

LAND AT NORTH WEST BICESTER

TRANSPORT ASSESSMENT VOL 2 (iv) – APPENDIX O - P

PROJECT NO. 4600/1100 DOC NO. D002

DATE: APRIL 2021

VERSION: 0.4

CLIENT: FIRETHORN TRUST

FirethornTRUST 

Velocity Transport Planning Ltd
www.velocity-tp.com



VELOCITY
Transport Planning

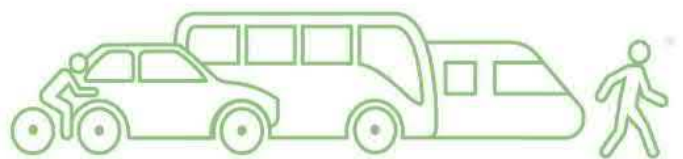
APPENDICES

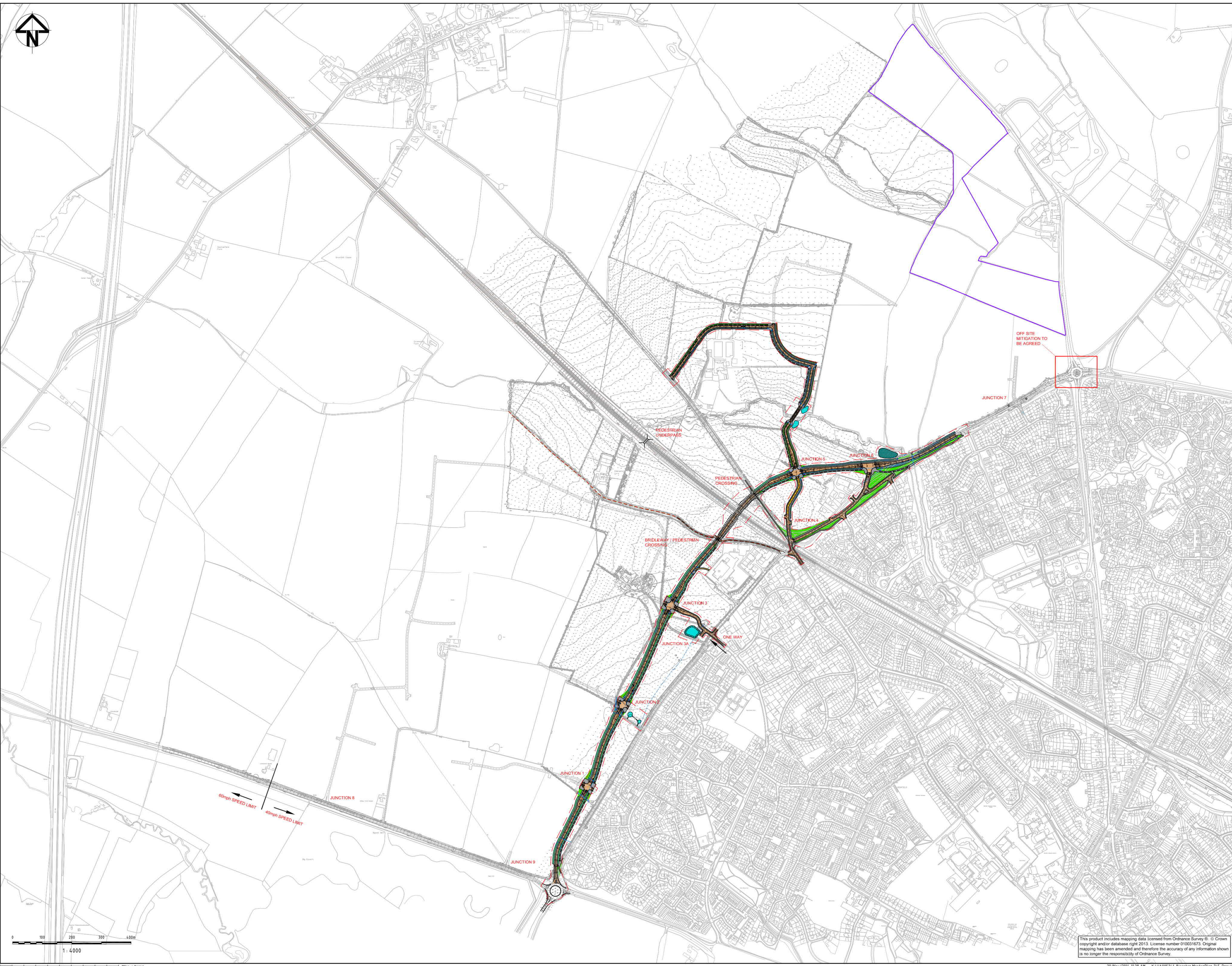
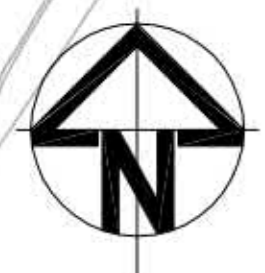
APPENDIX A	PROPOSED DEVELOPMENT ILLUSTRATIVE MASTERPLAN
APPENDIX B	TA SCOPING REPORT & ASSOCIATED RESPONSES
APPENDIX C	NW BICESTER MOVEMENT & ACCESS FRAMEWORK PLAN
APPENDIX D	LCWIP – CABINET REPORT & PLAN
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APPENDIX H	OCC RESIDENTIAL DESIGN GUIDE EXTRACTS
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APPENDIX M	B4100/A43 BAYNARDS GREEN ROUNDABOUT SCHEME
APPENDIX N	B4100/A4095/BANBURY ROAD ROUNDABOUT SCHEME
APPENDIX O	A4095 STRATEGIC HIGHWAY LINK ROUNDABOUT SCHEME
APPENDIX P	B4100/CHARLOTTE AVENUE SIGNAL SCHEME



APPENDIX O

A4095 Strategic Highway Link Roundabout Scheme





KEY

- EXEMPLAR SITE BOUNDARY
- PLANNING APPLICATION 3 BOUNDARY
- CARRIAGEWAY
- BUS ONLY LINK
- - - BRIDLE WAY
- SWALE
- VERGE/LANDSCAPE
- FOOTWAY / CYCLEWAY (FOOTWAY 2.5m / 3.0m WIDE)
(CYCLEWAY 2.5m WIDE)
- - - PIPED DRAINAGE
- DRAINAGE POND

OFF SITE MITIGATION TO BE AGREED

60mph SPEED LIMIT
40mph SPEED LIMIT

Issue	Description	Date
03	FOR PLANNING	20-11-14
02	JUNCTION LAYOUTS REVISED	09-07-14
01	DRAFT ISSUE FOR DISCUSSION	JUL 14

FOR PLANNING	
Scale	1:4000
Original Size	A0
Height	NEWLYN
Grid	O.S.
Filename	125-UA005241-UP33-03- HIGHWAY LAYOUT DWG



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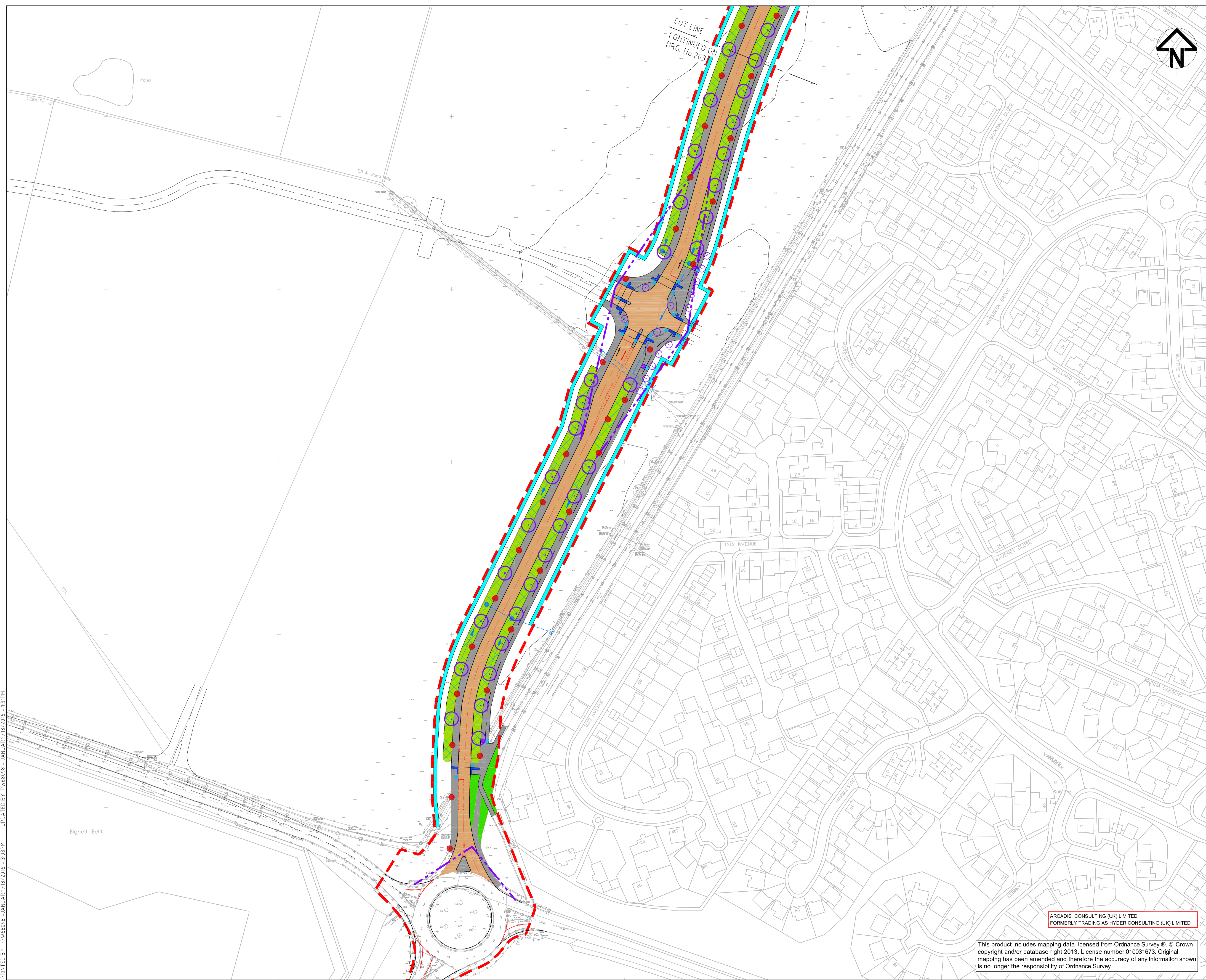
Project
A4095 NW STRATEGIC LINK ROAD BICESTER

Title
HIGHWAY LAYOUT MASTERPLAN

Drawing No	Project No	Issue
125	UA005241	03

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CAD FILE: K:\UA005241-Bicester MasterPlan 2VE-Drawings\Current Drgs\204-UA005241-UP33-04 - Detailed General Arrangement Plan Sheet 4 of 5.dwg
 PRINTED BY: PWS6036 - JANUARY 17/2016 - 3:03PM
 UPDATED BY: PWS6036 - JANUARY 17/2016 - 13:31PM



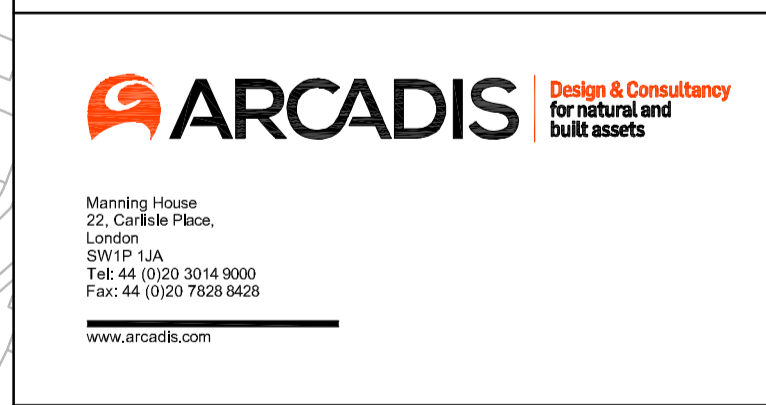
KEY

- CARRIAGEWAY
- FOOTWAY / CYCLEWAY
- VERGE
- SUDS FEATURE
- BUS ONLY LANES
- BRIDLEWAY/FOOTPATH/CYCLEWAY
- VISIBILITY SPLAY
- PLANNING APPLICATION BOUNDARY 3
- 2M BUFFER ZONE
- CONTROLLED COMBINED CROSSING TACTILE PAVING
- FOOTWAY - CORDUROY TACTILE PAVING
CYCLEWAY - CORDUROY TACTILE PAVING
- UNCONTROLLED CROSSING TACTILE PAVING
- TRAFFIC LIGHT
- LIGHTING COLUMN
- MANHOLE
- SWALE OUTLET CHAMBER
- CULVERT WITH HEADWALL
- PIPED DRAINAGE
- TREE
- ROAD MARKINGS

Issue	Description	Date
04	A4095 ADDENDUM ISSUE	JAN 16
03	LAYOUT UPDATED	16-10-15
02	VISION SPLAYS ADDED AND ROAD MARKINGS ENHANCED	31-07-15
01	FIRST ISSUE	19-11-14

FOR PLANNING			
Scale	1:1000	Current Issue Signatures	
Original Size	A1	Author	PS
Height Datum	O.S.	Checker	PW
Grid	O.S.	Approver	SAD
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Filename: 204-UA005241-UP33-04- DETAILED GENERAL ARRANGEMENT PLAN SHEET 4 OF 5.DWG



Project

**A4095 NW STRATEGIC
LINK ROAD BICESTER**

Title

**DETAILED GENERAL
ARRANGEMENT PLAN
(SHEET 4 OF 5)**

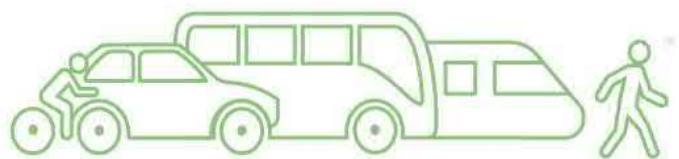
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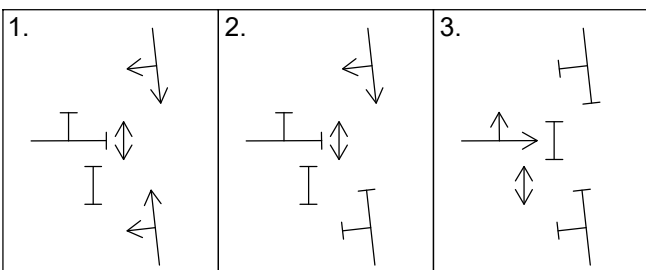
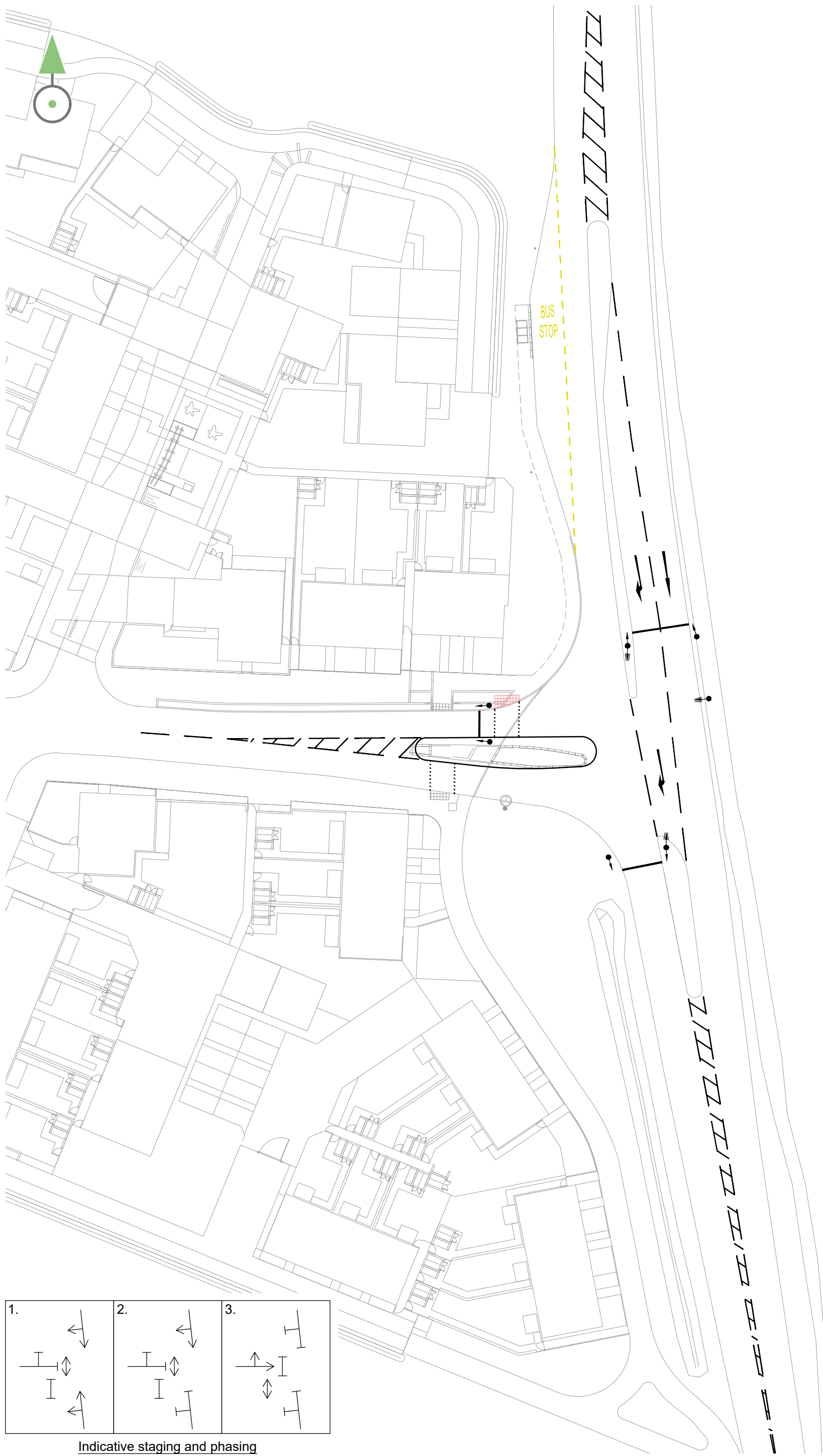
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APPENDIX P

B4100/Charlotte Avenue Signal Scheme





Indicative staging and phasing

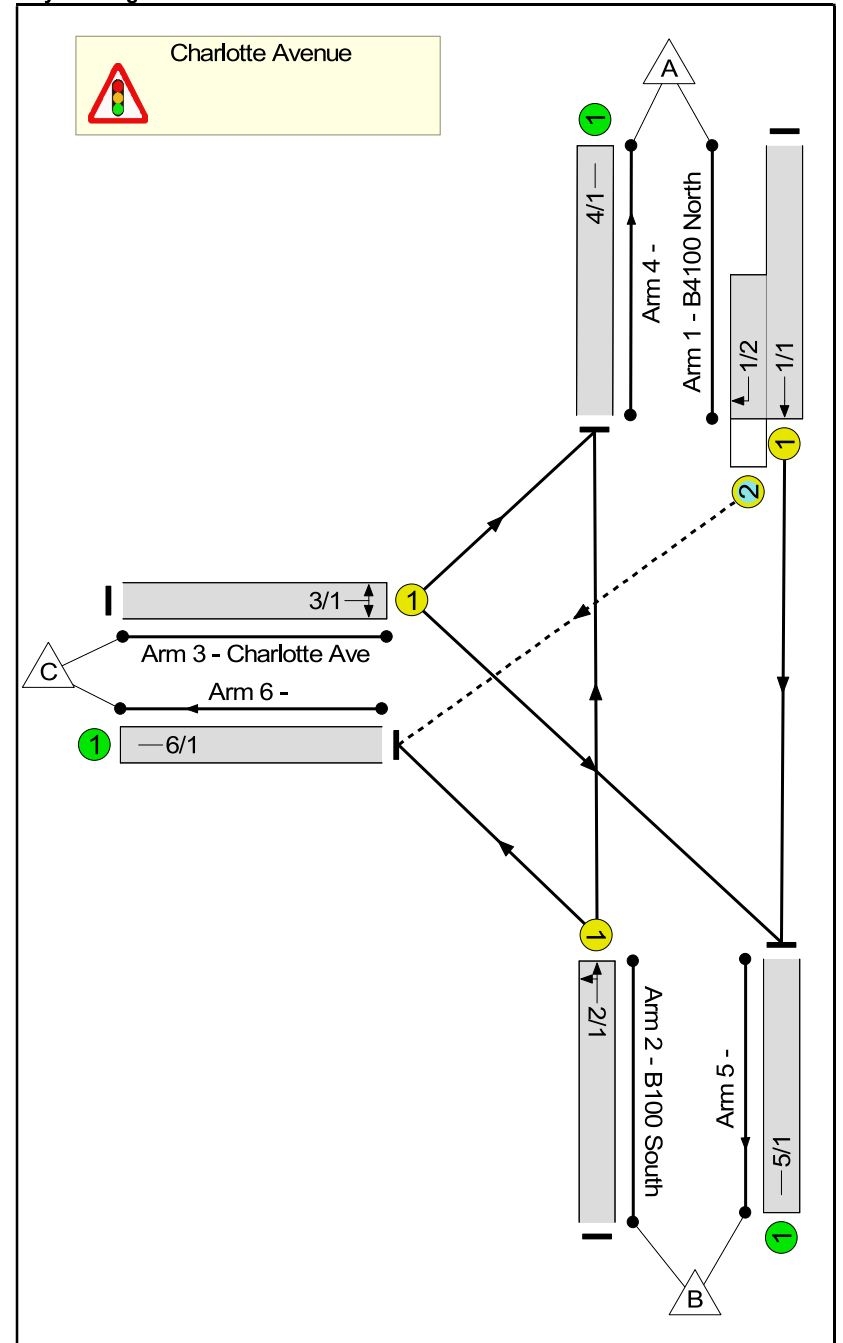
B	13.04.21	Staging diagram amended	MP
A	25.03.21	First issue	MP
REV	DATE	COMMENT	APP
REVISION DETAILS			
DRAWING NO.			
4600-1100-T-016			
DRAWN	APPROVED	DATE	
TC	MP	MAR 21	
SCALE		REV	
1:500 @ A3		B	



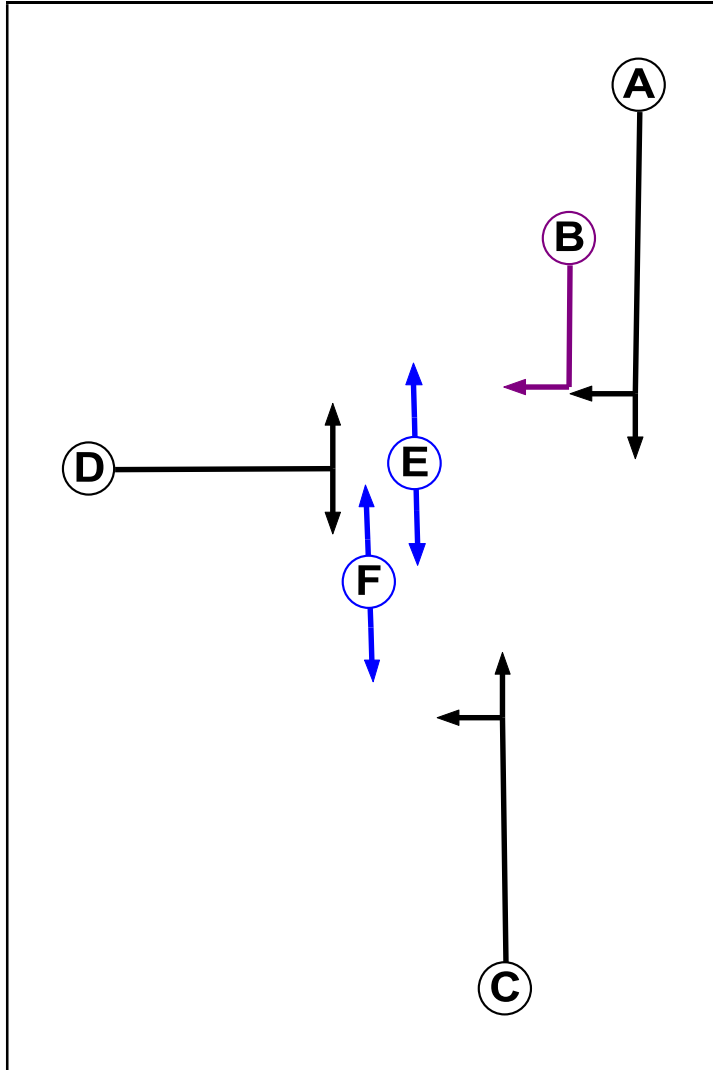
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Charlotte Ave traffic signals V2.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Ind. Arrow	A	4	4
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		6	6
F	Pedestrian		6	6

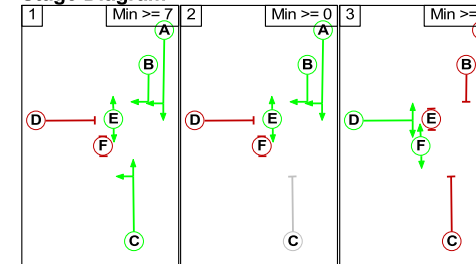
Phase Intergreens Matrix

		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A	-	-	5	-	10	
	B	-	-	5	-	10	
	C	-	-	-	5	-	8
	D	6	6	5	-	5	-
	E	-	-	-	-	6	-
	F	6	6	6	-	-	-

Phases in Stage

Stage No.	Phases in Stage
1	A B C E
2	A B E
3	D F

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1	0	10	
	2	2	10	
	3	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Charlotte Avenue											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (B4100 North)	6/1 (Right)	1439	0	2/1	1.09	All	2.00	-	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Charlotte Avenue												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (B4100 North)	U	A	2	3	60.0	Geom	-	3.80	0.00	Y	Arm 5 Ahead	Inf
1/2 (B4100 North)	O	A B	2	3	6.0	Geom	-	3.70	0.00	Y	Arm 6 Right	8.00
2/1 (B100 South)	U	C	2	3	35.7	Geom	-	5.00	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Left	18.00
3/1 (Charlotte Ave)	U	D	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 4 Left	12.00
											Arm 5 Right	13.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2031 + Dev AM Peak'	08:00	09:00	01:00	
2: '2031 + Dev PM Peak'	17:00	18:00	01:00	

Scenario 1: '2031 + Dev AM Peak' (FG1: '2031 + Dev AM Peak', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
A	0	1224	45	1269	
B	689	0	350	1039	
C	15	227	0	242	
Tot.	704	1451	395	2550	

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2031 + Dev AM Peak
Junction: Charlotte Avenue	
1/1 (with short)	1269(In) 1224(Out)
1/2 (short)	45
2/1	1039
3/1	242
4/1	704
5/1	1451
6/1	395

Lane Saturation Flows

Junction: Charlotte Avenue								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B4100 North)	3.80	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1995	1995
1/2 (B4100 North)	3.70	0.00	Y	Arm 6 Right	8.00	100.0 %	1672	1672
2/1 (B100 South)	5.00	0.00	Y	Arm 4 Ahead	Inf	66.3 %	2057	2057
				Arm 6 Left	18.00	33.7 %		
3/1 (Charlotte Ave)	3.50	0.00	Y	Arm 4 Left	12.00	6.2 %	1761	1761
				Arm 5 Right	13.00	93.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2031 + Dev PM Peak' (FG2: '2031 + Dev PM Peak', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
A	0	982	14	996	
B	1003	0	225	1228	
C	10	190	0	200	
Tot.	1013	1172	239	2424	

Full Input Data And Results

Traffic Lane Flows

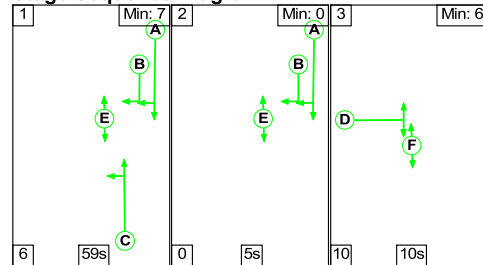
Lane	Scenario 2: 2031 + Dev PM Peak
Junction: Charlotte Avenue	
1/1 (with short)	996(In) 982(Out)
1/2 (short)	14
2/1	1228
3/1	200
4/1	1013
5/1	1172
6/1	239

Lane Saturation Flows

Junction: Charlotte Avenue								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B4100 North)	3.80	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1995	1995
1/2 (B4100 North)	3.70	0.00	Y	Arm 6 Right	8.00	100.0 %	1672	1672
2/1 (B100 South)	5.00	0.00	Y	Arm 4 Ahead	Inf	81.7 %	2083	2083
				Arm 6 Left	18.00	18.3 %		
3/1 (Charlotte Ave)	3.50	0.00	Y	Arm 4 Left	12.00	5.0 %	1761	1761
				Arm 5 Right	13.00	95.0 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2031 + Dev AM Peak' (FG1: '2031 + Dev AM Peak', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

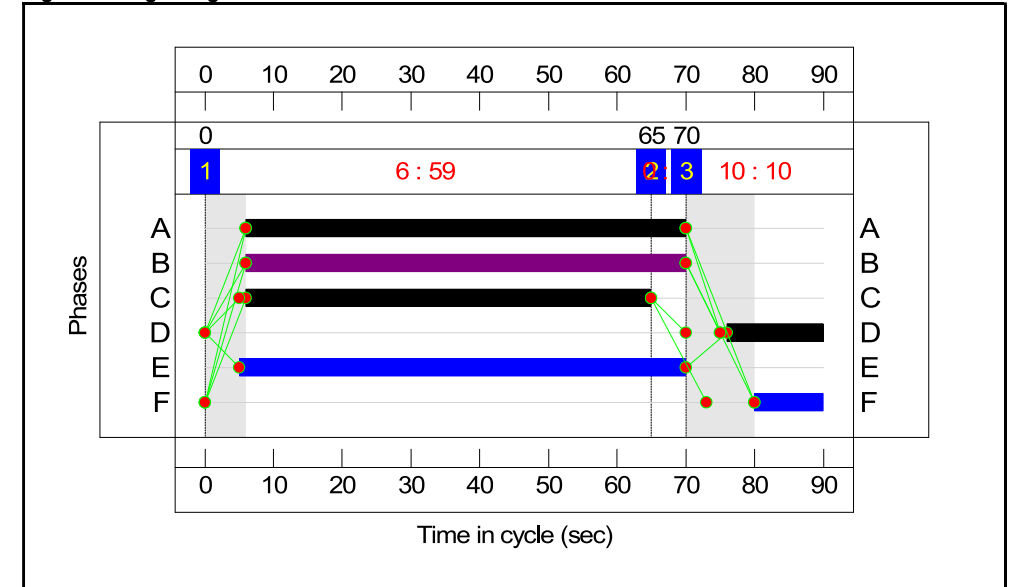


Full Input Data And Results

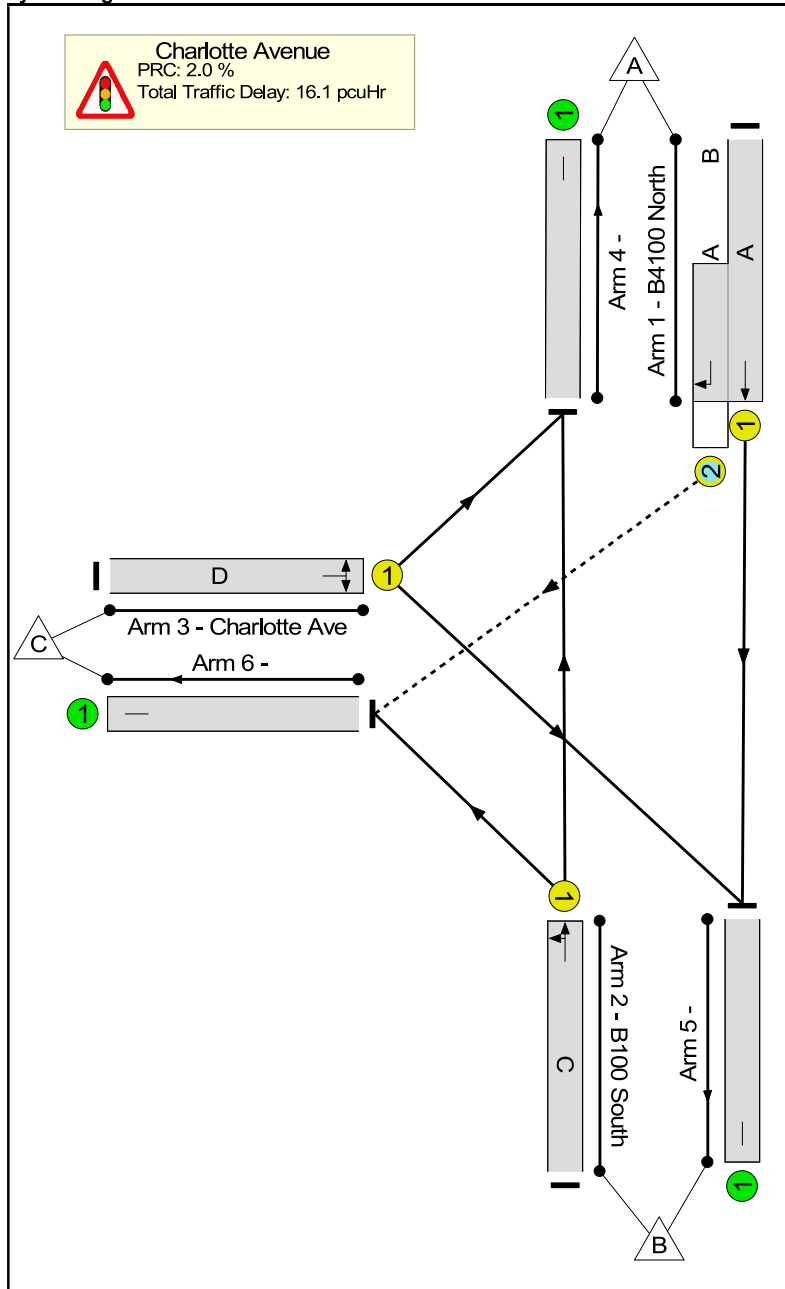
Stage Timings

Stage	1	2	3
Duration	59	5	10
Change Point	0	65	70

Signal Timings Diagram



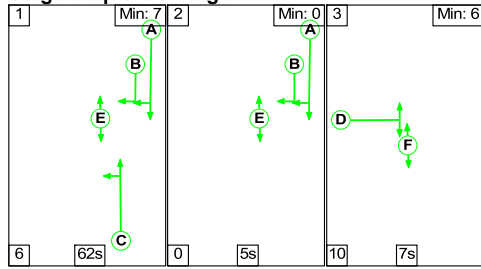
Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-	-	-	-	-	-	-	-	88.3%
Charlotte Avenue	-	-	N/A	-	-	-	-	-	-	-	-	-	88.3%
1/1+1/2	B4100 North Ahead Right	U+O	N/A	N/A	A	B	1	64	64	1269	1995:1672	1387+51	88.3 : 88.3%
2/1	B100 South Ahead Left	U	N/A	N/A	C		1	59	-	1039	2057	1371	75.8%
3/1	Charlotte Ave Left Right	U	N/A	N/A	D		1	14	-	242	1761	294	82.5%
4/1		U	N/A	N/A	-		-	-	-	704	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	1451	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	43	2	1	8.7	7.3	0.1	16.1	-	-	-	-
Charlotte Avenue	-	-	43	2	1	8.7	7.3	0.1	16.1	-	-	-	-
1/1+1/2	1269	1269	43	2	1	3.3	3.6	0.1	7.1	20.1	23.7	3.6	27.4
2/1	1039	1039	-	-	-	2.9	1.5	-	4.5	15.5	17.3	1.5	18.9
3/1	242	242	-	-	-	2.4	2.2	-	4.6	68.5	5.8	2.2	7.9
4/1	704	704	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1451	1451	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1			PRC for Signalled Lanes (%): 2.0		Total Delay for Signalled Lanes (pcuHr): 16.14		Cycle Time (s): 90						
			PRC Over All Lanes (%): 2.0		Total Delay Over All Lanes(pcuHr): 16.14								

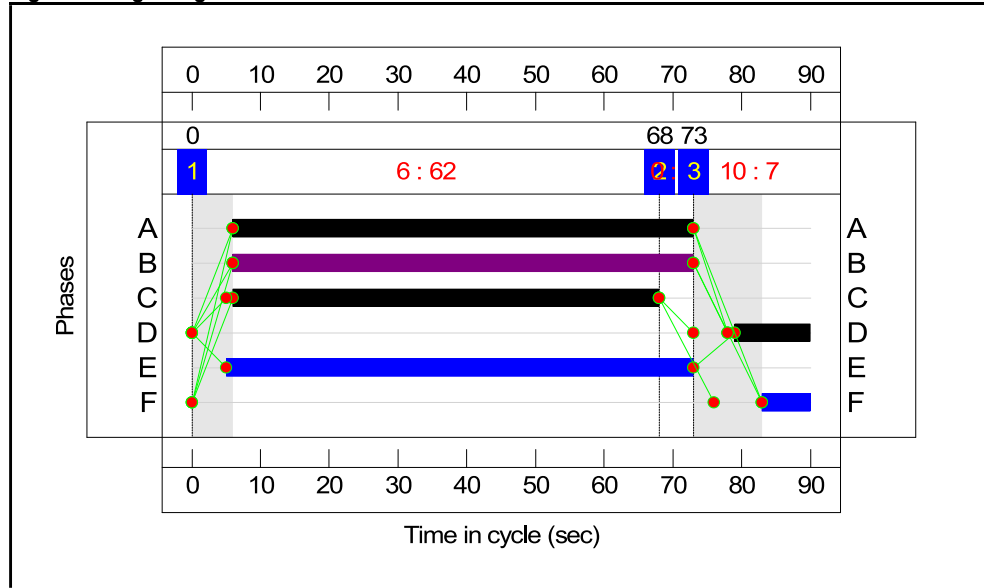
Stage Sequence Diagram



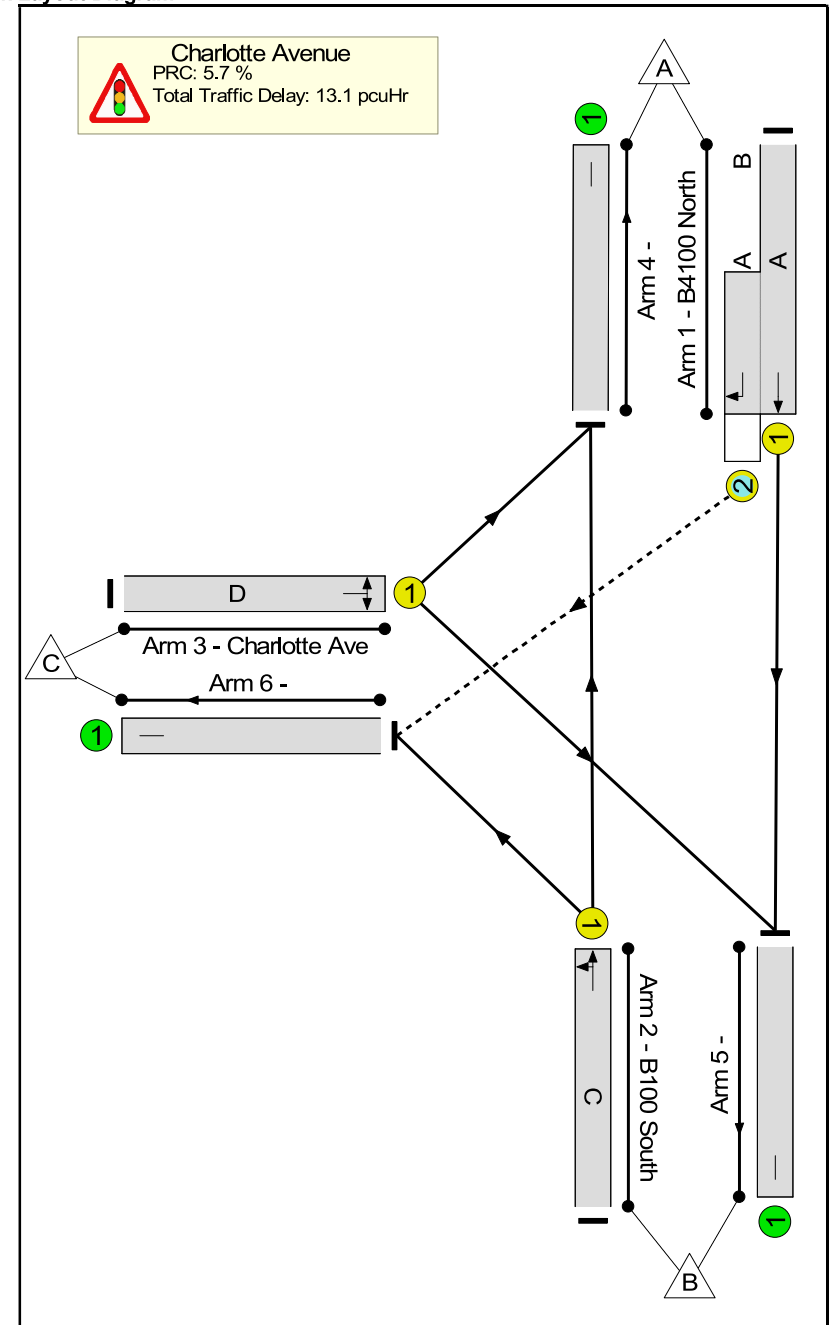
Stage Timings

Stage	1	2	3
Duration	62	5	7
Change Point	0	68	73

Signal Timings Diagram



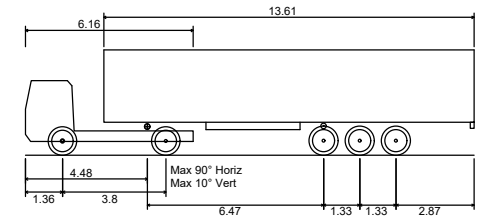
Network Layout Diagram



Full Input Data And Results

Network Results

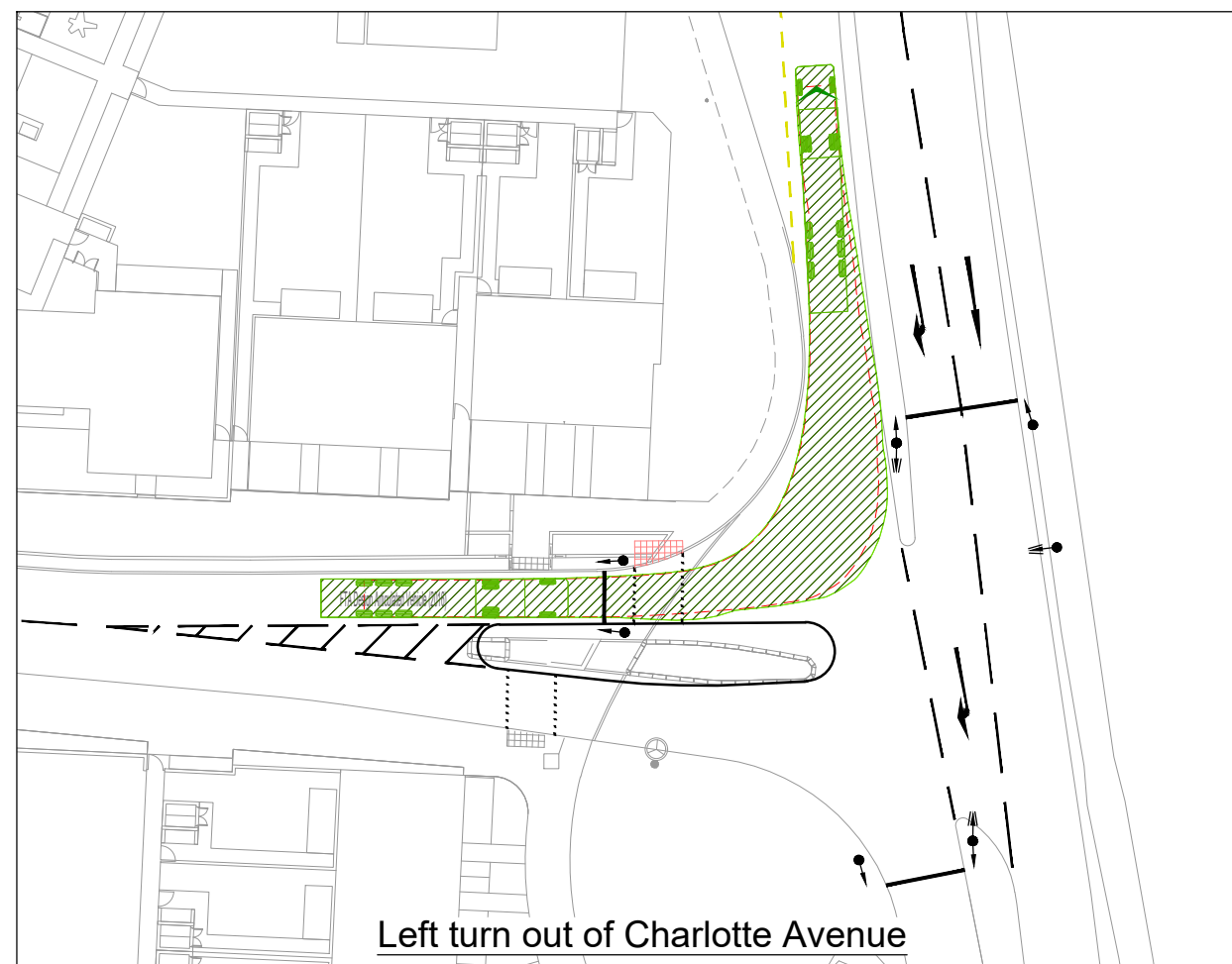
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	85.2%
Charlotte Avenue	-	-	N/A	-	-		-	-	-	-	-	-	85.2%
1/1+1/2	B4100 North Ahead Right	U+O	N/A	N/A	A	B	1	67	67	996	1995:1672	1482+21	66.2 : 66.2%
2/1	B100 South Ahead Left	U	N/A	N/A	C		1	62	-	1228	2083	1458	84.2%
3/1	Charlotte Ave Left Right	U	N/A	N/A	D		1	11	-	200	1761	235	85.2%
4/1		U	N/A	N/A	-		-	-	-	1013	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	1172	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	239	Inf	Inf	0.0%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	13	0	0	7.0	6.1	0.1	13.1	-	-	-	-
Charlotte Avenue	-	-	13	0	0	7.0	6.1	0.1	13.1	-	-	-	-
1/1+1/2	996	996	13	0	0	1.5	1.0	0.1	2.5	9.2	12.1	1.0	13.1
2/1	1228	1228	-	-	-	3.4	2.6	-	6.0	17.5	22.2	2.6	24.8
3/1	200	200	-	-	-	2.1	2.5	-	4.6	83.3	4.8	2.5	7.3
4/1	1013	1013	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1172	1172	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	239	239	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1			PRC for Signalled Lanes (%):	5.7	Total Delay for Signalled Lanes (pcuHr):	13.14	Cycle Time (s):	90					
			PRC Over All Lanes (%):	5.7	Total Delay Over All Lanes(pcuHr):	13.14							



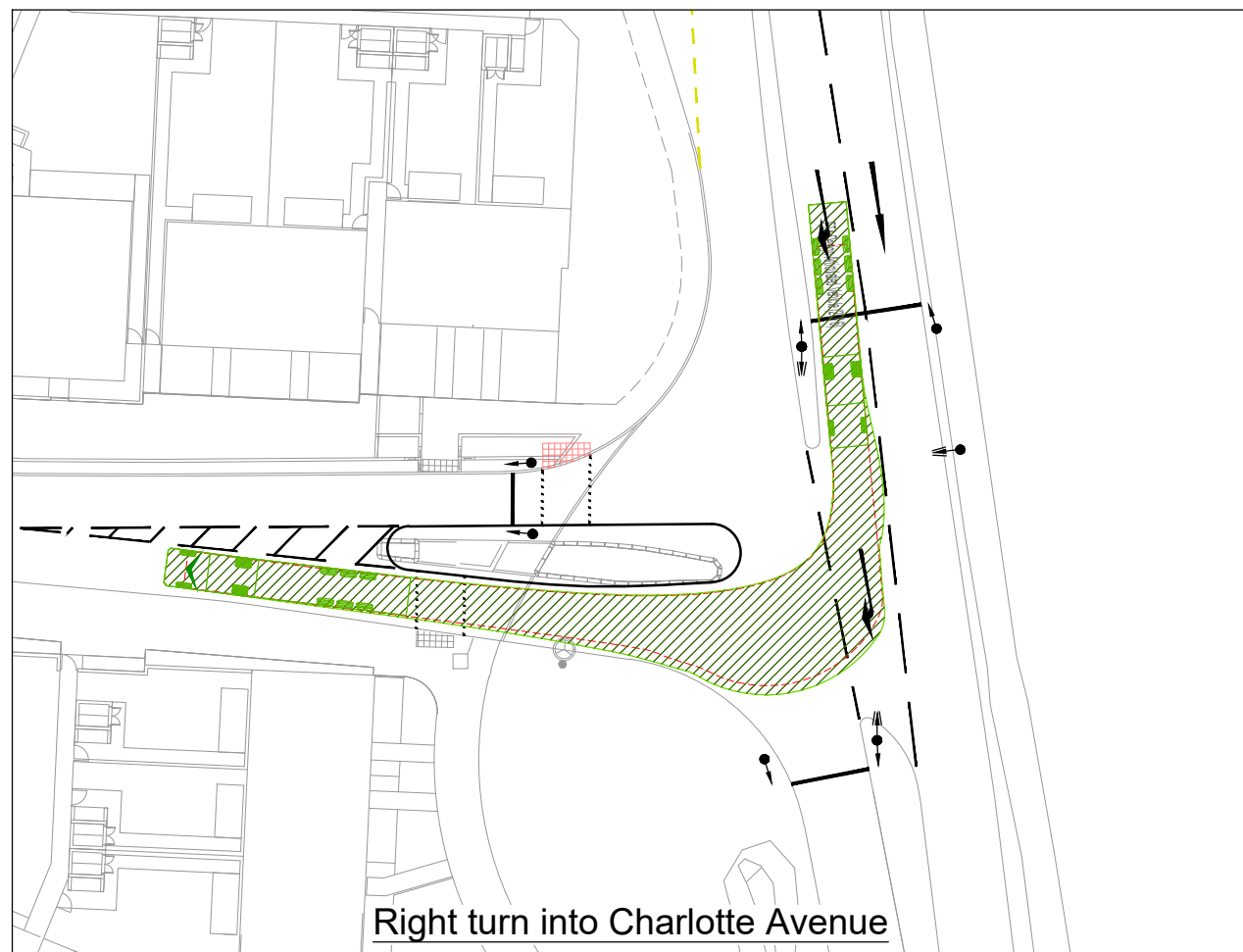
FTA Design Articulated Vehicle (1998)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.550m



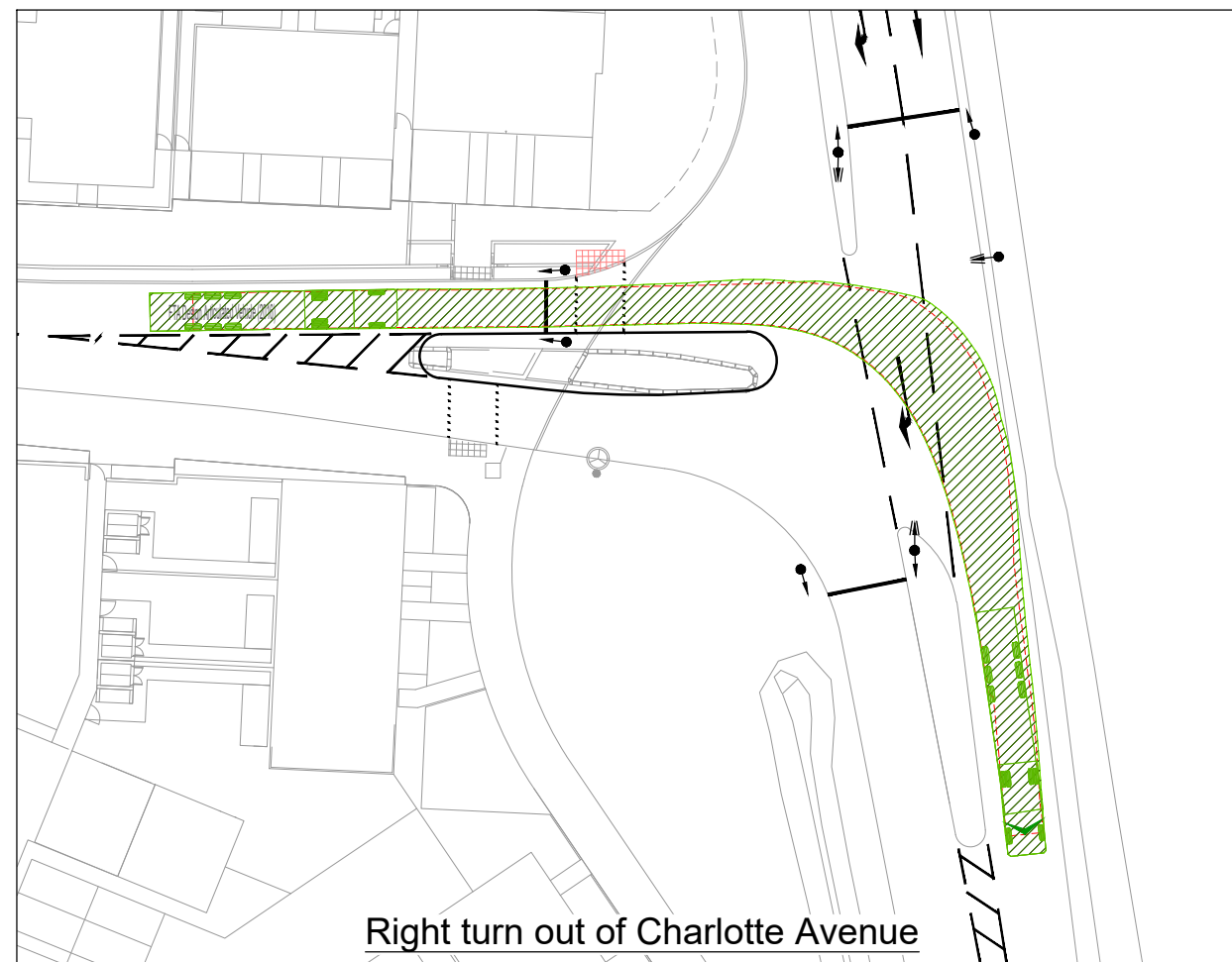
Left turn into Charlotte Avenue



Left turn out of Charlotte Avenue



Right turn into Charlotte Avenue



Right turn out of Charlotte Avenue

REV	DATE	COMMENT	APP
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REVISION DETAILS			
DRAWING NO.			
4600-1 100-T-020			
DRAWN		APPROVED	DATE
TC		MK	APR 21
SCALE			REV
1:500 @ A3			A



