

Orion Homes Ltd

Denby Lane  
Grange Moor

Transport Statement



## Control Sheet

**CLIENT:** Orion Homes Ltd  
**PROJECT TITLE:** Denby Lane  
 Grange Moor  
**REPORT TITLE:** Transport Statement  
**PROJECT REFERENCE:** 160126  
**DOCUMENT NUMBER:** 001  
**ISSUE NUMBER:** 01  
**DATE:** July 2024

| Issue & Approval Schedule | Issue 01    | Name             |            | Signature                             |          | Date       |
|---------------------------|-------------|------------------|------------|---------------------------------------|----------|------------|
|                           | <Status>    |                  |            |                                       |          |            |
|                           | Prepared by | Ashley Armitage  |            | A signed copy is available on request |          | 21/06/2024 |
|                           | Checked by  | Simon Burkinshaw |            |                                       |          | 21/06/2024 |
| Approved by               | Karen Smith |                  | 24/06/2024 |                                       |          |            |
| Issue Record              | Issue       | Date             | Status     | Description                           | Name     |            |
|                           | 02          | 02.07.2024       | Final      | Update following comments             | Prepared | AA         |
|                           |             |                  |            |                                       | Checked  | SB         |
|                           |             |                  |            |                                       | Approved | SB         |
|                           | 03          |                  |            |                                       | Prepared |            |
|                           |             |                  |            |                                       | Checked  |            |
| Approved                  |             |                  |            |                                       |          |            |

*Sanderson Associates Consulting Engineers is a trading name of Fairhurst Group LLP, a limited liability partnership registered in Scotland with the registered number SO307306 and registered office at 43 George Street, Edinburgh EH2 2HT.*

*This document has been prepared in accordance with the Fairhurst Quality and Environmental Management System and in accordance with the instructions of the client, Orion Homes Ltd, for the client's sole and specific use. Any other persons who use any information contained herein do so at their own risk. Any information provided by third parties and referred to herein has not been checked or verified by Fairhurst unless otherwise expressly stated within this report.*

*Unless otherwise agreed in writing, all intellectual property rights in, or arising out of, or in connection with this report, are owned by Fairhurst. The client named above has a licence to copy and use this report only for the purposes for which it was provided. The licence to use and copy this report is subject to other terms and conditions agreed between Fairhurst and the client.*

---

## Acknowledgements

Google My Maps has been used to generate figures included in this report for illustrative purposes only.

The Crashmap Pro Collision Analysis System has been utilised to carry out a road traffic incident review.

OpenRouteService has been used to generate figures included in this report for illustrative purposes only.

Extract of CIHT 'Planning for Walking' (April 2015) has been included in this report.

An extract from OpenStreetMap has been used in this report for illustrative purposes only <https://www.openstreetmap.org/copyright>.

Extract of CIHT 'Buses in Urban Developments' (January 2018) has been included in this report.

The TRICS database v7.11.1 has been used in this report to calculate traffic generations.

## Contents

|  |    |
|--|----|
| 1. Introduction.....                       | 5  |
| 2. Planning Policy Context.....            | 6  |
| 3. Existing Situation.....                 | 9  |
| 4. Accessibility by Sustainable Modes..... | 12 |
| 5. Development Proposals.....              | 17 |
| 6. Traffic Impact Assessment.....          | 18 |
| 7. Summary and Conclusions.....            | 20 |

## List of Tables

|  |    |
|--|----|
| Table 1 – Bus Service from Rolfe Street..... | 16 |
| Table 2 – Schedule of accommodation.....     | 17 |
| Table 3 – TRICS selection criteria.....      | 18 |
| Table 4 – Multimodal trip generations.....   | 18 |
| Table 5 – Vehicular trip generations.....    | 19 |

## List of Figures

|  |    |
|--|----|
| Figure 1 – Extract of Kirklees Development Plan policies map.....              | 8  |
| Figure 2 – Site Location [GoogleMyMaps].....                                   | 9  |
| Figure 3 – Crashmap Pro extract.....   | 10 |
| Figure 4 – Extract from Providing for Journeys on Foot, Walking Distances..... | 12 |
| Figure 5 – Indicative Walking Isochrones [OpenRouteService].....               | 13 |
| Figure 6 – Indicative Cycling Isochrone (8km) [OpenRouteService].....          | 14 |
| Figure 7 – Recommended Maximum Walking Distances to Bus Stops.....             | 15 |
| Figure 8 – Location of the nearest bus stops [GoogleMyMaps].....               | 15 |

## List of Appendices

|                    |  |
|--------------------|--|
| Appendix A         |  |
| Crashmap Data      |  |
| Appendix B         |  |
| Proposed Site Plan |  |
| Appendix C         |  |
| Drawing 160126-001 |  |
| Drawing 160126-002 |  |
| Appendix D         |  |
| TRICS Data         |  |

---

## 1. Introduction

- 1.1 Sanderson Associates Consulting Engineers has been appointed by Orion Homes Ltd to prepare this Transport Statement to support the planning application for 21 dwellings on land off Denby Road, Grange Moor.
- 1.2 In accordance with the National Planning Policy Guidance (NPPG) for the requirements of a Transport Statement, as outlined in 'Travel Plans, Transport Assessments and Statements,' published in March 2014, this report will investigate:
- The local highway network and its highway safety record;
  - The existing use of the site;
  - The proposed development;
  - Accessibility of the site, in relation to local facilities by sustainable modes;
  - The predicted multimodal trip generations; and,
  - The impact of the development on the local highway network in terms of highway safety and capacity.

## 2. Planning Policy Context

### 2.1 National Planning Policy

2.1.1 In December 2023 the latest National Planning Policy Framework (NPPF) was published, which sets out the Government's planning policies for England and how these are expected to be applied. The following NPPF transport paragraph is most relevant to this proposed development:

2.1.2 At NPPF paragraph 38 it states that;

*'Local planning authorities should approach decisions on proposed development in a positive and creative way. They should use the full range of planning tools available, including brownfield registers and permission in principle, and work proactively with applicants to secure developments that will improve the economic, social and environmental conditions of the area. Decision-makers at every level should seek to approve applications for sustainable development where possible.'*

2.1.3 In considering development proposals NPPF paragraph 114 states that;

*'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

*a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*

*b) safe and suitable access to the site can be achieved for all users;*

*c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code 46; and*

*d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.'*

2.1.4 NPPF paragraph 115 states:

*'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'*

2.1.5 NPPF paragraph 116 states in relation to paragraph 115 that:

*'Within this context, applications for development should:*

*a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*

- b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
- d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
- e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.'*

2.1.6 NPPF paragraph 117 concludes that:

*'All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.'*

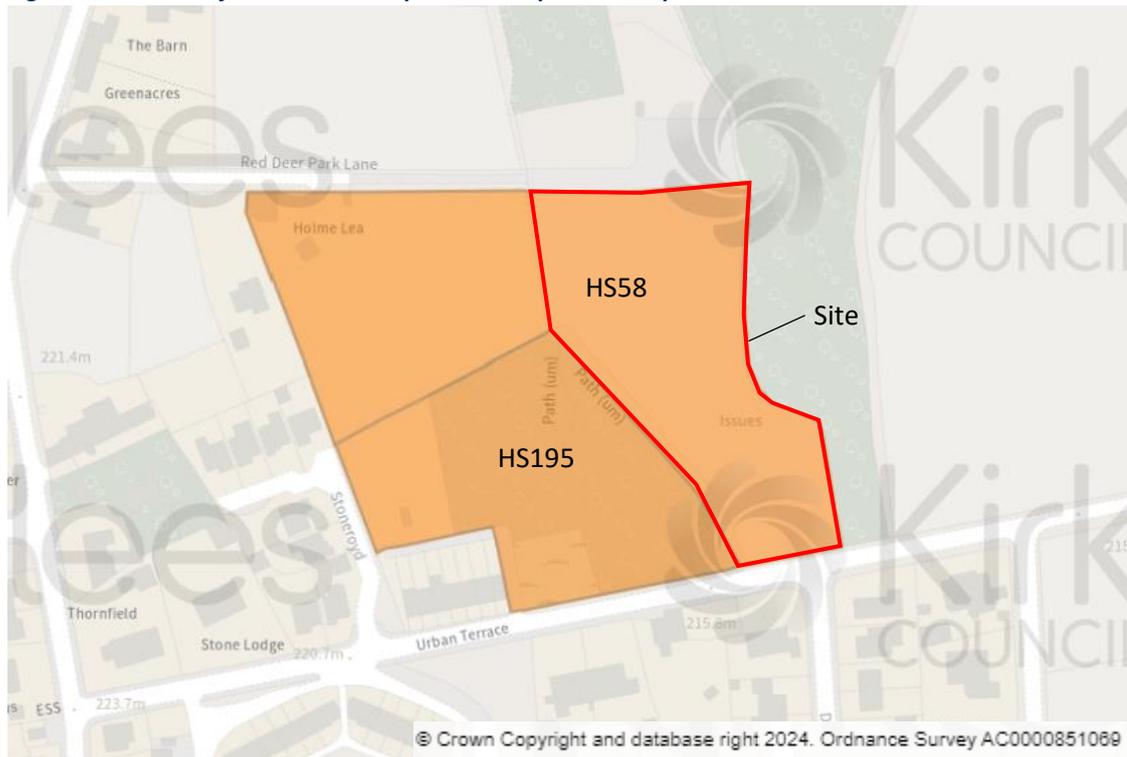
## **2.2 Local Planning Policy**

2.2.1 The Kirklees Local Plan was adopted in February 2019 and is the “*statutory development plan and its purpose is to set out the policies necessary to achieve the strategy and how much new development there should be in the district and where it will go.*”

2.2.2 The Local Plan follows NPPF with regards sustainable development with Policy LP1 stating “*When considering development proposals, the council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. The council will always work pro-actively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.*”

2.2.3 As demonstrated in **Figure 1**, overleaf, the site forms part of allocated housing site HS58 Land south of Red Deer Park Lane, Brierfield (42 dwellings) and sits adjacent to allocated housing site HS195 Land to the north west of Urban Terrace, Denby Lane (22 dwellings).

**Figure 1 – Extract of Kirklees Development Plan policies map**



### **2.3 Planning History**

- 2.3.1 The site was previously the subject of planning application reference 2021/62/94747/E for the “Erection of 18 dwellings and associated works”. However, the application was withdrawn prior to a decision being issued.
- 2.3.2 Nevertheless, Kirklees Highways Development Management provided a consultation response, dated 23 August 2022, on the proposals. Elements of the comments that are considered relevant to the current proposals are included below:
- Each dwelling was proposed to have off-street parking commensurate with the recommendations set out in Kirklees’ Highway Design Guide SPD. It was requested that visitor parking should be provided at a rate of one per four dwellings spread throughout the site.
  - Visibility splays of 2.4 x 43m were required at the site access.
  - The internal turning of an 11.85m refuse vehicle was required.
  - Concerns were raised with creating a junction less than 45m from Ben Booth Lane. However, the access for the current proposals is approximately 70m from Ben Booth Lane.
- 2.3.3 The adjacent allocated site HS195 also currently has a planning application ref 2023/62/93704/E for 10 dwellings which has been validated but a decision has not yet been made.

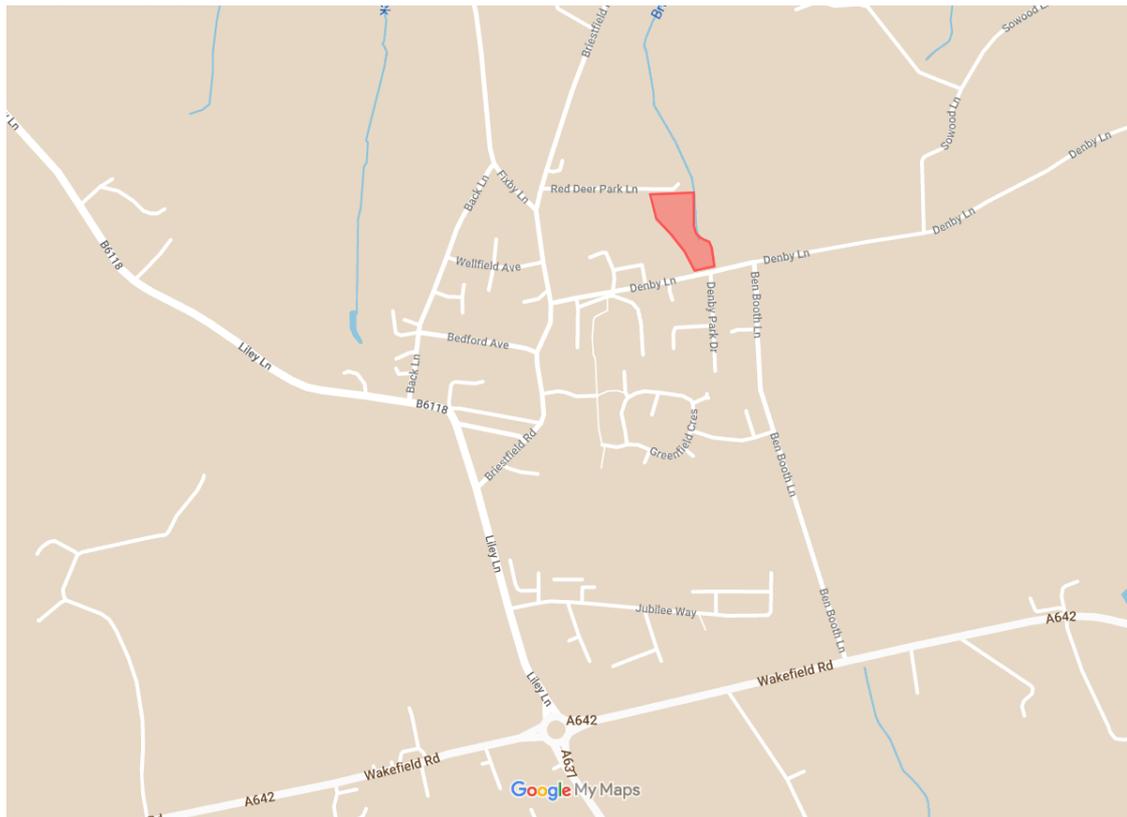
### 3. Existing Situation

#### 3.1 The Site

3.1.1 The site is currently agricultural land which has a field gate access on Denby Lane. It is located on the edge on Grange Moor village and lies approximately 6.0km from Dewsbury and 7.5km from Huddersfield. The location of the site is shown in red on **Figure 2** below.

**Figure 2 – Site Location**

[GoogleMyMaps]



3.1.2 The site boundaries are:

- North: Red Deer Park Lane
- East: Woodland and agricultural land
- South: Denby Lane
- West: Land associated with allocated site (HS195)

3.1.3 For the benefit of this Study, the site was visited on the 10<sup>th</sup> June 2024 in order to observe and record the prevailing traffic conditions and to take highway measurements.

#### 3.2 Highway Network

3.2.1 The site will take access onto Denby Lane, which is a local route that provides access to various residential properties and side streets within the locality.

3.2.2 Denby Lane is a single carriageway, which is street lit and subject to a 30mph speed limit.

3.2.3 Within the vicinity of the site, Denby Lane has a carriageway width of between 5.5m to 4.5m with a grass verge on its north flank (site side) around 1.5m in width and a grass verge on its south flank that varies in width from 1.8m to 3.5m.

3.2.4 From the site Denby Lane runs east and eventual becomes a rural track providing access to a small cluster of houses. To the west of the site it joins Briestfield Road via a priority junction, which runs through the centre of Grange Moor and provides access to the wider highway network.

### 3.3 Road Traffic Incident Review

3.3.1 National guidance states that Transport Assessments should include, *“an analysis of the injury accident records on the public highway in the vicinity of the site access for the most recent 3-year period, or 5-year period if the proposed site has been identified as within a high accident area.”*

3.3.2 Whilst the local network is not considered to be a ‘high accident area’, in order to provide a robust assessment, the most recent 5-year period has been considered.

3.3.3 Road traffic collision data has been obtained from the Crashmap Pro Collision Analysis System v1.31 database for the most recent five-year period available (January 2018 – December 2022). The incident plot diagram within the vicinity of the site is shown in **Figure 3**.

**Figure 3 – Crashmap Pro extract**



---

3.3.4 As can be seen, no incidents have been recorded on the site frontage (including the junction of Denby Lane / Denby Park Drive) or at the junctions of Denby Lane / Denby Grange Lane, Denby Lane / Ben Booth Lane or Ben Booth Lane / A642 Wakefield Road. One incident has been recorded at the junction of Denby Lane / Bristfield Road. This incident is summarised below with the full report included at **Appendix A**.

→ Incident ref 20201377V0822 occurred on 31<sup>st</sup> July 2020 at 13:00 in fine and dry conditions. It involved a car turning left on to Bristfield Road from Denby Lane colliding with a car travelling north on Bristfield Road.

3.3.5 It is considered that this incident likely occurred as a result of driver error rather than any deficiency in the highway network.

3.3.6 This road traffic incident review has not highlighted a history or any trends that would be a concern with regards the proposals.

## 4. Accessibility by Sustainable Modes

4.1 This section of the Transport Statement includes an assessment of the accessibility of the site by sustainable modes of transport.

4.2 This section considers the accessibility of the development by the following modes of transport:

- Walking
- Cycling
- Public Transport (Bus and Tram)

### 4.3 Accessibility by Walking

4.3.1 Walking is a sustainable mode of transport that can replace certain local car trips which contribute to congestion and pollution. As a mode of active travel, walking offers physical benefits and has also been linked to improvements in mental wellbeing.

4.3.2 The length of a journey a person considers to be ‘walkable’ often depends on the purpose of that journey. The IHT publication “Providing for Journeys on Foot” has produced guidelines on suggested acceptable walking distances for varying journey purposes, shown in **Figure 4**.

*Figure 4 – Extract from Providing for Journeys on Foot, Walking Distances*

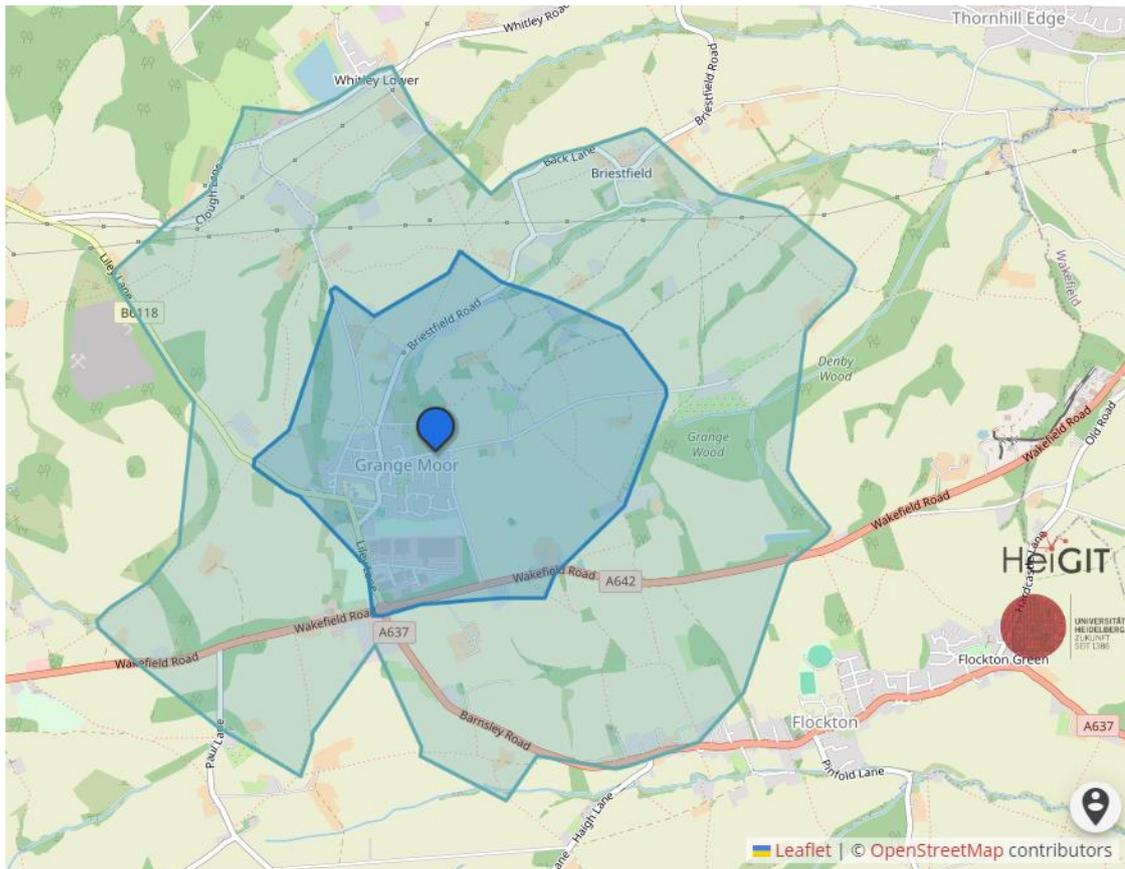
**Table 3.2: Suggested Acceptable Walking Distance.**

|                   | Town centres (m) | Commuting/School Sight-seeing (m) | Elsewhere (m) |
|-------------------|------------------|-----------------------------------|---------------|
| Desirable         | 200              | 500                               | 400           |
| Acceptable        | 400              | 1000                              | 800           |
| Preferred maximum | 800              | 2000                              | 1200          |

4.3.3 **Figure 5**, overleaf, identifies 1000m and 2000m walking isochrones centred on the site, providing an illustration of the areas that potential residents of the development may consider to be within walking distance, in line with the ‘acceptable’ and ‘preferred maximum’ walking distances for commuting, school and sight-seeing.

**Figure 5 – Indicative Walking Isochrones**

[OpenRouteService]



4.3.4 The entire area of Grange Moor lies within the 1km walking isochrone. Facilities and amenities within the village include:

- Grange Moor Primary School
- Fisheries
- Post office
- Premier convenience store
- Hairdressers
- The Grange public house
- St. Bartholomew’s Church

4.3.5 As can be seen from the above there are a range of existing facilities that are considered to be accessible by walking.

4.3.6 Jubilee Business Park is located within an 800m walking distance of the south of the site and houses a variety of businesses providing employment opportunities.

4.3.7 In general, Grange Moor is seen as suitable for walking. The main road through the village is Brierfield Road, which has street lit footways that connect to the wider area. South of the Brierfield Road/Denby Lane junction, footways are provided on either side and dropped kerbs are present at the majority of crossing points.

#### 4.4 Accessibility by Cycling

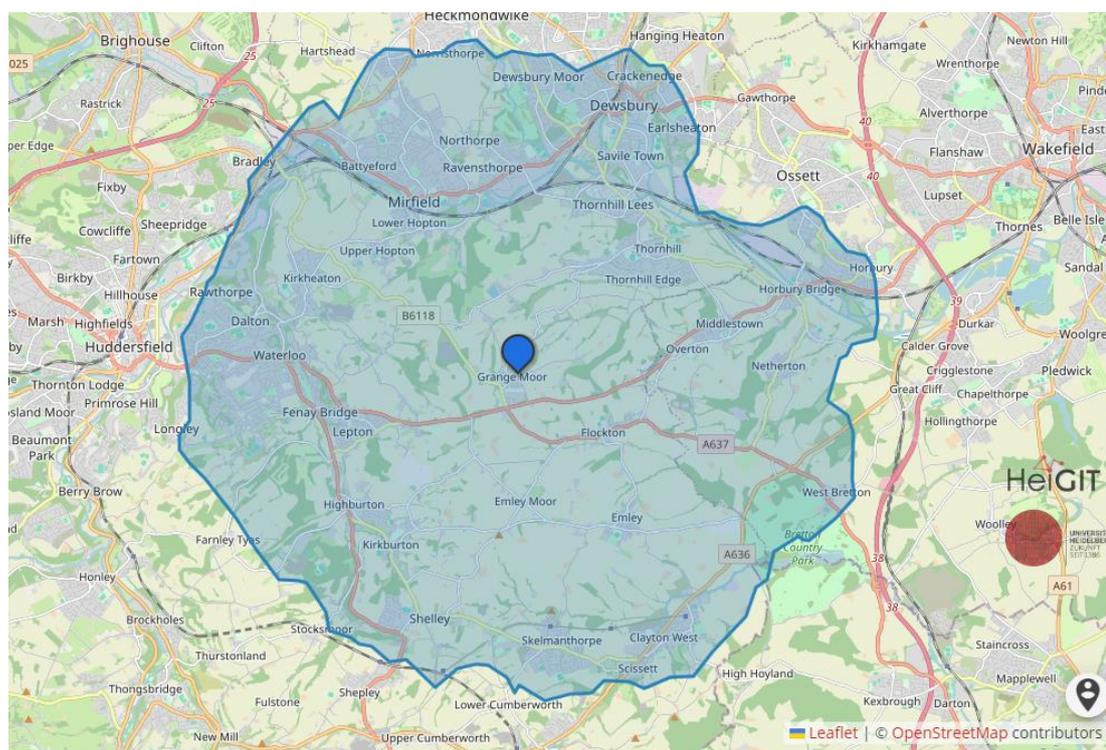
4.4.1 As with walking, cycling is an active and sustainable mode of transport that can be used to replace private cars on certain journeys, which reduces congestion and pollution. A bicycle is generally a lot cheaper than a car to purchase and maintain, meaning cycling can also provide social equity benefits, such as allowing people without cars access to destinations they may otherwise be unable to reach.

4.4.2 CIHT’s Planning for Cycling (2014) states that:

*“The majority of cycling trips are for short distances, with 80% being less than five miles and with 40% being less than two miles. However, the majority of trips by all modes are also short distances (67% are less than five miles, and 38% are less than two miles); therefore, the bicycle is a potential mode for many of these trips. Electric bicycles extend the range that can be cycled comfortably, and combined cycle-rail or cycle-bus journeys offer an alternative to car travel for many longer trips.”*

4.4.3 A 5-mile (~8km) journey by cycle is considered to be achievable by many people. **Figure 6** identifies destinations that lie within 8km of the site access.

**Figure 6 – Indicative Cycling Isochrone (8km)** [OpenRouteService]



4.4.4 There are many local areas that are within an 8km cycle distance of Grange Moor, such as Dewsbury, Mirfield, Skelmanthorpe, Kirkburton and eastern areas of Huddersfield. This provides access to further facilities such as shops and employment opportunities, along with Mirfield train station.

## 4.5 Bus Services

4.5.1 The Buses in Urban Developments Guidance (January 2018), published by CIHT outlines that, “the planning of development sites should consider the walking distance to bus stops and the corresponding bus catchment areas.” **Figure 7**, an extract from the guidance outlines the maximum walking distance for different situations.

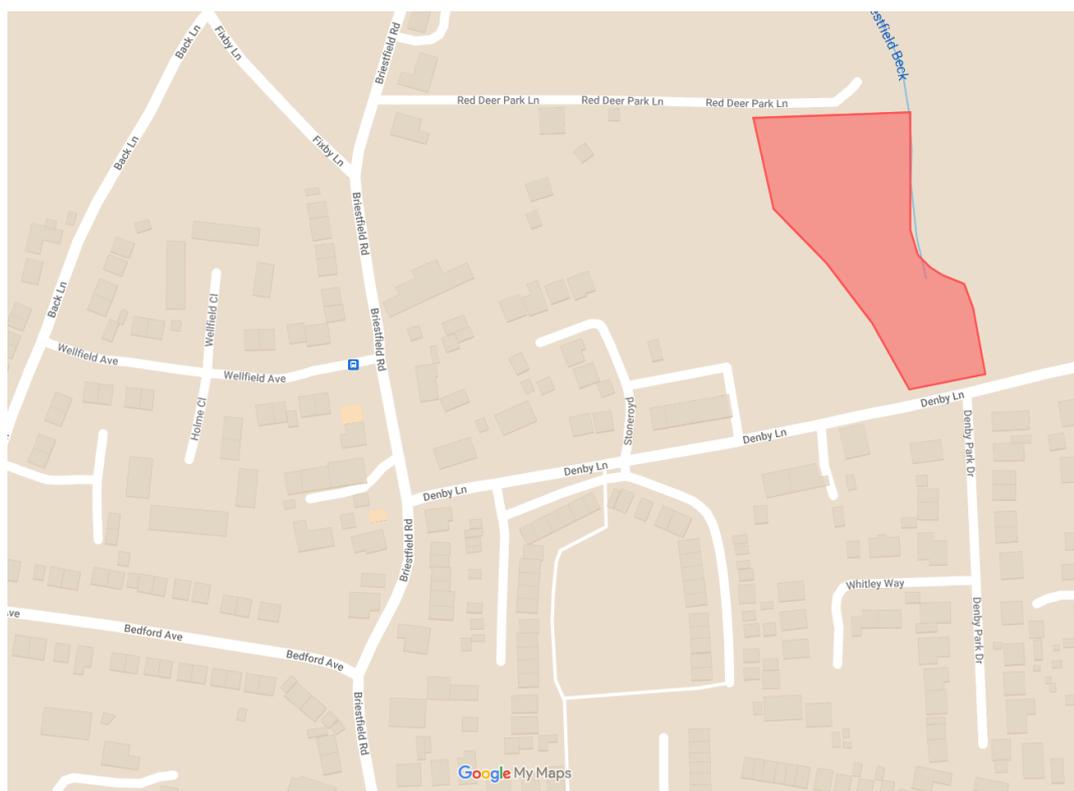
**Figure 7 – Recommended Maximum Walking Distances to Bus Stops**

| Situation   | Maximum walking distance |
|---|--------------------------|
| Core bus corridors with two or more high-frequency services | 500 metres               |
| Single high-frequency routes (every 12 minutes or better)   | 400 metres               |
| Less frequent routes  | 300 metres               |
| Town/city centres   | 250 metres               |

4.5.2 The closest bus stop to the site is located on Wellfield Avenue at a distance approximately 250m from the site. **Figure 8** shows the location of the nearest bus stops.

**Figure 8 – Location of the nearest bus stops**

[GoogleMyMaps]



4.5.3 A summary of the service available from the stops on Rolfe Street is shown in **Table 1** overleaf.

**Table 1 – Bus Service from Rolfe Street**

| #            | Route  | Approximate Peak Frequency |                  |            |
|--------------|--|----------------------------|------------------|------------|
|              |  | Mon – Sat Daytime          | Mon- Sat Evening | Sunday     |
| 230/<br>230A | Dewsbury - Thornhill Lees - Thornhill - Whitley - Grange Moor  | 60 mins                    | No Service       | No Service |
| 231          | Huddersfield - Waterloo - Lepton - Grange Moor - Flockton - Midgley - Netherton - Horbury - Lupset - Wakefield | 60 mins                    | 120 mins         | 120 mins   |
| X41          | Huddersfield - Lepton - Houses Hill - Grange Moor - Overton - Middlestown                                      | 120 mins                   | No Service       | No Service |

4.5.4 As can be seen from the above there are hourly services available which provide a connection to larger transport hubs such as Huddersfield and Wakefield. With the journey to Huddersfield taking approximately 28 minutes.

### **Rail Services**

4.5.5 Mirfield rail station is located approximately 4.0km north of the site and is managed by Northern Rail. This station has the following facilities:

- Real time displays
- CCTV
- Seating area
- Car Park with 60 spaces including 3 accessible spaces
- 24 cycle stands which are sheltered with CCTV

4.5.6 This station provides regular services (approximately every 30 minutes) towards both Huddersfield and Leeds. As can be seen above the station has cycle parking and the cycle time from the site to the station takes approximately 20-30 minutes depending on the direction of travel.

### **4.6 Accessibility Summary**

4.6.1 It is considered that there are reasonable options of accessing the site by sustainable transport modes. There are local amenities within walking and cycling distance from the site and frequent bus services are also available which connect to the nearest major towns.

## 5. Development Proposals

5.1 The proposals comprise a residential development of 21 dwellings with access taken from Denby Lane. The proposed site layout is included at **Appendix B**.

5.2 The proposed schedule of accommodation is set out in **Table 2**, below:-

**Table 2 – Schedule of accommodation**

| Number of bedrooms | Number of dwellings |
|--------------------|---------------------|
| 3                  | 10                  |
| 3 (affordable)     | 4                   |
| 4                  | 7                   |

5.3 The access road has a carriageway width of 5.5m with a 2m footway on one side and a 0.6m margin on the other. The northern end of the access road serving plots 11-19 is proposed as a shared surface. The junction with Denby Lane has 6m radii and 2m footways on both sides of the bellmouth. The proposals will provide a 2m footway along the site frontage which will link in with existing and proposed provision associated with the adjacent site (planning application ref 2023/62/93704/E for 10 dwellings).

5.4 Visibility from the access at 2.4m x 43m can be achieved in both directions which is considered acceptable given the 30mph plated speed limit, based on Manual for street stopping sight distance calculations. Given the adjacent boundaries and the grass verge the splays have been measured 300mm into the carriageway as per the guidance set out in paragraph 10.5.3 of Manual for Streets 2. The resulting visibility splays are shown on drawing 160136-001 which is attached at **Appendix C**.

5.5 Kirklees Highway Design Guide (November 2019) states that:

*“Kirklees Council has not set local parking standards for residential and non-residential development. However, as an initial point of reference for residential developments (unless otherwise evidenced using the criteria in Para. 5.1), it is considered that new:*

- 2 to 3 bedroom dwellings provide a minimum of two off-street car parking spaces
- 4+ bedroom dwellings provide three off-street spaces.
- 1-2 bedroom apartments provide one space (3+ bed two spaces)

*In most circumstances, one visitor space per 4 dwellings is considered appropriate. One cycle space per unit is recommended.”*

5.6 Based on these standards and the proposals it is considered that appropriate off street parking is provided based on the mix of dwellings proposed. The proposals also provide 5 visitors bays as per the recommended standards and it is considered that each dwelling can accommodate at least one bicycle within the curtilage of the property.

5.7 Refuse collection will take place from within the site and the Councils refuse vehicle will be able to access and egress the site in forward gear. Drawing 160136-002 attached at **Appendix C** shows swept path analysis of refuse vehicle servicing the site.

## 6. Traffic Impact Assessment

### 6.1 Overview

6.1.1 The trip generation for the proposed development has been estimated using the TRICS database (v7.11.1). The land use category 03 – Residential / A – Houses Privately Owned has been used to determine person trip rates for the proposals.

6.1.2 The search parameters have been refined to resemble the location of the site, as shown in **Table 3**. As the number of dwellings proposed is so low there are limited surveys available

**Table 3 – TRICS selection criteria**

| Land Use    | Trip Rate Selection Criteria  |
|-------------|---|
| Residential | <ul style="list-style-type: none"> <li>→ Land Use Category: 'Residential - Houses Privately Owned';</li> <li>→ Number of units: 5 to 35;</li> <li>→ The regions of Greater London and Ireland were excluded;</li> <li>→ Saturday and Sunday surveys were excluded; and,</li> <li>→ Suburban area and neighbourhood centre sites were used.</li> </ul> |

### 6.2 Multimodal

6.2.1 The multimodal TRICS data is included at **Appendix D** and the resultant trip generations for the 21 dwellings proposed are summarised in **Table 4**. Although the PM peak shown does not generally coincide with the network peak hour, it is the hour with the highest generations so has been used as a worst-case scenario.

**Table 4 – Multimodal trip generations**

| Time Period            | Mode of Travel         | Trip Rate (per unit) | Modal Split | Generations |
|------------------------|------------------------|----------------------|-------------|-------------|
| AM Peak<br>08:00-09:00 | Pedestrians            | 0.251                | 21.4%       | 5           |
|                        | Cyclists               | 0.037                | 3.2%        | 1           |
|                        | Public Transport Users | 0.079                | 6.7%        | 2           |
|                        | Vehicle Occupants      | 0.803                | 68.7%       | 17          |
|                        | Total People Trips     | 1.172                | 100.0%      | 25          |
| PM Peak<br>15:00-16:00 | Pedestrians            | 0.289                | 22.4%       | 6           |
|                        | Cyclists               | 0.025                | 1.9%        | 1           |
|                        | Public Transport Users | 0.043                | 3.3%        | 1           |
|                        | Vehicle Occupants      | 0.932                | 72.4%       | 20          |
|                        | Total People Trips     | 1.288                | 100.0%      | 28          |

6.2.2 Based on the TRICS data the proposed development could be expected to generate 31.3% of trips (8) by sustainable modes of travel in the AM peak period and 27.6% (8) in the PM peak period.

6.2.3 The predicted demand for walking, cycling and public transport on the local highway network is small and at a level which is unlikely to have a detrimental impact on the existing infrastructure.

### 6.3 Vehicular

6.3.1 The multimodal TRICS data is included at **Appendix D** and the resultant trip generations for the total of 21 dwellings that would be present on the site are summarised in **Table 5**. Although the PM peak shown does not generally coincide with the network peak hour, it is the hour with the highest generations so has been used as a worst-case scenario.

**Table 5 – Vehicular trip generations**

| Time Period            | Trip Rates (per unit) |            | Generations |            |       |
|------------------------|-----------------------|------------|-------------|------------|-------|
|                        | Arrivals              | Departures | Arrivals    | Departures | Total |
| AM Peak<br>08:00-09:00 | 0.196                 | 0.411      | 4           | 9          | 13    |
| PM Peak<br>15:00-16:00 | 0.374                 | 0.325      | 8           | 7          | 15    |

6.3.2 The development is estimated to generate 13 vehicle movements in the AM peak hour and 15 in the PM peak hour. It is not considered that this number of vehicle movements would have an adverse impact on the operation of the local highway network and does not warrant any junction capacity assessments.

6.3.3 In accordance with NPPF, it is considered that the proposals would not have an unacceptable impact on highway safety and the residual cumulative impacts of the development on the road network would not be severe.

---

## 7. Summary and Conclusions

- 7.1 Sanderson Associates Consulting Engineers has been appointed by Orion Homes Ltd to prepare this Transport Statement to support the planning application for 21 dwellings on land off Denby Road, Grange Moor.
- 7.2 The site is currently agricultural land which has a field gate access on Denby Lane and is located on the edge on Grange Moor village.
- 7.3 The proposals comprise a residential development of 21 dwellings with access taken from Denby Lane. The access road has a carriageway width of 5.5m with a 2m footway on one side and a 0.6m margin on the other.
- 7.4 Visibility from the access at 2.4m x 43m can be achieved in both directions which is considered acceptable given the 30mph plated speed limit, based on Manual for Streets stopping sight distance calculations.
- 7.5 It can be concluded that the frequency of incidents within the study area is low and that these are likely to be due to human error as opposed to deficiencies in the local highway network. There are no accident trends in close proximity to the site which are likely to be adversely affected by the proposal.
- 7.6 It is considered that there are reasonable options of accessing the site by sustainable transport modes. There are local amenities within walking and cycling distance from the site and frequent bus services are also available which connect to the nearest major towns.
- 7.7 The predicted traffic generation from the proposed site has been calculated using the TRICS database which has estimated a total of 13 vehicle movements in the AM peak period and 15 in the PM peak period. The trip generations estimated for the proposed site are considered unlikely to have a detrimental impact on the surrounding highway network.
- 7.8 This Transport Statement demonstrates that the development will not have an unacceptable impact on highway safety and that residual cumulative impacts of the development are not severe in transport terms, consequently the planning application should be supported by the Local Authority on transport grounds.



---

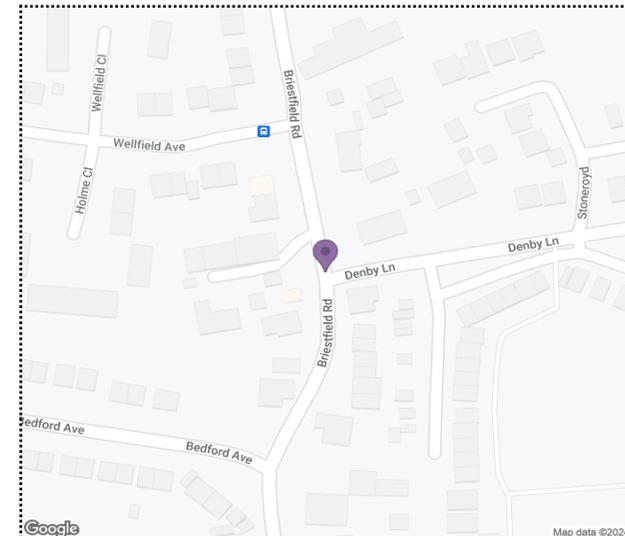
## Appendix A

Crashmap Data



**Validated Data**

|                                      |  |                       |          |                           |               |
|--------------------------------------|--|-----------------------|----------|---------------------------|---------------|
| <b>Crash Date:</b>                   | Friday, July 31, 2020                            | <b>Time of Crash:</b> | 13:00:00 | <b>Crash Reference:</b>   | 20201377V0822 |
| <b>Highest Injury Severity:</b>      | Slight   | <b>Road Number:</b>   | U0       | <b>Casualties:</b>        | 1             |
| <b>Highway Authority:</b>            | Kirklees   |                       |          | <b>Vehicles:</b>          | 2             |
| <b>Local Authority:</b>              | Kirklees   |                       |          | <b>OS Grid Reference:</b> | 422171 416132 |
| <b>Weather Description:</b>          | Fine without high winds                          |                       |          |                           |               |
| <b>Road Surface Description:</b>     | Dry  |                       |          |                           |               |
| <b>Speed Limit:</b>                  | 30   |                       |          |                           |               |
| <b>Light Conditions:</b>             | Daylight: regardless of presence of streetlights |                       |          |                           |               |
| <b>Carriageway Hazards:</b>          | None   |                       |          |                           |               |
| <b>Junction Detail:</b>              | T or staggered junction                          |                       |          |                           |               |
| <b>Junction Pedestrian Crossing:</b> | No physical crossing facility within 50 metres   |                       |          |                           |               |
| <b>Road Type:</b>                    | Single carriageway                               |                       |          |                           |               |
| <b>Junction Control:</b>             | Give way or uncontrolled                         |                       |          |                           |               |



For more information about the data please visit: [www.crashmap.co.uk/home/faq](http://www.crashmap.co.uk/home/faq)

To subscribe to unlimited reports using CrashMap Pro visit: [www.crashmap.co.uk/home/premium\\_services](http://www.crashmap.co.uk/home/premium_services)

Crash Date:

Friday, July 31, 2020

Time of Crash: 13:00:00

Crash Reference: 20201377V0822

## Vehicles Involved

| Vehicle Ref | Vehicle Type                 | Vehicle Age | Driver Gender | Driver Age Band | Vehicle Manoeuvre  | First Point of Impact | Journey Purpose | Hit Object - On Carriageway | Hit Object - Off Carriageway |
|-------------|------------------------------|-------------|---------------|-----------------|--|-----------------------|-----------------|-----------------------------|------------------------------|
| 1           | Car (excluding private hire) | 17          | Male          | 36 - 45         | Vehicle is in the act of turning left                            | Front                 | Unknown         | None                        | None                         |
| 2           | Car (excluding private hire) | 13          | Male          | 21 - 25         | Vehicle proceeding normally along the carriageway, not on a bend | Offside               | Unknown         | None                        | None                         |

## Casualties

| Vehicle Ref | Casualty Ref | Injury Severity | Casualty Class               | Gender | Age Band | Pedestrian Location | Pedestrian Movement |
|-------------|--------------|-----------------|------------------------------|--------|----------|---------------------|---------------------|
| 2           | 1            | Slight          | Vehicle or pillion passenger | Female | 26 - 35  | Unknown or other    | Unknown or other    |

For more information about the data please visit: [www.crashmap.co.uk/home/faq](http://www.crashmap.co.uk/home/faq)

To subscribe to unlimited reports using CrashMap Pro visit: [www.crashmap.co.uk/home/premium\\_services](http://www.crashmap.co.uk/home/premium_services)



---

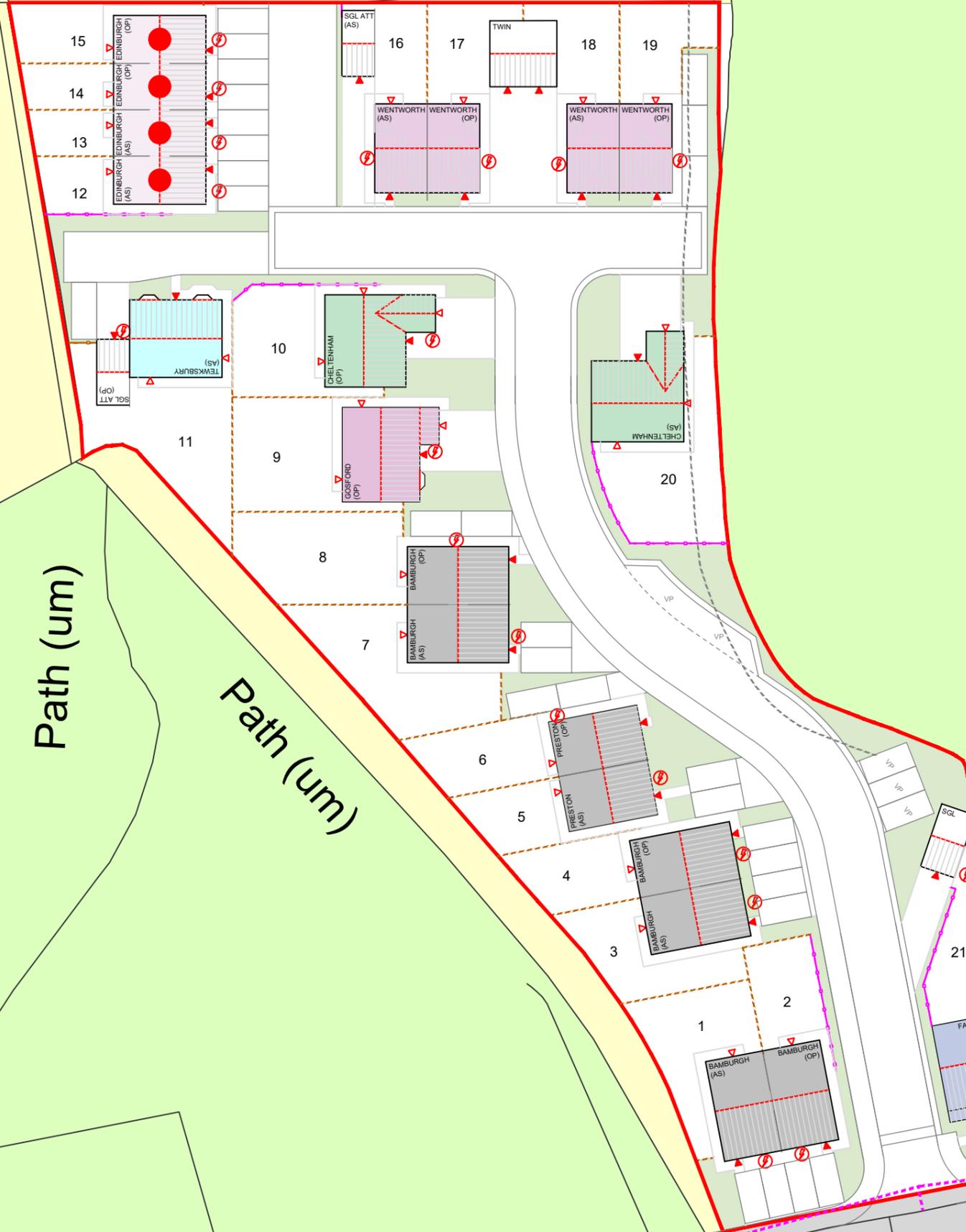
## Appendix B

### Proposed Site Plan

# Denby Lane, Grange Moor

Denby Lane, Grange Moor  
Orion Homes

| Housetype               | number                     | Beds | Storeys | sqft | total        | % mix         |
|-------------------------|----------------------------|------|---------|------|--------------|---------------|
| Preston                 | 2                          | 3    | 2       | 1002 | 2004         | 9.52          |
| Bamburgh                | 6                          | 3    | 2       | 1002 | 6012         | 28.57         |
| Falmouth                | 1                          | 3    | 2       | 1153 | 1153         | 4.76          |
| Gosford                 | 1                          | 3    | 2       | 1161 | 1161         | 4.76          |
| Wentworth               | 4                          | 4    | 2.5     | 1184 | 4736         | 19.05         |
| Tewkesbury              | 1                          | 4    | 2       | 1241 | 1241         | 4.76          |
| Cheltenham              | 2                          | 4    | 2       | 1303 | 2606         | 9.52          |
| <b>Private total</b>    | <b>17</b>                  |      |         |      | <b>18913</b> | <b>80.95</b>  |
| Edinburgh               | 4                          | 3    | 2       | 858  | 3432         | 19.05         |
| <b>Affordable total</b> | <b>4</b>                   |      |         |      | <b>3432</b>  | <b>19.05</b>  |
| <b>Site total</b>       | <b>21</b>                  |      |         |      | <b>22345</b> | <b>100.00</b> |
| Site Area - Gross       | 1.5 acres / 0.6117Hectares |      |         |      |              |               |
| Density                 | 34.33dph                   |      |         |      |              |               |
| coverage                | 14,896 sqft per acre       |      |         |      |              |               |



Path (um)

Path (um)

215.8m

2.4m x 43m Vis splay

| Rev: | Date:    | Notes:   |
|------|----------|--|
| E    | 28.02.24 | 2024 Redrawn - CD  |
| F    | 29.02.24 | Plots 6 and 7 & 15 to 18 amended, 3m easement to eastern boundary added - CD                           |
| G    | 02.03.24 | Plots 1 & 2 moved back to allow for the existing FW manhole/sewer - CD                                 |
| H    | 15.05.24 | Amended to suit Sandersons comments - CD   |
| I    | 31.05.24 | Plots 1 to 6 moved forward to make gap between plots 6 & 7 wider to accommodate drainage easement - CD |

| Rev: | Date:    | Notes:   |
|------|----------|--|
| J    | 06.06.24 | Plots 1 & 2 parking spaces amended and VP amended - CD |

| Rev: | Date: | Notes: |
|------|-------|--------|
| -    | -     | -      |

|             |        |                 |                         |
|-------------|--------|-----------------|-------------------------|
| Date:       | Feb 24 | Project:        | Denby Lane, Grange Moor |
| Scale @ AS: | 1:500  | Drawing Number: | Site layout             |
| Drawn By:   | CD     | Revision:       | J                       |





---

## Appendix C

Drawing 160126-001

Drawing 160126-002



- Sanderson Associates Consulting Engineers ("the consultant"), has not checked or verified, and shall have no liability whatsoever for any inaccuracies which may be attributable to any data, reports, base plan(s) and drawings provided by the client, or purchased by the consultant on the client's behalf, that may have been utilised within this drawing.
- The consultant shall not be liable for the use by any person of any document for any purpose other than that for which the same were provided by the consultant.
- No liability whatsoever is accepted by the consultant for any error or omissions.
- The consultant accepts no liability for any vehicle specification errors within the vehicle track software used and / or it's vehicle libraries.

| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|     |           |       |      |         |

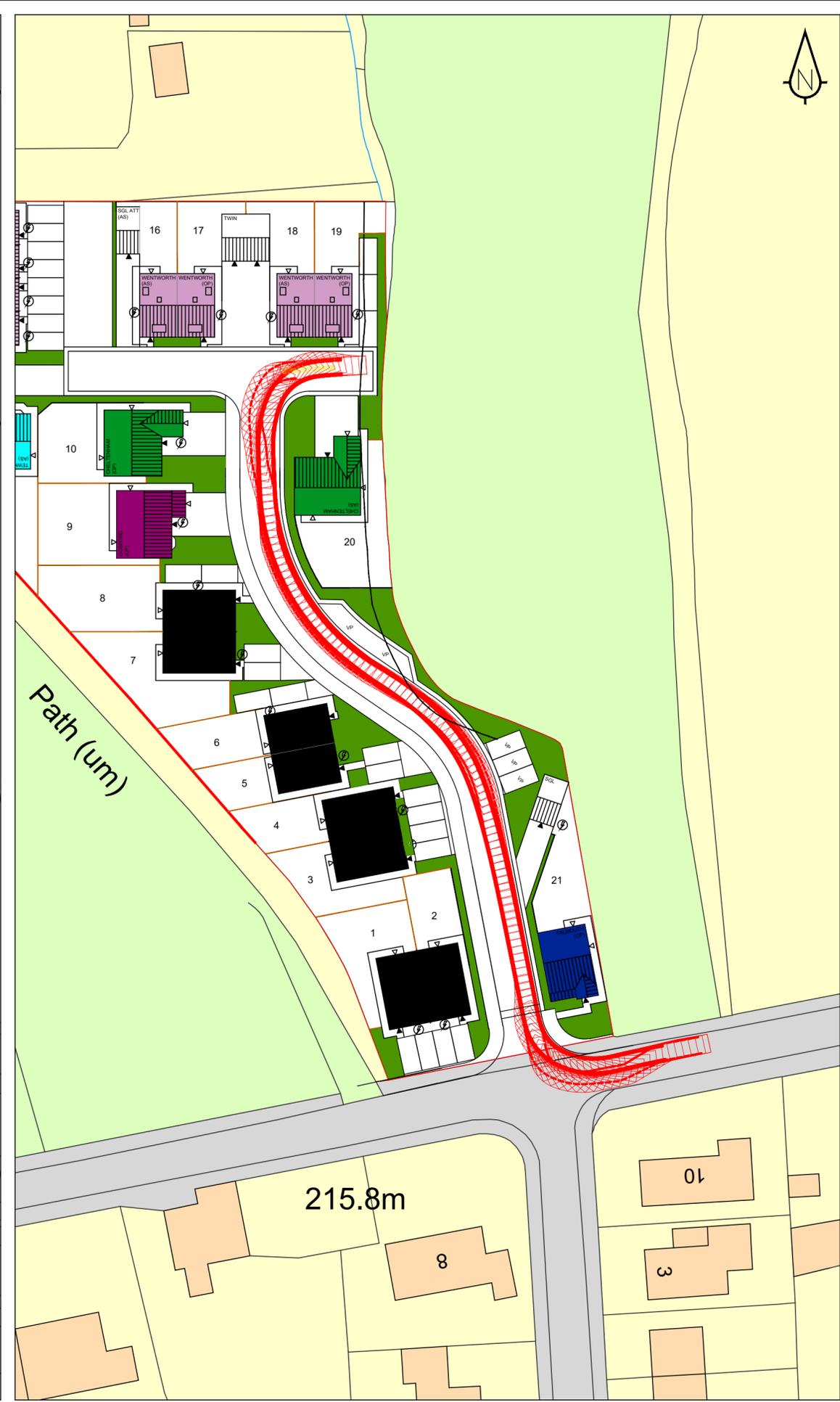
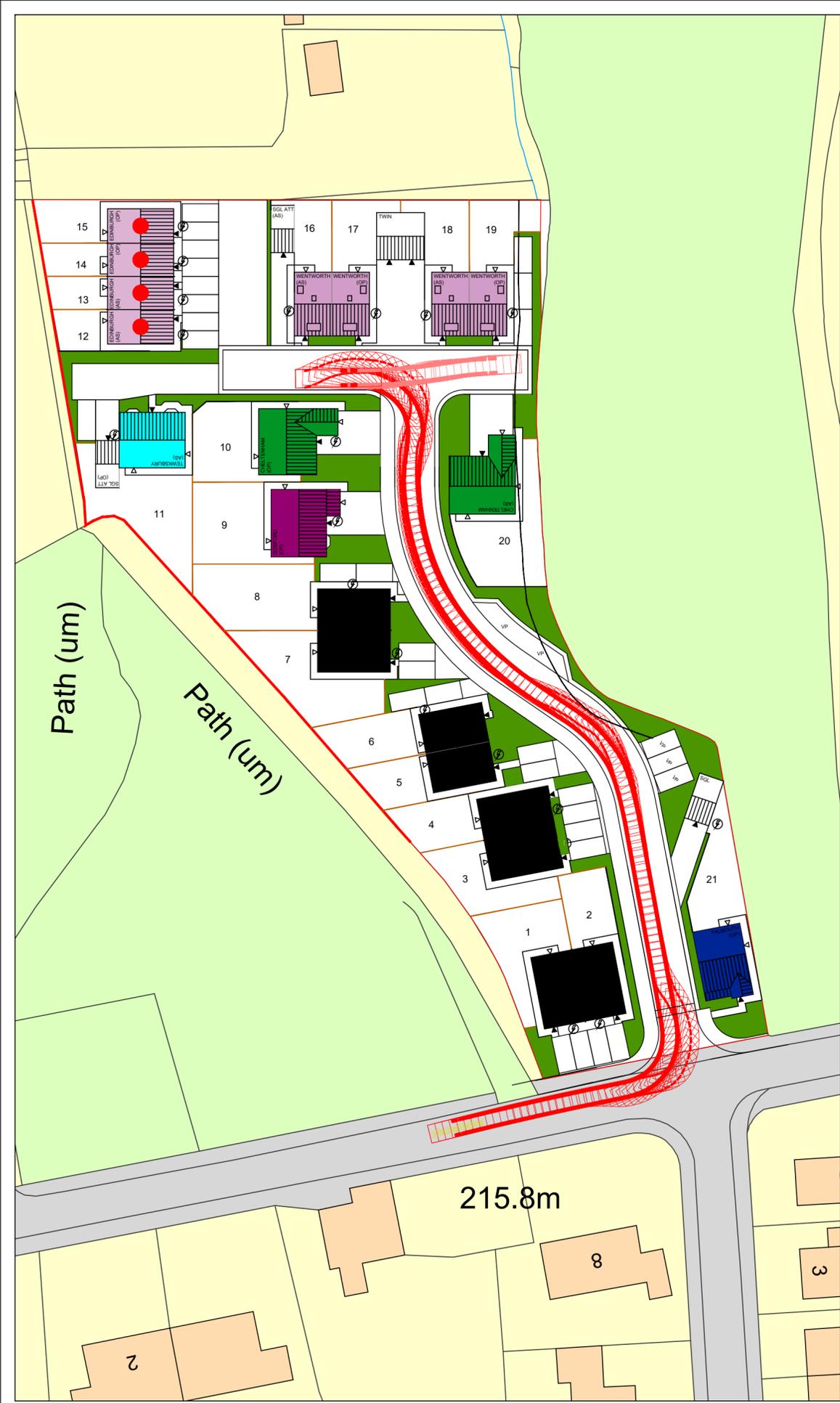


Client  
**Orion Homes Ltd**

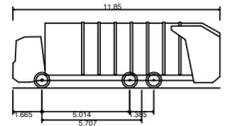
Project Title  
**Proposed Residential Development  
Denby Lane, Grange Moor**

Drawing Title  
**Visibility Splays**

|                |           |             |    |
|----------------|-----------|-------------|----|
| Scale          | 1:250     | Drawn By    | AA |
| Drawing Size   | A2        | Checked By  | SB |
| Date           | June 2024 | Approved By | SB |
| Drawing Number |           | Rev         |    |
| 160126-001     |           |             |    |



- Sanderson Associates Consulting Engineers ("the consultant"), has not checked or verified, and shall have no liability whatsoever for any inaccuracies which may be attributable to any data, reports, base plan(s) and drawings provided by the client, or purchased by the consultant on the client's behalf, that may have been utilised within this drawing.
- The consultant shall not be liable for the use by any person of any document for any purpose other than that for which the same were provided by the consultant.
- No liability whatsoever is accepted by the consultant for any error or omissions.
- The consultant accepts no liability for any vehicle specification errors within the vehicle track software used and / or it's vehicle libraries.



Copy Of Phoenix 2 Duo Recycler (P2-15W with Elite 6x4 chassis)  
 Overall Length 11.850m  
 Overall Width 2.530m  
 Overall Body Height 3.756m  
 Min Body Ground Clearance 0.309m  
 Track Width 2.530m  
 Lock to lock time 4.00s  
 Wall to Wall Turning Radius 11.035m

| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|     |           |       |      |         |



Client  
 Orion Homes Ltd

Project Title  
 Proposed Residential Development  
 Denby Lane, Grange Moor

Drawing Title  
 Swept Path Analysis

|                 |                |
|-----------------|----------------|
| Scale 1:250     | Drawn By AA    |
| Drawing Size A2 | Checked By SB  |
| Date June 2024  | Approved By SB |

|                |     |
|----------------|-----|
| Drawing Number | Rev |
| 160126-002     |     |



---

## Appendix D

TRICS Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL  
Category : A - HOUSES PRIVATELY OWNED  
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

|    |                                |        |
|----|--------------------------------|--------|
| 02 | SOUTH EAST                     |        |
|    | MW MEDWAY                      | 1 days |
|    | SC SURREY                      | 1 days |
| 03 | SOUTH WEST                     |        |
|    | SD SWINDON                     | 1 days |
| 04 | EAST ANGLIA                    |        |
|    | NF NORFOLK                     | 1 days |
|    | PB PETERBOROUGH                | 1 days |
| 07 | YORKSHIRE & NORTH LINCOLNSHIRE |        |
|    | NY NORTH YORKSHIRE             | 1 days |
| 08 | NORTH WEST                     |        |
|    | AC CHESHIRE WEST & CHESTER     | 1 days |

*This section displays the number of survey days per TRICS® sub-region in the selected set*

## Primary Filtering selection:

*This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.*

Parameter: No of Dwellings  
Actual Range: 8 to 34 (units: )  
Range Selected by User: 6 to 35 (units: )

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/16 to 05/06/23

*This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.*

Selected survey days:

|           |        |
|-----------|--------|
| Monday    | 1 days |
| Tuesday   | 1 days |
| Wednesday | 2 days |
| Thursday  | 2 days |
| Friday    | 1 days |

*This data displays the number of selected surveys by day of the week.*

Selected survey types:

|                       |        |
|-----------------------|--------|
| Manual count          | 7 days |
| Directional ATC Count | 0 days |

*This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.*

Selected Locations:

|  |   |
|--|---|
| Suburban Area (PPS6 Out of Centre)       | 5 |
| Neighbourhood Centre (PPS6 Local Centre) | 2 |

*This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.*

Selected Location Sub Categories:

|                  |   |
|------------------|---|
| Residential Zone | 5 |
| Village          | 2 |

*This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.*

Inclusion of Servicing Vehicles Counts:

|                             |                   |
|-----------------------------|-------------------|
| Servicing vehicles Included | 2 days - Selected |
| Servicing vehicles Excluded | 7 days - Selected |

## Secondary Filtering selection:

Use Class:

C3 7 days

*This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.*

Population within 500m Range:

All Surveys Included

## Secondary Filtering selection (Cont.):

Population within 1 mile:

|                  |        |
|------------------|--------|
| 1,001 to 5,000   | 1 days |
| 5,001 to 10,000  | 2 days |
| 10,001 to 15,000 | 1 days |
| 15,001 to 20,000 | 1 days |
| 20,001 to 25,000 | 1 days |
| 25,001 to 50,000 | 1 days |

*This data displays the number of selected surveys within stated 1-mile radii of population.*

Population within 5 miles:

|                    |        |
|--------------------|--------|
| 50,001 to 75,000   | 2 days |
| 100,001 to 125,000 | 1 days |
| 125,001 to 250,000 | 4 days |

*This data displays the number of selected surveys within stated 5-mile radii of population.*

Car ownership within 5 miles:

|            |        |
|------------|--------|
| 0.6 to 1.0 | 2 days |
| 1.1 to 1.5 | 4 days |
| 1.6 to 2.0 | 1 days |

*This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.*

Travel Plan:

|     |        |
|-----|--------|
| Yes | 2 days |
| No  | 5 days |

*This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.*

PTAL Rating:

|                 |        |
|-----------------|--------|
| No PTAL Present | 7 days |
|-----------------|--------|

*This data displays the number of selected surveys with PTAL Ratings.*

LIST OF SITES relevant to selection parameters

|   |  |                           |                         |                            |
|---|--|---------------------------|-------------------------|----------------------------|
| 1 | AC-03-A-04<br>LONDON ROAD<br>NORTHWICH<br>LEFTWICH<br>Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total No of Dwellings: 24<br><i>Survey date: THURSDAY 06/06/19</i>                           | TOWN HOUSES               | CHESHIRE WEST & CHESTER | <i>Survey Type: MANUAL</i> |
| 2 | MW-03-A-01<br>ROCHESTER ROAD<br>NEAR CHATHAM<br>BURHAM<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total No of Dwellings: 8<br><i>Survey date: FRIDAY 22/09/17</i>                             | DETACHED & SEMI -DETACHED | MEDWAY                  | <i>Survey Type: MANUAL</i> |
| 3 | NF-03-A-51<br>CITY ROAD<br>NORWICH<br>LAKENHAM<br>Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total No of Dwellings: 34<br><i>Survey date: TUESDAY 13/09/22</i>                                | SEMI -DETACHED            | NORFOLK                 | <i>Survey Type: MANUAL</i> |
| 4 | NY-03-A-13<br>CATTERICK ROAD<br>CATTERICK GARRISON<br>OLD HOSPITAL COMPOUND<br>Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total No of Dwellings: 10<br><i>Survey date: WEDNESDAY 10/05/17</i> | TERRACED HOUSES           | NORTH YORKSHIRE         | <i>Survey Type: MANUAL</i> |
| 5 | PB-03-A-04<br>EASTFIELD ROAD<br>PETERBOROUGH<br><br>Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total No of Dwellings: 28<br><i>Survey date: MONDAY 17/10/16</i>                               | DETACHED HOUSES           | PETERBOROUGH            | <i>Survey Type: MANUAL</i> |
| 6 | SC-03-A-10<br>GUILDFORD ROAD<br>ASH<br><br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total No of Dwellings: 32<br><i>Survey date: WEDNESDAY 14/09/22</i>  | MIXED HOUSES              | SURREY                  | <i>Survey Type: MANUAL</i> |
| 7 | SD-03-A-01<br>HEADLANDS GROVE<br>SWINDON<br><br>Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total No of Dwellings: 27<br><i>Survey date: THURSDAY 22/09/16</i>                                 | SEMI DETACHED             | SWINDON                 | <i>Survey Type: MANUAL</i> |

*This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.*

MANUALLY DESELECTED SURVEYS

| Site Ref   | Survey Date | Reason for Deselection                      |
|------------|-------------|---|
| CA-03-A-07 | 27/05/21    | Survey undertaken during Covid restrictions |
| ES-03-A-06 | 16/06/21    | Survey undertaken during Covid restrictions |

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Total People to Total Vehicles ratio (all time periods and directions): 1.71

| Time Range          | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|                     | No. Days | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00       |          |             |              |            |             |              |          |             |              |
| 01:00 - 02:00       |          |             |              |            |             |              |          |             |              |
| 02:00 - 03:00       |          |             |              |            |             |              |          |             |              |
| 03:00 - 04:00       |          |             |              |            |             |              |          |             |              |
| 04:00 - 05:00       |          |             |              |            |             |              |          |             |              |
| 05:00 - 06:00       |          |             |              |            |             |              |          |             |              |
| 06:00 - 07:00       |          |             |              |            |             |              |          |             |              |
| 07:00 - 08:00       | 7        | 23          | 0.092        | 7          | 23          | 0.264        | 7        | 23          | 0.356        |
| 08:00 - 09:00       | 7        | 23          | 0.196        | 7          | 23          | 0.411        | 7        | 23          | 0.607        |
| 09:00 - 10:00       | 7        | 23          | 0.215        | 7          | 23          | 0.190        | 7        | 23          | 0.405        |
| 10:00 - 11:00       | 7        | 23          | 0.172        | 7          | 23          | 0.190        | 7        | 23          | 0.362        |
| 11:00 - 12:00       | 7        | 23          | 0.184        | 7          | 23          | 0.135        | 7        | 23          | 0.319        |
| 12:00 - 13:00       | 7        | 23          | 0.153        | 7          | 23          | 0.202        | 7        | 23          | 0.355        |
| 13:00 - 14:00       | 7        | 23          | 0.215        | 7          | 23          | 0.209        | 7        | 23          | 0.424        |
| 14:00 - 15:00       | 7        | 23          | 0.233        | 7          | 23          | 0.276        | 7        | 23          | 0.509        |
| 15:00 - 16:00       | 7        | 23          | 0.374        | 7          | 23          | 0.325        | 7        | 23          | 0.699        |
| 16:00 - 17:00       | 7        | 23          | 0.301        | 7          | 23          | 0.221        | 7        | 23          | 0.522        |
| 17:00 - 18:00       | 7        | 23          | 0.239        | 7          | 23          | 0.160        | 7        | 23          | 0.399        |
| 18:00 - 19:00       | 7        | 23          | 0.227        | 7          | 23          | 0.141        | 7        | 23          | 0.368        |
| 19:00 - 20:00       |          |             |              |            |             |              |          |             |              |
| 20:00 - 21:00       |          |             |              |            |             |              |          |             |              |
| 21:00 - 22:00       |          |             |              |            |             |              |          |             |              |
| 22:00 - 23:00       |          |             |              |            |             |              |          |             |              |
| 23:00 - 24:00       |          |             |              |            |             |              |          |             |              |
| <b>Total Rates:</b> |          |             | <b>2.601</b> |            |             | <b>2.724</b> |          |             | <b>5.325</b> |

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is:  $COUNT/TRP*FACT$ . Trip rates are then rounded to 3 decimal places.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

#### Parameter summary

|   |                     |
|---|---------------------|
| Trip rate parameter range selected:           | 8 - 34 (units: )    |
| Survey date date range:                       | 01/01/16 - 05/06/23 |
| Number of weekdays (Monday-Friday):           | 9                   |
| Number of Saturdays:                          | 0                   |
| Number of Sundays:                            | 0                   |
| Surveys automatically removed from selection: | 2                   |
| Surveys manually removed from selection:      | 0                   |

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED  
 MULTI-MODAL CYCLISTS  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

| Time Range          | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|                     | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00       |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00       |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00       |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00       |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00       |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00       |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00       |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00       | 7        | 23          | 0.025     | 7          | 23          | 0.037     | 7        | 23          | 0.062     |
| 08:00 - 09:00       | 7        | 23          | 0.000     | 7          | 23          | 0.037     | 7        | 23          | 0.037     |
| 09:00 - 10:00       | 7        | 23          | 0.006     | 7          | 23          | 0.000     | 7        | 23          | 0.006     |
| 10:00 - 11:00       | 7        | 23          | 0.000     | 7          | 23          | 0.000     | 7        | 23          | 0.000     |
| 11:00 - 12:00       | 7        | 23          | 0.000     | 7          | 23          | 0.000     | 7        | 23          | 0.000     |
| 12:00 - 13:00       | 7        | 23          | 0.012     | 7          | 23          | 0.006     | 7        | 23          | 0.018     |
| 13:00 - 14:00       | 7        | 23          | 0.006     | 7          | 23          | 0.006     | 7        | 23          | 0.012     |
| 14:00 - 15:00       | 7        | 23          | 0.000     | 7          | 23          | 0.006     | 7        | 23          | 0.006     |
| 15:00 - 16:00       | 7        | 23          | 0.025     | 7          | 23          | 0.000     | 7        | 23          | 0.025     |
| 16:00 - 17:00       | 7        | 23          | 0.012     | 7          | 23          | 0.000     | 7        | 23          | 0.012     |
| 17:00 - 18:00       | 7        | 23          | 0.012     | 7          | 23          | 0.018     | 7        | 23          | 0.030     |
| 18:00 - 19:00       | 7        | 23          | 0.018     | 7          | 23          | 0.000     | 7        | 23          | 0.018     |
| 19:00 - 20:00       |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00       |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00       |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00       |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00       |          |             |           |            |             |           |          |             |           |
| <b>Total Rates:</b> |          |             | 0.116     |            |             | 0.110     |          |             | 0.226     |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP\*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED  
 MULTI-MODAL VEHICLE OCCUPANTS  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

| Time Range          | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|                     | No. Days | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00       |          |             |              |            |             |              |          |             |              |
| 01:00 - 02:00       |          |             |              |            |             |              |          |             |              |
| 02:00 - 03:00       |          |             |              |            |             |              |          |             |              |
| 03:00 - 04:00       |          |             |              |            |             |              |          |             |              |
| 04:00 - 05:00       |          |             |              |            |             |              |          |             |              |
| 05:00 - 06:00       |          |             |              |            |             |              |          |             |              |
| 06:00 - 07:00       |          |             |              |            |             |              |          |             |              |
| 07:00 - 08:00       | 7        | 23          | 0.117        | 7          | 23          | 0.350        | 7        | 23          | 0.467        |
| 08:00 - 09:00       | 7        | 23          | 0.196        | 7          | 23          | 0.607        | 7        | 23          | 0.803        |
| 09:00 - 10:00       | 7        | 23          | 0.227        | 7          | 23          | 0.258        | 7        | 23          | 0.485        |
| 10:00 - 11:00       | 7        | 23          | 0.215        | 7          | 23          | 0.258        | 7        | 23          | 0.473        |
| 11:00 - 12:00       | 7        | 23          | 0.215        | 7          | 23          | 0.172        | 7        | 23          | 0.387        |
| 12:00 - 13:00       | 7        | 23          | 0.178        | 7          | 23          | 0.239        | 7        | 23          | 0.417        |
| 13:00 - 14:00       | 7        | 23          | 0.264        | 7          | 23          | 0.233        | 7        | 23          | 0.497        |
| 14:00 - 15:00       | 7        | 23          | 0.294        | 7          | 23          | 0.294        | 7        | 23          | 0.588        |
| 15:00 - 16:00       | 7        | 23          | 0.521        | 7          | 23          | 0.411        | 7        | 23          | 0.932        |
| 16:00 - 17:00       | 7        | 23          | 0.436        | 7          | 23          | 0.282        | 7        | 23          | 0.718        |
| 17:00 - 18:00       | 7        | 23          | 0.368        | 7          | 23          | 0.215        | 7        | 23          | 0.583        |
| 18:00 - 19:00       | 7        | 23          | 0.313        | 7          | 23          | 0.172        | 7        | 23          | 0.485        |
| 19:00 - 20:00       |          |             |              |            |             |              |          |             |              |
| 20:00 - 21:00       |          |             |              |            |             |              |          |             |              |
| 21:00 - 22:00       |          |             |              |            |             |              |          |             |              |
| 22:00 - 23:00       |          |             |              |            |             |              |          |             |              |
| 23:00 - 24:00       |          |             |              |            |             |              |          |             |              |
| <b>Total Rates:</b> |          |             | <b>3.344</b> |            |             | <b>3.491</b> |          |             | <b>6.835</b> |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP\*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED  
 MULTI-MODAL PEDESTRIANS  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

| Time Range          | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|                     | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00       |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00       |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00       |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00       |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00       |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00       |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00       |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00       | 7        | 23          | 0.012     | 7          | 23          | 0.049     | 7        | 23          | 0.061     |
| 08:00 - 09:00       | 7        | 23          | 0.061     | 7          | 23          | 0.190     | 7        | 23          | 0.251     |
| 09:00 - 10:00       | 7        | 23          | 0.092     | 7          | 23          | 0.043     | 7        | 23          | 0.135     |
| 10:00 - 11:00       | 7        | 23          | 0.055     | 7          | 23          | 0.067     | 7        | 23          | 0.122     |
| 11:00 - 12:00       | 7        | 23          | 0.025     | 7          | 23          | 0.043     | 7        | 23          | 0.068     |
| 12:00 - 13:00       | 7        | 23          | 0.031     | 7          | 23          | 0.067     | 7        | 23          | 0.098     |
| 13:00 - 14:00       | 7        | 23          | 0.037     | 7          | 23          | 0.092     | 7        | 23          | 0.129     |
| 14:00 - 15:00       | 7        | 23          | 0.092     | 7          | 23          | 0.043     | 7        | 23          | 0.135     |
| 15:00 - 16:00       | 7        | 23          | 0.166     | 7          | 23          | 0.123     | 7        | 23          | 0.289     |
| 16:00 - 17:00       | 7        | 23          | 0.067     | 7          | 23          | 0.043     | 7        | 23          | 0.110     |
| 17:00 - 18:00       | 7        | 23          | 0.043     | 7          | 23          | 0.031     | 7        | 23          | 0.074     |
| 18:00 - 19:00       | 7        | 23          | 0.061     | 7          | 23          | 0.031     | 7        | 23          | 0.092     |
| 19:00 - 20:00       |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00       |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00       |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00       |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00       |          |             |           |            |             |           |          |             |           |
| <b>Total Rates:</b> |          |             | 0.742     |            |             | 0.822     |          |             | 1.564     |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP\*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 7        | 23          | 0.025     | 7          | 23          | 0.055     | 7        | 23          | 0.080     |
| 08:00 - 09:00 | 7        | 23          | 0.018     | 7          | 23          | 0.061     | 7        | 23          | 0.079     |
| 09:00 - 10:00 | 7        | 23          | 0.000     | 7          | 23          | 0.049     | 7        | 23          | 0.049     |
| 10:00 - 11:00 | 7        | 23          | 0.025     | 7          | 23          | 0.012     | 7        | 23          | 0.037     |
| 11:00 - 12:00 | 7        | 23          | 0.006     | 7          | 23          | 0.012     | 7        | 23          | 0.018     |
| 12:00 - 13:00 | 7        | 23          | 0.018     | 7          | 23          | 0.025     | 7        | 23          | 0.043     |
| 13:00 - 14:00 | 7        | 23          | 0.000     | 7          | 23          | 0.000     | 7        | 23          | 0.000     |
| 14:00 - 15:00 | 7        | 23          | 0.000     | 7          | 23          | 0.006     | 7        | 23          | 0.006     |
| 15:00 - 16:00 | 7        | 23          | 0.031     | 7          | 23          | 0.012     | 7        | 23          | 0.043     |
| 16:00 - 17:00 | 7        | 23          | 0.043     | 7          | 23          | 0.000     | 7        | 23          | 0.043     |
| 17:00 - 18:00 | 7        | 23          | 0.031     | 7          | 23          | 0.018     | 7        | 23          | 0.049     |
| 18:00 - 19:00 | 7        | 23          | 0.043     | 7          | 23          | 0.000     | 7        | 23          | 0.043     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 0.240     |            |             | 0.250     |          |             | 0.490     |

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is:  $COUNT/TRP*FACT$ . Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED  
 MULTI-MODAL TOTAL PEOPLE  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period  
 Total People to Total Vehicles ratio (all time periods and directions): 1.71

| Time Range          | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|                     | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00       |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00       |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00       |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00       |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00       |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00       |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00       |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00       | 7        | 23          | 0.178     | 7          | 23          | 0.491     | 7        | 23          | 0.669     |
| 08:00 - 09:00       | 7        | 23          | 0.276     | 7          | 23          | 0.896     | 7        | 23          | 1.172     |
| 09:00 - 10:00       | 7        | 23          | 0.325     | 7          | 23          | 0.350     | 7        | 23          | 0.675     |
| 10:00 - 11:00       | 7        | 23          | 0.294     | 7          | 23          | 0.337     | 7        | 23          | 0.631     |
| 11:00 - 12:00       | 7        | 23          | 0.245     | 7          | 23          | 0.227     | 7        | 23          | 0.472     |
| 12:00 - 13:00       | 7        | 23          | 0.239     | 7          | 23          | 0.337     | 7        | 23          | 0.576     |
| 13:00 - 14:00       | 7        | 23          | 0.307     | 7          | 23          | 0.331     | 7        | 23          | 0.638     |
| 14:00 - 15:00       | 7        | 23          | 0.387     | 7          | 23          | 0.350     | 7        | 23          | 0.737     |
| 15:00 - 16:00       | 7        | 23          | 0.742     | 7          | 23          | 0.546     | 7        | 23          | 1.288     |
| 16:00 - 17:00       | 7        | 23          | 0.558     | 7          | 23          | 0.325     | 7        | 23          | 0.883     |
| 17:00 - 18:00       | 7        | 23          | 0.454     | 7          | 23          | 0.282     | 7        | 23          | 0.736     |
| 18:00 - 19:00       | 7        | 23          | 0.436     | 7          | 23          | 0.202     | 7        | 23          | 0.638     |
| 19:00 - 20:00       |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00       |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00       |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00       |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00       |          |             |           |            |             |           |          |             |           |
| <b>Total Rates:</b> |          |             | 4.441     |            |             | 4.674     |          |             | 9.115     |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP\*FACT. Trip rates are then rounded to 3 decimal places.*



# FAIRHURST

 Sanderson House, Jubilee Way, Grange Moor, Huddersfield, WF4 4TD

 01924 844080

 mail@sandersonassociates.co.uk

 www.sandersonassociates.co.uk

CIVIL ENGINEERING • STRUCTURAL ENGINEERING • TRANSPORTATION • ROADS & BRIDGES  
PORTS & HARBOURS • GEOTECHNICAL & ENVIRONMENTAL ENGINEERING • PLANNING &  
DEVELOPMENT • WATER SERVICES • HEALTH & SAFETY / CDM SERVICES

