

Elettra Avenue, Waterloooville

Technical Note

*Summary Transport Response and Update to HCC
Consultation Response 14/6/22 (Application No.
APP/21/00399)*



Introduction

1. This Note draws together post-application submission discussion on transport matters, relevant to Application No APP/21/00399). It also provides a more detailed response to HCC consultation response letter dated 14/6/22 provided at **Appendix A** for ease of reference. All matters have benefitted from ongoing discussion with the HCC case officer.
2. The HCC letter cross-referenced the content of DTA reports submitted in Spring 2022. **DTA report no. 19235-16f** dated 8/4/22 provided information relevant to off-site traffic modelling at the Hambledon Road / Elettra Avenue roundabout; and **DTA report no. 19235-17** dated 4/5/22 had responded to site connectivity and layout matters previously raised by the County.

Off-Site Traffic Modelling

3. At the time of the 14/6/22 letter, HCC were still considering their position on the off-site traffic modelling.
4. The HCC Case Officer subsequently verbally confirmed in mid-July that the findings and appraisal conclusions set out in **DTA report no. 19235-16f** were accepted. The impact at the Hambledon Road / Elettra Avenue roundabout of the proposals was deemed to be acceptable without further design amendment over and above that agreed as part of the outline consent at Waterloo Park. Agreement was therefore dependent on the off-site financial obligations present in the S106 Agreement for the outline consent on Waterloo Park being deemed equally relevant to these Phase 2 proposals. Whichever consent, either the outline, or a detailed consent for Phase 2 comes forward first, would trigger the stated obligations (which are set out at para 19).

Sustainable Transport (Site Connectivity and Layout Detail)

5. HCC design comments are covered below in the order they are raised in the 14/6/22 letter, with additional matters raised during discussions also referred.



6. The concept of widening of the footway to the south of the McDonalds store to provide a footway / cycleway facility has long been agreed. Further design revisions have been prepared and agreed for planning as shown on **DTA Drawing 19235-08P-GA3**.
7. Prior to implementation, the design will be subject to detailed design with the potential for slight grading segregation between the footway and cycleway elements. This detail would be secured via planning condition with the works delivered by the applicant. As the land is not public highway, but forms part of the wider Waterloo Park land, it may be necessary to agree some standard wording in the S106 agreement to ensure that the public is afforded rights to pass through the site without prejudicing the ability to implement the remainder of the outline consent (i.e. maintain the ability to adapt the precise form when the remainder of the site is implemented).
8. HCC had previously sought an improved cycle route into the site at the main vehicular access from Elettra Avenue. An enhanced design was included within **DTA report no. 19235-17** which was acknowledged as an improvement by HCC. However, further enhancement improving connectivity with subsequent development phases within the outline consent, was required by HCC. Helpful descriptive options were put forward by HCC for consideration.
9. This led to further amendments with the content now agreed with HCC. The design is shown on **DTA Drawing 19235-08P-GA**. This includes an off carriageway 3m shared footway / cycleway along the western side of the Waterloo Park access road off the roundabout, with cyclists provided safe crossing on the site access arm of the roundabout. This will safeguard access by active travel modes to the remaining areas covered by the original outline consent and has been achieved with a modest narrowing of the northbound carriageway on the approach to the roundabout; and narrowing of the verge between the access road and the car park to the south of the car park access. The 3m width is extended northwards through to the new western pedestrian crossing of the Elettra Avenue roundabout which links to the footway on the western side of Waterberry Drive.



10. This 3m facility provides off-carriageway linkage to a pedestrian route away from the vehicular access through the Unit A car park, with cyclists directed to this route, only dismounting on their entry to the car park.
11. Confirmation was sought that the footway / cycleway alignment would not have a detrimental impact on traffic capacity at the Elettra Avenue site access roundabout. Whilst the carriageway narrowing from the previously appraisal was extremely modest, for the purposes of a straightforward robust assessment, the site arm exit onto the roundabout has been modelled in JUNCTIONS10 as a single lane, which demonstrates significant spare capacity as shown below, with the output provided at **Appendix B**. In practice, the arm benefits from a flare, increasing capacity further.

Figure 1 Elettra Avenue - Site Access Roundabout Operational Appraisal

	AM					PM					Sat				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2026 Base+Outline														
1 - Elettra Av (east)	D5	0.6	3.00	0.39	A	D6	0.4	2.60	0.30	A	D9	0.5	2.66	0.31	A
2 - Site Access		0.2	4.38	0.19	A		0.4	4.34	0.30	A		0.5	4.55	0.36	A
3 - Elettra Av (west)		0.1	2.49	0.05	A		0.1	2.44	0.06	A		0.0	2.39	0.04	A
4 - Waterberry Drive		0.2	2.69	0.18	A		0.3	2.98	0.24	A		0.2	2.78	0.15	A
	A1 - 2026 Base+Outline+Net														
1 - Elettra Av (east)	D10	0.7	3.05	0.40	A	D11	0.5	2.72	0.33	A	D12	0.5	2.75	0.34	A
2 - Site Access		0.2	4.41	0.20	A		0.6	4.93	0.38	A		0.6	4.84	0.39	A
3 - Elettra Av (west)		0.1	2.50	0.05	A		0.1	2.56	0.07	A		0.0	2.44	0.04	A
4 - Waterberry Drive		0.2	2.70	0.18	A		0.3	3.16	0.25	A		0.2	2.85	0.16	A

12. During discussion on the above footway / cycleway, HCC requested further consideration be given to the pedestrian routing towards Unit C. Revised details setting an internal pedestrian crossing beyond the end of the Unit C Drive-Thru Order Waiting Bays is now included (as opposed to being in between stationary cars in the waiting bay).
13. An updated set of vehicle tracking drawings relevant to the car park access junction has been included at DTA Drawing **19235-08P-TRK-2** to reflect the design amendments.
14. The final matter raised in the HCC letter was the requirement for the adopted highway boundary to be overlaid on the site layout. HCC required that none of the proposed



site landscaping features sat within the adopted highway. This exercise gave rise to the need for minor amendments to the landscaping plan, with no planting included within the highway boundary; and minor tweaks to design amendments where hardstanding corners (one parking space and the Unit B drive thru exit lane) were also set back behind the highway boundary. The highway boundary is included on **DTA Drawing 19235-08P-GA** with the finalised layout.

15. During discussions, HCC further requested that access between the shared servicing area for Units A and B and the customer car park area was subject to physical control. It was agreed that this would be achieved by means of a gate and is indicated on the site plan at the western extremity of the customer car park area. The inclusion of a gate as distinct from a permanent obstruction allows the route to be used as an emergency access should such be required.

Summary

16. The HCC letter dated 14/6/22 set out residual design matters for resolution. The referred matter of off-site junction modelling has since been agreed.
17. This Note sets out the detailing of each of the design responses, which have benefitted from ongoing discussions with HCC, such that each component part was agreed, and the finalised site layout is also understood to be agreed.
18. Drawing together the elements of the transport package position previously agreed and now with residual matters resolved, the position can be summarised as follows, with the transport package elements included:
 - Access to the site by all modes of travel is agreed as shown on **DTA Drawing 19235-08P-GA**.
 - Vehicular access from the public highway is taken from the Elettra Avenue roundabout, with localised road marking and kerb revisions as shown on **DTA Drawing 19235-08P-RAB**.



- Pedestrian and cyclist crossing enhancements are also included at the Elettra Avenue roundabout. These works are captured on **DTA Drawing 19235-08P-RAB**.
- Further off-site pedestrian / cyclist enhancement works are provided within public highway in the form of a new short section of footway / cycleway at the junction of Waterberry Drive / Elettra Avenue and associated crossing detailing. These works are shown on **DTA Drawing 19235-08P-GA**.
- Whilst not within the public highway, a further cycle enhancement is provided to the south of the McDonalds outlet within Waterloo Park. The enhancement delivers cycle link connectivity to Hambledon Road. These works adapting a footway to a footway/cycleway are shown on **DTA Drawing 19235-08P-GA3**.
- Contributions towards off-site works established as part of the S106 for the outline consent for Waterloo Park are equally relevant to this full application, comprising:
 - Contribution of £60,000 towards highway works at the Hambledon Road / Elettra Avenue; and
 - Contribution of £150,000 towards a toucan crossing on Hambledon Road (which has already been constructed) are to be secured by S106. These obligations would fall to whichever of the outline consent or a full consent was triggered first; and
- A Framework Travel Plan, **DTA report no. 19235-14 Revision C**, to be secured via S106. This will form the basis of each Unit operating their own Travel Plan.

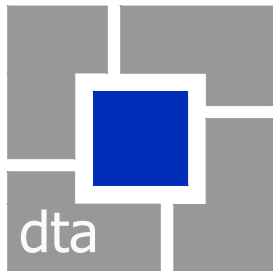
19. All transport matters have been agreed which it is understood allows the County to remove their objection.

Drawings



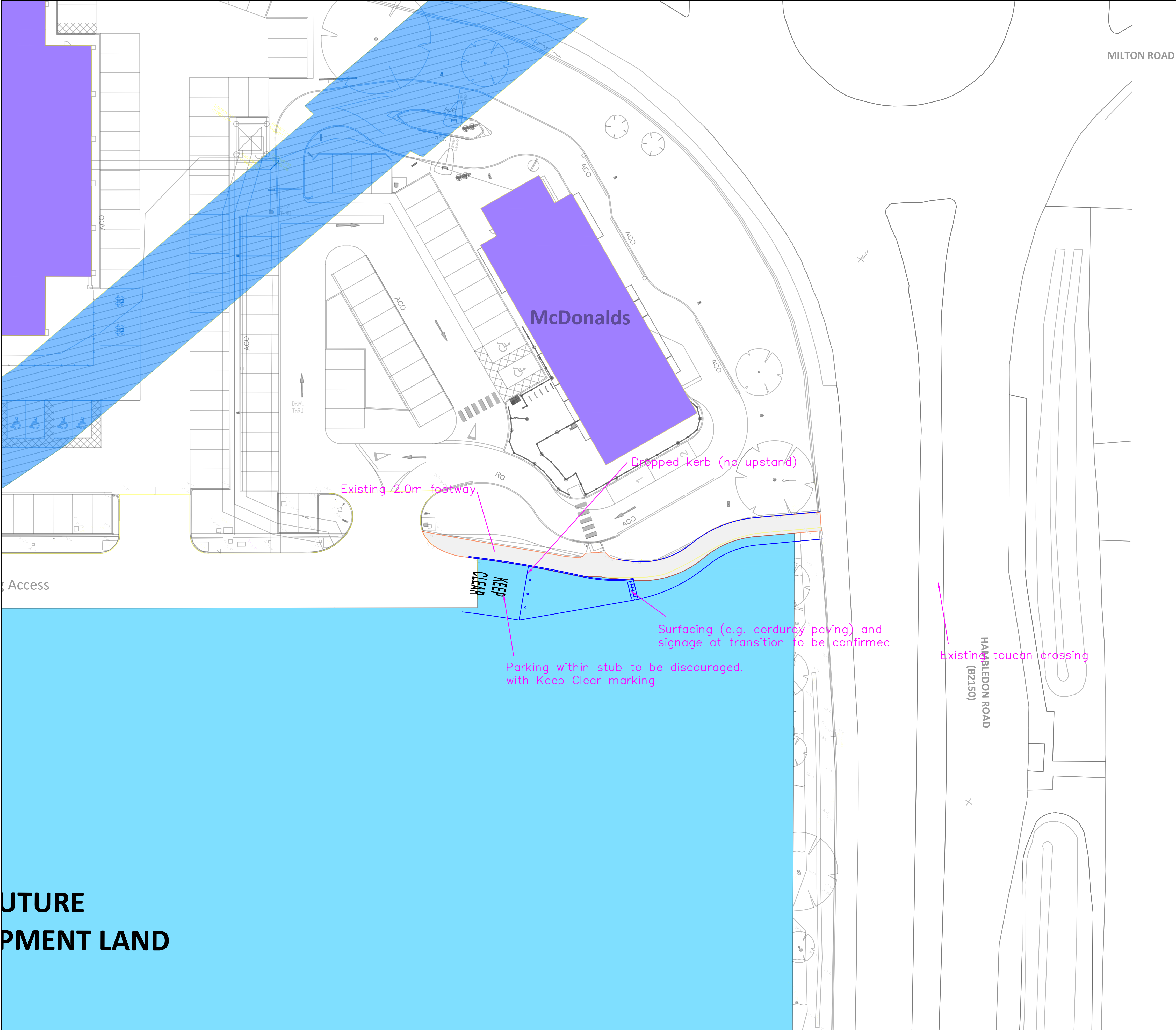
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REV	DESCRIPTION	DRAWN	INITIALS	DATE	DRAWING STATUS	CHECKED BY	DATE



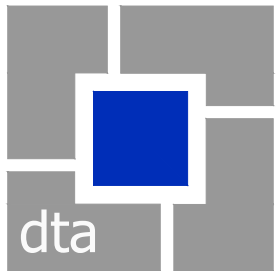
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JOB TITLE		CLIENT	
WATERLOOVILLE		HARGREAVES	
DRAWING TITLE			
INTERNAL ACCESS ARRANGEMENTS			
SCALE	DRAWN BY	DATE	DRAWING No
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			REVISION
			P



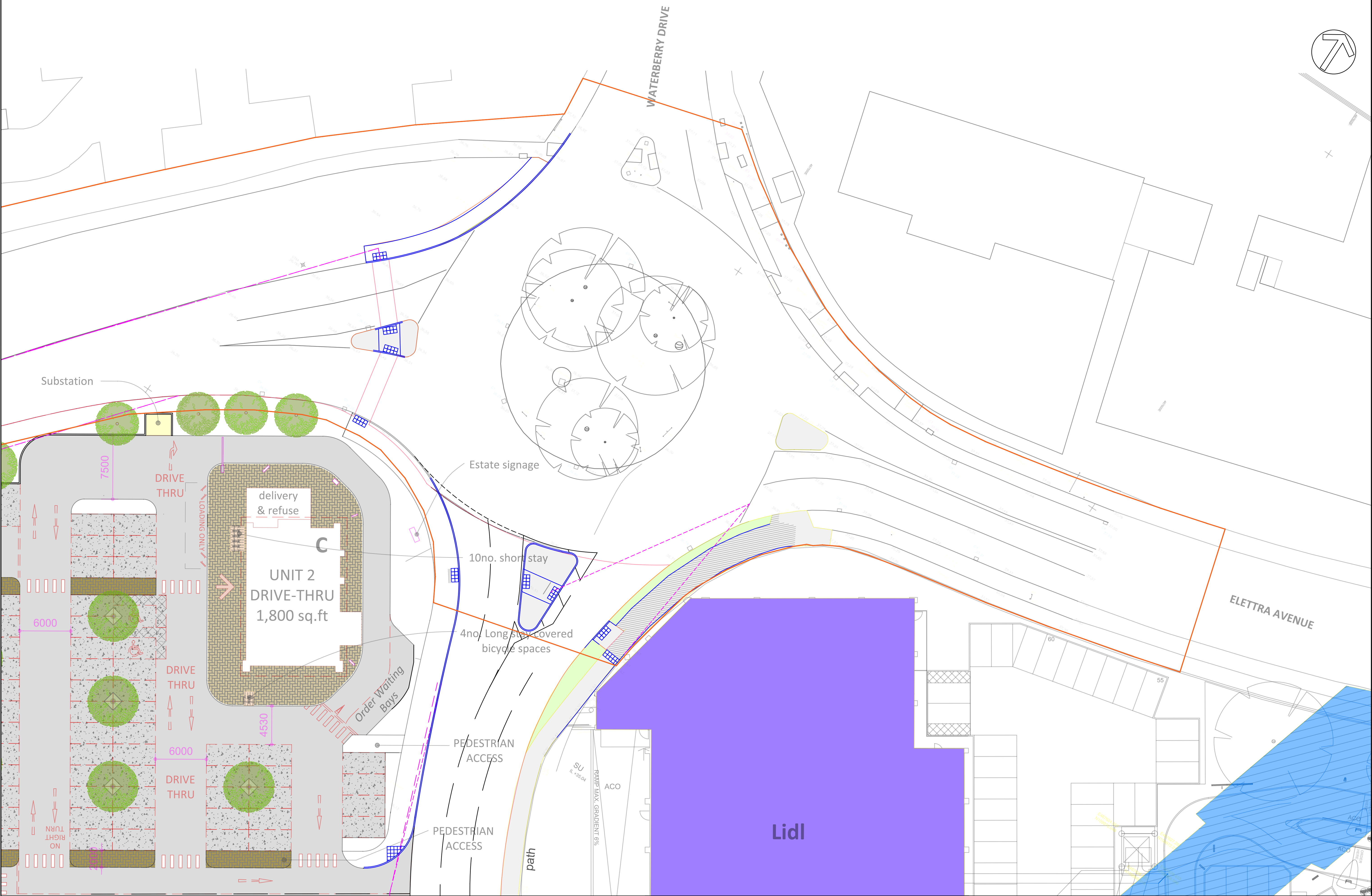
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JOB TITLE		CLIENT	
WATERLOOVILLE		HARGREAVES	
DRAWING TITLE			
INTERIM PEDESTRIAN/CYCLE LINK			
SCALE	DRAWN BY	DATE	DRAWING No
1: 250@A1	RM	26/09/22	19235-08-GA3
			REVISION
			P

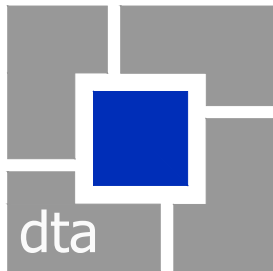


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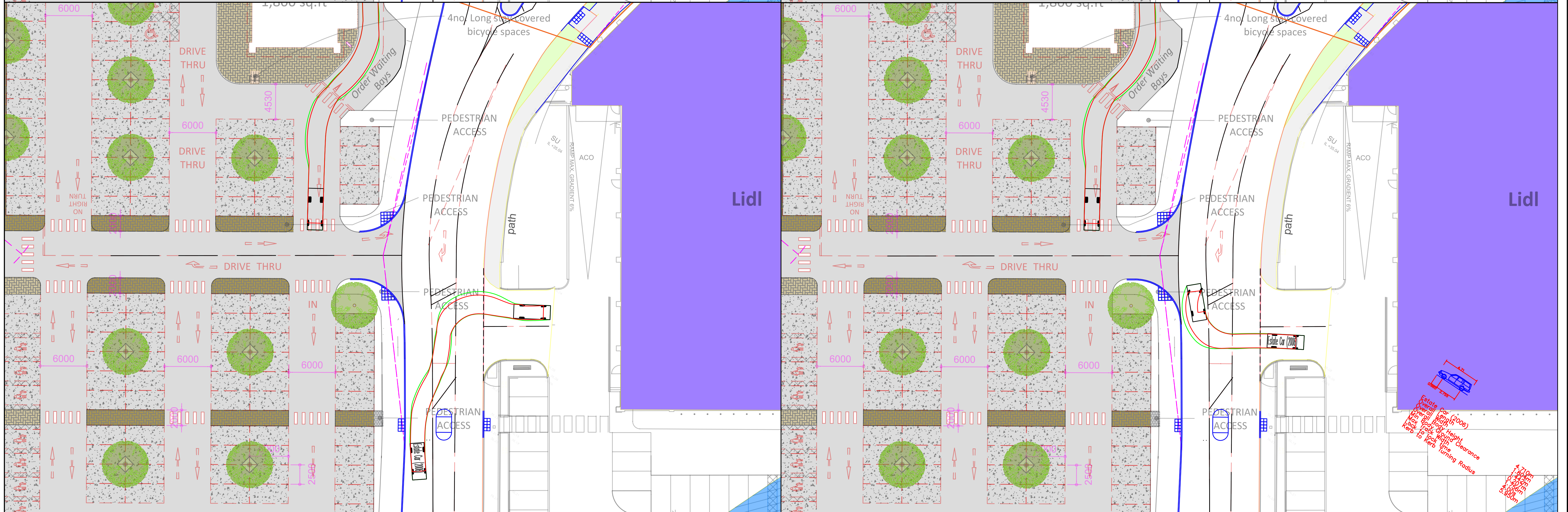
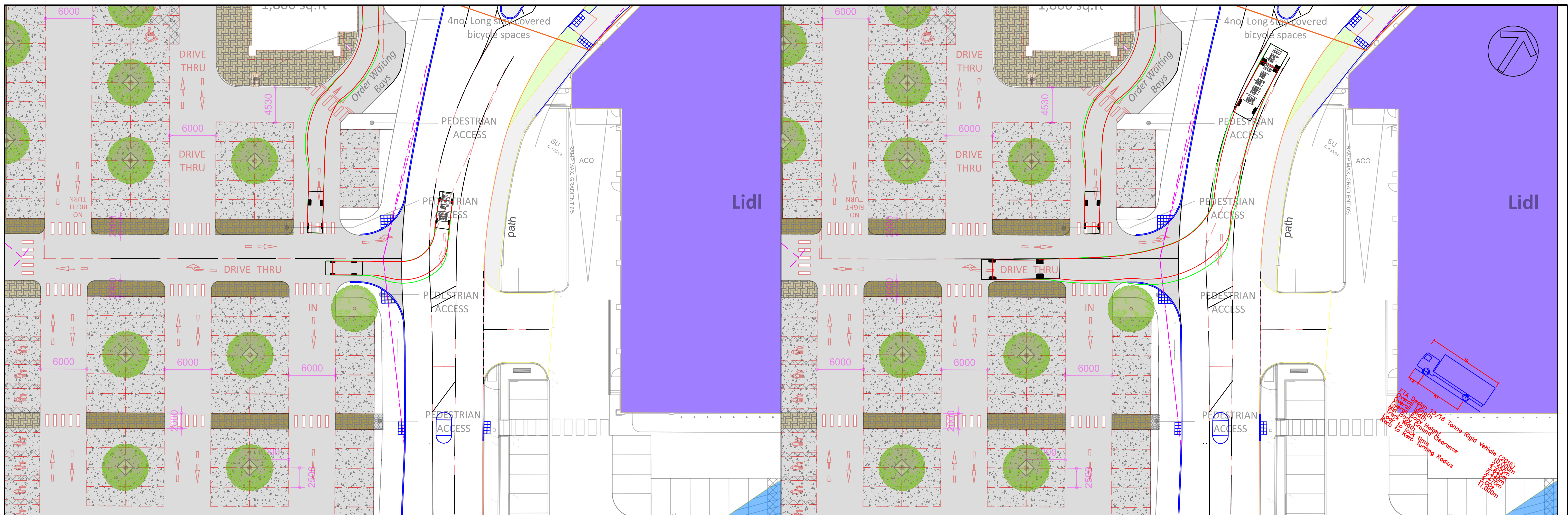
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DRAWING STATUS	CHECKED BY	DATE



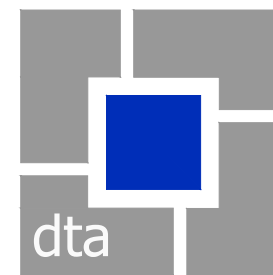
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JOB TITLE WATERLOOVILLE		CLIENT HARGREAVES	
DRAWING TITLE ELETTRA AVENUE ROUNDABOUT			
SCALE 1: 200@A1	DRAWN BY RM	DATE 31/08/22	DRAWING No 19235-08-RAB
			REVISION P



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JOB TITLE WATERLOOVILLE			CLIENT HARGREAVES		
DRAWING TITLE VEHICLE TRACKING					
SCALE 1: 250@A1	DRAWN BY RM	DATE 31/08/22	DRAWING No 19235-08-TRK2		REVISION P

Appendix A

HCC Response Letter 14/6/22



Head of Development Planning
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Civic Offices
Civic Centre Road
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Hampshire
PO9 2AX

*Economy, Transport and Environment Department
Elizabeth II Court West, The Castle
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0300 555 1389 (Recycling Waste & Planning)
Textphone 0300 555 1390
Fax 01962 847055

www.hants.gov.uk

<i>Enquiries to</i>	Chris Hirst	<i>My reference</i>	6/3/13/134
<i>Direct Line</i>	0370 779 0563	<i>Your reference</i>	APP/21/00399
<i>Date</i>	14 th June 2022	<i>Email</i>	Chris.hirst@hants.gov.uk

For the attention of Lewis Oliver

Dear Sir

Full application for erection of discount foodstore, drive through coffee shop and drive-through restaurant with associated car parking, service yard, landscaping, means of access and associated infrastructure.

Thank you for reconsulting the Highway Authority on the above planning application.

Further to the Highway Authority's latest response dated 24th March, the applicant has produced two separate technical notes to address the comments raised in relation to the sustainable transport improvements and technical modelling queries.

The Highway Authority understands that the applicant wishes to receive formal comments on the sustainable transport improvements whilst conversations remain ongoing regarding the junction modelling. This response therefore focuses on the design technical note, with a follow up response to be sent on the details of the modelling once conversations have progressed.

Sustainable Transport

The applicant has now provided the designer's response and follow up auditor confirmation for the Road Safety Audit undertaken for the offsite improvement works and the proposed site access. The auditor confirms that the measures presented will not result in safety concerns for users of the facilities. The Highway Authority have reviewed these comments and agree with the conclusions drawn; however, comments are set out below regarding the suitability of the measures presented within the note.

*Director of Economy, Transport and Environment
Stuart Jarvis BSc DipTP FCIHT MRTPI*

As recommended within the Highway Authority's previous response, the applicant has updated the design for the proposed shared use widening scheme to the south of the McDonalds store. The improvement incorporates flaring on the approach to the carriageway to provide cyclists with a wider area to access the path in the event that a vehicle is parked in the current turning head. The flaring is supplemented by 'keep clear' markings to discourage parking and allow cyclists to safely access and egress the path. The scheme has been reviewed by the safety auditor who has not raised any concerns with the proposal. Whilst consideration will need to be given at detailed design to segregating the levels between the two paths, the Highway Authority are satisfied with the principle of the updated scheme which should be secured via obligation in the Section 106 agreement to be delivered via S278 by the applicant.

The applicant was also asked to extend the widening of the footway to the northwest of the Lidl store to provide cyclists with facilities to re-join the highway or access the site. It is understood that land constraints mean it is not feasible to widen the footway any further to the south, resulting in a revised proposal to cross cyclists at the new splitter island on the southern Elettra Avenue approach to the roundabout. This proposal is supported by a short section of shared use path on the western side of the road as a landing point for cyclists to cross the road before dismounting enroute to the development.

Whilst the scheme represents a betterment over what was shown originally, the Highway Authority are concerned that the proposed scheme does not present a continuous and cohesive approach for cyclists to access this parcel of the development and the wider development area when approaching from the north. During discussions on the outline planning application, the Highway Authority agreed to review the proposed pedestrian and cycle access strategy at the full application and reserved matters stage given that the applicant was unable to commit to a pedestrian and cycle access strategy until points of access and servicing requirements were better understood. This agreement was on the basis that a holistic strategy would be developed which served the whole site, or that the infrastructure which came forward as part of separate parcels of the development would not preclude future sustainable transport users from accessing the rest of the development.

As noted above, the current proposal crosses cyclists at the new splitter island to a short section of shared use path on the western side of the road, before cyclists are required to dismount when heading southbound towards the site access. The current proposals currently do not cater for cyclists looking to access the site when approaching from the north as the shared use facilities do not extend through the site access and onwards towards the cycle parking located to the west of the development for the proposed food store and the first drive thru facility. Furthermore, the facilities on the southern side of the access are for pedestrians only, which eventually terminates south of the new crossing point on Elettra Avenue. In the future, this would preclude cycle access from being provided to the remaining parcels of land to the south

because the necessary connections are not being provided by this area of the development across their frontage.

This concern could be overcome by extending the new section of shared use path available on the western side of the road past the site access, terminating at a point to the south of the site for the rest of the outline development area to connect into in the future. In order to provide this widening, the southern Elettra Avenue approach to the roundabout would need to be reduced to one lane, unless internal amendments can be provided to allow for additional width along the path. This would ensure a continuous route is available for cyclists to the site as a whole, rather than providing a limited section of shared use path which cannot be extended in the future given the land constraints of the site. Updated junction modelling would be required to demonstrate that a one lane entry into the roundabout works in operational capacity terms. This approach adheres to HCC's emerging LTP4 policy which looks to prioritise pedestrian and cycle movements over vehicular capacity.

By providing a link through to the existing pedestrian crossing point south of the site access, cyclists could be signed to enter the site through this link, tying into the cycle parking facilities available outside of the proposed food store. It is noted that accessibility to the cycle parking to the drive thru's is poor and does not align with the current cycle facilities. The cycle stores should therefore be relocated to tally with the revised cycle strategy for the site.

The applicant is therefore required to investigate a scheme which suitably caters for cyclists accessing the site from the north which also provides the necessary connections for future development parcels.

The Highway Authority have also noted that the proposed landscaping features around the north-western corner of the site is located very close to the edge of the highway boundary. The applicant is required to overlay the highway boundary on the site layout plan to confirm that highway land is not required to provide any of the features around this part of the development. The Highway Authority would not support the stopping up of highway land for the benefit of amenity landscaping to the development. This should be within land outside of the adopted highway. The Highway Authority therefore also require confirmation that the area is not included within the landscaping requirements for the site and will remain public highway.

Recommendation

As noted in the introduction, this response focuses on the sustainable transport connection only. Discussions remain ongoing regarding the detailed junction modelling undertaken at the Hambledon Road/Elettra Avenue roundabout and a follow up response will be produced to deal with this matter.

With regards to the current pedestrian and cycle infrastructure, the Highway Authority does not consider that it meets the needs of present and future

users and does not accord with the holistic strategy to be developed followed discussions during the outline planning stage. The applicant is therefore required to revisit the proposals before a positive recommendation can be made of this aspect of the application.

Yours Sincerely,

Gemma McCart – Transport Team Leader.

Appendix B

Junctions Output

Junctions 10									
ARCADY 10 - Roundabout Module									
Version: 10.0.4.1693									
© Copyright TRL Software Limited, 2021									
For sales and distribution information, program advice and maintenance, contact TRL Software:									
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com									
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution									

Filename: Import of Site Access_Elettra Avenue Roundabout_2022.j10

Path: P:\19000's\19235\Technical\Junction Modelling 2021

Report generation date: 06/09/2022 14:10:04

- »(Default Analysis Set) - 2026 Base+Outline, AM
- »(Default Analysis Set) - 2026 Base+Outline, PM
- »(Default Analysis Set) - 2026 Base+Outline, Sat
- »(Default Analysis Set) - 2026 Base+Outline+Net, AM
- »(Default Analysis Set) - 2026 Base+Outline+Net, PM
- »(Default Analysis Set) - 2026 Base+Outline+Net, Sat

Summary of junction performance

	AM					PM					Sat				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2026 Base+Outline														
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2 - Site Access		0.2	4.38	0.19	A		0.4	4.34	0.30	A		0.5	4.55	0.36	A
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4 - Waterberry Drive		0.2	2.69	0.18	A		0.3	2.98	0.24	A		0.2	2.78	0.15	A
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4 - Waterberry Drive		0.2	2.70	0.18	A		0.3	3.16	0.25	A		0.2	2.85	0.16	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	Site Access_Elettra Avenue_Waterberry Drive
Location	waterloooville
Site number	
Date	14/06/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	17144
Enumerator	DTA\arcady
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2026 Base+Outline	AM	ONE HOUR	08:00	09:30	15	✓
D6	2026 Base+Outline	PM	ONE HOUR	17:00	18:30	15	✓
D9	2026 Base+Outline	Sat	ONE HOUR	12:30	14:00	15	✓
D10	2026 Base+Outline+Net	AM	ONE HOUR	08:00	09:30	15	✓
D11	2026 Base+Outline+Net	PM	ONE HOUR	17:00	18:30	15	✓
D12	2026 Base+Outline+Net	Sat	ONE HOUR	12:30	14:00	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	(Default Analysis Set)	✓	100.000	100.000

(Default Analysis Set) - 2026 Base+Outline, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Elettra Av (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	(untitled)	Standard Roundabout		1, 2, 3, 4	3.09	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.09	A

Arms

Arms

Arm	Name	Description	No give-way line
1	Elettra Av (east)		
2	Site Access		
3	Elettra Av (west)		
4	Waterberry Drive		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - Elettra Av (east)	3.00	7.40	41.5	25.7	44.0	19.5		
2 - Site Access	3.50	4.50	11.1	20.0	44.0	24.0		
3 - Elettra Av (west)	3.60	7.30	27.9	28.5	44.0	15.5		
4 - Waterberry Drive	3.76	7.50	13.4	55.4	44.0	11.5		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Elettra Av (east)	0.703	1994
2 - Site Access	0.563	1323
3 - Elettra Av (west)	0.709	2000
4 - Waterberry Drive	0.699	1903

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)	Run automatically
D5	2026 Base+Outline	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Elettra Av (east)		ONE HOUR	✓	697	100.000
2 - Site Access		ONE HOUR	✓	178	100.000
3 - Elettra Av (west)		ONE HOUR	✓	78	100.000
4 - Waterberry Drive		ONE HOUR	✓	278	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	3	211	124	359
	2 - Site Access	161	0	9	8
	3 - Elettra Av (west)	72	3	0	3
	4 - Waterberry Drive	261	12	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	0	0	2	1
	2 - Site Access	0	0	0	0
	3 - Elettra Av (west)	4	0	0	0
	4 - Waterberry Drive	6	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Elettra Av (east)	0.39	3.00	0.6	A	640	959
2 - Site Access	0.19	4.38	0.2	A	163	245
3 - Elettra Av (west)	0.05	2.49	0.1	A	72	107
4 - Waterberry Drive	0.18	2.69	0.2	A	255	383

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	525	131	15	1984	0.265	523	373	0.0	0.4	2.484	A
2 - Site Access	134	34	369	1115	0.120	133	170	0.0	0.1	3.666	A
3 - Elettra Av (west)	59	15	398	1717	0.034	59	104	0.0	0.0	2.250	A
4 - Waterberry Drive	209	52	179	1777	0.118	209	278	0.0	0.1	2.424	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	627	157	18	1982	0.316	626	446	0.4	0.5	2.678	A
2 - Site Access	160	40	441	1074	0.149	160	203	0.1	0.2	3.937	A
3 - Elettra Av (west)	70	18	477	1661	0.042	70	124	0.0	0.0	2.345	A
4 - Waterberry Drive	250	62	215	1753	0.143	250	332	0.1	0.2	2.529	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	767	192	22	1979	0.388	767	547	0.5	0.6	2.994	A
2 - Site Access	196	49	540	1018	0.192	196	249	0.2	0.2	4.375	A
3 - Elettra Av (west)	86	21	584	1586	0.054	86	152	0.0	0.1	2.488	A
4 - Waterberry Drive	306	77	263	1719	0.178	306	407	0.2	0.2	2.690	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	767	192	22	1979	0.388	767	547	0.6	0.6	2.996	A
2 - Site Access	196	49	541	1018	0.192	196	249	0.2	0.2	4.378	A
3 - Elettra Av (west)	86	21	585	1585	0.054	86	152	0.1	0.1	2.489	A
4 - Waterberry Drive	306	77	263	1719	0.178	306	407	0.2	0.2	2.690	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	627	157	18	1982	0.316	627	447	0.6	0.5	2.683	A
2 - Site Access	160	40	442	1074	0.149	160	203	0.2	0.2	3.943	A
3 - Elettra Av (west)	70	18	478	1661	0.042	70	124	0.1	0.0	2.346	A
4 - Waterberry Drive	250	62	215	1752	0.143	250	333	0.2	0.2	2.530	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	525	131	15	1984	0.265	525	374	0.5	0.4	2.489	A
2 - Site Access	134	34	370	1114	0.120	134	170	0.2	0.1	3.675	A
3 - Elettra Av (west)	59	15	400	1716	0.034	59	104	0.0	0.0	2.251	A
4 - Waterberry Drive	209	52	180	1777	0.118	209	279	0.2	0.1	2.427	A

(Default Analysis Set) - 2026 Base+Outline, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Elettra Av (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	(untitled)	Standard Roundabout		1, 2, 3, 4	3.12	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.12	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2026 Base+Outline	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Elettra Av (east)		ONE HOUR	✓	533	100.000
2 - Site Access		ONE HOUR	✓	320	100.000
3 - Elettra Av (west)		ONE HOUR	✓	92	100.000
4 - Waterberry Drive		ONE HOUR	✓	341	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	3	311	9	210
	2 - Site Access	310	0	6	4
	3 - Elettra Av (west)	87	2	0	3
	4 - Waterberry Drive	326	10	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	0	0	7	2
	2 - Site Access	0	0	0	0
	3 - Elettra Av (west)	1	0	0	0
	4 - Waterberry Drive	1	0	0	0

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Elettra Av (east)	0.30	2.60	0.4	A	489	734
2 - Site Access	0.30	4.34	0.4	A	294	440
3 - Elettra Av (west)	0.06	2.44	0.1	A	84	127
4 - Waterberry Drive	0.24	2.98	0.3	A	313	469

Main Results for each time segment

17:00 - 17:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	401	100	13	1986	0.202	400	545	0.0	0.3	2.290	A
2 - Site Access	241	60	170	1227	0.196	240	243	0.0	0.2	3.645	A
3 - Elettra Av (west)	69	17	395	1719	0.040	69	15	0.0	0.0	2.202	A
4 - Waterberry Drive	257	64	302	1692	0.152	256	163	0.0	0.2	2.529	A

17:15 - 17:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	479	120	15	1984	0.242	479	652	0.3	0.3	2.413	A
2 - Site Access	288	72	204	1208	0.238	287	290	0.2	0.3	3.911	A
3 - Elettra Av (west)	83	21	473	1664	0.050	83	18	0.0	0.1	2.297	A
4 - Waterberry Drive	307	77	361	1650	0.186	306	195	0.2	0.2	2.704	A

17:30 - 17:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	587	147	19	1981	0.296	586	799	0.3	0.4	2.604	A
2 - Site Access	352	88	250	1182	0.298	352	355	0.3	0.4	4.335	A
3 - Elettra Av (west)	101	25	580	1589	0.064	101	22	0.1	0.1	2.442	A
4 - Waterberry Drive	375	94	442	1594	0.236	375	239	0.2	0.3	2.982	A

17:45 - 18:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	587	147	19	1981	0.296	587	799	0.4	0.4	2.604	A
2 - Site Access	352	88	250	1182	0.298	352	356	0.4	0.4	4.339	A
3 - Elettra Av (west)	101	25	580	1588	0.064	101	22	0.1	0.1	2.443	A
4 - Waterberry Drive	375	94	443	1593	0.236	375	239	0.3	0.3	2.983	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	479	120	15	1984	0.242	480	653	0.4	0.3	2.416	A
2 - Site Access	288	72	204	1208	0.238	288	291	0.4	0.3	3.917	A
3 - Elettra Av (west)	83	21	474	1663	0.050	83	18	0.1	0.1	2.298	A
4 - Waterberry Drive	307	77	362	1650	0.186	307	195	0.3	0.2	2.708	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	401	100	13	1985	0.202	402	547	0.3	0.3	2.293	A
2 - Site Access	241	60	171	1226	0.196	241	243	0.3	0.2	3.654	A
3 - Elettra Av (west)	69	17	397	1718	0.040	69	15	0.1	0.0	2.205	A
4 - Waterberry Drive	257	64	303	1691	0.152	257	163	0.2	0.2	2.536	A

(Default Analysis Set) - 2026 Base+Outline, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Elettra Av (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	(untitled)	Standard Roundabout		1, 2, 3, 4	3.27	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.27	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)	Run automatically
D9	2026 Base+Outline	Sat	ONE HOUR	12:30	14:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Elettra Av (east)		ONE HOUR	✓	564	100.000
2 - Site Access		ONE HOUR	✓	396	100.000
3 - Elettra Av (west)		ONE HOUR	✓	63	100.000
4 - Waterberry Drive		ONE HOUR	✓	218	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	9	414	20	121
	2 - Site Access	393	0	1	2
	3 - Elettra Av (west)	50	8	0	5
	4 - Waterberry Drive	209	6	3	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	0	0	7	2
	2 - Site Access	0	0	0	0
	3 - Elettra Av (west)	1	0	0	0
	4 - Waterberry Drive	1	0	0	0

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Elettra Av (east)	0.31	2.66	0.5	A	518	776
2 - Site Access	0.36	4.55	0.5	A	363	545
3 - Elettra Av (west)	0.04	2.39	0.0	A	58	87
4 - Waterberry Drive	0.15	2.78	0.2	A	200	300

Main Results for each time segment

12:30 - 12:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	425	106	13	1986	0.214	424	496	0.0	0.3	2.319	A
2 - Site Access	298	75	115	1258	0.237	297	321	0.0	0.3	3.741	A
3 - Elettra Av (west)	47	12	394	1720	0.028	47	18	0.0	0.0	2.168	A
4 - Waterberry Drive	164	41	345	1662	0.099	164	96	0.0	0.1	2.426	A

12:45 - 13:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	507	127	15	1984	0.256	507	594	0.3	0.3	2.453	A
2 - Site Access	356	89	137	1245	0.286	356	385	0.3	0.4	4.045	A
3 - Elettra Av (west)	57	14	472	1665	0.034	57	22	0.0	0.0	2.255	A
4 - Waterberry Drive	196	49	413	1614	0.121	196	115	0.1	0.1	2.562	A

13:00 - 13:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	621	155	19	1981	0.313	621	727	0.3	0.5	2.663	A
2 - Site Access	436	109	168	1228	0.355	435	471	0.4	0.5	4.541	A
3 - Elettra Av (west)	69	17	577	1590	0.044	69	26	0.0	0.0	2.385	A
4 - Waterberry Drive	240	60	506	1549	0.155	240	141	0.1	0.2	2.775	A

13:15 - 13:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	621	155	19	1981	0.313	621	728	0.5	0.5	2.663	A
2 - Site Access	436	109	168	1228	0.355	436	471	0.5	0.5	4.546	A
3 - Elettra Av (west)	69	17	578	1590	0.044	69	26	0.0	0.0	2.386	A
4 - Waterberry Drive	240	60	506	1549	0.155	240	141	0.2	0.2	2.776	A

13:30 - 13:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	507	127	15	1984	0.256	507	595	0.5	0.3	2.456	A
2 - Site Access	356	89	138	1245	0.286	357	385	0.5	0.4	4.054	A
3 - Elettra Av (west)	57	14	473	1665	0.034	57	22	0.0	0.0	2.256	A
4 - Waterberry Drive	196	49	414	1613	0.121	196	115	0.2	0.1	2.566	A

13:45 - 14:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	425	106	13	1985	0.214	425	498	0.3	0.3	2.322	A
2 - Site Access	298	75	115	1258	0.237	298	322	0.4	0.3	3.756	A
3 - Elettra Av (west)	47	12	396	1719	0.028	47	18	0.0	0.0	2.171	A
4 - Waterberry Drive	164	41	347	1660	0.099	164	96	0.1	0.1	2.428	A

(Default Analysis Set) - 2026 Base+Outline+Net, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Elettra Av (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	(untitled)	Standard Roundabout		1, 2, 3, 4	3.14	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.14	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)	Run automatically
D10	2026 Base+Outline+Net	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Elettra Av (east)		ONE HOUR	✓	717	100.000
2 - Site Access		ONE HOUR	✓	184	100.000
3 - Elettra Av (west)		ONE HOUR	✓	78	100.000
4 - Waterberry Drive		ONE HOUR	✓	278	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	3	231	124	359
	2 - Site Access	167	0	9	8
	3 - Elettra Av (west)	72	3	0	3
	4 - Waterberry Drive	261	12	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	0	0	2	1
	2 - Site Access	0	0	0	0
	3 - Elettra Av (west)	4	0	0	0
	4 - Waterberry Drive	6	0	0	0

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Elettra Av (east)	0.40	3.05	0.7	A	658	987
2 - Site Access	0.20	4.41	0.2	A	169	253
3 - Elettra Av (west)	0.05	2.50	0.1	A	72	107
4 - Waterberry Drive	0.18	2.70	0.2	A	255	383

Main Results for each time segment

08:00 - 08:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	540	135	15	1984	0.272	538	378	0.0	0.4	2.509	A
2 - Site Access	139	35	369	1115	0.124	138	185	0.0	0.1	3.682	A
3 - Elettra Av (west)	59	15	403	1714	0.034	59	104	0.0	0.0	2.254	A
4 - Waterberry Drive	209	52	184	1774	0.118	209	278	0.0	0.1	2.428	A

08:15 - 08:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	645	161	18	1982	0.325	644	452	0.4	0.5	2.714	A
2 - Site Access	165	41	441	1074	0.154	165	221	0.1	0.2	3.961	A
3 - Elettra Av (west)	70	18	482	1658	0.042	70	124	0.0	0.0	2.350	A
4 - Waterberry Drive	250	62	220	1749	0.143	250	332	0.1	0.2	2.535	A

08:30 - 08:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	789	197	22	1979	0.399	789	553	0.5	0.7	3.048	A
2 - Site Access	203	51	540	1018	0.199	202	271	0.2	0.2	4.410	A
3 - Elettra Av (west)	86	21	591	1581	0.054	86	152	0.0	0.1	2.496	A
4 - Waterberry Drive	306	77	269	1714	0.179	306	407	0.2	0.2	2.699	A

08:45 - 09:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	789	197	22	1979	0.399	789	554	0.7	0.7	3.051	A
2 - Site Access	203	51	541	1018	0.199	203	271	0.2	0.2	4.413	A
3 - Elettra Av (west)	86	21	591	1580	0.054	86	152	0.1	0.1	2.496	A
4 - Waterberry Drive	306	77	270	1714	0.179	306	407	0.2	0.2	2.699	A

09:00 - 09:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	645	161	18	1982	0.325	645	453	0.7	0.5	2.717	A
2 - Site Access	165	41	442	1074	0.154	166	221	0.2	0.2	3.965	A
3 - Elettra Av (west)	70	18	483	1657	0.042	70	124	0.1	0.0	2.351	A
4 - Waterberry Drive	250	62	221	1749	0.143	250	333	0.2	0.2	2.539	A

09:15 - 09:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	540	135	15	1984	0.272	540	379	0.5	0.4	2.514	A
2 - Site Access	139	35	370	1114	0.124	139	185	0.2	0.1	3.692	A
3 - Elettra Av (west)	59	15	405	1713	0.034	59	104	0.0	0.0	2.256	A
4 - Waterberry Drive	209	52	185	1774	0.118	209	279	0.2	0.1	2.430	A

(Default Analysis Set) - 2026 Base+Outline+Net, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Elettra Av (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	(untitled)	Standard Roundabout		1, 2, 3, 4	3.45	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.45	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)	Run automatically
D11	2026 Base+Outline+Net	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Elettra Av (east)		ONE HOUR	✓	588	100.000
2 - Site Access		ONE HOUR	✓	410	100.000
3 - Elettra Av (west)		ONE HOUR	✓	92	100.000
4 - Waterberry Drive		ONE HOUR	✓	341	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	3	366	9	210
	2 - Site Access	400	0	6	4
	3 - Elettra Av (west)	87	2	0	3
	4 - Waterberry Drive	326	10	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	0	0	7	2
	2 - Site Access	0	0	0	0
	3 - Elettra Av (west)	1	0	0	0
	4 - Waterberry Drive	1	0	0	0

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Elettra Av (east)	0.33	2.72	0.5	A	540	809
2 - Site Access	0.38	4.93	0.6	A	376	564
3 - Elettra Av (west)	0.07	2.56	0.1	A	84	127
4 - Waterberry Drive	0.25	3.16	0.3	A	313	469

Main Results for each time segment

17:00 - 17:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	443	111	13	1986	0.223	442	612	0.0	0.3	2.349	A
2 - Site Access	309	77	170	1227	0.252	307	284	0.0	0.3	3.910	A
3 - Elettra Av (west)	69	17	463	1672	0.041	69	15	0.0	0.0	2.267	A
4 - Waterberry Drive	257	64	369	1645	0.156	256	163	0.0	0.2	2.615	A

17:15 - 17:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	529	132	15	1984	0.266	528	733	0.3	0.4	2.493	A
2 - Site Access	369	92	204	1208	0.305	368	340	0.3	0.4	4.286	A
3 - Elettra Av (west)	83	21	554	1607	0.051	83	18	0.0	0.1	2.384	A
4 - Waterberry Drive	307	77	442	1594	0.192	306	195	0.2	0.2	2.822	A

17:30 - 17:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	647	162	19	1981	0.327	647	897	0.4	0.5	2.720	A
2 - Site Access	451	113	250	1182	0.382	451	416	0.4	0.6	4.919	A
3 - Elettra Av (west)	101	25	678	1519	0.067	101	22	0.1	0.1	2.563	A
4 - Waterberry Drive	375	94	541	1525	0.246	375	239	0.2	0.3	3.162	A

17:45 - 18:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	647	162	19	1981	0.327	647	898	0.5	0.5	2.720	A
2 - Site Access	451	113	250	1182	0.382	451	416	0.6	0.6	4.928	A
3 - Elettra Av (west)	101	25	679	1518	0.067	101	22	0.1	0.1	2.564	A
4 - Waterberry Drive	375	94	542	1524	0.246	375	239	0.3	0.3	3.163	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	529	132	15	1984	0.266	529	735	0.5	0.4	2.495	A
2 - Site Access	369	92	204	1208	0.305	369	340	0.6	0.4	4.299	A
3 - Elettra Av (west)	83	21	556	1606	0.052	83	18	0.1	0.1	2.385	A
4 - Waterberry Drive	307	77	443	1593	0.192	307	195	0.3	0.2	2.828	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	443	111	13	1985	0.223	443	615	0.4	0.3	2.352	A
2 - Site Access	309	77	171	1226	0.252	309	285	0.4	0.3	3.926	A
3 - Elettra Av (west)	69	17	465	1670	0.041	69	15	0.1	0.0	2.271	A
4 - Waterberry Drive	257	64	371	1644	0.156	257	163	0.2	0.2	2.623	A

(Default Analysis Set) - 2026 Base+Outline+Net, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Elettra Av (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	(untitled)	Standard Roundabout		1, 2, 3, 4	3.44	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.44	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)	Run automatically
D12	2026 Base+Outline+Net	Sat	ONE HOUR	12:30	14:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Elettra Av (east)		ONE HOUR	✓	603	100.000
2 - Site Access		ONE HOUR	✓	439	100.000
3 - Elettra Av (west)		ONE HOUR	✓	63	100.000
4 - Waterberry Drive		ONE HOUR	✓	218	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	9	453	20	121
	2 - Site Access	436	0	1	2
	3 - Elettra Av (west)	50	8	0	5
	4 - Waterberry Drive	209	6	3	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Elettra Av (east)	2 - Site Access	3 - Elettra Av (west)	4 - Waterberry Drive
	1 - Elettra Av (east)	0	0	7	2
	2 - Site Access	0	0	0	0
	3 - Elettra Av (west)	1	0	0	0
	4 - Waterberry Drive	1	0	0	0

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Elettra Av (east)	0.34	2.75	0.5	A	553	830
2 - Site Access	0.39	4.84	0.6	A	403	604
3 - Elettra Av (west)	0.04	2.44	0.0	A	58	87
4 - Waterberry Drive	0.16	2.85	0.2	A	200	300

Main Results for each time segment

12:30 - 12:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	454	113	13	1986	0.229	453	528	0.0	0.3	2.362	A
2 - Site Access	331	83	115	1258	0.263	329	351	0.0	0.4	3.871	A
3 - Elettra Av (west)	47	12	426	1698	0.028	47	18	0.0	0.0	2.198	A
4 - Waterberry Drive	164	41	377	1639	0.100	164	96	0.0	0.1	2.463	A

12:45 - 13:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	542	136	15	1984	0.273	542	632	0.3	0.4	2.511	A
2 - Site Access	395	99	137	1245	0.317	394	420	0.4	0.5	4.229	A
3 - Elettra Av (west)	57	14	510	1638	0.035	57	22	0.0	0.0	2.294	A
4 - Waterberry Drive	196	49	452	1587	0.123	196	115	0.1	0.1	2.612	A

13:00 - 13:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	664	166	19	1981	0.335	663	774	0.4	0.5	2.746	A
2 - Site Access	483	121	168	1228	0.394	483	514	0.5	0.6	4.826	A
3 - Elettra Av (west)	69	17	625	1557	0.045	69	26	0.0	0.0	2.438	A
4 - Waterberry Drive	240	60	553	1516	0.158	240	141	0.1	0.2	2.847	A

13:15 - 13:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	664	166	19	1981	0.335	664	775	0.5	0.5	2.748	A
2 - Site Access	483	121	168	1228	0.394	483	514	0.6	0.6	4.835	A
3 - Elettra Av (west)	69	17	625	1556	0.045	69	26	0.0	0.0	2.439	A
4 - Waterberry Drive	240	60	554	1516	0.158	240	141	0.2	0.2	2.848	A

13:30 - 13:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	542	136	15	1984	0.273	543	634	0.5	0.4	2.513	A
2 - Site Access	395	99	138	1245	0.317	395	420	0.6	0.5	4.240	A
3 - Elettra Av (west)	57	14	511	1637	0.035	57	22	0.0	0.0	2.297	A
4 - Waterberry Drive	196	49	453	1586	0.124	196	115	0.2	0.1	2.616	A

13:45 - 14:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Elettra Av (east)	454	113	13	1985	0.229	454	531	0.4	0.3	2.365	A
2 - Site Access	331	83	115	1258	0.263	331	352	0.5	0.4	3.887	A
3 - Elettra Av (west)	47	12	428	1696	0.028	47	18	0.0	0.0	2.200	A
4 - Waterberry Drive	164	41	379	1638	0.100	164	96	0.1	0.1	2.466	A



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