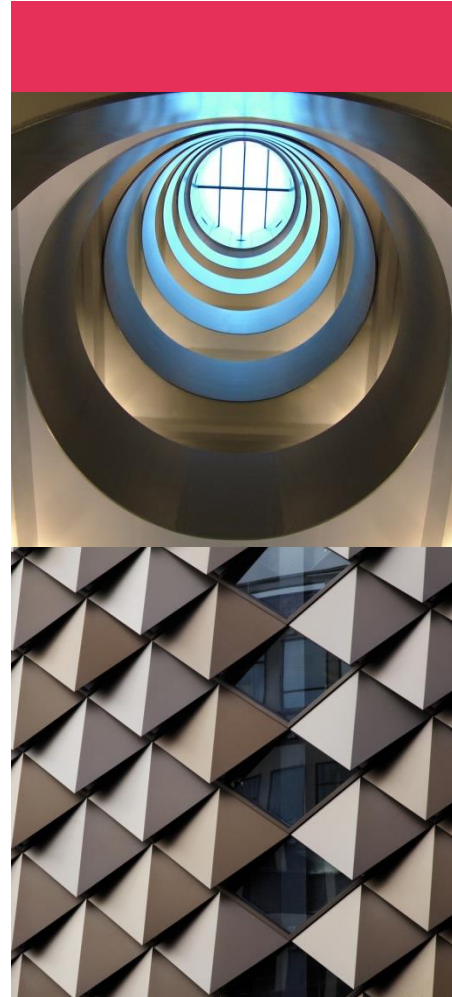


# Gresford Road / Straight Mile, Llay

## Highway Assessment – Technical Note

Curtins Ref: TPMA B065665/TN  
Revision: Final V4  
Issue Date: 06 December 2017

Client Name: Bellway Homes (Northwest Division) Ltd & Anwyl Construction Company Ltd

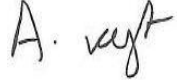


## Control Sheet

This report has been prepared for the sole benefit, use, and information for the client. The liability of Curtins with respect to the information contained in the report will not extend to any third party.

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## 1.0 Introduction

### 1.1 Background/ Planning History

- 1.1.1 An outline application with all matters reserved for subsequent approval [ref. P/2014/0905] for up to 365 dwellings and erection of 300 sq. m retail was recommended for approval by an Inspector following an appeal on 11 January 2017. However, as the appeal was recovered for determination by the Welsh Ministers, and was ultimately determined by the First Minister for Wales (Carwyn Jones), the actual appeal decision letter was not issued until 26 June 2017.
- 1.1.2 The site is located between Straight Mile and Gresford Road in Llay, North Wales.
- 1.1.3 All matters applied for in the original outline planning application were reserved for future approval, including the means of access.
- 1.1.4 At the outline application stage, and despite the fact that means of access was not a matter put forward for approval, a number of indicative plans were prepared showing potential access arrangements.
- 1.1.5 The final plans presented at the Public Inquiry showed the site being indicatively accessed via a three-arm roundabout from Straight Mile and a three-arm roundabout from Gresford Road.

### 1.2 Reserved Matters Submission

- 1.2.1 Bellway Homes (Northwest Division) Ltd & Anwyl Construction Company Ltd are submitting a reserved matters planning application pursuant to the above-mentioned grant of outline permission.
- 1.2.2 The proposed site layout plan is contained in **Appendix A** for reference.
- 1.2.3 Curtins have been appointed to advise on the site access strategy for the proposed development.
- 1.2.4 The detailed scheme features 362 dwellings across the site with an area set aside for the approved retail unit in the western corner of the site (details to be submitted as part of a separate reserved matters application in due course).
- 1.2.5 Although the details of the commercial unit will be submitted separately, the details of the potential access into this part of the site are provided for indicative purposes to demonstrate that an access in this location could function safely and satisfactorily (see **Appendix A**).

### **1.3 Pre-Application Discussions**

- 1.3.1 The applicant and Curtins staff have met with officers from WCBC in anticipation of this reserved matters submission to discuss the details of the site access and on-site arrangements. A meeting was held at WCBC offices on 11th April 2017 and another meeting was held on-site on 22nd May with an officer from the local highway authority (Mr Pete Douthwaite), amongst other meetings thereafter.
- 1.3.2 It was proposed to WCBC during these discussions that the site access strategy would feature a roundabout access from Straight Mile, a simple priority controlled junction from Gresford Road (instead of the roundabout previously suggested at outline stage) and a separate priority controlled junction from Straight Mile to serve the retail unit element.
- 1.3.3 The substance of these discussions has resulted in the agreed need for the following information to be submitted alongside this reserved matters submission:
- i) Preliminary plans showing the detail of the proposed site accesses;
  - ii) Swept path assessments of the proposed site accesses;
  - iii) Capacity assessments of the proposed site accesses;
  - iv) Confirmation that the site accesses will operate satisfactorily in all other respects (such as safety and compliance with design standards); and,
  - v) Commentary on the off-site highway works that will be necessary to discharge planning conditions attached to the grant of outline planning permission.
- 1.3.4 Curtins have therefore prepared this report to address the above matters. This report also includes an assessment of the on-site road layout using swept path analysis software.

## 2.0 Appraisal of Proposed Site Access Arrangements

### 2.1 Overview

- 2.1.1 An overview of all three proposed site access junctions is shown on drawing number **065665-CUR-00-XX-DR-TP-03004-P03** in **Appendix B**. This includes the site access into the parcel of land identified for retail development, which is shown for indicative purposes only.

### 2.2 Gresford Road Residential Site Access Junction

- 2.2.1 A closer view of the proposed residential site access junction from Gresford Road is shown on drawing number **065665-CUR-00-XX-DR-TP-03003-P03** in **Appendix C**. The plan illustrates a junction with the following features:

- i) A 5.5m wide site access road;
- ii) 2 x 2m wide footways on either side of the site access;
- iii) 6m corner radii;
- iv) Pedestrian crossing points over the site access junction bellmouth and across Gresford Road on both sides of the access, including tactile paving; and,
- v) 2.4m x 90m junction visibility splays achievable in both directions without recourse to third party land, in accordance with the design standards in Table A of TAN18 for a 30mph road (and where the design speed has not been measured).

- 2.2.2 The design is therefore considered to be compliant with the relevant design standards and will operate safely.

- 2.2.3 In terms of swept path analysis, the inset on the drawing illustrates that a large 11.2m long refuse vehicle will be able to satisfactorily turn left into / left out of the site access (i.e. the most onerous movements).

- 2.2.4 The analysis shows that the vehicle will pass into the opposite carriageway lane momentarily when performing these manoeuvres. However, this is considered to be acceptable given the advice set out in paragraph 6.8.1 in the Manual for Streets, which reads as follows:

*“The design of local roads should accommodate service vehicles without allowing their requirements to dominate the layout. On streets with low traffic flows and speeds, it may be assumed that they will be able to use the full width of the carriageway to manoeuvre. Larger vehicles which are only expected to use a street infrequently, such as pantechnicons, need not be fully accommodated – designers could assume that they will have to reverse or undertake multipoint turns to turn around for the relatively small number of times they will require access.”*

- 2.2.5 In terms of capacity, industry-standard PICADY software has been used to assess the anticipated weekday peak hour capacity assessment performance of the Gresford Road / site access junction in 2024 with the proposed development in place.

- 2.2.6 The traffic flows used in the assessment are based on the Transport Assessment (TA) dated December 2014 by Curtins, which accompanied the approved outline planning application (flows are for the year 2024 and include all committed development in the area and the proposed development traffic).
- 2.2.7 A diagrammatic view of the traffic flows transposed from that TA is presented in **Appendix D**, whilst **Appendix E** contains the PICADY result printouts. These are summarised as follows:

| Movement                  | Weekday AM Peak<br>(08:00 – 9:00) |         | Weekday PM Peak<br>(17:00 – 18:00) |         |
|---------------------------|-----------------------------------|---------|------------------------------------|---------|
|                           | Queue                             | Max RFC | Queue                              | Max RFC |
| Site Access Out           | 0.1                               | 0.10    | 0.1                                | 0.06    |
| Right Turn to Site Access | 0.0                               | 0.02    | 0.1                                | 0.06    |

**Table 2.1** – PICADY Results for the Gresford Road / Site Access: 2024 Assessment Traffic Flows (i.e. With Development)

\*RFC = ratio of flow to capacity

- 2.2.8 The predicted maximum RFC values on the turns in and out from the site access fall well below the normal 0.85 practical capacity threshold in each peak hour, and predicted queue lengths are minimal. The junction will therefore operate comfortably with the development in place in 2024 in all peak periods.
- 2.2.9 This confirms that a roundabout site access junction (as shown on indicative plan for the outline planning application) is not required at this location.
- 2.2.10 It should be noted that a priority controlled junction would also be expected to operate more safely than a roundabout. With comparison to accident rates set out in Table 11 of TRL Report 184 and Table 2/1 of TD16/07 of the Design Manual for Roads & Bridges (DMRB), a simple priority junction might be expected to experience only 0.40 accidents per year, whereas a three-arm roundabout might be expected to experience around 0.63 accidents per year.

## 2.3 Straight Mile Residential Site Access Roundabout

- 2.3.1 A closer view of the proposed site access roundabout from Straight Mile is shown on drawing number **065665-CUR-00-XX-DR-TP-03001-P02** in **Appendix F**. The plan illustrates a roundabout with the following features:
- A 'compact' style roundabout designed in accordance with the parameters set out in Design Standard TD16/07 of the DMRB in respect of entry path deflection <70m, entry and exit radii, and circulatory carriageway width;
  - Entry width on each arm of 4.5m;
  - Inscribed diameter of 32m;
  - Localised reduction in speed limit on approach and around roundabout to 30mph (see further discussion on this in 'TRO' section later);
  - 2m wide footways on the southern side of the junction; and,

vi) A 1.5m wide overrun strip for HGVs.

2.3.2 The design is therefore considered to be compliant with the relevant design standards and will operate safely.

2.3.3 In terms of swept path analysis, the insets on the drawing illustrates that a large 16.5m long maximum legal articulated vehicle will be able to satisfactorily track around the roundabout and a 11.2m long refuse vehicle will be able to enter and exit the site.

2.3.4 Internally, there will be an east-west pedestrian route available through the site estate roads which is set back from Straight Mile, thereby making it more attractive to walk along than if a footway were otherwise situated immediately adjacent to the carriageway of Straight Mile.

2.3.5 In terms of capacity, industry-standard ARCADY software has been used to assess the anticipated weekday peak hour capacity assessment performance of the Straight Mile / site access roundabout in 2024 with the proposed development in place.

2.3.6 The traffic flows used in the assessment are again based on the TA dated December 2014 by Curtins which accompanied the approved outline planning application (see **Appendix D**).

2.3.7 **Appendix G** contains the ARCADY results printouts. These are summarised as follows:

|                           | Weekday AM Peak<br>(08:00 – 9:00) |         | Weekday PM Peak<br>(17:00 – 18:00) |         |
|---------------------------|-----------------------------------|---------|------------------------------------|---------|
| Movement                  | Queue                             | Max RFC | Queue                              | Max RFC |
| <b>Straight Mile West</b> | 0.4                               | 0.30    | 0.5                                | 0.32    |
| <b>Straight Mile East</b> | 0.4                               | 0.26    | 0.6                                | 0.38    |
| <b>Site Access Arm</b>    | 0.1                               | 0.06    | 0.0                                | 0.04    |

**Table 2.2–** ARCADY Results for the Straight Mile / Site Access: 2024 Assessment Traffic Flows (i.e. With Development)

\*RFC = ratio of flow to capacity

2.3.8 The predicted maximum RFC values on the turns in and out from the site access fall well below the normal 0.85 practical capacity threshold in each peak hour, and predicted queue lengths are minimal. The junction will therefore operate comfortably with the development in place in 2024 in all peak periods.

## 2.4 Straight Mile Retail Site Access Junction (Indicative)

2.4.1 A closer view of the indicative retail site access junction from Straight Mile is shown on drawing number **065665-CUR-00-XX-DR-TP-03002-P03** in **Appendix H**, which also illustrates swept path assessments. The plan illustrates a junction with the following features:

- i) A 6m wide site access road;
- ii) 2 x 2m wide footways on either side of the site access;

- iii) 10m corner radii with entry / exit tapers; and,
- iv) 2.4m x 90m junction visibility splays achievable in both directions without recourse to third party land, in accordance with the design standards in Table A of TAN18 for a 30mph road (and where the design speed is not known). This section of Straight Mile will be reduced to 30mph as part of an amendment to the existing Traffic Regulation Order (see later in this report for details).
- v) Note that the drawing also illustrates some indicative details of improvements to the 'Crown' junction to the west of the site. These improvements are not put forward for consideration stage but will be in due course as part of a condition discharge application (see later in this report for details).

2.4.2 The design is therefore considered to be compliant with the relevant design standards and will operate safely.

2.4.3 In terms of swept path analysis, drawing **065665-CUR-00-XX-DR-TP-03002-P03** demonstrates that a large 11m long pantechon type chassis vehicle will be able to satisfactorily turn into / out of the site access. This is the vehicle type most likely to require regular access into the site to service a 300m<sup>2</sup> retail unit.

2.4.4 In terms of capacity, industry-standard PICADY software has been used to assess the anticipated weekday peak hour capacity assessment performance of the proposed Straight Mile / retail site access junction in 2024 with the proposed development in place.

2.4.5 The major road passing traffic flows used in the assessment are again based on the TA dated December 2014. The flows are for the year 2024 and include all committed development in the area.

2.4.6 The flows to and from the minor arm site access are based on a TRICS assessment for a 300m<sup>2</sup> convenience store in a suburban area (see **Appendix D**).

2.4.7 **Appendix I** contains the PICADY result printouts. These are summarised as follows:

| Movement                         | Weekday AM Peak<br>(08:00 – 9:00) |         | Weekday PM Peak<br>(17:00 – 18:00) |         |
|----------------------------------|-----------------------------------|---------|------------------------------------|---------|
|                                  | Queue                             | Max RFC | Queue                              | Max RFC |
| <b>Site Access Out</b>           | 0.1                               | 0.07    | 0.1                                | 0.08    |
| <b>Right Turn to Site Access</b> | 0.0                               | 0.03    | 0.1                                | 0.04    |

**Table 2.3** – PICADY Results for the Straight Mile / Site Access: 2024 Assessment Traffic Flows (i.e. With Development)

\*RFC = ratio of flow to capacity

- 2.4.8 The predicted maximum RFC values fall well below the normal 0.85 practical capacity threshold in each peak hour, and predicted queue lengths are minimal. The junction will therefore operate comfortably with the development in place in 2024 in all peak periods, and crucially, no build-up of right turning queues would occur into the site in a way which would materially affect the operation of the nearby 'Crown' junction.

## 2.5 On Site Layout Swept Path Analysis

- 2.5.1 Drawing number **065665-CUR-00-XX-DR-TP-05001-P02** in **Appendix J** illustrates the swept path manoeuvres of a large 11.2m refuse vehicle turning at the various proposed turning heads on the site and travelling through portions of the on-site road layout.
- 2.5.2 The drawing demonstrates that the proposed site layout works satisfactorily from a servicing and operational perspective.

## 2.6 Planning Conditions and Off-Site Junctions Works

- 2.6.1 Planning condition 15 attached to the outline grant of planning permission reads as follows:

*"Prior to the commencement of development a detailed scheme to improve the junction of the B5102, the B5373 and Chapel Lane, and a scheme to provide pedestrian footway improvements along Gresford Road shall be submitted to and approved in writing by the Local Planning Authority. The works shall be carried out as approved".*

- 2.6.2 For ease of reference, the junction is referred to as the 'Crown' junction.
- 2.6.3 At the Public Inquiry and during the run-up to the Inquiry, the scope of improvement works to the Crown junction that would be needed to satisfy the condition wording was discussed between Curtins and WCBC Highways.
- 2.6.4 The indicative improvement scheme that was put forward to the Inspector features the following improvements that were demonstrated to mitigate against the traffic impact of the proposed development and improve the operation of the junction in 2024 (when compared to how the junction was forecast to operate without the development in place. Note these improvements are shown indicatively on drawing **065665-CUR-00-XX-DR-TP-03002-P03** in **Appendix H**):
- i) The introduction of 'MOVA' signal control system which dynamically responds to vehicle arrival rates on each arm and adjusts signal green times and overall cycle time accordingly;
  - ii) The formation of a new 40m long ahead / left turn flare lane on the Straight Mile approach to the junction; and,
  - iii) The introduction of a new zebra crossing on Gresford Road that would significantly enhance pedestrian connectivity between the site and the existing built-up area of Llay to the south-west.

2.6.5 Curtins have discussed the above-mentioned improvement scheme with an officer from WCBC, who has confirmed that the scope of works is appropriate to be taken forward for the purposes of discharging Condition 15.

2.6.6 A detailed design for the works will therefore be prepared and submitted as part of a separate planning condition discharge submission.

## **2.7 Speed Limit Traffic Regulation Order (TRO)**

2.7.1 Similarly, it was a key feature of the scheme considered at the public Inquiry that the speed limit on Straight Mile would be reduced from 50mph to 30mph. This was not secured by a planning condition as the Inspector felt it unnecessary to do so. However, Curtins will be initiating the necessary Traffic Regulation Order Process with WCBC in due course to seek secure this scheme.

2.7.2 Again, Curtins have discussed the above-mentioned scheme with an officer from WCBC who has confirmed that the necessary Traffic Regulation Order (TRO) will need to be progressed by the Council and funded by the applicant (either as part of the Section 278 Agreement that will be needed prior to commencement of the site access works, or separately).

2.7.3 WCBC have also confirmed that a scheme of street lighting will need to be installed along Straight Mile along the section of reduced 30mph working in order to help give effect to the new speed limit.

2.7.4 This is acceptable to the applicants, and will again be addressed in due course as part of separate submissions.

## **2.8 Summary and Conclusions**

2.8.1 Bellway Homes (Northwest Division) Ltd and Anwyl Construction Company Ltd are submitting a reserved matters planning application pursuant to a recent grant of outline planning permission for up to 365 dwellings and 300m<sup>2</sup> of retail floorspace on land located between Straight Mile and Gresford Road in Llay, North Wales.

2.8.2 Curtins have been appointed to advise on the site access strategy for the proposed development, given that means of access was a reserved matter that was not put forward for approval as part of the original outline application.

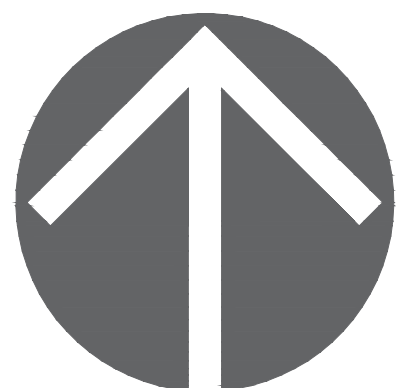
2.8.3 This report therefore includes plans showing how it is the intention to access the site via three locations; via a simple priority controlled junction from Gresford Road, via a roundabout from Straight Mile and via a priority controlled junction from Straight Mile.

2.8.4 The priority controlled junction from Straight Mile has been detailed for indicative purposes only to serve the 300m<sup>2</sup> retail element that formed a part of the outline planning approval. However, the details of this element of the scheme are still reserved.

- 
- 2.8.5 The plans have been designed to accord with the relevant design standards and have been checked using swept path analysis to ensure that they will be useable by the largest design vehicles that will be expected to regularly pass through them.
  - 2.8.6 Each junction has also been subject to detailed capacity assessment using traffic flows for a future 2024 assessment year and which include an allowance for nearby committed developments and the development-related traffic itself. The proposed site access junctions are all forecast to operate well within their practical capacity thresholds and predicted queueing will be minimal.
  - 2.8.7 The proposed on-site road layout has been checked using swept path analysis software for a 11.2m long refuse vehicle. The vehicle is shown turning at the various proposed turning heads on the site and travelling through portions of the on-site road layout.
  - 2.8.8 The drawing demonstrates that the proposed site layout works satisfactorily from a servicing and operational perspective.
  - 2.8.9 There is a planning condition attached to the grant of outline planning permission that requires the applicants to submit details showing a scheme of improvements to the 'Crown' junction. Details of this scheme will therefore be submitted in due course as part of a separate planning condition discharge application, as appropriate.
  - 2.8.10 In accordance with the Inspector's Decision, in due course Curtins will also seek to assist WCBC with initiating a TRO amendment on Straight Mile to reduce the speed limit from 50mph to 30mph.
  - 2.8.11 The reserved matters application scheme is therefore considered to be satisfactory from a highway perspective and is commended to WCBC for approval.

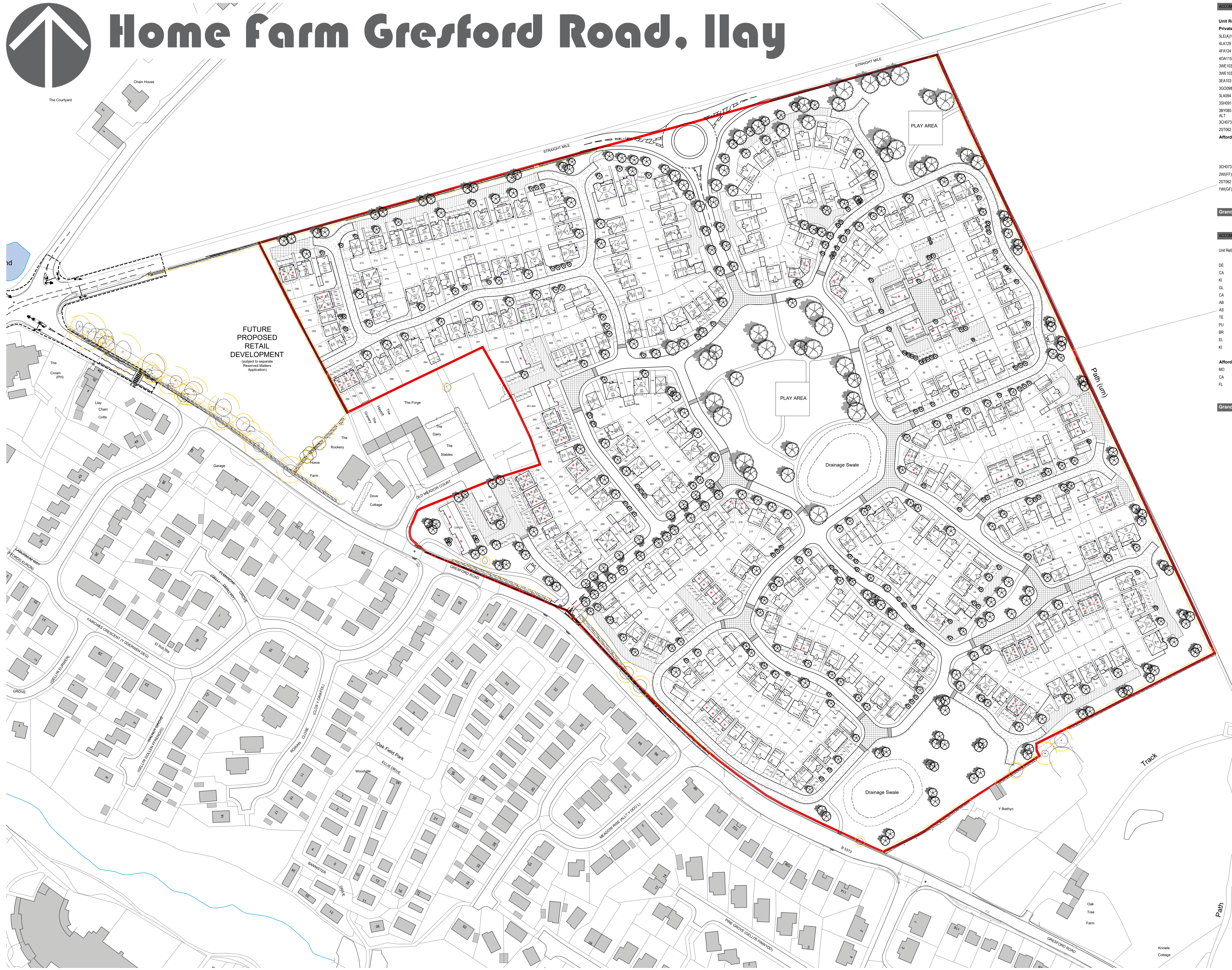
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## Appendix A - Proposed Site Layout



The Courtyard

# Home Farm Gresford Road, Llay

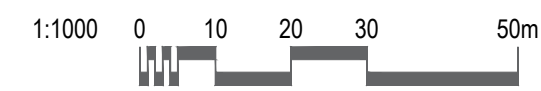


| Accommodation Schedule - Llay - Bellway Homes |                       |          |          |           |  |
|-----------------------------------------------|-----------------------|----------|----------|-----------|--|
| Unit Ref/Name                                 | Bed No.               | Unit No. | Unit ft² | ft² Total |  |
| <b>Private</b>                                |                       |          |          |           |  |
| SLA1168 LEWIS A                               | 3BED/2STOREY DETACHED | 3        | 1677     | 5031      |  |
| 4LA120 LARCH                                  | 4BED/2STOREY DETACHED | 27       | 1293     | 34911     |  |
| 4FA124 FAIRHAVEN                              | 4BED/2STOREY DETACHED | 19       | 1239     | 23541     |  |
| 4OA115 OAKWOOD                                | 4BED/2STOREY DETACHED | 19       | 1151     | 21869     |  |
| 3WE103 WESTON                                 | 3BED/2STOREY DETACHED | 2        | 1025     | 2050      |  |
| 3WE103 WESTON W/Garage                        | 3BED/2STOREY DETACHED | 15       | 1025     | 15375     |  |
| 3EA103 EASTON                                 | 3BED/2STOREY DETACHED | 2        | 1025     | 2050      |  |
| 3GO098 GORDON ALT                             | 3BED/2STOREY DETACHED | 17       | 988      | 16796     |  |
| 3LA094 LANDSOWN                               | 3BED/2STOREY SEMI     | 12       | 943      | 11316     |  |
| 3SH091 SHELLEY                                | 3BED/2STOREY SEMI     | 6        | 910      | 5460      |  |
| 3BY085 BYRON ALT                              | 3BED/2STOREY SEMI     | 10       | 855      | 8550      |  |
| 3CH073 CHATSWORTH                             | 3BED/2STOREY SEMI     | 2        | 733      | 1466      |  |
| 2ST082 STUDLEY                                | 2BED/2STOREY SEMI     | 1        | 619      | 619       |  |
| <b>Affordable Units</b>                       |                       |          |          |           |  |
| COVENTRY                                      | 2BED/2STOREY SEMI     | 8        | 811      | 6488      |  |
| GREENWICH                                     | 3BED/2STOREY MEWS     | 2        | 870      | 1740      |  |
| HAMPTON                                       | 3BED/2STOREY MEWS     | 2        | 855      | 1710      |  |
| 3CH073 CHATSWORTH                             | 3BED/2STOREY SEMI     | 4        | 733      | 2932      |  |
| 2WIFF068 WISTASTON                            | 2BED APARTMENT FF     | 8        | 684      | 5472      |  |
| 2ST082 STUDLEY                                | 2BED/2STOREY SEMI     | 13       | 619      | 8047      |  |
| 1WIGF065 WISTASTON                            | 1BED APARTMENT GF     | 8        | 551      | 4408      |  |

Grand Total: 180 Units 179831 ft²

| Accommodation Schedule - Llay - ANWYL HOMES |                        |          |          |           |  |
|---------------------------------------------|------------------------|----------|----------|-----------|--|
| Unit Ref/Name                               | Bed No.                | Unit No. | Unit ft² | ft² Total |  |
| <b>Private</b>                              |                        |          |          |           |  |
| DE DELAMERE                                 | 4BED/2STOREY DETACHED  | 6        | 1790     | 10740     |  |
| CA CAERNARFON                               | 4BED/2STOREY DETACHED  | 2        | 1551     | 3102      |  |
| W WINGSLEY                                  | 4BED/2STOREY DETACHED  | 10       | 1462     | 14620     |  |
| DL DOLWY                                    | 4BED/2STOREY DETACHED  | 16       | 1404     | 22464     |  |
| CA CARDIGAN                                 | 4BED/2STOREY DETACHED  | 11       | 1175     | 12925     |  |
| AB PORTHMADOG                               | 4BED/2STOREY DETACHED  | 13       | 1025     | 13325     |  |
| AS ASCOT                                    | 4BED/2STOREY DETACHED  | 18       | 1271     | 22878     |  |
| TE TENBY                                    | 4BED/2STOREY DETACHED  | 13       | 1035     | 13455     |  |
| PU PULFORD                                  | 3BED/2STOREY DETACHED  | 15       | 1033     | 15495     |  |
| BR BRETTON                                  | 3BED/2STOREY SEMI MEWS | 16       | 851      | 13616     |  |
| EL ELWY                                     | 3BED/2STOREY SEMI MEWS | 6        | 724      | 4344      |  |
| KI KINNERTON                                | 3BED/2STOREY SEMI MEWS | 10       | 752      | 7520      |  |
| <b>Affordable Units</b>                     |                        |          |          |           |  |
| MO MONMOUTH                                 | 3BED/2STOREY SEMI MEWS | 12       | 804      | 9648      |  |
| CA CARMARTHEN                               | 2BED/2STOREY SEMI MEWS | 18       | 685      | 12330     |  |
| FL FLAT                                     | 1BED APARTMENT         | 16       | 490      | 7840      |  |

Grand Total: 182 Units 184302 ft²



ISSUED FOR PLANNING

30-11-2017 Issued for Planning

Rev. Date Description

By Chd

Client

**ANWYL** **Bellway**  
thoughtful homes

Project

**Home Farm, Gresford Road Llay**

Drawing Title

**Overall Planning Layout**

Drawn by

JNL

Checked by

-

Date

July 2017

Status

**PLANNING**

Scale @ A1

1:1000

Job no.

**AH085**

Dwg no.

**PLA03**

Rev.

**A**

 **ANPD**  
architecture  
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Steam Mill Street,  
Chester,  
CH3 5AN

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Appendix B - Drawing 065665-CUR-00-XX-DR-TP-03004-P03 –  
Proposed Site Access Arrangements Overview



GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.

|      |                     |          |     |       |
|------|---------------------|----------|-----|-------|
| P03  | SITE LAYOUT UPDATED | 06/12/17 | LK  | LK    |
| Rev: | Description:        | Date:    | By: | Chkd: |



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Status: PRELIMINARY

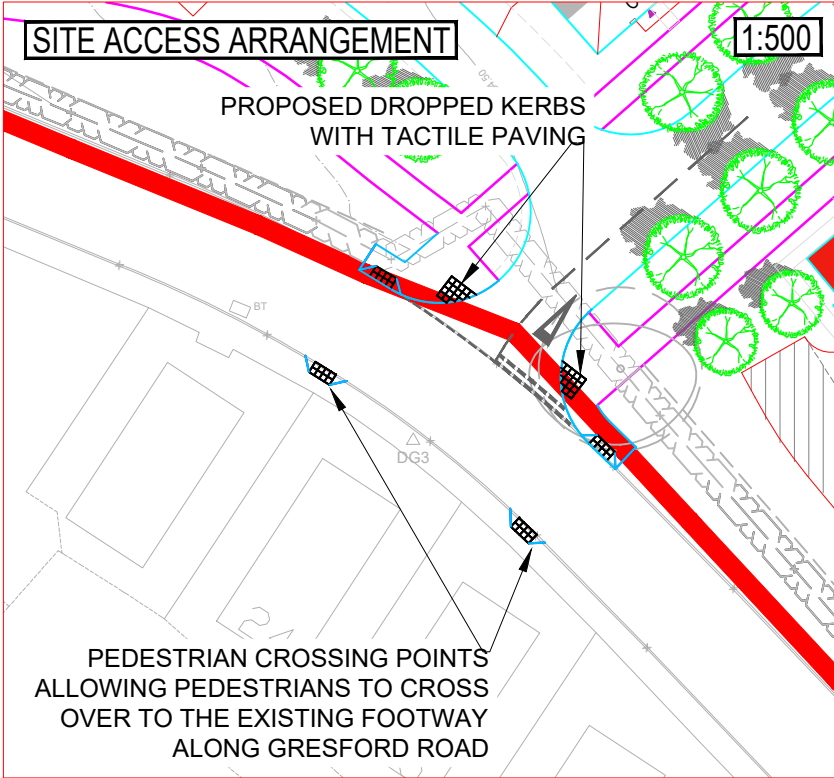
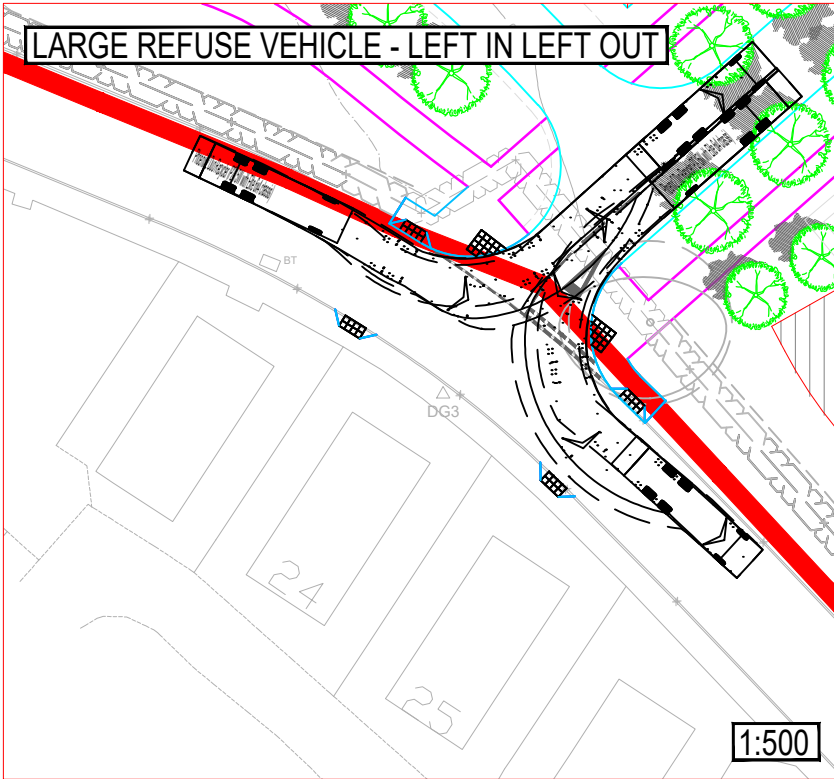
Project: GRESFORD ROAD, LLAY

Drg Title: PROPOSED SITE ACCESS ARRANGEMENTS OVERVIEW

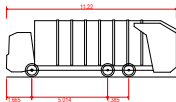
|                                               |             |           |              |             |             |                    |      |
|-----------------------------------------------|-------------|-----------|--------------|-------------|-------------|--------------------|------|
| Size:                                         | Date:       | Drawn By: | Designed By: | Checked By: |             |                    |      |
| A2                                            | 29/10/17    | JM        | JM           | LK          |             |                    |      |
| Scale: 1:2000                                 |             |           |              |             |             |                    |      |
| Project No:                                   | Originator: | Zone:     | Level:       | Type:       | Discipline: | Category / Number: | Rev: |
| 65665 - CUR - 00 - XX - DR - TP - 03004 - P03 |             |           |              |             |             |                    |      |

---

Appendix C - Drawing 065665-CUR-00-XX-DR-TP-03003-P03 –  
Proposed Site Access Junction Off Gresford Road



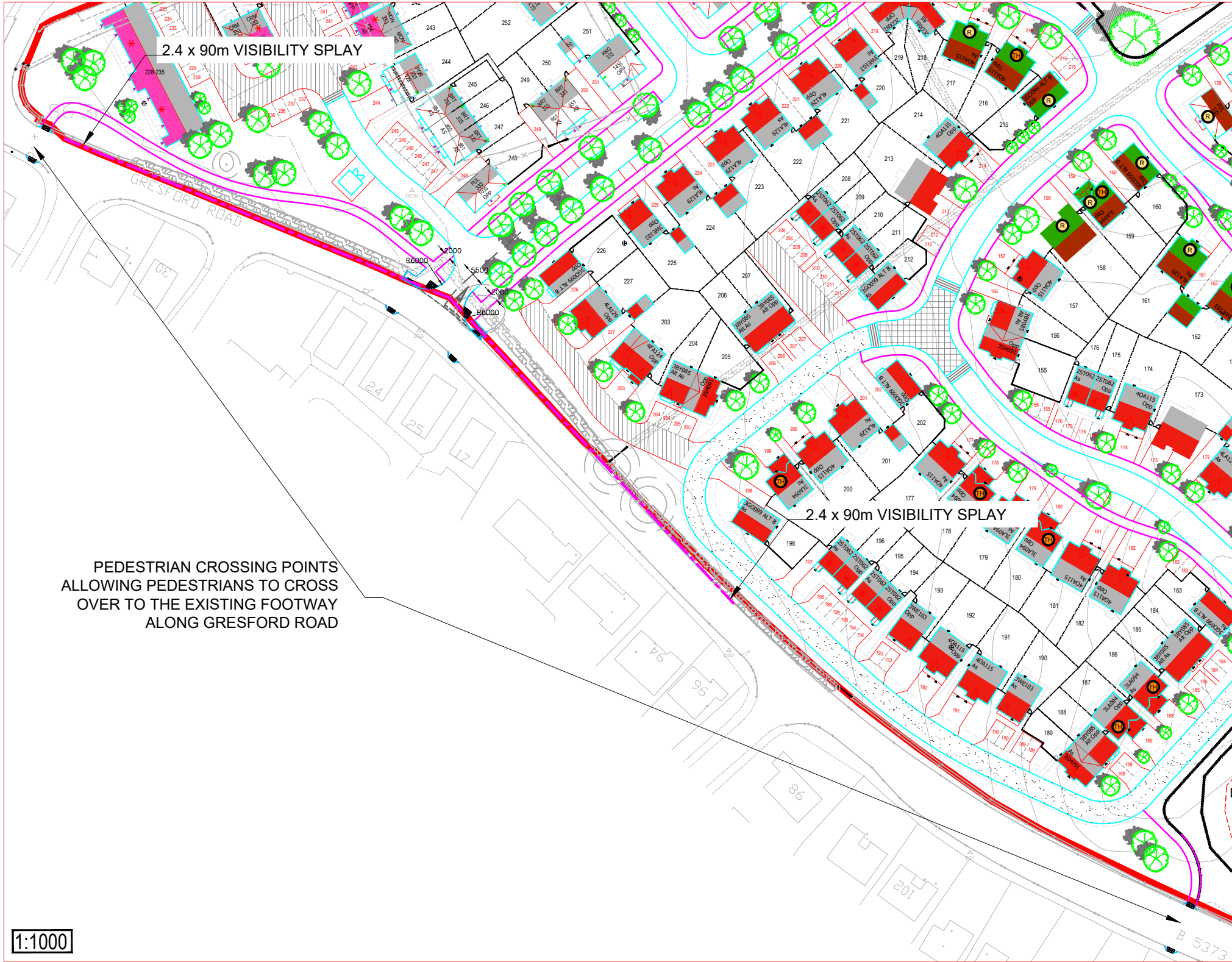
VEHICLE PROFILE



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 0.230m  
Track Width 2.300m  
Lock to lock time 4.00s  
Kerb to Kerb Turning Radius 11.550m

KEY

--- VISIBILITY SPLAYS  
--- SITE BOUNDARY



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Project: GRESFORD ROAD, LLAY

Drg Title: PROPOSED SITE ACCESS ARRANGEMENT

Project No: Originator: Zone: Level: Type: Discipline: Category / Number: Rev:

65665 - CUR - ZO - LV - DR - D - 03003 -P03

Status: PRELIMINARY

Drawn By: JM Checked By: LK

Designed By: JM Date: 29/10/17

Scale: 1:1000

GENERAL NOTES:

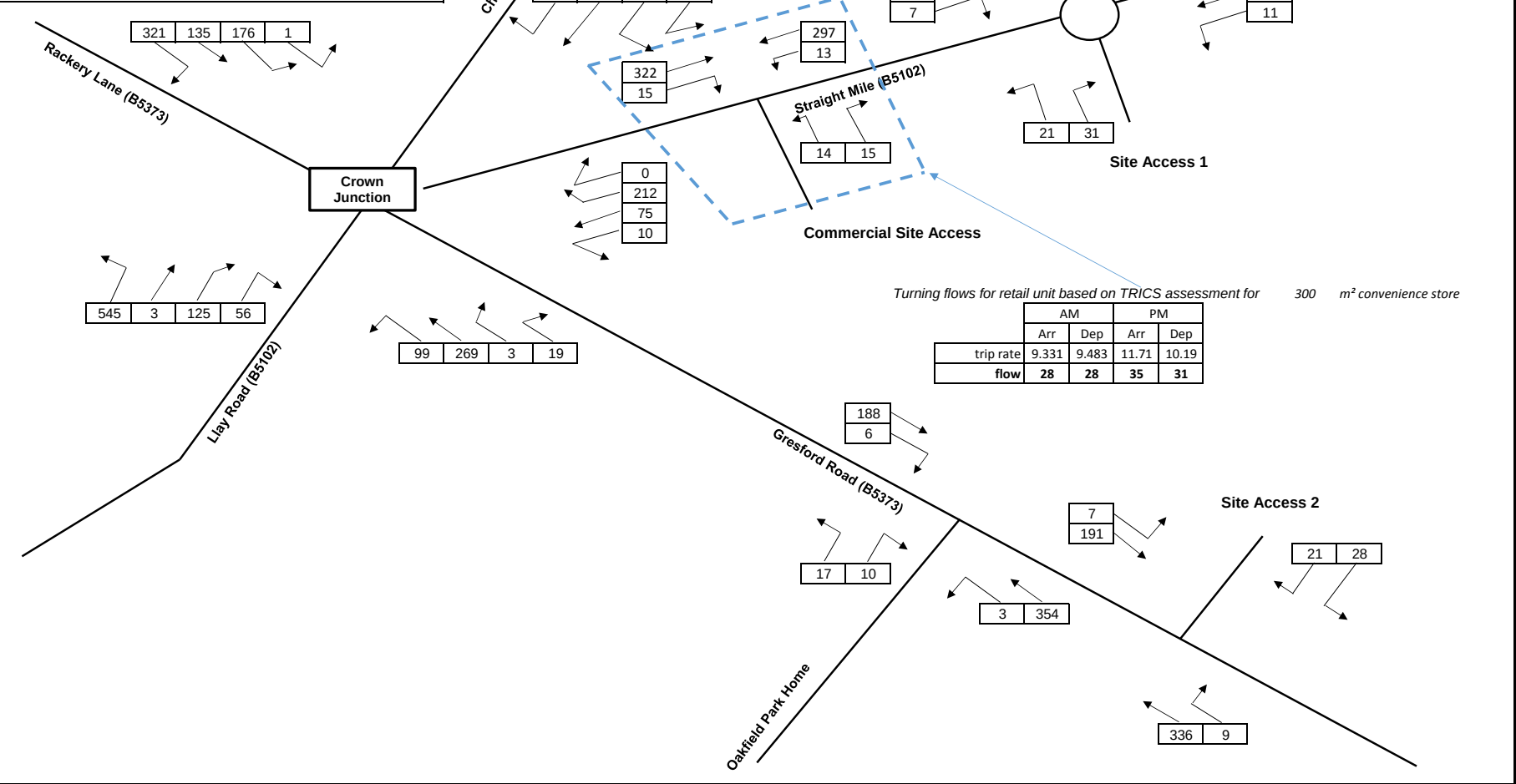
|      |                     |          |     |
|------|---------------------|----------|-----|
| P03  | SITE LAYOUT UPDATED | 06/12/17 | LK  |
| Rev: | Description:        | Date:    | By: |

---

## Appendix D – 2024 Assessment Traffic Flows

---

Diagram: 2024+Comm+Dev (Weekday AM Peak)  
Time Period: 0800 - 0900



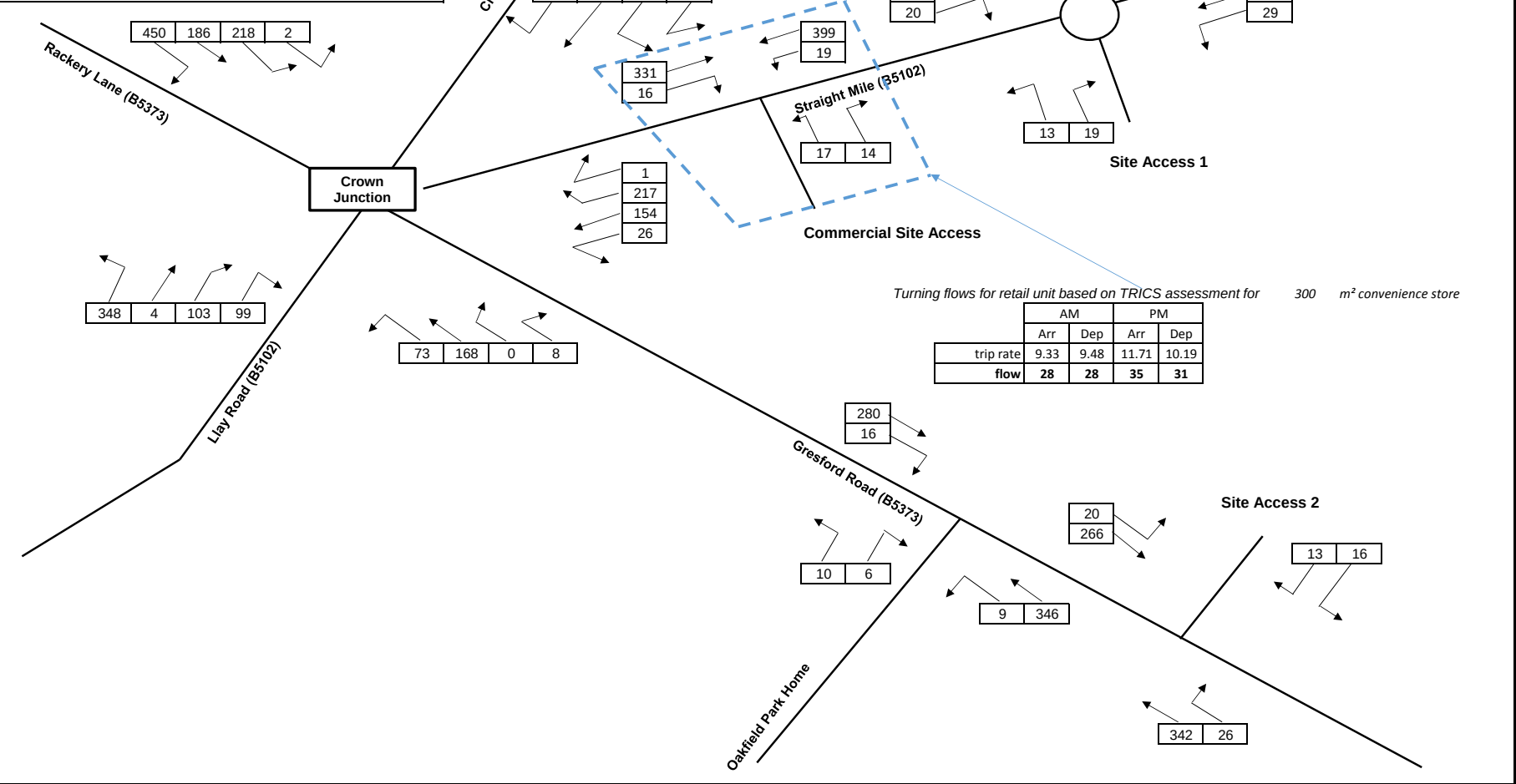
\*Figures in PCU (Passenger Car Units)



Home Farm Residential Development, Llay

2024 Traffic Flow Diagram (AM Peak)

Diagram: 2024+Comm+Dev (Weekday PM Peak)  
Time Period: 1700 - 1800



\*Figures in PCU (Passenger Car Units)



Home Farm Residential Development, Llay

2024 Traffic Flow Diagram (PM Peak)

---

## Appendix E – PICADY Results for the Proposed Gresford Road Site Access

| Junctions 9                                                                                                                                                                 |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|
| PICADY 9 - Priority Intersection Module                                                                                                                                     |  |  |  |  |  |  |  |
| Version: 9.0.1.4646 []<br>© Copyright TRL Limited, 2017                                                                                                                     |  |  |  |  |  |  |  |
| For sales and distribution information, program advice and maintenance, contact TRL:<br>Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk |  |  |  |  |  |  |  |
| 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            |  |  |  |  |  |  |  |

## «2024 Assessment, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

## Summary of junction performance

|                 | AM          |           |      |     | PM          |           |      |     |
|-----------------|-------------|-----------|------|-----|-------------|-----------|------|-----|
|                 | Queue (PCU) | Delay (s) | RFC  | LOS | Queue (PCU) | Delay (s) | RFC  | LOS |
| 2024 Assessment |             |           |      |     |             |           |      |     |
| Stream B-AC     | 0.1         | 7.60      | 0.10 | A   | 0.1         | 7.76      | 0.06 | A   |
| Stream C-AB     | 0.0         | 4.62      | 0.02 | A   | 0.1         | 4.81      | 0.06 | A   |

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       | (untitled) |
| Location    |            |
| Site number |            |
| Date        |            |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  |            |
| 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

| Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
|                             |                             | 0.85          | 36.00                       | 20.00                 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|----|---------------------------------|
| A1 | 100.000                         |

### Demand Set Details

| ID | Scenario name   | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|-----------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D2 | 2024 Assessment | PM               | ONE HOUR             | 16:45              | 18:15               | 15                        |

# 2024 Assessment, 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. |

## Junction Network

### Junctions

| Junction | Name     | Junction Type | Major road direction | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way              | 0.64               | A            |

### Junction Network Options

| Driving side | Lighting       |
|--------------|----------------|
| Left         | Normal/unknown |

## Arms

### Arms

| Arm | Name               | Description | Arm type |
|-----|--------------------|-------------|----------|
| A   | Gresford Road West |             | Major    |
| B   | Site Access 2      |             | Minor    |
| C   | Gresford Road East |             | Major    |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|-----|--------------------------|----------------------------|--------------------|-------------------------------|---------|----------------------|
| C   | 6.72                     |                            |                    | 150.0                         | ✓       | 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   | One lane       | 3.00           | 90                     | 86                      |

## Slope / Intercept / Capacity

### Priority Intersection Slopes and Intercepts

| Junction | Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|----------|--------|--------------------|---------------|---------------|---------------|---------------|
| 1        | B-A    | 550                | 0.097         | 0.245         | 0.154         | 0.351         |
| 1        | B-C    | 678                | 0.101         | 0.255         | -             | -             |
| 1        | C-B    | 661                | 0.248         | 0.248         | -             | -             |

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages     | 2.00                      |

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A   |            | ✓            | 286                     | 100.000            |
| B   |            | ✓            | 29                      | 100.000            |
| C   |            | ✓            | 368                     | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|  | To     |     |    |     |
|--|--------|-----|----|-----|
|  |        | A   | B  | C   |
|  | From A | 0   | 20 | 266 |
|  | From B | 13  | 0  | 16  |
|  | From C | 342 | 26 | 0   |

## Vehicle Mix

### Heavy Vehicle Percentages

|  | To     |   |   |   |
|--|--------|---|---|---|
|  |        | A | B | C |
|  | From A | 0 | 0 | 0 |
|  | From B | 0 | 0 | 0 |
|  | From C | 0 | 0 | 0 |

## Results

### Results Summary for whole modelled period

| Stream | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-AC   | 0.06    | 7.76          | 0.1             | A       |
| C-AB   | 0.06    | 4.81          | 0.1             | A       |
| C-A    |         |               |                 |         |
| A-B    |         |               |                 |         |
| A-C    |         |               |                 |         |

### Main Results for each time segment

#### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| B-AC   | 22                    | 534               | 0.041 | 22                  | 0.0             | 7.019     | A   |
| C-AB   | 29                    | 778               | 0.038 | 29                  | 0.1             | 4.805     | A   |
| C-A    | 248                   |                   |       | 248                 |                 |           |     |
| A-B    | 15                    |                   |       | 15                  |                 |           |     |
| A-C    | 200                   |                   |       | 200                 |                 |           |     |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| B-AC   | 26                    | 518               | 0.050 | 26                  | 0.1             | 7.310     | A   |
| C-AB   | 38                    | 803               | 0.047 | 38                  | 0.1             | 4.709     | A   |
| C-A    | 293                   |                   |       | 293                 |                 |           |     |
| A-B    | 18                    |                   |       | 18                  |                 |           |     |
| A-C    | 239                   |                   |       | 239                 |                 |           |     |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| B-AC   | 32                    | 496               | 0.064 | 32                  | 0.1             | 7.754     | A   |
| C-AB   | 52                    | 837               | 0.062 | 52                  | 0.1             | 4.585     | A   |
| C-A    | 353                   |                   |       | 353                 |                 |           |     |
| A-B    | 22                    |                   |       | 22                  |                 |           |     |
| A-C    | 293                   |                   |       | 293                 |                 |           |     |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| B-AC   | 32                    | 496               | 0.064 | 32                  | 0.1             | 7.756     | A   |
| C-AB   | 52                    | 838               | 0.062 | 52                  | 0.1             | 4.587     | A   |
| C-A    | 353                   |                   |       | 353                 |                 |           |     |
| A-B    | 22                    |                   |       | 22                  |                 |           |     |
| A-C    | 293                   |                   |       | 293                 |                 |           |     |

### 17:45 - 18:00

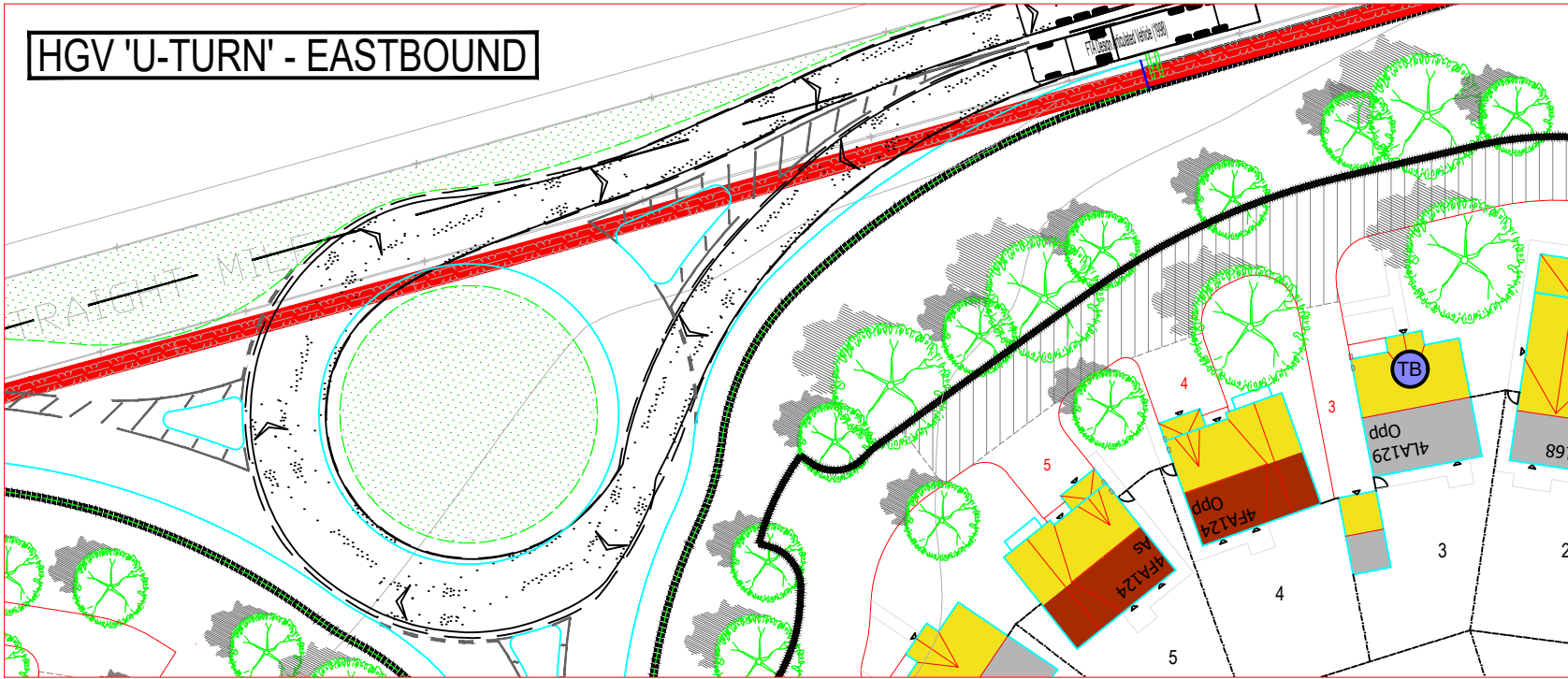
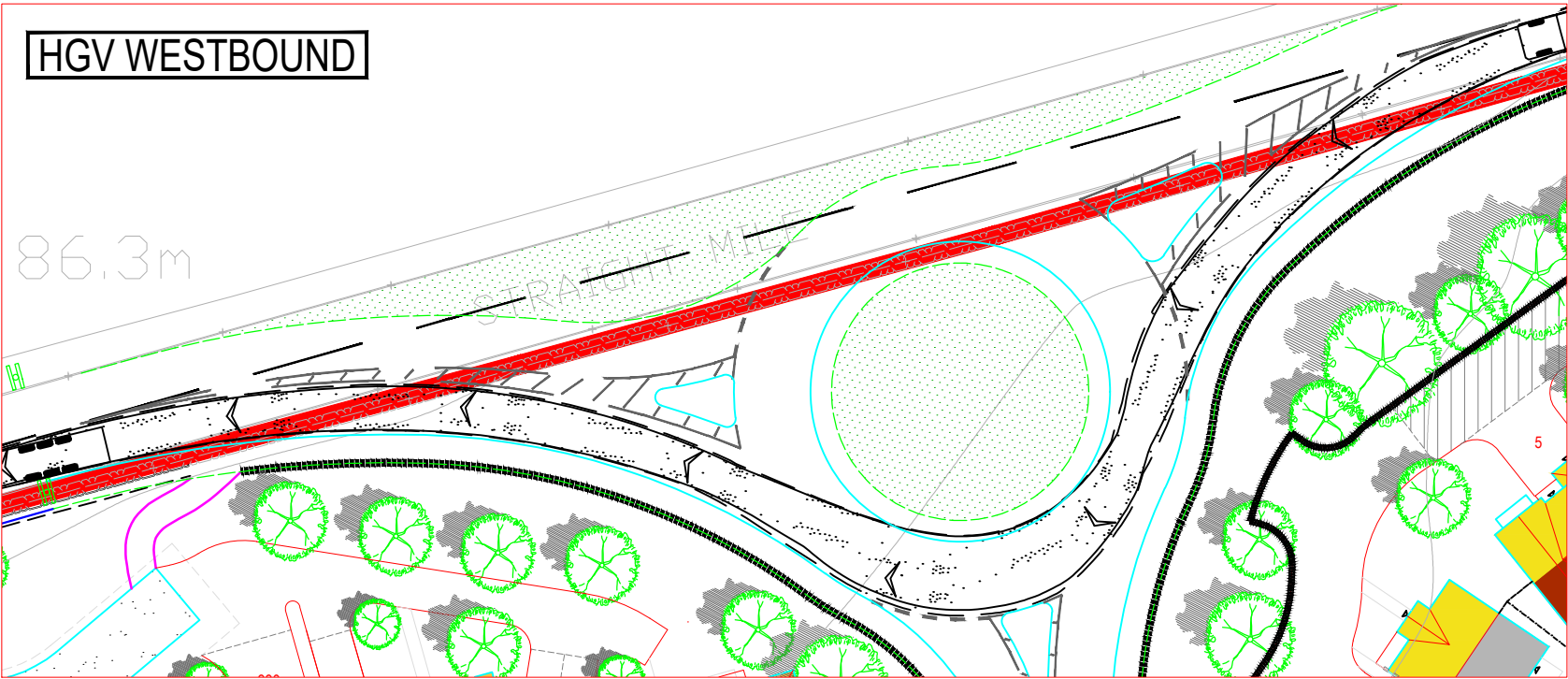
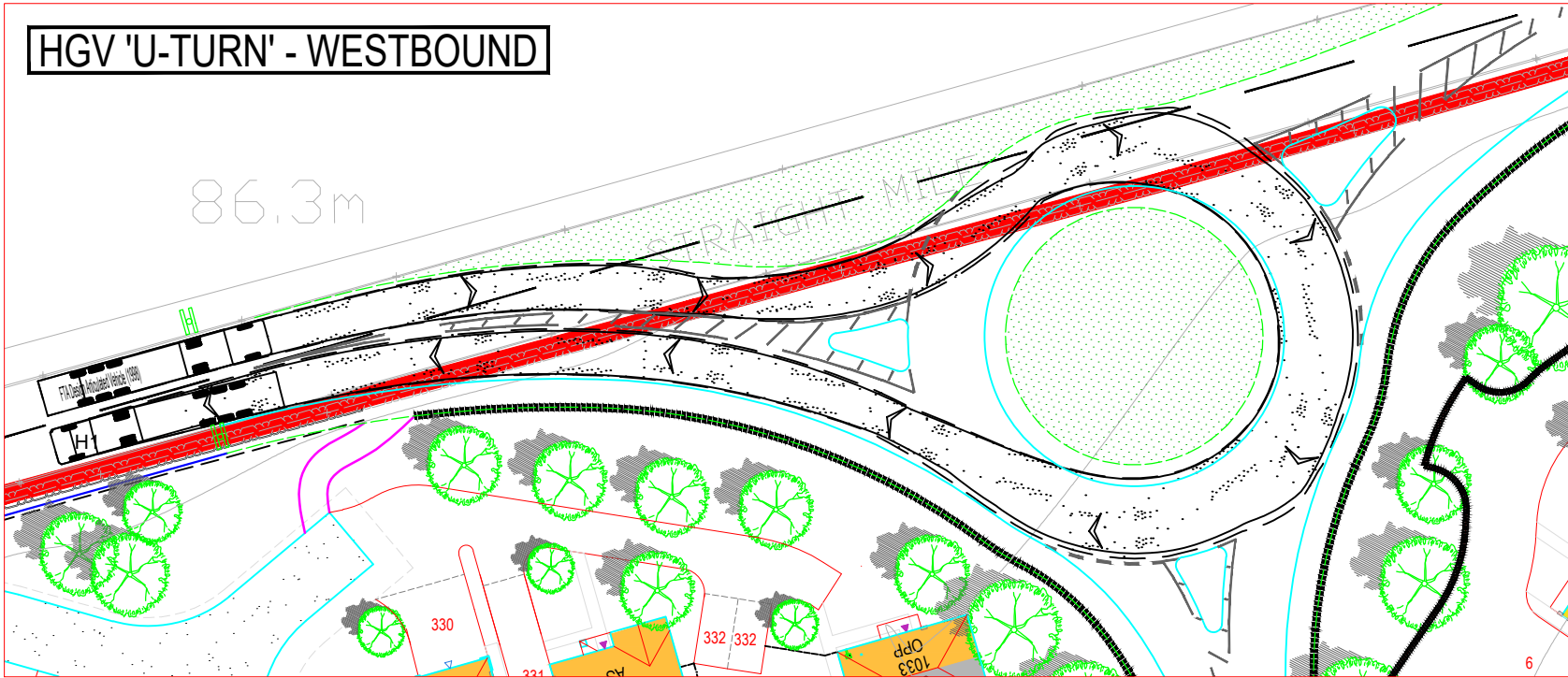
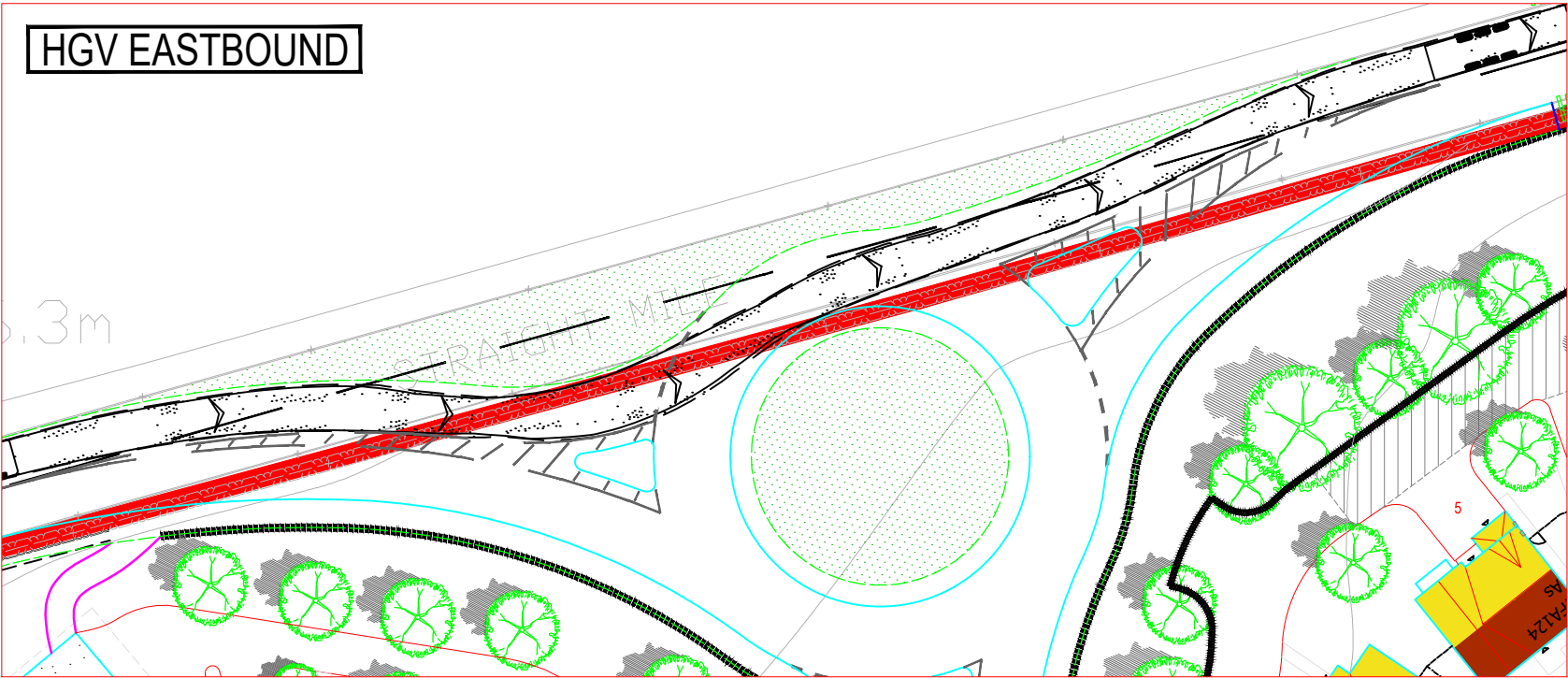
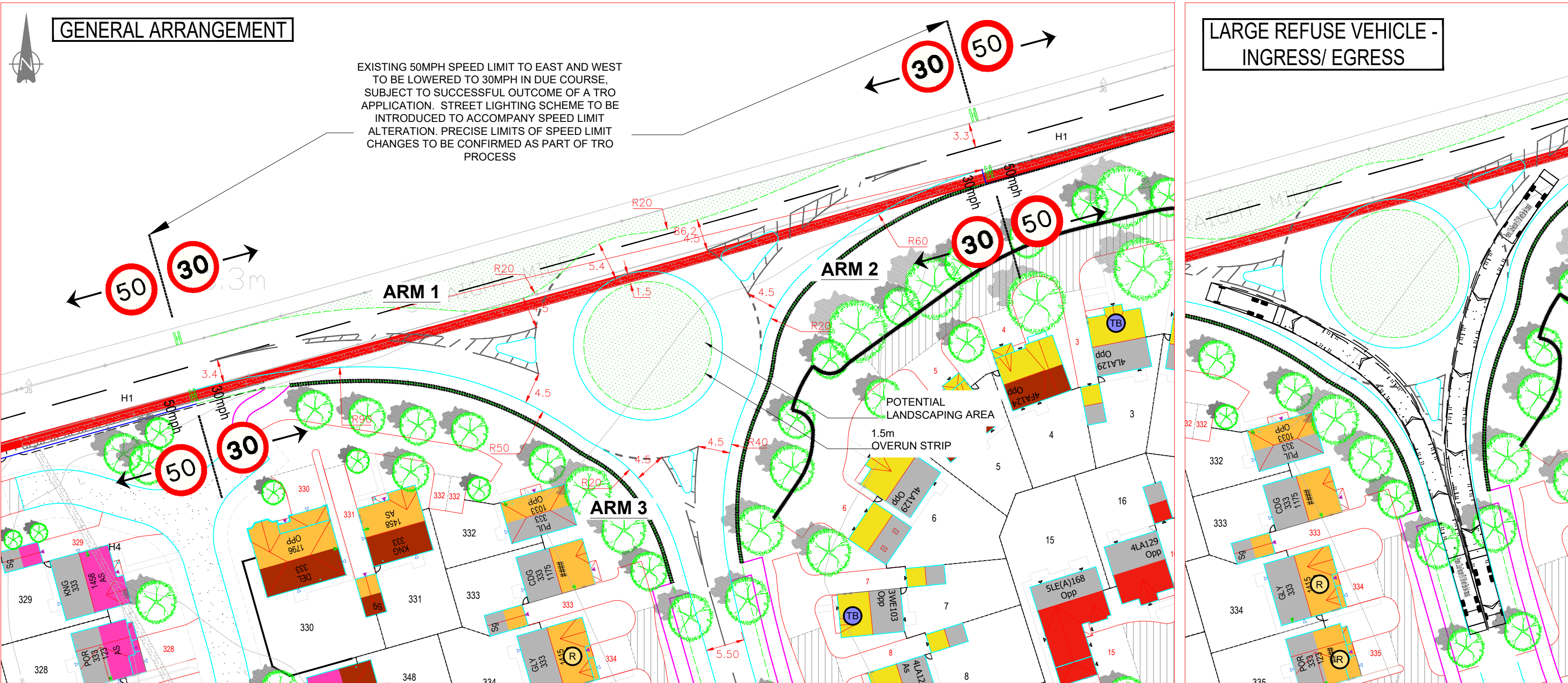
| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| B-AC   | 26                    | 518               | 0.050 | 26                  | 0.1             | 7.312     | A   |
| C-AB   | 38                    | 803               | 0.047 | 38                  | 0.1             | 4.710     | A   |
| C-A    | 293                   |                   |       | 293                 |                 |           |     |
| A-B    | 18                    |                   |       | 18                  |                 |           |     |
| A-C    | 239                   |                   |       | 239                 |                 |           |     |

### 18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| B-AC   | 22                    | 534               | 0.041 | 22                  | 0.0             | 7.023     | A   |
| C-AB   | 29                    | 778               | 0.038 | 29                  | 0.1             | 4.811     | A   |
| C-A    | 248                   |                   |       | 248                 |                 |           |     |
| A-B    | 15                    |                   |       | 15                  |                 |           |     |
| A-C    | 200                   |                   |       | 200                 |                 |           |     |

---

Appendix F - Drawing 065665-CUR-00-XX-DR-TP-03001-P02 –  
Proposed Site Access Roundabout Off Straight Mile



**GENERAL NOTES:**

**Roundabout Design Checklist – TD 16/07**  
**Normal and Compact**

| Design Feature                    | Design Requirements                                                                | Arm 1 | Arm 2 | Arm 3 |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|-------|
| Entry Width (e)                   | Min 3m per lane<br>Single 3m<e<10.5m (4.5m ideal)<br>Dual 6m<e<15m (3m-3.5m ideal) | 4.5m  | 4.5m  | 4.5m  |
| Entry Radius (r)                  | 10m – 100m (20m ideal)<br>Normal – 20m min for HGV's                               | 20m   | 20m   | 20m   |
| ICD (D)                           | >28m                                                                               | 32m   | 32m   | 32m   |
| Entry Path Curvature (Deflection) | Normal - <100m radius<br>Compact - <70m radius<br>(DMRB: urban overruns OK)        | 67.4m | 60.1m | 66.3m |
| Circulatory Carriageway           | 1.0 – 1.2 x max entry width<br>max 15m                                             | 5.4m  | 5.4m  | 5.4m  |
| Exit Radius                       | Normal 20m – 100m (40m ideal)<br>Compact – 15m – 20m                               | 50m   | 20m   | 40m   |
| Exit Width                        | Normal – 6m min<br>Compact – single lane                                           | 4.5m  | 4.5m  | 4.5m  |

**VEHICLE PROFILES**

Diagram showing the vehicle profiles for the roundabout design. It includes the dimensions for a 1998 FTA Design Articulated Vehicle and a Phoenix 2 Duo Recycler (P2-15W with Elite 6x4 chassis).

**KEY**

- PROPOSED KERB LINE
- PROPOSED FOOTWAY
- PROPOSED ROAD MARKINGS
- SITE BOUNDARY
- PROPOSED ROAD SIGN
- PROPOSED GRASS AREA

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Status:

**PRELIMINARY**

Project:

**GRESFORD ROAD, LLAY**

Drg Title:

**PROPOSED SITE ACCESS  
ROUNDAABOUT OFF STRAIGHT MILE  
SWEEP PATH ANALYSIS**

| Size: | Date:    | Drawn By: | Designed By: | Checked By: |
|-------|----------|-----------|--------------|-------------|
| A2    | 29/10/17 | JM        | JM           | LK          |

Scale: 1:500

| Project No: | Originator: | Zone: | Level: | Type: | Discipline: | Category / Number: | Rev: |
|-------------|-------------|-------|--------|-------|-------------|--------------------|------|
| 65665       | CUR         | 00    | XX     | DR    | TP          | 03001              | P02  |

---

## Appendix G - ARCADY Results for the Proposed Site Access Roundabout

| Junctions 9                                                                                                                                                                 |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|
| ARCADY 9 - Roundabout Module                                                                                                                                                |  |  |  |  |  |  |  |
| Version: 9.0.1.4646 []<br>© Copyright TRL Limited, 2017                                                                                                                     |  |  |  |  |  |  |  |
| For sales and distribution information, program advice and maintenance, contact TRL:<br>Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk |  |  |  |  |  |  |  |
| 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            |  |  |  |  |  |  |  |

## «2024 Assessment, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

## Summary of junction performance

|                 | AM          |           |      |     | PM          |           |      |     |
|-----------------|-------------|-----------|------|-----|-------------|-----------|------|-----|
|                 | Queue (PCU) | Delay (s) | RFC  | LOS | Queue (PCU) | Delay (s) | RFC  | LOS |
| 2024 Assessment |             |           |      |     |             |           |      |     |
| Arm 1           | 0.4         | 4.57      | 0.30 | A   | 0.5         | 4.64      | 0.32 | A   |
| Arm 2           | 0.4         | 4.03      | 0.26 | A   | 0.6         | 4.84      | 0.38 | A   |
| Arm 3           | 0.1         | 4.10      | 0.06 | A   | 0.0         | 4.31      | 0.04 | A   |

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       | (untitled) |
| Location    |            |
| Site number |            |
| Date        |            |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  |            |
| 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

| Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
|                             |                             | 0.85          | 36.00                       | 20.00                 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|----|---------------------------------|
| A1 | 100.000                         |

### Demand Set Details

| ID | Scenario name   | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|-----------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D2 | 2024 Assessment | PM               | ONE HOUR             | 16:45              | 18:15               | 15                        |

# 2024 Assessment, PM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

| Junction | Name     | Junction Type       | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout | 4.73               | A            |

### Junction Network Options

| Driving side | Lighting       |
|--------------|----------------|
| Left         | Normal/unknown |

## Arms

### Arms

| Arm | Name               | Description |
|-----|--------------------|-------------|
| 1   | Straight Mile West |             |
| 2   | Straight Mile East |             |
| 3   | Site Access 1      |             |

### 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) | Exit only |
|-----|----------------------------------|---------------------|---------------------------------|----------------------|-----------------------------------|------------------------------------|-----------|
| 1   | 3.34                             | 4.50                | 3.2                             | 20.0                 | 32.0                              | 34.0                               |           |
| 2   | 3.20                             | 4.50                | 3.9                             | 20.0                 | 32.0                              | 17.0                               |           |
| 3   | 2.75                             | 4.50                | 5.5                             | 20.0                 | 32.0                              | 30.0                               |           |

### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm | Final slope | Final intercept (PCU/hr) |
|-----|-------------|--------------------------|
| 1   | 0.541       | 1159                     |
| 2   | 0.570       | 1214                     |
| 3   | 0.533       | 1097                     |

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

## Traffic Demand

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages     | 2.00                      |

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| 1   |            | ✓            | 331                     | 100.000            |
| 2   |            | ✓            | 415                     | 100.000            |
| 3   |            | ✓            | 32                      | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

| From | To  |     |    |  |
|------|-----|-----|----|--|
|      | 1   | 2   | 3  |  |
| 1    | 0   | 311 | 20 |  |
| 2    | 386 | 0   | 29 |  |
| 3    | 13  | 19  | 0  |  |

## Vehicle Mix

### Heavy Vehicle Percentages

| From | To |   |   |  |
|------|----|---|---|--|
|      | 1  | 2 | 3 |  |
| 1    | 0  | 1 | 0 |  |
| 2    | 0  | 0 | 0 |  |
| 3    | 0  | 0 | 0 |  |

## Results

### Results Summary for whole modelled period

| Arm | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| 1   | 0.32    | 4.64          | 0.5             | A       |
| 2   | 0.38    | 4.84          | 0.6             | A       |
| 3   | 0.04    | 4.31          | 0.0             | A       |

### Main Results for each time segment

#### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| 1   | 249                   | 14                        | 1151              | 0.216 | 248                 | 0.3             | 4.018     | A   |
| 2   | 312                   | 15                        | 1205              | 0.259 | 311                 | 0.3             | 4.021     | A   |
| 3   | 24                    | 289                       | 943               | 0.026 | 24                  | 0.0             | 3.918     | A   |

#### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| 1   | 298                   | 17                        | 1150              | 0.259 | 297                 | 0.4             | 4.262     | A   |
| 2   | 373                   | 18                        | 1203              | 0.310 | 373                 | 0.4             | 4.332     | A   |
| 3   | 29                    | 347                       | 912               | 0.032 | 29                  | 0.0             | 4.074     | A   |

#### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| 1   | 364                   | 21                        | 1148              | 0.318 | 364                 | 0.5             | 4.633     | A   |
| 2   | 457                   | 22                        | 1201              | 0.380 | 456                 | 0.6             | 4.829     | A   |
| 3   | 35                    | 424                       | 871               | 0.040 | 35                  | 0.0             | 4.307     | A   |

**17:30 - 17:45**

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| 1   | 364                   | 21                        | 1148              | 0.318 | 364                 | 0.5             | 4.639     | A   |
| 2   | 457                   | 22                        | 1201              | 0.380 | 457                 | 0.6             | 4.837     | A   |
| 3   | 35                    | 425                       | 871               | 0.040 | 35                  | 0.0             | 4.309     | A   |

**17:45 - 18:00**

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| 1   | 298                   | 17                        | 1150              | 0.259 | 298                 | 0.4             | 4.268     | A   |
| 2   | 373                   | 18                        | 1203              | 0.310 | 374                 | 0.5             | 4.344     | A   |
| 3   | 29                    | 348                       | 912               | 0.032 | 29                  | 0.0             | 4.078     | A   |

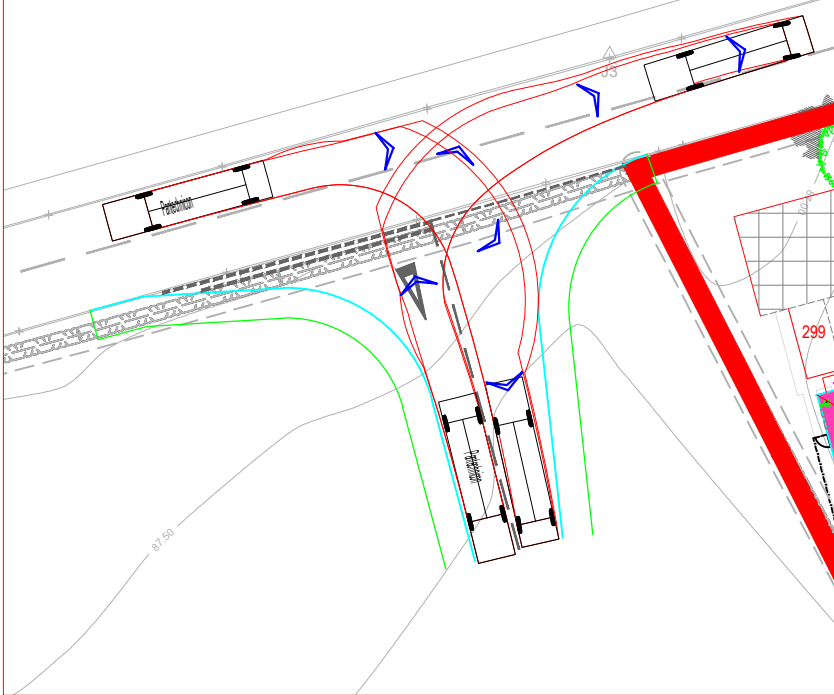
**18:00 - 18:15**

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| 1   | 249                   | 14                        | 1151              | 0.216 | 249                 | 0.3             | 4.032     | A   |
| 2   | 312                   | 15                        | 1205              | 0.259 | 313                 | 0.4             | 4.038     | A   |
| 3   | 24                    | 291                       | 942               | 0.026 | 24                  | 0.0             | 3.923     | A   |

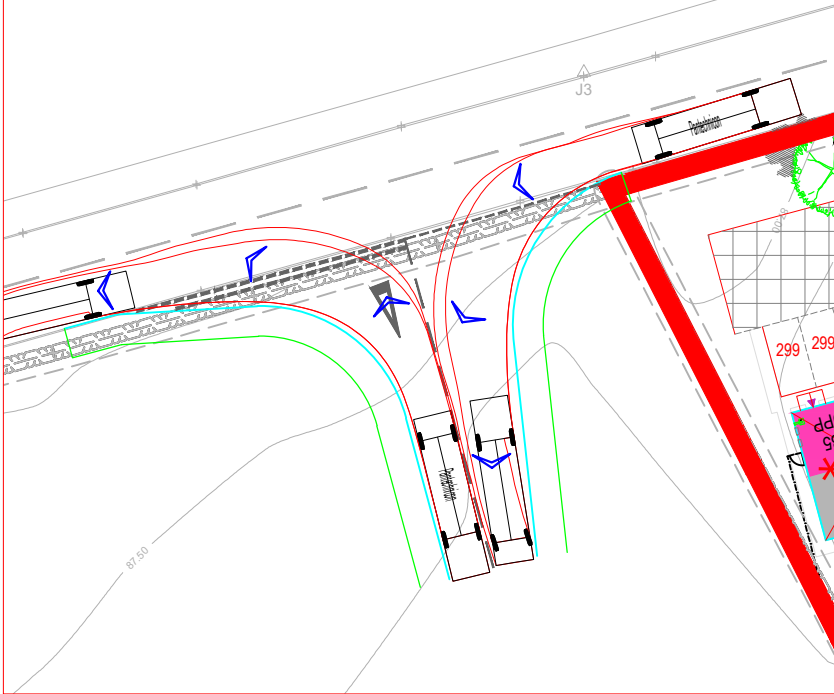
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Appendix H - Drawing 065665-CUR-00-XX-DR-TP-03002-P03 –  
Proposed Commercial Site Access Arrangement Off Straight Mile

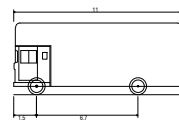
LARGE REFUSE VEHICLE - RIGHT IN RIGHT OUT 1:500



LARGE REFUSE VEHICLE - LEFT IN LEFT OUT 1:500



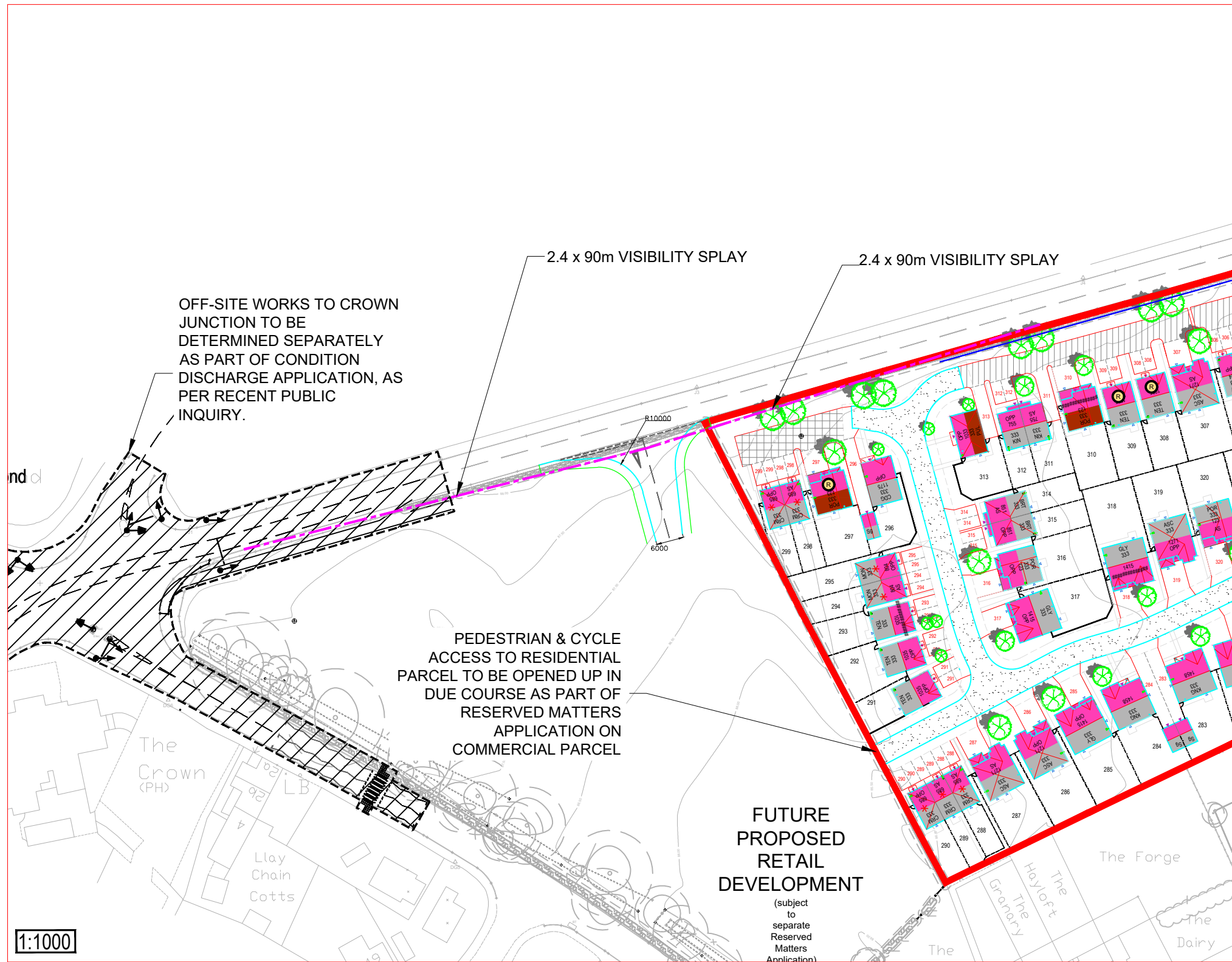
VEHICLE PROFILE



KEY

- VISIBILITY SPLAYS
- SITE BOUNDARY

GENERAL NOTES:



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|                                                          |             |                     |                |       |             |                    |      |
|----------------------------------------------------------|-------------|---------------------|----------------|-------|-------------|--------------------|------|
| Project: GRESFORD ROAD, LLAY                             |             | Status: PRELIMINARY |                |       |             |                    |      |
| Drg Title: INDICATIVE COMMERCIAL SITE ACCESS ARRANGEMENT |             | Drawn By: JM        | Checked By: LK |       |             |                    |      |
|                                                          |             | Designed By: JM     | Date: 29/10/17 |       |             |                    |      |
|                                                          |             | Scale: 1:1000       |                |       |             |                    |      |
| Project No:                                              | Originator: | Zone:               | Level:         | Type: | Discipline: | Category / Number: | Rev: |
| 65665                                                    | - CUR       | - ZO                | - LV           | - DR  | - D         | - 03002            | -P03 |

---

## Appendix I - PICADY Results for the Proposed Commercial Site Access Arrangement

| Junctions 9                                                                                                                                                                 |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|
| PICADY 9 - Priority Intersection Module                                                                                                                                     |  |  |  |  |  |  |  |
| Version: 9.0.1.4646 []<br>© Copyright TRL Limited, 2017                                                                                                                     |  |  |  |  |  |  |  |
| For sales and distribution information, program advice and maintenance, contact TRL:<br>Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk |  |  |  |  |  |  |  |
| 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            |  |  |  |  |  |  |  |

## «2024 Traffic Flow, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

## Summary of junction performance

|                   | AM          |           |      |     | PM          |           |      |     |
|-------------------|-------------|-----------|------|-----|-------------|-----------|------|-----|
|                   | Queue (PCU) | Delay (s) | RFC  | LOS | Queue (PCU) | Delay (s) | RFC  | LOS |
| 2024 Traffic Flow |             |           |      |     |             |           |      |     |
| Stream B-AC       | 0.1         | 8.78      | 0.07 | A   | 0.1         | 9.20      | 0.08 | A   |
| Stream C-AB       | 0.0         | 4.67      | 0.03 | A   | 0.1         | 4.77      | 0.04 | A   |

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        |            |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  |            |
| 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 | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|--------------------|-----------------------------|-----------------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
| 5.75               |                             |                                   |                             | 0.85          | 36.00                       | 20.00                 |

### Analysis Set Details

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

### Demand Set Details

| ID | Scenario name     | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2024 Traffic Flow | AM               | ONE HOUR             | 07:45              | 09:15               | 15                        | ✓                 |

# 2024 Traffic Flow, 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. |

## Junction Network

### Junctions

| Junction | Name     | Junction Type | Major road direction | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way              | 0.54               | A            |

### Junction Network Options

| Driving side | Lighting       |
|--------------|----------------|
| Left         | Normal/unknown |

## Arms

### Arms

| Arm | Name                   | Description | Arm type |
|-----|------------------------|-------------|----------|
| A   | Straight Mile East     |             | Major    |
| B   | Commercial Site Access |             | Minor    |
| C   | Straight Mile West     |             | Major    |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|-----|--------------------------|----------------------------|--------------------|-------------------------------|---------|----------------------|
| C   | 6.80                     |                            |                    | 200.0                         | ✓       | 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   | One lane       | 3.00           | 25                     | 24                      |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Junction | Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|----------|--------|--------------------|---------------|---------------|---------------|---------------|
| 1        | B-A    | 498                | 0.087         | 0.221         | 0.139         | 0.316         |
| 1        | B-C    | 639                | 0.095         | 0.239         | -             | -             |
| 1        | C-B    | 690                | 0.258         | 0.258         | -             | -             |

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|--------------|-------------------------|--------------------|
| A   |            | ONE HOUR     | ✓            | 310                     | 100.000            |
| B   |            | ONE HOUR     | ✓            | 29                      | 100.000            |
| C   |            | ONE HOUR     | ✓            | 337                     | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|  | To     |     |    |     |
|--|--------|-----|----|-----|
|  |        | A   | B  | C   |
|  | From A | 0   | 13 | 297 |
|  | From B | 15  | 0  | 14  |
|  | From C | 322 | 15 | 0   |

## Vehicle Mix

### Heavy Vehicle Percentages

|  | To     |   |   |   |
|--|--------|---|---|---|
|  |        | A | B | C |
|  | From A | 0 | 0 | 0 |
|  | From B | 0 | 0 | 0 |
|  | From C | 0 | 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   | 0.07    | 8.78          | 0.1             | A       | 27                      | 40                            |
| C-AB   | 0.03    | 4.67          | 0.0             | A       | 22                      | 33                            |
| C-A    |         |               |                 |         | 287                     | 431                           |
| A-B    |         |               |                 |         | 12                      | 18                            |
| A-C    |         |               |                 |         | 273                     | 409                           |

### 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) | LOS |
|--------|-----------------------|-------------------------|-------------------|-------|---------------------|-------------------|-----------------|-----------|-----|
| B-AC   | 22                    | 5                       | 479               | 0.046 | 22                  | 0.0               | 0.0             | 7.866     | A   |
| C-AB   | 16                    | 4                       | 787               | 0.021 | 16                  | 0.0               | 0.0             | 4.669     | A   |
| C-A    | 237                   | 59                      |                   |       | 237                 |                   |                 |           |     |
| A-B    | 10                    | 2                       |                   |       | 10                  |                   |                 |           |     |
| A-C    | 224                   | 56                      |                   |       | 224                 |                   |                 |           |     |

### 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) | LOS |
|--------|-----------------------|-------------------------|-------------------|-------|---------------------|-------------------|-----------------|-----------|-----|
| B-AC   | 26                    | 7                       | 464               | 0.056 | 26                  | 0.0               | 0.1             | 8.225     | A   |
| C-AB   | 21                    | 5                       | 808               | 0.026 | 21                  | 0.0               | 0.0             | 4.574     | A   |
| C-A    | 282                   | 70                      |                   |       | 282                 |                   |                 |           |     |
| A-B    | 12                    | 3                       |                   |       | 12                  |                   |                 |           |     |
| A-C    | 267                   | 67                      |                   |       | 267                 |                   |                 |           |     |

### 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) | LOS |
|--------|-----------------------|-------------------------|-------------------|-------|---------------------|-------------------|-----------------|-----------|-----|
| B-AC   | 32                    | 8                       | 442               | 0.072 | 32                  | 0.1               | 0.1             | 8.777     | A   |
| C-AB   | 29                    | 7                       | 838               | 0.034 | 29                  | 0.0               | 0.0             | 4.449     | A   |
| C-A    | 342                   | 86                      |                   |       | 342                 |                   |                 |           |     |
| A-B    | 14                    | 4                       |                   |       | 14                  |                   |                 |           |     |
| A-C    | 327                   | 82                      |                   |       | 327                 |                   |                 |           |     |

### 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) | LOS |
|--------|-----------------------|-------------------------|-------------------|-------|---------------------|-------------------|-----------------|-----------|-----|
| B-AC   | 32                    | 8                       | 442               | 0.072 | 32                  | 0.1               | 0.1             | 8.779     | A   |
| C-AB   | 29                    | 7                       | 838               | 0.034 | 29                  | 0.0               | 0.0             | 4.449     | A   |
| C-A    | 342                   | 86                      |                   |       | 342                 |                   |                 |           |     |
| A-B    | 14                    | 4                       |                   |       | 14                  |                   |                 |           |     |
| A-C    | 327                   | 82                      |                   |       | 327                 |                   |                 |           |     |

### 08:45 - 09:00

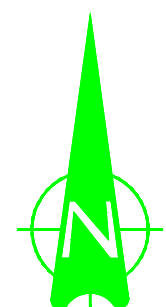
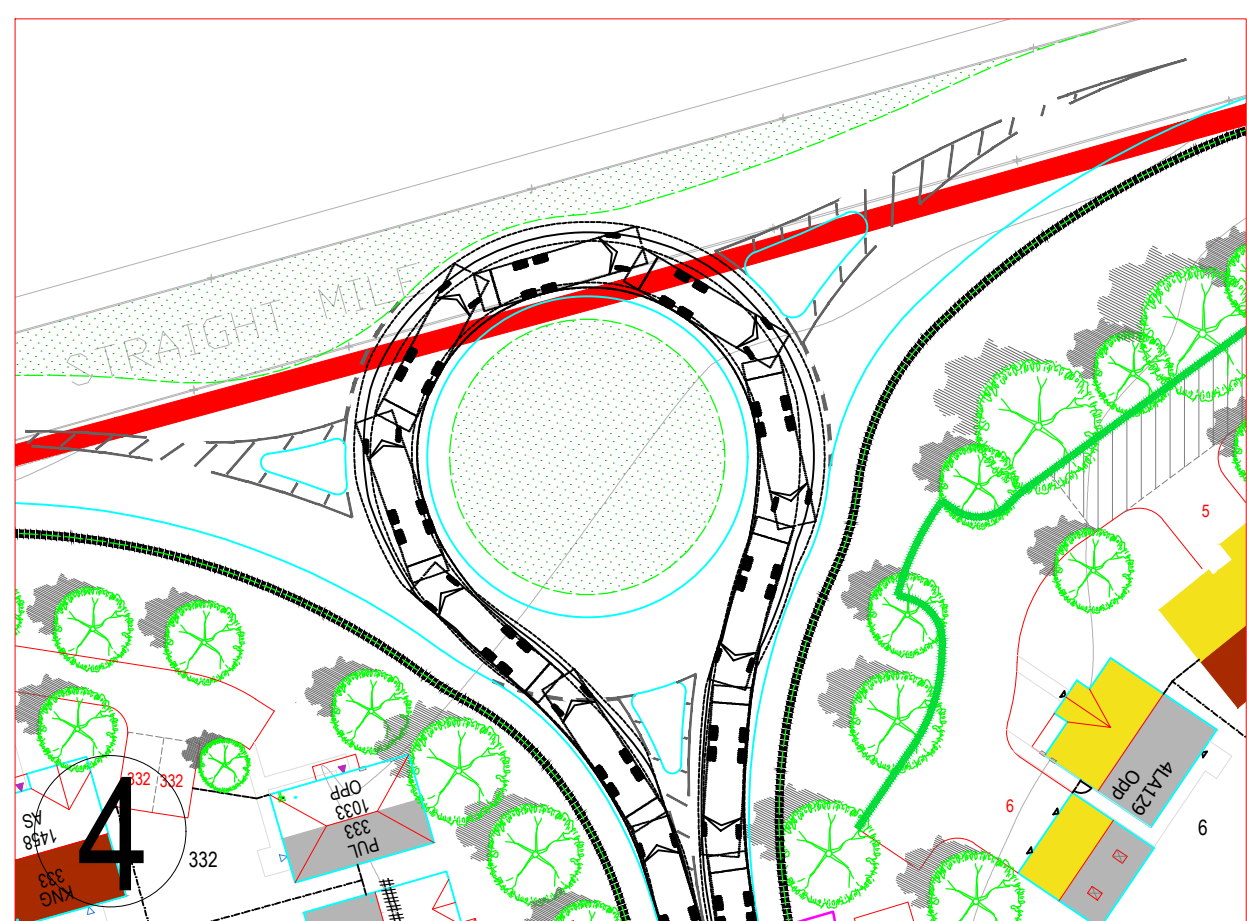
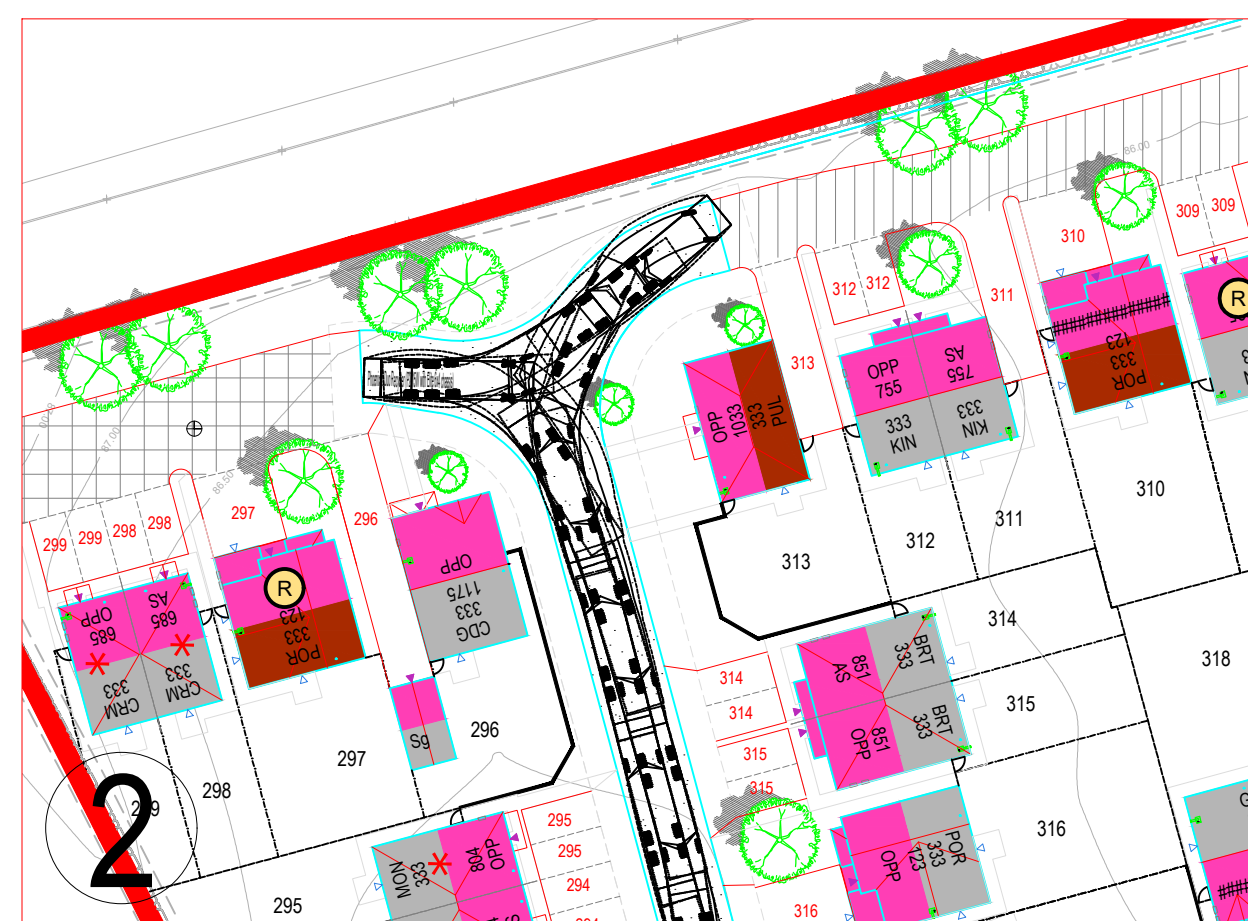
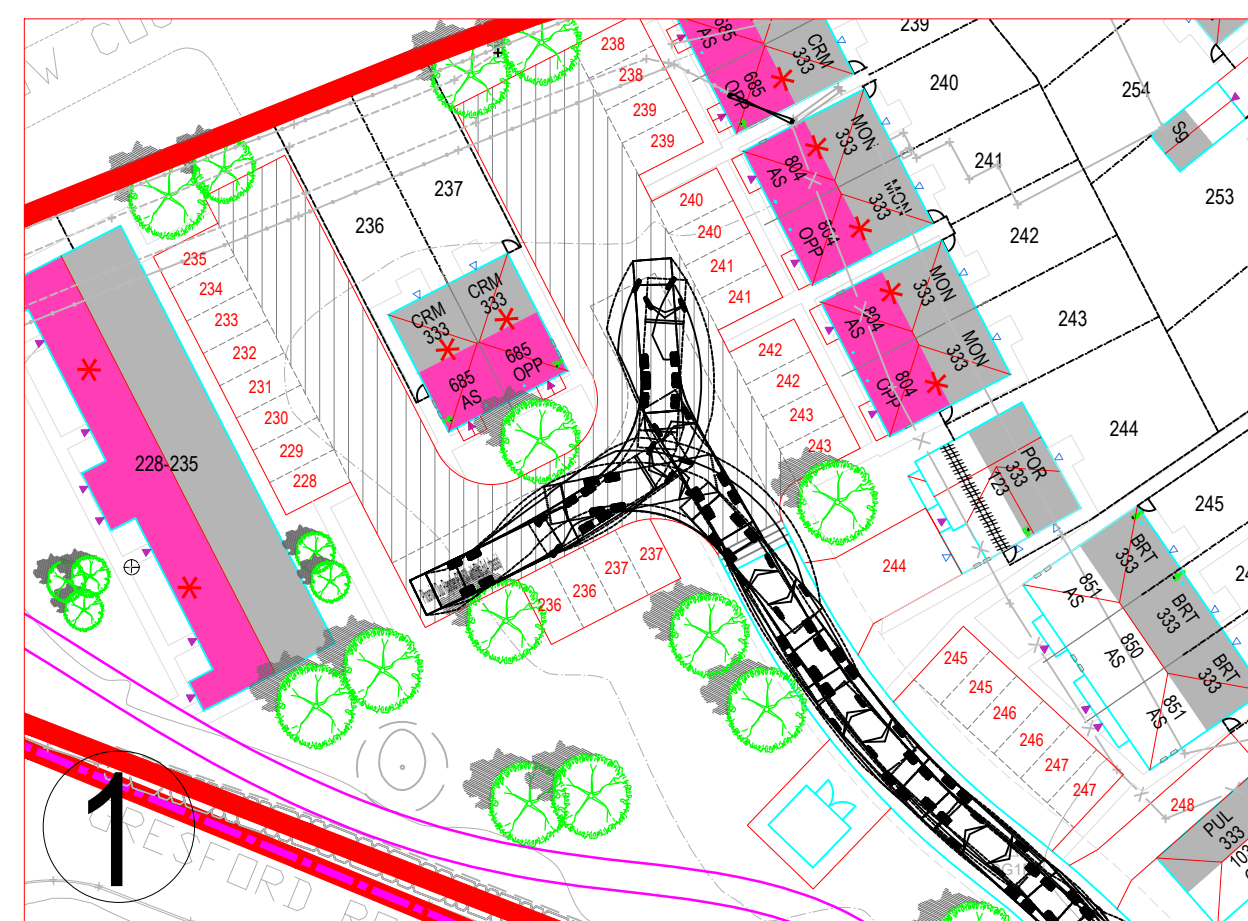
| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | LOS |
|--------|-----------------------|-------------------------|-------------------|-------|---------------------|-------------------|-----------------|-----------|-----|
| B-AC   | 26                    | 7                       | 464               | 0.056 | 26                  | 0.1               | 0.1             | 8.230     | A   |
| C-AB   | 21                    | 5                       | 808               | 0.026 | 21                  | 0.0               | 0.0             | 4.574     | A   |
| C-A    | 282                   | 70                      |                   |       | 282                 |                   |                 |           |     |
| A-B    | 12                    | 3                       |                   |       | 12                  |                   |                 |           |     |
| A-C    | 267                   | 67                      |                   |       | 267                 |                   |                 |           |     |

### 09:00 - 09:15

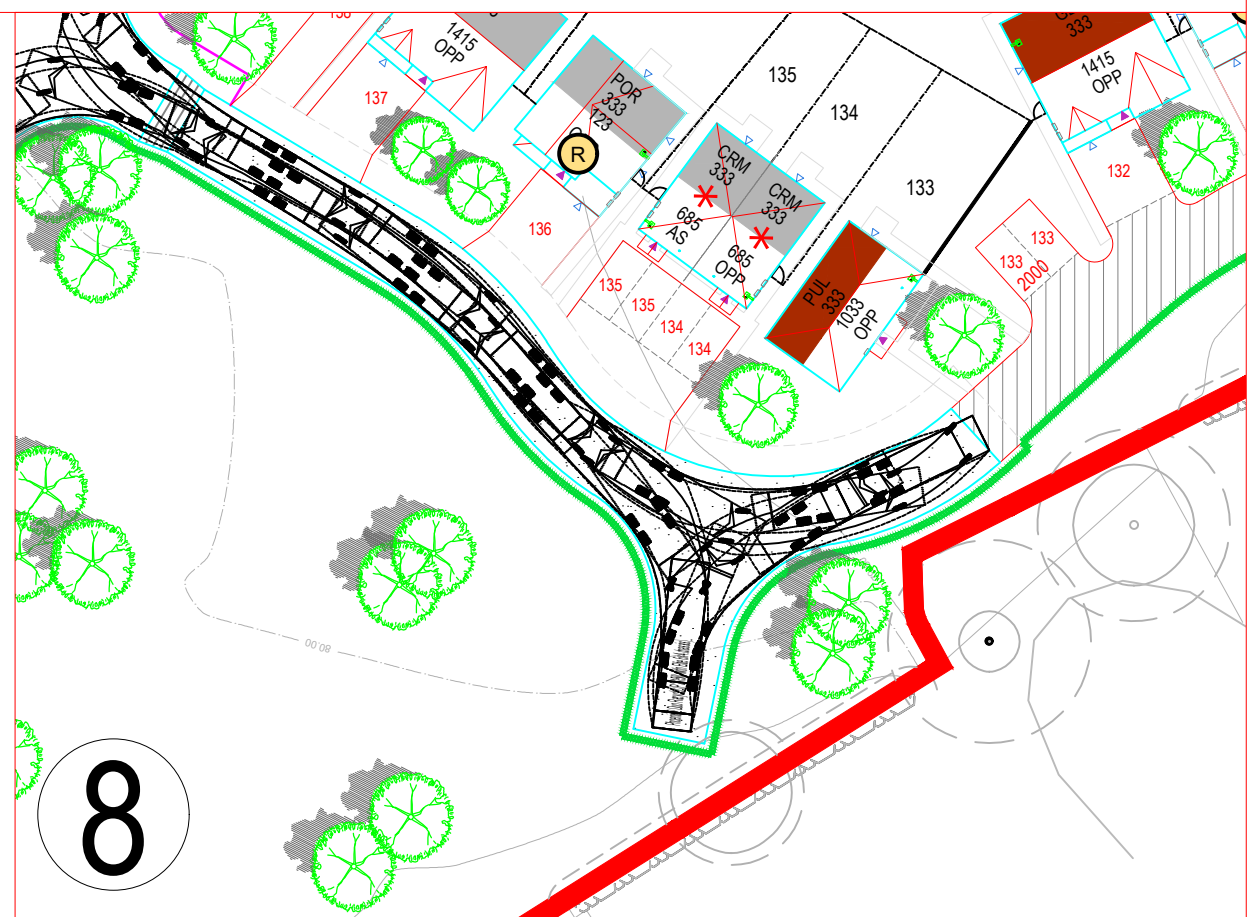
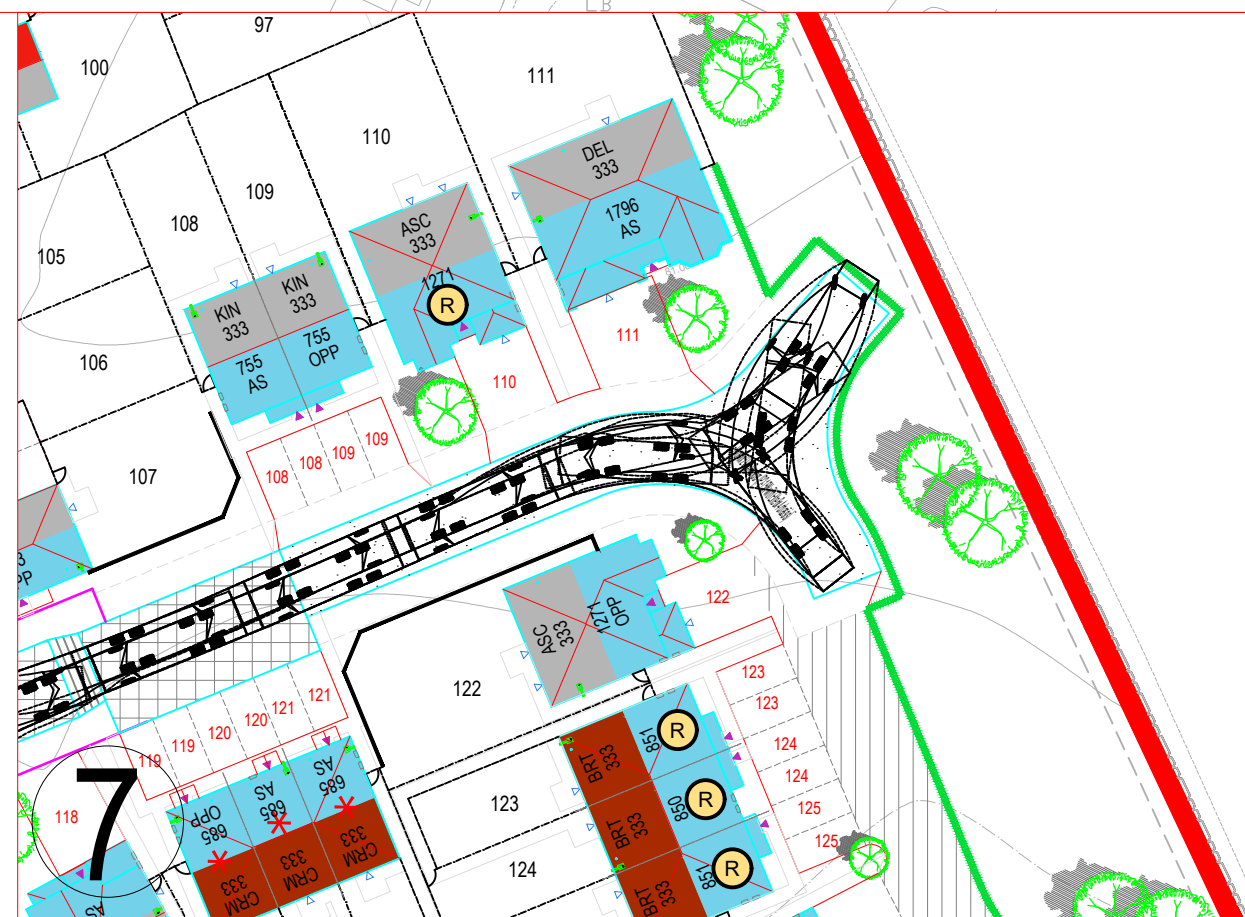
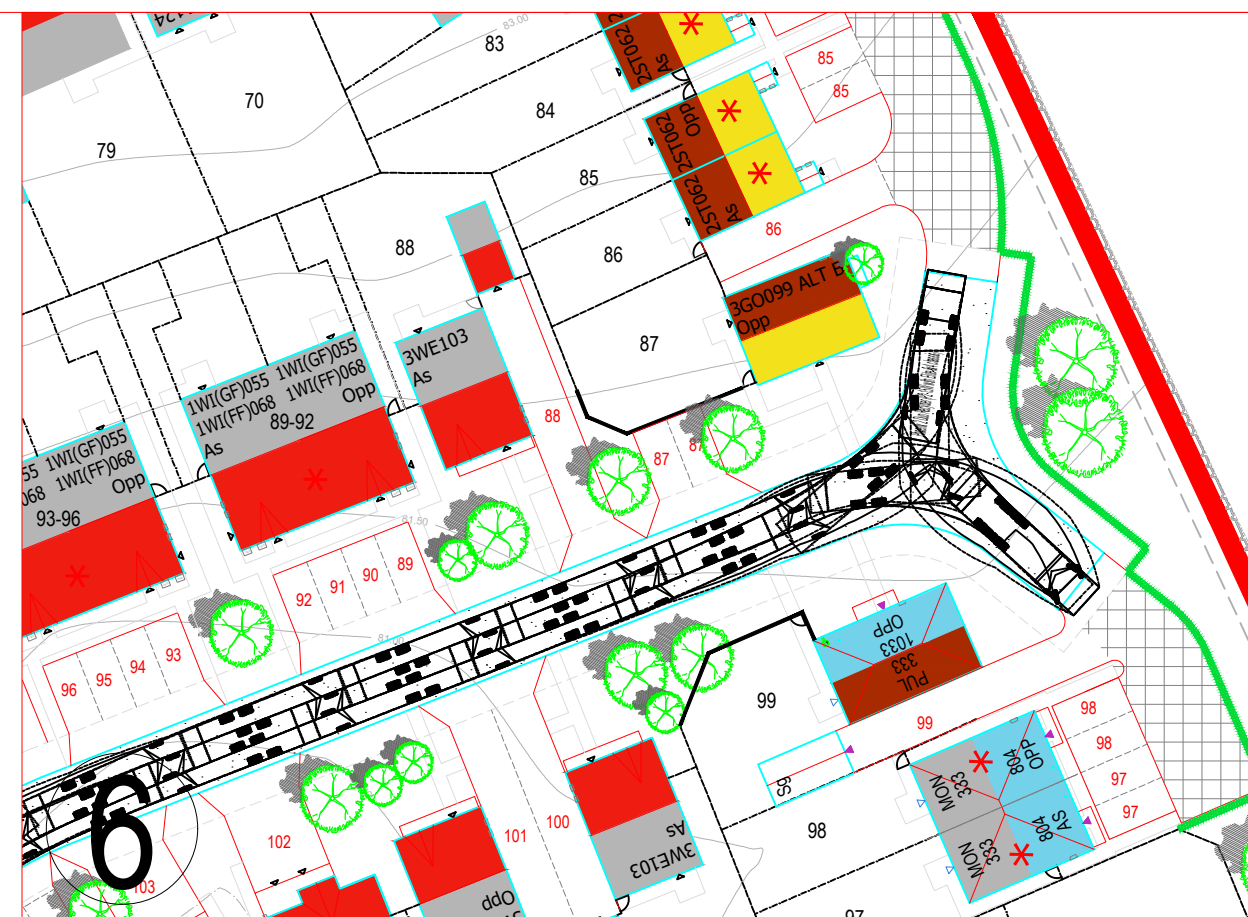
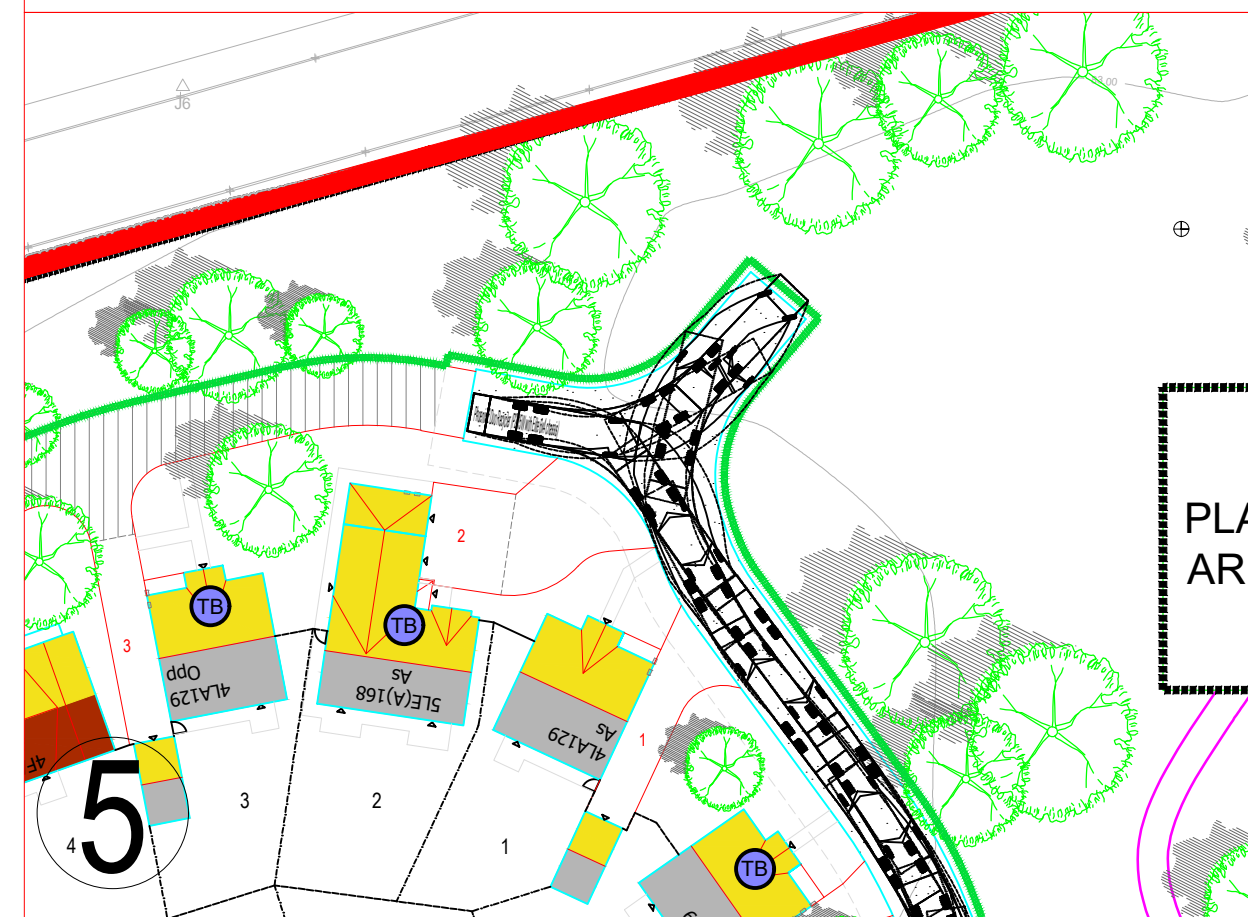
| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | LOS |
|--------|-----------------------|-------------------------|-------------------|-------|---------------------|-------------------|-----------------|-----------|-----|
| B-AC   | 22                    | 5                       | 479               | 0.046 | 22                  | 0.1               | 0.0             | 7.875     | A   |
| C-AB   | 16                    | 4                       | 787               | 0.021 | 16                  | 0.0               | 0.0             | 4.671     | A   |
| C-A    | 237                   | 59                      |                   |       | 237                 |                   |                 |           |     |
| A-B    | 10                    | 2                       |                   |       | 10                  |                   |                 |           |     |
| A-C    | 224                   | 56                      |                   |       | 224                 |                   |                 |           |     |

---

Appendix J - Drawing 065665-CUR-00-XX-DR-TP-05001-P02 –  
Swept Path Analysis of Site Layout Plan



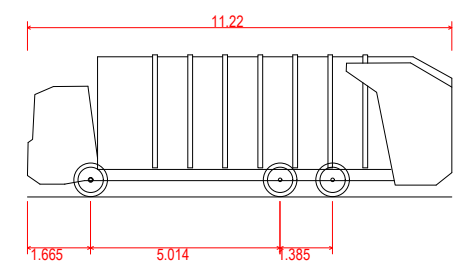
MAIN VIEW



GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.

## VEHICLE PROFILE



|                                                        |         |
|--------------------------------------------------------|---------|
| 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 |

|      |                     |          |     |       |
|------|---------------------|----------|-----|-------|
| P02  | SITE LAYOUT UPDATED | 06/12/17 | LK  | LK    |
| Rev: | Description:        | Date:    | By: | Chkd: |



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| Item | Quantity | Unit Price | Total Price | Status      |
|------|----------|------------|-------------|-------------|
| 1    | 10       | 100        | 1000        | Completed   |
| 2    | 5        | 200        | 1000        | In Progress |
| 3    | 2        | 500        | 1000        | Pending     |
| 4    | 1        | 1000       | 1000        | Cancelled   |
| 5    | 1        | 1000       | 1000        | Completed   |
| 6    | 1        | 1000       | 1000        | In Progress |
| 7    | 1        | 1000       | 1000        | Pending     |
| 8    | 1        | 1000       | 1000        | Cancelled   |
| 9    | 1        | 1000       | 1000        | Completed   |
| 10   | 1        | 1000       | 1000        | In Progress |
| 11   | 1        | 1000       | 1000        | Pending     |
| 12   | 1        | 1000       | 1000        | Cancelled   |
| 13   | 1        | 1000       | 1000        | Completed   |
| 14   | 1        | 1000       | 1000        | In Progress |
| 15   | 1        | 1000       | 1000        | Pending     |
| 16   | 1        | 1000       | 1000        | Cancelled   |
| 17   | 1        | 1000       | 1000        | Completed   |
| 18   | 1        | 1000       | 1000        | In Progress |
| 19   | 1        | 1000       | 1000        | Pending     |
| 20   | 1        | 1000       | 1000        | Cancelled   |
| 21   | 1        | 1000       | 1000        | Completed   |
| 22   | 1        | 1000       | 1000        | In Progress |
| 23   | 1        | 1000       | 1000        | Pending     |
| 24   | 1        | 1000       | 1000        | Cancelled   |
| 25   | 1        | 1000       | 1000        | Completed   |
| 26   | 1        | 1000       | 1000        | In Progress |
| 27   | 1        | 1000       | 1000        | Pending     |
| 28   | 1        | 1000       | 1000        | Cancelled   |
| 29   | 1        | 1000       | 1000        | Completed   |
| 30   | 1        | 1000       | 1000        | In Progress |
| 31   | 1        | 1000       | 1000        | Pending     |
| 32   | 1        | 1000       | 1000        | Cancelled   |
| 33   | 1        | 1000       | 1000        | Completed   |
| 34   | 1        | 1000       | 1000        | In Progress |
| 35   | 1        | 1000       | 1000        | Pending     |
| 36   | 1        | 1000       | 1000        | Cancelled   |
| 37   | 1        | 1000       | 1000        | Completed   |
| 38   | 1        | 1000       | 1000        | In Progress |
| 39   | 1        | 1000       | 1000        | Pending     |
| 40   | 1        | 1000       | 1000        | Cancelled   |
| 41   | 1        | 1000       | 1000        | Completed   |
| 42   | 1        | 1000       | 1000        | In Progress |
| 43   | 1        | 1000       | 1000        | Pending     |
| 44   | 1        | 1000       | 1000        | Cancelled   |
| 45   | 1        | 1000       | 1000        | Completed   |
| 46   | 1        | 1000       | 1000        | In Progress |
| 47   | 1        | 1000       | 1000        | Pending     |
| 48   | 1        | 1000       | 1000        | Cancelled   |
| 49   | 1        | 1000       | 1000        | Completed   |
| 50   | 1        | 1000       | 1000        | In Progress |
| 51   | 1        | 1000       | 1000        | Pending     |
| 52   | 1        | 1000       | 1000        | Cancelled   |
| 53   | 1        | 1000       | 1000        | Completed   |
| 54   | 1        | 1000       | 1000        | In Progress |
| 55   | 1        | 1000       | 1000        | Pending     |
| 56   | 1        | 1000       | 1000        | Cancelled   |
| 57   | 1        | 1000       | 1000        | Completed   |
| 58   | 1        | 1000       | 1000        | In Progress |
| 59   | 1        | 1000       | 1000        | Pending     |
| 60   | 1        | 1000       | 1000        | Cancelled   |
| 61   | 1        | 1000       | 1000        | Completed   |
| 62   | 1        | 1000       | 1000        | In Progress |
| 63   | 1        | 1000       | 1000        | Pending     |
| 64   | 1        | 1000       | 1000        | Cancelled   |
| 65   | 1        | 1000       | 1000        | Completed   |
| 66   | 1        | 1000       | 1000        | In Progress |
| 67   | 1        | 1000       | 1000        | Pending     |
| 68   | 1        | 1000       | 1000        | Cancelled   |
| 69   | 1        | 1000       | 1000        | Completed   |
| 70   | 1        | 1000       | 1000        | In Progress |
| 71   | 1        | 1000       | 1000        | Pending     |
| 72   | 1        | 1000       | 1000        | Cancelled   |
| 73   | 1        | 1000       | 1000        | Completed   |
| 74   | 1        | 1000       | 1000        | In Progress |
| 75   | 1        | 1000       | 1000        | Pending     |
| 76   | 1        | 1000       | 1000        | Cancelled   |
| 77   | 1        | 1000       | 1000        | Completed   |
| 78   | 1        | 1000       | 1000        | In Progress |
| 79   | 1        | 1000       | 1000        | Pending     |
| 80   | 1        | 1000       | 1000        | Cancelled   |
| 81   | 1        | 1000       | 1000        | Completed   |
| 82   | 1        | 1000       | 1000        | In Progress |
| 83   | 1        | 1000       | 1           |             |

## PRELIMINARY

Project

GRESFORD ROAD, LLAY

Drug Title:

# SWEPT PATH ANALYSIS OF RESIDENTIAL SITE LAYOUT WITH REFUSE VEHICLE

|               |               |          |           |              |             |                    |      |
|---------------|---------------|----------|-----------|--------------|-------------|--------------------|------|
| Project No:   | Size:         | Date:    | Drawn By: | Designed By: | Checked By: |                    |      |
| 65665         | A1            | 29/10/17 | JM        | LK           | LK          |                    |      |
|               | Scale: 1:1000 |          |           |              |             |                    |      |
| Project Code: | Originator:   | Zone:    | Level:    | Type:        | Discipline: | Category / Number: | Rev: |
| 65665         | CUR           | 00       | XX        | DR           | TP          | 05001              | P02  |

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