Contaminated Land
Air Quality
Environmental Audit

SMITH GRANT Environmental Consultancy LLP

Partnership No: OC 300776

PROPOSED AGGREGATE PROCESSING PLANT, LAND NORTH OF DON WHITE ROAD, FINEDON ROAD INDUSTRIAL ESTATE, WELLINGBOROUGH, NN8 4FT

AIR QUALITY ASSESSMENT

For: Encyclis and Day Group

May 2023

R3023-R01-v6

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LAND NORTH OF DON WHITE ROAD, FINEDON ROAD INDUSTRIAL ESTATE, WELLINGBOROUGH

AIR QUALITY ASSESSMENT

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1 Introduction

1.1 General

1.1.1 Planning permission has been granted by Northamptonshire County Council (NCC)[1] for the development of an aggregate processing plant and erection of a Hydraulic Bound Mixtures (HBM) plant with parking provision, ancillary infrastructure and on-site biodiversity enhancements (hereafter referred to as the 'Proposed Development').

1.1.2 The facility would be operated by the Day Group Ltd on behalf of Encyclis (formerly Covanta). A separate Environmental Permit application has been submitted by Land and Mineral Management (LMM), acting on behalf of the Day Group Ltd, to the Environment Agency (EA) in relation to the proposed operations. This application is presently undergoing determination.

1.1.3 The original planning application was supported by an Air Quality Assessment (AQA)[2] prepared by Smith Grant LLP (SGP). The AQA has also been submitted with the Environmental Permit application. This AQA has now been updated to incorporate some proposed changes to the dust abatement proposals for the facility and is to be submitted to the EA. Details of the amendments to the original submitted AQA are provided in Appendix G. Other aspects of the report, such as local air quality data, has not been updated. These amendments do not alter the overall conclusions of the original AQA, which were that through the incorporation of the proposed mitigation measures, which would be detailed in a Dust and Emissions Management Plan to be agreed with the EA, no unacceptable impacts or resulting effects from dust on human health, amenity or ecological receptors had been identified.

1.1.4 The application site is located on land on the Finedon Road Industrial Estate, on the northern outskirts of Wellingborough (hereafter referred to as the 'Site'). The Site includes the area of the proposed built development (hereafter referred to as the 'Works Site') and additional land that is to be set aside for Biodiversity Net Gain (BNG) improvements (hereafter referred to as the 'BNG Site'). This following report primarily deals with the proposed built development aspect of the application and the Works Site.

1.1.5 The Site lies within the administration area of North Northamptonshire Council (NCC) with respect to minerals and waste planning, environmental health and local air quality matters. NCC is a new unitary authority established in April 2021 and which replaced the previous district and borough councils serving the area. This included Wellingborough Borough Council (WBC) which was historically responsible for environmental and local air quality matters for the area in which the Site

[1] North Northamptonshire Council, planning ref: NN/22/00017/WASFUL, dated 28th April 2022
[2] Smith Grant LLP, Proposed Aggregate Processing Plant, Land North of Don White Road, Finedon Road Industrial Estate, Wellingborough, Air Quality Assessment, ref: R3023-R01-v3, dated 9th March 2022

is located with Northamptonshire County Council having been previously responsible for minerals and waste planning.

1.2 Scope and Objectives of the Report

1.2.1 The following report describes the AQA undertaken by Smith Grant LLP (SGP) in accordance with the brief agreed with the client. The assessment has been prepared with reference to the Planning Practice Guidance provided in relation to air quality [3] under the National Planning Policy Framework (NPPF) [4] and follows the frameworks described in IAQM guidance in relation to planning and air quality [5], dust [6], [7] and odours [8].

1.2.2 Reference has also been made to Wellingborough Borough Council's (WBC) Air Quality & Emissions Mitigation: Guidance for Developers [9] to determine the scope of the air quality assessment [10].

1.2.3 The report describes the methods used to assess the impacts, the baseline conditions currently existing at the Site and surroundings, the potential direct and indirect impacts of the development arising from aerial emissions, and the mitigation measures required to prevent, reduce or offset the impacts.

1.2.4 SGP is an environmental consultancy specialising in air quality assessments, particularly in association with emissions from proposed and operating combustion plants. The report author, Katrina Hawkins, Partner, is a Member of the Institute of Air Quality Management (IAQM).

[3] Ministry of Housing, Communities and Local Government, Planning Practice Guidance: Air Quality, issued March 2014, last updated 1st November 2019
[4] Ministry of Housing, Communities and Local Government, National Planning Policy Framework, issued, March 2012, February 2019
[5] Institute of Air Quality (IAQM), Land-Use Planning & Development Control: Planning for Air Quality, v1.2, January 2017
[6] Institute of Air Quality Management (IAQM), Guidance on the Assessment of Dust from Demolition and Construction. v1.1, 2014
[7] Institute of Air Quality Management (IAQM), Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1, May 2016
[8] Institute of Air Quality Management (IAQM), Guidance on the Assessment of Odour for Planning, Institute of Air Quality Management, London, v 1.1, July 2018
[9] Borough Council of Wellingborough: East Midlands Air Quality Network: Air Quality and Emissions Mitigation: Guidance for Developers; adopted as a Supplementary Planning Document 18 January 2021
[10] Note: From 1st April 2021 Northamptonshire Council replaced the councils that served the borough and districts of Corby, East Northamptonshire, Kettering and Wellingborough

2 Planning Policy, Legislative and Technical Context

2.1 Technical Context

2.1.1 Aggregate processing, handling and storage operations give rise to releases of airborne particulate matter (PM) or dust. The nature and quantity of airborne matter released at any one time will depend on a wide variety of factors including, but not limited to, the nature and quantity of the material being handled, the handling processes incorporated and the weather conditions at the time.

2.1.2 Airborne particulate matter is made up of condensed phase (solid or liquid) particles suspended in the atmosphere and ranges in size from a few nanometres to around 100µm. Particulate matter (PM) comes from both man-made and natural sources, and can give rise to both soiling effects through dust deposition (referred to as 'disamenity dust') and human health effects through inhalation of suspended particles, particularly among those susceptible groups with pre-existing lung disease or heart disease and the elderly or children.

2.1.3 Dust soiling will arise from the deposition of particulate matter in all size fractions but will mostly be associated with particulate matter of diameter greater than 30 µm. Particles below 10µm (referred to as PM_{10}) correspond to the inhalable fraction of particulate matter and have been related to various adverse health effects. PM_{10} includes both fine (those particles of diameter below 2.5 µm; referred to as $PM_{2.5}$) and coarse (diameter between 2.5-10µm; $PM_{2.5-10}$) fractions of airborne particulate matter which normally arise from different sources.

2.1.4 The processing and handling of aggregate and inert waste materials is typically unlikely to give rise to any odorous emissions. The proposals are for the processing of IBA aggregate and the facility and this may give rise to some odours and hence has also been considered in this assessment. Most odours are mixture of many chemicals that interact to produce what we detect as a smell. Odours may be perceived as pleasant or unpleasant. For example, fresh air may contain odorous chemicals but these odours will usually be pleasant in character, such as freshly mown grass and sea spray. The key concern with odour is its ability to cause a response in an individual that is considered to be objectionable or offensive. There is a wide variation between individuals as to what is deemed unacceptable and as to what can affect an individual's quality of life. As it may cause offence to human senses odour is defined as a pollutant.

2.1.5 Haulage transport to and from the Site and non-road mobile machinery (NRRM) associated with the operation of the facility will also result in emissions of oxides of nitrogen (NOx; comprises nitrogen dioxide (NO_2) and nitric oxide (NO)) and PM. NO itself is not considered harmful to human health. However, on release to the atmosphere it usually rapidly oxidises to NO_2, which is associated with adverse effects on human health causing inflammation of the lungs at high concentrations. Long term exposure to NO_2 can affect lung function and respiratory symptoms.

2.2 Legislative Context

2.2.1 Ambient air quality standards in the UK are established through the combination of transposition of European legislation and additional UK legislation and requirements. A series of Limit and Target Values are established through the European legislation on the UK as a whole (referred to as AAD values) and responsibility for meeting these is devolved to the national administrations; the Department for Environment, Food and Rural Affairs (Defra) co-ordinating assessment and quality plans for the UK as a whole.

2.2.2 Following the departure of the UK from the EU the air pollution limits established under EU requirements remain in place having been enshrined in UK law.

2.2.3 Under the Environment Act 1995 the UK Government and the devolved administrations are required to produce a national Air Quality Strategy (AQS). This was last reviewed and published in 2007[11] and sets out air quality objectives (AQOs) and policy options to improve air quality within the UK. The Air Quality Strategy 2007 includes targets and objectives (referred to as AQOs) for the UK for specified pollutants deemed to pose a risk for human health or other receptors. A number of these are derived from the EU limit and target values, although requirements for compliance vary. The UK AQS includes more exacting AQOs for some pollutants than those required by EU legislation.

2.2.4 In addition, Part IV of the Environment Act 1995 imposes a duty on local authorities in the UK to review existing and projected air quality in their area. Any location likely to exceed established AQOs must be declared an Air Quality Management Areas (AQMA) and an Action Plan prepared and implemented, with the aim of achieving the AQOs. This process is referred to as Local Air Quality Management (LAQM). The LAQM process is supported by national statutory policy[12], which is published by each country within the UK separately, and technical guidance provided by Defra[13] at a UK level.

2.2.5 The standards and objectives relevant to the LAQM framework are prescribed through the Air Quality (England) Regulations (2000) and Air Quality (England)(Amendments) Regulations 2002.

2.2.6 The applicable EU limit and target values and UK AQOs relevant to the site and proposed development with regards to protection of human health, referred to in this report as Air Quality Assessment Levels (AQALs), are summarised in Table 2.1. below.

[11] Defra, (2007), The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007
[12] Defra, Local Air Quality Management, Policy Guidance LAQM PG(16), April 2016
[13] Defra, Local Air Quality Management, Technical Guidance, LAQM TG(16), February 2018

Table 2.1: Relevant Air Quality Assessment Levels (AQALs)

Pollutant	AQAL	Averaging period	Source
NO_2	40 µg/m^3	annual mean	AAD Limit Value / AQO
	200 µg/m^3	hourly mean, not to be exceeded more than 18 times per annum	AAD Limit Value / AQO
PM_{10}	40 µg/m^3	annual mean	AAD Limit Value / AQO
	50 µg/m^3	24 hour mean, not to be exceeded more than 35 times per annum	AAD Limit Value / AQO
$PM_{2.5}$[1]	25 µg/m^3	annual mean	AAD Limit Value / AQO[1]
	% reduction relative to average exposure indicator (AEI), dependant on initial concentration; to at least 18 µg/m^3	annual mean	AAD Target Value / AQO[1]

1: $PM_{2.5}$ – not regulated through the LAQM system; regulated at a national, rather than local, level

2.2.7 For the purposes of the AQALs ambient air refers to the outdoor air and excludes workplaces where members of the pubic do not have regular access. Advice is given in Defra guidance[5] as to where the UK AQOs should apply as summarised in Table 2.2 below. Slightly different compliance requirements are provided for EU limit and target values:

Table 2.2: Summary of where the AQOs should apply

Averaging period	Objective should apply at
annual mean	all locations where members of the public might be regularly exposed; including facades of residential properties, schools, hospitals, care homes etc
24-hour mean and 8-hr mean	all locations where the annual mean objectives apply together with hotels and gardens of residential properties
1-hr mean	all locations where the annual mean, 24-hour and 8-hour means apply; also kerbside sites, parts of car parks, bus stations and railway stations which are not fully enclosed and any outdoor locations where members of the public might reasonably be expected to spend 1 hour or longer.
15-min mean	all locations where members of the public may be reasonably exposed for a period of 15 minutes

Note: the AQOs do not apply at building facades or other places of work where members of the public do not have regular access

2.2.8 In January 2019 Defra published the **Clean Air Strategy**[14]. This sets out the UK Government's plans for dealing with all sources of air pollution. The strategy gives a detailed breakdown of the action that is required across the UK to meet the legally bindings international targets to reduce

[14] UK Government, Clean Air Strategy, published 14 January 2019, https://www.gov.uk/government/publications/clean-air-strategy-2019

emissions of NO_x and other pollutants. The strategy also supports the implementation and roll out of Clean Air Zones (CAZs) in the most polluted areas of the UK.

Ecological Assessment

2.2.9 Additional statutory and non-statutory ambient air quality standards (termed Critical Levels) are also provided by the UK Air Quality Strategy and Environment Agency (EA) guidance for the protection of vegetation and ecosystems to be applied at nature conservation sites. Applicable standards for this assessment are detailed in Table 2.3 below:

Table 2.3: Additional Non-Statutory Critical Levels for Protection of Vegetation and Ecosystems

Pollutant	Concentration (µg/m^3)	Measured as
nitrogen oxides (as NO_2)	30	annual mean
	75	daily mean

2.2.10 In addition, Critical Loads are provided for nitrogen nutrient and acidity deposition; these are dependent on the specific habitat and location.

Dust Standards and Control

2.2.11 Disamenity dust as such is not regulated as a pollutant under the above requirements and there are no European or UK statutory or recommended levels that define the point when deposited dust causes annoyance or disamenity.

2.2.12 Public concerns in relation to dust accumulation and soiling may be related to a range of factors including the nature of a site and locality and baseline levels. Controls of soiling and annoyance impacts are typically achieved through conditions within planning permissions and / or environmental permits requiring the implementation of a dust management plan to prevent amenity impacts. Deposited dust may also give rise to 'nuisance', as Statutory, private and public nuisance as defined in environmental law and insofar as nuisance relates to unacceptable effects of emissions.

Odour Standards

2.2.13 There are no mandatory numerical standards in the UK for assessing odour levels, although some guideline values can be used for assessing potential odour impacts.

2.2.14 The concentration at which an odour is just detectable to a typical human nose is referred to as the 'threshold concentration'. An odour concentration of 1 odour unit (ou_E/m^3) equates to the level at which 50% of a trained olfactometry panel can detect a faint odour and is the point of detection. Typical odour concentrations can be described as:

- 1 ou_E/m^3: odour threshold,
- 3 ou_E/m^3: the point at which a smell is recognisable,

- 5 ou_E/m^3: noticeable, but faint, and
- 10 ou_E/m^3: a distinct smell.

2.2.15 The odour concentrations for normal background odours such as from traffic, grass cutting, plants etc can typically range from 5 ou_E/m^3 to 40 ou_E/m^3.

2.2.16 The odour quality, hedonic tone (pleasantness or unpleasantness) and concentration can influence the potential for annoyance and perception leading to complaint. Hedonic tones may vary from +4 for very pleasant odours (e.g. bakeries) to -4 for foul ones (e.g. rotting flesh). However, even relatively pleasant odours may become objectionable, if not offensive, by virtue of persistence and intensity.

2.2.17 Once exposure to odour has occurred, it may lead to adverse effects such as disamenity, annoyance, nuisance and possible complaints, where annoyance is an adverse effect arising from an immediate exposure and nuisance is caused by cumulatively by repeated events of annoyance.

2.3 Planning Policy

2.3.1 The **National Planning Policy Framework, 2021**[2] (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. The Framework provides some guidance to local authorities on taking air pollution (including odour as a pollutant) into account in planning policies and decisions. Paragraph 174 of the Framework states:

'Planning policies and decisions should contribute to and enhance the natural and local environment by […] preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, ***air,*** *water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality.*

2.3.2 The Framework further states in paragraph 185 that *'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.'*

2.3.3 More specific guidance regarding air quality is provided in Paragraph 186, which states:

'Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through

traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.'

2.3.4 Of note the different roles of a planning authority and a pollution control authority are addressed by the NPPF in paragraph 188:

'The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.'

2.3.5 Further guidance is provided in the **Planning Practice Guidance on Air Quality**[1] **(PPG-AQ)** which provides guiding principles on how planning can take account of the impact of new development on air quality. The guidance states that air quality assessments should be proportionate to the nature and scale of the development proposed and level of concern about air quality and are therefore likely to be locationally specific.

2.3.6 Reference is also made to the **National Planning Policy for Waste**[15] (NPPW) which in paragraph 7 states:

'When determining waste planning applications, waste planning authorities should:

- *….Consider the likely impact on the local environment and on amenity against the criteria set out in Appendix B….*
- *Concern themselves with implementing the planning strategy in the Local Plan and not with the control of processes which are a matter for the pollution control authorities. Waste planning authorities should work on the assumption that the relevant pollution control regime will be properly applied and enforced.'*

2.3.7 Appendix B sets out certain locational criteria that waste planning authorities should consider determining planning applications. This includes the following:
[…]g. air emissions, including dust
Considerations will include the proximity of sensitive receptors, including ecological as well as human receptors, and the extent to which adverse emissions can be controlled through the use of appropriate and well-maintained and managed equipment and vehicles;

[15] Ministry of Housing, Communities and Local Government, published 16 October 2014

h. odours

Considerations will include the proximity of sensitive receptors and the extent to which adverse odours can be controlled through the use of appropriate and well-maintained and managed equipment.

2.3.8 No further specific guidance is currently provided in the NPPF, NPPW or PPG-AQ. In assessing the risks posed by dust and vehicle exhaust emissions to, or by, new development, reference is therefore made to non-statutory guidance issued by IAQM, Defra and the EA as detailed in sub-section Section 2.6 below.

2.4 Local Planning Policy

2.4.1 The Local Pan is made of two parts: Part One: the **North Northamptonshire Joint Core Strategy**[16] (JCS; adopted in 2016) and Part Two: the **Plan for the Borough of Wellingborough**[17] (PBW; adopted in 2019). The JCS outlines the strategic plan over the period to 2031 whereas the PBW includes local specific policies that will guide the future of the area and will supplement the strategic policies of the JCS.

2.4.2 JCS Policy 8: North Northamptonshire Place Shaping Principles states

'development should ensure quality of life and safer and healthier communities by:

i. Protecting amenity by not resulting in an unacceptable impact on the amenities of future occupiers, neighbouring properties or the wider area, by reason of noise, vibration, smell, light or other pollution, loss of light or overlooking;

ii. Preventing both new and existing development from contributing to or being adversely affected by unacceptable levels of soil, air, light, water or noise pollution or land instability; ….

2.4.3 There are no specific policies included within the PBW in relation to air quality or dust.

2.4.4 The **Northamptonshire Mineral and Waste Plan** (NMWP)[18] is the land use planning strategy for mineral and west related development. Policy 18: Addressing the impact of proposed minerals and waste development states:

Proposals for minerals and waste development must demonstrate that the following matters have been considered and addressed…

- *avoiding and / or minimising potentially adverse impacts to an acceptable level, specifically addressing air emissions (including dust), odour, bioaerosols, noise and vibration, slope stability, vermin and pests, birdstrike, litter, land use conflict and cumulative impact,*

[16] North Northamptonshire, Joint Core Strategy 2011-2031, adopted July 2016
[17] Wellingborough Borough Council, Plan for the Borough of Wellingborough, adopted ion 26 February 2019
[18] Northamptonshire Minerals and waste Local Plan, adopted July 2017

- *ensuring that local amenity is protected.*

2.4.5 MWLP Policy 18 also states that where applicable a site-specific management plan should be developed to ensure the implementation and maintenance of mitigation measures throughout construction, operation, decommissioning and restoration works.

2.4.6 NCC also refers to **Air Quality and Emissions Mitigation: Guidance for Mitigation**[7] provided by the East Midlands Air Quality Network. This aims to provide a consistent approach to air quality in the planning regime across the East Midlands. The document primarily deals with air quality impacts from traffic emissions although point sources and other potentially significant industrial / commercial sources of air pollution are important planning issues.

2.5 Environmental Permitting

2.5.1 A wide range of industrial, waste and agricultural installations require an Environmental Permit to operate under the Environmental Permitting (England and Wales) Regulations 2007 and subsequent amendments (termed EPR). The aim of the permitting system is to prevent, and where that is not practicable, reduce, emissions to air, water and land by potentially polluting and other installations. Permit are issued by either the Environment Agency or the Local Authority depending on the nature and size of the facility.

2.5.2 Operations and installations that are controlled under a Permit are required to operate in such a way that a) all the appropriate preventative measures are taken against pollution, in particular through the application of best available techniques; and b) no significant pollution is caused.

2.5.3 EA guidance[19] regarding developments requiring both a planning permission application and environmental permit application clarifies that when deciding on a planning application the authorities should a) be confident that the development will not result in unacceptable risks from pollution when considering if the development is an appropriate use of the land and b) not focus on controlling pollution where it can be controlled by other pollution regulations, such as EPR.

2.5.4 The processing of IBA at the Site would be regulated under the Environmental Permitting regime, as discussed further in sub-section 4.4.

2.6 National Best Practice and Guidance

2.6.1 The IAQM **Planning for Air Quality**[3] document provides specific non-statutory guidance on air quality and the planning system for new development. The guidance clarifies when an air quality assessment is required, what it should contain and how impacts should be described and assessed. The guidance sets out a recommended approach to assess the significance of the air quality impacts and provides suggestions for reducing emissions and impacts.

[19] Environment Agency (EA), Guidelines for developments requiring planning permission and environmental permits (England), 9th October 2013

2.6.2 The IAQM **Guidance on the Assessment of Mineral Dust Impacts for Planning**[5] document provides specific non-statutory guidance in relation to dust and mineral sites. The guidance clarifies when a dust assessment is required and outlines a recommended methodology for carrying out impact assessments and determining the significance of impacts and effects. The guidance also sets out suggested approaches to mitigating emissions and impacts. Although the guidance is designed specifically for mineral developments it is considered that it can be adapted as appropriate for other facilities incorporating similar activities.

2.6.3 The IAQM **Guidance on the Assessment of Dust from Demolition and Construction**[4] document provides specific non-statutory guidance in relation to dust and emissions from construction and demolition. Parts of this guidance may also be applied to aggregate processing sites, where these present similar risks.

2.6.4 The IAQM **Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites**[20] provides specific non-statutory guidance in relation to the assessment of air quality impacts of development on designated nature conservation sites.

2.6.5 The IAQM **Guidance on the Assessment of Odour for Planning**[6] provides non-statutory guidance applicable to the assessment of odours specifically for planning purposes. The guidance outlines an approach for carrying out odour assessments and details information that should be contained in such an assessment report.

2.6.6 In addition to the above guidance is provided by the EA in controlling and monitoring emissions from permitted activities including in relation to dust[21] and odours[22].

[20] Institute of Air Quality Management (IAQM), A guide to the assessment of air quality impacts on designated nature conservation sites, version 1.1, May 2020
[21] https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit
[22] Environment Agency (EA), How to Comply with your Environmental Permit, Additional Guidance for H4 Odour Management, 4 April 2011

3 Assessment Methodology

3.1 Scope

3.1.1 In undertaking the AQA, SGP carried out the following activities:

- review of baseline air quality, including WBC / NNC reports and monitoring data and Defra background data;
- review of background site sensitivity data and nature conservation sites;
- visit to view the Site and surrounding area;
- review of development proposals;
- qualitative assessment of potential dust / airborne particulate matter impacts
- qualitative assessment of potential odour impacts;
- qualitative assessment of vehicle emissions taking into account existing and proposed future routing options and traffic flows; quantitative assessment using atmospheric dispersion modelling of vehicle exhaust emissions;
- provision of recommendations for mitigation; and,
- assessment of residual impacts on human and ecological receptors and significance of effects.

3.1.2 The scope of the assessment has been determined through a review of the nature and scale of the proposals and site setting. With reference to the WBC (now NCC) Air Quality and Emissions Mitigation: Guidance for Developers document the Proposed Development is classed as ***large*** (development requires an EIA; development requires a Transport Assessment; and HGV movements would be >10% of total development traffic). Accordingly, a Full AQ Assessment has been undertaken.

3.2 Sources of Information

3.2.1 In undertaking the assessment reference was made to the following background information:

Table 3.1: Background Information Sources

Date and reference	Author and source	Purpose and information content
Background and topographical information		
Promap	Ordnance Survey	general mapping information including topographic, ground features, rights of way, communications etc
satellite imagery, imagery date July 2021	aerial photography	site setting
www.magic.gov.uk	multi-agency	web-based interactive map containing information on nature conservation areas

Date and reference	Author and source	Purpose and information content
Air quality information		
2021 Air Quality Annual Status Report, December 2021	WBC / NCC	update of local authority air quality monitoring and assessment; includes data up until end 2020
2016 Air Quality Annual Status Report, May 2017	WBC	update of local authority air quality monitoring and assessment; includes data up until end 2016
www.aqma.defra.gov.uk	Defra	details and maps of AQMAs throughout UK
www.laqm.defra.gov.uk	Defra	Local Authority air quality management support; background pollutant mapping

Note: all information websites were accessed in January 2022

3.2.2 Information has also been provided by the appointed transport consultant, Rodgers Leask Ltd, in relation to expected vehicle movements and ecological consultant, Heatons, on nature conservation sites.

3.2.3 Additional information has been provided by Day Aggregates in relation to a similarly existing aggregate processing operation at Avonmouth. This is detailed as appropriate in Section 4.

3.2.4 The site visit was undertaken by Katrina Hawkins, Partner, SGP on 15th October 2021; this focused on the Works Site. A site visit was also carried out by K Hawkins on 14th October 2021 to the Avonmouth facility. Photographs of salient features of the Works Site and the existing facility at Avonmouth are provided in Appendix C.

3.3 Consultations

3.3.1 An outline scope of work to inform the AQA was provided in the EIA Scoping Report submitted by HPL to NNC[23] and the scope accepted[24]. The technical scope of work was also agreed in advance with the NNC Environmental Protection Team Leader[25].

3.4 Assessment Methodology

3.4.1 The assessment of potential pollutant impacts considers the potential magnitude of a release (the source potential), the effectiveness of the pathway (i.e. dispersion of a pollutant towards a receptor), and the sensitivity of the receptor. The AQA therefore considers the location of the facility, associated activities and transport routes in relation to sensitive receptors and the control measures

[23] Heatons, A request for a Scoping Opinion under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017; Land North of Don White Road, Finedon Road Industrial Estate, Wellingborough, NN8 4FT, ref: COV-002-W, 22nd September 2021
[24] West Northamptonshire Council, Mineral and Waste Planning Service for North and West Northamptonshire; Town and Country Planning (Environmental Impact Assessment) Regulations 2017: Scoping Opinion; Land North of Don White Road, Finedon Road Industrial Estate, Wellingborough, NN8 4FT, ref: NN/21/00051/SACO, 26th November 2021
[25] E-mail from Catherine Clooney, Team Leader Environmental Protection, NNC to Katrina hawkins, SGP, dated 8th December 2021

to be implemented, to assess the probability of significant adverse air quality impacts occurring during normal operations. Consideration is made of the orientation and distance of receptors to the Site and the prevailing weather conditions.

3.4.2 Receptors considered in this AQA comprise human receptors, that is locations where a person or property may experience adverse impacts of airborne dust or exposure to ambient pollutants or odours (i.e. residential, leisure, amenity and sensitive commercial use), and ecological receptors where this refers to any sensitive habitat that may be affected by dust soiling or increased ambient pollution (e.g. locations with an international, national or local designation and sensitive habitat features). The sensitivity of the receptors to potential impacts from aerial emissions, whether changes in pollutant concentrations, dust soiling, has been determined as detailed in the relevant guidance as described in Section 2 of this AQA.

3.4.3 Owing to the different spatial extents at which likely significant effects could arise from the development different Study Areas were adopted in the assessment for the different aspects.

3.4.4 Neither the IAQM guidance on construction dust[4] nor that on mineral dust[5] are specifically relevant to the operational phase of the Proposed Development. Some of the proposed activities may be similar to those carried out at such sites (e.g. handling and storage of aggregate) but the site activities would not include other activities typically carried out at construction or mineral sites (e.g. soil stripping, demolition, excavation, material placement etc).

3.4.5 The IAQM guidance on mineral dust[5] advises that PM_{10} needs to be assessed if there are sensitive receptors within 1km; reduced screening distances are applicable in relation to deposition dust and human and ecological receptors beyond which adverse impacts would not be expected. To provide a conservative assessment therefore a search radius of 1km of the Site boundary has been applied in relation to human health and ecological receptors[26].

3.4.6 The IAQM guidance on air quality and planning[3] does not specify at what distance a receptor should be to an affected road to indicate the need for assessment. However, pollution concentrations fall rapidly away from the roadside and are expected to return to background levels within 100m of a road source. For the purposes of the assessment reference is made to HE DMRB[27] guidance which requires assessment of receptors within 200m of affected roads. Where there are no receptors within 200m of affected roads vehicle emissions are not considered further and potential impacts can be considered negligible. The Study Area therefore encompasses an area up to 200m of the expected HGV routes to / from the Site as discussed further in Section 8.

[26] Note: EA guidance on assessment of aerial emission impacts specifies an assessment radius of 10km for international nature conservation sites and 2km for SSSIs and local nature sites. This is however appropriate to point source emissions. A search distance of 1km is considered the maximum appropriate for this assessment.
[27] Highways England (HE), Design Manual for Roads and Bridges (DMRB), LA 105 Air Quality, Revision 0, November 2019

3.4.7 Further details on the selection of receptors and the methodology of the assessments as detailed in the relevant guidance is described in Appendix A.

3.5 Scoped Out Matters

3.5.1 The construction phase would require some earthworks and construction activities, both of which could give rise to fugitive dust and HGV exhaust emissions from additional HGV movements. The construction phase would however be relatively short-lived and is expected to be 12 months at most. Construction dust can be readily controlled through the incorporation of standard good practice measures which can be outlined in a Construction Environmental Management Plan (CEMP). A draft CEMP is to be submitted with the planning application which incorporates measures as necessary for the management and mitigation of construction dust and which can be agreed with the local planning authority prior to determination. The operational dust assessment detailed in this AQA would provide the basis for identification of such measures.

3.5.2 HGV movements associated with the construction phase would be substantially lower than those during the operational phase. On this basis, and given the short-lived timescales, construction phase vehicle emissions assessment has been scoped out.

3.5.3 The operation of on-site plant and machinery (non-road mobile machinery (NRMM)) during the initial construction works, subsequent operations and restoration will give rise to vehicle exhaust and combustion plant emissions. However, these are typically considered unlikely to give rise to significant impacts on local air quality and further consideration has been scoped out of this assessment.

3.5.4 Works in the BNG Site are to comprise various habitat enhancements to be agreed with the LPA. This will primarily comprise planting works and there will not be any significant associated aerial emissions requiring consideration within this AQA.

3.6 Assessment of Significance

3.6.1 The resulting effects of aerial emissions are the consequences of the potential impacts, i.e. changes in pollutant concentrations and / or deposition, at receptors. IAQM guidelines do not provide a traditional matrix assessment of significant effects with regards to air quality. The frameworks outlined in the guidance above and described in Appendix A provide methodologies for describing air quality impacts and resulting effects at individual receptors. These frameworks are therefore used as a starting point to assess the significance of predicted effects.

3.6.2 Where ***negligible*** impacts are predicted, the overall effects will be ***not significant***. In general, where ***slight*** impacts at receptors are predicted the resulting effects would be considered to be ***not significant***. ***Moderate*** and ***substantial*** impacts could result in ***significant*** effects. However, the judgement of the overall significance of the air quality effects of the proposals is informed by the

predicted impacts and effects at individual receptors and takes into account a number of factors, such as, but not limited to:

- the existing and predicted future air quality in the absence of the proposed development;
- the extent of current and future population exposure to the predicted impacts and the severity of those impacts;
- whether the predicted impacts potentially result in failure to achieve compliance, or enhance compliance, with EU AAD values and / or UK AQOs and national and / or local air quality action plans;
- whether the predicted impacts potentially result in the need for declaration of a new or extended AQMA, or removal of an existing AQMA
- whether the predicted impacts potentially result in permanent or temporary damage, or improvements, to nature conservation sites of local, national or international importance and the geographical extent of those impacts;
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

4 Site Details, Current and Proposed Development

4.1 Site Details

4.1.1 The Works Site comprises a vacant area of land located off Don White Road on Ogee Business Park situated within the Finedon Industrial Estate, on the north-eastern outskirts of Wellingborough. The Works Site is located within the northeast corner of the industrial estate as shown below in Figures 4.1a and 4.1b.

4.1.2 Site details are:

Table 4.1: Site Details

Address	Land North of Don White Road, Ogee Business Park, Finedon Road Industrial Estate, Wellingborough NN8 4FT
National Grid Reference	489750 270660
Local Authority	North Northamptonshire Council (NNC); formerly Wellingborough Borough Council (WBC) with regards to local air quality and environmental health
Site Area	Works Site:2.4ha BNG Site: 1.1 ha *(to be set aside for BNG and not assessed within this report)*
Nature of Current Site	land currently vacant and undeveloped
Proposed Development	aggregate processing facility, erection of Hydraulically Bound Mixtures (HBM), parking provision and ancillary development
Access	access / egress to be provided via a single point of Don White Road

4.2 Existing Development

4.2.1 The Works Site currently comprised undeveloped open land as shown in the aerial imagery in Figure 4.3

4.3 Proposed Development

4.3.1 Proposals are for construction and operation of an incinerator bottom ash (IBA) processing facility. It is anticipated that a total of about 200,000 tonnes of IBA per annum would be received at the facility, with an additional 200,000 tonnes of primary aggregate to be imported an annum to create the blended aggregate product.

4.3.2 The layout and processes would mirror those carried out at an existing plant at Avonmouth; the proposed site layout plan is provided in Appendix A *(plan ref: WE001-05 Rev 18 which supersedes the plan included in the original submitted AQA)*. The Works Site is to be provided fully with paved surfacing. All import and export to / from the Works Site would be via road with access / egress provided from a single point off Don White Road.

4.3.3 Specific elements of the Proposed Development of the relevance to the AQA are:

- IBA storage building;
- IBA processing plant and conveyors and HBM plant;
- external aggregate, IBAA (Incinerator Bottom Ash Aggregate) and blended product storage bays; all bays to be provided with wind breaks;
- provision of sprinklers within the storage building and in external areas;
- provision of local dust extraction to the feed hopper in the storage building and at transfer points of the processing areas;
- provision of parking for 12 HGVs;
- provision of 5m high fence to eastern boundary and 2.4m to 3m high fences on other boundaries;
- retention of existing mature tree belt on northern boundary.

4.3.4 IBA is the residual ash generated from the incineration of waste and contains a mixture of glass, brick rubble, sand, metal, stone, concrete, ceramics and fused clinker. The IBA would be tipped into the storage building on delivery and stored in windrows for up to 3-4 weeks to achieve the appropriate pH (through 'maturation'). The storage building would be open on the eastern side and have a vented ridge line.

4.3.5 The IBA would then be transferred to the processing plant via a hopper and conveyor; the feed hopper and discharge point would be provided with local dust extraction. Processing would consist of separation using magnets, eddy current separators and a picking areas, crushing and size separation using screens. Processing equipment would be housed within additional buildings connected via covered conveyors and would also be provided with local dust extraction at certain points. The extraction system would be provided with a wet scrubber filtration system. This would use water as a solvent and is expected to be designed to achieve 96-98% removal efficiency of particulate matter (size range 10-1,000 μm). The extracted air would be discharged via a stack.

4.3.6 The processed material, IBAA, would be stored externally in open bays. IBAA fractions would be blended with the primary aggregate, to meet the customer specification, using a loading shovel in open mixing bays.

4.3.7 On-site plant (non-road mobile machinery (NRMM)) would include a hydraulic excavator to create windrows and IBA handling in the storage building and loading shovel to blend the product.

4.3.8 The planning application is for a 24/7 operation.

4.3.9 A sprinkler system would be provided both within the storage building and in external areas across the Works Site for dust suppression. Rainwater would be collected and re-used on site for dust suppression with water passed through a 3-stage interceptor prior to re-use. Mains water would also be available as required.

4.4 Regulatory Controls

4.4.1 The facility would be operated in accordance with an Environmental Permit to be issued by the Environment Agency. A parallel application has been submitted to the EA for the Permit. Details on the likely permit requirements are provided in Section 6.

Figure 4.1: Works Site Location (1:25,000 scale mapping)

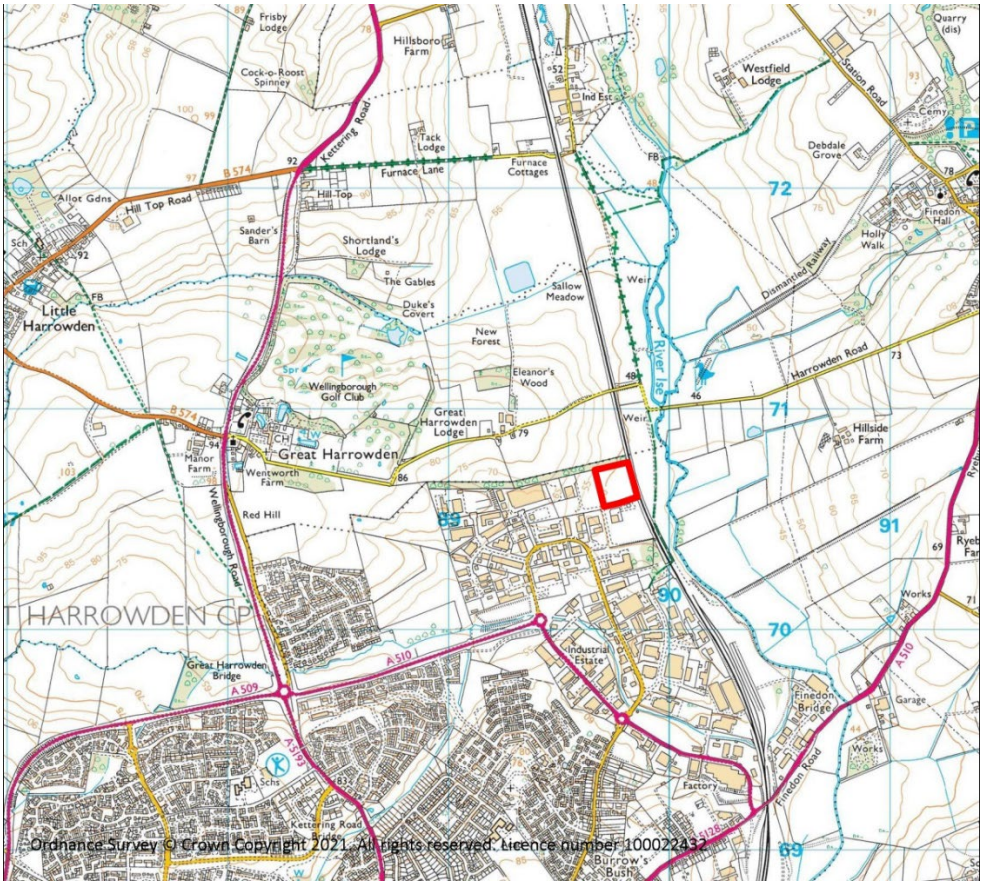


Figure 4.2: Works Site Location (1:10,000 scale mapping)

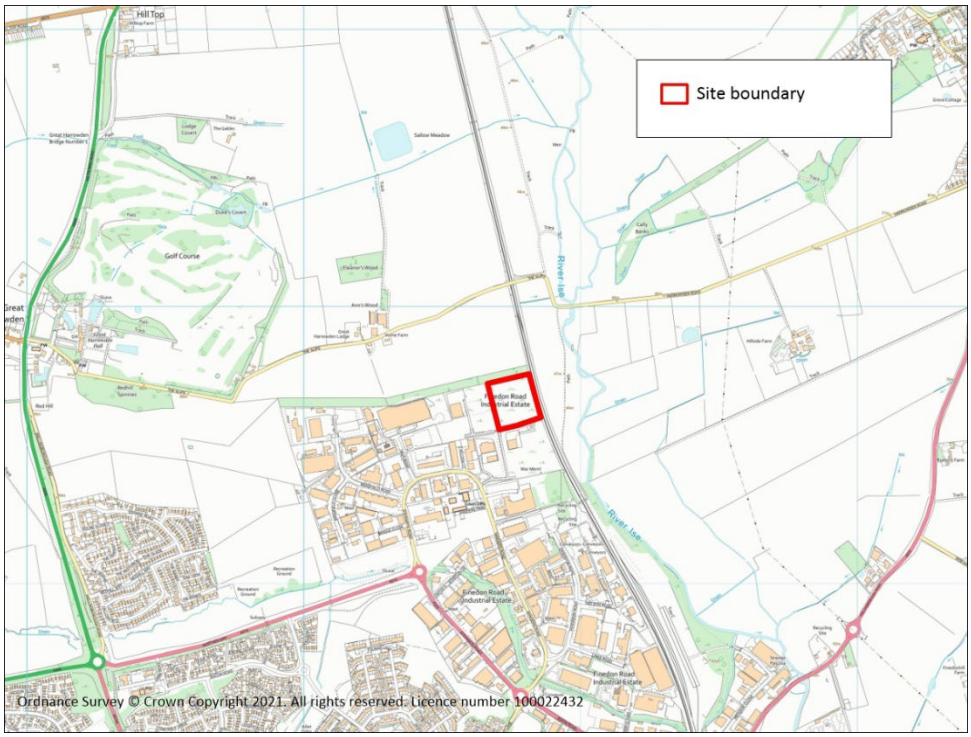


Figure 4.3: Existing Area of Works Site (aerial imagery)

5 Site Setting and Baseline Conditions

5.1 General Site Setting

5.1.1 The Works Site is located within the north-eastern corner of the Finedon Road Industrial on the north-eastern outskirts of Wellingborough. Immediate adjoining land to the west within the business park is currently vacant, although earmarked for development. Existing light industrial / commercial units extend to within 15m of the Works Site boundary to the south across Don White Road with the wider industrial estate extending to the west, southwest and south.

5.1.2 Open agricultural fields lie immediately to the north and 20m to the east beyond the East Midlands Mainline Railway.

5.1.3 Site boundaries and the immediate surrounding area is summarised below in Table 5.1.

Table 5.1: Site Boundaries and Immediate Environs

	Boundary	Neighbouring land
north	trees	open agricultural fields
east	post and wire fence	East Midlands Mainline Railway to open agricultural fields
south	none	Don White Road to open partially developed land / light industrial development
west	none	currently undeveloped land (earmarked for development) to light industrial development

5.1.4 The nearest residential property to the Works Site is Home Farm located 385m to the northeast. The only other residential property within 500m of the Works Site is Great Harrowden Lodge located close to Home Farm.

5.1.5 Residential receptors within 500m-1km of the Works Site comprise the residential development of Wellingborough extending to 820m to the southwest, beyond the Industrial Estate, and an isolated property, Hillside Farm, lying 940m to the east-northeast. Wellingborough Golf Club lies about 840m to the west-northwest.

5.1.6 No schools or similar high occupancy sensitive receptors have been identified within 1km of the Works Site boundary.

5.2 Nature Conservation Sites

5.2.1 No international or national statutory designated nature conservation sites have been identified within 1km of the Works Site. The nearest identified statutory site is the Upper Nene Valley Gravel Pits SSSI located about 3.1km to the south-east.

5.2.2 Several non-statutory nature conservation sites have been identified within 1km of the Works Site as summarised below in Table 5.1:

Table 5.1: Designated Nature Conservation Sites within 1km of Works Site

Site	Type	Distance, Orientation
International Sites		
none		
National Sites		
none		
Local Sites		
Finedon Cally Banks	LWS and Wildlife Trust Reserve	440m NE
Finedon Quarry and Disused Railway	LWS	449m NE
Site 978[1]	PLWS	20m S
Site 973[2]	PLWS	285m SE
Flood Storage Meadow	PLWS	528m SW
Red Hill Bottom Field	PLWS	810m SW
Site 977	PLWS	850m SW

LWS – Local Wildlife Site
PLWS – Potential Local Wildlife Site
1: northern part of Site 978 has been developed and is occupied by light industrial / commercial unit
2: parts of Site 973 occupied by railhead facility

5.2.3 In addition, it is understood the band of mature trees adjoining the Works Site to the north are protected by a Tree Protection Order (TPO) and are to be retained.

5.3 Topography

5.3.1 The Works Site lies at about 50m AOD within the base of a north-south trending valley associated with the River Ise which lies 155m to the east. Ground is broadly level across the Site itself presumably following creation of a level plateau for development.

5.3.2 The immediate surrounding ground rises to the northwest with the nearby industrial unit to the west on a raised level plateau.

5.4 Air Quality Review

5.4.1 Reference has been made to the reports prepared by NNC / WBC in fulfilment of the Local Air Quality Management (LAQM) reporting requirements, the most recent report being drafted in 2021[28].

[28] North Northamptonshire Council, 2021 Air Quality Annual Status Report (ASR), December 2021 *(report provided by NNC to SGP covers the former area of WBC only; report drafted but awaiting approval from Defra).*

5.4.2 No AQMAs have been identified within the former area of WBC or any areas of potential concern requiring assessment identified.

5.5 Background Air Quality Data

5.5.1 Defra publishes predicted background pollutant concentration maps for 1km x 1km grid squares across the UK. These are updated on a regular basis due to updates in background data such as vehicle emissions factors. The current maps were issued in 2020 and the predicted data is based on 2018 ambient monitoring and meteorological data. The maps incorporate revised information on the age and distribution of vehicles and emission factors and take into account existing local sources of emissions. Predicted data is provided by Defra for each year from 2018 to 2030[29].

5.5.2 Predicted NO_2, NO_x, PM_{10} and $PM_{2.5}$ data for the grid squares in which the Works Site and nearest receptors are located for the current year (2022) and a future year (2027) are detailed below:

Table 5.2: Predicted Background Air Quality Data – Nitrogen Oxides and Particulate Matter

Grid Square	Location	Annual Mean Concentration (µg/m^3)			
		NO_2	**NO_x**		
2022					
489500 270500	Site, Great Harrowden Lodge	12.11	16.34	16.30	10.61
490500 270500	Hillside Farm	10.02	13.22	15.79	9.46
489500 269500	Residential development of Wellingborough	12.27	12.27	15.55	9.71
2027					
489500 270500	Site, Great Harrowden Lodge	10.97	10.13	15.73	10.13
490500 270500	Hillside Farm	8.96	9.04	15.28	9.04
489500 269500	Residential development of Wellingborough	10.42	9.29	15.03	9.29
	objective (annual mean)	**40**	**30**	**40**	**25**

Data downloaded in January 2022

5.5.3 The average background concentrations for the grid squares in which the Works Site and nearby receptors are located are predicted to be well below the relevant objectives in 2022 and 2027.

5.5.4 It should be noted that the data are effectively an average concentration across each 1 km square. Pollutant concentrations will therefore be higher at any individual receptor close to any significant source, such as the A510 Northen Way to the south.

[29] The projections in the 2018 LAQM background maps are based on assumptions which were current before the Covid-19 outbreak in the UK. In consequence these maps do not reflect short or longer term impacts on emissions in 2020 and beyond resulting from behavioural change during the national or local lockdowns.

5.6 Monitored Air Quality

5.6.1 In 2020 WBC undertook ambient air monitoring across its area using passive diffusion tubes. No monitoring was undertaken using continuous (automatic) analysers. None of the monitoring locations were in the vicinity of the Works Site, the nearest being within Wellingborough town centre at least 2.4km to the south. None of the available locations are considered likely to be representative of conditions at either the Site or receptors considered in the assessment. However, they do serve to demonstrate annul mean NO_2 concentrations in the wider area to be well below the AQAL with WBC diffusion tube results for 2020 being in the range 13.8-30.2 µg/m^3 across the monitoring locations.

5.7 Industrial Activities

5.7.1 As noted above the Works Site is located in the north-eastern corner of the Finedon Road Industrial Estate. The estate houses a wide range of facilities; the nearest existing activities to the Works Site being of light industrial / commercial in nature. The nearest identified potential significant dust generating facility is a railhead located about 475m to the southeast that is shown on aerial imagery as handling aggregate.

5.8 Wind Speed and Direction

5.8.1 The most important meteorological parameters governing the atmospheric dispersion of pollutants are:

- wind direction: determines the broad direction of transport of the emission
- wind speed: affects ground level emissions by determining the initial dilution of pollutants emitted;
- atmospheric stability: a measure of atmospheric turbulence and hence dispersion of pollutants.

5.8.2 Reference has been made to wind speed and direction data obtained from the meteorological station located at Bedford (NGR: 504912 259857, altitude 85m aod), about 18km to the south-east. Local variations will exist in meteorological conditions, but the Bedford wind data is considered appropriate for this assessment.

5.8.3 Annual wind roses for Bedford (for the years 2011 - 2020), as provided by ADM Ltd, a recognised meteorological data provider, are provided below in Figure 5.1. These depict average wind speeds and directions over the relevant total monitoring period.

5.8.4 The data show that, as an annual average, winds blow from sectors 195° through to 285° about 46% of the time; i.e. predominantly south-westerly and consistent with typical UK conditions.

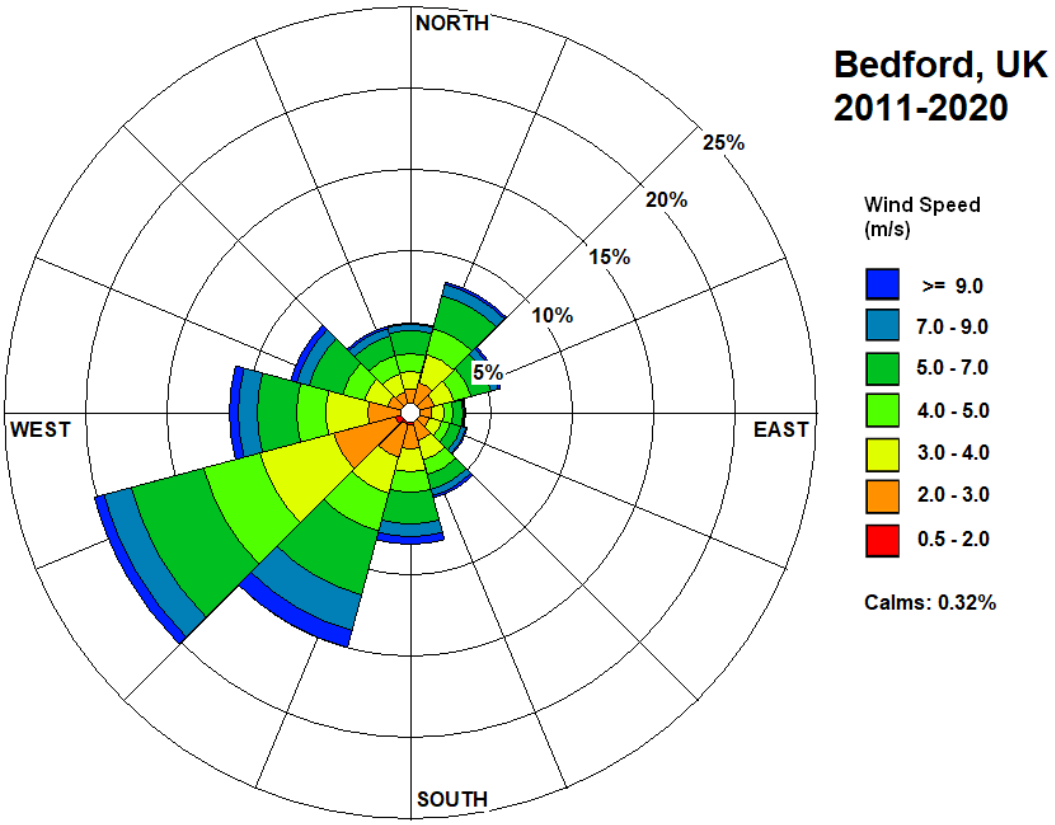
5.8.5 Winds greater than 10 knots (5 m/s) blow from the southwest quarter for 18.5% of the time annually. Wind speeds in excess of 10 knots are important as the onset of potentially significant airborne dust emissions due to wind-raising of loose dry dusts from bare ground and stockpiles.

5.8.6 The frequency of winds blowing from each sector are summarised in Table 5.3.

Table 5.3: Summary Wind Data, Bedford (2011-2020)

Direction		**Annual Percentage Frequency (%)**	
		All Wind Speeds	**Wind Speeds >5 m/s**
0º	*(346 to 15)*	5.56	1.91
30º	*(16 to 45)*	8.36	3.00
60º	*(46 to 75)*	5.77	1.88
90º	*(76 to 105)*	3.40	0.77
120º	*(106 to 135)*	3.62	1.07
150º	*(136 to 165)*	5.42	1.48
180º	*(166 to 195)*	8.11	3.20
210º	*(196 to 225)*	14.97	7.44
240º	*(226 to 255)*	20.08	6.93
270º	*(256 to 285)*	11.13	4.12
300º	*(286 to 315)*	7.63	3.23
330º	*(316 to 345)*	5.53	1.88
		99.59	**36.93**

Figure 5.1: Annual Windroses for Bedford (years 2011-2020)



6 Dust Assessment

6.1 General Observations

6.1.1 Airborne dust occurs when fine particles are disturbed and loosened by physical activity such as breaking, excavating, loading, tipping and transport, or by an airstream passing over such materials. Wind speeds greater than 10 knots (~5 m/s) across loose fine materials can cause windblown dust emissions.

6.1.2 Light winds will transport fine particles already suspended in the atmosphere due to disturbance. In calm conditions, any raised dust tends to settle out in the vicinity of the source. In windier conditions, the dust may be carried for a greater distance before settling out. The distance the dust will be carried depends on the wind speed, the particle size, the topography of the site and its surroundings.

6.1.3 Large dust particles, greater than 30 µm, which constitute the greatest proportion of dust emitted from aggregate processing sites will largely deposit within 100m of the source. Finer particles, which constitute a small proportion of the dust emitted from most operations, are only deposited slowly, although their concentrations decrease rapidly from the source due to dispersion and dilution.

6.2 Sources

6.2.1 The principal potential sources of airborne dust arising from the Site are likely to be:

- internal handling and storage of IBA;
- processing of IBA;
- external storage of primary aggregate;
- external blending of IBAA and primary aggregate and storage of final product;
- internal haulage,
- off-site road haulage,
- windblow across stockpiles.

6.2.2 The imported IBA is initially damp as a result of the quenching process at source with a moisture content of ~15-20%. As such is has a reduced dust potential on receipt and initial handling. As the material dries out during storage the risk of dust generation during handling increases. All handling operations would be undertaken internally within the IBA storage building that would be open on one side only. The greatest risk of dust generation would be during turning (agitation) of windrows during the maturation process and subsequent loading onto the feed hopper for processing.

..

6.2.3 The processing of IBA and aggregate through crushing and screening can give rise to significant dust emissions in the absence of mitigation. All such processing would be undertaken within enclosed plant and all conveyors would be covered.

6.2.4 The blending of IBAA and aggregate may also give rise to significant dust emissions, particularly during prolonged dry conditions. Such activities would be carried out in open bays, but all bays are to be provided with windbreaks.

6.2.5 Internal site haulage is typically a principal potential dust source on aggregate recycling sites due to the physical disturbance of particles by vehicle movements over bare soil or loose surfaces. The potential for dust generation is substantially reduced through the provision of paved surfaces and maintaining damp, clean and smooth-running surfaces.

6.2.6 Dust may also be raised by off-site road haulage due to spillage or windblow from unsheeted loads and due to the adherence of materials to the wheels and underbodies of vehicles leaving the Site. This may subsequently be deposited as track-out on roads in the vicinity of the Site, and on drying, be raised as dust by the passage of vehicles. Again, the potential for track-out and subsequent re-suspension of dust is substantially reduced through the provision of paved surfaces across the site and maintaining damp, clean and smooth-running surfaces

6.2.7 It is generally accepted that winds blowing at more than 10 knots across loose fine materials can lead to airborne dust emissions. Winds of 10 knots or greater blow in the UK for about one third of the time annually, decreasing slightly in summer months. Windblown dust from material stockpiles could therefore arise for prolonged periods. The provision of wind breaks would assist in reducing the risk of windblown dust from the aggregate and blended product stockpiles.

6.2.8 Limited plant would be operated on site and this would be operated in accordance with current emissions standards. Such plant would be unlikely to be a significant source of dust.

6.2.9 The Proposed Development includes several physical mitigation measures to minimise the potential for dust generation on the site and which would be expected to be embedded within any granted planning permission. These include the provision of concrete surfacing across the site, the location of all IBA storage and handling within a building and location of all IBA processing activities within enclosed plant and provision of covered conveyors. Additional proposed in-design measures that would minimise the potential for off-site migration of any generated dust include the provision of fencing to all boundaries along with mixed scrub / hedgerows, the retention of the existing tree belt to the north and the provision of wind breaks to open aggregate and product storage bays.

6.2.10 Further in-design mitigation is proposed in the form of dust suppression through the use of fixed and mobile sprinklers both within the IBA storage building and across external areas and local dust extraction to the IBA feed hopper and certain parts of the processing plant. The extracted air would

be directed through a wet scrubber (to use water as a solvent) and discharged to ambient air via a stack. Given the proposals to use a scrubber any residual emissions would therefore be very low.

6.2.11 Additional best standard measures that would be employed include the minimisation of height of stockpiles, minimisation of drop heights, maintenance of clean external areas and regular plant maintenance. These measures would be supplemented through the incorporation of best practice management and monitoring measures.

6.2.12 In summary, the principal potential sources of dust are likely to be materials handling, processing, windblow across stockpiles and internal haulage, as summarised in Table 6.1 below:

Table 6.1: Summary of Principal Dust Sources (with physical in-design mitigation)

Dust Source	Source Potential	Additional Mitigation Comments
IBA storage and handling	*small* / *medium* – initial material moist on delivery; dust generation potential increases as moisture content reduces during storage; to be undertaken within building open on one side	managed through minimisation of drop heights; provision of internal water sprinkler system; material to be sprayed with water prior to handling if of low moisture content; local exhaust extraction and filtration to be provided to feed hopper in the storage building
IBA processing	*small* – to be carried out in enclosed plant; all conveyors to be covered	routine maintenance and repairs to plant enclosures and cladding required; local exhaust extraction and to be provided to processing areas; extracted air to be treated through wet scrubber
IBAA and aggregate storage and handling	*small / medium* – handling to be carried out to be within segregated storage bays provided with wind breaks	minimisation of discharge heights; shrouding of discharge points; clear delineation of stockpiles within segregated bays; provision of sprinkler system
internal haulage	*small* – to be fully provided with paved surfacing	regular cleaning and sweeping of surfaces to prevent accumulation of materials required; controlled internal speeds; routine maintenance of surfacing to prevent break down
external road transport	*small*	all incoming and departing loads to be sheeted or otherwise contained; departing HGVs to be cleaned; public highway to be swept if necessary;
wind-blown dust across stockpiles and surfaces	*small* – external storage bays to be provided with wind breaks	provision of sprinkler system across external areas

6.3 Potential Receptors

6.3.1 A representative selection of potentially sensitive receptors that have been identified within 1km of the Works Site are detailed below in Table 6.2 and shown in Figure 6.1. The approximate distances of the receptors from the application site boundary are provided below.

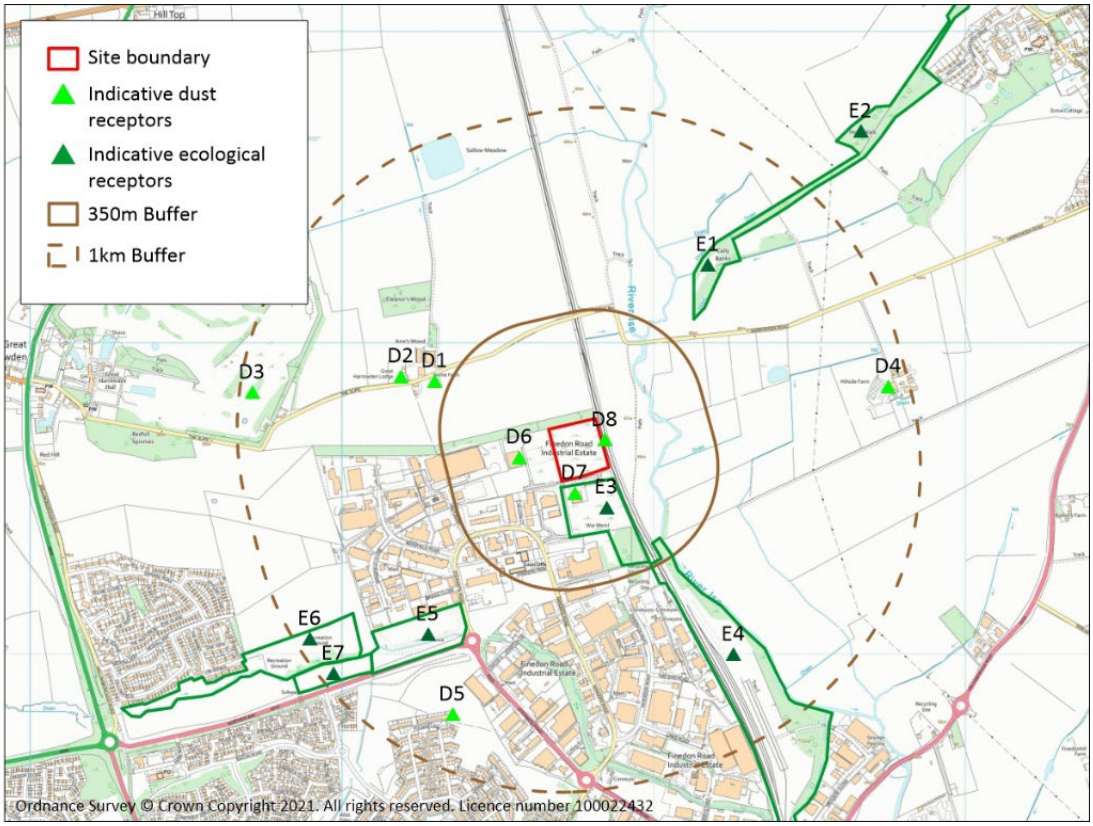
Table 6.2: Potentially Sensitive Receptors: Dust Assessment

Ref	Receptor	Type	Distance and Orientation[1]
Human Receptors			
D1	Home Farm	residential (isolated)	385m, NW
D2	Great Harrowden Lodge	residential (isolated)	490m, NW
D3	Wellingborough Golf Club	leisure	840m, WNW
D4	Hillside Farm	residential (isolated)	940m, ENE
D5	development of Wellingborough	residential (community)	820m, SW
D6	un-named development	light industrial / commercial	100m, W
D7	Tripal Group	light industrial / commercial	15m, S
D8	East Midlands Mainline Railway[2]	commercial	10m, E
Ecological Receptors			
E1	Finedon Cally Banks	LWS and Wildlife Trust Reserve	440m NE
E2	Finedon Quarry and Disused Railway	LWS	449m NE
E3	Site 978	PLWS	20m S
E4	Site 973	PLWS	285m SE
E5	Flood Storage Meadow	PLWS	528m SW
E6	Red Hill Bottom Field	PLWS	810m SW
E7	Site 977	PLWS	850m SW

1: distance and orientation taken from the Works Site boundary to the gardens or property boundary; distance to nearest 5m

2: The adjoining East Midlands Mainline railway has been included here as although it is not a sensitive receptor as such, any significant fugitive dust migrating across towards, and across, the railway line may present a safety hazard.

Figure 6.1: Potential Receptors



6.3.2 Other receptors within 1km of the Works Site are effectively subsumed by the above.

6.4 Dust Impact Assessment

6.4.1 The impact assessment takes into account the 'in-design' mitigation measures as discussed above. These include the provision of paved surfacing across the Works Site; provision of fencing on the eastern and western boundaries; retention of the existing tree belt on the northern boundary; operation of IBA handling and storage within a partially contained buildings; operation of processing within fully contained structures; provision of local exhaust extraction to the feed hopper and parts of the processing plant; provision of wind breaks to external storage bays; and provision of a dust suppression system across the Works Site.

6.4.2 In addition, the facility operations would be controlled under an Environmental Permit with the EA being the regulatory authority, for which an application has been submitted. The Permit is expected to include a standard condition with regards to air emissions such as dust; the standard condition being: "*Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including but not limited, to those specified in any approved emission management plan have been taken to prevent, or where this is not practicable, to minimise those emissions*."

6.4.3 The Permit may also require the monitoring of any emission points such as would be provided to the extraction for the feed hopper / processing areas. Any such monitoring requirements would be subject to agreement with the EA as part of the Permit determination.

6.4.4 In accordance with IAQM guidance, the in-design mitigation measures also assume the incorporation of best available techniques (BAT), including basic good practice mitigation measures, that would form an embedded part of the works and would be a requirement of the Environmental Permit. Taking into account the comments above in Table 6.1 and the in-design mitigation measures, the overall Dust Source Potential for the Proposed Development is considered to be ***small***.

6.4.5 The probability of dust being carried towards the key potentially sensitive receptors (the 'pathway effectiveness') has been assessed through reference to the wind data for Bedford, and the distance and orientation of the receptors to the Works Site and sources of dust. In practice, the probability of winds carrying dust may be reduced outside the summer months, when rainfall can be typically expected to suppress fugitive dust emissions over more than one third of the time. The potential pathway effectiveness has also been derived considering the local terrain and topography and the in-design mitigation measures.

Disamenity Dust Effects

6.4.6 The results of the assessment with regards to dust soiling effects for the Proposed Development are provided in Appendix D and are summarised in Table 6.4 as follows:

Table 6.4: Summary of Estimated Risk of Disamenity Dust Impacts and Effects at Sensitive Receptors

Ref	Receptor	Residual pathway effectiveness	Receptor sensitivity	Risk of impacts	Potential Effect
Human Receptors					
D1	Home Farm	*receptor >350m from site; outside disamenity dust assessment area*			
D2	Great Harrowden Lodge	*receptor >350m from site; outside disamenity dust assessment area*			
D3	Wellingborough Golf Club	*receptor >350m from site; outside disamenity dust assessment area*			
D4	Hillside Farm	*receptor >350m from site; outside disamenity dust assessment area*			
D5	development of Wellingborough	*receptor >350m from site; outside disamenity dust assessment area*			
D6	un-named development	ineffective	medium	negligible	negligible
D7	Tridal Group	moderately effective	medium	low	negligible
D8	East Midlands Mainline Railway[1]	*disamenity dust assessment not applicable*			
Ecological Receptors					
E1	Finedon Cally Banks				
E2	Finedon Quarry and Disused Railway				

Ref	Receptor	Residual pathway effectiveness	Receptor sensitivity	Risk of impacts	Potential Effect
E3	Site 978	*receptor >350m from site; outside disamenity dust assessment area*			
E4	Site 973[2]	moderately effective	low	low	negligible
E5	Flood Storage Meadow	ineffective	low	negligible	negligible
E6	Red Hill Bottom Field	*receptor >350m from site; outside disamenity dust assessment area*			
E7	Site 977	*receptor >350m from site; outside disamenity dust assessment area*			

1: East Midland Mainline Railway is primarily of interest from a health and safety perspective

2: northern part of Site 978 has been developed and is occupied by light industrial / commercial unit

6.4.7 The prevailing wind direction is south-westerly and away from the nearby light industrial / commercial units, with winds potentially blowing across the Works Site towards these units about 7% (unit to west) to 27% (unit to south) of the time and with wind speeds of more than 5 m/s for about 2% to 10% of the time. The resulting likely disamenity dust effects at the nearest receptors, with the incorporation of appropriate mitigation as discussed above, is *negligible*.

6.4.8 The nearest residential properties all lie outside the likely distance of any impacts and resulting effects associated with disamenity dust (>350m distant of Works Site).

6.4.9 The overall significance with regards to disamenity dust is ***not significant***.

6.4.10 The proximity of the adjoining railway line is also noted. The potential for winds potentially blowing across the Works Site towards the line is about 59% of the time and with wind speeds of more than 5 m/s for about 24% of the time. The proposed provision of the 3m high fence on the eastern boundary would serve to minimise the potential migration of any coarse dust generated on the Site towards the railway line. It is considered that, again with the in-built design measures, including the nature and orientation of the buildings, and the incorporation of appropriate mitigation and management measures, the risk of migration of dust towards the railway can be readily controlled.

Track-Out

6.4.11 Given the provision of paved surfacing across the Works Site and good practice mitigation measures the residual source potential for track-out onto Don White Road is considered to be *small* with a resulting *negligible* risk of impact.

Fine Particulates (PM_{10})

6.4.12 PM_{10} will make up a small proportion of any emitted dust. Although PM_{10} may travel distances of 1,000m or more, concentrations decrease rapidly on moving away from a source due to dispersion and dilution. Concentrations are expected to return to background concentrations within 400m of a surface mineral source[5] and this would equally be expected for the proposed aggregate processing activities. Given the presence of residential properties within the 1km screening

distance of the Site, and proximity of light industrial / commercial properties to the Site, further consideration has however been made of potential impacts associated with PM_{10}.

6.4.13 The IAQM guidance in relation to mineral operations[5] advises that where existing background ambient PM_{10} concentrations are less than 17 µg/m^3 there is little risk that additional contributions from such operations would lead to an exceedance of the long-term AQAL. Predicted background Defra PM_{10} concentrations for the area of the nearby receptors are in the range 15.55-16.30 µg/m^3 for 2022, slightly below 17 µg/m^3. It is also noted that the long-term AQAL would not be of relevance to the nearby units as these form workplaces.

6.4.14 With reference to the IAQM guidance on construction dust[4] the area sensitivity would be *low* (local PM_{10} concentrations <24 µg/m^3; one medium sensitive receptor within 20m of the Site). The resulting risk of dust impacts due to PM_{10} would be described as *negligible*.

6.4.15 On this basis, it is concluded that the Proposed Development would not result in significant adverse impacts on local air quality due to PM_{10} emissions. It is not considered that further assessment of potential PM_{10} impacts and effects is required. In addition, the mitigation measures employed to manage fugitive dust emissions would similarly serve to reduce potential PM_{10} emissions.

6.4.16 The overall significance with regards to PM_{10} is **not significant**.

Ecological Effects Assessment

6.4.17 The results of the assessment with regards to potential dust soiling effects at the nearby ecological receptors are provided in Appendix D and are summarised as follows in Table 6.5. This takes into account the designation of the nature conservation sites to initially define the sensitivity of the receptor.

Table 6.5: Summary of Dust Accumulation Effects at Specific Receptors

Ref	Receptor	Residual pathway effectiveness	Receptor sensitivity	Risk of impacts	Potential Effect
Ecological Receptors					
E1	Finedon Cally Banks	*receptor >350m from site; outside ecological dust assessment area*			
E2	Finedon Quarry and Disused Railway	*receptor >350m from site; outside ecological dust assessment area*			
E3	Site 978	moderately effective	low	low	negligible
E4	Site 973	ineffective	low	negligible	negligible
E5	Flood Storage Meadow	*receptor >350m from site; outside ecological dust assessment area*			
E6	Red Hill Bottom Field	*receptor >350m from site; outside ecological dust assessment area*			
E7	Site 977	*receptor >350m from site; outside ecological dust assessment area*			

6.4.18 The closest nature conservation site to the Works Site is PLWS Site 978 which lies to the immediate south of Don White Road extending within 20m of the Works Site. The northern part of this PLWS has however been developed to the existing light industrial unit. For completeness though this PLWS has been included in the assessment.

6.4.19 Winds potentially blow across the Works Site towards PLWS Site 978 about 27% of the time and with wind speeds of more than 5 m/s for about 10% of the time. Site 978 is classified as a low sensitive receptor and the resulting risk of adverse impact is *low* with the *negligible* effects.

6.4.20 PLWS Site 973 is 285m distant beyond the railway line and the resulting risk of adverse impact is *low* with the *negligible* effects

6.4.21 The overall significance with regards to dust deposition and ecological receptors is **not significant**.

7 Odour Assessment

7.1 Sources

7.1.1 The IBA and IBAA material may give rise to some odorous emissions, primarily during any agitation and disturbance. Previous testing of IBA material has however shown the odour emission rate to be very low (<1 $ou_E/m^2/s$)[30]. As discussed above in Section 6 all IBA handling and storage would be carried out within the storage building, and all processing within enclosed plant and using covered conveyors. Storage of IBAA would be carried out in external open bays. Both the in-built design mitigation measures and the operational management measures described above for the management of dust would also serve to aid in the mitigation of any odorous emissions. The Environmental Permit would include strict controls on the nature of the imported material which would be limited specifically to IBA from energy from waste (EfW) facilities and would not contain any organic materials which may give rise to odours on degradation.

7.1.2 The overall odour source potential is considered to be *low*.

7.2 Assessment

7.2.1 The receptors D1-D7 detailed in Table 6.2 would equally form sensitive receptors to any odorous emissions. The likelihood of an odour impact is also a factor of the source strength, the pathway effectiveness (based primarily on distance and prevailing wind direction) and the sensitivity of the receptors.

7.2.2 The results of the assessment with regards to odour for the Proposed Development are provided in Appendix D and are summarised in Table 7.1 as follows:

Table 7.1: Summary of Estimated Risk of Odour Impacts and Effects at Sensitive Receptors

Ref	Receptor	Residual pathway effectiveness	Receptor sensitivity	Risk of impacts	Potential Effect
Human Receptors					
D1	Home Farm	ineffective	high	negligible	negligible
D2	Great Harrowden Lodge	ineffective	high	negligible	negligible
D3	Wellingborough Golf Club	ineffective	medium	negligible	negligible
D4	Hillside Farm	slight	high	negligible	negligible
D5	development of Wellingborough	ineffective	high	negligible	negligible
D6	un-named development	moderately effective	medium	negligible	negligible
D7	Tridal Group	highly effective	medium	low	negligible
D8	East Midlands Mainline Railway[1]	*odour assessment not applicable*			

[30] Isopleth, Avonmouth IBA Recycling Facility, Odour Impact Assessment, ref: 01.0008.001/OIA, August 2017

1: East Midland Mainline Railway is primarily of interest from a health and safety perspective

7.2.3 As discussed above in Section 6 the prevailing wind direction is south-westerly and away from the nearby light industrial / commercial units, with winds potentially blowing across the Works Site towards these units for a total of about 7% of the time. Taking into account the distance and orientation to the units, the resulting risk of impacts and resulting effects at these nearest units is *negligible*.

7.2.4 The residential receptors are all a substantial distance away with resulting *negligible* predicted impacts and effects due to any odours that may be generated.

7.2.5 The overall significance with regards to odours is **not significant**.

8 Vehicle Exhaust Emissions Assessment

8.1 Screening Assessment

8.1.1 Information has been provided by the appointed Transport Consultants on the estimated vehicle movements to the Works Site during the operational phase.

8.1.2 The Proposed Development is expected to result in 459 2-way vehicle movements a day (229 5 in / 229.5 out; as Annual Average Daily traffic (AADT)), of which 124 2-way movements would comprise Light Duty Vehicles (LDVs) and 335 would comprise HGVs. All vehicles would enter and leave the Proposed Development by the single access point off Don White Road.

8.1.3 As discussed in Section 5 there are no AQMAs declared either near the Works Site or in the wider area. The IAQM guidance provides indicative criteria of additional vehicle movements of +500 AADT LGVs and +100 AADT HGVs, where distant from an AQMA, for indicating when an air quality assessment is required.

8.1.4 The predicted changes in HGV movements to and from the Proposed Development are above these screening thresholds, and LDV movements below. All movements would be to / from the junction of Don White Road and Saunders Road and would thereafter be distributed on the wider local road network beyond this point.

8.1.5 The predicted changes on the local road network are summarised in Table 7.1 below; for full details reference should be made to Appendix D:

Table 8.1: Summary of Predicted Changes in Vehicles Movements on Local Road Network[1]

Link	Road name	Predicted Change in 2-Way AADT Movements[2]	
		HGVs	LGVs
1	Don White Road	**335**	124
2	Sanders Road North	**260**	58
3	Sanders Road South	75	66
4	A510 Northern Way	**260**	58
5	A509 Kettering Road	**131**	30
6	Niort Way	**129**	21
7	A5193	0	4
8	Rixon Road	75	42
9	Finedon Road (east of Rixon Road)	75	32
10	Finedon Road (west of Rixon Road)	0	10
11	Stewarts Road	0	0
12	Meadow Close	62	26
13	Finedon Road (east of Meadow Close)	13	32

1: For details on assumptions refer to Transport Assessment provided by Rodgers Leask Ltd
2: AADT – Annual Average Daily Traffic
3: **Highlighted cells** indicate movements above the relevant IAQM screening criteria

8.1.6 Predicted development-related HGV movements on Don White Road, Sanders Road (north), A510 Northen Way, A509 Kettering Road and Niort Way are all above the IAQM screening thresholds. Predicted development-related HGV movements on Sanders Road (south) and hence on the wider road network to the south are all below the thresholds.

8.1.7 There are no sensitive human receptors along Don White Road itself or Sanders Way (north). Residential properties do lie along the A510 Northen Way although the facades are set at least 10m from the roadside and significant impacts due to the additional HGV movements and emissions would not be expected. Residential facades are similarly set back from both the Niort Way / Northen Way / A509 Kettering Road roundabout and along Niort Way, including the current on-going new residential development at Glenvale Park. There are however several facades close to the A509 Kettering Road roadside furth north, particularly at Great Harrowden and Isham.

8.1.8 Further assessment has therefore been undertaken of the potential impacts of increased vehicle exhaust emissions on the affected road network.

8.2 Detailed Assessment – Model Input Parameters

8.2.1 The atmospheric dispersion model ADMS-Roads (v5) was used to predict the changes in concentrations of the key pollutants associated with road transport, NO_2 and PM_{10}, due to the Proposed Development at selected receptors in proximity to the affected local road network.

Traffic Data

8.2.2 The assessment has been based on the traffic data as provided by Rodgers Leask Ltd. The data has been provided as Annual Average Daily Traffic (AADT) traffic data and has been used to generate appropriate data for input into the ADMS-Roads model. The model set-up has included the affected road links as shown in Figures 8.1 and 8.2.

8.2.3 The model has been based on the individual road links as determined by the traffic data, layout information, expected traffic flows and traffic lights. Where applicable roads, junctions and roundabouts have been sub-divided into detailed links and modelled with 1-way traffic flows where applicable. Traffic speeds used in the model are based on site observations and Defra Guidance, particularly with respect to junctions and traffic lights[31].

[31] Department for Environment, Food and Rural Affairs (Defra), Local Air Quality Management (LAQM): Technical Guidance (TG16), February 2018

Figure 8.1: Modelled Road Links and Receptors

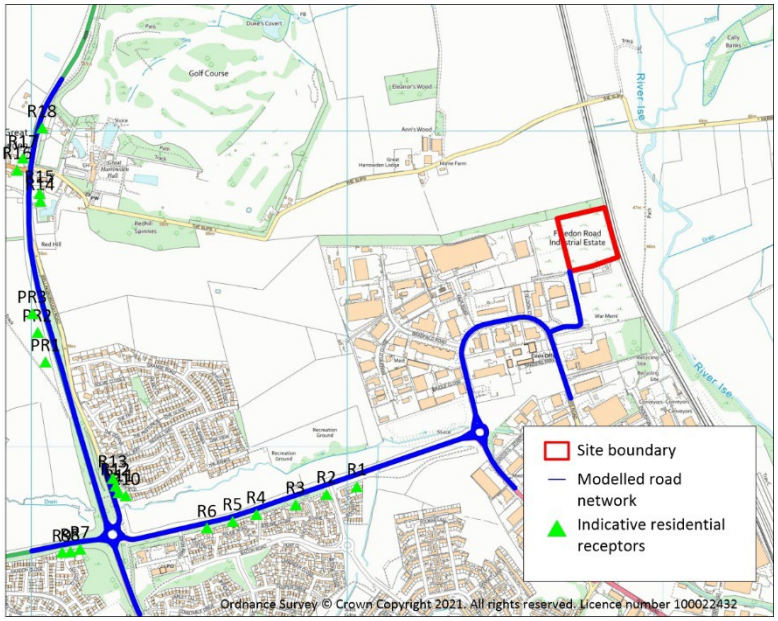


Figure 8.2: Modelled Road Links and Receptors: Isham

Emission Factors

8.2.4 The ADMS-Roads v5 model incorporates the Emissions Factor Toolkit (EFTv10.1) issued by Defra in August 2020

Meteorological Data

8.2.5 The dispersion modelling has been undertaken using 1 year of hourly sequential data for 2020 from Bedford (details provided in Section 5 above) provided by the Met Office, a recognised supplier of meteorological data.

General Model Conditions

8.2.6 The general model conditions are summarised below:

Table 8.1: Model Conditions

Variables	Model Input
traffic data	derived from AADT data provided by RLRE
emissions	NO_x, PM_{10}
emission factors	EFT 10.1; applied for each assessment year
emissions profiles	average throughout 24 hours
surface roughness at source	0.5m
meteorological data	1 year (2020) hourly sequential data for Bedford
surface roughness at meteorological station	0.5m (Open suburbia)
minimum Monin-Obukov length	1m (default)
model output	long-term annual mean road-NO_x and road-PM_{10} concentrations
receptors	x, y coordinates, z = 1.5m (see Figure 8.1 and 8.2)

8.3 Modelled Scenarios

8.3.1 The model has been run for the following scenarios:

Table 8.2: ADMS-Roads Model Scenarios

Scenario	Year	Description
A	2021	Baseline traffic data *(model run using 2020 meteorological data)*
B	2027	'Do Nothing' / Future Baseline 2027
C		'Do Something' / Site Development 2027
D	2031	'Do Nothing' / Future Baseline 2031
E		'Do Something' / Site Development 2031

8.4 Modelled Receptors

8.4.1 Potential receptors were identified from a review of aerial photography, OS mapping and site visit observations. The majority of receptor locations represent residential building facades located alongside the road network. These have been modelled at an elevation of 1.5m.

8.4.2 A total of 30 human health receptors were included in the model which are summarised below in Table 7.3 and provided in detail in Appendix E. These all represent residential receptors where the long-term AQALs apply.

Table 8.3: Summary of Modelled Human Health Receptors

Receptors	Location
R1-R6	south of A510 Northen Way
R7-R9	south of Niort Way
R10-R13	east of A509 Kettering Road and Wellingborough Road
R14-R18	along A509 Kettering Road, Great Harrowden
R51-R62	along A509 Kettering Road, Isham
PR1-PR3	west of A509 Kettering Road, at Glenvale Park development

8.5 Model Output and Verification

Model Verification

8.5.1 The model has been used to predict annual mean road contributions of concentrations of NO_x, NO_2 and PM_{10} at the modelled locations.

8.5.2 Where possible it is usual practice to verify the model in accordance with Defra guidance[11]. This is done by comparing modelled data with monitored data and, where necessary, deriving an adjustment factor. In this instance there is no monitoring data available that can be used for the purposes of verification and hence verification has not been carried out.

Existing Baseline

8.5.3 Total annual mean NO_2 concentrations at each modelled receptor for the existing scenario (2021) have been calculated from the modelled road-NO_x concentrations using the 'NO_x to NO_2' calculator provided on the Defra LAQM website (version 8.1, 19th August 2020). The calculator requires the input of background NO_2 concentrations which were obtained from Defra background concentrations for each relevant grid square.

8.5.4 The model set-up has included all road links identified to be in exceedance of the IAQM screening criteria as detailed in Section 8.1.5. No adjustments have been made to the background NO_2 concentrations used in the assessment and as such for those receptors close to major roads there will be a degree of double counting the road contributions as these contributions will also be incorporated in the Defra background data.

8.5.5 Total annual mean PM_{10} concentrations are calculated by summing the predicted road source PM_{10} contributions and the predicted background PM_{10} concentrations for 2021 for the grid square in which the receptors are located.

8.5.6 Full results are presented in Appendix F.

Assessment

8.5.7 Total NO_2 and PM_{10} concentrations at receptor facades have been calculated by the same process as described above. The results have been used to determine both the predicted changes in pollutant concentrations at receptor facades with the development and the resulting total pollutant concentrations. The assessment of these changes has been carried out through reference to the IAQM guidance as detailed in Appendix A.

8.6 Model Results

Existing Baseline (2021)

8.6.1 No exceedances of the long-term NO_2 or PM_{10} AQALs are predicted at any façade.

8.6.2 The highest predicted annual mean NO_2 and PM_{10} concentrations across the modelled domain are at R57 which represents a residential receptor immediately on the A509 in Isham at 20.09 µg/m^3 and 16.78 µg/m^3 respectively. These are both well below the relevant AQALs.

8.6.3 The results are consistent with the expectations based on the existing road network and junctions. The model set-up is therefore considered appropriate to the assessment.

Proposed Development (2027)

8.6.4 The predicted modelled increases in annual mean NO_2 concentrations at receptors with the Proposed Development in 2027 are assessed in accordance with the IAQM guidance and summarised below.

Table 8.5: Summary of Maximum Predicted Façade and Modelled Increases in NO_2 (2027)

Receptor	Maximum Change in Annual Mean Concentration		Maximum Predicted Façade Concentration[2,3]	Impact Descriptor
	(µg/m^3)	*%[1]*	*(µg/m^3)*	
South of Northern Way				
R5	+0.02	0	9.96	*negligible*
South of Niort Way				
R8	+0.02	0	9.93	*negligible*
east of A509 Kettering Road and Wellingborough Road				
R12	+0.01	0	10.19	*negligible*
along A509 Great Harrowden				

Receptor	Maximum Change in Annual Mean Concentration		Maximum Predicted Façade Concentration[2,3]	Impact Descriptor
	(µg/m³)	*%[1]*	*(µg/m³)*	
R18	+0.01	0	10.83	*negligible*
along A509, Isham				
R57	+0.06	0	15.5	*negligible*
west of A509 Kettering Road an Glenvale Park				
PR3	+0.2	0	9.27	*negligible*

1: maximum change in annual mean concentration as % of assessment level; rounded in accordance with IAQM guidance
2: maximum NO_2 concentration based on predicted background concentrations for grid squares in which receptors are located for the modelled years
3: Defra's 'NO_x to NO_2 calculator' (v8.0) used; all other urban UK traffic

8.6.5 No changes in annual mean NO_2 concentrations of 1% or above relative to the AQAL are predicted at any of the modelled receptors. The resulting total annual mean NO_2 concentrations are well below the AQAL with the maximum predicted concentration at R57 in Isham at 15.5 µg/m^3 (<40% of the AQAL) with resulting *negligible* severity of impacts. These results are consistent with expectations given the proximity of the receptors to the Proposed Development but set-back distance from the main routes and the UK trend in falling NO_2 concentrations as the vehicle fleet moves to cleaner technologies.

8.6.6 The maximum predicted modelled increases in annual mean PM_{10} concentrations at the modelled receptors are summarised below.

Table 8.6: Summary of Maximum Predicted Façade and Modelled Increases in PM_{10} (2027)

Receptor	Maximum Change in Annual Mean Concentration		Maximum Predicted Façade Concentration[2]	Impact Descriptor
	(µg/m³)	*%[1]*	*(µg/m³)*	
South of Northern Way				
R5	+0.02	0	16.06	*negligible*
South of Niort Way				
R8	+0.01	0	16.05	*negligible*
east of A509 Kettering Road and Wellingborough Road				
R12	+0.01	0	16.09	*negligible*
along A509 Great Harrowden				
R18	+0.03	0	15.59	*negligible*
along A509, Isham				
R57	0.04	0	16.15	*negligible*
west of A509 Kettering Road an Glenvale Park				
PR3	+0.01	0	15.12	*negligible*

1: maximum change in annual mean concentration as % of assessment level; rounded in accordance with IAQM guidance
2: maximum PM_{10} concentration based on predicted background concentrations for grid squares in which receptors are located for the modelled years

8.6.7 No changes in annual mean PM_{10} concentrations of 1% or above relative to the AQAL are predicted at any of the modelled receptors. The resulting total annual mean PM_{10} concentration is, at 16.15 $\mu g/m^3$, well below the AQA with a resulting severity of impacts of *negligible* at all receptors.

8.6.8 Predicted changes in NO_2 and PM_{10} are lower in 2031 than 2027 due to continuing improvements in vehicle exhaust emissions.

8.7 Assessment

8.7.1 The closest properties to the affected road network are those on the A509 Kettering Road in Isham, all others being set-back from the road-side. The results of the modelling show the existing annual mean levels of NO_2 and PM_{10} at all these properties to be well below the AQAL; this is consistent with the absence of any declared AQMAs or identified areas of concern. Predicted increases in NO_2 and PM_{10} with the Proposed Development are predicted to be less than 1% of the AQAL at all properties, including those in Isham with resulting severity of impacts being *negligible*.

8.7.2 The potential increases in NO_2 and PM_{10} concentrations at any of these receptors are not considered significant.

8.8 Mitigation

8.8.1 No significant impact on local air quality has been identified and mitigation measures are not therefore deemed necessary.

8.9 Assumptions and Limitations

8.9.1 Information on predicted traffic movements have been provided by the appointed Transport Consultant; for full details on derivation of this data reference should be made to the Transport Assessment which has been submitted as part of the planning application documentation.

8.9.2 The existing and proposed road layouts have been based on site observations and review of existing OS mapping and aerial imagery.

8.9.3 The vehicle emissions assessment has been undertaken using predicted air quality data, vehicle emission factors and the 'NO_x to NO_2' calculator published by Defra in 2020 and is therefore considered to be robust.

8.9.4 The resulting modelled road-contributions of NO_x and PM_{10} and resulting total NO_2 and PM_{10} concentrations are considered to be consistent with expectations given the local road network, baseline traffic flows and available monitoring data.

9 Mitigation and Management Recommendations

9.1 Dust and PM_{10}

9.1.1 The aggregate recycling facility would be operated in accordance with an Environmental Permit issued by the EA. The Permit application would require the submission of an environmental risk assessment encompassing aspects including dust and odour. The Permit would include controls on the nature and quantities of materials that can be received at the Site and require operation of the facility in accordance with a written Environmental Management System (EMS). In addition, the permit would include standard boundary conditions in relation to dust as described in Section 6 and the submission, and agreement, of a Dust and Emissions Management Plan (DEMP) will be required.

9.1.2 A DEMP was provided in support of the planning permission and Environmental Permit. The originally submitted DEMP is to be updated and revised as required during the determination period and on completion of the facility construction, prior to the commencement of operations.

9.1.3 Key points and standard mitigation measures that would be employed are summarised below.

9.1.4 The EMS would cover aspects such as management, operational procedures, training, maintenance and accident prevention etc. Overall responsibility for the management and control of dust would lie with the Site Manager. As an over-riding requirement, should winds carry visible dust towards any sensitive site boundaries, and particularly to the east, south and west, the operations giving rise to dust would be modified and suspended until more suitable conditions pertain, or until effective dust control measures are implemented.

9.1.5 Mitigation to be incorporated within the site design would include, but not be limited to:

- provision of building for all IBA receipt, handling and storage;
- processing of IBA within enclosed plant and provision of covered conveyors;
- provision of wind breaks to external IBAA storage bays;
- provision of fencing to all site boundaries and retention of existing tree belt on northern boundary
- provision of paving across the Site;
- provision of separate staff car parking and HGV overflow parking areas not requiring access to main processing site;
- provision of dust suppression system across the Site; to include maintenance of adequate year-round water supply;
- provision of local dust extraction to the feed hopper and processing areas to wet filtration system.

9.1.6 In addition, specific measures would be included within the EMS / DEMP to minimise the potential for dust generation such as:

- minimisation of drop-heights from conveyors chutes and when loading HGVs;
- provision of shrouding to discharge points;
- maintenance of clean and tidy site with routine clearance of any deposited materials to avoid accumulations;
- maintenance of smooth-running surface within the Site;
- securing and covering all departing vehicles;
- implementation of measures to ensure that detritus does not accumulate on the access road with regular cleaning / sweeping.

9.1.7 Other general matters and the management of the facility can also affect the likelihood of significant dust emissions. Such standard measures that can be readily employed include:

- visual monitoring for dust throughout the working day with regular inspections of the site boundary;
- maintenance of a daily record relating to dust management including the source, date and time along with any dust impacts;
- recording of any complaints along with subsequent remedial actions and changes to procedures.

9.1.8 It is considered that these measures are adequate and appropriate to ensure the minimisation of dust generation at the site.

9.2 Odours

9.2.1 The Environmental Permit would also include a standard boundary condition with regards to odours. The DEMP described above will also set out measures for routine odour checks and responses to any complaints received. Given the nature of the locality and proposed operations and in-built design measures it is not considered additional specific mitigation measures would be required in relation to odours.

9.3 Vehicle Exhaust Emissions

9.3.1 The facility is to be provided with 4 electric vehicle charging bays and spaces for bicycles for use by staff and operatives. This will serve to encourage the uptake of sustainable transport modes thereby reducing the vehicle exhaust emissions.

10 Summary and Conclusions

10.1 Planning permission has been granted for the construction and operation of an aggregate processing facility, ancillary infrastructure and on-site biodiversity enhancements at Land North of Don White Road, Finedon Road Industrial Estate, Wellingborough. Following granting of the permission an application for an Environmental Permit has now been made to the Environment Agency for operation of the facility.

10.2 The planning and Permit applications were supported by an AQA that considered the potential for aerial emissions generated by the Proposed Development to result in adverse impacts and effects on human and ecological receptors. The AQA has focused on the proposed built development part of the application; referred to in this AQA as the 'Works Site'. The assessment considered potential impacts associated with fugitive dust and odours that may be generated by the operations and exhaust emissions generated by vehicles travelling to and from the Works Site. The original submitted AQA has been revised slightly to incorporate proposed changes to the dust extraction at the facility.

10.3 The Proposed Development is sited in a relatively low sensitivity area with regards to dust and odours with the nearest residential receptors being 385m to the north-west. The proximity of light industrial / commercial development to the Works Site is however noted, particularly to the south across Don White Road, along with a mainline railway to the immediate east. The land to the south has also been identified as a potential Local Wildlife Site although is observed to have been partially developed to the existing light industrial unit.

10.4 The handling, processing and storage of IBA and IBAA may give rise to fugitive dust. The proposals include a number of in-design built measures and additionally the facility would be regulated by the Environment Agency under an Environmental Permit which will includes standard boundary conditions in relation to dust and other emissions and monitoring of any specific emission points. Through the incorporation of these measures, which would be detailed in a Dust and Emissions Management Plan to be agreed with the EA, no unacceptable impacts or resulting effects from dust on human health, amenity or ecological receptors have been identified. The resulting significance of dis-amenity, health (PM_{10}) and ecological effects resulting from fugitive dust emissions is **not significant.**

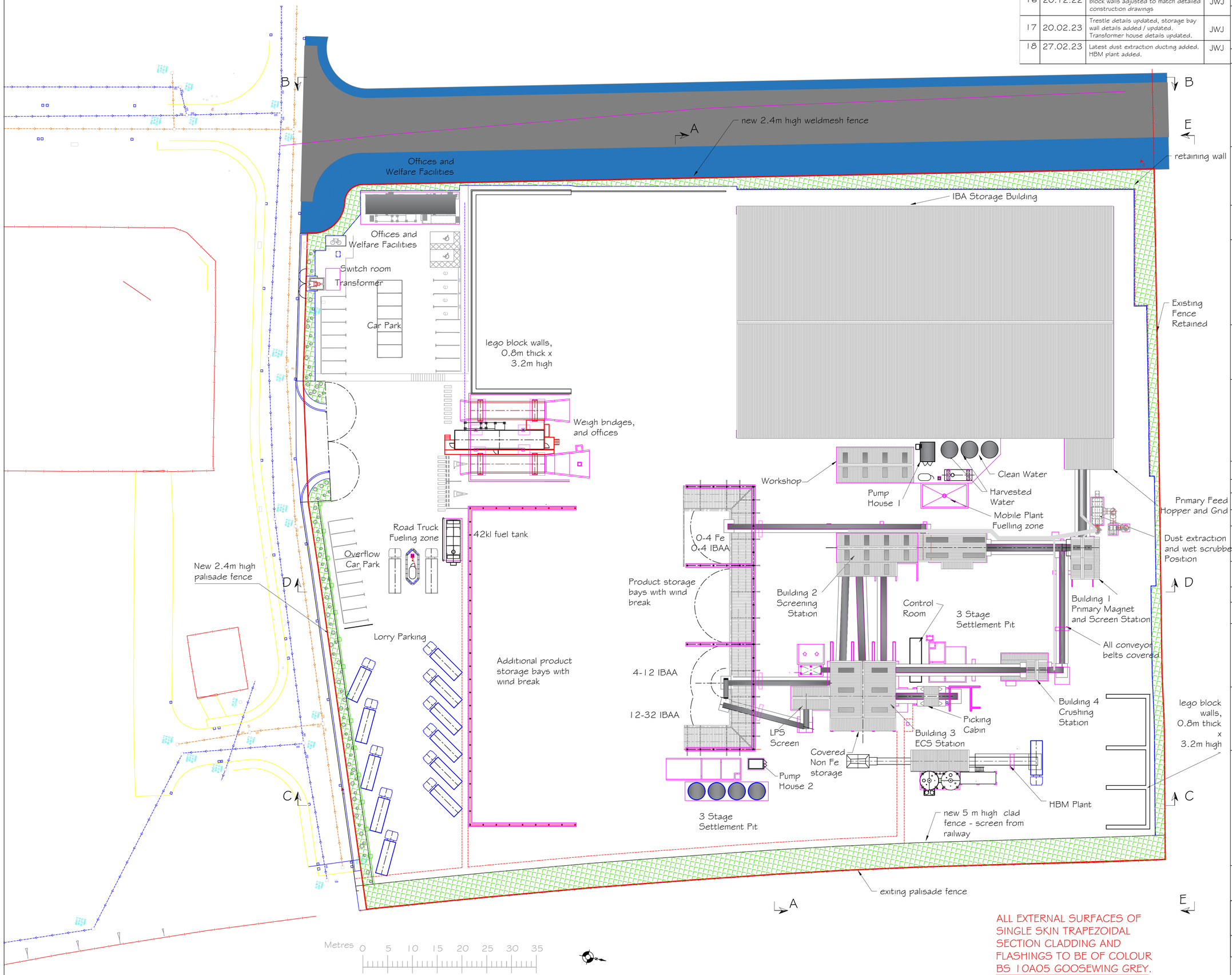
10.5 The handling of IBA and IBAA may also give rise to odours, primarily on agitation although the material is not significantly odours. The Permit will also include a standard boundary condition in relation to odours and no unacceptable impacts or resulting effects from odours on amenity have been identified. The resulting significance of dis-amenity resulting from any potentially odorous emissions is **not significant.**

10.6 The Proposed Development would result in the generation of additional HGV movements on the local road network. However, given the existing good local air quality and the set-back distances of properties from the proposed haulage route the significance of residual effects associated with vehicle exhaust emissions would be **not significant**. In addition, mitigation is to be provided in the form of electric charging points and cycle storage to facilitate the update of sustainable travel modes.

10.7 The overall significance of the Proposed Development in relation to air quality effects is **not significant.**

APPENDIX A

Proposed Site Layout



ALL EXTERNAL SURFACES OF SINGLE SKIN TRAPEZOIDAL SECTION CLADDING AND FLASHINGS TO BE OF COLOUR BS 10A05 GOOSEWING GREY.

Refer to drawing WE001-06 for view references.

Rev	Date	Details	Drawn
18	27.02.23	Latest dust extraction ducting added. HBM plant added.	JWJ
17	20.02.23	Trestle details updated, storage bay wall details added / updated. Transformer house details updated.	JWJ
16	20.12.22	+32 bay, reteed ramp and NE lego block walls adjusted to match detailed construction drawings	JWJ
15	24.10.22	Site boundary updated, transformer & switch house moved with sizes updated. Transformer access route added. Bike shed & parking spaces moved to suit.	JWJ
14	14.10.22	Planting details added	JWJ
13	06.10.22	Settlement pit 2 tank base width reduced to 3800mm & relocated. Weigh bridge civils updated. Boundary updated. Switch room and transformer bases added. Step down areas added to bases P2 & P5.	JWJ
12	22.09.22	Dust extraction, OB1 access stair base & Conv. trestle bases updated. Weigh bridge wheel wash design & sump updated.	JWJ
11	02.09.22	C19 & C20 position moved 100mm South.	JWJ
10	31.08.22	Dust extraction fan and stack moved. OB1 stair case re-aligned. Radial conveyor added. Remove bay wall in segregated product storage bay and re-align P6. Tank farm base updated.	snf
9	20.07.22	Harvested water tank base enlarged and base moved along with Workshop. New Enclosure added for LPS Screen. SP1 re-aligned.	snf
8	19.05.22	Weighbridge plaza widened. Island fuel zone shown and lego block walls in front of stock building annotated. HBM Plant removed and Settlement Pit 2 relocated. Additional stock bay extended	snf
7	28.03.22	Lego block walls 3.2m high added	snf
6	17.03.22	screen fence now 5m high	JWJ
5	21.01.22	Translucent panels added	JWJ
4	18.01.22	P2, T1 & T12 Civils updated	JWJ
3	15.12.21	No Fe bays - P5 shortened by 2.4m - improved access to pole drums	JWJ
2	16.09.21	0-4 conveyors combined; screening station adjusted	snf
1	05.08.21	HBM Plant relocated	snf

Project:
Proposed Wellingborough IBA Plant

Description:
Plan of proposed plant and buildings

DAY AGGREGATES
Transport Avenue
Brentford
Middlesex
TW8 9HF

Date	Scale	Drawn
29.06.21	1:500	snf

Drawing No.	Rev
WE001-05	18

Status	FOR INFORMATION

Checked	Print
JWJ	A2

APPENDIX B

Assessment Methodologies

Appendix B
Air Quality Assessment Methodology

1. Dust Assessment

1.1. The assessment has been undertaken with reference to the IAQM qualitative frameworks for mineral dust[1] and construction dust assessments[2] with appropriate modification for the proposed importation activities. This uses the source-pathway-receptor concept and takes into account the size of source emissions (i.e. scale of the anticipated operations), the effectiveness of the pathway (i.e. dispersion of dust towards a receptor) through consideration of the frequency of dusty winds and the distance of the receptor from the dust source, and the sensitivity of the receptor.

1.2. The IAQM guidance on mineral dust[1] advises that advises that PM_{10} needs to be assessed if there are sensitive receptors within 1km; reduced screening distances are applicable in relation to deposition dust and human and ecological receptors beyond which adverse impacts would not be expected. To provide a conservative assessment therefore an initial search radius of 1km of the Site boundary has been applied in relation to human health and ecological receptors[3].

1.3. In relation to deposition (or dis-amenity) dust adverse impacts are uncommon beyond 250m from sand and gravel sites and beyond 400m from hard rock quarries, as measured from the nearest dust generating activities. The IAQM guidance on construction activities advises an assessment distance of 350m along with assessment of the roads used to access a site.

1.4. Neither guidance is specifically relevant to the proposed activities at the Site. To provide a conservative assessment therefore receptors up to 350m from the Site boundary and 50m from edges of roads used for traffic up to a distance of 500m from the access / egress point have been considered for the deposition dust assessment.

1.5. Where there are no receptors within the Study Area the risk of impacts is *negligible* and there will be no significant effect.

1.6. The size of the source emissions is categorised as small, medium or large for each relevant operational activity (taking into account designed-in mitigation). This takes into account the

[1] IAQM (2016). *Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1.* Institute of Air Quality Management, London
[2] Institute of Air Quality Management (2014), *Guidance on the Assessment of Dust from Demolition and Construction*. v1.1.
[3] Note: EA guidance on assessment of aerial emission impacts specifies an assessment radius of 10km for international nature conservation sites and 2km for SSSIs and local nature sites. This is however appropriate to point source emissions. A search distance of 1km is considered the maximum appropriate for this assessment.

likelihood of the activity to generate dust emissions and the extent of the activity, e.g. large bare surfaces.

1.7. The estimation of the pathway effectiveness considers the frequency of dusty winds and the distance of the receptor from the dust source. Examples are provided below:

Table 1.1: Categories of Frequency of Potentially Dusty Winds

Frequency	Criteria
Infrequent	Frequency of winds (>5m/s) from the direction of the dust source on dry days are less than 5%
Moderately frequent	Frequency of winds (>5m/s) from the direction of the dust source on dry days are between 5% and 12%
Frequent	Frequency of winds (>5m/s) from the direction of the dust source on dry days are between 12% and 20%
Very frequent	Frequency of winds (>5m/s) from the direction of the dust source on dry days are greater than 20%

Reference Table A3-2 of IAQM guidance

Table 1.2: Categories of Receptor Distance from Dust Source

Category	Criteria
Close	Receptor is <100m from dust source
Intermediate	Receptor is 100-200m from dust source
Distant	Receptor is 200-350m from dust source

1.8. Receptors beyond 350m of the Site boundary are not assessed.

1.9. The effectiveness of the pathway (i.e. how effectively dust, and windblown dust, will be carried towards receptors) is based on the frequency of winds from the direction of the dust source and the distance of the receptor from the dust source, as follows:

Table 1.3: Pathway Effectiveness

		Frequency of potentially dusty winds			
		Infrequent	**Moderately frequent**	**frequent**	**Very frequent**
Receptor distance	**close**	slightly effective	moderately effective	highly effective	highly effective
	intermediate	ineffective	slightly effective	moderately effective	highly effective
	distant	ineffective	ineffective	slightly effective	moderately effective

Reference Table A3-4 of IAQM guidance

1.10. The risk of dust impacts at each receptor is assessed taking into account the pathway effectiveness and the size of the source emissions, as detailed below:

Table 1.4: Estimation of Dust Impact Risk

		Size of source emissions		
		small	**medium**	**large**
Pathway effectiveness	highly effective	low	medium	high
	moderately effective	low	medium	medium
	slightly ineffective	negligible	low	low
	ineffective	negligible	negligible	low

Reference Table 2 of IAQM guidance

1.11. The likely magnitude of a dust impact on the individual receptor will depend on its sensitivity: **low**, **medium** or **high**. Receptors may vary in their sensitivity to nuisance dust as follows:

Table 1.5: Example sensitivity of receptors to dust deposition

Sensitivity		
High	**Medium**	**Low**
people and property		
hospitals and clinics, schools dwellings and gardens long-term car parks car showrooms, hi-tech industries, food processing, sensitive horticultural land	places of work parks	farms short-term car parks playing fields footpaths
ecological / nature conservation		
international designation (e.g. SAC, Ramsar or SPA site)	national designated site (e.g. SSSI)	local designated site (e.g. local nature reserve)

1.12. The descriptors of the likely magnitude of a dust impact on the individual receptor, taking into account its sensitivity and the estimated dust impact risk, are as follows:

Table 1.6: Descriptors of Magnitude of Dust Impact Effects

		Receptor sensitivity		
		Low	**Medium**	**High**
	high risk	slight adverse	moderate adverse	substantial adverse
	medium risk	negligible	slight adverse	moderate adverse

Dust impact risk	low risk	negligible	negligible	slight adverse
	negligible risk	negligible	negligible	negligible

Reference Table 3 of IAQM guidance

1.13. The assessment of the overall effect on the surrounding area and the significance of that effect takes into account the different effects at different receptors and number of affected receptors.

2. Odour Risk Screening Assessment

2.1. The odour risk screening assessment has been undertaken with reference to the qualitative framework for odour outlined in IAQM guidance[4]. This uses the source-pathway-receptor concept and takes into account the potential magnitude of odour release (i.e. Odour Source Potential), the effectiveness of the pathway (i.e. dispersion of odour towards a receptor), and the sensitivity of the receptor.

2.2. For the sensitivity of people to odour the following general principals are considered:

Table 2.1: Receptor Sensitivity

High	• users can reasonably expect enjoyment of a high level of amenity; • people would reasonably be expected to be present here continuously or at least regularly for extended periods as part of the normal use of the land; • examples may include residential dwellings, hospitals, school.
Medium	• users would expect to enjoy a reasonable level of amenity but wouldn't reasonably expect the same of level of amenity as in their home; • people wouldn't reasonably be expected to be present here continuously or at least regularly for extended periods as part of the normal use of the land; • examples may include places of work, commercial/retail premises and playing/recreational fields
Low	• the enjoyment of amenity would not reasonably be expected; or, • there is transient exposure where people would reasonably be expected to be present only for limited periods of time as part of the normal use of the land; • examples may include industrial use, farms and footpaths

2.3. The Source Odour Potential considers the scale of release (taking into account odour control measures), how inherently odorous the emission is and the relative pleasantness / unpleasantness. Examples are provided below:

Table 2.2: Examples of Odour Source Potential

[4] Institute of Air Quality Management (IAQM), Guidance on the assessment of odour for planning, version 1.1, July 2018

Odour Source Potential	Examples
Large	• larger permitted processes of odorous material • large STWs (sewage treatment works) • material usage hundreds of thousands tonnes /m^3 per year • area sources thousands of m^2 • processes classed as most offensive • open air operation with no containment / control
Medium	• smaller permitted processes • small STWs • materials usage thousands of tonnes / m^3 per year • area hundreds of m^2 • processes classed as moderately offensive • some mitigation in place but significant residual odour remains
Small	• falls below EPR Part B threshold • materials usage hundreds of tonnes / m^3 per year • area source tens of m^2 • processes classed as less offensive • effective tangible mitigation measures in place

2.4. The effectiveness of the pollutant pathway is dependent on the distance of receptors from the source, the orientation with respect to the prevailing wind direction, the local topography and terrain, the nature of release and dilution and dispersion. The following matrix considering the distance and frequency of winds from source to receptor has initially been referred to to indicate whether the pollutant pathway is potentially **highly effective**, **moderately effective** or **ineffective** to inform the qualitative assessment. This is only indicative and other aspects such as whether the release is a point or area source, local topography and frequency of calm / low wind speed conditions when dispersion may be reduced also need to be taken into account.

Table 2.3: Categories of Frequency Winds

Frequency	frequency of winds blowing towards receptor
Infrequent	<5%
Moderately frequent	5-12%
Frequent	12-20%
Very frequent	>20%

Reference Table A3-2 of IAQM guidance

Table 2.4: Categorisation of Receptor Distance from Source

category	criteria
far	400-1,000m
distant	200m-<400m
intermediate	100m-<200m

category	criteria
far	400-1,000m
close	50m-<100m
near	<50m

2.5. The pathway effectiveness is assessed taking into account the distant to the receptor and orientation to the prevailing wind direction, as detailed below:

Table 2.5: Pathway Effectiveness

		potential frequency of winds			
		infrequent	**moderately frequent**	**frequent**	**very frequent**
receptor distance category	**near**	slight	moderate	high	high
	close	slight	moderate	moderate	high
	intermediate	ineffective	slight	moderate	moderate
	distant	ineffective	slight	slight	moderate
	far	ineffective	ineffective	slight	slight

Note: risk matrix derived from guidance provided by IAQM

2.6. Where partial or full screening is provided then the pathway effectiveness may be reduced by one or two categories.

2.7. The overall risk of odour exposure (impact) at a specific receptor can be assessed as follows:

Table 2.6: Risk of odour impact at specific receptor location

pathway effectiveness	**source odour potential**		
	small	**medium**	**large**
highly effective pathway	low risk	medium risk	high risk
moderately effective pathway	negligible risk	low risk	medium risk
slightly effective pathway	negligible risk	negligible risk	low risk
ineffective pathway	negligible risk	negligible risk	negligible risk

Reference Table 9 of IAQM guidance

2.8. The effect of an odour impact on the individual receptor, taking into account its sensitivity, is estimated as follows:

Table 2.7: Potential odour effect at specific receptor

risk of odour exposure	**receptor sensitivity**		
	low	**medium**	**high**
high	slight adverse	moderate adverse	substantial adverse
medium	slight adverse	slight adverse	moderate adverse
low	negligible	negligible	slight adverse
negligible	negligible	negligible	negligible

Reference Table 10 of IAQM guidance

2.9. The assessment of the overall effect takes into account the different effects at different receptors and number of effected receptors.

3. Vehicle Emissions Assessment

3.1. The assessment of vehicle emissions associated with the Proposed Development has been undertaken in accordance with the IAQM planning guidance[5] which is deemed appropriate. Relevant receptors include residential dwellings, schools and hospitals, areas of leisure use and ecologically sensitive sites.

3.2. The level of assessment required was determined through an initial screening review considering the predicted vehicle movements in association with the proposed activities, the routing of vehicles along the roads within the transport assessment study area and locations of sensitive receptors.

3.3. The following criteria were used to determine potentially affected roads:

- LDV (Light Duty Vehicle) flow change by 500 AADT (annual average daily traffic) or more outside an AQMA (Air Quality Management Area), or 100 AADT or more within or adjacent to an AQMA;
- HDV (Heavy Duty Vehicle) flows change by 100 AADT or more outside an AQMA, or 25 AADT or more within or adjacent to an AQMA;
- Road alignment changing by 5m or more;
- Introduction or removal of a junction.

3.4. Where these criteria are met and there are relevant receptors present further assessment is required. This may take the form of a Simple or Detailed Assessment. The IAQM guidance does not specify at what distance a receptor should be to an affected road to indicate the need for further assessment. However, pollution concentrations fall rapidly away from the roadside and are expected to return to background levels within 100m of a road source[6]. For the purposes of the assessment reference is made to HE DMRB[7] guidance which requires assessment of receptors within 200m of affected roads.

3.5. Where there are no receptors within 200m of affected roads, these roads have not been considered further and potential impacts of vehicle emissions can be considered *negligible* and as having an insignificant effect.

3.6. With regards to this planning application the screening assessment concluded that further consideration of vehicle emissions was required, encompassing atmospheric dispersion modelling. Full details of the model approach are provided in the AQA.

[5] Institute of Air Quality Management (2017), *Land-use Planning & Development Control: Planning for Air Quality*. v1.2.
[6] Air Quality Consultants (2008), *NO_2 Concentrations and Distance from Roads*, J504
7 Highways England (HE), Design Manual for Roads and Bridges (DMRB), LA 105 Air Quality, Revision 0, November 2019

APPENDIX C

Photographs

Proposed Development Site:

Looking northwest across development site towards tree belt

Looking northeast across development site towards railway line

Existing development to southwest of development site

No photo

Existing Avonmouth facility:	
 Example of external sprinkler	 View of IBA reception shed
 View of internal sprinkler in IBA reception area	 Example of covered conveyor
 Example of covered conveyors	

APPENDIX D

Dust and Odour Assessments

Land North of Don White Road, Wellingborough
AQA Appendix Di: Disamenity Dust Assessment
(excludes track-out)

ID	description	receptor type	sensitivity	primary source	Dust Source Potential[1]	distance to source (m)	description	orientation to source	%frequency of winds to receptor	% frequency of winds to receptor (>5 m/s)	description (based on winds >5 m/s)	pathway effectiveness	screening	residual pathway effectiveness	risk of impact / exposure	magnitude of dust effect
Human Health Receptors																
D1	Home Farm	residential (isolated)	high	all activities	small	385										
D2	Great Harrowdon Lodge	residential (isolated)	high	all activities	small											
D3	Wellingborough Golf Club	leisure	low	all activities	small	840										
D4	Hillside Farm	residential (isolated)	high	all activities	small	940										
D5	development of Wellingborough	residential (community)	high	all activities	small	820										
D6	unnamed development	light industrial / commercial	medium	all activities	small	100	close	W	7	2	infrequent	ineffective	partial - 2.4m high fence proposed	ineffective	negligible	negligible
D7	Tridal Group	light industrial / commercial	medium	all activities	small	20	close	S	19	7	moderately frequent	moderately effective	none	moderately effective	low	negligible
D8	East Midlands Mainline Railway	railway line	low	all activities	small	10	close	E	59	24	very frequent	highly effective	partial - 5m high fence proposed	moderately effective	low	negligible
Ecological Receptors																
E1	Finedon Cally Banks	LWS	low	all activities	small	440		NE								
E2	Finedon Quarry and Disused Railway	LWS	low	all activities	small	449		NE								
E3	Site 978	PLWS	low	all activities	small	20	close	S	19	7	moderately frequent	moderately effective	none	moderately effective	low	negligible
E4	Site 973	PLWS	low	all activities	small	285	distant	SE	6	2	infrequent	ineffective	none	ineffective	negligible	negligible
E5	Flood Storage Meadow	PLWS	low	all activities	small	528										
E6	Red Hill Bottom Field	PLWS	low	all activities	small	810										
E7	Site 977	PLWS	low	all activities	small	850										

1 Potential source strength of nearest dust source taking into in-design mitigation, including management and control measures
2 Where necessary separate assessment undertaken for different dust sources

Land North of Don White Road, Wellingborough
AQA Appendix D: Odour Assessment
(excludes track-out)

ID	description	receptor type	sensitivity	primary source	Dust Source Potential[1]	distance to source (m)	description	orientation to source	%frequency of winds to receptor	description	pathway effectiveness	screening	residual pathway effectiveness	risk of impact / exposure	magnitude of dust effect
Human Health Receptors															
D1	Home Farm	residential (isolated)	high	all activities	small	385	far	NW	4.50	infrequent	ineffective	established tree line	ineffective	negligible	negligible
D2	Great Harrowdon Lodge	residential (isolated)	high	all activities	small		far	NW	4.50	infrequent	ineffective	establishe dtree line	ineffective	negligible	negligible
D3	Wellingborough Golf Club	leisure	medium	all activities	small	840	far	WNW	4.50	infrequent	ineffective	established tree line	ineffective	negligible	negligible
D4	Hillside Farm	residential (isolated)	high	all activities	small	940	far	E	20.10	very frequent	slight	established tree line	slight	negligible	negligible
D5	development of Wellingborough	residential (community)	high	all activities	small	820	far	SW	7.10	moderately frequent	ineffective	wider industrial estate	ineffective	negligible	negligible
D6	unnamed development	light industrial / commercial	medium	all activities	small	100	close	W	7	moderately frequent	moderately effective	partial - 2.4m high fence proposed	moderately effective	negligible	negligible
D7	Tridal Group	light industrial / commercial	medium	all activities	small	20	near	S	20	very frequent	highly effective	none	highly effective	low	negligible
D8	East Midlands Mainline Railway	railway line	n/a									proposed 5m high fence			

1 Potential source strength of nearest odour source taking into in-design mitigation, including management and control measures
2 Where necessary separate assessment undertaken for different dust sources

APPENDIX E

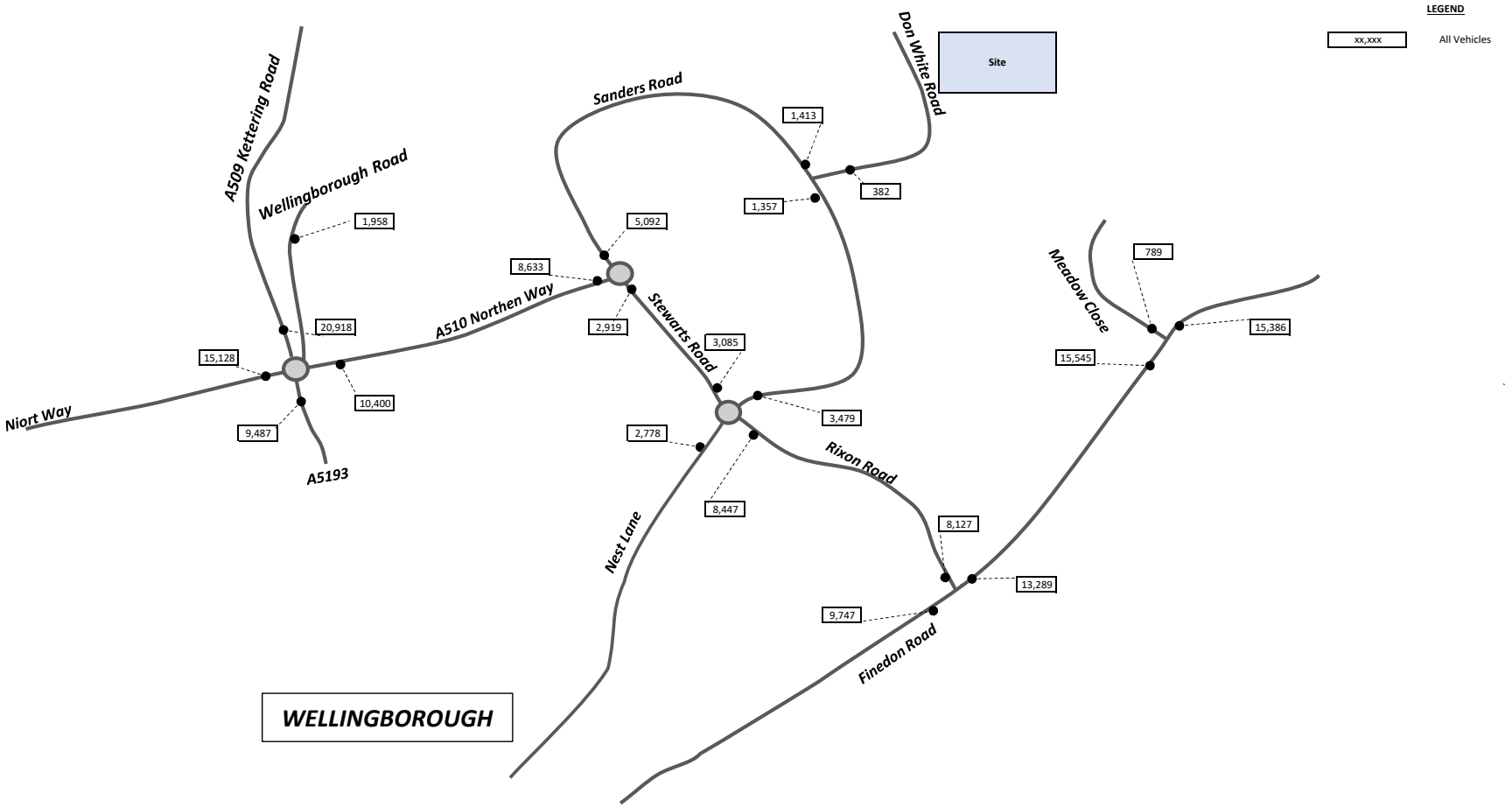
Traffic Data
(as provided by Rodgers Leask Ltd)

RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

2021 Base Year

Annual Average Daily Traffic (00:00 - 24:00)

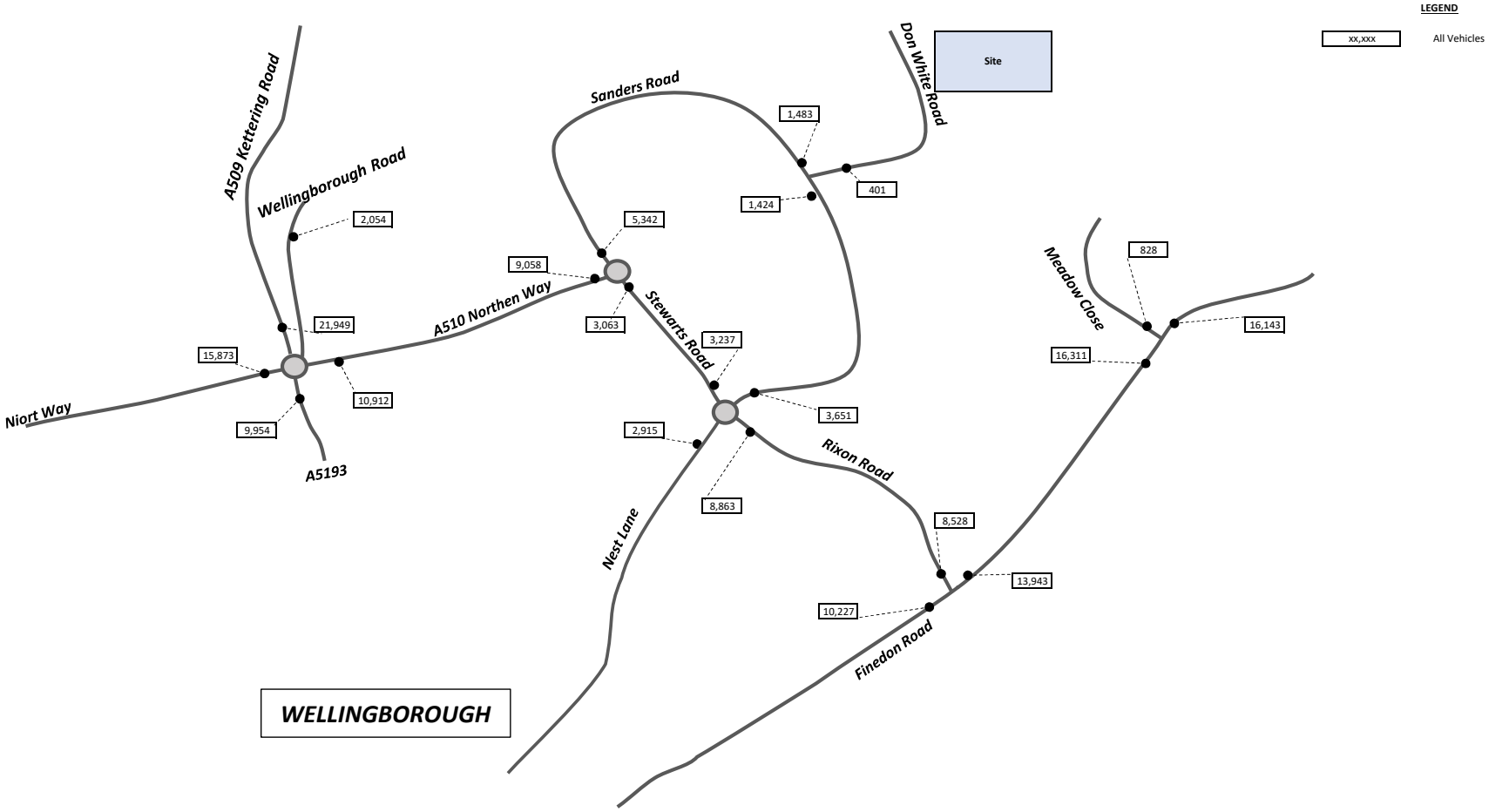


RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

2027 Forecast Year

Annual Average Daily Traffic (00:00 - 24:00)

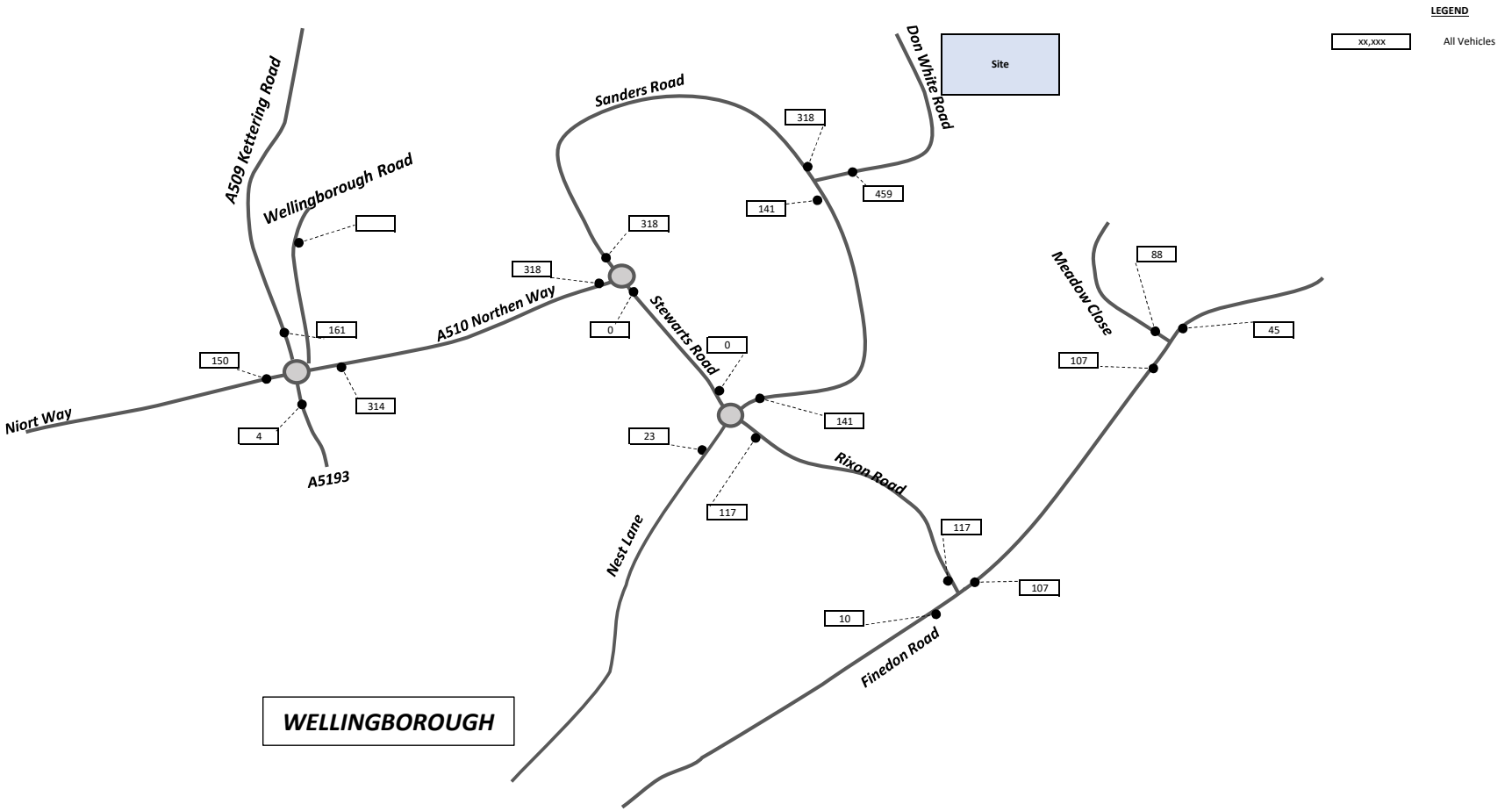


RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

ADT Development Traffic

Annual Average Daily Traffic (00:00 - 24:00)

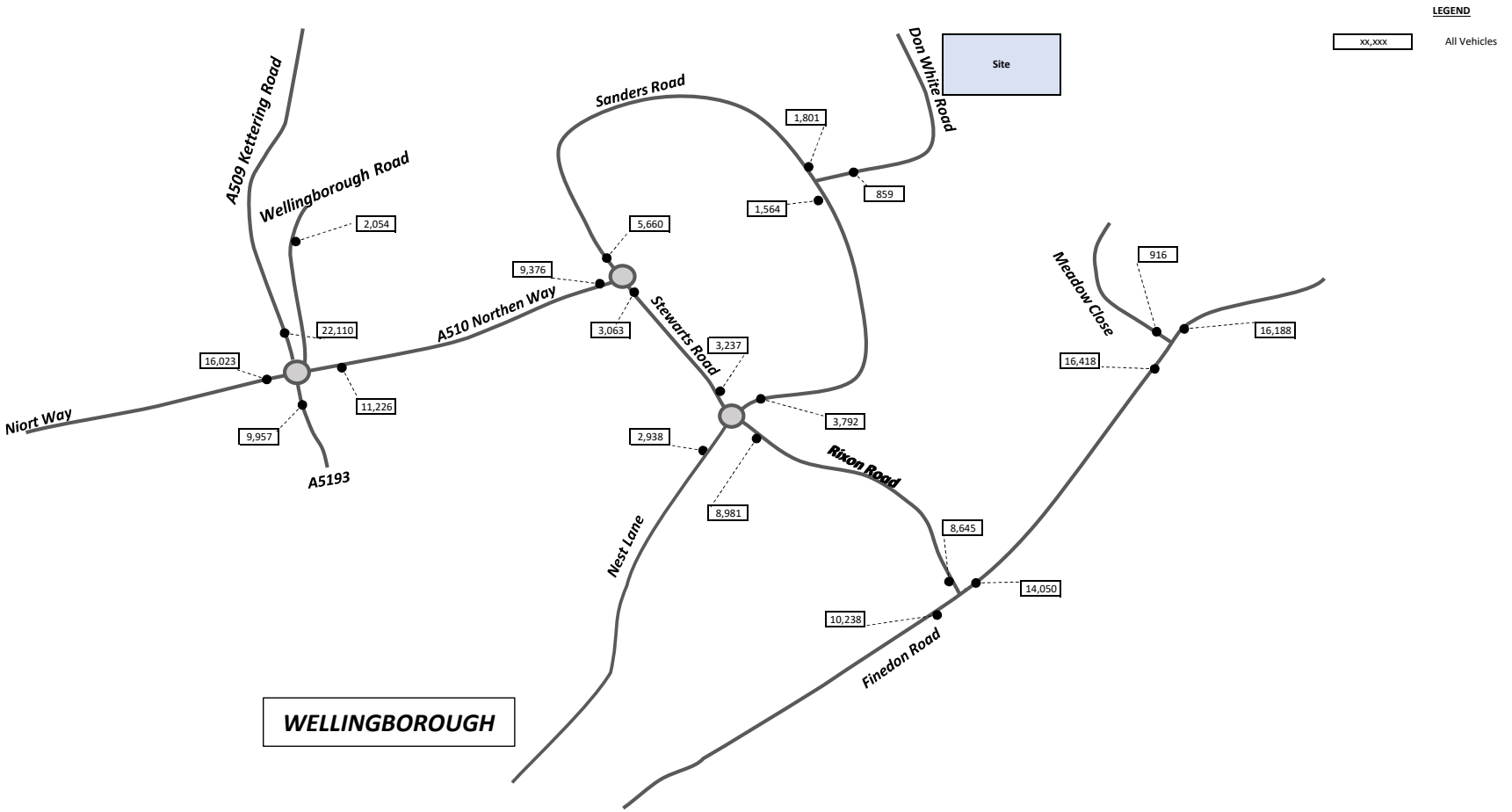


RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

2027 Forecast Year with Dev

Annual Average Daily Traffic (00:00 - 24:00)

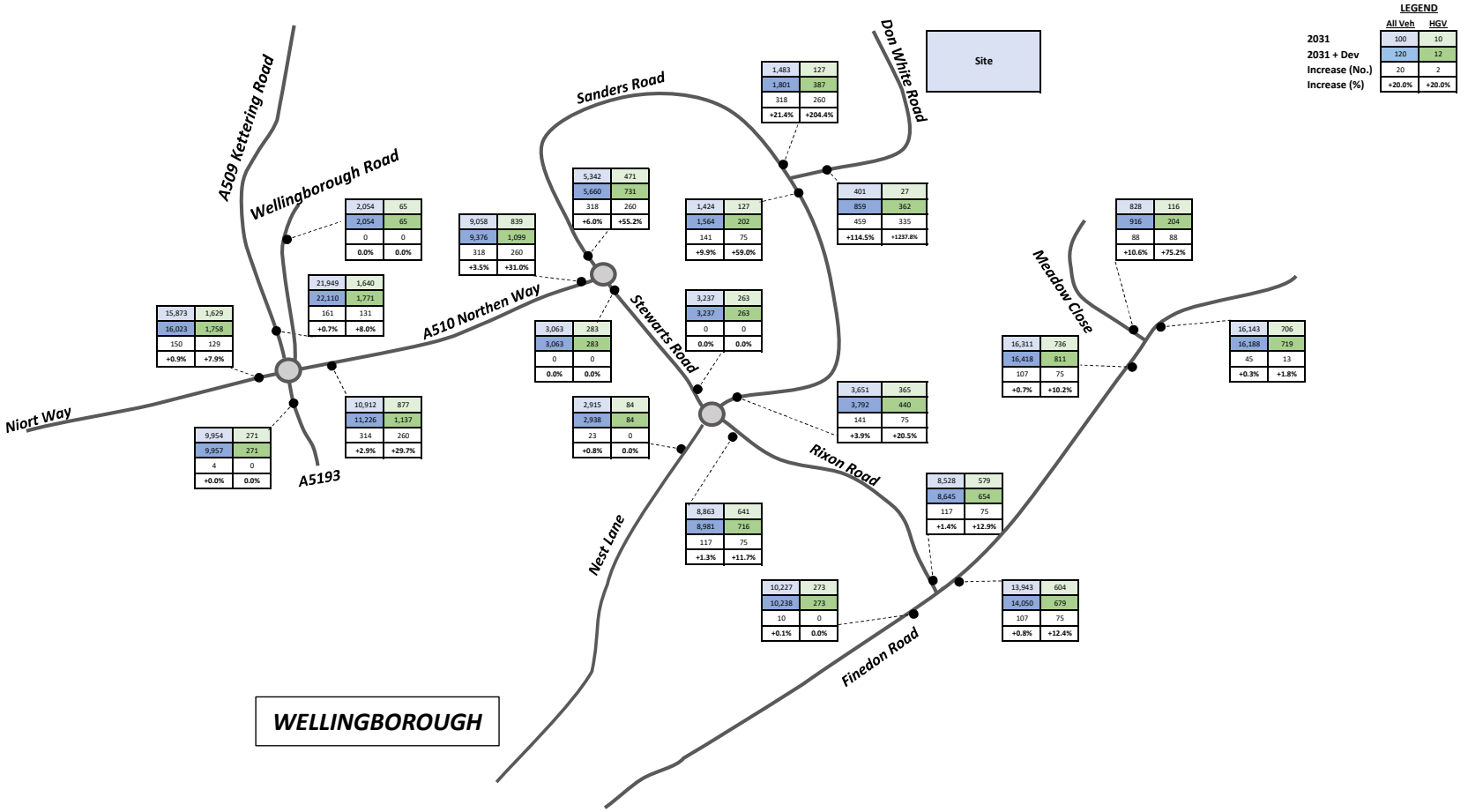


RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

2027 Forecast Year with Dev Change

Annual Average Daily Traffic (00:00 - 24:00)

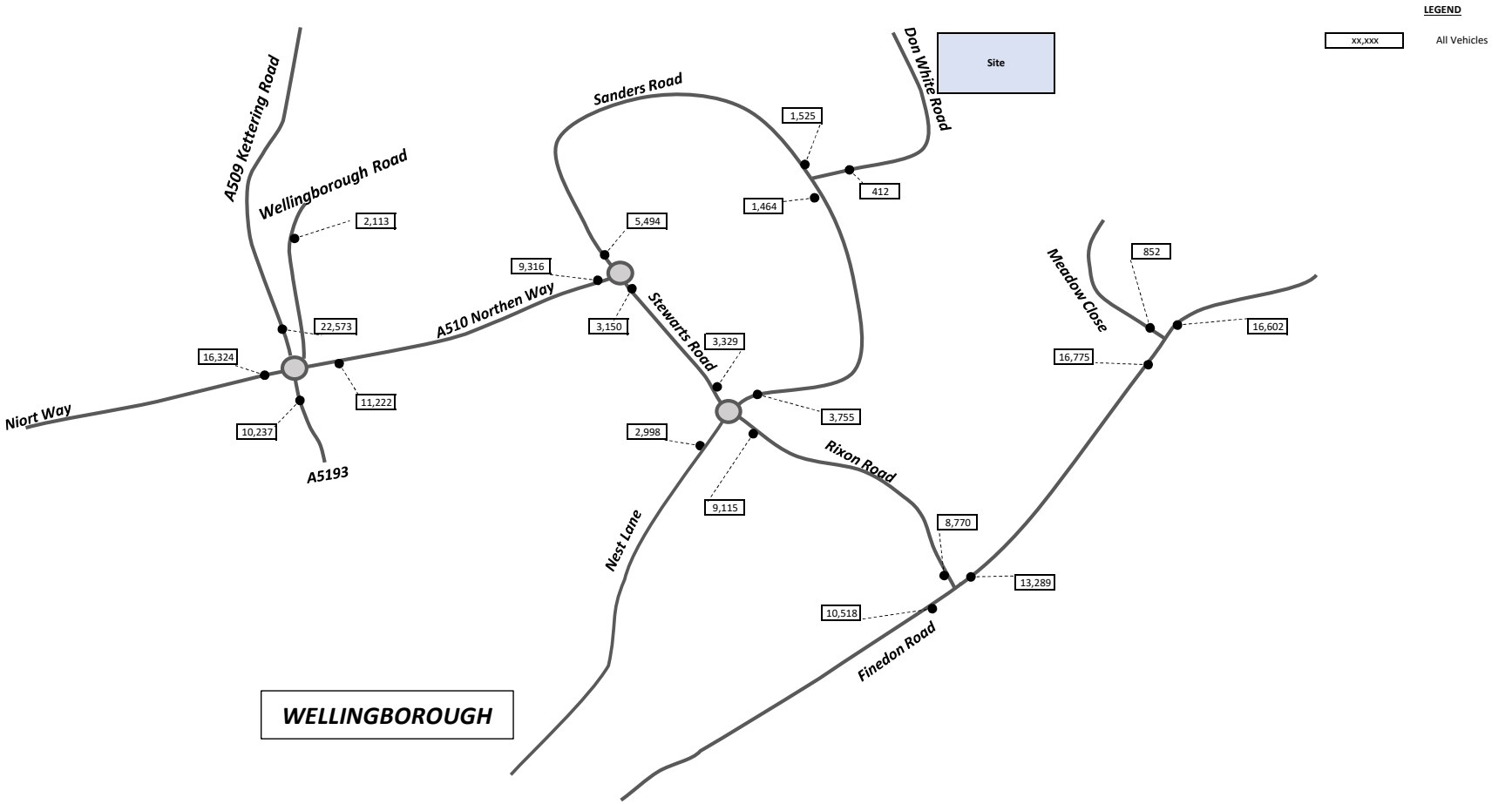


RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

2031 Forecast Year

Annual Average Daily Traffic (00:00 - 24:00)

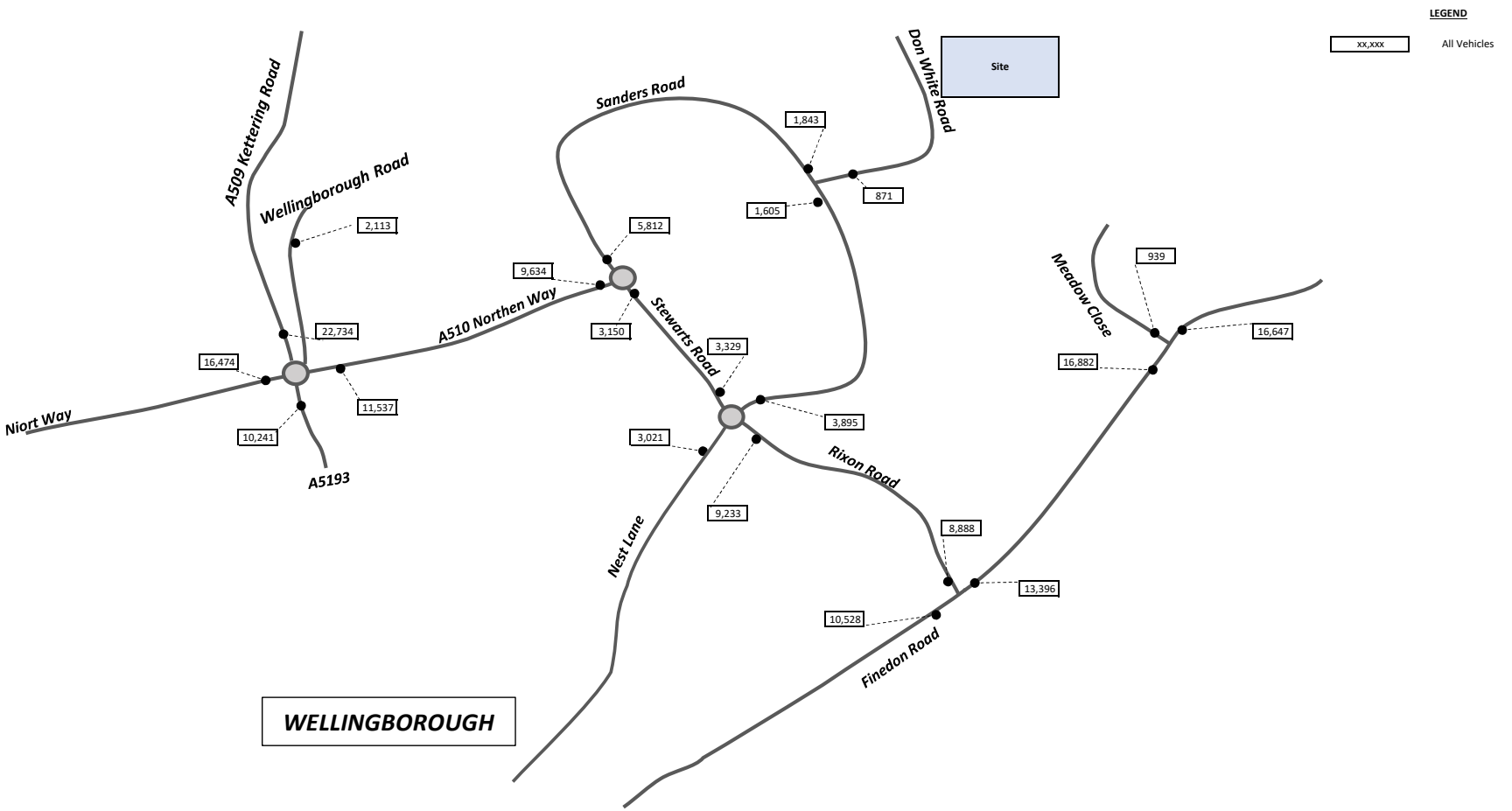


RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

2031 Forecast Year with Dev

Annual Average Daily Traffic (00:00 - 24:00)

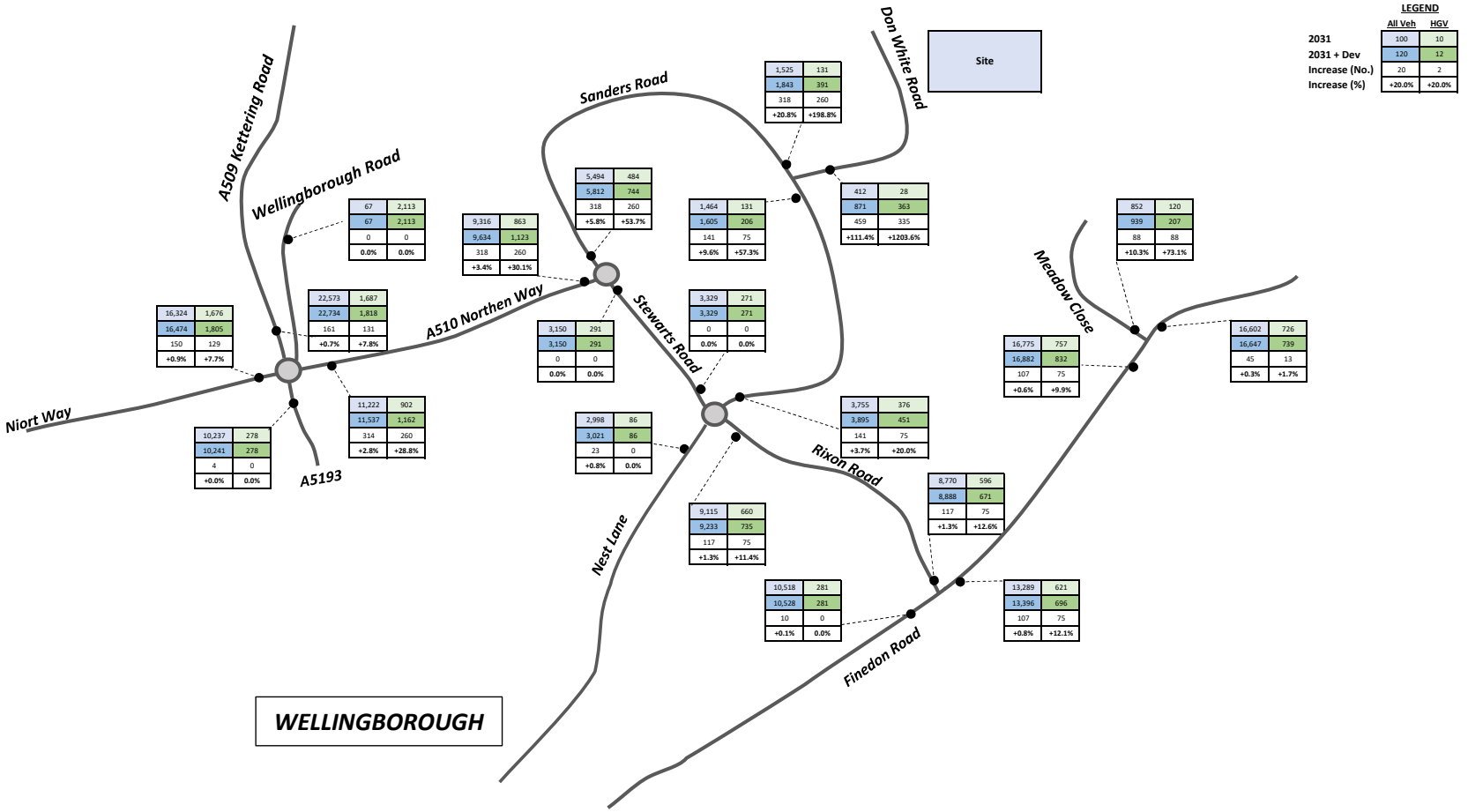


RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

2031 Forecast Year with Dev Change

Annual Average Daily Traffic (00:00 - 24:00)

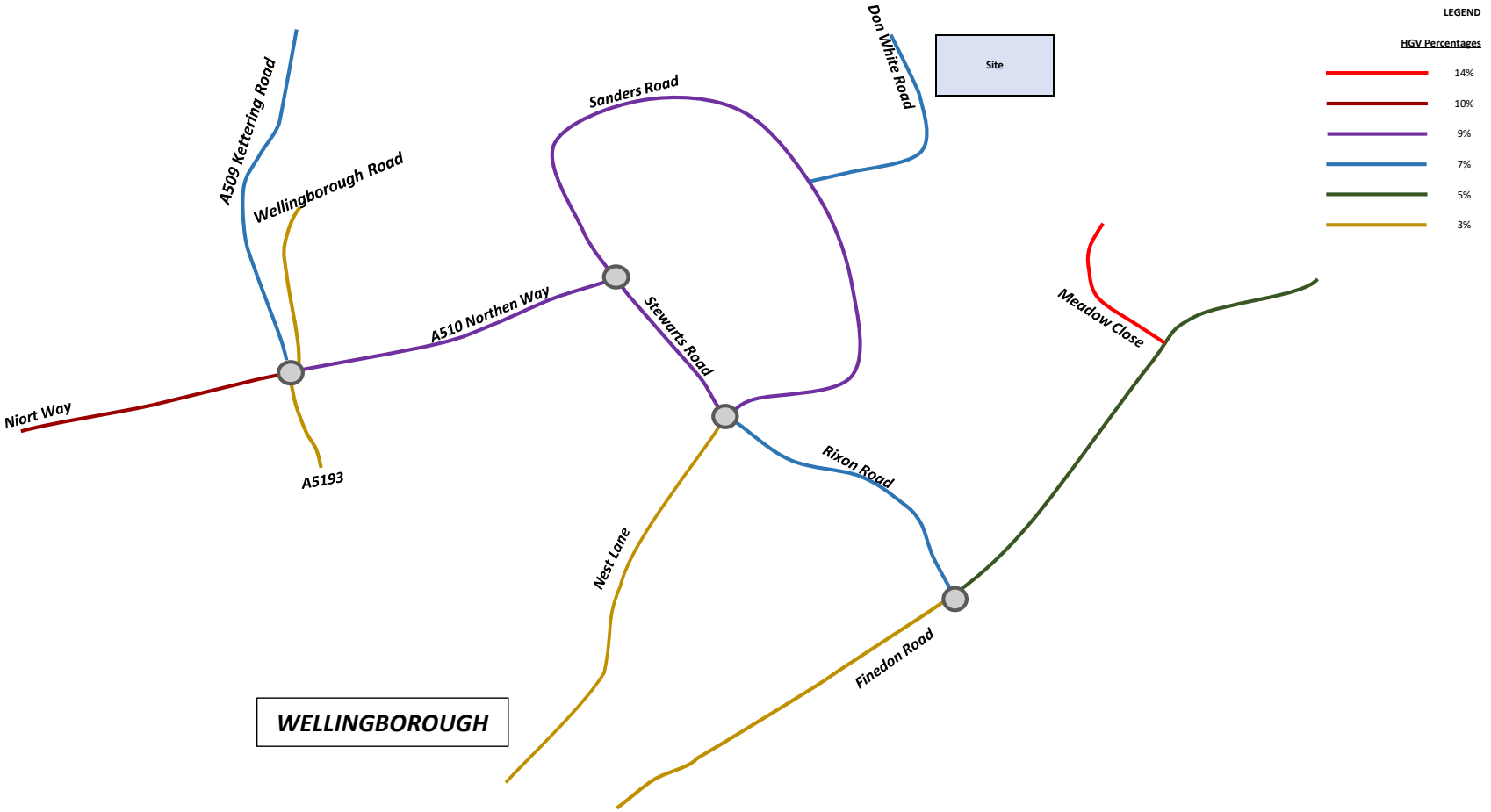


RLRE Consulting Engineers

IBA Processing Plant, Wellingborough

HGV Percentages

Without Development

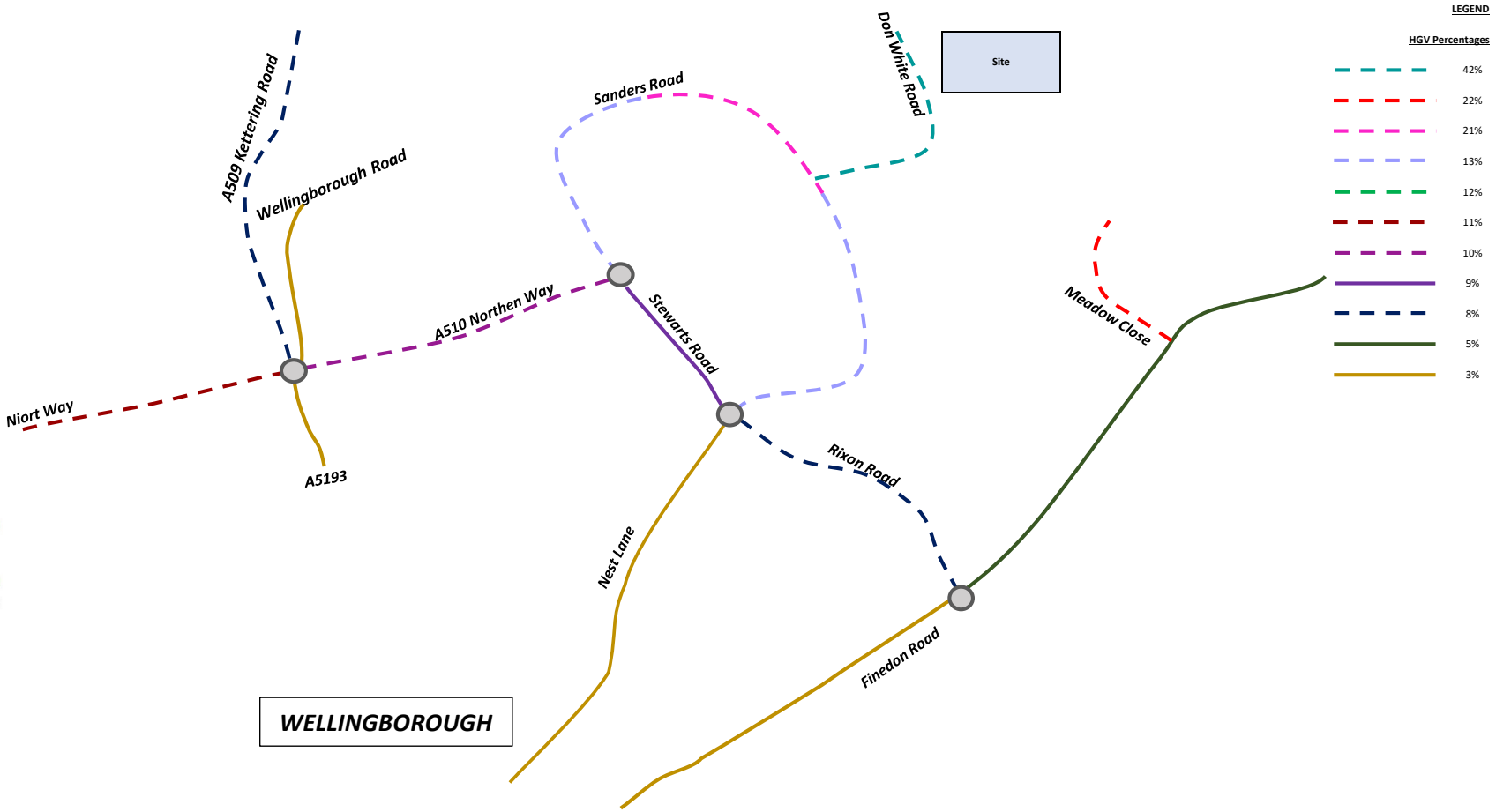


Consulting Engineers

IBA Processing Plant, Wellingborough

HGV Percentages

With Development



Consulting Engineers

APPENDIX F

Vehicle Emissions Assessment Results

R3023 Land North of Don White Road, Wellingborough
Appendix F: Summary of ADMS-Roads Results
NO2

Adjustment factor 1

				2021 Scenario A				2027 Scenario B				2027 Scenario C							
Receptor name	X(m)	Y(m)	Z(m)	Road contribution NO_x [1]	Adjusted NO_x [2]	Background NO_2 [3]	Total NO_2 [4]	Road contribution NO_x [1]	Adjusted NO_x [2]	Background NO_2 [3]	Total NO_2 [4]	Road contribution NO_x [1]	Adjusted NO_x [2]	Background NO_2 [3]	Total NO_2 [4]	Absolute change	% change NO_2	% change rounded	Impact descriptor
				µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³			
South of A510 Northen Way																			
R1	489030	269873	1.5	1.52	1.52	11.00	11.84	0.80	0.80	9.08	9.52	0.82	0.82	9.08	9.54	0.02	0.05	0	Negligible
R2	488933	269849	1.5	1.85	1.85	11.00	12.02	0.97	0.97	9.08	9.62	1.00	1.00	9.08	9.64	0.02	0.05	0	Negligible
R3	488836	269816	1.5	1.87	1.87	11.00	12.03	0.98	0.98	9.08	9.63	1.01	1.01	9.08	9.64	0.01	0.02	0	Negligible
R4	488711	269785	1.5	2.70	2.70	11.00	12.49	1.42	1.42	9.08	9.87	1.45	1.45	9.08	9.89	0.02	0.05	0	Negligible
R5	488636	269763	1.5	2.94	2.94	11.00	12.62	1.55	1.55	9.08	9.94	1.58	1.58	9.08	9.96	0.02	0.05	0	Negligible
R6	488555	269741	1.5	2.82	2.82	11.00	12.55	1.48	1.48	9.08	9.90	1.52	1.52	9.08	9.92	0.02	0.05	0	Negligible
South of Niort Way																			
R7	488153	269674	1.5	3.27	3.27	11.00	12.80	1.74	1.74	9.08	10.05	1.76	1.76	9.08	10.06	0.01	0.02	0	Negligible
R8	488122	269667	1.5	2.82	2.82	11.00	12.55	1.50	1.50	9.08	9.91	1.52	1.52	9.08	9.93	0.02	0.05	0	Negligible
R9	488096	269664	1.5	2.79	2.79	11.00	12.54	1.48	1.48	9.08	9.91	1.50	1.50	9.08	9.92	0.01	0.02	0	Negligible
East of A509 Kettering Road and Wellingborough Road																			
R10	488298	269843	1.5	2.88	2.88	11.00	12.59	1.53	1.53	9.08	9.93	1.55	1.55	9.08	9.94	0.01	0.02	0	Negligible
R11	488276	269855	1.5	3.51	3.51	11.00	12.93	1.87	1.87	9.08	10.12	1.88	1.88	9.08	10.13	0.01	0.03	0	Negligible
R12	488265	269874	1.5	3.72	3.72	11.00	13.05	1.98	1.98	9.08	10.18	1.99	1.99	9.08	10.19	0.01	0.02	0	Negligible
R13	488257	269899	1.5	3.67	3.67	11.00	13.02	1.95	1.95	9.08	10.17	1.97	1.97	9.08	10.17	0.00	0.00	0	Negligible
Along A509 Kettering Road, Greato Harrowden																			
R14	488027	270777	1.5	4.18	4.18	10.22	12.52	2.18	2.18	8.56	9.78	2.19	2.19	8.56	9.78	0.00	0.00	0	Negligible
R15	488025	270801	1.5	4.35	4.35	10.22	12.62	2.27	2.27	8.56	9.83	2.28	2.28	8.56	9.83	0.00	0.00	0	Negligible
R16	487954	270875	1.5	2.27	2.27	9.16	10.42	1.19	1.19	7.73	8.39	1.19	1.19	7.73	8.4	0.01	0.02	0	Negligible
R17	487972	270912	1.5	3.13	3.13	9.16	10.90	1.63	1.63	7.73	8.64	1.64	1.64	7.73	8.65	0.01	0.02	0	Negligible
R18	488033	271008	1.5	9.15	9.15	9.74	14.74	4.78	4.78	8.17	10.82	4.79	4.79	8.17	10.83	0.01	0.02	0	Negligible
Along A509 Kettering Road, Isham																			
R51	488481	273733	1.5	4.31	4.31	9.99	12.37	2.33	2.33	8.42	9.72	2.36	2.36	8.42	9.74	0.02	0.05	0	Negligible
R52	488485	273785	1.5	6.31	6.31	9.99	13.46	3.41	3.41	8.42	10.32	3.46	3.46	8.42	10.35	0.03	0.07	0	Negligible
R53	488469	273843	1.5	3.69	3.69	9.99	12.03	2.00	2.00	8.42	9.53	2.03	2.03	8.42	9.55	0.02	0.05	0	Negligible
R54	488475	273906	1.5	6.57	6.57	9.99	13.60	3.55	3.55	8.42	10.39	3.61	3.61	8.42	10.43	0.04	0.10	0	Negligible
R55	488464	273992	1.5	9.57	9.57	9.99	15.22	5.17	5.17	8.42	11.29	5.26	5.26	8.42	11.33	0.04	0.10	0	Negligible
R56	488439	273981	1.5	4.25	4.25	9.99	12.33	2.29	2.29	8.42	9.70	2.33	2.33	8.42	9.72	0.02	0.05	0	Negligible
R57	488439	274027	1.5	12.21	12.21	13.55	20.09	6.60	6.60	11.84	15.44	6.71	6.71	11.84	15.5	0.06	0.15	0	Negligible
R58	488418	274036	1.5	7.37	7.37	13.55	17.54	3.98	3.98	11.84	14.03	4.05	4.05	11.84	14.06	0.03	0.08	0	Negligible
R59	488405	274084	1.5	10.60	10.60	13.55	19.25	5.73	5.73	11.84	14.97	5.82	5.82	11.84	15.02	0.05	0.12	0	Negligible
R60	488347	274116	1.5	3.27	3.27	13.55	15.34	1.77	1.77	11.84	12.82	1.80	1.80	11.84	12.83	0.01	0.02	0	Negligible
R61	488349	274202	1.5	5.71	5.71	13.55	16.65	3.09	3.09	11.84	13.54	3.14	3.14	11.84	13.57	0.03	0.08	0	Negligible
R62	488310	274181	1.5	3.25	3.25	13.55	15.32	1.76	1.76	11.84	12.81	1.79	1.79	11.84	12.82	0.01	0.02	0	Negligible
On-going housing development																			
PR1	488044	270267	1.5	2.31	2.31	10.22	11.50	1.21	1.21	8.56	9.24	1.22	1.22	8.56	9.24	0.00	0.00	0	Negligible
PR2	488018	270361	1.5	2.39	2.39	10.22	11.54	1.25	1.25	8.56	9.26	1.25	1.25	8.56	9.26	0.00	0.00	0	Negligible
PR3	488002	270420	1.5	2.44	2.44	10.22	11.57	1.27	1.27	8.56	9.27	1.28	1.28	8.56	9.27	0.00	0.00	0	Negligible
						max	**20.09**	**6.60**	**6.60**	**11.84**	**15.44**	**6.71**	**6.71**	**11.84**	**15.50**	**0.06**	**0.15**	**0**	

1 Modelled road contribution
2 Adjusted road contribution
3 Defra predicted background concentration for grid square in which receptor located
4 Total NO_2 concentration calculated using Defra NOx to NO2 calculator, v8, August 2020

**R3023 Land North of Don White Road, **
Appendix F: Summary of ADMS-Roads Result
NO2

Adjustment factor 1

				2030 Scenario D				2030 Scenario E							
Receptor name	X(m)	Y(m)	Z(m)	Road contribution NO_x [1]	Adjusted NO_x [2]	Background NO_2 [3]	Total NO_2 [4]	Road contribution NO_x [1]	Adjusted NO_x [2]	Background NO_2 [3]	Total NO_2 [4]	Absolute change	% change NO_2	% change rounded	Impact descriptor
				µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³			
South of A510 Northen Way															
R1	489030	269873	1.5	0.58	0.58	8.57	8.90	0.62	0.62	8.57	8.92	0.02	0.05	0	Negligible
R2	488933	269849	1.5	0.71	0.71	8.57	8.97	0.75	0.75	8.57	8.99	0.02	0.05	0	Negligible
R3	488836	269816	1.5	0.72	0.72	8.57	8.97	0.76	0.76	8.57	8.99	0.02	0.05	0	Negligible
R4	488711	269785	1.5	1.04	1.04	8.57	9.15	1.09	1.09	8.57	9.18	0.03	0.07	0	Negligible
R5	488636	269763	1.5	1.13	1.13	8.57	9.20	1.19	1.19	8.57	9.24	0.04	0.10	0	Negligible
R6	488555	269741	1.5	1.08	1.08	8.57	9.17	1.14	1.14	8.57	9.21	0.04	0.10	0	Negligible
South of Niort Way															
R7	488153	269674	1.5	1.30	1.30	8.57	9.29	1.35	1.35	8.57	9.33	0.04	0.10	0	Negligible
R8	488122	269667	1.5	1.12	1.12	8.57	9.19	1.17	1.17	8.57	9.22	0.03	0.08	0	Negligible
R9	488096	269664	1.5	1.10	1.10	8.57	9.19	1.15	1.15	8.57	9.21	0.02	0.05	0	Negligible
East of A509 Kettering Road and Wellingborough Road															
R10	488298	269843	1.5	1.13	1.13	8.57	9.20	1.17	1.17	8.57	9.22	0.02	0.05	0	Negligible
R11	488276	269855	1.5	1.37	1.37	8.57	9.33	1.42	1.42	8.57	9.36	0.03	0.07	0	Negligible
R12	488265	269874	1.5	1.45	1.45	8.57	9.38	1.50	1.50	8.57	9.41	0.03	0.07	0	Negligible
R13	488257	269899	1.5	1.43	1.43	8.57	9.37	1.47	1.47	8.57	9.39	0.02	0.05	0	Negligible
Along A509 Kettering Road, Greato Harrowden															
R14	488027	270777	1.5	1.58	1.58	8.13	9.01	1.63	1.63	8.13	9.04	0.03	0.07	0	Negligible
R15	488025	270801	1.5	1.64	1.64	8.13	9.05	1.70	1.70	8.13	9.08	0.03	0.07	0	Negligible
R16	487954	270875	1.5	0.86	0.86	7.37	7.85	0.89	0.89	7.37	7.87	0.02	0.05	0	Negligible
R17	487972	270912	1.5	1.18	1.18	7.37	8.03	1.22	1.22	7.37	8.05	0.02	0.05	0	Negligible
R18	488033	271008	1.5	3.45	3.45	7.76	9.68	3.56	3.56	7.76	9.74	0.06	0.15	0	Negligible
Along A509 Kettering Road, Isham															
R51	488481	273733	1.5	1.79	1.79	8.02	9.02	1.82	1.82	8.02	9.04	0.02	0.05	0	Negligible
R52	488485	273785	1.5	2.62	2.62	8.02	9.48	2.67	2.67	8.02	9.51	0.03	0.07	0	Negligible
R53	488469	273843	1.5	1.54	1.54	8.02	8.88	1.57	1.57	8.02	8.9	0.02	0.05	0	Negligible
R54	488475	273906	1.5	2.73	2.73	8.02	9.54	2.78	2.78	8.02	9.57	0.03	0.08	0	Negligible
R55	488464	273992	1.5	3.98	3.98	8.02	10.24	4.06	4.06	8.02	10.28	0.04	0.10	0	Negligible
R56	488439	273981	1.5	1.77	1.77	8.02	9.01	1.80	1.80	8.02	9.03	0.02	0.05	0	Negligible
R57	488439	274027	1.5	5.08	5.08	11.41	14.20	5.18	5.18	11.41	14.25	0.05	0.13	0	Negligible
R58	488418	274036	1.5	3.07	3.07	11.41	13.10	3.13	3.13	11.41	13.13	0.03	0.08	0	Negligible
R59	488405	274084	1.5	4.41	4.41	11.41	13.83	4.49	4.49	11.41	13.88	0.05	0.13	0	Negligible
R60	488347	274116	1.5	1.36	1.36	11.41	12.16	1.39	1.39	11.41	12.18	0.02	0.05	0	Negligible
R61	488349	274202	1.5	2.38	2.38	11.41	12.72	2.42	2.42	11.41	12.75	0.03	0.07	0	Negligible
R62	488310	274181	1.5	1.35	1.35	11.41	12.16	1.38	1.38	11.41	12.17	0.01	0.02	0	Negligible
On-going housing development															
PR1	488044	270267	1.5	0.88	0.88	8.13	8.62	0.90	0.90	8.13	8.64	0.02	0.05	0	Negligible
PR2	488018	270361	1.5	0.90	0.90	8.13	8.64	0.93	0.93	8.13	8.65	0.01	0.02	0	Negligible
PR3	488002	270420	1.5	0.92	0.92	8.13	8.65	0.95	0.95	8.13	8.66	0.01	0.02	0	Negligible
				5.08	**5.08**	**11.41**	**14.20**	**5.18**	**5.18**	**11.41**	**14.25**	**0.06**	**0.15**	**0**	

1 Modelled road contrib
2 Adjusted road contrib
3 Defra predicted backg
4 Total NO_2 concentrati

R3023 **Land North of Don White Road, Wellingborough**
Appendix F: **Summary of ADMS-Roads Results**
PM_{10}

Adjustment Factor 1

			2021 Scenario A-Baseline				2027 Scenario B-Do Nothing				2027 Scenario C-Do Something							
Receptor Name	**X**	**Y**	**Modelled PM_{10}[1]**	**Adjusted PM_{10}[2]**	**Background PM_{10}[3]**	**Total PM_{10}[4]**	**Modelled PM_{10}[1]**	**Adjusted PM_{10}[2]**	**Background PM_{10}[3]**	**Total PM_{10}[4]**	**Modelled PM_{10}[1]**	**Adjusted PM_{10}[2]**	**Background PM_{10}[3]**	**Total PM_{10}[4]**	**Absolute change**	**% change PM_{10}**	**% change rounded**	**Impact descriptor**
			µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³			
South of A510 Northen Way																		
R1	489030	269873	0.16	0.16	16.42	16.58	0.16	0.16	15.74	15.90	0.17	0.17	15.74	15.91	0.01	0.02	0	Negligible
R2	488933	269849	0.19	0.19	16.42	16.61	0.19	0.19	15.74	15.93	0.20	0.20	15.74	15.94	0.01	0.03	0	Negligible
R3	488836	269816	0.19	0.19	16.42	16.61	0.19	0.19	15.74	15.93	0.20	0.20	15.74	15.94	0.01	0.03	0	Negligible
R4	488711	269785	0.28	0.28	16.42	16.70	0.28	0.28	15.74	16.02	0.29	0.29	15.74	16.03	0.02	0.04	0	Negligible
R5	488636	269763	0.30	0.30	16.42	16.72	0.30	0.30	15.74	16.04	0.32	0.32	15.74	16.06	0.02	0.04	0	Negligible
R6	488555	269741	0.29	0.29	16.42	16.71	0.29	0.29	15.74	16.03	0.30	0.30	15.74	16.04	0.02	0.04	0	Negligible
South of Niort Way																		
R7	488153	269674	0.34	0.34	16.42	16.76	0.34	0.34	15.74	16.08	0.35	0.35	15.74	16.09	0.01	0.03	0	Negligible
R8	488122	269667	0.30	0.30	16.42	16.72	0.30	0.30	15.74	16.04	0.31	0.31	15.74	16.05	0.01	0.02	0	Negligible
R9	488096	269664	0.30	0.30	16.42	16.72	0.30	0.30	15.74	16.04	0.31	0.31	15.74	16.05	0.01	0.02	0	Negligible
East of A509 Kettering Road and Wellingborough Road																		
R10	488298	269843	0.27	0.27	16.42	16.69	0.27	0.27	15.74	16.01	0.28	0.28	15.74	16.02	0.01	0.02	0	Negligible
R11	488276	269855	0.33	0.33	16.42	16.75	0.33	0.33	15.74	16.07	0.34	0.34	15.74	16.08	0.01	0.02	0	Negligible
R12	488265	269874	0.34	0.34	16.42	16.76	0.34	0.34	15.74	16.08	0.35	0.35	15.74	16.09	0.01	0.03	0	Negligible
R13	488257	269899	0.34	0.34	16.42	16.76	0.34	0.34	15.74	16.08	0.35	0.35	15.74	16.09	0.01	0.02	0	Negligible
Along A509 Kettering Road, Greato Harrowden																		
R14	488027	270777	0.38	0.38	15.56	15.94	0.37	0.37	14.89	15.26	0.39	0.39	14.89	15.28	0.01	0.03	0	Negligible
R15	488025	270801	0.39	0.39	15.56	15.95	0.39	0.39	14.89	15.28	0.40	0.40	14.89	15.29	0.01	0.03	0	Negligible
R16	487954	270875	0.21	0.21	16.02	16.23	0.20	0.20	15.37	15.57	0.21	0.21	15.37	15.58	0.01	0.02	0	Negligible
R17	487972	270912	0.28	0.28	16.02	16.30	0.28	0.28	15.37	15.65	0.29	0.29	15.37	15.66	0.01	0.02	0	Negligible
R18	488033	271008	0.83	0.83	15.42	16.25	0.82	0.82	14.75	15.57	0.84	0.84	14.75	15.59	0.03	0.07	0	Negligible
Along A509 Kettering Road, Isham																		
R51	488481	273733	0.41	0.41	15.14	15.55	0.41	0.41	14.47	14.88	0.42	0.42	14.47	14.89	0.01	0.03	0	Negligible
R52	488485	273785	0.60	0.60	15.14	15.74	0.60	0.60	14.47	15.07	0.62	0.62	14.47	15.09	0.02	0.05	0	Negligible
R53	488469	273843	0.35	0.35	15.14	15.49	0.35	0.35	14.47	14.82	0.36	0.36	14.47	14.83	0.01	0.03	0	Negligible
R54	488475	273906	0.63	0.63	15.14	15.77	0.63	0.63	14.47	15.10	0.65	0.65	14.47	15.12	0.02	0.05	0	Negligible
R55	488464	273992	0.92	0.92	15.14	16.06	0.91	0.91	14.47	15.38	0.95	0.95	14.47	15.42	0.03	0.08	0	Negligible
R56	488439	273981	0.41	0.41	15.14	15.55	0.41	0.41	14.47	14.88	0.42	0.42	14.47	14.89	0.01	0.03	0	Negligible
R57	488439	274027	1.17	1.17	15.61	16.78	1.17	1.17	14.94	16.11	1.21	1.21	14.94	16.15	0.04	0.10	0	Negligible
R58	488418	274036	0.70	0.70	15.61	16.31	0.70	0.70	14.94	15.64	0.73	0.73	14.94	15.67	0.02	0.06	0	Negligible
R59	488405	274084	1.01	1.01	15.61	16.62	1.01	1.01	14.94	15.95	1.05	1.05	14.94	15.99	0.03	0.09	0	Negligible
R60	488347	274116	0.31	0.31	15.61	15.92	0.31	0.31	14.94	15.25	0.32	0.32	14.94	15.26	0.01	0.03	0	Negligible
R61	488349	274202	0.55	0.55	15.61	16.16	0.55	0.55	14.94	15.49	0.56	0.56	14.94	15.50	0.02	0.05	0	Negligible
R62	488310	274181	0.31	0.31	15.61	15.92	0.31	0.31	14.94	15.25	0.32	0.32	14.94	15.26	0.01	0.03	0	Negligible
On-going housing development																		
PR1	488044	270267	0.21	0.21	15.56	15.77	0.21	0.21	14.89	15.10	0.21	0.21	14.89	15.10	0.01	0.02	0	Negligible
PR2	488018	270361	0.22	0.22	15.56	15.78	0.21	0.21	14.89	15.10	0.22	0.22	14.89	15.11	0.01	0.02	0	Negligible
PR3	488002	270420	0.22	0.22	15.56	15.78	0.22	0.22	14.89	15.11	0.23	0.23	14.89	15.12	0.01	0.02	0	Negligible
					max	**16.78**	**1.17**	**1.17**	**15.74**	**16.11**	**1.21**	**1.21**	**15.74**	**16.15**	**0.04**	**0.10**	**0.10**	

1 Modelled road contribution
2 Adjusted road contribution
3 Defra predicted background concentration for grid square in which receptor located
4 Total PM10 concentration calculated summing background and road contributions

R3023 **Land North of Don Wl**
Appendix F: **Summary of ADMS-Rc**
PM_{10}

Adjustment Factor 1

			2030 Scenario D-Do Nothing				2030 Scenario E-Do Something						
Receptor Name	**X**	**Y**	**Modelled PM_{10}[1]**	**Adjusted PM_{10}[2]**	**Background PM_{10}[3]**	**Total PM_{10}[4]**	**Modelled PM_{10}[1]**	**Adjusted PM_{10}[2]**	**Total PM_{10}[4]**	**Absolute change**	**% change PM_{10}**	**% change rounded**	**Impact descriptor**
			µg/m³	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**			
South of A510 Northen Way													
R1	489030	269873	0.16	0.16	15.72	15.88	0.17	0.17	15.89	0.01	0.03	0	Negligible
R2	488933	269849	0.19	0.19	15.72	15.91	0.21	0.21	15.93	0.02	0.04	0	Negligible
R3	488836	269816	0.19	0.19	15.72	15.91	0.21	0.21	15.93	0.02	0.04	0	Negligible
R4	488711	269785	0.28	0.28	15.72	16.00	0.30	0.30	16.02	0.02	0.06	0	Negligible
R5	488636	269763	0.30	0.30	15.72	16.02	0.33	0.33	16.05	0.02	0.06	0	Negligible
R6	488555	269741	0.29	0.29	15.72	16.01	0.31	0.31	16.03	0.02	0.06	0	Negligible
South of Niort Way													
R7	488153	269674	0.34	0.34	15.72	16.06	0.36	0.36	16.08	0.02	0.05	0	Negligible
R8	488122	269667	0.30	0.30	15.72	16.02	0.31	0.31	16.03	0.02	0.05	0	Negligible
R9	488096	269664	0.29	0.29	15.72	16.01	0.31	0.31	16.03	0.02	0.05	0	Negligible
East of A509 Kettering Road and Wellingboroug													
R10	488298	269843	0.27	0.27	15.72	15.99	0.29	0.29	16.01	0.02	0.04	0	Negligible
R11	488276	269855	0.33	0.33	15.72	16.05	0.34	0.34	16.06	0.02	0.05	0	Negligible
R12	488265	269874	0.34	0.34	15.72	16.06	0.36	0.36	16.08	0.02	0.05	0	Negligible
R13	488257	269899	0.34	0.34	15.72	16.06	0.36	0.36	16.08	0.02	0.05	0	Negligible
Along A509 Kettering Road, Greato Harrowden													
R14	488027	270777	0.37	0.37	14.86	15.23	0.39	0.39	15.25	0.02	0.06	0	Negligible
R15	488025	270801	0.39	0.39	14.86	15.25	0.41	0.41	15.27	0.02	0.06	0	Negligible
R16	487954	270875	0.20	0.20	15.34	15.54	0.21	0.21	15.55	0.01	0.03	0	Negligible
R17	487972	270912	0.28	0.28	15.34	15.62	0.29	0.29	15.63	0.02	0.04	0	Negligible
R18	488033	271008	0.81	0.81	14.73	15.54	0.86	0.86	15.59	0.05	0.12	0	Negligible
Along A509 Kettering Road, Isham													
R51	488481	273733	0.42	0.42	14.45	14.87	0.43	0.43	14.88	0.01	0.03	0	Negligible
R52	488485	273785	0.62	0.62	14.45	15.07	0.63	0.63	15.08	0.02	0.05	0	Negligible
R53	488469	273843	0.36	0.36	14.45	14.81	0.37	0.37	14.82	0.01	0.03	0	Negligible
R54	488475	273906	0.64	0.64	14.45	15.09	0.66	0.66	15.11	0.02	0.05	0	Negligible
R55	488464	273992	0.93	0.93	14.45	15.38	0.96	0.96	15.41	0.03	0.07	0	Negligible
R56	488439	273981	0.41	0.41	14.45	14.86	0.43	0.43	14.88	0.01	0.03	0	Negligible
R57	488439	274027	1.19	1.19	14.92	16.11	1.23	1.23	16.15	0.04	0.10	0	Negligible
R58	488418	274036	0.72	0.72	14.92	15.64	0.74	0.74	15.66	0.02	0.06	0	Negligible
R59	488405	274084	1.03	1.03	14.92	15.95	1.07	1.07	15.99	0.03	0.08	0	Negligible
R60	488347	274116	0.32	0.32	14.92	15.24	0.33	0.33	15.25	0.01	0.03	0	Negligible
R61	488349	274202	0.56	0.56	14.92	15.48	0.58	0.58	15.50	0.02	0.04	0	Negligible
R62	488310	274181	0.32	0.32	14.92	15.24	0.33	0.33	15.25	0.01	0.03	0	Negligible
On-going housing development													
PR1	488044	270267	0.21	0.21	14.86	15.07	0.22	0.22	15.08	0.01	0.03	0	Negligible
PR2	488018	270361	0.21	0.21	14.86	15.07	0.23	0.23	15.09	0.01	0.03	0	Negligible
PR3	488002	270420	0.22	0.22	14.86	15.08	0.23	0.23	15.09	0.01	0.03	0	Negligible
			1.19	**1.19**	**15.72**	**16.11**	**1.23**	**1.23**	**16.15**	**0.05**	**0.12**	**0.12**	

APPENDIX G

Record of Amendments to AQA

Record of Amendments to AQA

Location	Comments
R01-v5, May 2023	
Cover page, page 1,	Changes to client names
Section 1.1: General	Changes to planning permission and Environmental Permit status and client names. Overarching commentary on revisions to Air Quality Assessment report to incorporate changes to the dust abatement proposals
Para. 4.4.3	Edits to include local dust extraction at certain points of the processing areas
Para. 4.3.5	Provision of additional information on proposed dust abatement
Para. 6.2.10	Provision of additional information on proposed dust abatement
Table 6.1	Edits to mitigation measures to include additional information on proposed dust abatement measures
Para 6.4.1	Edits to include local dust extraction at certain points of the processing areas
Para 6.4.2	Update status of Environmental Permit
Para. 6.4.3	Revision to text relating to potential monitoring of any emission points
Para. 9.1.2	Update status of Dust and Emissions Management Plan (DEMP)
Para 9.1.5	Edits to include local dust extraction at certain points of the processing areas
Section 10: Summary and Conclusions	Updated to reflect changes made to main body of text
Appendix A: Proposed Site Layout	Proposed layout plan as available at the time of preparation of the revised AQA included, plan ref: WE001-05 Rev 18 Plan of proposed plant and buildings
R01-v6, May 2023	
Para 4.3.3	Edited to reflect proposed 5m fence to eastern boundary to railway
Appendix D: Dust & Odour Assessments	Edited to reflect proposed 5m fence to eastern boundary to railway