

Report for: JSA Planning Limited

**Proposed Residential Development at  
Grundon Waste Management Site,  
Higham Way, Banbury**


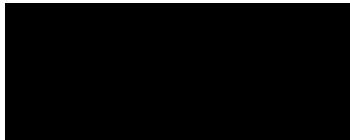
*Damage Cost Assessment*

**Status: FINAL**

**Date: 09.04.2019**

## Proposed Residential Development at Grundon Waste Management Site, Higham Way, Banbury

### Damage Cost Assessment

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## 1. INTRODUCTION

ACCON UK Limited (ACCON) have been instructed by JSA Planning Limited to carry out a Damage Cost Assessment which is required to supplement the Air Quality Assessment for the planning application. This assessment quantifies the emissions of atmospheric pollutants (air quality impacts) resulting from the traffic generated by the Proposed Development and the resulting societal costs, which will need to be spent on mitigating the air quality impacts.

The Proposed Development is a residential development on land currently occupied by Grundon Waste Management on Higham Way in Banbury. The site location plan is provided in **Figure 2.1**.

This assessment has been undertaken in accordance with Defra's Air Quality Damage Cost Guidance<sup>1</sup>.

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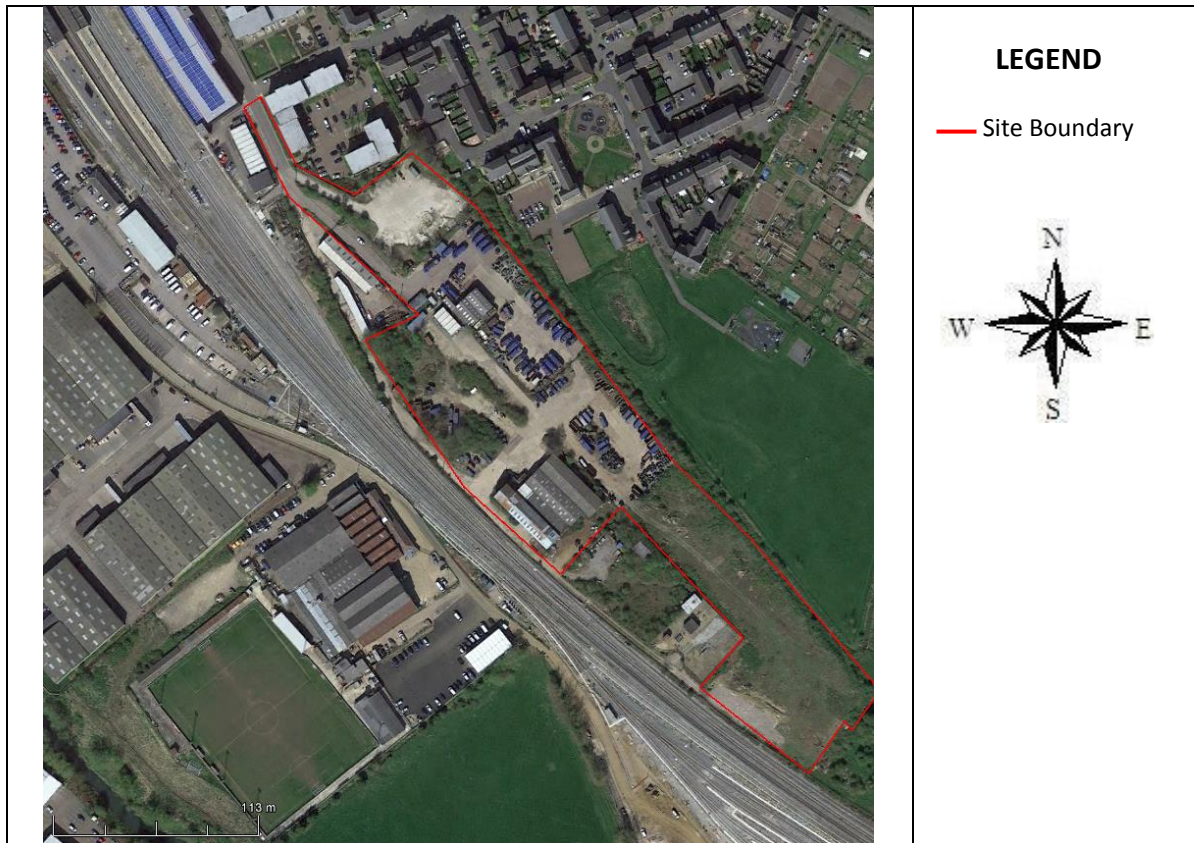
<sup>1</sup> Defra, Air Quality Damage Cost Guidance, Jan 2019  
09.04.2019

## 2. BACKGROUND

### 2.1. Site Description

The northern boundary of the Proposed Residential Development Site is at Higham's Way in Banbury, Oxfordshire and is currently occupied by a Grundon's Waste Management Site. The Proposed Site's location is shown in **Figure 2.1** and is within the administrative boundary of Cherwell District Council (CDC).

**Figure 2.1: Site Location**



### 2.2. Damage Cost Guidance

#### 2.2.1. Defra's Air Quality Damage Cost Guidance

The Air Quality Damage Cost Guidance provides guidance to local authorities, developers and their environmental consultants on the specifics of how to calculate the damage costs of pollutant emissions associated with new development (and new policies). Once relevant pollutant emissions associated with new development have been calculated using Defra's Emissions Factor Toolkit (EFT v8.0.1), the guidance explains how to combine these emission factors with specific air quality damage cost factors and assumptions. Included within it are the 2017 damage cost factors (by sector type, location and pollutant), additional cost factors to be taken into account and directions on how to correctly apply them using Defra's Air Quality Damage Cost Appraisal Toolkit.

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## 3. METHODOLOGY

### 3.1. Air Quality Damage Costs Methodology

The air quality damage costs associated with the Proposed Development for spending on mitigation measures are calculated using the following inputs:

- The Net Additional Traffic Movements expected to be generated by the Proposed Development in AADT vehicles;
- The latest Emission Factors for NO<sub>x</sub> and PM<sub>10</sub> provided by Defra's Emissions Factor Toolkit (EFT v8.0.1);
- The PM<sub>10</sub>:PM<sub>2.5</sub> ratio recommended in Defra's Air Quality Damage Guidance to apply to the PM<sub>10</sub> emissions to convert them to PM<sub>2.5</sub> emissions;
- The Defra published damage costs in Pounds Sterling associated with a tonne of NO<sub>x</sub> emissions and a tonne of PM<sub>2.5</sub> emissions (specific to the type and location of the Proposed Development and the source of its emissions);
- Additional cost factors to apply as outlined in Defra's Air Quality Damage Guidance; and
- 5 years of annual damage costs (the Proposed Development's opening year and the four subsequent years).

## 4. RESULTS

### 4.1. Air Quality Damage Costs Calculation

CDC requires developers to calculate the costs associated with increased pollutant concentrations resulting from development proposals. The predominant source of increased pollution for the Proposed Development is as a result of increased pollutant emissions from increased vehicle trips to and from the Proposed Development. The net additional development vehicle trips estimated to be generated by the Proposed Development utilising the Transport Consultant's (Grontmij) AM and PM peak flow information (using a factor of 6 on the total to obtain the AADT flow) is 816 AADT vehicles. Utilising the emissions costs calculation methodology outlined in **Section 3.1**, Defra's most recent EFT spreadsheet (EFT v8.0.1) and Defra's Air Quality Damage Cost Appraisal Toolkit; the 5-year damage costs for the development have been calculated using a base price year of 2021 (equivalent to the earliest likely operational year of the Proposed Development). This is a worst-case assessment assuming that all of the development traffic occurs in 2021 onwards. The damage cost per tonne of emissions values used are based on Defra's estimates for "Transport". The results of the appraisal are identified in **Table 4.1** below.

**Table 4.1: Development Traffic Emissions Damage Cost Calculation Results**

Pollutant Type	Proposed Development Operational Years (first five years)	Proposed Development Net Traffic Generation (AADT)	Annual Emissions (tonnes / year)	Damage Cost per Tonne (£) – Central Estimate	5-year Damage Cost (£) – Central Estimate	Discounted 5-year Damage Cost (£) – Central Estimate
NO <sub>x</sub>	2021	816	0.786	12,345	39,100	40,084
NO <sub>x</sub>	2022	816	0.718	12,592		
NO <sub>x</sub>	2023	816	0.662	12,844		
NO <sub>x</sub>	2024	816	0.609	13,101		
NO <sub>x</sub>	2025	816	0.560	13,363		
PM <sub>2.5</sub>	2021	816	0.066	234,609	80,009	74,703
PM <sub>2.5</sub>	2022	816	0.066	239,301		
PM <sub>2.5</sub>	2023	816	0.065	244,087		
PM <sub>2.5</sub>	2024	816	0.065	248,969		
PM <sub>2.5</sub>	2025	816	0.065	253,949		
<b>Total:</b>						<b>£114,787</b>

The central estimate for the air quality damage costs associated with the generated traffic from the Proposed Development is £114,787. Applying a sensitivity test (using Defra's low and high damage cost per tonne estimates for transport) gives a best-case damage cost of £19,363 and a worst-case damage cost of £383,173 for the Proposed Development.

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## 5. CONCLUSIONS

The main source of potential air quality impacts from the Proposed Development will be its additional traffic generation onto the local road network. The calculated damage costs associated with the Proposed Development's net traffic generation is £114,787, which is a central estimate (most likely estimate) and does not take account of best-case or worst-case scenarios. After sensitivity tests are applied, the best-case damage cost as a result of the net traffic generation is £19,363 whereas the worst-case damage cost as a result of the net traffic generation is £383,173.





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