

Land off Henthorn Road,
Clitheroe

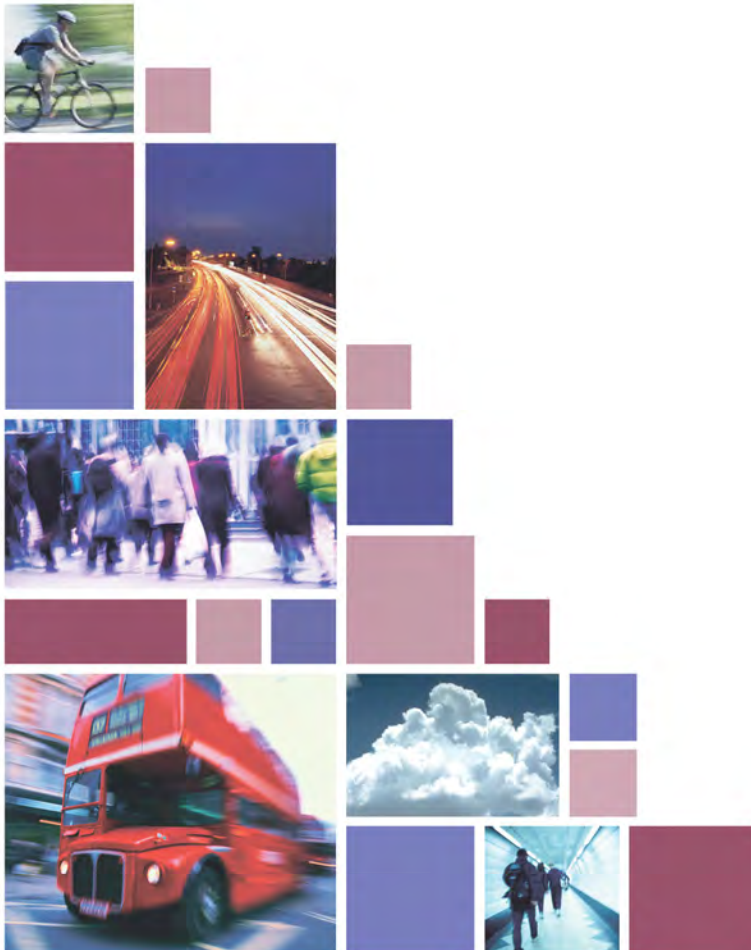
Transport Assessment

Report Prepared for

Gladman
Developments Ltd

August 2018

Report Reference 1616/2/B



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Client: Gladman Developments Ltd
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1 Introduction

- 1.1 Ashley Helme Associates Limited (AHA) are appointed by Gladman Developments Ltd to prepare a Transport Assessment (TA) report to support the planning application for residential development on land off Henthorn Road, Clitheroe (henceforth referred to as the Site). The location of the Site is indicated on Figure 1, in the context of the local highway network.
- 1.2 The Site is presently agricultural/field land. The proposed development comprises up to **110** dwellings.
- 1.3 Pre-application discussions have been held with officers at Lancashire County Council (LCC) and this has culminated in agreement being reached to a number of TA parameters.
- 1.4 The transport policy context for the proposed development is outlined in Chapter 2. The principles of the access strategy adopted for the proposed development are also discussed in Chapter 2, and this provides the means to achieve transport policy objectives. It is fundamental to the approach of the applicant, as represented in this TA, that a holistic view is taken of the consideration of access to the proposed development by all modes of transport.
- 1.5 The issues addressed within the TA fall broadly into the following areas:
- Accessibility by non-car modes, and
 - The vehicular traffic impact on the operational performance of the local highway network, assessed quantitatively for the TA defined study network.
- 1.6 The local highway network is described in Chapter 3. The proposed Site access arrangements are outlined in Chapter 4.
- 1.7 The transport sustainability of the proposed development is a key issue, as set out in the National Planning Policy Framework (NPPF, March 2012), and also Planning Practice Guidance (PPG, March 2014). Accessibility issues are identified in Chapter 2, and an accessibility appraisal of the Site by non-car modes is presented in Chapters

5 (Walk & Cycle) and 6 (Public Transport), using an accessibility mapping methodology.

- 1.8 The planning application is supported by the Travel Plan (TP) report. Chapter 7 outlines the principles of the TP. A summary indication is included in Chapter 7 of the Action Plan for the Travel Plan. This includes measures that are to be implemented prior to first occupation of the development, as well as subsequent and on-going measures/initiatives. A separate Travel Plan document is submitted as part of the planning application, and is complementary to the TA report.
- 1.9 The estimation of the development generated traffic and associated 'With Development' traffic flows are presented in Chapter 8. Modelling of the impact of development traffic on the highway network is described in Chapter 9.
- 1.10 The conclusions of the TA are presented in Chapter 10.

2 Policies & Principles of Access Strategy

2.1 A holistic approach is adopted for the desired access strategy. Due cognisance is taken of a range of relevant policy documents and considerations that represent current national and local policies. These include:

- National Planning Policy Framework (NPPF), July 2018,
- Planning Practice Guidance (PPG), March 2014,
- Ribble Valley BC Core Strategy 2008-2028,
- Lancashire County Council Local Transport Plan 2011-2021.

2.2 The general thrust of current national and local policies is to promote and deliver sustainable transport objectives, and this is a key factor in defining the access strategy for the proposed development.

2.3 There are a range of documents that provide advice and guidance identifying that the historic approach of adopting rigid highway design standards and considering this in isolation is not appropriate or desirable in today's world. This includes, for example, Manual for Streets (MfS) and the associated Manual for Streets 2 (MfS2).

2.4 **NPPF: ACHIEVING SUSTAINABLE TRANSPORT**

2.4.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied.

2.4.2 Paragraph 7 of NPPF sets out that:

"The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs."

2.4.3 In paragraph 10, NPPF makes it clear that:

*"So that sustainable development is pursued in a positive way, at the heart of the Framework is a **presumption in favour of sustainable development.**"*

2.5 **NPPF: PROMOTING SUSTAINABLE TRANSPORT**

2.5.1 The Government's commitment to sustainable development is emphasised in NPPF. Paragraph 102 advises development promoters to consider transport issues from the earliest stages of plan-making and development proposals, so that:

- a) the potential impacts of development on transport networks can be addressed;*
- b) opportunities from existing or proposed transport infrastructure, and changing technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- e) patterns of movement, streets, parking and other transport considerations are integral to design of schemes, and contribute to making high quality places."*

2.5.2 This is expanded in paragraph 103, which states:

"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."

The proposed development respects and reflects this NPPF transport sustainability related objective.

2.5.3 NPPF states in paragraph 108 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; and*
- c) 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."*

2.5.4 NPPF makes it clear in paragraph 109 that:

*"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**."* (AHA emphasis).

2.5.5 NPPF offers specific transport advice with respect to development proposals. In paragraph 110, NPPF sets out that 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."*

2.6 PPG

2.6.1 The Department for Communities and Local Government (DCLG) launched the new Planning Practice Guidance (PPG) web-based resource on 6 March 2014. The PPG includes advice on when transport assessments and transport statements are required, and what they should contain.

2.6.2 The PPG states that:

"Travel Plans, Transport Assessments and Statements can positively contribute to:

- *encouraging sustainable travel;*
- *lessening traffic generation and its detrimental impacts;*
- *reducing carbon emissions and climate impacts;*
- *creating accessible, connected, inclusive communities;*
- *improving health outcomes and quality of life;*
- *improving road safety; and*
- *reducing the need for new development to increase existing road capacity or provide new roads."*

2.6.3 With respect to Transport Assessments and Statements, PPG sets out that:

"The key issues to consider at the start of preparing a Transport Assessment or Statement may include:

- *the planning context of the development proposal;*

- appropriate study parameters (i.e. area, scope and duration of study);
- assessment of public transport capacity, walking/ cycling capacity and road network capacity;
- road trip generation and trip distribution methodologies and/ or assumptions about the development proposal;
- measures to promote sustainable travel;
- safety implications of development; and
- mitigation measures (where applicable) – including scope and implementation strategy."

2.6.4 With respect to Travel Plans, PPG sets out that:

"Travel Plans should set explicit outcomes rather than just identify processes to be followed (such as encouraging active travel or supporting the use of low emission vehicles). They should address all journeys resulting from a proposed development by anyone who may need to visit or stay and they should seek to fit in with wider strategies for transport in the area.

They should evaluate and consider:

- benchmark travel data including trip generation databases;
- information concerning the nature of the proposed development and the forecast level of trips by all modes of transport likely to be associated with the development;
- relevant information about existing travel habits in the surrounding area;
- proposals to reduce the need for travel to and from the site via all modes of transport; and
- provision of improved public transport services."

2.7 RIBBLE VALLEY BC: CORE STRATEGY 2008-2028

2.7.1 The Ribble Valley Borough Council (RVBC) Core Strategy was adopted on 14 December 2014. The Core Strategy is the central document to the Local Development Framework and establishes the vision, underlying objectives and key principles that the Council will follow to guide development in the Borough.

Although it is used to aid the assessment of planning applications its primary function is to set a more strategic level of planning policy for the area.

- 2.7.2 The Core Strategy sets out the Council's position with regard to transport in in Key Statement DMI2. This states that:

"KEY STATEMENT DMI2: TRANSPORT CONSIDERATIONS

New development should be located to minimise the need to travel. Also it should incorporate good access by foot and cycle and have convenient links to public transport to reduce the need for travel by private car. In general, schemes offering opportunities for more sustainable means of transport and sustainable travel improvements will be supported. Sites for potential future railway stations at Chatburn and Gisburn will be protected from inappropriate development.

Major applications should always be accompanied by a comprehensive travel plan."

- 2.7.3 The Council's position on transport is expanded further in Policy DMG3, which states:

"POLICY DMG3: TRANSPORT AND MOBILITY

In making decisions on development proposals the local planning authority will, in addition to assessing proposals within the context of the development strategy, attach considerable weight to:

The availability and adequacy of public transport and associated infrastructure to serve those moving to and from the development –

- 1. The relationship of the site to the primary route network and the strategic road network.*
- 2. The provision made for access to the development by pedestrian, cyclists and those with reduced mobility.*
- 3. Proposals which promote development within existing developed areas or extensions to them at locations which are highly accessible by means other than the private car.*

4. *Proposals which locate major generators of travel demand in existing centres which are highly accessible by means other than the private car.*
5. *Proposals which strengthen existing town and village centres which offer a range of everyday community shopping and employment opportunities by protecting and enhancing their vitality and viability.*
6. *Proposals which locate development in areas which maintain and improve choice for people to walk, cycle or catch public transport rather than drive between homes and facilities which they need to visit regularly.*
7. *Proposals which limit parking provision for developments and other on or off street parking provision to discourage reliance on the car for work and other journeys where there are effective alternatives.*

All major proposals should offer opportunities for increased use of, or the improved provision of, bus and rail facilities. All development proposals will be required to provide adequate car parking and servicing space in line with currently approved standards. ..."

- 2.7.4. The Council's position on footpaths and bridleways is set out in DMB5. This states that:

"POLICY DMB5: FOOTPATHS AND BRIDLEWAYS

The Borough Council will seek to ensure the retention, maintenance and improvement of by-ways and un-surfaced/unclassified roads as part of the public rights of way network. In situations where a public right of way will inevitably become less attractive (due to adjacent/surrounding development), the policy should require compensatory enhancements such that there is a net improvement to the public right of way network. The Borough Council will, unless suitable mitigation measures are made, protect from the development footpaths which:

- 1. Provide a link between towns/villages and attractive open land;*
- 2. Link with the Ribble Way footpath;*
- 3. Are associated to the local nature reserves; and*
- 4. Are heavily used."*

2.8 LANCASHIRE LOCAL TRANSPORT PLAN (LTP) 2011-2021

- 2.8.1 Lancashire County Council (LCC) is the local highway authority, and has responsibility for the development and delivery of the Local Transport Plan (LTP).
- 2.8.2 The underlying theme and objectives of the LTP are to promote policies and measures to foster and achieve improved opportunities for travel choices by non-car modes. This provides the context for specific local measures to be considered, promoted and introduced.

2.9 PRINCIPLES OF THE ACCESS STRATEGY

- 2.9.1 The access strategy for the development provides the means to achieve the identified policy objectives by optimising the opportunity for access to/from the Site by non-car modes. This is in accordance with all local and national policies.
- 2.9.2 The accessibility of the Site for those travelling on foot and cycle is reviewed in Chapter 5, and takes account of the existing and proposed facilities. The current accessibility of the Site by public transport is outlined in Chapter 6 herein, together with the development proposals for public transport. The proposed development takes account of the needs of the mobility impaired.
- 2.9.3 The Access Strategy for the development is cohesive, reflecting the need to appropriately consider and enable provision for the movement of people and goods. This is in accordance with the aims and spirit of NPPF. This includes considering, inter alia:
- Permeability of the Site from/connection to the surrounding locality, for all modes of transport, motorised and non-motorised,
 - External linkage to the Site. The corresponding internal access/routing details are to be addressed in subsequent reserved matters application(s),
 - Internal access arrangements, all to be the subject of reserved matters application(s), should minimise distance travelled by all modes (where appropriate),
 - Emergency access requirements must be met.

2.9.4 The development proposals adopt an integrated approach to managing travel demand, offering safe and sustainable access for all by a choice of sustainable transport alternatives, between homes and employment and a range of services and facilities, such as retail, health, education, and leisure.

2.10 **SUMMARY**

2.10.1 In summary, the development proposal respects and promotes the principles of transport sustainability, and is consistent with national and local transport policy objectives.

3 Highway Network

3.1 The location of the Site is indicated on Figure 1 in the context of the local highway network.

3.2 The Site is located to the west of Henthorn Road, which is public highway.

3.3 Henthorn Road

3.3.1 To the north of the application Site, Henthorn Road takes the form of a typical residential road with footways on both sides. This section of Henthorn Road is generally fronted by residential properties and benefits from street lighting.

3.3.2 Adjacent to the application Site, Henthorn Road comprises a 'country lane' and is bordered on both sides by grass verge and hedgerow.

3.3.3 Both sections of Henthorn Road are subject to a 20mph speed limit.

3.4 STUDY NETWORK

3.4.1 Traffic generated by the Site will pass through the following junctions that comprise the TA study network of junctions:

REF	JUNCTION	CONTROL
SJ1	Lancaster Drive/Edisford Road	Priority control
SJ2	Seedall Avenue/Edisford Road	Priority control
SJ3	Faraday Avenue/Edisford Road	Priority control
SJ4	Thorn Street/Bawdlands	Priority control
SJ5	Henthorn Road/Bawdlands	Priority control
SJ6	Henthorn Road/Eshton Terrace/Thorn Street	Priority control
SJ7	Station Road/Parson Lane	Mini-roundabout
SJ8	Lowergate/Moor Lane/Woone Lane	Mini-roundabout/priority control
SJ9	Castle View/Parson Lane	Priority control
SJ10	Greenacre Street/Woone Lane/Eshton Terrace	Priority control
SJ11	Whalley Road/Greenacre Street	Priority control

SJ12 Primrose Road/A671 Whalley Road Priority control.

3.4.2 The TA network of study junctions is presented on Figure 2. The local highway authority, Lancashire County Council (LCC), is responsible for all of the TA study junctions. The TA study network is **agreed** with LCC.

3.5 **EXISTING JUNCTION GEOMETRY**

3.5.1 The existing study network junctions are presented on the following drawings:

REF	JUNCTION	CONTROL
SJ1	Lancaster Drive/Edisford Road	Drg No 1616/03
SJ2	Seedall Avenue/Edisford Road	Drg No 1616/04
SJ3	Faraday Avenue/Edisford Road	Drg No 1616/05
SJ4	Thorn Street/Bawdlands	Drg No 1616/06
SJ5	Henthorn Road/Bawdlands	Drg No 1616/06
SJ6	Henthorn Road/Eshton Terrace/Thorn Street	Drg No 1616/06
SJ7	Station Road/Parson Lane	Drg No 1616/07
SJ8	Lowergate/Moor Lane/Woone Lane	Drg No 1616/08
SJ9	Castle View/Parson Lane	Drg No 1616/09
SJ10	Greenacre Street/Woone Lane/Eshton Terrace	Drg No 1616/10
SJ11	Whalley Road/Greenacre Street	Drg No 1616/11
SJ12	Primrose Road/A671 Whalley Road	Drg No 1616/12.

3.5.2 **SJ1: Lancaster Drive/Edisford Road**

3.5.2.1 SJ1 is located approximately 750m north east of the proposed Site access. SJ1 operates as a priority controlled 'T' junction formed by the intersection of Edisford Road and Lancaster Drive. Lancaster Drive forms the minor arm of the junction. The layout of SJ1 is presented on Drg No 1616/03.

3.5.2.2 The junction is located within a 30mph speed limit. There is footway provision around all of the junction. The junction benefits from lighting. There are 2no bus stops on Edisford Road at:

(i) Eastbound services: north side of Edisford Road, 15m west of Lancaster Drive,

(ii) Westbound services: south side of Edisford Road, 20m east of Lancaster Drive.

3.5.3 **SJ2: Seedall Avenue/Edisford Road**

3.5.3.1 SJ2 is located approximately 270m east of SJ1, and is a priority controlled 'T' junction. Seedall Avenue forms the minor arm of the junction. The existing junction arrangements are presented on Drg No 1616/04.

3.5.3.2 The junction is located within a 30mph speed limit. A 20mph speed limit applies to Seedall Avenue immediately to the south of the junction. The junction is near to Edisford Primary School and a 20mph speed limit is applied (by flashing lights) to Edisford Road at school start and finish times.

3.5.3.3 There is footway provision around all of the junction and street lighting is present.

3.5.4 **SJ3: Faraday Avenue/Edisford Road**

3.5.4.1 SJ3 is located about 150m east of SJ2 and is a 3-arm priority controlled 'T' junction. Faraday Avenue forms the minor arm of the junction. The existing junction arrangements are presented on 1616/05.

3.5.4.2 The junction is located within a 30mph speed limit and there is footway provision around all of the junction. Street lighting is also present.

3.5.5 **SJ4: Thorn Street/Bawdlands**

3.5.5.1 SJ4 is located approximately 1050m from the proposed Site access. It is also located in close proximity to SJ5 & 6. The existing junction arrangements are presented on Drg No 1616/06.

3.5.5.2 SJ4 is a priority controlled 'T' junction, with Thorn Street forming the minor arm. Bawdlands is subject to a 30mph speed limit. A 20mph speed limit applies to Thorn Street. There is footway provision and street lighting present at the junction.

3.5.6 SJ5: Henthorn Road/Bawdlands

3.5.6.1 SJ5 is located a short distance east of SJ4 and is a priority controlled 'T' junction, with Henthorn Road forming the minor arm. The existing junction arrangements are presented on Drg No 1616/06.

3.5.6.2 The junction is located within a 20mph speed limit, although a 30mph speed limit applies to Bawlands immediately to the west of Henthorn Road. There is footway provision around the junction and street lighting is present.

3.5.7 SJ6: Henthorn Road/Eshton Terrace/Thorn Street

3.5.7.1 SJ6 is located directly south of SJ5 and is a priority-controlled crossroads, formed by the intersection of Henthorn Road, Thorn Street and Eshton Terrace. The layout of SJ6 is indicated on Drg No 1616/06.

3.5.7.2 Thorn Street and Eshton Terrace form the minor arms of the junction. There is a 'stop' line on the Eshton Terrace arm of the junction. The junction is located within a 20mph speed limit. There are footways on all arms of the junction and street lighting is present.

3.5.8 SJ7: Station Road/Parson Lane

3.5.8.1 SJ7 is located approximately 1.5km northeast of the proposed Site access. SJ7 is a 3-arm mini roundabout. The existing junction arrangements are shown on Drg No 1616/07.

3.5.8.2 The Parson Lane (E) arm of SJ7 operates one-way in the westbound direction. This means that only movements towards the junction are permitted on this arm.

3.5.8.3 The junction is subject to 'No Waiting' and loading restrictions. On land at the northeast sector of the roundabout, between Station Road and the one-way section of Parson Lane, there is a permit holders' car park. This operates with one-way entry from Station Road and one-way exit onto Parson Lane (E).

3.5.9 **SJ8: Lowergate/Moor Lane/Woone Lane**

3.5.9.1 SJ8 is a 4-arm mini-roundabout and is located approximately 250m north of SJ6. The existing junction arrangements are shown on AHA Drg No 1616/08.

3.5.9.2 The permitted movements at the junction are as follows:

- (i) Lowergate: one-way southbound (ie towards junction),
- (ii) Moor Lane (S): northbound and southbound (ie no restriction),
- (iii) Woone Lane: one-way northbound (ie towards junction),
- (iv) Moor Lane (N): one-way northbound (ie away from junction).

Right turn movements between Lowergate and Moor Lane (N) take place at location north of the roundabout. These movements are not permitted at the mini-roundabout.

3.5.9.3 There are 'No Waiting' restrictions at the junction. There are northbound and southbound cycle lanes along Moor Lane (S). There is footway provision around the junction. A pedestrian refuge, with dropped kerbs and tactile paving, is provided between the Moor Lane (N) and Lowergate arms of the junction. The junction benefits from street lighting.

3.5.10 **SJ9: Castle View/Parson Lane**

3.5.10.1 SJ9 is located approximately 170m south-west of SJ7 and is a three-arm priority controlled 'T' junction. The existing junction arrangements are presented on Drg No 1616/09.

3.5.10.2 The junction is located within a 20mph speed limit. There are 'No Waiting' restrictions on the major arm of the junction. There is footway provision on the north side of the major arm and the minor arm and street lighting is present.

3.5.11 **SJ10: Greenacre Street/Woone Lane/Eshton Terrace**

3.5.11.1 SJ10 is a 4-arm priority-controlled crossroads junction. The permitted movements at the junction are as follows:

- (i) Greenacre Street: one-way westbound (ie towards junction),
- (ii) Woone Lane (S): northbound and southbound (ie no restriction),
- (iii) Eshton Terrace: eastbound and westbound (ie no restriction),
- (iv) Woone Lane (N): one-way northbound (ie away from junction).

Woone Lane (S) is controlled by a stop line at the junction. The existing junction arrangements are shown on Drg No 1616/10.

3.5.11.2 The junction is subject to a 20mph speed limit. There is footway around all of the junction and the junction benefits from street lighting.

3.5.12 **SJ11: Whalley Road/Greenacre Street**

3.5.12.1 SJ11 is approximately 150m east of SJ10 and is a 3-arm 'T' junction. Greenacre Street forms the minor arm of the junction and operates in a one-way westbound direction (ie away from the junction). The existing junction arrangements are shown on Drg No 1616/11.

3.5.12.2 There are 'No Waiting' restrictions at SJ11. There is footway around all of the junction. To the south of Greenacre Street, there is a puffin crossing on Whalley Road (S).

3.5.13 **SJ12: Primrose Road/A671 Whalley Road**

3.5.13.1 SJ12 is a priority controlled three-arm 'T' junction, approximately 1km from the Site. The existing junction arrangements are presented on Drg No 1616/12.

3.5.13.2 Primrose Road forms the minor arm of the junction. The junction is located within a 30mph speed limit.

3.5.13.3 There is a northbound cycle lane on Whalley Road (N). There is footway provision around the junction and street lighting is present.

3.5.14 **Level Crossing**

3.5.14.1 Between SJ6 and SJ10, there is a level crossing on Thorn Street (to the west of the railway line) and Eshton Terrace (to the east of the railway line). There is a 'Keep Clear' road marking on the Thorn Street eastbound approach to the level crossing, just west of Franklin Street. There is full barrier control of the level crossing and cameras assist with the control of the crossing.

3.6 **ACCIDENT HISTORY**

3.6.1 Lancashire Constabulary (LC) hold accident records for study junctions SJ1-SJ12. The LC five-year accident records for the period 01.05.13 to 30.04.18 are reviewed. The LC accident data is included in Appendix A.

3.6.2 **Distribution of Accidents**

3.6.2.1 A summary of the Lancashire Constabulary accident data is set out below:

	2013	2014	2015	2016	2017	2018	TOTAL
	(from 01/05)					(to 30/04)	
Henthorn Road (near Site)	-	-	-	-	-	-	-
SJ1	-	-	-	-	1	-	1
SJ2	-	-	-	-	-	-	0
SJ3	-	-	-	-	-	-	0
SJ4	1	-	-	-	-	-	1
SJ5	-	-	-	-	-	-	0
SJ6	-	-	-	-	-	-	0
SJ7	1	-	-	-	-	-	1
SJ8	1	2	1	1	-	1	6
SJ9	2	-	-	-	-	-	2
SJ10	-	1	-	1	-	-	2
SJ11	-	-	-	-	1	-	1

SJ12	-	1	2	1	1	1	6
TOTAL	5	4	3	3	3	2	20

3.6.3 Severity

3.6.3.1 The severity of the recorded accidents is as follows:

	SLIGHT	SERIOUS	FATAL
Henthorn Road (near Site)	-	-	-
SJ1	1	-	-
SJ2	-	-	-
SJ3	-	-	-
SJ4	1	-	-
SJ5	-	-	-
SJ6	-	-	-
SJ7	1	-	-
SJ8	4	2	-
SJ9	2	-	-
SJ10	1	1	-
SJ11	-	1	-
SJ12	5	1	-
TOTAL	15	5	0

3.6.3.2 It is clear that the majority of recorded accidents are classified as slight. SJ8 and SJ12 has the highest occurrence of accidents of the TA study junctions over a 5-year period.

3.6.3.3 AHA has reviewed the accident records for SJ8. There are six recorded accidents and five involve a pedestrian. The descriptions of each accident involving a pedestrian are as follows;

- (i) V1 (car) driving slowly past parked bus, in the process of dropping passengers off at bus stop. V1 involved with collision with pedestrian who ran into carriageway from the front of the bus without looking.

- (ii) Children playing by the side of the road. One child jumps back, away from friends, and into path of car,
- (iii) V1 (car) has negotiated roundabout intending to turn right. On leaving roundabout, V1 involved with collision at slow speed with pedestrian,
- (iv) Pedestrian gets out of taxi and crosses road running into front offside of approaching vehicle,
- (v) Child has walked into the road while taxi (V1) has pulled away from the side of the road. Child has stopped and turned in the road and in doing so has been struck by V1 at slow speed.

3.6.3.4 Although the majority of accidents at SJ8 involve pedestrians it is clear that these tend to be as a result of pedestrian error and the traffic generated by the proposed development is unlikely to change this accident type. Consequently, mitigation measures are not proposed at SJ8.

3.6.3.5 AHA has also reviewed the accident descriptions at SJ12 and there is no recurring accident cause or type at SJ12.

3.6.4 **Summary**

3.6.4.1 It is concluded that whilst all accidents are regrettable, there is **no** accident pattern at the TA study junctions that gives rise to the need for accident remediation measures.

4 Proposed Site Access Arrangements

4.1 DESIGN PHILOSOPHY

4.1.1 It is now accepted that the way a new residential scheme relates to its surrounding area is key to its success. Guidance on the design of residential developments is set out in documents such as Manual for Streets (MfS). This advocates that residential design should:

- Be based on a hierarchical design process placing pedestrians at the top.
- Recognise that streets fulfil a community function with spaces for social interaction.
- Create an inclusive environment that recognises the needs of all ages and abilities.
- Focus on pedestrian desire lines.
- Create a permeable network of streets with strong connectivity to a range of routes.

4.1.2 The starting point of a new residential scheme is to first identify the existing places/amenities near to the site and their relative importance. Then, from this, form an understanding of how an area works to enable proposed points of connection and linkage to be identified, both within and outside the site, so that important desire lines are achieved. MfS recognises that:

- A permeable and well-connected movement network can positively affect how much people walk or cycle or use public transport which helps to achieve a sustainable environment and good quality of life for its community,
- A good range of local amenities within easy access of residents can help to create a walkable neighbourhood, and
- Walking and cycling are important modes of travel, offering a more sustainable alternative to the car, making a positive contribution to the overall character of the place, public health and to tackle climate change through carbon emissions reductions.

- 4.1.3 MfS advocates residential design that creates walkable neighbourhoods. MfS sets out in para 4.4.1 that:

"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2km. MfS encourages a reduction in the need to travel by car through the creation of mixed-use neighbourhoods with interconnected street patterns, where daily needs are within walking distance of most residents."

- 4.1.4 A holistic approach to the Site access arrangements is at the core of the development Site access strategy. Thus, there is a cohesive 'package' of development access arrangements for differing modes of travel, comprising, walk, cycle, bus and motor vehicles. Further information about walk and cycle modes is presented in Chapter 5, and about public transport in Chapter 6.

4.2 **SITE ACCESS STRATEGY**

- 4.2.1 The planning application seeks outline consent with all matters reserved, except access. This TA considers access for vehicles, cyclists and pedestrians, as follows:

- Vehicles: Henthorn Road
- Cycles: Henthorn Road, and
- Pedestrians: Henthorn Road.

4.3 **DESIGN CONSIDERATIONS**

4.3.1 **Design Guidance**

- 4.3.1.1 The design guidance considered includes Manual for Streets 1 (MfS1), MfS2 and the Design Manual for Roads and Bridges (DMRB).

- 4.3.1.2 MfS2 states that:

*“...most MfS advice can be applied to a highway regardless of speed limit. **It is therefore recommended that as a starting point for any scheme affecting non-trunk roads, designers should start with MfS.**” (para 1.3.2)*

Henthorn Road is not a trunk road.

4.3.1.3 MfS continues in para 1.3.3:

*“Where designers do refer to DMRB for detailed technical guidance on specific aspects, for example on strategic inter-urban and non-trunk roads, it is recommended that they **bear in mind the key principles of MfS**, and apply DMRB in a way that **respects local context**. It is further recommended that DMRB or other standards and guidance is **only used** when the guidance contained in MfS is not sufficient or where particular evidence leads a designer to conclude that MfS is not applicable.”*

4.4 **SITE ACCESS DESIGN CRITERIA**

4.4.1 **Speed Survey**

4.4.4.1 In the vicinity of the Site, Henthorn Road is subject to a 20mph speed limit.

4.4.4.2 To assist with the design of the Site access junction, the applicant commissioned an Automatic Traffic Count (ATC) survey on Henthorn Road in the vicinity of the Site. This involved the installation of pneumatic tubes across Henthorn Road. The survey was undertaken between 4 and 10 July 2018 (inclusive) and recorded data over the full 24-hour period of each survey day.

4.4.2 **Vehicle Speeds: Average**

4.4.2.1 The recorded 7-day average speeds are:

- (i) Northbound: = 28.4 mph;
- (ii) Southbound: = 27.5 mph.

4.4.3 **Vehicle Speeds: 85th Percentile**

4.4.3.1 The recorded 7-day 85th percentile speeds are:

- (i) Northbound: = 35.0 mph;
- (ii) Southbound: = 33.4 mph.

4.4.4 **Design Speed**

4.4.4.1 For access junctions on existing roads, the design speed should be based on 85th percentile wet weather journey speeds. A review of the weather records for Clitheroe for the survey period (4-10 July 2018) shows that there was no rainfall on **all** of the survey days. Therefore, the ATC surveys coincided with a dry period. Consequently, 4kph (2.5mph) can be deducted from the average 85th percentile survey speeds, which follows the advice contained in the DfT DMRB Advice Note TA22/81 'Vehicle Speed Measurement on All Purpose Roads'.

4.4.4.2 The consequent Design Speeds for the proposed Site access are:

- (i) Northbound = 32.5 mph;
- (ii) Southbound = 30.9 mph.

4.4.5 **Stopping Sight Distance**

4.4.5.1 The visibility standards in MfS and MfS2 are based on Stopping Sight Distance (SSD). This is derived from the design speed together with assumptions regarding driver perception/reaction times and rate of deceleration. In more recent times there have been significant advances in motor vehicle design, particularly in braking, and these changes are recognised in MfS2, which assumes:

- Driver perception/reaction time: 1.5 seconds, and
- Deceleration rate: 4.41 m/s².

4.4.5.2 Based on the identified design speeds the calculated SSDs are:

DIRECTION	DESIGN SPEED (mph & m/s)		SSD(m)
Northbound	32.5	14.5288	46
Southbound	30.9	13.8135	42.

4.4.5.3 The appropriate levels of visibility to be provided at the proposed Site Access/Areley Common junction are:

- (i) Visibility to the left: 2.4m x 42m, and
- (ii) Visibility to the right: 2.4m x 46m.

4.5 **SITE ACCESS ARRANGEMENTS**

4.5.1 The proposed Site access on Henthorn Road is shown on Drg No 1616/13/B.

4.5.2 The key features of the proposed Drg No 1616/13/B Site Access/Henthorn Road arrangements, and associated highway works, include:

- Introduce new Site access, forming a 'T' junction with Areley Common;
- Access junction to operate under priority (give-way) control;
- Provide 2.0m wide footway on both sides of new Site access road;
- Provide 2.0m wide footway on west side of Henthorn Road between the proposed Site access and existing footway infrastructure to the north (total distance of 100m),
- Provide 2.4m x 42m visibility splay to the left for vehicles emerging from Site,
- Provide 2.4m x 46m visibility splay to the right for vehicles emerging from Site.

4.5.3 **Swept Path Analysis**

4.5.3.1 Swept path analysis of the proposed Site Access/Henthorn Road junction is completed to examine if the existing junction can accommodate the tracking movements of larger vehicles. For this exercise, vehicles are adopted that might be generated by the proposed development, albeit on an occasional basis. The results are set out on the following drawings:

(ii)	9.57m Pantechnicon	1616/SP/01,
(ii)	10.14m Large Refuse Vehicle (3 axle)	1616/SP/02,
(iii)	8.68m Fire Appliance	1616/SP/03.

4.5.3.2 The swept path analysis shown on Drg Nos 1616/SP/01-03 confirms that all of the 'test' vehicles can complete all turns at the junction.

4.6 **INTERNAL ROADS**

4.6.1 The internal road layout for the outline application is to be the subject of reserved matters application(s).

4.7 **MOBILITY IMPAIRED**

4.7.1 The needs of those with mobility impairment are an important component of the detailed design of the development. This is advocated in NPPF (eg NPPF para 35, refer para 2.5.3 above). The detailed design of the internal layout of the development, which must be the subject of reserved matters approval, will describe the facilities to be provided on Site to assist the mobility impaired, taking account of guidance and standards together with good practice and local/national policies.

5 Walk & Cycle

5.1 WALK

5.1.1 It is established and acknowledged that walking is the most important mode of travel at the local level, and offers the greatest potential to replace short car trips, particularly under 2km.

5.1.2 National Travel Survey (2017)

5.1.2.1 The National Travel Survey (NTS) of 2017 provides data on walk trips and establishes that:

- 81% of all trips under 1 mile (1.6km) are made by foot,
- The average walk trip is 17 minutes which equates to a distance of about 1.36km,
- Walking accounts for 26% of all trips and 3% of distance travelled,
- Education and Shopping trips account for 40% of all walk trips,
- 67% of people undertake a walk of 20 minutes or more at least once a week,
- The average shopping trip is 17 minutes and 27% of shopping trips are made by foot,
- The average commuting trip is 31 minutes and 11% of commuting trips are made by foot.

Based on the average walk trip of 17 minutes, this means that the average walk trip is about 0.9 miles (circa 1.4km).

5.1.3 Manual for Streets

5.1.3.1 The 'walkable neighbourhood' concept is set out in MfS1 and endorsed in MfS2. MfS1 explains that:

*"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot. However, this is **not an upper limit** and*

PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km." (MfS para 4.4.1, AHA emphasis)

5.1.4 **Walk Isochrones and Local Amenities**

5.1.4.1 The CIHT provides guidance about journeys on foot. It does not provide a definitive view of distances, but does suggest a preferred maximum distance of 2000m for walk commuting trips. A 400m distance corresponds to a walk time of 5 minutes, based upon a typical normal walking speed. Figure 3 presents the development 400m, 800m, 1200m, 1600m and 2000m walk isochrones, (ie reflecting 5, 10, 15, 20 and 25-minute walk journeys), and taking account of the pedestrian infrastructure.

5.1.4.2 Indicated on Figure 3 are examples of local facilities near to the Site. This illustrates that there are a number of amenities within 1200m of the Site, including:

- Travel: Bus stops;
- Education: Primary school, nursery/pre-school;
- Shopping: ATM, convenience store;
- Leisure: Public open space, playground.

5.1.4.3 There are additional amenities within a 1600m walk of the Site. The vast majority of town centre amenities are located between 1600-2000m of the Site.

5.1.5 **Public Rights of Way**

5.1.5.1 Figure 4 presents the existing Public Rights of Way (PROW) near to the Site. Footpath 3-1 FP17 is aligned around the western perimeter of the Site. This provides a walking connection between Edisford Road and Henthorn Road.

5.1.6 **Proposed Pedestrian Infrastructure Improvements**

5.1.6.1 The proposed Site access arrangements include new footway on the northwest side of Henthorn Road to provide a connection between the Site and the existing footway infrastructure along Henthorn Road. The applicant also proposes to introduce:

- (i) Henthorn Road (S): Dropped kerbs and tactile paving,
- (ii) Henthorn Road (E): Dropped kerbs and tactile paving,

These works are identified on Drg No 1616/13/B.

- 5.1.6.2 In the vicinity of the Site, Henthorn Road is subject to a 20mph speed limit and this provides an environment conducive to walking.

5.1.7 **Walk Routes to School**

- 5.1.7.1 The National Travel Survey (NTS) sets out that 46% of children aged 5-10 years walk to school. For journeys of under 1 mile (1.6km) 80% of children (5-10 years) walk to school.

- 5.1.7.2 The nearest primary school to the Site is Edisford Primary School on Edisford Road. There is a pedestrian entrance to the school at Siddows Avenue/Hargreaves Court. The walk distance between the centre of the Site and this entrance is about 1.0km, which is well below the distance quoted in NTS. Consequently, there is a reasonable expectation that most children at the application Site, and based at Edisford Primary School, will walk to school.

- 5.1.7.3 The most likely route for residents to walk to/from Edisford Primary School is:

Henthorn Road (S) – Henthorn Road (N) – Siddows Avenue.

- 5.1.7.4 The proposed development will deliver new pedestrian infrastructure at the Site access and along the northwest side of Henthorn Road (S) (coincident with the Site frontage). The new footway is to be 2.0m wide and includes street lighting. Henthorn Road (S) is subject to a 20mph speed limit, which is conducive to an environment for walking.

- 5.1.7.5 Henthorn Road (N) is an established residential road subject to a 20mph speed limit. The route is relatively level and offers sealed surface footways on both sides and

benefits from street lighting. There are residential properties fronting Henthorn Road (N), which offer a degree of neighbourhood surveillance.

- 5.1.7.6 Siddows Avenue is also an established residential road, about 175m long and is subject to a 20mph speed limit. The route is relatively level, offers sealed surface footways on both sides of the road and benefits from street lighting. There are residential properties fronting Siddows Avenue which offer a degree of neighbourhood surveillance.

5.2 CYCLE

5.2.1 Cycle Isochrones and Local Amenities

- 5.2.1.1 It is recognised that cycling also has potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport.

- 5.2.1.2 The CIHT guidance 'Cycle Friendly Infrastructure' (2004) states that:

"Most journeys are short. Three quarters of journeys by all modes are less than five miles (8km) and half under two miles (3.2km) (DOT 1993, table 2a). These are distances that can be cycled comfortably by a reasonably fit person."(para 2.3).

- 5.2.1.3 The NTS 2017 also provides data on cycle trips and establishes that:

- In the 3 years up to 2017, 42% of people had access to a bicycle and this figure increases to 82% for young children,
- The average cycle trip was 23 minutes,
- Education, shopping and commuting accounted for 9%, 11% and 34% of cycle trips.

Based on an average cycle trip of 23 minutes, this would equate to a cycle distance of just under 5km.

- 5.2.1.4 Figure 5 indicates the 2km and 5km cycle isochrones for the Site, reflecting typically 10-minute and 25-minute journeys. Review of Figure 5 highlights that most of Clitheroe is within a 2km cycle ride and all of Clitheroe is within a 5km cycle ride of the Site.

5.2.2 **Cycle Routes to School**

- 5.2.2.1 The nearest primary school is Edisford primary School. There is an entrance to the school at the northern end of Siddows Avenue. The most likely route for residents to cycle to/from Edisford Primary School is:

Henthorn Road (S) – Henthorn Road (N) – Siddows Avenue.

All of the route is along residential roads that are subject to a 20mph speed limit. The route is relatively level and benefits from street lighting. It is considered that development generated trips to/from school by cycle are feasible.

5.3 **SUMMARY**

- 5.3.1 Transport sustainability is a principle underlying the proposed development. Encouraging walk and cycle journeys is recognised as important. The location of the Site provides a good context for journeys of residents to be undertaken on foot and by cycle. In the vicinity of the Site, the local highway network offers a good level of pedestrian infrastructure and roads subject to a 20mph speed limit. This offers an environment conducive to walking and cycling thereby offering the best chance of fostering a sustainable community, in accordance with the aims of local policies and national policy in NPPF.

6 Public Transport

6.1 The proposed development affords opportunity for development generated public transport journeys to be made by bus and rail

6.2 **BUS**

6.2.1 **Existing Bus Stops & Routes**

6.2.1.1 There is a frequent bus service operating near to the Site. Service No 2 calls within 300m of the proposed development and functions as a town circular service via Low Moor. The bus service operates on a 30-minute frequency, Monday to Saturday daytime.

6.2.1.2 There is a school bus service (No 686) which calls within 800m of the Site at bus stops on Garnett Road. This service offers trips to/from Bowland County High School on schooldays only.

6.2.1.3 There are also school bus services which call at stops within 1200m of the Site (a 15-minute walk), on Edisford Road. Service Nos 510 and 645 offer trips to/from Clitheroe Royal Grammar School, Bowland County High School and Ribblesdale High School.

6.2.1.4 Figure 3 identifies the locations of existing bus stops in the vicinity of the Site. There is 1no bus stop located on Blakewater Road, opposite Lune Road, which is approximately 300m from the centre of the Site. This stop caters for journeys to Clitheroe (service no 2).

6.2.1.5 The bus stop on Garnett Road comprises flag and pole and timetable information. This stop caters for service no 2 and school bus service No 686.

6.2.2 **Bus Services & Frequencies**

6.2.2.1 Table 1 summarises the scheduled bus services operating near to the Site and the frequency of service.

6.2.2.2 The existing bus services summarised in Table 1 offer travel to Clitheroe Rail Station and town centre, as well as other settlements within Clitheroe.

6.2.2.3 The first and last buses to/from Clitheroe are:

SERVICE	TO CLITHEROE		FROM CLITHEROE	
	FIRST	LAST	FIRST	LAST
2	0727	1827	0715	1815

6.2.2.4 These services coincide with typical workplace start and finish times. This means that residents of the Site have genuine opportunity to complete commuting journeys to/from Clitheroe by bus.

6.2.2.5 Typical bus journey times are:

SERVICE	DESTINATION	JOURNEY TIMES (mins)
2	Low Moor	6
	Clitheroe (Interchange- Near Rail Station)	12

6.2.2.6 It is concluded that the proposed development is accessible by bus.

6.3 RAIL

6.3.1 The nearest rail station is at Clitheroe and is less than a 2km walk from the proposed development. Journeys to the rail station can also be made by cycle and bus. There are 5no cycle lockers available at the station.

6.3.2 Bus service No 2 that calls circa 300m from the Site, is routed near to Clitheroe Rail Station and the journey is about 12 minutes.

6.3.3 There is an hourly train service from Clitheroe to destinations including Blackburn, Bolton and Manchester. The journey times for services calling at Clitheroe Rail Station to a range of destinations are as follows;

DESTINATION	JOURNEY TIMES (mins)
Blackburn	22
Bolton	52
Salford Crescent	67
Manchester Victoria	76.

- 6.3.4 The above affords opportunity for residents of the Site to make journeys to work by bus and rail to destinations such as Blackburn and Bolton.

6.4 SUMMARY

- 6.4.1 It is demonstrated that the Site has good public transport accessibility, with journeys to/from the Site by bus to a range of locations. There is also opportunity for Site residents to complete journeys by rail. This is in accordance with the aims and objectives of current national and local policies.

7 Travel Plan

7.1 The TP for the proposed development is prepared in accordance with best practice and experience, and the 2014 PPG. The outcomes approach is adopted for the development TP.

7.2 The key objectives of the TP are to:

- Contribute to traffic reduction and other sustainable transport objectives set out in national, regional and local policies,
- Improve accessibility of the Site by sustainable modes of transport and address traffic and parking issues,
- Widen choice of travel mode for all those travelling to/from the Site.

7.3 Specific outcomes sought from the TP are to:

- Achieve the minimum number of additional single occupancy car traffic movements to/from the development,
- Address the access needs of site users, by supporting walking, cycling and public transport,
- Reduce the need for travel to/from the Site.

7.4 The TP explicitly considers accessibility by the sustainable travel modes and the proposed measures to encourage their use. These are summarised below:

- Walk & Cycle: Improved pedestrian infrastructure,
- Public Transport: Improved links to existing infrastructure,
- Electric vehicles: Provision of a 32Amp single phase electrical supply to allow for the future inclusion of an individual electric car charging point for each property,
- Car Share: To be promoted by the TPC,
- Work at home: Provision of infrastructure for high speed broadband service to be delivered to the new houses,
- Behavioural strategies: To be promoted by the TPC.

- 7.5 The TP target is set as: **maximum peak hour 2-way vehicle trip rate of 0.527 vehicles/hour/dwelling**. The objective is for the TP target to be achieved within 5 years from first occupation.
- 7.6 The TP is to operate for a period of 5 years after first occupation of the development.
- 7.7 The developer will appoint a Travel Plan Coordinator (TPC), to introduce, manage, operate and monitor the TP. As part of the ongoing management of the TP, the TPC will maintain a dialogue with the Council, and monitor emerging best practice information, to provide the most efficient platform for maximising the effectiveness of the TP.
- 7.8 The developer is required to finance the TP. A sufficient revenue budget will be identified to employ the TPC for a period of 5 years post-occupation of the first dwelling, on a sufficient basis to introduce and manage the TP initiatives, and thereafter as required to:
- Manage the initiatives,
 - Finance the measures identified in this and subsequent TP Monitoring and Review reports and as agreed with the Council, and
 - Enable the TPC postholder to carry out the duties identified above.
- 7.9 The TP Action Plan is set out in Chapter 10 of the TP. The TP Table 3 summarises identified measures that are proposed, and indicates the timing for the measures and funding information. This illustrates the holistic approach adopted for the TP, aimed at encouraging from the outset a positive sustainable transport awareness and culture for the development. The TP measures will be reviewed and amended as appropriate, in consultation with and requiring the agreement of the local authority, as part of the ongoing dynamic monitoring and review process for the TP.

8 Traffic Flows

8.1 STUDY NETWORK

8.1.1 The TA study network of junctions comprises:

REF	JUNCTION	CONTROL
SJ1	Lancaster Drive/Edisford Road	Priority control
SJ2	Seedall Avenue/Edisford Road	Priority control
SJ3	Faraday Avenue/Edisford Road	Priority control
SJ4	Thorn Street/Bawdlands	Priority control
SJ5	Henthorn Road/Bawdlands	Priority control
SJ6	Henthorn Road/Eshton Terrace/Thorn Street	Priority control
SJ7	Station Road/Parson Lane	Mini-roundabout
SJ8	Lowergate/Moor Lane/Woone Lane	Mini-roundabout/priority control
SJ9	Castle View/Parson Lane	Priority control
SJ10	Greenacre Street/Woone Lane/Eshton Terrace	Priority control
SJ11	Whalley Road/Greenacre Street	Priority control
SJ12	Primrose Road/A671 Whalley Road	Priority control.

The TA study network of junctions is **agreed** with highways officers at LCC.

8.2 PEAK PERIODS

8.2.1 The times when the combination is greatest, of traffic generated by the proposed residential development and the existing highway network traffic, are the weekday AM & PM peak hours. The TA includes quantitative analysis of the traffic impact of the proposed development for these periods.

8.3 TRAFFIC COUNTS

8.3.1 LCC requested that up-to-date traffic count information be collected for the TA study junctions. AHA undertook traffic counts at all of the TA study junctions on 5 June 2018. Queue surveys were undertaken at the same time.

8.3.2 Analysis of the traffic count data identifies the peak hours for traffic flows at the study junctions as:

- AM: 0800-0900, and
- PM: 1700-1800.

Quantative analysis is undertaken for these peak hours.

8.3.3 Figure B1, Appendix B, presents the 2018 AM & PM peak hour traffic count flows at the study junctions. The flows are presented in vehicles.

8.4 TRAFFIC GROWTH

8.4.1 Development Year of Opening and Future Year

8.4.1.1 For the purposes of quantative testing of the local highway network, it is assumed that the development will be fully constructed and operational by year **2023**. It is also LCC policy to request assessment for 5 years after development opening. In this specific case that is **2028**.

8.4.2 Growth Factors

8.4.2.1 The National Transport Model (NTM) TEMPRO is used as a basis for deriving local growth factors. The NTM growth factors adopted to estimate year 2023 and 2028 traffic flows, from the 2018 count data, are set out in Technical File Note 1, Appendix C.

8.4.3 Factored Counts

8.4.3.1 Figures B2 and B3, Appendix B present the 2023 and 2028 AM & PM peak hour traffic flows at all of the study network junctions.

8.5 COMMITTED DEVELOPMENTS

8.5.1 AHA are aware of the following **major** committed developments near to the Site:

- (i) 3/2014/0597: Land off Waddington Road (275 dwellings),
- (ii) 3/2012/0942: Higher Standen Farm/Littlemoor Farm (1040 dwellings),
- (iii) 3/2013/0035: Land off Henthorn Road (270 dwellings),
- (iv) 3/2013/0711: Land off Henthorn Road (140 dwellings),
- (v) 3/2015/0879: Land north and west of Littlemoor (48 dwellings).

8.5.2 AHA is also aware of small residential scheme on Henthorn Road (ref app3/2017/0433), near to the application Site. This comprises only 24 dwellings. AHA has reviewed the transport information that supports the application. It is noted that this does not include any assessment of traffic impact on the local highway network due to the small-scale nature of the scheme. AHA are satisfied that the very small level of traffic generated by the scheme is adequately covered in the growth applied to the count data using NTM TEMPRO. Consequently, no further assessment of this scheme is undertaken in this TA report.

8.5.3 AHA has reviewed the TA/TS reports that accompanied the planning applications for the committed schemes. The scheme at Higher Standen Farm/Littlemoor Farm (ref 3/2012/0942) assumes that 60% of development generated traffic will travel to/from the A59 corridor. The TA assumes that 40% of development generated traffic will travel towards Clitheroe centre. However, the study network adopted in Higher Standen Farm/Littlemoor Farm TA does not overlap with the TA study network in this TA. Therefore, no further consideration is given in this TA to traffic generated by the Higher Standen Farm/Littlemoor Farm committed development.

8.5.4 The scheme of 270 dwellings at land off Henthorn Road (ref 3/2013/0035) is now fully complete and occupied. Therefore, the traffic generated by this scheme is included in the June 2018 traffic counts.

8.5.5 At the time of preparing this TA report, it is understood that half of the scheme of 140 dwellings, at land off Henthorn Road (ref 3/2013/0711), are now constructed and occupied. Therefore, the traffic generated by the completed houses is included in the June 2018 traffic counts. Estimates of the traffic generated by the houses which are not constructed are included in the TA.

8.5.6 The committed development traffic flows are presented in:

- (i) Figures B4: Land off Waddington Road (275 dwellings),
- (ii) Figures B5: Land off Henthorn Road (140 dwellings),
- (iii) Figures B6: Land north and west of Littlemoor (48 dwellings).
- (iv) Figures B7: Total Committed Development Traffic

8.6 **BASE: 2023 & 2028**

8.6.1 Figures B8 and B9, Appendix B presents the year 2023 and 2028 Base flows at the TA study network junctions. This is derived by the combination of year 2023 and 2028 factored flows (Figures B2 and B3) and the traffic generated by the permitted developments (Figure B7).

8.7 **DISTRIBUTION OF DEVELOPMENT GENERATED TRAFFIC**

8.7.1 It is necessary to estimate the % distribution of traffic generated by the proposed residential development at the Site so that this may be assigned across the TA study network. The proposed Gladman residential scheme is located west of a residential site under construction by Story Homes. Given that both sites are located in the same area of Clitheroe and propose a similar level of residential development, the approach adopted is to use the % distribution adopted for TA prepared for the Story Homes development for the proposed Gladman residential scheme. The distribution is **agreed** with LCC highways officers.

8.7.2 Figure B10, Appendix B presents the % distribution of Gladman residential development generated traffic. This is identical to that adopted in the Story Homes TA.

8.8 **GENERATED TRAFFIC**

8.8.1 The proposed development comprises up to 110 dwellings.

8.8.2 It is usual practice to undertake an interrogation of the TRICS database to identify suitable trip generation rates to adopt for estimating the AM and PM peak hour

traffic generated by the proposed residential development. However, in this specific case the approach adopted is to use the trip rates adopted in the TA for the Story Homes development, which is located near to the proposed development.

8.8.3 The adopted trip rates are presented below.

	ARR	DEP	2-WAY
AM	0.140	0.445	0.585
PM	0.437	0.226	0.663.

The trip rates set out above are **agreed** with LCC highways officers.

8.8.4 The resultant **agreed** trip generations for the proposed 110 dwellings scheme are:

	ARR	DEP	2-WAY
AM	15	49	64
PM	48	25	73.

8.8.5 Figure B11, Appendix B presents the total traffic generated by the proposed development in the AM and PM peak hours at the study junctions, based on the % distribution on Figure B10, Appendix B.

8.9 WITH PROPOSED DEVELOPMENT

8.9.1 The estimated 2023 and 2028 AM and PM peak hour With Development traffic flows at the TA study junctions are presented on Figures B12 and B13, Appendix B.

8.10 TRAFFIC IMPACT

8.10.1 The March 2007 GTA was withdrawn in 2014. At the time of preparing this TA report, there is no alternative document that provides clear guidance on traffic impact and the need for detailed junction modelling.

8.10.2 In the absence of alternative guidance, the tests adopted to determine if a more detailed junction assessment is required is if the proposed development is predicted to generate an increase in traffic at a study junction of **30** vehicles or more. Junction modelling is undertaken of the TA Study Junctions where the traffic impact of the development exceeds **30** vehicles.

8.10.3 The traffic impact of the proposed development at the TA study network of junctions in the AM and PM peak hours is summarised below:

STUDY JUNCTION	AM	PM
SJ1	+9	+11
SJ2	0	0
SJ3	0	0
SJ4	0	0
SJ5	+27	+25
SJ6	+55	+61
SJ7	+27	+25
SJ8	+16	+8
SJ9	+27	+25
SJ10	+27	+36
SJ11	+23	+31
SJ12	+25	+29

8.10.4 Review of the above summary shows that the proposed development is estimated to have a traffic impact in excess of 30 vehicles at SJ6, SJ10 and SJ11. The traffic impact at the remaining TA study junctions is less than 30 two-way trips in the AM and PM peak hours.

8.10.5 Consequently, junction modelling of SJ6, SJ10 and SJ11 is undertaken and the results are presented and discussed in Chapter 9.

9 Operational Performance of the Highway Network

- 9.1 The computer program PICADY (within JUNCTIONS 9) is used to model the performance of a priority (give-way) control junction. PICADY predicts the ratio of flow to capacity (RFC) and associated queue for the minor (give-way) entry to the junction and for the major road. PICADY is used to model the operational performance of:

REF	JUNCTION	CONTROL
SJ6	Henthorn Road/Eshton Terrace/Thorn Street	Priority control
SJ10	Greenacre Street/Woone Lane/Eshton Terrace	Priority control
SJ11	Whalley Road/Greenacre Street	Priority control.

9.2 QUEUE SURVEYS & MODEL VALIDATION

9.3.1 Queue Survey

- 9.3.1.1 Queues were recorded on all external approach arms at the study junctions. Data was collected at the same time as the AM & PM peak period traffic count surveys (ie on 5 June 2018).

- 9.3.1.2 The survey recorded queues in 5-minute intervals. The survey recorded the queue on each arm at the 5-minute mark (eg at 0800, 0805, 0810, etc). To assist with PICADY validation, the survey also recorded the maximum queue during the 5-minute interval.

9.3.2 Model Validation

- 9.3.2.1 The process of model validation involves:
- (i) Construct PICADY model (within JUNCTIONS 9) for the junction;
 - (ii) Use 2018 recorded traffic count data;
 - (iii) Compare model output queues to recorded queues;
 - (iv) If necessary, make small adjustments to model geometry to provide 'best match' between model and recorded queues.

9.3 SJ6: HENTHORN ROAD/ESHTON TERRACE/THORN STREET

9.3.1 Queue Survey

9.3.1.1 review of the SJ6 queue survey data show that the mean of the recorded maximum and spot queues are:

APPROACH	MEAN SPOT QUEUE (Vehs)		MEAN MAX QUEUE (Vehs)	
	AM	PM	AM	PM
Henthorn Road (N)	0.0	0.0	0.0	0.0
Eshton Terrace	3.8	7.6	0.6	1.1
Henthorn Road (S)	2.0	0.1	0.0	0.0
Thorn Street	0.8	1.7	0.3	0.1.

9.3.1.2 The queue survey confirms that small queues were recorded on the 5-minute interval marks. This means that any queues that form within the 5-minute interval period are clearing. The survey results provide clear evidence that SJ6 is presently operating in an **acceptable** manner.

9.3.2 Model Validation: 2018 Count

9.3.2.1 A model is constructed for the 2018 AM & PM peak hour Count situation. The results of this exercise are presented in Table 2. A review of Table 2 shows that PICADY model of SJ6 correlates reasonably well with the recorded queues. It is concluded that the PICADY model is suitable to test the traffic impact of the Proposed Development in years 2023 and 2028.

9.3.3 2023 and 2028 Assessment Years

9.3.3.1 Table 2 presents the results of the PICADY modelling for SJ6 for years 2023 and 2028.

- 9.3.3.2 Review of Table 2 shows that the existing SJ6 priority-controlled junction is predicted to operate with a high degree of spare capacity and with small/modest queues/delays in the 2023 AM & PM peak hour Base situations. Table 2 shows that the addition of traffic generated by the proposed development does not materially alter the performance of the junction in year 2023.
- 9.3.3.3 Review of Table 2 shows that SJ6 is predicted to operate with spare capacity and with small/modest queues/delays in the 2028 AM peak hour Base situations and continues to do so if the development proceeds. In the 2028 PM peak hour Base situation, the PICADY suggests that the Eshton Terrace arm of the junction is starting to experience stress. Unsurprisingly, the addition of traffic generated by the proposed development to SJ6 does lead to some worsening of the queue/delay on Eshton Terrace but not to a level that would require mitigation or that could reasonably be described as severe.
- 9.3.3.4 It is concluded that the traffic impact of the Proposed Development at SJ6 in assessment years 2023 and 2028 is acceptable.

9.4 **SJ10: GREENACRE STREET/WOONE LANE/ESHTON TERRACE**

9.4.1 **Queue Survey**

- 9.4.1.1 A review of the SJ10 queue survey data show that the mean of the recorded maximum and spot queues are:

APPROACH	MEAN SPOT QUEUE (Vehs)		MEAN MAX QUEUE (Vehs)	
	AM	PM	AM	PM
Woone Lane (N)	0.0	0.0	0.0	0.0
Greenacre Street	1.4	1.7	0.0	0.2
Woone Lane (S)	2.6	1.8	0.0	0.5
Eshton Terrace	4.1	2.1	0.0	0.0.

9.4.1.2 The queue survey confirms that small queues were recorded on the 5-minute interval marks. This means that any queues that form within the 5-minute interval period are clearing. The survey results provide clear evidence that SJ10 is presently operating in an **acceptable** manner.

9.4.2 **Model Validation: 2018 Count**

9.4.2.1 A model is constructed for the 2018 AM & PM peak hour Count situation. The results of this exercise are presented in Table 3. A review of Table 3 shows that PICADY model of SJ10 correlates reasonably well with the recorded queues. It is concluded that the PICADY model is suitable to test the traffic impact of the Proposed Development in years 2023 and 2028.

9.4.3 **2023 & 2028 Assessment Year**

9.4.3.1 Table 3 presents the results of the PICADY modelling for SJ10 for years 2023 and 2028.

9.4.3.2 Review of Table 4 shows that the existing SJ10 priority controlled junction is predicted to operate with a high degree of spare capacity and with small queues/delays in the 2023 and 2028 AM & PM peak hour Base situations.

9.4.3.3 Review of Table 3 shows that, in 2023 and 2028, the Proposed Development does not materially affect junction performance. Therefore, it is reasonable to conclude that the traffic impact of the Proposed Development at SJ10 in assessment years 2023 and 2028 is acceptable.

9.5 **SJ11: WHALLEY ROAD/GREENACRE STREET**

9.5.1 **Queue Survey**

9.5.1.1 Review of the queue survey data shows that the mean of the recorded maximum and spot queues are:

APPROACH	MEAN SPOT QUEUE (Vehs)		MEAN MAX QUEUE (Vehs)	
	AM	PM	AM	PM
Whalley Road (N)				
Straight ahead	0.8	0.6	6.2	5.4
Right	0.1	0.3	2.6	2.5
Whalley Road (S)				
	0.0	0.0	1.4	2.5.

9.5.1.2 The queue survey confirms that small queues were recorded on the 5-minute interval marks. This means that any queues that form within the 5-minute interval period are clearing. The survey results provide clear evidence that SJ11 is presently operating in an **acceptable** manner.

9.5.2 **Model Validation: 2018 Count**

9.5.2.1 A model is constructed for the 2018 AM & PM peak hour Count situation. The results of this exercise are presented in Table 4. A review of Table 4 shows that PICADY model of SJ11 correlates well with the recorded queues. It is concluded that the PICADY model is suitable to test the traffic impact of the Proposed Development in future years 2023 and 2028.

9.5.3 **2023 & 2028 Assessment Year**

9.5.3.1 Table 4 presents the results of the PICADY modelling for SJ11 for years 2023 and 2028.

9.5.3.2 Review of Table 4 shows that the existing SJ11 priority controlled junction is predicted to operate with a high degree of spare capacity and with small queues/delays in the 2023 and 2028 AM & PM peak hour Base situations.

9.5.3.3 Review of Table 4 shows that, in 2023 and 2028, the Proposed Development does not materially affect junction performance. Therefore, it is reasonable to conclude that the traffic impact of the Proposed Development at SJ11 in assessment years 2023 and 2028 is acceptable.

9.6 LEVEL CROSSING

9.6.1 There is an existing level crossing on Eshton Terrace to the north east of the Site.

9.6.2 AHA commissioned a survey at the level crossing on 5 June 2018 between periods 0730-0930 and 1600-1815. The surveys recorded the following:

- Times when the level crossing barriers were closed,
- Times when the level crossing barriers opened,
- Length of time they were closed, and
- Length of queues that formed when the barriers were closed.

9.6.3 The level crossing barriers were down on 4no occasions during the AM survey period, with 2no occurrences during the AM peak hour (0800-0900). The barriers were down for an average of 1 minute 45 seconds in the AM peak hour. The maximum recorded queue on the eastbound approach was 19 vehicles, which occurred at 08:24:29. The maximum recorded queue on the westbound approach was 13 vehicles, which also occurred at 08:24:29.

9.6.4 The level crossing barriers were down on 6no occasions during the PM survey period, with 3no occurrences in the PM peak hour. The barriers were down for an average of 2 minutes 3 seconds in the PM peak hour (1700-1800). The maximum recorded queue on the eastbound approach was 18 vehicles, which occurred at 17:51:48. The maximum recorded queue on the westbound approach was 25 vehicles, which also occurred at 17:51:48.

9.6.5 Based on the average length of closure at the level crossing barrier, the average number of additional vehicles generated by the proposed development arriving at the level crossing during each closure is estimated using the following formula:

(Number of peak hour development generated vehicles at the level crossing/number of seconds in an hour) x average duration of barrier closure for the AM and PM peak hours.

For example:

Figure B11, Appendix B shows that there are 20 development generated eastbound departures at the level crossing in the AM peak hour.

$$(20/3600) \times 105 = 0.58$$

Using the above formula, the estimated increased in the queue during the AM & PM peak hour is:

	Eastbound (veh)	Westbound (veh)
AM	0.58	0.23
PM	0.33	0.87.

This demonstrates that the impact of the proposed development on the level crossing is **not material**.

9.7 SUMMARY

- 9.7.1 Comprehensive junction analysis and modelling is undertaken for the years 2023 and 2028 for the AM & PM peak hour Base and With Development situations. It is concluded that the proposed residential development **does not** have a detrimental impact on the operational performance of the TA highway network.

10 Summary & Conclusions

- 10.1 Ashley Helme Associates Limited are appointed by Gladman Developments Ltd to prepare a Transport Assessment report to support the planning application for residential development on land off Henthorn Road, Clitheroe. The Site is presently agricultural/field land. The proposed development comprises up to 110 dwellings. All matters are reserved, except access.
- 10.2 Pre-application discussions have been held with officers at Lancashire County Council (LCC) and this has culminated in agreement being reached to a number of TA parameters.
- 10.3 The principle of transport sustainability underlies the masterplan development. The location of the Site provides a good context for journeys to be undertaken on foot and by cycle, and the masterplan access strategy reflects this with the provision of good permeability and connectivity for pedestrians and cyclists.
- 10.4 The planning application seeks outline consent with all matters reserved, except access. The access strategy for the Site is:
- Vehicles: Henthorn Road
 - Cycles: Henthorn Road, and
 - Pedestrians: Henthorn Road.
- 10.5 The location of the Site provides a good context for journeys of residents to be undertaken on foot and by cycle. The proposed residential development is to provide access on Henthorn Road. The applicant proposes to introduce footway on the northwest side of Henthorn Road between the Site Access and Blakewater Road. The improvement works are shown on Drg No 1616/13/B. This offers positive encouragement to Site residents to walk local amenities and access bus services.
- 10.6 Henthorn Road is subject to a 20mph speed limit. It is considered that Henthorn Road is a suitable route for cycling.

- 10.7 The location of the Site, characteristics of Henthorn Road and nearby local amenities, offer an excellent opportunity for fostering a sustainable community. This is in accordance with the aims of local policies and national policy in NPPF.
- 10.8 Encouraging public transport journeys is an important component of the development access strategy. There are existing bus services operating in the vicinity of the Site that offer a good level of frequency and a range of destinations. Service No 2 calls within 300m of the proposed development and functions as a town circular service via Low Moor. The bus service operates to a 30-minute frequency, Monday to Saturday daytime.
- 10.9 There is a school bus service (No 686) which calls within 800m of the Site at bus stops on Garnett Road. This service offers trips to/from Bowland County High School on schooldays only. There are also school bus services which call at stops within 1200m of the Site (a 15-minute walk), on Edisford Road. Service Nos 510 and 645 offer trips to/from Clitheroe Royal Grammar School, Bowland County High School and Ribblesdale High School.
- 10.10 The nearest rail station is at Clitheroe and is less than a 2km walk from the proposed development. Journeys to the rail station can also be made by cycle and bus. There are 5no cycle lockers available at the station. Bus service No 2, that calls at stops circa 300m from the Site, is routed near to Clitheroe Rail Station and the journey is about 12 minutes. There is an hourly train service from Clitheroe to destinations including Blackburn, Bolton and Manchester.
- 10.11 A TA study network of junctions is identified and comprises:

REF	JUNCTION	CONTROL
SJ1	Lancaster Drive/Edisford Road	Priority control
SJ2	Seedall Avenue/Edisford Road	Priority control
SJ3	Faraday Avenue/Edisford Road	Priority control
SJ4	Thorn Street/Bawdlands	Priority control
SJ5	Henthorn Road/Bawdlands	Priority control
SJ6	Henthorn Road/Eshton Terrace/Thorn Street	Priority control
SJ7	Station Road/Parson Lane	Mini-roundabout
SJ8	Lowergate/Moor Lane/Woone Lane	Mini-roundabout/priority control

SJ9	Castle View/Parson Lane	Priority control
SJ10	Greenacre Street/Woone Lane/Eshton Terrace	Priority control
SJ11	Whalley Road/Greenacre Street	Priority control
SJ12	Primrose Road/A671 Whalley Road	Priority control.

The TA study network of junctions is **agreed** with LCC highways officers.

- 10.12 Estimates of traffic generated by the proposed development are **agreed** with LCC highway officers. Similarly, the distribution of development generated traffic on the TA study network is also **agreed** with LCC highways officers.
- 10.13 Comprehensive junction analysis and modelling is undertaken for year 2023 and 2028 AM & PM peak hour Base and With Development situations. It is concluded that the proposed residential development **does not** have a detrimental impact on the operational performance of the TA highway network
- 10.14 It is concluded that the proposed development is in accordance with national and local transport policies, and that there are **no** transport/highways reasons for refusal of planning permission.

Figures

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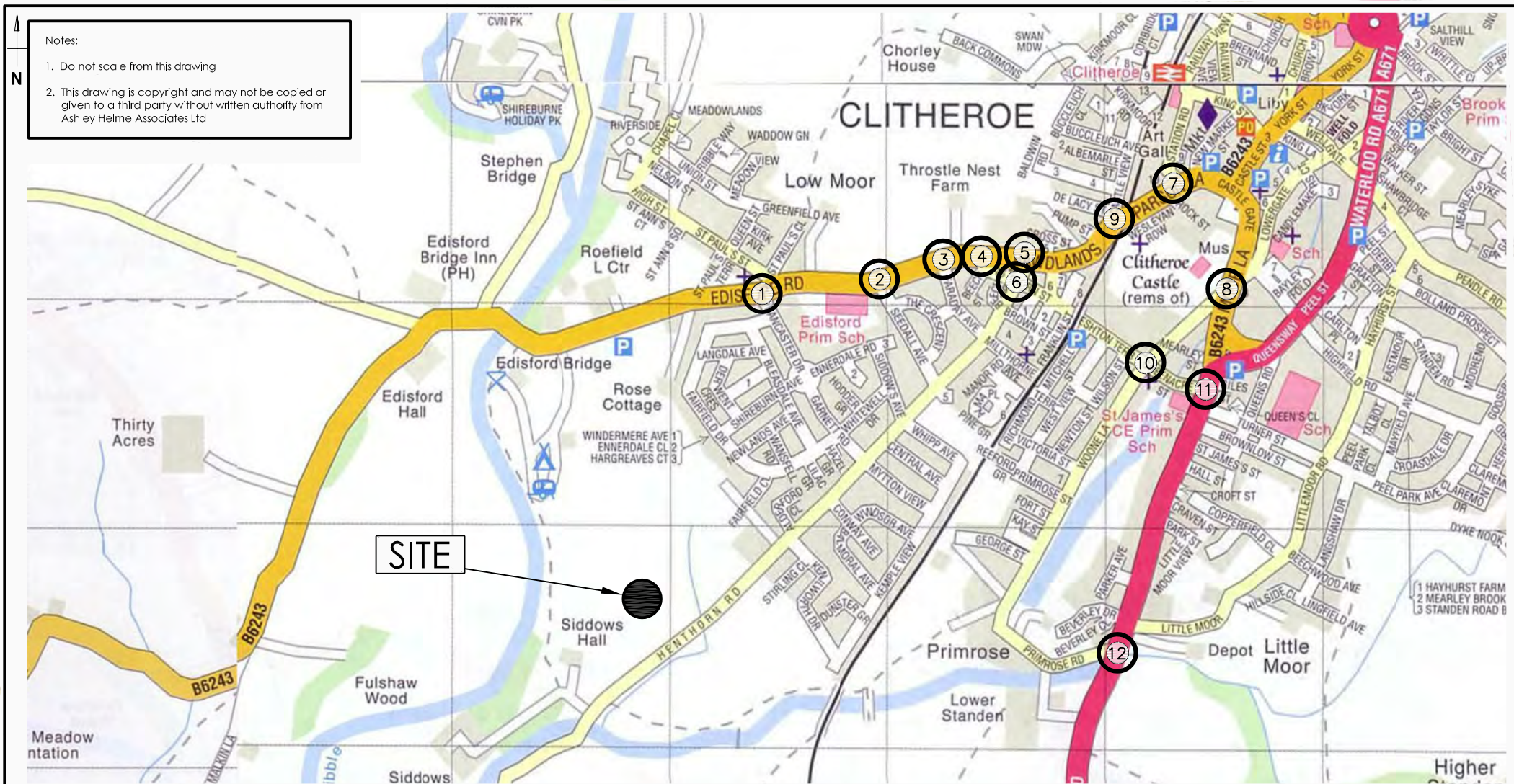
LOCATION PLAN

FIGURE 1

ashleyhelme
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76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

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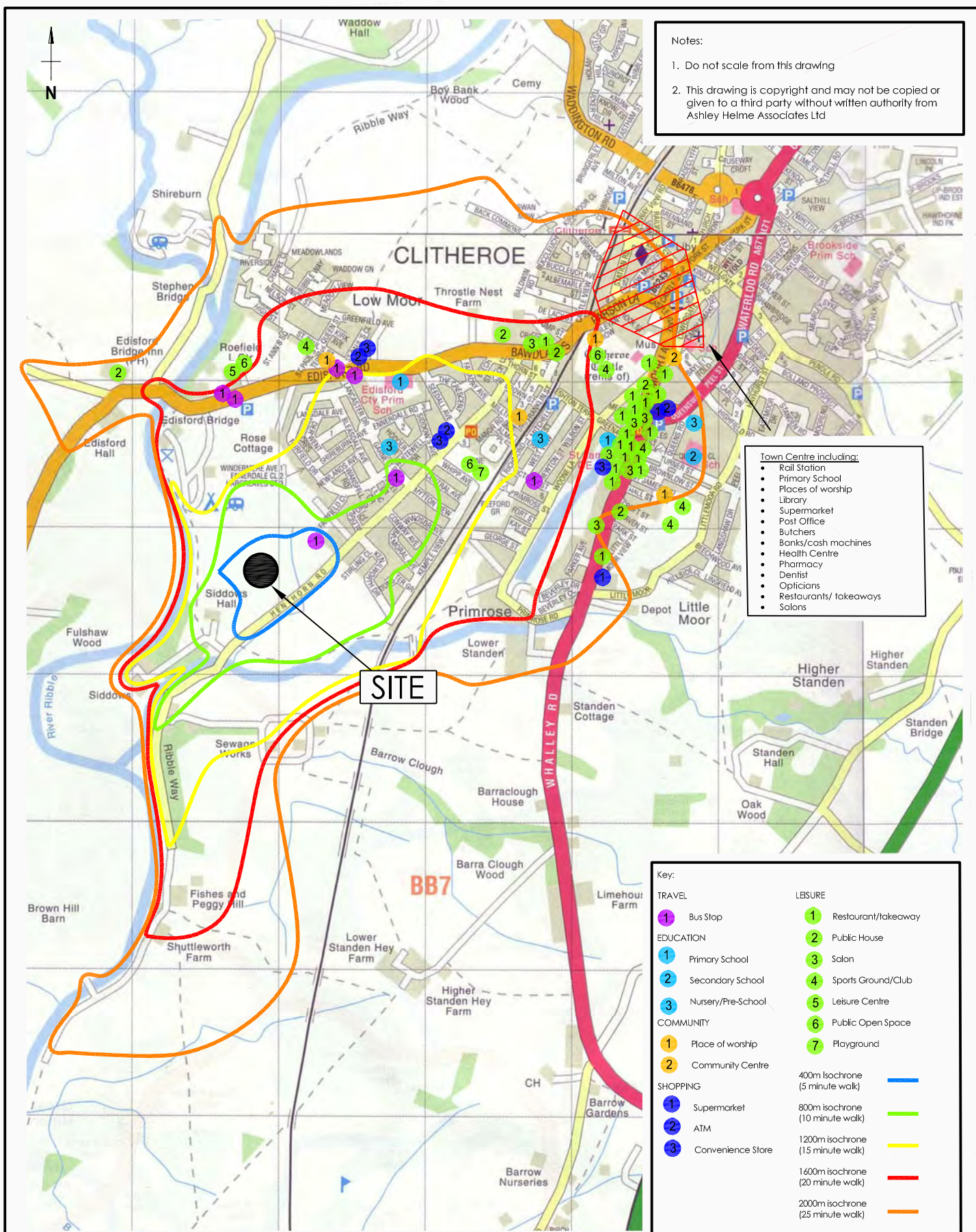
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FIGURE 2

STUDY JUNCTIONS

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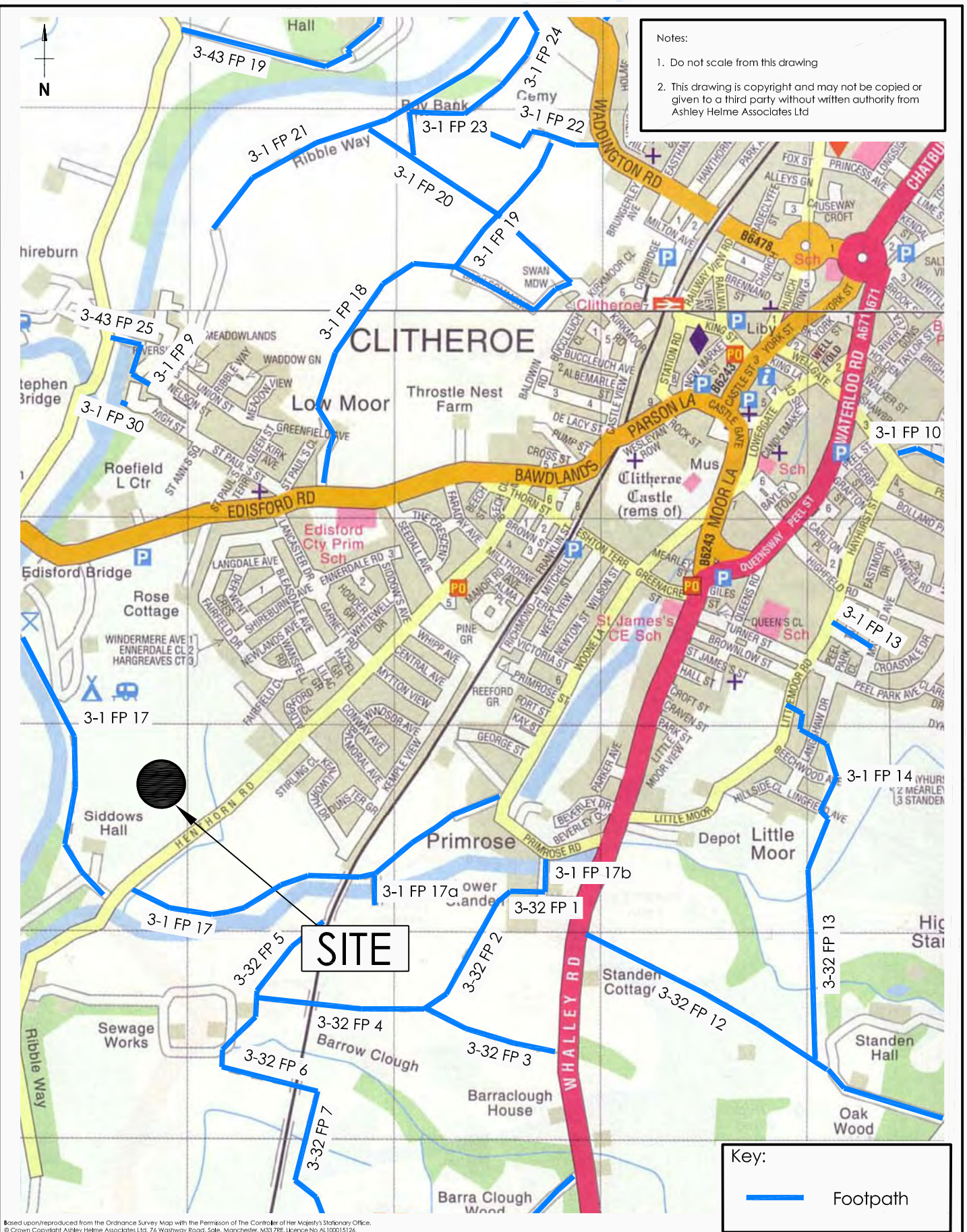
WALK ISOCHRONES AND AMENITIES

FIGURE 3

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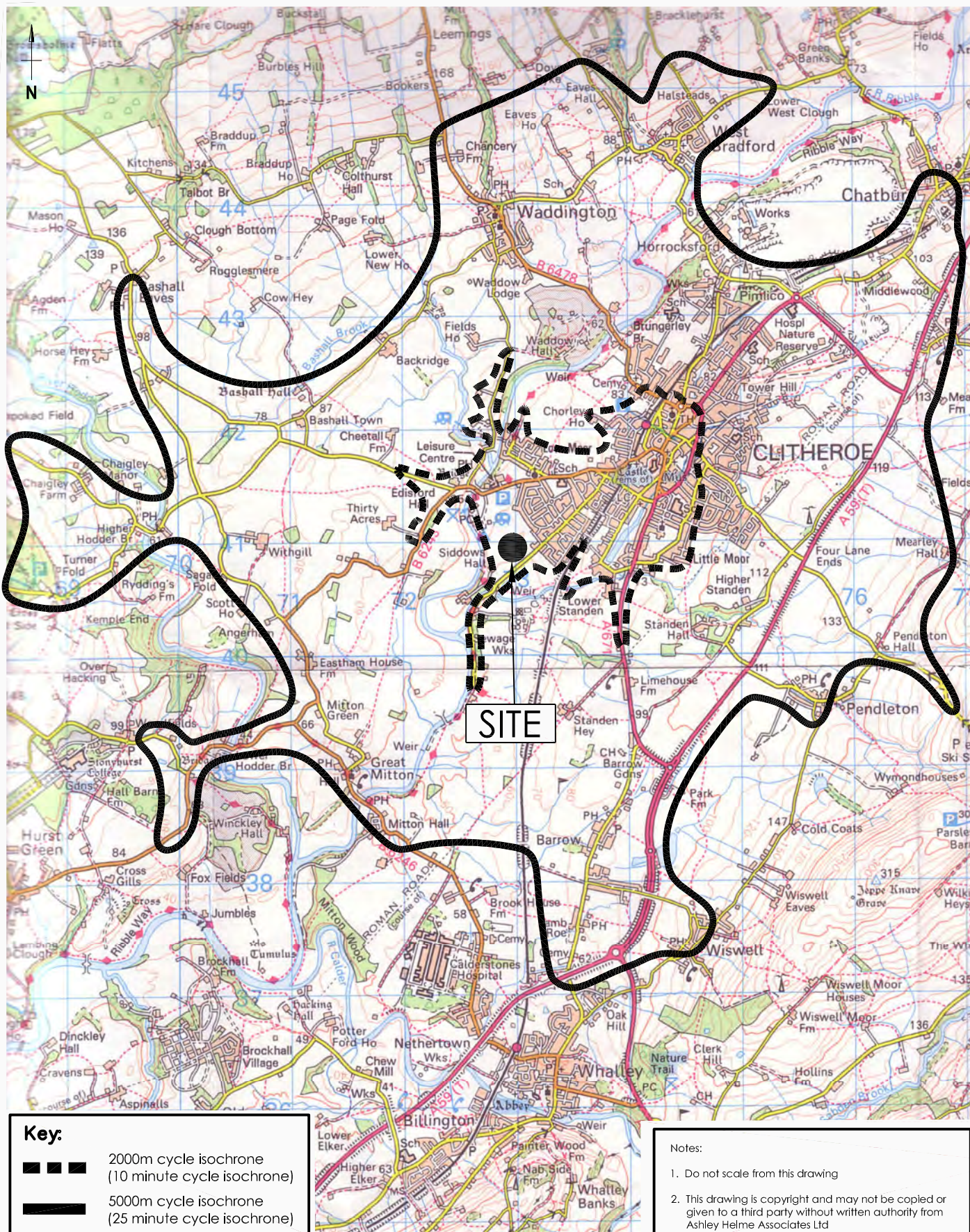
PUBLIC RIGHTS OF WAY (PROW)

FIGURE 4

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CYCLE ISOCHRONES

FIGURE 5

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Tables

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BUS No	Route	FREQUENCY			OPERATOR
		Mon- Sat		Sun	
		Day	Eve		
Services calling within 400m of Site (a 5 minute walk)					
2	Clitheroe Town Circular via Low Moor	30mins	-	-	PB
School services calling within 800m of Site (a 10 minute walk)					
686	Clitheroe-Bowland County High School	2 trips ⁽¹⁾	-	-	HC
School services calling within 1200m of Site (a 15 minute walk)					
510	Dunsop Bridge-Clitheroe Royal Grammar School-Bowland County High School	2 trips ⁽¹⁾	-	-	PC
645	Chipping-Ribblesdale High School	2 trips ⁽¹⁾	-	-	BGT
Services calling within 1600m of Site (a 20 minute walk)					
4	Clitheroe-Peel Park Circular	60mins	-	-	BT

Source: www.lancashire.gov.uk,

Key:

PB Preston Bus
 HC Hodsons Coaches Ltd
 BT Boomerang Travel Ltd
 PC Pendle Coaches
 BGT Bretherton Gold Line Tours

Notes:

1. 1 trip to school in AM and 1 return trip in PM, schooldays only,
2. There are several school bus services operating within walking distance of the Site.

TABLE 1 BUS SERVICES AND FREQUENCIES

YEAR	PEAK HOUR	SITUATION	THORN STREET			HENTHORN ROAD (S)			ESHTON TERRACE			HENTHORN ROAD (N)		
			RFC	Q	DEL	RFC	Q	DEL	RFC	Q	DEL	RFC	Q	DEL
2018	AM	Count ^[1]	0.19	0.2	11.56	0.64	1.9	15.96	0.49	1.0	15.39	0.00	0.0	0.00
	PM	Count ^[1]	0.18	0.2	10.26	0.36	0.6	9.38	0.79	3.5	31.31	0.00	0.0	0.00
2023	AM	Base ^[2]	0.21	0.3	12.39	0.72	2.8	20.13	0.55	1.2	17.79	0.00	0.0	0.00
		With Dev ^[3]	0.21	0.3	12.96	0.78	3.8	24.71	0.57	1.4	19.27	0.00	0.0	0.00
	PM	Base ^[2]	0.20	0.2	10.73	0.40	0.7	9.98	0.88	6.2	51.34	0.00	0.0	0.00
		With Dev ^[3]	0.20	0.3	11.01	0.43	0.8	10.35	0.94	9.8	75.90	0.00	0.0	0.00
2028	AM	Base ^[4]	0.22	0.3	12.75	0.75	3.3	22.67	0.57	1.4	19.26	0.00	0.0	0.00
		With Dev ^[5]	0.22	0.3	13.35	0.81	4.6	28.81	0.61	1.5	21.06	0.00	0.0	0.00
	PM	Base ^[4]	0.21	0.3	10.98	0.42	0.8	10.31	0.93	8.5	68.19	0.00	0.0	0.00
		With Dev ^[5]	0.21	0.3	11.27	0.45	0.9	10.73	0.98	14.1	102.61	0.00	0.0	0.00

Notes:

1. Refer Figure B1, Appendix B for traffic flows,
2. Refer Figure B8, Appendix B for traffic flows,
3. Refer Figure B12, Appendix B for traffic flows,
4. Refer Figure B9, Appendix B for traffic flows,
5. Refer Figure B13, Appendix B for traffic flows,
6. Refer Drg No 1616/06 for existing junction geometry
7. Q = Queue (pcu)
8. DEL = Average delay per vehicle (seconds)

**TABLE 2 JUNCTIONS 9 PICADY ANALYSIS RESULTS: SJ6
AM & PM PEAK HOURS
2018, 2023 & 2028 BASE & WITH DEVELOPMENT**

YEAR	PEAK HOUR	SITUATION	ESHTON TERRACE			WOONE LANE (S)			GREENACRE STREET		
			RFC	Q	DEL	RFC	Q	DEL	RFC	Q	DEL
2018	AM	Count ^[1]	0.13	0.3	4.95	0.23	0.3	11.75	0.11	0.2	6.25
	PM	Count ^[1]	0.09	0.2	5.54	0.19	0.2	11.09	0.09	0.2	4.74
2023	AM	Base ^[2]	0.20	0.6	4.95	0.26	0.4	13.13	0.12	0.3	6.36
		With Dev ^[3]	0.21	0.6	4.94	0.27	0.4	13.40	0.13	0.3	6.37
	PM	Base ^[2]	0.12	0.3	5.58	0.22	0.3	12.30	0.10	0.2	4.60
		With Dev ^[3]	0.13	0.3	5.60	0.23	0.3	12.62	0.11	0.2	4.55
2028	AM	Base ^[4]	0.21	0.6	4.92	0.28	0.4	13.61	0.13	0.3	6.40
		With Dev ^[5]	0.23	0.7	4.92	0.28	0.4	13.91	0.13	0.3	6.41
	PM	Base ^[4]	0.13	0.3	5.56	0.23	0.3	12.83	0.11	0.3	4.57
		With Dev ^[5]	0.14	0.3	5.59	0.24	0.3	13.19	0.11	0.3	4.52

Notes:

1. Refer Figure B1, Appendix B for traffic flows,
2. Refer Figure B8, Appendix B for traffic flows,
3. Refer Figure B12, Appendix B for traffic flows,
4. Refer Figure B9, Appendix B for traffic flows,
5. Refer Figure B13, Appendix B for traffic flows,
6. Refer Drg No 1616/10 for existing junction geometry
7. Q = Queue (pcu)
8. DEL = Average delay per vehicle (seconds)

**TABLE 3 JUNCTIONS 9 PICADY ANALYSIS RESULTS: SJ10
AM & PM PEAK HOURS
2018, 2023 & 2028 BASE & WITH DEVELOPMENT**

YEAR	PEAK HOUR	SITUATION	WHALLEY ROAD (S)			WHALLEY ROAD (N)		
			RFC	Q	DEL	RFC	Q	DEL
2018	AM	Count ^[1]	0.35	0.6	2.98	0.36	0.9	8.30
	PM	Count ^[1]	0.41	0.7	3.07	0.56	2.3	10.05
2023	AM	Base ^[2]	0.39	0.7	3.16	0.41	1.1	8.27
		With Dev ^[3]	0.39	0.7	3.17	0.41	1.2	8.25
	PM	Base ^[2]	0.48	0.9	3.50	0.66	4.1	12.18
		With Dev ^[3]	0.49	1.0	3.56	0.69	4.7	12.96
2028	AM	Base ^[4]	0.40	0.7	3.24	0.43	1.3	8.38
		With Dev ^[5]	0.40	0.7	3.25	0.43	1.3	8.36
	PM	Base ^[4]	0.50	1.0	3.62	0.70	5.2	13.36
		With Dev ^[5]	0.51	1.0	3.69	0.73	6.0	14.48

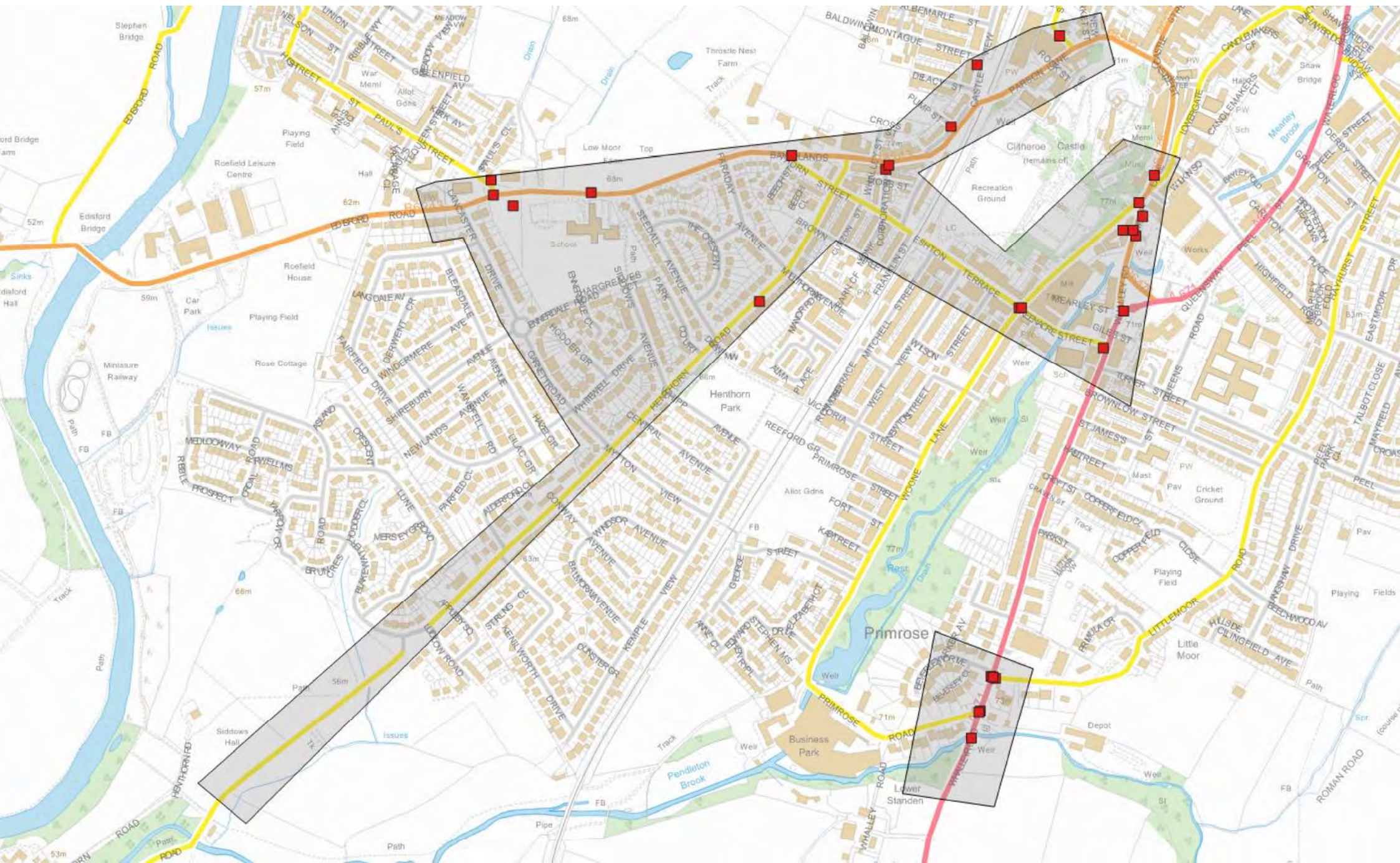
Notes:

1. Refer Figure B1, Appendix B for traffic flows,
2. Refer Figure B8, Appendix B for traffic flows,
3. Refer Figure B12, Appendix B for traffic flows,
4. Refer Figure B9, Appendix B for traffic flows,
5. Refer Figure B13, Appendix B for traffic flows,
6. Refer Drg No 1616/11 for existing junction geometry
7. Q = Queue (pcu)
8. DEL = Average delay per vehicle (seconds)

**TABLE 4 JUNCTIONS 9 PICADY ANALYSIS RESULTS: SJ11
AM & PM PEAK HOURS
2018, 2023 & 2028 BASE & WITH DEVELOPMENT**

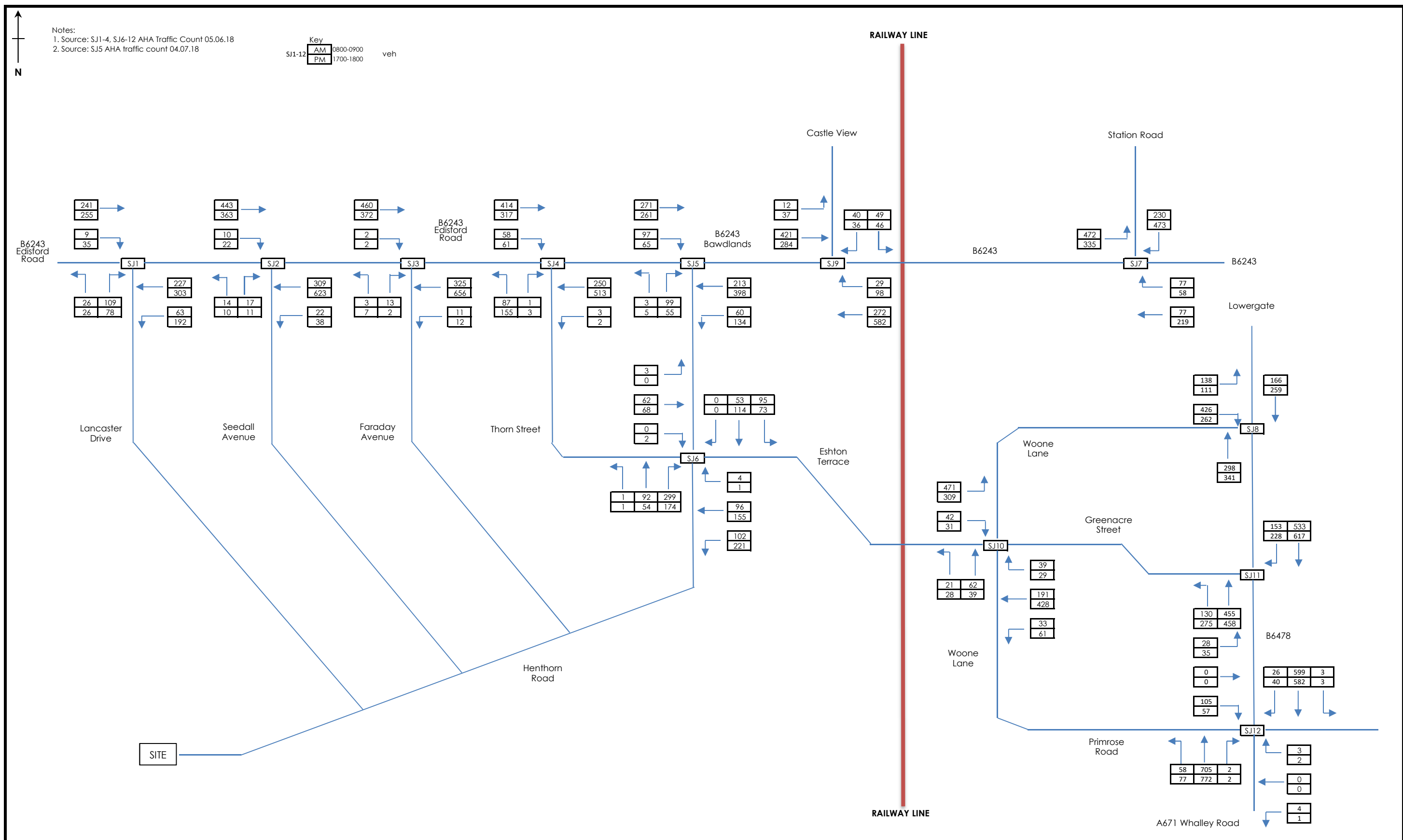
A LC Accident Locations

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B Traffic Flows

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**FIGURE B1 TRAFFIC COUNT: 2018
AM & PM PEAK HOURS**

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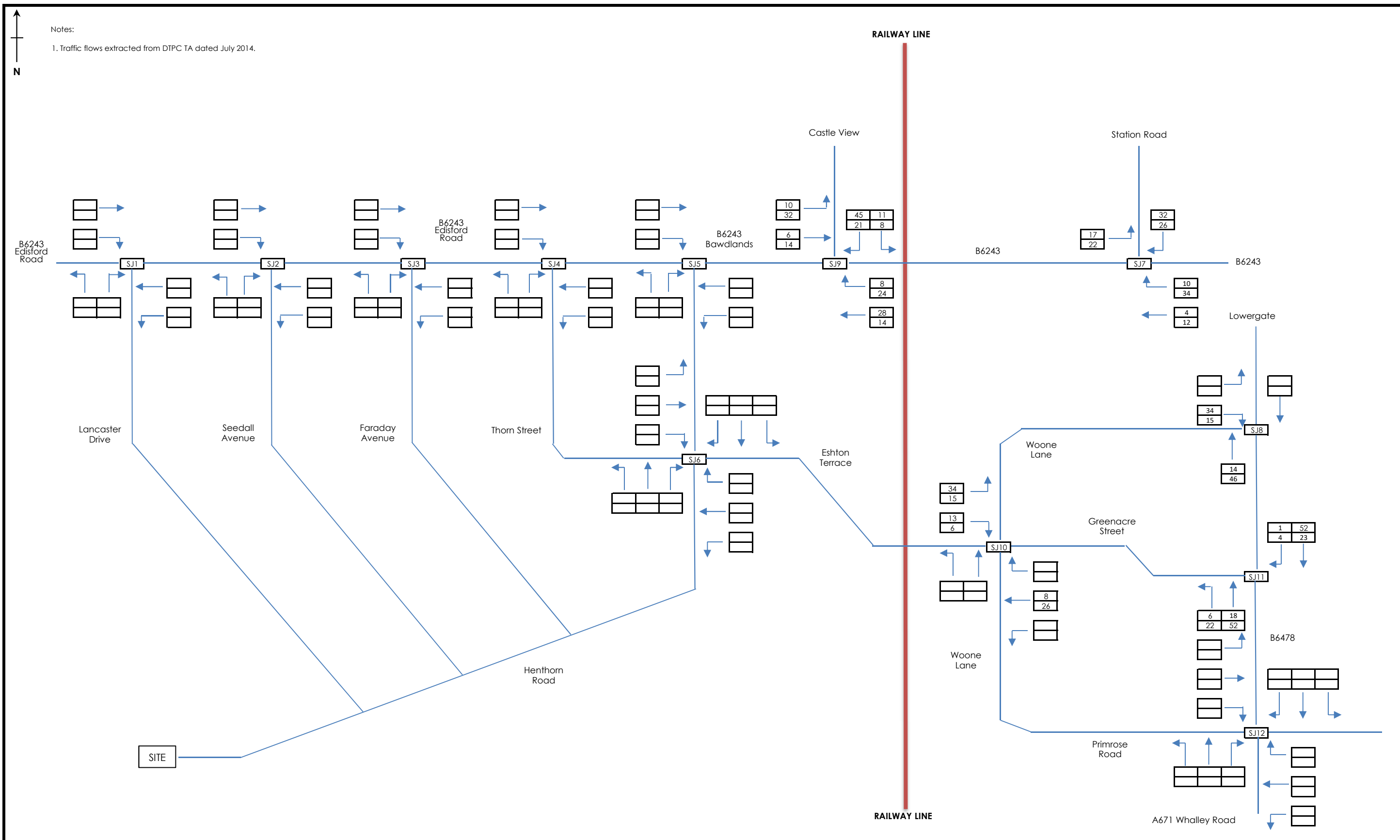


FIGURE B4 COMMITTED DEVELOPMENT
3/2014/0597 LAND OFF WADDINGTON ROAD 275 DWELLINGS

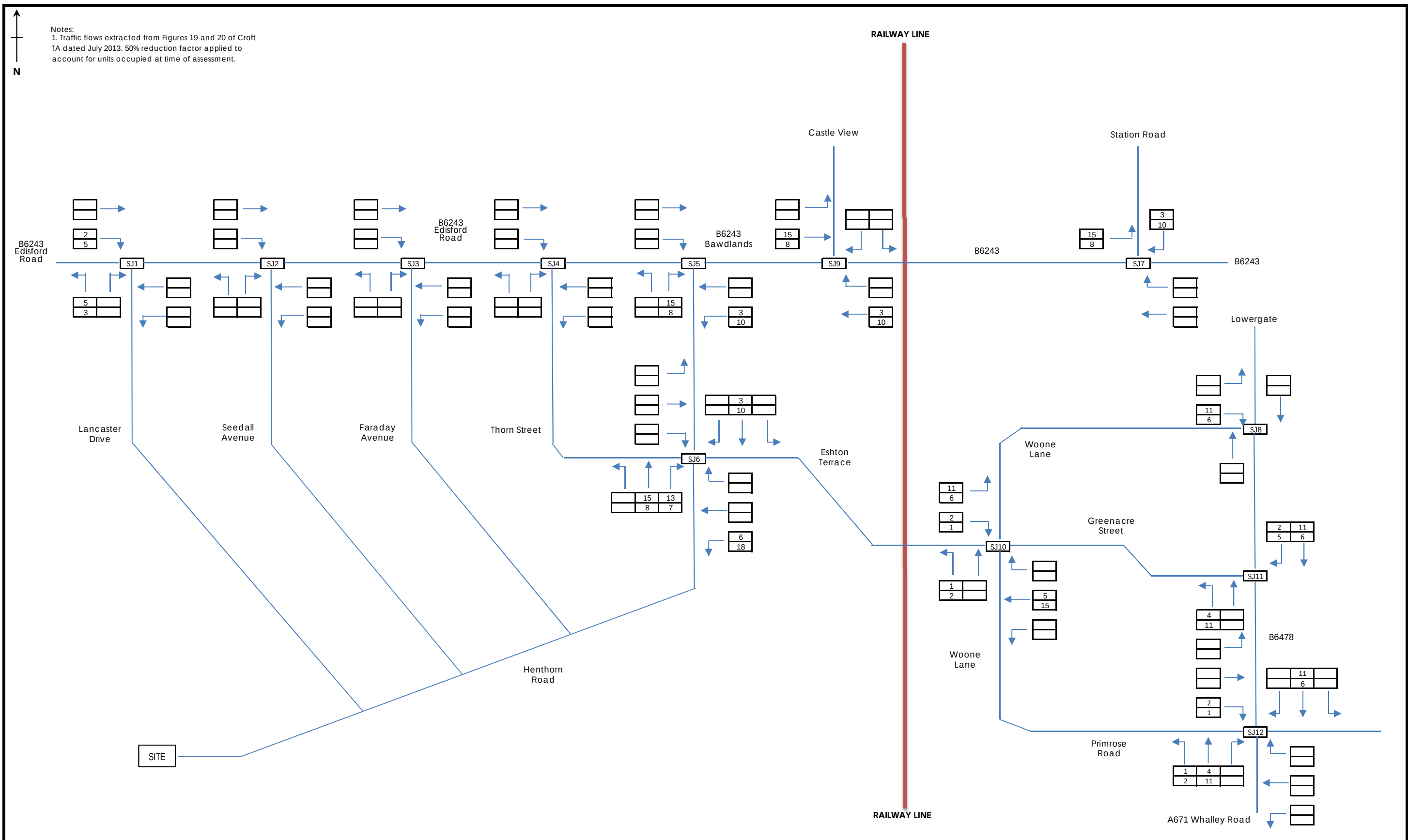


FIGURE B5 COMMITTED DEVELOPMENT
3/2013/0711 HENTHORN ROAD 140 DWELLINGS

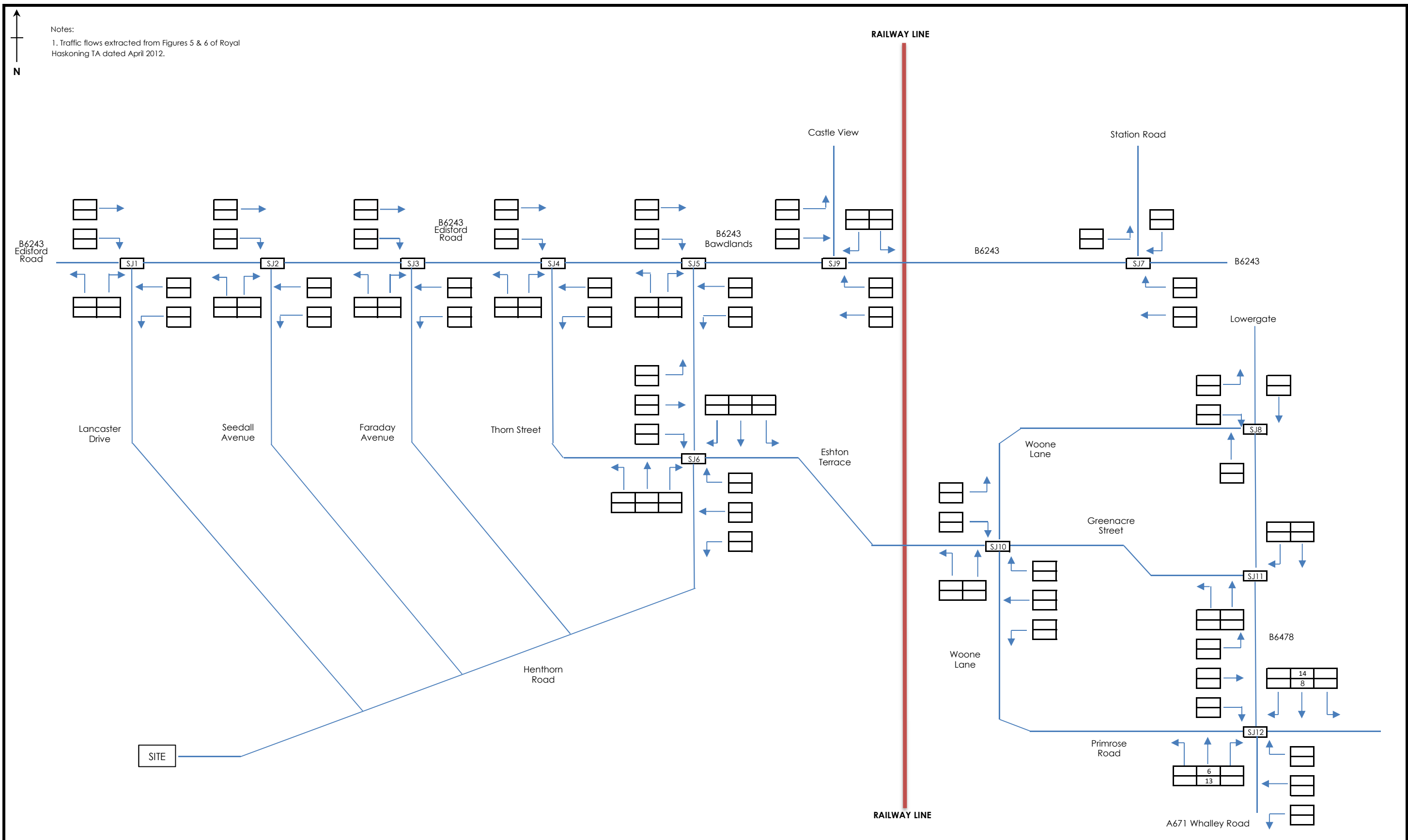


FIGURE B6 COMMITTED DEVELOPMENT
3/2015/0879 LAND NORTH AND WEST OF LITTLEMOOR 48 DWELLINGS

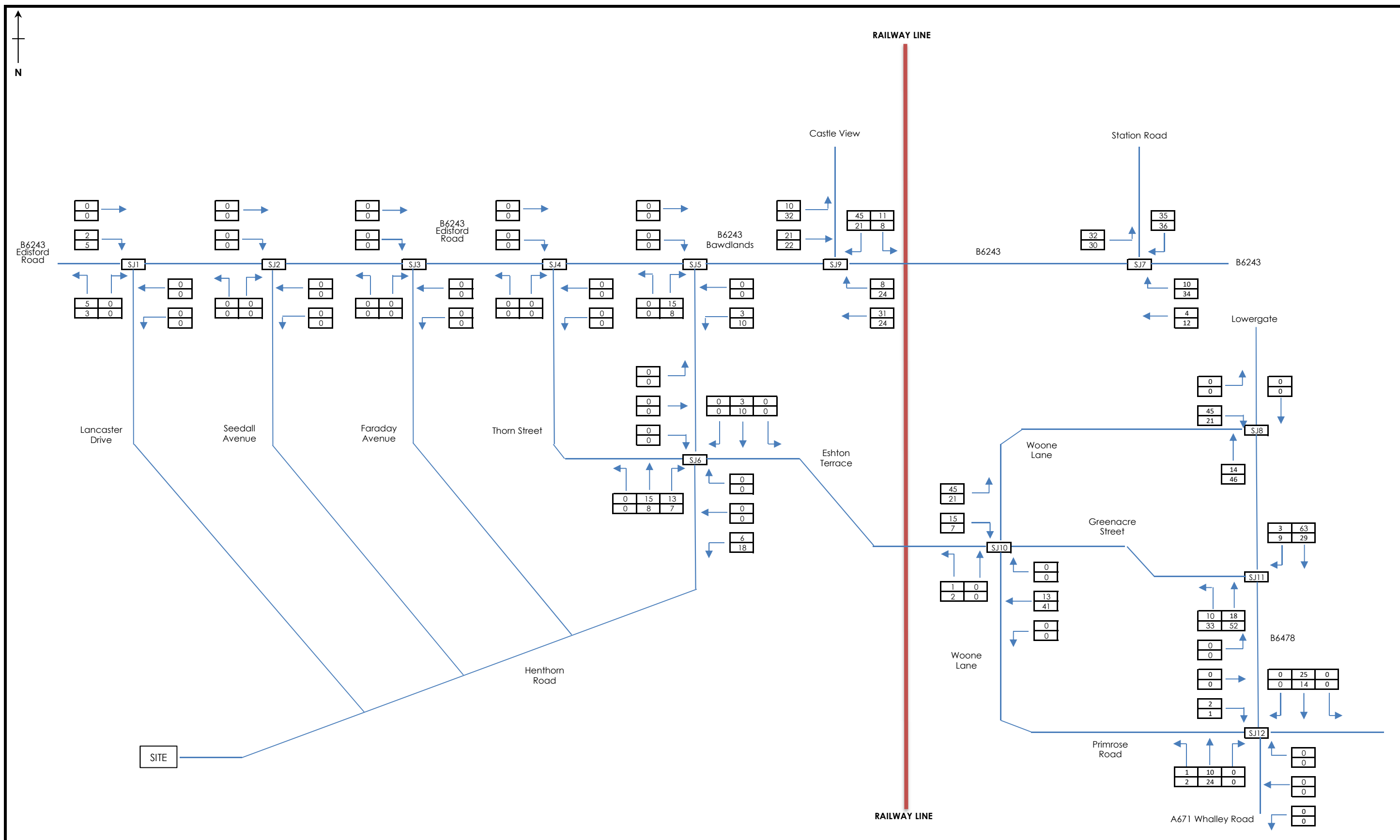


FIGURE B7 COMMITTED DEVELOPMENT: TOTAL

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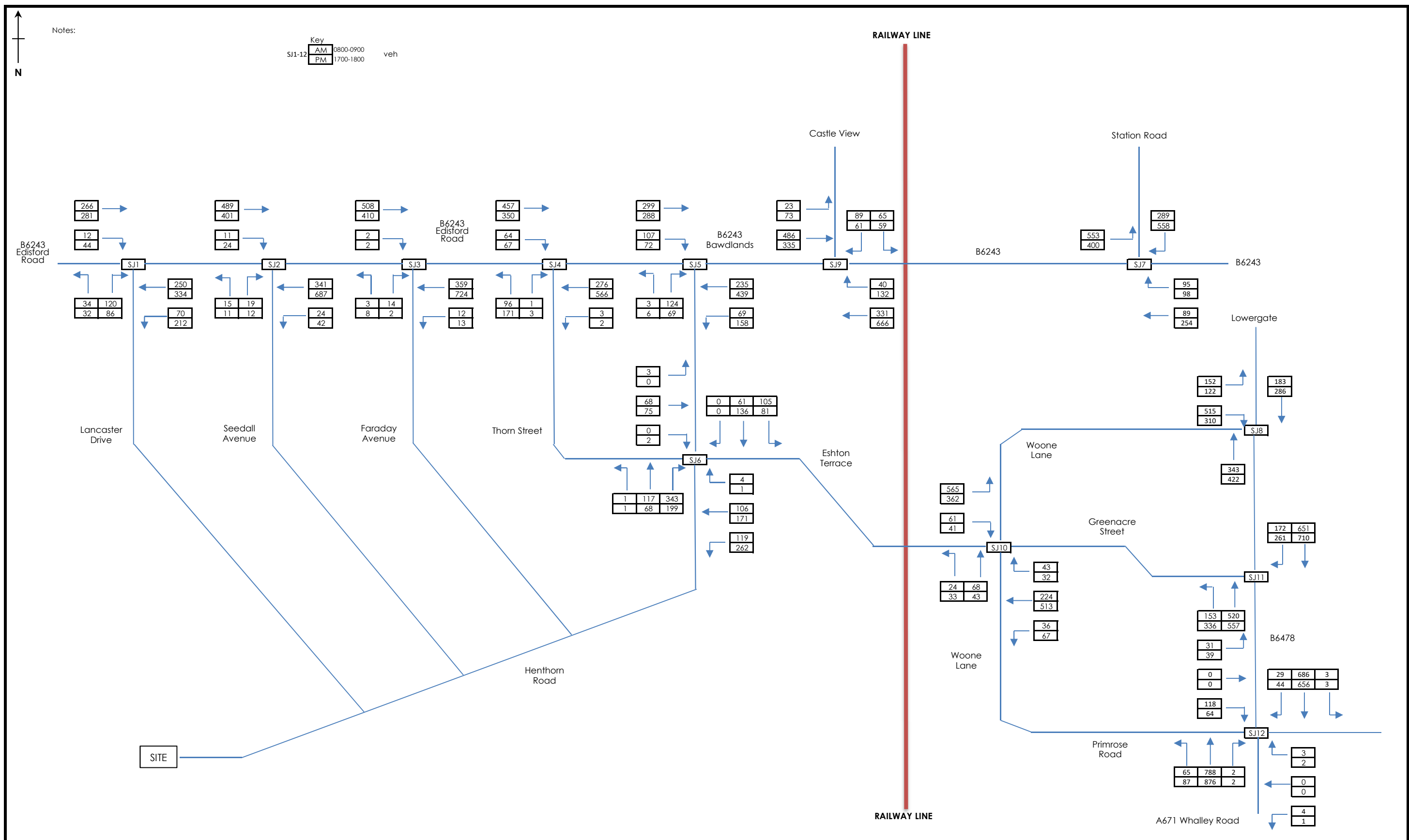
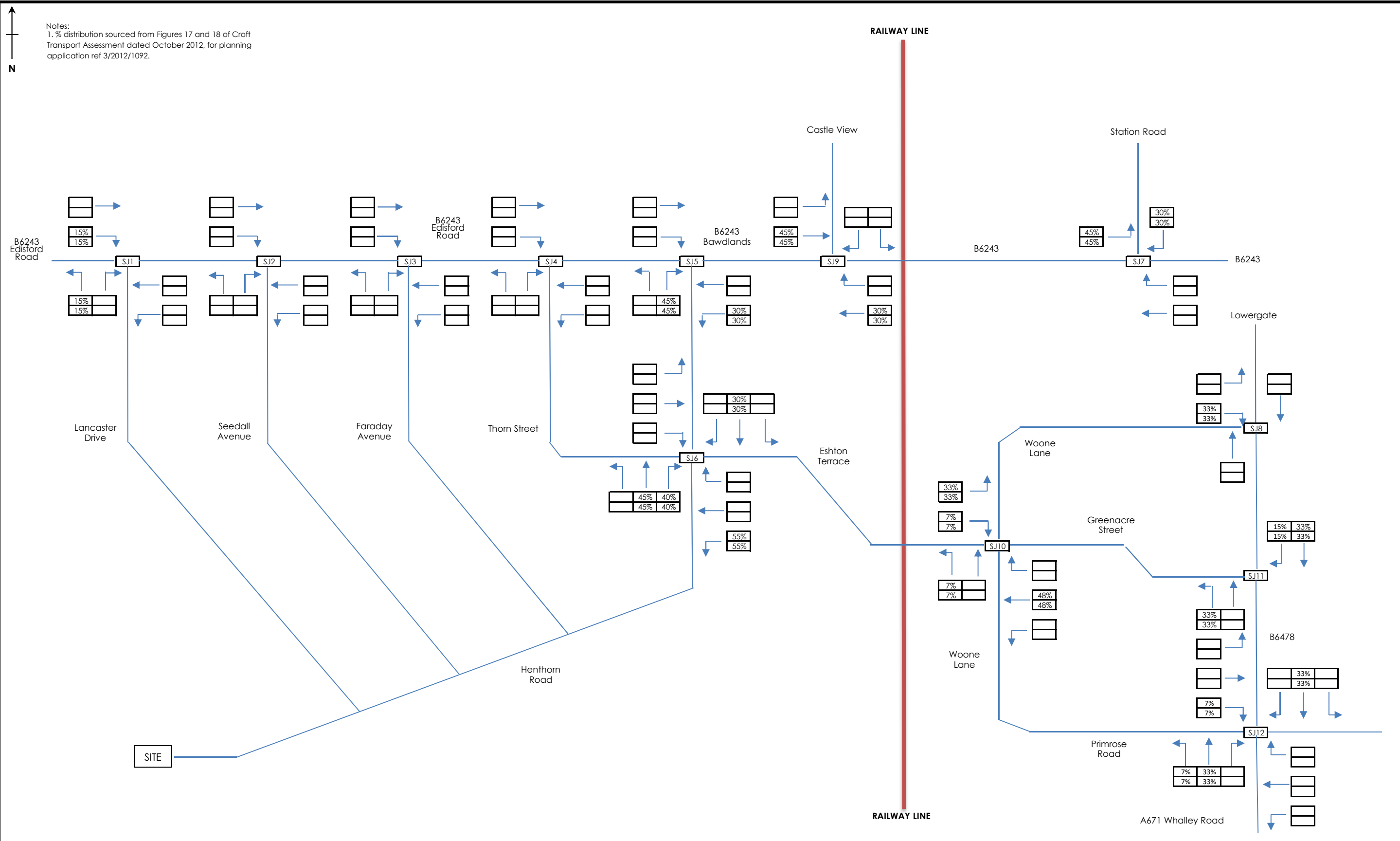
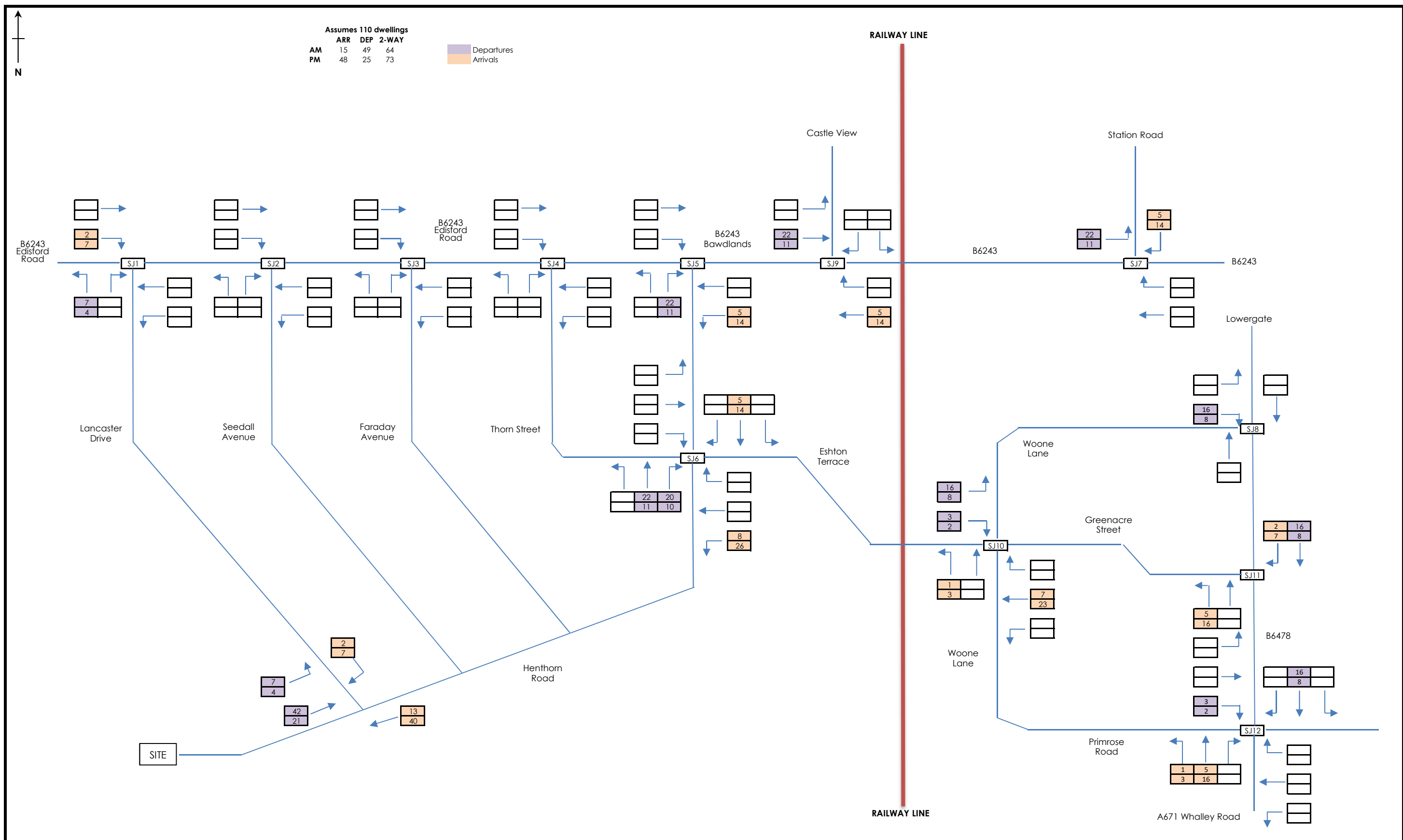


FIGURE B9 BASE: 2028
AM & PM PEAK HOURS
B3 + B7



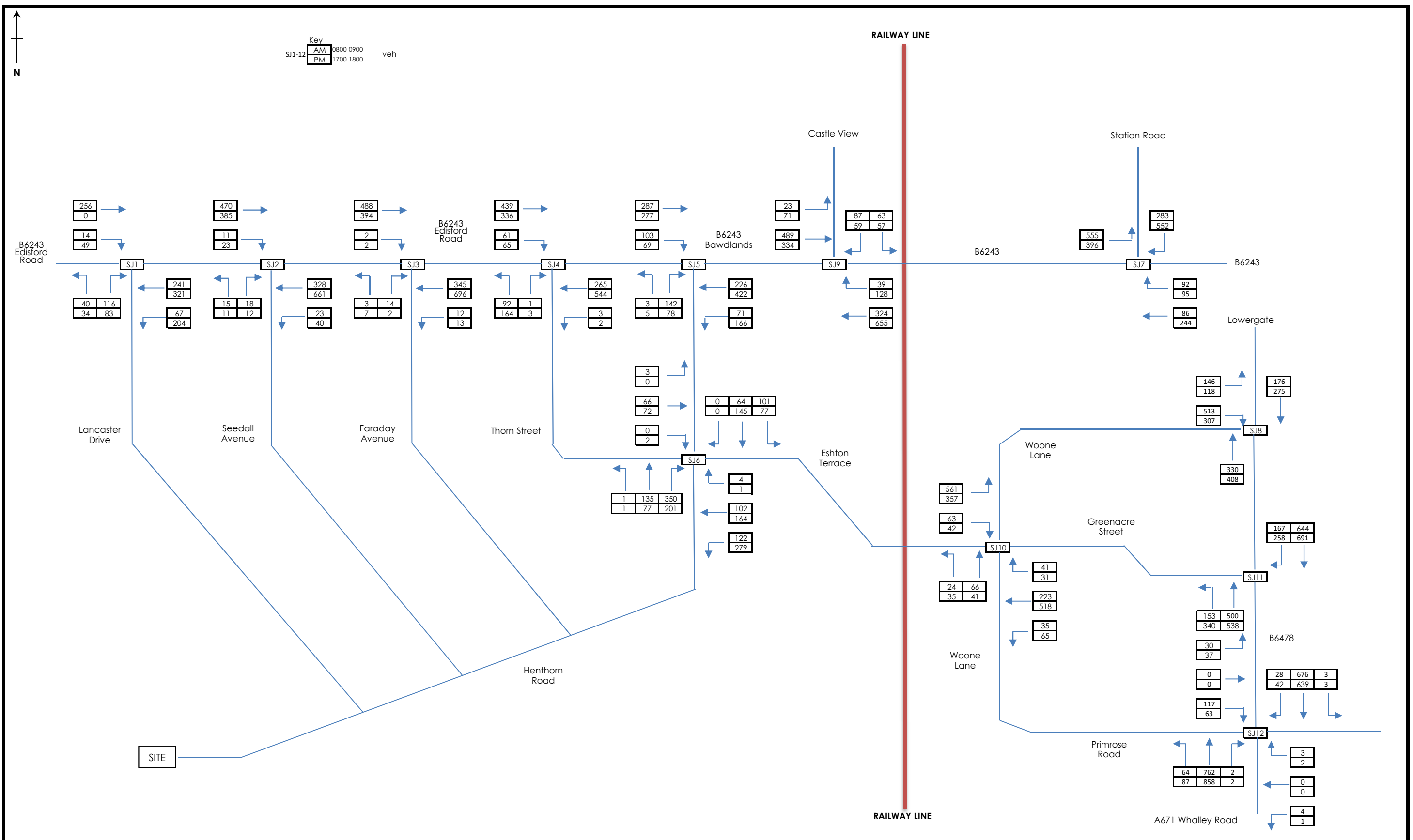
**FIGURE B10 % DISTRIBUTION
PROPOSED DEVELOPMENT**



**FIGURE B11 GENERATED TRAFFIC
PROPOSED DEVELOPMENT**

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**FIGURE B12 WITH DEVELOPMENT: 2023
AM & PM PEAK HOURS
B8 + B11**

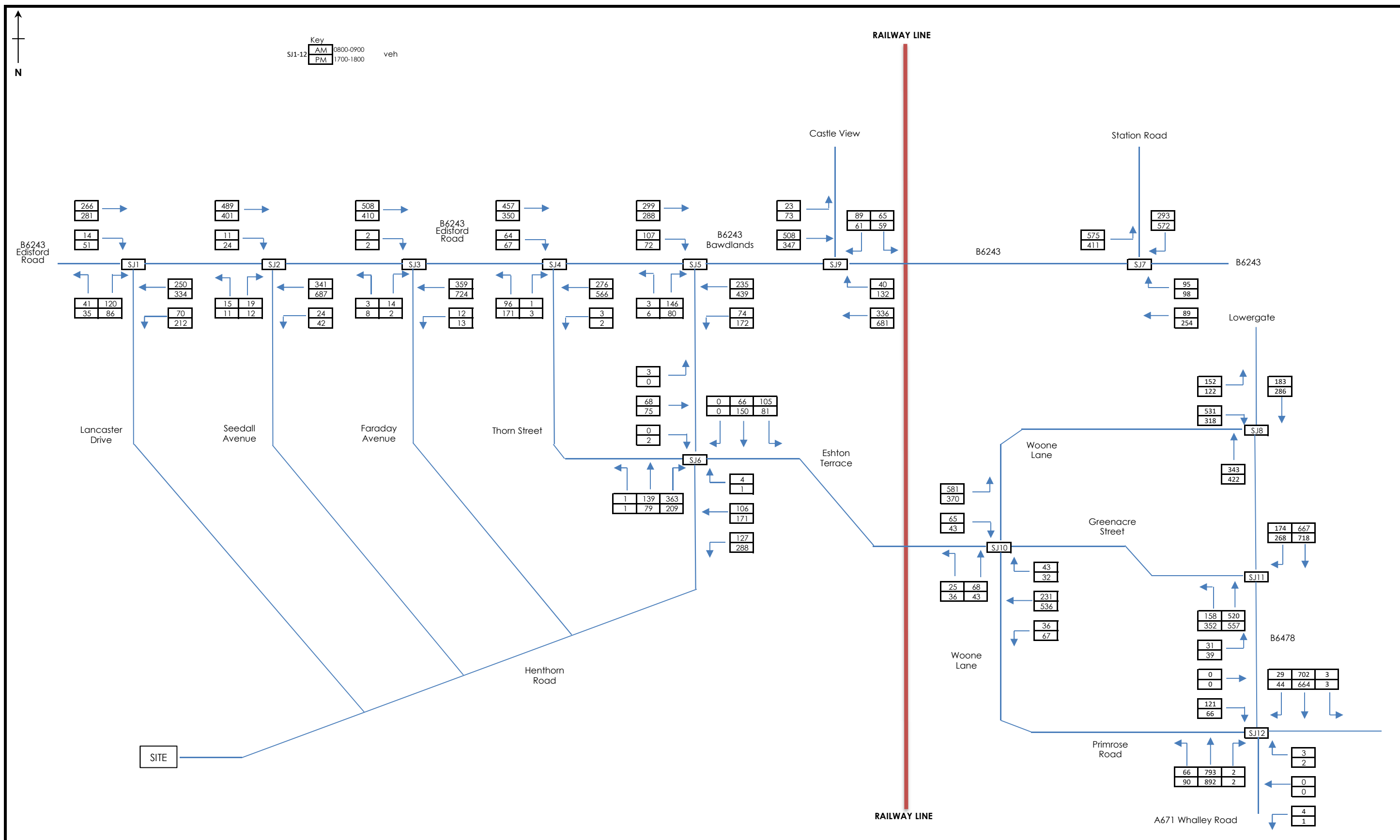


FIGURE B13 WITH DEVELOPMENT: 2028
AM & PM PEAK HOURS
B9 + B11

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TECHNICAL FILE NOTE 1

Project	Henthorn Road, Clitheroe	Project No	1616	Meeting	[]
Contact		Originator	KI	Telephone	[]
		Date	12.06.18	Aide Memoire	[x]

TRAFFIC GROWTH: NATIONAL TRANSPORT MODEL (NTM)

METHODOLOGY

Methodology for growing background traffic from count year (2018) to Assessment Year (2023) and Future Year (2028) is to use the National Transport Model (NTM) methodology, using the following criteria:

- Ribble Valley 003 MSOA geographical area,
- All purpose car driver trips,
- Area type: All,
- Road type: All.

2018 to 2023 <Assessment Year>

AM peak period: 1.0612

PM peak period: 1.0594

Adopt average growth factor: **1.0603**

2018 to 2028 <Future Year>

AM peak period: 1.1052

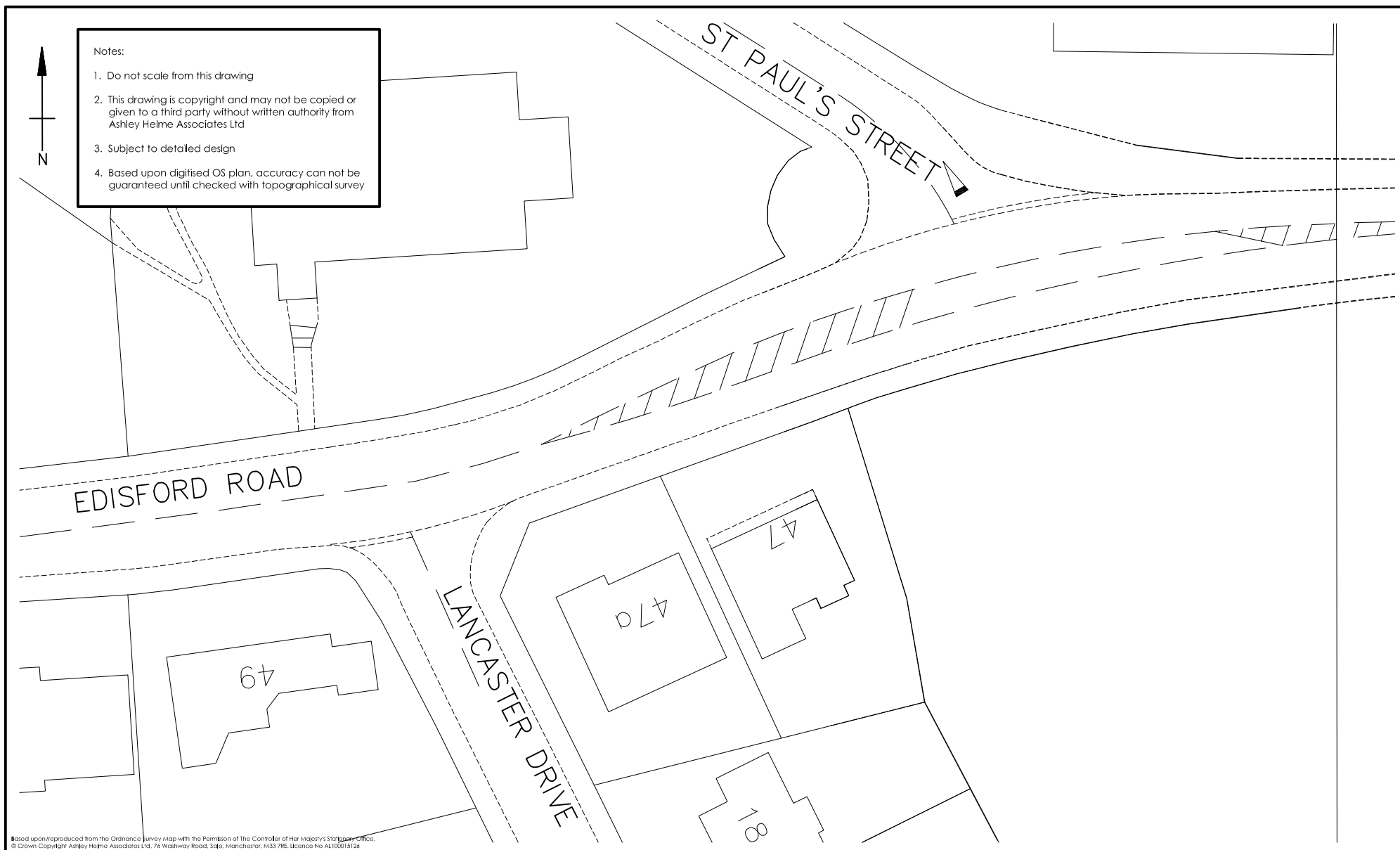
PM peak period: 1.1015

Adopt average growth factor: **1.1034**

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Drawings

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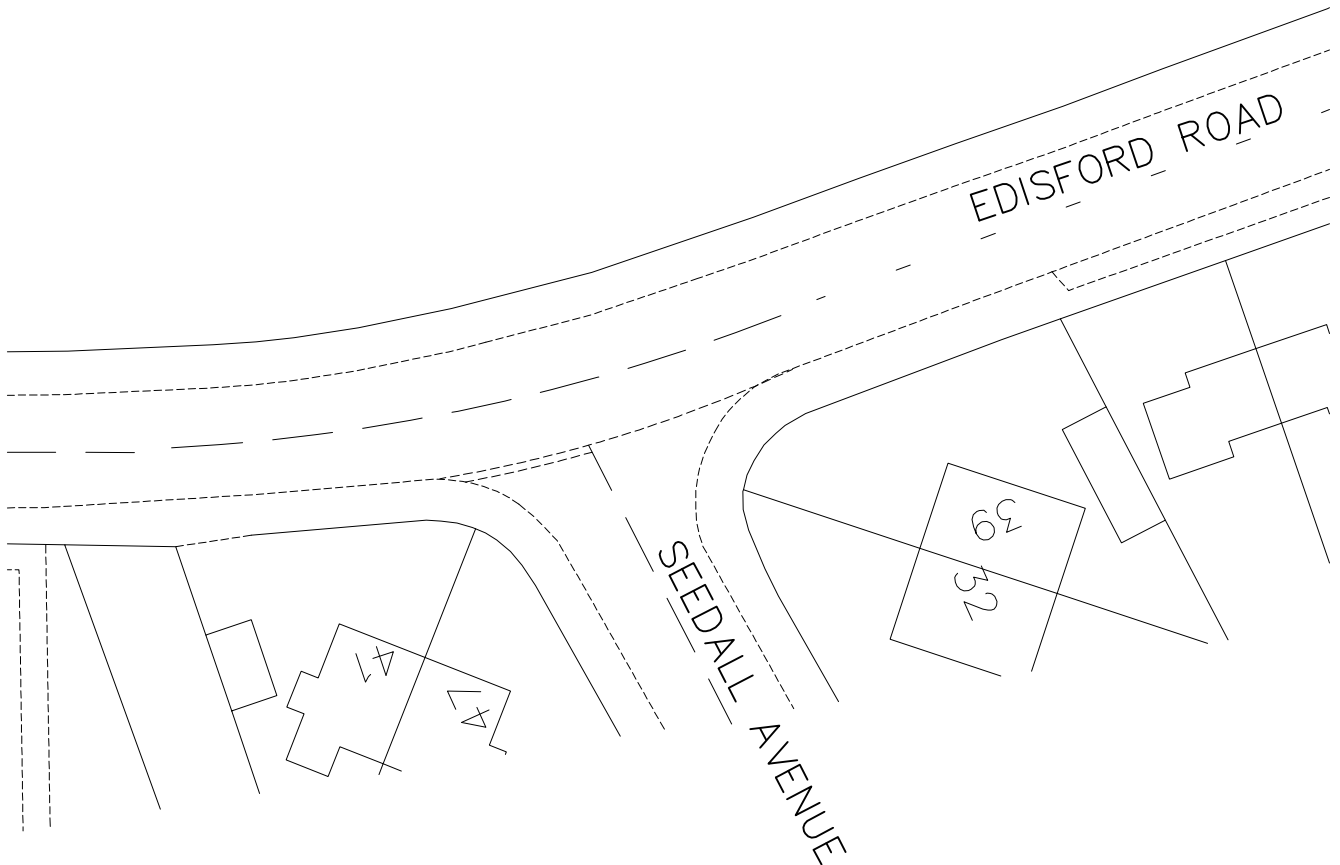
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Project	HENTHORN ROAD, CLITHEROE	Title	EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 1		Drawing No	1616/03	Rev	ashleyhelme associates 76 washway road, sale, manchester, m33 7re e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553
Client	GLADMAN DEVELOPMENTS				Date	JUNE 2018	Scale	
							1:500@A4	



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Project
HENTHORN ROAD, CLITHEROE

Client
GLADMAN DEVELOPMENTS

Drawing No
1616/04

Rev

Title
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Project
HENTHORN ROAD, CLITHEROE

Client
GLADMAN DEVELOPMENTS

Drawing No
1616/05

Rev

Title
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STUDY JUNCTION 3

Date
JUNE 2018

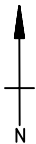
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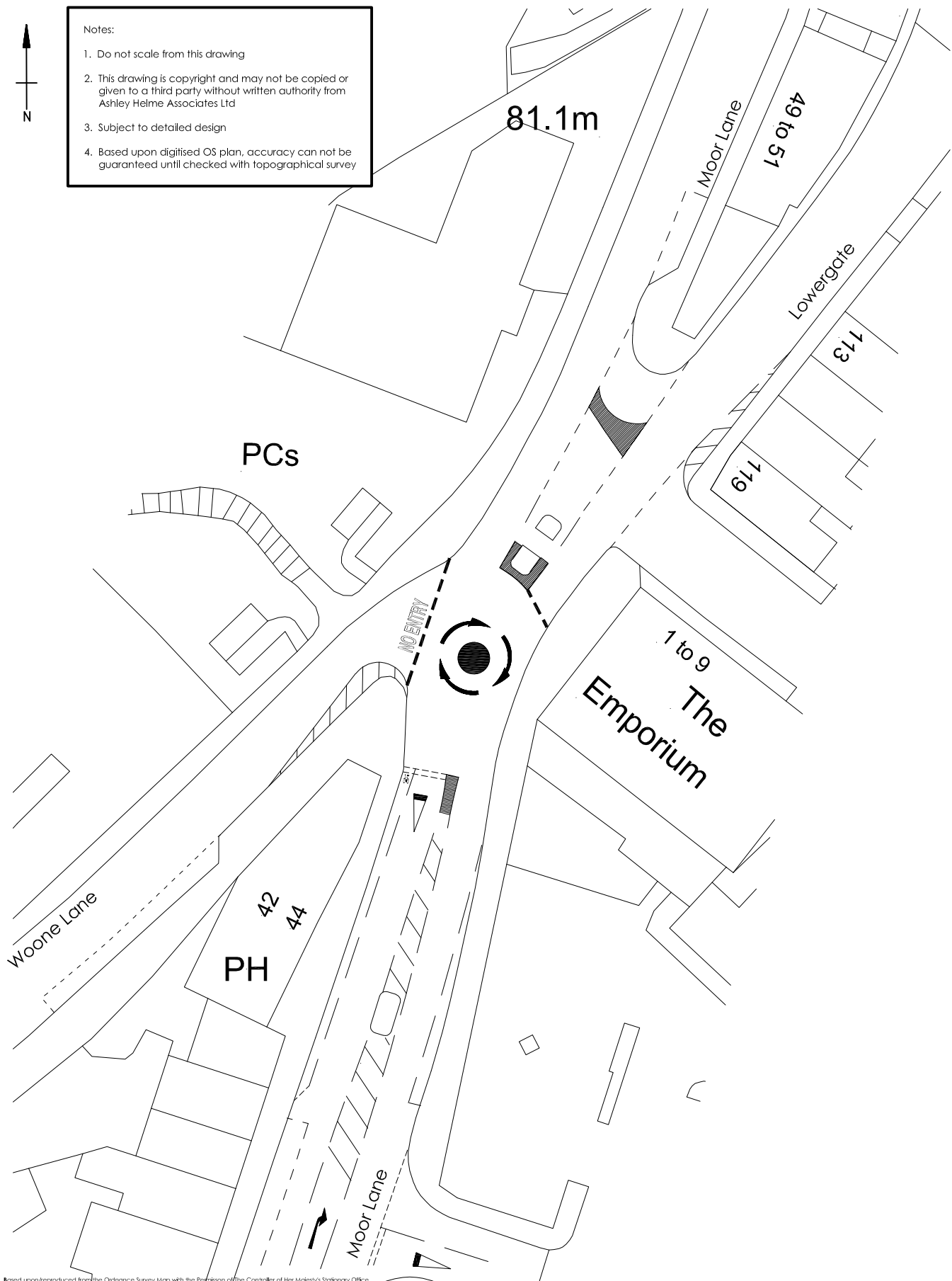
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Client	GLADMAN DEVELOPMENTS		1616/06		
		EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTIONS 4, 5 & 6	Date	Scale	
			JUNE 2018	1:500@A3	

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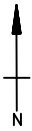
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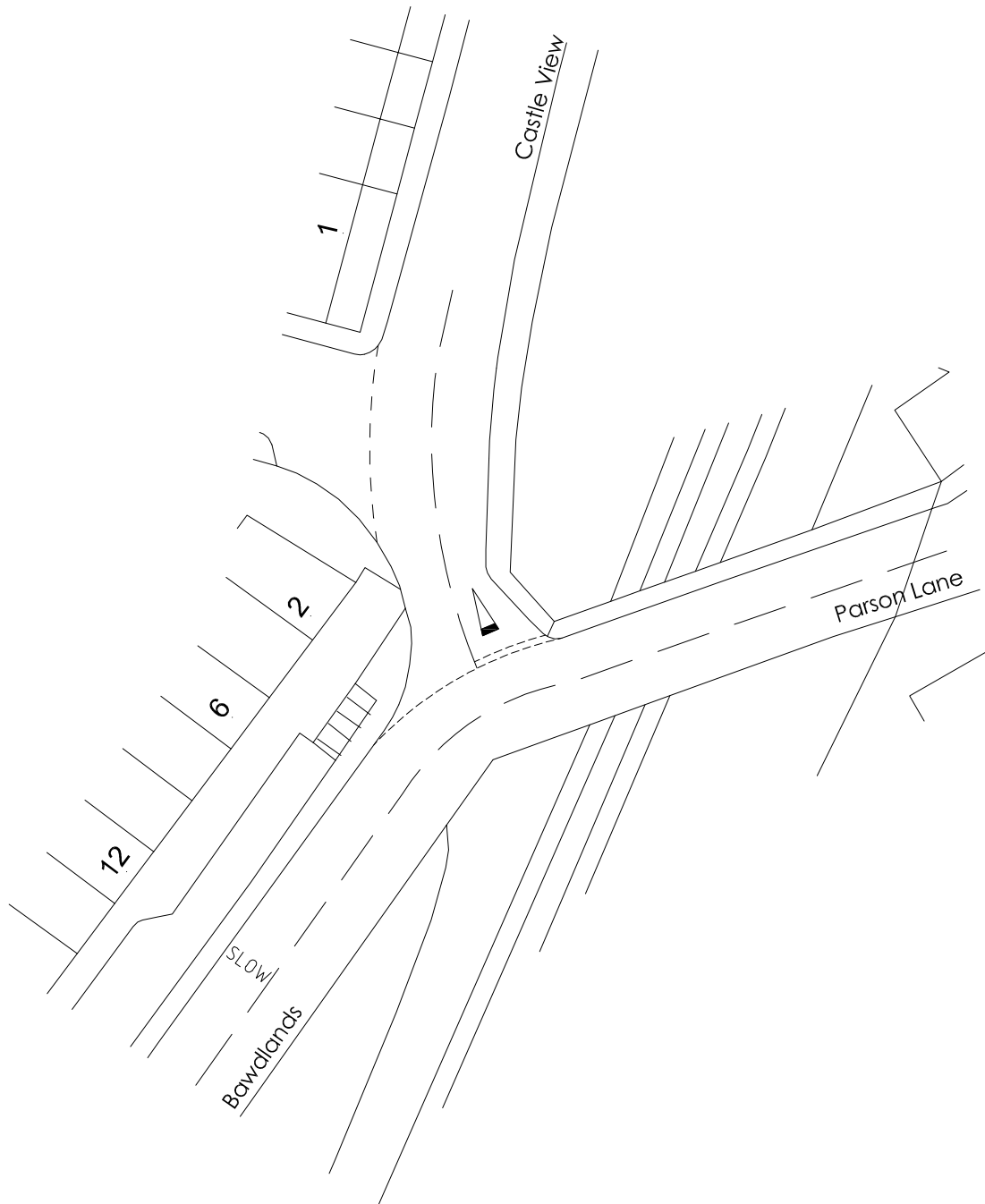
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Project	HENTHORN ROAD, CLITHEROE	Client	GLADMAN DEVELOPMENTS	Drawing No	1616/09	Rev	
Title	EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 9			Date	JUNE 2018	Scale	1:500 @ A4

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Project
HENTHORN ROAD, CLITHEROE

Client
GLADMAN DEVELOPMENTS

Drawing No
1616/10

Rev

Title
EXISTING JUNCTION ARRANGEMENTS:
STUDY JUNCTION 10

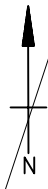
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Garage

GREENACRE STREET

WHALLEY ROAD

GILES STREET

Club

28

46 44 40

35 to 39

48

58

60

649

45 47

2

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Project
HENTHORN ROAD, CLITHEROE

Client
GLADMAN DEVELOPMENTS

Drawing No
1616/11

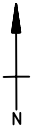
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Title
EXISTING JUNCTION ARRANGEMENTS
STUDY JUNCTION 11

Date
JUNE 2018

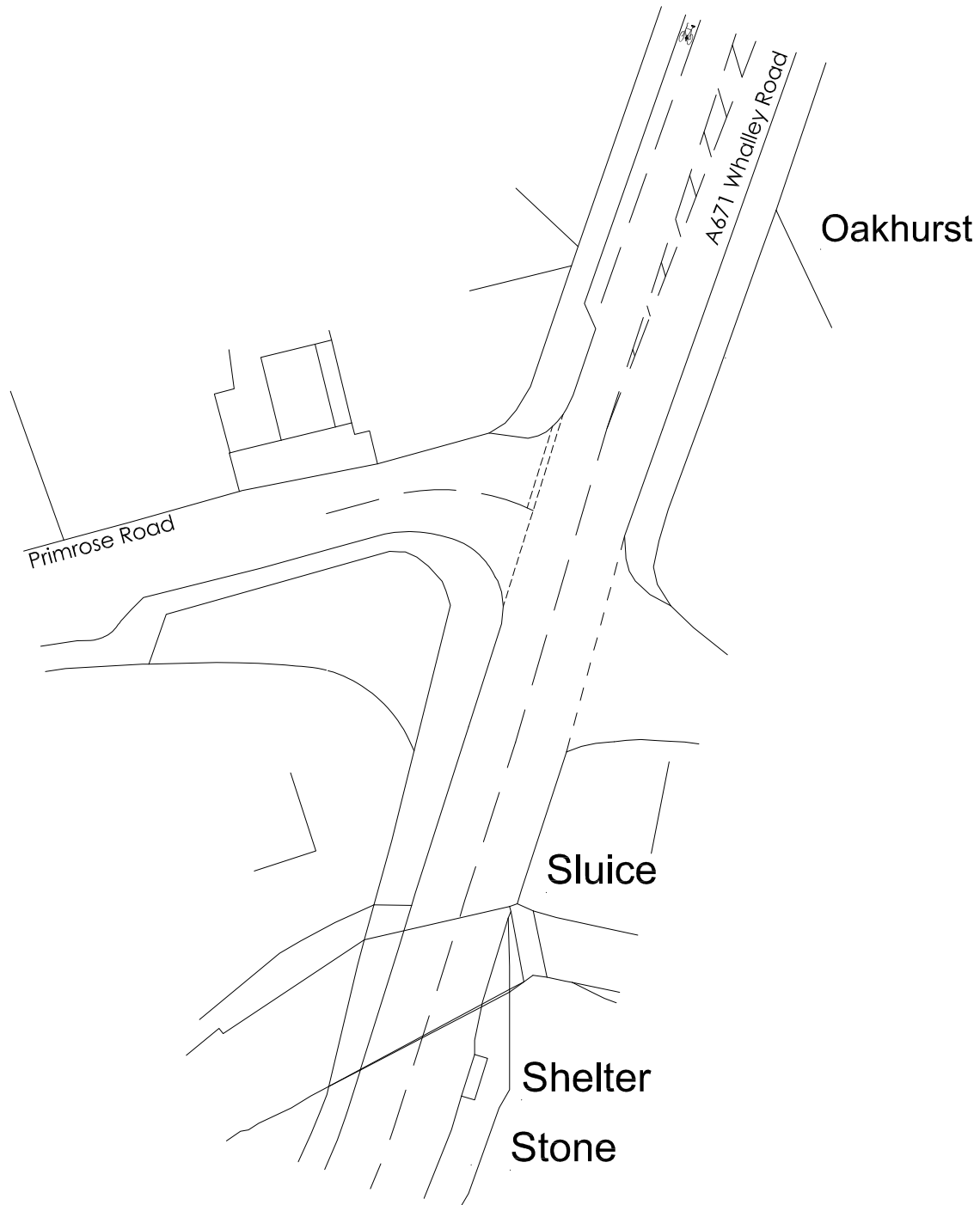
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Project HENTHORN ROAD,
CLITHEROE

Client GLADMAN
DEVELOPMENTS

Drawing No
1616/12

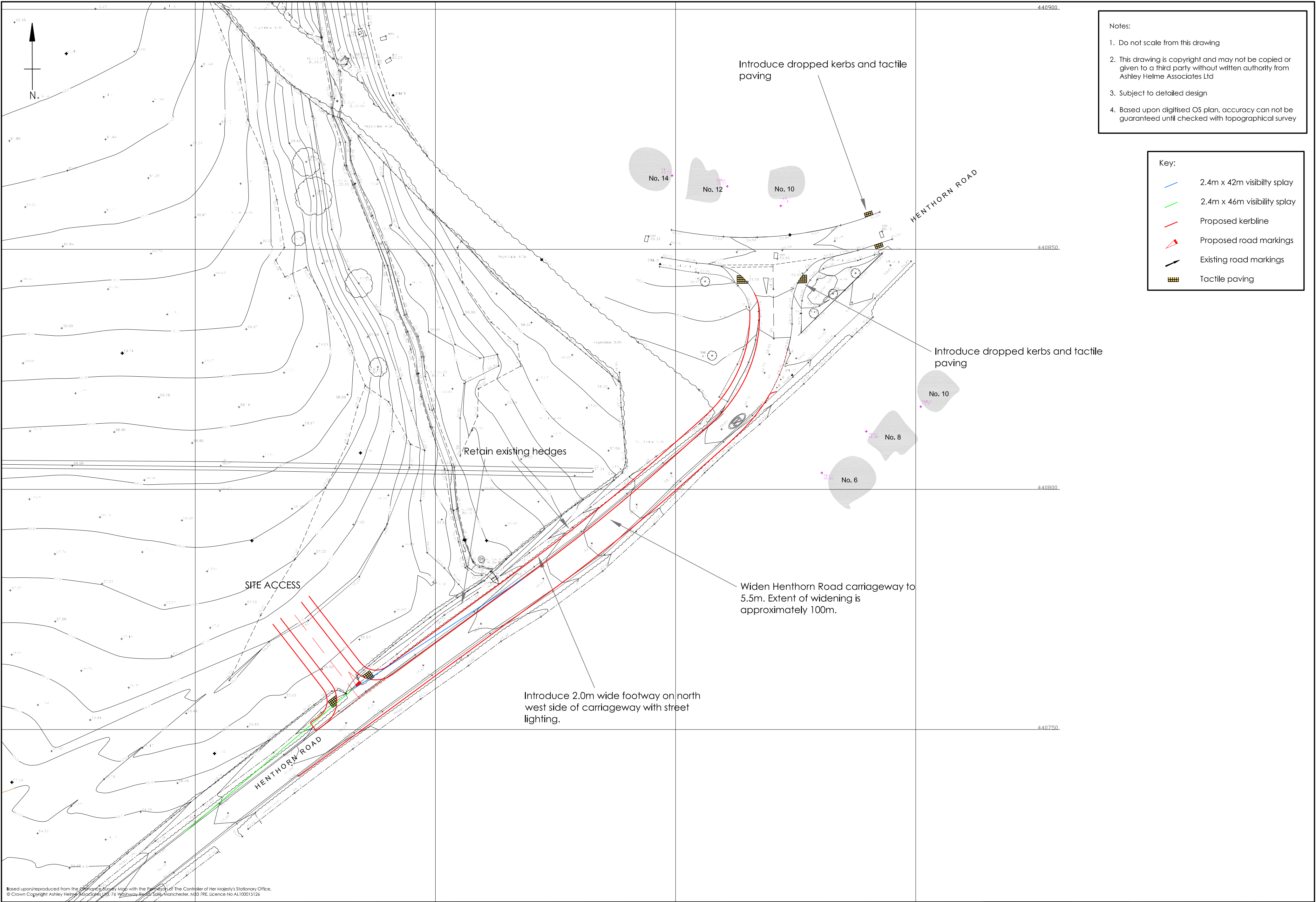
Rev

Title EXISTING JUNCTION ARRANGEMENTS:
STUDY JUNCTION 12

Date
JUNE 2018

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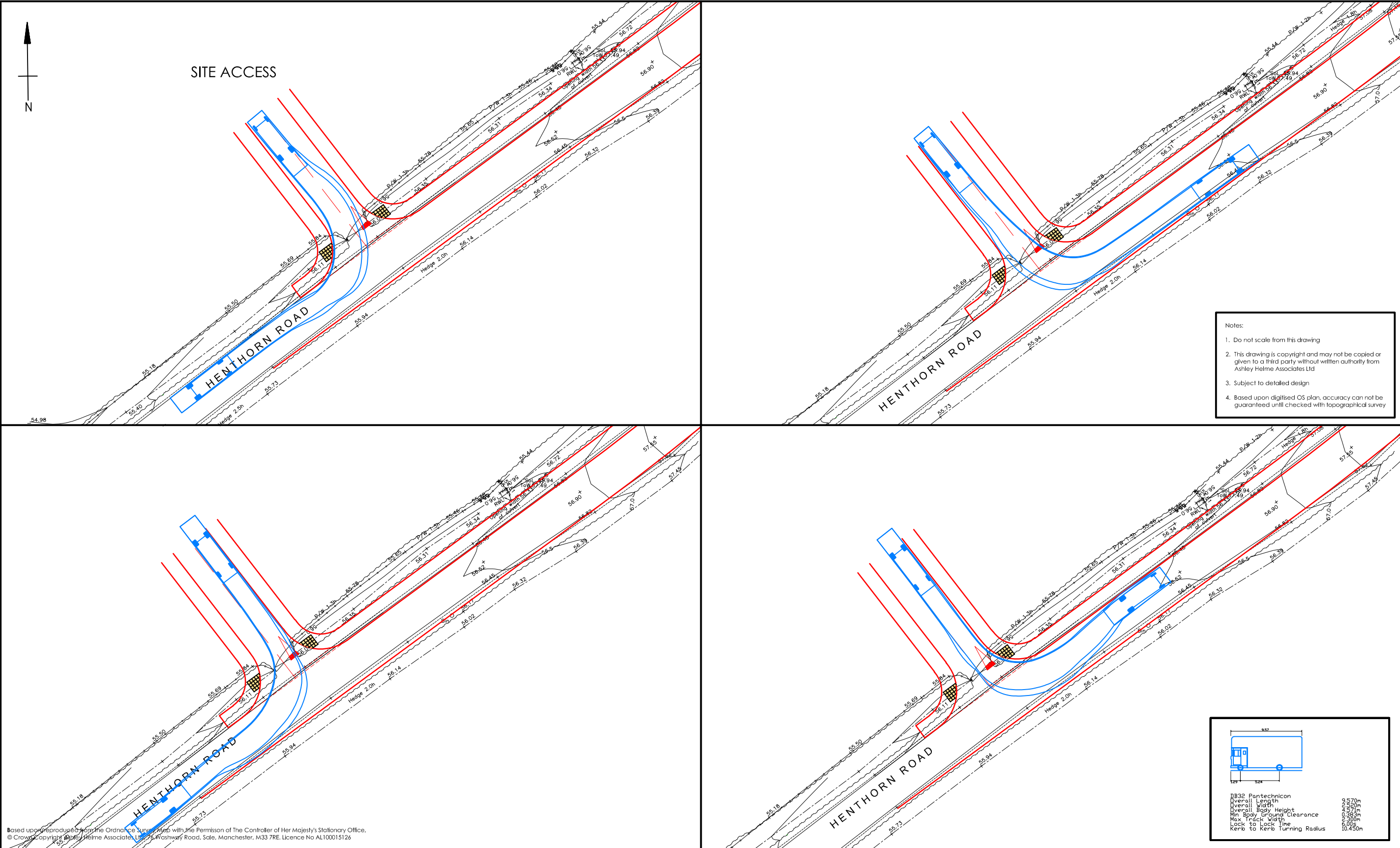


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- Key:
- 2.4m x 42m visibility splay
 - 2.4m x 46m visibility splay
 - Proposed kerblines
 - Proposed road markings
 - Existing road markings
 - Tactile paving

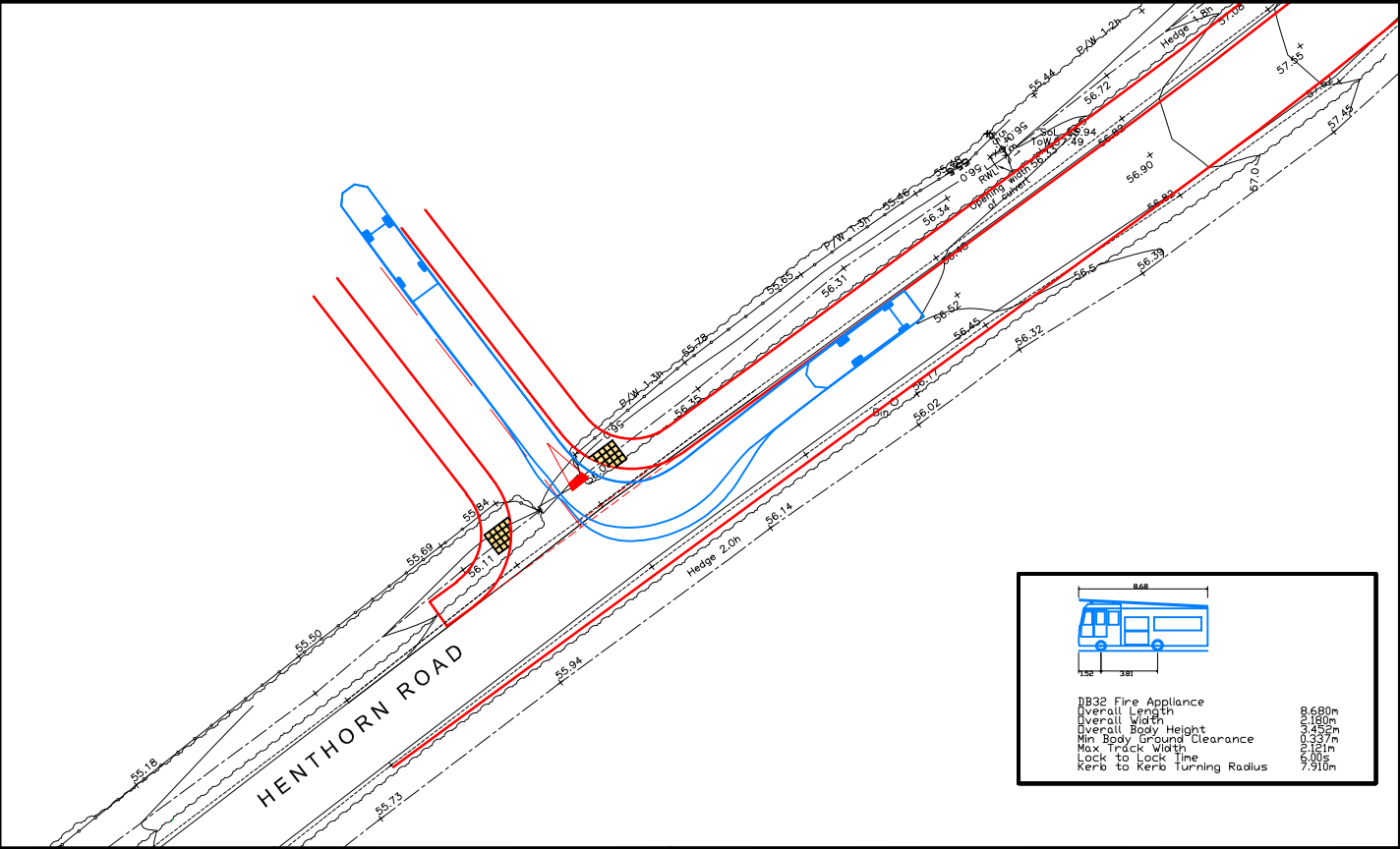
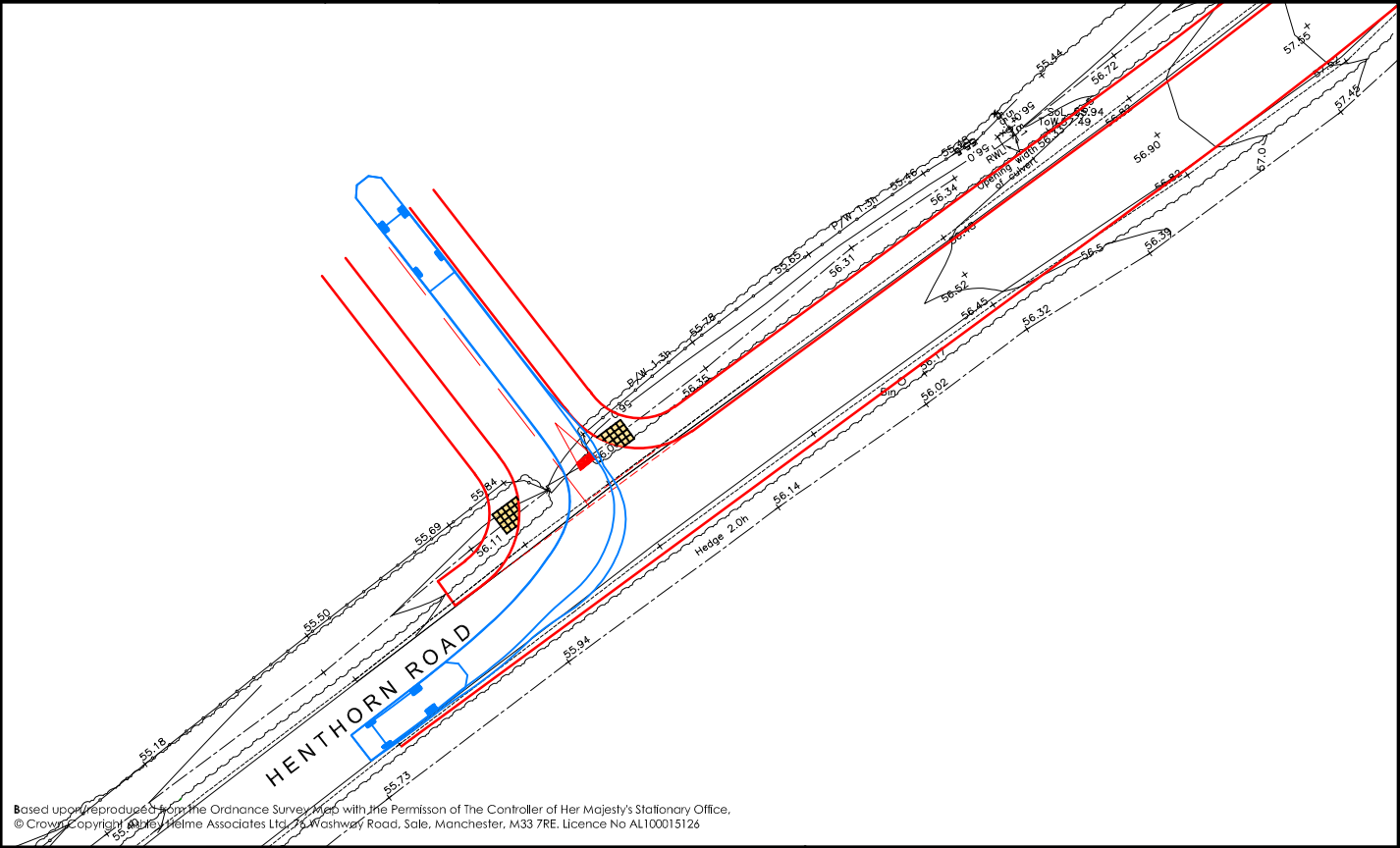
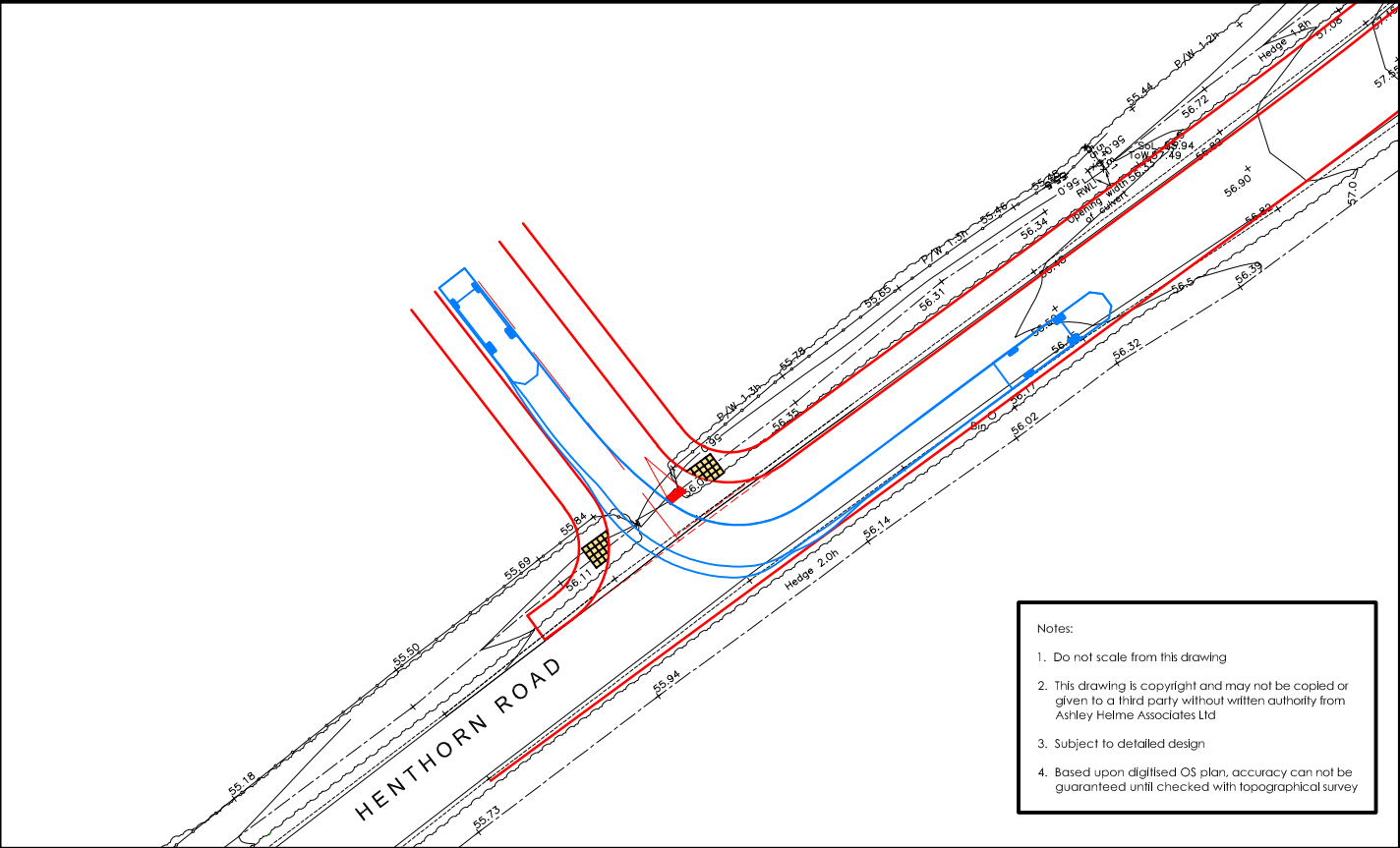
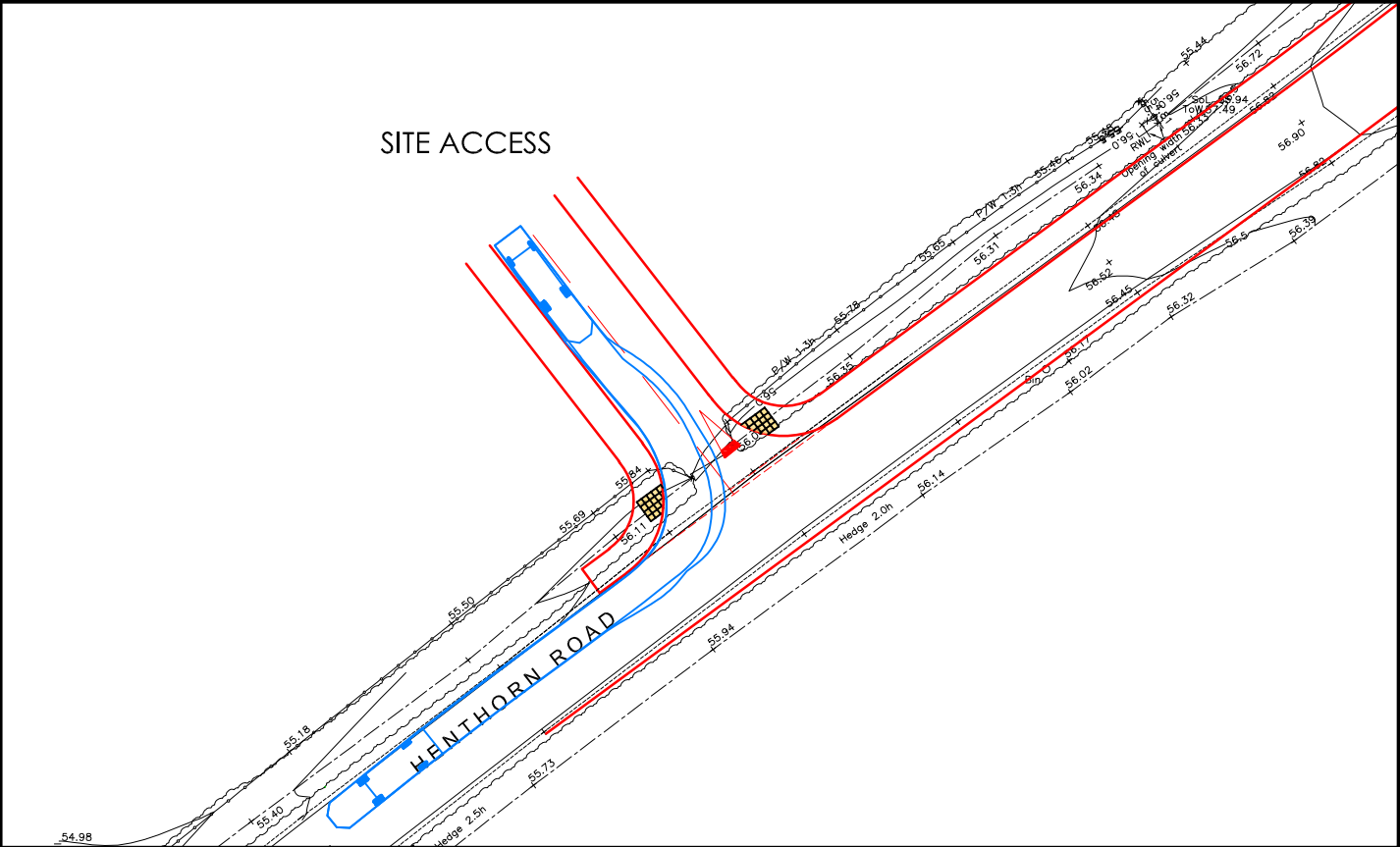
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Project	HENTHORN ROAD, CLITHEROE	Title	PROPOSED ACCESS ARRANGEMENTS	 76 washway road, sale, manchester, m33 7re e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553	Dwg No	1616/13	Rev	B
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Client	GLADMAN DEVELOPMENTS				Date	JULY 2018	Scale	1:500@A3



Project	HENTHORN ROAD, CLITHEROE
Client	GLADMAN DEVELOPMENTS

Title	SWEPT PATH ANALYSIS FIRE APPLIANCE
-------	---------------------------------------

Drawing No	1616/SP/03
Date	JULY 2018

Rev	
Scale	1:500@A3

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