BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Project Name:	Proposed Residential Development, Hemingfield, Barnsley				
Client:	Hargreaves Land Limited				
Subject:	Technical Note - Response to Highways Consultation Comments				
BGH Reference:	23-160-004.04				
Date:	22nd August 2024				
Prepared by:	P Pitcher	**Checked by:**	R Donaldson	**Overview by:**	S Wilkins

Introduction

1. This Note has been produced by Bryan G Hall (BGH) on behalf of Hargreaves Land Limited, in relation to an application for outline planning permission for a proposed residential development, on land between Hemingfield Road and the A6195 Dearne Valley Parkway in Hemingfield, Barnsley.

2. The planning application was submitted to Barnsley Metropolitan Borough Council (BMBC) and validated on 9th February 2024 (application reference: 2024/0122). A Transport Assessment (TA) and a Travel Plan (TP) were prepared by BGH and submitted as part of the planning application.

3. A highways consultation response was provided by BMBC Highways Development Control (DC) on 14th March 2024 with regard to the submitted Transport Assessment, requesting additional information and revisions to the submitted plans. The full Highways DC consultation response is attached at **Appendix BGH1**.

4. A meeting was held on 19th April 2024 with BMBC Highways DC to discuss the consultation response and this TN has been prepared to address the matters raised and discussed.

BMBC Highways DC Consultation Response

5. Each of the points raised in the BMBC Highways DC consultation response received on 14th March 2024 are addressed as follows.

BMBC Highways Comment 1

6. *"Although the application is outline except for access, Highways DC officers would wish to be provided with a detailed design of the proposed access to ensure it can be constructed adequately up to and including the first spur off within the proposed estate. Given the proliferation of sustainable transport routes within and adjacent to the site, Highways DC would ask that a 3.0m shared-use path is provided rather than the 2.0m footways shown on the submitted plan. Consideration should also be given to widening the carriageway at the access point, this is firstly due to the number of dwellings it would serve and also to allow the maintenance of two-way flow of traffic should work be required to be carried out at the junction. Independent Stage 1/2 safety audits should be carried out to ensure safe design and the results submitted for consideration by the Council's Traffic Department."*

BGH Response

7. The above design matters were discussed during the meeting held with BMBC Highways DC on 19th April 2024. Firstly, with regard to the request for a detailed design and Stage 1/2 Road Safety Audit (RSA) of the proposed site access, it has been agreed with BMBC that this is not necessary for the planning application. However, it was agreed that a Stage 1 RSA of the proposed vehicular site access general arrangement would be undertaken and this is attached at **Appendix BGH2**. The Designer's Response to the Stage 1 RSA is attached at **Appendix BGH3** and a revised proposed site access drawing, which has been amended to address the issues raised in the Stage 1 RSA, is attached at **Appendix BGH4** (drawing number 23/160/SKH/007 Rev E).

8. In relation to the Stage 1 RSA process, BMBC Highways DC are now required to complete the Overseeing Organisation column of the Designer's Response. A copy of the Stage 1 RSA and Designer's Response will be issued to BMBC Highways DC separately to facilitate this.

9. During the meeting in April, BMBC Highways DC requested confirmation of the gradient of the initial part of the proposed site access to the east of Hemingfield Road. Paragraph B.1.5.4 of the South Yorkshire Residential Design Guide (SYRDG) states that on the minor arm approach to a junction, a maximum gradient of 5% (1 in 20) is required for a minimum distance back from the give way line of 5 metres, or up to the tangent point of the corner radii if greater. As the proposed junction kerb radii are 10 metres, the longitudinal gradient of the proposed site access will therefore be no greater than 5% for the first 10 metres. A note has been added to the proposed site access drawing to reflect this.

10. Regarding the request for the provision of a shared-used path, it was confirmed during the meeting that, the definition of access means the accessibility to the site, and only approval for the immediate form of access to the site is being sought as part of the outline application. Access through the site will be addressed as part of any reserved matters applications and will at that stage consider pedestrian and cycle movements through the site. The submitted parameters plan sets out some of the principles associated with access within the site.

11. Regarding the proposed site access width, paragraph B.2.1.6 of the SYRDG sets out that for conventional streets with a design speed of 20mph or less, which is applicable to the proposed site access, a minimum carriageway width of 4.8 metres is needed for two cars to pass with some care. The proposed site access carriageway width is 6 metres and is therefore wider than the minimum carriageway width set out in the SYRDG. It is not considered appropriate to provide a wider access than this at the junction with Hemingfield Road.

BMBC Highways Comment 2

12. **"***In terms of the Transport Assessment, it is noted that the site "forms part of a wider area of land which is identified in the Barnsley Local Plan as safeguarded land for future development. The safeguarded land is known as site SL6 'Land North-East of Hemingfield', with an area of 18.2 hectares. The proposed development site is located broadly on the western third of the wider safeguarded land". As this application is for outline only, the information submitted can only be speculatively assessed for the likely number of dwellings provided in a future detailed layout. Whilst the information in the Transport Assessment is not disputed, it should be acknowledged that the proposals form part of a larger allocation and the entire allocated site should be assessed as a committed development, particularly as the development will provide a route through to the wider site. It should also be noted that one access point may not be sufficient to serve the entire number of dwellings anticipated."*

BGH Response

13. As part of the submitted TA, a sensitivity test was undertaken to analyse the future operational capacity of the proposed site access junction, if additional dwellings are built on the remaining safeguarded land to the east of the proposed development site. This concluded that, even if the proposed site access junction with Hemingfield Road was to serve a total of 400 dwellings (in the scenario that an additional access was not provided to the east), it is predicted to remain well within its operational capacity.

14. Since the TA was prepared, an updated estimate of 430 dwellings across the wider safeguarded site has been determined. Therefore, the sensitivity test has been updated.

15. Following the meeting on 19th April 2024, it was agreed with BMBC Highways DC that operational assessment of the following three junctions would be undertaken, to determine the impact of the vehicular trips associated with an estimated 430 dwellings on the safeguarded land:

- Proposed Site Access Junction with Hemingfield Road;
- Hemingfield Road Roundabout; and
- Cemetery Road/Hemingfield Road/School Street Priority T-junction.

16. It was agreed that the impact of the development related vehicular trips beyond the Hemingfield Road Roundabout would be minimal and, as such, would not require assessment. To demonstrate this, a percentage increase assessment has been carried out on the wider network in the vicinity of the site, beyond the Hemingfield Road Roundabout to determine what % increases in traffic would result on the wider network as a result of the full development of the safeguarded land.

17. For completeness, the number of vehicular trips associated with an estimated 430 dwellings on the total safeguarded land, based on the TRICS trip rates included in Table 6.1 of the submitted TA, is summarised in Table 1.

Table 1 – TRICS Trip Rates and Trip Generation for 430 Dwellings

	Morning Peak Hour			Evening Peak Hour		
	In	Out	Two-Way	In	Out	Two-Way
TRICS Trip Rates	0.129	0.366	0.495	0.323	0.143	0.466
Trip Generation	56	157	213	139	61	200

18. The sensitivity test generated traffic flows for 430 dwellings and the 2029 predicted sensitivity test traffic flow diagrams are included at **Appendix BGH5** and **Appendix BGH6** of this Note.

19. The operation of the proposed site access junction with Hemingfield Road has been assessed for the 2029 predicted weekday morning and evening peak hours, using the PICADY element of the Junctions 10 modelling software. The results of the modelling are summarised in Table 2 and the full model outputs are attached at **Appendix BGH7**.

Table 2: Operational Assessment – Sensitivity Test
Proposed Site Access Junction with Hemingfield Road (430 Dwellings)

Assessment Year	Movement	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
		RFC	Queue (PCU)	RFC	Queue (PCU)
2029 Predicted Sensitivity Test	Site Access - (Left & Right Out)	0.37	1	0.16	0
	Hemingfield Road - (Ahead & Right In)	0.02	0	0.06	0

20. The results at Table 2 indicate that even if the proposed site access junction with Hemingfield Road was to serve an estimated total of 430 dwellings (in a scenario that no alternative access was provided), it is predicted to remain well within its operational capacity. The maximum RFC of 0.37 is expected to occur on the proposed site access arm during the morning peak hour, resulting in an associated queue of only 1 vehicle.

21. The operation of the Hemingfield Road Roundabout has been assessed for the 2029 predicted sensitivity test weekday morning and evening peak hours, using the ARCADY element of the Junctions 10 modelling software. The results of the modelling are summarised in Table 3, along with the 2023 existing and 2029 base results from the TA for reference. The full model output is attached at **Appendix BGH7**.

Table 3: Operational Assessment – Sensitivity Test
Hemingfield Road Roundabout (430 dwellings)

Assessment Year	Movement	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
		RFC	Queue (PCU)	RFC	Queue (PCU)
2023 Existing	A6195 Dearne Valley Parkway (East)	0.43	1	0.62	2
	Hemingfield Road (South)	0.21	0	0.19	0
	A6195 Dearne Valley Parkway (West)	0.45	1	0.56	1
	Hemingfield Road (North)	0.28	0	0.30	0
2029 Base	A6195 Dearne Valley Parkway (East)	0.46	1	0.66	2
	Hemingfield Road (South)	0.24	0	0.23	0
	A6195 Dearne Valley Parkway (West)	0.49	1	0.60	2
	Hemingfield Road (North)	0.31	1	0.34	1
2029 Predicted Sensitivity Test	A6195 Dearne Valley Parkway (East)	0.47	1	0.69	2
	Hemingfield Road (South)	0.36	1	0.28	0
	A6195 Dearne Valley Parkway (West)	0.51	1	0.63	2
	Hemingfield Road (North)	0.34	1	0.41	1

22. Table 3 shows that the Hemingfield Road Roundabout is predicted to continue operating well within capacity at a future year of 2029, with the addition of traffic generated by a total of 430 dwellings on the wider safeguarded land. The maximum RFC of 0.69 is predicted to occur on the A6195 Dearne Valley Parkway (East) arm of the roundabout during the weekday evening peak hour, with an associated queue of 2 vehicles. When compared with the 2029 base scenario, this equates to an increase in the maximum RFC of only 0.03, with no increase in queuing.

23. The Cemetery Road/Hemingfield Road/School Street priority T-junction was not modelled as part of the TA to assess the impact of the proposed development for an estimated 180 dwellings. This was due to the fact that the proposed development is predicted to generate less than 30 two-way vehicle trips through the junction and therefore would have no material impact on its operation. However, as agreed with BMBC, as part of the Note the

junction has been modelled as part of the sensitivity test to assess the impact of an estimated 430 dwellings on the wider safeguarded land.

24. The operation of the Cemetery Road/Hemingfield Road/School Street priority T-junction has been assessed for the 2023 existing, 2029 base and 2029 predicted sensitivity test weekday morning and evening peak hours, using the PICADY element of the Junctions 10 modelling software. The results of the modelling are summarised in Table 4, with the full model output attached at **Appendix BGH7**.

Table 4: Operational Assessment – Sensitivity Test
Cemetery Road/Hemingfield Road/School Street Junction (430 dwellings)

Assessment Year	Movement	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
		RFC	Queue (PCU)	RFC	Queue (PCU)
2023 Existing	Cemetery Road Left Out	0.11	0	0.08	0
	Cemetery Road Right Out	0.13	0	0.09	0
	Hemingfield Road Ahead and Right In	0.06	0	0.16	0
2029 Base	Cemetery Road Left Out	0.12	0	0.08	0
	Cemetery Road Right Out	0.14	0	0.10	0
	Hemingfield Road Ahead and Right In	0.07	0	0.18	0
2029 Predicted Sensitivity Test	Cemetery Road Left Out	0.13	0	0.10	0
	Cemetery Road Right Out	0.14	0	0.10	0
	Hemingfield Road Ahead and Right In	0.10	0	0.20	0

25. Table 4 shows that the Cemetery Road/Hemingfield Road/School Street priority T-junction is predicted to continue operating well within capacity at a future year of 2029, with the addition of traffic generated by a total of 430 dwellings on the wider safeguarded land. The maximum RFC of 0.20 is predicted to occur on the Hemingfield Road ahead and right turn in movement during the weekday evening peak hour, with no associated queuing. When compared with the 2029 base scenario, this is an increase in the maximum RFC of only 0.02, with no increase in queuing.

26. It is therefore clear that the proposed site access junction, the Hemingfield Road Roundabout and the Cemetery Road/Hemingfield Road/School Street priority T-junction

will have sufficient capacity to accommodate additional trips, resulting from an estimated total of up to 430 dwellings on the wider safeguarded land.

27. As agreed with BMBC Highways DC, a percentage increase in traffic assessment has been carried out to demonstrate the traffic impact of an estimated 430 dwellings on the stretches of the A6195 Dearne Valley Parkway, beyond the Hemingfield Road Roundabout. Link count traffic data is available for the A6195 from the Department for Transport (DfT) Road Traffic Statistics website, at the locations illustrated in Figure 1.

Figure 1 – A6195 Dearne Valley Parkway DfT Count Point Locations

28. Manual counts were conducted in 2023 at all points identified in Figure 1, apart from count point number 99964, where the latest manual count was conducted in 2022. Where manual count data is not available, the DfT provide Annual Average Daily Flows (AADF) as an estimate using the previous year's AADF on the same link. Whilst the manual counts include the raw data showing hourly counts from 7am to 7pm, from which the peak hour flows can be determined, the estimated data is only presented as AADF by direction.

29. The 2023 AADF for count point 99964 is estimated at 27,811 vehicles, based on the 2022 manual count of 27,206 vehicles. As the estimated 2023 AADF is only marginally higher than the 2022 manual count it would have only a minimal impact on the percentage increase impact assessment, and it is therefore considered appropriate to utilise the 2022 manual count hourly data for count point 99964 in order to calculate the % increases resulting from development.

30. In order to calculate the amount of traffic generated from an estimated 430 dwellings across the safeguarded land that would pass through each of the DfT count points, the trip distribution exercise undertaken as part of the TA, based on 2011 Census Data, has been revisited and extended for the wider network. Table 5 provides a summary of the extended percentage assignment of development generated trips based on origin/destination 2011

Census Data for "Location of usual residence and place of work by method of travel to work (MSOA level)" with the location of usual residence was set as "Barnsley 029", the area in which the site is situated, and the place of work was set to "All". The possible route choices have been determined based on the Google Maps route planning tool.

Table 5: Extended Trip Distribution from the Development – Based on method of travel to work 2011 Census Data from Barnsley 029

Route ID	Route	%age Assignment
A1	Dovecliffe Road	5.5%
A2	Windmill Road/Aldham House Lane	9.4%
A3	A633 (N) Mitchells Way	9.4%
A4	B6096 Station Road	0.2%
B1	M1 (South)	11.6%
B2	A61 Westwood New Road	5.7%
B3	M1 (North)	7.7%
B4	A61 Sheffield Road	1.4%
B5	B6096 Wood Walk	2.9%
B6	A6135 Olympus way	5.0%
C1	Wath Road	9.3%
C2	A6195 (east of Wath Road)	9.4%
C3	A633 Wath Road	2.2%
D	Cemetery Road	7.7%
E	School Street	12.5%
Total	-	100%

31. Table 6 provides a summary of the distribution routes identified within Table 5 which would pass through the individual DfT count points. In this way the total % of development traffic passing through each count point can be identified.

Table 6: Routes from the Development Passing Through the DfT Count Points

Count Point	Routes Passing Through Count Point	%age Assignment
28491	B1 B2 B3	25.0%
90078	B1 B2 B3 B4 B6	31.5%
77562	B1 B2 B3 B4 B5 B6 (all of B)	34.4%
99562	C1 C2 C3 (all of C)	20.9%
99964	C2	9.4%

32. Having established the wider assignment of development traffic, Table 7 presents the 2023 (or 2022 for count point 99964) two-way traffic flows from the DfT count points, for both the morning and evening peak hours, and compares this with the number of vehicle trips that would be generated by an estimated 430 dwellings on the fully developed site, passing through these count points, based on the percentage assignment at Table 6. The estimated percentage impact of the vehicle trips generated by 430 dwellings at each count point during the peak hourly flows is also provided.

Table 7 – Estimated 430 Dwellings Development Trip Impact Assessment through the DfT Count Points on A6195 Dearne Valley Parkway

	28491	90078	77562	99562	99964 *(2022)
2023 Existing AM Peak Hour Flows	3,011	2,006	1,931	1,776	1,979
2023 Existing PM Peak Hour Flows	3,352	2,566	2,273	2,544	2,299
Estimated Vehicle Trips for 430 dwellings – AM Peak Hour	53	67	73	45	20
Estimated Vehicle Trips for 430 dwellings – PM Peak Hour	50	63	69	42	19
Percentage Increase AM Peak Hour	1.8%	3.3%	3.8%	2.5%	1.0%
Percentage Increase PM Peak Hour	1.5%	2.5%	3.0%	1.6%	0.8%

33. As can be seen Table 7 presents the percentage impact on the A6195 Dearne Valley Parkway traffic flows at the DfT count points based on the estimated number of vehicle

trips generated by 430 dwellings on the safeguarded land, and shows that increases in traffic as a result of the safeguarded land would be minimal. The impact would be well within the expected day to day variation in traffic flows along the link and would certainly not be perceptible to drivers using the road.

34. The maximum percentage increase of 3.8% is predicted to occur at count point 77562 during the morning peak hour, which is around 1.2 kilometres to the west of Hemingfield Roundabout. As development traffic is assigned further west, development generated traffic is anticipated to dissipate onto the wider network at the various roundabout junctions along the A6195, resulting in the percentage impact being below 2% on approach to Tankersley Roundabout. To the east of the site, traffic is anticipated to dissipate at Cortonwood Retail Park and Wath Road Roundabout, with the percentage impact being 1% or less to the east of the Wath Road Roundabout.

35. The sensitivity test of the traffic impact of 430 dwellings on the safeguarded land has demonstrated that the impact on the highway network, both in the vicinity of the site and further afield along the A6195 Dearne Valley Parkways, would not be significant and can either be accommodated on the network or would have no material impact on its operation. In particular the network in the immediate vicinity of the site has been shown to be capable of accommodating the additional development traffic.

BMBC Highways Comment 3

36. *"The refuse vehicle that requires tracking is as follows: Length 11 metres, width 2.75 metres, height 4.5 metres, weight 26 tonnes, turning circle needed 15.25 metres. A 0.5m gap from the edge of the carriageway or other obstruction should be maintained at all times when tracking vehicles. The tracking should therefore be updated."*

BGH Response

37. The refuse vehicle swept path analysis has been updated to reflect the specified vehicle measurements and this is attached at **Appendix BGH8** (23/160/ATR/001 Rev D). A 0.5 metre wide gap between the vehicle and the edge of the carriageway has been maintained when tracking the vehicle as requested by BMBC. The drawing shows that a refuse vehicle of this size can access and egress the site from Hemingfield Road, at the proposed site access junction.

Summary and Conclusion

38. This Note has been produced by BGH on behalf of Hargreaves Land Limited, in relation to an application for outline planning permission for a proposed residential development, on land between Hemingfield Road and the A6195 Dearne Valley Parkway in Hemingfield, Barnsley.

39. Following submission of the application, the BMBC Highways DC team provided a highways consultation response on 14th March 2024, with regard to the submitted Transport Assessment. A meeting was then held on 19th April 2024 to discuss the BMBC Highways consultation response.

40. It has been agreed with BMBC Highways DC that a detailed design and Stage 1/2 Road Safety Audit of the proposed site access are not necessary for the planning application. A Stage 1 Road Safety Audit of the proposed site access has been undertaken and amendments to the design of the site access have been made as part of the Designer's Response. BMBC Highways DC are requested to complete the Overseeing Organisation elements of the Designer's Response.

41. It has been confirmed that the gradient of the proposed site access will be no greater than 5% for the first 10 metres. It has been clarified that approval for only the immediate form of access to the site is being sought as part of the outline application. Access through the site, including pedestrian and cyclist routes, will be addressed as part of any reserved matters applications.

42. The proposed carriageway width of the site access at 6 metres is wider than the acceptable minimum of 4.8 metres set out in the SYRDG. Therefore, it is not considered appropriate to provide a wider access than this at the junction with Hemingfield Road.

43. The impact on the highway network of traffic that would be generated by 430 dwellings on the wider safeguarded land has been considered further. In addition to the sensitivity test operational assessment of the impact of 400 dwellings on the proposed site access presented within the original Transport Assessment, the operation of the proposed site access, the Hemingfield Road Roundabout and the Cemetery Road/Hemingfield Road/School Street priority T-junction has also been assessed for an estimated 430 dwellings. This has demonstrated that these junctions in the immediate vicinity of the site are capable of accommodating the additional development traffic.

44. The impact of the development related vehicular trips beyond the Hemingfield Road Roundabout on the A6195 Dearne valley parkway corridor would be minimal and, as such, does not require operational assessment. Whilst this was agreed with officers of BMBC at the meeting held in April 2024, to confirm this, a development traffic percentage increase assessment has been carried out on the A6195 corridor in the vicinity of the site, beyond the Hemingfield Road Roundabout. This has demonstrated that 430 dwellings on the safeguarded land would result in a maximum percentage increase in traffic of 3.8%, on the A6195 around 1.2 kilometres to the west of Hemingfield Roundabout. Beyond this, to the west development generated traffic will dissipate onto the wider network at the various roundabout junctions along the A6195, resulting in the percentage impact being below 2% on the approach to Tankersley Roundabout.

45. It has been demonstrated that 430 dwellings on the safeguarded land will not have a significant impact on the highway network, in either the vicinity of the site, where operational assessment work has shown the junctions continue to operate satisfactorily, or further afield along the A6195.

46. The refuse vehicle swept path analysis of the proposed site access has been updated to reflect updated vehicle dimensions provided by BMBC Highways DC, and to show a 0.5 metre wide gap between the vehicle and the edge of the carriageway. The swept path analysis confirms that a refuse vehicle of this size can access and egress the site from/to Hemingfield Road, at the proposed site access junction.

47. It is considered that this Technical Note responds fully to all of the comments made by BMBC Highways DC in relation to the application. It is therefore concluded that, once the Stage 1 Road Safety Audit process is complete, there will be no justifiable highways or transport related reasons why the proposed development should not be granted planning permission.

Appendices

Appendix BGH1 - Highways Development Control Consultation Response

Appendix BGH2 - Stage 1 Road Safety Audit

Appendix BGH3 - Stage 1 Road Safety Audit Designer's Response

Appendix BGH4 – Proposed Vehicular and Pedestrian Access from Hemingfield Road (drawing number: 23/160/SKH/007 Rev E)

Appendix BGH5 – Development Generated Traffic Flows (Sensitivity Test)

Appendix BGH6 – 2029 Predicted Traffic Flows (Sensitivity Test)

Appendix BGH7 – Junction Model Outputs

Appendix BGH8 – Updated Refuse Vehicle Swept Path Analysis (drawing number 23/160/ATR/001 Rev D)

APPENDIX BGH 1

HIGHWAYS DEVELOPMENT CONTROL CONSULTATION RESPONSE

PLANNING CASE OFFICER	Laura Bennett
HIGHWAYS OFFICER	Jamie Turner
PLANNING APPLICATION REF.	2024/0122
LOCATION	Land north of Hemingfield Road, Hemingfield, Barnsley
DESCRIPTION	Outline planning application for demolition of existing structures and erection of residential dwellings with associated infrastructure and open space. All matters reserved apart from access into the site
ASSOCIATED PRE-APPLICATION	2023/ENQ/00437

Although the application is outline except for access, Highways DC officers would wish to be provided with a detailed design of the proposed access to ensure it can be constructed adequately up to and including the first spur off within the proposed estate.

Given the proliferation of sustainable transport routes within and adjacent to the site, Highways DC would ask that a 3.0m shared-use path is provided rather than the 2.0m footways shown on the submitted plan. Consideration should also be given to widening the carriageway at the access point, this is firstly due to the number of dwellings it would serve and also to allow the maintenance of two-way flow of traffic should work be required to be carried out at the junction.

Independent Stage 1/2 safety audits should be carried out to ensure safe design and the results submitted for consideration by the Council's Traffic Department.

In terms of the Transport Assessment, it is noted that the site "forms part of a wider area of land which is identified in the Barnsley Local Plan as safeguarded land for future development. The safeguarded land is known as site SL6 'Land North-East of Hemingfield', with an area of 18.2 hectares. The proposed development site is located broadly on the western third of the wider safeguarded land". As this application is for outline only, the information submitted can only be speculatively assessed for the likely number of dwellings provided in a future detailed layout. Whilst the information in the Transport Assessment is not disputed, it should be acknowledged that the proposals form part of a larger allocation and the entire allocated site should be assessed as a committed development, particularly as the development will provide a route through to the wider site. It should also be noted that one access point may not be sufficient to serve the entire number of dwellings anticipated.

As mentioned in the pre-application response 2023/ENQ/00437, the refuse vehicle that requires tracking is as follows: Length 11 metres, width 2.75 metres, height 4.5 metres, weight 26 tonnes, turning circle needed 15.25 metres. A 0.5m gap from the edge of the carriageway or other obstruction should be maintained at all times when tracking vehicles. The tracking should therefore be updated.

APPENDIX BGH 2

BRYAN G HALL

CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Proposed Site Access, Hemingfield Road, Barnsley

Stage 1 Road Safety Audit

July 2024

PROPOSED SITE ACCESS
HEMINGFIELD ROAD,
BARNSLEY

HARGREAVES LAND LTD

STAGE 1 ROAD SAFETY AUDIT

Report by: Adam Bradley

Bryan G Hall
Consulting Civil & Transportation Planning Engineers
Suite E15, Joseph's Well, Hanover Walk, Leeds, LS3 1AB

Ref: 23-160-005.01

Date: July 2024

CONTENTS

APPENDICES

Appendix BGH1	Road Safety Audit Location Plan

1.0 INTRODUCTION

1.1 This Report comprises a Stage 1 Road Safety Audit (RSA) as defined in the Department for Transport (DfT) Design Manual for Roads and Bridges (DMRB) Standard GG 119 Road Safety Audit. It is concerned with the proposed vehicular access junction with Hemingfield Road which is intended to serve a proposed residential development associated with Hargreaves Land Ltd.

1.2 The development proposals seek to provide a new residential development on the site, with associated infrastructure and open space. The outline application is for the erection of residential dwellings with details for the means of access into the site, however, the details of the layout and access arrangements within the site itself will be considered at reserved matters stage. The access proposals are to serve a residential development with an estimated capacity of 180 dwellings initially, however, there is safeguarded land to the east of the site that could deliver a further estimated 250 dwellings.

1.3 The site is located within Hemingfield which forms part the Principal Town of Hoyland as defined in the Barnsley Local Plan Settlement Hierarchy. It is located approximately 6.5 kilometres to the south-east of the centre of Barnsley. At present, the site is mostly undeveloped land which is used for agricultural purposes. At the south-western extents of the site are agricultural buildings associated with Hilltop Farm and the former Billy's Hill Farm Shop. The site is bound to the north by a line of trees and the A6195 Dearne Valley Parkway, to the east by existing undeveloped agricultural land, to the south by Hemingfield Road and Briery Meadows and to the west by Hemingfield Road and a further line of trees.

1.4 The proposed access arrangements which is the subject of this RSA is located along the western boundary of the proposed development site. The site access will take the form of a ghost island right turn priority controlled T-junction, with Hemingfield Road forming the major arm and the estate road associated with the development forming the minor arm. In order to accommodate the proposed right turn ghost island, it is proposed to widen Hemingfield Road into the site in the vicinity of the proposed site access junction. The carriageway will be widened from its current width of 7.0 metres to a total of 10.0 metres, to allow the formation of a 3.0 metre wide right turn ghost island, a 3.0 metre wide through lane for southbound vehicle movements on Hemingfield Road and a 4.0 metre wide through lane for northbound vehicle movements on Hemingfield Road.

1.5 Hemingfield Road provides frontage access to dwellings on the western side of the carriageway. On street parking associated with these dwellings takes place on the western side of the carriageway. The footway on the eastern site side continues for around 80 metres to the north of the proposed access, where it terminates and is replaced with a verge containing dense vegetation and trees. The footway on the western side of Hemingfield Road is continues both to the north and south of the proposed access.

1.6 The Audit took place at the site of the proposed highway works on the morning of Wednesday 10th July 2024 during daylight hours between 10.00am and 11:00am. The RSA team visited the site together with Nathan Copley (Senior Engineer, Traffic Section, Barnsley Council) and during the site visit the weather was dry and the road surface was dry. There was a moderate level of vehicular traffic using Hemingfield Road, no pedestrians were observed, and no cyclists were observed.

1.7 The drawings listed below formed part of the Audit.

- 23-160-SKH-007 Rev C - Proposed Access Arrangement - RTGI Junction
- 23-160-ATR-001-Rev B Swept Path Analysis of Refuse Vehicle Using Site Access

1.8 The Audit Team comprised:-

Road Safety Audit Team Leader
Adam Bradley BSc (Hons), MCIHT
Principal Engineer
Bryan G Hall Consulting Civil and Transportation Planning Engineers

Road Safety Audit Team Member
David Bell (MEng, CEng, MCIHT) (Certificate of Competency in Road Safety Audit gained in October 2013)
Director
Bryan G Hall Consulting Civil and Transportation Planning Engineers

1.9 The Audit team have been provided with the Stage 1 RSA brief (ref: 23-160-003.02 Stage 1 RSA Brief - Hemingfield Road, 28th June 2024).

1.10 The terms of reference of the Safety Audit are as described in GG 119. The auditor has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance to any other criteria. Only items requiring comment are included in the Safety Audit.

2.0 ITEMS RAISED IN THIS STAGE 1 ROAD SAFETY AUDIT

2.1 All items raised within this RSA are shown on the annotated plan at **Appendix BGH1**.

2.2 **Problem A**

Parking on western side of Hemingfield Road opposite the proposed site access.

Summary

Vehicles parked on the western side of Hemingfield Road will restrict turning movements into and out of the access and northbound through movements on Hemingfield Road, increasing the risk of rear end shunt type collisions and collisions as vehicles leave the site.

During the RSA site visit vehicles were parked on the western side of Hemingfield Road opposite the proposed access location and to the north and south. Whilst the proposed widening increases the northbound carriageway width to 4.0 metres, the swept path analysis provided demonstrates that parked vehicles would obstruct vehicles leaving the site as they effectively reduce the available carriageway width. This means that vehicles exiting the proposed access will have to make use of the hatched area to turn right from the development and straddle the centreline of the carriageway, leading to an increased risk of collisions between vehicles.

Vehicles parked to the west of Hemingfield Road will also restrict northbound traffic movements, meaning drivers will be forced to use part of the right turn lane in order to pass parked vehicles. This increases the risk of rear end shunt type collisions between drivers slowing to enter the development and drivers continuing eastbound on Hemingfield Road.

The restricted carriageway width on Hemingfield Road caused by parked vehicles will reduce the width available for northbound through traffic to pass vehicles waiting to make the right turn into the development. Hemingfield Road carries a regular bus route and this further increases the risk of collisions as drivers misjudge the space available and loss of control type collisions as drivers travelling northbound attempt to pass between right turning vehicles and parked vehicles on the western side of the carriageway.

Recommendation

It is recommended that measures to ensure that parking does not restrict carriageway width opposite the proposed side road are provided.

2.3 **Problem B**

Hemingfield Road southbound approach to the proposed site access.

Summary

Available Stopping Sight Distance to the junction for drivers approaching southbound on Hemingfield Road is restricted by existing vegetation

The existing vegetation in the eastern verge outside the proposed side road visibility splay restricts the stopping sight distance for drivers approaching the junction from the north and hence drivers may not be aware of the presence of the

side road and turning vehicles leading to an increased risk of vehicle to vehicle collisions. Drivers will be approaching the junction from non-built up area and may not be expecting there to be a junction present due to the presence of the existing vegetation on the inside of the bend reducing the level of the stopping sight distance on the approach to the junction.

Recommendation

Provide sufficient stopping sight distance on approach to the proposed new junction from the north.

2.4 **Problem C**

Footway provision on Hemingfield Road to the north of the proposed access.

Summary

There is no pedestrian crossing facility to the north of the proposed access. The lack of dropped kerbs and tactile paving increases the risk of trips and falls as pedestrians attempt to cross the carriageway to travel to and from the north of the site on the western side of Hemingfield Road.

Recommendation

It is recommended that tactile paving and dropped kerbs are provided at a suitable location to the north of the proposed access and that appropriate intervisibility is provided between the crossing location and oncoming vehicles.

2.5 **Problem D**

Site access pedestrian crossing facilities.

Summary

The site access junction does not include facilities to allow pedestrians to cross the minor arm of the junction. The lack of dropped kerbs and tactile paving increases the risk of trips and falls as pedestrians attempt to cross the carriageway of the minor road to travel north on the eastern side of Hemingfield Road.

Recommendation

It is recommended that tactile paving and dropped kerbs are provided at a suitable location on the desire line across the minor arm of the proposed junction.

2.6 **Problem E**

Proposed bus stop relocation location on Hemingfield Road.

Summary

Forward visibility to the proposed relocated bus stop to the south of the scheme on Hemingfield Road may be restricted by the proposed development and will increase the risk of rear end shunt type collisions or loss of control type collisions between southbound vehicles and stationary buses at the bus stop.

Recommendation

It is recommended that forward visibility between drivers on the southbound carriageway of Hemingfield Road and the relocated bus stop is reviewed and measures are provided to ensure that the visibility envelope remains clear of obstruction.

2.7 **Problem F**

Bus stops to the south of the scheme on Hemingfield Road.

Summary

The existing and proposed bus stop locations to the south of the proposed access on Hemingfield Road do not include raised kerbs to assist with access to buses and increases the risk of injury as passengers board and alight from buses.

Recommendation

It is recommended that the existing and proposed bus stops are provided with raised kerbs in line with the Disability Discrimination Act.

2.8 **Problem G**

Existing bus stop to the south west of the site on the southern side of Hemingfield Road.

Summary

There are no pedestrian crossing facilities between the development site and the existing bus stop to the south west of the proposed development on the southern side of Hemingfield Road. The lack of dropped kerbs and tactile paving increases the risk of trips and falls as pedestrians attempt to cross the carriageway and access the existing bus stop. The carriageway widening to facilitate the right turn lane will also make it more difficult for pedestrians to cross Hemingfield Road.

Recommendation

It is recommended that a crossing facility for pedestrians is provided across Hemingfield Road.

2.9 **Problem H**

Hemingfield Road southbound through lane width.

Summary

The proposed southbound through lane width is 3.0 metres, this may not be wide enough for buses and HGV's to pass through at 30 mph without encroaching on the right turn lane associated with the proposed access leading to head on collisions.

The swept path analysis of a 2.75 metre wide refuse vehicle shows that a refuse vehicle will encroach on the hatching of the right turn ghost island on the southbound approach to the proposed access. It is likely that a bus or HGV would also encroach on the hatching and right turn pocket whilst traveling southbound through the junction and therefore increases the risk of head on collisions between southbound vehicles and vehicles waiting in the right turn pocket.

Recommendation

It is recommended the southbound movement through the junction is assessed further to ensure that large vehicles including buses can pass through the junction safely without encroaching on the right turn pocket associated with the proposed access.

3.0 AUDIT STATEMENT

3.1 We certify this audit has been carried out in accordance with GG 119.

ROAD SAFETY AUDIT TEAM LEADER

Adam Bradley BSc (Hons), MCIHT

Associate
Bryan G Hall Consulting Civil and Transportation Planning Engineers

Signed:

Date: 15.07.2024

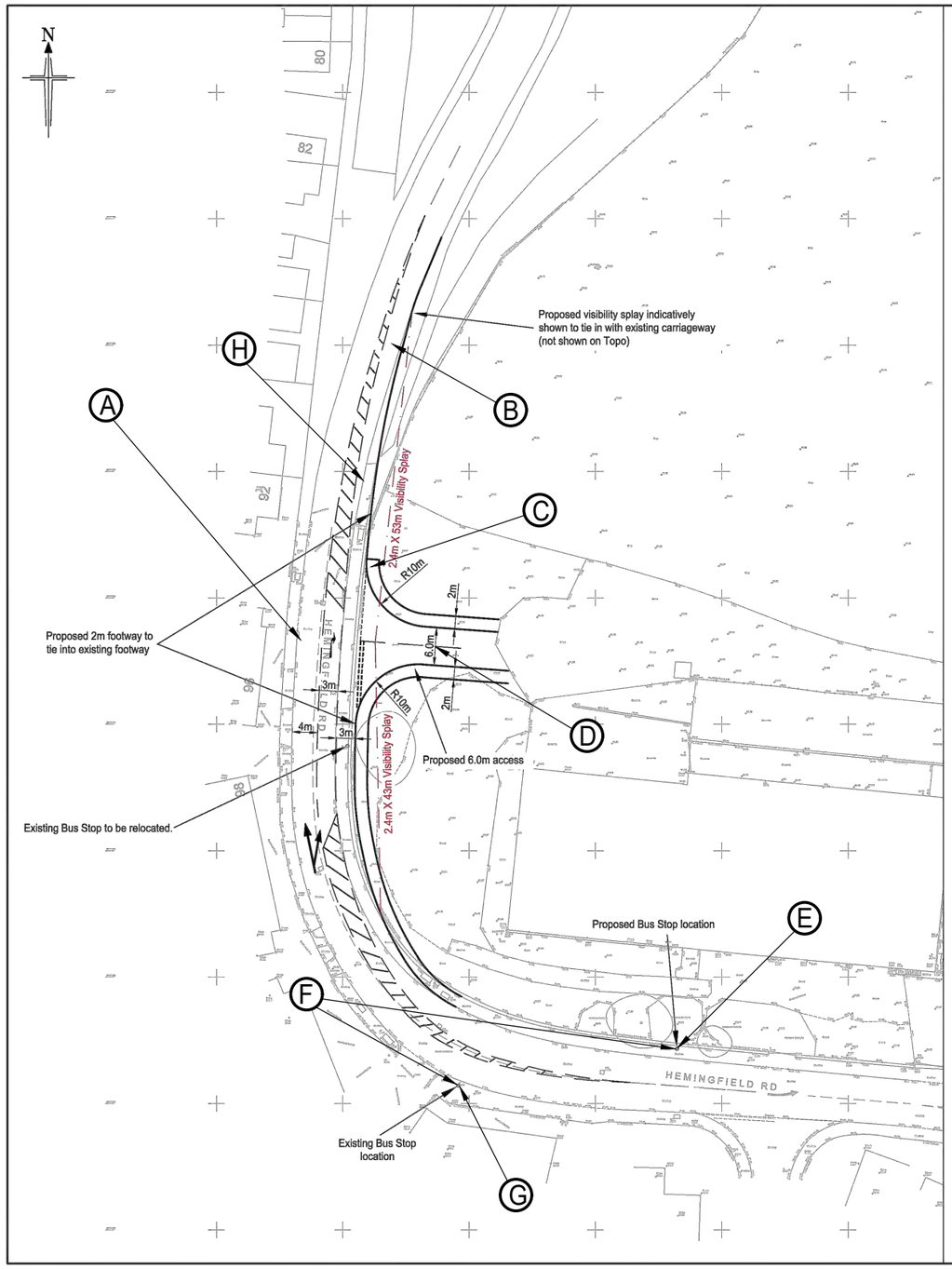
ROAD SAFETY AUDIT TEAM MEMBER

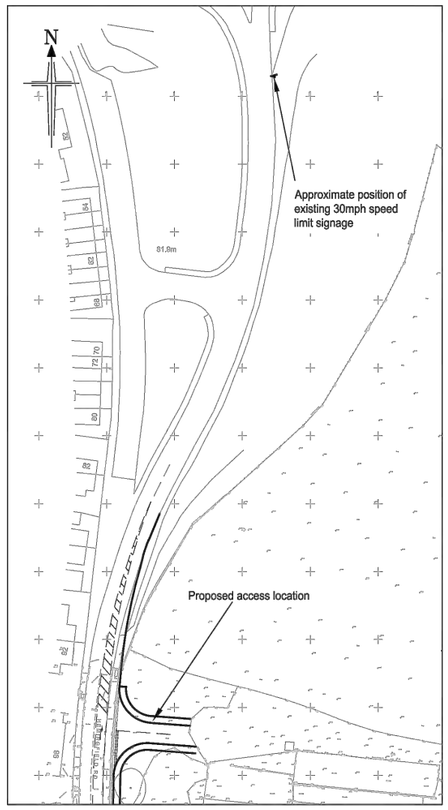
David Bell (MEng, CEng, MCIHT)
Director
Bryan G Hall Consulting Civil and Transportation Planning Engineers

Signed:

Date: 15.07.2024

APPENDIX BGH 1





Rev:	Date:	Amendment:	DRN	CHK	APR
C	18.01.24	Visibility amended to ATC speeds	RD	MC	MC
B	06.11.23	Title block updated following client comments	MIT	MC	SCW

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Client:

Status: For Planning

Scale: 1:500 Size: A2 - 594 x 420 | Drawn: MIT | Chkd: MC | Appvd: BR

Project: Residential Development Hemingfield, Barnsley

Title: Proposed Access Arrangement - Right Turn Ghost Island Junction

Drawing No: 23/160/SKH/007 | Revision: C
Job No: 23-160 | Date: 13.10.23

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Bryan G Hall

Title: STAGE 1 RSA PROBLEM LOCATION PLAN

Status: RSA

Scale: N.T.S. Size: A3 - 420 x 297 | Drawn: LD | Chkd: AB | Appvd: DB

Rev:	Date:	Amendment:	DRN	CHK	APR

Client: HARGREAVES LAND LTD

Project: STAGE 1 RSA - HEMINGFIELD, BARNSLEY

Drawing No: 23/160/RSA/001 | Revision: -
Job No: 23-160 | Date: 19.07.2024

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APPENDIX BGH 3

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Stage 1 Road Safety Audit Designer's Response

Project Details

Report Title:	Stage 1 Road Safety Audit Designer's Response – Proposed Site Access, Hemingfield Road, Hemingfield
Date:	21st August 2024
Document Reference and Revision:	23-160-006.03
Prepared by:	Bryan G Hall Limited
On behalf of:	Barnsley Metropolitan Borough Council (Overseeing Organisation)

Authorisation Sheet

Project:	Land at Hemingfield Road, Hemingfield
Report Title:	Stage 1 RSA Designer's Response
Prepared by:	
Name:	Martin Crabtree
Position:	Associate
Signed:	
Organisation:	Bryan G Hall Limited
Date:	21st August 2024
Approved by:	
Name:	
Position:	
Signed:	
Organisation:	Barnsley Metropolitan Borough Council
Date:	

Introduction

This Stage 1 Road Safety Audit Designer's Response has been prepared by Bryan G Hall Limited to address the points raised in the Stage 1 Road Safety Audit of the proposed vehicular access junction with Hemingfield Road, to serve a proposed residential development. The Stage 1 Road Safety Audit was carried out by Bryan G Hall Limited and is dated 15th July 2024 (report reference no. 23-160-005.01).

The proposed site access drawing has been revised to address the comments raised by the audit team and is included at **Appendix BGH1** of this Designer's Response, along with an additional supporting swept path analysis drawing at **Appendix BGH2**, as detailed in this Designer's Response.

Key Personnel

Overseeing Organisation:	Barnsley Metropolitan Borough Council
RSA Team:	Bryan G Hall Limited
Design Organisation:	Bryan G Hall Limited

Road Safety Audit Decision Log

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
Problem A				
Parking on western side of Hemingfield Road opposite the proposed site access.	It is recommended that measures to ensure that parking does not restrict carriageway width opposite the proposed side road are provided.	Paragraph 5.9 of the Transport Assessment (document ref. 23-160-001.03) sets out that a 4 metre wide northbound through lane is proposed to accommodate the existing on street parking on Hemingfield Road in the vicinity of the proposed site access junction. This, alongside the provision of the 3 metre wide right turn ghost island means that traffic can continue to flow while vehicles are waiting to turn right into the site. Should vehicles be parked fully within the carriageway, this would require 2 metres of carriageway width, in line with the guidance in Figure 8.18 of Manual for Streets for parallel parking spaces. When combined with the proposed 3 metre wide right turn ghost island, there would therefore be an available width of around 5 metres for a car waiting to turn right into the site and a northbound car to pass through. It has been observed on site that vehicles currently park partially on the footway, therefore the available width may even be more than 5 metres. Figure 7.1 of Manual for Streets indicates that a minimum carriageway width of 4.1 metres is wide enough for two cars to pass each other, therefore a width of 5 metres is considered to be appropriate to accommodate a car waiting to turn right and a northbound car passing through. Figure 7.1 of Manual for Streets indicates that a minimum carriageway width of 4.8 metres is wide enough for a car and a larger rigid vehicle to pass each other. Therefore it may also be possible for a northbound refuse vehicle or a bus to pass a car waiting to turn right into the site. If not,		

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
		then the northbound vehicle would simply need to wait briefly for the right turning car to clear. The modelling of the proposed site access junction shows that there would be minimal delays to vehicles turning right into the site of around 6/7 seconds and that queuing of more than 1 vehicle is not likely to occur, therefore this is not considered to be an issue. Furthermore, at present, it is apparent that vehicles may have to encroach into the opposing carriageway to pass the parked vehicles. Therefore, it is considered that the proposed site access arrangement represents an improvement over the existing situation.		
Problem B				
Hemingfield Road southbound approach to the proposed site access.	Provide sufficient stopping sight distance on approach to the proposed new junction from the north.	In response to Problem C, a footway is now proposed to the north of the access, which will necessitate the removal of some vegetation in this area. Any remaining vegetation within the adopted highway is to be trimmed back as necessary to achieve the 2.4 metres x 53 metres visibility splay to the north. A note has been added to the proposed site access drawing to clarify this.		
Problem C				
Footway provision on Hemingfield Road to the north of the proposed access.	It is recommended that tactile paving and dropped kerbs are provided at a suitable location to the north of the proposed access and that appropriate intervisibility is provided between the crossing location and oncoming vehicles.	The proposed site access drawing has been amended to extend the proposed footway on the eastern side of the carriageway to the north for around 45 metres. An uncontrolled pedestrian crossing point with dropped kerbs and tactile paving is then proposed to be located in the vicinity of numbers 86 and 88 Hemingfield Road, just to the south of the existing vehicular dropped crossing which provides access to the private driveways for number 84 and 86 Hemingfield Road. 53 metres forward visibility will be provided for southbound vehicles on Hemingfield Road to see		

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
		pedestrians on the eastern side of the crossing at a point 0.5 metres back from the dropped kerb. The 53 metres stopping sight distance has been measured along the centre of the southbound carriageway. The existing trees and vegetation will be trimmed back as necessary to achieve this forward visibility. On the western side of the carriageway, the proposed crossing is located where existing dwellings have private driveways and some additional block paved space in front of the properties to park off the carriageway. Therefore crossing pedestrians are very unlikely to be masked by vehicles parked on Hemingfield Road.		
Problem D				
Site access pedestrian crossing facilities	It is recommended that tactile paving and dropped kerbs are provided at a suitable location on the desire line across the minor arm of the proposed junction.	An uncontrolled pedestrian crossing with dropped kerbs and tactile paving will be provide at the proposed site access as suggested. The proposed site access has been amended to show this.		
Problem E				
Proposed bus stop relocation location on Hemingfield Road.	It is recommended that forward visibility between drivers on the southbound carriageway of Hemingfield Road and the relocated bus stop is reviewed and measures are provided to ensure that the visibility envelope remains clear of obstruction.	The exact location of the relocated bus stop is to be agreed with BMBC and the local public transport operators. Table 5.1 of the Transport Assessment shows that the surveyed 85th percentile speeds for eastbound vehicles in the vicinity of the relocated bus stop is 28.3mph, which equates to a 39 metre stopping sight distance. The proposed site access drawing has been amended to show a red hatched area within the site behind the proposed footway on the inside of the bend. The red hatched area will need to be kept clear from any obstruction above 1.05m in height, in order to provide 39 metres forward visibility around the bend and towards the relocated bus stop.		

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
Problem F				
Bus stops to the south of the scheme on Hemingfield Road.	It is recommended that the existing and proposed bus stops are provided with raised kerbs in line with the Disability Discrimination Act.	Details of any works relating to the relocated and existing bus stops will be agreed with BMBC as part of the S278 detailed design of the highway works.		
Problem G				
Existing bus stop to the south west of the site on the southern side of Hemingfield Road.	It is recommended that a crossing facility across Hemingfield for pedestrians is provided.	The proposed site access drawing has been amended to show an uncontrolled pedestrian crossing with dropped kerbs and tactile paving on Hemingfield Road around 5 metres to the east of Mellwood Grove, measured from the end of the kerb radius on the eastern side of the junction. 43 metres forward visibility will be achievable provided for westbound vehicles on Hemingfield Road to see pedestrians on the southern side of the crossing at a point 0.5 metres back from the dropped kerb. The 43 metres stopping sight distance has been measured along the centre of the westbound carriageway and takes into account the bend in Hemingfield Road to the east. Given the presence of the bend, a 43 metres stopping sight distance, equating to vehicle speeds of 30mph, is considered to be robust, as vehicles are likely to be travelling slower than this around the bend and up the hill. Indeed, the ATC survey indicates that the 85th percentile speed of westbound vehicles on Hemingfield Road in the vicinity of the proposed crossing point is 26.5mph.		
Problem H				
Hemingfield Road southbound through lane width.	It is recommended the southbound movement through the junction is assessed further to ensure that large vehicles including buses can pass through	Swept path analysis of a single deck bus and a 16.5 metre articulated HGV travelling southbound along Hemingfield Road has been undertaken, as shown on drawing number 23/160/ATR/003 Rev A at **Appendix BGH2**.		

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
	the junction safely without encroaching on the right turn pocket associated with the proposed access.	BMBC have requested that a 0.5 metre clearance from the kerb line is provided for swept path analysis, therefore this has been reflected. The swept path analysis shows that both vehicles can pass southbound through the proposed junction without encroaching into the area of the right turn ghost island where vehicles may be waiting to turn right into the site. Whilst there is a very slight encroachment into the entry side of the ghost island, this is exaggerated by the 0.5 metre kerb clearance shown on the swept paths, as in reality, vehicles would be travelling more centrally within the southbound lane. Full height kerbs will be provided along Hemingfield Road, in the vicinity of the site access to provide added protection for pedestrians along the footway.		

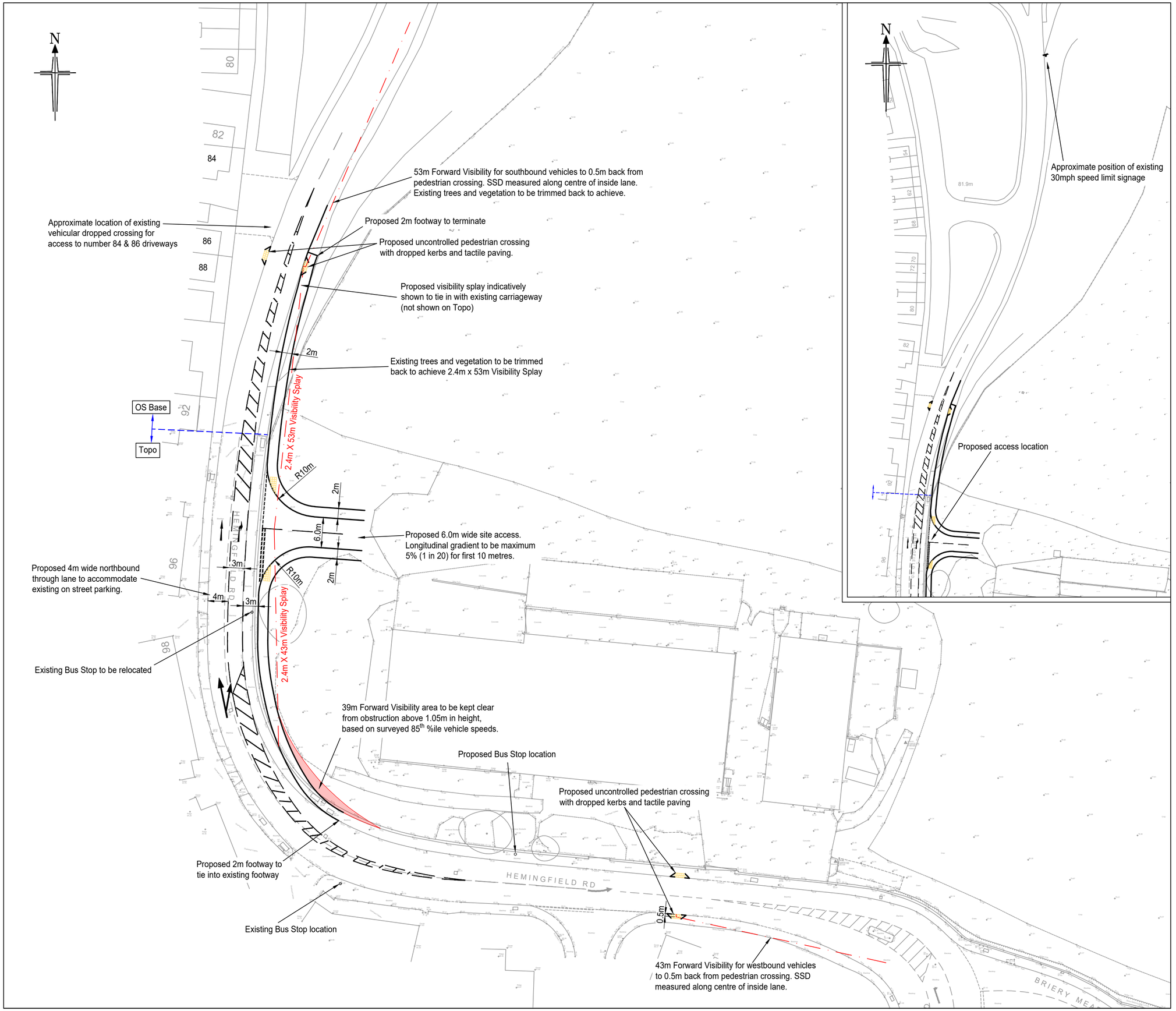
Design Organisation Statement

On behalf of the Design Organisation I certify that: **1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.**	
Name:	Martin Crabtree
Position:	Associate
Signed:	
Organisation:	Bryan G Hall Limited
Date:	21st August 2024

Overseeing Organisation Statement

On behalf of the Overseeing Organisation I certify that: **1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation; and** **2) the agreed RSA actions will be progressed.**	
Name:	
Position:	
Signed:	
Organisation:	Barnsley Metropolitan Borough Council
Date:	

APPENDIX BGH 1



Rev:	Date:	Amendment:	DRN	CHK	APR
E	21.08.24	Client name updated	RD	MC/JP	MC
D	19.07.24	Amended in response to Stage 1 RSA	RD	MC/JP	MC
C	18.01.24	Visibility amended to ATC speeds	RD	MC	MC
B	06.11.23	Title block updated following client comments	MIT	MC	SCW

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Client: Hargreaves Land Limited

Status: For Planning

Scale: 1:500
Size: A2 - 594 x 420

Drawn: MIT
Chkd: MC
Appvd: BR

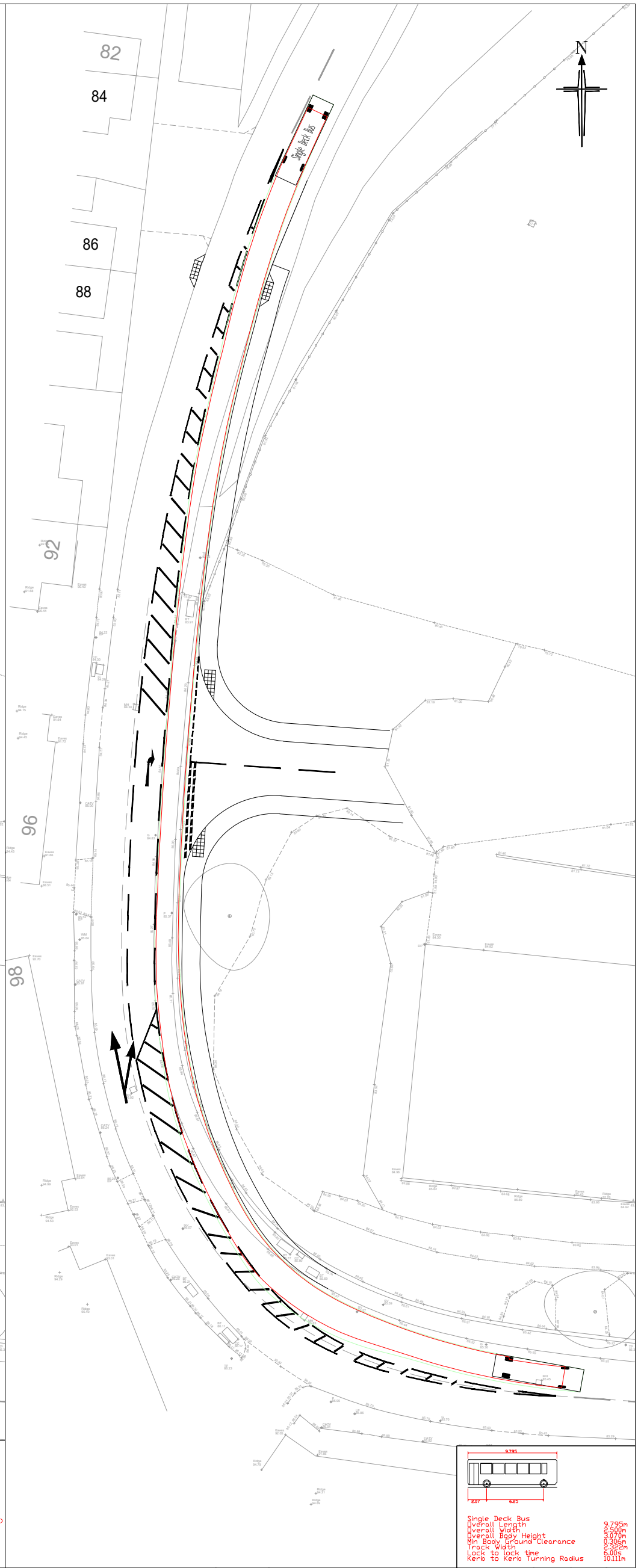
Project: Residential Development Hemingfield, Barnsley

Title: Proposed Access Arrangement - Right Turn Ghost Island Junction

Drawing No: 23/160/SKH/007
Job No: 23-160

Revision: E
Date: 13.10.23

APPENDIX BGH 2



Rev:	Date:	Amendment:	DRN	CHK	APR
A	21-8-24	Update Client Details	RD	MC	SCW

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Bryan G Hall

Title: SWEPT PATH ANALYSIS OF HEMINGFIELD ROAD SOUTHBOUND

Client: HARGREAVES LAND LIMITED

Project: RESIDENTIAL DEVELOPMENT, HEMINGFIELD, BARNSLEY

Scale: 1:500 Size: A3 - 297 x 420

Drawn: RD Chkd: MC Appvd: MC

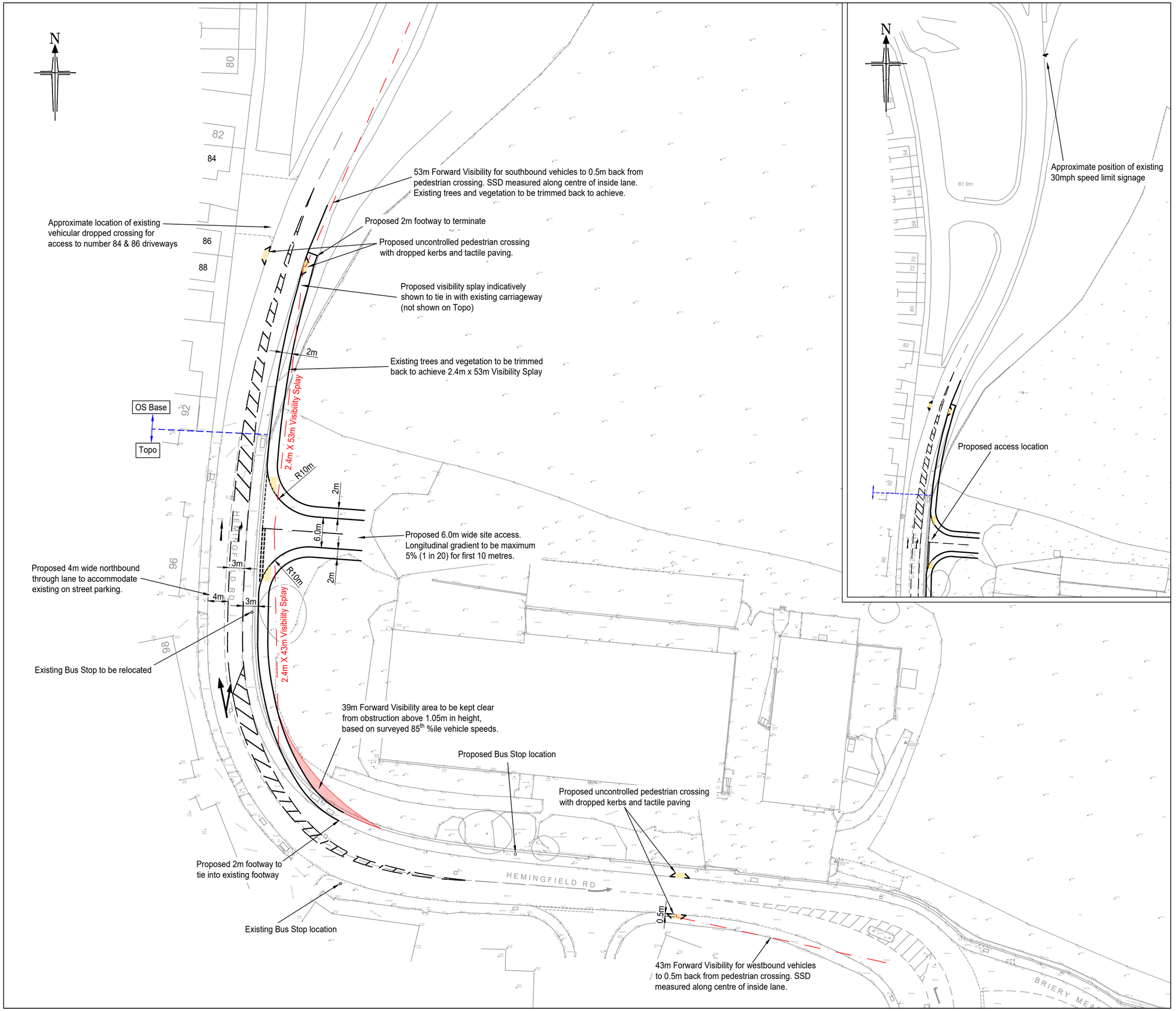
Drawing No: 23/160/ATR/003

Job No: 23-160

Revision: A

Date: 02.08.2024

APPENDIX BGH 4



Rev:	Date:	Amendment:	DRN	CHK	APR
E	21.08.24	Client name updated	RD	MC/JP	MC
D	19.07.24	Amended in response to Stage 1 RSA	RD	MC/JP	MC
C	18.01.24	Visibility amended to ATC speeds	RD	MC	MC
B	06.11.23	Title block updated following client comments	MIT	MC	SCW

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Client: Hargreaves Land Limited

Status: For Planning

Scale: 1:500
Size: A2 - 594 x 420

Drawn: MIT
Chkd: MC
Appvd: BR

Project: Residential Development Hemingfield, Barnsley

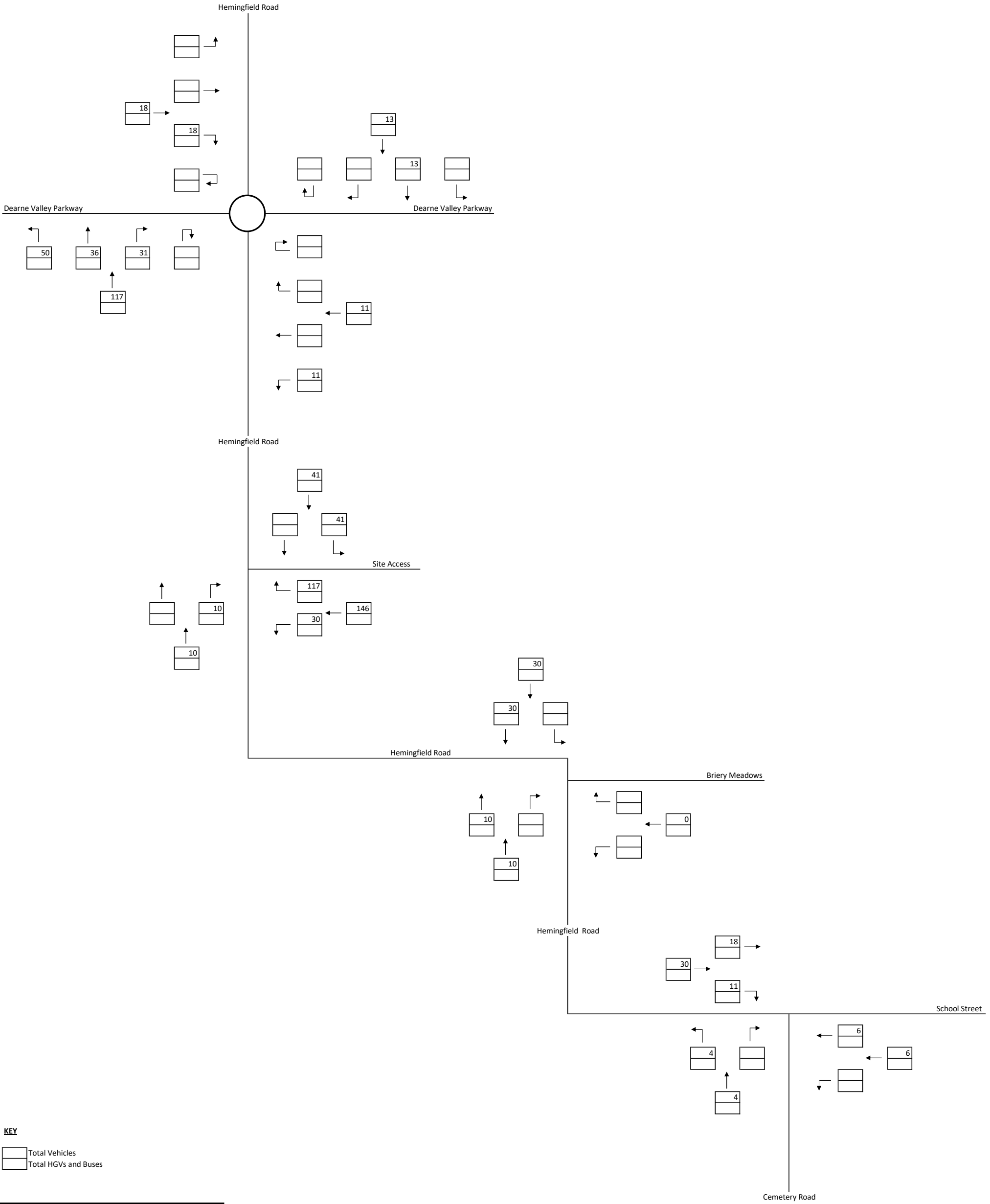
Title: Proposed Access Arrangement - Right Turn Ghost Island Junction

Drawing No: 23/160/SKH/007
Job No: 23-160

Revision: E
Date: 13.10.23

APPENDIX BGH 5

SENSITIVITY TEST - DEVELOPMENT GENERATED VEHICULAR FLOWS FOR 400 DWELLINGS
PROPOSED RESIDENTIAL DEVELOPMENT, HEMINGFIELD, BARNSLEY
AM PEAK HOUR



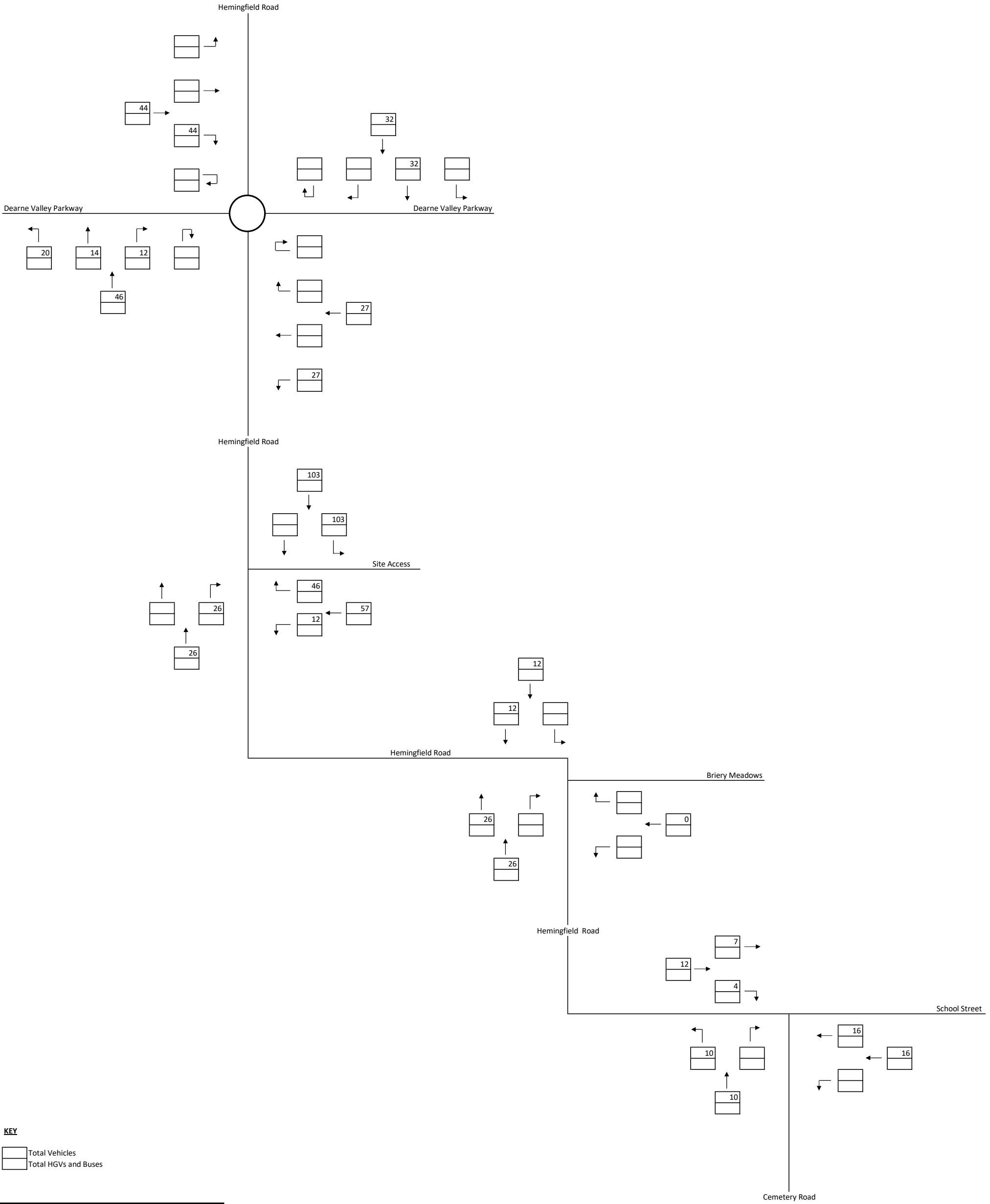
KEY

Total Vehicles
Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	Hargreaves Land Limited
Project:	Hemingfield, Barnsley
Job Number:	23-160
Prepared by:	Phoebe Pitcher
Checked by:	Robbie Donaldson

SENSITIVITY TEST - DEVELOPMENT GENERATED VEHICULAR FLOWS FOR 400 DWELLINGS
PROPOSED RESIDENTIAL DEVELOPMENT, HEMINGFIELD, BARNSLEY
PM PEAK HOUR



KEY

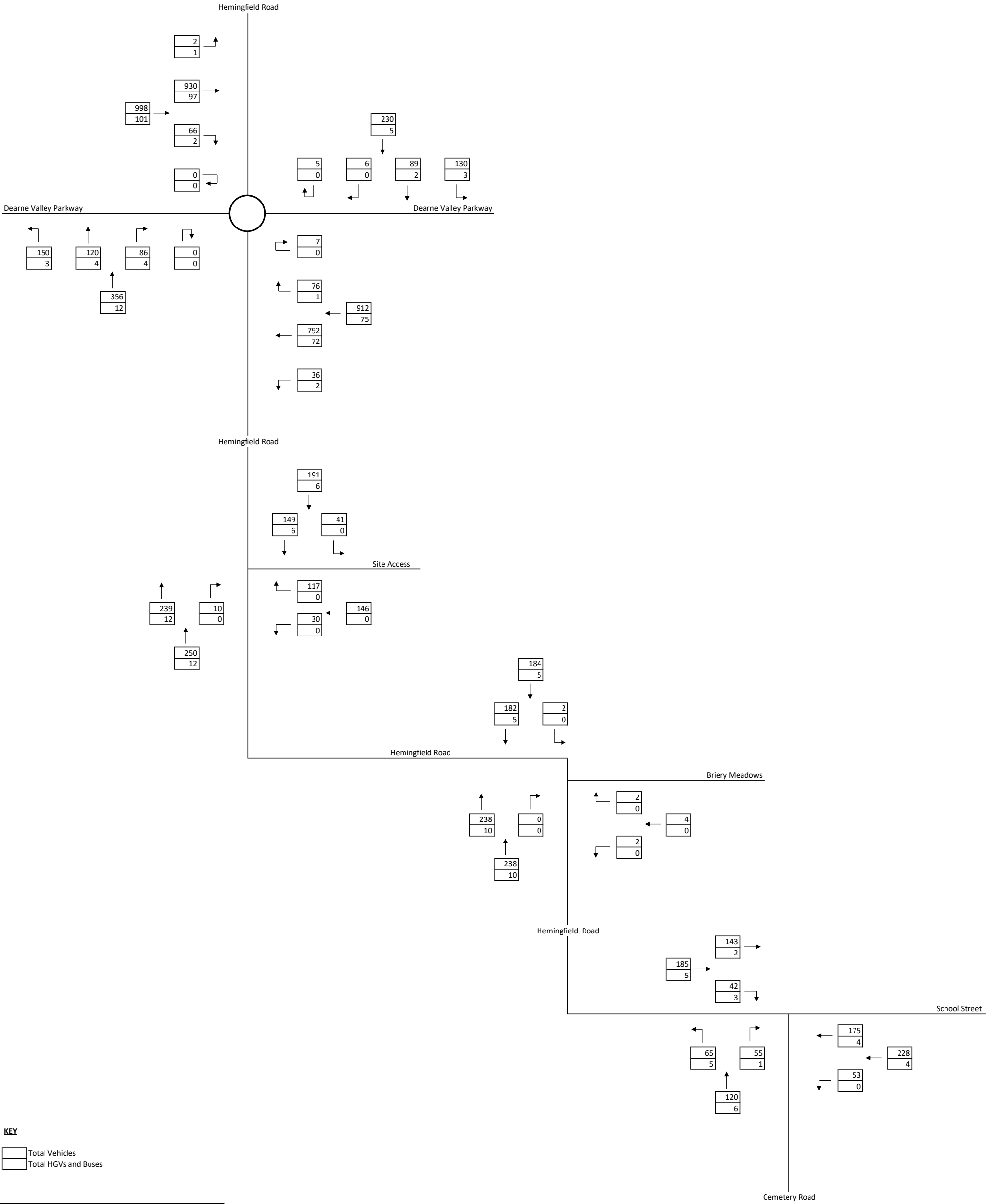
Total Vehicles
Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	Hargreaves Land Limited
Project:	Hemingfield, Barnsley
Job Number:	23-160
Prepared by:	Phoebe Pitcher
Checked by:	Robbie Donaldson

APPENDIX BGH 6

2029 PREDICTED SENSITIVITY TEST VEHICULAR FLOWS (400 DWELLINGS)
PROPOSED RESIDENTIAL DEVELOPMENT, HEMINGFIELD, BARNSLEY
8:00am - 9:00am
AM PEAK HOUR



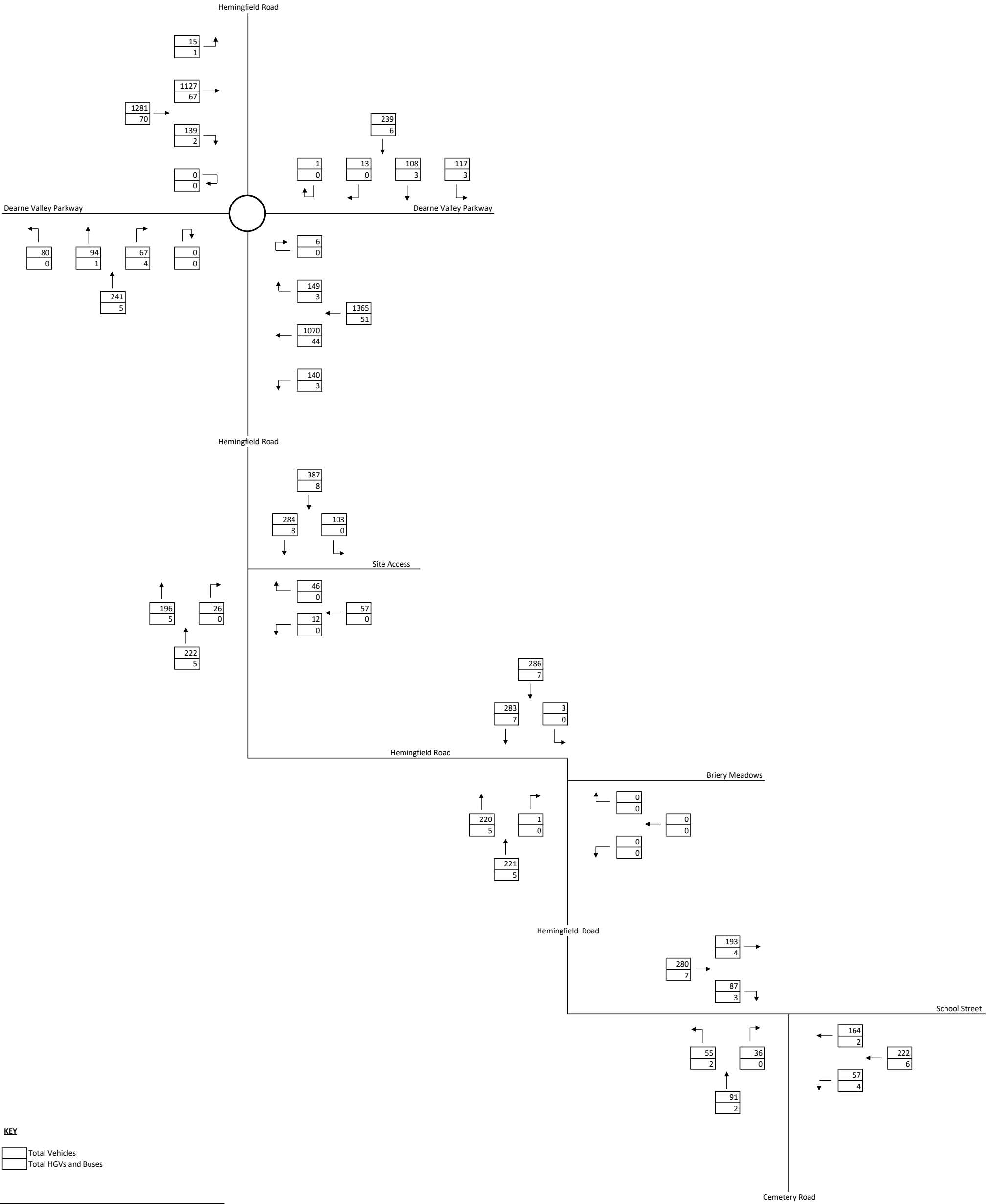
KEY

Total Vehicles
Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	Hargreaves Land Limited
Project:	Hemingfield, Barnsley
Job Number:	23-160
Prepared by:	Phoebe Pitcher
Checked by:	Robbie Donaldson

2029 PREDICTED SENSITIVITY TEST VEHICULAR FLOWS (400 DWELLINGS)
PROPOSED RESIDENTIAL DEVELOPMENT, HEMINGFIELD, BARNSLEY
4:00pm - 5:00pm
PM PEAK HOUR



KEY

Total Vehicles
Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	Hargreaves Land Limited
Project:	Hemingfield, Barnsley
Job Number:	23-160
Prepared by:	Phoebe Pitcher
Checked by:	Robbie Donaldson

APPENDIX BGH 7

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: Import of 23-160 Proposed Site Access Juction Model - 430 Dwellings - PP.j10
Path: Y:\2023\23-151 to 23-175\23-160 Residential Development Hemingfield, Barnsley\Technical\Junction Modelling\Site Access
Report generation date: 21/08/2024 16:17:43

»Proposed Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings) , AM Peak Hour
»Proposed Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings), PM Peak Hour

Summary of junction performance

	AM Peak Hour					PM Peak Hour				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings)									
Stream B-AC	D3	0.6	12.36	0.37	B	D4	0.2	10.17	0.16	B
Stream C-AB		0.0	6.07	0.02	A		0.1	6.96	0.06	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	Proposed Site Access Junction Model
Location	Hemingfield, Barnsley
Site number	
Date	21/08/2024
Version	
Status	(new file)
Identifier	
Client	Hargreaves Land Limited
Jobnumber	23-160
Enumerator	BRYANGHALL\Design
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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2029 Predicted (Sensitivity Test, 430 Dwellings)	AM Peak Hour	ONE HOUR	07:45	09:15	15
D4	2029 Predicted (Sensitivity Test, 430 Dwellings)	PM Peak Hour	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Proposed Layout	100.000

Proposed Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings) , AM Peak Hour

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	Proposed Site Access	T-Junction	Two-way	Two-way	Two-way		3.26	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.26	A

Arms

Arms

Arm	Name	Description	Arm type
A	Hemingfield Road (North)		Major
B	Proposed Site Access		Minor
C	Hemingfield Road (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 - Hemingfield Road (South)	6.00		✓	3.00	60.0	✓	5.00

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 - Proposed Site Access	One lane	3.66	26	21

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	529	0.096	0.244	0.153	0.348
B-C	679	0.104	0.263	-	-
C-B	662	0.256	0.256	-	-

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 segment length (min)
D3	2029 Predicted (Sensitivity Test, 430 Dwellings)	AM Peak Hour	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Hemingfield Road (North)		✓	199	100.000
B - Proposed Site Access		✓	158	100.000
C - Hemingfield Road (South)		✓	262	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Hemingfield Road (North)	B - Proposed Site Access	C - Hemingfield Road (South)
From	A - Hemingfield Road (North)	0	44	155
	B - Proposed Site Access	126	0	32
	C - Hemingfield Road (South)	251	11	0

Vehicle Mix

Heavy Vehicle %

		To		
		A - Hemingfield Road (North)	B - Proposed Site Access	C - Hemingfield Road (South)
From	A - Hemingfield Road (North)	0	0	4
	B - Proposed Site Access	0	0	0
	C - Hemingfield Road (South)	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.37	12.36	0.6	B
C-AB	0.02	6.07	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	119	493	0.241	118	0.3	9.549	A
C-AB	8	623	0.013	8	0.0	5.852	A
C-A	189			189			
A-B	33			33			
A-C	117			117			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	482	0.295	142	0.4	10.575	B
C-AB	10	616	0.016	10	0.0	5.940	A
C-A	226			226			
A-B	40			40			
A-C	139			139			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	174	465	0.374	173	0.6	12.302	B
C-AB	12	606	0.020	12	0.0	6.065	A
C-A	276			276			
A-B	48			48			
A-C	171			171			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	174	465	0.374	174	0.6	12.357	B
C-AB	12	606	0.020	12	0.0	6.065	A
C-A	276			276			
A-B	48			48			
A-C	171			171			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	482	0.295	143	0.4	10.644	B
C-AB	10	616	0.016	10	0.0	5.940	A
C-A	226			226			
A-B	40			40			
A-C	139			139			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	119	493	0.241	119	0.3	9.635	A
C-AB	8	623	0.013	8	0.0	5.853	A
C-A	189			189			
A-B	33			33			
A-C	117			117			

Proposed Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings), PM Peak Hour

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	Proposed Site Access	T-Junction	Two-way	Two-way	Two-way		1.18	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.18	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2029 Predicted (Sensitivity Test, 430 Dwellings)	PM Peak Hour	ONE HOUR	15:45	17:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Hemingfield Road (North)		✓	403	100.000
B - Proposed Site Access		✓	61	100.000
C - Hemingfield Road (South)		✓	229	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Hemingfield Road (North)	B - Proposed Site Access	C - Hemingfield Road (South)
From	A - Hemingfield Road (North)	0	111	292
	B - Proposed Site Access	49	0	12
	C - Hemingfield Road (South)	201	28	0

Vehicle Mix

Heavy Vehicle %

		To		
		A - Hemingfield Road (North)	B - Proposed Site Access	C - Hemingfield Road (South)
From	A - Hemingfield Road (North)	0	0	3
	B - Proposed Site Access	0	0	0
	C - Hemingfield Road (South)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.16	10.17	0.2	B
C-AB	0.06	6.96	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

15:45 - 16:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	46	463	0.099	45	0.1	8.611	A
C-AB	21	584	0.036	21	0.0	6.392	A
C-A	151			151			
A-B	84			84			
A-C	220			220			

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	445	0.123	55	0.1	9.209	A
C-AB	25	569	0.044	25	0.0	6.621	A
C-A	181			181			
A-B	100			100			
A-C	263			263			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	421	0.160	67	0.2	10.162	B
C-AB	31	548	0.056	31	0.1	6.960	A
C-A	221			221			
A-B	122			122			
A-C	321			321			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	421	0.160	67	0.2	10.173	B
C-AB	31	548	0.056	31	0.1	6.960	A
C-A	221			221			
A-B	122			122			
A-C	321			321			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	445	0.123	55	0.1	9.226	A
C-AB	25	569	0.044	25	0.0	6.622	A
C-A	181			181			
A-B	100			100			
A-C	263			263			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	46	463	0.099	46	0.1	8.636	A
C-AB	21	584	0.036	21	0.0	6.396	A
C-A	151			151			
A-B	84			84			
A-C	220			220			

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Import of 23-160 Hemingfield Road Roundabout Model - 430 Dwellings PP.j10
Path: Y:\2023\23-151 to 23-175\23-160 Residential Development Hemingfield, Barnsley\Technical\Junction Modelling\Hemingfield Road Roundabout
Report generation date: 21/08/2024 16:18:41

Summary of junction performance

	AM Peak Hour					PM Peak Hour				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Existing Layout - 2023 Existing									
1 - Dearne Valley Parkway (East)	D1	0.8	2.88	0.43	A	D2	1.7	4.18	0.62	A
2 - Hemingfield Road (South)		0.3	4.05	0.21	A		0.2	4.48	0.19	A
3 - Dearne Valley Parkway (West)		0.9	2.96	0.45	A		1.3	3.59	0.56	A
4 - Hemingfield Road (North)		0.4	6.28	0.28	A		0.4	7.30	0.30	A
	Existing Layout - 2029 Base									
1 - Dearne Valley Parkway (East)	D3	0.9	3.04	0.46	A	D4	2.0	4.69	0.66	A
2 - Hemingfield Road (South)		0.3	4.30	0.24	A		0.3	4.86	0.23	A
3 - Dearne Valley Parkway (West)		1.0	3.16	0.49	A		1.6	3.97	0.60	A
4 - Hemingfield Road (North)		0.5	6.81	0.31	A		0.5	8.14	0.34	A
	Existing Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings)									
1 - Dearne Valley Parkway (East)	D5	0.9	3.12	0.47	A	D6	2.3	5.25	0.69	A
2 - Hemingfield Road (South)		0.6	5.06	0.36	A		0.4	5.21	0.28	A
3 - Dearne Valley Parkway (West)		1.1	3.34	0.51	A		1.8	4.28	0.63	A
4 - Hemingfield Road (North)		0.5	7.33	0.34	A		0.7	9.45	0.41	A

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

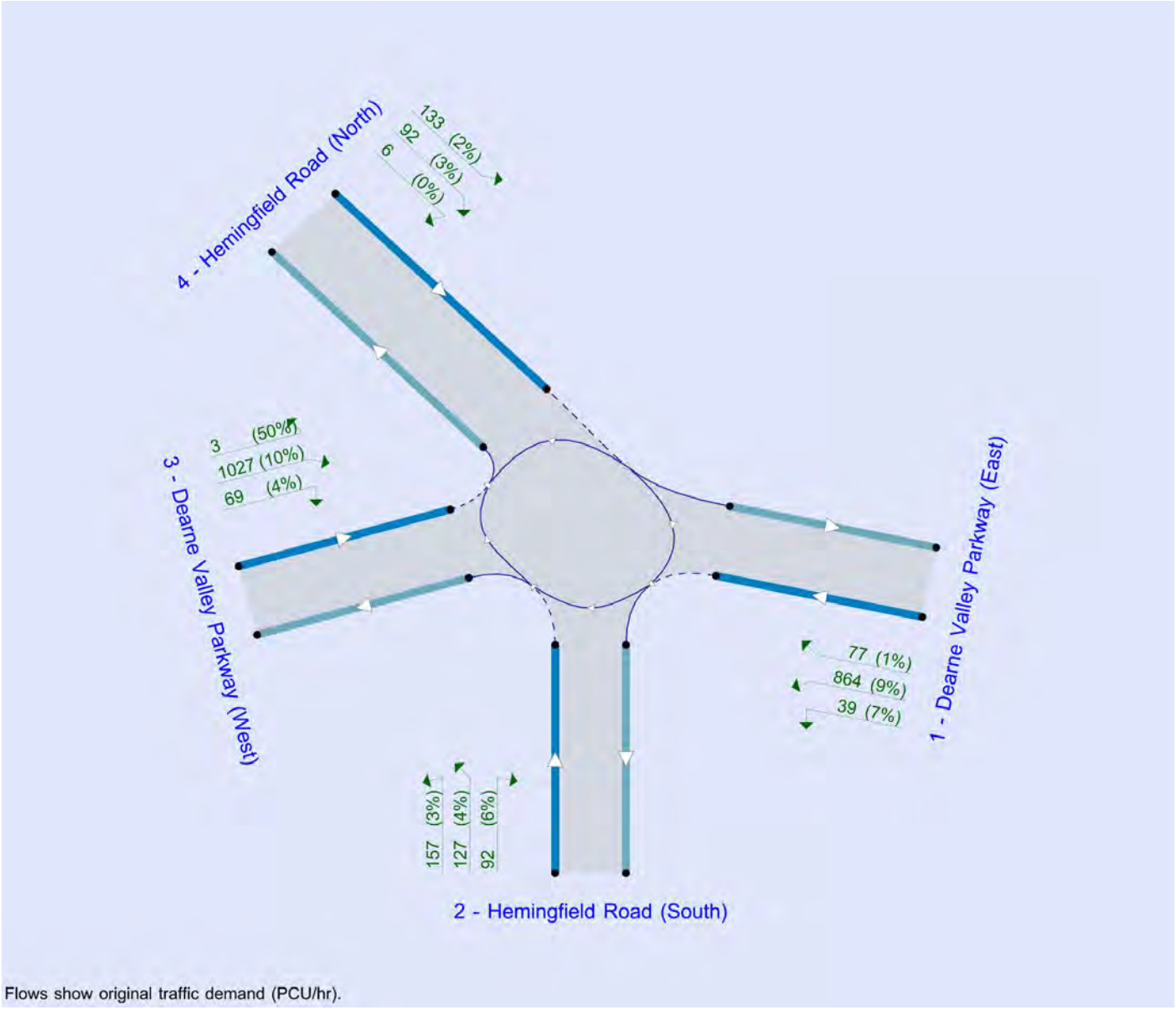
File summary

File Description

Title	Hemingfield Road Roundabout Model
Location	Hemingfield, Barnsley
Site number	
Date	21/08/2024
Version	
Status	(new file)
Identifier	
Client	Hargreaves Land Limited
Jobnumber	23-160
Enumerator	BRYANGHALL\design
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



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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 segment length (min)
D1	2023 Existing	AM Peak Hour	ONE HOUR	07:45	09:15	15
D2	2023 Existing	PM Peak Hour	ONE HOUR	15:45	17:15	15
D3	2029 Base	AM Peak Hour	ONE HOUR	07:45	09:15	15
D4	2029 Base	PM Peak Hour	ONE HOUR	15:45	17:15	15
D5	2029 Predicted (Sensitivity Test, 430 Dwellings)	AM Peak Hour	ONE HOUR	07:45	09:15	15
D6	2029 Predicted (Sensitivity Test, 430 Dwellings)	PM Peak Hour	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Existing Layout	100.000

Existing Layout - 2023 Existing, AM Peak Hour

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	Hemingfield Road Roundabout	Standard Roundabout		1, 2, 3, 4	3.32	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.32	A

Arms

Arms

Arm	Name	Description	No give-way line
1	Dearne Valley Parkway (East)		
2	Hemingfield Road (South)		
3	Dearne Valley Parkway (West)		
4	Hemingfield Road (North)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - Dearne Valley Parkway (East)	7.50	8.10	19.4	18.0	79.0	27.5		
2 - Hemingfield Road (South)	3.90	7.00	7.7	28.0	79.0	22.0		
3 - Dearne Valley Parkway (West)	7.50	9.00	8.9	18.0	79.0	25.0		
4 - Hemingfield Road (North)	2.90	5.70	13.4	16.0	79.0	48.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Dearne Valley Parkway (East)	0.585	2446
2 - Hemingfield Road (South)	0.478	1659
3 - Dearne Valley Parkway (West)	0.610	2598
4 - Hemingfield Road (North)	0.396	1284

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 segment length (min)
D1	2023 Existing	AM Peak Hour	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Dearne Valley Parkway (East)		✓	923	100.000
2 - Hemingfield Road (South)		✓	222	100.000
3 - Dearne Valley Parkway (West)		✓	1010	100.000
4 - Hemingfield Road (North)		✓	209	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	7	26	817	73
	2 - Hemingfield Road (South)	56	0	85	81
	3 - Dearne Valley Parkway (West)	971	36	0	3
	4 - Hemingfield Road (North)	126	72	6	5

Vehicle Mix

Heavy Vehicle %

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	0	8	9	1
	2 - Hemingfield Road (South)	8	0	5	4
	3 - Dearne Valley Parkway (West)	10	6	0	50
	4 - Hemingfield Road (North)	2	3	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Dearne Valley Parkway (East)	0.43	2.88	0.8	A
2 - Hemingfield Road (South)	0.21	4.05	0.3	A
3 - Dearne Valley Parkway (West)	0.45	2.96	0.9	A
4 - Hemingfield Road (North)	0.28	6.28	0.4	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	695	89	2394	0.290	693	0.4	2.289	A
2 - Hemingfield Road (South)	167	682	1333	0.125	167	0.2	3.250	A
3 - Dearne Valley Parkway (West)	760	167	2497	0.305	758	0.5	2.275	A
4 - Hemingfield Road (North)	157	803	965	0.163	157	0.2	4.549	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	830	107	2383	0.348	829	0.6	2.507	A
2 - Hemingfield Road (South)	200	816	1269	0.157	199	0.2	3.546	A
3 - Dearne Valley Parkway (West)	908	199	2477	0.367	907	0.6	2.520	A
4 - Hemingfield Road (North)	188	961	902	0.208	188	0.3	5.149	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1016	131	2369	0.429	1015	0.8	2.876	A
2 - Hemingfield Road (South)	244	999	1181	0.207	244	0.3	4.046	A
3 - Dearne Valley Parkway (West)	1112	244	2449	0.454	1111	0.9	2.954	A
4 - Hemingfield Road (North)	230	1177	817	0.282	230	0.4	6.261	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1016	131	2369	0.429	1016	0.8	2.879	A
2 - Hemingfield Road (South)	244	1000	1181	0.207	244	0.3	4.050	A
3 - Dearne Valley Parkway (West)	1112	244	2449	0.454	1112	0.9	2.959	A
4 - Hemingfield Road (North)	230	1178	816	0.282	230	0.4	6.275	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	830	107	2383	0.348	831	0.6	2.512	A
2 - Hemingfield Road (South)	200	817	1268	0.157	200	0.2	3.553	A
3 - Dearne Valley Parkway (West)	908	200	2476	0.367	909	0.6	2.528	A
4 - Hemingfield Road (North)	188	963	902	0.208	188	0.3	5.164	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	695	90	2393	0.290	695	0.4	2.296	A
2 - Hemingfield Road (South)	167	684	1332	0.126	167	0.2	3.257	A
3 - Dearne Valley Parkway (West)	760	167	2496	0.305	761	0.5	2.282	A
4 - Hemingfield Road (North)	157	806	964	0.163	158	0.2	4.567	A

Existing Layout - 2023 Existing, PM Peak Hour

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	Hemingfield Road Roundabout	Standard Roundabout		1, 2, 3, 4	4.16	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.16	A

Traffic Demand

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	2023 Existing	PM Peak Hour	ONE HOUR	15:45	17:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Dearne Valley Parkway (East)		✓	1313	100.000
2 - Hemingfield Road (South)		✓	174	100.000
3 - Dearne Valley Parkway (West)		✓	1224	100.000
4 - Hemingfield Road (North)		✓	200	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	6	110	1053	144
	2 - Hemingfield Road (South)	56	0	44	74
	3 - Dearne Valley Parkway (West)	1128	81	0	15
	4 - Hemingfield Road (North)	114	73	12	1

Vehicle Mix

Heavy Vehicle %

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	0	3	4	2
	2 - Hemingfield Road (South)	8	0	0	1
	3 - Dearne Valley Parkway (West)	6	3	0	7
	4 - Hemingfield Road (North)	3	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Dearne Valley Parkway (East)	0.62	4.18	1.7	A
2 - Hemingfield Road (South)	0.19	4.48	0.2	A
3 - Dearne Valley Parkway (West)	0.56	3.59	1.3	A
4 - Hemingfield Road (North)	0.30	7.30	0.4	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	988	125	2373	0.417	986	0.7	2.685	A
2 - Hemingfield Road (South)	131	913	1222	0.107	131	0.1	3.390	A
3 - Dearne Valley Parkway (West)	921	211	2470	0.373	919	0.6	2.452	A
4 - Hemingfield Road (North)	151	954	905	0.166	150	0.2	4.911	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1180	150	2358	0.501	1179	1.0	3.163	A
2 - Hemingfield Road (South)	156	1092	1137	0.138	156	0.2	3.777	A
3 - Dearne Valley Parkway (West)	1100	252	2444	0.450	1099	0.9	2.831	A
4 - Hemingfield Road (North)	180	1142	831	0.216	179	0.3	5.698	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1446	183	2338	0.618	1443	1.7	4.157	A
2 - Hemingfield Road (South)	192	1337	1020	0.188	191	0.2	4.469	A
3 - Dearne Valley Parkway (West)	1348	309	2410	0.559	1346	1.3	3.573	A
4 - Hemingfield Road (North)	220	1397	730	0.302	220	0.4	7.273	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1446	184	2338	0.618	1446	1.7	4.181	A
2 - Hemingfield Road (South)	192	1339	1019	0.188	192	0.2	4.476	A
3 - Dearne Valley Parkway (West)	1348	309	2410	0.559	1348	1.3	3.585	A
4 - Hemingfield Road (North)	220	1399	729	0.302	220	0.4	7.301	A

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)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1180	151	2358	0.501	1183	1.0	3.182	A
2 - Hemingfield Road (South)	156	1095	1135	0.138	157	0.2	3.788	A
3 - Dearne Valley Parkway (West)	1100	253	2444	0.450	1102	0.9	2.842	A
4 - Hemingfield Road (North)	180	1145	830	0.217	180	0.3	5.724	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)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	988	126	2372	0.417	990	0.7	2.701	A
2 - Hemingfield Road (South)	131	917	1221	0.107	131	0.1	3.399	A
3 - Dearne Valley Parkway (West)	921	212	2469	0.373	922	0.6	2.463	A
4 - Hemingfield Road (North)	151	958	904	0.167	151	0.2	4.936	A

Existing Layout - 2029 Base, AM Peak Hour

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	Hemingfield Road Roundabout	Standard Roundabout		1, 2, 3, 4	3.55	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.55	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2029 Base	AM Peak Hour	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Dearne Valley Parkway (East)		✓	976	100.000
2 - Hemingfield Road (South)		✓	251	100.000
3 - Dearne Valley Parkway (West)		✓	1080	100.000
4 - Hemingfield Road (North)		✓	222	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	7	28	864	77
	2 - Hemingfield Road (South)	59	0	103	89
	3 - Dearne Valley Parkway (West)	1027	50	0	3
	4 - Hemingfield Road (North)	133	78	6	5

Vehicle Mix

Heavy Vehicle %

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	0	8	9	1
	2 - Hemingfield Road (South)	8	0	3	5
	3 - Dearne Valley Parkway (West)	10	4	0	50
	4 - Hemingfield Road (North)	2	3	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Dearne Valley Parkway (East)	0.46	3.04	0.9	A
2 - Hemingfield Road (South)	0.24	4.30	0.3	A
3 - Dearne Valley Parkway (West)	0.49	3.16	1.0	A
4 - Hemingfield Road (North)	0.31	6.81	0.5	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	735	104	2385	0.308	733	0.5	2.357	A
2 - Hemingfield Road (South)	189	720	1315	0.144	188	0.2	3.350	A
3 - Dearne Valley Parkway (West)	813	178	2490	0.327	811	0.5	2.351	A
4 - Hemingfield Road (North)	167	858	943	0.177	166	0.2	4.732	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	877	125	2373	0.370	877	0.6	2.602	A
2 - Hemingfield Road (South)	226	862	1247	0.181	225	0.2	3.694	A
3 - Dearne Valley Parkway (West)	971	213	2469	0.393	970	0.7	2.636	A
4 - Hemingfield Road (North)	200	1027	876	0.228	199	0.3	5.433	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1075	153	2356	0.456	1074	0.9	3.034	A
2 - Hemingfield Road (South)	276	1055	1155	0.239	276	0.3	4.294	A
3 - Dearne Valley Parkway (West)	1189	261	2439	0.487	1188	1.0	3.155	A
4 - Hemingfield Road (North)	244	1257	785	0.311	244	0.5	6.788	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1075	153	2356	0.456	1075	0.9	3.039	A
2 - Hemingfield Road (South)	276	1056	1154	0.239	276	0.3	4.300	A
3 - Dearne Valley Parkway (West)	1189	261	2439	0.488	1189	1.0	3.160	A
4 - Hemingfield Road (North)	244	1258	785	0.312	244	0.5	6.813	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	877	125	2372	0.370	878	0.6	2.609	A
2 - Hemingfield Road (South)	226	863	1246	0.181	226	0.2	3.700	A
3 - Dearne Valley Parkway (West)	971	213	2468	0.393	972	0.7	2.645	A
4 - Hemingfield Road (North)	200	1029	876	0.228	200	0.3	5.454	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	735	105	2384	0.308	735	0.5	2.363	A
2 - Hemingfield Road (South)	189	723	1313	0.144	189	0.2	3.357	A
3 - Dearne Valley Parkway (West)	813	179	2489	0.327	814	0.5	2.359	A
4 - Hemingfield Road (North)	167	861	942	0.177	167	0.2	4.753	A

Existing Layout - 2029 Base, PM Peak Hour

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	Hemingfield Road Roundabout	Standard Roundabout		1, 2, 3, 4	4.64	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.64	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2029 Base	PM Peak Hour	ONE HOUR	15:45	17:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Dearne Valley Parkway (East)		✓	1388	100.000
2 - Hemingfield Road (South)		✓	201	100.000
3 - Dearne Valley Parkway (West)		✓	1307	100.000
4 - Hemingfield Road (North)		✓	214	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	6	116	1114	152
	2 - Hemingfield Road (South)	59	0	61	81
	3 - Dearne Valley Parkway (West)	1194	97	0	16
	4 - Hemingfield Road (North)	121	79	13	1

Vehicle Mix

Heavy Vehicle %

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	0	3	4	2
	2 - Hemingfield Road (South)	8	0	0	1
	3 - Dearne Valley Parkway (West)	6	2	0	7
	4 - Hemingfield Road (North)	3	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Dearne Valley Parkway (East)	0.66	4.69	2.0	A
2 - Hemingfield Road (South)	0.23	4.86	0.3	A
3 - Dearne Valley Parkway (West)	0.60	3.97	1.6	A
4 - Hemingfield Road (North)	0.34	8.14	0.5	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1045	142	2362	0.442	1042	0.8	2.819	A
2 - Hemingfield Road (South)	151	965	1197	0.126	151	0.1	3.528	A
3 - Dearne Valley Parkway (West)	984	224	2462	0.400	981	0.7	2.566	A
4 - Hemingfield Road (North)	161	1018	880	0.183	160	0.2	5.153	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1248	171	2346	0.532	1246	1.2	3.389	A
2 - Hemingfield Road (South)	181	1155	1107	0.163	180	0.2	3.988	A
3 - Dearne Valley Parkway (West)	1175	268	2435	0.483	1174	1.0	3.015	A
4 - Hemingfield Road (North)	192	1218	801	0.240	192	0.3	6.097	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1528	209	2324	0.658	1525	2.0	4.655	A
2 - Hemingfield Road (South)	221	1413	983	0.225	221	0.3	4.844	A
3 - Dearne Valley Parkway (West)	1439	329	2398	0.600	1437	1.6	3.949	A
4 - Hemingfield Road (North)	236	1491	693	0.340	235	0.5	8.097	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1528	209	2323	0.658	1528	2.0	4.693	A
2 - Hemingfield Road (South)	221	1416	982	0.225	221	0.3	4.856	A
3 - Dearne Valley Parkway (West)	1439	329	2398	0.600	1439	1.6	3.969	A
4 - Hemingfield Road (North)	236	1493	692	0.341	236	0.5	8.143	A

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)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1248	171	2346	0.532	1251	1.2	3.418	A
2 - Hemingfield Road (South)	181	1159	1105	0.164	181	0.2	4.001	A
3 - Dearne Valley Parkway (West)	1175	269	2434	0.483	1177	1.0	3.035	A
4 - Hemingfield Road (North)	192	1221	799	0.241	193	0.3	6.137	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)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1045	143	2362	0.442	1046	0.8	2.839	A
2 - Hemingfield Road (South)	151	970	1195	0.127	152	0.1	3.539	A
3 - Dearne Valley Parkway (West)	984	225	2461	0.400	985	0.7	2.582	A
4 - Hemingfield Road (North)	161	1022	878	0.183	161	0.2	5.183	A

Existing Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings), AM Peak Hour

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	Hemingfield Road Roundabout	Standard Roundabout		1, 2, 3, 4	3.85	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.85	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2029 Predicted (Sensitivity Test, 430 Dwellings)	AM Peak Hour	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Dearne Valley Parkway (East)		✓	987	100.000
2 - Hemingfield Road (South)		✓	376	100.000
3 - Dearne Valley Parkway (West)		✓	1099	100.000
4 - Hemingfield Road (North)		✓	236	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	7	39	864	77
	2 - Hemingfield Road (South)	92	0	157	127
	3 - Dearne Valley Parkway (West)	1027	69	0	3
	4 - Hemingfield Road (North)	133	92	6	5

Vehicle Mix

Heavy Vehicle %

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	0	7	9	1
	2 - Hemingfield Road (South)	6	0	3	4
	3 - Dearne Valley Parkway (West)	10	4	0	50
	4 - Hemingfield Road (North)	2	3	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Dearne Valley Parkway (East)	0.47	3.12	0.9	A
2 - Hemingfield Road (South)	0.36	5.06	0.6	A
3 - Dearne Valley Parkway (West)	0.51	3.34	1.1	A
4 - Hemingfield Road (North)	0.34	7.33	0.5	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	743	129	2370	0.313	741	0.5	2.387	A
2 - Hemingfield Road (South)	283	720	1315	0.215	282	0.3	3.625	A
3 - Dearne Valley Parkway (West)	827	231	2457	0.337	825	0.6	2.416	A
4 - Hemingfield Road (North)	178	897	928	0.191	177	0.2	4.896	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	887	154	2355	0.377	887	0.7	2.650	A
2 - Hemingfield Road (South)	338	861	1247	0.271	338	0.4	4.117	A
3 - Dearne Valley Parkway (West)	988	277	2430	0.407	987	0.7	2.736	A
4 - Hemingfield Road (North)	212	1073	858	0.247	212	0.3	5.696	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1087	189	2335	0.465	1086	0.9	3.113	A
2 - Hemingfield Road (South)	414	1055	1155	0.359	413	0.6	5.047	A
3 - Dearne Valley Parkway (West)	1210	339	2392	0.506	1209	1.1	3.332	A
4 - Hemingfield Road (North)	260	1314	763	0.341	259	0.5	7.303	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1087	189	2335	0.465	1087	0.9	3.119	A
2 - Hemingfield Road (South)	414	1056	1154	0.359	414	0.6	5.061	A
3 - Dearne Valley Parkway (West)	1210	339	2392	0.506	1210	1.1	3.341	A
4 - Hemingfield Road (North)	260	1316	762	0.341	260	0.5	7.333	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	887	155	2355	0.377	888	0.7	2.659	A
2 - Hemingfield Road (South)	338	863	1246	0.271	339	0.4	4.131	A
3 - Dearne Valley Parkway (West)	988	277	2429	0.407	989	0.8	2.744	A
4 - Hemingfield Road (North)	212	1076	857	0.248	213	0.3	5.723	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	743	130	2370	0.314	744	0.5	2.397	A
2 - Hemingfield Road (South)	283	723	1313	0.216	283	0.3	3.638	A
3 - Dearne Valley Parkway (West)	827	232	2457	0.337	828	0.6	2.425	A
4 - Hemingfield Road (North)	178	901	927	0.192	178	0.2	4.924	A

Existing Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings) , PM Peak Hour

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	Hemingfield Road Roundabout	Standard Roundabout		1, 2, 3, 4	5.16	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.16	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2029 Predicted (Sensitivity Test, 430 Dwellings)	PM Peak Hour	ONE HOUR	15:45	17:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Dearne Valley Parkway (East)		✓	1417	100.000
2 - Hemingfield Road (South)		✓	250	100.000
3 - Dearne Valley Parkway (West)		✓	1354	100.000
4 - Hemingfield Road (North)		✓	247	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	6	145	1114	152
	2 - Hemingfield Road (South)	72	0	82	96
	3 - Dearne Valley Parkway (West)	1194	144	0	16
	4 - Hemingfield Road (North)	120	113	13	1

Vehicle Mix

Heavy Vehicle %

		To			
		1 - Dearne Valley Parkway (East)	2 - Hemingfield Road (South)	3 - Dearne Valley Parkway (West)	4 - Hemingfield Road (North)
From	1 - Dearne Valley Parkway (East)	0	3	4	2
	2 - Hemingfield Road (South)	7	0	0	1
	3 - Dearne Valley Parkway (West)	6	2	0	7
	4 - Hemingfield Road (North)	3	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Dearne Valley Parkway (East)	0.69	5.25	2.3	A
2 - Hemingfield Road (South)	0.28	5.21	0.4	A
3 - Dearne Valley Parkway (West)	0.63	4.28	1.8	A
4 - Hemingfield Road (North)	0.41	9.45	0.7	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1067	203	2327	0.458	1063	0.9	2.944	A
2 - Hemingfield Road (South)	188	965	1197	0.157	187	0.2	3.645	A
3 - Dearne Valley Parkway (West)	1019	245	2449	0.416	1016	0.7	2.647	A
4 - Hemingfield Road (North)	186	1063	862	0.216	185	0.3	5.480	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1274	243	2303	0.553	1272	1.3	3.619	A
2 - Hemingfield Road (South)	225	1155	1107	0.203	224	0.3	4.173	A
3 - Dearne Valley Parkway (West)	1217	294	2419	0.503	1216	1.1	3.156	A
4 - Hemingfield Road (North)	222	1272	779	0.285	222	0.4	6.659	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1560	297	2272	0.687	1556	2.2	5.189	A
2 - Hemingfield Road (South)	275	1412	984	0.280	275	0.4	5.192	A
3 - Dearne Valley Parkway (West)	1491	359	2379	0.627	1488	1.7	4.252	A
4 - Hemingfield Road (North)	272	1556	667	0.408	271	0.7	9.365	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1560	298	2271	0.687	1560	2.3	5.246	A
2 - Hemingfield Road (South)	275	1416	982	0.280	275	0.4	5.210	A
3 - Dearne Valley Parkway (West)	1491	360	2379	0.627	1491	1.8	4.279	A
4 - Hemingfield Road (North)	272	1559	665	0.409	272	0.7	9.445	A

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)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1274	245	2303	0.553	1278	1.3	3.656	A
2 - Hemingfield Road (South)	225	1160	1104	0.203	225	0.3	4.193	A
3 - Dearne Valley Parkway (West)	1217	295	2419	0.503	1220	1.1	3.179	A
4 - Hemingfield Road (North)	222	1276	778	0.286	223	0.4	6.720	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)	Unsignalised level of service
1 - Dearne Valley Parkway (East)	1067	204	2326	0.459	1068	0.9	2.970	A
2 - Hemingfield Road (South)	188	970	1195	0.157	188	0.2	3.661	A
3 - Dearne Valley Parkway (West)	1019	247	2448	0.416	1021	0.8	2.666	A
4 - Hemingfield Road (North)	186	1067	860	0.216	186	0.3	5.523	A

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: Import of 23-160 Cemetery Road School Street Model - 430 Dwellings - PP.j10
Path: Y:\2023\23-151 to 23-175\23-160 Residential Development Hemingfield, Barnsley\Technical\Junction Modelling\Cemetery Road School Street Junction
Report generation date: 21/08/2024 16:20:04

Summary of junction performance

	AM Peak Hour					PM Peak Hour				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Existing Layout - 2023 Existing									
Stream B-C	D1	0.1	7.15	0.11	A	D2	0.1	6.43	0.08	A
Stream B-A		0.2	9.38	0.13	A		0.1	9.32	0.09	A
Stream C-AB		0.1	6.32	0.06	A		0.3	6.25	0.16	A
	Existing Layout - 2029 Base									
Stream B-C	D3	0.1	7.26	0.12	A	D4	0.1	6.49	0.08	A
Stream B-A		0.2	9.70	0.14	A		0.1	9.66	0.10	A
Stream C-AB		0.1	6.21	0.07	A		0.3	6.34	0.18	A
	Existing Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings)									
Stream B-C	D5	0.2	7.24	0.13	A	D6	0.1	6.48	0.10	A
Stream B-A		0.2	10.05	0.14	B		0.1	10.12	0.10	B
Stream C-AB		0.2	6.17	0.10	A		0.3	6.39	0.20	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	Cemetery Road / Hemingfield Road/ School Street
Location	Hemingfield, Barnsley
Site number	
Date	21/08/2024
Version	
Status	(new file)
Identifier	
Client	Hargreaves Land Limited
Jobnumber	23-160
Enumerator	BRYANGHALL\Design
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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2023 Existing	AM Peak Hour	ONE HOUR	07:45	09:15	15
D2	2023 Existing	PM Peak Hour	ONE HOUR	15:45	17:15	15
D3	2029 Base	AM Peak Hour	ONE HOUR	07:45	09:15	15
D4	2029 Base	PM Peak Hour	ONE HOUR	15:45	17:15	15
D5	2029 Predicted (Sensitivity Test, 430 Dwellings)	AM Peak Hour	ONE HOUR	07:45	09:15	15
D6	2029 Predicted (Sensitivity Test, 430 Dwellings)	PM Peak Hour	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Existing Layout	100.000

Existing Layout - 2023 Existing, AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Cemetery Road - 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	Cemetery Road / School Street	T-Junction	Two-way	Two-way	Two-way		2.62	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.62	A

Arms

Arms

Arm	Name	Description	Arm type
A	School Street (E)		Major
B	Cemetery Road		Minor
C	Hemingfield Road (W)		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 - Hemingfield Road (W)	7.15			100.0	✓	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	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 - Cemetery Road	One lane plus flare	10.00	7.00	5.50	4.60	4.60		1.00	41	63

Minor Arm Geometry Notes

Arm	Notes
B - Cemetery Road	Flare length input as 1 PCU due to curved approach to junction

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	521	0.090	0.228	0.143	0.326
B-C	687	0.100	0.253	-	-
C-B	632	0.233	0.233	-	-

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 segment length (min)
D1	2023 Existing	AM Peak Hour	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - School Street (E)		✓	198	100.000
B - Cemetery Road		✓	116	100.000
C - Hemingfield Road (W)		✓	139	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	50	148
	B - Cemetery Road	53	0	63
	C - Hemingfield Road (W)	107	32	0

Vehicle Mix

Heavy Vehicle %

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	0	3
	B - Cemetery Road	2	0	9
	C - Hemingfield Road (W)	2	10	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.11	7.15	0.1	A
B-A	0.13	9.38	0.2	A
C-AB	0.06	6.32	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	47	641	0.074	47	0.1	6.604	A
B-A	40	473	0.084	40	0.1	8.472	A
C-AB	27	651	0.042	27	0.1	6.286	A
C-A	77			77			
A-B	38			38			
A-C	111			111			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	57	631	0.090	57	0.1	6.827	A
B-A	48	463	0.103	48	0.1	8.835	A
C-AB	34	655	0.052	34	0.1	6.304	A
C-A	91			91			
A-B	45			45			
A-C	133			133			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	69	618	0.112	69	0.1	7.151	A
B-A	58	450	0.130	58	0.2	9.378	A
C-AB	43	661	0.065	43	0.1	6.324	A
C-A	110			110			
A-B	55			55			
A-C	163			163			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	69	618	0.112	69	0.1	7.155	A
B-A	58	450	0.130	58	0.2	9.384	A
C-AB	43	661	0.065	43	0.1	6.321	A
C-A	110			110			
A-B	55			55			
A-C	163			163			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	57	631	0.090	57	0.1	6.834	A
B-A	48	463	0.103	48	0.1	8.844	A
C-AB	34	655	0.052	34	0.1	6.292	A
C-A	91			91			
A-B	45			45			
A-C	133			133			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	47	641	0.074	48	0.1	6.615	A
B-A	40	473	0.084	40	0.1	8.488	A
C-AB	28	651	0.042	28	0.1	6.284	A
C-A	77			77			
A-B	38			38			
A-C	111			111			

Existing Layout - 2023 Existing, PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Cemetery Road - 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	Cemetery Road / School Street	T-Junction	Two-way	Two-way	Two-way		2.41	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.41	A

Traffic Demand

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	2023 Existing	PM Peak Hour	ONE HOUR	15:45	17:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - School Street (E)		✓	184	100.000
B - Cemetery Road		✓	79	100.000
C - Hemingfield Road (W)		✓	248	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	58	126
	B - Cemetery Road	34	0	45
	C - Hemingfield Road (W)	171	77	0

Vehicle Mix

Heavy Vehicle %

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	7	2
	B - Cemetery Road	0	0	5
	C - Hemingfield Road (W)	2	4	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.08	6.43	0.1	A
B-A	0.09	9.32	0.1	A
C-AB	0.16	6.25	0.3	A
C-A				
A-B				
A-C				

Main Results for each time segment

15:45 - 16:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	657	0.052	34	0.1	6.065	A
B-A	26	453	0.057	25	0.1	8.418	A
C-AB	71	686	0.104	71	0.2	6.069	A
C-A	115			115			
A-B	44			44			
A-C	95			95			

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	40	649	0.062	40	0.1	6.213	A
B-A	31	441	0.069	31	0.1	8.777	A
C-AB	89	697	0.128	89	0.2	6.137	A
C-A	134			134			
A-B	52			52			
A-C	113			113			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	50	638	0.078	49	0.1	6.425	A
B-A	37	424	0.088	37	0.1	9.314	A
C-AB	115	712	0.162	115	0.3	6.246	A
C-A	158			158			
A-B	64			64			
A-C	139			139			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	50	638	0.078	50	0.1	6.426	A
B-A	37	424	0.088	37	0.1	9.318	A
C-AB	116	712	0.162	116	0.3	6.250	A
C-A	158			158			
A-B	64			64			
A-C	139			139			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	40	649	0.062	41	0.1	6.218	A
B-A	31	441	0.069	31	0.1	8.785	A
C-AB	89	697	0.128	89	0.2	6.140	A
C-A	134			134			
A-B	52			52			
A-C	113			113			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	656	0.052	34	0.1	6.072	A
B-A	26	453	0.057	26	0.1	8.431	A
C-AB	72	686	0.104	72	0.2	6.079	A
C-A	115			115			
A-B	44			44			
A-C	95			95			

Existing Layout - 2029 Base, AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Cemetery Road - 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	Cemetery Road / School Street	T-Junction	Two-way	Two-way	Two-way		2.51	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.51	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2029 Base	AM Peak Hour	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - School Street (E)		✓	225	100.000
B - Cemetery Road		✓	122	100.000
C - Hemingfield Road (W)		✓	160	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	53	172
	B - Cemetery Road	56	0	66
	C - Hemingfield Road (W)	127	33	0

Vehicle Mix

Heavy Vehicle %

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	0	2
	B - Cemetery Road	2	0	8
	C - Hemingfield Road (W)	2	9	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.12	7.26	0.1	A
B-A	0.14	9.70	0.2	A
C-AB	0.07	6.21	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	50	635	0.078	49	0.1	6.637	A
B-A	42	466	0.090	42	0.1	8.642	A
C-AB	29	657	0.044	29	0.1	6.187	A
C-A	91			91			
A-B	40			40			
A-C	129			129			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	59	624	0.095	59	0.1	6.887	A
B-A	50	455	0.111	50	0.1	9.062	A
C-AB	36	662	0.054	36	0.1	6.201	A
C-A	108			108			
A-B	48			48			
A-C	155			155			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	73	608	0.119	73	0.1	7.252	A
B-A	62	440	0.140	62	0.2	9.695	A
C-AB	46	670	0.069	46	0.1	6.210	A
C-A	130			130			
A-B	58			58			
A-C	189			189			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	73	608	0.119	73	0.1	7.257	A
B-A	62	440	0.140	62	0.2	9.703	A
C-AB	46	670	0.069	46	0.1	6.205	A
C-A	130			130			
A-B	58			58			
A-C	189			189			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	59	624	0.095	59	0.1	6.893	A
B-A	50	455	0.111	50	0.1	9.074	A
C-AB	36	662	0.054	36	0.1	6.190	A
C-A	108			108			
A-B	48			48			
A-C	155			155			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	50	634	0.078	50	0.1	6.654	A
B-A	42	466	0.090	42	0.1	8.661	A
C-AB	29	657	0.044	29	0.1	6.185	A
C-A	91			91			
A-B	40			40			
A-C	129			129			

Existing Layout - 2029 Base, PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Cemetery Road - 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	Cemetery Road / School Street	T-Junction	Two-way	Two-way	Two-way		2.42	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.42	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2029 Base	PM Peak Hour	ONE HOUR	15:45	17:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - School Street (E)		✓	211	100.000
B - Cemetery Road		✓	83	100.000
C - Hemingfield Road (W)		✓	275	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	61	150
	B - Cemetery Road	36	0	47
	C - Hemingfield Road (W)	190	85	0

Vehicle Mix

Heavy Vehicle %

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	7	1
	B - Cemetery Road	0	0	4
	C - Hemingfield Road (W)	2	4	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.08	6.49	0.1	A
B-A	0.10	9.66	0.1	A
C-AB	0.18	6.34	0.3	A
C-A				
A-B				
A-C				

Main Results for each time segment

15:45 - 16:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	650	0.054	35	0.1	6.086	A
B-A	27	445	0.061	27	0.1	8.599	A
C-AB	81	691	0.117	80	0.2	6.102	A
C-A	126			126			
A-B	46			46			
A-C	113			113			

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	42	641	0.066	42	0.1	6.250	A
B-A	32	431	0.075	32	0.1	9.020	A
C-AB	101	703	0.144	101	0.2	6.193	A
C-A	146			146			
A-B	55			55			
A-C	135			135			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	52	629	0.082	52	0.1	6.489	A
B-A	40	412	0.096	40	0.1	9.657	A
C-AB	132	720	0.184	132	0.3	6.335	A
C-A	171			171			
A-B	67			67			
A-C	165			165			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	52	628	0.082	52	0.1	6.491	A
B-A	40	412	0.096	40	0.1	9.661	A
C-AB	132	720	0.184	132	0.3	6.341	A
C-A	170			170			
A-B	67			67			
A-C	165			165			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	42	641	0.066	42	0.1	6.254	A
B-A	32	431	0.075	32	0.1	9.029	A
C-AB	101	703	0.144	102	0.2	6.198	A
C-A	146			146			
A-B	55			55			
A-C	135			135			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	650	0.054	35	0.1	6.092	A
B-A	27	445	0.061	27	0.1	8.615	A
C-AB	81	691	0.117	81	0.2	6.117	A
C-A	126			126			
A-B	46			46			
A-C	113			113			

Existing Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings), AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Cemetery Road - 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	Cemetery Road / School Street	T-Junction	Two-way	Two-way	Two-way		2.60	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.60	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2029 Predicted (Sensitivity Test, 430 Dwellings)	AM Peak Hour	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - School Street (E)		✓	231	100.000
B - Cemetery Road		✓	127	100.000
C - Hemingfield Road (W)		✓	193	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	53	178
	B - Cemetery Road	56	0	71
	C - Hemingfield Road (W)	147	46	0

Vehicle Mix

Heavy Vehicle %

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	0	2
	B - Cemetery Road	2	0	7
	C - Hemingfield Road (W)	1	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.13	7.24	0.2	A
B-A	0.14	10.05	0.2	B
C-AB	0.10	6.17	0.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	53	638	0.084	53	0.1	6.580	A
B-A	42	456	0.092	42	0.1	8.849	A
C-AB	42	666	0.062	41	0.1	6.105	A
C-A	104			104			
A-B	40			40			
A-C	134			134			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	64	627	0.102	64	0.1	6.843	A
B-A	50	444	0.113	50	0.1	9.321	A
C-AB	52	673	0.077	51	0.1	6.131	A
C-A	122			122			
A-B	48			48			
A-C	160			160			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	78	611	0.128	78	0.2	7.231	A
B-A	62	427	0.144	61	0.2	10.038	B
C-AB	66	683	0.097	66	0.2	6.165	A
C-A	146			146			
A-B	58			58			
A-C	196			196			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	78	610	0.128	78	0.2	7.235	A
B-A	62	427	0.144	62	0.2	10.046	B
C-AB	67	683	0.097	67	0.2	6.161	A
C-A	146			146			
A-B	58			58			
A-C	196			196			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	64	626	0.102	64	0.1	6.852	A
B-A	50	444	0.113	50	0.1	9.332	A
C-AB	52	673	0.077	52	0.1	6.122	A
C-A	122			122			
A-B	48			48			
A-C	160			160			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	53	638	0.084	54	0.1	6.595	A
B-A	42	456	0.092	42	0.1	8.873	A
C-AB	42	666	0.063	42	0.1	6.106	A
C-A	104			104			
A-B	40			40			
A-C	134			134			

Existing Layout - 2029 Predicted (Sensitivity Test, 430 Dwellings), PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	B - Cemetery Road - 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	Cemetery Road / School Street	T-Junction	Two-way	Two-way	Two-way		2.49	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.49	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2029 Predicted (Sensitivity Test, 430 Dwellings)	PM Peak Hour	ONE HOUR	15:45	17:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - School Street (E)		✓	229	100.000
B - Cemetery Road		✓	94	100.000
C - Hemingfield Road (W)		✓	288	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	61	168
	B - Cemetery Road	36	0	58
	C - Hemingfield Road (W)	198	90	0

Vehicle Mix

Heavy Vehicle %

		To		
		A - School Street (E)	B - Cemetery Road	C - Hemingfield Road (W)
From	A - School Street (E)	0	7	1
	B - Cemetery Road	0	0	3
	C - Hemingfield Road (W)	2	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.10	6.48	0.1	A
B-A	0.10	10.12	0.1	B
C-AB	0.20	6.39	0.3	A
C-A				
A-B				
A-C				

Main Results for each time segment

15:45 - 16:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	44	660	0.066	43	0.1	6.009	A
B-A	27	430	0.063	27	0.1	8.919	A
C-AB	86	692	0.125	86	0.2	6.101	A
C-A	130			130			
A-B	46			46			
A-C	126			126			

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	52	650	0.080	52	0.1	6.201	A
B-A	32	416	0.078	32	0.1	9.389	A
C-AB	108	704	0.154	108	0.2	6.207	A
C-A	150			150			
A-B	55			55			
A-C	151			151			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	64	636	0.100	64	0.1	6.480	A
B-A	40	396	0.100	40	0.1	10.108	B
C-AB	142	722	0.197	142	0.3	6.378	A
C-A	175			175			
A-B	67			67			
A-C	185			185			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	64	636	0.100	64	0.1	6.481	A
B-A	40	395	0.100	40	0.1	10.115	B
C-AB	142	722	0.197	142	0.3	6.386	A
C-A	175			175			
A-B	67			67			
A-C	185			185			

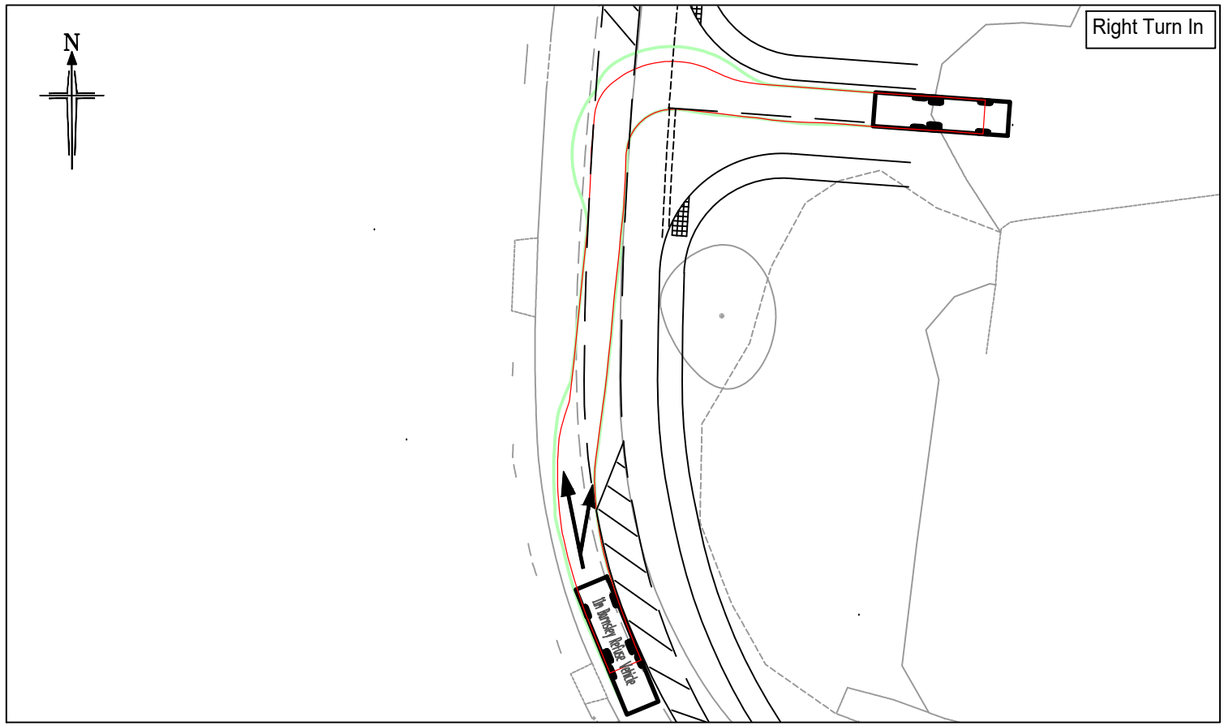
16:45 - 17:00

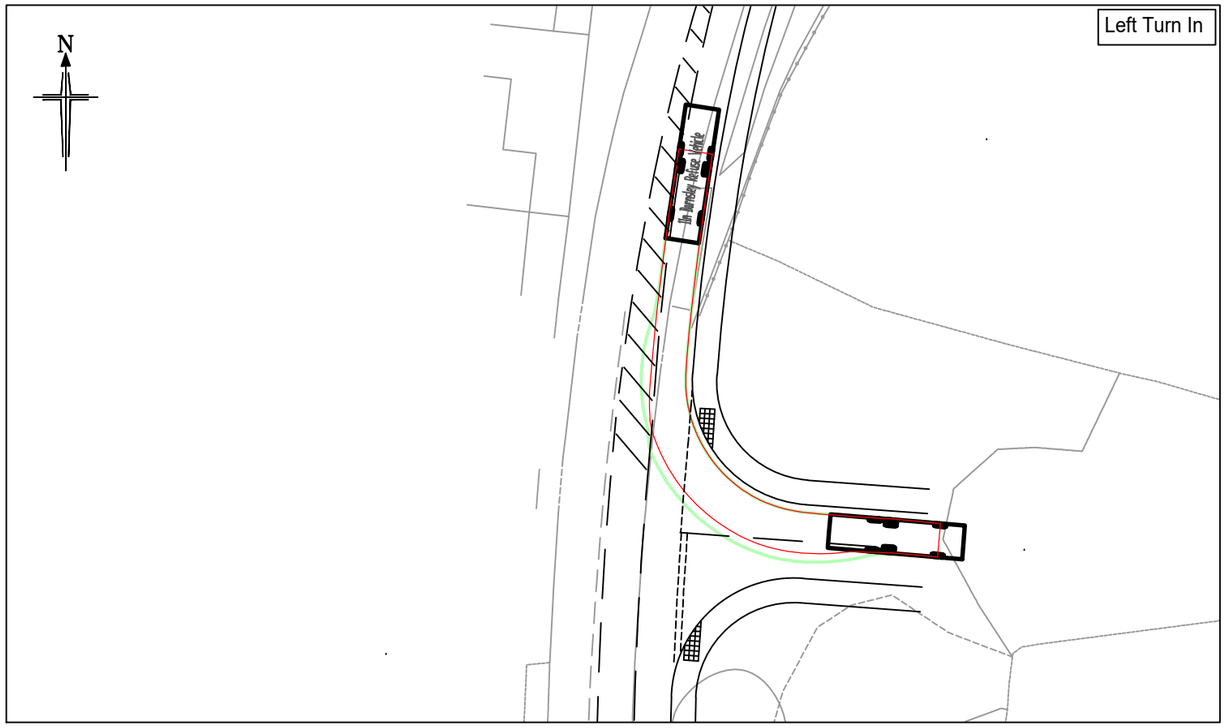
Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	52	650	0.080	52	0.1	6.205	A
B-A	32	416	0.078	32	0.1	9.397	A
C-AB	109	705	0.154	109	0.3	6.216	A
C-A	150			150			
A-B	55			55			
A-C	151			151			

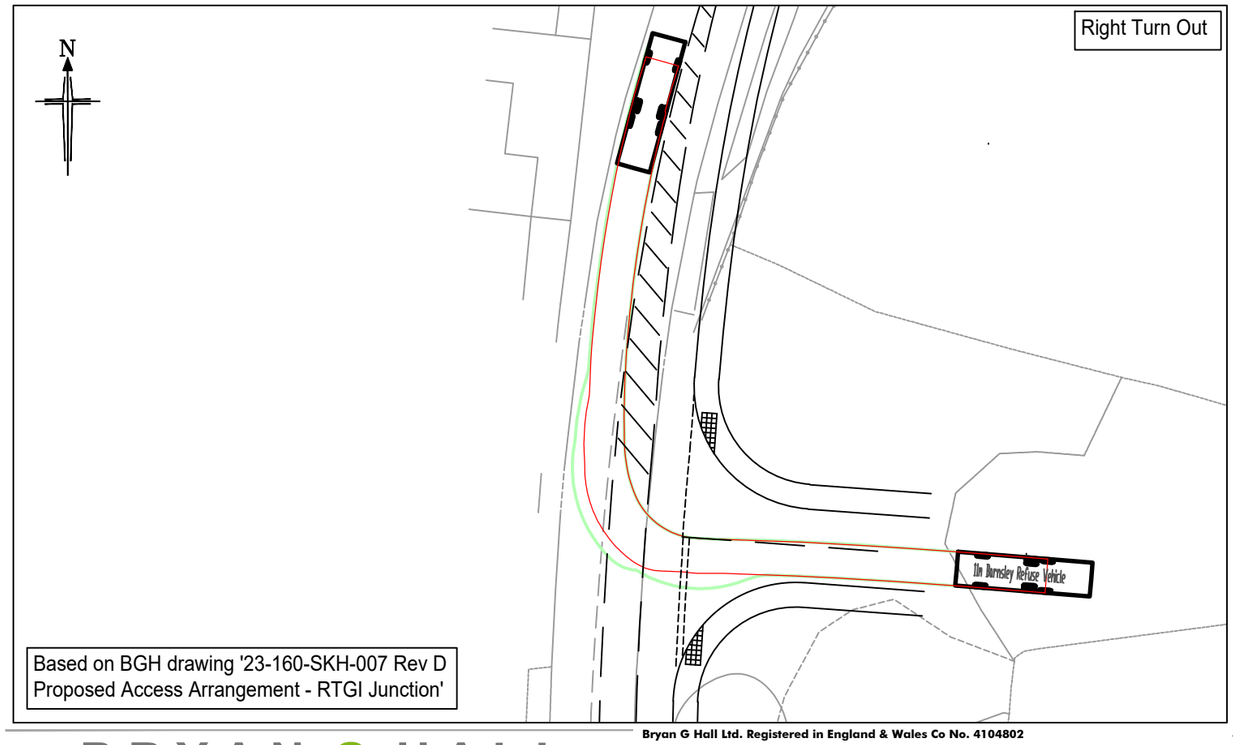
17:00 - 17:15

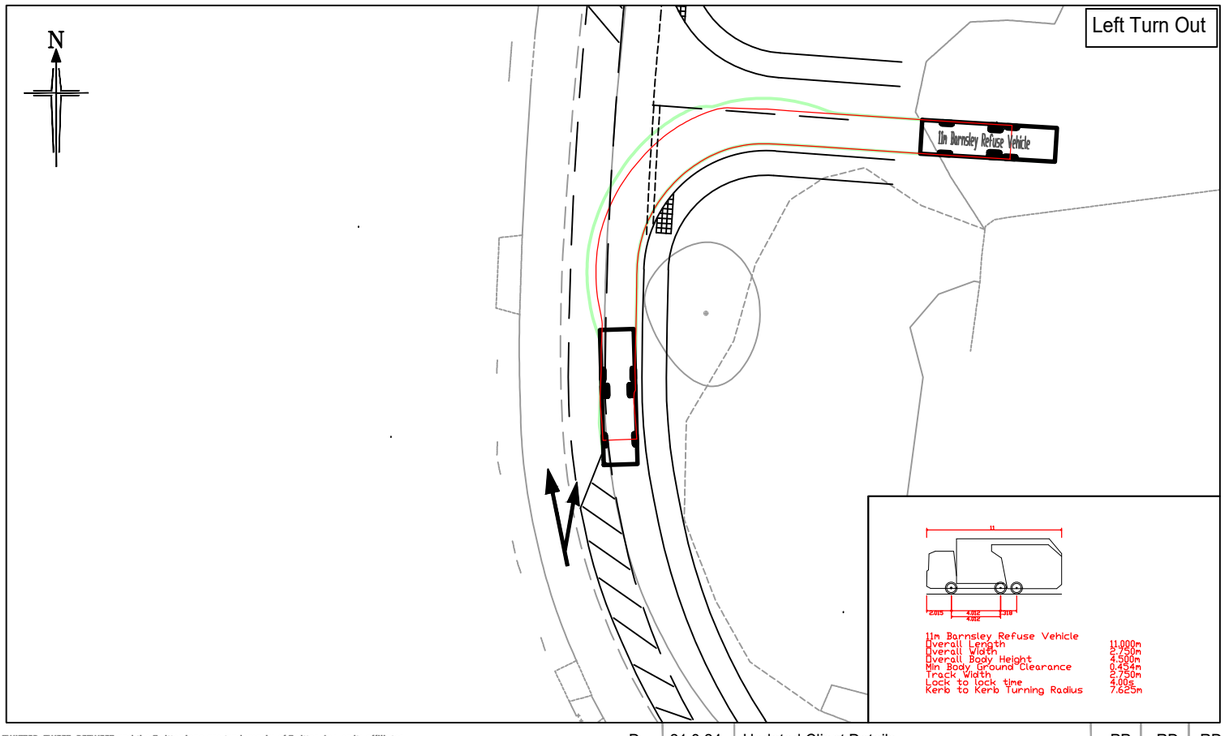
Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	44	660	0.066	44	0.1	6.019	A
B-A	27	430	0.063	27	0.1	8.936	A
C-AB	87	692	0.125	87	0.2	6.117	A
C-A	130			130			
A-B	46			46			
A-C	126			126			

APPENDIX BGH 8









Based on BGH drawing '23-160-SKH-007 Rev D
Proposed Access Arrangement - RTGI Junction'

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Rev:	Date:	Amendment:			
D	21.8.24	Updated Client Details	PP	RD	RD

Title: SWEPT PATH ANALYSIS OF REFUSE VEHICLE USING SITE ACCESS

Status: FOR PLANNING

Client: HARGREAVES LAND LIMITED

Project: RESIDENTIAL DEVELOPMENT HEMINGFIELD, BARNSLEY

Scale: 1:500
Size: A3 - 420 x 297

Drawn: PP | Chkd: RD | Appvd: MC

Drawing No: 23/160/ATR/001
Job No: 23-160

Revision: D
Date: 16/01/2024

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