

**An Bord Pleanála Oral Hearing**

**Irish Water**

**Greater Dublin Drainage**

**Brief of Evidence**

**Cumulative Impacts and Environmental Interactions**

**Sarah Kiernan**

**GDD Oral Hearing  
Brief of Evidence of Sarah Kiernan  
Cumulative Impacts and Environmental Interactions**

**Qualifications and Role on the Proposed Project**

- 1 My name is Sarah Kiernan and I am an Environmental Consultant and Technical Director with Jacobs Engineering. I graduated from Lancaster University with an Honours Degree in Geography in 2003 and hold a Master's degree in Environmental Consultancy from Newcastle University gained in 2004. In 2016 I became a Chartered Water and Environmental Manager and Chartered Environmentalist with the Chartered Institution of Water and Environmental Management. I have 13 year's professional experience in preparing and co-ordinating environmental impact assessments and preparing Cumulative Impact and Environmental Interaction assessments for a variety of public and private sector projects including strategic infrastructure development, in Ireland.
- 2 Jacobs Engineering was appointed by Irish Water to prepare an Environmental Impact Assessment Report (EIAR) for the Proposed Project. My role in the Proposed Project was as Environmental Impact Assessment Co-ordination Lead and the principal author of the Cumulative Impact and Environmental Interactions Chapter.
- 3 This evidence addresses the approach to the development of the Cumulative Impacts and Environmental Interactions assessments of the Proposed Project. I am also addressing in this Statement, the Cumulative Impact and Interactions of the RBSF element of the Proposed Project. Section 19 in Volume 4 Part A of the EIAR considers the potential cumulative or in combination impacts. This Section of the EIAR was prepared by a team led by Principal Author Ben Huskinson of JB Barry and Partners Ltd. Ben is a Chartered Environment Scientist with over 11 years' experience in the management & coordination of Environmental Impact Assessment process and production of EIAR's for medium to large scale infrastructure and utility projects. The two Project Teams collaborated during the preparation of the EIAR and I am familiar with the methodologies adopted and the conclusions drawn from the assessments.

**Summary of the Cumulative Impacts and Environmental Interactions**

- 4 The cumulative impacts of a development refers to the way in which an environmental resource may be subject to a particular type of impact from more than one proposed development. The impacts from multiple projects may overlap or act in combination at a particular location or upon a particular resource, thereby leading to more significant environmental impacts than if the impacts were considered in isolation.
- 5 In addition to cumulative impacts with other developments, the EIA Directive requires that the EIAR should identify, describe and assess the interactions between the other environmental factors. An interaction of impacts can occur when two or more types of environmental impacts associated with a proposed development arise at a particular location or act upon an environmental resource.
- 6 There are no prescriptive techniques used in the evaluation of the significance of cumulative impacts or the interaction of impacts. However, professional judgement and consideration of standards, guidelines and environmental carrying capacities have been applied to determine whether in-combination impacts give rise to additional levels of significance. The European Commission and Environmental Protection Agency (EPA) guidelines referenced in the Chapter 23 in Volume 3 Part A of the EIAR were considered and applied in this context.

**GDD Oral Hearing  
Brief of Evidence of Sarah Kiernan  
Cumulative Impacts and Environmental Interactions**

**Cumulative Impacts**

**Stage 1 – Identification of ‘Other Developments’**

- 6 The first step in determining cumulative impacts comprised the identification of a long list of ‘other developments’ which may have the potential to overlap with the Proposed Project based on available information. The proposed developments and development plan land allocations that have been considered as part of the cumulative assessment were identified through a desk study and, in particular, scrutiny of local planning authority websites. The developments were either registered in the planning system, or formed land allocations in Development Plans. Developments or land allocations, whose impacts could foreseeably overlap with the construction or operation of the Proposed Project or where construction impacts may be consecutive but cumulative, were included in the final list.
- 7 A ‘tier’ (1 or 2) was assigned to the development to indicate the level of certainty associated with its implementation, Tier 1 developments include those;
- Under Construction
  - Permitted application(s) but not yet implemented
  - Submitted application(s) but not yet determined
- 8 Tier 2 developments were those;
- Identified in the relevant Development Plans recognising that much information on any relevant proposals will be limited.
  - Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.
- 9 The long list was scrutinised to identify which of the ‘other developments’ were within the ‘zone of influence’ of the Proposed Project. This involved the determination of which environmental factors have the potential to lead to overlap. This determination was used to screen out other developments where no overlap with the Proposed Project was considered. A short list of potentially applicable developments for further assessment was derived.

**Stage 2 – Shortlisting**

- 10 Inclusion or exclusion threshold criteria were applied to the shortlist to determine whether they had any potential to give rise to significant cumulative impacts due to timing, scale and nature of the developments. Professional judgement was used in applying these threshold criteria.
- 11 The identification and shortlisting process is documented in Table 23.2 of Chapter 23 in Volume 3 Part A of the EIAR .

**Stage 3 – Information Gathering**

- 12 For the shortlisted developments, detailed information was compiled. This included information such as:
- Proposed design and location;
  - Proposed programme of construction, operation and decommissioning; and
  - Environmental assessments that set out baseline data and effects arising from the other development.

**GDD Oral Hearing**  
**Brief of Evidence of Sarah Kiernan**  
**Cumulative Impacts and Environmental Interactions**

**Stage 4 – Assessment**

- 13 The cumulative impacts of the Proposed Project with the ‘other development’ were assessed against the information that was available at the time of assessment. Where information regarding proposed developments was limited, this was acknowledged.
- 14 It is acknowledged that certain assessments, such as transport and associated operational assessments for vehicular emissions (including air and noise), are inherently cumulative assessments. This is because they have incorporated modelled traffic data growth for future traffic flows.
- 15 The significance criteria used to assess likely cumulative impacts considered the capacity of environmental resources and receptors to accommodate changes that are likely to occur. These include:
- The duration of impact
  - The extent of impact,
  - The type of impact,
  - The frequency of the impact;
  - The ‘value’ and resilience of the receptor affected; and
  - The likely success of mitigation.
- 16 Of the initial long list of 23 ‘other developments’ considered to have the potential to overlap with the Proposed Project, 12 developments were assessed in detail for potential cumulative impacts with the Proposed Project, and included an assessment of population, hydrology, hydrogeology, biodiversity, landscape and visual, traffic, air quality and odour, noise and vibration, waste and material assets by the relevant experts. These 12 ‘other developments’ included;
- Aviation Fuel Pipeline from Dublin Port to Dublin Airport
  - Belcamp Housing Development
  - Belcamp Land Remediation
  - The Coast Residential Development at Baldoyle, Growth Area 1
  - National Paediatric Hospital Development Board - Connolly Hospital Development
  - Blanchardstown Regional Drainage Scheme
  - Drumnigh Housing Development
  - Dublin Airport Northern Parallel Runway
  - Red Arches Housing Development
  - Ringsend WWTP Upgrade
  - Station Manor Portmarnock Housing Development
  - Sutton to Malahide Greenway
- 17 The details and results of these assessments are documented in Table 23.3 of Chapter 23 in Volume 3 Part A of the EIAR.

**GDD Oral Hearing  
Brief of Evidence of Sarah Kiernan  
Cumulative Impacts and Environmental Interactions**

**Environmental Interactions**

- 18 The potential interactions between environmental aspects arising from the Proposed Project, including the RBSF were considered and assessed in detail within the individual EIAR chapters. The Project Team, including the RBSF project team, collaborated throughout the preparation of the EIAR through meetings, workshops, calls and emails and undertook assessments using relevant guidelines. A summary matrix of the Proposed Project interactions is presented in Table 23.5 of Chapter 23 in Volume 3 Part A of the EIAR.

**Conclusions on Cumulative Impacts & Environmental Interactions**

- 19 The principal conclusions are as follows;

Population and Human Health

- 20 Increases in construction phase impacts from traffic, noise, vibration and dust during the construction will potentially occur. However, the effects will not be significant.
- 21 The increased wastewater treatment capacity once the Proposed Project is operational, will ensure that there will be no adverse cumulative impacts to wastewater systems caused by the increased demand from proposed developments and population growth in the area.

Marine Water Quality

- 22 Cumulative impacts with regards marine water quality were considered with the Ringsend WwTP upgrade project. Cumulative impacts during the Construction Phase will not occur. Cumulative impacts during the Operational Phase would be associated with discharge of treated wastewater into the Irish Sea from both WWTs.
- 23 Ringsend WWTs discharge/hydraulic flows were modelled within the Proposed Project marine water quality numerical model (together with those of the WWTs at Shanganagh, Swords, Malahide, Portrane, Barnageeragh), to assess the potential in-combination effects with the proposed outfall pipeline route (marine section).
- 24 Modelling of the proposed WwTP wastewater showed quick dispersion and only Dissolved Inorganic Nitrogen impacts within the immediate mixing zone. Based on this, and the distance to Ringsend WwTP discharge, cumulative impacts on water quality are not significant.

Hydrology and Hydrogeology, and Aquatic Biodiversity

- 25 Potential cumulative impacts for larger areas of exposed ground, increasing risk of impacts on watercourse from suspended solids in surface runoff should construction overlap.

Terrestrial Biodiversity

- 26 There is potential for cumulative effects from habitat loss and noise and visual disturbance on protected species where other development intersects the Proposed Project. Cumulative effects are not expected to increase the duration of the potential noise and visual disturbance. Hedgerow and grassland habitat will be lost, and cumulatively, the amount of habitat which will be lost will increase. The cumulative loss does not however increase the magnitude of effect of the resulting habitat loss. No significant cumulative habitat loss, noise and visual disturbance or displacement effects are predicted.

**GDD Oral Hearing  
Brief of Evidence of Sarah Kiernan  
Cumulative Impacts and Environmental Interactions**

Landscape and Visual

- 27 There is potential for temporary cumulative visual effects to occur if the construction periods for the Proposed Project coincides with the construction of other developments. Due to the temporary nature of such cumulative effects, these will not be significant.

Traffic and Transport

- 28 Some cumulative impacts and interactions from traffic may be expected however construction traffic will be temporary in nature, traffic volumes will return to their existing condition, plus any increase in traffic associated with normal traffic growths have been factored into traffic modelling and will therefore not be significant.

Air Quality, Odour and Climate

- 29 There is potential for temporary increase in emissions of dust and emissions to air from construction activity combustion gases if there are concurrent construction activities in an area, However, the effects will not be significant.

Noise and Vibration

- 30 Noise Sensitive Receptors could potentially be impacted as a result of concurrent construction activities. However, these impacts will be slight, temporary in nature and it is considered that there is no potential for significant additive cumulative noise impact.

Archaeological, Architectural and Cultural Heritage

- 31 Interactions for this assessment exist between the architectural heritage aspect and the landscape and visual assessment. As such, photomontages presented as part of the EIAR and the landscape and visual assessment have been reviewed and taken into account. No potential cumulative impacts upon the archaeological, architectural or cultural heritage were identified

Waste

There is potential increase in availability of surplus soils within the area in excess of volumes required by other construction projects, leading to greater volumes requiring disposal. Waste management measures will ensure the potential cumulative impact is not significant.

Material Assets

- 32 There is potential for impacts on utilities where developments are in close proximity, however the cumulative impact will not be significant.

Conclusion

- 33 In summary, with the implementation of the specified mitigation measures, the majority of identified potential cumulative impacts will be avoided. Of the remaining cumulative impacts none are significant. Residual impacts due to traffic during both the construction and operational phases may occur, however the cumulative impact will not be significant.

- 34 The potential for significant impacts due to interactions with the Proposed Project and the RBSF component were considered throughout the EIA process, and will not result in any significant impacts as a result of these interactions. This is primarily due to the RBSF component being geographically remote from

**GDD Oral Hearing  
Brief of Evidence of Sarah Kiernan  
Cumulative Impacts and Environmental Interactions**

the other elements of the Proposed Project. In addition, the first phase of the RBSF component will be completed prior to commencement of the construction of other components of the Proposed Project.

**Response to Issue Raised in Submissions/Observations**

- 35 Four submissions<sup>1</sup> raised issues related to potential cumulative impacts associated with the Proposed Project.
- 36 The submissions contended that potential cumulative impacts with (i) aircraft emissions in the vicinity of Dublin Airport, (ii) the wastewater discharge at Doldrum Bay, (iii) Howth Fishery Harbour Re-development and (iv) the Dublin Array Project were not noted or considered as part of the cumulative impact assessment. The submissions also related to the potential for cumulative impacts as a result of (v) the implementation of the Airport Noise Regulation Bill, (vi) Appropriate Assessment under the Dublin City Development Plan 2016 -2022 in relation to Baldoyle Bay cSAC, and (vii) Dublin Port Masterplan 2040. I considered the various submissions that were made to An Bord Pleanála and addressed each of the submissions in Section 24 of Irish Water's Response to Submissions January 2019 document. For the sake of completeness, and further to the Board's Oral Hearing Agenda, I now set out my response to those issues raised in the submissions in respect of cumulative impacts and environmental interactions.
- 37 The scope of the cumulative impact assessment included any proposed projects and development plan land allocations within the vicinity of the Proposed Project. The developments were either registered in a planning system (ABP, County Council etc.), or future Irish Water developments. Any development of land allocation whose impact could foreseeably overlap with the Construction Phase or Operational Phase of the Proposed Project were included in the final list of developments.
- 38 In relation to potential cumulative effects arising between the Proposed Project and aircraft emissions in the vicinity of Dublin Airport, a detailed air quality assessment was undertaken as presented in the EIAR and which accounted for the current baseline air quality in the environment of the Proposed Project. The Proposed Project will meet all Air Quality Standards during operation, therefore, there will be no significant cumulative air quality effects as a result.
- 39 The wastewater discharge at Doldrum Bay, Howth was referenced in the EPA Urban Wastewater report released in 2016 as an area with no wastewater treatment. In October 2016, Irish Water completed works to replace the wastewater pipeline at Doldrum Bay as part of a short-term solution to address the discharge of wastewater to the beach. This project included the construction of a replacement pipeline on the beach and upgrade works to the distribution chamber. Irish Water is currently working towards compliance with Schedule A.3 of the Ringsend Wastewater Discharge Licence to discontinue a discharge of wastewater to the sea at Doldrum Bay, Howth. The detailed design and planning phase is currently progressing and it is envisaged that, absent any planning, environmental or land acquisition issues, tender documents will issue in Q4 2019. Following completion of the tender phase, IW expect to appoint a contractor to commence construction in Q2/Q3 2020. The potential in-combination impacts arising as between those works and the Proposed Project have been considered and it has been concluded that, due to a commitment by Irish Water to complete this Doldrum Bay scheme by 2021, proper to commencement of construction and operation of the Proposed Project, no significant cumulative impacts with the proposed project will occur.
- 40 The Howth Fishery Harbour Project involves permission for a new 130m long quay wall, localised dredging and supporting works at the Middle Pier. The Howth Fishery Harbour application was granted permission on 10 July 2018 which was after the Proposed Project Planning Application lodgement date on the 20 June 2018 and was therefore not included contained within the EIAR cumulative impact assessment. An

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<sup>1</sup> Fingal County Council, Breda Doyle, Sabrina Joyce Kemper (2 No.)

**GDD Oral Hearing**  
**Brief of Evidence of Sarah Kiernan**  
**Cumulative Impacts and Environmental Interactions**

assessment of the available information has since been undertaken and I can confirm that there is no potential for significant cumulative impacts with the Proposed Project.

- 41 The Dublin Array Project is a proposed offshore windfarm that will be located on the Kish and Bray Banks in the Irish Sea, off the coast of Dublin and Wicklow. At its most northerly point, the project will be approximately 13km from the proposed outfall pipeline (marine section). On assessment of the available information and at this distance from the Proposed project, there is no potential for significant cumulative impacts.
- 42 The upcoming Airport Noise Regulation Bill does not does not entail a specific project or development and was initiated in November 2018, after Proposed Project Planning Application lodgement date. However, as there are no significant noise impacts to arise from the Proposed Project, and the Bill, once implemented will work to reduce noise at Dublin Airport further. Therefore, there will be no significant cumulative noise impacts with Dublin Airport.
- 43 The Baldoyle Bay cSAC is referenced in the Natura Impact Statement prepared in respect of the (then draft) Dublin City Development 2016 – 2022 Plan. The Baldoyle Bay SAC was comprehensively assessed in Chapter 9 and 10 of the EIAR, in addition the likely significant effects of the Proposed Project on Baldoyle Bay cSAC has been comprehensively assessed within the Natura Impact Statement submitted with the application for development consent, which assessment included a consideration of potential in-combination effects. As set out in the statement of evidence of James McCrory, the competent authority is able to conclude that the Proposed Project, either individually or in combination with other plans or projects, will not adversely affect the integrity of Baldoyle Bay cSAC or any European site.
- 44 The cumulative impact assessment included consideration of any land allocations under the Dublin Port Masterplan 2040. Following this assessment, a 44 hectare section of land near Dublin Airport, which was acquired by Dublin Port Company, in order to develop Dublin Inland Port to facilitate the relocation of non-core activities from the port on the basis that these fell under 'land allocations in Development Plans'. The potential in-combination impacts as between the Proposed Project and Dublin Inland Port were considered and it was concluded that these will not result in any significant cumulative impact.

**Conclusion**

- 45 A comprehensive assessment of the cumulative impacts and environmental interactions of the Proposed Project including the RBSF element was carried out and documented in the EIAR. The assessment of a long list of 'other developments' considered to have the potential to overlap with the Proposed Project was assessed, and 12 developments were further assessed in detail for potential cumulative impacts with the Proposed Project in the construction and operational phases. These included assessments of population, hydrology, hydrogeology, biodiversity, landscape and visual, traffic, air quality and odour, noise and vibration, waste and material assets by the relevant experts.
- 46 With the implementation of the specified mitigation measures, the majority of identified potential cumulative impacts will be avoided. Some cumulative impacts from traffic may be expected but are already accounted for in the growth factors built into the traffic models and are not considered significant. The Proposed Project, including the RBSF component will not result in any significant cumulative impacts, in combination with any existing or permitted projects. The environmental interactions within the Proposed Project, including with the RBSF element, have been assessed throughout the EIAR and will not give rise to any significant impacts.
- 47 I consider that all of the issues raised in the submissions relating to cumulative impacts have been dealt with in the EIAR and the Response to An Bord Pleanála dated 11 January 2019 and a summary of how those issues were addressed has been set out in this statement.

**GDD Oral Hearing  
Brief of Evidence of Sarah Kiernan  
Cumulative Impacts and Environmental Interactions**

- 48 In addition, an Appraisal of other developments permitted since the submission of the planning application for the Proposed Project in June 2018 to An Bord Pleanála has been undertaken and I can confirm that there will be no significant cumulative impact resulting from those developments.