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8A. Air Quality - Construction Assessment

8A.1 Overview

8A.1.1 This Technical Appendix accompanies **ES Volume I Chapter 8**: Air Quality (**Application Document Ref. 6.2**) and describes the additional details for the construction dust assessment, and dispersion modelling of road traffic emissions from the Proposed Development during the construction phase.

8A.1.2 Emissions to air during the construction of the Proposed Development have the potential to adversely affect human health and sensitive ecosystems, if not appropriately controlled. This Technical Appendix identifies and proposes measures to address the potential impacts and effects of the Proposed Development on air quality during enabling works, construction, and decommissioning. Emissions associated with the construction phase could give rise to potential localised air quality effects from traffic and dust generation.

8A.1.3 Emissions to air from the Proposed Development during operation, comprising operational traffic and emissions from the operational combustion plant are detailed in **ES Volume II Appendix 8B:** Air Quality – Operational Assessment (**Application Document Ref. 6.3**).

8A.1.4 The magnitude of air quality impacts at sensitive human receptors has been quantified where appropriate for pollutants emitted from construction activities associated with the Proposed Development. The impact of emissions on sensitive ecological receptors has been considered in the context of relevant critical levels or critical loads for designated nature sites.

8A.2 Scope

Construction phase emissions

8A.2.1 The assessment has considered the impact of emissions during the construction and decommissioning of the Proposed Development on local air quality.

8A.2.2 The assessment includes a review of the impacts of dust emissions from the various activities associated with the construction phase of the Proposed Development during planned construction works on Site and the impacts associated with the emissions from construction traffic. Impacts

on sensitive human and ecological receptors in the vicinity of the Proposed Development have been assessed.

8A.2.3 The purpose of the construction dust assessment is to determine the potential risk of dust impacts occurring at sensitive receptors due to construction related activities. Furthermore, the assessment is undertaken in order to identify the scale of mitigation and control measures required to avoid such potential impacts, and to ensure that there will be no significant impacts at sensitive receptors beyond the Proposed Development Site boundary. These measures are then secured within a Construction Environmental Management Plan (CEMP) an Outline for which is provided in (**Application Doc Ref. 7.4**); full details on the construction activities and methods proposed are provided within **ES Volume I Chapter 5**: Construction Programme and Management (**Application Document Ref. 6.2**).

Cumulative impacts

8A.2.4 Cumulative impacts from existing sources of pollution in the area are accounted for in the adoption of site-specific background pollutant concentrations from archived and published sources. It is recognised, however, that there is a potential impact on local air quality from other consented emission sources which were not present at the time of publication.

8A.2.5 The full list of short-listed cumulative schemes considered for the Proposed Development is presented in **ES Volume I Chapter 21**: Cumulative and Combined Effects (**Application Document Ref. 6.2**)**.** This assessment considers these schemes, where relevant.

8A.2.1 The methodology to determine the growth in traffic on the local road network is described in **ES Volume I Chapter 10**: Traffic and Transportation (**Application Document Ref. 6.2**). The predicted growth included in the traffic data accounts for increases in traffic associated with other committed developments in the area and consequently the air quality assessment of road traffic emissions is inherently cumulative. There is therefore no separate assessment of cumulative impacts of construction traffic related emissions to air.

Sources of information

8A.2.2 The information that has been used within this assessment includes pertinent information from:

- **ES Volume I Chapter 4**: Proposed Development (**Application Document Ref. 6.2**);

- **ES Volume I Chapter 5**: Construction Programme and Management (**Application Document Ref. 6.2**);
- details on the site layout;
- Ordnance Survey mapping;
- construction Traffic Data taken from **ES Volume I Chapter 10**: Traffic and Transportation (**Application Document Ref. 6.2**); and
- baseline air quality data from published sources and Local Authorities.

8A.3 Methodology

Overview

8A.3.1 This section describes the approach that has been taken to the assessment of emissions associated with the construction phase of the Proposed Development which has included:

- qualitative assessment of construction dust effects; and
- dispersion modelling of construction phase road traffic emissions on local roads.

8A.3.2 Non-Road Mobile Machinery (NRMM) is considered within **ES Volume I Chapter 8**: Air Quality (**Application Document Ref. 6.2**).

Construction dust assessment

8A.3.3 The following three potential activities have been screened as potentially significant, based on the nature of construction activities proposed:

- demolition (site clearance and potential demolition);
- earthworks (soil stripping, spoil movement and stockpiling);
- construction (including on-site concrete batching); and
- trackout (HGV movements on unpaved roads and offsite mud on the highway).

8A.3.4 It is anticipated that only relatively minor site clearance works would be required as part of the Preliminary Works activities associated with the construction of the Proposed Development. Such site clearance works are not explicitly contained in the Institute of Air Quality Management (IAQM) Guidance on the assessment of dust from demolition and construction works (IAQM 2024), and for the purposes of this assessment, the closest assessment category available in the IAQM 2024 guidance is considered to be ‘Demolition’. For this reason, the term ‘Demolition’ is used

throughout the remainder of the report to refer to site clearance and potential demolition, and that activity is screened in.

8A.3.5 Further details of anticipated construction activities are available within **ES Volume I Chapter 5**: Construction Programme and Management (**Application Document Ref. 6.2**).

Magnitude Definitions

8A.3.6 The potential magnitude of dust emissions is categorised as detailed in Table 8A.1.

Table 8A.1: Example definitions of the magnitude of construction/ demolition activities

Magnitude	Demolition	Earthworks	Construction	Trackout
Large	Total building volume >75,000m^3, potentially dust construction material (e.g. concrete), on-site crushing and screening, demolition activities >12m above ground level	Site area >111,000m^2 potentially dusty soil type (e.g. clay). >10 heavy earth moving vehicles at once, bunds >6m high	Total building volume >75,000 m^3, on-site concrete batching, sandblasting	>50 HDV (>3.5 tonne) outward movements in any one day, potentially dusty surface material, unpaved road length >100m
Medium	Total building volume 12,000 – 75,000 m^3, potentially dusty construction material, demolition activities 6 to 12 metres above ground level	Site area 18,000 m^2 – 110,000m^2, moderately dusty soil type (e.g. silt), 5 – 10 heavy earth moving vehicles at once, bunds 3-6 metres highs	Total building volume 12,000 – 75,000m^3, potentially dusty materials e.g. concrete, on-site concrete batching	20-50 HDV outward movement in any one day, moderately dusty surface material, unpaved road length 50m - 100m

Magnitude	Demolition	Earthworks	Construction	Trackout
Small	Total building volume <12,000m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 metres above ground level, demolition during wetter months	Site area <18,000m^2, large grain soil type (e.g. sand), <5 heavy earth moving vehicles at once	Total building volume <12,000m^3, low dust potential construction materials. e.g. metal/timber	<20 HDV outward movement in any one day, surface material with low potential for dust release, unpaved road length <50m

Receptor sensitivity definitions

8A.3.7 The assessment of the significance of the effects of construction dust has been made with respect to the receptor and area sensitivity definitions as outlined in Table 8A.2~~Table 8A.2~~ to Table 8A.5~~Table 8A.5~~. Sensitivity definitions have been made with reference to the IAQM guidance (IAQM, 2024); receptors beyond 100m are defined as low sensitivity to construction impacts; ecological receptors (including statutory designations, and non-statutory ecological receptors of location importance such as local wildlife sites (LWS), national and local nature

reserves) have been included as there are a number of ecological sites within the designated 50m[1] screening distance.

Table 8A.2: Receptor sensitivity to construction/ demolition dust effects

Potential dust effect	Human perception of dust soiling effects	PM_{10} Health effects	Ecological effects
High sensitivity	Enjoy a high level of amenity; the appearance, aesthetics or value of the property would be diminished by soiling; receptor expected to be present continuously or regularly for extended periods of time; e.g. residential dwellings, museums, culturally important collections, medium and long-term carparks and showrooms	Public present for 8 hours per day or more; e.g. residential properties, schools, care homes, hospitals	Locations with an international or national designation and the designated features may be affected by dust soiling; locations where there a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain
Moderate sensitivity	Enjoy a reasonable level of amenity; the appearance, aesthetics or value of the property could be diminished by soiling; receptor not expected to be present continuously or regularly for extended periods of time; e.g. parks and places of work	Only workforce present (no residential or high sensitivity receptors) 8-hours per day or more; e.g. office and shop workers.	Locations where there is a particularly important plant species, where dust sensitivity is uncertain or unknown; or locations with a national designation where the features may be affected by dust deposition
Low sensitivity	Enjoyment of amenity not reasonably expected; the appearance, aesthetics or value of property not diminished by soiling;	Transient human exposure, e.g. footpaths,	Locations with a local designation which may be affected by dust deposition.

[1] Ecological receptors assessed are those located within 50m of the nearest construction activity and/ or within 50m of a public road used by construction traffic that is within 500m of the construction site entrance (A18).

Potential dust effect	Human perception of dust soiling effects	PM_{10} Health effects	Ecological effects
	receptors are transient or present for limited periods of time; e.g. playing fields, farmland, footpaths, short term car parks*	playing fields and parks.	

8A.3.8 Distances have been measured from source to receptor in bands of less than 20m, less than 50m, less than 100m and less than 250m for earthworks and construction in accordance with the IAQM guidance. For trackout, the receptor distances have been measured from receptor to trackout route (up to 50m) and up to 250m from the construction site exit. These distance bands have been applied in Table 8A.3~~Table 8A.3~~ and Table 8A.4~~Table 8A.4~~. For sensitivity of an area to ecological impacts, the distance bands are for less than 20m and less than 50m.

Table 8A.3: Sensitivity of the area to dust soiling effects on people/ property

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 8A.4: Sensitivity of the area to human health impacts

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<250
	>100	Medium	Low	Low	Low

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<250
High (annual mean PM_{10} concentration <24µg/m^3)	10-100	Low	Low	Low	Low
	1-10	Low	Low	Low	Low
Medium (annual mean PM_{10} concentration <24µg/m^3)	>10	Low	Low	Low	Low
	1-10	Low	Low	Low	Low
Low	≥1	Low	Low	Low	Low

Table 8A.5: Sensitivity of the area to ecological impacts

Receptor sensitivity	Distance from source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Risk definitions

8A.3.9 The potential risks from emissions from unmitigated demolition and construction activities have been defined with reference to the magnitude of the potential emission and the sensitivity of the highest receptor(s) within the effect area, as summarised in Table 8A.6~~Table 8A.6~~.

Table 8A.6: Classification of risk of unmitigated impacts

Area of Sensitivity to Activity	Magnitude		
	Large	Medium	Small
Demolition			

Area of Sensitivity to Activity	Magnitude Large	Medium	Small
High	High risk	Medium risk	Low risk
Medium	High risk	Medium risk	Low risk
Low	Medium risk	Low risk	Negligible
Earthworks			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Construction			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Trackout			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk

Area of Sensitivity to Activity	Magnitude Large	Medium	Small
Low	Low risk	Low /risk	Negligible

Magnitude assessment

8A.3.10 Each dust generating activity has been assigned a dust emission magnitude according to the definitions provided in IAQM Guidance on the assessment of dust from demolition and construction (IAQM, 2024)**Error! Reference source not found.**. These dust emission magnitudes are shown in Table 8A.7~~Table 8A.7~~.

Table 8A.7: Dust emission magnitudes for construction activities

Activity	Dust emission magnitude	Reasoning
Demolition	Large	Demolition of dusty materials including reinforced concrete is required, onsite crushing of concrete bund walls is required, and the height of demolition activities is >12m above ground level (AGL) (total building volume to be demolished is <12,000m).
Earthworks	Large	The total site area is greater than 110,000m^2, soil type has a relatively high clay content, >10 heavy earth-moving vehicles at any one time during peak times, and the height of bunds formed likely to be 3 - 6m.
Construction	Large	There will be no onsite batching or blasting, however construction will use potentially dusty material including concrete.
Trackout	Large	>50 HDV (>3.5 tonnes) outward movements in any one day at peak periods, surface material has high clay content, and the length of unpaved road length is > 100m.

Receptor identification

8A.3.11 Residential, commercial and ecological receptors to dust soiling, human health and ecological impacts have been identified within the study area. The sensitivity of these receptors has been determined according to the receptor sensitivity definitions outlined in Table 8A.2~~Table 8A.2~~. The identified receptors and sensitivities are shown in Table 8A.8~~Table 8A.8~~ (CDR = Construction Dust Receptor). The locations of the receptors are show in **ES Volume III Figure 8.3:** Construction Study Area (**Application Document Ref. 6.4**).

Table 8A.8: Identification of receptors for construction dust assessment

ID	Receptor name	Receptor type	Approx. distance (m) from Proposed Development Site boundary or exit*	X	Y	Approx. distance to construction route (m)	Within screening distance?	Receptor sensitivity to dust and particulate matter
CDR1	Vazon Bridge House	Residential	50	482512	411501	1,800	Yes	High
CDR2	Hawthorn House	Residential	25	483045	411880	2,250	Yes	High
CDR3	Chapel Lane	Residential	40	483222	411902	1,320	Yes	High
CDR4	Mariner's Arms Flats	Residential	25	483447	411579	940	Yes	Low
CDR5	Stainforth and	Ecological	15	482170	411602	1,830	Yes	Low

ID	Receptor name	Receptor type	Approx. distance (m) from Proposed Development Site boundary or exit*	X	Y	Approx. distance to construction route (m)	Within screening distance?	Receptor sensitivity to dust and particulate matter
	Keadby Canal Corridor LWS							
CDR6	Keadby Wetland LWS	Ecological	20	482556	411519	1,850	Yes	Low
CDR7	Keadby Wet Grassland LWS	Ecological	20	482556	411519	1,850	Yes	Low
CDR8	Trentside, Keadby	Commercial	30	483450	411399	770	Yes	Low

ID	Receptor name	Receptor type	Approx. distance (m) from Proposed Development Site boundary or exit*	X	Y	Approx. distance to construction route (m)	Within screening distance?	Receptor sensitivity to dust and particulate matter
CDR9	Pilfrey Farm	Residential	40	480757	409986	45	Yes	High
CDR10	Humber Estuary Ramsar Site, SAC and SSSI	Ecological	0	483623	411712	0	Yes	High
CDR11	Sea Scout Boat House	Recreational	50	482512	411501	1,800	Yes	Medium
CDR12	Residential Property on High	Residential	9,395	470749	410960	15	Yes	High

ID	Receptor name	Receptor type	Approx. distance (m) from Proposed Development Site boundary or exit*	X	Y	Approx. distance to construction route (m)	Within screening distance?	Receptor sensitivity to dust and particulate matter
	Levels Bank 4							
CDR13	Residential Property on High Levels Bank 3	Residential	8,560	471560	410691	10	Yes	High
CDR14	Residential Property on High Levels Bank 2	Residential	8,400	471714	410666	15	Yes	High
CDR15	Residential Property on	Residential	5,790	474311	409829	15	Yes	High

ID	Receptor name	Receptor type	Approx. distance (m) from Proposed Development Site boundary or exit*	X	Y	Approx. distance to construction route (m)	Within screening distance?	Receptor sensitivity to dust and particulate matter
	High Levels Bank 1							
CDR16	Residential Property, A18	Residential	5,100	475004	409845	25	Yes	High
CDR17	Crowle Borrow Pits, SSSI	Ecological	1,100	479019	410284	30	Yes	High
CDR18	Crowle Bank Road	Residential	1,865	482614	409593	20	Yes	High
CDR19	Kelsey Lane	Residential	2,505	483280	409790	15	Yes	High

ID	Receptor name	Receptor type	Approx. distance (m) from Proposed Development Site boundary or exit*	X	Y	Approx. distance to construction route (m)	Within screening distance?	Receptor sensitivity to dust and particulate matter
CDR20	Old School Lane	Residential	820	483862	410650	20	Yes	High
CDR21	Little Hurst Cottages	Residential	1,930	478182	409794	20	Yes	High
CDR22	Hirstwood Farm	Residential	1,840	478345	409479	25	Yes	High

* rounded to nearest 5m

Area sensitivity assessment

8A.3.12 The area sensitivity to dust soiling, PM_{10} (human health) and ecological impacts has been determined for all activities. As shown in Table 8A.3~~Table 8A.3~~ to Table 8A.5, these are based on the receptor sensitivity (see Table 8A.8~~Table 8A.8~~), the closest distance from the identified receptors to those activities (see Table 8A.9~~Table 8A.9~~), and a background PM_{10} concentration of <24 µg/m^3 (as defined in Table 8A.4), which has been based on the urban background automatic monitor, CM2, 2022 annual mean PM_{10} concentration of 22 µg/m^3, shown in Table 8.10 of **ES Volume I Chapter 8**: Air Quality (**Application Document Ref. 6.2**) of the ES Volume I, as a worst case. The overall area sensitivity is 'high' for ecological impacts, 'medium' for dust soiling impacts, and 'low' for human health PM_{10} impacts – these results are shown in Table 8A.9.

Table 8A.9: Area sensitivity for receptors of construction dust

Activity	Potential impact	Receptor sensitivity and distance to activity	Area sensitivity[2]
Demolition (Site clearance and preparatory works)	Dust soiling	High sensitivity (10 - 100 receptors) <50m	Medium
	Health PM_{10}	High Sensitivity (10 - 100 receptors) <50m	Low
	Ecological Impact	High sensitivity <20m	High
Earthworks	Dust soiling	High sensitivity (10 - 100 receptors) <50m	Medium
	Health PM_{10}	High Sensitivity (10 - 100 receptors) <50m	Low
	Ecological Impact	High sensitivity <20m	High

[2] Defined in accordance with Step 2B of IAQM 2024 taking into account the specific sensitivities of receptors in the area; the proximity and number of those receptors; in the case of PM_{10}, the local background concentration; and site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust

Activity	Potential impact	Receptor sensitivity and distance to activity	Area sensitivity[2]
Construction	Dust soiling	High sensitivity (10 - 100 receptors) <50m	Medium
	Health PM_{10}	High Sensitivity (10 - 100 receptors) <50m	Low
	Ecological Impact	High sensitivity <20m	High
Trackout	Dust soiling	High sensitivity (10 - 100 receptors) <50m	Medium
	Health PM_{10}	High Sensitivity (10 - 100 receptors) <50m	Low
	Ecological Impact	High sensitivity <20m	High

8A.3.13 The risk of impacts from each of the unmitigated activities (demolition, earthworks, construction and trackout) have been determined through combination of the potential dust emission magnitude and the sensitivity of the area. These are summarised in Table 8A.10~~Table 8A.10~~.

Table 8A.10: Risk of impacts from unmitigated activities

Potential impact	Demolition	Earthworks	Construction	Trackout
Dust soiling (medium sensitivity)	High risk	Medium risk	Medium risk	Medium risk
Health PM_{10} (low sensitivity)	Medium risk	Low risk	Low risk	Low risk
Ecological impact	High risk	High risk	High risk	High risk

Potential impact	Demolition	Earthworks	Construction	Trackout
(medium sensitivity)				

8A.3.14 The risk assessment for construction dust impacts indicates that the risk is low to medium for human health (PM_{10}) impacts, medium to high for dust soiling impacts, and high for ecological impacts.

8A.3.15 These risk classifications are solely used to select the appropriate schedule of mitigation measures, examples of which are set out in guidance published by the IAQM (IAQM, 2024). For all but the smallest of sites the use of the high-risk schedule of measures represents good working practice.

8A.3.16 On consideration of the likely effectiveness of these measures, additional site-specific measures will be identified in the **Outline CEMP** (**Application Doc Ref. 7.4**), if required, but at this stage the requirement for any such measures has not been identified. If required, measures may include:

- cutting and grinding operations, if required, will be conducted using equipment and techniques that reduce emissions and incorporate appropriate dust suppression measures;
- damping down of dust-generating equipment and vehicles within the Site and the provision of dust suppression in all areas of the Site that are likely to generate dust;
- use water suppression and regular cleaning during earth moving activities;
- materials stockpiles likely to generate dust enclosed or securely sheeted, damped down or stabilised as appropriate;
- covering materials, deliveries or loads entering and leaving the construction site;
- mixing of grout or cement-based materials will be undertaken using appropriate techniques/mitigation;
- haul routes will be surfaced and maintained;
- enforcement of speed limits on haul roads;
- measures will be taken to keep roads and accesses clean; and
- vehicle, plant and equipment maintenance records will be kept on-site and reviewed regularly.

8A.3.17 It is considered that with the implementation of appropriate mitigation and control measures set out in the **Outline CEMP** (**Application Doc Ref. 7.4**), the potential effect from fugitive emissions of construction dust would be not significant.

8A.4 Construction traffic assessment

Introduction

8A.4.1 For the construction traffic assessment, all potentially affected roads have been assessed at a 'detailed level' of assessment. As detailed in IAQM and Environmental Protection UK (EPUK) Land-use Planning & Development Control: Planning for Air Quality Guidance (IAQM, 2017), a 'detailed level' assessment uses dispersion modelling to predict pollutant concentrations, taking into account additional variables. The detailed assessment of local air quality reported herein has used the Cambridge Environmental Research Consultants (CERC) Atmospheric Dispersion Modelling System (ADMS) Roads dispersion model (version 5.0.0.1) to predict road pollutant contributions at identified sensitive receptors.

8A.4.2 Predictions in traffic flows have been made for:

- 2024 baseline scenario
- 2036 Do Minimum (DM) scenario, which is the future construction year traffic flows without the construction of the Proposed Development; and
- 2036 Do Something (DS) scenario, which is the same as the DM scenario but includes the construction traffic generated by the construction of the Proposed Development.

8A.4.3 The assessment of construction traffic(see **ES Volume I Chapter 10**: Traffic and Transportation (**Application Document Ref. 6.2**)) includes traffic generated by 'committed' developments including:

- EN010116 - Energy Recovery Facility (ERF) converting up to 650,000 tonnes per annum of Refuse Derived Fuel (RDF);
- EN010148 - Tween Bridge Solar Farm - The project will comprise the construction, operation, management and decommissioning of a ground mounted solar photovoltaic (PV) electricity generating facility exceeding 50 megawatt (MW) output capacity, together with associated works including substation, energy storage and green infrastructure;
- EN020034 - A proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham;

- PA/SCR/2021/8 - Moors Solar Farm – EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm);
- PA/SCR/2021/7 – Pilfrey Solar Farm – EIA screening request relating to a proposed 49.9MW solar farm (Lidsey Renewables Ltd – Pilfrey Solar Farm);
- PA/2024/123 - Scunthorpe Electric Arc Furnace - Hybrid application comprising full planning permission for the construction of a new electric arc furnace and compressor building and outline planning permission for ancillary plant buildings and structures up to a maximum height of 72m associated with the new electric arc furnace (scale, appearance, landscaping and layout reserved for subsequent consideration);
- EN0710003 - The Humber Carbon Capture Pipeline – an onshore underground CO_2 pipeline and associated above ground infrastructure to transport captured carbon dioxide from emitters in the Humber region (to be selected by UK Government as part of the Carbon Capture Usage and Storage Cluster Sequencing process) from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a secure offshore storage in the North Sea (with the offshore storage and associated transportation pipeline subject to separate consent).

~~8A.4.3~~8A.4.4 The construction year of 2036 has been modelled due to uncertainty in the timing of the construction schedule, as this represents a 'worst-case' traffic scenario (see **ES Volume I Chapter 10**: Traffic and Transportation (**Application Document Ref. 6.2**)). Air quality is expected to improve as traffic emissions and emissions from other sources progressively decrease across the UK, and an earlier year would therefore provide a more conservative assessment of potential air quality effects. Dispersion modelling has used the 2036 traffic data (which includes additional growth) with 2030 emissions and backgrounds[3] to assess scenarios the Proposed Development construction work. On the basis of these predictions, the change in key pollutant concentrations (NO_2, PM_{10}, $PM_{2.5}$, ammonia (NH_3)

[3] Emission rates on all road sources were calculated using Defra's Emissions Factor Toolkit v12.1 for each of the scenarios assessed. The Emission Factor Toolkit only includes dates up to the year 2030, consequently 2030 emissions have been applied to the 2036 traffic flows.

and nitrogen and acid deposition) associated with the Proposed Development have been established.

~~8A.4.4~~8A.4.5 Assessment of sulphur dioxide (SO_2) has been screened out of the assessment in accordance with DMRB LA105 Air quality and EPUK/IAQM guidance, as emissions from modern road vehicles are negligible and it is therefore considered that impacts on air quality objectives or critical levels would be insignificant.

~~8A.4.5~~8A.4.6 Further details of the assessment methodology including the inputs used in the ADMS-Roads model (including meteorology data), model post-processing (e.g. NO_x to NO_2 conversion) and the approach taken to model verification are presented in the following sub-sections.

~~8A.4.6~~8A.4.7 Representative sensitive receptors (e.g. residential properties and ecological sites) have been selected for assessment within the local air quality assessment. These include those sensitive receptors located closest to the Proposed Development and within the study area for construction effects. The locations of the receptors are show in **ES Volume III Figure 8.3:** Construction Study Area (**Application Document Ref. 6.4**).

~~8A.4.7~~8A.4.8 The predicted air quality impacts of the Proposed Development are evaluated against relevant national, regional and local air quality planning policy. An evaluation of the significance of the local air quality assessment findings at sensitive receptors for human health has been undertaken in accordance with IAQM/ EPUK guidance (IAQM, 2017).

~~8A.4.8~~8A.4.9 Effects at ecological receptors have been assessed in accordance with the method set out in section 2.97 to 2.102 of The Design Manual for Roads and Bridges (DMRB) LA 105 Air quality (National Highways, 2024), along with specific significance criteria relating to impacts on sensitive designated ecological receptors as set out within the Environment Agency air emissions risk assessment guidance.

~~8A.4.9~~8A.4.10 Any ecological receptors which predicted a change in NO_x concentrations of over 0.3µg/m^3 and a change in nitrogen deposition of over 1%, compared with the lower critical load, were identified. At the most sensitive ecological receptor locations, transect points up to 200m from the source were modelled at 20m increments to assess the drop-off in NOx concentrations and nitrogen deposition with increasing distances

from the road. All ecological receptor locations were modelled at a height of 0m.

~~8A.4.10~~8A.4.11 National Highways have developed a tool to account for the additional contribution of NH_3 emissions from vehicles to deposited nitrogen. This has been used in the assessment to determine the nitrogen deposition at designated ecological sites within 200m of the modelled roads.

~~8A.4.11~~8A.4.12 Following DMRB LA 105 Air quality, the magnitude of change in annual mean nitrogen deposition at all ecological receptors with a predicted change of over 0.3µg/m^3 NO_x has been determined. DMRB LA 105 Air quality notes that where the magnitude of change is less than 0.4 kilograms of nitrogen per hectare per annum (kg N/ha/yr) it is not considered to result in any loss of species and effects are unlikely to be significant. This is also in line with the Environment Agency air emissions risk assessment guidance which states that the impact of road traffic emissions can be regarded as insignificant at sites with statutory designations if:

- the long-term PC is less than 1% of the critical level, or if greater than 1% then the PEC is less than 70% of the critical level; and
- the short-term PC is less than 10% of the critical level.

~~8A.4.12~~8A.4.13 The impact of road traffic emissions can be regarded as insignificant at sites of local importance if:

- the long-term PC is less than 100% of the critical level; and
- the short-term PC is less than 100% of the critical level.

~~8A.4.13~~8A.4.14 An assessment of the change in NH_3, nitrogen and acid deposition has also been undertaken due to the sensitivity of the ecological sites in the area. The methodology within the Environment Agency air emissions risk assessment guidance has been followed for these pollutants.

Screening Criteria

~~8A.4.14~~8A.4.15 The construction phase traffic assessment considers the impact of emissions associated with additional Heavy Duty Vehicles (HDV)[4] and Light Duty Vehicles (LDV)[5] introduced to the local road network due to

[4] Vehicles >3.5t in weight

[5] Vehicles <3.5t in weight

construction work associated with the Proposed Development, including those associated with the import and export of materials to and from the Proposed Development, and the commuting of contractors.

~~8A.4.15~~8A.4.16 The screening of traffic data has been undertaken using the approach set out in the IAQM/EPUK Land Use and Planning guidance (IAQM, 2017). The Proposed Development is located 6.3km west of the nearest Air Quality Management Area (AQMA) (Scunthorpe AQMA) and therefore it is not expected that this AQMA will be impacted by the Proposed Development. The following IAQM criteria therefore apply:

- A change of more than 500 Annual Average Daily Traffic (AADT) LDV movements; and
- A change of more than 100 AADT HDV movements.

~~8A.4.16~~8A.4.17 The traffic data shows that there are predicted to be an additional 781 and 614 LDV movements as a result of the Proposed Development, along the A18 (between the construction site entrance to the A161 junction) and A161 (north of M180) respectively, exceeding the 500 AADT threshold. Additional roads where the screening criteria were not exceeded were included in the assessment to provide a wider assessment of local emissions to air.

Traffic data

~~8A.4.17~~8A.4.18 Traffic data consists of 24-hour AADT, percentage HDV movements and speeds in kilometres per hour (kph) for all road links. Modelled speeds were assumed to be 20kph for all junctions (which would be representative of congested conditions, a conservative scenario for emissions).

~~8A.4.18~~8A.4.19 Vehicle emissions were calculated using Defra's Emissions Factor Toolkit (EFT) (version 12.1). The future year has been assessed using 2030 vehicle emissions (as stated in Section 8A.4.3). The GIS software, ArcPro was used to assist inputting the road link geographical information into the air quality dispersion model.

~~8A.4.19~~8A.4.20 The road traffic data that was provided by the Arup traffic consultants for the PEI Report[6] (which was published for statutory consultation) are provided in Table 8A.11. The modelled road network is

[6] As noted in Chapter 8: Air Quality (ES Volume I), the traffic numbers from the PEI Report have been used to model with as they are higher and will present a more 'worst-case' scenario.

presented in **ES Volume III Figure 8.3:** Construction Study Area (**Application Document Ref. 6.4**). Updated traffic data was provided for the ES, however the AADT associated with the ES are slightly lower than those modelled for the PEI Report. An additional road was provided within the ES traffic data (A18 Doncaster Road) however the increase in vehicle movements associated with the development along this road was 267 AADT which is below the screening threshold of 500 AADT, and therefore an assessment of the road traffic emissions associated with this source has been screened out. Based on the reduction in AADT between the PEI Report and the ES, it is considered that no additional modelling is required given that the impacts were considered to be negligible for the PEI Report and therefore the overall outcome of the assessment would not change.

Table 8A.11: Road traffic data used in the assessment

Road/Link ID	Avg. Speed (km/hr)	2024 Base			2036 Do-Minimum			2036 Do-Something		
		Total AADT	HDV	HDV (%)	Total AADT	HDV	HDV (%)	Total AADT	HDV	HDV (%)
A18	87.0	8,928	618	6.9%	10,080	698	6.9	10,981	818	7.5%
A161	71.4	6,479	668	10.3%	7,315	754	10.3	8,049	874	10.9%
A18 Station Road	49.9	13,403	772	5.8%	15,132	872	5.8	15,467	872	5.6%
A18 High Levels Bank	86.3	7,335	774	10.6%	8,281	874	10.6	8,449	874	10.3%

Dispersion Model set up

8A.4.208A.4.21 The general model conditions used in the assessment of road traffic emissions are summarised in Table 8A.12~~Table 8A.12~~. Other more detailed data used to model the dispersion of emissions is considered below.

Table 8A.12: General ADMS roads model conditions

Variable	Input
Surface Roughness at source	0.5m
Minimum Monin-Obukhov length for stable conditions	10m
Receptors	Selected discrete receptors
Receptor location	X,Y co-ordinates determined by GIS. The height of residential receptors will be set at 1.5m. Ecological receptors are set at 0m.
Emissions	NO_x, PM_{10}, $PM_{2.5}$
Emission Factors	Emission Factor Toolkit version 12.1
Meteorological Data	1 year of hourly sequential data, Doncaster Robin Hood Airport Meteorological Station (2022)
Emission Profiles	None used – emissions averaged across a 24 hour period
Terrain Types	Flat terrain
Model Output	Long-term annual mean NO_x concentration ($\mu g/m^3$) Long-term annual mean PM_{10} concentration ($\mu g/m^3$)

Variable	Input
	Long-term annual mean $PM_{2.5}$ concentration ($\mu g/m^3$)

Sensitive Receptors

8A.4.218A.4.22 A desk-top study was undertaken to identify existing sensitive receptors along the modelled road network. Receptors were chosen at locations where they are likely to experience the greatest potential effect from construction of the Proposed Development. Human receptors have been modelled at a height of 1.5m to represent the average height of human exposure.

8A.4.228A.4.23 There are 7 ecological sites within 200m of the modelled road network and have therefore been included in the assessment, at locations closest to the modelled roads. Where appropriate, numerous receptor points have been included for the same ecological site. The ecological receptors are modelled at a height of 0m, representative of ground level.

8A.4.238A.4.24 The receptors for which the impact of road traffic emissions will be predicted are listed in Table 8A.13~~Table 8A.13~~ and Table 8A.14~~Table 8A.14~~ for human and ecological receptors respectively. Modelled receptors are presented in **ES Volume III Figure 8.3** (**Application Document Ref. 6.4**).

Table 8A.13: Modelled human health receptors

Receptor ID	X	Y	Description	Shortest Distance to Road Source (m)
HR1	480758	409987	Pilfrey Farm, A18	50
HR2	482615	409594	Residential Property on Crowle Bank Road	20

Receptor ID	X	Y	Description	Shortest Distance to Road Source (m)
HR3	483281	409791	Residential Property on Kelsey Lane	15
HR4	483863	410650	Residential Property on Old School Lane, Keadby	20
HR5	478182	409794	Little Hurst Cottages, A161	20
HR6	478346	409479	Hirstwood Farm, A161	30
HR7	478458	409229	Residential property at Mosswood Court, A161	70
HR8	475005	409846	Residential Property, A18	25
HR9	474311	409829	Residential Property on High Levels Bank 1	15
HR10	471715	410667	Residential Property on High Levels Bank 2	15

Receptor ID	X	Y	Description	Shortest Distance to Road Source (m)
HR11	471561	410692	Residential Property on High Levels Bank 3	10
HR12	470750	410961	Residential Property on High Levels Bank 4	15

Table 8A.14: Modelled ecological receptors

Receptor ID	X	Y	Description	Shortest Distance to Road Source (m)
ER1a	484102	410665	Humber Estuary SSSI	5 – 180
ER1b	484098	410688	Humber Estuary SSSI	
ER1c	484094	410710	Humber Estuary SSSI	
ER1d	484090	410732	Humber Estuary SSSI	
ER1e	484086	410754	Humber Estuary SSSI	
ER1f	484082	410776	Humber Estuary SSSI	
ER1g	484078	410799	Humber Estuary SSSI	

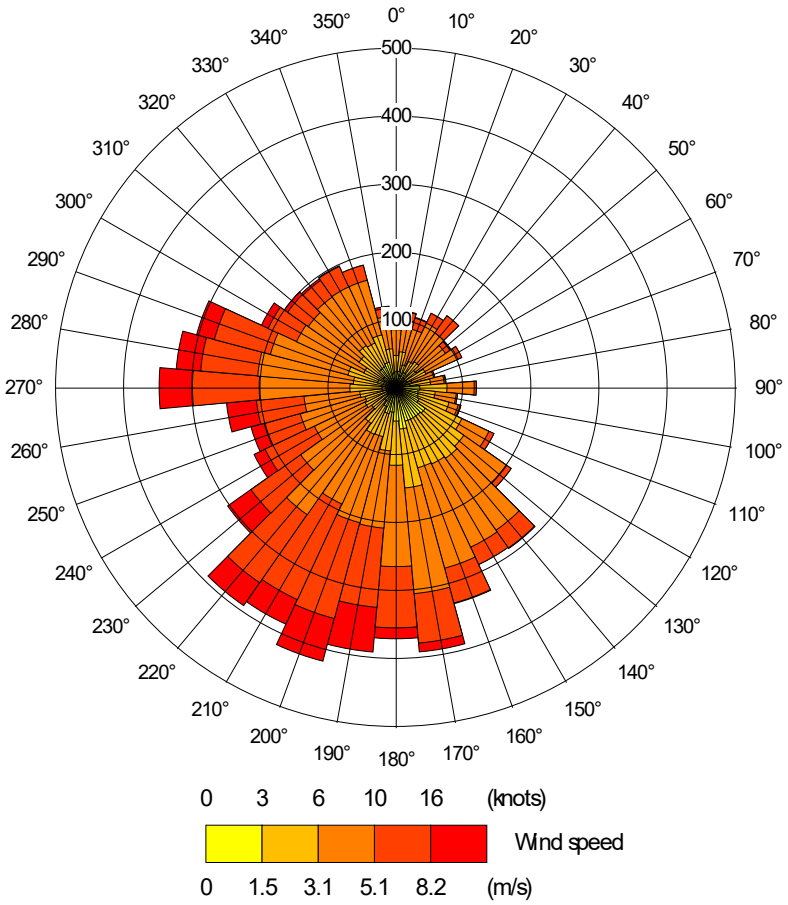
Receptor ID	X	Y	Description	Shortest Distance to Road Source (m)
ER1h	484073	410821	Humber Estuary SSSI	
ER1i	484069	410843	Humber Estuary SSSI	
ER1j	484065	410865	Humber Estuary SSSI	
ER2	478707	410333	Hatfield Chase Ditches SSSI	10
ER3	479056	410468	Crowle Borrow Pits SSSI (location of the woodland habitat only)	200

Meteorological data

8A.4.248A.4.25 The model runs carried out for the Proposed Development used hourly sequential data from Doncaster Robin Hood Airport for the year 2022. This meteorological site is located approximately 19km south-west

of the study area and was chosen due to its proximity to the Proposed Development. A wind rose for this site is presented in Plate 8A.1.

Plate 8A.1: Doncaster Robin Hood Airport – 2022 Windrose



Consideration of terrain

~~8A.4.25~~8A.4.26 Emissions from road traffic make the greatest contribution to pollutant concentrations at sensitive receptors adjacent to the source. For this reason, there is not normally a large variation in height between the emission source and residential properties next to the roads included in the model. Therefore, terrain is not included in the road traffic modelling assessment.

NO_x to NO_2 conversion

~~8A.4.26~~8A.4.27 To accompany the publication of the guidance document LAQM.TG(22) (Defra, 2022), a NO_x to NO_2 converter was made available as a tool to calculate the road NO_2 contribution from modelled road NO_x contributions. The tool comes in the form of an MS Excel spreadsheet and uses borough specific data to calculate annual mean concentrations of NO_2 from dispersion model output values of annual mean concentrations of NO_x. Version 8.1 (June 2020) of this tool has been used to calculate the total NO_2 concentrations at receptors from the modelled road NO_x contribution and associated background concentration. Due to the location of the Proposed Development, North Lincolnshire Council (NLC) and City of Doncaster Council (CDC) has been specified as the local authority for receptors (depending on specific receptor location), and the 'All other non-urban UK traffic' mix selected.

Model Verification

~~8A.4.27~~8A.4.28 Model verification refers to the comparison of modelled and measured pollutant concentrations at the same locations to determine the performance of the model. Should the majority of model results for NO_2 be within ±25% of the measured values and there is no systematic over or under-prediction of concentration, then the LAQM.TG(22) guidance advises there is no adjustment necessary. If this is not the case, modelled concentrations are adjusted based on the observed relationship between modelled and measured NO_2 concentrations to provide a better agreement.

- Modelled results may not compare as well at some locations for various reasons, including:
- Errors/uncertainties in model input data (e.g., traffic flows and speed data estimates);
- Model set-up (including street canyons where applicable, road widths, location of monitoring sites);
- Neglect of local effects (including queues, bus stops and street canyons);

- Model limitations (treatment of surface roughness and meteorological data);
- Uncertainty in monitoring data, notably diffusion tubes (e.g. bias adjustment factors and annualisation of short-term data); and
- Uncertainty in emissions and emission factors.

~~8A.4.28~~8A.4.29 A review of existing and publicly available local authority data has been undertaken. NLC and CDC do not undertake any air quality monitoring in the vicinity of the Proposed Development, or along any roads included as part of the modelled road network (Table 8A.11~~Table 8A.11~~).

~~8A.4.29~~8A.4.30 In the absence of local air quality monitoring in the vicinity of the Proposed Development or along the roads included in the construction traffic assessment, model verification has not been undertaken.

Specialised model treatments

~~8A.4.30~~8A.4.31 No specialised model treatments have been used in the assessment of construction road traffic emissions.

Calculation of nitrogen, NH_3 and acid deposition for ecological receptors

~~8A.4.31~~8A.4.32 Conversion factors for calculating nitrogen and acid deposition from modelled NO_2 and NH_3 are found in the IAQM Air Quality guidance for impacts on designated nature conservation sites (IAQM, 2020).

Results of NO_2 modelling

~~8A.4.32~~8A.4.33 The predicted annual mean NO_2 concentrations for the DM and DS scenarios at each receptor are presented in Table 8A.15~~Table 8A.15~~. As the change in NO_2 concentrations between the DS and DM scenarios are less than 1% of the NO_2 objective (40µg/m^3), the effect of the Proposed Development on human receptors is considered to be negligible for annual mean NO_2 and therefore **not significant**.

Table 8A.15: Results of NO_2 modelling

Receptor ID	DM 2036 (µg/m^3)	DS 2036 (µg/m^3)	Change (µg/m^3)	Impact Descriptor
HR1	7.1	7.1	<0.1	Negligible
HR2	7.4	7.5	<0.1	Negligible

Receptor ID	DM 2036 (µg/m^3)	DS 2036 (µg/m^3)	Change (µg/m^3)	Impact Descriptor
HR3	7.8	7.8	<0.1	Negligible
HR4	8.6	8.6	<0.1	Negligible
HR5	7.1	7.2	0.1	Negligible
HR6	6.9	6.9	<0.1	Negligible
HR7	6.6	6.6	<0.1	Negligible
HR8	6.9	6.9	<0.1	Negligible
HR9	6.9	6.9	<0.1	Negligible
HR10	7.2	7.2	<0.1	Negligible
HR11	7.0	7.0	<0.1	Negligible
HR12	7.0	7.0	<0.1	Negligible

Results of PM_{10} modelling

~~8A.4.33~~8A.4.34 The predicted annual mean PM_{10} concentrations for the DM and DS scenarios at each receptor are presented in Table 8A.16. As the change in PM_{10} concentrations between the DS and DM scenarios are less than 1% of the PM_{10} objective (40µg/m^3), the effect of the Proposed Development on human receptors is considered to be negligible for annual mean PM_{10} and therefore **not significant**.

Table 8A.16: Results of PM_{10} modelling

Receptor ID	DM 2036 (µg/m^3)	DS 2036 (µg/m^3)	Change (µg/m^3)	Impact Descriptor
HR1	15.6	15.6	<0.1	Negligible
HR2	15.8	15.8	<0.1	Negligible
HR3	15.5	15.6	<0.1	Negligible
HR4	15.3	15.3	<0.1	Negligible

Receptor ID	DM 2036 (µg/m³)	DS 2036 (µg/m³)	Change (µg/m³)	Impact Descriptor
HR5	15.8	15.8	<0.1	Negligible
HR6	15.6	15.6	<0.1	Negligible
HR7	15.5	15.5	<0.1	Negligible
HR8	15.0	15.0	<0.1	Negligible
HR9	15.5	15.5	<0.1	Negligible
HR10	15.4	15.5	<0.1	Negligible
HR11	15.4	15.4	<0.1	Negligible
HR12	15.4	15.4	<0.1	Negligible

Results of $PM_{2.5}$ modelling

8A.4.348A.4.35 The predicted annual mean $PM_{2.5}$ concentrations for the DM and DS scenarios at each receptor are presented in Table 8A.15~~Table 8A.15~~. As the change in $PM_{2.5}$ concentrations between the DS and DM scenarios are less than 1% of the $PM_{2.5}$ objective (12µg/m³), the effect of the Proposed Development on human receptors is considered to be negligible for annual mean $PM_{2.5}$ and therefore **not significant**.

Table 8A.17: Results of $PM_{2.5}$ modelling

Receptor ID	DM 2036 (µg/m³)	DS 2036 (µg/m³)	Change (µg/m³)	Impact Descriptor
HR1	8.3	8.3	<0.1	Negligible
HR2	8.3	8.4	<0.1	Negligible
HR3	8.4	8.4	<0.1	Negligible
HR4	8.4	8.4	<0.1	Negligible
HR5	8.4	8.4	<0.1	Negligible
HR6	8.3	8.3	<0.1	Negligible

Receptor ID	DM 2036 (µg/m^3)	DS 2036 (µg/m^3)	Change (µg/m^3)	Impact Descriptor
HR7	8.2	8.2	<0.1	Negligible
HR8	8.4	8.4	<0.1	Negligible
HR9	8.3	8.3	<0.1	Negligible
HR10	8.2	8.2	<0.1	Negligible
HR11	8.2	8.2	<0.1	Negligible
HR12	8.2	8.2	<0.1	Negligible

Ecological Receptors

~~8A.4.35~~8A.4.36 NOx, NH_3, nitrogen and acid deposition has been calculated for all receptors modelled in the assessment. Impacts at all receptors can be considered to be negligible as they are <1% of the relevant critical level or lower critical load. The results are provided in Table 8A.19~~Table 8A.19~~ to Table 8A.22~~Table 8A.22~~.

~~8A.4.36~~8A.4.37 The effect of atmospheric NOx and NH_3 concentrations, nitrogen deposition rates and acid deposition rates on the modelled receptor locations is considered in detail in the report to inform the Habitats Regulations Assessment Screening Report (HRA) (Application Document Ref. 5.2). Further discussion on the significance of the impact on sensitive ecological receptors is provided in **ES Volume I Chapter 11**: Biodiversity and Nature Conservation (**Application Document Ref. 6.2**).

Table 8A.18: APIS background ~~deposition~~ information

Ecological receptor ID	Site name	NOx (µg/m^3)	NH_3 (µg/m^3)	N deposition (kg N/Ha/Yr)	Total acid deposition (Keq N/Ha/Yr)
ER1	Humber Estuary SSSI	9.3	2.7	16.3	1
ER2	Hatfield Chase Ditches SSSI	~~No comparable habitat with established critical load estimate available~~8.8	1.8	No comparable habitat with established critical load estimate available[1]	
ER3	Crowle Borrow Pits SSSI	8.7	2.5	28.3	2

[1] The aquatic species present at Hatfield Chase Ditches are rooted within the watercourse and therefore an approach for aquatic habitats is considered appropriate, rather than assessing this habitat as Rich fens. Aquatic species are not affected by N deposition to foliage, and freshwater environments are typically phosphorus limited and therefore it is the availability of phosphorus which dictates the growth response of freshwater vegetation and thus eutrophication. The emergents named on the SSSI citation as typical to dominant are all species of eutrophic lowland watercourses.

Table 8A.19: Results of construction traffic impact assessment at ecological receptors (NOx)

Ecological receptor ID	Critical Level	DS-DM NOx (µg/m^3)	Max NOx change (DS-DM) as % of critical level
ER1a	30 ~~No comparable habitat with established critical load estimate available~~ ~~30~~	0.1	0.4%
ER1b		<0.1	0.1%
ER1c		<0.1	<0.1%
ER1d		<0.1	<0.1%
ER1e		<0.1	<0.1%
ER1f		<0.1	<0.1%
ER1g		<0.1	<0.1%
ER1h		<0.1	<0.1%
ER1i		<0.1	<0.1%
ER1j		<0.1	<0.1%
ER2		0.2	0.5%
ER3		0.1	0.3%

Table 8A.20: Results of construction traffic impact assessment at ecological receptors (NH_3)

Ecological receptor ID	Critical Level	DS-DM NH_3 (µg/m^3)	Max NH_3 change (DS-DM) as % of critical level
ER1a	3 ~~No comparable habitat with established critical load estimate available~~	0.01	0.5%
ER1b		<0.01	0.1%
ER1c		<0.01	0.1%
ER1d		<0.01	0.1%
ER1e		<0.01	0.1%
ER1f		<0.01	<0.1%
ER1g		<0.01	<0.1%
ER1h		<0.01	<0.1%
ER1i		<0.01	<0.1%
ER1j		<0.01	<0.1%
ER2		0.02	0.6%
ER3	1	<0.01	0.2%
	3		0.1%

Table 8A.21: Results of construction traffic impact assessment at ecological receptors (N deposition)

Ecological Receptor ID	Critical Load (min)	DS-DM nitrogen deposition (Kg N/ha/yr)	Max nitrogen deposition change (DS-DM) as % of critical load
ER1a	10~~20~~	0.1	0.8~~4~~%
ER1b		<0.1	0.3~~1~~%
ER1c		<0.1	0.2~~1~~%
ER1d		<0.1	0.1%
ER1e		<0.1	~~<~~0.1%
ER1f		<0.1	~~<~~0.1%
ER1g		<0.1	~~<~~0.1%
ER1h		<0.1	~~<~~0.1%
ER1i		<0.1	<0.1%
ER1j		<0.1	<0.1%

Ecological Receptor ID	Critical Load (min)	DS-DM nitrogen deposition (Kg N/ha/yr)	Max nitrogen deposition change (DS-DM) as % of critical load
E2	No comparable habitat with established critical load estimate available		
ER3	10	0.021	0.2%

Table 8A.22: Results of construction traffic impact assessment at ecological receptors (acid deposition)

Ecological receptor ID	Critical Load (keq/ha/yr)	DS-DM acid deposition (Kg N/ha/yr)	Max acid deposition change (DS-DM) as % of critical load (%)
ER1a	Min CL Min N: 1.071 Min CL Max N: 5.071 Min CL Max S: 4.00	0.01	<0.1%
ER1b		<0.01	<0.01%
ER1c		<0.01	<0.01%
ER1d		<0.01	<0.01%
ER1e		<0.01	<0.01%
ER1f		<0.01	<0.01%

Ecological receptor ID	Critical Load (keq/ha/yr)	DS-DM acid deposition (Kg N/ha/yr)	Max acid deposition change (DS-DM) as % of critical load (%)
ER1g		<0.01	<0.01%
ER1h		<0.01	<0.01%
ER1i		<0.01	<0.01%
ER1j		<0.01	<0.01%
ER2	No comparable habitat with established critical load estimate available		
ER3	Min CL Min N: 0.357 Min CL Max N: 2.694 Min CL Max S: 2.337	≤0.01	<0.01%~~1.0%~~

~~8A.4.37~~8A.4.38 It is considered that the assessment of construction traffic impacts carried out, would be comparable to the likely impacts associated with decommissioning activities.

Results of the Construction traffic assessment

~~8A.4.38~~8A.4.39 With reference to the significance criteria, impacts at all human receptors can be considered negligible as both the change between the Do Minimum and Do Something scenarios for all receptors is less than 1% of the Air Quality Assessment Level (AQAL) and all receptors are below 75% of the AQAL.

~~8A.4.39~~8A.4.40 For ecological receptors, impacts can be considered negligible as the magnitude of change for N deposition is less than 1% of the lower critical load at all locations. Therefore, it is not considered the Proposed Development will result in any loss of species and therefore effects are **not significant**.

8A.5 Conclusions

8A.5.1 This report has assessed the impact on local air quality arising from the construction phases of the Proposed Development. The assessment has used a sensitivity assessment methodology to assess the likelihood and scale of impact on sensitive receptors located in the vicinity of the Proposed Development of the anticipated dust arisings from the construction activities and associated road traffic.

8A.5.2 The evaluation of expected dust arisings from the proposed construction works has shown that without mitigation, there could be a low to medium for human health (PM_{10}) impacts, medium to high for dust soiling impacts, and high for ecological impacts. Without mitigation, this could result in a significant effect, however appropriate mitigation measures for managing these risks will be set out in the **Outline CEMP** (**Application Document Ref. 7.4**) and will be in accordance with the IAQM guidance. These measures will be formalised through the final CEMP to be prepared by the construction contractor, secured by a requirement of the **Draft DCO** (**Application Document Ref. 3.1**). Through implementation of these measures, effects on both human health and ecological sensitive receptors are predicted to be not significant.

8A.5.3 The effect of the construction traffic associated with the Proposed Development and in-combination with other committed developments on both sensitive human and ecological receptors is considered to be not

significant, as a negligible impact was predicted at all assessed receptors for all pollutants.

8A.6 References

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