



# Stairfoot Quarry Restoration

## Environmental Statement - Volume 2 Chapter 5.0 Traffic and Transportation

Prepared for



Green Earth (Stairfoot) Limited.

October 2025  
3263-01-ES-05



# Document Control

| Revision      | Date         | Prepared By | Reviewed / Approved By |
|---------------|--------------|-------------|------------------------|
| 3263-01-ES-05 | October 2025 | DC          | DC                     |
|               |              |             |                        |
|               |              |             |                        |

© AXIS P.E.D. Ltd 2023. All rights reserved.

This document and its accompanying documents contain information which is confidential and is intended only for the use of the client. If you are not one of the intended recipients any disclosure, copying, distribution or action taken in reliance on the contents of the information is strictly prohibited.

Unless expressly agreed, any reproduction of material from this document must be requested and authorised in writing from AXIS P.E.D. Ltd. Authorised reproduction of material must include all copyright and proprietary notices in the same form and manner as the original and must not be modified in any way. Acknowledgement of the source of the material must also be included in all references.



Well House Barns, Chester Road, Bretton, Chester, CH4 0DH

Camelia House, 76 Water Lane, Wilmslow, Cheshire, SK9 5BB

T: 0344 8700 007  
enquiries@axis.co.uk  
www.axis.co.uk

---

## CONTENTS

|            |   |          |
|------------|---|----------|
| <b>5.0</b> | <b>TRANSPORT</b> .....                    | <b>1</b> |
| 5.1        | Introduction .....                        | 1        |
| 5.2        | Methodology and Scope of Assessment ..... | 2        |
| 5.3        | Baseline .....                            | 9        |
| 5.4        | Assessment of Effects .....               | 13       |
| 5.5        | Cumulative Effects .....                  | 17       |
| 5.6        | Mitigation .....                          | 17       |
| 5.7        | Residual Effects and Conclusions .....    | 18       |

## TABLES

|   |           |
|---|-----------|
| <b>Table 5.1 – Receptor Sensitivity Summary (Traffic and Transport)</b> .....       | <b>7</b>  |
| <b>Table 5.2 – Magnitude Definition (Traffic and Transport)</b> .....               | <b>7</b>  |
| <b>Table 5.3 – Level of Effect Matrix</b> .....                                     | <b>9</b>  |
| <b>Table 5.4 – Sensitivity of Receptors</b> .....                                   | <b>10</b> |
| <b>Table 5.5 – Summary of 2023 Baseline Traffic Flows (Two-Way Movements)</b> ..... | <b>11</b> |
| <b>Table 5.6 – TEMPRO Growth Factors</b> .....                                      | <b>12</b> |
| <b>Table 5.7 – 2027 Future Baseline Traffic Flows (Two-Way Movements)</b> .....     | <b>13</b> |
| <b>Table 5.8 – 2027 Percentage Impact Assessment</b> .....                          | <b>16</b> |

## APPENDICES

**Appendix 5.1 Transport Assessment**



---

## 5.0 TRANSPORT

### 5.1 Introduction

5.1.1 This Chapter of the Environmental Statement (ES) has been prepared to consider the traffic and transport-related environmental impacts of the Proposed Development.

5.1.2 Detailed transport-related operational analysis has been considered in a formal Transport Assessment (TA) document (Appendix 5.1), which is provided as a standalone document to accompany the planning application. This includes an assessment of development-related traffic forecasts and highway safety of the Application Site (hereafter referred to as the 'Site'). The details contained within the TA are not repeated in this Chapter, however a summary of the key findings is provided.

#### *Proposed Development*

5.1.3 The Proposed Development comprises the restoration of Yew Tree Quarry, which is located within the former Stairfoot Quarry complex, approximately 2km south-east of Barnsley Town Centre. This will require the importation of 400,000m<sup>3</sup> of non-hazardous restoration material over a 111-week period. Based on a conversion rate of 1.7 tonnes per m<sup>3</sup> of material, this equates to 680,000 tonnes of material.

5.1.4 Restoration material would be imported to the Site using 8-wheel tipper vehicles with typical 15-tonne payloads. Importation of restoration material would take place on 5 days per week (Monday to Friday) all year round. Weekday operational hours would be from 07:30 – 16:30. Restoration material would be tipped straight into the void and stockpiling of materials would not typically be expected to occur.

5.1.5 Restoration activities would also take place on Saturdays, with operational hours from 08:00 – 13:00. However, it is highly unlikely that there would be any vehicle movements relating to the importation of restoration material at weekends. Similarly, no HGV movements would take place on Sundays and Bank Holidays.

5.1.6 A full description of the Proposed Development is provided in Chapter 3.0 of this ES.

#### *Competence*



5.1.7 The author of this assessment has over 18 years' experience in the field of transport planning with a Master's Degree in Transport Planning.

## 5.2 Methodology and Scope of Assessment

### *Legislation and Guidance*

5.2.1 In accordance with best practice, the assessment of transport effects has been undertaken in line with advice set out in the "*Guidelines for the Environmental Assessment of Road Traffic*" produced by the Institute of Environmental Assessment (March 1993), now named the Institute of Environmental Management & Assessment (IEMA).

### *Assessment of Significance / Assessment Criteria*

5.2.2 In accordance with the "*Guidelines for the Environmental Assessment of Traffic and Movement*", the significance of effects has been assessed by considering the interaction between the magnitude of the impact and the sensitivity of the receptor in the abovementioned study area.

5.2.3 The assessment considers the transport-related effects of the Proposed Development as measured against the anticipated future baseline scenarios during the application year of 2026 and five years following the application year (2031), whilst also taking into account the relevant committed schemes that are likely to affect the future baseline traffic conditions.

5.2.4 The IEMA guidelines recommend two broad rules of thumb as criteria to assist in delimiting the scale and extent of the environmental assessment:

- i) Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGV) will increase by more than 30%); and,
- ii) Rule 2: Include any other specifically sensitive areas where total traffic flows have increased by 10% or more.

5.2.5 The above guidance is based upon research, knowledge and experience of environmental effects of traffic, as included in the IEMA guidance, with a 30% increase considered to be a "*reasonable threshold*" (paragraph 3.19) for inclusion in the assessment of the environmental effects of traffic. At a simple level, the guidance



considers that projected changes in total traffic flow of less than 10% creates “*no discernible environmental impact*” (paragraph 3.16), hence the second threshold as set out in Rule 2.

5.2.6 In cases where the thresholds are exceeded, the IEMA guidelines set out a list of environmental effects which should be assessed for their magnitude of change.

5.2.7 Definitions of each of the potential effects identified in the IEMA guidelines are summarised below, along with explanatory text relating to assessment criteria to determine the magnitude of impact. It is on this basis that the assessment in this chapter has been undertaken.

5.2.8 It is acknowledged in the IEMA guidelines that not all environmental effects are applicable to every development, but the list of effects included in the assessment has been established through detailed discussions on the scope of the ES.

5.2.9 The environmental effects of traffic considered in other chapters of this ES include the following:

- i) Ecological Effects – set out in chapter 4.0 of the ES;
- ii) Noise and Vibration – potential effects relating to noise and vibration as a result of traffic are assessed in Chapter 6.0; and
- iii) Air Quality – the potential effects relating to air quality as a result of traffic and construction dust and dirt from construction traffic are assessed in the Air Quality Assessment which is appended to the Planning Statement.

5.2.10 The environmental effects of traffic considered in this chapter are discussed below.

#### *Accidents and Safety*

5.2.11 The TA contains a detailed analysis of recent accident data on the study area. The analysis concludes that the local highway network has a low accident rate, with only one accident occurring in the vicinity of the proposed site access junction. There are no clusters of accidents that could be evidence of accident ‘hotspots’. On this basis the effects of the Proposed Development in terms of Accidents and Safety are not considered in this chapter.



---

*Driver and Non-Motorised User (NMU) Delay*

- 5.2.12 Where roads affected by development are at or near capacity, the traffic associated with such development can cause or add to vehicle delays.
- 5.2.13 Sources of delay for non-development traffic could potentially include:
- i) at the Site access where there would be additional turning movements;
  - ii) on the roads passing the Site where there is likely to be additional traffic;
  - iii) at other key intersections within the study area which might be affected by increased traffic; and,
  - iv) on the minor arms of junctions where the ability to find gaps in passing major road traffic may be reduced, thereby lengthening delays.
- 5.2.14 Where relevant, the effects on driver delay are considered within this Chapter and the magnitude of impact is identified using professional judgement and the advice provided in the IEMA guidelines.
- 5.2.15 There are a range of factors affecting NMU delay. The IEMA guidelines do not set out thresholds for judging the significance of changes in levels of delay, although the guidance notes that “*pedestrian delay and severance are closely related effects and can be grouped together*”. As such, where relevant, the effects on NMU delay will be considered in conjunction with the assessment of severance, as described below.

*Severance*

- 5.2.16 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people. Severance can also result from difficulty in crossing a heavily trafficked road and can also relate to relatively minor traffic flows if they impede pedestrian access to essential facilities (IEMA, July 2023).
- 5.2.17 The guidance notes that the Department for Transport (DfT) has historically set out a range of indicators for determining the significance of severance, which denoted severance effects as being considered ‘slight’, ‘moderate’ and ‘substantial’ with changes in traffic flows of 30%, 60% and 90%, respectively. The guidance also notes that “*although these thresholds do not appear in current DfT guidance, they have not*



---

*been superseded by subsequent changes to guidance and are established in planning case law. However, caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts, even with high percentage changes in traffic”.*

- 5.2.18 Where relevant to do so, the Proposed Development-related effects on severance are considered later within this Chapter.

*Non-Motorised User Amenity (including Fear and Intimidation)*

- 5.2.19 Amenity is broadly defined as “*the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width / separation from traffic*”. This definition also includes fear and intimidation. The previous (1993) IEMA guidance suggested that a tentative threshold for judging the significance of the effects of traffic on pedestrian and cycle amenity would be where the traffic flow is halved or doubled. However, the current guidance notes that “*although these thresholds no longer appear in DfT guidance, they have not been superseded by subsequent changes to guidance and are established in planning case law. Thresholds are expressed as a starting point for any assessment and typically have been derived from studies of major changes in traffic flow and therefore should be used cautiously in any assessment.*”

- 5.2.20 As described within the accompanying TA, three public rights of way (PRoW), Public Footpaths 323 and 324 and the Trans-Pennine Trail, pass in close proximity to the Proposed Development and cross the construction traffic access route. The effects of the Proposed Development on pedestrian and cyclist amenity (including fear and intimidation) across the local highway network within the study area are therefore considered later within this Chapter.

*Hazardous Loads*

- 5.2.21 The Proposed Development does not include the requirement for transport of hazardous loads by road.

**Study Area**

- 5.2.22 As noted above, the proposed development would comprise the import of restoration soils. The exact source of the soil import material is unknown at this stage, and



material will be sourced on a 'campaign basis', as and when available from a number of sources, but primarily from large scale excavation / development projects. It is likely that import material will be derived from within the local authority area, but there may be some material arising from further afield.

5.2.23 HGVs will nonetheless route via appropriate routes through the strategic highway network, minimising the cumulative impact on sensitive receptors and avoiding residential areas where possible, or where such movements are expressly prohibited (i.e. weight restrictions). HGVs would therefore route to / from the Site either from the A633 or A635 via Stairfoot Roundabout to the north of the Site, or to / from the A6195 to the south of the Site.

5.2.24 As such, the study area for the assessment is limited to the length of the A633 Wombwell Lane to the north and south of the Site access junction.

5.2.25 The study area for the assessment includes the following road links:

- i) Link 1 – A633 Wombwell Lane (north); and
- ii) Link 2 – A633 Wombwell Lane (south).

#### ***Receptor Sensitivity / Value***

5.2.26 Paragraph 1.30 of the IEMA guidelines explains that groups or locations which may be sensitive to changes in traffic conditions could be:

- i) people at home;
- ii) people in workplaces;
- iii) sensitive groups such as children, the elderly or the disabled;
- iv) sensitive locations such as hospitals, churches, schools or historical buildings;
- v) people walking;
- vi) people cycling;
- vii) open spaces, recreational sites, shopping areas;
- viii) sites of ecological/nature conservation value; and,
- ix) sites of tourist/visitor attraction.

5.2.27 As a general guide, the determination of receptor sensitivity is based on the criteria of value, adaptability and tolerance. In terms of transport, receptors include people that are living in and using facilities and using transport networks in the area.



5.2.28 Sensitivity to changes in transport conditions is generally focussed on vulnerable user groups who are less able to tolerate, adapt to or recover from changes. **Table 5.1** summarises the broad criteria for identifying receptor sensitivity.

**Table 5.1 – Receptor Sensitivity Summary (Traffic and Transport)**

| Sensitivity | Description  |
|-------------|--|
| Very High   | Schools, colleges, playgrounds, hospitals, retirement homes  |
| High        | Heavily congested junctions, residential properties very close to carriageway  |
| Medium      | Congested junctions, shops/businesses, areas of heavy pedestrian / cycling use, areas of ecological / nature conservation, residential properties close to carriageway |
| Low         | Tourist / visitor sites, places of worship, residential areas set back from the highway with screening   |

5.2.29 The link sensitivity has been based upon an average sensitivity of the whole link, with a separate assessment of high / very high sensitivity receptors where relevant. Longer links have been broken down into sensible smaller sections where appropriate.

5.2.30 Road links with considered to be of low or medium sensitivity have been assessed against the 'Rule 1' threshold described above (>30% increase in traffic flow). Road links considered to be of high or very high sensitivity have been assessed against the 'Rule 2' threshold described above (>10% increase in traffic flow).

### ***Magnitude of Impact***

5.2.31 The criteria for defining magnitude in this Chapter is based upon the advice contained within the IEMA guidelines, as shown in **Table 5.2**.

**Table 5.2 – Magnitude Definition (Traffic and Transport)**

| Magnitude | Adverse / Beneficial | Description   |
|-----------|----------------------|---|
| High      | Adverse              | Substantial or total loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of road safety. Severe delays to travellers.        |
|           | Beneficial           | Large scale improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in road safety and in delays to travellers. |



| Magnitude  | Adverse / Beneficial | Description  |
|------------|----------------------|--|
| Medium     | Adverse              | Moderate loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of road safety. Severe delays to travellers.   |
|            | Beneficial           | Moderate improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in road safety and in delays to travellers.   |
| Low        | Adverse              | Minor shift away from baseline conditions. Some measurable loss of capability for movement along and across transport corridors, some measurable loss of access to key facilities and some measurable loss of road safety. Some measurable increase in delays to travellers. |
|            | Beneficial           | Very minor increase in capability for movement along and across transport corridors, very minor increase in access to key facilities and very minor increase in road safety. Very minor decreases in delays to travellers.   |
| Negligible | Adverse              | Very minor loss of capability for movement along and across transport corridors, very minor loss of access to key facilities and very minor loss of road safety. Very minor increase in delays to travellers.  |
|            | Beneficial           | Very minor increase in capability for movement along and across transport corridors, very minor increase in access to key facilities and very minor increase in road safety. Very minor decreases in delays to travellers.   |
| No Change  | n/a                  | No loss of capability for movement along and across transport corridors, no change of access to key facilities and road safety. No delay to travellers.  |

### ***Significance of Effects***

- 5.2.32 The significance of the effect upon traffic and transport is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in **Table 5.3** below.
- 5.2.33 Where a range of significance of effect is presented in **Table 5.3**, the final assessment for each effect is based upon expert judgement. For the purpose of this assessment, any effects with a significance level of minor or less are considered to be not significant in Environmental Impact Assessment (EIA) terms.



**Table 5.3 – Level of Effect Matrix**

| Sensitivity of Receptor | Magnitude of Impact |                     |                     |                   |
|-------------------------|---------------------|---------------------|---------------------|-------------------|
|                         | Negligible          | Low                 | Medium              | High              |
| Negligible              | Negligible          | Negligible or minor | Negligible or minor | Minor             |
| Low                     | Negligible or minor | Negligible or minor | Minor               | Minor or moderate |
| Medium                  | Negligible or minor | Minor               | Moderate            | Moderate or major |
| High                    | Minor               | Minor or moderate   | Moderate or major   | Major             |

### 5.3 Baseline

#### *Local Highway Network*

- 5.3.1 The characteristics of the surrounding local highway network are described in greater detail in the TA accompanying the application. The sensitivity of surrounding highway links to environmental effects is considered later in this chapter.
- 5.3.2 The Site has historically been (and continues to be) accessed via a private right of way through the former (now cleared) Stairfoot Brickworks site, which connects to the A633 Wombwell Lane.
- 5.3.3 The Site access junction currently takes the form of a ghost-island right turn junction with the A633 Wombwell Lane. However, an application for the redevelopment of the former Stairfoot Brickworks site (ref. 2024/0373), to comprise a glass recycling and repurposing facility was granted in November 2024. This planning application includes a series of improvements to the Site access junction in the form of widening to the bellmouth to better facilitate HGVs, and the provision of a pedestrian refuge island.

#### *A633 Wombwell Lane*

- 5.3.4 Within the vicinity of the Site, the A633 Wombwell Lane comprises a two-way carriageway with a single lane in each direction. A circa 3m wide strip of central hatching is present along the carriageway within the vicinity of the Site, which provides a series of right turning pockets to the adjacent commercial uses to the south-west of the Site. It is subject to a 40mph speed limit.



### Road Safety

- 5.3.5 Personal Injury Accident (PIA) data for the highway network adjacent to the site has been obtained from the online CrashMap resource ([www.crashmap.co.uk](http://www.crashmap.co.uk)). Data was extracted for the most recently available three-year period which is 2020 to 2022 inclusive. The submitted TA includes a plan of the accidents and further analysis.
- 5.3.6 A total of 8 accidents occurred within the 3-year period, of which 2 resulted in serious injury, with the remainder being classified as 'slight'. Only one accident within this period occurred in the vicinity of the proposed site access. When considered volumetrically this equates to 2.7 accidents per year along an approximately 1km length of carriageway.
- 5.3.7 The existing accident record on the surrounding local highway network does not present a material concern in the context of the Proposed Development. There is no evidence of an existing road safety issue that could be worsened by the increase in trips that the Proposed Development could generate.

Field Co

### Receptors

- 5.3.8 Receptors to be considered within the assessment have been selected based upon the access routes to be taken by vehicle movements generated by the Proposed Development. **Table 5.4** highlights the qualification of the sensitivity assessment of each receptor group.

**Table 5.4 – Sensitivity of Receptors**

| Link No. | Link Description                          | Sensitivity | Qualification  |
|----------|---|-------------|--|
| 1        | A633 Wombwell Lane (north of site access) | Low         | 16no. residential properties fronting onto Wombwell Lane approx. 450-500m north of site access junction. No nearby sensitive receptors.                      |
| 2        | A633 Wombwell Lane (south of site access) | Low         | Approx. 100no. residential dwellings fronting onto Wombwell Lane along 4.3km length of road to south of site access junction. No nearby sensitive receptors. |

- 5.3.9 On the basis of the above, all links are assessed against the 'Rule 1' threshold (>30% increase in traffic flow).



### ***Baseline Methodology***

5.3.10 The current baseline conditions have been established by obtaining recent traffic survey data and obtaining Personal Injury Accident (PIA) data within the abovementioned study area. This baseline data is described in further detail below.

### ***Traffic Flows***

5.3.11 Baseline traffic flows have been established utilising Automatic Traffic Counts (ATCs) were undertaken along the A633 Wombwell Lane, to the north and south of the access to the former Stairfoot Brickworks site. The ATCs were undertaken between 7<sup>th</sup> March – 13<sup>th</sup> March 2023 (inclusive).

5.3.12 Traffic flows for the 2023 baseline peak AM (08:00 – 09:00), PM (16:00 – 17:00), weekday operating hours (07:00 – 17:00) periods have been derived from the traffic survey data for an average weekday (i.e. Monday to Friday), as well as 24-hour Annual Average Daily Traffic Flows (AADT). The 2023 baseline vehicle flows are shown in **Table 5.5** below:

**Table 5.5 – Summary of 2023 Baseline Traffic Flows (Two-Way Movements)**

| Link | Description                               | AM           |      | PM           |      | Weekday Operating Hours |      |
|------|---|--------------|------|--------------|------|-------------------------|------|
|      |   | All Vehicles | HGVs | All Vehicles | HGVs | All Vehicles            | HGVs |
| 1    | A633 Wombwell Lane (north of site access) | 1,405        | 19   | 1,340        | 11   | 14,198                  | 203  |
| 2    | A633 Wombwell Lane (south of site access) | 1,405        | 19   | 1,340        | 11   | 14,198                  | 203  |

### ***Future Baseline Conditions***

5.3.13 The Proposed Development would comprise the restoration Stairfoot Quarry over a period of 111 weeks. It is anticipated that the restoration period would commence in early 2026 and would last until early 2028. As such, the assessment compares the development-related traffic impacts measured against a future assessment year baseline of 2027.

5.3.14 By forecasting the future baseline conditions, the environmental effects caused by the traffic generated by the Proposed Development can then be established by



comparing the 'with development' scenario against the 'without development' (baseline) scenario in the 2027 future assessment years.

- 5.3.15 Growth in background traffic between the baseline year (2023) and the assessment years has been forecast using TEMPRO growth factors (Version 8, NETMv80\_Core\_Scenario dataset), calculated for the Middle Super Output Area (MSOA) of 'Barnsley 015', within which the Site is located. The resulting growth factors are shown in **Table 5.6**.

**Table 5.6 – TEMPRO Growth Factors**

| Period           | Growth Rate |
|------------------|-------------|
| 2023 – 2027 AM   | 1.0292      |
| 2023 – 2027 PM   | 1.0324      |
| 2023 – 2027 AAWT | 1.0343      |

- 5.3.16 The future year assessment scenario also considers those relevant committed developments that are likely to affect the future baseline traffic conditions. Committed developments are those which are consented or allocated and where there is a reasonable degree of certainty that they will proceed within the next 3 years, as per the recommended approach within the Government's Planning Practice Guidance (PPG). This approach differs slightly from that set out within Chapter 2.0 of the ES. However, it is considered this provides the most appropriate assessment for transport related impacts. As such, the assessment has considered the following committed development sites:

- i) The approved erection of 250 dwellings on land off Beachcroft Way to the north of the Site (ref: 2021/0668);
  - ii) The approved erection of 100 dwellings at Low Valley Farm to the south-east of the Site (ref: 2021/0668); and
  - iii) The proposed construction of a glass recycling and repurposing facility based at the former Stairfoot Brickworks adjacent to the Site.
- 5.3.17 The investigation into locally committed developments has not indicated any other significant schemes that need to be specifically allowed for. It is considered that additional traffic demand on the local highway network arising from general



development that occurs over time is accounted for through the application of traffic growth factors to the observed baseline flows.

- 5.3.18 The key difference between cumulative and committed developments is the presumption that committed developments must be confirmed with a reasonable degree of certainty in terms of planning status and viability. On that basis, any as-yet undecided outline applications have been excluded from this assessment. An undecided outline planning permission does not meet the PPG tests of having sufficient certainty of delivery within 3 years and so has been excluded as an assessed cumulative scheme.
- 5.3.19 The traffic flows associated with the committed developments have been derived from the TA work that accompanied the planning applications for those respective schemes and / or using engineering judgement, where necessary, to distribute and assign those committed development flows within the area of study.
- 5.3.20 The 2027 assessment year baseline flows are the sum of the 2023 observed flows multiplied by the relevant TEMPRO growth factor (2023 to 2027), plus trips from committed developments. The 2027 baseline flows are set out in **Table 5.7**.

**Table 5.7 – 2027 Future Baseline Traffic Flows (Two-Way Movements)**

| Link | Description                               | AM           |      | PM           |      | Weekday Operating Hours |      |
|------|---|--------------|------|--------------|------|-------------------------|------|
|      |   | All Vehicles | HGVs | All Vehicles | HGVs | All Vehicles            | HGVs |
| 1    | A633 Wombwell Lane (north of site access) | 1,446        | 19   | 1,384        | 11   | 14,684                  | 210  |
| 2    | A633 Wombwell Lane (south of site access) | 1,446        | 19   | 1,384        | 11   | 14,684                  | 210  |

## 5.4 Assessment of Effects

### *Trip Forecast Methodology and Parameters*

- 5.4.1 As noted above, it is assumed that the number of vehicle trips generated by the Proposed Development would be relatively consistent across the restoration period, with the majority of trips likely to occur during 2027. The transport-related environmental effects arising from the Proposed Development have therefore been assessed for a single future assessment year of 2027.



- 5.4.2 The likely level of trip generation of the Proposed Development has been forecast using a 'first principles' approach, which is based on the future operation of the Proposed Development. Traffic forecasts associated with the Proposed Development have been calculated based on a series of robust assumptions, which reflect Axis' experience in the delivery of similar projects.
- 5.4.1 The following assumptions have been made to estimate the traffic generating potential of the proposed restoration scheme:
- i) The infilling scheme is forecast to involve the importation of circa 400,000 m<sup>3</sup> of suitable, non-hazardous restoration material.
  - ii) Restoration imports would take place over a 111-week period;
  - iii) The average payload of HGVs importing material to the Site will be 9m<sup>3</sup>;
  - iv) It is assumed that while the restoration work will be operating 5.5 days a week (Monday – Saturday) all year round, importation of restoration material would only occur on weekdays; and
  - v) The operating hours of the restoration works would be 07:00 to 17:00, during weekdays, with movement of vehicles importing restoration materials occurring between 07:30 to 16:30. The planning application does not include for the importation of materials on Saturdays. As such it has been assumed for robustness that all deliveries would occur on weekdays. There would be no activity on Sundays and Bank Holidays.
- 5.4.2 Additional details of the trip generation are set out in the TA accompanying this application.
- 5.4.3 Based on the above assumptions, the scheme is forecast to result in 80 HGV deliveries per weekday (160 two-way movements). Assuming a continual rate of HGV deliveries throughout the day, this equates to approximately 9 deliveries per hour, or approximately 18 two-way HGV movements per hour.
- 5.4.4 However, in order to account for possible fluctuations in traffic generation due to the variable availability of infill material, loading times, and in order to provide an additional degree of robustness, it has been assumed that the worst-case traffic generation of the proposal could be greater than that indicated above. It is understood that the restoration activity would have a maximum operational capacity of 100 HGV deliveries per day. Therefore, for the purpose of this assessments a potential



---

maximum trip generation of 100 HGV deliveries per weekday (200 two-way movements) has been assumed. This equates to 11 HGV deliveries per hour (22 two-way movements).

- 5.4.5 In addition to the above HGV trips, it is expected that there would be up to 5 staff based at the Site to oversee restoration operations. This would therefore equate to a maximum of 10 two-way light vehicle trips per day.

*Trip Distribution Methodology*

- 5.4.6 It is anticipated that the restoration material would largely be sourced from local construction and excavation projects. As such, the distribution of development traffic has been calculated based on a population-weighted gravity model methodology.
- 5.4.7 The HGV distribution methodology is described in detail within the accompanying TA. In summary, however, the trip distribution calculations identified that approximately 72% of trips would route to / from the north of the site via Stairfoot Roundabout, with 28% routing to / from the south towards the A6195.

*Impacts During Assessment Year (2027)*

- 5.4.8 **Table 5.8** sets out the predicted changes in vehicle / HGV movements during the 2027 assessment year.



**Table 5.8 – 2027 Percentage Impact Assessment**

| Link                           | Description                               | Direction | 2027 Base Flows |      | 2027 Base Flows + Committed Developments |      | 2027 Base Flows + Committed Developments + Proposed Development Trips |      |               |              |
|--------------------------------|---|-----------|-----------------|------|--|------|---|------|---------------|--------------|
|                                |   |           | All Vehicles    | HGVs | All Vehicles                             | HGVs | All Vehicles  | HGVs | Flow % Change | HGV % Change |
| <b>AM Peak period</b>          |   |           |                 |      |  |      |   |      |               |              |
| 1                              | A633 Wombwell Lane (north of site access) | NB        | 856             | 12   | 874                                      | 20   | 882   | 28   | 0.9%          | 40.0%        |
|                                |   | SB        | 590             | 7    | 609                                      | 8    | 617   | 16   | 1.3%          | 100.0%       |
| 2                              | A633 Wombwell Lane (south of site access) | NB        | 856             | 12   | 879                                      | 22   | 882   | 25   | 0.3%          | 25.0%        |
|                                |   | SB        | 590             | 7    | 608                                      | 7    | 611   | 10   | 0.5%          | 42.9%        |
| <b>PM Peak period</b>          |   |           |                 |      |  |      |   |      |               |              |
| 1                              | A633 Wombwell Lane (north of site access) | NB        | 693             | 8    | 711                                      | 8    | 719   | 12   | 1.1%          | 50.0%        |
|                                |   | SB        | 691             | 3    | 711                                      | 4    | 715   | 8    | 0.6%          | 100.0%       |
| 2                              | A633 Wombwell Lane (south of site access) | NB        | 693             | 8    | 715                                      | 13   | 717   | 15   | 0.2%          | 15.4%        |
|                                |   | SB        | 691             | 3    | 711                                      | 3    | 714   | 5    | 0.4%          | 66.7%        |
| <b>Weekday Operating Hours</b> |   |           |                 |      |  |      |   |      |               |              |
| 1                              | A633 Wombwell Lane (north of site access) | NB        | 7,411           | 97   | 7,521                                    | 102  | 7,597   | 174  | 1.0%          | 70.6%        |
|                                |   | SB        | 7,274           | 113  | 7,379                                    | 121  | 7,455   | 193  | 1.0%          | 59.5%        |
| 2                              | A633 Wombwell Lane (south of site access) | NB        | 7,411           | 97   | 7,550                                    | 124  | 7,579   | 152  | 0.4%          | 30.6%        |
|                                |   | SB        | 7,274           | 113  | 7,404                                    | 129  | 7,433   | 157  | 0.4%          | 21.7%        |

5.4.9 **Table 5.8** shows that the forecast changes in daily total vehicle demand during the operation of the Proposed Scheme in 2027 fall below the IEMA Rule 1 30% and Rule 2 10% threshold for all links in all time periods.

5.4.10 The forecast change in HGV traffic demand during 2027 does exceed the IEMA Rule 1 30% HGV threshold for link 1 in both directions in all time periods. On link 2 the change in HGV traffic exceeds the IEMA Rule 1 30% threshold in the southbound direction in the AM and PM peak hours and reaches this threshold in the northbound direction across the full daily operational hours.

5.4.11 However, although these are large increases from a percentage point of view and so should be categorised as substantial according to the above methodology, the large percentage impacts are essentially due to the fact that the baseline flows are low. Therefore, by comparison the development-related traffic impacts ostensibly appear



to be disproportionately large. In absolute terms, the impact of development-related traffic equates to 2 HGV movements every 7-8 minutes on average along Wombwell Lane to the north of the Site, and 2 HGV movements every 10 minutes along Wombwell Lane to the south of the Site. The magnitude of impact is therefore deemed to be low adverse for all links.

- 5.4.12 In accordance with the IEMA guidelines, the sensitivity of receptors along all of the assessed links are considered to be negligible to low. With reference to **Table 5.3**, there would therefore be a negligible or minor level of effect on all links, which is not significant in EIA terms. On this basis no further assessment of operational traffic impacts is considered necessary on these links for the future assessment year (2027) scenario.

## 5.5 Cumulative Effects

- 5.5.1 In addition to the small increase in trips generated by the proposed scheme, the total future traffic generation of local committed developments has also been considered.
- 5.5.2 The combined traffic flows arising for the Proposed Development and local committed developments have been included within the traffic assessments as summarised in **Table 5.8**.
- 5.5.3 Based on the location of the committed developments on the highway network and the predicted levels of impact from the Proposed Development, it is not considered likely that there would be any significant cumulative highway-related environmental effects from the cumulative developments identified.

## 5.6 Mitigation

- 5.6.1 It is proposed that a Delivery Management Plan will be prepared, which will set out the operational procedures to be adopted in order to safely manage the arrival and departure of HGV movements to and from the Site. This will also set out the proposed measures to be implemented in order to safely manage the interaction between the Site access track and the PRoW network, to ensure continuous safe access to the PRoW routes for all users throughout the restoration period.
- 5.6.2 No further mitigation measures are deemed necessary during the restoration of Stairfoot Quarry.



## **5.7 Residual Effects and Conclusions**

- 5.7.1 It is concluded that the Proposal would not result in a significant impact on operational or environmental conditions over the local transport network and there is no requirement for off-site transport improvement / mitigation works.
- 5.7.2 The impact of trips generated during the restoration of Stairfoot Quarry has been assessed against anticipated future road conditions and with reference to appropriate guidance. It is concluded that in all scenarios the residual effects are considered to be not significant in EIA terms.

