

Appendix J – Road Safety Audit Designers Response



Title: 23161 TN13 Road Safety Audit designers' response – 1st Issue

Date: June 2025

Prepared by: J. Duffy Checked by: M. Grist

1.0 Introduction

1.1 Jubb has been commissioned by Hallam Land Management to provide transport and highways advice in relation to two separate but adjacent developments on land to the west of Buntingford and within the district of East Hertfordshire. These developments encompass a residential led development on land to the north of the A507 Baldock Road and employment development on land to the south of the A507 as described below:

- **Residential led Development** – This was validated on the 28th of May 2024 (planning application reference 3/24/0966/OUT), for an 'Outline planning application for development of up to 600 dwellings (C3), elderly accommodation (C3), Mixed Use Local Centre (including flexible use E, F and Sui Generis), First School, informal and formal open space, associated works and infrastructure including a new access from the A507 and pedestrian bridge over the A10, with all matters reserved save for access'.
- **Employment Development** – This was validated on the 11th of July 2024 (planning application reference 3/24/1255/OUT), for an 'Outline planning application for development of employment land (flexible use B2, B8, E(c) and E(g)), informal open space, associated works and infrastructure including a new access from A507, with all matters reserved except for access'.

1.2 The purpose of this report is to provide a Designer's Response (DR) to the Stage 1 Road Safety Audit (RSA) carried out by 'J Bartlett Consulting Ltd' in May 2025. This Stage 1 RSA related to the access proposals associated with the two development sites.

1.3 It is noted that an auditor brief was provided to the Local Highway Authority (LHA) on the 28th April 2025, which sets out the drawings for review and the scope of the audit. This brief, which set out the details of the access and proposed auditors (auditor's details also set out below), was approved by the LHA, i.e. Hertfordshire County Council (HCC).

1.4 The final audit which is the subject of this DR is included as **Appendix A**. It is noted that, as set out in section 2 of the audit report, the auditor identified no key areas of concern

Key Personnel

1.5 The following are the key personnel involved in the proposed scheme:

- **Overseeing Organisation**
 - HCC LHA
- **Road Safety Audit Team**
 - Julian Bartlett, BEng, MCIHT, FSoRSA - Road Safety Audit Team Leader, J Bartlett Consulting Ltd
 - Lyn Jones, HNC, MCIHT, MSoRSA - Road Safety Audit Team Member, J Bartlett Consulting Ltd
- **Design Organisation**
 - Transport Team, Jubb

Structure of Designers Response

- 1.6 The safety auditor has set out the main safety audit review in Section 2 of their report, however, given that there are no areas of concern listed here there is no need to respond to this in this DR. However, where more minor design related points have been identified these have been set out in Section 3 of the auditor's response and are responded to in **Section 2** below.

2.0 Issues Outside the Scope of this Road Safety Audit

Introduction

- 2.1 The auditor has identified further points of note relating to the designs that have been defined by the auditor as outside of the scope of the audit (i.e. more minor). The response to these points are set out below.

Auditor Comment 1

"One of the drawing numbers is illogical and it has been assumed that this is a drafting mistake and will be rectified as the scheme progresses."

Designers Response to Auditor Comment 1

- 2.2 This refers to the southern bridge crossing plan drawing, which should be referenced as 021 (P1). This drawing has been reviewed as part of the audit with no design issues identified. Notwithstanding this, labelling will be corrected in the final submission pack.

Auditor Comment 2

"The highway authority has requested that the introduction of a Toucan Crossing for the southbound approach to the Baldock Road roundabout junction be considered in terms of safe operation. The audit team's observations are listed below, all carrying equal significance and are in no particular order."

- *The proposals introduce a new 40mph speed limit immediately in advance of the proposed crossing on the approach to the existing roundabout;*
- *The approach from the north is relatively long and straight with no features to indicate that the environment is changing over the current situation and as such vehicle speeds may remain similar to those currently observed;*
- *There are many locations across the UK where either controlled pedestrian crossings or Toucan Crossing are provided in similar situations, and the audit team are unaware of any particular road safety concerns associated with these installations; some of which are on dual two-lane carriageways with higher speed limit approaches;*
- *The audit team accept that the design ethos of a staggered crossing rather than a straight single movement crossing is likely to be appropriate, but this would depend on how the crossing is phased and timed;*
- *There is no indication of the likely usage of the crossing and there are concerns that where crossing are not used the 'constant' green to drivers can be overlooked if it changes to red as local drivers become over familiar with the road layout. The audit team are also aware of situations where crossings of this type revert to red and / or change to red depending on approach speed and traffic volumes, some of which are time dependant, to manage vehicle speeds on the approach to the junction and prevent the "constant" green effect. These elements, however can only be considered as the detailed design progresses;*
- *There is the potential for drivers approaching from the north in particular those unfamiliar with the area, to assume that the roundabout is signal controlled and that they have right of way leading to the potential for failure to conform type collisions; however the audit team accept that the scheme is at preliminary design and the finer detail of the provision has not been addressed.*

Based on these observations the audit team accept that the provision of a Toucan crossing at this location has an overall benefit in terms of active travel movements. However, the concerns raised about drivers failing to

recognise the nature of the control should be addressed as the scheme develops and appropriate signing should be provided on all approaches to warn drivers of the controlled crossing ahead. It may also be beneficial to include count down type markers for the change in speed limit and position it further to the north to allow segregation of the speed limit change from the crossing and allow for speeds to reduce on the approach to the roundabout.

Despite the concern raised above, in the opinion of the audit teams the segregation of cycle movements from the roundabout combined with positive control of cycle and pedestrian crossing movements on the A10 is likely to enhance safety for vulnerable user supporting both a safe system approach and the change in hierarchy of need identified in the latest version of the Highway Code. The audit team also note that despite the other proposed segregated crossings of the A10 the link along Baldock Road is likely to be a significantly used link to the wider Buntingford area for vulnerable users.

Designers Response to Auditor Comment 2

- 2.3 As the auditor sets out, the introduction of controlled crossings at roundabouts are common across the country and provided in similar situations. Furthermore, the proposals will also serve to enhance safety for vulnerable users both for existing users (for example those travelling to and from Buntingford Business Park) and those travelling to and from the development proposals.
- 2.4 Notwithstanding this, appropriate measures can be introduced to further enhance driver awareness including advanced warning of speed changes and advanced warning on approach to the Toucan crossing. Moreover, the designs can also include appropriate signal time management as set out by the auditor.
- 2.5 These proposed detailed points would form part of detailed drawings/information that would be submitted as part the S278 approval process.

Auditor Comment 3

“Based on the information provided the audit team have accepted that the existing junction for Throcking Lane had sufficient capacity to allow for the likely increased traffic movements associated with the development; and in particular the right turn lane has sufficient capacity to prevent vehicle waiting to turn right from queuing into the southbound through carriageway of the A10.”

Designers Response to Auditor Comment 3

- 2.6 Noted and agreed. Assessments demonstrate that the junction operates within capacity and that the right turn has sufficient storage capacity.

Appendix A – Stage 1 Road Safety Audit

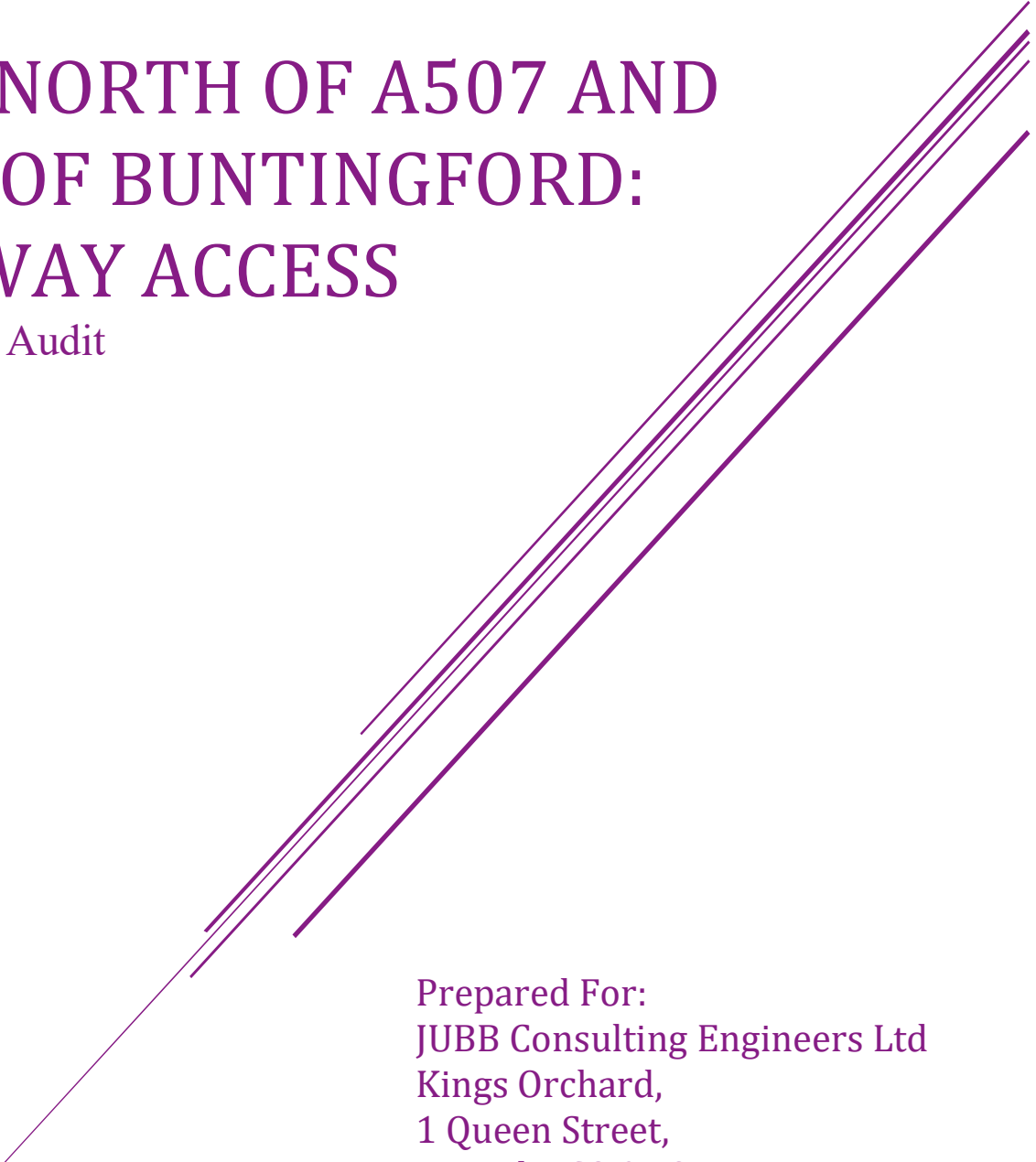
Report Number: JUBB/1713
Date: 22nd May 2025
Prepared by: Julian Bartlett



LAND NORTH OF A507 AND WEST OF BUNTINGFORD: HIGHWAY ACCESS

Road Safety Audit

Stage 1

A decorative graphic consisting of several parallel lines in shades of blue and grey, representing a road or highway, extending diagonally from the bottom left towards the top right of the page.

Prepared For:
JUBB Consulting Engineers Ltd
Kings Orchard,
1 Queen Street,
Bristol, BS2 0HQ

J Bartlett Consulting Ltd
Ysgubor Y Ferch
Penllan Farm
Machen
Caerphilly
CF83 8QE

Telephone: +44(0) 1633 441 008
Mobile: +44(0) 7934 645 174
Email: jbartlettconsult@btinternet.com

Job Number: 1713

Client: Jubb Consulting Engineers Ltd

Highway Authority Hertfordshire County Council

Project: Land North Of A507 And West Of Buntingford: Highway Access:

Document Title: Stage 1 Road Safety Audit

Date: 22nd May 2025

Issue	Purpose/Status	Prepared by	Checked	Approved	Date
D1	DRAFT	Julian Bartlett	Lyn Jones	Julian Bartlett	May 2025

J Bartlett Consulting Ltd has prepared this report in accordance with the instructions of the above named Client for their sole and specific use. Any other persons who may use the information contained herein do so at their own risk.

CONTENTS

1	Introduction.....	2
2	Issues Raised By This Stage 1 Road Safety Audit.....	11
3	Issues Outside The Scope Of This Audit And Other Observations.....	14
4	Audit Team Statement.....	16
5	Audit Location Plan.....	17

1 INTRODUCTION

1.1 This report results from a Stage 1 Road Safety Audit undertaken by J Bartlett Consulting Limited following a request from James Duffy of the Jubb Consulting Engineers Ltd. The Audit was carried out during May 2025.

1.2 This road safety audit considers

“The proposals provide associated access points to serve two separate developments located to the north and south of the A507 Baldock Road and just west of the A10. Details of these developments are set out in the associated parameter plans included as Appendix B that includes Residential proposals (Planning Reference 3/24/0966/OUT) comprising up to 600 units, a First School and associated local centre to the north of the A507; and circa 27,420sqm of employment floorspace (Planning Reference 3/24/1255/OUT) located to the south of the A507.

The proposals introduce two points of vehicle access which are described as follows:

- A507 Baldock Road – This access provides a vehicle connection (in the form of a roundabout junction) and active travel connection (in the form of active travel links towards the A10) at a point located approximately 450m west of the A10. Access design allows a potential phased delivery of the access as follows:

- o Northern only access (Appendix C) – This access would be provided in the event of the residential development coming forward in isolation (potentially as a first phase or as a long term access should the employment proposals not receive consent). The access therefore includes a connecting arm to the north only. The northern access arm includes an active travel corridor on the western side (in the form of a segregated footway and cycleway) and a footway on the eastern side. A parallel crossing is provided just north of the roundabout entry / exit which links these two active travel routes and the eastbound active corridor discussed below.

Active travel links would be provided connecting with the A10 on the northern side of the A507 Baldock Road in the form of segregated footway and cycleway, with a parallel crossing also provided across the existing access for Buntingford Business Park.

- o Southern only access (Appendix D) – This access would be provided in the event of the employment development coming forward in isolation (potentially as a first phase or as a long term access should the residential proposals not receive consent). The access therefore includes a connecting arm to the south only. The southern access arm includes an active travel corridor on the

western side (in the form of a segregated footway and cycleway) and a footway on the eastern side. A parallel crossing is provided just south of the roundabout entry / exit which links these two active travel routes and the eastbound active corridor discussed below. Active travel links would be provided connecting with the A10, in the form of segregated footway and cycleway, in part on the southern side of A507 Baldock Road and further east crossing to the northern side. In addition, the proposals would include bus stops on the A507 (in the form of bus laybys) with an appropriate active travel crossing (i.e. a parallel crossing) provided on the A507 to link the eastbound and southbound bus stop / connect with proposed active travel routes linking with Buntingford. A parallel crossing will also be provided across the existing Buntingford Business Park access.

o Cumulative access (Appendix E) – This access would be provided to serve both the residential and employment access and essentially combines the Northern and Southern access (inclusive of vehicle, active travel and bus connection). In addition, a further active travel crossing (Toucan crossing) is provided just west of the vehicle access to accommodate crossing demand between the residential and employment proposals. Forward visibilities have been marked on the horizontal plan of the cumulative access included as Appendix E and, in effect, demonstrate achievement of visibility for the residential and employment only access given this is a combined drawing. In addition, at the request of the Local Highway Authority (LHA), a vertical visibility splay drawing has also been provided, and is included in Appendix E, to demonstrate that these visibilities are also achievable in the vertical plane. The forward visibilities are based on the introduction of a 40mph design speed (as discussed in the brief) and in accordance with Hertfordshire County Council and Design Manual for Roads and Bridges design standards. In order to achieve forward visibility from the west of the access roundabout earthworks are required which are shown as red contour markings on the plan view design.

- Throcking Lane (Appendix F) – This will serve the residential proposals providing a secondary point of vehicle access from a rediverted Throcking Lane. The western approach from Throcking Lane will provide the minor arm of this priority junction, which will also serve as a traffic calming feature for approaching vehicles which will need to give way to traffic on the main road. Throcking Road East and the entrance to the development will form the mainline flow on this junction.

- Active travel bridges – two active travel bridges are proposed across the A10 as part of the residential proposals as described below:

- o A parallel active travel bridge is proposed adjacent to the existing bridge providing an additional wider bridge crossing linking Public Right of Way (PRoW) 40 and 36 (Appendix G). In addition, the existing bridge running

parallel will also include upgraded architectural parapets with 1.4m hand rail height.

- o An additional footbridge linking PRow 41 and 35 Appendix H.

- o Proposed improvements to PRow (Appendix I) – Improvements to PRow 35 on the eastern side of the A10 in the area marked red on the drawing (i.e. located just west of Norris Way) to include surfacing and potential inclusion of barrier provision near the existing drainage ditch. In addition, further PRow improvements are proposed in the area marked yellow (i.e. to the west of Park Farm Industrial Estate) to include resurfacing, hedge cut back to allow a typical width of 2.5m, and introduction of Bollard lighting. Improvements are also proposed to PRow 36 in the area marked in blue on the drawing which would include cut back of hedgerow to achieve a typical 3m width, introduction of bollard lighting and resurfacing. The drawing in Appendix I includes details of the location of the parallel active bridge and proposed footbridge for context. In addition, the design principles statement in Appendix J highlights the point of connection from the west, through the masterplan and linking with the bridge crossings, for active travel.

- Baldock Road improvements east of the A10 (Appendix K) which will be provided as part of residential and / or employment proposals – These improvements encompass:

- o Introduction of a staggered Toucan crossing on northern arm of the A10 / Baldock Road roundabout, which will also include for an appropriate refuge area.

Please note Hertfordshire County Council have made the following comment in this regard:

“A RSA will need to consider in detail the safety of the currently proposed ‘at grade’ crossing of the A10 and this evidence will also need to be presented to our road safety team for their consideration. Furthermore, in the light of this mitigation measures may be needed to achieve safe sustainable access to the site.”

- o Introduction of a widened active travel corridor route initially on the northern side of Baldock Road between the A10 and a point just east of Greenways, and then on the southern side between Greenways and a point approximately 100m west of the village centre.

- o Gateway feature at the entrance to Buntingford to mark the 30mph vehicle speed limit, which starts between the junctions with Deacons Place and Greenways;

- o Relocation of the bus shelter on the northern section of Baldock Road to provide for an improved active travel connection;
- o Raised crossing to facilitate the crossing of pedestrians and people with mobility impairment to the east of Greenways;
- o Raised crossing on Monks Walk (West);
- o Priority narrowing on Baldock Road to the east of the junction with The Pyghtle;
- o Change in texture/colour at The Folly by the junction with Baldock Road to further emphasise active travel movements to approaching drivers;
- o Raised crossing between Monks Walk (East) and Bowling Green Lane;
- o Relocation of parking spaces on Baldock Road opposite the junction with Bowling Green Lane, and conversion of the Bowling Green lane roundabout to a priority junction, in order to facilitate the circulation of active users.

Swept path analysis drawings have also been included as follows:

- Appendix L - This shows swept path analysis of the cumulative access proposals to demonstrate all movements for large vehicles are achievable. The swept path analysis is shown for a max legal artic as a worst case assessment. It is likely however that the largest vehicles accessing the north arm would be buses as these will be diverted into the residential proposals.
- Appendix M – This shows the swept path analysis of the Throcking Lane access. Max legal artic swept paths are shown for vehicles still travelling between the east and west on Throcking Lane. In addition, buses are shown travelling between the development access and the east on Throcking Lane to allow for proposed diversion of buses through the site. Furthermore, a swept path movement of refuse vehicles turning left out of the site from the south is shown, which would be the largest vehicle that would require access from the proposals in this direction.
- Appendix N – This shows swept path analysis (based on a max legal artic) of the northern arm of the A10 / Baldock Road junction which would have reduced carriageway width to incorporate the enhanced active travel crossing point on the northern arm.

Further considerations – The LHA has requested that additional lighting be provided at the Throcking Lane / A10 junction and therefore it is proposed that a suitable financial contribution be provided towards this. Lighting will also be provided on the

A507 Baldock Road and Throcking Lane in the vicinity of the proposed points of access and will be set out as part of detailed S278 / S38 drawings post consent.

In addition, the LHA has also requested that a connection be provided through a nearby field area (just outside the red line to the southwest) to Byway 046 (location outlined in Figure 1 below). It is proposed in this instance that land would be gifted for this purpose in the S106 agreement for the associated planning consent. In addition, financial contribution will also be provided for the associated rights of way orders to apply for this byway connection.

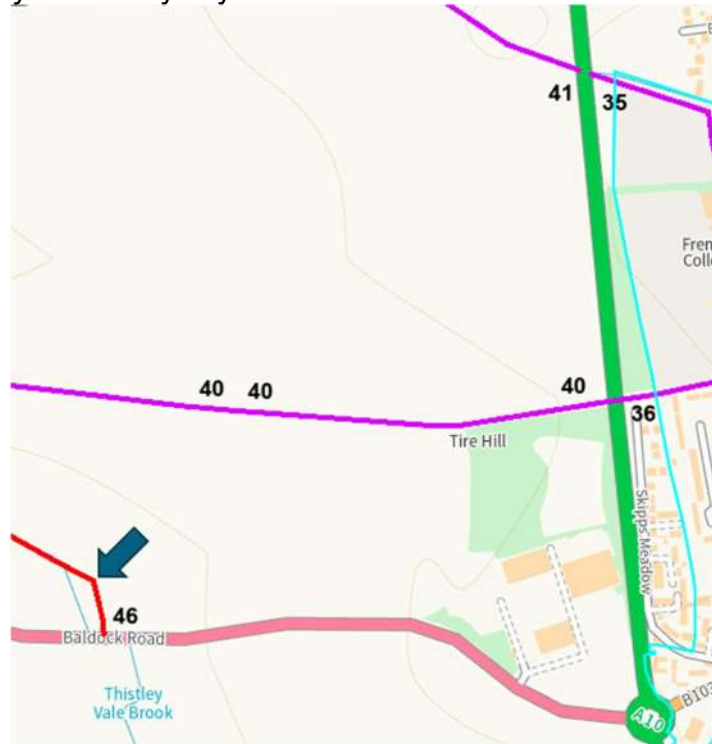


Figure 1 – Location of Byway 46”

Extract from Road Safety Audit Brief

1.3 The audit team comprised the following individuals:

Julian Bartlett
BEng MCIHT FSoRSA

Road Safety Audit Team Leader

Lyn Jones,
HNC, MCIHT, MSoRSA

Road Safety Audit Team Member

Both Julian Bartlett and Lyn Jones, hold a Certificate of Competency in Road Safety Audit through the education route.

1.4 The following documents and drawings were made available to the Audit Team for this safety audit:

Drawings

Drawing Number	Rev	Title
HLM082/018	N	Land Use Components Plan (North of Baldock Road)
HLM082/019	G	Land Use Components Plan (South of Baldock Road)
23161 - 029	P1	Baldock Road Roundabout Northern Access
23161 - 030	P1	Baldock Road Roundabout Southern Access
23161 - 023	P5	Forward Visibility Plan
23161 - 024	P2	Forward Visibility Plan
23161 - 025	P3	Northern Parcel Throcking Lane Access
23161 – Drawing_No	P1	Southern Bridge Crossing
23161 - 022	P2	Southern Bridge Crossing - Elevations
23161 - 032	P1	Northern Bridge Crossing
23161 - 033	P2	Northern Bridge Crossing - Elevations
23161 - 018	P2	Proposed Cross Sections
23161 - 026	P1	Proposed Site Access - Swept Path Analysis HGV
23161 - 027	P1	Throcking Lane - Swept Path Analysis

23161 - 028

P1 A10/ A507/ Baldock Road - Swept Path Analysis
HGV

Documents

- 23161 - TN10 Road Safety Audit Brief 2nd Issue: Land North and South of A507 and West of Buntingford dated May 2025;
- 23161-TA-01 v4 - Transport Assessment - Residential Part 1 dated May 2025
- 23161-TA-01 v4 - Transport Assessment - Residential Part 2 dated May 2025
- 23161-TA-02 v2 - Transport Assessment - Employment – Final dated February 2025
- Appendix J: Movement And Access Principles.

Departures

None Notified

Identified Requirements

“An RSA will need to consider in detail the safety of the currently proposed ‘at grade’ crossing of the A10 and this evidence will also need to be presented to our road safety team for their consideration. Furthermore, in the light of this mitigation measures may be needed to achieve safe sustainable access to the site.”

Extract from Road Safety Audit Brief

Identified Standards

- Hertfordshire County Council design guidance
- Design Manual for Roads and Bridges (for roads signed 40mph or above)
- Manual for Streets (for roads signed 30mph).

- 1.5 The Audit Team undertook a site visit on 19th March 2025 during the early afternoon between 12:30 and 14:00. It was overcast at the time of the site visit and the road surface was drying following rain.

Baldock Road: Vehicle movements were in line with what the audit team would have expected within this environment with mainly cars travelling in both directions on Baldock Road, some light goods and two heavy goods vehicles were seen. There were gaps in traffic with some evidence of platooning, with vehicles travelling in line with the posted speed limit. No motorcyclists, cyclists or pedestrians was seen which was not a notable issue

Throcking Lane: One car was seen using the lane travelling towards the junction with the A10. Again, no cyclists, motorcyclists or pedestrians were seen.

Footbridge Link From Freman College: No use of the bridge was seen during the site visit.

- 1.6 The scheme has been examined and this report compiled only regarding the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other Standards or criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. Any audit comments should not be construed as implying that a technical audit has been undertaken in any respect.
- 1.7 The terms of reference for the audit are as described in the latest versions of National Highways Design Manual for Roads and Bridges (DMRB), Volume 5, Section 2, GG119 'Road Safety Audit'. The audit has also been undertaken in light of the philosophy outlined in the latest version of the CIHT 'Road Safety Guidelines'.
- 1.8 The Audit Team have referred to appropriate design documentation as required while undertaking this audit. Reference texts include but are not limited to the latest versions of
- Design Manual For Roads And Bridges (DMRB);
 - Manual For Streets;
 - Manual For Streets 2;
 - Highway Construction Details;
 - Specification For Highway Works;
 - Traffic Signs Manual Chapter 6;
 - Traffic Signs Regulations and General Directions (TSRDG)
 - Local Highway Authority Design Guide (if available or provided see above); .
- 1.9 Any recommendations included within this report should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with GG 119, and in no way, imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.
- 1.10 If issues were identified that are strictly outside the scope of this Road Safety Audit, or could not be classified as likely to increase the risk of personal injury collisions occurring, these have been included for completeness under Section 3 of this report.

It is also recommended that these are brought to the attention of the highway authority for their consideration if deemed appropriate

1.11 The audit team have reviewed the collision history assessment included in the Transport Assessment p21 to p22 inclusive and accept the findings made, with the following observations made

- A noticeable dip in collisions occurred during 2019 and 2020 which would be aligned with the travel restrictions associated with the COVID 19 pandemic, with collision number returning to the pre-COVID levels be it slightly reduced;
- Severity type remains stable and has not changed, but appears to be reducing slightly over time
- Collision numbers associated with the direct area influence of the proposals would be in line with those the audit team would expect within this type of highway environment.

1.12 As far as the audit team are aware no previous stages of road safety audit have been undertaken on the proposals as presented for this audit.

2 ISSUES RAISED BY THIS STAGE 1 ROAD SAFETY AUDIT

- 2.1 Problems in this Audit will be identified linearly and by drawing number as an approved alternative to the layout indicated in GG119. For ease of referencing drawing numbers follow the order provided in the audit brief.

Drawing HLM082/018 Rev N

- 2.2 The drawings shows the land usage in block form for the northern sector of the site and in this form has little direct impact on the findings of this audit.

Drawing HLM082/019 Rev G

- 2.3 The drawings shows the land usage in block form for the southern sector of the site and in this form has little direct impact on the findings of this audit.

Drawing 23161 – 029 Rev P1

- 2.4 The drawing shows the conceptual plan for the proposed roundabout junction and associated active travel improvements (northern side). After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit

Drawing 23161 – 030 Rev P1

- 2.5 The drawing shows the conceptual plan for the proposed roundabout junction and associated active travel improvements (southern side). After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit.

Drawing 23161 - 023 Rev P5

- 2.6 The drawing shows the conceptual plan for the proposed roundabout junction and associated active travel improvements (northern and southern side). After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit.

Drawing 23161 – 024 Rev P2

- 2.7 After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit.

Drawing 23161 – 025 Rev P3

- 2.8 After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit.

Drawing 23161 – Drawing_No Rev P1

- 2.9 After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit.

Drawing 23161 – 022 Rev P2

- 2.10 After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit.

Drawing 23161 – 032 Rev P1

- 2.11 After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit. See Also Comment 3.2

Drawing 23161 – 033 Rev P2

- 2.12 After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit.

Drawing 23161 – 018 Rev P2

- 2.13 After due and careful consideration the audit team have been unable to identify any areas of concern in terms of highway road safety associated with the information portrayed on this drawing for this stage of road safety audit.

Drawing 23161 – 026 Rev P1

- 2.14 The drawing shows the swept path movement of a 16.5m articulated FTA Design Vehicle accessing the roundabout and undertaking all potential movements. All

movements are contained within the available carriageway space, as such do not give rise to concern in terms of road safety.

Drawing 23161 – 027 Rev P1

2.15 The drawing shows the swept path movement of a 16.5m articulated FTA Design Vehicle, refuse vehicle and bus accessing the site from Throcking lane. All movements are contained within the available carriageway space, as such do not give rise to concern in terms of road safety.

Drawing 23161 – 028 Rev P1

2.16 The drawing shows the swept path movement of a 16.5m articulated FTA Design Vehicle using the existing A10 / Baldock Road roundabout. All movements are contained within the available carriageway space, and as such do not give rise to concern in terms of road safety.

3 ISSUES OUTSIDE THE SCOPE OF THIS AUDIT AND OTHER OBSERVATIONS

- 3.1 One of the drawing numbers is illogical and it has been assumed that this is a drafting mistake and will be rectified as the scheme progresses.
- 3.2 The highway authority has requested that the introduction of a Toucan Crossing for the southbound approach to the Baldock Road roundabout junction be considered in terms of safe operation. The audit team's observations are listed below, all carrying equal significance and are in no particular order.
- The proposals introduce a new 40mph speed limit immediately in advance of the proposed crossing on the approach to the existing roundabout;
 - The approach from the north is relatively long and straight with no features to indicate that the environment is changing over the current situation and as such vehicle speeds may remain similar to those currently observed;
 - There are many locations across the UK where either controlled pedestrian crossings or Toucan Crossing are provided in similar situations, and the audit team are unaware of any particular road safety concerns associated with these installations; some of which are on dual two-lane carriageways with higher speed limit approaches;
 - The audit team accept that the design ethos of a staggered crossing rather than a straight single movement crossing is likely to be appropriate, but this would depend on how the crossing is phased and timed;
 - There is no indication of the likely usage of the crossing and there are concerns that where crossing are not used the 'constant' green to drivers can be overlooked if it changes to red as local drivers become over familiar with the road layout. The audit team are also aware of situations where crossings of this type revert to red and / or change to red depending on approach speed and traffic volumes, some of which are time dependant, to manage vehicle speeds on the approach to the junction and prevent the "constant" green effect. These elements, however can only be considered as the detailed design progresses;
 - There is the potential for drivers approaching from the north in particular those unfamiliar with the area, to assume that the roundabout is signal controlled and that they have right of way leading to the potential for failure to conform type collisions; however the audit team accept that the scheme is at preliminary design and the finer detail of the provision has not been addressed.

Based on these observations the audit team accept that the provision of a Toucan crossing at this location has an overall benefit in terms of active travel movements. However, the concerns raised about drivers failing to recognise the nature of the control should be addressed as the scheme develops and appropriate signing should be provided on all approaches to warn drivers of the controlled crossing ahead. It may also be beneficial to include count down type markers for the change in speed limit and position it further to the north to allow segregation of the speed

limit change from the crossing and allow for speeds to reduce on the approach to the roundabout.

Despite the concern raised above, in the opinion of the audit teams the segregation of cycle movements from the roundabout combined with positive control of cycle and pedestrian crossing movements on the A10 is likely to enhance safety for vulnerable user supporting both a safe system approach and the change in hierarchy of need identified in the latest version of the Highway Code. The audit team also note that despite the other proposed segregated crossings of the A10 the link along Baldock Road is likely to be a significantly used link to the wider Buntingford area for vulnerable users.

- 3.3 Based on the information provided the audit team have accepted that the existing junction for Throcking Lane had sufficient capacity to allow for the likely increased traffic movements associated with the development; and in particular the right turn lane has sufficient capacity to prevent vehicle waiting to turn right from queuing into the southbound through carriageway of the A10.

4 AUDIT TEAM STATEMENT

We certify that this Audit has been carried out adopting the principles contained in but not in full compliance the National Highways standard GG 119 'Road Safety Audits' and in line with the philosophy outlined in the CIHT 'Road Safety Guidelines'.

Road Safety Audit Team Leader

Name: Julian Bartlett

Signed:



Position: Director

Organisation J Bartlett Consulting Ltd

Date: 29th May 2025

Road Safety Audit Team Member

Name: Lyn Jones

Signed:



Position: Associate

Organisation J Bartlett Consulting Ltd

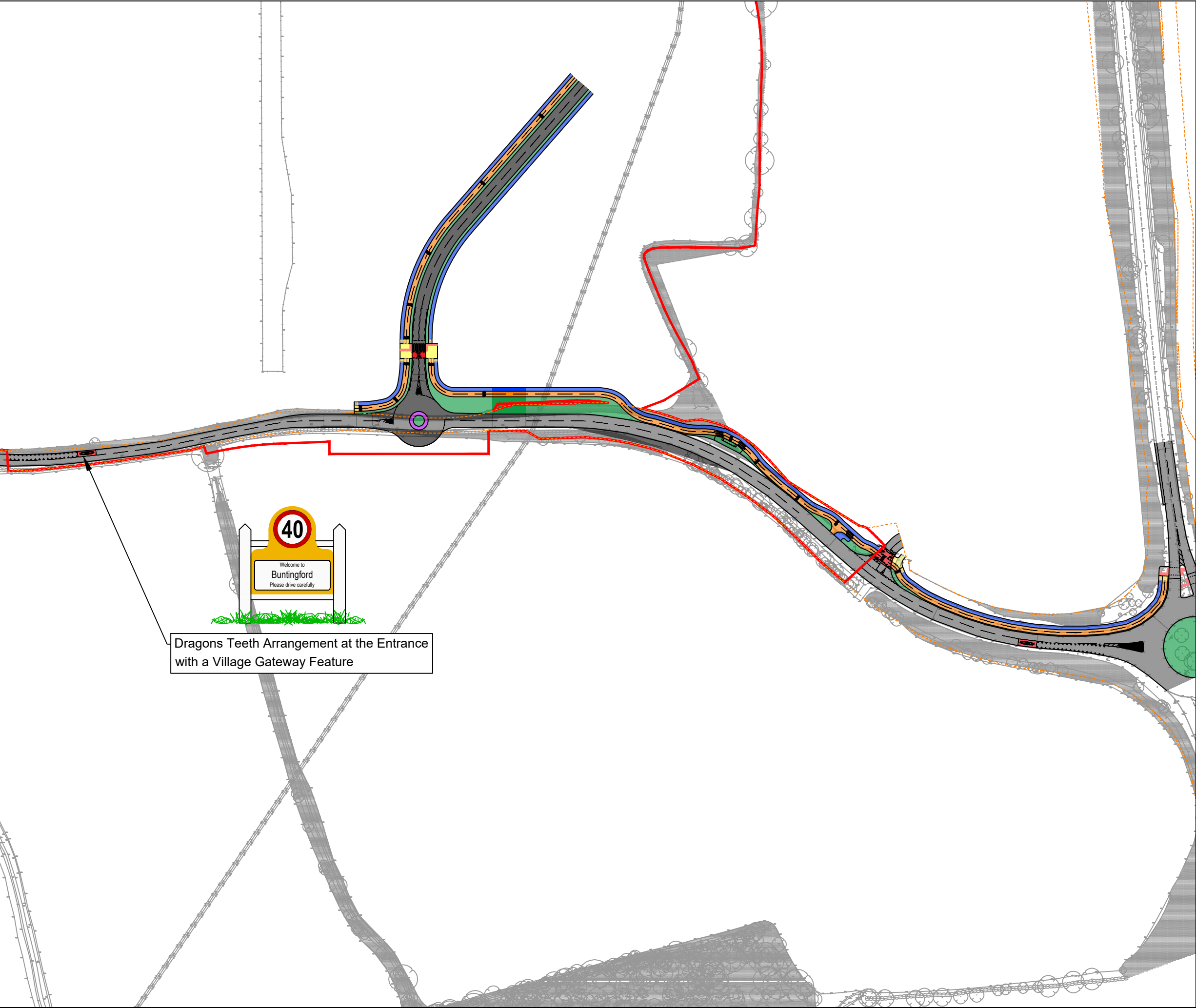
Date: 29th May 2025

Contact Details as per record sheet

5 AUDIT LOCATION PLAN

Not required as no issues have been identified

Appendix K – Access Proposal Drawings



Dragons Teeth Arrangement at the Entrance
with a Village Gateway Feature

LEGEND

- Site Boundary
- Highway Boundary
- Proposed Carriageway
- Existing Carriageway
- Proposed Cycleway
- Proposed Pedestrian Path / Footway
- Proposed Shared Pedestrian and Cyclist Path
- Verge
- Coloured Surface Treatment
- Overrun Area

P1	16.04.25	Preliminary issue	DL	JD
Rev	Date	Description	By	Apvd

PROJECT:
BUNTINGFORD

TITLE:
BALDOCK ROAD ROUNDABOUT -
NORTHERN ACCESS

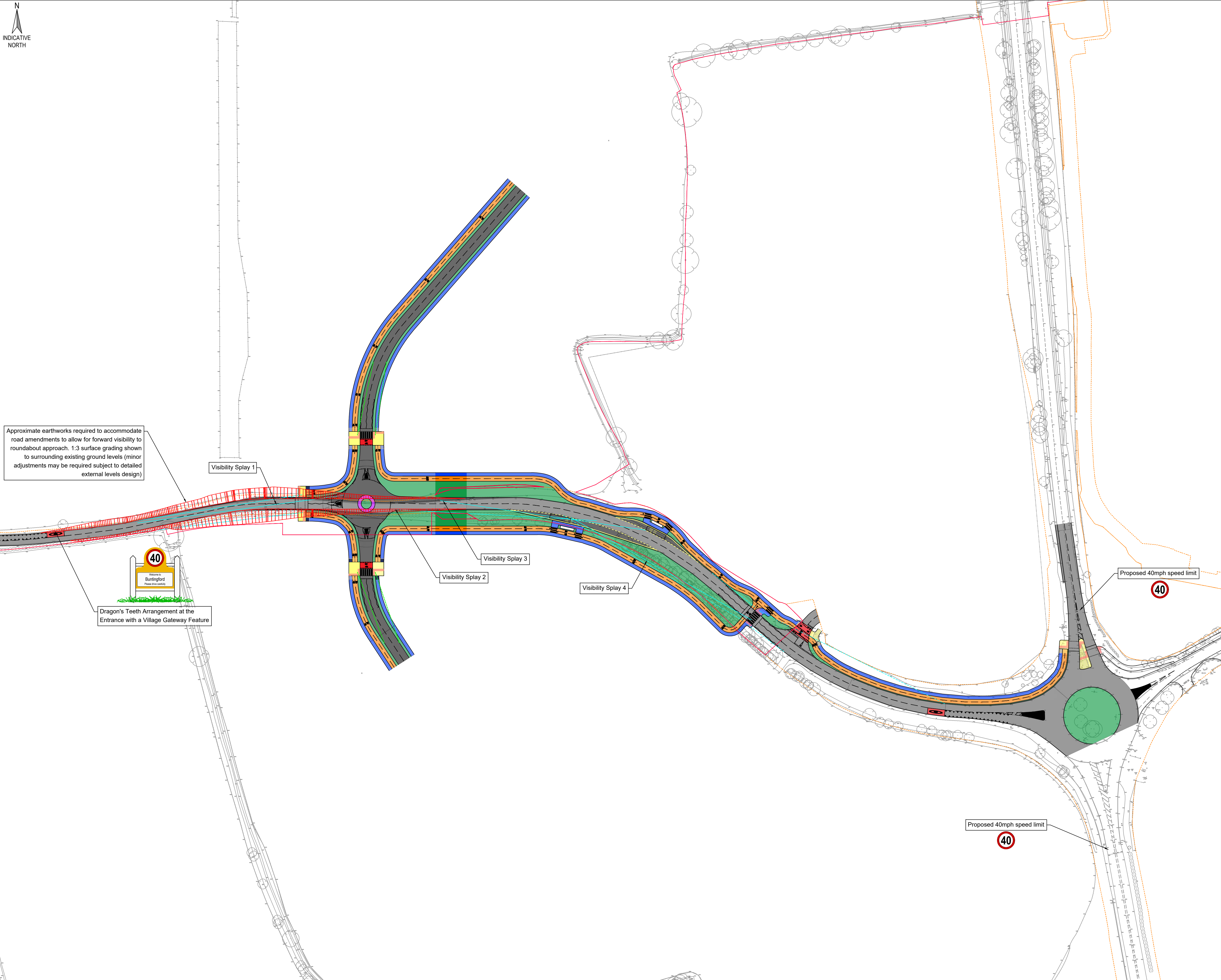
CLIENT:
HALLAM LAND MANAGEMENT LTD

SCALE@A3:
1:2000

PROJECT REF: 23161	STATUS: N/A
DRAWING No: 029	REV: P1

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction





LEGEND

- Site Boundary
- Highway Boundary
- Proposed Carriageway
- Existing Carriageway
- Proposed Cycleway
- Proposed Pedestrian Path / Footway
- Proposed Shared Pedestrian and Cyclist Path
- Existing Shared Pedestrian and Cyclist Path
- Verge
- Coloured Surface Treatment
- Overrun Area
- Visibility Splay (40mph, 1.5m x 120m)
- Forward Visibility Splay (40mph, 120m)
- Visibility Splay (30mph, 1.5m x 43m)

P5	01.04.25	Revision	DL	JD
P4	20.03.25	Revision	BB	JD
P3	12.03.25	Revision	DL	JD
P2	03.02.25	Grading updated	RJ	JD
P1	31.01.25	Preliminary Issue	RJ	JD

Rev Date Description By Apvd

PROJECT:
BUNTINGFORD

TITLE:
FORWARD VISIBILITY PLAN

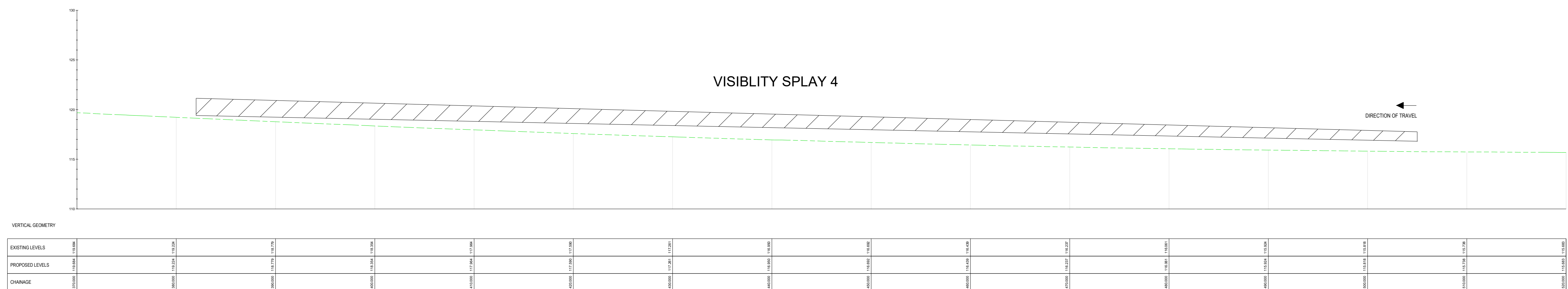
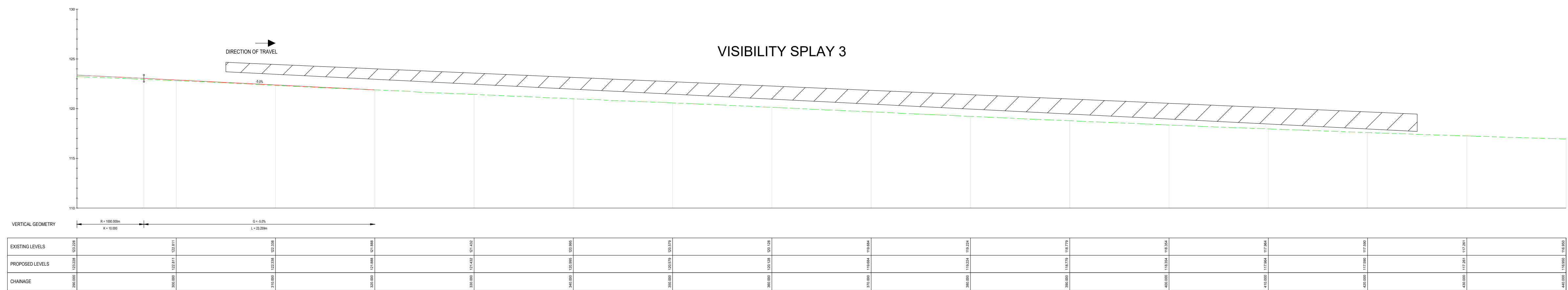
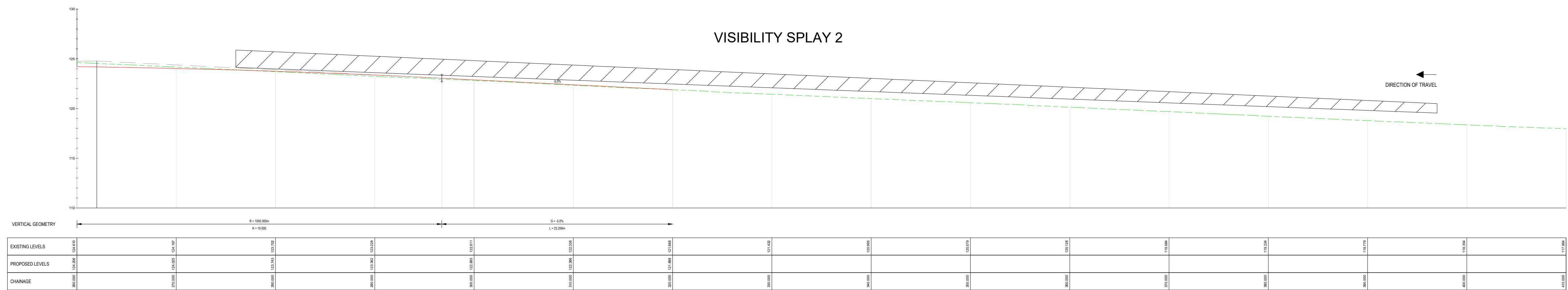
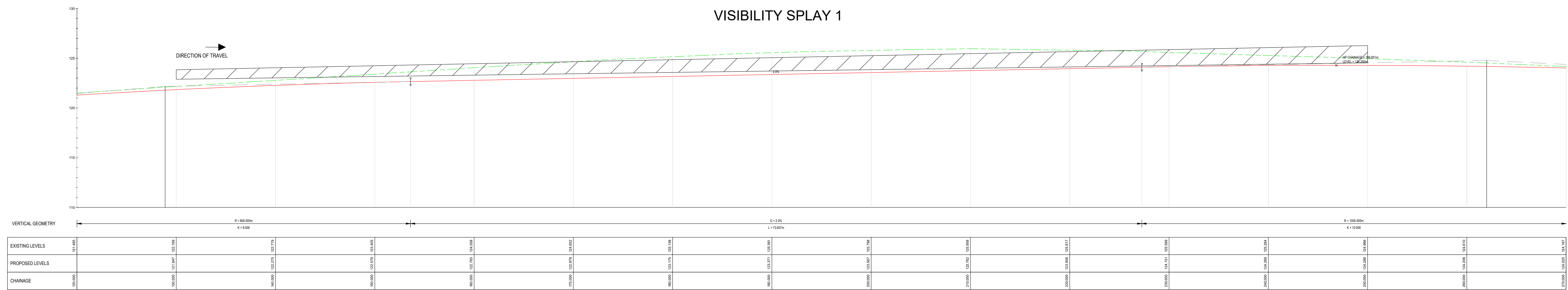
CLIENT:
HALLAM LAND MANAGEMENT LTD

SCALE@A1:
1:1000

PROJECT REF: 23161	STATUS: N/A
DRAWING No: 023	REV: P5

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction





LEGEND

 Existing Ground
 Proposed Road
 Forward Visibility Splay (Envelope of Visibility)

P2	03.02.25	Preliminary Issue	RJ	JD
P1	31.01.25	Preliminary Issue	RJ	JD

Rev	Date	Description	By	Apvd
-----	------	-------------	----	------

PROJECT:
BUNTINGFORD

TITLE:
FORWARD VISIBILITY PLAN

CLIENT:
HALLAM LAND MANAGEMENT LTD

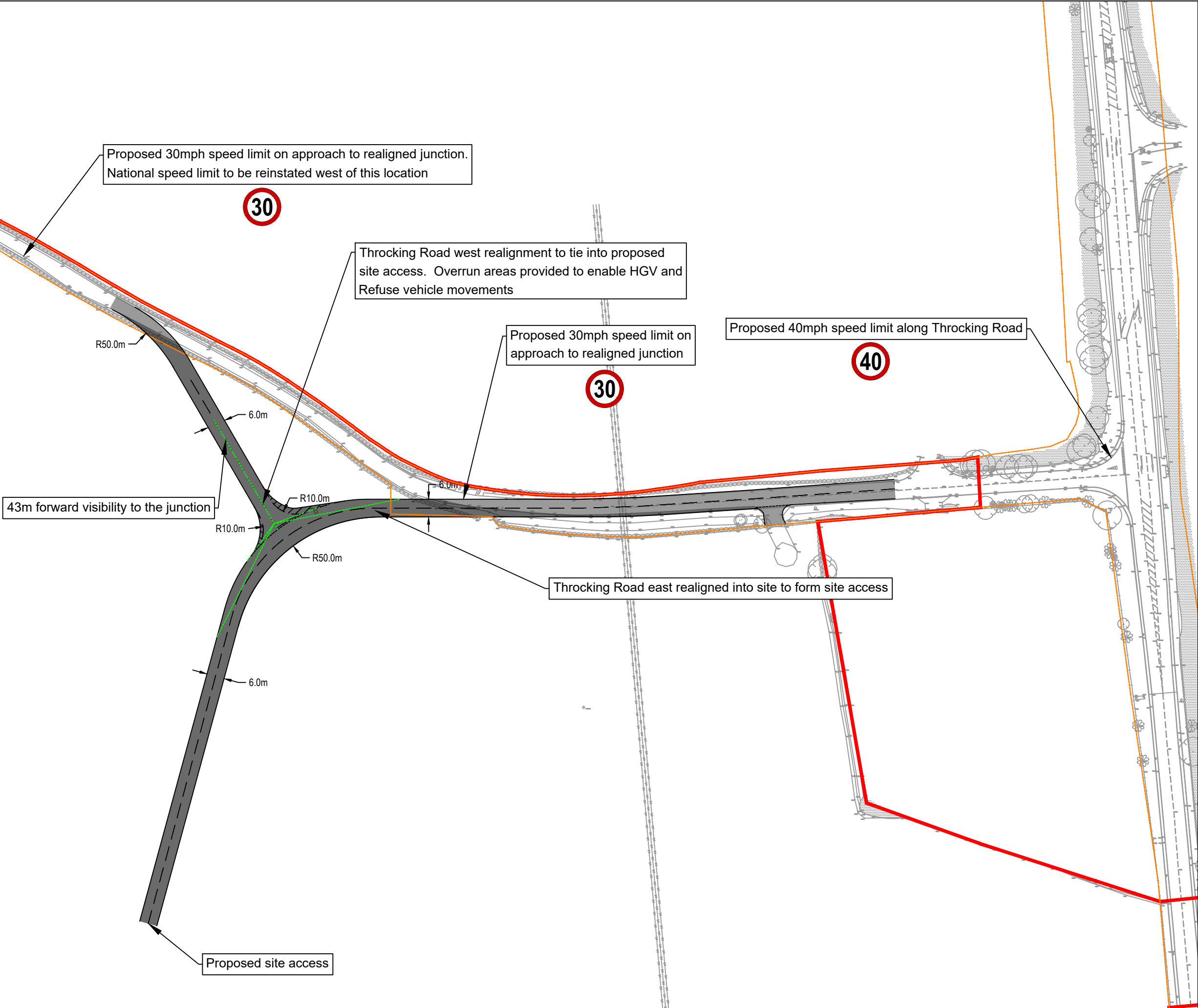
SCALE@A1:
NTS

PROJECT REF:	STATUS:
23161	N/A
DRAWING No:	REV:
024	P2

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction



Bristol, Cardiff, Plymouth, Winchester
Kings Orchard, 1 Queen St, Bristol BS2 0HQ



LEGEND

- Site Boundary
- 2.4m x 43m Visibility Splays (30mph)
- Highway Boundary
- Proposed Carriageway
- Existing Carriageway

P3	16.04.25	Revision	DL	JD
P2	26.03.25	Revision	DL	JD
P1	13.03.25	Preliminary issue	DL	JD

Rev Date Description By Apvd

PROJECT:
BUNTINGFORD

TITLE:
NORTHERN PARCEL THROCKING LANE
ACCESS

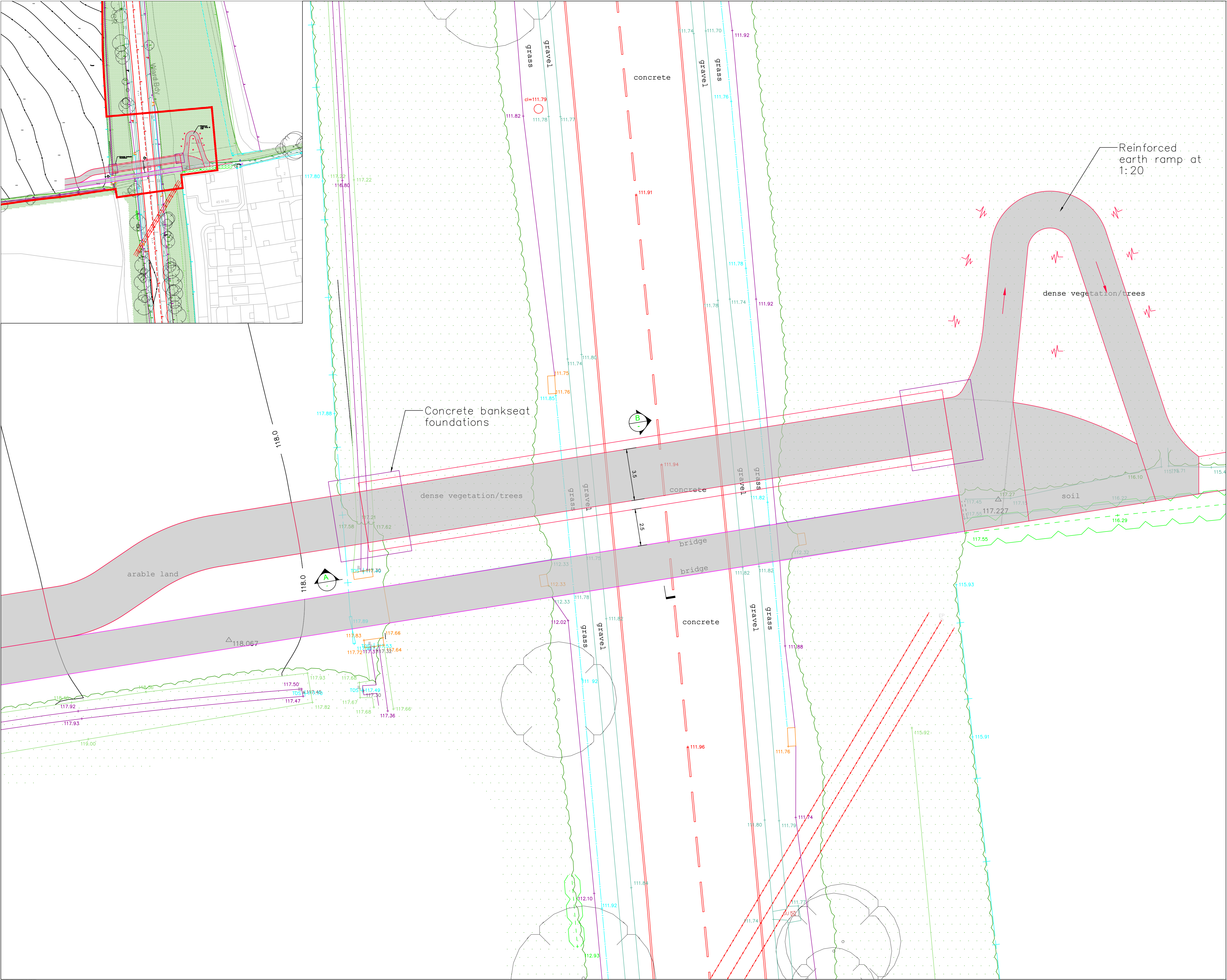
CLIENT:
HALLAM LAND MANAGEMENT LTD

SCALE@A3:
1:1250

PROJECT REF: 23161	STATUS: N/A
DRAWING No: 025	REV: P3

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction





P1	06.12.24	Preliminary issue	DL	JD
Rev	Date	Description	By	Apvd

PROJECT:
Buntingford

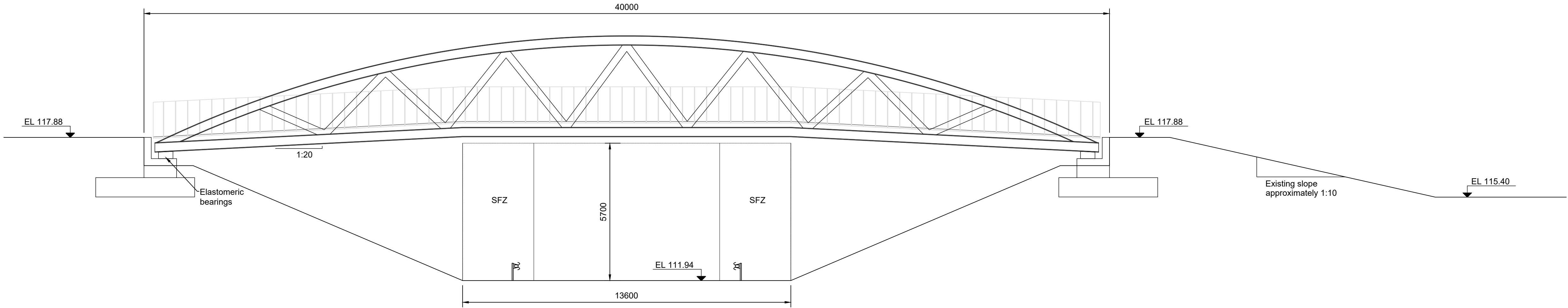
TITLE:
Southern Bridge Crossing

CLIENT:
Hallam Land Management

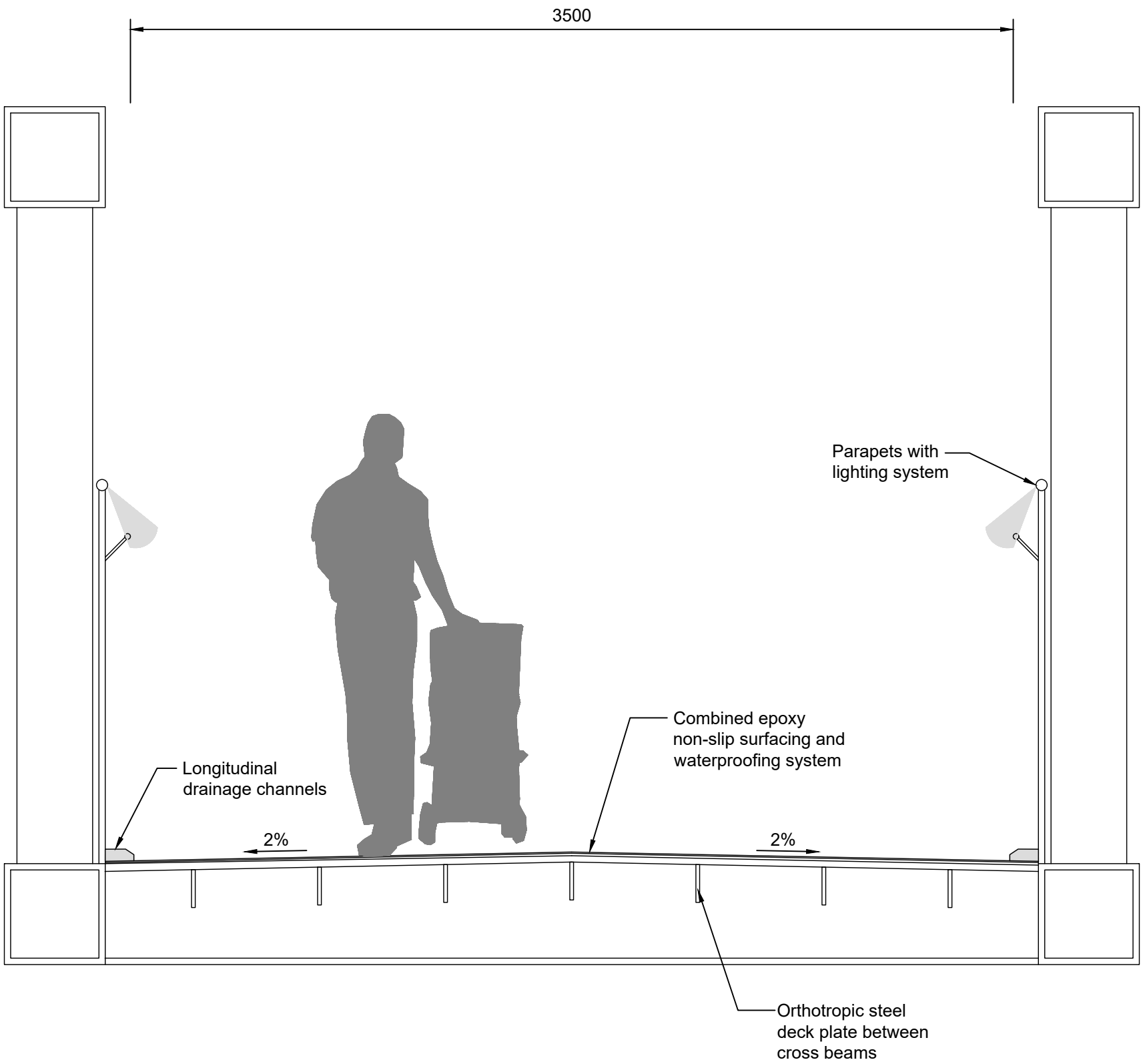
SCALE@A1:
NTS

PROJECT REF: 23161	STATUS: N/A
DRAWING No: 021	REV: P1

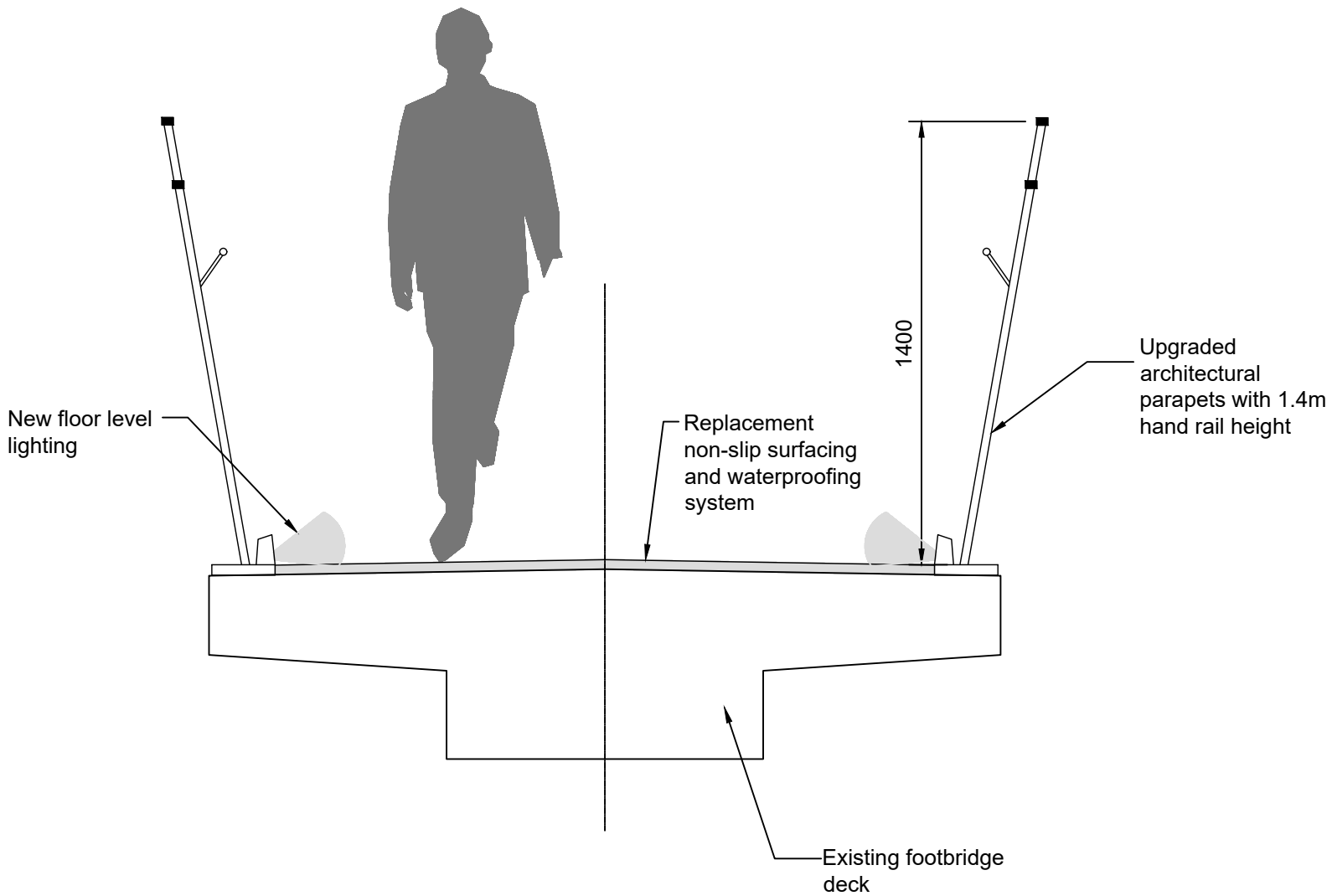
Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction



Elevation A-A
Scale, 1:100



B Section
Scale, 1:20



P2	17.04.25	Revision	DL	JD
P1	06.12.24	Preliminary issue	DL	JD
Rev	Date	Description	By	Apvd

PROJECT:
Buntingford

TITLE:
Southern Bridge Crossing - Elevations

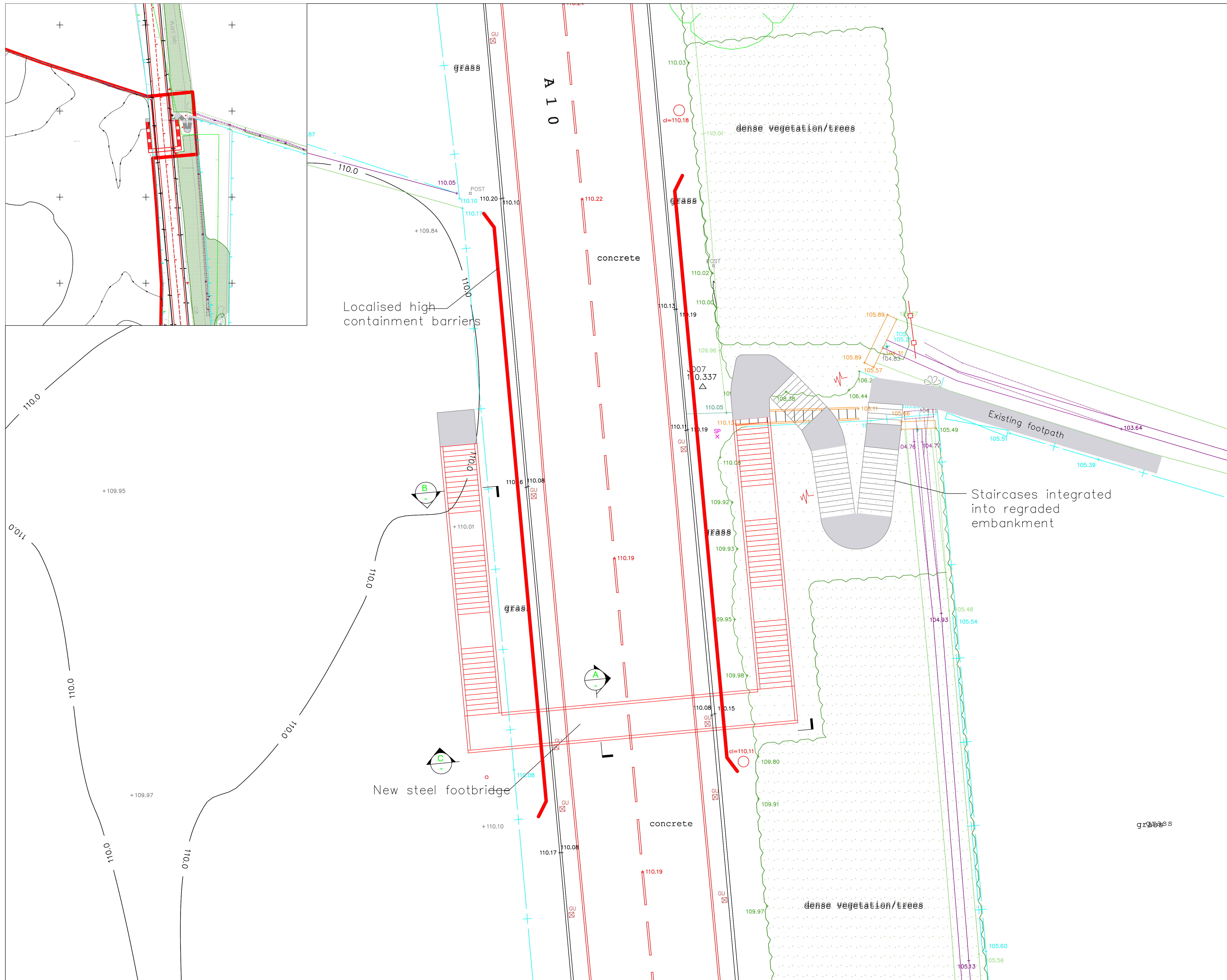
CLIENT:
Hallam Land Management

SCALE@A1:
Individual

PROJECT REF:
23161
DRAWING No:
022

STATUS:
N/A
REV:
P2

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction



P1	24.04.25	Preliminary issue	BB	JD
<i>Rev</i>	<i>Date</i>	<i>Description</i>	<i>By</i>	<i>Apvd</i>

PROJECT:
Buntingford

TITLE:
Northern Bridge Crossing

CLIENT:
Hallam Land Management

SCALE@A1:
1:100 and 1:1000

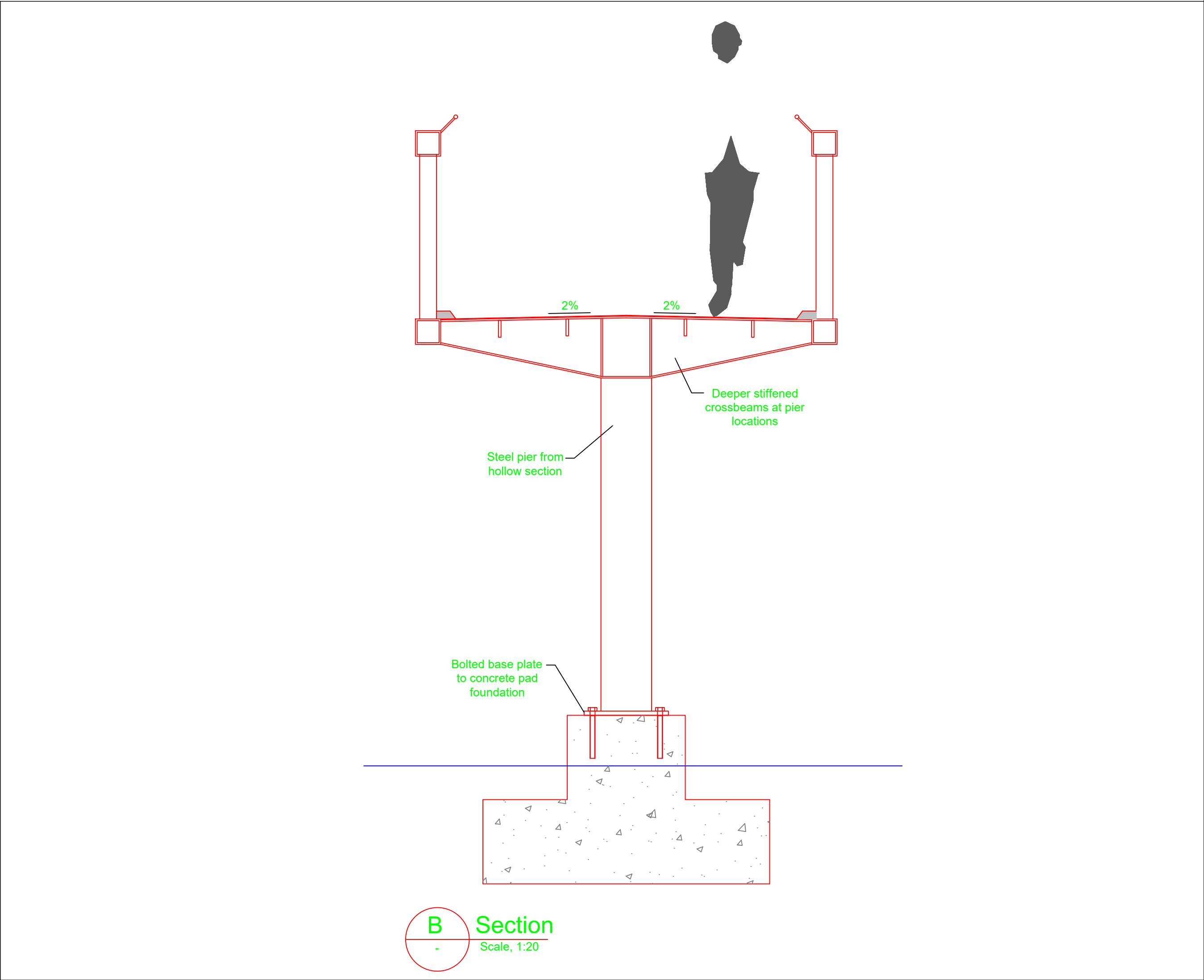
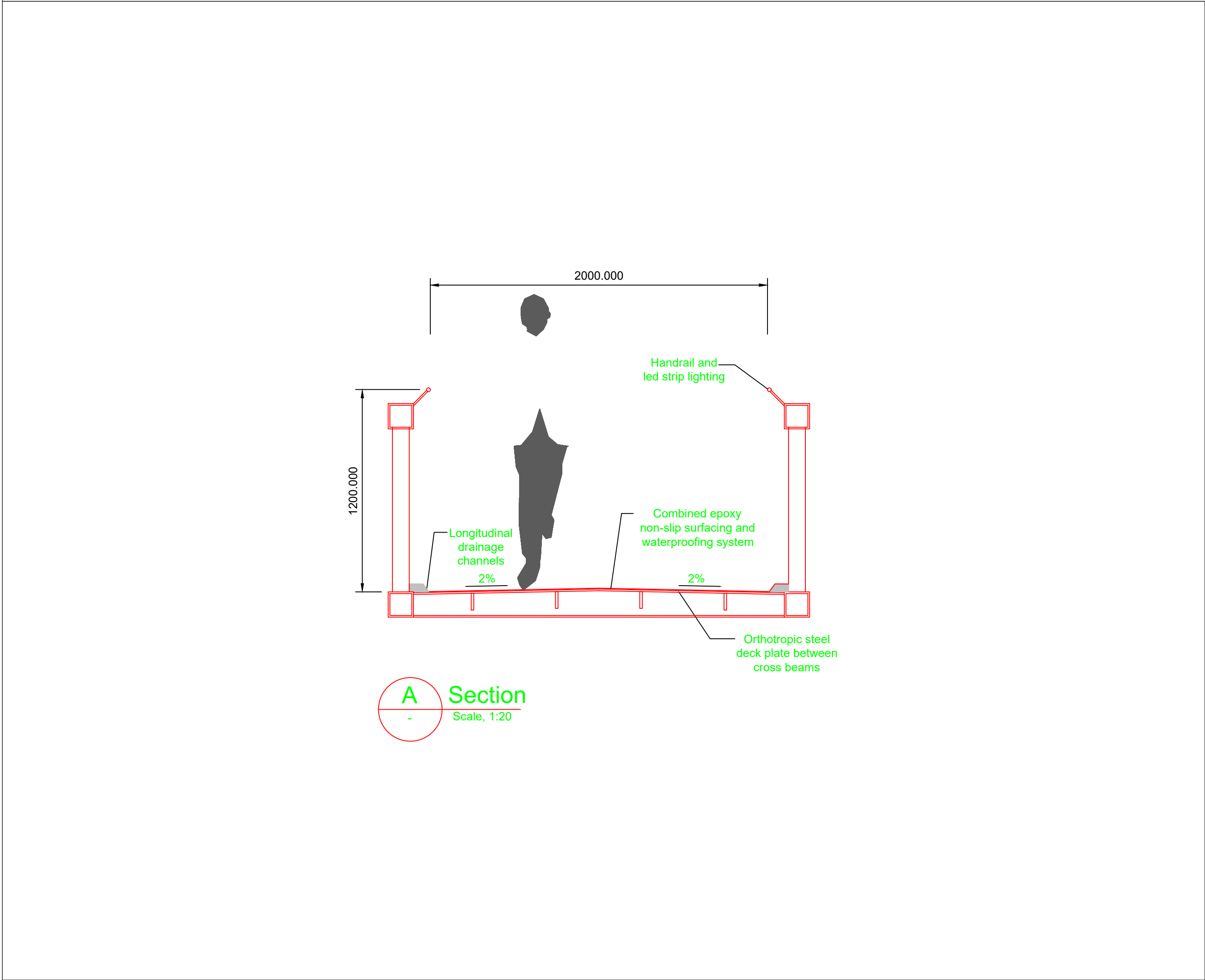
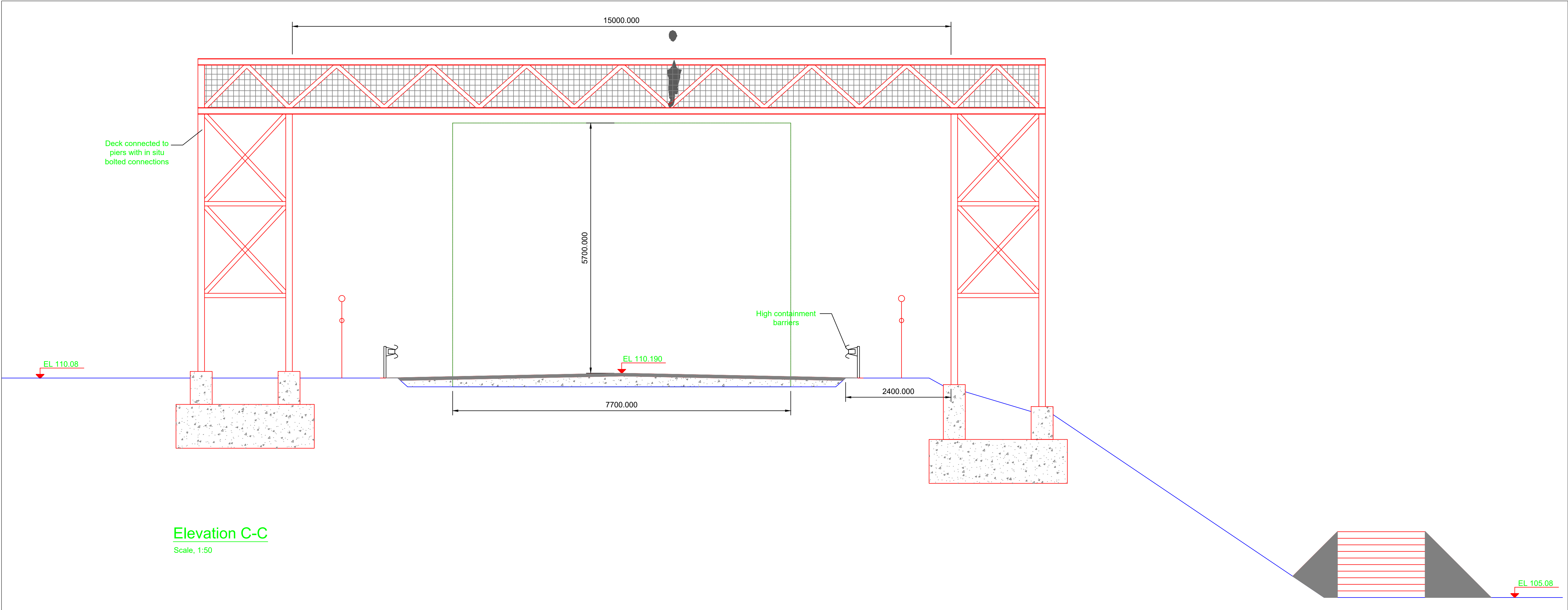
PROJECT REF:
23161
DRAWING No:
032

STATUS:
N/A
REV:
P1

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction



Bristol, Cardiff, Plymouth, Winchester jubb.uk.com
Kings Orchard, 1 Queen St, Bristol BS2 0HQ +44(0)117 922 6266



P1	24.04.25	Preliminary Issue	BB	JD
Rev	Date	Description	By	Apvd

PROJECT:
Buntingford

TITLE:
Northern Bridge Crossing - Elevations

CLIENT:
Hallam Land Management

SCALE@A1:
Individual

PROJECT REF:
23161
DRAWING No:
033

STATUS:
N/A
REV:
P1

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction

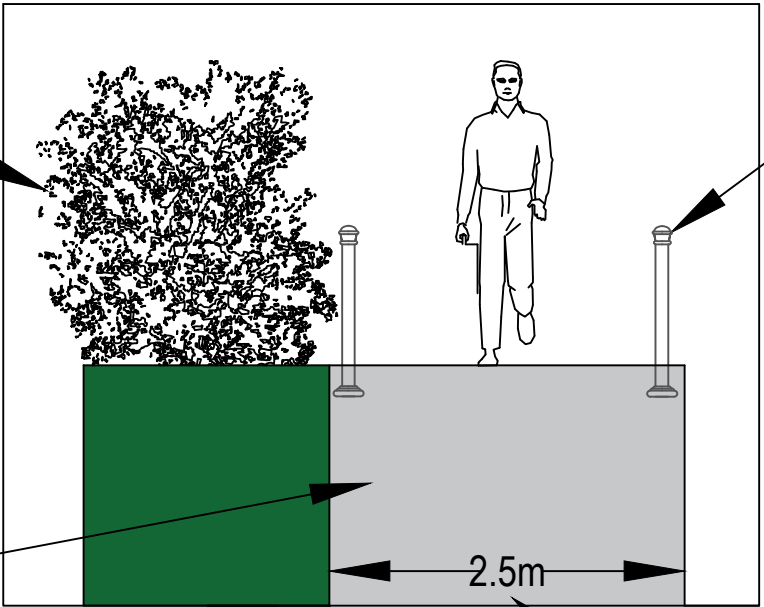


LEGEND	
	Existing Path
	Hedge Area

Proposed Northern Footbridge

Proposed surfacing and potential inclusion of barrier provision near drainage ditch

Existing hedges to be cut back to achieve typical 2.5m width



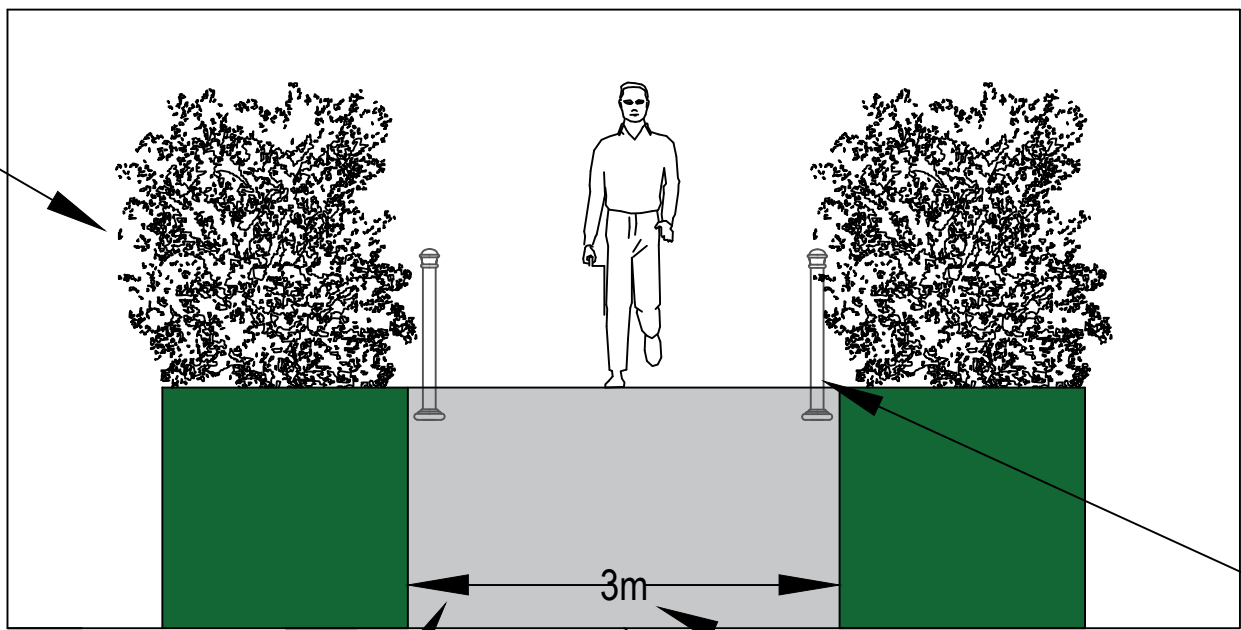
Bollard lighting

Existing surface to be resurfaced

Typical 2.5m width

Area to the back of employment to be resurfaced, bollard lit and hedges trimmed to introduce a typical 2.5m width

Existing hedges to be cut back to achieve typical 3m width



Bollard lighting

Typical 3m width

Existing surface to be resurfaced

Existing PRoW to be resurfaced and hedges to be cut back to achieve a typical 3m width. Potential to include bollard lighting

Proposed additional bridge crossing alongside existing bridge

- 1. Existing Public Rights of Way.
- 2. Existing pedestrian bridge.
- 3. New parallel active travel bridge: min. width 3m.
- 4. New Active travel reinforced earth ramp at 1:20 (existing slope approx. 1:10).
- 5. Minimum 5.7m vertical distance between road surface and bridge base.
- 6. Intervisibility and natural surveillance.
- 7. New leisure route.

P2	25.04.25	Amendment	DL	JD
P1	02.10.24	Preliminary issue	BT	JD
Rev	Date	Description	By	Apvd

PROJECT: BUNTINGFORD	
TITLE: PROPOSED CROSS SECTIONS	
CLIENT: HALLAM LAND MANAGEMENT LTD	
SCALE@A1: NTS	
PROJECT REF: 23161	STATUS: N/A
DRAWING No: 0018	REV: P2
Revision Referencing P = Preliminary A = Approval T = Tender C = Construction	



LEGEND

- Highway Boundary
- Existing Carriageway
- Verge
- Proposed Shared Pedestrian and Cyclist Path
- Existing Footway
- Coloured Surface Treatment



P2	12.03.25	Revision	DL	JD
P1	17.07.23	Preliminary issue	MK	MG
Rev	Date	Description	By	Apvd

PROJECT:
BUNTINGFORD

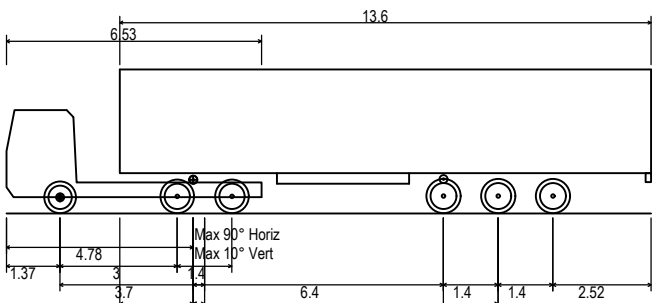
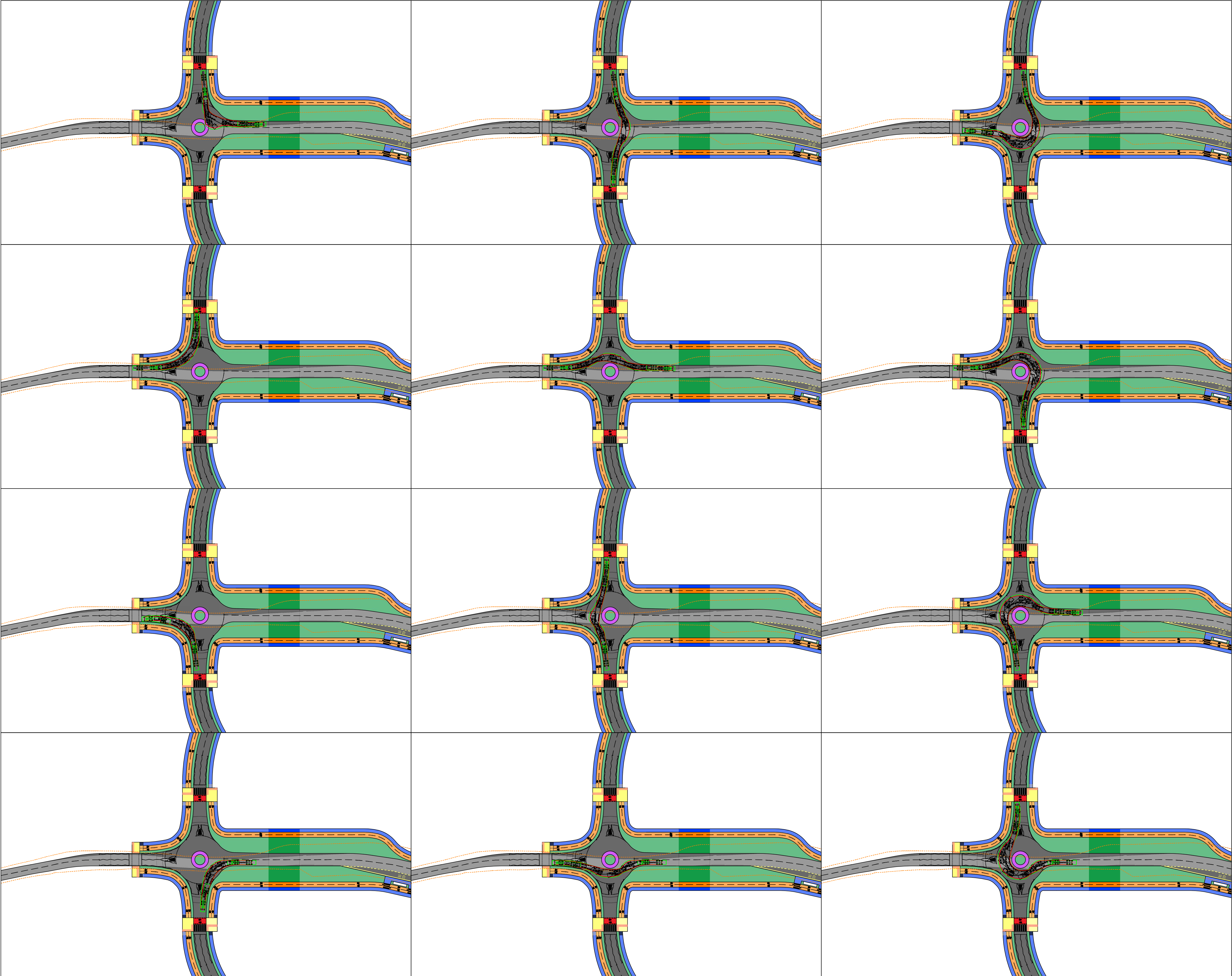
TITLE:
ACTIVE TRAVEL CONNECTION TO
BUNTINGFORD VILLAGE CENTRE

CLIENT:
HALLAM LAND MANAGEMENT

SCALE@A1:
Refer to the Drawing

PROJECT REF:
23161
DRAWING No: 003
REV: P2

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction



Max Legal Length (UK) Articulated Vehicle (16.5m) 16.500m
Overall Length 2.550m
Overall Width 3.681m
Overall Body Height 0.411m
Min Body Ground Clearance 2.500m
Lock to lock time 6.90s
Kerb to Kerb Turning Radius 6.530m

Rev	Date	Description	By	Apvd
P1	31.03.25	Preliminary issue	DL	JD

PROJECT:
BUNTINGFORD

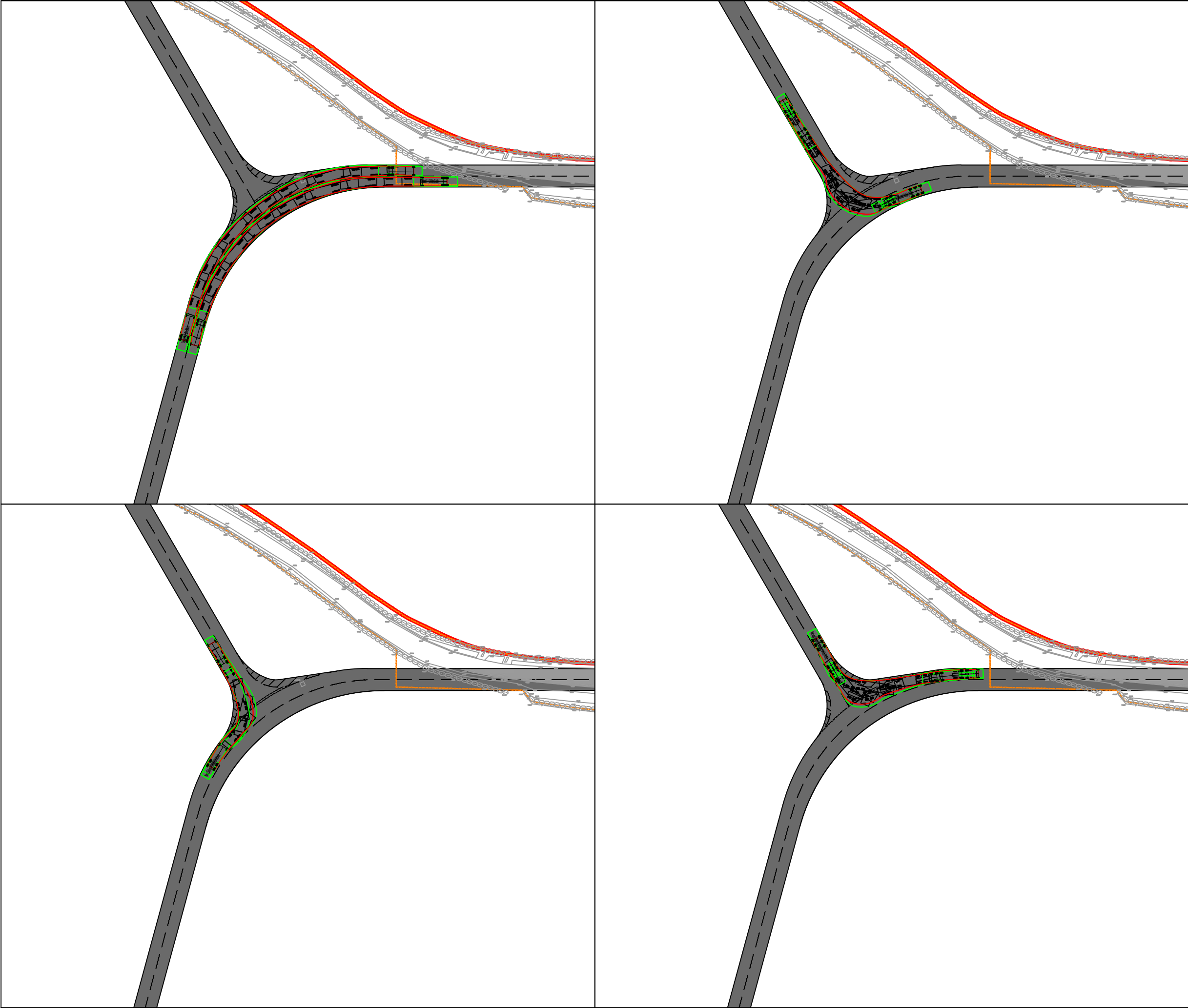
TITLE:
PROPOSED SITE ACCESS - SWEEP
PATH ANALYSIS HGV

CLIENT:
HALLAM LAND MANAGEMENT

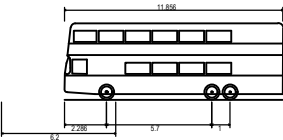
SCALE@A1:
1:1000

PROJECT REF: 23161	STATUS: N/A
DRAWING No: 026	REV: P1

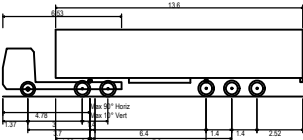
Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction



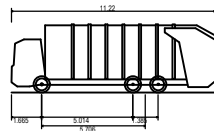
LEGEND



Trident II - 12.00m 3-Axle
Overall Length 11.856m
Overall Width 2.496m
Overall Body Height 4.140m
Min Body Ground Clearance 0.311m
Track Width 2.363m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 9.500m



Max Legal Length (UK) Articulated Vehicle (16.5m)
Overall Length 16.500m
Overall Width 2.550m
Overall Body Height 3.681m
Min Body Ground Clearance 0.411m
Max Track Width 2.500m
Lock to lock time 6.00s
Kerb to Kerb Turning Radius 6.530m



Phoenix 2 Duo Recycler (P2-15W with Elite 6x4 chassis)
Overall Length 11.220m
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
Kerb to Kerb Turning Radius 11.550m

P1	25.03.25	Preliminary issue	DL	JD
----	----------	-------------------	----	----

Rev Date Description By Apvd

PROJECT:
BUNTINGFORD

TITLE:
THROCKING LANE - SWEEP PATH
ANALYSIS

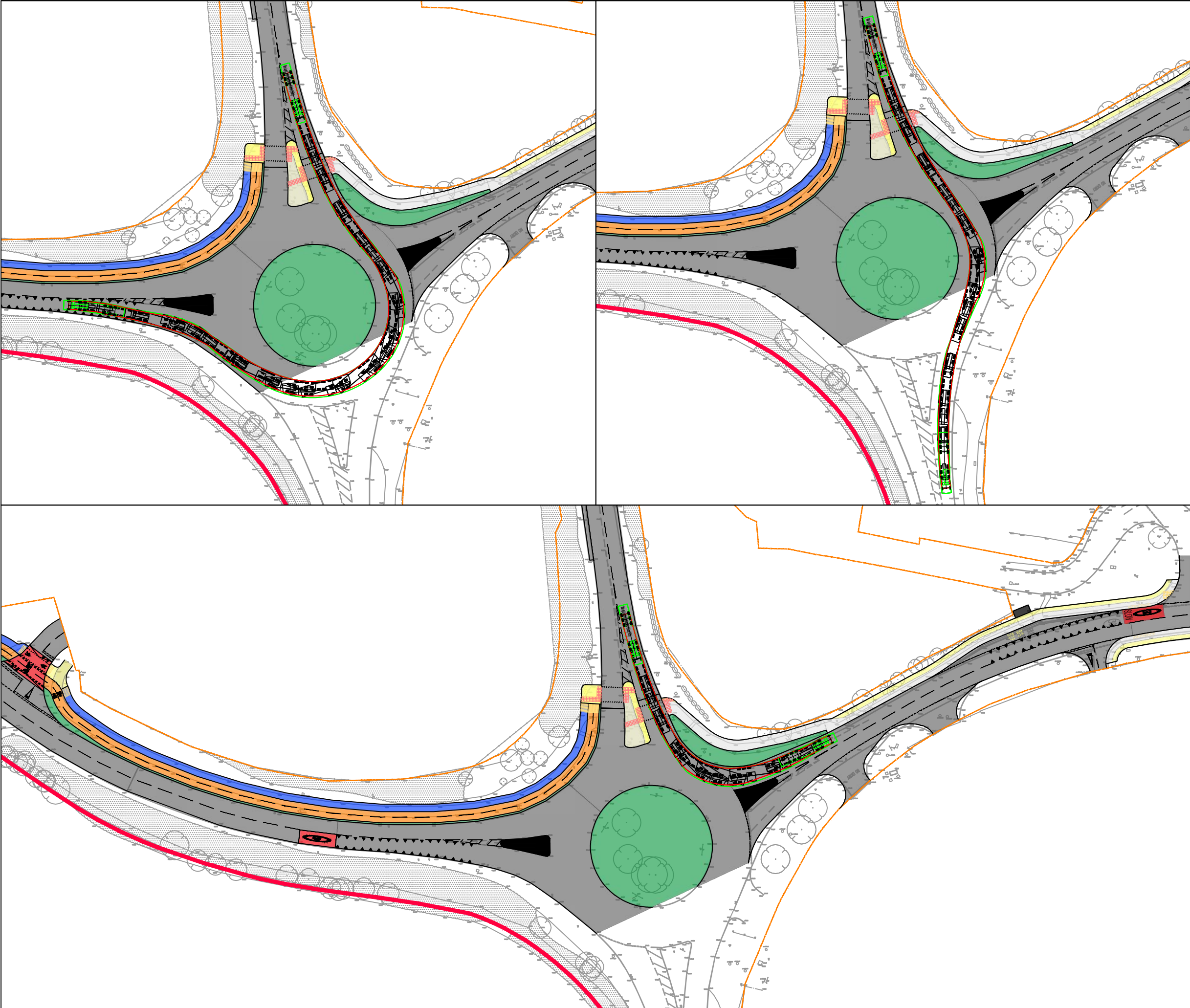
CLIENT:
HALLAM LAND MANAGEMENT LTD

SCALE@A3:
1:1000

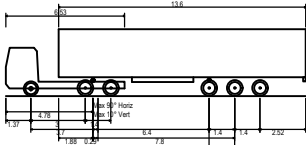
PROJECT REF: 23161	STATUS: N/A
DRAWING No: 0027	REV: P1

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction





LEGEND



Max Legal Length (UK) Articulated Vehicle (18.5m)	16.500m
Overall Length	2.550m
Overall Width	3.681m
Overall Body Height	0.411m
Min Body Ground Clearance	2.500m
Max Track Width	6.00s
Look to lock time	6.530m
Kerb to Kerb Turning Radius	

Rev	Date	Description	By	Apvd
P1	26.03.25	Preliminary issue	DL	JD

PROJECT:
BUNTINGFORD

TITLE:
A10/ A507/ Baldock Road - SWEPT PATH ANALYSIS HGV

CLIENT:
HALLAM LAND MANAGEMENT LTD

SCALE@A3: 1:1000	STATUS: N/A
PROJECT REF: 23161	REV: P1
DRAWING No: 0028	

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction



Appendix L – Masterplan design principles document

Movement and Access Principles

- Access and Movement Principles
- Public Rights of Way & Sustainable Travel
 - Active Travel Bridge
- Street Design and Street Hierarchy
 - Structural Street
 - Secondary Streets
- Site Access
- Mobility Hubs

Access and Movement Principles

- Buntingford, Parkside is designed to encourage and facilitate active and sustainable transport movements.
- Movement networks are designed to be legible and navigable.
- Pedestrian and cycle networks must be connected, permeable and uninterrupted across the site, with convenient linkages to key spaces, uses, and surrounding areas.
- The movement network must be safe and accessible, with routes that are well-

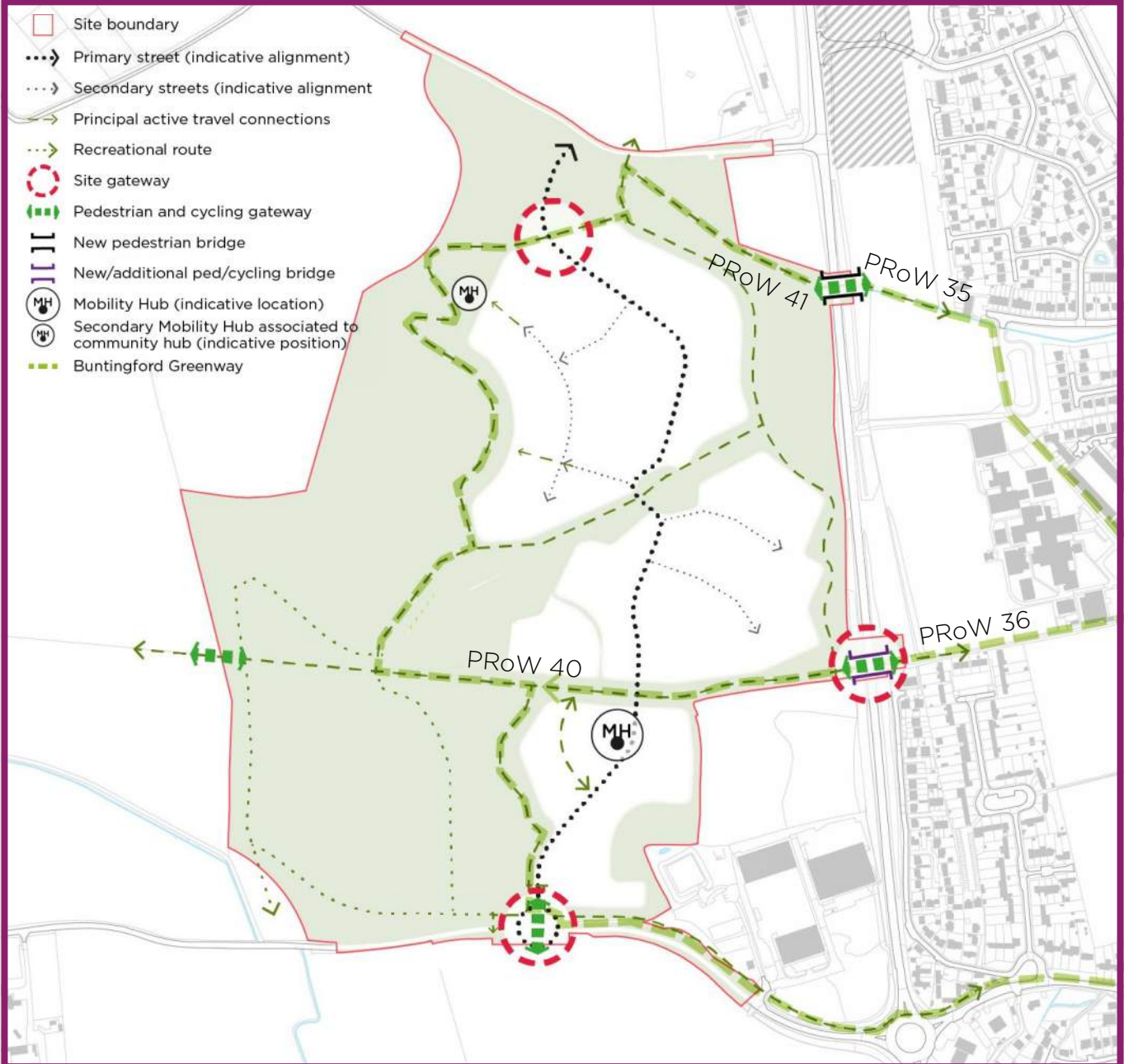
fronted and overlooked.

- A North-South Structural Street connects Baldock Road (A507) to Throcking Lane, both serving the development and acting as a central route for all transport modes.
- The structural street has been aligned to work with the landscape and topography. All streets, paths and connections must align with the terrain to minimise steep gradients.
- Streets must be designed to serve both place and movement functions, complemented by traffic calming measures to reduce vehicle speeds and

encourage the use of spaces.

- Streets are to be designed in compliance with standards acceptable and adoptable to the local highway authority.
- Streets should look to incorporate green features, such as SuDS, tree planting and landscaped verges, where appropriate.
- PRowWs are to be retained, improved, and integrated into the overall movement network.

Urban Design Principles Plan: Movement



Public Rights of Way & Sustainable Travel

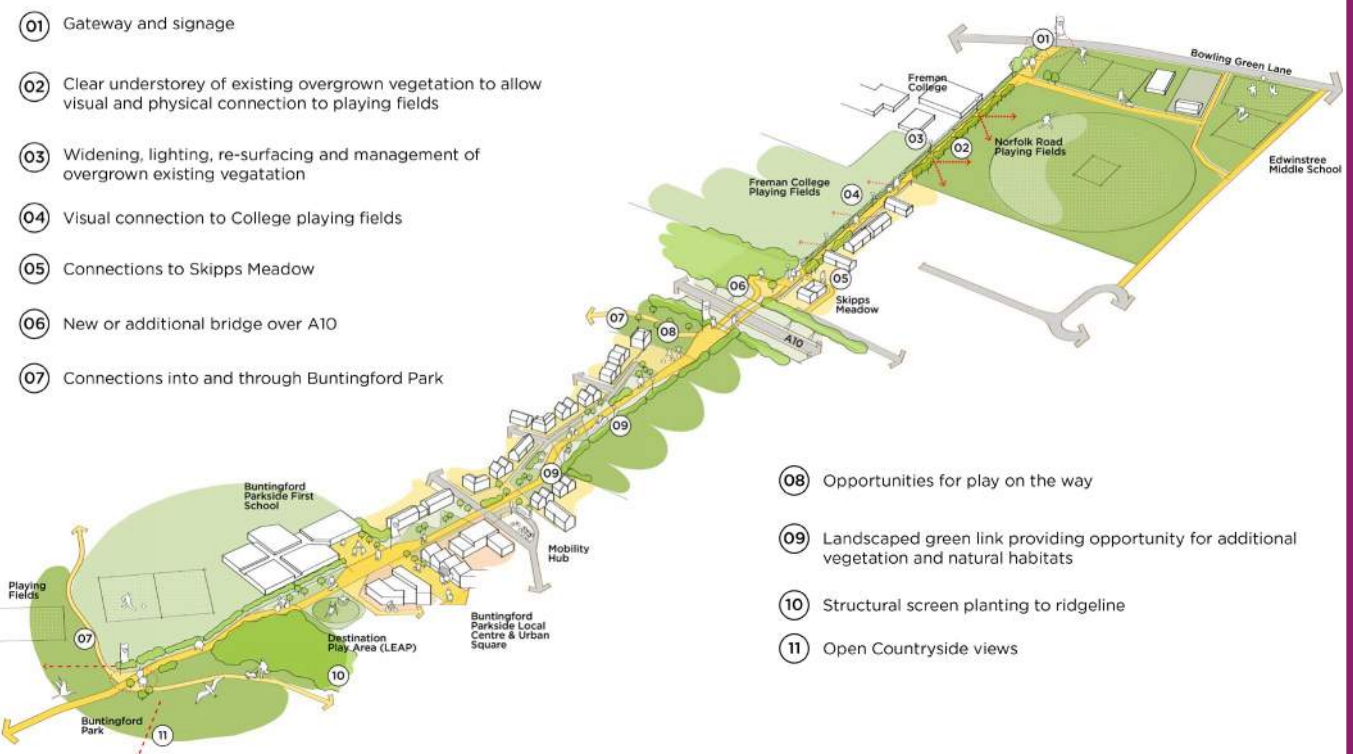
- A new permeable network of pedestrian and cycling links.
- Connectivity between new and existing green infrastructure is achieved through the retention and incorporation of existing public rights of way.

- Links are to broadly follow the site topography to ease active travel movement.
- To create attractive links and spaces that are well-overlooked by buildings within Buntingford, Parkside.
- Links to connect key open spaces accommodating a variety of activities.
- A series of recreational

routes within the new Buntingford Park.

- 'Buntingford Greenway' a green connection going from the new Buntingford Park to Buntingford Town Centre passing through the new development, consisting of existing and new active travel links. Landscaped and variable in width (see Urban Design Principles Plan : Movement on p.19).

Central Green Corridor Design Principles



Development access.



Walking and cycling.



Play-on-the-Way.



Planting.



SuDS.



Ecological Areas.

- A **Central Green Corridor**, running along PRow 40 (see below) to provide:

- Development access
- SuDS
- Active travel
- Ecological area
- Planting
- Play-on-the-Way

- The corridor should feature pedestrian-level lighting, in agreement with Hertfordshire County Council.

- Given the original bridge's constrained width, a new parallel bridge will pair with the existing footbridge (in addition to improvements to existing footbridge).

- The **new parallel active travel bridge** will serve

as an improved point of connection linking the focal point of the site to the centre of Buntingford, particularly Freman College and Edwinstree Middle School, and will improve connections between PRow 40 and 36. This will serve to complement the active travel connectivity along Baldock Road (A507) and will provide further opportunities for connection by active modes.

Cycling Infrastructure



Town Gateway



Cycle Priority



Traffic Calming Measures

- New parallel bridge should accord with the following specification:

- Use: Active travel.
- Width: Minimum 3m.
- Lighting: Yes, in agreement with Hertfordshire County Council Highways.
- Accessibility: Unobstructed height above a pedestrian of 2.3m from the surface level; wheelchair-accessible handrail; maximum 1 in 20

gradient (DfT Inclusive Mobility Guidance).

- Bridge parapets to help reducing traffic noise from the A10.

- The **existing pedestrian bridge** should:

- Be resurfaced with non-slip and waterproof surfacing.
- Be upgraded with safe and high-quality architectural parapets (to help reducing traffic noise from the A10).

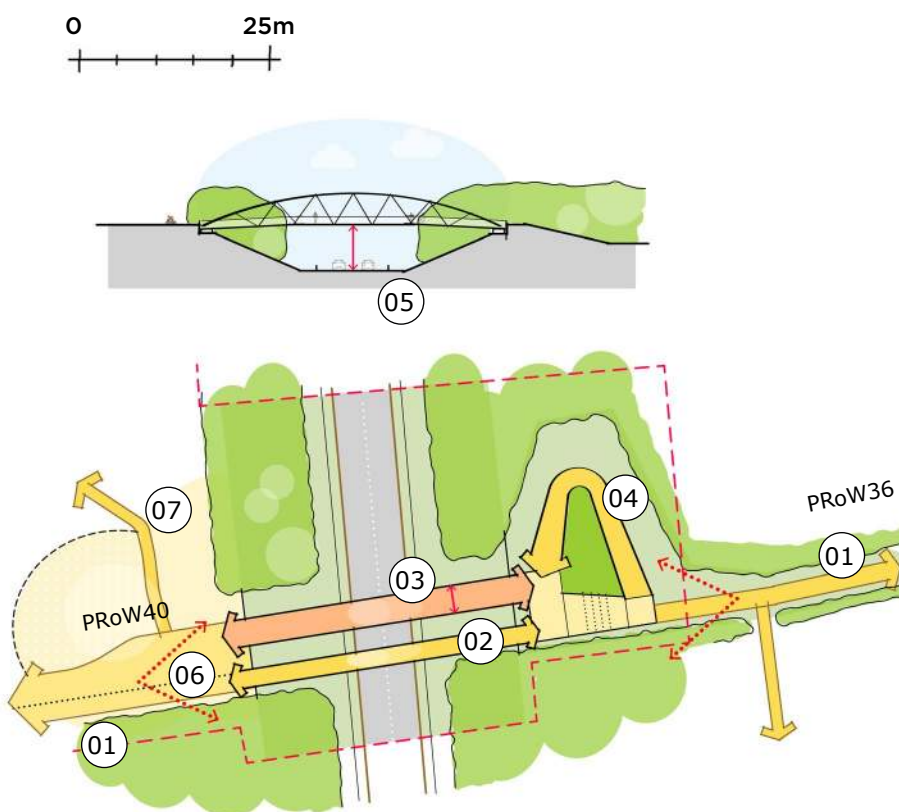
- Have new floor level lighting.

- Existing PRoW 36 on the eastern side of the A10 to be resurfaced, low level lighting added and hedges to be cut back to achieve a reasonable width.

- Existing PRoW 40 on the western side to be widened and improved (integrated in central green corridor).

- In addition, a further point of connection in the form of a footbridge is proposed

New parallel active travel bridge diagram



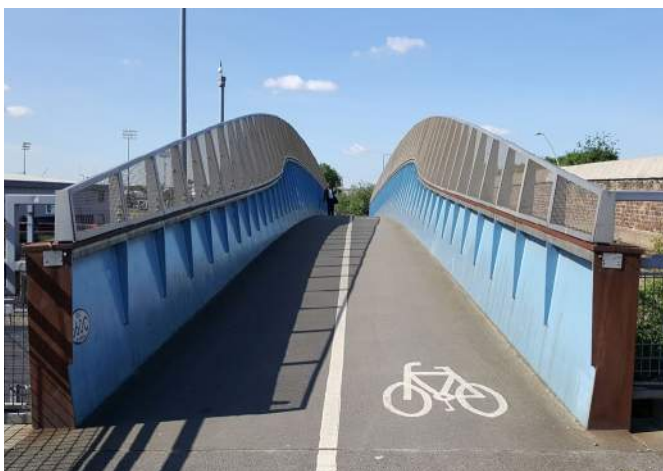
1. Existing Public Rights of Way.
2. Existing pedestrian bridge.
3. New parallel active travel bridge: min. width 3m.
4. New Active travel reinforced earth ramp at 1:20 (existing slope approx. 1:10).
5. Minimum 5.7m vertical distance between road surface and bridge base.
6. Intervisibility and natural surveillance.
7. New leisure route.

further north to provide enhanced connections to and from the north of Buntingford and provide a high quality connection for PRow 41 across the A10.

- These routes will serve to enhance active travel connection for residents / visitors of the proposed community but also for existing residents of Buntingford who will have high quality access to the facilities proposed within the new development.



Active travel bridge over the A10 in Cheshunt (©Google).



Active Travel Bridge in Stratford, London (© happyontist.blogspot.com).



Active Travel Bridge in Stratford, London.



Active Travel Bridge in Northampton.



Active Travel Bridge in Norway (© Rintala Eggertsson Architects).

Key Spaces and Places

Key Spaces and Places are areas identified in the proposal that are considered fundamental for the success of Buntingford, Parkside. Each grouping features a diagram which outlines a series of specific design principles relevant to that area. The locations of four key groupings are identified on the key plan below.

- KS01 - Eastern Gateway
- KS02 - Local Centre
- KS03 - Central Key Space
- KS04 - Community Hub and Northern Gateway
- KS05 - Southern Gateway



Key Spaces and Places Location Plan

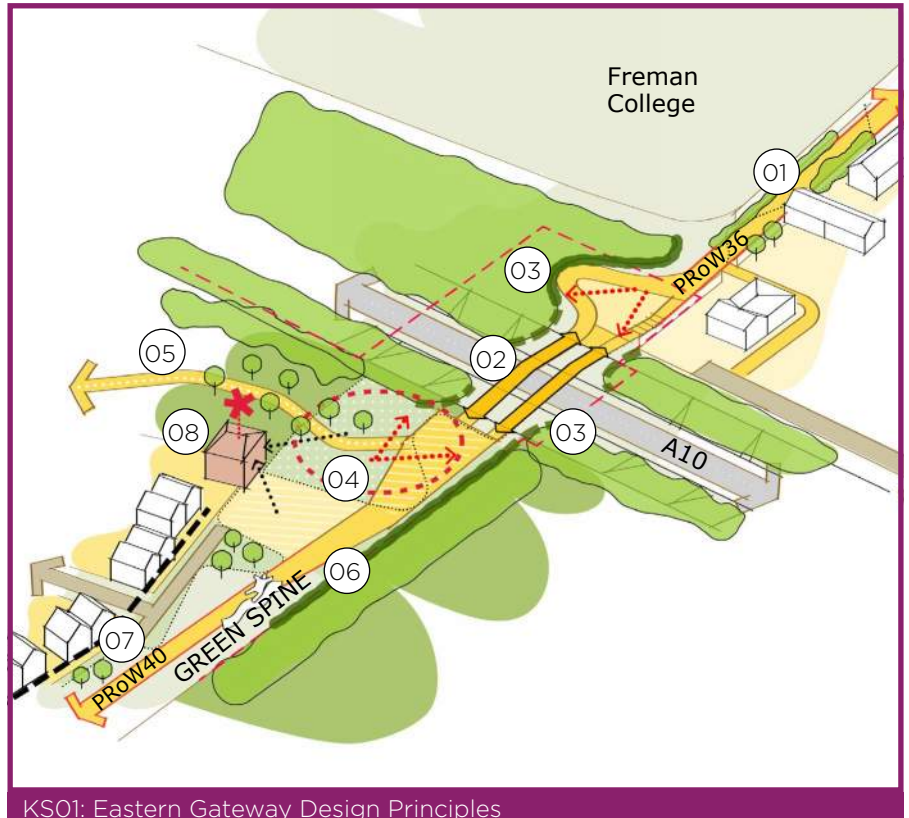
KS01: Eastern Gateway

1. The proposed active travel corridor - as part of the OSA02 Central Green Corridor (pp. 14-15) - offers active travel connections between Buntingford Town Centre and Buntingford, Parkside and incorporates existing Public Rights of Way. PRoW 36 is to be improved with enhanced surfacing, cutting back overhanging vegetation and adding sensitive lighting. PRoW 40 is to be integrated within the Central Green Corridor, providing access to Buntingford, Parkside with active travel links, Play-on-the-Way, new planting, sustainable drainage, and new ecological areas.

2. A new active travel bridge, running parallel to the existing footbridge, will improve active travel connectivity across the A10 (PRoWs 36 and 40). The bridges will be safe, with welcoming parapets and lighting. (more details on the bridge on p.21).

3. Minimal vegetation clearance to facilitate the construction of the new bridge and gateway space.

4. On entry to Buntingford, Parkside, a new gateway space (shape indicative) provides a flexible, open, space facilitating connections across the A10 through to the local centre. The proportion between the size of the space and the



KS01: Eastern Gateway Design Principles

surrounding building heights is to be designed to maintain a human scale and sense of enclosure.

5. Direct connection to the Buntingford Greenway walk from the gateway space. The walk is to be clearly signposted and lined by trees.

6. Additional line of vegetation along the site boundary to provide a welcoming and pleasant edge (acting as one of two frontages of the green corridor) and to provide a robust landscape boundary

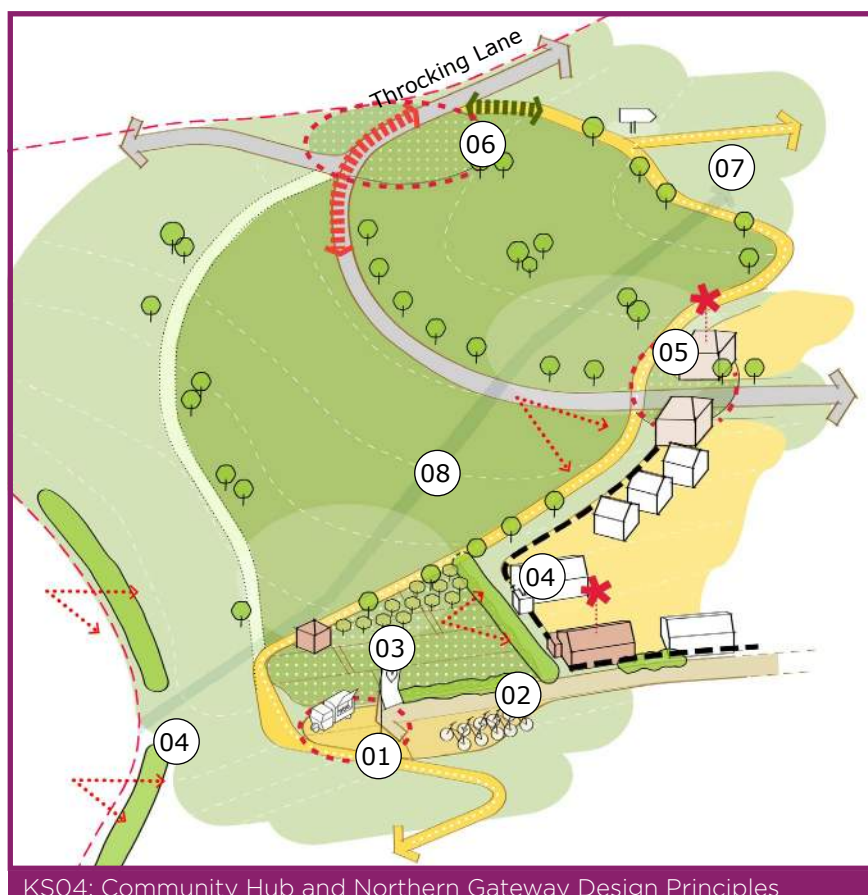
to the site edge.

7. Housing fronting onto the public space provides activity and natural surveillance. Vehicular access is to be sensitive of the proximity to the green corridor and mitigated by planting.

8. Marker building to be visible from all sides and bookmark the space. Provision of clear signage and opportunities for Play-on-the-Way.

KS04: Community Hub and Northern Gateway

1. 'Community Growing Hub' is to be located at the intersection of Throcking Lane with the Buntingford Greenway. The space is to feature a mobility hub, community food growing areas, enabling activity and engagement with nature. A pocket square will feature wayfinding, tree planting, seating, Play-on-the-Way and form part of a wider foraging trail.
2. The Mobility Hub has the potential to provide cycle parking, cycle hire, car club parking, and will be complemented by non-mobility components, such as onward travel information. Facilities are to be easily accessible by all and safe, with passive surveillance from adjacent homes, visible from the park and street.
3. Provision of food growing opportunities in the form of allotments and/or community orchards.
4. Structural planting will mitigate views from North-West, with openings to create glimpses to and allow for connections towards the open countryside.
5. The gateway of the site sits at the intersection of the structural street and Buntingford Greenway. It will feature traffic calming measures to prioritise active travel movement, a combination of soft and



KS04: Community Hub and Northern Gateway Design Principles

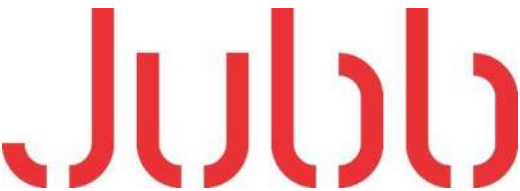
hard surfaces, and marker buildings. Marker buildings are to be dual-fronted and potentially higher than surroundings.

6. Entrance to the site from Throcking Lane is to shift the vehicular priority into the development rather than through Throcking, with a parallel cycleway and footway within the development.

7. Buntingford Greenway is to be clearly signposted and visible from the site entrance and site gateway.

8. Buntingford Park North focuses on ecology and sustainable drainage with a more natural character. Residential frontages overlook onto park.

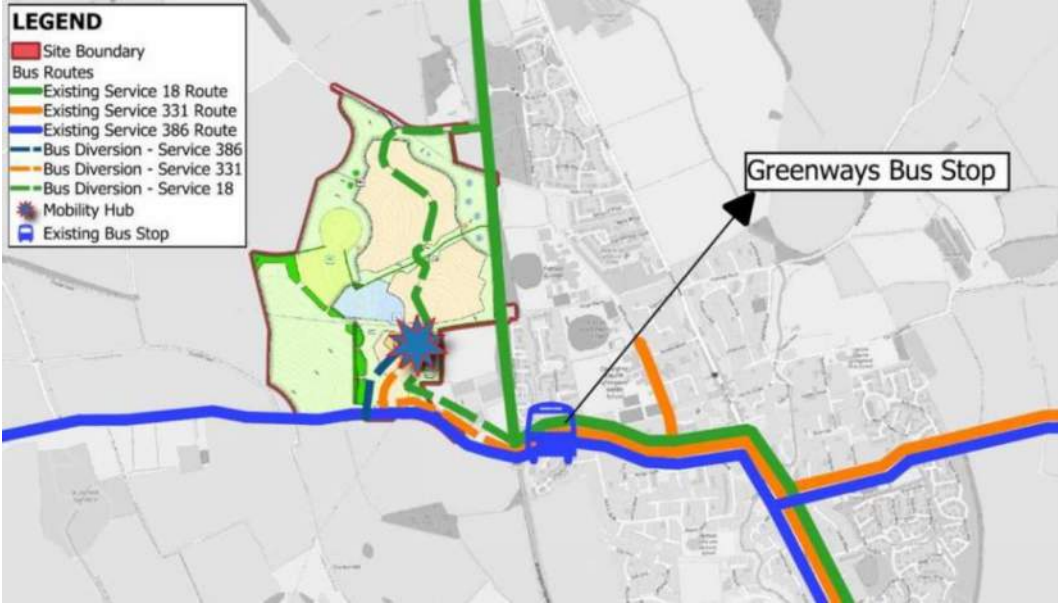
Appendix M – Agreed minutes of bus options meeting dated 3rd October 2024



Meeting Title: Local Highway Authority (LHA) Buntingford bus options meeting dated the 3rd October 2024

Attendees: Tom Thornewill (SM) – Hallam Land
Oliver Sowerby (OS) – Hertfordshire County Council
Raymond Lewis (RL) – Hertfordshire County Council
Robert Handbury (RH) – Hertfordshire County Council
James Duffy (JD) – Jubb Consulting Engineers

Meeting date, time & location 03/10/24 (16:00-17:00)
Teams Meeting

Item	Description
1.0	Introductions
2.0	Bus Routes JD presented the bus routes diversion strategy as presented in the original submission technical note 23161 – TN02 (Figure 4.1). JD stated that this would be one strategy for connection, but the applicant would consider alternatives noting the plans provided previously by Hertfordshire. RL confirmed that the routes strategy proposed by Jubb was appropriate (see extract below). LEGEND - Site Boundary - Bus Routes - Existing Service 18 Route - Existing Service 331 Route - Existing Service 386 Route - Bus Diversion - Service 386 - Bus Diversion - Service 331 - Bus Diversion - Service 18 - Mobility Hub - Existing Bus Stop 

Item	Description
3.0	Bus Frequency RL confirmed that Hertfordshire's calculated contribution of £300,000+VAT over 5 years would allow the 331 service to be delivered at a 30 minute frequency which would improve the 60 minute service. JD identified that this represented a good level of access given that the proposals would also be accessed by the 18 and 386 service so overall frequency would be even higher.
4.0	Turning area RL stated that a turning area would be required in the proximity of the mobility hub (to allow 331 and 386 to turn back to Baldock Road) which could either take the form of a roundabout or a vehicle service area (e.g. for the local centre) that could double as a bus turning facility (an example at the Oval Centre bus stop, Vardon Road in Stevenage was referenced). RH stated that the bus would need to turn in forward gear and therefore any turning area should not require a bus to carry out reversing maneuvers. RL stated that the turning area could be useful when it came to phasing of the project and could allow the southern part of the site to be brought forward initially with good bus connectivity. TT agreed that this was logical. RH stated that any tracking should be undertaken using a 12m vehicle for buses. RL stated that positive enforcement signage should be used in any turning area i.e. blue roundels and Double Yellow Lines rather than the older style approach of what is not permitted. See example below - do not restrict to local buses as school buses/coaches would benefit from using the turn around. 
5.0	Bus Stops RL stated that a further bus stop should be introduced in the northern area in addition to the Mobility hub in the southern part of the site.
6.0	Bus Gate JD confirmed that the proposals would not be to introduce a bus gate centrally in the site as this would increase vehicle mileage and it is unlikely that the residential access road would be attractive as a rat run route for motorists given the A10 is just east.

Item	Description
	RL confirmed that the bus gate was a suggestion rather than a requirement to prevent this road from being used as a rat run if there was a closure for some reason on the A10. JD confirmed that any such closure would likely be very infrequent. RH confirmed that measures such as a roundabout if we were to introduce this for buses to turn or potentially priority narrowing could deter rat running in any case. JD confirmed that measures such as this could be provided but would also need to be balanced with the need to maintain bus journey times. RH also confirmed that they would not want vertical deflection (e.g. speed humps). RH confirmed that parking controls would be required on the main connecting road to prevent parked cars from blocking bus movements. JD confirmed this as appropriate.
7.0	Throcking Lane Junction JD discussed the LHA's comment about reducing speeds on the A10 in the vicinity of the Throcking Lane junction. JD stated that as the A10 is a higher order link with likely higher speeds a more appropriate solution could be further signage to further alert drivers on approach to the junction. JD also stated that bus access to the A10 is also proposed for the Neal Drive (Land to the Northwest of Buntingford) proposals with no proposed speed reduction. RH stated that as there is a dedicated right turn lane into Throcking Lane from the A10 that this is less of an issue but did state that it would be good to review lighting to ensure the junction is well lit in evening / early morning hours. RL stated that the junction also had good geometry and visibility.
8.0	Next Steps OS asked what the next steps would be in terms of progressing confirmation of strategy. JD confirmed that this would be dealt with either within a revised public transport note or a catch all response to the LHA's original response note as dated the 19th June 2024.

Appendix N – Latest Trip Generation Note Issued on 21st February 2025



Title: 23161 TN08 Trip Generation Note v3
Date: May 2025
Prepared by: J. Duffy Checked by: M. Grist

1.0 Introduction

- 1.1 Jubb has been commissioned by Hallam Land Management to provide transport and highways advice in relation to a proposed residential led development on land to the west of Buntingford and within the district of East Hertfordshire. This proposal is located to the west of the A10 on land between the A507 Baldock Road and Throcking Lane.
- 1.2 A planning application has been submitted, and validated on the 28th of May 2024 (planning application reference 3/24/0966/OUT), for an 'Outline planning application for development of up to 600 dwellings (C3), elderly accommodation (C3), Mixed Use Local Centre (including flexible use E, F and Sui Generis), First School, informal and formal open space, associated works and infrastructure including a new access from the A507 and pedestrian bridge over the A10, with all matters reserved save for access'. The associated revised land use components plan for this is set out in **Appendix A** of this Technical Note (TN).
- 1.3 Following receipt of this planning application the Local Highway Authority (LHA) has provided a detailed response (dated 19th of June 2024), which has been included as **Appendix B** of this TN. Further discussions have been held with the LHA in relation to the various elements of this response which include discussions on overall approach, active travel connections, public transport connection, and traffic modelling. It is noted that the response from the LHA includes queries relating to trip generation, and therefore this TN provides, in **Section 2** below, additional clarification for consideration of the LHA.
- 1.4 It is noted that this Trip Generation note represents an update of the previous note as issued on the 21st February 2025 and now includes further content (as **Section 3**) that sets out further clarification on the specific adjustments applied to vehicle trip generation. This clarification follows a specific request for this as raised by the LHA in a meeting dated the 3rd March 2025.

2.0 Trip Generation (Response to LHA Comment)

- 2.1 This section sets out response to Trip Generation comment as raised by the LHA in their response note dated 19th June 2024. The LHA comments on Trip Generation are presented in blue below with the associated Jubb response in black following this.

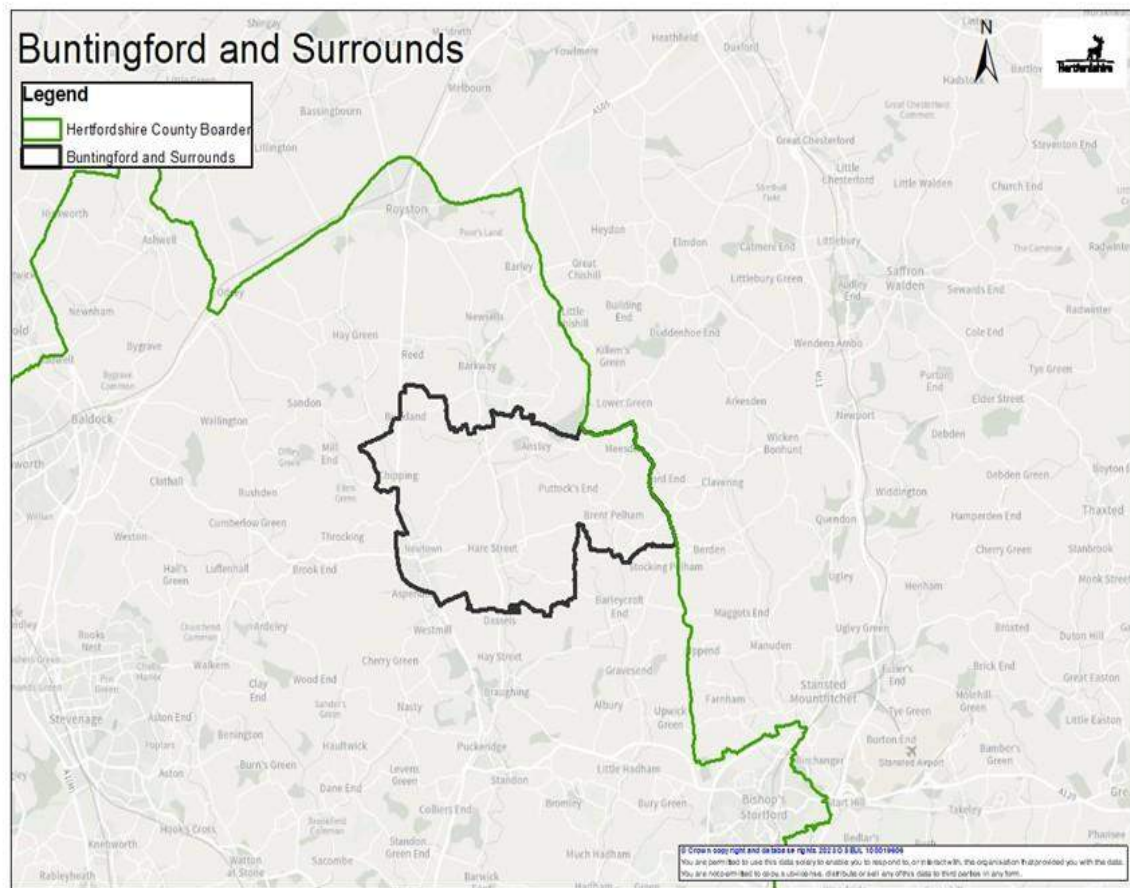
LHA Trip Rate Comment

"The Highway Authority has some concern with the trip rate methodology as set out within the TA and therefore the attendant assessment robustness.

The Highway Authority has examined the potential mode share in more detail following a review of the TA. Examining mode share is an exercise which may be assessed using a number of different techniques, including using census data, National Travel Survey and/or mobile phone data.

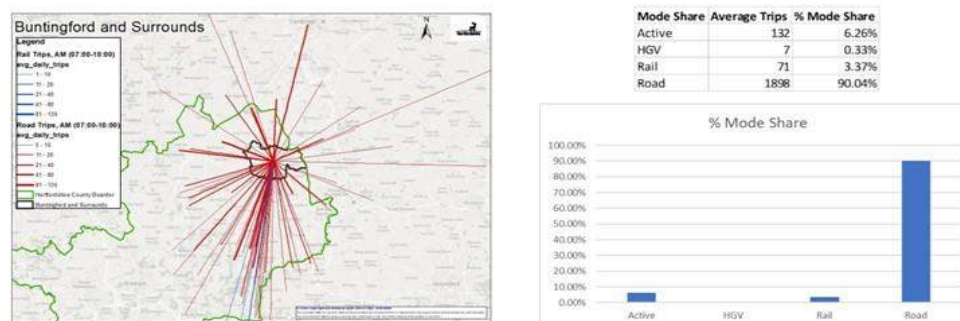
Mobile Phone Network Data

The Highway Authority regularly collects survey data across the County using a variety of assessment tools, one of which is the utilisation of mobile phone data which may be used to analyse journey patterns and distributions. Such an exercise has been undertaken for Buntingford, as shown in the area below:

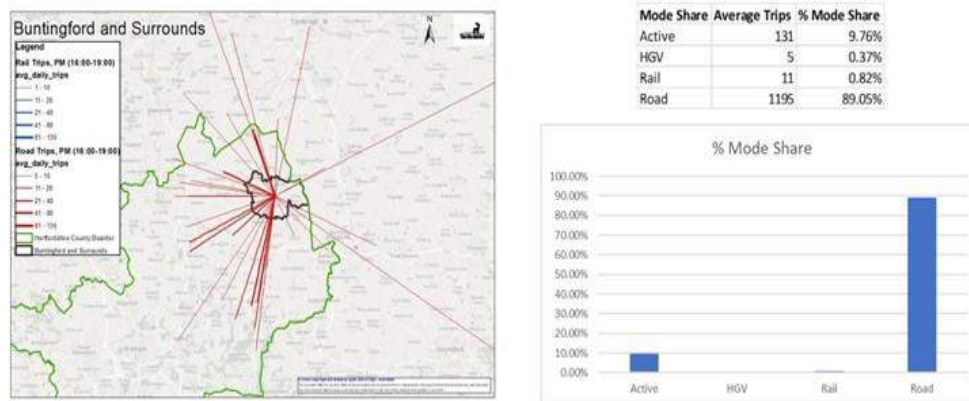


The mobile network data was collated over a three-month period, from 02/03/2023 to 25/05/2023. The data shown is for the AM Peak Period (APP) (07:00 – 10:00) and the PM Peak Period (PPP) (16:00 – 19:00).

Car and Rail Trips Starting in Buntingford and surrounds, AM Period (07:00-10:00)



Car and Rail Trips Starting in Buntingford and surrounds, PM Period (16:00-19:00)



It can be seen from the above MND tables that there is illustrated a 90% share of person trips by car in the AM and PM periods. Active modes (walking, cycling and bus), are less than 10% in the AM and PM peak periods respectively.

It is noted that these trips have common origins/destinations which include the following destinations:

- i. Cambridge;
- ii. Royston;
- iii. Ware;
- iv. Hertford;
- v. Letchworth Garden City; and
- vi. Stevenage.

The Highway Authority notes that the transport consultant has used a methodology for establishing a car driver trip rate from TRICS. However, in this instance, it may be more fitting to utilise a Total People rate from TRICS and then conduct appropriate refining techniques which are able to reflect a more locally derived pattern.

The assessment has also assumed reductions in vehicular trip rates (to the TRICS rates) which are not considered reflective of the site's characteristics and moreover the limited mitigation which has been presented within the TA.

The significant reductions to the vehicular trip rates are not considered apposite to account for the relatively limited mix of uses within the proposed development

The TA goes on to state in paragraphs 6.3.22 and 6.3.23 cites evidence from the Department of Transport paper regarding Travel Plans.

6.3.22 "Case Studies reviewed by the Department of Transport as part of the research paper titled 'Smarter Choice Document – Changing the way we travel' published in 2005, indicates that an average 18% reduction in private car use can be delivered through an effective Travel Plan."

6.3.23 “In light of the above, it is reasonable to assume that by delivering appropriately sustainable travel infrastructure as well as targeted Travel Plan measures, a mode shift of 15% away from car usage can be achieved.”

The Highway Authority is unable to accept such a high figure based on the site’s locational characteristics and the mitigation put forward within the TA. For example, the feasibility of improvements, such as a continuous LTN 1/20 compliant cycle route into Buntingford is limited. A bus route, which should be a high quality, shuttle style service is likely to be required, whilst the TA only points to speculative conversations with a bus route as opposed to auditable proposals.

Buntingford is furthermore only a small town, with limited local facilities, services and employment, having grown significantly in recent years from a far smaller settlement. The evidence suggests high usage of private vehicles by residents of Buntingford. Whilst the Highway Authority may be willing to accept reasonable reductions for internalisation on the site, for example, for on-site education facilities or modest discounts for local shops, it is clear that the transport consultant has projected factors which are out of keeping with the site’s location and mitigation proposals.

The Highway Authority therefore has no confidence in this exercise and therefore the attendant assessment of the highways impact.”

Jubb Response to Trip Rate Comment

- 2.2 It is unclear how the mode split as set out above in the LHA comment has been calculated. Notwithstanding this, Jubb has reviewed journey to work census data in the vicinity of the site for the purpose of comparison. The associated 2011 mode split data for the ‘East Hertfordshire 001’ Mid Layer Super Output Area (MSOA), encompassing Buntingford and nearby rural area (**Figure 2.1**), is summarised in **Table 2.1** below. It is noted that 2021 data has not been used for this purpose as this includes a higher percentage of home working on the basis that the census query requested information on mode split during the period of the pandemic lockdown.

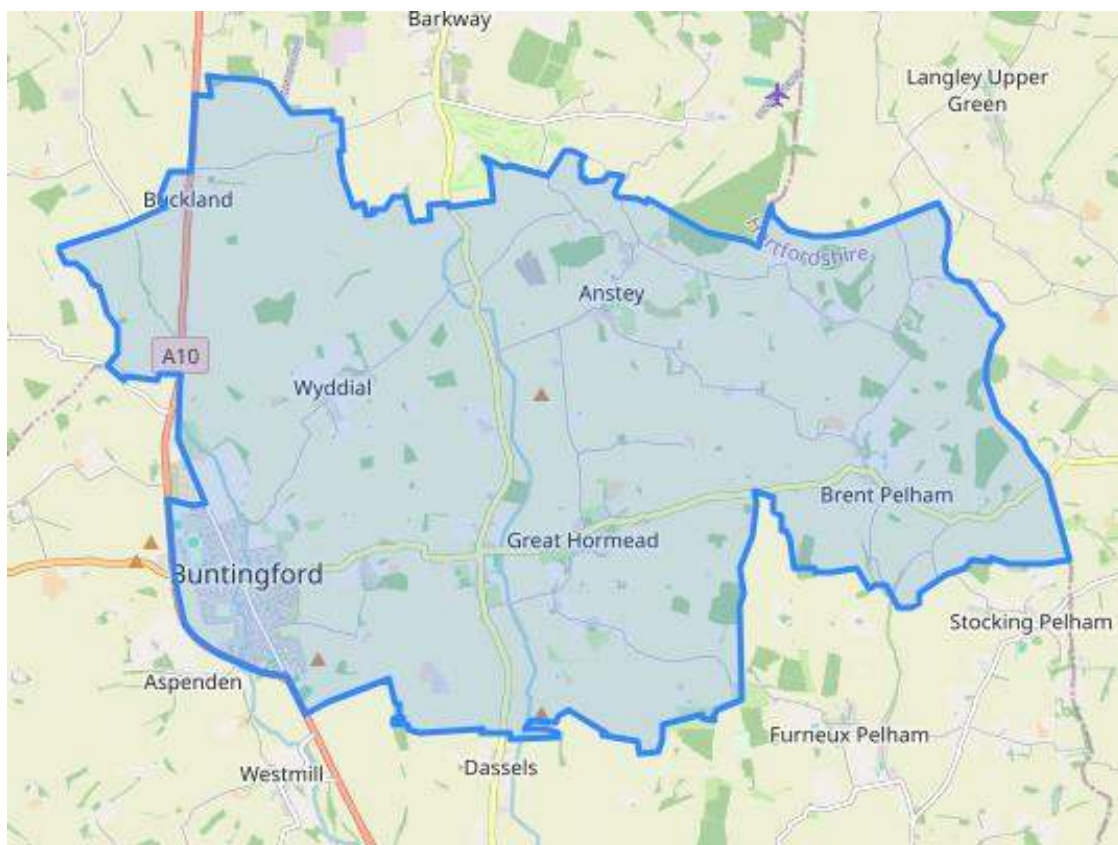


Figure 2.1 – East Hertfordshire 001 Mid Layer Super Output Layer

Method of Travel to Work	Percentage
Work from home	14.66%
Public Transport	5.54%
Taxi	0.15%
Motorcycle, scooter or moped	0.73%
Driving a car or van	65.17%
Passenger in a car or van	3.80%
Bicycle	0.78%
On foot	8.74%
Other	0.44%
Total	100%

Table 2.1 – Journey to work mode split as extracted from the 2011 census

2.3 It should be noted that the journey to work census data demonstrates a lower percentage of car drivers of 65% (compared with 90% as indicated by the LHA's data). Furthermore, the mode splits as indicated above would likely represent a significant overestimate of journey to work trips for the following reasons:

- The census surveys were undertaken pre pandemic and does not therefore take into account the greater propensity for home working that has since followed the pandemic lockdown controls.
- The 2011 census surveys existing residents and does not account for the high quality sustainable transport strategy that will be introduced as part of these proposals which will include significant active travel and public transport enhancements.
- A large proportion of the census area of East Hertfordshire 001 is rural in nature whereas the site is located in close proximity to Buntingford.

2.4 Moreover, it is noted that journey to work journeys, which are often longer distance than other trip types, have typically higher car use than that of other journey purposes, however, other journey purposes (such as school trips) do typically make up a significant proportion of the AM and PM peak periods. This is emphasised in the National Travel Survey (NTS) data as extracted as **Table 2.2** and **Table 2.3** below, which shows, respectively, the typical mode split of each journey purpose and the typical proportion of each trip during the AM and PM peak periods.

Main mode	Walk	Pedal cycle	Car or van driver	Car or van passenger	Motorcycle	Other private transport	Public Transport	Taxi	Total
Commuting	12%	4%	56%	8%	1%	1%	18%	1%	100%
Business	10%	1%	69%	6%	0%	0%	12%	1%	100%

Main mode	Walk	Pedal cycle	Car or van driver	Car or van passenger	Motorcycle	Other private transport	Public Transport	Taxi	Total
Education or escort education	39%	2%	25%	22%	0%	2%	10%	1%	100%
Shopping	27%	1%	46%	18%	0%	1%	7%	1%	100%
Personal business	23%	1%	45%	23%	0%	1%	6%	1%	100%
Visiting Friends / Holiday / Day Trip	16%	3%	39%	32%	0%	1%	8%	2%	100%

Table 2.2 – Mode split by journey purpose as calculated from the National Travel Survey – NTS0409

Journey Purposes	Percentage	
	AM (08:00-09:00)	PM (17:00-18:00)
Commuting	16%	26%
Business	2%	3%
Education	28%	3%
Escort Education	25%	2%
Shopping	5%	14%
Personal Business	13%	20%
Visiting Friends	4%	21%
Holiday / Day Trip	7%	11%

Table 2.3 – Peak hour split of all journeys by journey purpose as extracted from the National Travel Survey – NTS0502

- 2.5 It can be seen from the **Table 2.3** that typically educational journeys (including escort education) make up a large proportion of trips in the AM Peak. Moreover, in the PM Peak Shopping, Personal Business, and Visiting Friends / Holiday / Day Trip also make up large proportion of the journey purpose. Thus, whilst work journeys also make up a proportion of journeys in the peak hour, it is evident that the peak hour is also made up of other journey purposes that also have much lower car mode shares (as shown in **Table 2.2**), which are far below the 90% mode share as identified by the LHA and also far below that of the worst case journey to work census figures as identified in **Table 2.1**.
- 2.6 It is also noted that the use of the TRICS database as a tool for calculating multi modal trip generation is a standard approach used to assess the traffic generation of development sites across the United Kingdom. The use of comparison surveys means that all journeys are captured (i.e. not just journeys to work) and this therefore gives a more accurate picture of the likely number of journeys per unit and overall mode split.

- 2.7 The base trip rates have also been calculated based on comparison sites in 'Edge of Town' locations and therefore would provide a robust comparison for the development proposals. In addition, these TRICS comparison sites are also selected from pre Covid data and therefore do not take account of the increased propensity for home working that has continued even after the controls on travel as provided during the lockdown period. Moreover, the trip generation is based on 'Private Housing' category surveys and the proposed development will include affordable housing provision that typically has lower vehicle trip rates as evidenced by surveys in the TRICS database. Thus, the TRICS analysis used as the basis for the initial trip generation analysis is based on robust principles.
- 2.8 In addition, the proposals will also include a high quality transport strategy with a focus on sustainable modes. This strategy has been developed further following the original formal comment as issued on the 19th June 2024 and in close consultation with the LHA. The strategy therefore now includes the following:
- Provision of a high frequency public transport strategy developed in agreement with the Passenger Transport Unit with associated prominent connection by way of a mobility hub located centrally within the proposals.
 - A high quality active travel corridor on Baldock Road connecting with the site access.
 - Enhanced crossing of the A10 at the Baldock roundabout and provision of a combined footway / cycleway connection into Buntingford on the eastern side of the A10.
 - Provision of a parallel bridge next to the existing pedestrian bridge on the A10 (between PRoW 40 and 36) and enhancement to PRoW 40 and 36.
 - Provision of an additional footbridge further north across the A10 (between PRoW 41 and 35) and enhancement to PRoW 41 and 35.
- 2.9 The above provide excellent links both into Buntingford town centre, and also, via the proposed bridge connections, further north to link in with the facilities such as Freman College and Edwinstree Middle School. Thus, in consideration of the above, it is appropriate to introduce associated adjustments to trip rates to take account of this.
- 2.10 Furthermore, the proposals would also include a First School in a central location on site that would serve to retain journeys internally. Thus, account of this has been undertaken through appropriate trip rate adjustments as set out within the Transport Assessment (TA).

3.0 Further Clarification (following 3rd March 2025 meeting)

- 3.1 It is noted that during the meeting on the 3rd March 2025 it was confirmed by the LHA that use of comparison surveys as contained within the TRICS database to calculate initial vehicle trip generation (i.e. as set out in the original TA) was an acceptable approach. Further clarification has however been requested from the LHA in relation to the individual adjustments applied to the resultant residential vehicle trip rates to account for internalisation, home working, and behaviour change. On this basis, this section provides further details of these adjustments which are set out in turn below.

Employment internalisation adjustment (Buntingford Business Park)

- 3.2 As set out in section 6 of the TA an employment internalisation adjustment has been included for to take account of the fact that the proposals are located in close proximity to Buntingford Business Park with appropriate active travel connection provided linking with this as part of the proposals. As set out within the TA, census data was interrogated to ascertain the number of journey to work journeys that were typically retained within the area. This analysis showed that, according to census data, 12% of journeys within East Hertfordshire 001 (i.e. Buntingford and surroundings) were retained within the area.
- 3.3 Notwithstanding this, a conservative adjustment of 3% has been applied to the residential 'work related' vehicle trips, the proportion of which have been calculated using NTS vehicle journey purpose data, to account for this nearby employment area. These vehicle trips are assumed to switch to active modes.

- 3.4 A summary of this total adjustment is set out in Table 6.10 of the TA and summarised below as **Table 3.1** for ease of reference.

Time	Residential - Employment Internalisation		
	Arrivals	Departures	Total
AM Peak	1	3	3
PM Peak	3	1	4

Table 3.1 – Adjustment for Access to Buntingford Business Park

- 3.5 It is noted that the LHA, in the meeting dated the 3rd March 2025, have confirmed this adjustment as reasonable.

Employment internalisation adjustment (Home working)

- 3.6 It is noted that the original residential vehicle trip generation calculation was carried out based on pre 2020 surveys within the TRICS database. These trip rates therefore do not account for the greater propensity for home working that was first instilled during the pandemic lockdown period and has subsequently led to changes in working patterns even after the pandemic restrictions were lifted.

- 3.7 Evidence as presented to UK parliament in the post titled ‘The impact of remote and hybrid working on workers and organisations’, published in October 2022, identified the following trends:

- *“Before the pandemic, remote and hybrid working had been increasing gradually. Between January and December 2019, around 1 in 10 (12%) of the of the UK workforce had worked at least one day from home in the previous week and around 1 in 20 (5%) reported working mainly from home.*
- *This increased substantially during the pandemic, to a peak of around half of workers (49%) in Great Britain (GB) working at least one day from home in June 2020; 11% of the workforce worked at least one day from home and 38% worked from home exclusively.*
- *As pandemic restrictions have been lifted, these numbers have gradually decreased again, but remain higher than pre-pandemic numbers. In September 2022, around 1 in 5 (22%) of the GB workforce had worked at least one day from home in the previous week and around 1 in 8 (13%) worked from home exclusively”*

- 3.8 Thus, to account for this shift to home working, and the subsequent introduction of properties designed to cater for the continued future home working requirement, it is proposed that a reduction factor of 10% be applied to the forecast external work-related vehicle trip rates. Details of the resultant adjustments are set out in Table 6.11 of the TA and also summarised as **Table 3.2** below. Given the current shift to home working following covid 19 pandemic and ongoing technological change that further enhances its practicality this is considered to be a reasonable adjustment and no changes are therefore proposed from the original TA.

Time	Residential - Home working		
	Arrivals	Departures	Total
AM Peak	3	8	11
PM Peak	9	4	13

Table 3.2 – Vehicle Traffic Adjustments for Working from Home

Education internalisation adjustment

- 3.9 The proposal will see the delivery of a First School onsite to serve the primary educational demand arising from the proposed core residential element. This will reduce the requirement to travel outside of the site by private car for escorted education journeys with these journeys being contained onsite.
- 3.10 The new First School would be anticipated to absorb the vast majority of primary education-related trips forecast onsite. Whilst the school would also have some staff journeys to and from the site it is considered that these would be more likely to be outside of the typical peak hours.

- 3.11 Notwithstanding this, guidance outlined within the 'Travel during the morning peak' section of the National Travel Survey factsheet titled 'Trip Chaining: 2002-2014', indicates that some 75% of primary school journeys are not linked with a journey to work trip. On this basis it is assumed that 75% of the Escort Education journeys, the proportion of which have been calculated using NTS vehicle journey purpose data, would be retained within the site and can therefore accordingly be removed from the total traffic generation calculated for the residential development.
- 3.12 Details of this adjustment relating to retained primary stage school journeys is provided as Table 6.12 of the Transport Assessment and summarised as **Table 3.3** below for ease of reference.

Time	Residential - Escort Education Internal		
	Arrivals	Departures	Total
AM Peak	18	48	66
PM Peak	5	2	7

Table 3.3 – Vehicle Traffic Adjustments for Access to Education

- 3.13 Following the meeting on the 3rd March 2025 the LHA has requested a breakdown of the numbers of school children places that will be provided as a sense check against the escort education adjustment. The requirements for education in this regard is for 257 first pupils and 48 nursery children and therefore the proposed adjustment (effectively relating to 48 return trips after drop off) represents a realistic proportion of journeys in this regard. As indicated in **Table 2.2** a significant number of education journeys are undertaken via sustainable modes and therefore this would also represent other journeys to and from the school. Moreover, breakfast clubs in advance of the morning peak can also serve to further reduce arrivals in the AM peak.

Local Centre

- 3.14 During previous discussions with the LHA it was confirmed that the key concern relating to trip generation was the amount of adjustment apportioned for local centre journeys to account for the internalisation of trips as a result of providing this facility within the proposals. The LHA argued that without clarity on delivery of a local centre uses it is not certain that this centre would retain significant journeys within the site.
- 3.15 Thus, in order to provide a worst case analysis in response to the LHAs concern in this regard, it was proposed that the original adjustment as presented in Table 6.13 of the original Transport Assessment be reduced by 25%. This revised adjustment is set out in **Table 3.4** below.

Time	Previous adjustment - Retail/Personal Business External			Revised adjustment - Retail/Personal Business External		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM Peak	12	32	44	9	24	33
PM Peak	38	17	54	28	13	41

Table 3.4 – Revised vehicle traffic adjustments for access to Retail/Personal Business

- 3.16 The figures as set out in **Table 3.4** have been issued to the LHA in the previous iteration of the Trip Generation Note. In the meeting held on the 3rd March 2025 it was confirmed by the LHA that they would only consider this level of trip generation reduction for a local centre if it was confirmed that a Convenience Store would be included within the centre. This, they argued, would provide more opportunity to retain day to day journeys.
- 3.17 In this regard the client has sought guidance from Henry Davidson Developments (HDD) who deliver Local and District Centres. HDD have confirmed in a letter, included as **Appendix D** of this Trip Generation Note, that "a small local centre within the proposed Hallam Land development is viable, given the 600 new dwellings, and the fact that it is adjoining the First School and situated adjacent to Structural Street running through the site." In this regard the assumed trip rate adjustment is considered appropriate in this instance.

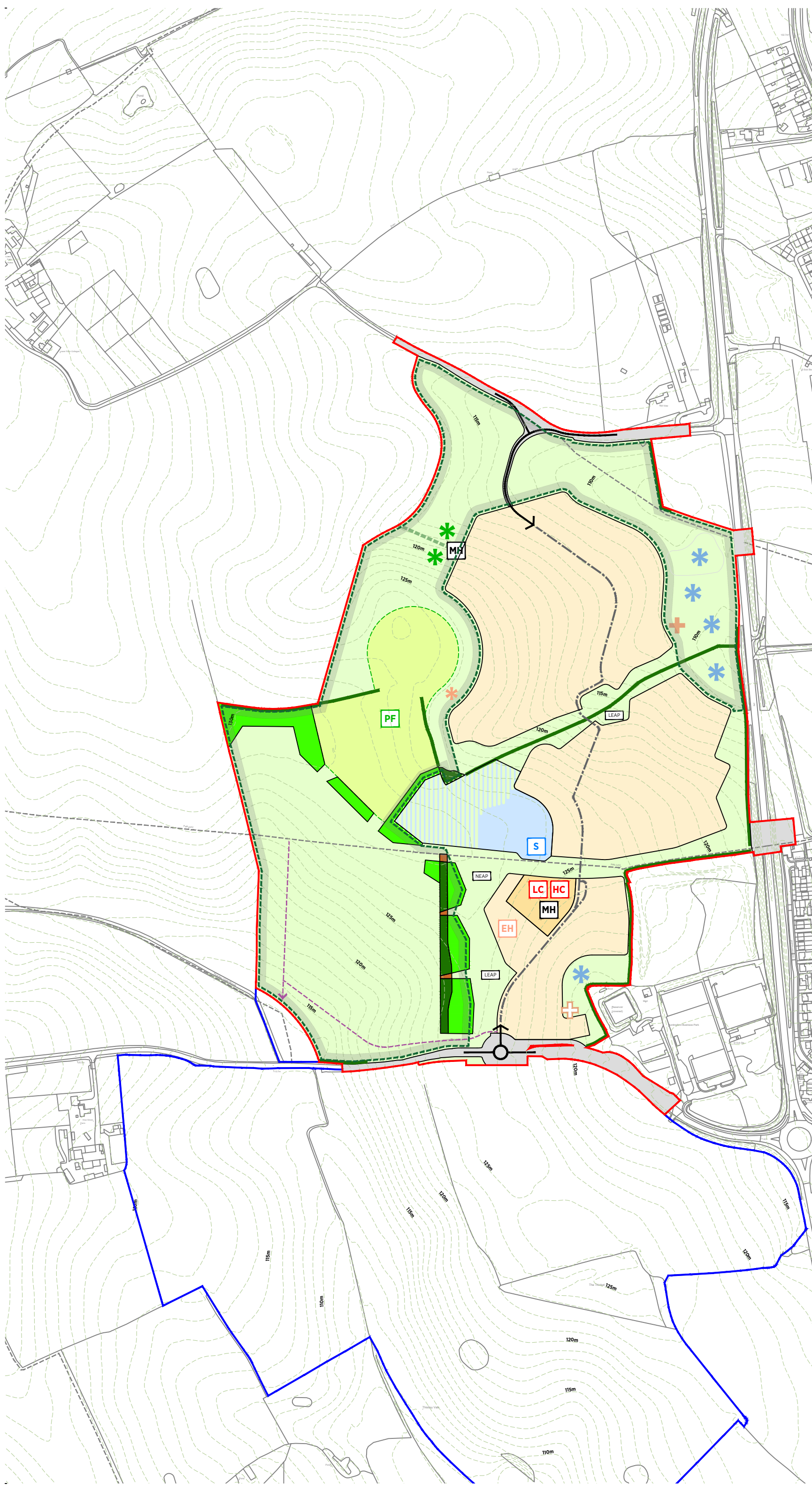
Behaviour Change

- 3.18 The submitted Transport Assessment included a further overall development traffic reduction (15%) due to behaviour change following the internal adjustments discussed above. This adjustment considers the significant sustainable transport strategies as previously agreed and discussed in **Section 2**. Moreover, it is proposed that robust travel plan measures will be implemented to ensure habits for sustainable travel are established from the very outset.
- 3.19 The LHA has confirmed, in the meeting on the 3rd March 2025, that a similar level of behaviour change adjustment was agreed for the 'Land West of Stevenage Proposals' (application reference 21/000356/FPM) and therefore recommended that the associated Travel Plan (dated March 2021) be reviewed to ascertain potential further measures that could be included for in the final Buntingford strategy. On review of this Travel Plan it is evident that the key additional measures that can be drawn from this are the provision of Travel Plan vouchers (i.e. a one month bus pass) and the provision of a car club (a total of 6 cars serving 1,500 dwellings). The overall traffic reduction set out in this Travel Plan is also 20% (i.e. higher than proposed at Buntingford).
- 3.20 On review of these measures the applicant has confirmed agreement to improve on the level of vouchers provided at Stevenage. The applicant has agreed to therefore set aside a reserve of £500 per dwelling for travel vouchers that could either be used for public transport tickets or could potentially be used for the purchase of bicycles or cycling equipment.
- 3.21 A review of the Intalink web site shows that a 10 day public transport ticket is £77 covering all Intalink zones. In this regard, a £500 voucher could cover a much longer bus pass than the single month as offered for the 'Land West of Stevenage Proposals'. Moreover, the applicant would welcome discussions with the Passenger Transport Unit to see whether discounts could potentially apply for bulk purchases of tickets in this regard to further foster behaviour change.
- 3.22 In addition, the applicant has also confirmed that they would be willing to introduce car clubs in the local centre (likely located within the mobility hub). The applicant has confirmed that two cars would be appropriate in this instance in consideration of the reduced scale of the Buntingford proposals when compared with the site at Stevenage.
- 3.23 It is evident that this provision would be in excess of that provided at the Stevenage site. In this regard the proposed 15% adjustment for behaviour change, which is less than that proposed for the Stevenage site, would provide a robust assessment of the impact of these measures.

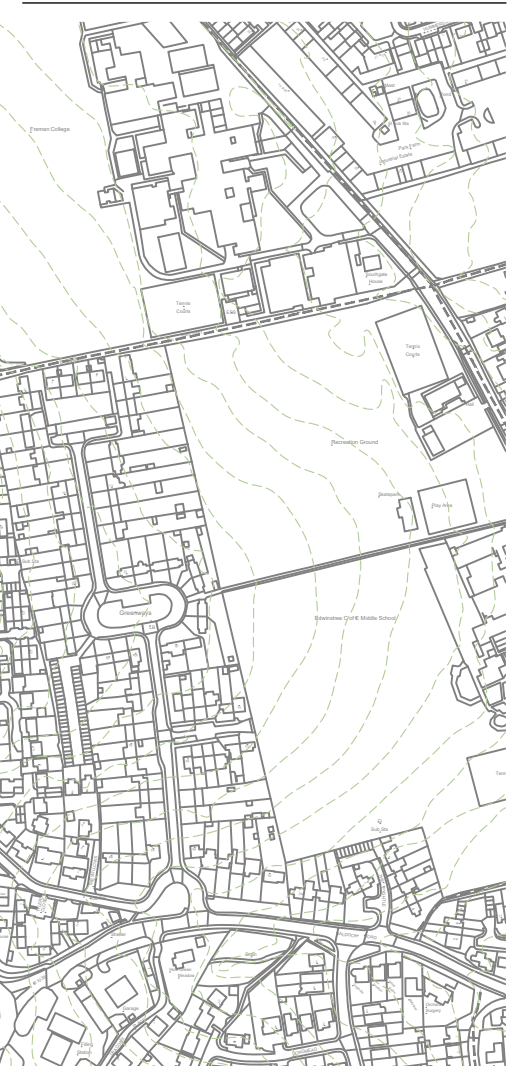
4.0 Summary

- 4.1 This TN includes further information that sets out why the trip rates are based on robust assumptions. It is proposed that this information provides the basis of further discussion with the LHA prior to update of the traffic assessment relating to the proposals.

Appendix A – Revised land use components plan



- Site Boundary - 50.12ha
- Other Land in Applicant's Control
- Residential - 15.54ha
- Mixed Use - 0.53ha
- Site for First School - 2.00ha
- Playing Fields - 3.46ha
- Green Infrastructure - 24.67ha
- Proposed Structural Planting - 1.53ha
- Infrastructure - 2.03ha
- Existing Vegetation Retained - 0.32ha
- Existing Vegetation to be Removed - 0.03ha
- 'Buntingford Park'
- SuDS (Indicative)
- Productive Landscape Features (Allotments/Orchards)
- Indicative Structural Street
- Development Access
- Agricultural Access
- LC Mixed Use Local Centre
- HC Site for Health Centre
- EH Elderly Housing Provision
- MH Mobility Hubs
- * Sports Pavilion & Parking
- NEAP Neighbourhood Equipped Area of Play
- LEAP Locally Equipped Area of Play
- Public Right of Way
- Recreational Route (Indicative)
- + Foul Water Pumping Station
- + Potential Foul Water Pumping Station



FOR PLANNING PURPOSES ONLY
All information is copyright protected and may not be used or reproduced without prior permission.
© Crown copyright and database right 2022.
All rights reserved.
Ordnance Survey Licence number 100059809.

Client: 
PART OF HENRY BOOT

Land West of Buntingford

Land Use Components Plan (North of Baldock Road)

Scale@ A3: 1:5,000	Drawn: ADW	Designed: SJP	Approved: SJP
------------------------------	----------------------	-------------------------	-------------------------

0m L 200m

Drawing Number: HLMO82/018	Revision: N	Date: 12.03.25
--------------------------------------	-----------------------	--------------------------

50 North Thirteenth Street, Central Milton Keynes, MK9 3BP
01908 666276 mail@davidlock.com davidlock.com



Appendix B – LHA formal response (dated 19th June 2024)



Mark Youngman
Development Management Group Manager
Hertfordshire County Council
Postal Point CHN115
Farnham House
Six Hills Way
Stevenage
SG1 2ST

Response to Planning application from Hertfordshire County Council (T and CP GDP Order 2015)

Director of Planning

East Herts District Council
Wallfields
Pegs Lane
Hertford
Hertfordshire
SG13 8EQ

District ref: 3/24/0966/OUT
HCC ref: EH/21132/2024
HCC received: 29 May 2024
Area manager: James Dale
Case officer: Oliver Sowerby

Location

Land North Of A507, West Of A10 Buntingford

Application type

Outline

Proposal

Outline planning application for development of up to 600 dwellings (C3), elderly accommodation (C3), Mixed Use Local Centre (including flexible use E, F and Sui Generis), First School, informal and formal open space, associated works and infrastructure including a new access from the A507 and pedestrian bridge over the A10, with all matters reserved except access

Recommendation

Notice is given under article 22 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 that Hertfordshire County Council as Highway Authority recommends that permission be refused for the following reasons:

The Highway Authority recommends refusal of the planning application owing to concerns with respect to highway safety, traffic generation, road access and local and national policy.

Introduction

The Highway Authority note the submission of materials in support of the planning application, including a Transport Assessment (TA) prepared by transport consultant, "Jubb" dated May 2024.

The applicant seeks planning permission for the following development:

Outline planning application for development of up to 600 dwellings (C3), elderly accommodation (C3), Mixed Use Local Centre (including flexible use E, F and Sui Generis), First School, informal and formal open space, associated works and infrastructure including a new access from the A507 and pedestrian bridge over the A10, with all matters reserved except access.

The main site access is proposed from the A507 Baldock Road. The latter is Principal "A" class road and a main distributor road in the Hertfordshire roads hierarchy. A 60 m.p.h speed limit is in force on this section of Baldock Road.

A site access is also proposed from Throcking Lane to the north. The latter is an unclassified road and a local access road in the Hertfordshire roads hierarchy. A 60 m.p.h speed limit is in force on this section of Cottered Road/Throcking Lane.

Sustainability

The Highway Authority has some concern with respect to the sustainability of the proposed residential site. The Highway Authority seek compliance the key policies from the Local Transport Plan 4, namely Policy 1 and Policy 5, as reproduced below:

Policy 1: Transport User Hierarchy

To support the creation of built environments that encourage greater and safer use of sustainable transport modes, the county council will in the design of any scheme and development of any transport strategy consider in the following order:

- Opportunities to reduce travel demand and the need to travel
- Vulnerable road user needs (such as pedestrians and cyclists)
- Passenger transport user needs
- Powered two wheeler (mopeds and motorbikes) user needs
- Other motor vehicle user needs

Policy 5: Development Management

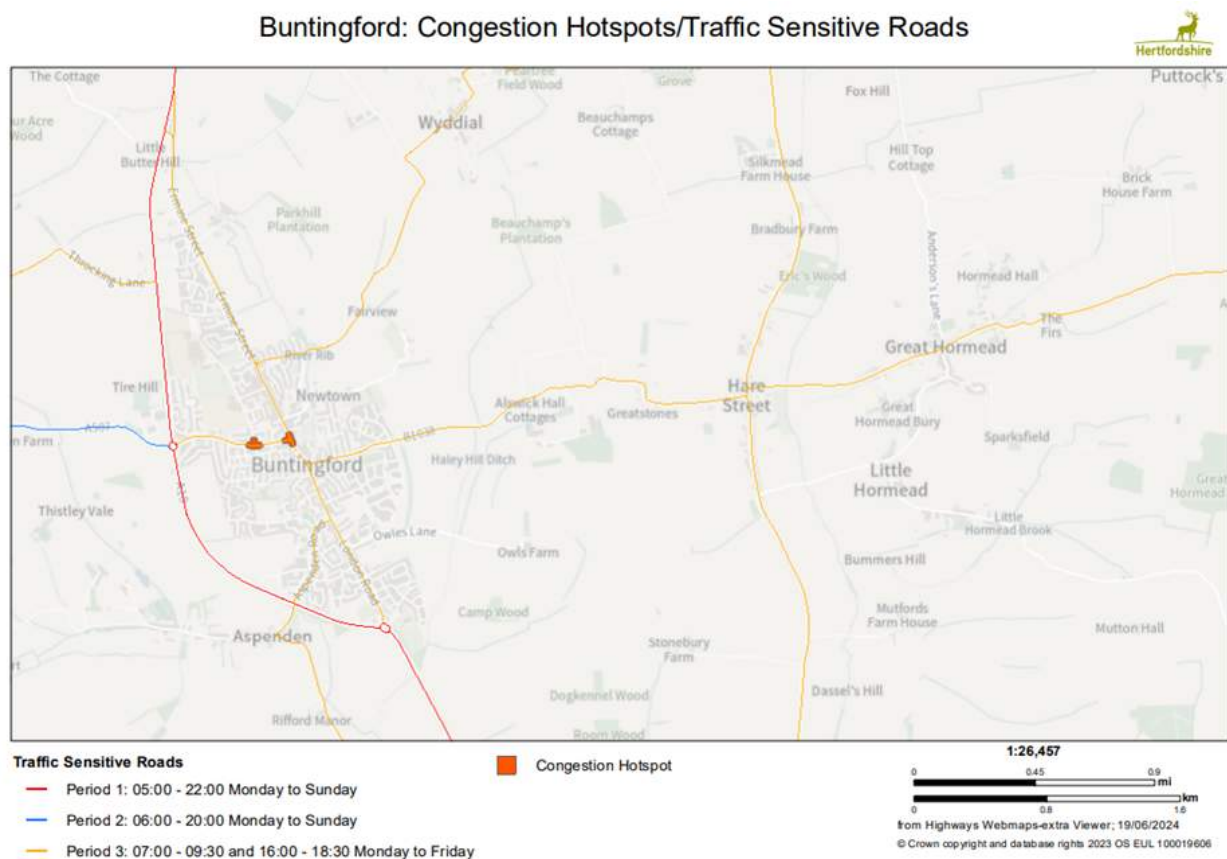
The county council will to work with development promoters and the district and borough councils to:

- a) Ensure the location and design of proposals reflect the LTP Transport User Hierarchy and encourage movement by sustainable transport modes and reduced travel demand.
- b) Ensure access arrangements are safe, suitable for all people, built to an adequate standard and adhere to the county council's Highway Design Standards.
- c) Consider the adoption of access roads and internal road layouts where they comply with the appropriate adoption requirements and will offer demonstrable utility to the wider public. Where internal roads are not adopted the county council will expect suitable private management arrangements to be in place.
- d) Secure developer mitigation measures to limit the impacts of development on the transport network, and resist development where the residual cumulative impact of development is considered to be severe.
- e) Require a travel plan for developments according to the requirements of 'Hertfordshire's Travel Plan Guidance'.
- f) Only consider new accesses onto primary and main distributor roads where special circumstances can be demonstrated in favour of the proposals.

- g) Resist development that would either severely affect the rural or residential character of a road or other right of way, or which would severely affect safety on rural roads, local roads and rights of way especially for vulnerable road users.
- h) Ensure new developments provide facilities for charging plug-in and other Ultra Low Emission vehicles, as well as shared mobility solutions such as car clubs.

In terms of transport, the Highway Authority note that new development should seek to comply with the adopted East Hertfordshire District Plan Policy TRA1 Sustainable Transport and the transport policies of the Hertfordshire County Council's Local Transport Plan 4 document.

The site's isolated location on the outskirts of Buntingford (extending into a rural area), in of itself a settlement that is noted to be poorly connected to neighbouring towns necessitates a robust approach to promoting sustainable travel and moreover examining in detail the impacts of vehicular trips, the latter being especially important in a heavily trafficked area with known congestion hotspots. The map below indicates traffic sensitive roads and congestion hotspots in the locality:



It is noted that the development has limited access to public transport.

The TA document notes that the closet bus stops are the stops named “Greenways” located on Baldock Road, east of the A10.

Paragraph 4.77 of the TA notes that *“that there is a regular bus service provision accessible from the site within the recommended walking distance to a bus stop (community facility) of 800m as set out*

in Manual for Streets (MfS). The proposed scheme also proposes improvements in this regard to encourage and facilitate the use of bus services.”

The Highway Authority does not concur with this conclusion, with an established benchmark of eight minutes' walk or 640m to a bus service being widely used nationally, although this notwithstanding, given the size of the site, a point taken at the centre would still necessitate a walk distance of more than 800m to the “Greenways” stops.

Paragraph 5.4.2 of the TA notes that *“Conversations with Arriva Group are currently taking place and more details on the public transport improvements will be provided in due course.”*

For the site of this site, located in an isolated location, the Highway Authority would expect a much more robust position with respect to bus services, given that a high quality bus services will be critical to sustainability. This should include discussions with the Highway Authority's Passenger Transport Unit. The Highway Authority would seek for a development of this nature that a bus service is provided to serve the site itself, with all dwellings located within 400m of a bus stop.

The Highway Authority must therefore conclude that the site is likely to be heavily reliant on the use of the private car and therefore contrary for Paragraphs 108 and 109 of the National Planning Policy Guidance.

Walking and Cycling

The Highway Authority note the importance of walking and cycling in order to ensure sustainable development and to minimise the use of the private car.

The TA puts forward the case that the site is accessible to most of Buntingford within 2km, although this does depend on where the centre point of the site is taken. Longer distances would be measured from the site's extremities.

In terms of improvements (on the site's southern frontage), the proposals seek to provide a walking/cycling link connecting the site with the existing provision which begins at the industrial estate. The Highway Authority has some concerns with the plans as presently submitted as no attendant lighting scheme is detailed. West of the A10, the pedestrian environment is also less conducive to walking. Under night time conditions, for example, the Highway Authority would consider that a walk from Buntingford town centre to the site somewhat challenging.

The applicant has also proposed a change in the speed limit on Baldock Road, although no supporting ATC data has been supplied. The Highway Authority has concern that without a substantial change to the environment on Baldock Road (for example, having an active frontage), will make compliance with the proposed speed limit challenging.

It is further noted from the TA, that similar proposals are put forward for Throcking Lane. *“It is also proposed to reduce the vehicle speed limit to 30mph for the section of Throcking Lane between the junction with the A10 and for the whole section leading to the site and along the link road. In addition, the 30mph speed designation would also extend west of the Throcking Lane access (i.e. the western approach to this junction”.*

The applicant has also not consulted in advance Hertfordshire County Council's Speed Management Group on the proposed change in accordance with our policy document.

Figures 5.6 to 5.8 detail the proposed mitigation for pedestrians and cyclists on Baldock Road in the direction of Buntingford town centre. It is noted that whilst cyclists have some benefit in terms of a LTN 1/20 style cycle route from the main site access to the Baldock Road/A10 junction, cyclists must join the main road east of the junction to route towards the town centre.

The applicant has also proposed a route which links two Rights of Way together (RoW 35 and 41) via a new footbridge over the A10. The Highway Authority is content that such a proposal (which would also need permission from HCC's Structures team), could form a secondary link into Buntingford. It is noted that the route's connection into Bowling Green Lane is not ideal in part, with the northern end of the lane not being in residential use which leads to doubts with respect to surveillance, lighting and attendant pedestrian safety. No mitigation has been proposed on Bowling Green Lane.

No detail is provided as to how the Rights of Way within the site are affected or could be utilised and improved to assist sustainable development. In this regard, consultation should be made with Hertfordshire County Council's Countryside and Rights of Way (CRoW) unit.

The Highway Authority has some concerns with respect to the scope of the mitigation package put forward in the TA document, notably an insufficient level of detail regarding the walking and cycling routes into Buntingford. To achieve a mode share as set out within the TA, exceptional measures need to be detailed to facilitate access to/from the site into Buntingford.

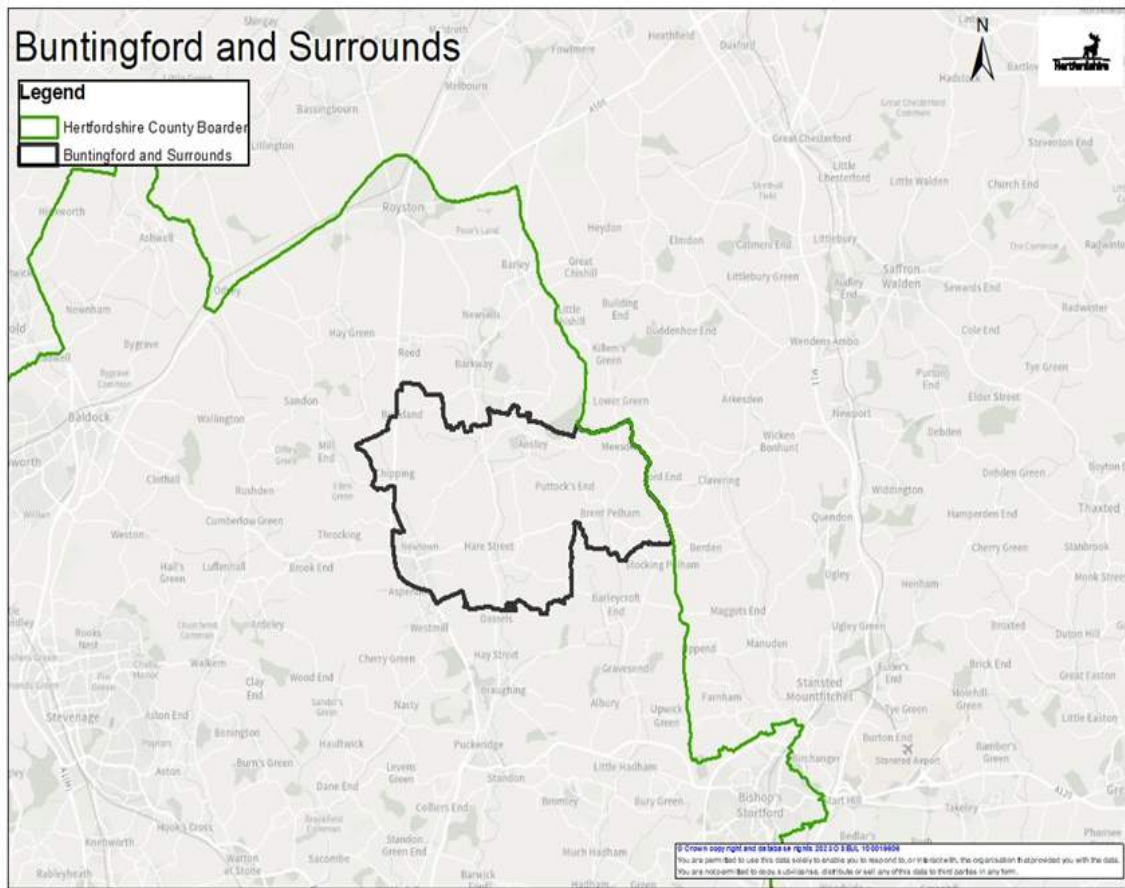
Trip Rates

The Highway Authority has some concern with the trip rate methodology as set out within the TA and therefore the attendant assessment robustness.

The Highway Authority has examined the potential mode share in more detail following a review of the TA. Examining mode share is an exercise which may be assessed using a number of different techniques, including using census data, National Travel Survey and/or mobile phone data.

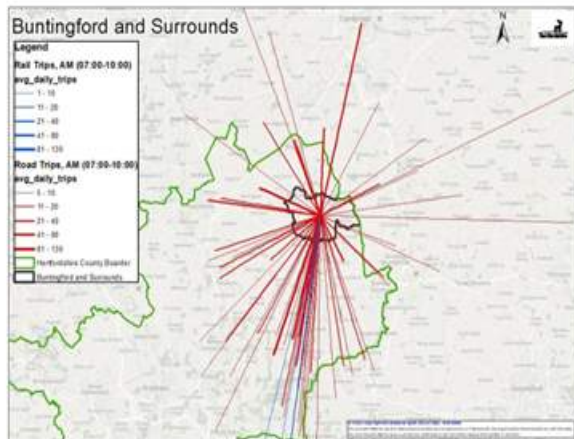
Mobile Phone Network Data

The Highway Authority regularly collects survey data across the County using a variety of assessment tools, one of which is the utilisation of mobile phone data which may be used to analyse journey patterns and distributions. Such an exercise has been undertaken for Buntingford, as shown in the area below:

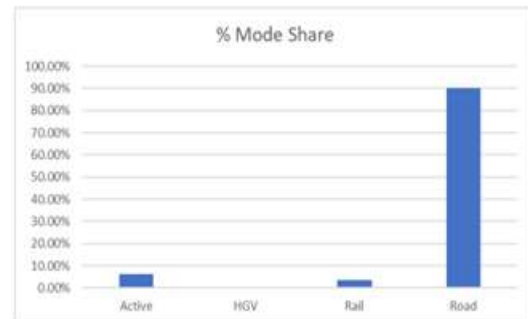


The mobile network data was collated over a three-month period, from 02/03/2023 to 25/05/2023. The data shown is for the AM Peak Period (APP) (07:00 – 10:00) and the PM Peak Period (PPP) (16:00 – 19:00).

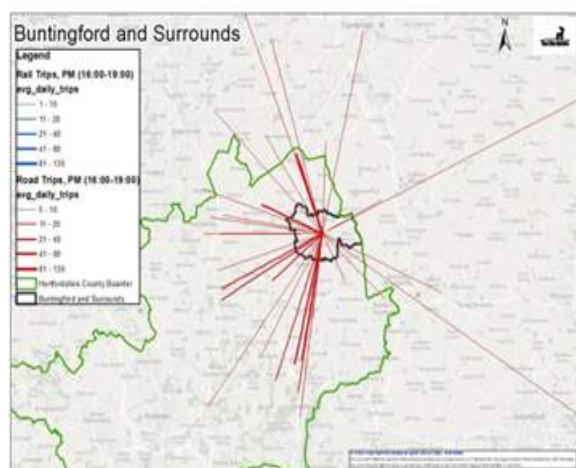
Car and Rail Trips Starting in Buntingford and surrounds, AM Period (07:00-10:00)



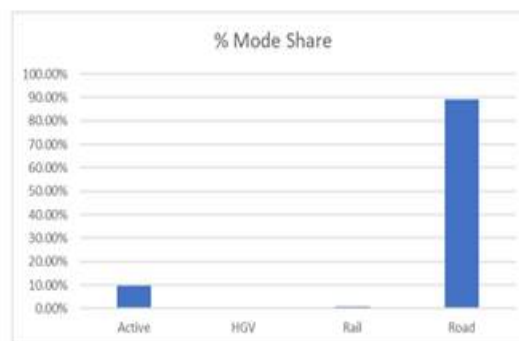
Mode Share	Average Trips	% Mode Share
Active	132	6.26%
HGV	7	0.33%
Rail	71	3.37%
Road	1896	90.04%



Car and Rail Trips Starting in Buntingford and surrounds, PM Period (16:00-19:00)



Mode Share	Average Trips	% Mode Share
Active	131	9.76%
HGV	5	0.37%
Rail	11	0.82%
Road	1195	89.05%



It can be seen from the above MND tables that there is illustrated a 90% share of person trips by car in the AM and PM periods. Active modes (walking, cycling and bus), are less than 10% in the AM and PM peak periods respectively.

It is noted that these trips have common origins/destinations which include the following destinations:

- i. Cambridge;
- ii. Royston;
- iii. Ware;
- iv. Hertford;
- v. Letchworth Garden City; and
- vi. Stevenage.

The Highway Authority notes that the transport consultant has used a methodology for establishing a car driver trip rate from TRICS. However, in this instance, it may be more fitting to utilise a Total People rate from TRICS and then conduct appropriate refining techniques which are able to reflect a more locally derived pattern.

The assessment has also assumed reductions in vehicular trip rates (to the TRICS rates) which are not considered reflective of the site's characteristics and moreover the limited mitigation which has been presented within the TA.

The significant reductions to the vehicular trip rates are not considered apposite to account for the relatively limited mix of uses within the proposed development

The TA goes on to state in paragraphs 6.3.22 and 6.3.23 cites evidence from the Department of Transport paper regarding Travel Plans.

6.3.22 *“Case Studies reviewed by the Department of Transport as part of the research paper titled ‘Smarter Choice Document – Changing the way we travel’ published in 2005, indicates that an average 18% reduction in private car use can be delivered through an effective Travel Plan.”*

6.3.23 *“In light of the above, it is reasonable to assume that by delivering appropriately sustainable travel infrastructure as well as targeted Travel Plan measures, a mode shift of 15% away from car usage can be achieved.”*

The Highway Authority is unable to accept such a high figure based on the site’s locational characteristics and the mitigation put forward within the TA. For example, the feasibility of improvements, such as a continuous LTN 1/20 compliant cycle route into Buntingford is limited. A bus route, which should be a high quality, shuttle style service is likely to be required, whilst the TA only points to speculative conversations with a bus route as opposed to auditable proposals.

Buntingford is furthermore only a small town, with limited local facilities, services and employment, having grown significantly in recent years from a far smaller settlement. The evidence suggests high usage of private vehicles by residents of Buntingford. Whilst the Highway Authority may be willing to accept reasonable reductions for internalisation on the site, for example, for on-site education facilities or modest discounts for local shops, it is clear that the transport consultant has projected factors which are out of keeping with the site’s location and mitigation proposals.

The Highway Authority therefore has no confidence in this exercise and therefore the attendant assessment of the highways impact.

Assessment/Modelling

For a site of such a size, the Highway Authority would have expected engagement with the Highway Authority before undertaking a modelling exercise. This site is considered a strategic development and therefore it is normally fitting to explore with the Highway Authority the usage of the County’s strategic transport model or other alternatives depending on the circumstances.

The Highway Authority’s transport models are explained by way of reference to the following

Hertfordshire County Council webpage:

<https://www.hertfordshire.gov.uk/services/highways-roads-and-pavements/business-and-developer-information/transport-modelling/transport-modelling-in-hertfordshire.aspx>

Given that there are concerns with the specificity of the trip generation exercise, detailed comment will be reserved until the transport consultant has undertaken a revised assessment. However, without full examination of the key junctions (also at a strategic assessment level), providing access in and out of Buntingford, it is considered that the proposed housing growth could precipitate a "severe" impact on the local highway network.

Access Proposals

The Highway Authority note the principal access junction to be taken from the site’s southern boundary on Baldock Road. As noted previously within this response, the Highway Authority seeks

that the applicant engages with our Speed Management Group with respect to the feasibility of changing the speed limit.

However, the site's access point onto an "A" classified road automatically necessitates a referral to Hertfordshire County Council's Strategic Transport Issues Board (STIB). The Highway Authority's policy is generally to resist new access points onto "A" roads, and as such, requires that promoters of developments bring their proposals to STIB in order to ensure scrutiny by senior officers. This site should therefore be brought to STIB at the earliest opportunity.

The site access proposals will require a Stage 1 Road Safety Audit, in addition to the A10/Baldock Road where a Toucan crossing is proposed.

Summary

The Highway Authority notes the proposals for a development of some 600 homes plus supporting mixed-use uses and infrastructure.

The development, a very substantial site is located away from the fringe of the urban area in open fields to the west of Buntingford.

In terms of accessibility, this response has raised concerns with respect to sustainability, with the mitigation proposed unlikely to prevent a very high mode share attributed to the private car. The TA has not in any satisfactory way addressed how public transport could be utilised to assist in making the site sustainable.

Whilst some walking and cycling mitigation measures are proposed and duly welcomed, it is considered that these could be further developed. The provision of high quality active travel links into Buntingford is of key importance.

This response has raised concerns with respect to the trip generation exercise with attendant issues with the modelling exercise. With respect to the latter, engagement will be needed with Hertfordshire County Council's modelling team.

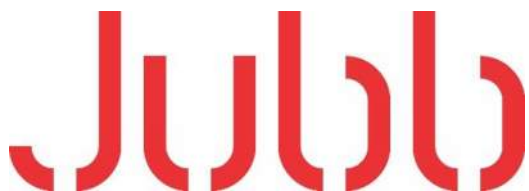
In summary, the Highway Authority recommends refusal of the planning application owing to concerns with respect to highway safety, traffic generation, road access and local and national policy.

Signed
Oliver Sowerby

19 June 2024

Appendix C – Agreed minutes of meeting with LHA (dated 12th July 2024)

West of A10 Buntingford



Meeting Title: Local Highway Authority (LHA) Meeting to discuss LHA comments dated the 19th June 2024

Attendees: Sally Miller (SM) – Hallam Land
 Oliver Sowerby (OS) – Hertfordshire
 James Dale (JD) – Hertfordshire
 Steve Fraser-Lim (SF) – East Hertfordshire
 Reiss Sadler (RS) – Marrons

Meeting date, 12/07/24 (10:00-11:00)
 time & location Teams Meeting

Item	Description
1.0	Introductions
2.0	LHA Response Note (19th June 2024): Baldock Way access considerations Connection with A road - JD confirmed that Jubb can contact the Hertfordshire County Council's Strategic Transport Issues Board (STIB) to outline the proposals for connection to Baldock Road (the A507). JD stated that, whilst the road is an A road, its character is one of more minor access than other A roads in the County. OS stated that he would provide the relevant contact for the STIB and suggested providing them with a short note outlining proposals for access. JD confirmed agreement to this. Proposed speed reductions (Baldock Road / Throcking Lane) - JD identified that whilst existing speeds on Baldock Road and Throcking Lane were national speed limit the proposals are to alter the character of these roads to ensure slow traffic speeds. JD confirmed that whilst speed surveys have been undertaken that show speeds below the national speed limit designation these were still above 30mph, however, this is based on the existing road character which would change significantly. In addition, JD also mentioned proposals in Tring where reductions in signed speed had been agreed and OS also confirmed that he was aware of a site in Hitchin where this occurred. OS recommended contact with Hertfordshire Speed Management Group and the production of a short note setting out justification for reduced signed speed. SM confirmed that visuals / examples can be included in this note to set out how the street scene would change in accordance with the extension of the urban edge of Buntingford. Lighting – JD identified that details can be provided as to how sensitive lighting can be introduced on Baldock Road to further denote this extension to the town and to also ensure that active travel is an attractive option for users at all times of day.

Item	Description
	• Offsite walking and cycling JD reiterated OS's approval of the provision of an additional bridge crossing and also stated that contact would be made with Hertfordshire County Council's Countryside and Rights of Way (CRoW) unit to discuss enhancements (through appropriate financial contribution) to the Public Rights of Way (PRoW) linking with Bowling Green Way. OS stated that the link from the proposed northern bridge may need improvement (e.g. lighting) to enhance perceived safety during nighttime periods. JD stated that this could be reviewed. SM also identified however that the more useful connection (other than Baldock Road) is across the existing footbridge to the south of Freman College given that this a more direct route and therefore Jubb will also investigate improvements on this route. OS identified that Baldock Road should also be reviewed to see if active travel can be further enhanced. JD stated that whilst Baldock Road narrows as it goes into Buntingford there are further measures that could be introduced to make this a more attractive route for cycling including introduction of further traffic speed reduction/calming measures. It is understood that local residents are seeking reduced traffic speeds so this would be in accordance with these proposals. SM identified that the site is still positioned in a highly accessible area close to facilities as comparable to other areas in Buntingford. Moreover, the proposals have the added benefit of centrally located facilities within the heart of the new community. • Bus Access JD stated that the proposals are to discuss the diversion of buses into the site (and linkage with a high quality mobility hub) with the Passenger Transport Unit and noted that buses already pass along the frontage or in close proximity to facilitate this. OS has identified that he will discuss our proposals with the Passenger Transport Unit. JD suggests that Jubb provide details of the strategy in a short note to inform this discussion prior to setting up further discussions in relation to public transport. • Trip Rates JD pointed out that as the sustainable transport strategy is developed this further emphasises the fact that the proposals would have lower traffic generations. OS identified that he would like further consideration / justification of reductions set out. He mentioned that Local Centre adjustments were made but stated that it is difficult to agree the extent of these reductions without certainty of local centre mix. RS stated that he may be able to provide parameters in this regard to provide further information. JD also stated that Jubb would review this and provide further consideration / justification. JD stated that a review of journey to work census data indicated more sustainable travel (as a proportion) than was identified by the Hertfordshire mobile phone data as presented in OS's response. OS stated that his general thoughts are that trip rates would need further consideration / justification. JD stated that this can be provided.

Item	Description
3.0	Process for further discussion with contacts within Hertfordshire: OS confirmed that he would provide details of relevant contacts for the following departments: • The Passenger Transport Unit • The Structures Team • The Speed Management Group • Hertfordshire County Council's CRoW unit • Hertfordshire County Council's STIB
4.0	Actions OS confirmed that he would provide contacts for the departments listed in Section 3 of these minutes. This has been provided via email (dated 12th July 2024) following the meeting. In addition, OS stated that he would contact the Passenger Transport Unit following our meeting, although we suggest that Jubb first provide details of the proposed development public transport strategy prior to further discussion in this regard. JD agreed that he would provide a short note outlining the access strategy to Hertfordshire County Council's STIB. In addition, a further short note will be provided for the Speed Management Group setting out proposals to reduce speed at the points of access and to provide associated road character change to enhance driver awareness in this regard. In addition, JD confirmed that they would be in contact with Hertfordshire County Council's CRoW unit to discuss the potential for enhancement to existing PRoWs. In addition, liaison would be carried out with the Passenger Transport Unit to discuss bus connections. Whilst not mentioned in the meeting Jubb will also be in contact with Hertfordshire's Structures Team as and when required. SM and RS confirmed that they will review the local centre uses to further inform trip generation as discussed in Section 2. In addition, they will also review examples proposed street scenes to provide input into the note to the Speed Management Group.

Appendix D – Letter from Henry Davidsons Developments



13th May 2025

**FOR THE ATTENTION OF
SALLY MILLER
HALLAM LAND**

10 Duncan Close
Red House Square
Moulton Park
Northampton
NN3 6WL

Dear Sally

Buntingford Local Centre

By way of background, Henry Davidson Developments (HDD) are a company specialising in the delivery of Local and District Centres. HDD were established in 1992 and have completed over 110 Local/District Centres and are arguably the largest developer in the UK delivering Local and District Centres.

We have been asked by Hallam Land to review the information provided as part of their Outline Planning Submission referenced 3/24/0966/OUT, to advise if we believe that the Local Centre is deliverable.

The Outline application is for 600 residential units, dedicated elderly accommodation, and will also include a new First School. It is envisaged that the residents in the 600 homes plus and parents dropping off and collecting children from the First School will form the majority of the users for the proposed Local Centre.

The Local Centre is embedded within the residential development adjacent to the plot allocated for the First School and fronting the North/South Structural Street which runs through the development connecting Baldock Road (A507) to Throcking Lane. The local centre will also sit adjacent to a mobility hub, including bus stops, making this an excellent location accessible to all residents and users of the nearby school by foot, bike, bus and car.

The proposal is for retail units at ground floor with residential over subsequent floors, this is typical of many local centres.

The existing conurbation of Buntingford sits to the east of the proposed development with a population of around 6,000.

Continued/...

HDD GROUP LIMITED
Pavilion House, 14-16 Bridgford Road
West Bridgford
Nottingham NG2 6AB
T: 0115 853 3630

www.hddl.co.uk

Registered in England and Wales
Co Registration 09717096



- 2 -

Buntingford has four food stores these being: -

1. Sainsburys Local on the High Street
2. Budgens 24 Hour Convenience Store situated on Baldock Road.
3. Coop Food Store situated on Station Road
4. Londis located at the Esso Garage on the A10/Baldock Road roundabout.

It is clear that Buntingford is reasonably well served with food stores.

It is HDD's view that a small local centre within the proposed Hallam Land development is viable, given the 600 new dwellings, and the fact that it is adjoining the First School and situated adjacent to Structural Street running through the site.

We would anticipate demand as follows: -

1. Small Convenience Store 180m² - 360m²;
2. And two small ribbon shops each of circa. 90m² (we would anticipate that these would be occupied by businesses offering Health and Beauty, Takeaway, Café within Use Class E(a) (b) (c) or sui generis takeaway).

I hope this is of assistance, please let me know if you require any further information.

Kind Regards

Scott

SCOTT DAVIDSON BSc (Hons), MCIOB, MRICS

Managing Director

HDD

M: 07970 080 016

E: scott@hddl.co.uk

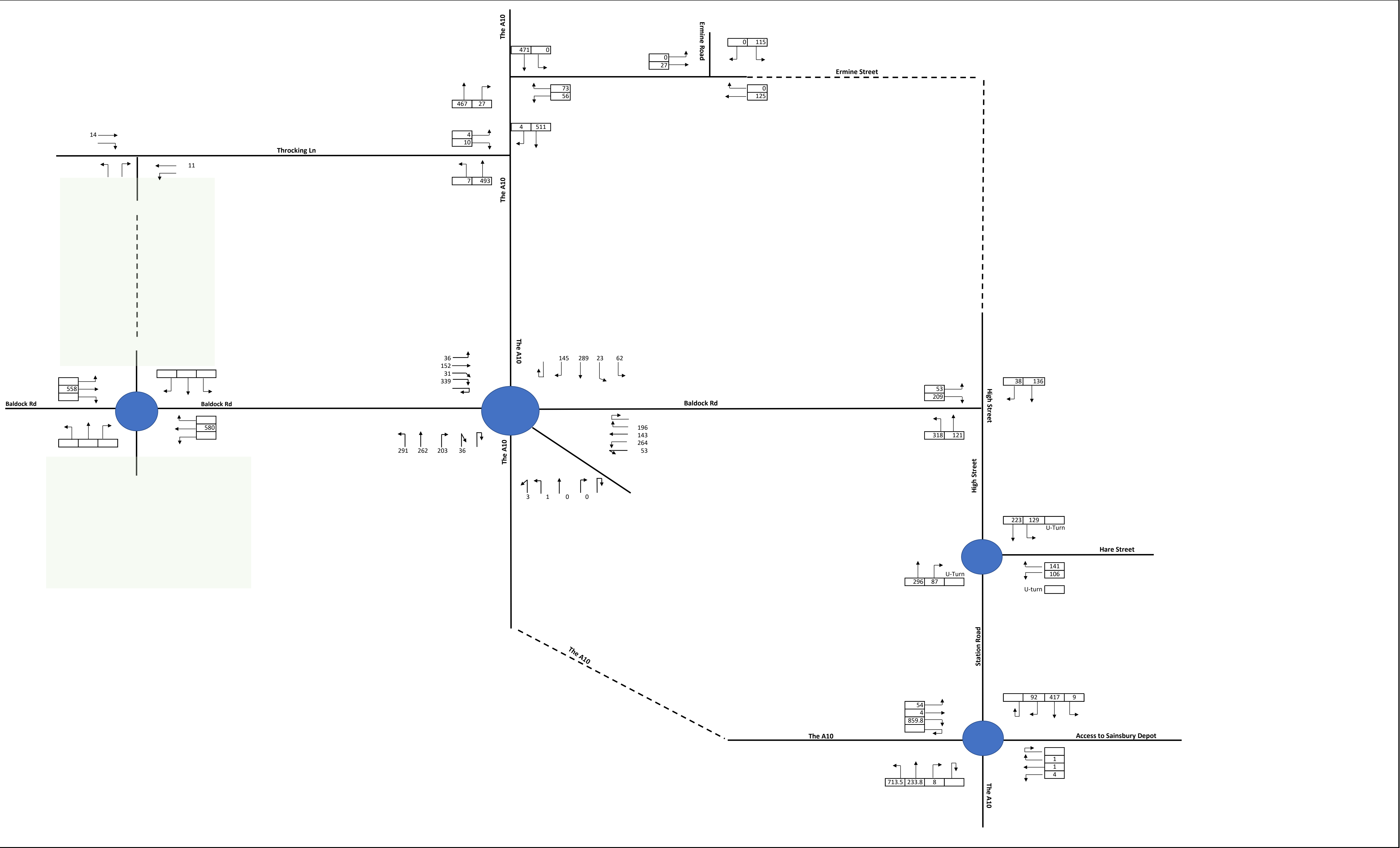
HDD GROUP LIMITED

Pavilion House, 14-16 Bridgford Road
West Bridgford
Nottingham NG2 6AB
T: 0115 853 3630

www.hddl.co.uk

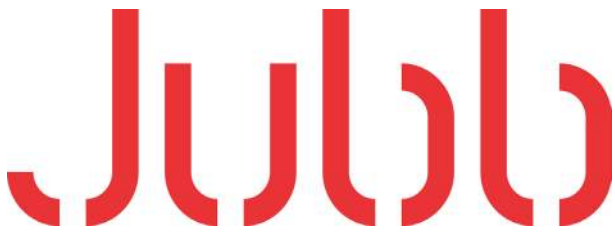
Registered in England and Wales
Co Registration 09717096

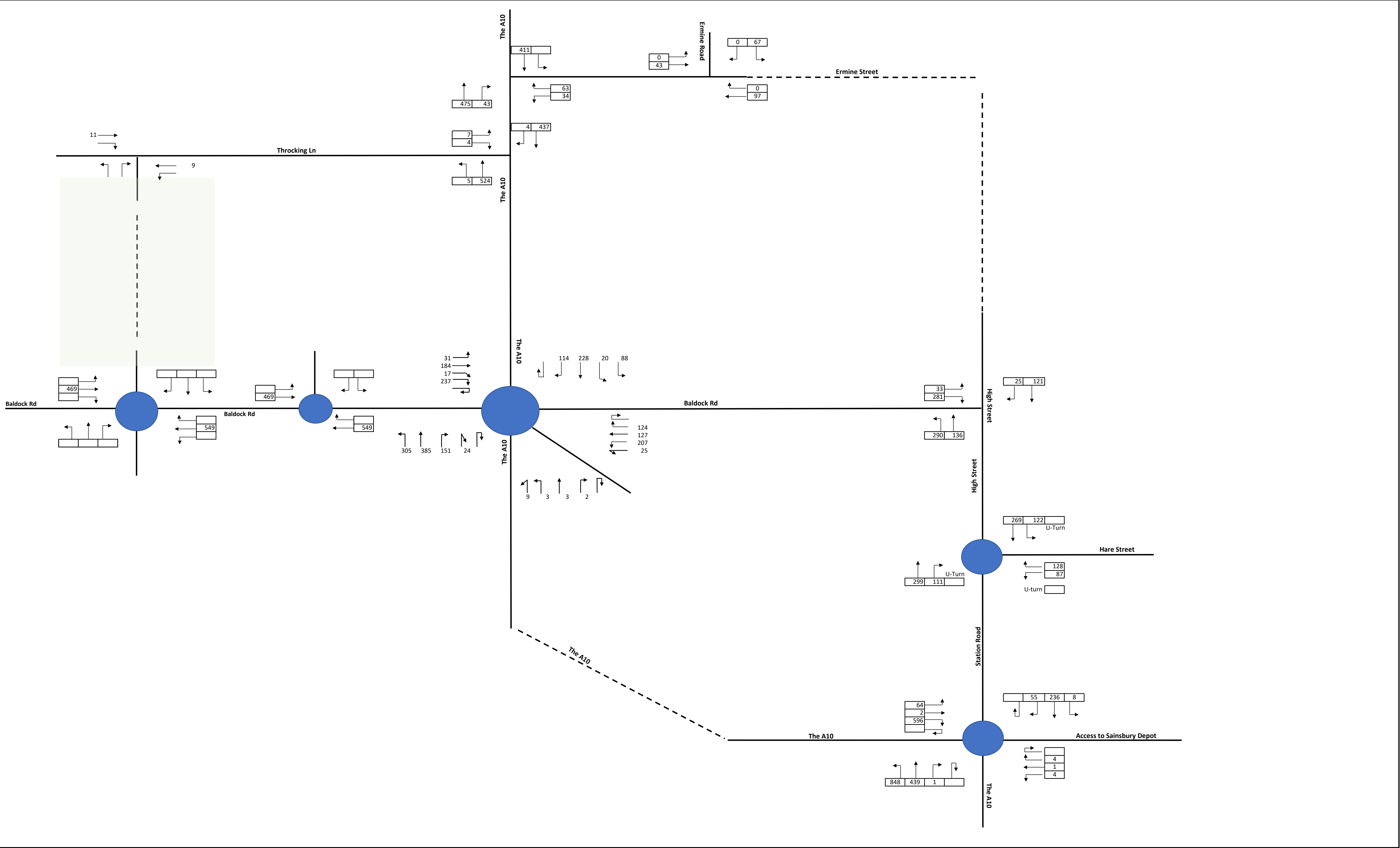
Appendix O – Revised Traffic Flow Diagrams



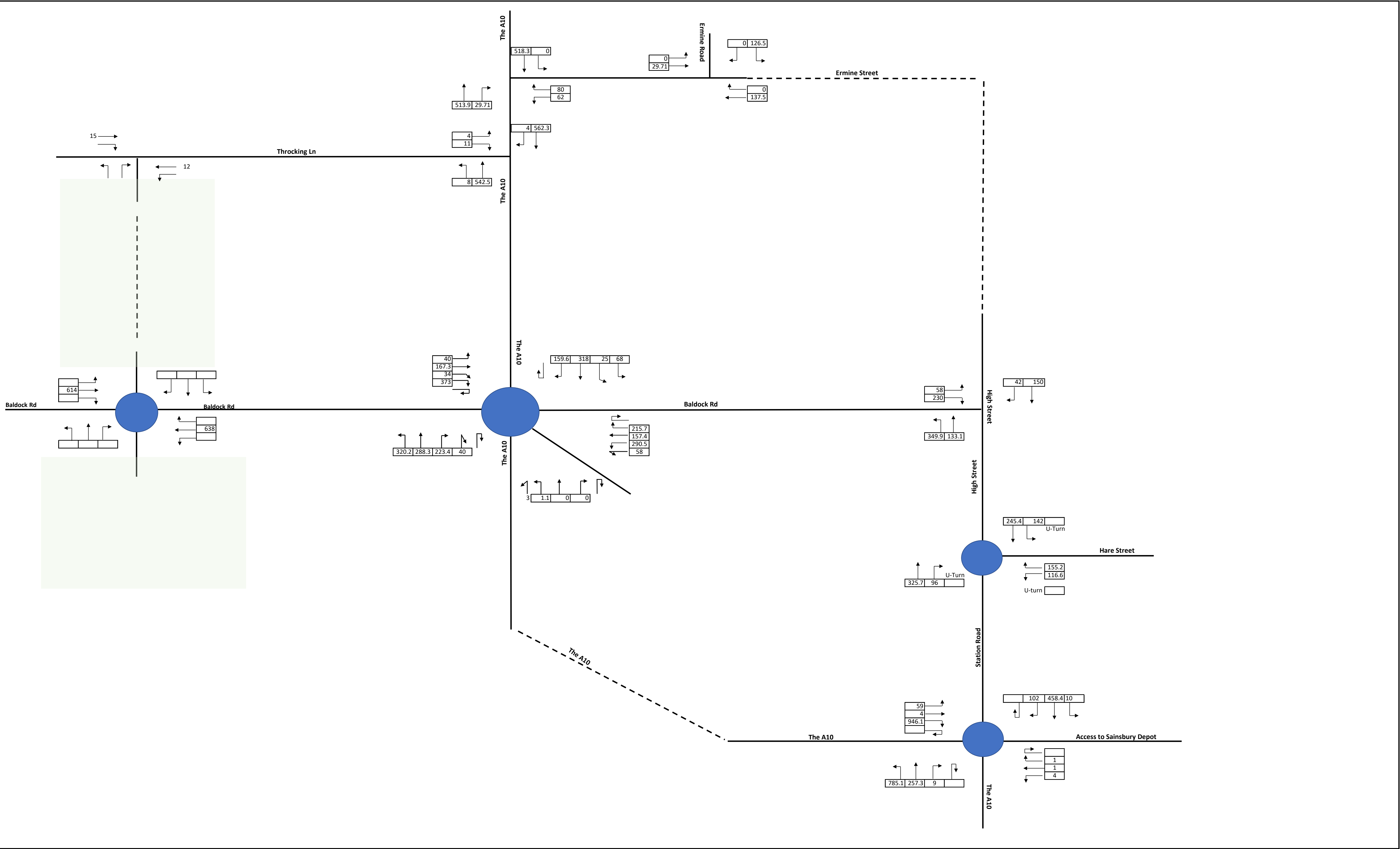
Notes:				Client			
Project No.		File name		Hallam Land Management			
23161		Traffic Diagram_2035 LHA Response Test 37.5% with CD.xlsx		23161 - Buntingford			
Date		Drawn	Checked	Approved	Title		
Oct 2023		SR	RM	MG	Year 2023 Baseline AM Peak 07:45 - 08:45		

Jubb
Alexander House
Excelsior Road
Western Avenue
Cardiff
CF14 3AT

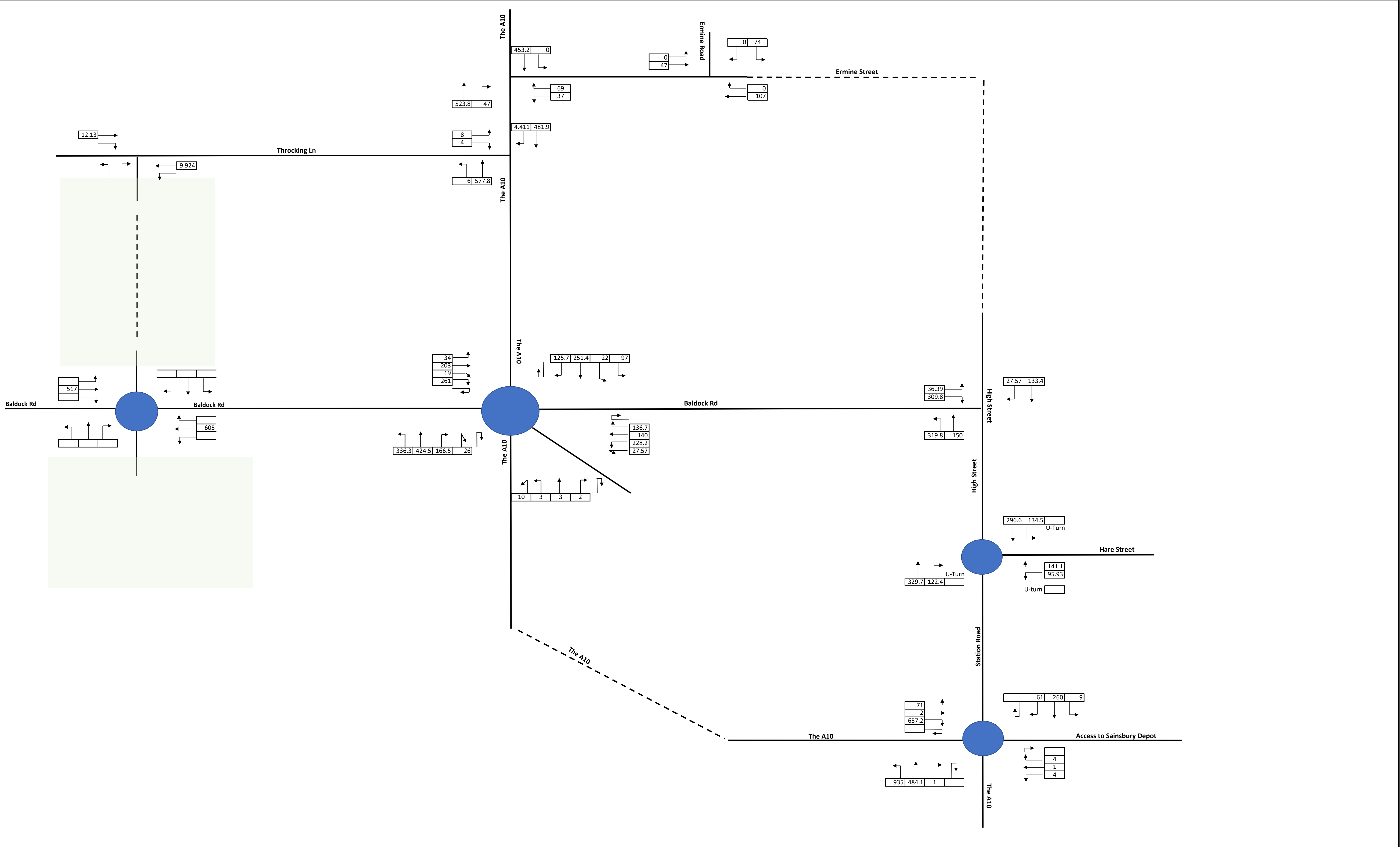




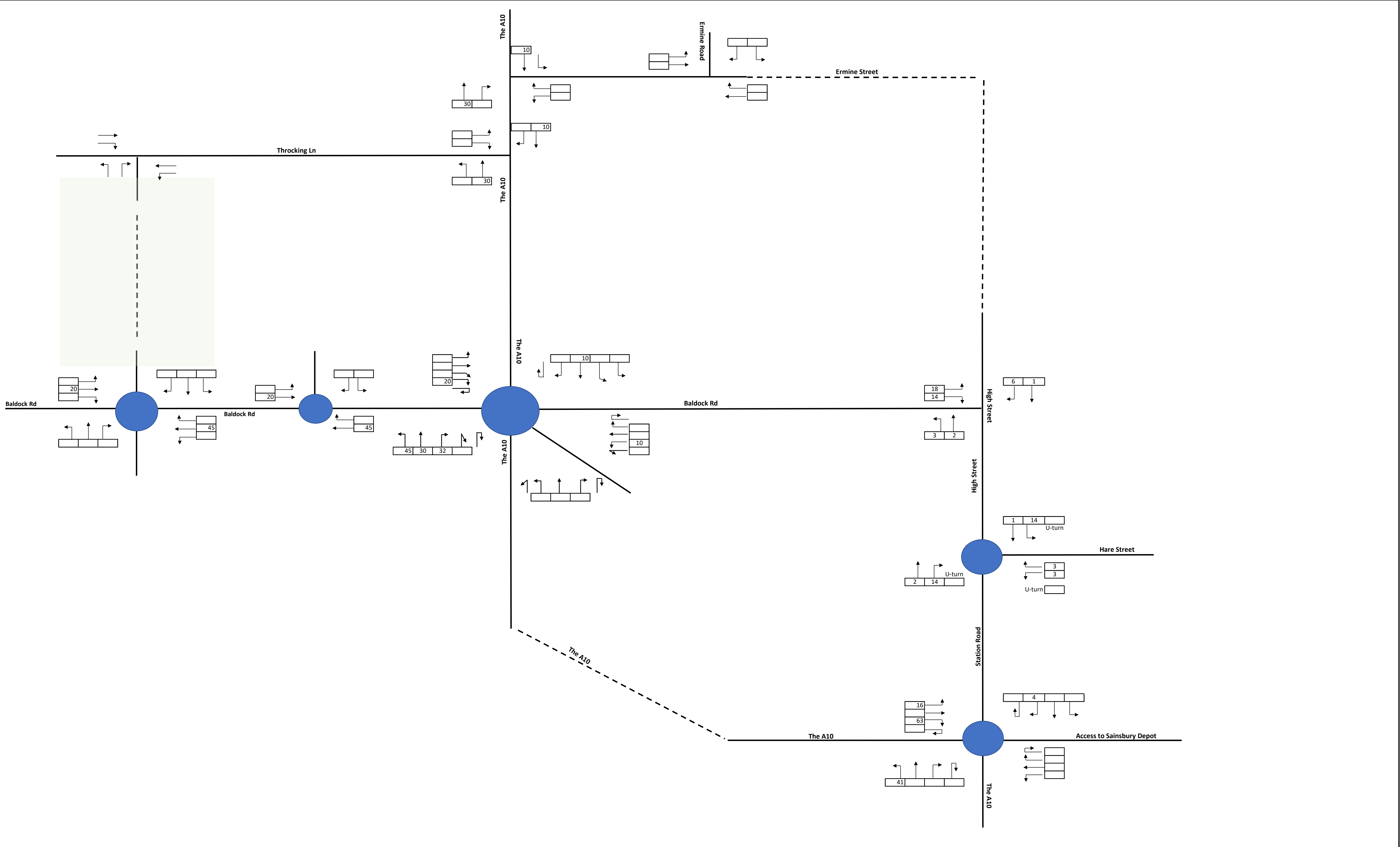
Notes:				Client				Jubb Alexander House Excelsior Road Western Avenue Cardiff CF14 3AT Jubb	
Project No.		File name		Hallam Land Management					
23161		Traffic Diagram_2035 LHA Response		Project					
		Test 37.5% with CD.xlsx		23161 - Buntingford					
Date		Drawn	Checked	Approved	Title				
Oct 2023		SR	RM	MG	Year 2023 Baseline AM Peak 17:00 - 18:00				



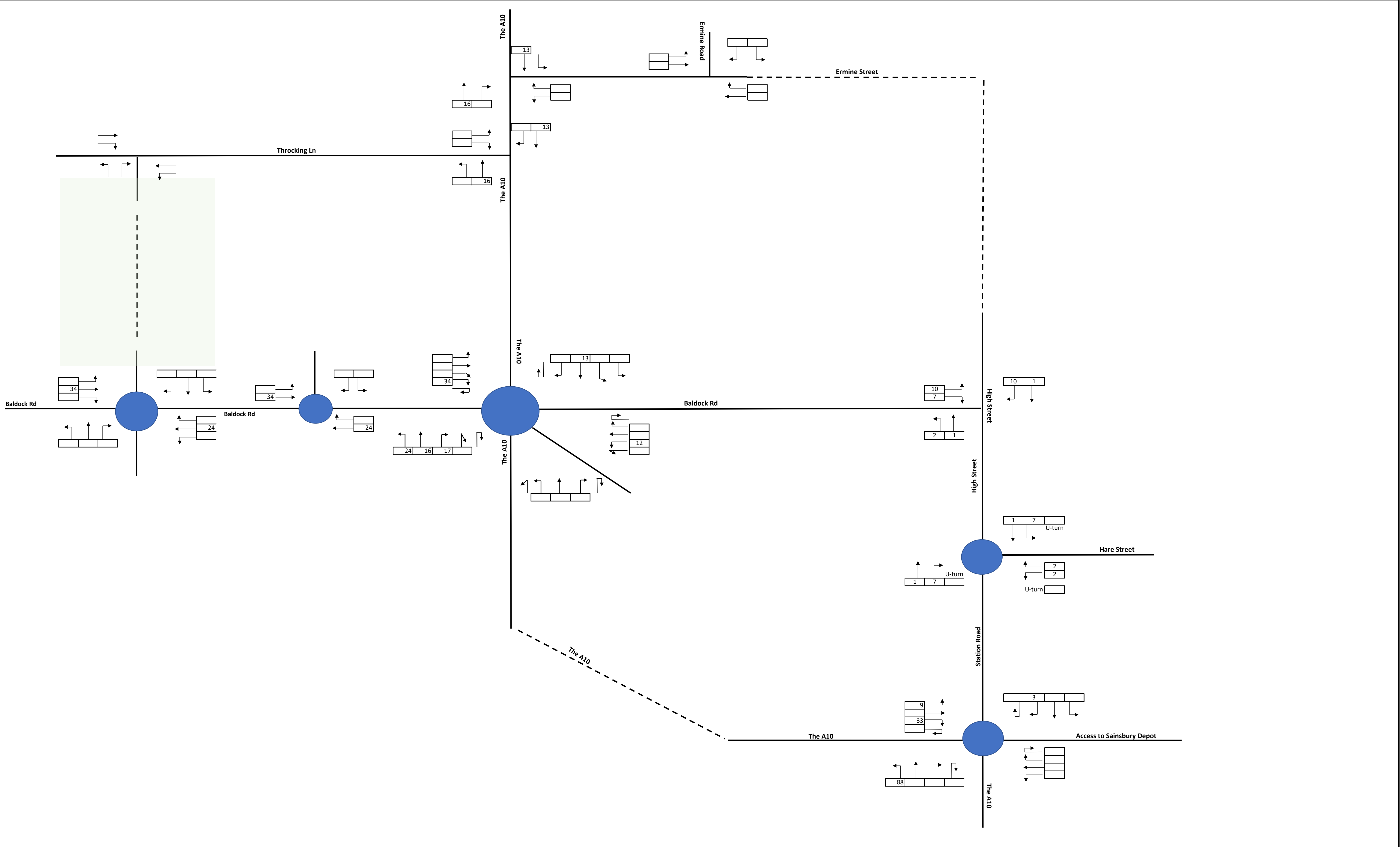
Notes: Growth Factor1.10				Client Hallam Land Management				Jubb Alexander House Excelsior Road Western Avenue Cardiff CF14 3AT 
Project No. 23161		File name Traffic Diagram_2035 LHA Response Test 37.5% with CD.xlsx		Project 23161 - Buntingford				
Date Oct 2023		Drawn SR	Checked RM	Approved MG	Title Year 2035 Background Growth AM Peak 07:45 - 08:45			



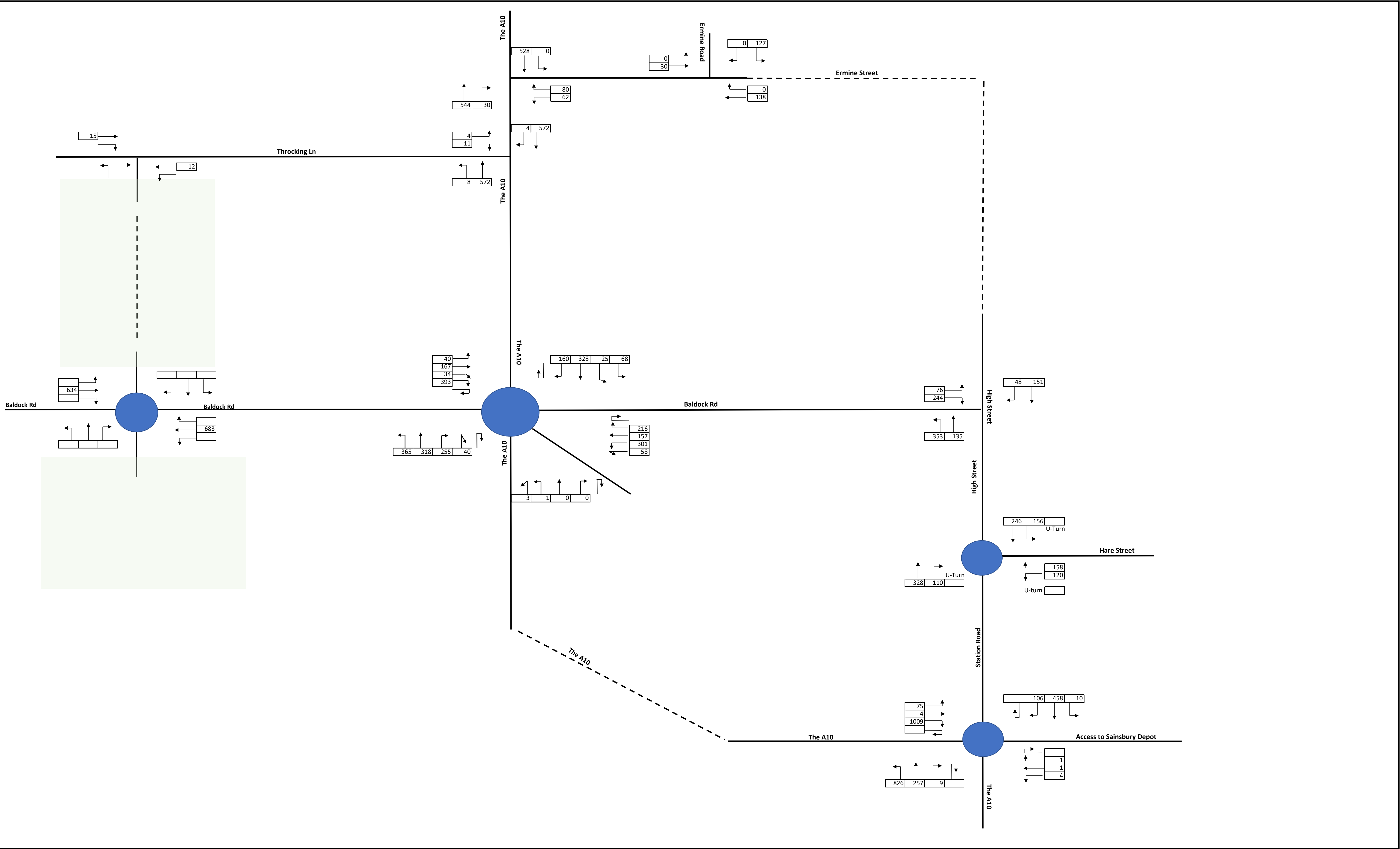
Notes: Growth Factor 1.10				Client Hallam Land Management				Jubb Alexander House Excelsior Road Western Avenue Cardiff CF14 3AT Jubb
Project No. 23161		File name Traffic Diagram_2035 LHA Response Test 37.5% with CD.xlsx		Project 23161 - Buntingford				
Date Oct 2023		Drawn SR	Checked RM	Approved MG	Title Year 2035 Background Growth PM Peak 17:00 - 18:00			



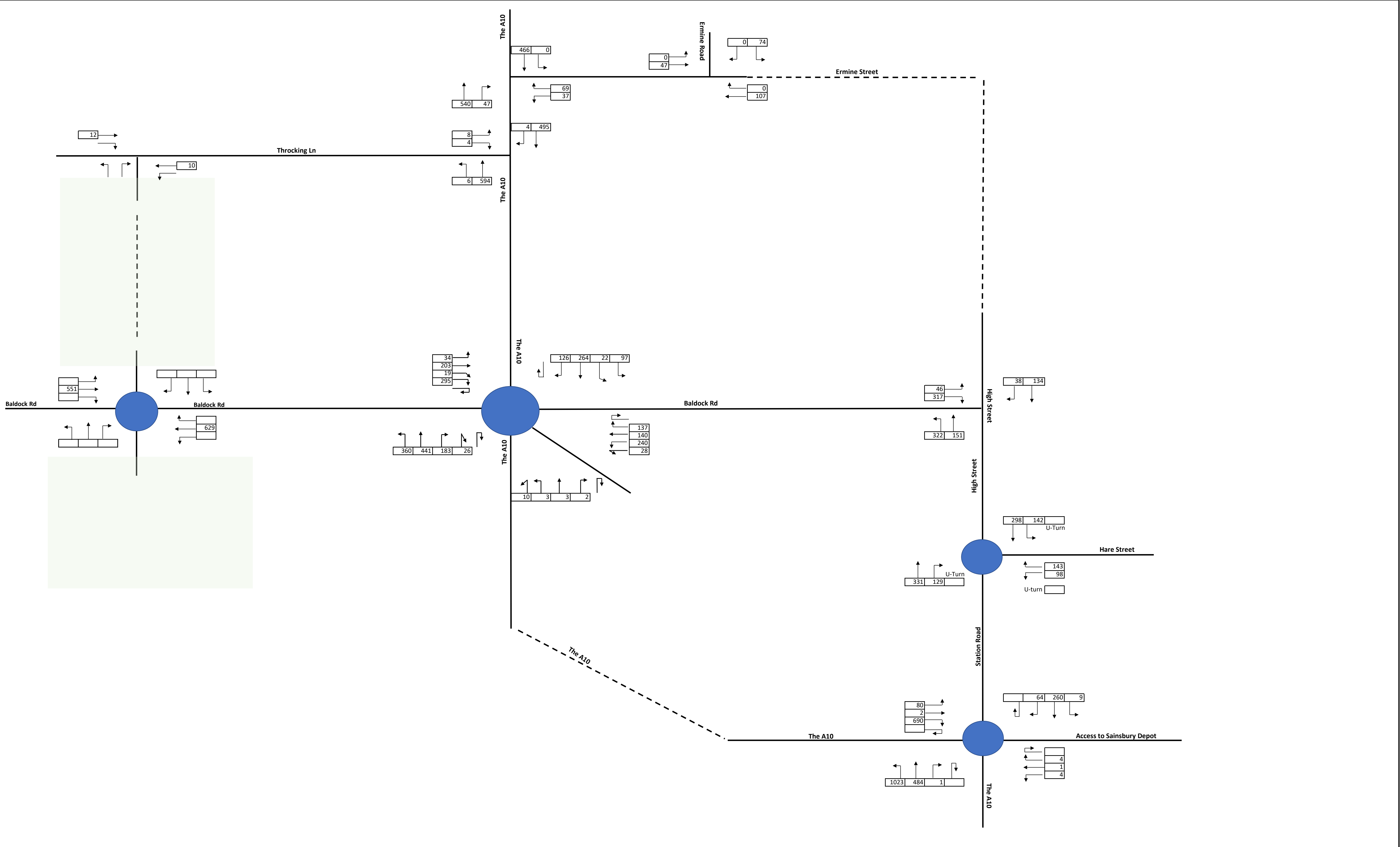
Notes:				Client		Jubb Alexander House Excelsior Road Western Avenue Cardiff CF14 3AT Jubb
Project No.		File name		Project		
23161		Traffic Diagram_2035 LHA Response Test 37.5% with CD.xlsx		23161 - Buntingford		
Date		Drawn	Checked	Approved	Title	
Oct 2023		SR	RM	MG	Committed Development Traffic - Ref 3/23/1447 OUT AM Peak	



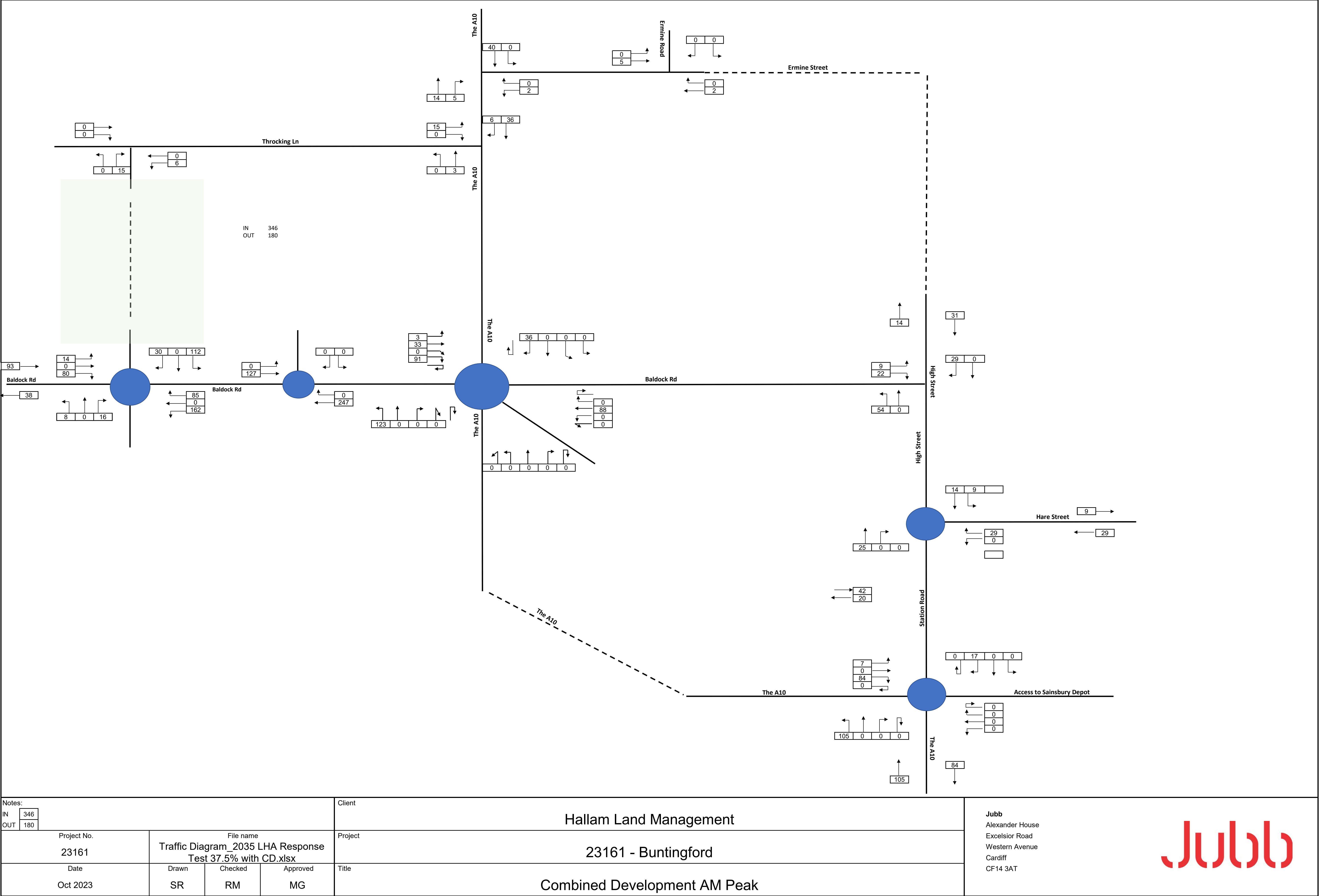
Notes:				Client			Jubb Alexander House Excelsior Road Western Avenue Cardiff CF14 3AT Jubb	
Project No.		File name		Hallam Land Management				
23161		Traffic Diagram_2035 LHA Response Test 37.5% with CD.xlsx		Project				
Date		Drawn	Checked	Approved	23161 - Buntingford			
Oct 2023		SR	RM	MG	Title			
					Committed Development Traffic - Ref 3/23/1447 OUT PM Peak			

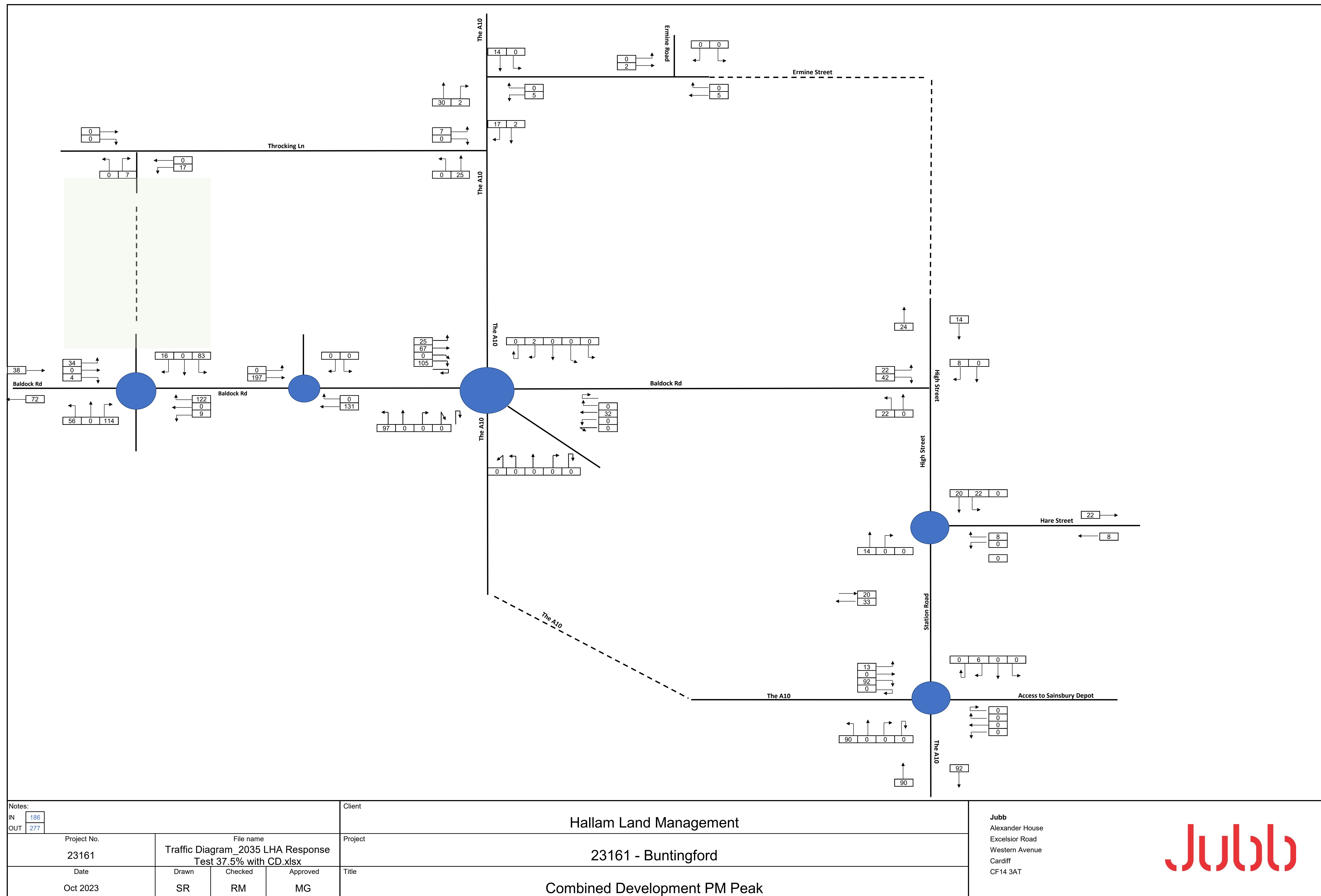


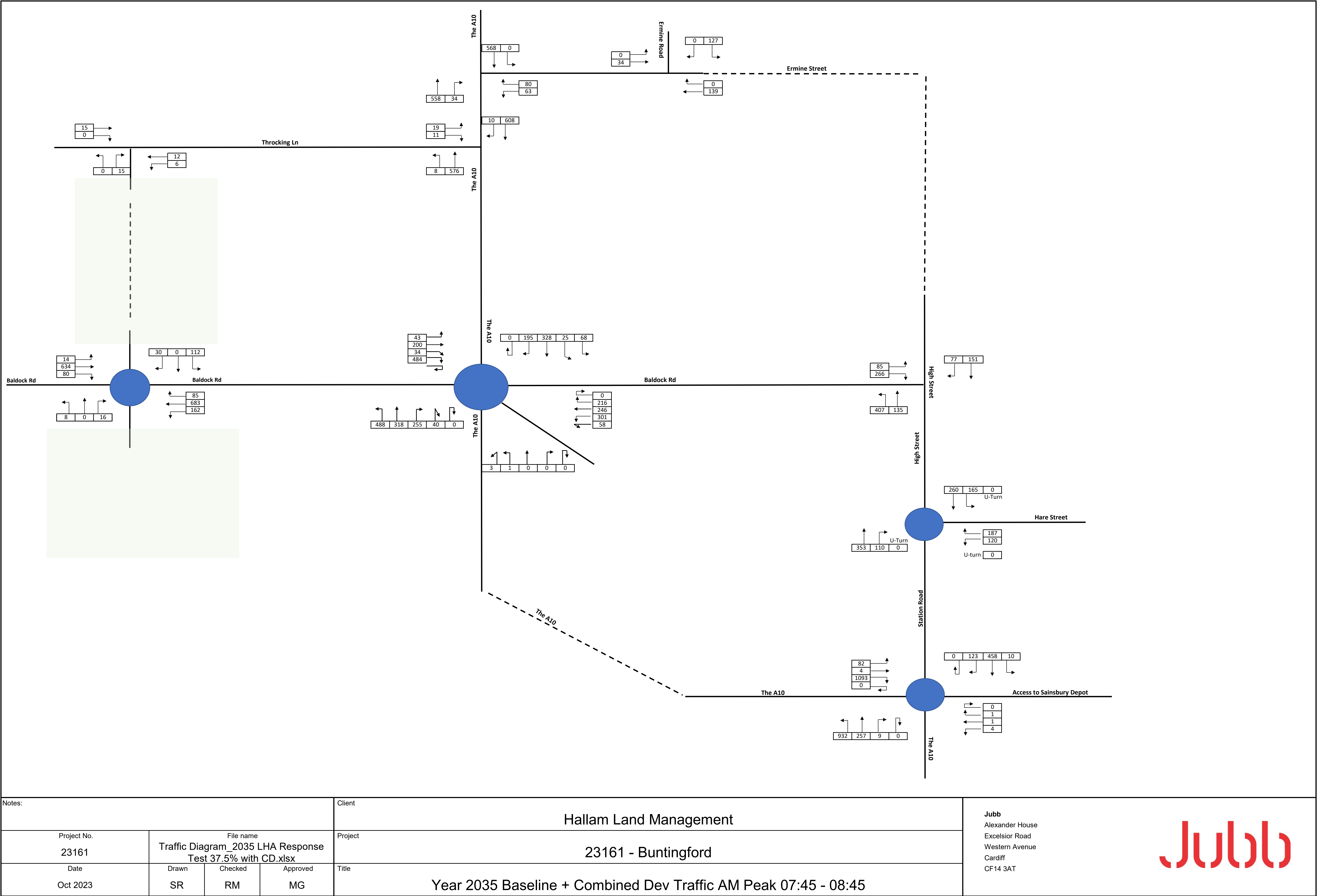
Notes: Background Growth + 3/23/1447				Client Hallam Land Management		Jubb Alexander House Excelsior Road Western Avenue Cardiff CF14 3AT JUBB
Project No. 23161	File name Traffic Diagram_2035 LHA Response Test 37.5% with CD.xlsx			Project 23161 - Buntingford		
Date Oct 2023	Drawn SR	Checked RM	Approved MG	Title Year 2035 Baseline Line AM Peak 07:45 - 08:45		



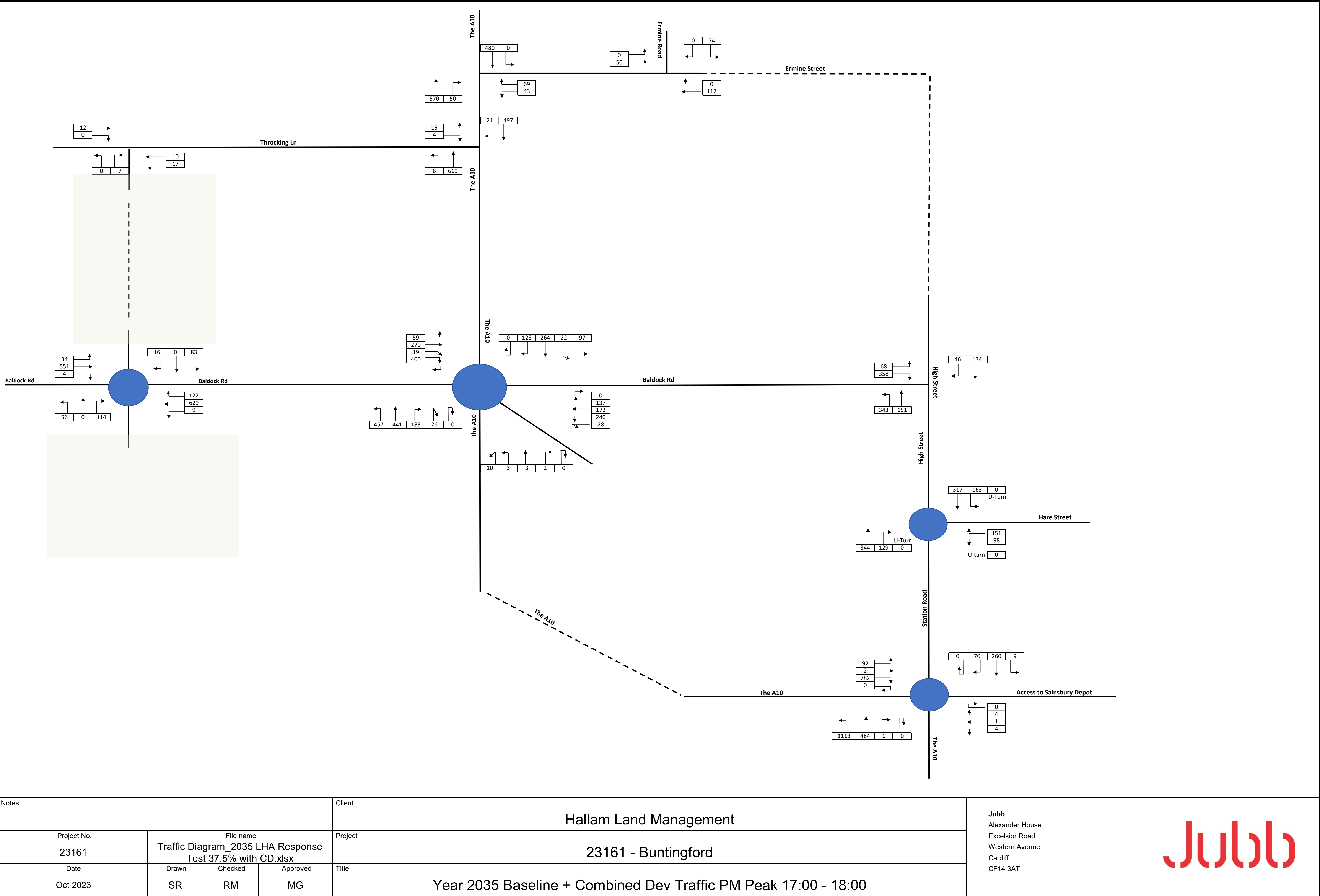
Notes: Background Growth + 3/23/1447				Client Hallam Land Management		Jubb Alexander House Excelsior Road Western Avenue Cardiff CF14 3AT Jubb
Project No. 23161	File name Traffic Diagram_2035 LHA Response Test 37.5% with CD.xlsx			Project 23161 - Buntingford		
Date Oct 2023	Drawn SR	Checked RM	Approved MG	Title Year 2035 Baseline PM Peak 17:00 - 18:00		







Notes:				Client				Jubb Alexander House Excelsior Road Western Avenue Cardiff CF14 3AT Jubb
Project No.		File name		Hallam Land Management				
23161		Traffic Diagram_2035 LHA Response Test 37.5% with CD.xlsx		Project				
				23161 - Buntingford				
Date		Drawn	Checked	Approved	Title			
Oct 2023		SR	RM	MG	Year 2035 Baseline + Combined Dev Traffic AM Peak 07:45 - 08:45			



Appendix P – Revised Junction Capacity Assessment Outputs

Junctions 10						
PICADY 10 - Priority Intersection Module						
Version: 10.1.1.1905						
© Copyright TRL Software Limited, 2023						
For sales and distribution information, program advice and maintenance, contact TRL Software:						
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com						
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution						

Filename: A10 - Ermine St.j10

Path: Y:\PROJECT FOLDER\23161 Buntingford\Calculations\4. Transport\LHA 37.5% Internal with CD\25% Linked Local Centre Trips - Inc CD

Report generation date: 22/05/2025 12:01:26

- »Year 2023 Baseline, AM
- »Year 2023 Baseline, PM
- »Year 2035 Baseline, AM
- »Year 2035 Baseline, PM
- »Year 2035 + Dev Both Sites, AM
- »Year 2035 + Dev Both Sites, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Year 2023 Baseline						
Stream B-AC	0.5	14.10	0.33	0.3	12.59	0.25
Stream C-AB	0.1	6.73	0.05	0.1	6.73	0.07
Year 2035 Baseline						
Stream B-AC	0.6	16.44	0.38	0.4	14.21	0.29
Stream C-AB	0.1	6.97	0.05	0.1	6.98	0.08
Year 2035 + Dev Both Sites						
Stream B-AC	0.7	17.48	0.40	0.5	14.64	0.31
Stream C-AB	0.1	7.17	0.06	0.1	7.07	0.09

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	17/10/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JUBB\SRadford
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D2	Year 2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D3	Year 2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D4	Year 2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D5	Year 2035 + Northern Site	AM	FLAT	07:45	08:45	60	15	
D6	Year 2035 + Northern Site	PM	FLAT	17:00	18:00	60	15	
D7	Year 2035 + Southern Site	AM	FLAT	07:45	08:45	60	15	
D8	Year 2035 + Southern Site	PM	FLAT	17:00	18:00	60	15	
D9	Year 2035 + Dev Both Sites	AM	FLAT	07:45	08:45	60	15	✓
D10	Year 2035 + Dev Both Sites	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Year 2023 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.83	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.83	A

Arms

Arms

Arm	Name	Description	Arm type
A	A10 North		Major
B	Ermine Rd		Minor
C	A10 South		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A10 South	6.00		✓	3.00	100.0	✓	4.50

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Ermine Rd	One lane	3.40	27	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	518	0.094	0.238	0.150	0.340
B-C	664	0.102	0.257	-	-
C-B	687	0.266	0.266	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 North		FLAT	✓	471	100.000
B - Ermine Rd		FLAT	✓	129	100.000
C - A10 South		FLAT	✓	494	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
		A - A10 North	B - Ermine Rd	C - A10 South
A - A10 North		0	0	471
B - Ermine Rd		73	0	56
C - A10 South		467	27	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To			
		A - A10 North	B - Ermine Rd	C - A10 South
A - A10 North		0	0	8
B - Ermine Rd		4	0	4
C - A10 South		5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.33	14.10	0.5	B	129	129
C-AB	0.05	6.73	0.1	A	27	27
C-A					467	467
A-B					0	0
A-C					471	471

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	129	32	395	0.327	127	0.0	0.5	13.899	B
C-AB	27	7	562	0.048	27	0.0	0.1	6.731	A
C-A	467	117			467				
A-B	0	0			0				
A-C	471	118			471				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	129	32	394	0.327	129	0.5	0.5	14.100	B
C-AB	27	7	562	0.048	27	0.1	0.1	6.733	A
C-A	467	117			467				
A-B	0	0			0				
A-C	471	118			471				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	129	32	394	0.327	129	0.5	0.5	14.103	B
C-AB	27	7	562	0.048	27	0.1	0.1	6.733	A
C-A	467	117			467				
A-B	0	0			0				
A-C	471	118			471				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	129	32	394	0.327	129	0.5	0.5	14.103	B
C-AB	27	7	562	0.048	27	0.1	0.1	6.733	A
C-A	467	117			467				
A-B	0	0			0				
A-C	471	118			471				

Year 2023 Baseline, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.47	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.47	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Year 2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 North		FLAT	✓	411	100.000
B - Ermine Rd		FLAT	✓	97	100.000
C - A10 South		FLAT	✓	518	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	411
	B - Ermine Rd	63	0	34
	C - A10 South	475	43	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	2
	B - Ermine Rd	3	0	0
	C - A10 South	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.25	12.59	0.3	B	97	97
C-AB	0.07	6.73	0.1	A	43	43
C-A					475	475
A-B					0	0
A-C					411	411

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	97	24	389	0.250	96	0.0	0.3	12.474	B
C-AB	43	11	578	0.074	43	0.0	0.1	6.726	A
C-A	475	119			475				
A-B	0	0			0				
A-C	411	103			411				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	97	24	388	0.250	97	0.3	0.3	12.588	B
C-AB	43	11	578	0.074	43	0.1	0.1	6.734	A
C-A	475	119			475				
A-B	0	0			0				
A-C	411	103			411				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	97	24	388	0.250	97	0.3	0.3	12.588	B
C-AB	43	11	578	0.074	43	0.1	0.1	6.734	A
C-A	475	119			475				
A-B	0	0			0				
A-C	411	103			411				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	97	24	388	0.250	97	0.3	0.3	12.588	B
C-AB	43	11	578	0.074	43	0.1	0.1	6.734	A
C-A	475	119			475				
A-B	0	0			0				
A-C	411	103			411				

Year 2035 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		2.04	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.04	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	Year 2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 North		FLAT	✓	528	100.000
B - Ermine Rd		FLAT	✓	142	100.000
C - A10 South		FLAT	✓	574	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	528
	B - Ermine Rd	80	0	62
	C - A10 South	544	30	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	8
	B - Ermine Rd	4	0	4
	C - A10 South	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.38	16.44	0.6	C	142	142
C-AB	0.05	6.97	0.1	A	30	30
C-A					544	544
A-B					0	0
A-C					528	528

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	36	370	0.384	139	0.0	0.6	16.094	C
C-AB	30	8	546	0.055	30	0.0	0.1	6.965	A
C-A	544	136			544				
A-B	0	0			0				
A-C	528	132			528				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	36	370	0.384	142	0.6	0.6	16.434	C
C-AB	30	8	546	0.055	30	0.1	0.1	6.970	A
C-A	544	136			544				
A-B	0	0			0				
A-C	528	132			528				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	36	370	0.384	142	0.6	0.6	16.439	C
C-AB	30	8	546	0.055	30	0.1	0.1	6.970	A
C-A	544	136			544				
A-B	0	0			0				
A-C	528	132			528				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	36	370	0.384	142	0.6	0.6	16.441	C
C-AB	30	8	546	0.055	30	0.1	0.1	6.970	A
C-A	544	136			544				
A-B	0	0			0				
A-C	528	132			528				

Year 2035 Baseline, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.58	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.58	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	Year 2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 North		FLAT	✓	466	100.000
B - Ermine Rd		FLAT	✓	106	100.000
C - A10 South		FLAT	✓	587	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	466
	B - Ermine Rd	69	0	37
	C - A10 South	540	47	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	2
	B - Ermine Rd	3	0	0
	C - A10 South	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.29	14.21	0.4	B	106	106
C-AB	0.08	6.98	0.1	A	47	47
C-A					540	540
A-B					0	0
A-C					466	466

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	106	27	364	0.291	104	0.0	0.4	14.027	B
C-AB	47	12	563	0.084	47	0.0	0.1	6.969	A
C-A	540	135			540				
A-B	0	0			0				
A-C	466	117			466				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	106	27	364	0.291	106	0.4	0.4	14.202	B
C-AB	47	12	563	0.084	47	0.1	0.1	6.977	A
C-A	540	135			540				
A-B	0	0			0				
A-C	466	117			466				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	106	27	364	0.291	106	0.4	0.4	14.205	B
C-AB	47	12	563	0.084	47	0.1	0.1	6.977	A
C-A	540	135			540				
A-B	0	0			0				
A-C	466	117			466				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	106	27	364	0.291	106	0.4	0.4	14.205	B
C-AB	47	12	563	0.084	47	0.1	0.1	6.977	A
C-A	540	135			540				
A-B	0	0			0				
A-C	466	117			466				

Year 2035 + Dev Both Sites, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		2.11	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.11	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	Year 2035 + Dev Both Sites	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 North		FLAT	✓	568	100.000
B - Ermine Rd		FLAT	✓	143	100.000
C - A10 South		FLAT	✓	592	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	568
	B - Ermine Rd	80	0	63
	C - A10 South	558	34	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	8
	B - Ermine Rd	4	0	4
	C - A10 South	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.40	17.48	0.7	C	143	143
C-AB	0.06	7.17	0.1	A	34	34
C-A					558	558
A-B					0	0
A-C					568	568

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	143	36	357	0.400	140	0.0	0.7	17.070	C
C-AB	34	9	536	0.063	34	0.0	0.1	7.168	A
C-A	558	139			558				
A-B	0	0			0				
A-C	568	142			568				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	143	36	357	0.400	143	0.7	0.7	17.476	C
C-AB	34	9	536	0.063	34	0.1	0.1	7.174	A
C-A	558	139			558				
A-B	0	0			0				
A-C	568	142			568				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	143	36	357	0.400	143	0.7	0.7	17.479	C
C-AB	34	9	536	0.063	34	0.1	0.1	7.174	A
C-A	558	139			558				
A-B	0	0			0				
A-C	568	142			568				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	143	36	357	0.400	143	0.7	0.7	17.485	C
C-AB	34	9	536	0.063	34	0.1	0.1	7.174	A
C-A	558	139			558				
A-B	0	0			0				
A-C	568	142			568				

Year 2035 + Dev Both Sites, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.64	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.64	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	Year 2035 + Dev Both Sites	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 North		FLAT	✓	480	100.000
B - Ermine Rd		FLAT	✓	112	100.000
C - A10 South		FLAT	✓	620	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	480
	B - Ermine Rd	69	0	43
	C - A10 South	570	50	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 North	B - Ermine Rd	C - A10 South
From	A - A10 North	0	0	2
	B - Ermine Rd	3	0	0
	C - A10 South	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.31	14.64	0.5	B	112	112
C-AB	0.09	7.07	0.1	A	50	50
C-A					570	570
A-B					0	0
A-C					480	480

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	112	28	362	0.309	110	0.0	0.4	14.434	B
C-AB	50	13	559	0.089	50	0.0	0.1	7.061	A
C-A	570	142			570				
A-B	0	0			0				
A-C	480	120			480				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	112	28	362	0.309	112	0.4	0.5	14.638	B
C-AB	50	13	559	0.089	50	0.1	0.1	7.069	A
C-A	570	142			570				
A-B	0	0			0				
A-C	480	120			480				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	112	28	362	0.309	112	0.5	0.5	14.641	B
C-AB	50	13	559	0.089	50	0.1	0.1	7.069	A
C-A	570	142			570				
A-B	0	0			0				
A-C	480	120			480				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	112	28	362	0.309	112	0.5	0.5	14.641	B
C-AB	50	13	559	0.089	50	0.1	0.1	7.069	A
C-A	570	142			570				
A-B	0	0			0				
A-C	480	120			480				

Junctions 10						
PICADY 10 - Priority Intersection Module						
Version: 10.1.1.1905						
© Copyright TRL Software Limited, 2023						
For sales and distribution information, program advice and maintenance, contact TRL Software:						
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com						
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution						

Filename: Thricking Rd - A10.j10

Path: Y:\PROJECT FOLDER\23161 Buntingford\Calculations\4. Transport\LHA 37.5% Internal with CD\25% Linked Local Centre Trips - Inc CD

Report generation date: 22/05/2025 12:31:31

- »Year 2023 Baseline, AM
- »Year 2023 Baseline, PM
- »Year 2035 Baseline, AM
- »Year 2035 Baseline, PM
- »Year 2035 + Total Both Sites, AM
- »Year 2035 + Total Both Sites, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Year 2023 Baseline						
Stream B-C	0.0	6.74	0.01	0.0	6.68	0.01
Stream B-A	0.0	11.94	0.03	0.0	10.57	0.01
Stream C-AB	0.0	6.51	0.01	0.0	6.59	0.01
Year 2035 Baseline						
Stream B-C	0.0	7.05	0.01	0.0	6.90	0.02
Stream B-A	0.0	13.08	0.03	0.0	11.53	0.01
Stream C-AB	0.0	6.76	0.01	0.0	6.82	0.01
Year 2035 + Total Both Sites						
Stream B-C	0.0	7.06	0.04	0.0	7.00	0.03
Stream B-A	0.0	13.64	0.04	0.0	12.39	0.01
Stream C-AB	0.0	6.85	0.02	0.0	7.14	0.04

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	17/10/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JUBB\SRadford
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D2	Year 2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D3	Year 2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D4	Year 2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D5	Year 2035 + Northern Site	AM	FLAT	07:45	08:45	60	15	
D6	Year 2035 + Northern Site	PM	FLAT	17:00	18:00	60	15	
D7	Year 2035 + Southern Site	AM	FLAT	07:45	08:45	60	15	
D8	Year 2035 + Southern Site	PM	FLAT	17:00	18:00	60	15	
D9	Year 2035 + Total Both Sites	AM	FLAT	07:45	08:45	60	15	✓
D10	Year 2035 + Total Both Sites	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Year 2023 Baseline, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Throcking Rd - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.17	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.17	A

Arms

Arms

Arm	Name	Description	Arm type
A	A10 South		Major
B	Throcking Rd		Minor
C	A10 North		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A10 North	6.60		✓	3.00	100.0	✓	10.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Throcking Rd	One lane plus flare	10.00	5.36	3.17	3.00	3.00		1.00	54	41

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	546	0.097	0.245	0.154	0.350
B-C	667	0.100	0.252	-	-
C-B	687	0.259	0.259	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 South		FLAT	✓	500	100.000
B - Throcking Rd		FLAT	✓	14	100.000
C - A10 North		FLAT	✓	515	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
From	A - A10 South	0	7	493
	B - Throcking Rd	10	0	4
	C - A10 North	511	4	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
From	A - A10 South	0	0	5
	B - Throcking Rd	11	0	0
	C - A10 North	7	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	6.74	0.0	A	4	4
B-A	0.03	11.94	0.0	B	10	10
C-AB	0.01	6.51	0.0	A	4	4
C-A					511	511
A-B					7	7
A-C					493	493

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	538	0.007	4	0.0	0.0	6.736	A
B-A	10	3	345	0.029	10	0.0	0.0	11.934	B
C-AB	4	1	557	0.007	4	0.0	0.0	6.505	A
C-A	511	128			511				
A-B	7	2			7				
A-C	493	123			493				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	538	0.007	4	0.0	0.0	6.739	A
B-A	10	3	345	0.029	10	0.0	0.0	11.936	B
C-AB	4	1	557	0.007	4	0.0	0.0	6.505	A
C-A	511	128			511				
A-B	7	2			7				
A-C	493	123			493				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	538	0.007	4	0.0	0.0	6.739	A
B-A	10	3	345	0.029	10	0.0	0.0	11.936	B
C-AB	4	1	557	0.007	4	0.0	0.0	6.505	A
C-A	511	128			511				
A-B	7	2			7				
A-C	493	123			493				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	538	0.007	4	0.0	0.0	6.739	A
B-A	10	3	345	0.029	10	0.0	0.0	11.936	B
C-AB	4	1	557	0.007	4	0.0	0.0	6.505	A
C-A	511	128			511				
A-B	7	2			7				
A-C	493	123			493				

Year 2023 Baseline, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Throcking Rd - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.12	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.12	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Year 2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 South		FLAT	✓	529	100.000
B - Throcking Rd		FLAT	✓	11	100.000
C - A10 North		FLAT	✓	441	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
	From			
	A - A10 South	0	5	524
	B - Throcking Rd	4	0	7
	C - A10 North	437	4	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
	From			
	A - A10 South	0	0	2
	B - Throcking Rd	0	0	0
	C - A10 North	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	6.68	0.0	A	7	7
B-A	0.01	10.57	0.0	B	4	4
C-AB	0.01	6.59	0.0	A	4	4
C-A					437	437
A-B					5	5
A-C					524	524

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	2	546	0.013	7	0.0	0.0	6.676	A
B-A	4	1	345	0.012	4	0.0	0.0	10.567	B
C-AB	4	1	550	0.007	4	0.0	0.0	6.595	A
C-A	437	109			437				
A-B	5	1			5				
A-C	524	131			524				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	2	546	0.013	7	0.0	0.0	6.677	A
B-A	4	1	345	0.012	4	0.0	0.0	10.566	B
C-AB	4	1	550	0.007	4	0.0	0.0	6.595	A
C-A	437	109			437				
A-B	5	1			5				
A-C	524	131			524				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	2	546	0.013	7	0.0	0.0	6.677	A
B-A	4	1	345	0.012	4	0.0	0.0	10.566	B
C-AB	4	1	550	0.007	4	0.0	0.0	6.595	A
C-A	437	109			437				
A-B	5	1			5				
A-C	524	131			524				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	2	546	0.013	7	0.0	0.0	6.677	A
B-A	4	1	345	0.012	4	0.0	0.0	10.568	B
C-AB	4	1	550	0.007	4	0.0	0.0	6.595	A
C-A	437	109			437				
A-B	5	1			5				
A-C	524	131			524				

Year 2035 Baseline, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Throcking Rd - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.17	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.17	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	Year 2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 South		FLAT	✓	580	100.000
B - Throcking Rd		FLAT	✓	15	100.000
C - A10 North		FLAT	✓	576	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
From	A - A10 South	0	8	572
	B - Throcking Rd	11	0	4
	C - A10 North	572	4	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
From	A - A10 South	0	0	5
	B - Throcking Rd	11	0	0
	C - A10 North	7	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	7.05	0.0	A	4	4
B-A	0.03	13.08	0.0	B	11	11
C-AB	0.01	6.76	0.0	A	4	4
C-A					572	572
A-B					8	8
A-C					572	572

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	515	0.008	4	0.0	0.0	7.042	A
B-A	11	3	316	0.035	11	0.0	0.0	13.067	B
C-AB	4	1	537	0.007	4	0.0	0.0	6.758	A
C-A	572	143			572				
A-B	8	2			8				
A-C	572	143			572				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	515	0.008	4	0.0	0.0	7.045	A
B-A	11	3	317	0.035	11	0.0	0.0	13.079	B
C-AB	4	1	537	0.007	4	0.0	0.0	6.758	A
C-A	572	143			572				
A-B	8	2			8				
A-C	572	143			572				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	515	0.008	4	0.0	0.0	7.045	A
B-A	11	3	317	0.035	11	0.0	0.0	13.079	B
C-AB	4	1	537	0.007	4	0.0	0.0	6.758	A
C-A	572	143			572				
A-B	8	2			8				
A-C	572	143			572				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	515	0.008	4	0.0	0.0	7.045	A
B-A	11	3	317	0.035	11	0.0	0.0	13.079	B
C-AB	4	1	537	0.007	4	0.0	0.0	6.758	A
C-A	572	143			572				
A-B	8	2			8				
A-C	572	143			572				

Year 2035 Baseline, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Throcking Rd - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.12	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.12	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	Year 2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 South		FLAT	✓	600	100.000
B - Throcking Rd		FLAT	✓	12	100.000
C - A10 North		FLAT	✓	499	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
	From			
	A - A10 South	0	6	594
	B - Throcking Rd	4	0	8
	C - A10 North	495	4	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
	From			
	A - A10 South	0	0	2
	B - Throcking Rd	0	0	0
	C - A10 North	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.02	6.90	0.0	A	8	8
B-A	0.01	11.53	0.0	B	4	4
C-AB	0.01	6.82	0.0	A	4	4
C-A					495	495
A-B					6	6
A-C					594	594

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	530	0.015	8	0.0	0.0	6.902	A
B-A	4	1	316	0.013	4	0.0	0.0	11.526	B
C-AB	4	1	531	0.008	4	0.0	0.0	6.825	A
C-A	495	124			495				
A-B	6	2			6				
A-C	594	149			594				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	529	0.015	8	0.0	0.0	6.903	A
B-A	4	1	316	0.013	4	0.0	0.0	11.525	B
C-AB	4	1	531	0.008	4	0.0	0.0	6.825	A
C-A	495	124			495				
A-B	6	2			6				
A-C	594	149			594				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	529	0.015	8	0.0	0.0	6.903	A
B-A	4	1	316	0.013	4	0.0	0.0	11.525	B
C-AB	4	1	531	0.008	4	0.0	0.0	6.825	A
C-A	495	124			495				
A-B	6	2			6				
A-C	594	149			594				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	529	0.015	8	0.0	0.0	6.903	A
B-A	4	1	316	0.013	4	0.0	0.0	11.525	B
C-AB	4	1	531	0.008	4	0.0	0.0	6.825	A
C-A	495	124			495				
A-B	6	2			6				
A-C	594	149			594				

Year 2035 + Total Both Sites, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Throcking Rd - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.29	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.29	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	Year 2035 + Total Both Sites	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 South		FLAT	✓	584	100.000
B - Throcking Rd		FLAT	✓	30	100.000
C - A10 North		FLAT	✓	618	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
From	A - A10 South	0	8	576
	B - Throcking Rd	11	0	19
	C - A10 North	608	10	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
From	A - A10 South	0	0	5
	B - Throcking Rd	11	0	0
	C - A10 North	7	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.04	7.06	0.0	A	19	19
B-A	0.04	13.64	0.0	B	11	11
C-AB	0.02	6.85	0.0	A	10	10
C-A					608	608
A-B					8	8
A-C					576	576

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	19	5	529	0.036	19	0.0	0.0	7.055	A
B-A	11	3	304	0.036	11	0.0	0.0	13.632	B
C-AB	10	3	536	0.019	10	0.0	0.0	6.849	A
C-A	608	152			608				
A-B	8	2			8				
A-C	576	144			576				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	19	5	529	0.036	19	0.0	0.0	7.060	A
B-A	11	3	304	0.036	11	0.0	0.0	13.640	B
C-AB	10	3	536	0.019	10	0.0	0.0	6.849	A
C-A	608	152			608				
A-B	8	2			8				
A-C	576	144			576				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	19	5	529	0.036	19	0.0	0.0	7.060	A
B-A	11	3	304	0.036	11	0.0	0.0	13.640	B
C-AB	10	3	536	0.019	10	0.0	0.0	6.849	A
C-A	608	152			608				
A-B	8	2			8				
A-C	576	144			576				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	19	5	529	0.036	19	0.0	0.0	7.060	A
B-A	11	3	304	0.036	11	0.0	0.0	13.640	B
C-AB	10	3	536	0.019	10	0.0	0.0	6.849	A
C-A	608	152			608				
A-B	8	2			8				
A-C	576	144			576				

Year 2035 + Total Both Sites, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Throcking Rd - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.26	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.26	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	Year 2035 + Total Both Sites	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A10 South		FLAT	✓	625	100.000
B - Throcking Rd		FLAT	✓	19	100.000
C - A10 North		FLAT	✓	518	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
From	A - A10 South	0	6	619
	B - Throcking Rd	4	0	15
	C - A10 North	497	21	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - A10 South	B - Throcking Rd	C - A10 North
From	A - A10 South	0	0	2
	B - Throcking Rd	0	0	0
	C - A10 North	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.03	7.00	0.0	A	15	15
B-A	0.01	12.39	0.0	B	4	4
C-AB	0.04	7.14	0.0	A	21	21
C-A					497	497
A-B					6	6
A-C					619	619

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	15	4	529	0.028	15	0.0	0.0	6.993	A
B-A	4	1	294	0.014	4	0.0	0.0	12.390	B
C-AB	21	5	525	0.040	21	0.0	0.0	7.140	A
C-A	497	124			497				
A-B	6	2			6				
A-C	619	155			619				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	15	4	529	0.028	15	0.0	0.0	6.997	A
B-A	4	1	294	0.014	4	0.0	0.0	12.392	B
C-AB	21	5	525	0.040	21	0.0	0.0	7.143	A
C-A	497	124			497				
A-B	6	2			6				
A-C	619	155			619				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	15	4	529	0.028	15	0.0	0.0	6.997	A
B-A	4	1	294	0.014	4	0.0	0.0	12.392	B
C-AB	21	5	525	0.040	21	0.0	0.0	7.143	A
C-A	497	124			497				
A-B	6	2			6				
A-C	619	155			619				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	15	4	529	0.028	15	0.0	0.0	6.997	A
B-A	4	1	294	0.014	4	0.0	0.0	12.392	B
C-AB	21	5	525	0.040	21	0.0	0.0	7.143	A
C-A	497	124			497				
A-B	6	2			6				
A-C	619	155			619				

Junctions 10						
ARCADY 10 - Roundabout Module						
Version: 10.1.1.1905 © Copyright TRL Software Limited, 2023						
For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com						
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution						

Filename: A10 - Baldock Road DL (2035).j10

Path: Y:\PROJECT FOLDER\23161 Buntingford\Calculations\4. Transport\LHA 37.5% Internal with CD\LHA Test OD 25% + Committed Dev

Report generation date: 22/05/2025 09:17:48

- »2023 Baseline Traffic, AM
- »2023 Baseline Traffic, PM
- »2035 Baseline Traffic, AM
- »2035 Baseline Traffic, PM
- »2035 + Total Dev Sites, AM
- »2035 + Total Dev Sites, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2023 Baseline Traffic						
1 - the A10 North	0.7	4.56	0.38	0.5	3.64	0.31
2 - the B1038	1.3	7.10	0.55	0.6	4.39	0.37
3 - Access Road	0.0	13.46	0.01	0.0	10.29	0.05
4 - the A10 South	0.8	3.71	0.43	0.9	3.58	0.46
5 - the A507	0.8	5.39	0.44	0.6	4.47	0.37
2035 Baseline Traffic						
1 - the A10 North	0.9	5.45	0.45	0.5	3.97	0.35
2 - the B1038	2.0	9.79	0.66	0.7	4.91	0.42
3 - Access Road	0.0	16.59	0.02	0.1	11.31	0.06
4 - the A10 South	1.3	4.71	0.55	1.1	4.03	0.51
5 - the A507	1.2	6.84	0.53	0.7	5.02	0.42
2035 + Total Dev Sites						
1 - the A10 North	1.1	6.45	0.51	0.7	4.73	0.40
2 - the B1038	3.8	17.10	0.79	1.0	6.00	0.49
3 - Access Road	0.0	23.02	0.03	0.1	13.70	0.07
4 - the A10 South	1.9	6.34	0.65	1.5	4.99	0.60
5 - the A507	1.9	8.84	0.64	1.6	7.70	0.62

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	A40/ A507 Roundabout
Location	Buntingford
Site number	
Date	16/10/2023
Version	A
Status	(new file)
Identifier	
Client	
Jobnumber	23161
Enumerator	JUBB\SRadford
Description	Geometric Input from OS/Satelite mapping

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2023 Baseline Traffic	AM	FLAT	07:45	08:45	60	15	✓
D2	2023 Baseline Traffic	PM	FLAT	17:00	18:00	60	15	✓
D3	2035 Baseline Traffic	AM	FLAT	07:45	08:45	60	15	✓
D4	2035 Baseline Traffic	PM	FLAT	17:00	18:00	60	15	✓
D5	2035 + Northern Site	AM	FLAT	07:45	08:45	60	15	
D6	2035 + Northern Site	PM	FLAT	17:00	18:00	60	15	
D7	2035 + Southern Site	AM	FLAT	07:45	08:45	60	15	
D8	2035 + Southern Site	PM	FLAT	17:00	18:00	60	15	
D9	2035 + Total Dev Sites	AM	FLAT	07:45	08:45	60	15	✓
D10	2035 + Total Dev Sites	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2023 Baseline Traffic, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A10 / B1038 Roundabout	Standard Roundabout		1, 2, 3, 4, 5	5.15	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.15	A

Arms

Arms

Arm	Name	Description	No give-way line
1	the A10 North		
2	the B1038		
3	Access Road		
4	the A10 South		
5	the A507		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - the A10 North	4.20	7.60	13.7	18.5	55.0	31.0		
2 - the B1038	3.60	7.60	11.2	65.0	55.0	34.0		
3 - Access Road	3.70	3.70	0.0	3.4	55.0	80.0		
4 - the A10 South	4.40	8.20	19.6	63.4	55.0	24.0		
5 - the A507	3.50	7.70	13.7	37.5	55.0	42.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - the A10 North	0.606	1833
2 - the B1038	0.588	1689
3 - Access Road	0.282	659
4 - the A10 South	0.682	2155
5 - the A507	0.574	1671

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2023 Baseline Traffic	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - the A10 North		FLAT	✓	519	100.000
2 - the B1038		FLAT	✓	656	100.000
3 - Access Road		FLAT	✓	4	100.000
4 - the A10 South		FLAT	✓	792	100.000
5 - the A507		FLAT	✓	558	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
From	1 - the A10 North	0	62	23	289	145
	2 - the B1038	196	0	53	264	143
	3 - Access Road	0	0	0	3	1
	4 - the A10 South	262	203	36	0	291
	5 - the A507	36	152	31	339	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To					
		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
From	1 - the A10 North	0	13	14	6	9
	2 - the B1038	2	0	6	3	7
	3 - Access Road	0	0	0	0	0
	4 - the A10 South	7	4	3	0	8
	5 - the A507	3	8	13	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - the A10 North	0.38	4.56	0.7	A	519	519
2 - the B1038	0.55	7.10	1.3	A	656	656
3 - Access Road	0.01	13.46	0.0	B	4	4
4 - the A10 South	0.43	3.71	0.8	A	792	792
5 - the A507	0.44	5.39	0.8	A	558	558

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	519	130	757	1374	0.378	516	491	0.0	0.7	4.518	A
2 - the B1038	656	164	858	1185	0.554	651	415	0.0	1.3	6.934	A
3 - Access Road	4	1	1367	274	0.015	4	142	0.0	0.0	13.331	B
4 - the A10 South	792	198	482	1826	0.434	789	889	0.0	0.8	3.681	A
5 - the A507	558	140	693	1273	0.438	555	577	0.0	0.8	5.324	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	519	130	761	1372	0.378	519	494	0.7	0.7	4.558	A
2 - the B1038	656	164	863	1182	0.555	656	417	1.3	1.3	7.097	A
3 - Access Road	4	1	1376	271	0.015	4	143	0.0	0.0	13.459	B
4 - the A10 South	792	198	485	1824	0.434	792	895	0.8	0.8	3.710	A
5 - the A507	558	140	697	1271	0.439	558	580	0.8	0.8	5.387	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	519	130	761	1372	0.378	519	494	0.7	0.7	4.558	A
2 - the B1038	656	164	863	1182	0.555	656	417	1.3	1.3	7.100	A
3 - Access Road	4	1	1376	271	0.015	4	143	0.0	0.0	13.460	B
4 - the A10 South	792	198	485	1824	0.434	792	895	0.8	0.8	3.710	A
5 - the A507	558	140	697	1271	0.439	558	580	0.8	0.8	5.388	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	519	130	761	1372	0.378	519	494	0.7	0.7	4.558	A
2 - the B1038	656	164	863	1182	0.555	656	417	1.3	1.3	7.100	A
3 - Access Road	4	1	1376	271	0.015	4	143	0.0	0.0	13.460	B
4 - the A10 South	792	198	485	1824	0.434	792	895	0.8	0.8	3.710	A
5 - the A507	558	140	697	1271	0.439	558	580	0.8	0.8	5.388	A

2023 Baseline Traffic, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A10 / B1038 Roundabout	Standard Roundabout		1, 2, 3, 4, 5	4.00	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.00	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2023 Baseline Traffic	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - the A10 North		FLAT	✓	450	100.000
2 - the B1038		FLAT	✓	483	100.000
3 - Access Road		FLAT	✓	17	100.000
4 - the A10 South		FLAT	✓	865	100.000
5 - the A507		FLAT	✓	469	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
From	1 - the A10 North	0	88	20	228	114
	2 - the B1038	124	0	25	207	127
	3 - Access Road	3	2	0	9	3
	4 - the A10 South	385	151	24	0	305
	5 - the A507	31	184	17	237	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To					
From		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
	1 - the A10 North	0	4	0	2	1
	2 - the B1038	2	0	0	0	3
	3 - Access Road	0	0	0	0	0
	4 - the A10 South	2	4	0	0	4
	5 - the A507	3	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - the A10 North	0.31	3.64	0.5	A	450	450
2 - the B1038	0.37	4.39	0.6	A	483	483
3 - Access Road	0.05	10.29	0.0	B	17	17
4 - the A10 South	0.46	3.58	0.9	A	865	865
5 - the A507	0.37	4.47	0.6	A	469	469

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	450	113	612	1462	0.308	448	541	0.0	0.5	3.618	A
2 - the B1038	483	121	637	1315	0.367	481	423	0.0	0.6	4.358	A
3 - Access Road	17	4	1032	368	0.046	17	86	0.0	0.0	10.238	B
4 - the A10 South	865	216	371	1902	0.455	862	678	0.0	0.9	3.553	A
5 - the A507	469	117	686	1277	0.367	467	547	0.0	0.6	4.438	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	450	113	615	1460	0.308	450	543	0.5	0.5	3.635	A
2 - the B1038	483	121	640	1313	0.368	483	425	0.6	0.6	4.391	A
3 - Access Road	17	4	1037	367	0.046	17	86	0.0	0.0	10.287	B
4 - the A10 South	865	216	373	1900	0.455	865	681	0.9	0.9	3.579	A
5 - the A507	469	117	689	1275	0.368	469	549	0.6	0.6	4.472	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	450	113	615	1460	0.308	450	543	0.5	0.5	3.635	A
2 - the B1038	483	121	640	1313	0.368	483	425	0.6	0.6	4.391	A
3 - Access Road	17	4	1037	367	0.046	17	86	0.0	0.0	10.288	B
4 - the A10 South	865	216	373	1900	0.455	865	681	0.9	0.9	3.579	A
5 - the A507	469	117	689	1275	0.368	469	549	0.6	0.6	4.472	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	450	113	615	1460	0.308	450	543	0.5	0.5	3.635	A
2 - the B1038	483	121	640	1313	0.368	483	425	0.6	0.6	4.391	A
3 - Access Road	17	4	1037	367	0.046	17	86	0.0	0.0	10.288	B
4 - the A10 South	865	216	373	1900	0.455	865	681	0.9	0.9	3.580	A
5 - the A507	469	117	689	1275	0.368	469	549	0.6	0.6	4.472	A

2035 Baseline Traffic, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A10 / B1038 Roundabout	Standard Roundabout		1, 2, 3, 4, 5	6.60	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.60	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2035 Baseline Traffic	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - the A10 North		FLAT	✓	581	100.000
2 - the B1038		FLAT	✓	732	100.000
3 - Access Road		FLAT	✓	4	100.000
4 - the A10 South		FLAT	✓	978	100.000
5 - the A507		FLAT	✓	634	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
From	1 - the A10 North	0	68	25	328	160
	2 - the B1038	216	0	58	301	157
	3 - Access Road	0	0	0	3	1
	4 - the A10 South	318	255	40	0	365
	5 - the A507	40	167	34	393	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To					
From		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
	1 - the A10 North	0	13	14	6	9
	2 - the B1038	2	0	6	3	7
	3 - Access Road	0	0	0	0	0
	4 - the A10 South	7	4	3	0	8
	5 - the A507	3	8	13	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - the A10 North	0.45	5.45	0.9	A	581	581
2 - the B1038	0.66	9.79	2.0	A	732	732
3 - Access Road	0.02	16.59	0.0	C	4	4
4 - the A10 South	0.55	4.71	1.3	A	978	978
5 - the A507	0.53	6.84	1.2	A	634	634

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	581	145	883	1297	0.447	577	569	0.0	0.9	5.369	A
2 - the B1038	732	183	973	1117	0.655	724	487	0.0	1.9	9.334	A
3 - Access Road	4	1	1542	225	0.018	4	156	0.0	0.0	16.304	C
4 - the A10 South	978	245	529	1794	0.545	973	1017	0.0	1.3	4.638	A
5 - the A507	634	159	823	1198	0.529	630	679	0.0	1.2	6.697	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	581	145	889	1294	0.449	581	574	0.9	0.9	5.446	A
2 - the B1038	732	183	979	1114	0.657	732	490	1.9	2.0	9.776	A
3 - Access Road	4	1	1554	221	0.019	4	157	0.0	0.0	16.581	C
4 - the A10 South	978	245	534	1791	0.546	978	1025	1.3	1.3	4.711	A
5 - the A507	634	159	829	1195	0.531	634	683	1.2	1.2	6.843	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	581	145	889	1294	0.449	581	574	0.9	0.9	5.447	A
2 - the B1038	732	183	980	1114	0.657	732	490	2.0	2.0	9.784	A
3 - Access Road	4	1	1555	221	0.019	4	157	0.0	0.0	16.585	C
4 - the A10 South	978	245	534	1791	0.546	978	1025	1.3	1.3	4.712	A
5 - the A507	634	159	829	1195	0.531	634	683	1.2	1.2	6.844	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	581	145	889	1294	0.449	581	574	0.9	0.9	5.447	A
2 - the B1038	732	183	980	1114	0.657	732	490	2.0	2.0	9.786	A
3 - Access Road	4	1	1555	221	0.019	4	157	0.0	0.0	16.585	C
4 - the A10 South	978	245	534	1791	0.546	978	1025	1.3	1.3	4.712	A
5 - the A507	634	159	829	1195	0.531	634	683	1.2	1.2	6.844	A

2035 Baseline Traffic, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A10 / B1038 Roundabout	Standard Roundabout		1, 2, 3, 4, 5	4.46	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.46	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2035 Baseline Traffic	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - the A10 North		FLAT	✓	496	100.000
2 - the B1038		FLAT	✓	533	100.000
3 - Access Road		FLAT	✓	19	100.000
4 - the A10 South		FLAT	✓	953	100.000
5 - the A507		FLAT	✓	517	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
From	1 - the A10 North	0	97	22	251	126
	2 - the B1038	137	0	28	228	140
	3 - Access Road	3	2	0	10	3
	4 - the A10 South	425	166	26	0	336
	5 - the A507	34	203	19	261	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To					
From		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
	1 - the A10 North	0	4	0	2	1
	2 - the B1038	2	0	0	0	3
	3 - Access Road	0	0	0	0	0
	4 - the A10 South	2	4	0	0	4
	5 - the A507	3	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - the A10 North	0.35	3.97	0.5	A	496	496
2 - the B1038	0.42	4.91	0.7	A	533	533
3 - Access Road	0.06	11.31	0.1	B	19	19
4 - the A10 South	0.51	4.03	1.1	A	953	953
5 - the A507	0.42	5.02	0.7	A	517	517

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	496	124	674	1424	0.348	494	596	0.0	0.5	3.941	A
2 - the B1038	533	133	702	1277	0.417	530	466	0.0	0.7	4.865	A
3 - Access Road	19	5	1138	339	0.055	19	95	0.0	0.1	11.240	B
4 - the A10 South	953	238	409	1876	0.508	949	747	0.0	1.1	3.983	A
5 - the A507	517	129	756	1237	0.418	514	603	0.0	0.7	4.972	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	496	124	678	1422	0.349	496	599	0.5	0.5	3.967	A
2 - the B1038	533	133	705	1275	0.418	533	469	0.7	0.7	4.915	A
3 - Access Road	19	5	1143	337	0.056	19	95	0.1	0.1	11.313	B
4 - the A10 South	953	238	411	1874	0.509	953	751	1.1	1.1	4.025	A
5 - the A507	517	129	759	1235	0.419	517	605	0.7	0.7	5.023	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	496	124	678	1422	0.349	496	599	0.5	0.5	3.967	A
2 - the B1038	533	133	705	1275	0.418	533	469	0.7	0.7	4.915	A
3 - Access Road	19	5	1143	337	0.056	19	95	0.1	0.1	11.313	B
4 - the A10 South	953	238	411	1874	0.509	953	751	1.1	1.1	4.025	A
5 - the A507	517	129	759	1235	0.419	517	605	0.7	0.7	5.023	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	496	124	678	1422	0.349	496	599	0.5	0.5	3.967	A
2 - the B1038	533	133	705	1275	0.418	533	469	0.7	0.7	4.915	A
3 - Access Road	19	5	1143	337	0.056	19	95	0.1	0.1	11.313	B
4 - the A10 South	953	238	411	1874	0.509	953	751	1.1	1.1	4.025	A
5 - the A507	517	129	759	1235	0.419	517	605	0.7	0.7	5.023	A

2035 + Total Dev Sites, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A10 / B1038 Roundabout	Standard Roundabout		1, 2, 3, 4, 5	9.63	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.63	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	2035 + Total Dev Sites	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - the A10 North		FLAT	✓	616	100.000
2 - the B1038		FLAT	✓	821	100.000
3 - Access Road		FLAT	✓	4	100.000
4 - the A10 South		FLAT	✓	1101	100.000
5 - the A507		FLAT	✓	761	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
From	1 - the A10 North	0	68	25	328	195
	2 - the B1038	216	0	58	301	246
	3 - Access Road	0	0	0	3	1
	4 - the A10 South	318	255	40	0	488
	5 - the A507	43	200	34	484	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To					
From		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
	1 - the A10 North	0	13	14	6	9
	2 - the B1038	2	0	6	3	7
	3 - Access Road	0	0	0	0	0
	4 - the A10 South	7	4	3	0	8
	5 - the A507	3	8	13	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - the A10 North	0.51	6.45	1.1	A	616	616
2 - the B1038	0.79	17.10	3.8	C	821	821
3 - Access Road	0.03	23.02	0.0	C	4	4
4 - the A10 South	0.65	6.34	1.9	A	1101	1101
5 - the A507	0.64	8.84	1.9	A	761	761

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	616	154	1004	1224	0.504	612	570	0.0	1.1	6.309	A
2 - the B1038	821	205	1097	1044	0.786	807	519	0.0	3.5	14.986	B
3 - Access Road	4	1	1749	166	0.025	4	155	0.0	0.0	22.140	C
4 - the A10 South	1101	275	649	1712	0.643	1093	1104	0.0	1.9	6.128	A
5 - the A507	761	190	821	1200	0.634	754	922	0.0	1.8	8.476	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	616	154	1013	1219	0.506	616	576	1.1	1.1	6.452	A
2 - the B1038	821	205	1106	1039	0.790	820	523	3.5	3.7	16.959	C
3 - Access Road	4	1	1769	161	0.026	4	157	0.0	0.0	22.987	C
4 - the A10 South	1101	275	658	1706	0.645	1101	1116	1.9	1.9	6.336	A
5 - the A507	761	190	828	1195	0.637	761	930	1.8	1.8	8.827	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	616	154	1013	1219	0.506	616	577	1.1	1.1	6.453	A
2 - the B1038	821	205	1106	1039	0.790	820	523	3.7	3.8	17.066	C
3 - Access Road	4	1	1770	161	0.026	4	157	0.0	0.0	23.012	C
4 - the A10 South	1101	275	658	1706	0.645	1101	1116	1.9	1.9	6.341	A
5 - the A507	761	190	829	1195	0.637	761	930	1.8	1.8	8.834	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	616	154	1013	1219	0.506	616	577	1.1	1.1	6.453	A
2 - the B1038	821	205	1106	1039	0.790	821	523	3.8	3.8	17.101	C
3 - Access Road	4	1	1770	160	0.026	4	157	0.0	0.0	23.017	C
4 - the A10 South	1101	275	658	1706	0.645	1101	1116	1.9	1.9	6.341	A
5 - the A507	761	190	829	1195	0.637	761	930	1.8	1.9	8.836	A

2035 + Total Dev Sites, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A10 / B1038 Roundabout	Standard Roundabout		1, 2, 3, 4, 5	5.88	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.88	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2035 + Total Dev Sites	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - the A10 North		FLAT	✓	511	100.000
2 - the B1038		FLAT	✓	577	100.000
3 - Access Road		FLAT	✓	19	100.000
4 - the A10 South		FLAT	✓	1107	100.000
5 - the A507		FLAT	✓	748	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
From	1 - the A10 North	0	97	22	264	128
	2 - the B1038	137	0	28	240	172
	3 - Access Road	3	2	0	10	3
	4 - the A10 South	441	183	26	0	457
	5 - the A507	59	270	19	400	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To					
From		1 - the A10 North	2 - the B1038	3 - Access Road	4 - the A10 South	5 - the A507
	1 - the A10 North	0	4	0	2	1
	2 - the B1038	2	0	0	0	3
	3 - Access Road	0	0	0	0	0
	4 - the A10 South	2	4	0	0	4
	5 - the A507	3	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - the A10 North	0.40	4.73	0.7	A	511	511
2 - the B1038	0.49	6.00	1.0	A	577	577
3 - Access Road	0.07	13.70	0.1	B	19	19
4 - the A10 South	0.60	4.99	1.5	A	1107	1107
5 - the A507	0.62	7.70	1.6	A	748	748

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	511	128	893	1291	0.395	508	636	0.0	0.7	4.673	A
2 - the B1038	577	144	853	1188	0.485	573	548	0.0	0.9	5.897	A
3 - Access Road	19	5	1331	284	0.066	18	94	0.0	0.1	13.544	B
4 - the A10 South	1107	277	442	1853	0.597	1101	908	0.0	1.5	4.896	A
5 - the A507	748	187	788	1219	0.614	742	756	0.0	1.6	7.471	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	511	128	900	1287	0.397	511	640	0.7	0.7	4.729	A
2 - the B1038	577	144	859	1185	0.487	577	552	0.9	1.0	6.000	A
3 - Access Road	19	5	1340	282	0.067	19	95	0.1	0.1	13.700	B
4 - the A10 South	1107	277	445	1851	0.598	1107	914	1.5	1.5	4.987	A
5 - the A507	748	187	792	1216	0.615	748	760	1.6	1.6	7.701	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	511	128	900	1287	0.397	511	640	0.7	0.7	4.730	A
2 - the B1038	577	144	859	1185	0.487	577	552	1.0	1.0	6.000	A
3 - Access Road	19	5	1340	281	0.067	19	95	0.1	0.1	13.701	B
4 - the A10 South	1107	277	445	1851	0.598	1107	914	1.5	1.5	4.987	A
5 - the A507	748	187	792	1216	0.615	748	760	1.6	1.6	7.704	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - the A10 North	511	128	900	1287	0.397	511	640	0.7	0.7	4.730	A
2 - the B1038	577	144	859	1185	0.487	577	552	1.0	1.0	6.000	A
3 - Access Road	19	5	1340	281	0.067	19	95	0.1	0.1	13.701	B
4 - the A10 South	1107	277	445	1851	0.598	1107	914	1.5	1.5	4.987	A
5 - the A507	748	187	792	1216	0.615	748	760	1.6	1.6	7.704	A

Junctions 10						
PICADY 10 - Priority Intersection Module						
Version: 10.1.1.1905 © Copyright TRL Software Limited, 2023						
For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com						
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution						

Filename: High St - B1038 DL (2035).j10

Path: Y:\PROJECT FOLDER\23161 Buntingford\Calculations\4. Transport\LHA 37.5% Internal with CD\LHA Test OD 25% + Committed Dev

Report generation date: 22/05/2025 09:36:51

- »Year 2023 Baseline, AM
- »Year 2023 Baseline , PM
- »Year 2035 Baseline, AM
- »Year 2035 Baseline, PM
- »Year 2035 + Dev Total Sites, AM
- »Year 2035 + Dev Total Sites, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Year 2023 Baseline						
Stream B-AC	0.6	11.64	0.36	0.4	10.66	0.30
Stream C-AB	0.9	8.74	0.36	1.1	9.73	0.40
Year 2035 Baseline						
Stream B-AC	0.8	13.67	0.43	0.6	12.68	0.38
Stream C-AB	1.2	9.49	0.42	1.4	10.72	0.47
Year 2035 + Dev Total Sites						
Stream B-AC	1.1	18.12	0.53	0.7	14.24	0.42
Stream C-AB	1.4	9.42	0.44	1.6	11.18	0.49

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Baldock Rd/High St Junction
Location	Buntingford
Site number	
Date	16/10/2023
Version	A
Status	(new file)
Identifier	
Client	
Jobnumber	23161
Enumerator	JUBB\SRadford
Description	Geometric Input from OS/Satelite mapping

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75				✓		0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D2	Year 2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D3	Year 2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D4	Year 2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D5	Year 2035 + Northern Site	AM	FLAT	07:45	08:45	60	15	
D6	Year 2035 + Northern Site	PM	FLAT	17:00	18:00	60	15	
D7	Year 2035 + Southern Site	AM	FLAT	07:45	08:45	60	15	
D8	Year 2035 + Southern Site	PM	FLAT	17:00	18:00	60	15	
D9	Year 2035 + Dev Total Sites	AM	FLAT	07:45	08:45	60	15	✓
D10	Year 2035 + Dev Total Sites	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Year 2023 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		4.66	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.66	A

Arms

Arms

Arm	Name	Description	Arm type
A	Baldock Rd		Major
B	High St		Minor
C	B1038		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - B1038	6.15			0.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - High St	One lane	2.50	50	18

Slope / Intercept / Capacity

Custom Intercept Adjustments

Custom stream intercept adjustment	Stream	Use adjustment	Reason	Direct intercept adjustment (PCU/hr)
1	C-B	✓	Queue	-100

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	477	0.088	0.222	0.139	0.317
B-C	603	0.090	0.229	-	-
C-B	474	0.221	0.221	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Baldock Rd		FLAT	✓	262	100.000
B - High St		FLAT	✓	174	100.000
C - B1038		FLAT	✓	439	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	53	209
	B - High St	38	0	136
	C - B1038	318	121	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	10	6
	B - High St	5	0	0
	C - B1038	3	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.36	11.64	0.6	B	174	174
C-AB	0.36	8.74	0.9	A	235	235
C-A					204	204
A-B					53	53
A-C					209	209

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	174	44	487	0.357	172	0.0	0.6	11.472	B
C-AB	233	58	661	0.353	230	0.0	0.9	8.591	A
C-A	206	51			206				
A-B	53	13			53				
A-C	209	52			209				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	174	44	486	0.358	174	0.6	0.6	11.640	B
C-AB	235	59	662	0.355	235	0.9	0.9	8.740	A
C-A	204	51			204				
A-B	53	13			53				
A-C	209	52			209				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	174	44	486	0.358	174	0.6	0.6	11.642	B
C-AB	235	59	662	0.355	235	0.9	0.9	8.744	A
C-A	204	51			204				
A-B	53	13			53				
A-C	209	52			209				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	174	44	486	0.358	174	0.6	0.6	11.642	B
C-AB	235	59	662	0.355	235	0.9	0.9	8.743	A
C-A	204	51			204				
A-B	53	13			53				
A-C	209	52			209				

Year 2023 Baseline , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		4.54	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.54	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Year 2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Baldock Rd		FLAT	✓	314	100.000
B - High St		FLAT	✓	146	100.000
C - B1038		FLAT	✓	426	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	33	281
	B - High St	25	0	121
	C - B1038	290	136	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	0	6
	B - High St	0	0	0
	C - B1038	1	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.30	10.66	0.4	B	146	146
C-AB	0.40	9.73	1.1	A	254	254
C-A					172	172
A-B					33	33
A-C					281	281

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	146	37	484	0.302	144	0.0	0.4	10.549	B
C-AB	252	63	629	0.401	248	0.0	1.0	9.509	A
C-A	174	43			174				
A-B	33	8			33				
A-C	281	70			281				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	146	37	484	0.302	146	0.4	0.4	10.664	B
C-AB	254	64	631	0.403	254	1.0	1.0	9.720	A
C-A	172	43			172				
A-B	33	8			33				
A-C	281	70			281				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	146	37	484	0.302	146	0.4	0.4	10.664	B
C-AB	254	64	631	0.403	254	1.0	1.0	9.726	A
C-A	172	43			172				
A-B	33	8			33				
A-C	281	70			281				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	146	37	484	0.302	146	0.4	0.4	10.665	B
C-AB	254	64	631	0.403	254	1.0	1.1	9.725	A
C-A	172	43			172				
A-B	33	8			33				
A-C	281	70			281				

Year 2035 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		5.38	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.38	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	Year 2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Baldock Rd		FLAT	✓	320	100.000
B - High St		FLAT	✓	199	100.000
C - B1038		FLAT	✓	488	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	76	244
	B - High St	48	0	151
	C - B1038	353	135	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	10	6
	B - High St	5	0	0
	C - B1038	3	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.43	13.67	0.8	B	199	199
C-AB	0.42	9.49	1.2	A	284	284
C-A					204	204
A-B					76	76
A-C					244	244

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	199	50	466	0.427	196	0.0	0.7	13.355	B
C-AB	282	71	677	0.416	277	0.0	1.2	9.250	A
C-A	206	51			206				
A-B	76	19			76				
A-C	244	61			244				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	199	50	465	0.428	199	0.7	0.7	13.660	B
C-AB	285	71	679	0.419	285	1.2	1.2	9.487	A
C-A	203	51			203				
A-B	76	19			76				
A-C	244	61			244				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	199	50	465	0.428	199	0.7	0.7	13.666	B
C-AB	285	71	679	0.419	285	1.2	1.2	9.490	A
C-A	203	51			203				
A-B	76	19			76				
A-C	244	61			244				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	199	50	465	0.428	199	0.7	0.8	13.668	B
C-AB	285	71	679	0.419	285	1.2	1.2	9.493	A
C-A	203	51			203				
A-B	76	19			76				
A-C	244	61			244				

Year 2035 Baseline, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		5.39	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.39	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	Year 2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Baldock Rd		FLAT	✓	363	100.000
B - High St		FLAT	✓	172	100.000
C - B1038		FLAT	✓	473	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	46	317
	B - High St	38	0	134
	C - B1038	322	151	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	0	6
	B - High St	0	0	0
	C - B1038	1	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.38	12.68	0.6	B	172	172
C-AB	0.47	10.72	1.4	B	304	304
C-A					169	169
A-B					46	46
A-C					317	317

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	172	43	456	0.377	170	0.0	0.6	12.450	B
C-AB	301	75	645	0.467	296	0.0	1.4	10.366	B
C-A	172	43			172				
A-B	46	12			46				
A-C	317	79			317				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	172	43	456	0.377	172	0.6	0.6	12.674	B
C-AB	304	76	647	0.470	304	1.4	1.4	10.712	B
C-A	169	42			169				
A-B	46	12			46				
A-C	317	79			317				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	172	43	456	0.377	172	0.6	0.6	12.681	B
C-AB	304	76	648	0.470	304	1.4	1.4	10.720	B
C-A	169	42			169				
A-B	46	12			46				
A-C	317	79			317				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	172	43	456	0.377	172	0.6	0.6	12.681	B
C-AB	304	76	648	0.470	304	1.4	1.4	10.723	B
C-A	169	42			169				
A-B	46	12			46				
A-C	317	79			317				

Year 2035 + Dev Total Sites, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		6.35	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.35	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	Year 2035 + Dev Total Sites	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Baldock Rd		FLAT	✓	351	100.000
B - High St		FLAT	✓	228	100.000
C - B1038		FLAT	✓	542	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	85	266
	B - High St	77	0	151
	C - B1038	407	135	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	10	6
	B - High St	5	0	0
	C - B1038	3	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.53	18.12	1.1	C	228	228
C-AB	0.44	9.42	1.4	A	317	317
C-A					225	225
A-B					85	85
A-C					266	266

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	228	57	431	0.530	224	0.0	1.1	17.336	C
C-AB	314	79	714	0.440	309	0.0	1.4	9.135	A
C-A	228	57			228				
A-B	85	21			85				
A-C	266	67			266				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	228	57	430	0.530	228	1.1	1.1	18.097	C
C-AB	318	79	716	0.444	318	1.4	1.4	9.409	A
C-A	224	56			224				
A-B	85	21			85				
A-C	266	67			266				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	228	57	430	0.530	228	1.1	1.1	18.114	C
C-AB	318	79	716	0.444	318	1.4	1.4	9.415	A
C-A	224	56			224				
A-B	85	21			85				
A-C	266	67			266				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	228	57	430	0.530	228	1.1	1.1	18.120	C
C-AB	318	79	716	0.444	318	1.4	1.4	9.415	A
C-A	224	56			224				
A-B	85	21			85				
A-C	266	67			266				

Year 2035 + Dev Total Sites, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		5.60	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.60	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	Year 2035 + Dev Total Sites	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Baldock Rd		FLAT	✓	426	100.000
B - High St		FLAT	✓	180	100.000
C - B1038		FLAT	✓	494	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	68	358
	B - High St	46	0	134
	C - B1038	343	151	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A - Baldock Rd	B - High St	C - B1038
From	A - Baldock Rd	0	0	6
	B - High St	0	0	0
	C - B1038	1	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.42	14.24	0.7	B	180	180
C-AB	0.49	11.18	1.6	B	322	322
C-A					172	172
A-B					68	68
A-C					358	358

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	180	45	434	0.415	177	0.0	0.7	13.902	B
C-AB	319	80	650	0.491	313	0.0	1.5	10.743	B
C-A	175	44			175				
A-B	68	17			68				
A-C	358	90			358				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	180	45	433	0.416	180	0.7	0.7	14.231	B
C-AB	323	81	653	0.495	323	1.5	1.6	11.166	B
C-A	171	43			171				
A-B	68	17			68				
A-C	358	90			358				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	180	45	433	0.416	180	0.7	0.7	14.237	B
C-AB	323	81	653	0.495	323	1.6	1.6	11.177	B
C-A	171	43			171				
A-B	68	17			68				
A-C	358	90			358				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	180	45	433	0.416	180	0.7	0.7	14.238	B
C-AB	323	81	653	0.495	323	1.6	1.6	11.179	B
C-A	171	43			171				
A-B	68	17			68				
A-C	358	90			358				

Junctions 10						
ARCADY 10 - Roundabout Module						
Version: 10.1.1.1905						
© Copyright TRL Software Limited, 2023						
For sales and distribution information, program advice and maintenance, contact TRL Software:						
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com						
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution						

Filename: High St - Hare St - Station Rd DL (2035).j10

Path: Y:\PROJECT FOLDER\23161 Buntingford\Calculations\4. Transport\LHA 37.5% Internal with CD\LHA Test OD 25% + Committed Dev

Report generation date: 22/05/2025 10:14:55

- »2023 Baseline, AM
- »2023 Baseline, PM
- »2035 Baseline, AM
- »2035 Baseline, PM
- »2035 + Dev Total Sites, AM
- »2035 + Dev Total Sites, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2023 Baseline						
1 - High Street	0.6	6.00	0.36	0.7	6.50	0.41
2 - Hare Street	0.4	6.42	0.30	0.4	6.34	0.27
3 - Station Road	0.8	7.39	0.43	0.8	7.46	0.46
2035 Baseline						
1 - High Street	0.7	6.70	0.42	0.9	7.28	0.47
2 - Hare Street	0.5	6.97	0.34	0.5	6.86	0.31
3 - Station Road	1.0	8.50	0.50	1.1	8.50	0.52
2035 + Dev Total Sites						
1 - High Street	0.8	6.99	0.44	1.0	7.90	0.51
2 - Hare Street	0.6	7.49	0.38	0.5	7.13	0.33
3 - Station Road	1.2	9.43	0.54	1.2	8.88	0.54

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	High Street/Hare St/Station Rd
Location	Buntingford
Site number	
Date	16/10/2023
Version	A
Status	(new file)
Identifier	
Client	
Jobnumber	23161
Enumerator	JUBB\SRadford
Description	Geometric Input from Dev 3/22/1551

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
JUNCTIONS 9	5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D2	2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D3	2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D4	2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D5	2035 + Dev Northern Site	AM	FLAT	07:45	08:45	60	15	
D6	2035 + Dev Northern Site	PM	FLAT	17:00	18:00	60	15	
D7	2035 + Dev Southern Site	AM	FLAT	07:45	08:45	60	15	
D8	2035 + Dev Southern Site	PM	FLAT	17:00	18:00	60	15	
D9	2035 + Dev Total Sites	AM	FLAT	07:45	08:45	60	15	✓
D10	2035 + Dev Total Sites	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2023 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	6.65	A

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		6.65	A

Arms

Arms

Arm	Name	Description
1	High Street	
2	Hare Street	
3	Station Road	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - High Street	4.30	3.90	3.90	0.0	8.90	5.70	0.0	
2 - Hare Street	3.10	3.10	4.50	4.0	7.30	4.70	0.0	
3 - Station Road	4.10	3.70	3.70	0.0	12.20	11.80	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - High Street	0.624	1027
2 - Hare Street	0.619	962
3 - Station Road	0.622	972

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - High Street		FLAT	✓	352	100.000
2 - Hare Street		FLAT	✓	247	100.000
3 - Station Road		FLAT	✓	383	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	129	223
	2 - Hare Street	141	0	106
	3 - Station Road	296	87	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	6	2
	2 - Hare Street	2	0	4
	3 - Station Road	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - High Street	0.36	6.00	0.6	A	352	352
2 - Hare Street	0.30	6.42	0.4	A	247	247
3 - Station Road	0.43	7.39	0.8	A	383	383

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	352	88	86	973	0.362	350	434	0.0	0.6	5.955	A
2 - Hare Street	247	62	222	824	0.300	245	214	0.0	0.4	6.374	A
3 - Station Road	383	96	140	885	0.433	380	327	0.0	0.8	7.295	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	352	88	87	972	0.362	352	437	0.6	0.6	6.002	A
2 - Hare Street	247	62	223	823	0.300	247	216	0.4	0.4	6.422	A
3 - Station Road	383	96	141	885	0.433	383	329	0.8	0.8	7.390	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	352	88	87	972	0.362	352	437	0.6	0.6	6.002	A
2 - Hare Street	247	62	223	823	0.300	247	216	0.4	0.4	6.422	A
3 - Station Road	383	96	141	885	0.433	383	329	0.8	0.8	7.390	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	352	88	87	972	0.362	352	437	0.6	0.6	6.002	A
2 - Hare Street	247	62	223	823	0.300	247	216	0.4	0.4	6.422	A
3 - Station Road	383	96	141	885	0.433	383	329	0.8	0.8	7.390	A

2023 Baseline, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	6.85	A

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		6.85	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - High Street		FLAT	✓	391	100.000
2 - Hare Street		FLAT	✓	215	100.000
3 - Station Road		FLAT	✓	410	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	122	269
	2 - Hare Street	128	0	87
	3 - Station Road	299	111	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	3	2
	2 - Hare Street	3	0	1
	3 - Station Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - High Street	0.41	6.50	0.7	A	391	391
2 - Hare Street	0.27	6.34	0.4	A	215	215
3 - Station Road	0.46	7.46	0.8	A	410	410

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	391	98	110	958	0.408	388	424	0.0	0.7	6.435	A
2 - Hare Street	215	54	267	796	0.270	214	231	0.0	0.4	6.296	A
3 - Station Road	410	103	127	893	0.459	407	353	0.0	0.8	7.349	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	391	98	111	957	0.408	391	427	0.7	0.7	6.502	A
2 - Hare Street	215	54	269	795	0.270	215	233	0.4	0.4	6.341	A
3 - Station Road	410	103	128	893	0.459	410	356	0.8	0.8	7.456	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	391	98	111	957	0.408	391	427	0.7	0.7	6.502	A
2 - Hare Street	215	54	269	795	0.270	215	233	0.4	0.4	6.341	A
3 - Station Road	410	103	128	893	0.459	410	356	0.8	0.8	7.456	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	391	98	111	957	0.408	391	427	0.7	0.7	6.502	A
2 - Hare Street	215	54	269	795	0.270	215	233	0.4	0.4	6.341	A
3 - Station Road	410	103	128	893	0.459	410	356	0.8	0.8	7.456	A

2035 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	7.47	A

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		7.47	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - High Street		FLAT	✓	402	100.000
2 - Hare Street		FLAT	✓	278	100.000
3 - Station Road		FLAT	✓	438	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	156	246
	2 - Hare Street	158	0	120
	3 - Station Road	328	110	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	6	2
	2 - Hare Street	2	0	4
	3 - Station Road	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - High Street	0.42	6.70	0.7	A	402	402
2 - Hare Street	0.34	6.97	0.5	A	278	278
3 - Station Road	0.50	8.50	1.0	A	438	438

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	402	101	109	959	0.419	399	482	0.0	0.7	6.626	A
2 - Hare Street	278	70	244	810	0.343	276	264	0.0	0.5	6.896	A
3 - Station Road	438	110	157	875	0.501	434	363	0.0	1.0	8.337	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	402	101	110	958	0.420	402	486	0.7	0.7	6.702	A
2 - Hare Street	278	70	246	809	0.344	278	266	0.5	0.5	6.969	A
3 - Station Road	438	110	158	874	0.501	438	366	1.0	1.0	8.500	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	402	101	110	958	0.420	402	486	0.7	0.7	6.702	A
2 - Hare Street	278	70	246	809	0.344	278	266	0.5	0.5	6.969	A
3 - Station Road	438	110	158	874	0.501	438	366	1.0	1.0	8.502	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	402	101	110	958	0.420	402	486	0.7	0.7	6.702	A
2 - Hare Street	278	70	246	809	0.344	278	266	0.5	0.5	6.969	A
3 - Station Road	438	110	158	874	0.501	438	366	1.0	1.0	8.502	A

2035 Baseline, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	7.68	A

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		7.68	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - High Street		FLAT	✓	440	100.000
2 - Hare Street		FLAT	✓	241	100.000
3 - Station Road		FLAT	✓	460	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	142	298
	2 - Hare Street	143	0	98
	3 - Station Road	331	129	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	3	2
	2 - Hare Street	3	0	1
	3 - Station Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - High Street	0.47	7.28	0.9	A	440	440
2 - Hare Street	0.31	6.86	0.5	A	241	241
3 - Station Road	0.52	8.50	1.1	A	460	460

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	440	110	128	947	0.465	436	470	0.0	0.9	7.170	A
2 - Hare Street	241	60	296	779	0.310	239	269	0.0	0.5	6.799	A
3 - Station Road	460	115	142	884	0.520	456	393	0.0	1.1	8.326	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	440	110	129	946	0.465	440	474	0.9	0.9	7.277	A
2 - Hare Street	241	60	298	777	0.310	241	271	0.5	0.5	6.861	A
3 - Station Road	460	115	143	883	0.521	460	396	1.1	1.1	8.498	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	440	110	129	946	0.465	440	474	0.9	0.9	7.277	A
2 - Hare Street	241	60	298	777	0.310	241	271	0.5	0.5	6.861	A
3 - Station Road	460	115	143	883	0.521	460	396	1.1	1.1	8.500	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	440	110	129	946	0.465	440	474	0.9	0.9	7.277	A
2 - Hare Street	241	60	298	777	0.310	241	271	0.5	0.5	6.861	A
3 - Station Road	460	115	143	883	0.521	460	396	1.1	1.1	8.502	A

2035 + Dev Total Sites, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	8.07	A

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		8.07	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	2035 + Dev Total Sites	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - High Street		FLAT	✓	425	100.000
2 - Hare Street		FLAT	✓	307	100.000
3 - Station Road		FLAT	✓	463	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	165	260
	2 - Hare Street	187	0	120
	3 - Station Road	353	110	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	6	2
	2 - Hare Street	2	0	4
	3 - Station Road	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - High Street	0.44	6.99	0.8	A	425	425
2 - Hare Street	0.38	7.49	0.6	A	307	307
3 - Station Road	0.54	9.43	1.2	A	463	463

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	425	106	109	959	0.443	422	535	0.0	0.8	6.900	A
2 - Hare Street	307	77	258	802	0.383	304	273	0.0	0.6	7.403	A
3 - Station Road	463	116	185	857	0.540	458	377	0.0	1.2	9.195	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	425	106	110	958	0.444	425	540	0.8	0.8	6.991	A
2 - Hare Street	307	77	260	801	0.383	307	275	0.6	0.6	7.495	A
3 - Station Road	463	116	187	856	0.541	463	380	1.2	1.2	9.429	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	425	106	110	958	0.444	425	540	0.8	0.8	6.991	A
2 - Hare Street	307	77	260	801	0.383	307	275	0.6	0.6	7.495	A
3 - Station Road	463	116	187	856	0.541	463	380	1.2	1.2	9.431	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	425	106	110	958	0.444	425	540	0.8	0.8	6.991	A
2 - Hare Street	307	77	260	801	0.383	307	275	0.6	0.6	7.495	A
3 - Station Road	463	116	187	856	0.541	463	380	1.2	1.2	9.433	A

2035 + Dev Total Sites, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	8.13	A

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		8.13	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2035 + Dev Total Sites	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - High Street		FLAT	✓	480	100.000
2 - Hare Street		FLAT	✓	249	100.000
3 - Station Road		FLAT	✓	473	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	163	317
	2 - Hare Street	151	0	98
	3 - Station Road	344	129	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		1 - High Street	2 - Hare Street	3 - Station Road
From	1 - High Street	0	3	2
	2 - Hare Street	3	0	1
	3 - Station Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - High Street	0.51	7.90	1.0	A	480	480
2 - Hare Street	0.33	7.13	0.5	A	249	249
3 - Station Road	0.54	8.88	1.2	A	473	473

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	480	120	128	947	0.507	476	491	0.0	1.0	7.757	A
2 - Hare Street	249	62	314	767	0.325	247	289	0.0	0.5	7.052	A
3 - Station Road	473	118	150	879	0.538	468	412	0.0	1.1	8.672	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	480	120	129	946	0.507	480	495	1.0	1.0	7.902	A
2 - Hare Street	249	62	317	765	0.325	249	292	0.5	0.5	7.125	A
3 - Station Road	473	118	151	878	0.538	473	415	1.1	1.2	8.875	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	480	120	129	946	0.507	480	495	1.0	1.0	7.904	A
2 - Hare Street	249	62	317	765	0.325	249	292	0.5	0.5	7.125	A
3 - Station Road	473	118	151	878	0.538	473	415	1.2	1.2	8.877	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - High Street	480	120	129	946	0.507	480	495	1.0	1.0	7.904	A
2 - Hare Street	249	62	317	765	0.325	249	292	0.5	0.5	7.125	A
3 - Station Road	473	118	151	878	0.538	473	415	1.2	1.2	8.879	A

Junctions 10		
ARCADY 10 - Roundabout Module		
Version: 10.1.1.1905 © Copyright TRL Software Limited, 2023		
For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com		
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution		

Filename: London Rd - A10 - Sainsbury Depot Access DL (2035).j10

Path: Y:\PROJECT FOLDER\23161 Buntingford\Calculations\4. Transport\LHA 37.5% Internal with CD\LHA Test OD 25% + Committed Dev

Report generation date: 22/05/2025 10:27:16

- »Year 2023 Baseline, AM
- »Year 2023 Baseline, PM
- »Year 2035 Baseline, AM
- »Year 2035 Baseline, PM
- »Year 2035 + Dev Total , AM
- »Year 2035 + Dev Total , PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Year 2023 Baseline						
1 - London Rd	0.6	4.20	0.37	0.2	2.85	0.19
2 - Sainsbury Depot Access	0.0	3.61	0.01	0.0	3.15	0.01
3 - A10 (S)	0.9	3.35	0.46	1.6	4.40	0.61
4 - A10 (N)	1.1	4.38	0.51	0.7	3.65	0.40
Year 2035 Baseline						
1 - London Rd	0.8	5.04	0.44	0.3	3.07	0.22
2 - Sainsbury Depot Access	0.0	4.11	0.01	0.0	3.35	0.01
3 - A10 (S)	1.2	3.84	0.52	2.5	6.04	0.71
4 - A10 (N)	1.7	5.58	0.61	0.9	4.24	0.47
Year 2035 + Dev Total						
1 - London Rd	0.9	5.57	0.47	0.3	3.24	0.23
2 - Sainsbury Depot Access	0.0	4.42	0.01	0.0	3.52	0.01
3 - A10 (S)	1.4	4.35	0.58	3.1	7.14	0.76
4 - A10 (N)	2.1	6.44	0.67	1.2	4.83	0.54

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	A10-London Rd RA
Location	Buntingford
Site number	
Date	16/10/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JUBB\SRadford
Description	Geometric Input from OS/Satelite Mapping

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D2	Year 2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D3	Year 2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓
D4	Year 2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓
D5	Year 2035 + Dev Northern Site	AM	FLAT	07:45	08:45	60	15	
D6	Year 2035 + Dev Northern Site	PM	FLAT	17:00	18:00	60	15	
D7	Year 2035 + Dev Southern Site	AM	FLAT	07:45	08:45	60	15	
D8	Year 2035 + Dev Southern Site	PM	FLAT	17:00	18:00	60	15	
D9	Year 2035 + Dev Total	AM	FLAT	07:45	08:45	60	15	✓
D10	Year 2035 + Dev Total	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Year 2023 Baseline, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - A10 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A10 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.93	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.93	A

Arms

Arms

Arm	Name	Description	No give-way line
1	London Rd		
2	Sainsbury Depot Access		
3	A10 (S)		
4	A10 (N)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - London Rd	3.70	9.40	21.8	18.0	54.0	44.0		
2 - Sainsbury Depot Access	4.10	8.00	16.7	18.0	54.0	43.0		
3 - A10 (S)	3.40	7.30	77.5	33.0	54.0	19.0		
4 - A10 (N)	3.50	7.00	42.7	35.0	54.0	30.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - London Rd	0.620	1950
2 - Sainsbury Depot Access	0.598	1822
3 - A10 (S)	0.691	2166
4 - A10 (N)	0.639	1940

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2023 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - London Rd		FLAT	✓	518	100.000
2 - Sainsbury Depot Access		FLAT	✓	6	100.000
3 - A10 (S)		FLAT	✓	956	100.000
4 - A10 (N)		FLAT	✓	918	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	9	417	92
	2 - Sainsbury Depot Access	1	0	4	1
	3 - A10 (S)	234	8	0	714
	4 - A10 (N)	54	4	860	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	0	3	9
	2 - Sainsbury Depot Access	0	0	0	0
	3 - A10 (S)	9	0	0	6
	4 - A10 (N)	15	0	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - London Rd	0.37	4.20	0.6	A	518	518
2 - Sainsbury Depot Access	0.01	3.61	0.0	A	6	6
3 - A10 (S)	0.46	3.35	0.9	A	956	956
4 - A10 (N)	0.51	4.38	1.1	A	918	918

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	518	130	868	1412	0.367	516	288	0.0	0.6	4.166	A
2 - Sainsbury Depot Access	6	2	1363	1007	0.006	6	21	0.0	0.0	3.594	A
3 - A10 (S)	956	239	94	2101	0.455	952	1275	0.0	0.9	3.334	A
4 - A10 (N)	918	230	242	1786	0.514	914	804	0.0	1.1	4.334	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	518	130	872	1409	0.368	518	289	0.6	0.6	4.199	A
2 - Sainsbury Depot Access	6	2	1369	1003	0.006	6	21	0.0	0.0	3.608	A
3 - A10 (S)	956	239	94	2101	0.455	956	1281	0.9	0.9	3.353	A
4 - A10 (N)	918	230	243	1785	0.514	918	807	1.1	1.1	4.380	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	518	130	872	1409	0.368	518	289	0.6	0.6	4.199	A
2 - Sainsbury Depot Access	6	2	1369	1003	0.006	6	21	0.0	0.0	3.608	A
3 - A10 (S)	956	239	94	2101	0.455	956	1281	0.9	0.9	3.353	A
4 - A10 (N)	918	230	243	1785	0.514	918	807	1.1	1.1	4.380	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	518	130	872	1409	0.368	518	289	0.6	0.6	4.199	A
2 - Sainsbury Depot Access	6	2	1369	1003	0.006	6	21	0.0	0.0	3.608	A
3 - A10 (S)	956	239	94	2101	0.455	956	1281	0.9	0.9	3.353	A
4 - A10 (N)	918	230	243	1785	0.514	918	807	1.1	1.1	4.380	A

Year 2023 Baseline, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - A10 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A10 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.97	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.97	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Year 2023 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - London Rd		FLAT	✓	299	100.000
2 - Sainsbury Depot Access		FLAT	✓	9	100.000
3 - A10 (S)		FLAT	✓	1288	100.000
4 - A10 (N)		FLAT	✓	662	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	8	236	55
	2 - Sainsbury Depot Access	4	0	4	1
	3 - A10 (S)	439	1	0	848
	4 - A10 (N)	64	2	596	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	0	1	2
	2 - Sainsbury Depot Access	0	0	33	0
	3 - A10 (S)	1	0	0	3
	4 - A10 (N)	0	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - London Rd	0.19	2.85	0.2	A	299	299
2 - Sainsbury Depot Access	0.01	3.15	0.0	A	9	9
3 - A10 (S)	0.61	4.40	1.6	A	1288	1288
4 - A10 (N)	0.40	3.65	0.7	A	662	662

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	299	75	597	1580	0.189	298	505	0.0	0.2	2.839	A
2 - Sainsbury Depot Access	9	2	884	1293	0.007	9	11	0.0	0.0	3.149	A
3 - A10 (S)	1288	322	60	2124	0.606	1282	833	0.0	1.6	4.339	A
4 - A10 (N)	662	166	442	1658	0.399	659	900	0.0	0.7	3.629	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	299	75	599	1578	0.189	299	507	0.2	0.2	2.845	A
2 - Sainsbury Depot Access	9	2	887	1291	0.007	9	11	0.0	0.0	3.154	A
3 - A10 (S)	1288	322	60	2124	0.606	1288	836	1.6	1.6	4.404	A
4 - A10 (N)	662	166	444	1657	0.400	662	904	0.7	0.7	3.651	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	299	75	599	1578	0.189	299	507	0.2	0.2	2.845	A
2 - Sainsbury Depot Access	9	2	887	1291	0.007	9	11	0.0	0.0	3.154	A
3 - A10 (S)	1288	322	60	2124	0.606	1288	836	1.6	1.6	4.404	A
4 - A10 (N)	662	166	444	1657	0.400	662	904	0.7	0.7	3.651	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	299	75	599	1578	0.189	299	507	0.2	0.2	2.845	A
2 - Sainsbury Depot Access	9	2	887	1291	0.007	9	11	0.0	0.0	3.154	A
3 - A10 (S)	1288	322	60	2124	0.606	1288	836	1.6	1.6	4.404	A
4 - A10 (N)	662	166	444	1657	0.400	662	904	0.7	0.7	3.651	A

Year 2035 Baseline, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - A10 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A10 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.78	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.78	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	Year 2035 Baseline	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - London Rd		FLAT	✓	574	100.000
2 - Sainsbury Depot Access		FLAT	✓	6	100.000
3 - A10 (S)		FLAT	✓	1092	100.000
4 - A10 (N)		FLAT	✓	1088	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	10	458	106
	2 - Sainsbury Depot Access	1	0	4	1
	3 - A10 (S)	257	9	0	826
	4 - A10 (N)	75	4	1009	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	0	3	9
	2 - Sainsbury Depot Access	0	0	0	0
	3 - A10 (S)	9	0	0	6
	4 - A10 (N)	15	0	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - London Rd	0.44	5.04	0.8	A	574	574
2 - Sainsbury Depot Access	0.01	4.11	0.0	A	6	6
3 - A10 (S)	0.52	3.84	1.2	A	1092	1092
4 - A10 (N)	0.61	5.58	1.7	A	1088	1088

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	574	144	1016	1320	0.435	571	331	0.0	0.8	4.977	A
2 - Sainsbury Depot Access	6	2	1564	887	0.007	6	23	0.0	0.0	4.086	A
3 - A10 (S)	1092	273	107	2091	0.522	1087	1462	0.0	1.2	3.806	A
4 - A10 (N)	1088	272	266	1770	0.615	1081	929	0.0	1.7	5.466	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	574	144	1022	1316	0.436	574	333	0.8	0.8	5.044	A
2 - Sainsbury Depot Access	6	2	1573	881	0.007	6	23	0.0	0.0	4.112	A
3 - A10 (S)	1092	273	108	2091	0.522	1092	1471	1.2	1.2	3.842	A
4 - A10 (N)	1088	272	267	1770	0.615	1088	933	1.7	1.7	5.576	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	574	144	1022	1316	0.436	574	333	0.8	0.8	5.044	A
2 - Sainsbury Depot Access	6	2	1573	881	0.007	6	23	0.0	0.0	4.112	A
3 - A10 (S)	1092	273	108	2091	0.522	1092	1471	1.2	1.2	3.842	A
4 - A10 (N)	1088	272	267	1770	0.615	1088	933	1.7	1.7	5.576	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	574	144	1022	1316	0.436	574	333	0.8	0.8	5.044	A
2 - Sainsbury Depot Access	6	2	1573	881	0.007	6	23	0.0	0.0	4.112	A
3 - A10 (S)	1092	273	108	2091	0.522	1092	1471	1.2	1.2	3.842	A
4 - A10 (N)	1088	272	267	1770	0.615	1088	933	1.7	1.7	5.576	A

Year 2035 Baseline, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - A10 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A10 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.12	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.12	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	Year 2035 Baseline	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - London Rd		FLAT	✓	333	100.000
2 - Sainsbury Depot Access		FLAT	✓	9	100.000
3 - A10 (S)		FLAT	✓	1508	100.000
4 - A10 (N)		FLAT	✓	772	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	9	260	64
	2 - Sainsbury Depot Access	4	0	4	1
	3 - A10 (S)	484	1	0	1023
	4 - A10 (N)	80	2	690	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
	1 - London Rd	0	0	1	2
	2 - Sainsbury Depot Access	0	0	33	0
	3 - A10 (S)	1	0	0	3
	4 - A10 (N)	0	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - London Rd	0.22	3.07	0.3	A	333	333
2 - Sainsbury Depot Access	0.01	3.35	0.0	A	9	9
3 - A10 (S)	0.71	6.04	2.5	A	1508	1508
4 - A10 (N)	0.47	4.24	0.9	A	772	772

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	333	83	690	1522	0.219	332	564	0.0	0.3	3.057	A
2 - Sainsbury Depot Access	9	2	1010	1218	0.007	9	12	0.0	0.0	3.345	A
3 - A10 (S)	1508	377	69	2118	0.712	1498	950	0.0	2.5	5.854	A
4 - A10 (N)	772	193	486	1630	0.474	768	1081	0.0	0.9	4.199	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	333	83	693	1520	0.219	333	568	0.3	0.3	3.066	A
2 - Sainsbury Depot Access	9	2	1014	1216	0.007	9	12	0.0	0.0	3.352	A
3 - A10 (S)	1508	377	69	2118	0.712	1508	954	2.5	2.5	6.037	A
4 - A10 (N)	772	193	489	1628	0.474	772	1088	0.9	0.9	4.243	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	333	83	693	1520	0.219	333	568	0.3	0.3	3.066	A
2 - Sainsbury Depot Access	9	2	1014	1215	0.007	9	12	0.0	0.0	3.352	A
3 - A10 (S)	1508	377	69	2118	0.712	1508	954	2.5	2.5	6.039	A
4 - A10 (N)	772	193	489	1628	0.474	772	1088	0.9	0.9	4.243	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	333	83	693	1520	0.219	333	568	0.3	0.3	3.066	A
2 - Sainsbury Depot Access	9	2	1014	1215	0.007	9	12	0.0	0.0	3.352	A
3 - A10 (S)	1508	377	69	2118	0.712	1508	954	2.5	2.5	6.039	A
4 - A10 (N)	772	193	489	1628	0.474	772	1088	0.9	0.9	4.243	A

Year 2035 + Dev Total , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - A10 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A10 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.42	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.42	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	Year 2035 + Dev Total	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - London Rd		FLAT	✓	591	100.000
2 - Sainsbury Depot Access		FLAT	✓	6	100.000
3 - A10 (S)		FLAT	✓	1198	100.000
4 - A10 (N)		FLAT	✓	1179	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
	1 - London Rd	0	10	458	123
	2 - Sainsbury Depot Access	1	0	4	1
	3 - A10 (S)	257	9	0	932
	4 - A10 (N)	82	4	1093	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	0	3	9
	2 - Sainsbury Depot Access	0	0	0	0
	3 - A10 (S)	9	0	0	6
	4 - A10 (N)	15	0	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - London Rd	0.47	5.57	0.9	A	591	591
2 - Sainsbury Depot Access	0.01	4.42	0.0	A	6	6
3 - A10 (S)	0.58	4.35	1.4	A	1198	1198
4 - A10 (N)	0.67	6.44	2.1	A	1179	1179

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	591	148	1098	1269	0.466	587	338	0.0	0.9	5.474	A
2 - Sainsbury Depot Access	6	2	1663	828	0.007	6	23	0.0	0.0	4.381	A
3 - A10 (S)	1198	300	124	2080	0.576	1192	1545	0.0	1.4	4.296	A
4 - A10 (N)	1179	295	266	1771	0.666	1171	1051	0.0	2.1	6.256	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	591	148	1106	1264	0.468	591	340	0.9	0.9	5.569	A
2 - Sainsbury Depot Access	6	2	1674	821	0.007	6	23	0.0	0.0	4.416	A
3 - A10 (S)	1198	300	125	2079	0.576	1198	1555	1.4	1.4	4.353	A
4 - A10 (N)	1179	295	267	1770	0.666	1179	1056	2.1	2.1	6.433	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	591	148	1106	1264	0.468	591	340	0.9	0.9	5.570	A
2 - Sainsbury Depot Access	6	2	1674	821	0.007	6	23	0.0	0.0	4.416	A
3 - A10 (S)	1198	300	125	2079	0.576	1198	1555	1.4	1.4	4.353	A
4 - A10 (N)	1179	295	267	1770	0.666	1179	1056	2.1	2.1	6.435	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	591	148	1106	1264	0.468	591	340	0.9	0.9	5.570	A
2 - Sainsbury Depot Access	6	2	1674	821	0.007	6	23	0.0	0.0	4.416	A
3 - A10 (S)	1198	300	125	2079	0.576	1198	1555	1.4	1.4	4.353	A
4 - A10 (N)	1179	295	267	1770	0.666	1179	1056	2.1	2.1	6.435	A

Year 2035 + Dev Total , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - A10 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A10 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.94	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.94	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	Year 2035 + Dev Total	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - London Rd		FLAT	✓	339	100.000
2 - Sainsbury Depot Access		FLAT	✓	9	100.000
3 - A10 (S)		FLAT	✓	1598	100.000
4 - A10 (N)		FLAT	✓	876	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S)	4 - A10 (N)
From	1 - London Rd	0	9	260	70
	2 - Sainsbury Depot Access	4	0	4	1
	3 - A10 (S)	484	1	0	1113
	4 - A10 (N)	92	2	782	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		1 - London Rd	2 - Sainsbury Depot Access	3 - A10 (S) 4 - A10 (N)
From	1 - London Rd	0	0	1 2
	2 - Sainsbury Depot Access	0	0	33 0
	3 - A10 (S)	1	0	0 3
	4 - A10 (N)	0	0	1 0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - London Rd	0.23	3.24	0.3	A	339	339
2 - Sainsbury Depot Access	0.01	3.52	0.0	A	9	9
3 - A10 (S)	0.76	7.14	3.1	A	1598	1598
4 - A10 (N)	0.54	4.83	1.2	A	876	876

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	339	85	781	1466	0.231	338	576	0.0	0.3	3.227	A
2 - Sainsbury Depot Access	9	2	1107	1160	0.008	9	12	0.0	0.0	3.514	A
3 - A10 (S)	1598	400	75	2114	0.756	1586	1041	0.0	3.1	6.826	A
4 - A10 (N)	876	219	485	1630	0.537	871	1175	0.0	1.2	4.759	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	339	85	785	1463	0.232	339	580	0.3	0.3	3.239	A
2 - Sainsbury Depot Access	9	2	1112	1157	0.008	9	12	0.0	0.0	3.523	A
3 - A10 (S)	1598	400	75	2114	0.756	1598	1046	3.1	3.1	7.136	A
4 - A10 (N)	876	219	489	1628	0.538	876	1184	1.2	1.2	4.830	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	339	85	785	1463	0.232	339	580	0.3	0.3	3.239	A
2 - Sainsbury Depot Access	9	2	1112	1157	0.008	9	12	0.0	0.0	3.523	A
3 - A10 (S)	1598	400	75	2114	0.756	1598	1046	3.1	3.1	7.141	A
4 - A10 (N)	876	219	489	1628	0.538	876	1184	1.2	1.2	4.830	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - London Rd	339	85	785	1463	0.232	339	580	0.3	0.3	3.239	A
2 - Sainsbury Depot Access	9	2	1112	1157	0.008	9	12	0.0	0.0	3.523	A
3 - A10 (S)	1598	400	75	2114	0.756	1598	1046	3.1	3.1	7.141	A
4 - A10 (N)	876	219	489	1628	0.538	876	1184	1.2	1.2	4.830	A

Junctions 10						
ARCADY 10 - Roundabout Module						
Version: 10.1.1.1905						
© Copyright TRL Software Limited, 2023						
For sales and distribution information, program advice and maintenance, contact TRL Software:						
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com						
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution						

Filename: South Site Access RA.j10

Path: Y:\PROJECT FOLDER\23161 Buntingford\Calculations\4. Transport\LHA 37.5% Internal with CD\LHA Test OD 25% + Committed Dev

Report generation date: 22/05/2025 10:37:18

»Year 2035 + Both Sites, AM

»Year 2035 + Both Sites, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Year 2035 + Both Sites						
1 - Site Access North	0.2	6.09	0.19	0.1	5.41	0.13
2 - Baldock Rd East	3.8	15.15	0.80	1.7	7.90	0.63
3 - Site Access South	0.0	5.48	0.04	0.3	6.84	0.24
4 - Baldock Rd West	1.8	8.86	0.64	1.2	7.58	0.55

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	20/10/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JUBB\SRadford
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Year 2035 + Northern Site	AM	FLAT	07:45	08:45	60	15	
D2	Year 2035 + Northern Site	PM	FLAT	17:00	18:00	60	15	
D3	Year 2035 + Southern Site	AM	FLAT	07:45	08:45	60	15	
D4	Year 2035 + Southern Site	PM	FLAT	17:00	18:00	60	15	
D5	Year 2035 + Both Sites	AM	FLAT	07:45	08:45	60	15	✓
D6	Year 2035 + Both Sites	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Year 2035 + Both Sites, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Site Access Junction	Standard Roundabout		1, 2, 3, 4	11.81	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	11.81	B

Arms

Arms

Arm	Name	Description	No give-way line
1	Site Access North		
2	Baldock Rd East		
3	Site Access South		
4	Baldock Rd West		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - Site Access North	3.30	4.50	4.4	10.0	28.0	36.0		
2 - Baldock Rd East	3.60	4.80	6.8	10.0	28.0	37.0		
3 - Site Access South	3.00	4.50	7.9	14.0	28.0	50.0		
4 - Baldock Rd West	3.80	4.80	5.3	10.0	28.0	49.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Site Access North	0.517	1111
2 - Baldock Rd East	0.540	1226
3 - Site Access South	0.505	1084
4 - Baldock Rd West	0.519	1186

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	Year 2035 + Both Sites	AM	FLAT	07:45	08:45	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access North		FLAT	✓	142	100.000
2 - Baldock Rd East		FLAT	✓	930	100.000
3 - Site Access South		FLAT	✓	24	100.000
4 - Baldock Rd West		FLAT	✓	728	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Site Access North	2 - Baldock Rd East	3 - Site Access South	4 - Baldock Rd West
From	1 - Site Access North	0	112	0	30
	2 - Baldock Rd East	85	0	162	683
	3 - Site Access South	0	16	0	8
	4 - Baldock Rd West	14	634	80	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
		1 - Site Access North	2 - Baldock Rd East	3 - Site Access South	4 - Baldock Rd West
From	1 - Site Access North	0	0	0	0
	2 - Baldock Rd East	0	0	0	0
	3 - Site Access South	0	0	0	0
	4 - Baldock Rd West	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Site Access North	0.19	6.09	0.2	A	142	142
2 - Baldock Rd East	0.80	15.15	3.8	C	930	930
3 - Site Access South	0.04	5.48	0.0	A	24	24
4 - Baldock Rd West	0.64	8.86	1.8	A	728	728

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access North	142	36	723	737	0.193	141	98	0.0	0.2	6.032	A
2 - Baldock Rd East	930	233	109	1167	0.797	915	755	0.0	3.6	13.597	B
3 - Site Access South	24	6	786	687	0.035	24	239	0.0	0.0	5.427	A
4 - Baldock Rd West	728	182	100	1135	0.642	721	710	0.0	1.7	8.564	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access North	142	36	730	733	0.194	142	99	0.2	0.2	6.087	A
2 - Baldock Rd East	930	233	110	1167	0.797	929	762	3.6	3.8	15.066	C
3 - Site Access South	24	6	798	681	0.035	24	242	0.0	0.0	5.478	A
4 - Baldock Rd West	728	182	101	1134	0.642	728	721	1.7	1.8	8.858	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access North	142	36	730	733	0.194	142	99	0.2	0.2	6.087	A
2 - Baldock Rd East	930	233	110	1167	0.797	930	762	3.8	3.8	15.126	C
3 - Site Access South	24	6	798	681	0.035	24	242	0.0	0.0	5.479	A
4 - Baldock Rd West	728	182	101	1134	0.642	728	721	1.8	1.8	8.862	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access North	142	36	730	733	0.194	142	99	0.2	0.2	6.087	A
2 - Baldock Rd East	930	233	110	1167	0.797	930	762	3.8	3.8	15.147	C
3 - Site Access South	24	6	798	681	0.035	24	242	0.0	0.0	5.479	A
4 - Baldock Rd West	728	182	101	1134	0.642	728	721	1.8	1.8	8.864	A

Year 2035 + Both Sites, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Site Access Junction	Standard Roundabout		1, 2, 3, 4	7.52	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.52	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	Year 2035 + Both Sites	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access North		FLAT	✓	99	100.000
2 - Baldock Rd East		FLAT	✓	760	100.000
3 - Site Access South		FLAT	✓	170	100.000
4 - Baldock Rd West		FLAT	✓	589	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Site Access North	2 - Baldock Rd East	3 - Site Access South	4 - Baldock Rd West
From	1 - Site Access North	0	83	0	16
	2 - Baldock Rd East	122	0	9	629
	3 - Site Access South	0	114	0	56
	4 - Baldock Rd West	34	551	4	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
From		1 - Site Access North	2 - Baldock Rd East	3 - Site Access South	4 - Baldock Rd West
	1 - Site Access North	0	0	0	0
	2 - Baldock Rd East	0	0	0	0
	3 - Site Access South	0	0	0	0
	4 - Baldock Rd West	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Site Access North	0.13	5.41	0.1	A	99	99
2 - Baldock Rd East	0.63	7.90	1.7	A	760	760
3 - Site Access South	0.24	6.84	0.3	A	170	170
4 - Baldock Rd West	0.55	7.58	1.2	A	589	589

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access North	99	25	664	768	0.129	98	155	0.0	0.1	5.375	A
2 - Baldock Rd East	760	190	20	1216	0.625	753	742	0.0	1.6	7.686	A
3 - Site Access South	170	43	760	700	0.243	169	13	0.0	0.3	6.762	A
4 - Baldock Rd West	589	147	234	1065	0.553	584	695	0.0	1.2	7.414	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access North	99	25	669	765	0.129	99	156	0.1	0.1	5.406	A
2 - Baldock Rd East	760	190	20	1216	0.625	760	748	1.6	1.6	7.897	A
3 - Site Access South	170	43	767	697	0.244	170	13	0.3	0.3	6.836	A
4 - Baldock Rd West	589	147	236	1064	0.554	589	701	1.2	1.2	7.574	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access North	99	25	669	765	0.129	99	156	0.1	0.1	5.406	A
2 - Baldock Rd East	760	190	20	1216	0.625	760	748	1.6	1.7	7.900	A
3 - Site Access South	170	43	767	697	0.244	170	13	0.3	0.3	6.836	A
4 - Baldock Rd West	589	147	236	1064	0.554	589	701	1.2	1.2	7.577	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access North	99	25	669	765	0.129	99	156	0.1	0.1	5.406	A
2 - Baldock Rd East	760	190	20	1216	0.625	760	748	1.7	1.7	7.900	A
3 - Site Access South	170	43	767	697	0.244	170	13	0.3	0.3	6.836	A
4 - Baldock Rd West	589	147	236	1064	0.554	589	701	1.2	1.2	7.577	A