15

INTERACTIONS AND INTER-RELATIONSHIPS

15 INTERACTIONS AND INTER-RELATIONSHIPS

15.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report (EIAR) has been prepared by WSP Ireland Consulting Ltd (WSP) for the Hudson Brothers Limited (HBL) Section 37L application to An Bord Pleanála (ABP). The Section 37L application has been made for the continuation of a quarry as a quarry (the Proposed Development). The Proposed Development is located in the townlands of Athgarrett, Philipstown and Red Bog, Co. Kildare, (the Site), and is located within the administrative boundary of Kildare County Council, (KCC).

This chapter of the EIAR describes interactions/inter-relationships between environmental effects in the area surrounding the Proposed Development, and also an overview of potential impacts of the Proposed Development in combination with other appropriate committed development in the region of the Site. Potential cumulative effects have also been considered in the respective discipline chapters of this EIAR.

15.1.1 TECHNICAL SCOPE

The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU, together the 'EIA Directive') requires that an environmental impact assessment identifies, describes and assesses in an appropriate manner the significant effects of a project and the significant interaction and in-combination effects of the project. This requires the careful consideration of environmental factors and pathways (direct and indirect) that can magnify effects through the interaction or accumulation of effects.

Environmental factors are inter-related to some degree, and these interactions can exist on many levels. This chapter summarises the primary interactions between the environmental topics and provides a matrix to coherently display them.

The overall objective of the assessment in this chapter is to identify, through a review of these issues, whether additional mitigation is required that would not otherwise have been identified in the individual study areas for these interacting or cumulative impacts.

The overall EIAR Project Team contributed to the compilation of this chapter.

15.1.2 GEOGRAPHICAL AND TEMPORAL SCOPE

The geographical study area for the assessment covers the EIA site boundary (identified on Figure 15-1). In the context of the EIAR, the Site boundary contains lands which form the existing quarry site, the lateral extension areas, and some areas which extend beyond the working areas, including the plant and processing area to the east of the main pit. The Section 37L (the Planning Application) boundary is shown on the drawing set which accompanies the planning application.

The temporal scope of this assessment covers the current quarrying activities on the Site and the extension of these permitted activities into the future, with the Section 37L application boundary. Given the phased nature of the extractive industry and the similarities between the construction and operational phases of the Proposed Development, these will be considered together in this chapter as the overall operational phase.

Under the current programme of the Proposed Development, the extraction phase will last for 13 - 15 years, which will provide for fluctuations in market demands for the aggregate extracted from the Site. The duration of the extraction phase is therefore classified as 'medium-term' by the EPA's 2022 'Guidelines on the information to be contained in environmental impact assessment reports'.

The restoration phase of the Proposed Development will follow the extraction phase and will be 2 - 3 years in duration, which is 'short-term' - those lasting from one to seven years (EPA, 2022).

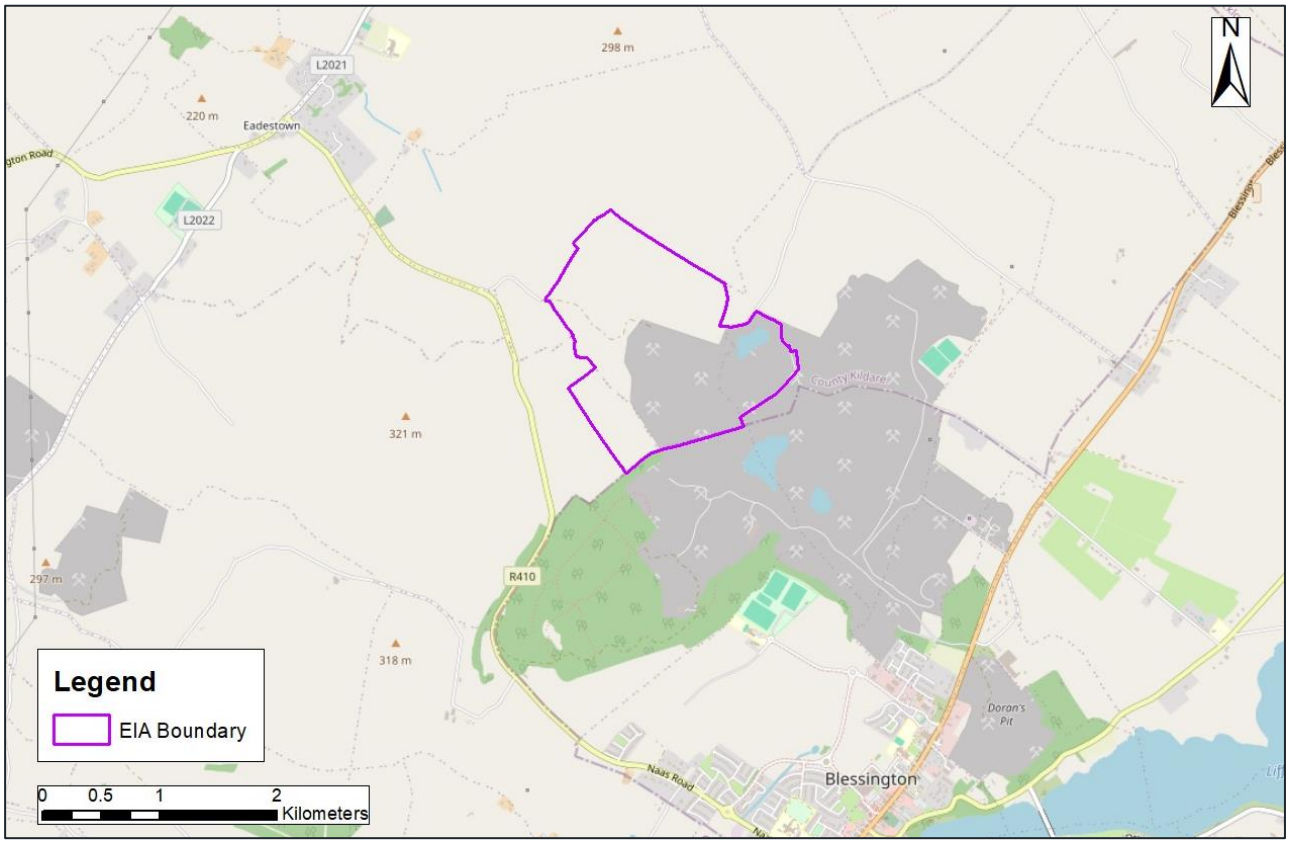

Figure 15-1 - Location of the Site (EIA site boundary).

15.1.3 DEVELOPMENT DESCRIPTION

The lands the subject of this EIAR extend to 95.8 ha and comprises lands which are currently used for quarrying activities and the proposed extension areas. The Section 37L application covers approximately 64.0 ha with lateral extent of the proposed voids of approximately 10.2 ha in the proposed western extraction area and approximately 21.2 ha. in the proposed northern extraction area. It is estimated that total of approximately 31.4 ha. of additional land will be disturbed in the course of this Proposed Development (combination of lateral void and formation of screening bunds). The majority of the Proposed Development relates to northern and western extension areas.

Both sand and gravel, and rock is proposed to continue to be extracted on the Site. The rock reserve consists of sandstone (greywacke) and are proposed to be extracted by blasting and mechanical means. The excavated rock material will then continue to be processed on the quarry floor by mobile crushing, screening, and associated plant before being stockpiled into specific graded aggregate stockpiles. Crushed rock aggregate would then be transported to market by road going trucks.

Sand and gravels are proposed to continue being extracted by mechanical means using excavators and then transported to the fixed processing plant on Site. The excavated sands and gravels are washed, screened, and processed through the existing fixed closed-circuit aggregate processing plant, located in the eastern part of the Site. Processed sand and gravel would continue to be stockpiled adjacent to the aggregate plant prior to being transported to market by road going trucks.

Proposed excavation into the sands and gravels and bedrock would continue to remain above the water table, with no requirement for dewatering (as discussed in Chapter 6.0 Water).

15.2 METHODOLOGY

This assessment has been made with reference to the 'Guidelines on the information to be contained in environmental impact assessment reports', published by the EPA in May 2022 (EPA, 2022 Guidelines). These guidelines were issued by the EPA to facilitate compliance with the EIA Directive.

The descriptive terminology used follows a 'matrix approach' to environmental assessment which is based on the characteristics of the impact (magnitude and nature) and the value (sensitivity) of the receptor. The terminology and method have been summarised in Chapter 1, (Introduction, Scope and Methodology) of this EIAR.

For the assessment of interacting effects, a matrix has been provided in Table 15-1 identifying through professional judgment the specific topics within the EIAR where the effects potentially interact/inter-relate with each other.

Table 15-1 - HBL Substitute Consent Environmental Interactions, (X = No Interaction; ✓ = Potential Interaction).

Interaction	Pop. & Human H.	Ecology & Biodiver.	Land, Soils & Geology	Water	Air Quality	Climate	Noise & Vibration	Cultural Heritage	Landscape & Visual	Traffic & Transport	Material Assets	Major Acc. & Dis
Pop. & Human H.		X	X	✓	✓	X	✓	X	✓	✓	✓	✓
Ecology & Biodiver.			✓	✓	✓	X	✓	X	✓	X	X	X
Land, Soils & Geology				✓	X	X	X	✓	X	X	X	X
Water					X	X	X	X	X	X	X	X
Air Quality						X	X	✓	X	X	X	X
Climate							X	X	X	X	X	X
Noise & Vibration								✓	X	X	✓	X
Cultural Heritage									✓	X	X	X
Landscape & Visual										X	X	X
Traffic & Transport											X	X
Material Assets												X
Major Acc. & Dis												

15.2.1 POPULATION AND HUMAN HEALTH

Continued quarrying activity at the Proposed Development has the potential to cause interacting effects between the surrounding population and human health and with water, air quality, noise, traffic and transport, landscape and visual, and material assets.

Potential effects to the human environment from the continued Proposed Development activities include impacts on water which may have affect groundwater quality in local wells. Potential impacts to human health may arise from dust generating activities on the Site and increases in concentrations of airborne particles and nitrogen dioxide due to plant emissions. Impacts to human health from excess noise and vibration on site may have potential to result in direct effects to site workers and also annoyance and effects on mental health in the surrounding residential receptors.

Visual impact relates to the effect of a development on specific views and on the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements. As such, visual impacts from the Proposed Development relate to the effect on views and on the general visual amenity experienced by people.

Material Assets in the vicinity of the Site comprise of built services and infrastructure including, roads, telecommunications, electricity, gas and water infrastructure. Site activities from the continued activity at the Proposed Development have the potential to impact or cause disruption to local services or utilities.

Major accidents and disasters which have the potential to occur on site may impact employees on site and people in the site surrounds, including residential receptors.

These interactions have been considered in the relevant chapters of this EIAR: Chapter 3 Population and Human Health, Chapter 6 – Water, Chapter 7 – Air Quality, Chapter 9 – Noise and Vibration, Chapter 11 – Landscape and Visual, Chapter 12 – Traffic and Transport, Chapter 13 – Material Assets, and Chapter 14 – Major Accidents and Disasters. . Good environmental practice for water, air, and noise and vibration management have also been specified as appropriate in the respective chapters. Such measures are identified and detailed in the HBL Environmental Management System.

Potential impacts to the Glending Wood amenity area have been identified and surmised in Chapter 3 of the EIAR.

In summary, these assessments have identified that such interacting effects with the human environment are **not significant**.

15.2.2 ECOLOGY AND BIODIVERSITY

There is potential for interacting effects between ecology and biodiversity and land, soils and geology, water, air quality, noise and vibration and landscape and visual.

Adverse impacts to the soil, water and air environment have the potential to deteriorate habitat quality both on and off-site.

Similar to human receptors, impacts from excess noise and vibration generated by the Proposed Development may result in stress to some species and effects on biodiversity and habitats surrounding the Site.

Elements of the Proposed Development will alter landscape features permanently. A large proportion of habitat to be altered by the extension of the Proposed Development will be improved agricultural grassland. With the extension of the Site, the degradation of hedgerow habitat and habitat severance has the potential to cause stress to species associated with hedgerow habitat.

These interactions have been considered in the relevant chapters of this EIAR: Chapter 4 – Ecology and Biodiversity, Chapter 5 Land, Soils and Geology, Chapter 6 – Water, Chapter 7 – Air Quality, Chapter 9 – Noise and Vibration and Chapter 11 – Landscape and Visual.

In summary, these assessments have identified that such interacting effects with the surrounding ecology and biodiversity are **not significant**.

15.2.3 LAND, SOILS AND GEOLOGY

The continued activities at the Proposed Development create the potential for interacting effects between soil and geology, water, and cultural heritage. Excavated materials will arise as a result of the soil stripping and the removal of rock. These activities will have the potential to cause changes in the underlying water environment and also to damage undiscovered cultural heritage features.

These interactions have been considered in the EIAR in Chapter 5 – Land, Soils and Geology, Chapter 6 – Water, and Chapter 10 – Cultural Heritage.

In summary, these assessments have identified that the interacting effects with land, soils and geology and water and cultural heritage are **not significant**.

15.2.4 CULTURAL HERITAGE

The continued activity provides potential for interacting effects between cultural heritage and air quality, noise and vibration, and landscape and visual impact.

The proposed blasting of rock will generate vibration which has the potential to damage cultural heritage features in the surrounds of the Site. In addition, extraction activities which will generate dust could holistically affect the setting of cultural heritage assets within the wider study area. Also, alterations in the landscape and visual amenity of the wider Site may have the potential to impact the value of recorded monuments and also unrecorded features.

These interactions have been considered in Chapter 5 – Land, Soils and Geology, Chapter 7 – Air Quality, and Chapter 9 – Cultural Heritage.

In summary, this assessment in the EIAR has identified the above interacting effects as **not significant**.

15.2.5 MATERIAL ASSETS

The Proposed Development has the potential for interacting effects between material assets and noise and vibration. The blasting of rock generated vibration will have the potential to damage material assets surrounding the Site (e.g. gas or water supply infrastructure), and disrupt supply for the relevant users.

These interactions have been considered in Chapter 3 – Population and Human Health, Chapter 9 – Noise and Vibration and Chapter 13 – Material Assets.

In summary, this assessment in the EIAR has identified interacting effects between noise and vibration and material assets as being **not significant**.

15.3 CUMULATIVE AND COMBINED EFFECTS

This section of the EIAR describes the environmental effects and impacts of the proposed quarry continuation and extension in combination with other relevant development in the region of the Site. Assessments of such have also been included as appropriate in respective discipline chapters of this EIAR.

Cumulative effects are defined as the addition of many non-significant or significant effects, including the effects of other projects, to create larger, more significant effects. Singular activities may have a non-significant effect in isolation, however when combined with other impacts these can be collectively significant and therefore must be included in the EIA process.

This assessment has been made with guidance from the 'Guidelines on the information to be contained in environmental impact assessment reports', published by the EPA in May 2022. The guidelines were published to facilitate compliance with EIA Directive (2014/52/EU).

15.3.1 EXISTING SURROUNDING DEVELOPMENTS AND CUMULATIVE ASSESSMENT

Figure 15-2, Figure 15-3, and Figure 15-4 identify the appropriate developments and facilities considered in this cumulative assessment. These schemes were selected based on their size, scale and proximity to the Proposed Development.

Following the review of appropriate facilities and operations within 5 km of the Application Site, the adjacent quarry operations to the south and east of the Application Site were considered to have the most cumulative potential given their proximity.

Any cumulative or in-combination impacts with these adjacent quarries have been deemed to be more significant that any effects that would exist between the Application Site and other developments further afield.

Cumulative assessments have been considered in the individual chapters of this EIAR, where appropriate. The cumulative assessments in this EIAR have determined that there will be no significant cumulative impacts between the proposed development and the adjacent quarry operations, and consequently, no significant impacts with developments identified in Figure 15-2, Figure 15-3, and Figure 15-4.

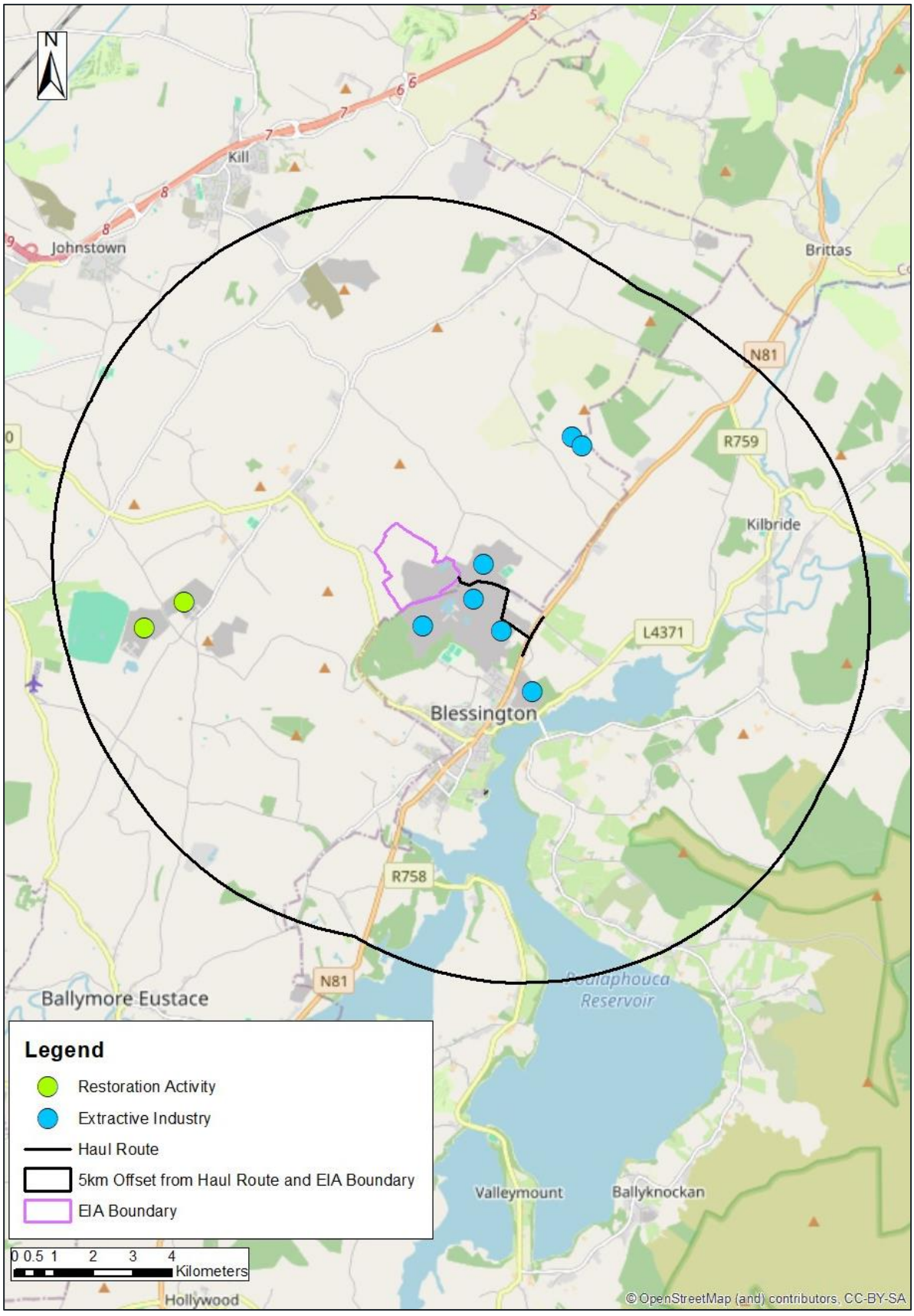

Figure 15-2 - Extraction and Restoration sites included in the Cumulative Effects Assessment

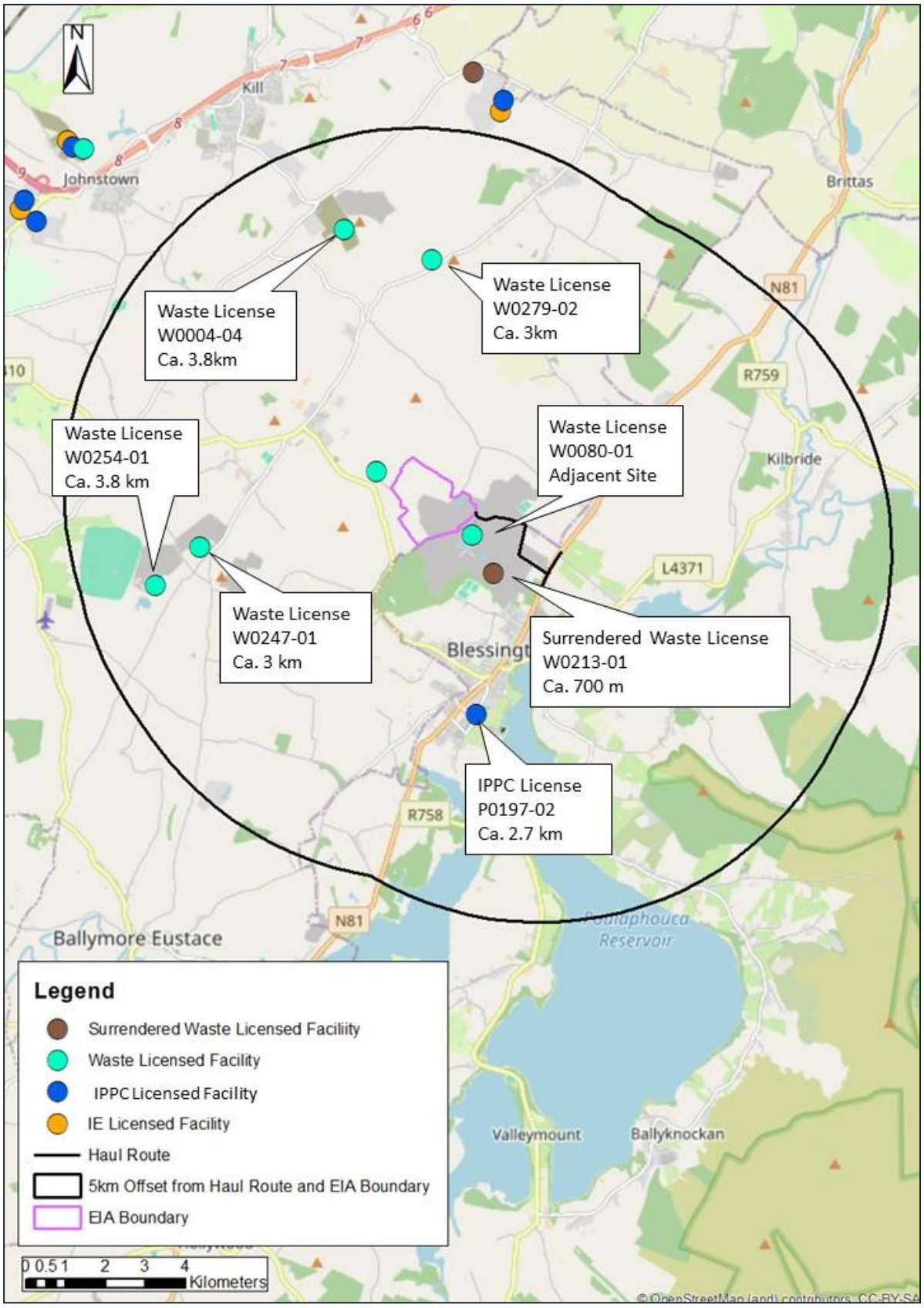

Figure 15-3 - EPA Licenced Facilities included in the Cumulative Effects Assessment

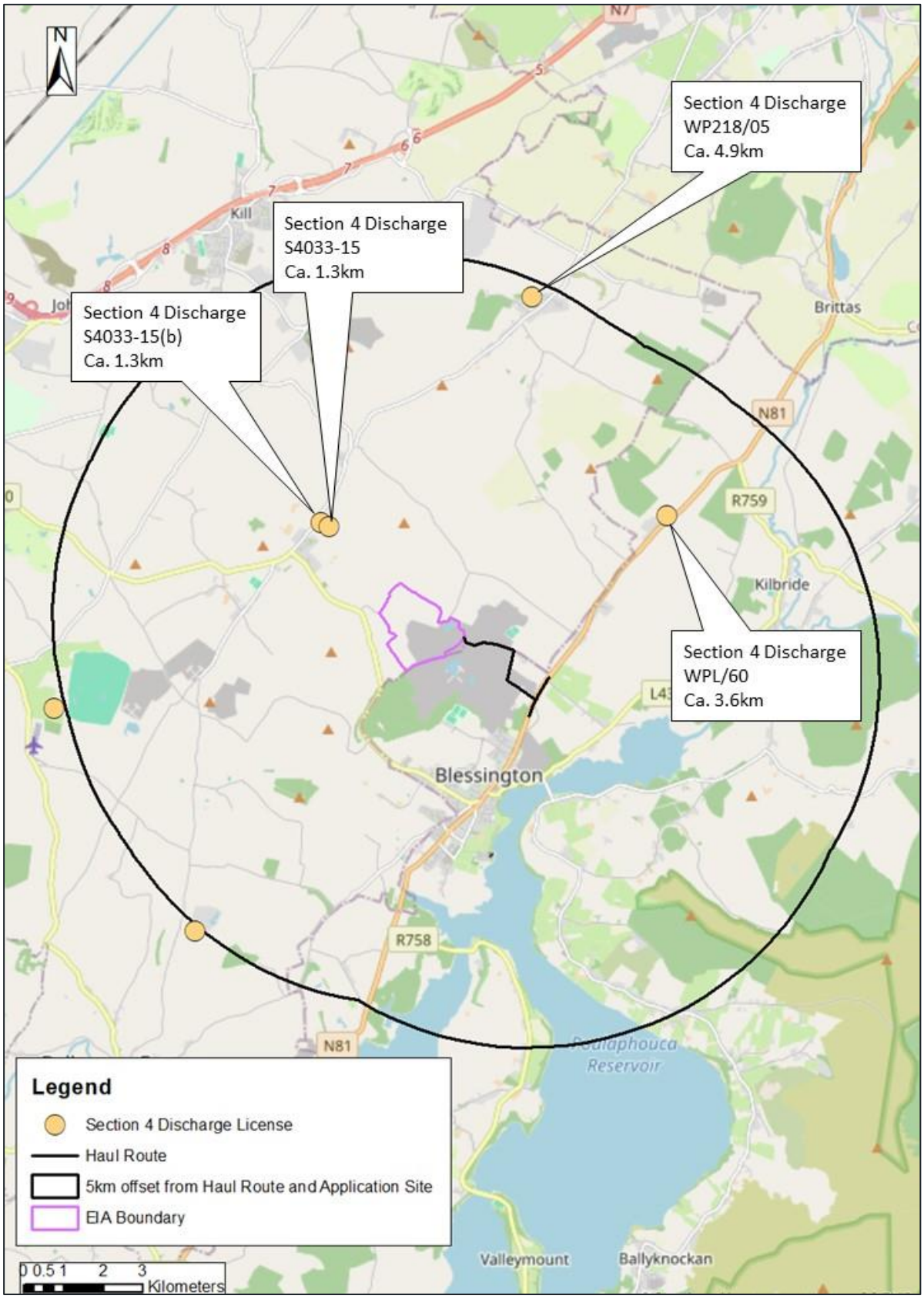

Figure 15-4 - Section 4 discharges included in the Cumulative Effects Assessment

15.3.2 PROPOSED FUTURE ROAD NETWORK – N81 LAYOUT

The N81 is a National Secondary road which is approximately 77 km in length travelling north-to-south from its junction with the M50 motorway (Junction 11) to its junction with the N80 in Closh, Co. Carlow. The N81 is a busy road given its proximity to Dublin City. In the vicinity of the Site the N81 currently runs through the town of Blessington. At its closest point with the Site the N81 is approximately 1.4 km east (when measured at its closest point).

Material leaving the Application Site are hauled approximately 1.5 km along to the Applicant's Wicklow Site and then onto the N81. It is proposed that the haulage route for materials leaving Site will continue as currently permitted.

The Applicant is aware that there is a proposal for a road improvement scheme which would result in a new road layout for the N81 near the Site.

The N81 Hollywood Cross to Tallaght Road Improvement Scheme (Improvement Scheme) in its entirety will involve an improvement to 29 km of the N81, resulting in improved road safety and journey times. The Improvement Scheme is currently at Phase 2 Route Selection Stage of the National Roads Authority Project Management Guidelines 2010. At this stage in the process a preferred routeway has been identified, however it should be noted that the N81 Tallaght to Hollywood Cross Scheme was not included in projects identified in 2019 for development during the 2018-2027 period of the National Development Plan, as such it is anticipated that this scheme will be delayed until at least 2027.

The existing and proposed N81 road layout in close proximity to the Site is shown on Figure 15-5, below. The revised N81 layout would be located closer to the Site (approximately 600 m in its closest direction). During Stage 1 Preliminary Options Assessment Addendum Report quarrying operations within the Section 2 area (includes Blessington and the Site areas) identified quarrying within the area as a priority parameter for route selection. As such, consideration has been given by the Improvement Scheme to the quarrying operations in the area, in particular to their linkage with the N81 as a haul route.

Given that the Improvement Scheme is still within the proposal stages, and there is no definitive timeline for when the N81 may be realigned, the Applicant proposes to continue the use of haul routes as currently exist with regards to the N81.

If the Improvement Scheme were to be implemented within the lifetime of the Proposed Development then it is likely that the haul route will need to be revised. The current layout for the proposed N81 would cross the Applicant's Wicklow land holding and create a crossing across a private road which is currently used by the Applicant to access the wheelwash and weighbridge facilities on this Wicklow site before connecting to the existing N81. If the N81 were to be relocated closer to the Site, then the Applicant would use this route as the haul route but the weighbridge and wheelwash would be located across the new N81. To mitigate this potential impact, the weighbridge and wheelwash would likely be relocated to within the Site boundaries, pending acquirement of the necessary permissions.

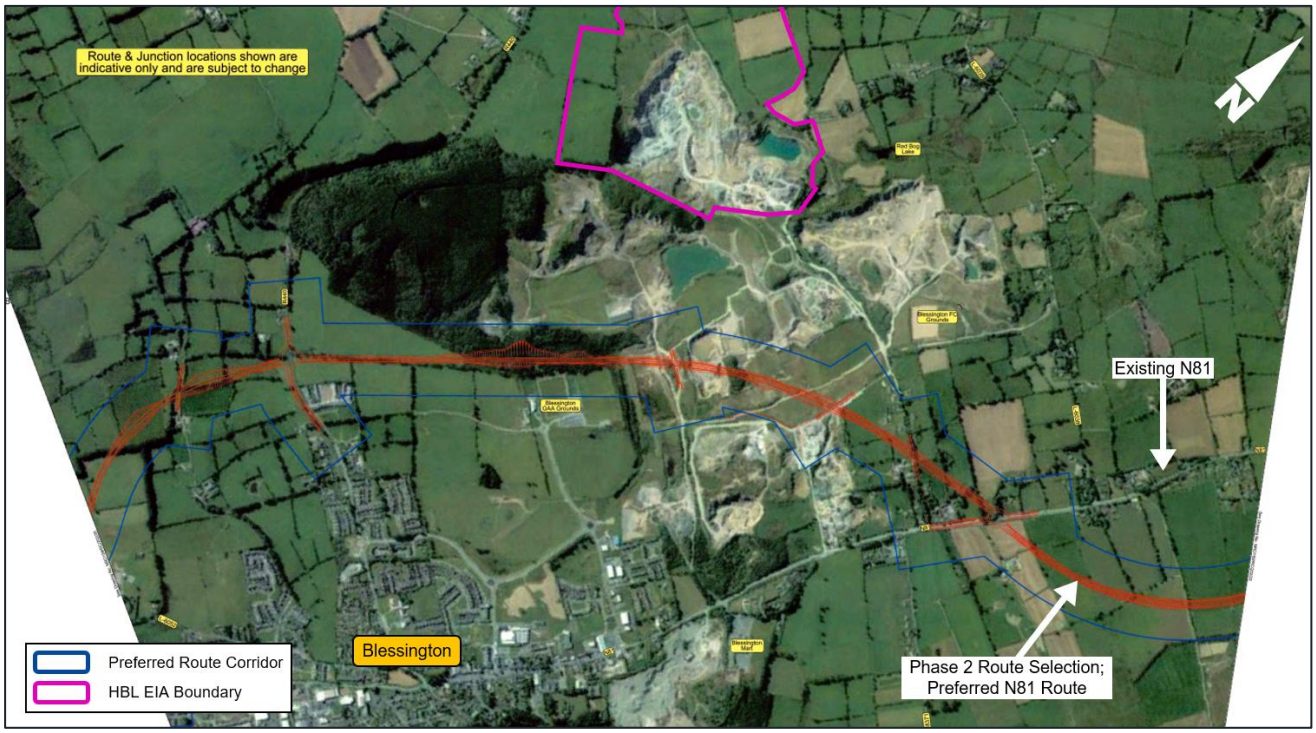

Figure 15-5 - N81 Hollywood Cross to Tallaght Road Improvement Scheme, Preferred Route Corridor, Kildare NRO, May 2016.

Cumulative Impact with N81 Improvement Scheme

During the construction phase of the N81 realignment there is potential for cumulative noise, dust and visual impacts between the quarry operations and the roadworks. However, these cumulative impacts cannot be effectively evaluated given the stage in which the scheme is at. Nevertheless, it is anticipated that the duration of these works would be short term in duration (effects lasting one to seven years), and it is assumed that the construction operations of any proposed road works would be conducted in line with appropriate environmental plans and approvals. Therefore with such mitigation and monitoring it is considered that this would result in 'not significant' environmental impacts should the scheme and the Application Site be in close proximity.

15.4 CONCLUSIONS

It has been concluded that there were no significant interactions between any of the various environmental topic areas as a result of continued operations associated with the Proposed Development. Similarly it has been concluded that there are no significant cumulative effects with other relevant development in the region of the Site.