

Technical Note

To: Whom it May Concern
From: Richard Manock
Subject: Home Farm, Llay – Crown Crossroads Improvements
Ref: 065665-CUR-00-XX-RP-D-72001-V00
Date: 26 June 2019

- 1.1 This technical note has been prepared to provide a narrative to support approval of the suggested improvements to the Crown Crossroads signalised junction indicated on drawing '065665-CUR-ZZ-XX-DR-D-9562-C02 Crown Crossroads MOVA Signal Design' (*Annex A*).
- 1.2 Linsig modelling of the existing junction for 2019 base flows (*Annex B*) indicates that degrees of saturation of 98.3% and 92.5% are anticipated for the AM and PM peaks respectively.
- 1.3 As part of discussions during the planning approval process for the Home Farm development, a post-development betterment over the existing junction operation should be achieved along with improvements for pedestrians.
- 1.4 Linsig modelling of the existing junction for 2026 base flows (*Annex C*) indicates that degrees of saturation of 108.6% and 105.4% are anticipated for the AM and PM peaks respectively. When development is included in the traffic flows these figures rise to 125.6% and 114.3%.
- 1.5 The proposals for improvements agreed at planning approval are as shown on drawing '065665-CUR-ZZ-XX-DR-D-9562-C01 Crown Crossroads MOVA Signal Design' (*Annex D*).
- 1.6 Linsig modelling of this proposal for 2026 with development (*Annex E*) suggested that degrees of saturation of 104.5% and 98.8% would be achieved for the AM and PM peaks respectively, providing the required betterment on a 2026 base flow "do nothing scenario".
- 1.7 However, the findings of the Road Safety Audit & Designer Response (*Annex F*), undertaken as part of the S278 approval process, raised concerns over the safety of the opposing right turn movements for Straight Mile and Llay Road and the lack of provision for safe pedestrian movement.
- 1.8 The considered recommendations of the Road Safety Audit led to the amendments to the planning layout as shown in *Annex A*, namely:
 - Each arm of the junction having its own stage (Chapel Lane in every two cycles).
 - Increased provision for safe pedestrian movement around the junction.
- 1.9 The latter has considered movement across Llay Road, Straight Mile and Gresford Road as the three critical arms in terms of pedestrian routes.

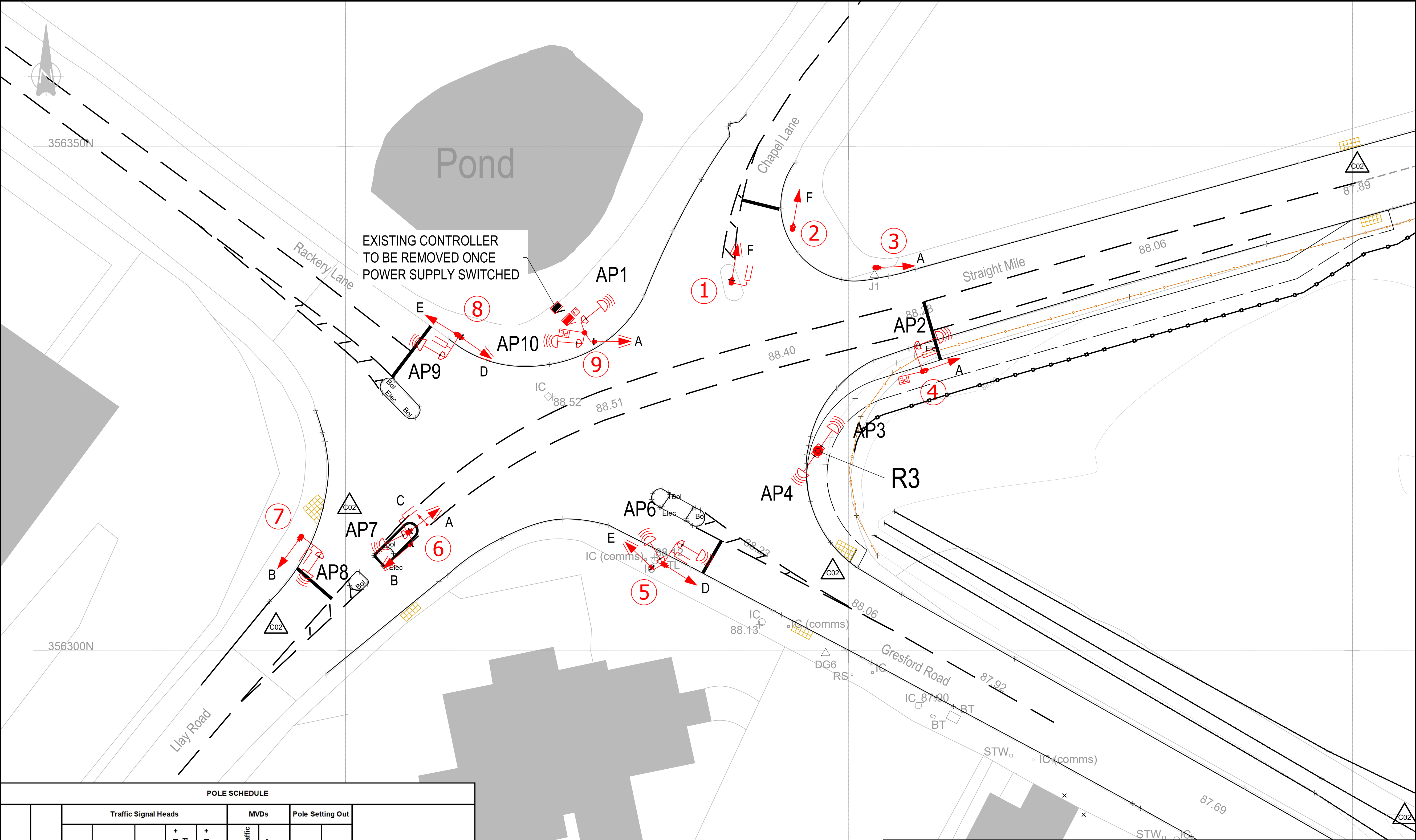
- 1.10 Linsig analysis of the current proposal (*Annex G*) indicates degrees of saturation of 111.9% and 108.3% would be achieved post development for the AM and PM peaks respectively, providing a slight detriment on a 2026 base flow “do nothing scenario” but a betterment on a 2026 development flow “do nothing scenario”.
- 1.11 However, the benefits for the safer operation of the junction are considered to outweigh the slight detriment in saturation during the AM and PM peaks:
- Opposing right turn and straight on movements of Straight Mile and Llay Road are removed allowing free flow of right turns through the junction that will in turn prevent blocking of the junction i.e. it is understood that currently right turn movements from Straight Mile into Rackery Lane continue after the Rackery Lane arm has entered its own green stage.
 - Implementation of MOVA controls will improve junction operation outside the peak periods by prioritising arms with greatest demand.
 - Individual vehicular stages on each arm increase gaps for pedestrians to navigate the junction.
 - Uncontrolled pedestrian crossing provision has been incorporated across the Llay Road, Straight Mile and Gresford Road arms.
- 1.12 The inclusion of an on-demand pedestrian stage in the proposals has been discounted as:
- Linsig analysis (*Annex H*) shows that degrees of saturation for the AM and PM peaks increase to 121.2% and 113.4% respectively i.e. almost at saturation levels of a “do nothing scenario” with 2026 development flows.
 - There are no footways on either Chapel Lane or the east side of Rackery Lane to warrant crossing points across these arms.
- 1.13 Therefore, the recommended conclusion of this process to best meet the intent of the planning approval is for the implementation of the current proposal; namely that shown on drawing ‘065665-CUR-ZZ-XX-DR-D-9562-C02 Crown Crossroads MOVA Signal Design’ (*Annex A*).

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Annex A

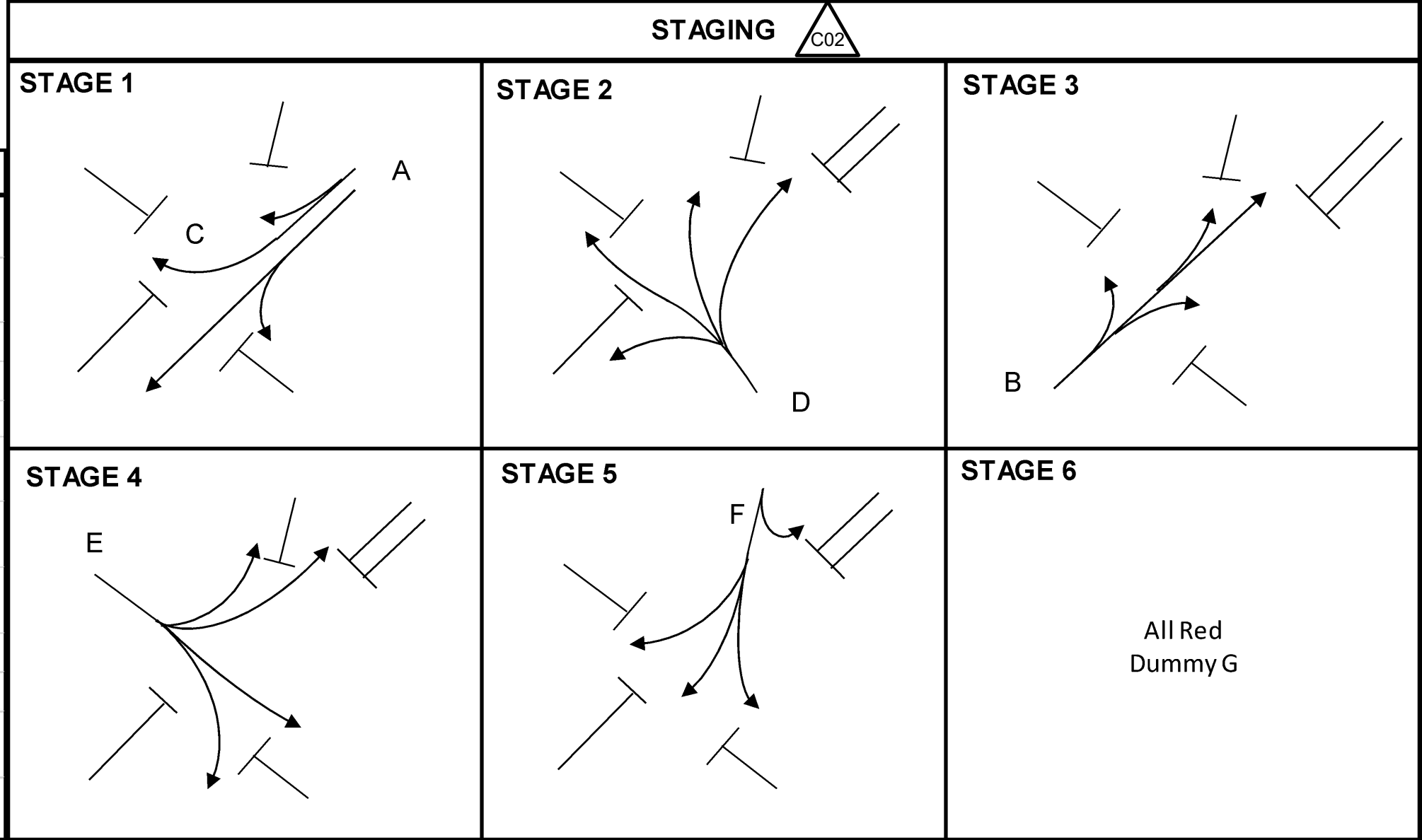


GENERAL NOTES:	
1.	THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2.	DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED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

KEY	
	Primary RAG signal head
	Primary RAG signal head - side mounted
	Primary RAG signal head - side mounted with pole rotated 45 degrees
	Secondary RAG signal head - side mounted
	Secondary RAG signal head - side mounted with pole rotated 45 degrees
	Secondary RAG + G/A (right) signal head
A	Phase letter
	3.87m pole, aluminium powder coated grey, straight and 114mm dia above and below 168mm dia low level access
R1	Repeater pole (114mm dia, 3.87m pole, aluminium powder coated grey, straight) and reference
1	Pole numbering
	MVD
AP1	Magnetometer Access Point and reference
PE	Photoelectric cell
	Existing controller to be removed (after power supply transferred to the new power pillar)
	Controller on NAL base
	Power pillar

POLE SCHEDULE										
Pole Ref	Pole Type	Traffic Signal Heads					MVDs		Pole Setting Out	
		Head Reference	Head Type	Primary Head + Primary Hood	Secondary Head + Secondary Hood	Secondary Head Primary Hood	Detects Approaching Traffic	Detects 'leaving' traffic	Clearance from stopline	Clearance from kerb face
1	Str	1	RAG	-	-	Yes#	Yes	-	-	-
2	Str	1	RAG	Yes	-	-	-	-	2.40m	0.75m
3	Str	1	RAG	Yes	-	-	-	-	2.40m	0.75m
4	Str	1	RAG	Yes	-	-	Yes	Yes	2.40m	0.75m
5	Str	1	RAG	Yes	-	-	Yes	-	2.40m	0.50m
		2	RAG	-	Yes	-				
6	Str	1	RAG	-	-	Yes#	Yes	-	-	-
		2	RAG + G/A (right)	-	Yes	-				
7	Str	1	RAG	Yes	-	-	Yes	-	2.40m	0.50m
8	Str	1	RAG	Yes	-	-	Yes	-	2.40m	0.75m
		2	RAG	-	Yes	-				
9	Str	1	RAG	-	Yes	-	-	-	-	-
a) Str = 3.87m straight pole with low level access; b) R = reduced height pole for PDU or TDU; and c) # = closely associated head										

Traffic Signal Notes	
1	This is a complete refurbishment of an existing traffic signal installation. All existing poles, equipment, controller, cabling etc shall be replaced.
2	Site shall run MOVA with fallback to vehicle actuated (VA). MVDs are provided to detect cyclists and facilitate VA fallback.
3	Site to run ELV with each pole separately cabled from the controller.
4	MOVA shall be implemented using magnetometers.
5	No signal equipment shall be installed with less than 450mm clearance from the kerf face.
6	The new controller shall be installed on a NAL base and has been moved forward 2.0m away from the fence to the pond.
7	The power supply shall be transferred from the existing controller into a new power pillar and the redundant controller removed.
8	Poles shall be installed in NAL ducksfoot sockets and shall not have slots and also shall not be predrilled for PDUs/pushbuttons.
9	Poles, controller cabinet and power pillar to be finished grey.
10	Traffic signal equipment removed from the site shall be disposed of off site or taken to a designated
11	Controller, power pillar and all pole locations to be agreed with the local authority traffic signal engineer before associated installation works commence.
12	All works shall comply with the latest version of the Gresford Road, Llay, Traffic Signal Installation Requirements.



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Status: **ISSUED FOR CONSTRUCTION APPROVAL**

Project: **GRESFORD ROAD LLAY**

Orig Title: **CROWN CROSSROADS MOVA SIGNAL DESIGN**

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	17/01/2019	RM	IRC	RM

Scale: 1:200

Project No:	Originator:	Zone:	Level:	Type:	Discipline:	Category / Number:	Rev:
065665	CUR	ZZ	XX	DR	D	9562	-C02

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Annex B

Basic Results Summary
Basic Results Summary

User and Project Details

Project:	Home Farm Residential Development
Title:	Crown Crossroads at Llay
Location:	Llay Wrexham LL12 0NT
Additional detail:	Do Nothing
File name:	65665 - Do Nothing Scenario 2019 Existing.lsg3x
Author:	GlanvilleJB
Company:	Curtins
Address:	Manchester

Basic Results Summary

Network Results

Scenario 1: 'AM Existing' (FG3: 'AM Peak 2019 Base', Plan 1: 'Chapel Ln in Every Other Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	98.3%	-
Crown Crossroads at Llay	-	98.3%	-
1/1	B5102 Straight Mile Left Ahead Right Right2	98.0%	20.1
2/1	B5373 Gresford Rd Right Left Ahead Right2	97.2%	19.1
3/1	Llay Rd Ahead Right Left Left2	92.5%	30.4
4/1+4/2	Rackery lane Left Ahead Right Left2	98.3%	22.2
9/1	Chapel Lane Left Left2 Right Right2	24.5%	1.2
C1	PRC for Signalled Lanes (%): -9.3 PRC Over All Lanes (%): -9.3	Total Delay for Signalled Lanes (pcuHr): 55.60 Total Delay Over All Lanes(pcuHr): 55.60	Cycle Time (s): 238

Scenario 2: 'PM Existing' (FG4: 'PM Peak 2019 Base', Plan 4: 'Chapel in Every Four Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	92.8%	-
Crown Crossroads at Llay	-	92.8%	-
1/1	B5102 Straight Mile Left Ahead Right Right2	91.9%	20.7
2/1	B5373 Gresford Rd Right Left Ahead Right2	92.5%	10.6
3/1	Llay Rd Ahead Right Left Left2	78.4%	13.9
4/1+4/2	Rackery lane Left Ahead Right Left2	92.8%	22.7
9/1	Chapel Lane Left Left2 Right Right2	17.2%	0.8
C1	PRC for Signalled Lanes (%): -3.1 PRC Over All Lanes (%): -3.1	Total Delay for Signalled Lanes (pcuHr): 36.38 Total Delay Over All Lanes(pcuHr): 36.38	Cycle Time (s): 326

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Annex C

Basic Results Summary
Basic Results Summary

User and Project Details

Project:	Home Farm Residential Development
Title:	Crown Crossroads at Llay
Location:	Llay Wrexham LL12 0NT
Additional detail:	Do Nothing
File name:	65665 - Do Nothing Scenario (Crown Crossroads 2026).lsg3x
Author:	GlanvilleJB
Company:	Curtins
Address:	Manchester

Basic Results Summary

Network Results

Scenario 1: 'AM 2026 BASE' (FG15: 'AM 2026 BASE', Plan 1: 'Chapel Ln in Every Other Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	108.6%	-
Crown Crossroads at Llay	-	108.6%	-
1/1	B5102 Straight Mile Left Ahead Right Right2	108.2%	30.9
2/1	B5373 Gresford Rd Right Left Ahead Right2	106.4%	32.3
3/1	Llay Rd Ahead Right Left Left2	108.6%	70.8
4/1+4/2	Rackery lane Left Ahead Right Left2	107.6%	48.2
9/1	Chapel Lane Left Left2 Right Right2	27.5%	1.3
C1	PRC for Signalled Lanes (%): -20.7 PRC Over All Lanes (%): -20.7	Total Delay for Signalled Lanes (pcuHr): 141.37 Total Delay Over All Lanes(pcuHr): 141.37	Cycle Time (s): 238

Scenario 2: 'PM 2026 BASE' (FG16: 'PM 2026 BASE', Plan 4: 'Chapel in Every Four Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	105.4%	-
Crown Crossroads at Llay	-	105.4%	-
1/1	B5102 Straight Mile Left Ahead Right Right2	104.1%	27.7
2/1	B5373 Gresford Rd Right Left Ahead Right2	103.7%	19.3
3/1	Llay Rd Ahead Right Left Left2	77.4%	14.1
4/1+4/2	Rackery lane Left Ahead Right Left2	105.4%	49.9
9/1	Chapel Lane Left Left2 Right Right2	17.2%	0.8
C1	PRC for Signalled Lanes (%): -17.1 PRC Over All Lanes (%): -17.1	Total Delay for Signalled Lanes (pcuHr): 85.15 Total Delay Over All Lanes(pcuHr): 85.15	Cycle Time (s): 326

Basic Results Summary

Scenario 3: 'AM 2026 DEV' (FG17: 'AM 2026 DEV (Base+Com+Dev)', Plan 1: 'Chapel Ln in Every Other Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	125.6%	-
Crown Crossroads at Llay	-	125.6%	-
1/1	B5102 Straight Mile Left Ahead Right Right2	125.6%	53.1
2/1	B5373 Gresford Rd Right Left Ahead Right2	122.9%	63.2
3/1	Llay Rd Ahead Right Left Left2	85.6%	28.2
4/1+4/2	Rackery lane Left Ahead Right Left2	125.1%	103.3
9/1	Chapel Lane Left Left2 Right Right2	27.5%	1.3
C1	PRC for Signalled Lanes (%): -39.5 PRC Over All Lanes (%): -39.5	Total Delay for Signalled Lanes (pcuHr): 206.61 Total Delay Over All Lanes(pcuHr): 206.61	Cycle Time (s): 238

Scenario 4: 'PM 2026 DEV' (FG18: 'PM 2026 DEV (Base+Com+Dev)', Plan 4: 'Chapel in Every Four Cycle')

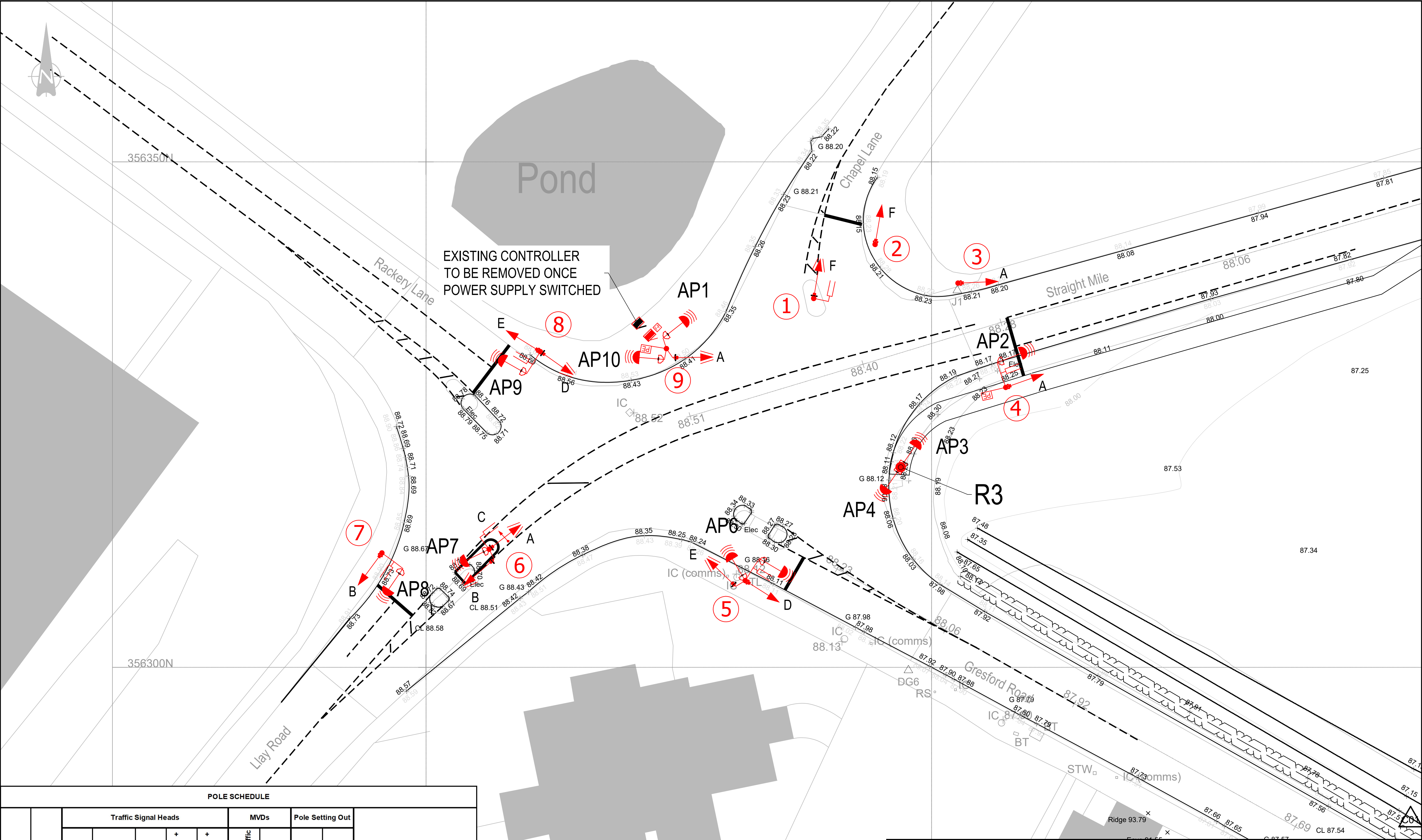
Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	114.3%	-
Crown Crossroads at Llay	-	114.3%	-
1/1	B5102 Straight Mile Left Ahead Right Right2	114.3%	51.7
2/1	B5373 Gresford Rd Right Left Ahead Right2	111.5%	28.9
3/1	Llay Rd Ahead Right Left Left2	80.8%	17.0
4/1+4/2	Rackery lane Left Ahead Right Left2	114.2%	94.4
9/1	Chapel Lane Left Left2 Right Right2	17.2%	0.8
C1	PRC for Signalled Lanes (%): -27.0 PRC Over All Lanes (%): -27.0	Total Delay for Signalled Lanes (pcuHr): 160.19 Total Delay Over All Lanes(pcuHr): 160.19	Cycle Time (s): 326

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Annex D

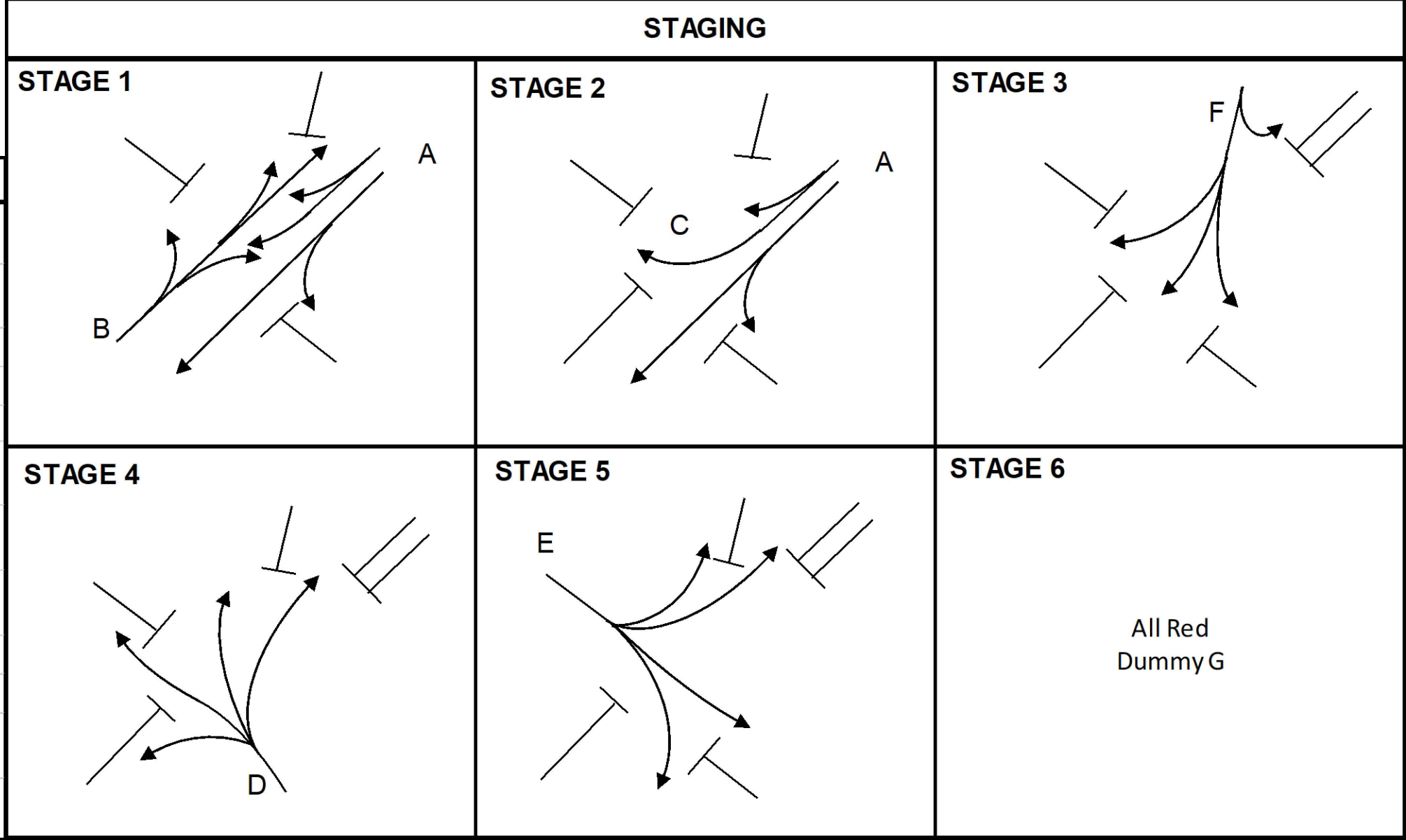


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4	Str	1	RAG	Yes	-	-	Yes	Yes	2.40m	0.75m
5	Str	1	RAG	Yes	-	-	Yes	-	2.40m	0.50m
		2	RAG	-	Yes	-				
6	Str	1	RAG	-	-	Yes#	Yes	-	-	-
		2	RAG + G/A (right)	-	Yes	-				
7	Str	1	RAG	Yes	-	-	Yes	-	2.40m	0.50m
8	Str	1	RAG	Yes	-	-	Yes	-	2.40m	0.75m
		2	RAG	-	Yes	-				
9	Str	1	RAG	-	Yes	-	-	-	-	-
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Status: **ISSUED FOR CONSTRUCTION APPROVAL**

Project: **GRESFORD ROAD LLAY**

Orig Title: **CROWN CROSSROADS MOVA SIGNAL DESIGN**

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	17/01/2019	RM	IRC	RM

Scale: 1:200

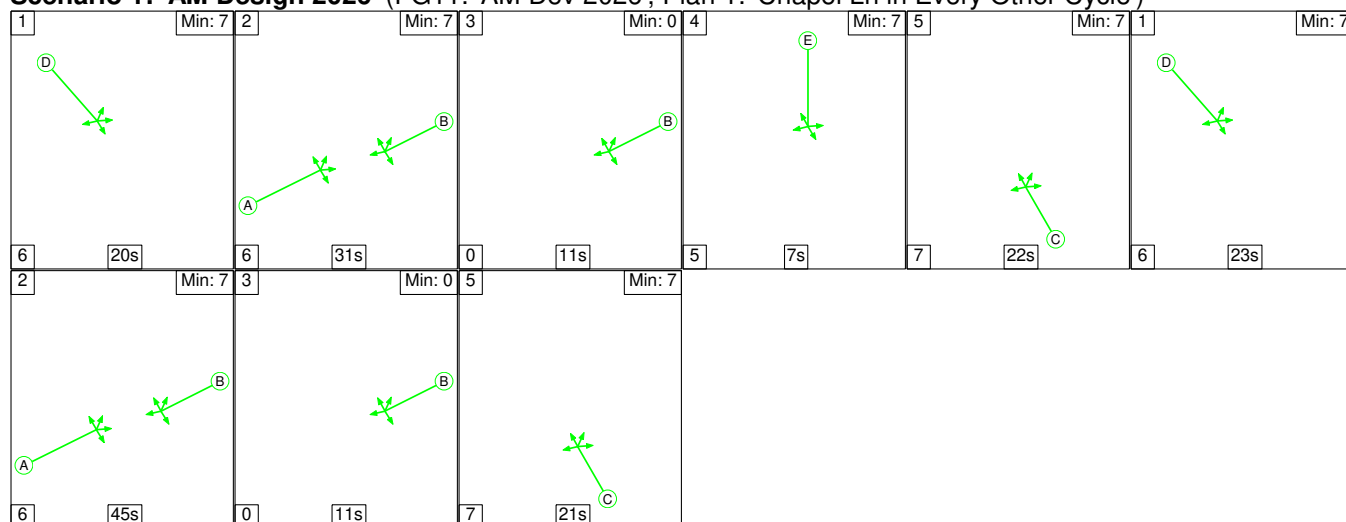
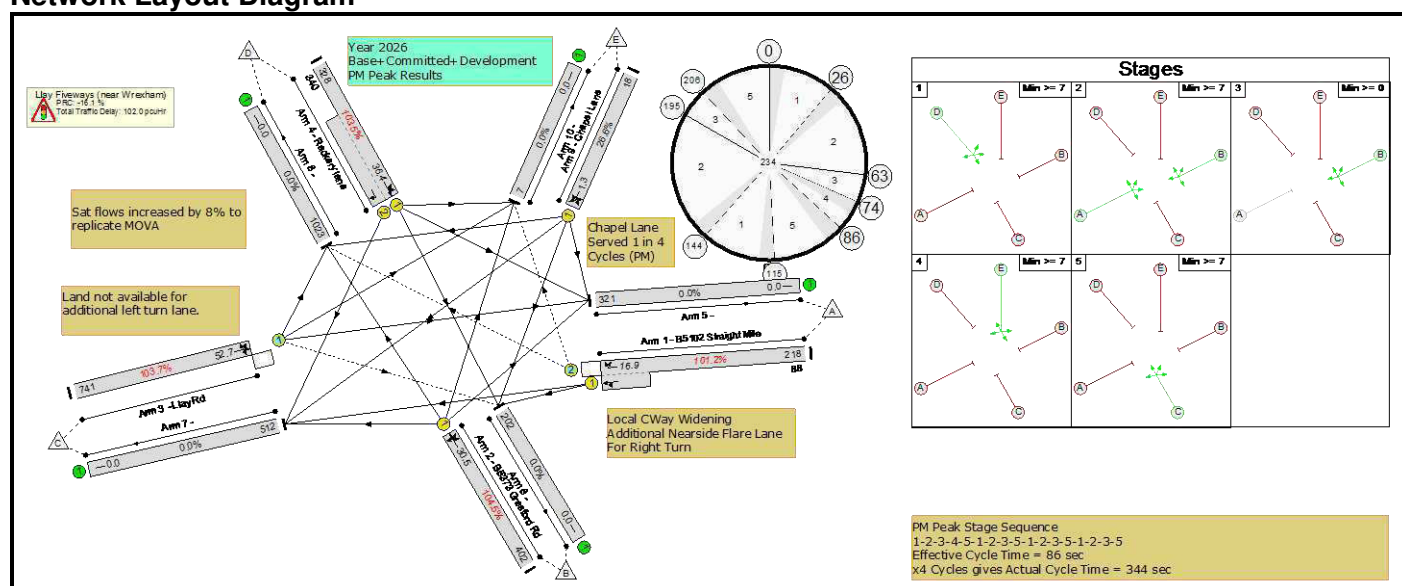
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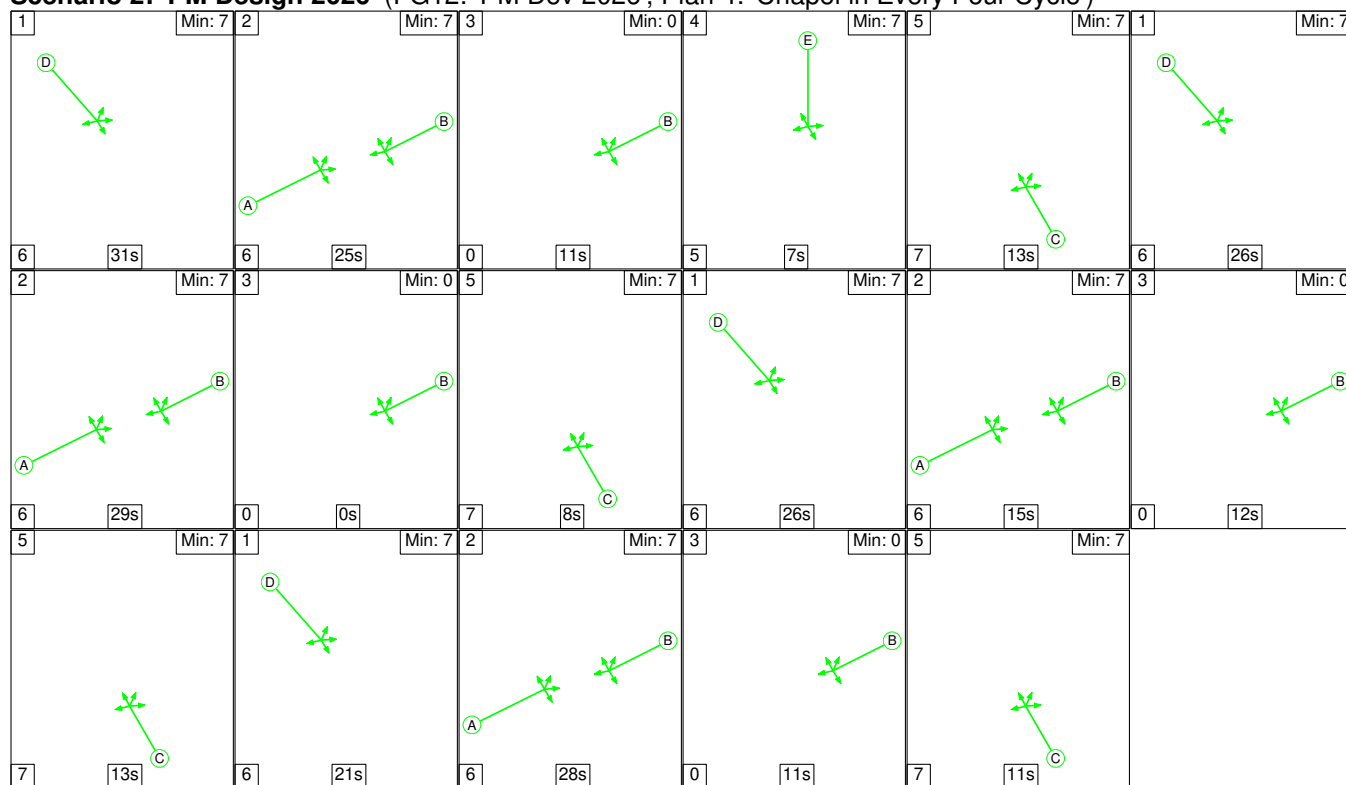
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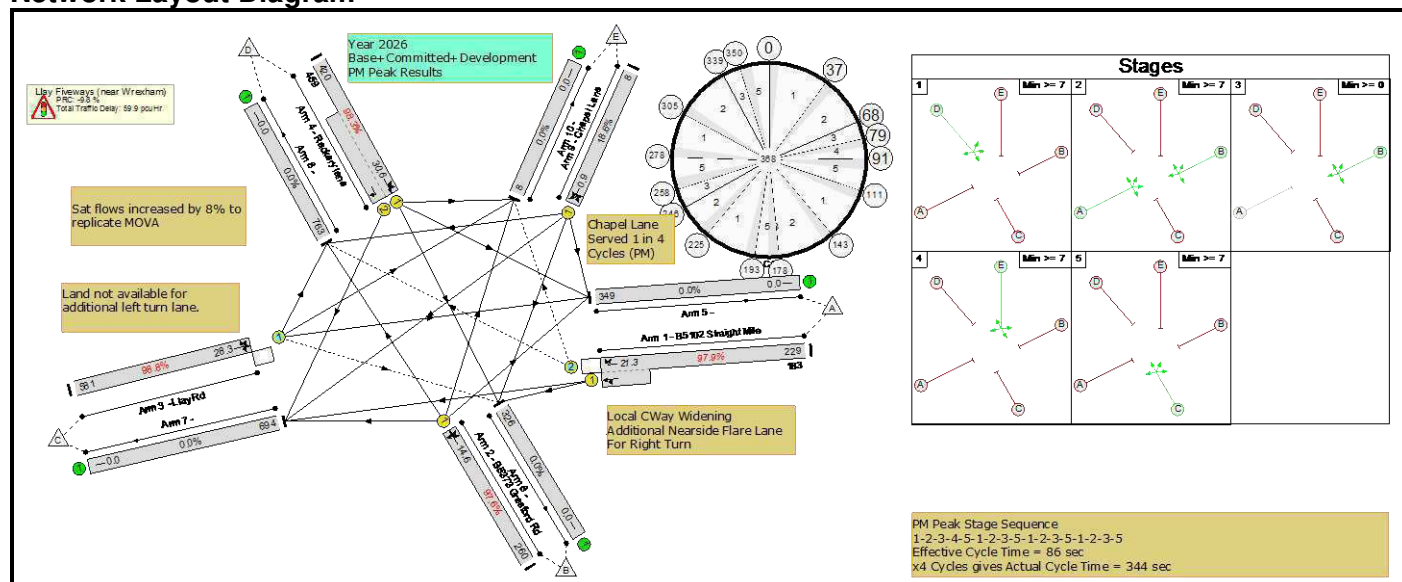
Annex E

Stage Sequence Diagram**Scenario 1: 'AM Design 2026'** (FG11: 'AM Dev 2026', Plan 1: 'Chapel Ln in Every Other Cycle')**Network Layout Diagram**

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat 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: Crown Crossroads at Llay	-	-	-	-	-	104.5%	34.6	66.7	102.0	-	-	-	-
Llay Fiveways (near Wrexham)	-	-	-	-	-	104.5%	34.6	66.7	102.0	-	-	-	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	B	306	2000:2033	302	101.2%	4.0	9.7	14.4	169.9	7.2	9.7	16.9
2/1	B5373 Gresford Rd Right Left Ahead Right2	C	402	2001	385	104.5%	7.6	15.2	22.8	204.1	15.2	15.2	30.5
3/1	Llay Rd Ahead Right Left Left2	A	741	2143	714	103.7%	11.3	21.8	33.2	161.2	30.8	21.8	52.7
4/1+4/2	Rackery lane Left Ahead Right Left2	D	668	1994:1838	645	103.5%	11.1	19.8	30.9	166.4	16.7	19.8	36.4
9/1	Chapel Lane Left Left2 Right Right2	E	18	1976	68	26.6%	0.6	0.2	0.7	146.2	1.1	0.2	1.3
C1 PRC for Signalled Lanes (%): -16.1 Total Delay for Signalled Lanes (pcuHr): 102.00 Cycle Time (s): 234 PRC Over All Lanes (%): -16.1 Total Delay Over All Lanes(pcuHr): 102.00													



Network Layout Diagram



Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat 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: Crown Crossroads at Llay	-	-	-	-	-	98.8%	22.5	36.7	59.9	-	-	-	-
Llay Fiveways (near Wrexham)	-	-	-	-	-	98.8%	22.5	36.7	59.9	-	-	-	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	B	412	2000:2033	421	97.9%	4.9	8.1	13.6	119.1	13.2	8.1	21.3
2/1	B5373 Gresford Rd Right Left Ahead Right2	C	260	2001	266	97.6%	3.2	6.6	9.8	136.2	8.0	6.6	14.6
3/1	Llay Rd Ahead Right Left Left2	A	581	2143	588	98.8%	5.9	10.4	16.3	101.2	17.9	10.4	28.3
4/1+4/2	Rackery lane Left Ahead Right Left2	D	879	1994:1838	895	98.3%	8.1	11.4	19.5	80.0	19.2	11.4	30.6
9/1	Chapel Lane Left Left2 Right Right2	E	8	1976	43	18.6%	0.4	0.1	0.5	228.0	0.8	0.1	0.9
C1			PRC for Signalled Lanes (%):		-9.8	Total Delay for Signalled Lanes (pcuHr):			59.85	Cycle Time (s): 368			
			PRC Over All Lanes (%):		-9.8	Total Delay Over All Lanes(pcuHr):			59.85				

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Annex F

Problem Identified (Paragraph No)	Problem Accepted (YES/NO)	Recommendation Accepted (YES/NO)	Action (describe)
CROWN CROSSROADS			
9.3.1 Location: Within traffic signal junction Problem Summary: Proposed right-turn road markings and signal staging may increase risk of vehicular collisions The proposed dedicated right-turn road markings within the junction for Straight Mile traffic turning into Chapel Lane and Rackery Lane, combined with the signal staging, meaning right-turning traffic must give way to oncoming vehicles from Llay Road, may increase the risk of vehicular collisions within the junction. Vehicles wishing to turn right from Straight Mile must wait in the same right-turn lane for both Chapel Lane and Rackery Lane resulting in an increased risk of rear-end shunt collisions. For example, a following vehicle wishing to turn right into Rackery Lane may not realise the vehicle in front is turning into Chapel Lane. There is also a risk that a vehicle waiting to turn right into Chapel Lane may cause a following vehicle wishing to turn into Rackery Lane to try and undertake, thus entering the straight ahead/left turn lane on Straight Mile, resulting in side-swipe type collisions. Additionally, a group of vehicles or a larger vehicle wishing to turn right into Gresford Road from Llay Road will be unable to fit into the right-turn pocket within the junction and will back-up into the ahead/right-turn lane from Llay Road, increasing the risk of rear-end shunt collisions. There is also a risk that these vehicles waiting to turn right into Gresford Road may cause a following vehicle wishing to travel straight on onto Straight Mile to try and undertake, thus entering the left turn lane on Llay Road, resulting in side-swipe type collisions.	Y	Y	Staging to be reviewed. Design to be amended.

Problem Identified (Paragraph No)	Problem Accepted (YES/NO)	Recommendation Accepted (YES/NO)	Action (describe)
Recommendation The signal staging should be amended so that the Straight Mile and Llay Road arms have their own stage, as per all other arms on the junction, negating the need for right turning vehicles to give way to oncoming traffic.			
9.3.2 Location: Llay Road approach to traffic signal junction Problem Summary: Narrow lane width may result in side-swipe type collisions The drawings show two lanes are to be provided on the Llay Road approach to the proposed traffic signal junction, however the carriageway width at this location does not appear wide enough for two lanes. Vehicles attempting to enter the junction in two lanes may overhang into the adjacent lane increasing the risk of side-swipe type collisions. (Photo 13.3) Recommendation The carriageway should be widened to provide adequate width for two lanes on the Llay Road approach to the junction.	Y	Y	Staging to be reviewed. Design to be amended.
9.4.1 Location: Throughout the traffic signal junction Problem Summary: Lack of facilities for pedestrians It was observed during the site visit that there is a lack of facilities for pedestrians throughout the traffic signal junction. It is unclear how the adjacent development will tie-into the junction with regards to pedestrian movement. If there is an increase in pedestrian demand throughout the junction, the lack of appropriate facilities may increase	Y	P	This is acknowledged as an existing problem but there is limited scope within the adopted highway boundary to improve fully. It is proposed that uncontrolled crossings will be provided across Straight Mile (east of the lane widening), Gresford Road (south of signal stop line) and Llay Road (either at splitter island or west of signal stop line). This will enable pedestrians to access all routes within the limitations of the junction geometry. Design to be amended.

Problem Identified (Paragraph No)	Problem Accepted (YES/NO)	Recommendation Accepted (YES/NO)	Action (describe)
the risk of collisions between pedestrians crossing at the junction and vehicles travelling through the junction. (Photos 13.4 & 13.5) Recommendation The forecast pedestrian demand/desire lines throughout the junction following the construction of the adjacent development should be examined and appropriate pedestrian facilities at the traffic signal junction should be provided.			
9.5.1 Location: Straight Mile to east of traffic signal junction Problem Summary: Lack of associated traffic signing for proposed 40mph speed limit The drawings show that the existing 40/50mph speed limit signing on Straight Mile to the east of the traffic signal junction is to be changed to 30/40mph, however, no other speed limit signing is proposed to be changed. The new signs show that Straight Mile is to be 40mph, however, there are no 40mph terminal signs proposed at the other end of the limit on Straight Mile. Additionally, when approaching the junction from Straight Mile the new speed limit shows 30mph, however, all other approaches show the junction to be 40mph. The lack of changes to other speed limit signing may result in the speed limits being unenforceable and an increase in vehicular speeds, resulting in the increase of severity of any collisions that may occur. Recommendation The existing speed limit signing should be checked, and amendments proposed to ensure all speed limits are signed correctly.	Y	Y	30mph signs to be removed. 40mph sign retained to advise of speed change. Check termination/start speed limit signing included after Straight Mile development access junction. Design to be amended.

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Annex G

Basic Results Summary
Basic Results Summary

User and Project Details

Project:	Home Farm Residential Development
Title:	Crown Crossroads at Llay
Location:	Llay Wrexham LL12 0NT
Additional detail:	Physical Junction Improvements and MOVA
File name:	65665 - Physical and MOVA Scenario (Crown Crossroads 2026)-Stage Amendments.lsg3x
Author:	GlanvilleJB
Company:	Curtins
Address:	Manchester

Basic Results Summary

Network Results

Scenario 1: 'AM Design 2026' (FG11: 'AM Dev 2026', Plan 1: 'Chapel Ln in Every Other Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	111.9%	-
Llay Fiveways (near Wrexham)	-	111.9%	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	110.8%	32.9
2/1	B5373 Gresford Rd Right Left Ahead Right2	111.9%	44.1
3/1	Llay Rd Ahead Right Left Left2	110.8%	77.0
4/1+4/2	Rackery lane Left Ahead Right Left2	110.5%	57.8
9/1	Chapel Lane Left Left2 Right Right2	26.6%	1.3
C1	PRC for Signalled Lanes (%): -24.4 PRC Over All Lanes (%): -24.4	Total Delay for Signalled Lanes (pcuHr): 175.44 Total Delay Over All Lanes(pcuHr): 175.44	Cycle Time (s): 234

Scenario 2: 'PM Design 2026' (FG12: 'PM Dev 2026', Plan 4: 'Chapel in Every Four Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	108.3%	-
Llay Fiveways (near Wrexham)	-	108.3%	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	107.1%	34.5
2/1	B5373 Gresford Rd Right Left Ahead Right2	106.3%	25.6
3/1	Llay Rd Ahead Right Left Left2	107.3%	49.6
4/1+4/2	Rackery lane Left Ahead Right Left2	108.3%	72.1
9/1	Chapel Lane Left Left2 Right Right2	18.6%	0.9
C1	PRC for Signalled Lanes (%): -20.3 PRC Over All Lanes (%): -20.3	Total Delay for Signalled Lanes (pcuHr): 152.07 Total Delay Over All Lanes(pcuHr): 152.07	Cycle Time (s): 368

Basic Results Summary

Scenario 3: 'AM Base 2026' (FG13: 'AM Base 2026', Plan 1: 'Chapel Ln in Every Other Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	106.9%	-
Llay Fiveways (near Wrexham)	-	106.9%	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	103.5%	21.0
2/1	B5373 Gresford Rd Right Left Ahead Right2	104.9%	27.9
3/1	Llay Rd Ahead Right Left Left2	106.7%	60.5
4/1+4/2	Rackery lane Left Ahead Right Left2	106.9%	46.3
9/1	Chapel Lane Left Left2 Right Right2	26.6%	1.3
C1	PRC for Signalled Lanes (%): -18.8 PRC Over All Lanes (%): -18.8	Total Delay for Signalled Lanes (pcuHr): 121.66 Total Delay Over All Lanes(pcuHr): 121.66	Cycle Time (s): 234

Scenario 4: 'PM Base 2026' (FG14: 'PM Base 2026', Plan 4: 'Chapel in Every Four Cycle')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	103.6%	-
Llay Fiveways (near Wrexham)	-	103.6%	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	102.2%	22.3
2/1	B5373 Gresford Rd Right Left Ahead Right2	101.1%	16.5
3/1	Llay Rd Ahead Right Left Left2	103.6%	36.5
4/1+4/2	Rackery lane Left Ahead Right Left2	103.0%	43.0
9/1	Chapel Lane Left Left2 Right Right2	18.6%	0.9
C1	PRC for Signalled Lanes (%): -15.1 PRC Over All Lanes (%): -15.1	Total Delay for Signalled Lanes (pcuHr): 92.40 Total Delay Over All Lanes(pcuHr): 92.40	Cycle Time (s): 368

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Annex H

Basic Results Summary
Basic Results Summary

User and Project Details

Project:	Home Farm Residential Development
Title:	Crown Crossroads at Llay
Location:	Llay Wrexham LL12 0NT
Additional detail:	Physical Junction Improvements and MOVA
File name:	65665 - Physical and MOVA Scenario (Crown Crossroads 2026)- Pedestrian Stage.lsg3x
Author:	GlanvilleJB
Company:	Curtins
Address:	Manchester

Basic Results Summary

Network Results

Scenario 5: 'AM Design 2026 with Peds' (FG11: 'AM Dev 2026', Plan 5: 'Network Control Plan Peds')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	121.2%	-
Llay Fiveways (near Wrexham)	-	121.2%	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	121.2%	46.2
2/1	B5373 Gresford Rd Right Left Ahead Right2	120.5%	59.0
3/1	Llay Rd Ahead Right Left Left2	120.3%	108.3
4/1+4/2	Rackery lane Left Ahead Right Left2	120.0%	85.8
9/1	Chapel Lane Left Left2 Right Right2	27.3%	1.4
C1	PRC for Signalled Lanes (%): -34.7 PRC Over All Lanes (%): -34.7	Total Delay for Signalled Lanes (pcuHr): Total Delay Over All Lanes(pcuHr):	264.53 264.53 Cycle Time (s): 240

Scenario 6: 'PM Design 2026 with Peds' (FG12: 'PM Dev 2026', Plan 6: 'Network Control Plan Peds V2')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	113.4%	-
Llay Fiveways (near Wrexham)	-	113.4%	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	111.8%	43.5
2/1	B5373 Gresford Rd Right Left Ahead Right2	111.2%	30.7
3/1	Llay Rd Ahead Right Left Left2	112.1%	65.7
4/1+4/2	Rackery lane Left Ahead Right Left2	113.4%	96.6
9/1	Chapel Lane Left Left2 Right Right2	18.6%	0.9
C1	PRC for Signalled Lanes (%): -26.0 PRC Over All Lanes (%): -26.0	Total Delay for Signalled Lanes (pcuHr): Total Delay Over All Lanes(pcuHr):	207.25 207.25 Cycle Time (s): 368

Basic Results Summary

Scenario 7: 'AM Base 2026 with Peds' (FG13: 'AM Base 2026', Plan 5: 'Network Control Plan Peds')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	116.3%	-
Llay Fiveways (near Wrexham)	-	116.3%	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	114.5%	33.8
2/1	B5373 Gresford Rd Right Left Ahead Right2	113.7%	41.2
3/1	Llay Rd Ahead Right Left Left2	116.1%	91.0
4/1+4/2	Rackery lane Left Ahead Right Left2	116.3%	73.3
9/1	Chapel Lane Left Left2 Right Right2	26.6%	1.3
C1	PRC for Signalled Lanes (%): -29.2 PRC Over All Lanes (%): -29.2	Total Delay for Signalled Lanes (pcuHr): 207.81 Total Delay Over All Lanes(pcuHr): 207.81	Cycle Time (s): 234

Scenario 8: 'PM Base 2026 with Peds' (FG14: 'PM Base 2026', Plan 6: 'Network Control Plan Peds V2')

Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)
Network: Crown Crossroads at Llay	-	108.4%	-
Llay Fiveways (near Wrexham)	-	108.4%	-
1/2+1/1	B5102 Straight Mile Left Ahead Right Right2	108.4%	34.7
2/1	B5373 Gresford Rd Right Left Ahead Right2	106.2%	21.8
3/1	Llay Rd Ahead Right Left Left2	107.2%	46.2
4/1+4/2	Rackery lane Left Ahead Right Left2	107.8%	64.3
9/1	Chapel Lane Left Left2 Right Right2	18.6%	0.9
C1	PRC for Signalled Lanes (%): -20.4 PRC Over All Lanes (%): -20.4	Total Delay for Signalled Lanes (pcuHr): 142.69 Total Delay Over All Lanes(pcuHr): 142.69	Cycle Time (s): 368