent to the proposed works (south and east)	Potential for Direct Effects – Yes Potential for Indirect Effects – Yes
South Dublin Bay cSAC (000210)	**Conservation Objectives** Version 1.0 (22/08/13) To maintain the favourable conservation condition of mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC which is defined by a list of	Adjacent (south and east)	Potential for Direct Effects – No Potential for Indirect Effects – Yes

	attributes and targets. **Qualifying Interests:** 1140 Mudflats and sandflats not covered by seawater at low tide		
North Bull Island SPA (004006)	**Conservation Objectives** Version 1.0 (09/03/2015) To maintain the favourable conservation condition of (qualifying interests individually listed) in North Bull Island SPA, which is defined by a list of attributes and targets. **Qualifying Interests:** A046 Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A052 Teal *Anas crecca* A054 Pintail *Anas acuta* A056 Shoveler *Anas clypeata* A130 Oystercatcher *Haematopus ostralegus* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina alpina* A156 Black-tailed Godwit *Limosa limosa* A157 Bar-tailed Godwit *Limosa lapponica* A160 Curlew *Numenius arquata* A162 Redshank *Tringa totanus* A169 Turnstone *Arenaria interpres* A179 Black-headed Gull *Chroicocephalus ridibundus* A999 Wetlands	1.7 km north west	Potential for Direct Effects – No Potential for Indirect Effects – Yes
North Dublin Bay cSAC (000206)	**Conservation Objectives** Version 1.0 (06/11/13) To maintain the favourable conservation condition of (qualifying interests individually listed) in North Bull Bay cSAC,	1.7km from the WwTP outfall	Potential for Direct Effects – No Potential for Indirect Effects – Yes

	which is defined by a list of attributes and targets. **Qualifying Interests:** 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 *Salicornia* and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1395 Petalwort *Petalophyllum ralfsii* 1410 Mediterranean salt meadows (Juncetalia maritimi) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with *Ammophila* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks		
Howth Head Coast SPA (004113)	**Conservation Objectives** Generic Version 6.0 (21/02/2018) To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA **Qualifying Interests:** A188 Kittiwake (Rissa tridactyla)	c. 9 km north west	Potential for Direct Effects – No Potential for Indirect Effects – Yes
Howth Head cSAC (000202)	**Conservation Objectives** Version 6.0 (06/12/2016) To maintain the favourable conservation condition of (qualifying interests individually listed) in Howth Head SAC, which is defined by a list of attributes and targets: **Qualifying Interests:** 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths	c.7.0 km north west.	Potential for Direct Effects – No Potential for Indirect Effects – No

Dalkey Islands SPA (004172)	**Conservation Objectives** Generic Version 5.0 (21/02/18) To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. **Qualifying Interests:** A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea*	c. 9.0 km south west	Potential for Direct Effects – None Potential for Indirect Effects – Yes
Rockabill to Dalkey Island SAC (003000)	**Conservation Objectives** Version 1.0 (07/05/13) To maintain the favourable conservation condition of (qualifying interests individually listed) in Rockabill to Dalkey Island SAC, which is defined by a list of attributes and targets: **Qualifying Interests:** **Annex I Habitats** 1170 Reefs **Annex I Species** 1351 Harbour porpoise *Phocoena phocoena*	c. 6.2 km from the outfall	Potential for Direct Effects – None Indirect Effects – Yes
Baldoyle Bay **SPA (004016)**	**Conservation Objectives** Version 1.0 (27/02/13) To maintain the favourable conservation condition of the waterbird population and wetland habitat in Baldoyle Bay SPA, which is defined by a list of attributes and targets: **Qualifying Interests:** A046 Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A137 Ringed Plover *Charadrius hiaticula*	7.0 km NE	Potential for Direct Effects – No Potential for Indirect Effects – No

	A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A157 Bar-tailed Godwit *Limosa lapponica* A999 Wetlands		
Baldoyle Bay **cSAC (000199)**	**Conservation Objectives** Version 1.0 (19/11/12) To maintain the favourable conservation condition of (qualifying interests individually listed) in Baldoyle Bay SAC, which is defined by a list of attributes and targets: **Qualifying Interests:** 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonizing mud and sand 1330 Atlantic salt meadows *Glauco-Puccinellietalia maritimae* 1410 Mediterranean salt meadows *Juncetalia maritimi*	7.0 km NE	Potential for Direct Effects – No Potential for Indirect Effects – No

13.2.9. **European Sites: Component 2 - RBSF**

13.2.10. In respect of the RBSF component, the applicant identified three European sites comprising one cSAC and two SPAs within the 10km zone of influence of the RBSF. The sites are presented in Figure 2 of the Appropriate Assessment Screening and NIS and listed as follows:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- Malahide Estuary cSAC (site code 000205)
- Malahide Estuary SPA (site code 004025)

13.2.11. Table 6 below sets out details of each of the three sites including conservation objectives as contained on the NPWS website at the time of carrying out this assessment, together with listed qualification interests, the distance and location of the site relative to the RBSF site and the connectivity using the source-pathway-receptor model. The consequent potential for significant adverse effects on each of

the sites is also included.

13.2.12. Table 6 – Relevant European sites for the purposes of Appropriate Assessment Screening (Component 2 – RBSF).

European site (SAC/SPA)	Conservation Objectives and Qualifying Interests (Habitats and Species)	Distance of European Site to WwTP	Connectivity (Source-Pathway-Receptor) with potential to result in significant adverse effects.
South Dublin Bay and River Tolka Estuary SPA (004024)	**Conservation Objectives** Version 1.0 (09/03/2015) To maintain the favourable conservation condition of (qualifying interests individually listed) in South Dublin Bay and River Tolka Estuary SPA, which is defined by a list of attributes and targets. **Qualifying Interests:** A046 Light-bellied Brent Goose *Branta bernicla hrota* A130 Oystercatcher *Haematopus ostralegus* A137 Ringed Plover *Charadrius hiaticula* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A179 Black-headed Gull *Chroicocephalus ridibundus* A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* A999 Wetlands	9km directly from RBSF site. No hydrological pathway	Potential for Direct Effects – No Potential for Indirect Effects – No
Malahide Estuary cSAC (000205)	**Conservation Objectives** Version 1.0 (27/05/2013) To maintain the favourable conservation condition of	9.5 km direct, 13.3km via hydrological pathways.	Potential for Direct Effects – No Potential for Indirect Effects – No

	(qualifying interests individually listed) in Malahide Estuary cSAC, which is defined by a list of attributes and targets. **Qualifying Interests** 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonising mud and sand 1320 Spartina swards *Spartinion maritimae* 1330 Atlantic salt meadows *Glauco-Puccinellietalia maritimae* 1410 Mediterranean salt meadows *Juncetalia maritimi* 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous		
Malahide Estuary SPA (004025)	**Conservation Objectives** Version 1.0 (16/08/2013) To maintain the favourable conservation condition of (qualifying interests individually listed) in Malahide Estuary SPA, which is defined by a list of attributes and targets. **Qualifying Interests** A005 Great Crested Grebe *Podiceps cristatus* A046 Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A054 Pintail *Anas acuta* A067 Goldeneye *Bucephala clangula* A069 Red-breasted Merganser *Mergus serrator* A130 Oystercatcher *Haematopus ostralegus* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis*	9.5 km direct, 13.3km via hydrological pathways.	Potential for Direct Effects – No Potential for Indirect Effects – No

	squatarola A143 Knot *Calidris canutus* A149 Dunlin *Calidris alpina alpina* A156 Black-tailed Godwit *Limosa limosa* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A999 Wetlands		

13.2.13. **Likely Significant Effects**

13.2.14. The possibility of whether or not significant effects are likely to arise is assessed by the applicant using the established source-pathway-receptor model. The project is not necessary for the management of any European site. The likely significant effects (direct and indirect) which could arise as a result of the Ringsend WwTP component are listed under Table 1 of the applicants AA Screening /Statement / NIS. I am satisfied that using the Source-Pathway-Receptor model and having regard to the qualifying interests and conservation objectives that the information contained in this table is representative of the significant effects likely to arise. I have summarised these likely significant effects under.

13.2.15. **Likely significant effects (Direct and Indirect) which could potentially arise are:**

Direct Effects as a result of the Ringsend WwTP component

- Temporary disturbance to habitat and species as a result of laying of a new underground electrical connection to an existing underground ESB cable in an area c.30m x 10m, which is within the South Dublin Bay and River Tolka Estuary SPA (site code 004024).

Indirect /Secondary Effects as a result of the Ringsend WwTP component

- Discharge of treated effluent from the WwTP both during the construction and operational phases of the proposed Ringsend WwTP Component. As the proposed discharge point would remain at the same location in the Liffey Estuary, there is potential that these changes could affect habitats or species that occur in the tidal part of Dublin Bay.

- Deterioration of receiving water quality during construction and operation phases arising from accidental discharge or pollution and resulting in deterioration of receiving watercourses and associated habitats and species.
- Construction activities on site at the Ringsend WwTP component have the potential to cause visual disturbance to waterbird populations that use the replacement grassland area that forms part of the South Dublin Bay and River Tolka Estuary SPA, immediately south of the WwTP.
- The construction phase of the Ringsend WwTP component has potential to give rise to temporary disturbance from dust and changes in air quality during construction.
- Construction noise may affect Brent geese and breeding terns within the South Dublin Bay and River Tolka Estuary SPA.
- Potential spread of Invasive species could lead to loss/deterioration of habits on the South Dublin Bay and River Tolka Estuary SPA.
- (Given the change to odour has been assessed as not resulting in any residual impacts as a result of the proposed development, I do not consider that based on odour, impacts would arise on qualifying interests of cSACs / SPAs in view of their conservation objectives).

Direct Effects as a result of the RBSF component

- None

Indirect /Secondary Effects as a result of the RBSF component

- There is a potential pathway between the RBSF component and the Malahide Estuary cSAC (site code 000205) via the surface water network. Deterioration of receiving water quality during construction and operation phases arising from accidental discharge or pollution and resulting in deterioration of receiving watercourses and associated habitats and species could potentially occur.

13.2.16. I am satisfied that Howth Head cSAC can be screened out as there are no hydrological pathways from either the Ringsend WwTP or RBSF components to this European site. Both project components are also sufficiently separated to conclude

that there would not be any potential for significant effects in relation to airborne noise or visual disturbance impacts. Equally, I am satisfied that the project as a whole, including both components collectively, is not likely to give rise to significant effects on this site, having regard to its conservations objectives.

13.2.17. In relation to Malahide Estuary cSAC and also Malahide SPA, I note that while there is a potential pathway between the RBSF component and the Malahide Estuary cSAC, no discharge or emissions are proposed to leave the RBSF site, except for rainfall and clean surface water, once best practice is employed in construction and the CEMP is implemented. Both components are also sufficiently remote from these European sites such as to conclude that there would be no potential for significant effects in relation to airborne noise or visual disturbance. Equally, I am satisfied that the project as a whole is not likely to give rise to significant effects on this site, having regard to their conservations objectives.

13.2.18. In relation to Baldoyle Bay SAC and Baldoyle Bay SPA, these European sites are sufficiently remote from the proposed RBSF site to objectively conclude a finding of no significant effect in relation to noise. The water quality modelling output shows that there is no impact from the construction of works on Baldoyle Bay or from the operation of the project. These two European sites can thus objectively be screened out from further assessment.

13.2.19. I am satisfied that the conclusion that no such in-combination effects are likely to arise is correct. By applying the precautionary principle, the requirement to proceed to Stage 2 in relation to the remaining seven sites where the evaluation determined the likelihood of significant effects (including in-combination effects) could not be discounted without further examination is, I consider, reasonable.

13.2.20. **Stage 1 - Screening Conclusion**

13.2.21. It is reasonable to conclude that on the basis of the information on the file, which I consider adequate in order to issue a screening determination, that the proposed development including the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on the European Sites: