

20. Cumulative Effects



Existing view from south-east of the site, from Viewpoint 1 (Pendennis Rise)

Cumulative Effects

The EIA Regulations require that 'cumulative' effects are considered, which include

- Inter-project effects – this form of cumulative effect occurs as a result of the likely effects of the proposed development interacting with the effects of other reasonably foreseeable development schemes in the vicinity occurring together with the proposed development and the cumulative effects combining to worsen the effect of a particular effect; and
- Intra-project effects – these effects occur as a result of impact interaction between different environmental topics within the same proposal or project, as a result of that development's direct effects. For example, a project might affect a species as a result of direct loss of habitat and by noise and light disturbance. Each of these when considered in isolation may have a limited effect, but when taken together the sum is greater than the parts.

Inter-Project Effects

No cumulative schemes that meet the criteria have been identified for consideration at the time of preparation of the ES, and this has been confirmed by both the MMO and Cornwall Council.

Intra-Project Effects

There are beneficial intra-project cumulative effects associated with both the construction and operational stages of the proposed development, as a result of temporary increases in construction employment and spending in the local economy and long-term benefits associated with the increase in cargo and cruise operations.

There are a number of potential adverse intra-project cumulative effects during the demolition and construction stage. The mitigation measures described in Chapter 5: Demolition and Construction Description and associated technical appendices (Outline Construction Environmental Management Plan and Outline Site Waste Management

Plan) would manage these impacts. Any issues will be managed via a site Environmental Manager (or equivalent) to manage any local concerns during the demolition and construction stage.

20 Intra-Cumulative Effects

20.1 Introduction

- 20.1.1 The EIA Regulations require that all significant effects of a proposed development are taken into account, including cumulative effects.
- 20.1.2 There is no prescriptive guidance on the methodology for the assessment of cumulative effects; however, The Planning Inspectorate (PINS) document 'Using the 'Rochdale Envelope' (July 2018)¹, which was drafted in relation to infrastructure projects, states the following:
- 20.1.3 *"The potential cumulative impacts with other developments will also need to be carefully identified such that the likely significant effects can be shown to have been identified and assessed against the baseline position (which would include built and operational development). In assessing cumulative impacts, other development should be identified through consultation with the local planning authorities and other relevant authorities."*
- 20.1.4 PINS have also published an Advice Note² on the approach to cumulative effects assessment relevant to nationally significant infrastructure projects, which provides further useful context.
- 20.1.5 The IEMA Guidance³ identifies two types of cumulative effects. These are summarised below and described in more detail in Technical Appendix 2.5:
- **Inter-project effects** – combined or additive effects generated from the proposed development together with other planned or likely foreseeable developments and also referred to as 'in-combination effects'. These other developments may generate their own individually insignificant effects but when considered together could amount to significant cumulative effects, for example, combined transport and accessibility impacts from two or more (proposed) developments; and
 - **Intra-project effects** – combined effects of different types of impact or 'impact interactions', for example the multiplying effects arising from noise, dust and visual impacts during the construction of the proposed development on a particular sensitive receptor. Each of these when considered in isolation may have a limited effect, but when taken together the sum may be greater than the parts.
- 20.1.6 No schemes that meet the 'cumulative scheme' criteria defined within Technical Appendix 2.2 and Technical Appendix 2.6 have been identified for inclusion and consideration within the ES. This has been confirmed by both the MMO and CC. On this basis, the EIA chapters have not considered inter-projects effects.
- 20.1.7 An assessment on likely intra-project effects has however been completed, and this is provided below within this chapter.

20.2 Assessment of Intra-Project Effects

Methodology

- 20.2.1 As mentioned previously, there is no established EIA methodology for assessing and quantifying the combined effects of individual effects on sensitive receptors. Accordingly, Ramboll has developed an approach which uses the defined residual effects of the proposed development assessment to determine the potential for interactions between effects and consequently the potential for significant intra-project cumulative effects to arise.
- 20.2.2 The approach comprises the following steps:

- A review of the likely residual effects, and in particular the likely significant environmental effects, presented within the ES was undertaken (refer to Figure 20-1 at the end of this chapter);
- The likely receptors or receptor groups were identified;
- The individual effects which may affect a singular receptor or receptor group were identified;
- The potential for individual effects to interact were identified; and
- The scale of the combined intra-project cumulative effects was assessed.

- 20.2.3 To ensure a proportionate approach, no/none, negligible and negligible to minor effects have been disregarded. Where a range of effects has been predicted, the full range has been considered.
- 20.2.4 For coastal processes and sediment regime and underwater noise, the ES chapters report on the predicted changes as a result of the proposed development. The effects of these changes on other receptors are reported in other chapters and technical assessments, and therefore no intra-cumulative assessment is presented specifically for coastal processes and sediment regime or underwater noise.
- 20.2.5 It is noted that intra-project cumulative effects are more likely to arise when the receptor or receptor group is more sensitive to change, such as human receptors.
- 20.2.6 Where there is more than one effect likely to arise on a particular receptor or receptor group, the potential for effect interactions and the scale of the combined effect have been determined.
- 20.2.7 The assessment has been based on professional judgement and Ramboll's experience of developments of a similar nature and scale.

Intra-Project Effects During Demolition and Construction

- 20.2.8 The potential for intra-project cumulative effects on **employment and the economy** has been identified in respect of:
- Socio-economic beneficial effects with regards to employment creation, supply chain and spending, and economic output (GVA); and potential adverse effects in terms of demand for local visitor accommodation due to construction workers during peak holiday season.
- 20.2.9 All effects at local, district and regional levels were identified as not significant, and it is considered that the combination of these would not change the overall output of the assessment, resulting in **minor beneficial effects (not significant)**.
- 20.2.10 The potential for intra-project cumulative effects on **existing and future off-site users, including residential receptors** has been identified in respect of:
- Air quality effects with regard to dust and vehicle emissions and changes in NO₂, PM₁₀ and PM_{2.5} concentrations due to demolition and construction vehicle emissions, odours from dredging and dust soiling due to demolition and construction works; and
 - Noise and vibration with regard to daytime, evening and nighttime demolition and construction noise and road traffic noise.
- 20.2.11 The combined temporary air quality and noise effects resulting from the demolition and construction stage would be experienced by existing and future off-site users. Those vulnerable members of the population are likely to feel these effects at a greater magnitude.
- 20.2.12 Effects would be carefully managed during the demolition and construction programme through the implementation of the CEMP and CTMP. No additional mitigation has been identified.
- 20.2.13 The residual intra-project cumulative effects on existing and future off-site users would result in a temporary **minor adverse effect (not significant)**.
- 20.2.14 The potential for intra-project cumulative effects **on existing and future off-site pedestrians and cyclists** has been identified in respect of:
- Transport and accessibility effects in relation to pedestrian and cyclist severance, delay and accidents and safety.

¹ National Infrastructure Planning, 2018. Advice Note 9: Rochdale Envelope, Version 3, online. Available at: <https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-nine-rochdale-envelope/>

² National Infrastructure Planning, 2019. Advice Note 17: Cumulative effects assessment relevant to nationally significant infrastructure projects, version 2, online. Available at: <https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-17/>

³ Institute of Environmental Management and Assessment. The State of Environmental Impact Assessment Practice in the UK. 2011.

- 20.2.15 The minor and temporary transport and accessibility effects would be carefully managed throughout the demolition and construction programme and through the implementation of the CEMP and CTMP. The residual intra-project cumulative effects are likely to be **temporary minor adverse (not significant)** for existing and future off-site pedestrians and cyclists.
- 20.2.16 The potential for intra-project cumulative effects on **existing on and off-site marine ecological receptors** (species) has been identified in respect of:
- Marine ecology effects with regard to habitat removal and disturbance, elevated suspended sediment concentrations, fine sediment deposition and noise impacts on sensitive marine species.
- 20.2.17 Additional mitigation would comprise use of a closed bucket dredge system to reduce sediment dispersal. A marine mammal observer would be deployed to mitigate noise effects during demolition and construction. The residual intra-project cumulative effects are likely to be temporary **minor adverse (not significant)** for existing on- and off-site marine ecological receptors.
- 20.2.18 The potential for intra-project cumulative effects on **marine water quality** has been identified in respect of:
- removing marine sediment beneath the site;
 - mobilising contaminants within the marine sediment at the site;
 - mobilising marine sediment moving downgradient within the water column;
 - disposal of uncontaminated sediment at sea: dredged marine sediment mobilised during placement onto seabed; and
 - piling: mobilising contaminants within the marine sediment at the site.
- 20.2.19 The dredging methodology has considered marine water and sediment quality effects and has sought to reduce sediment mobilisation during dredging. A backhoe dredger would be used with a 10 m³ closed bucket, working on a late ebb, early flood tide for the dredging of the contaminated material, and a 10 m³ open bucket for the dredging of the uncontaminated material. The residual intra-project cumulative effect on water quality is likely to be temporary **minor adverse (not significant)**.
- 20.2.20 The potential for intra-project cumulative effects on **seabed sediment on- and off-site** has been identified in respect of:
- removing marine sediment beneath the site;
 - mobilised marine sediment including contaminated sediment settling out onto downgradient seabed; and
 - disposal of uncontaminated sediment at sea: dredged marine sediment placed onto seabed.
- 20.2.21 Removal of marine sediment beneath the site will remove shallow sediments found to be impacted with elevated concentrations of contaminants, thus removing a large contaminant mass from the marine environment and leaving the new seabed level less of a risk to the marine environment in terms of contaminant levels.
- 20.2.22 The marine sediment quality downstream of the site will be affected by the deposition of the suspended marine sediment mobilised by the dredging works. Throughout the dredging process, and for up to two weeks after, the suspension of marine sediments into the water column; mobilisation and transportation of the sediments with the current; and resettlement of the mobilised marine sediments into a different part of the seabed downgradient of the proposed development will affect marine sediments downgradient of the site. The dredging methodology has sought to reduce sediment mobilisation during dredging. A backhoe dredger would be used with a 10 m³ closed bucket, working on a late ebb, early flood tide for the dredging of the contaminated material, and a 10 m³ open bucket for the dredging of the uncontaminated material.
- 20.2.23 Any material not deemed suitable for disposal at sea would be disposed of via landfill (or an alternative identified method) and any sediment disposed of at sea would comprise material suitable for disposal at sea (and agreed with Cefas).

- 20.2.24 The residual intra-project cumulative effects on seabed sediment would result in a permanent **minor adverse (not significant) effect**.
- Intra-Project Effects During Operation**
- 20.2.25 The potential for intra-project cumulative effects on **employment and the economy** has been identified in respect of:
- Expansion of port and port-related business activities; and
 - Increased volume of cruise ship passengers and crew disembarking benefiting local economy.
- 20.2.26 The proposed development would facilitate the expansion of port related activities, including an uplift in cargo freight and cruise operations. In addition, the expansion of cruise activities would bring an increased volume of passengers into Falmouth, benefiting the local economy.
- 20.2.27 Effects at the local and district levels were identified as **moderate beneficial (significant)**, with effects at the regional level being not significant. There is the potential for intra-project cumulative effects to arise as a result of the combined beneficial effects on the economy. Overall, the residual intra-project cumulative effect is considered to remain as **moderate beneficial (significant)** at the local and district level.
- 20.2.28 The potential for intra-project cumulative effects **on existing and future off-site users, including residential receptors** has been identified in respect of:
- Noise and vibration effects in relation to road traffic noise and FLOW operations noise; and
 - Air quality effects in relation to vehicle exhaust emissions and the associated air quality effects of NO₂, PM₁₀ and PM_{2.5} and air pollutant impacts from existing and new emission sources.
- 20.2.29 With regard to noise and vibration, adverse effects would arise from operational development traffic noise, activity noise and of which are minor at the receptors.
- 20.2.30 Air quality changes in NO₂, PM₁₀ and PM_{2.5} concentrations are predicted due to the operational vehicle emissions.
- 20.2.31 The residual intra-project cumulative effect on existing and future off-site users including residential are likely to be permanent **minor adverse (not significant)**.

20.3 Conclusions

- 20.3.1 There are beneficial intra-project cumulative effects associated with both the construction and operational stages of the proposed development, as a result of temporary increases in construction employment and spending in the local economy and long-term benefits associated with the increase in cargo and cruise operations.
- 20.3.2 There are a number of potential adverse intra-project cumulative effects during the demolition and construction stage. The mitigation measures described in Chapter 5: Demolition and Construction Description and associated technical appendices (OCEMP and OSWMP) would manage these impacts. Any issues will be managed via a site Environmental Manager (or equivalent) to manage any local concerns during the demolition and construction stage.