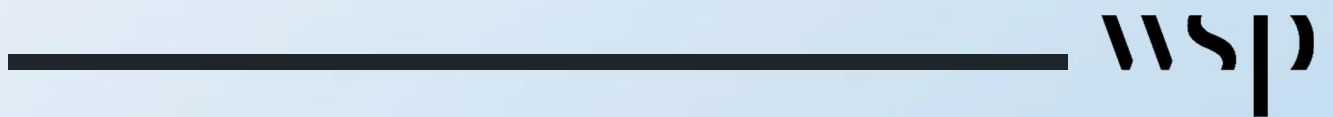


Appendix K

M27 Signal Specification



Project data

Project	M27 Junction 7 East Controller
Program date	03-03-2020
Version	1
Configuration Number	4049
Programmer	Melvyn Maycock
Country	United Kingdom
City	Southampton
Street1	M27 Junction 7
Street2	East Controller
Controller type	1
Controller board	EC2 16 Mb RAM
12NC	0
Serial number	0
Report created at	4/2/2020 7:15 AM
Database filename (.cpf)	M27_Junction_7_East_Controller.cpf
Configurator version	11.1.0.0

Configuration Notes

03/03/2020 Version 1 MM

48v 3 Stream PTC-1 configured for UTC/MOVA fallback.

East and West controllers are linked using PTC1 Connection solid indicates UTC.
Function LED 2 in the Manual Panel flashing indicates Stream 2 is running indicates Stream 1 in the West controller is running MOVA, LED on solid indicates UTC.
Function LED 8 indicates a force bit has been on for longer than 200 seconds whilst in UTC mode dual TO bit is used per stream.

The controller uses special conditioning to monitor for states.

FACILITIES MODES AND PRIORITIES

FACILITIES

Facility	Enabled
Manual Control	Yes
Manual Step On Mode	No
CLF	Yes
UTC Facility	Yes
Hurry Call Mode	Yes
Priority	Yes
MOVA via UTC TO bits	No
MOVA M-inputs / PSVP	No

Hurry call (high priority) options

Use hurry call (high priority) mode for all red moves:	Yes
Part Time shutdown HC priority movements required:	No

MODES AND PRIORITY

Mode	PRIOR	Dem. set leave	Dem. set enter
Hurry call (high priority)	1	-	-
Urban Traffic Control (UTC)	4	Start-up demand set	-
Hurry call (std priority)	-	-	-
Manual control	2	Start-up demand set	-
Cableless linking facility (CLF)	6	-	-
Vehicle actuated (VA)	7	-	-
Simple fix time (FT)	-	-	-
Public service vehicle priority	5	Start-up demand set	-
Selected cableless linking	-	-	-
Selected vehicle actuated	3	-	-
Selected fix time	3	Start-up demand set	-

Revertive Demand Sets

Phase	Type	RDC	Start-up	2	3	4	5	6	7	8
A	802 T: vehicle	A	Yes	No	No	No	No	No	No	No
B	802 T: vehicle	B	Yes	No	No	No	No	No	No	No
C	802 T: vehicle	C	Yes	No	No	No	No	No	No	No
D	802 T: vehicle	D	Yes	No	No	No	No	No	No	No
E	802 T: vehicle	E	Yes	No	No	No	No	No	No	No
F	802 T: vehicle	F	Yes	No	No	No	No	No	No	No
G	Dummy	-	No	No	No	No	No	No	No	No
H	Dummy	-	No	No	No	No	No	No	No	No
I	Dummy	-	No	No	No	No	No	No	No	No

STREAMS AND STAGES

STREAM

ID	Name	Type
1	STREAM1	Junction
2	STREAM2	Junction
3	STREAM3	Junction

STAGE

ID	Description	Stream No.	Demands AFTER Min Exp.	Demands BEFORE Min Exp.	Ripple Change	Startup stage	Arterial reversion stage	Switch off stage	All Red stage
1	STAGE1	1	No	Yes	No	Yes	Yes	Yes	No
2	STAGE2	1	No	Yes	No	No	No	No	No
3	STAGE3	1	No	Yes	No	No	No	No	Yes
4	STAGE4	2	No	Yes	No	Yes	Yes	Yes	No
5	STAGE5	2	No	Yes	No	No	No	No	No
6	STAGE6	2	No	Yes	No	No	No	No	Yes
7	STAGE7	3	No	Yes	No	Yes	Yes	Yes	No
8	STAGE8	3	No	Yes	No	No	No	No	No
9	STAGE9	3	No	Yes	No	No	No	No	Yes

Phases in stages

[illegible]

PHASES

Types

Phase	Site Phase	Description	Type	Associated Phase
A	A	Circulating at M27 Eastbound Off Slip	802 T: vehicle	-
B	B	M27 Eastbound Off Slip	802 T: vehicle	-
C	C	Circulating at Charles Watts Way	802 T: vehicle	-
D	D	Charles Watts Way	802 T: vehicle	-
E	E	Circulating at Upper Northam Road	802 T: vehicle	-
F	F	Upper Northam Road	802 T: vehicle	-
G	G	Dummy in Stage 3	Dummy	-
H	H	Dummy in Stage 6	Dummy	-
I	I	Dummy in Stage 8	Dummy	-

CONDITIONS

Phase	Tactile Interlock	Appearance type	Termination type
A	No	Always	At end of stage
B	No	Always	At end of stage
C	No	Always	At end of stage
D	No	Always	At end of stage
E	No	Always	At end of stage
F	No	Always	At end of stage
G	No	Always	At end of stage
H	No	Always	At end of stage
I	No	Always	At end of stage

TIMINGS

Phase	Type	Min green	Min red	Start Amber	Amber	Ped Period V	Ped Period VI	Ped Period VII	Ped Period VIII	Pre-time max
A	802 T: vehicle	7	1	2	3					No
B	802 T: vehicle	7	1	2	3					No
C	802 T: vehicle	7	1	2	3					No
D	802 T: vehicle	7	1	2	3					No
E	802 T: vehicle	7	1	2	3					No
F	802 T: vehicle	7	1	2	3					No

Phase	Type	Min green	Min red	Start Amber	Amber	Ped Period V	Ped Period VI	Ped Period VII	Ped Period VIII	Pre-time max
G	Dummy	3	1							No
H	Dummy	3	1							No
I	Dummy	3	1							No

Note: Use of zero second blackout Ped Period 5 on Type 814 PD: is not current DfT policy and should be discouraged

PHASE GREEN TIMING RANGES

PHASE	MIN Lower Limit	MIN Upper Limit	MAX Lower Limit	MAX Upper Limit
A	7	10	0	100
B	7	10	0	100
C	7	10	0	100
D	7	10	0	100
E	7	10	0	120
F	7	10	0	120
G	3	10	0	120
H	3	10	0	120
I	3	10	0	120

PHASE TIMING SETS

Regular maximums

	1	2	3	4
A	30	30	30	30
B	30	30	30	30
C	30	30	30	30
D	30	30	30	30
E	30	30	30	30
F	30	30	30	30
G				
H				
I				

Alternative maximums

	1	2	3	4
A				
B				
C				
D				
E				
F				
G				
H				
I				

Variable blackout/red periods

	1	2	3	4
A				
B				
C				
D				
E				

	1	2	3	4
F				
G				
H				
I				

Minimum green

	1	2	3	4
A				
B				
C				
D				
E				
F				
G				
H				
I				

PSVP inhibition times

	1	2	3	4
A				
B				
C				
D				
E				
F				
G				
H				
I				

PSVP maximum green times

	1	2	3	4
A				

	1	2	3	4
B				
C				
D				
E				
F				
G				
H				
I				

PHASE MATRICES

Settings

Starting intergreen	Handset maximum	Flashing Amber	All Red
8	30	0	0
Handset Int Offset	Default RLM Int		
0	2		

Opposing and conflicting

	A	B	C	D	E	F	G	H	I
A	-	C	-	-	-	-	C	-	-
B	C	-	-	-	-	-	C	-	-
C	-	-	-	C	-	-	-	C	-
D	-	-	C	-	-	-	-	C	-
E	-	-	-	-	-	C	-	-	C
F	-	-	-	-	C	-	-	-	C
G	C	C	-	-	-	-	-	-	-
H	-	-	C	C	-	-	-	-	-
I	-	-	-	-	C	C	-	-	-

Intergreen times

	A	B	C	D	E	F	G	H	I
A		6					3		
B	6						3		
C				6				3	
D			6					3	
E						6			3
F					6				3
G	2	2							
H			2	2					
I					2	2			

Handset intergreen limits

LAMP MONITORING

Applied sensing technology

Individual Monitoring Channels Used for RLUs ?	No
--	----

Lamp Switches

Phase	Type	SWR	SWA	SWG	SWWL
A	802 T: vehicle	R01	A01	G01	
B	802 T: vehicle	R02	A02	G02	
C	802 T: vehicle	R03	A03	G03	
D	802 T: vehicle	R04	A04	G04	
E	802 T: vehicle	R05	A05	G05	
F	802 T: vehicle	R06	A06	G06	
G	Dummy				
H	Dummy				
I	Dummy				

Phase Lamp Types

Phase	Description	Type	Red	Amber	Green	Wait
A	Circulating at M27 Eastbound Off Slip	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
B	M27 Eastbound Off Slip	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
C	Circulating at Charles Watts Way	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
D	Charles Watts Way	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
E	Circulating at Upper Northam Road	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
F	Upper Northam Road	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
G	Dummy in Stage 3	-	-	-	-	-
H	Dummy in Stage 6	-	-	-	-	-
I	Dummy in Stage 8	-	-	-	-	-

Lamp Monitor Settings

Phase	Description	Red 1	Red 2	Amber	Green
A	Circulating at M27 Eastbound Off Slip	Maintenance	None	Maintenance	Maintenance
B	M27 Eastbound Off Slip	Maintenance	None	Maintenance	Maintenance
C	Circulating at Charles Watts Way	Maintenance	None	Maintenance	Maintenance
D	Charles Watts Way	Maintenance	None	Maintenance	Maintenance

Phase	Description	Red 1	Red 2	Amber	Green
E	Circulating at Upper Northam Road	Maintenance	None	Maintenance	Maintenance
F	Upper Northam Road	Maintenance	None	Maintenance	Maintenance
G	Dummy in Stage 3	None	None	None	None
H	Dummy in Stage 6	None	None	None	None
I	Dummy in Stage 8	None	None	None	None

Safety Lamp Monitor Shutdown Action

Phase	Description	Red 1	Red 2	Amber
A	Circulating at M27 Eastbound Off Slip	None	None	None
B	M27 Eastbound Off Slip	None	None	None
C	Circulating at Charles Watts Way	None	None	None
D	Charles Watts Way	None	None	None
E	Circulating at Upper Northam Road	None	None	None
F	Upper Northam Road	None	None	None
G	Dummy in Stage 3	None	None	None
H	Dummy in Stage 6	None	None	None
I	Dummy in Stage 8	None	None	None

PHASE DELAYS

FIXED TIME

FIXED TIME TO CURRENT MAXIMUM

STREAM	Fixed
STREAM1	Yes
STREAM2	Yes
STREAM3	Yes

Phase	Demand	Extend
A	Yes	Yes
B	Yes	Yes
C	Yes	Yes
D	Yes	Yes
E	Yes	Yes
F	Yes	Yes
G	No	No
H	No	No
I	No	No

	1	2	3	4	5	6	7	8	9
4	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-

Set 6

	1	2	3	4	5	6	7	8	9
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-

Set 7

	1	2	3	4	5	6	7	8	9
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-

Set 8

MANUAL STAGE SELECTION

	1	2	3
But 1	1	4	7
But 2	2	5	8
But 3	2	4	8
But 4	2	4	7
But 5	-	-	-
But 6	-	-	-
But 7	-	-	-
But 8	-	-	-
But 9	-	-	-
But 10	-	-	-
But 11	-	-	-
But 12	-	-	-
But 13	-	-	-
But 14	-	-	-
But 15	-	-	-
But 16	-	-	-

Detectors

Application

ID	Detector	Type	Phase	Call	Cancel	Extend	Associated Det	DEM	CANCEL
1	AIN1	Vehicle loop	-				-	No	No
2	AIN3	Vehicle loop	-				-	No	No
3	AX2	Vehicle loop	A			4	-	Yes	No
4	AX4	Vehicle loop	A			4	-	Yes	No
5	BIN5	Vehicle loop	-				-	No	No
6	BIN7	Vehicle loop	-				-	No	No
7	BX8	Vehicle loop	B			4	-	Yes	No
8	BX10	Vehicle loop	B			4	-	Yes	No
9	BSL9	Vehicle loop	B				-	Yes	No
10	BSL11	Vehicle loop	B				-	Yes	No
11	BSINK6	Vehicle loop	-				-	No	No
12	CX12	Vehicle loop	C			4	-	Yes	No
13	CX13	Vehicle loop	C			4	-	Yes	No
14	CX14	Vehicle loop	C			4	-	Yes	No
15	DIN15	Vehicle loop	-				-	No	No
16	DIN18	Vehicle loop	-				-	No	No
17	DX19	Vehicle loop	D			4	-	Yes	No
18	DX21	Vehicle loop	D			4	-	Yes	No
19	DSL20	Vehicle loop	D				-	Yes	No
20	DSL22	Vehicle loop	D				-	Yes	No
21	DX16	Vehicle loop	D			4	-	Yes	No
22	DSL17	Vehicle loop	D				-	Yes	No
23	EX24	Vehicle loop	E			4	-	Yes	No
24	EX25	Vehicle loop	E			4	-	Yes	No
25	EX23	Vehicle loop	E			4	-	Yes	No
26	FIN26	Vehicle loop	-				-	No	No
27	FX27	Vehicle loop	F			4	-	Yes	No
28	FSL28	Vehicle loop	F				-	Yes	No
29	FSL29	Vehicle loop	F				-	Yes	No
30	SCOOT1	Scoot detector	-				-	No	No
31	SCOOT2	Scoot detector	-				-	No	No
32	SCOOT3	Scoot detector	-				-	No	No
33	SCOOT4	Scoot detector	-				-	No	No

ID	Detector	Type	Phase	Call	Cancel	Extend	Associated Det	DEM	CANCEL
34	SCOOT5	Scoot detector	-				-	No	No
35	SCOOT6	Scoot detector	-				-	No	No
36	SCOOT7	Scoot detector	-				-	No	No
37	SCOOT8	Scoot detector	-				-	No	No
38	SCOOT9	Scoot detector	-				-	No	No
39	SCOOT10	Scoot detector	-				-	No	No
40	SCOOT11	Scoot detector	-				-	No	No
41	SCOOT12	Scoot detector	-				-	No	No
42	SCOOT13	Scoot detector	-				-	No	No
43	SCOOT14	Scoot detector	-				-	No	No
44	SCOOT15	Scoot detector	-				-	No	No
45	SCOOT16	Scoot detector	-				-	No	No
46	SCOOT17	Scoot detector	-				-	No	No
47	SCOOT18	Scoot detector	-				-	No	No
48	SCOOT19	Scoot detector	-				-	No	No
49	SCOOT20	Scoot detector	-				-	No	No
50	SCOOT21	Scoot detector	-				-	No	No
51	SCOOT22	Scoot detector	-				-	No	No
52	Dummy_DX_A	-	A			0.2	-	Yes	No
53	Dummy_DX_B	-	B			0.2	-	Yes	No
54	Dummy_DX_C	-	C			0.2	-	Yes	No
55	Dummy_DX_D	-	D			0.2	-	Yes	No
56	Dummy_DX_E	-	E			0.2	-	Yes	No
57	Dummy_DX_F	-	F			0.2	-	Yes	No

Detector Fault Monitoring

[illegible]

[illegible]

[illegible]

IMFLOW

Enable ImFlow	Log to TDC
No	No

Settings

Wait time on deadlock (s)	Retries on UTC deadlock	Retries on UTC conflict
300	5	1

MASTER TIME CLOCK

MTC table

ID	Function	Arg1	Arg2	Start	End	Mo	Tu	We	Th	Fr	Sa	Su	G1	G2	G3	G4	G5	G6	G7
1	Control plan	1	0	00:00:00	24:00:00	X	X	X	X	X	X	X	-	-	-	-	-	-	-
2	CLF plan	0	0	00:00:00	06:45:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
3	CLF plan	1	0	06:45:00	09:25:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
4	CLF plan	2	0	09:25:00	16:45:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
5	CLF plan	3	0	16:45:00	18:30:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
6	CLF plan	2	0	18:30:00	21:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
7	CLF plan	0	0	21:00:00	24:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
8	CLF plan	0	0	00:00:00	07:30:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
9	CLF plan	1	0	07:30:00	15:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
10	CLF plan	3	0	15:00:00	19:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
11	CLF plan	2	0	19:00:00	21:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
12	CLF plan	0	0	21:00:00	24:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
13	CLF plan	0	0	00:00:00	07:30:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
14	CLF plan	1	0	07:30:00	15:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
15	CLF plan	3	0	15:00:00	19:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
16	CLF plan	2	0	19:00:00	21:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
17	CLF plan	0	0	21:00:00	24:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
18	Timing set	1	0	00:00:00	07:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
19	Timing set	4	0	07:00:00	09:30:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
20	Timing set	1	0	09:30:00	16:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
21	Timing set	4	0	16:00:00	18:30:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
22	Timing set	1	0	18:30:00	24:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
23	Timing set	1	0	00:00:00	09:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
24	Timing set	4	0	09:00:00	18:30:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
25	Timing set	1	0	18:30:00	24:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
26	Timing set	1	0	00:00:00	09:30:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
27	Timing set	4	0	09:30:00	16:30:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
28	Timing set	1	0	16:30:00	24:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-

CONFLICT EXTENSION RED

CABLELESS LINKING FACILITY

Global settings

Setting	Value
Sync. Mode	Continuous
Sync. Day	Monday
Ref. time	06:00

Plans

Plan No	Cycle	Offset	Cycle EntryTime	Cycle ExitTime
1	65	0	0	64
2	40	0	0	39
3	65	0	0	64

Functions and actions

PLAN 1

Action No	Time	Influence	Stage	Stream
1	59	IM: Immediate move	1	1
2	36	DD: Demand dependent move	2	1
3	38	H: Hold	-	1
4	36	IM: Immediate move	4	2
5	63	DD: Demand dependent move	5	2
6	0	H: Hold	-	2
7	59	IM: Immediate move	7	3
8	36	DD: Demand dependent move	8	3
9	38	H: Hold	-	3

PLAN 2

Action No	Time	Influence	Stage	Stream
1	34	DD: Demand dependent move	5	2
2	34	IM: Immediate move	7	3
3	16	IM: Immediate move	1	1
4	16	IM: Immediate move	4	2
5	20	DD: Demand dependent move	8	3

Action No	Time	Influence	Stage	Stream
6	2	DD: Demand dependent move	2	1
7	36	H: Hold	–	2
8	22	H: Hold	–	3
9	4	H: Hold	–	1

PLAN 3

Action No	Time	Influence	Stage	Stream
1	64	DD: Demand dependent move	5	2
2	33	DD: Demand dependent move	2	1
3	1	IM: Immediate move	7	3
4	57	IM: Immediate move	1	1
5	34	IM: Immediate move	4	2
6	52	DD: Demand dependent move	8	3
7	1	H: Hold	–	2
8	35	H: Hold	–	1
9	54	H: Hold	–	3

OTU

Units

General Integral OTU options

Discrete OTU

ID	Invert control bits	Invert reply bits
1	No	Yes
2	No	Yes

Control and reply bits

Control / Reply

Function	Arg	Label	Position ID	Label	Arg	Function
F	1	F1	1	G1	1	G
F	2	F2	2	G2	2	G
F	4	F4	3	G4	4	G
F	5	F5	4	G5	5	G
F	7	F7	5	G7	7	G
F	8	F8	6	G8	8	G
DX	0	DX	7	DF	0	DF
D	2	D2	8	SD2	2	SD
D	5	D5	9	SD5	5	SD
D	8	D8	10	SD8	8	SD
GO	1	GO1	11	RR	0	RR
GO	2	GO2	12	LF1	0	LF
GO	3	GO3	13	LF2	0	RF1
-	0		14		0	-
-	0		15		0	-
TS	0	TS	16	CS	0	TSR
SF	1	SF1	17	RQ1	1	UF
SF	2	SF2	18	RQ2	2	UF
SF	4	SF4	19	RQ4	3	UF
SF	5	SF5	20	RQ5	4	UF
-	0		21	RQ7	5	UF
-	0		22	RQ8	6	UF

Function	Arg	Label	Position ID	Label	Arg	Function
-	0		23		0	-
-	0		24		0	-
-	0		25		0	-
-	0		26		0	-
-	0		27		0	-
-	0		28		0	-
-	0		29		0	-
TO	1	TO1	30	CRB_1	9	UF
TO	2	TO2	31	CRB_2	10	UF
TO	3	TO3	32	CRB_3	11	UF

UTC Demand/Extend bits - Phases/Stages allocation

Bit	Phases Demanded	Phases Extended	Stages Demanded	Stages Extended
D 2				
D 5				
D 8				

Keep default Demand reply options

Default Stage Demand (SD) reply	No
Default Phase Demand (DR) reply	No

RTC

Synchronisation time (UTC TS input)	06:00
Confirm time (UTC RT output)	6:0:0

Special UTC Reply bits

	G1/G2	RR
Manual mode operative	No	Yes
Manual mode selected	No	Yes
No lamp power (excluding RLM and PT)	Yes	n/a
Normal not selected on the manual panel	No	Yes

CG reply bit weekday-coded	No
----------------------------	----

UG405 bit mapping

Settings

Enable UG405	No
OTU System Code Number (SCN)	

Control / Reply

ID	Label	Controller SCN	UG405 Name	Bit Index	Label	Controller SCN	UG405 name	Bit index
1	F1		-		G1		-	
2	F2		-		G2		-	
3	F4		-		G4		-	
4	F5		-		G5		-	
5	F7		-		G7		-	
6	F8		-		G8		-	
7	DX		-		DF		-	
8	D2		-		SD2		-	
9	D5		-		SD5		-	
10	D8		-		SD8		-	
11	GO1		-		RR		-	
12	GO2		-		LF1		-	
13	GO3		-		LF2		-	
14			-				-	
15			-				-	
16	TS		-		CS		-	
17	SF1		-		RQ1		-	
18	SF2		-		RQ2		-	
19	SF4		-		RQ4		-	
20	SF5		-		RQ5		-	
21			-		RQ7		-	
22			-		RQ8		-	
23			-				-	
24			-				-	
25			-				-	
26			-				-	
27			-				-	
28			-				-	
29			-				-	

ID	Label	Controller SCN	UG405 Name	Bit Index	Label	Controller SCN	UG405 name	Bit index
30	TO1		-		CRB_1		-	
31	TO2		-		CRB_2		-	
32	TO3		-		CRB_3		-	

HURRY CALLS

PUBLIC SERVICE VEHICLE PRIORITY

SPEED ASSESSMENT AND SPEED DISCRIMINATION

APPLICATION BUILDING BLOCKS

Software Switches (User Parameters)

ID	Name	Default	Min Value	Max Value
1	Use_C_Extensions_for_Str2_Mdet31	1	0	1
2	Use_C_Extensions_for_Str2_Mdet33	1	0	1
3	Use_E_Extensions_for_Str3_Mdet35	1	0	1
4	Use_E_Extensions_for_Str3_Mdet37	1	0	1
5	Use_C_Extensions_for_Str3_Mdet39	1	0	1
6	Use_C_Extensions_for_Str3_Mdet41	1	0	1

Event Pulses

ID	Name	Type	Input Type	On	OFF
1	F1_Stuck	Level	Level	200	0
2	F2_Stuck	Level	Level	200	0
3	F4_Stuck	Level	Level	200	0
4	F5_Stuck	Level	Level	200	0
5	F7_Stuck	Level	Level	200	0
6	F8_Stuck	Level	Level	200	0
7	Toggle_CRB1	Pulse	Falling edge	2	2
8	Toggle_CRB2	Pulse	Falling edge	2	2
9	Toggle_CRB3	Pulse	Falling edge	2	2
10	Flash.UTC_LED	Wave	Level	0.8	0.8
11	Str1_Mdet31_Delay	Level	Level	2	2
12	Str1_Mdet31_Hold	Level	Level	7	0
13	Str1_Mdet32_Delay	Pulse	Rising edge	2	2
14	Str1_Mdet33_Delay	Level	Level	2	2
15	Str1_Mdet33_Hold	Level	Level	7	0
16	Str1_Mdet34_Delay	Pulse	Rising edge	2	2
17	Str1_Mdet35_Delay	Level	Level	2	2
18	Str1_Mdet35_Hold	Level	Level	7	0
19	Str1_Mdet36_Delay	Pulse	Rising edge	2	2
20	Str1_Mdet38_Delay	Pulse	Rising edge	2	2
21	Str2_Mdet32_Delay	Pulse	Rising edge	2	2
22	Falling_Edge_C_Extensions	Pulse	Falling edge	0	0.1
23	Str2_Mdet34_Delay	Pulse	Rising edge	2	2

ID	Name	Type	Input Type	On	OFF
24	Str3_Mdet31_Delay	Level	Level	2	2
25	Str3_Mdet31_Hold	Level	Level	7	0
26	Str3_Mdet32_Delay	Pulse	Rising edge	2	2
27	Str3_Mdet33_Delay	Level	Level	2	2
28	Str3_Mdet33_Hold	Level	Level	7	0
29	Str3_Mdet34_Delay	Pulse	Rising edge	2	2
30	Falling_Edge_E_Extensions	Pulse	Falling edge	0	0.1
31	Str3_Mdet36_Delay	Pulse	Rising edge	2	2
32	Str3_Mdet38_Delay	Pulse	Rising edge	2	2
33	Str3_Mdet40_Delay	Pulse	Rising edge	2	2
34	Str3_Mdet42_Delay	Pulse	Rising edge	2	2
35	Str1_Mdet37_Delay	Level	Level	2	2
36	Str1_Mdet37_Hold	Level	Level	7	0
37	Str2_Mdet31_Hold	Level	Level	0	0
38	Str2_Mdet31_Min_Timer	Level	Level	10	0
39	Str2_Mdet31_C_Extensions_Active	Level	Level	0	0
40	Str2_Mdet31_End_of_Stage_2	Pulse	Falling edge	0	0
41	Str2_Mdet33_Hold	Level	Level	0	0
42	Str2_Mdet33_Min_Timer	Level	Level	10	0
43	Str2_Mdet33_C_Extensions_Active	Level	Level	0	0
44	Str2_Mdet33_End_of_Stage_1	Pulse	Falling edge	0	0
45	Str3_Mdet35_Hold	Level	Level	0	0
46	Str3_Mdet35_Min_Timer	Level	Level	10	0
47	Str3_Mdet35_E_Extensions_Active	Level	Level	0	0
48	Str3_Mdet35_End_of_Stage_5	Pulse	Falling edge	0	0
49	Str3_Mdet37_Hold	Level	Level	0	0
50	Str3_Mdet37_Min_Timer	Level	Level	10	0
51	Str3_Mdet37_E_Extensions_Active	Level	Level	0	0
52	Str3_Mdet37_End_of_Stage_4	Pulse	Falling edge	0	0
53	Str3_Mdet39_Hold	Level	Level	0	0
54	Str3_Mdet39_Min_Timer	Level	Level	10	0
55	Str3_Mdet39_C_Extensions_Active	Level	Level	0	0
56	Str3_Mdet39_End_of_Stage_2	Pulse	Falling edge	0	0
57	Str3_Mdet41_Hold	Level	Level	0	0
58	Str3_Mdet41_Min_Timer	Level	Level	10	0
59	Str3_Mdet41_C_Extensions_Active	Level	Level	0	0
60	Str3_Mdet41_End_of_Stage_1	Pulse	Falling edge	0	0

Event Pulse Input Conditioning

```
evp1() = mUTC(0) && in(UTC_I1) && (in(UTC_I30)==0);evp2() = mUTC(0) && in(UTC_I2) && (in(UTC_I30  
n(UTC_I32)==0);evp7() = mPSVP(0);evp8() = mPSVP(1);evp9() = mPSVP(2);evp10() = TRUE;evp11() = in  
put_S5();evp18() = evp(Str1_Mdet35_Delay);evp19() = Output_S5();evp20() = Output_S4();evp21() =  
8() = evp(Str3_Mdet33_Delay);evp29() = in(L1) || in(UTC_I17);evp30() = Extensions_on_E();evp31()  
_Timer) then wmem(20,2);endif if (mem(20)==2) && (evp(Str2_Mdet31_C_Extensions_Active) || evp(Str  
Extensions_for_Str2_Mdet31)==0) thenreturn FALSE;else return TRUE;endifendevp40() = fcg(B);evp41  
ifif (mem(21)==1) || (mem(21)==2) thenreturn TRUE;elsereturn FALSE;endifendevp42() = Output_S1()  
det35_Min_Timer) then wmem(22,2);endif if (mem(22)==2) && (evp(Str3_Mdet35_E_Extensions_Active)  
UP(Use_E_Extensions_for_Str3_Mdet35)==0) thenreturn FALSE;else return TRUE;endifendevp48() = fcg  
23,0);endifif (mem(23)==1) || (mem(23)==2) thenreturn TRUE;elsereturn FALSE;endifendevp50() = Ou  
vp(Str3_Mdet39_Min_Timer) then wmem(24,2);endif if (mem(24)==2) && (evp(Str3_Mdet39_C_Extensions  
C()) || (UP(Use_C_Extensions_for_Str3_Mdet39)==0) thenreturn FALSE;else return TRUE;endifendevp5  
thenwmem(25,0);endifif (mem(25)==1) || (mem(25)==2) thenreturn TRUE;elsereturn FALSE;endifendevp
```

Event Filter Input Conditioning

SPECIAL CONDITIONING - (VM Functions)

O.T.U. Control & Reply Bit Special Conditioning
<pre>rf_2(arg) = cfa;rf_21(arg) = rf1(A) rf1(B) rf1(C) rf1(D) rf1(E) rf1(F);rf_32(arg) endifif (arg==6) thenreturn Output_S8();endifif (arg==7) thenreturn FALSE;endifif (arg==8) thenr)==1) && (stgr(0,0,0));urDR1() = dr(A);urG2() = (stgc(0)==2) && (stgr(0,0,0));urDR2() = dr(B);ur ,0,0));urDR6() = dr(H);urG7() = (stgc(2)==7) && (stgr(2,0,0));urDR7() = dr(E);urG8() = (stgc(2)=</pre>

Integral O.T.U. Special Conditioning
<pre>otu_dstate(d) = get(h_xdet_sts, d) & DET_BEZET_MASK;otu_dfault(d) = get(h_xdet_sts, d) & DET_FAU</pre>

U.T.C. (G1/G2) Special Conditioning

CLF Request & Inhibit Special Conditioning

P.S.V.P. Pre Check-in, Check-in & Check-out Special Conditioning

Hurry Call Delay, Force, Demand & Inhibit Special Conditioning

Phase Delay Appearance Special Conditioning

Stream On/Off Control Special Conditioning
<pre>roffsync() = okoff(0) && okoff(1) && okoff(2);mac1_swon(t) = yellow_period(0,t);macon1() = (mino yellow_period(2,t);macon3() = (minon(xp)==0);macoff3() = ((macm(xp) <= 1) && (mact(xp) <= tson(7</pre>

Detector Count Activity Window Special Conditioning

```
nokbs()var det;for det=0 to (nrel(h_dfunc) - 1) do if ddo(det) && fcr(get(h_dsg,det)) && (ddr(det)!=1) && (geti(h_dfunc,det) & 16) then
```

Phase Control Special Conditioning

```
latch(ph) = dx(ph) && (fcg(ph)==0);pd_ALL(ph)if ((xsf(XSF_PSET_ERR) != AUTOSET_STATE_DONE) && (x
```

Phase Timing Set Selection Special Conditioning

Dummy Detector Special Conditioning

```
vmDET1() = uDX(0);vmDET2() = uDX(0) || uD(2);vmDET3() = uDX(0);vmDET4() = uDX(0) || uD(5);vmDET5
```

Mode Control Special Conditioning

```
rHCH() = rar(xp);rUTC()if (xp==0) thenreturn (in(UTC_I1) || in(UTC_I2)) && (in(UTC_I30)==0) && S  
urn (in(UTC_I5) || in(UTC_I6)) && (in(UTC_I32)==0) && Stream_3_TO_Bit() && Stream_3_Stuck_Force_  
& in(UTC_I31));endifif xp==2 thenreturn((in(UTC_I5) || in(UTC_I6)) && in(UTC_I32));endifendrSVA(
```

All Red Detection Operation Special Conditioning

Manual Panel Stage LED Conditions

```
MpStageLEDsNoDefault()mpdiso(20,1);mpdiso(21,1);mpdiso(22,1);mpdiso(23,1);mpdiso(24,1);mpdiso(25  
edfunc21();mpLEDfunc22();mpLEDfunc23();mpLEDfunc24();mpLEDfunc25();mpLEDfunc26();mpLEDfunc27();m  
stgr(0,1,0));mpLEDfunc21() = cmLED(21,(stgc(0)==2)*(2-stgr(0,1,0)));mpLEDfunc22() = cmLED(22,(s  
stgr(1,1,0));mpLEDfunc26() = cmLED(26,(stgc(2)==7)*(2-stgr(2,1,0)));mpLEDfunc27() = cmLED(27,(s  
stgr(2,1,0));mpLEDfunc29() = 0;mpLEDfunc30() = 0;mpLEDfunc31() = 0;mpLEDfunc32() = 0;mpLEDfunc3
```

Initialisation & General Special Conditioning

```
init()open_handles();return 1;enddfm_f() = rf1(-1) || fci(-1);
```

User Defined VM Functions

```
post_100ms()Resetmax();Stream_1_Stuck_Force_Bit();Stream_2_Stuck_Force_Bit();Stream_3_Stuck_Force_Bit();
am_Shutdown();mpdiso(0,1);mpdiso(1,1);mpdiso(2,1);mpdiso(3,1);mpdiso(4,1);mpdiso(7,1);mpdiso(9,1);
trl_on.UTC) || (in(West_Str1_on_Mova) && evp(Flash.UTC_LED));cmled(4, in(West_Str2_on.UTC) || (
(0) || mPSVP(1) || mPSVP(2) || mUTC(0) || mUTC(1) || mUTC(2));cout(S1, Output_S1());cout(S2, Out
(2));cout(East_Str1_on.UTC, mUTC(0));cout(East_Str2_on.UTC, mUTC(1));cout(East_Str3_on.UTC, mUTC
(Str1_Mdet34, evp(Str1_Mdet34_Delay));cout(Str1_Mdet35, evp(Str1_Mdet35_Delay) && (evp(Str1_Mdet
2_Mdet31_Hold));cout(Str2_Mdet32, evp(Str2_Mdet32_Delay));cout(Str2_Mdet33, evp(Str2_Mdet33_Hold
lay) && (evp(Str3_Mdet33_Hold)==0));cout(Str3_Mdet34, evp(Str3_Mdet34_Delay));cout(Str3_Mdet35,
tr3_Mdet40, evp(Str3_Mdet40_Delay));cout(Str3_Mdet41, evp(Str3_Mdet41_Hold));cout(Str3_Mdet42, e
F1_Stuck) thenwmem(0,1);endifif (in(UTC_I1)==0) thenwmem(0,0);endifif evp(F2_Stuck) thenwmem(1,1
)==0) thenwmem(2,0);endifif evp(F5_Stuck) thenwmem(3,1);endifif (in(UTC_I4)==0) thenwmem(3,0);en
thenwmem(5,1);endifif (in(UTC_I6)==0) thenwmem(5,0);endifif (mem(4)==1) || (mem(5)==1) thenretur
m_3_TO_Bit()if in(UTC_I32) thenreturn (FALSE);elsereturn (TRUE);endifendCRB1()if mpauto(xp) && (
mpauto(xp) && (evp(Toggle_CRB3)==0) && (macm(2)>1) thenreturn (FALSE);elsereturn (TRUE);endifend
);endifif (mem(11)==1) then return TRUE;elsereturn FALSE;endifendOutput_S4()if fca(D) then wmem(
urn TRUE;elsereturn FALSE;endifendOutput_S7()if fca(F) then wmem(14,1);endifif fca(E) thenwmem(1
endExtensions_on_C()if ddgl(CX12) && ddgl(CX13) && ddgl(CX14) thenreturn FALSE;elsereturn TRUE;e
(xpsts(2)==3) || (xpsts(2)==3)thensxpsts(0,3);sxpsts(1,3);sxpsts(2,3);elsesxpsts(0,0);sxpsts(1,
```

Stage Moves

Hurry Call High Mode - HCH (Normally for Part Time / Prom Swap Facility)
mHCH1_3d() = rar(xp);mHCH2_3d() = rar(xp);mHCH4_6d() = rar(xp);mHCH5_6d() = rar(xp);mHCH7_9d() =

Hurry Call Standard Mode - HCL

Vehicle Actuated Mode - VA
mVA1_2d() = dr(B);mVA1_2e() = er(A);mVA1_2i() = FALSE;mVA1_3d() = FALSE;mVA1_3e() = er(A);mVA1_3i() = dr(A);mVA3_1e() = FALSE;mVA3_1i() = FALSE;mVA3_2d() = dr(B);mVA3_2e() = FALSE;mVA3_2i() = FALSE;mVA5_6e() = er(D);mVA5_6i() = FALSE;mVA5_4d() = dr(C);mVA5_4e() = er(D);mVA5_4i() = FALSE;mVA5_4du = dSTGe(6, 4);mVA6_4iu4() = FALSE;mVA7_8d() = dr(F);mVA7_8e() = er(E);mVA7_8i() = FALSE;mVA7_9d(, 7);mVA8_7iu4() = FALSE;mVA9_7d() = dr(E);mVA9_7e() = FALSE;mVA9_7i() = FALSE;mVA9_8d() = dr(F)

Fixed Time Mode - FT
mFT1_2d() = dSTGd(1, 2);mFT1_2e() = dSTGe(1, 2);mFT1_2i() = FALSE;mFT1_3d() = dSTGd(1, 3);mFT1_34() = dSTGe(2, 1);mFT2_1iu4() = FALSE;mFT3_1d() = dSTGd(3, 1);mFT3_1e() = dSTGe(3, 1);mFT3_1i() = FALSE;mFT4_6d() = dSTGd(4, 6);mFT4_6e() = dSTGe(4, 6);mFT4_6i() = FALSE;mFT5_6d() = dSTGd(5, 6, 4);mFT6_4e() = dSTGe(6, 4);mFT6_4i() = FALSE;mFT6_5d() = dSTGd(6, 5);mFT6_5e() = dSTGe(6, 5);mFT7_9i() = FALSE;mFT8_9d() = dSTGd(8, 9);mFT8_9e() = dSTGe(8, 9);mFT8_9i() = FALSE;mFT8_7d() = dSTGd(9, 8);mFT9_8e() = dSTGe(9, 8);mFT9_8i() = FALSE;mFT9_7du4() = dn();mFT9_7eu4() = dSTGe

Cableless Linking Mode - CLF
mCLF1_2d() = cIM(2) (cDD(2) && (dr(B))) (cPS(2) && (dr(B)));mCLF1_2i() = dCLFi(1, 2);mCLF1mCLF3_2d() = cIM(2) (cDD(2) && (dr(B))) (cPS(2) && (dr(B)));mCLF3_2i() = dCLFi(3, 2);mCLF4) = dCLFd(5, 4);mCLF5_4i() = dCLFi(5, 4);mCLF6_4d() = dCLFd(6, 4);mCLF6_4i() = dCLFi(6, 4);mCLF6(7, 9);mCLF7_9i() = dCLFi(7, 9);mCLF8_9d() = dCLFd(8, 9);mCLF8_9i() = dCLFi(8, 9);mCLF8_7d() = d

Urban Traffic Control Mode - UTC
mUTC1_2d() = in(UTC_I2) && (uD(2) dr(B));mUTC1_2e() = FALSE;mUTC1_2i() = in(UTC_I1);mUTC1_3d(0)) (ex(1) && uGO(0));mUTC3_1d() = in(UTC_I1);mUTC3_1e() = FALSE;mUTC3_1i() = FALSE;mUTC3_2d(SE;mUTC4_6i() = in(UTC_I3);mUTC5_6d() = FALSE;mUTC5_6e() = FALSE;mUTC5_6i() = in(UTC_I4);mUTC5_4 dr(D));mUTC6_5e() = FALSE;mUTC6_5i() = FALSE;mUTC7_8d() = in(UTC_I6) && (uD(8) dr(F));mUTC7) = FALSE;mUTC8_7i() = (in(UTC_I6) && (uGO(2)==0)) (ex(7) && uGO(2));mUTC9_7d() = in(UTC_I5);

Public Service Priority Mode - PSVP

```
mPSVP1_2d() = in(UTC_I2) && in(UTC_I30);mPSVP1_2e() = FALSE;mPSVP1_2i() = in(UTC_I1) && in(UTC_I
UTC_I30);mPSVP2_1e() = FALSE;mPSVP2_1i() = in(UTC_I2) && in(UTC_I30);mPSVP3_1d() = in(UTC_I1) &&
SVP4_5i() = in(UTC_I3) && in(UTC_I31);mPSVP4_6d() = FALSE;mPSVP4_6e() = FALSE;mPSVP4_6i() = in(U
C_I31);mPSVP6_4d() = in(UTC_I3) && in(UTC_I31);mPSVP6_4e() = FALSE;mPSVP6_4i() = FALSE;mPSVP6_5d
P7_9e() = FALSE;mPSVP7_9i() = in(UTC_I5) && in(UTC_I32);mPSVP8_9d() = FALSE;mPSVP8_9e() = FALSE;
ALSE;mPSVP9_7i() = FALSE;mPSVP9_8d() = in(UTC_I6) && in(UTC_I32);mPSVP9_8e() = FALSE;mPSVP9_8i()
```

Manual Control Mode - MAN

```
mMAN1_2d() = mstg(xp)==2;mMAN1_3d() = mstg(xp)==3;mMAN2_3d() = mstg(xp)==3;mMAN2_1d() = mstg(xp)
g(xp)==5;mMAN7_8d() = mstg(xp)==8;mMAN7_9d() = mstg(xp)==9;mMAN8_9d() = mstg(xp)==9;mMAN8_7d() =
```

General (default) Stage Move Conditions

```
dSTGd(f,t) = drs(t);dSTGe(f,t) = exm(t);dUTCd(f,t)if t==1 then return uF(1) || (uFD(1) && (uD(1)
FD(5) && (uD(5) || in(utciTO2))); endifif t==7 then return uF(7) || (uFD(7) && (uD(7) || in(utci
Fd(f,t) = cIM(t) || (cDD(t) && drs(t)) || (cPS(t) && drs(t));dCLFi(f,t) = cIM(f) || cDD(f) || cH
l(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));dCLFd1(t) = cIM(t) || (cDD(t) && (dr(A)
t) || dr(B)));dUTCi2(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));dCLFd2(t) = cIM(t) ||
|| (uFD(t) && (uD(t) || dr(G)));dUTCi3(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));dC
);dUTCd4(t) = uF(t) || (uFD(t) && (uD(t) || dr(C)));dUTCi4(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)
);dPSVPe5() = pep(D);dUTCd5(t) = uF(t) || (uFD(t) && (uD(t) || dr(D)));dUTCi5(f,t) = ((uF(f) ||
);dPSVPd6() = pdp(H);dPSVPe6() = pep(H);dUTCd6(t) = uF(t) || (uFD(t) && (uD(t) || dr(H)));dUTCi6
(E);dSTGe7() = er(E);dPSVPd7() = pdp(E);dPSVPe7() = pep(E);dUTCd7(t) = uF(t) || (uFD(t) && (uD(t
x(t));dSTGd8() = dr(F);dSTGe8() = er(F);dPSVPd8() = pdp(F);dPSVPe8() = pep(F);dUTCd8(t) = uF(t)
xp) || (cPS(t) && ex(t));dSTGd9() = dr(I);dSTGe9() = er(I);dPSVPd9() = pdp(I);dPSVPe9() = pep(I)
f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));
```

SYSTEM PARAMETERS

UK Parameters

Name	Description	Min	Max
MAN_TIMEOUT	Manual control timeout	60	60
MAN_DEMAND_ERROR	Duration of the manual demand error indication	0	60
MAN_ENABLE	Manual control enabled.	0	1
DFM_FUNC	Bit mask specifying behaviour of DFM indicator	0	9
CLF_TIMER_SYNC	Duration of the CLF group Timer Synchronisation Signal	0	60
UTC_TS	Time in HH:MM used for COTU_TS	0	23
UTC_FORCE_TIMEOUT	The force bit watchdog timeout	120	120
UTC_FORCE_ACCEPT	The force accept timeout in system ticks.	1	120
UTC_LO_DELAY	Delay in seconds before COTU_LO changes is accepted.	0	120
UTC_RT_HOUR	Hours used for RT reply bit (-1 = any hour).	-1	23
UTC_RT_MIN	Minutes used for RT reply bit (-1 = any minute).	-1	59
UTC_RT_SEC	Seconds used for RT reply bit	-1	59
UTC_RT_DURATION	Duration of the RT reply bit in seconds	1	120
UTC_CG_DURATION	Duration of the CG reply bit in seconds	1	120
UTC_TSR_DURATION	Duration of the TSR reply bit in seconds	1	120
UTC_G1G2_FUNC	Bit mask specifying behaviour of G1/G2 reply bits	0	2
UTC_RR_FUNC	Bit mask specifying behaviour of RR reply bit	0	2
UTC_PV_ACCEPT	The PV accept time in system ticks	0	2
UTC_PV_HOLD	The PV hold time in system ticks	0	2
UKSTG_DIM_ALARM	The maximum time [in hours] for dimmed operation(-1 = solar cell disabled, 0 = enabled without timeout processing)	-1	1
UKSTG_DIM_FILTER	The call/cancel delay [in sec] for the DIM relays	0	2
UTC_CRB_PULSE_ON_TIME	CRB On Timer	0	1
UTC_CRB_PULSE_OFF_TIME	CRB Off Timer	0	1

System Parameters

Name	Description	Min	Max
MMI8408	XMMI: 8 x 40 MMI	0	1
XIN_L	XIN_L: Number of IN logging lines	1	999
XOUT_L	XOUT_L: Number of OUT logging lines	1	999
XDET_L	XDET_L: Number of DET logging lines	1	999
XDET_F	XDET_F: Status in case of fault	0	2
XSG_L	XSG_L: Number of SG logging lines	0	999

Name	Description	Min	Max
XHTTP	XHTTP: Presence of web server	0	1
XHTTP_PORT	XHTTP_PORT: Webserver port	0	65535
XLM_MAL	XLM_MAL: Go to major alarm if power reference(s) are not set	0	1
XLM_RLM	XLM_RLM: RLM callback interval in 0.1 [s]	0	100
XLM_T	XLM_T: Tracking off / on	0	20
XLM_TF	XLM_TF: Tracking filter	1	20
XLM_NV	XLM_NV: Nominal (bright) voltage	0	240
XLM_MON	XLM_MON: Monitoring type	0	10
XLM_AC	XLM_AC: Automatic calibration	0	1
XLM_DIM	XLM_DIM: Bright Din Calibration off / on	0	1
CLF_SYNC	CLF Synchronisation option.	0	3
CLF_SYNC_WDAY	CLF Weekly sync is done on..	1	7
CLF_TIMER_SYNC	Duration of the CLF group Timer Synchronisation Signal	0	2400
CLF_NON_BASE_TIME	Select base time or non base time (0 or 1)	0	1
XIOTU_RTS	RTS activated after # received characters (use 1, 2 or 3)	1	3
XIOTU_SCOOT	Default bit number used for scoot counted detectors (0 to 7)	0	7
XIOTU_CTS	CTS timeout per 10ms	4	10
UKMP_TYPE	UK Manual panel type (0=std, 1=ped, 2=multiple stages)	0	2
ENGTERM_BAUD	Engterm baudrate	0	99999
HCH_ALLRED	Use HCH for all red stage moves	0	1
HCH_SWOFF	Use HCH for switch off stage moves	0	1
PT_SYNC	Synchronize move to part time mode	0	1
CLF_MANUAL_STEP	Enable the Manual Step	0	1
CLF_DEFAULT_PLAN		-1	999
CLF_MANUAL_MEMOS	Memo for the manual step	0	1
COMPRESS_HARDWARE	Compress Hardware	0	1
XWDS_SENSOR_TIMEOUT	Wireless Detection sensor time out value	0	65535
ALERTPLUS_ENABLE	Alert+: Enable the service	0	1
ALERTPLUS_NRSESSIONS	Alert+: Number of sessions	1	99
ALERTPLUS_LOGINUSERG1	Alert+: Login code for user group 1	0	9999
ALERTPLUS_LOGINUSERG2	Alert+: Login code for user group 2	0	9999
ALERTPLUS_LOGINUSERG3	Alert+: Login code for user group 3	0	9999
ALERTPLUS_LOGINUSERG4	Alert+: Login code for user group 4	0	9999
IMFLOW_ENABLE	ImFlow enabled	0	1
IMFLOW_WDG_TIME	ImFlow: Wait time for deadlock supervision [s]	1	999
IMFLOW_MAX_WDG_RETRIES	ImFlow: Max. retries on deadlocks in UTC control	1	99
IMFLOW_MAX_CONFL_RETRIES	ImFlow: Max. retries on conflicts in UTC control	1	99
IMFLOW_SIM_IF	ImFlow Sim. interface	0	1

Name	Description	Min	Max
IMFLOW_TDC	ImFlow TDC logging	0	1

Traffic Data Collector (TDC)

TDC enabled	Persistent	Readonly	MF (max. files)	Assigned memory
Yes	0	0	4	1 Mb

MEMO FIELDS

HISTORY	
Description	Text in the History text block between: --CREDAT-- and --UPDATE--
Contents	* This is memofield HISTORY

B_HISTORY	
Description	Text in the History text block between: --CREDAT-- and --UPDATE-- - (AMSEC1.CNF)
Contents	; This is memofield HISTORY_B

ABC_INC	
Description	Code at the end of the file before the end of file remark (AMSEC1.CNF)
Contents	; This is memofield AMSEC_INC

XP1_INC	
Description	Code at the begin of the file, juts below History, under the heading 'XP1_INC'.
Contents	/* This is memofield XP1_INC */

XP2_INC	
Description	Code under the heading 'XP2_INC', just before the 'XIN INPUTS' definitions.
Contents	/* This is memofield XP2_INC */

XP3_INC	
Description	Code under the heading 'XP3_INC', at the end of the file.
Contents	/* This is memofield XP3_INC */

SADAT_INC	
Description	Code at end of the file. (SADAT.CNF)
Contents	/* This is memofield SADAT_INC */

VMFUNC_INC 1	
Description	VMFUNC process conditions
Contents	/* This is memofield VMFUNC_INC1 */

VMFUNC_INC 2	
Description	VMFUNC process conditions
Contents	/* This is memofield VMFUNC_INC2 */

HARDWARE CONFIGURATION

Device counts

Lamp control devices	Count	Detection devices	Count	I/O devices	Count
VIRTUAL-LCM	2	ED316	0	IO1616	4
LCM	2	MTS4E	14	RIO	0
RLU	0	WDS	0		
RLU-9	0	FLIR-ZONE	0		
		FLIR-OUTPUT	0		
Dummy-Phase	3	Dummy-Detector	6		

Optional devices	Setting
Manual Panel Type	Multi stage
Manual Panel Flashing	Disabled
Solar Cell Monitor	24 hour time out
Dimming Operating	ELV 24V Solar Cell

Configuration - RLU / LCM

RLU	LCM
	LCM--- Physical LCM: 01 -- - 001: A/Red (R01) 002: A/Amber (A01) 003: A/Green (G01) 004: B/Red (R02) 005: B/Amber (A02) -- Physical LCM: 02 --- 001: E/Red (R05) 002: E/Amber (A05) 003: E/Green (G05) 004: F/Red (R06)

Configuration - ED316 / MTS4E

ED316	MTS4E
	MTS4E--- Unit: 01 -- - 001: Detector AIN1 002: Detector AIN3 003: Detector AX2 004: Detector AX4--- Unit: 02 -- - 001: Detector BIN5 002: Detector BIN7 003: Detector BX8 004: Detector BX10--- Unit: 03 -- -- 001: Detector BSL9 002: Detector BSL11 003: Detector BSINK6 004: Detector CX12-- - Unit: 04 -- - 001: Detector CX13 002: Detector CX14 003: Detector DIN15 004: Detector DIN18-- - Unit: 05 -- - 001: Detector DX19 002: Detector DX21 003: Detector DSL20 004: Detector DSL22-- - Unit: 06 -- - 001: Detector DX16 002: Detector DSL17 003: Detector EX24 004: Detector EX25-- - Unit: 07 --- 001: Detector EX23 002: Detector FIN26 003: Detector FX27--- Unit: 08 -- - 001: Detector FSL28 002: Detector FSL29--- Unit: 09 -- - 001: Detector SCOOT1 002: Detector SCOOT2 003: Detector SCOOT3 004: Detector SCOOT4-- - Unit: 10 -- - 001: Detector SCOOT5 002: Detector SCOOT6 003: Detector SCOOT7 004: Detector SCOOT8-- - Unit: 11 -- - 001: Detector SCOOT9 002: Detector SCOOT10 003: Detector SCOOT11 004: Detector SCOOT12--

ED316	MTS4E
	- Unit: 12 -- - 001: Detector SCOOT13 002: Detector SCOOT14 003: Detector SCOOT15 004: Detector SCOOT16 -- Unit: 13 -- - 001: Detector SCOOT17 002: Detector SCOOT18 003: Detector SCOOT19 004: Detector SCOOT20 -- Unit: 14 --- 001: Detector SCOOT21 002: Detector SCOOT22

Configuration - WDS

WDS

IOT State - Lamp control

RLU	LCM
RLU Unit Addr * ===== =====	LCM Unit Addr * ===== 008 C/Amber (A03) 01 009 C/Green (G03) 01 05 F/Amber (A06) 02 006 F/Green (G06)

IOT State - Detection

ED316	MTS4E
ED316 Unit Addr * ===== =====	MTS4E Unit Addr * ===== 003 BSINK6 03 004 CX12 04 001 CX13 4 06 004 EX25 07 001 EX23 07 002 10 003 SCOOT7 10 004 SCOOT8 11 00 002 SCOOT18 13 003 SCOOT19 13 004 SC

WDS
WDS Unit Addr * =====

FLIR-ZONE	FLIR-OUTPUT
FLIR-ZONE Unit Addr * =====	FLIR-OUTPUT Unit Addr * =====

IOT State - IO1616, RIO

IN
IO1616- IN Unit Addr * ===== UTC_I5 01 006 UTC_I6 01 007 UTC_I7 01 008 UTC_I8 01 009 UTC_I9 01 012 UTC_I12 01 013 UTC_I13 01 014 UTC_I14 01 015 UTC_I15 01 016 UTC_I16 01 02 003 UTC_I19 02 004 UTC_I20 02 005 UTC_I21 02 006 UTC_I22 02

IN												
UTC_I25	02	010	UTC_I26	02	011	UTC_I27	02	012	UTC_I28	02	013	UTC_I29
016	UTC_I32											

IOT State - Controller connections (KOPMV)

KOPMV-IN													
KOPMV-													
IN Unit	Addr	*	=====	=====	=====	04	001	L1	04	002	L2	04	003
est_Str1_on_Mova	04		006	West_Str2_on_Mova	04		007	West_Str1_on_UTC	04		008	We	

INPUTS and OUTPUTS

Detectors

ID	Detector Name	Invert	Unit Type	Unit Pos.
1	AIN1	No	MTS4E-1	1
2	AIN3	No	MTS4E-1	2
3	AX2	No	MTS4E-1	3
4	AX4	No	MTS4E-1	4
5	BIN5	No	MTS4E-2	1
6	BIN7	No	MTS4E-2	2
7	BX8	No	MTS4E-2	3
8	BX10	No	MTS4E-2	4
9	BSL9	No	MTS4E-3	1
10	BSL11	No	MTS4E-3	2
11	BSINK6	No	MTS4E-3	3
12	CX12	No	MTS4E-3	4
13	CX13	No	MTS4E-4	1
14	CX14	No	MTS4E-4	2
15	DIN15	No	MTS4E-4	3
16	DIN18	No	MTS4E-4	4
17	DX19	No	MTS4E-5	1
18	DX21	No	MTS4E-5	2
19	DSL20	No	MTS4E-5	3
20	DSL22	No	MTS4E-5	4
21	DX16	No	MTS4E-6	1
22	DSL17	No	MTS4E-6	2
23	EX24	No	MTS4E-6	3
24	EX25	No	MTS4E-6	4
25	EX23	No	MTS4E-7	1
26	FIN26	No	MTS4E-7	2
27	FX27	No	MTS4E-7	3
28	FSL28	No	MTS4E-8	1
29	FSL29	No	MTS4E-8	2
30	SCOOT1	No	MTS4E-9	1
31	SCOOT2	No	MTS4E-9	2
32	SCOOT3	No	MTS4E-9	3
33	SCOOT4	No	MTS4E-9	4
34	SCOOT5	No	MTS4E-10	1

ID	Detector Name	Invert	Unit Type	Unit Pos.
35	SCOOT6	No	MTS4E-10	2
36	SCOOT7	No	MTS4E-10	3
37	SCOOT8	No	MTS4E-10	4
38	SCOOT9	No	MTS4E-11	1
39	SCOOT10	No	MTS4E-11	2
40	SCOOT11	No	MTS4E-11	3
41	SCOOT12	No	MTS4E-11	4
42	SCOOT13	No	MTS4E-12	1
43	SCOOT14	No	MTS4E-12	2
44	SCOOT15	No	MTS4E-12	3
45	SCOOT16	No	MTS4E-12	4
46	SCOOT17	No	MTS4E-13	1
47	SCOOT18	No	MTS4E-13	2
48	SCOOT19	No	MTS4E-13	3
49	SCOOT20	No	MTS4E-13	4
50	SCOOT21	No	MTS4E-14	1
51	SCOOT22	No	MTS4E-14	2
52	Dummy_DX_A	No	DUMMY-1	1
53	Dummy_DX_B	No	DUMMY-2	1
54	Dummy_DX_C	No	DUMMY-3	1
55	Dummy_DX_D	No	DUMMY-4	1
56	Dummy_DX_E	No	DUMMY-5	1
57	Dummy_DX_F	No	DUMMY-6	1

Inputs

ID	Input	Label	Invert	Toggle	Unit Type	Unit Pos.
1	UTC_I1	F1	No	No	IO1616-1	1
2	UTC_I2	F2	No	No	IO1616-1	2
3	UTC_I3	F4	No	No	IO1616-1	3
4	UTC_I4	F5	No	No	IO1616-1	4
5	UTC_I5	F7	No	No	IO1616-1	5
6	UTC_I6	F8	No	No	IO1616-1	6
7	UTC_I7	DX	No	No	IO1616-1	7
8	UTC_I8	D2	No	No	IO1616-1	8
9	UTC_I9	D5	No	No	IO1616-1	9
10	UTC_I10	D8	No	No	IO1616-1	10
11	UTC_I11	GO1	No	No	IO1616-1	11

ID	Input	Label	Invert	Toggle	Unit Type	Unit Pos.
12	UTC_I12	GO2	No	No	IO1616-1	12
13	UTC_I13	GO3	No	No	IO1616-1	13
14	UTC_I14		No	No	IO1616-1	14
15	UTC_I15		No	No	IO1616-1	15
16	UTC_I16	TS	No	No	IO1616-1	16
17	UTC_I17	SF1	No	No	IO1616-2	1
18	UTC_I18	SF2	No	No	IO1616-2	2
19	UTC_I19	SF4	No	No	IO1616-2	3
20	UTC_I20	SF5	No	No	IO1616-2	4
21	UTC_I21		No	No	IO1616-2	5
22	UTC_I22		No	No	IO1616-2	6
23	UTC_I23		No	No	IO1616-2	7
24	UTC_I24		No	No	IO1616-2	8
25	UTC_I25		No	No	IO1616-2	9
26	UTC_I26		No	No	IO1616-2	10
27	UTC_I27		No	No	IO1616-2	11
28	UTC_I28		No	No	IO1616-2	12
29	UTC_I29		No	No	IO1616-2	13
30	UTC_I30	TO1	No	No	IO1616-2	14
31	UTC_I31	TO2	No	No	IO1616-2	15
32	UTC_I32	TO3	No	No	IO1616-2	16
33	DIM_IN		No	No	DIMMING	1
34	L1		No	No	KOPMV-4	1
35	L2		No	No	KOPMV-4	2
36	L4		No	No	KOPMV-4	3
37	L5		No	No	KOPMV-4	4
38	West_Str1_on_Mova		No	No	KOPMV-4	5
39	West_Str2_on_Mova		No	No	KOPMV-4	6
40	West_Str1_on.UTC		No	No	KOPMV-4	7
41	West_Str2_on.UTC		No	No	KOPMV-4	8

Outputs

ID	Output	Label	Invert	Unit Type	Unit Pos.
1	S1		No	KOPMV-4	1
2	S2		No	KOPMV-4	2
3	S4		No	KOPMV-4	3
4	S5		No	KOPMV-4	4

ID	Output	Label	Invert	Unit Type	Unit Pos.
5	S7		No	KOPMV-4	5
6	S8		No	KOPMV-4	6
7	UTC_O1	G1	No	IO1616-1	1
8	UTC_O2	G2	No	IO1616-1	2
9	UTC_O3	G4	No	IO1616-1	3
10	UTC_O4	G5	No	IO1616-1	4
11	UTC_O5	G7	No	IO1616-1	5
12	UTC_O6	G8	No	IO1616-1	6
13	UTC_O7	DF	No	IO1616-1	7
14	UTC_O8	SD2	No	IO1616-1	8
15	UTC_O9	SD5	No	IO1616-1	9
16	UTC_O10	SD8	No	IO1616-1	10
17	UTC_O11	RR	No	IO1616-1	11
18	UTC_O12	LF1	No	IO1616-1	12
19	UTC_O13	LF2	No	IO1616-1	13
20	UTC_O14		No	IO1616-1	14
21	UTC_O15		No	IO1616-1	15
22	UTC_O16	CS	No	IO1616-1	16
23	UTC_O17	RQ1	No	IO1616-2	1
24	UTC_O18	RQ2	No	IO1616-2	2
25	UTC_O19	RQ4	No	IO1616-2	3
26	UTC_O20	RQ5	No	IO1616-2	4
27	UTC_O21	RQ7	No	IO1616-2	5
28	UTC_O22	RQ8	No	IO1616-2	6
29	UTC_O23		No	IO1616-2	7
30	UTC_O24		No	IO1616-2	8
31	UTC_O25		No	IO1616-2	9
32	UTC_O26		No	IO1616-2	10
33	UTC_O27		No	IO1616-2	11
34	UTC_O28		No	IO1616-2	12
35	UTC_O29		No	IO1616-2	13
36	UTC_O30	CRB_1	No	IO1616-2	14
37	UTC_O31	CRB_2	No	IO1616-2	15
38	UTC_O32	CRB_3	No	IO1616-2	16
39	DIM_OUT		No	DIMMING	1
40	East_Str1_on_Mova		No	KOPMV-4	7
41	East_Str2_on_Mova		No	KOPMV-4	8
42	East_Str3_on_Mova		No	KOPMV-4	9

ID	Output	Label	Invert	Unit Type	Unit Pos.
43	East_Str1_on.UTC		No	KOPMV-4	10
44	East_Str2_on.UTC		No	KOPMV-4	11
45	East_Str3_on.UTC		No	KOPMV-4	12
46	Str1_Mdet31		No	IO1616-3	1
47	Str1_Mdet32		No	IO1616-3	2
48	Str1_Mdet33		No	IO1616-3	3
49	Str1_Mdet34		No	IO1616-3	4
50	Str1_Mdet35		No	IO1616-3	5
51	Str1_Mdet36		No	IO1616-3	6
52	Str1_Mdet37		No	IO1616-3	7
53	Str1_Mdet38		No	IO1616-3	8
54	Str2_Mdet31		No	IO1616-3	9
55	Str2_Mdet32		No	IO1616-3	10
56	Str2_Mdet33		No	IO1616-3	11
57	Str2_Mdet34		No	IO1616-3	12
58	Str3_Mdet31		No	IO1616-3	13
59	Str3_Mdet32		No	IO1616-3	14
60	Str3_Mdet33		No	IO1616-3	15
61	Str3_Mdet34		No	IO1616-3	16
62	Str3_Mdet35		No	IO1616-4	1
63	Str3_Mdet36		No	IO1616-4	2
64	Str3_Mdet37		No	IO1616-4	3
65	Str3_Mdet38		No	IO1616-4	4
66	Str3_Mdet39		No	IO1616-4	5
67	Str3_Mdet40		No	IO1616-4	6
68	Str3_Mdet41		No	IO1616-4	7
69	Str3_Mdet42		No	IO1616-4	8

Report executed at 4/2/2020 7:15 AM

Project data

Project	M27 Junction 7 West Controller
Program date	03-03-2020
Version	1
Configuration Number	4050
Programmer	Melvyn Maycock
Country	United Kingdom
City	Southampton
Street1	M27 Junction 7
Street2	West Controller
Controller type	1
Controller board	EC2 16 Mb RAM
12NC	0
Serial number	0
Report created at	6/24/2020 11:20 AM
Database filename (.cpf)	M27_Junction_7_West_Controller.cpf
Configurator version	11.1.0.0

Configuration Notes

03/03/2020 Version 1 MM

48v 2 Stream PTC-
1 configured for UTC/MOVA fallback.

East and West controllers are linked using PTC1 Conne
n solid indicates UTC.
Function LED 2 in the Manual Panel flashing indicates Stream 2 is run
the Manual Panel flashing indicates Stream 2 in the East controller is running MOVA, LED on sol
n LED 7 is not used.
Function LED 8 indicates a force bit has been on for longer than 200 sec
of a TO bit. An individual TO bit is used per stream.
The web browser will display PSVP when
ctive for 200 seconds, the mode will be inhibited. UTC will resume as soon as the stuck
force

FACILITIES MODES AND PRIORITIES

FACILITIES

Facility	Enabled
Manual Control	Yes
Manual Step On Mode	No
CLF	Yes
UTC Facility	Yes
Hurry Call Mode	Yes
Priority	Yes
MOVA via UTC TO bits	No
MOVA M-inputs / PSVP	No

Hurry call (high priority) options

Use hurry call (high priority) mode for all red moves:	Yes
Part Time shutdown HC priority movements required:	No

MODES AND PRIORITY

Mode	PRIOR	Dem. set leave	Dem. set enter
Hurry call (high priority)	1	-	-
Urban Traffic Control (UTC)	4	Start-up demand set	-
Hurry call (std priority)	-	-	-
Manual control	2	Start-up demand set	-
Cableless linking facility (CLF)	6	-	-
Vehicle actuated (VA)	7	-	-
Simple fix time (FT)	-	-	-
Public service vehicle priority	5	Start-up demand set	-
Selected cableless linking	-	-	-
Selected vehicle actuated	3	-	-
Selected fix time	3	Start-up demand set	-

Revertive Demand Sets

Phase	Type	RDC	Start-up	2	3	4	5	6	7	8
A	802 T: vehicle	A	Yes	No	No	No	No	No	No	No
B	802 T: vehicle	B	Yes	No	No	No	No	No	No	No
C	802 T: vehicle	C	Yes	No	No	No	No	No	No	No
D	802 T: vehicle	D	Yes	No	No	No	No	No	No	No
E	Dummy	-	No	No	No	No	No	No	No	No
F	Dummy	-	No	No	No	No	No	No	No	No

STREAMS AND STAGES

STREAM

ID	Name	Type
1	STREAM1	Junction
2	STREAM2	Junction

STAGE

ID	Description	Stream No.	Demands AFTER Min Exp.	Demands BEFORE Min Exp.	Ripple Change	Startup stage	Arterial reversion stage	Switch off stage	All Red stage
1	STAGE1	1	No	Yes	No	Yes	Yes	Yes	No
2	STAGE2	1	No	Yes	No	No	No	No	No
3	STAGE3	1	No	Yes	No	No	No	No	Yes
4	STAGE4	2	No	Yes	No	Yes	Yes	Yes	No
5	STAGE5	2	No	Yes	No	No	No	No	No
6	STAGE6	2	No	Yes	No	No	No	No	Yes

Phases in stages

	A	B	C	D	E	F
1	X	-	-	-	-	-
2	-	X	-	-	-	-
3	-	-	-	-	X	-
4	-	-	X	-	-	-
5	-	-	-	X	-	-
6	-	-	-	-	-	X

PHASES

Types

Phase	Site Phase	Description	Type	Associated Phase
A	A	Circulating at M27 Westbound Off Slip	802 T: vehicle	-
B	B	M27 Westbound Off Slip	802 T: vehicle	-
C	C	Circulating at Charles Watts Way	802 T: vehicle	-
D	D	A334 Charles Watts Way	802 T: vehicle	-
E	E	Dummy in Stage 3	Dummy	-
F	F	Dummy in Stage 6	Dummy	-

CONDITIONS

Phase	Tactile Interlock	Appearance type	Termination type
A	No	Always	At end of stage
B	No	Always	At end of stage
C	No	Always	At end of stage
D	No	Always	At end of stage
E	No	Always	At end of stage
F	No	Always	At end of stage

TIMINGS

Phase	Type	Min green	Min red	Start Amber	Amber	Ped Period V	Ped Period VI	Ped Period VII	Ped Period VIII	Pre-time max
A	802 T: vehicle	7	1	2	3					No
B	802 T: vehicle	7	1	2	3					No
C	802 T: vehicle	7	1	2	3					No
D	802 T: vehicle	7	1	2	3					No
E	Dummy	3	1							No
F	Dummy	3	1							No

Note: Use of zero second blackout Ped Period 5 on Type 814 PD: is not current DfT policy and should be discouraged

PHASE GREEN TIMING RANGES

PHASE	MIN Lower Limit	MIN Upper Limit	MAX Lower Limit	MAX Upper Limit
A	7	10	0	100
B	7	10	0	100
C	7	10	0	100
D	7	10	0	100
E	3	10	0	120
F	3	10	0	120

PHASE TIMING SETS

Regular maximums

	1	2	3	4
A	30	30	30	30
B	30	30	30	30
C	30	30	30	30
D	30	30	30	30
E				
F				

Alternative maximums

	1	2	3	4
A				
B				
C				
D				
E				
F				

Variable blackout/red periods

	1	2	3	4
A				
B				
C				
D				
E				
F				

Minimum green

	1	2	3	4
A				

	1	2	3	4
B				
C				
D				
E				
F				

PSVP inhibition times

	1	2	3	4
A				
B				
C				
D				
E				
F				

PSVP maximum green times

	1	2	3	4
A				
B				
C				
D				
E				
F				

PHASE MATRICES

Settings

Starting intergreen	Handset maximum	Flashing Amber	All Red
8	30	0	0
Handset Int Offset	Default RLM Int		
0	2		

Opposing and conflicting

	A	B	C	D	E	F
A	-	C	-	-	C	-
B	C	-	-	-	C	-
C	-	-	-	C	-	C
D	-	-	C	-	-	C
E	C	C	-	-	-	-
F	-	-	C	C	-	-

Intergreen times

	A	B	C	D	E	F
A		6			3	
B	6				3	
C				6		3
D			6			3
E	2	2				
F			2	2		

Handset intergreen limits

	A	B	C	D	E	F
A		5			3	
B	5				3	
C				5		3
D			5			3
E	2	2				

	A	B	C	D	E	F
F			2	2		

RLM additional intergreens

	A	B	C	D	E	F
A						
B						
C						
D						
E						
F						

RLM phase inhibits

	A	B	C	D	E	F
A	-	-	-	-	-	-
B	-	-	-	-	-	-
C	-	-	-	-	-	-
D	-	-	-	-	-	-
E	-	-	-	-	-	-
F	-	-	-	-	-	-

LAMP MONITORING

Applied sensing technology

Individual Monitoring Channels Used for RLUs ?	No
--	----

Lamp Switches

Phase	Type	SWR	SWA	SWG	SWWL
A	802 T: vehicle	R01	A01	G01	
B	802 T: vehicle	R02	A02	G02	
C	802 T: vehicle	R03	A03	G03	
D	802 T: vehicle	R04	A04	G04	
E	Dummy				
F	Dummy				

Phase Lamp Types

Phase	Description	Type	Red	Amber	Green	Wait
A	Circulating at M27 Westbound Off Slip	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
B	M27 Westbound Off Slip	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
C	Circulating at Charles Watts Way	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
D	A334 Charles Watts Way	T	TLED 48 (D)	TLED 48 (D)	TLED 48 (D)	-
E	Dummy in Stage 3	-	-	-	-	-
F	Dummy in Stage 6	-	-	-	-	-

Lamp Monitor Settings

Phase	Description	Red 1	Red 2	Amber	Green
A	Circulating at M27 Westbound Off Slip	Maintenance	None	Maintenance	Maintenance
B	M27 Westbound Off Slip	Maintenance	None	Maintenance	Maintenance
C	Circulating at Charles Watts Way	Maintenance	None	Maintenance	Maintenance
D	A334 Charles Watts Way	Maintenance	None	Maintenance	Maintenance
E	Dummy in Stage 3	None	None	None	None
F	Dummy in Stage 6	None	None	None	None

Safety Lamp Monitor Shutdown Action

Phase	Description	Red 1	Red 2	Amber
A	Circulating at M27 Westbound Off Slip	None	None	None
B	M27 Westbound Off Slip	None	None	None
C	Circulating at Charles Watts Way	None	None	None
D	A334 Charles Watts Way	None	None	None
E	Dummy in Stage 3	None	None	None
F	Dummy in Stage 6	None	None	None

PHASE DELAYS

FIXED TIME

FIXED TIME TO CURRENT MAXIMUM

STREAM	Fixed
STREAM1	Yes
STREAM2	Yes

Phase	Demand	Extend
A	Yes	Yes
B	Yes	Yes
C	Yes	Yes
D	Yes	Yes
E	No	No
F	No	No

STAGE MOVES

Move sets

Mode	SET
Hurry call (high priority)	1
Urban Traffic Control (UTC)	1
Hurry call (std priority)	0
Manual control	1
Cableless linking facility (CLF)	1
Vehicle actuated (VA)	1
Simple fix time (FT)	1
Public service vehicle priority	1

Set 1

	1	2	3	4	5	6
1	-	A	A	-	-	-
2	A	-	A	-	-	-
3	A	A	-	-	-	-
4	-	-	-	-	A	A
5	-	-	-	A	-	A
6	-	-	-	A	A	-

Set 2

	1	2	3	4	5	6
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-
6	-	-	-	-	-	-

Set 3

	1	2	3	4	5	6
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-
6	-	-	-	-	-	-

Set 4

	1	2	3	4	5	6
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-
6	-	-	-	-	-	-

Set 5

	1	2	3	4	5	6
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-
6	-	-	-	-	-	-

Set 6

	1	2	3	4	5	6
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-

	1	2	3	4	5	6
6	-	-	-	-	-	-

Set 7

	1	2	3	4	5	6
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-
6	-	-	-	-	-	-

Set 8

	1	2	3	4	5	6
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-
6	-	-	-	-	-	-

MANUAL STAGE SELECTION

	1	2
But 1	1	4
But 2	2	5
But 3	2	4
But 4	-	-
But 5	-	-
But 6	-	-
But 7	-	-
But 8	-	-
But 9	-	-
But 10	-	-
But 11	-	-
But 12	-	-
But 13	-	-
But 14	-	-
But 15	-	-
But 16	-	-

Detectors

Application

ID	Detector	Type	Phase	Call	Cancel	Extend	Associated Det	DEM	CANCEL
1	AIN1	Vehicle loop	-				-	No	No
2	AIN3	Vehicle loop	-				-	No	No
3	AX2	Vehicle loop	A			4	-	Yes	No
4	AX4	Vehicle loop	A			4	-	Yes	No
5	BIN5	Vehicle loop	-				-	No	No
6	BIN8	Vehicle loop	-				-	No	No
7	BX6	Vehicle loop	B			4	-	Yes	No
8	BX9	Vehicle loop	B			4	-	Yes	No
9	BSL7	Vehicle loop	B				-	Yes	No
10	BSL10	Vehicle loop	B				-	Yes	No
11	BX11	Vehicle loop	B			4	-	Yes	No
12	BSL12	Vehicle loop	B				-	Yes	No
13	CX13	Vehicle loop	C			4	-	Yes	No
14	CX14	Vehicle loop	C			4	-	Yes	No
15	CX15	Vehicle loop	C			4	-	Yes	No
16	DIN16	Vehicle loop	-				-	No	No
17	DX17	Vehicle loop	D			4	-	Yes	No
18	DX19	Vehicle loop	D			4	-	Yes	No
19	DSL20	Vehicle loop	D				-	Yes	No
20	DSL21	Vehicle loop	D				-	Yes	No
21	DSL18	Vehicle loop	D				-	Yes	No
22	SCOOT1	Scoot detector	-				-	No	No
23	SCOOT2	Scoot detector	-				-	No	No
24	SCOOT3	Scoot detector	-				-	No	No
25	SCOOT4	Scoot detector	-				-	No	No
26	SCOOT5	Scoot detector	-				-	No	No
27	SCOOT6	Scoot detector	-				-	No	No
28	SCOOT7	Scoot detector	-				-	No	No
29	SCOOT8	Scoot detector	-				-	No	No
30	SCOOT9	Scoot detector	-				-	No	No
31	SCOOT10	Scoot detector	-				-	No	No
32	SCOOT11	Scoot detector	-				-	No	No
33	SCOOT12	Scoot detector	-				-	No	No

ID	Detector	Type	Phase	Call	Cancel	Extend	Associated Det	DEM	CANCEL
34	SCOOT13	Scoot detector	-				-	No	No
35	SCOOT14	Scoot detector	-				-	No	No
36	SCOOT15	Scoot detector	-				-	No	No
37	SCOOT16	Scoot detector	-				-	No	No
38	SCOOT17	Scoot detector	-				-	No	No
39	Dummy_DX_A	-	A			0.2	-	Yes	No
40	Dummy_DX_B	-	B			0.2	-	Yes	No
41	Dummy_DX_C	-	C			0.2	-	Yes	No
42	Dummy_DX_D	-	D			0.2	-	Yes	No

Detector Fault Monitoring

[illegible]

[illegible]

IMFLOW

Enable ImFlow	Log to TDC
No	No

Settings

Wait time on deadlock (s)	Retries on UTC deadlock	Retries on UTC conflict
300	5	1

MASTER TIME CLOCK

MTC table

ID	Function	Arg1	Arg2	Start	End	Mo	Tu	We	Th	Fr	Sa	Su	G1	G2	G3	G4	G5	G6	G7
1	Control plan	1	0	00:00:00	24:00:00	X	X	X	X	X	X	X	-	-	-	-	-	-	-
2	CLF plan	0	0	00:00:00	06:45:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
3	CLF plan	1	0	06:45:00	09:25:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
4	CLF plan	2	0	09:25:00	16:45:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
5	CLF plan	3	0	16:45:00	18:30:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
6	CLF plan	2	0	18:30:00	21:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
7	CLF plan	0	0	21:00:00	24:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
8	CLF plan	0	0	00:00:00	07:30:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
9	CLF plan	1	0	07:30:00	15:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
10	CLF plan	3	0	15:00:00	19:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
11	CLF plan	2	0	19:00:00	21:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
12	CLF plan	0	0	21:00:00	24:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
13	CLF plan	0	0	00:00:00	07:30:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
14	CLF plan	1	0	07:30:00	15:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
15	CLF plan	3	0	15:00:00	19:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
16	CLF plan	2	0	19:00:00	21:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
17	CLF plan	0	0	21:00:00	24:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
18	Timing set	1	0	00:00:00	07:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
19	Timing set	4	0	07:00:00	09:30:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
20	Timing set	1	0	09:30:00	16:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
21	Timing set	4	0	16:00:00	18:30:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
22	Timing set	1	0	18:30:00	24:00:00	X	X	X	X	X	-	-	-	-	-	-	-	-	-
23	Timing set	1	0	00:00:00	09:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
24	Timing set	4	0	09:00:00	18:30:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
25	Timing set	1	0	18:30:00	24:00:00	-	-	-	-	-	X	-	-	-	-	-	-	-	-
26	Timing set	1	0	00:00:00	09:30:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
27	Timing set	4	0	09:30:00	16:30:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-
28	Timing set	1	0	16:30:00	24:00:00	-	-	-	-	-	-	X	-	-	-	-	-	-	-

CONFLICT EXTENSION RED

CABLELESS LINKING FACILITY

Global settings

Setting	Value
Sync. Mode	Continuous
Sync. Day	Monday
Ref. time	06:00

Plans

Plan No	Cycle	Offset	Cycle EntryTime	Cycle ExitTime
1	65	0	0	59
2	40	0	0	39
3	65	0	0	64

Functions and actions

PLAN 1

Action No	Time	Influence	Stage	Stream
1	44	DD: Demand dependent move	5	2
2	46	H: Hold	–	2
3	38	DD: Demand dependent move	2	1
4	40	H: Hold	–	1
5	63	IM: Immediate move	4	2
6	60	IM: Immediate move	1	1

PLAN 2

Action No	Time	Influence	Stage	Stream
1	11	IM: Immediate move	1	1
2	0	DD: Demand dependent move	5	2
3	2	H: Hold	–	2
4	36	DD: Demand dependent move	2	1
5	38	H: Hold	–	1
6	15	IM: Immediate move	4	2

PLAN 3

Action No	Time	Influence	Stage	Stream
1	6	IM: Immediate move	4	2
2	15	IM: Immediate move	1	1
3	48	DD: Demand dependent move	5	2
4	50	H: Hold	-	2
5	58	DD: Demand dependent move	2	1
6	60	H: Hold	-	1

OTU

Units

General Integral OTU options

Discrete OTU

ID	Invert control bits	Invert reply bits
1	No	Yes
2	No	Yes

Control and reply bits

Control / Reply

Function	Arg	Label	Position ID	Label	Arg	Function
F	1	F1	1	G1	1	G
F	2	F2	2	G2	2	G
F	4	F4	3	G4	4	G
F	5	F5	4	G5	5	G
DX	0	DX	5	DF	0	DF
D	2	D2	6	SD2	2	SD
D	5	D5	7	SD5	5	SD
GO	1	GO1	8	RR	0	RR
GO	2	GO2	9	LF1	0	LF
-	0		10	LF2	0	RF1
-	0		11		0	-
-	0		12		0	-
-	0		13		0	-
-	0		14		0	-
-	0		15		0	-
TS	0	TS	16	CS	0	TSR
SF	1	SF1	17	RQ1	1	UF
SF	2	SF2	18	RQ2	2	UF
SF	4	SF4	19	RQ4	3	UF
SF	5	SF5	20	RQ5	4	UF
SF	7	SF7	21		0	-
SF	8	SF8	22		0	-

Function	Arg	Label	Position ID	Label	Arg	Function
-	0		23		0	-
-	0		24		0	-
-	0		25		0	-
-	0		26		0	-
-	0		27		0	-
-	0		28		0	-
-	0		29		0	-
-	0		30		0	-
TO	1	TO1	31	CRB_1	5	UF
TO	2	TO2	32	CRB_2	6	UF

UTC Demand/Extend bits - Phases/Stages allocation

Bit	Phases Demanded	Phases Extended	Stages Demanded	Stages Extended
D 2				
D 5				

Keep default Demand reply options

Default Stage Demand (SD) reply	No
Default Phase Demand (DR) reply	No

RTC

Synchronisation time (UTC TS input)	06:00
Confirm time (UTC RT output)	6:0:0

Special UTC Reply bits

	G1/G2	RR
Manual mode operative	No	Yes
Manual mode selected	No	Yes
No lamp power (excluding RLM and PT)	Yes	n/a
Normal not selected on the manual panel	No	Yes

CG reply bit weekday-coded	No
----------------------------	----

UG405 bit mapping

Settings

Enable UG405	No
OTU System Code Number (SCN)	

Control / Reply

ID	Label	Controller SCN	UG405 Name	Bit Index	Label	Controller SCN	UG405 name	Bit index
1	F1		-		G1		-	
2	F2		-		G2		-	
3	F4		-		G4		-	
4	F5		-		G5		-	
5	DX		-		DF		-	
6	D2		-		SD2		-	
7	D5		-		SD5		-	
8	GO1		-		RR		-	
9	GO2		-		LF1		-	
10			-		LF2		-	
11			-				-	
12			-				-	
13			-				-	
14			-				-	
15			-				-	
16	TS		-		CS		-	
17	SF1		-		RQ1		-	
18	SF2		-		RQ2		-	
19	SF4		-		RQ4		-	
20	SF5		-		RQ5		-	
21	SF7		-				-	
22	SF8		-				-	
23			-				-	
24			-				-	
25			-				-	
26			-				-	
27			-				-	
28			-				-	
29			-				-	

ID	Label	Controller SCN	UG405 Name	Bit Index	Label	Controller SCN	UG405 name	Bit index
30			-				-	
31	TO1		-		CRB_1		-	
32	TO2		-		CRB_2		-	

HURRY CALLS

PUBLIC SERVICE VEHICLE PRIORITY

SPEED ASSESSMENT AND SPEED DISCRIMINATION

APPLICATION BUILDING BLOCKS

Software Switches (User Parameters)

ID	Name	Default	Min Value	Max Value
1	Use_C_Extensions_for_Str2_Mdet35	1	0	1
2	Use_C_Extensions_for_Str2_Mdet37	1	0	1

Event Pulses

ID	Name	Type	Input Type	On	OFF
1	F1_Stuck	Level	Level	200	0
2	F2_Stuck	Level	Level	200	0
3	F4_Stuck	Level	Level	200	0
4	F5_Stuck	Level	Level	200	0
5	Toggle_CRB1	Pulse	Falling edge	2	2
6	Toggle_CRB2	Pulse	Falling edge	2	2
7	Flash.UTC_LED	Wave	Level	0.8	0.8
8	Str1_Mdet31_Delay	Level	Level	2	2
9	Str1_Mdet31_Hold	Level	Level	7	0
10	Str1_Mdet32_Delay	Pulse	Rising edge	2	2
11	Str1_Mdet33_Delay	Level	Level	2	2
12	Str1_Mdet33_Hold	Level	Level	7	0
13	Str1_Mdet34_Delay	Pulse	Rising edge	2	2
14	Str1_Mdet35_Delay	Level	Level	2	2
15	Str1_Mdet35_Hold	Level	Level	7	0
16	Str1_Mdet36_Delay	Pulse	Rising edge	2	2
17	Str1_Mdet37_Delay	Level	Level	2	2
18	Str1_Mdet37_Hold	Level	Level	7	0
19	Str1_Mdet38_Delay	Pulse	Rising edge	2	2
20	Str2_Mdet31_Delay	Level	Level	2	2
21	Str2_Mdet31_Hold	Level	Level	7	0
22	Str2_Mdet32_Delay	Pulse	Rising edge	2	2
23	Str2_Mdet33_Delay	Level	Level	2	2
24	Str2_Mdet33_Hold	Level	Level	7	0
25	Str2_Mdet34_Delay	Pulse	Rising edge	2	2
26	Str2_Mdet35_Hold	Level	Level	0	0
27	Str2_Mdet35_Min_Timer	Level	Level	10	0

ID	Name	Type	Input Type	On	OFF
28	Str2_Mdet35_C_Extensions_Active	Level	Level	0	0
29	Str_2_Mdet35_End_of_Stage_2	Pulse	Falling edge	0	0
30	Str2_Mdet36_Delay	Pulse	Rising edge	0	2
31	Str2_Mdet37_Hold	Level	Level	0	0
32	Str2_Mdet37_Min_Timer	Level	Level	10	0
33	Str2_Mdet37_C_Extensions_Active	Level	Level	0	0
34	Str_2_Mdet37_End_of_Stage_1	Pulse	Falling edge	0	0
35	Str2_Mdet38_Delay	Pulse	Rising edge	0	2

Event Pulse Input Conditioning
evp1() = mUTC(0) && in(UTC_I1) && (in(UTC_I31)==0);evp2() = mUTC(0) && in(UTC_I2) && (in(UTC_I31) == evp(Str1_Mdet31_Delay);evp10() = in(L5) in(UTC_I20);evp11() = in(L4) in(UTC_I19);evp12(9() = Output_S4();evp20() = in(L2) in(UTC_I18);evp21() = evp(Str2_Mdet31_Delay);evp22() = in(,2);endif if (mem(20)==2) && (evp(Str2_Mdet35_C_Extensions_Active) evp(Str_2_Mdet35_End_of_St_Mdet35)==0) thenreturn FALSE;else return TRUE;endifendevp29() = fcg(B);evp30() = Output_S2();ev;endifif (mem(21)==1) (mem(21)==2) thenreturn TRUE;elsereturn FALSE;endifendevp32() = Output_

Event Filter Input Conditioning

SPECIAL CONDITIONING - (VM Functions)

O.T.U. Control & Reply Bit Special Conditioning
<pre>rf_2(arg) = cfa;rf_21(arg) = rf1(A) rf1(B) rf1(C) rf1(D) rf1(E) rf1(F);rf_32(arg) if (arg==6) thenreturn CRB2();endifendrf_34(arg) = (macm(xp) != 6);rf_40(arg) = mPSVP(xp);urG1());urDR4() = dr(C);urG5() = (stgc(1)==5) && (stgr(1,0,0));urDR5() = dr(D);urG6() = (stgc(1)==6)</pre>

Integral O.T.U. Special Conditioning
<pre>otu_dstate(d) = get(h_xdet_sts, d) & DET_BEZET_MASK;otu_dfault(d) = get(h_xdet_sts, d) & DET_FAU</pre>

U.T.C. (G1/G2) Special Conditioning

CLF Request & Inhibit Special Conditioning

P.S.V.P. Pre Check-in, Check-in & Check-out Special Conditioning

Hurry Call Delay, Force, Demand & Inhibit Special Conditioning

Phase Delay Appearance Special Conditioning

Stream On/Off Control Special Conditioning
<pre>roffsync() = okoff(0) && okoff(1);mac1_swon(t) = yellow_period(0,t);macon1() = (minon(xp)==0);ma</pre>

Detector Count Activity Window Special Conditioning
<pre>nokbs()var det;for det=0 to (nrel(h_dfunc) - 1) do if ddo(det) && fcr(get(h_dsg,det)) && (ddr(det)!=1) && (geti(h_dfunc,det) & 16) then</pre>

Phase Control Special Conditioning

```
latch(ph) = dx(ph) && (fcg(ph)==0);pd_ALL(ph)if ((xsf(XSF_PSET_ERR) != AUTOSET_STATE_DONE) && (x
```

Phase Timing Set Selection Special Conditioning

Dummy Detector Special Conditioning

```
vmDET1() = uDX(0); vmDET2() = uDX(0) || uD(2); vmDET3() = uDX(0); vmDET4() = uDX(0) || uD(5);
```

Mode Control Special Conditioning

```
rHCH() = rar(xp);rUTC()if (xp==0) thenreturn (in(UTC_I1) || in(UTC_I2)) && (in(UTC_I31)==0) && S
xp);rCLF() = clfp && (clfi == 0);rVA() = 1;rPSVP()if xp==0 thenreturn((in(UTC_I1) || in(UTC_I2))
```

All Red Detection Operation Special Conditioning

Manual Panel Stage LED Conditions

```

MpStageLEDsNoDefault()mpdiso(20,1);mpdiso(21,1);mpdiso(22,1);mpdiso(23,1);mpdiso(24,1);mpdiso(25
edfunc21();mpledfunc22();mpledfunc23();mpledfunc24();mpledfunc25();mpledfunc26();mpledfunc27();m
stgr(0,1,0));mpledfunc21() = cmled(21,(stgc(0)==2)*(2-stgr(0,1,0)));mpledfunc22() = cmled(22,(s
stgr(1,1,0));mpledfunc26() = 0;mpledfunc27() = 0;mpledfunc28() = 0;mpledfunc29() = 0;mpledfunc3

```

Initialisation & General Special Conditioning

```
init() open handles(); return 1; enddfm f() = rfl(-1) || fci(-1);
```

User Defined VM Functions

```
post_100ms()Resetmax();Stream_1_Stuck_Force_Bit();Stream_2_Stuck_Force_Bit();Stream_1_TO_Bit();S
,1);mpdiso(13,1);cmled(0, mUTC(0) || (mPSVP(0) && evp(Flash_UTC_LED)));cmled(1, mUTC(1) || (mPSV
4, in(East_Str3_on_UTC) || (in(East_Str3_on_Mova) && evp(Flash_UTC_LED)));cmled(7, (mem(0)==1) |
t(S5, Output_S5()));cout(West_Str1_on_Mova, mPSVP(0));cout(West_Str2_on_Mova, mPSVP(1));cout(West
Mdet33_Delay) && (evp(Str1_Mdet33_Hold)==0));cout(Str1_Mdet34, evp(Str1_Mdet34_Delay));cout(Str
evp(Str1_Mdet38_Delay));cout(Str2_Mdet31, evp(Str2_Mdet31_Delay) && (evp(Str2_Mdet31_Hold)==0))
```

User Defined VM Functions

```
));cout(Str2_Mdet36, evp(Str2_Mdet36_Delay));cout(Str2_Mdet37, evp(Str2_Mdet37_Hold));cout(Str2_
(in(UTC_I1)==0) thenwmem(0,0);endifif evp(F2_Stuck) thenwmem(1,1);endifif (in(UTC_I2)==0) thenwm
F5_Stuck) thenwmem(3,1);endifif (in(UTC_I4)==0) thenwmem(3,0);endifif (mem(2)==1) || (mem(3)==1)
ifendCRB1()if mpauto(xp) && (evp(Toggle_CRB1)==0) && (macm(0)>1) thenreturn (FALSE);elsereturn (
mem(10)==1) then return TRUE;elsereturn FALSE;endifendOutput_S2()if fca(A) then wmem(11,1);endif
sereturn FALSE;endifendOutput_S5()if fca(C) then wmem(13,1);endifif fca(D) thenwmem(13,0);endifi
xpsts(1)==2) || (xpsts(0)==3) || (xpsts(1)==3) thenxspsts(0,3);xspsts(1,3);elsesxspsts(0,0);xspst
```

Stage Moves

Hurry Call High Mode - HCH (Normally for Part Time / Prom Swap Facility)
mHCH1_3d() = rar(xp);mHCH2_3d() = rar(xp);mHCH4_6d() = rar(xp);mHCH5_6d() = rar(xp);

Hurry Call Standard Mode - HCL

Vehicle Actuated Mode - VA
mVA1_2d() = dr(B);mVA1_2e() = er(A);mVA1_2i() = FALSE;mVA1_3d() = FALSE;mVA1_3e() = er(A);mVA1_3i() = dr(A);mVA3_1e() = FALSE;mVA3_1i() = FALSE;mVA3_2d() = dr(B);mVA3_2e() = FALSE;mVA3_2i() = FALSE;mVA5_6e() = er(D);mVA5_6i() = FALSE;mVA5_4d() = dr(C);mVA5_4e() = er(D);mVA5_4i() = FALSE;mVA5_4du = dSTGe(6, 4);mVA6_4iu4() = FALSE;

Fixed Time Mode - FT
mFT1_2d() = dSTGd(1, 2);mFT1_2e() = dSTGe(1, 2);mFT1_2i() = FALSE;mFT1_3d() = dSTGd(1, 3);mFT1_3i() = dSTGe(2, 1);mFT2_1iu4() = FALSE;mFT3_1d() = dSTGd(3, 1);mFT3_1e() = dSTGe(3, 1);mFT3_1i() = FALSE;mFT4_6d() = dSTGd(4, 6);mFT4_6e() = dSTGe(4, 6);mFT4_6i() = FALSE;mFT5_6d() = dSTGd(5, 6, 4);mFT6_4e() = dSTGe(6, 4);mFT6_4i() = FALSE;mFT6_5d() = dSTGd(6, 5);mFT6_5e() = dSTGe(6, 5);

Cableless Linking Mode - CLF
mCLF1_2d() = cIM(2) (cDD(2) && (dr(B))) (cPS(2) && (dr(B)));mCLF1_2i() = dCLFi(1, 2);mCLF1_2e() = cIM(2) (cDD(2) && (dr(B))) (cPS(2) && (dr(B)));mCLF3_2i() = dCLFi(3, 2);mCLF4_2e() = dCLFd(5, 4);mCLF5_4i() = dCLFi(5, 4);mCLF6_4d() = dCLFd(6, 4);mCLF6_4i() = dCLFi(6, 4);mCLF6_4e() = dCLFd(6, 4);

Urban Traffic Control Mode - UTC
mUTC1_2d() = in(UTC_I2) && (uD(2) dr(B));mUTC1_2e() = FALSE;mUTC1_2i() = in(UTC_I1);mUTC1_3d() = in(UTC_I1) (ex(1) && uGO(0));mUTC3_1d() = in(UTC_I1);mUTC3_1e() = FALSE;mUTC3_1i() = FALSE;mUTC3_2d() = in(UTC_I2) && (uGO(0));mUTC4_6i() = in(UTC_I3);mUTC5_6d() = FALSE;mUTC5_6e() = FALSE;mUTC5_6i() = in(UTC_I4);mUTC5_6i() = in(UTC_I4) dr(D));mUTC6_5e() = FALSE;mUTC6_5i() = FALSE;

Public Service Priority Mode - PSVP
mPSVP1_2d() = in(UTC_I2) && in(UTC_I31);mPSVP1_2e() = FALSE;mPSVP1_2i() = in(UTC_I1) && in(UTC_I31);mPSVP2_1e() = FALSE;mPSVP2_1i() = in(UTC_I2) && in(UTC_I31);mPSVP3_1d() = in(UTC_I1) && in(UTC_I31);mPSVP4_5i() = in(UTC_I3) && in(UTC_I32);mPSVP4_6d() = FALSE;mPSVP4_6e() = FALSE;mPSVP4_6i() = in(UTC_I32);mPSVP6_4d() = in(UTC_I3) && in(UTC_I32);mPSVP6_4e() = FALSE;mPSVP6_4i() = FALSE;mPSVP6_5d() = in(UTC_I3) && in(UTC_I32);

Manual Control Mode - MAN

```
mMAN1_2d() = mstg(xp)==2;mMAN1_3d() = mstg(xp)==3;mMAN2_3d() = mstg(xp)==3;mMAN2_1d() = mstg(xp)  
g(xp)==5;
```

General (default) Stage Move Conditions

```
dSTGd(f,t) = drs(t);dSTGe(f,t) = exm(t);dUTCd(f,t)if t==1 then return uF(1) || (uFD(1) && (uD(1)  
FD(5) && (uD(5) || in(utciTO2))); endifreturn uF(t) || (uFD(t) && (uD(t) || drs(t)));enddUTCi(f,  
t);dPSVPe(f,t) = exm(t);dSTGd1() = dr(A);dSTGe1() = er(A);dPSVPd1() = pdp(A);dPSVPe1() = pep(A);  
) || cDD(f) || cH(xp) || (cPS(t) && ex(t));dSTGd2() = dr(B);dSTGe2() = er(B);dPSVPd2() = pdp(B);  
dCLFi2(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));dSTGd3() = dr(E);dSTGe3() = er(E);  
cPS(t) && (dr(E)));dCLFi3(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));dSTGd4() = dr(C  
t) && (dr(C))) || (cPS(t) && (dr(C)));dCLFi4(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(  
) = cIM(t) || (cDD(t) && (dr(D))) || (cPS(t) && (dr(D)));dCLFi5(f,t) = cIM(f) || cDD(f) || cH(xp  
|| ex(t));dCLFd6(t) = cIM(t) || (cDD(t) && (dr(F))) || (cPS(t) && (dr(F)));dCLFi6(f,t) = cIM(f)
```

SYSTEM PARAMETERS

UK Parameters

Name	Description	Min	Max
MAN_TIMEOUT	Manual control timeout	60	60
MAN_DEMAND_ERROR	Duration of the manual demand error indication	0	60
MAN_ENABLE	Manual control enabled.	0	1
DFM_FUNC	Bit mask specifying behaviour of DFM indicator	0	9
CLF_TIMER_SYNC	Duration of the CLF group Timer Synchronisation Signal	0	60
UTC_TS	Time in HH:MM used for COTU_TS	0	23
UTC_FORCE_TIMEOUT	The force bit watchdog timeout	120	120
UTC_FORCE_ACCEPT	The force accept timeout in system ticks.	1	120
UTC_LO_DELAY	Delay in seconds before COTU_LO changes is accepted.	0	120
UTC_RT_HOUR	Hours used for RT reply bit (-1 = any hour).	-1	23
UTC_RT_MIN	Minutes used for RT reply bit (-1 = any minute).	-1	59
UTC_RT_SEC	Seconds used for RT reply bit	-1	59
UTC_RT_DURATION	Duration of the RT reply bit in seconds	1	120
UTC_CG_DURATION	Duration of the CG reply bit in seconds	1	120
UTC_TSR_DURATION	Duration of the TSR reply bit in seconds	1	120
UTC_G1G2_FUNC	Bit mask specifying behaviour of G1/G2 reply bits	0	2
UTC_RR_FUNC	Bit mask specifying behaviour of RR reply bit	0	2
UTC_PV_ACCEPT	The PV accept time in system ticks	0	2
UTC_PV_HOLD	The PV hold time in system ticks	0	2
UKSTG_DIM_ALARM	The maximum time [in hours] for dimmed operation(-1 = solar cell disabled, 0 = enabled without timeout processing)	-1	1
UKSTG_DIM_FILTER	The call/cancel delay [in sec] for the DIM relays	0	2
UTC_CRB_PULSE_ON_TIME	CRB On Timer	0	1
UTC_CRB_PULSE_OFF_TIME	CRB Off Timer	0	1

System Parameters

Name	Description	Min	Max
MMI8408	XMMI: 8 x 40 MMI	0	1
XIN_L	XIN_L: Number of IN logging lines	1	999
XOUT_L	XOUT_L: Number of OUT logging lines	1	999
XDET_L	XDET_L: Number of DET logging lines	1	999
XDET_F	XDET_F: Status in case of fault	0	2
XSG_L	XSG_L: Number of SG logging lines	0	999

Name	Description	Min	Max
XHTTP	XHTTP: Presence of web server	0	1
XHTTP_PORT	XHTTP_PORT: Webserver port	0	65535
XLM_MAL	XLM_MAL: Go to major alarm if power reference(s) are not set	0	1
XLM_RLM	XLM_RLM: RLM callback interval in 0.1 [s]	0	100
XLM_T	XLM_T: Tracking off / on	0	20
XLM_TF	XLM_TF: Tracking filter	1	20
XLM_NV	XLM_NV: Nominal (bright) voltage	0	240
XLM_MON	XLM_MON: Monitoring type	0	10
XLM_AC	XLM_AC: Automatic calibration	0	1
XLM_DIM	XLM_DIM: Bright Din Calibration off / on	0	1
CLF_SYNC	CLF Synchronisation option.	0	3
CLF_SYNC_WDAY	CLF Weekly sync is done on..	1	7
CLF_TIMER_SYNC	Duration of the CLF group Timer Synchronisation Signal	0	2400
CLF_NON_BASE_TIME	Select base time or non base time (0 or 1)	0	1
XIOTU_RTS	RTS activated after # received characters (use 1, 2 or 3)	1	3
XIOTU_SCOOT	Default bit number used for scoot counted detectors (0 to 7)	0	7
XIOTU_CTS	CTS timeout per 10ms	4	10
UKMP_TYPE	UK Manual panel type (0=std, 1=ped, 2=multiple stages)	0	2
ENGTERM_BAUD	Engterm baudrate	0	99999
HCH_ALLRED	Use HCH for all red stage moves	0	1
HCH_SWOFF	Use HCH for switch off stage moves	0	1
PT_SYNC	Synchronize move to part time mode	0	1
CLF_MANUAL_STEP	Enable the Manual Step	0	1
CLF_DEFAULT_PLAN		-1	999
CLF_MANUAL_MEMOS	Memo for the manual step	0	1
COMPRESS_HARDWARE	Compress Hardware	0	1
XWDS_SENSOR_TIMEOUT	Wireless Detection sensor time out value	0	65535
ALERTPLUS_ENABLE	Alert+: Enable the service	0	1
ALERTPLUS_NRSESSIONS	Alert+: Number of sessions	1	99
ALERTPLUS_LOGINUSERG1	Alert+: Login code for user group 1	0	9999
ALERTPLUS_LOGINUSERG2	Alert+: Login code for user group 2	0	9999
ALERTPLUS_LOGINUSERG3	Alert+: Login code for user group 3	0	9999
ALERTPLUS_LOGINUSERG4	Alert+: Login code for user group 4	0	9999
IMFLOW_ENABLE	ImFlow enabled	0	1
IMFLOW_WDG_TIME	ImFlow: Wait time for deadlock supervision [s]	1	999
IMFLOW_MAX_WDG_RETRIES	ImFlow: Max. retries on deadlocks in UTC control	1	99
IMFLOW_MAX_CONFL_RETRIES	ImFlow: Max. retries on conflicts in UTC control	1	99
IMFLOW_SIM_IF	ImFlow Sim. interface	0	1

Name	Description	Min	Max
IMFLOW_TDC	ImFlow TDC logging	0	1

Traffic Data Collector (TDC)

TDC enabled	Persistent	Readonly	MF (max. files)	Assigned memory
Yes	0	0	4	1 Mb

MEMO FIELDS

HISTORY	
Description	Text in the History text block between: --CREDAT-- and --UPDATE--
Contents	* This is memofield HISTORY

B_HISTORY	
Description	Text in the History text block between: --CREDAT-- and --UPDATE-- - (AMSEC1.CNF)
Contents	; This is memofield HISTORY_B

ABC_INC	
Description	Code at the end of the file before the end of file remark (AMSEC1.CNF)
Contents	; This is memofield AMSEC_INC

XP1_INC	
Description	Code at the begin of the file, juts below History, under the heading 'XP1_INC'.
Contents	/* This is memofield XP1_INC */

XP2_INC	
Description	Code under the heading 'XP2_INC', just before the 'XIN INPUTS' definitions.
Contents	/* This is memofield XP2_INC */

XP3_INC	
Description	Code under the heading 'XP3_INC', at the end of the file.
Contents	/* This is memofield XP3_INC */

SADAT_INC	
Description	Code at end of the file. (SADAT.CNF)
Contents	/* This is memofield SADAT_INC */

VMFUNC_INC 1	
Description	VMFUNC process conditions
Contents	/* This is memofield VMFUNC_INC1 */

VMFUNC_INC 2	
Description	VMFUNC process conditions
Contents	/* This is memofield VMFUNC_INC2 */

HARDWARE CONFIGURATION

Device counts

Lamp control devices	Count	Detection devices	Count	I/O devices	Count
VIRTUAL-LCM	1	ED316	0	IO1616	3
LCM	1	MTS4E	11	RIO	0
RLU	0	WDS	0		
RLU-9	0	FLIR-ZONE	0		
		FLIR-OUTPUT	0		
Dummy-Phase	2	Dummy-Detector	4		

Optional devices	Setting
Manual Panel Type	Multi stage
Manual Panel Flashing	Disabled
Solar Cell Monitor	24 hour time out
Dimming Operating	ELV 24V Solar Cell

Configuration - RLU / LCM

RLU	LCM
	LCM--- Physical LCM: 01 -- - 001: A/Red (R01) 002: A/Amber (A01) 003: A/Green (G01) 004: B/Red (R02) 005: B/Amber (A02)

Configuration - ED316 / MTS4E

ED316	MTS4E
	MTS4E--- Unit: 01 -- - 001: Detector AIN1 002: Detector AIN3 003: Detector AX2 004: Detector AX4-- - Unit: 02 -- - 001: Detector BIN5 002: Detector BIN8 003: Detector BX6 004: Detector BX9-- - Unit: 03 -- - 001: Detector BSL7 002: Detector BSL10 003: Detector BX11 004: Detector BSL12-- - Unit: 04 -- - 001: Detector CX13 002: Detector CX14 003: Detector CX15 004: Detector DIN16-- - Unit: 05 -- - 001: Detector DX17 002: Detector DX19 003: Detector DSL20 004: Detector DSL21-- - Unit: 06 --- 001: Detector DSL18--- Unit: 07 -- - 001: Detector SCOOT1 002: Detector SCOOT2 004: Detector SCOOT5--- Unit: 08 -- - 001: Detector SCOOT3 002: Detector SCOOT4 003: Detector SCOOT6 004: Detector SCOOT7-- - Unit: 09 -- - 001: Detector SCOOT8 002: Detector SCOOT9 003: Detector SCOOT10 004: Detector SCOOT11-- -- Unit: 10 --- 001: Detector SCOOT12 002: Detector SCOOT13 003: Detector SCOOT14-- - Unit: 11 --- 001: Detector SCOOT15 002: Detector SCOOT16 003: Detector SCOOT17

Configuration - WDS

WDS

IOT State - Lamp control

RLU	LCM
RLU Unit Addr * ===== == ===== =====	LCM Unit Addr * ===== == ===== 01 008 C/Amber (A03) 01 009 C/Green (G03) 01

IOT State - Detection

ED316	MTS4E
ED316 Unit Addr * ===== == ===== =====	MTS4E Unit Addr * ===== == ===== 003 BX11 03 004 BSL12 04 001 CX13 T2 07 004 SCOOT5 08 001 SCOOT3 08 003 SCOOT14 11 001 SCOOT15 11 002 SCOOT16 12

WDS
WDS Unit Addr * ===== == =====

FLIR-ZONE	FLIR-OUTPUT
FLIR- ZONE Unit Addr * ===== == =====	FLIR- OUTPUT Unit Addr * ===== == =====

IOT State - IO1616, RIO

IN
IO1616- IN Unit Addr * ===== == ===== 01 001 UTC_I1 01 002 UTC_I2 01 005 UTC_I5 01 006 UTC_I6 01 007 UTC_I7 01 008 UTC_I8 01 009 UTC_I9 01 012 UTC_I12 01 013 UTC_I13 01 014 UTC_I14 01 015 UTC_I15 01 016 UTC_I16 01 002 UTC_I18 01 003 UTC_I19 02 004 UTC_I20 02 005 UTC_I21 02 006 UTC_I22 02 007 UTC_I23 02 008 UTC_I24 02 009 UTC_I25 02 010 UTC_I26 02 011 UTC_I27 02 012 UTC_I28 02 013 UTC_I29 02 014 UTC_I30 02 015 UTC_I31 02 016 UTC_I32 02

IOT State - Controller connections (KOPMV)

KOPMV-IN

[illegible]

INPUTS and OUTPUTS

Detectors

ID	Detector Name	Invert	Unit Type	Unit Pos.
1	AIN1	No	MTS4E-1	1
2	AIN3	No	MTS4E-1	2
3	AX2	No	MTS4E-1	3
4	AX4	No	MTS4E-1	4
5	BIN5	No	MTS4E-2	1
6	BIN8	No	MTS4E-2	2
7	BX6	No	MTS4E-2	3
8	BX9	No	MTS4E-2	4
9	BSL7	No	MTS4E-3	1
10	BSL10	No	MTS4E-3	2
11	BX11	No	MTS4E-3	3
12	BSL12	No	MTS4E-3	4
13	CX13	No	MTS4E-4	1
14	CX14	No	MTS4E-4	2
15	CX15	No	MTS4E-4	3
16	DIN16	No	MTS4E-4	4
17	DX17	No	MTS4E-5	1
18	DX19	No	MTS4E-5	2
19	DSL20	No	MTS4E-5	3
20	DSL21	No	MTS4E-5	4
21	DSL18	No	MTS4E-6	1
22	SCOOT1	No	MTS4E-7	1
23	SCOOT2	No	MTS4E-7	2
24	SCOOT3	No	MTS4E-8	1
25	SCOOT4	No	MTS4E-8	2
26	SCOOT5	No	MTS4E-7	4
27	SCOOT6	No	MTS4E-8	3
28	SCOOT7	No	MTS4E-8	4
29	SCOOT8	No	MTS4E-9	1
30	SCOOT9	No	MTS4E-9	2
31	SCOOT10	No	MTS4E-9	3
32	SCOOT11	No	MTS4E-9	4
33	SCOOT12	No	MTS4E-10	1
34	SCOOT13	No	MTS4E-10	2

ID	Detector Name	Invert	Unit Type	Unit Pos.
35	SCOOT14	No	MTS4E-10	3
36	SCOOT15	No	MTS4E-11	1
37	SCOOT16	No	MTS4E-11	2
38	SCOOT17	No	MTS4E-11	3
39	Dummy_DX_A	No	DUMMY-1	1
40	Dummy_DX_B	No	DUMMY-2	1
41	Dummy_DX_C	No	DUMMY-3	1
42	Dummy_DX_D	No	DUMMY-4	1

Inputs

ID	Input	Label	Invert	Toggle	Unit Type	Unit Pos.
1	L1		No	No	KOPMV-4	1
2	L2		No	No	KOPMV-4	2
3	L4		No	No	KOPMV-4	3
4	L5		No	No	KOPMV-4	4
5	L7		No	No	KOPMV-4	5
6	L8		No	No	KOPMV-4	6
7	East_Str1_on_Mova		No	No	KOPMV-4	7
8	East_Str2_on_Mova		No	No	KOPMV-4	8
9	East_Str3_on_Mova		No	No	KOPMV-4	9
10	East_Str1_on_UTC		No	No	KOPMV-4	10
11	East_Str2_on_UTC		No	No	KOPMV-4	11
12	East_Str3_on_UTC		No	No	KOPMV-4	12
13	UTC_I1	F1	No	No	IO1616-1	1
14	UTC_I2	F2	No	No	IO1616-1	2
15	UTC_I3	F4	No	No	IO1616-1	3
16	UTC_I4	F5	No	No	IO1616-1	4
17	UTC_I5	DX	No	No	IO1616-1	5
18	UTC_I6	D2	No	No	IO1616-1	6
19	UTC_I7	D5	No	No	IO1616-1	7
20	UTC_I8	GO1	No	No	IO1616-1	8
21	UTC_I9	GO2	No	No	IO1616-1	9
22	UTC_I10		No	No	IO1616-1	10
23	UTC_I11		No	No	IO1616-1	11
24	UTC_I12		No	No	IO1616-1	12
25	UTC_I13		No	No	IO1616-1	13
26	UTC_I14		No	No	IO1616-1	14

ID	Input	Label	Invert	Toggle	Unit Type	Unit Pos.
27	UTC_I15		No	No	IO1616-1	15
28	UTC_I16	TS	No	No	IO1616-1	16
29	UTC_I17	SF1	No	No	IO1616-2	1
30	UTC_I18	SF2	No	No	IO1616-2	2
31	UTC_I19	SF4	No	No	IO1616-2	3
32	UTC_I20	SF5	No	No	IO1616-2	4
33	UTC_I21	SF7	No	No	IO1616-2	5
34	UTC_I22	SF8	No	No	IO1616-2	6
35	UTC_I23		No	No	IO1616-2	7
36	UTC_I24		No	No	IO1616-2	8
37	UTC_I25		No	No	IO1616-2	9
38	UTC_I26		No	No	IO1616-2	10
39	UTC_I27		No	No	IO1616-2	11
40	UTC_I28		No	No	IO1616-2	12
41	UTC_I29		No	No	IO1616-2	13
42	UTC_I30		No	No	IO1616-2	14
43	UTC_I31	TO1	No	No	IO1616-2	15
44	UTC_I32	TO2	No	No	IO1616-2	16
45	DIM_IN		No	No	DIMMING	1

Outputs

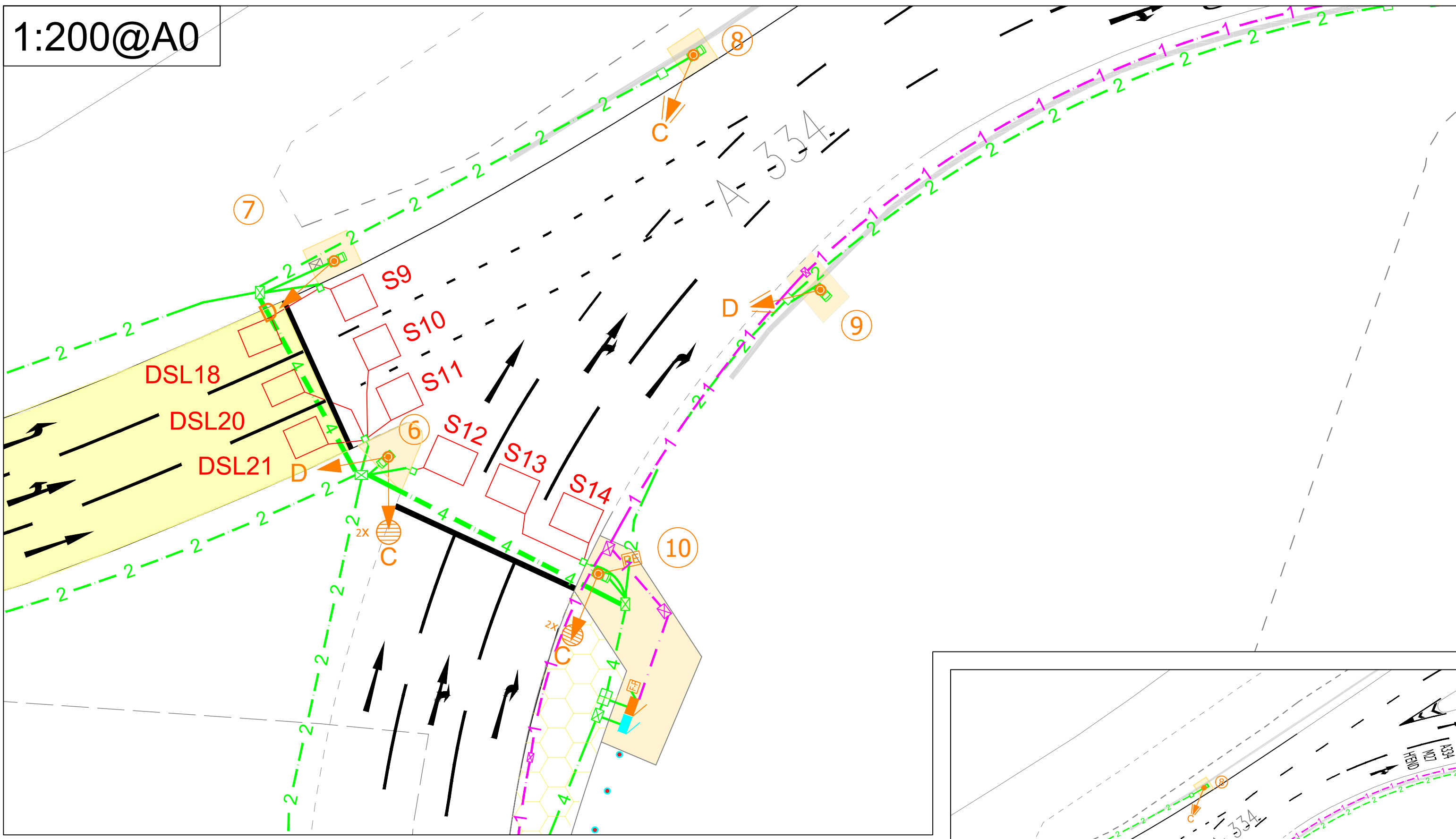
ID	Output	Label	Invert	Unit Type	Unit Pos.
1	S1		No	KOPMV-4	1
2	S2		No	KOPMV-4	2
3	S4		No	KOPMV-4	3
4	S5		No	KOPMV-4	4
5	West_Str1_on_Mova		No	KOPMV-4	5
6	West_Str2_on_Mova		No	KOPMV-4	6
7	West_Str1_on.UTC		No	KOPMV-4	7
8	West_Str2_on.UTC		No	KOPMV-4	8
9	Str1_Mdet31		No	IO1616-3	1
10	Str1_Mdet32		No	IO1616-3	2
11	Str1_Mdet33		No	IO1616-3	3
12	Str1_Mdet34		No	IO1616-3	4
13	Str1_Mdet35		No	IO1616-3	5
14	Str1_Mdet36		No	IO1616-3	6
15	Str1_Mdet37		No	IO1616-3	7

ID	Output	Label	Invert	Unit Type	Unit Pos.
16	Str1_Mdet38		No	IO1616-3	8
17	Str2_Mdet31		No	IO1616-3	9
18	Str2_Mdet32		No	IO1616-3	10
19	Str2_Mdet33		No	IO1616-3	11
20	Str2_Mdet34		No	IO1616-3	12
21	Str2_Mdet35		No	IO1616-3	13
22	Str2_Mdet36		No	IO1616-3	14
23	Str2_Mdet37		No	IO1616-3	15
24	Str2_Mdet38		No	IO1616-3	16
25	UTC_O1	G1	No	IO1616-1	1
26	UTC_O2	G2	No	IO1616-1	2
27	UTC_O3	G4	No	IO1616-1	3
28	UTC_O4	G5	No	IO1616-1	4
29	UTC_O5	DF	No	IO1616-1	5
30	UTC_O6	SD2	No	IO1616-1	6
31	UTC_O7	SD5	No	IO1616-1	7
32	UTC_O8	RR	No	IO1616-1	8
33	UTC_O9	LF1	No	IO1616-1	9
34	UTC_O10	LF2	No	IO1616-1	10
35	UTC_O11		No	IO1616-1	11
36	UTC_O12		No	IO1616-1	12
37	UTC_O13		No	IO1616-1	13
38	UTC_O14		No	IO1616-1	14
39	UTC_O15		No	IO1616-1	15
40	UTC_O16	CS	No	IO1616-1	16
41	UTC_O17	RQ1	No	IO1616-2	1
42	UTC_O18	RQ2	No	IO1616-2	2
43	UTC_O19	RQ4	No	IO1616-2	3
44	UTC_O20	RQ5	No	IO1616-2	4
45	UTC_O21		No	IO1616-2	5
46	UTC_O22		No	IO1616-2	6
47	UTC_O23		No	IO1616-2	7
48	UTC_O24		No	IO1616-2	8
49	UTC_O25		No	IO1616-2	9
50	UTC_O26		No	IO1616-2	10
51	UTC_O27		No	IO1616-2	11
52	UTC_O28		No	IO1616-2	12
53	UTC_O29		No	IO1616-2	13

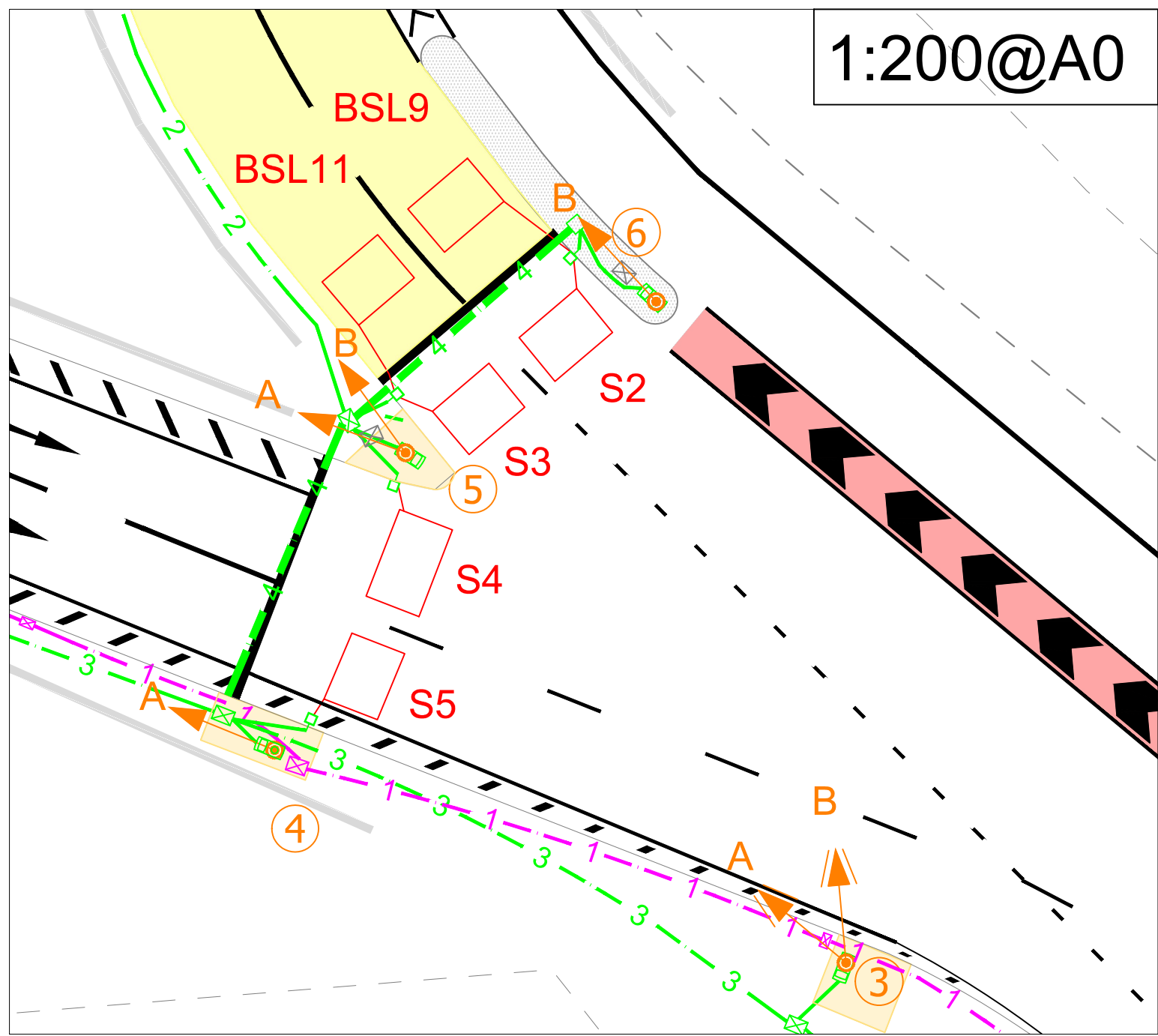
ID	Output	Label	Invert	Unit Type	Unit Pos.
54	UTC_O30		No	IO1616-2	14
55	UTC_O31	CRB_1	No	IO1616-2	15
56	UTC_O32	CRB_2	No	IO1616-2	16
57	DIM_OUT		No	DIMMING	1

Report executed at 6/24/2020 11:20 AM

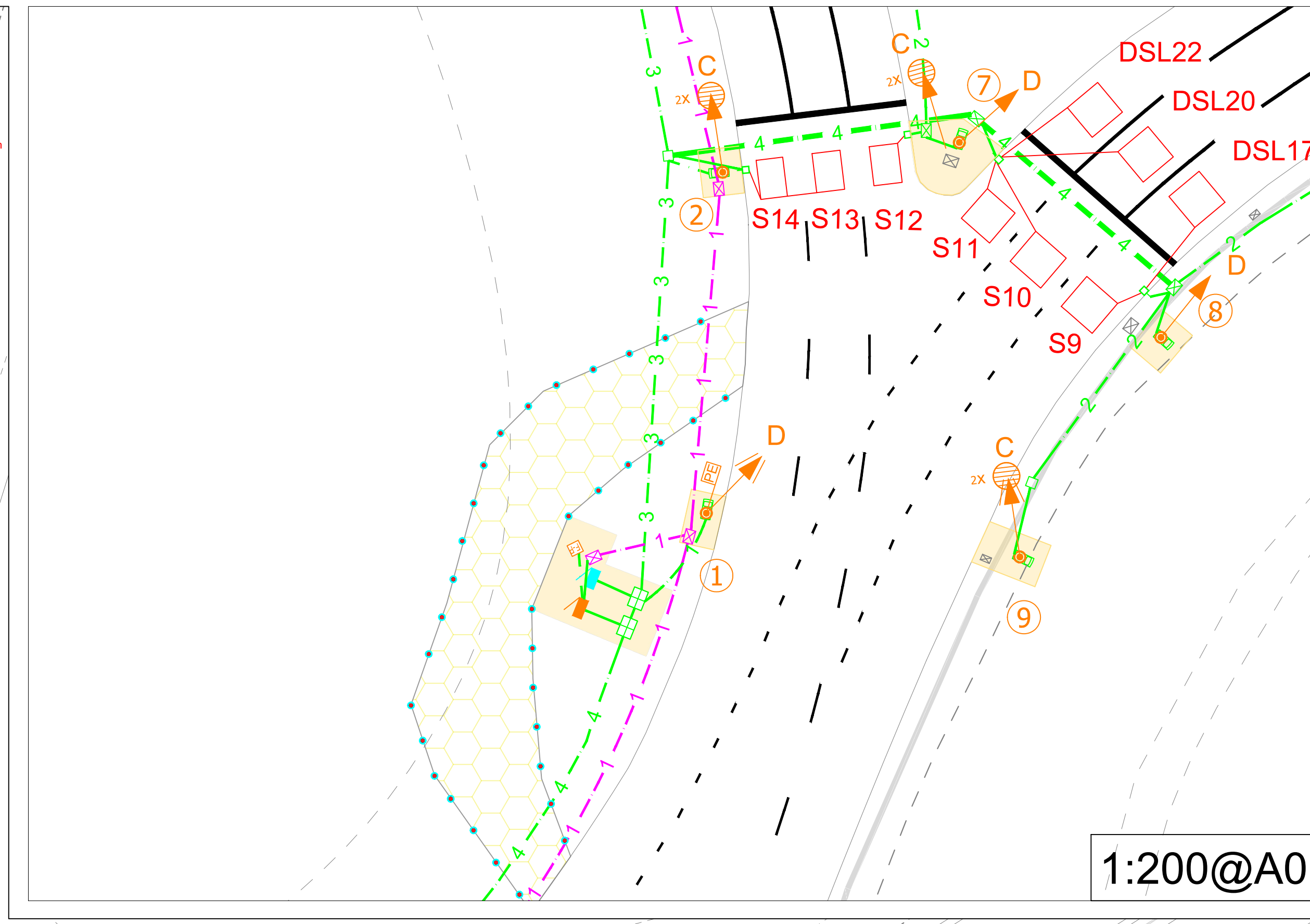
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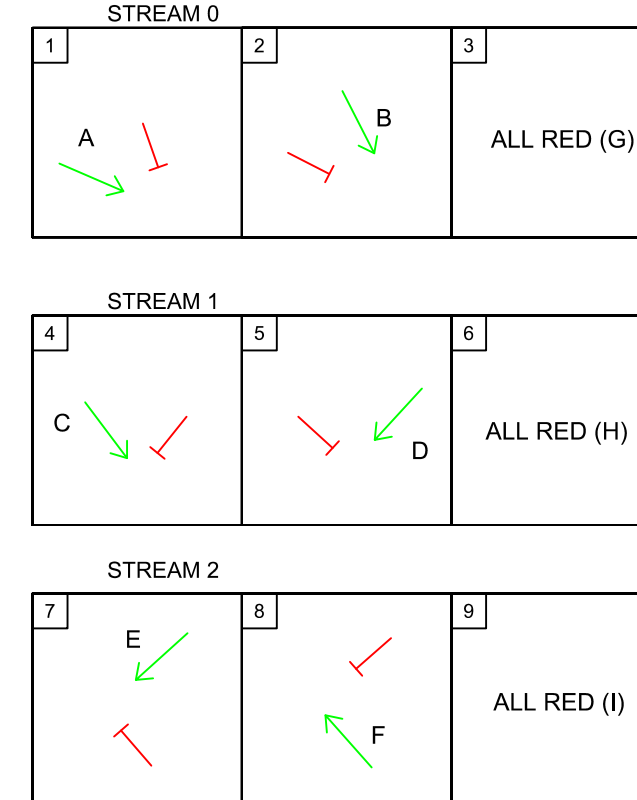
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1:200@A0



HAS010



KEY - SERIES 1200

- 4m Pole Low Level Access (Passive)
- 6m Pole Low Level Access (Passive)
- Primary RAG Signal Head with Phase
- Primary Signal Head with High Level Repeater
- Secondary RAG Signal Head
- 7m x Horizontal Louvres
- Photoelectric Cell
- 900mm Extension Bracket
- ELV Traffic Signal Controller Cabinet
- MEC - SIS Electrical Disconnection System Cabinet
- Electric Feeder Pillar (FP)
- MOVA Loops
- SCOOT Loops
- Ducts - 1100 of Polyethylene 100mm duct (or as labeled)
- Ducts - 4x Orange 100mm dia. Multiduct
- Drawpits - 1450x300mm / 600x450mm / 600x800mm
- Carriageway Loop Box with 50mm Under Kerb Duct (140mmx140mm)
- NAL Pole Retention Socket RS115
- Street Lighting Drawpits
- Ducts / Drawpits for BT Communications
- New Maintenance Vehicle Bay
- Controller / Pole Hard Standing
- Vehicle Restraint System (VRS)
- New Pole Numbers
- High Friction Surfacing (HFS)
- Bollard
- Hazard - See Notes
- HP Gas Line

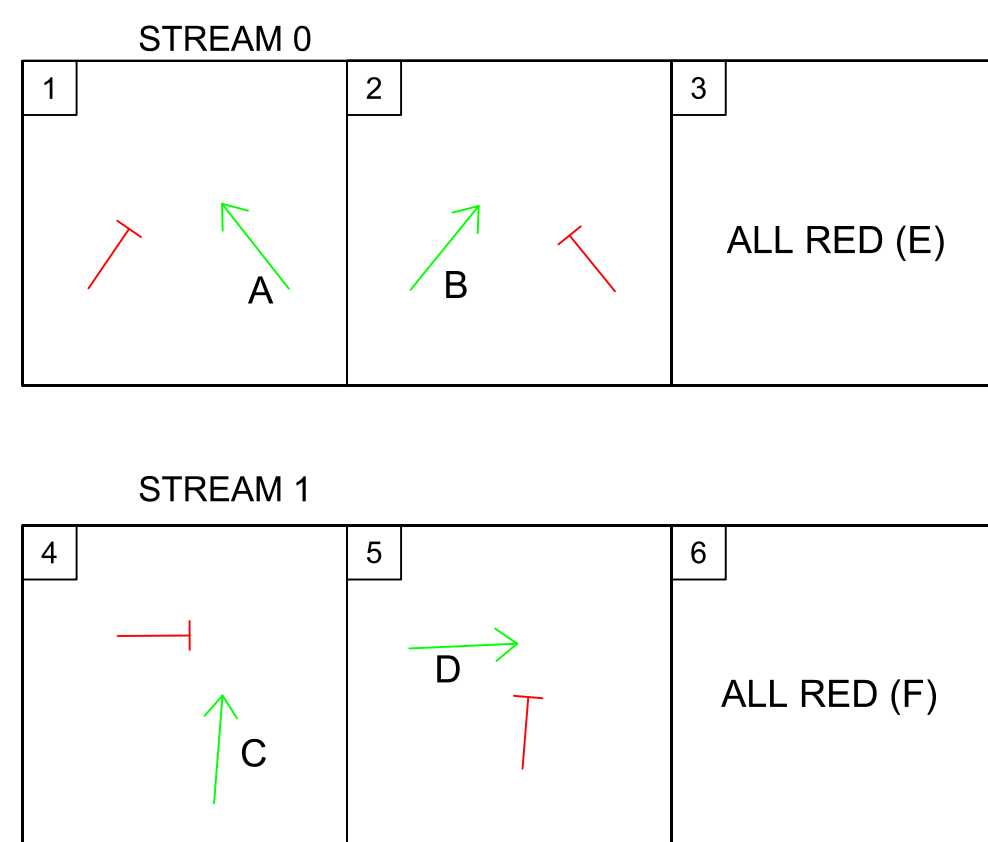
HAS011 - M27 J7
N/B APPROACH
(X431110)

HAS010 - M27 J7
S/B APPROACH
(X431120)

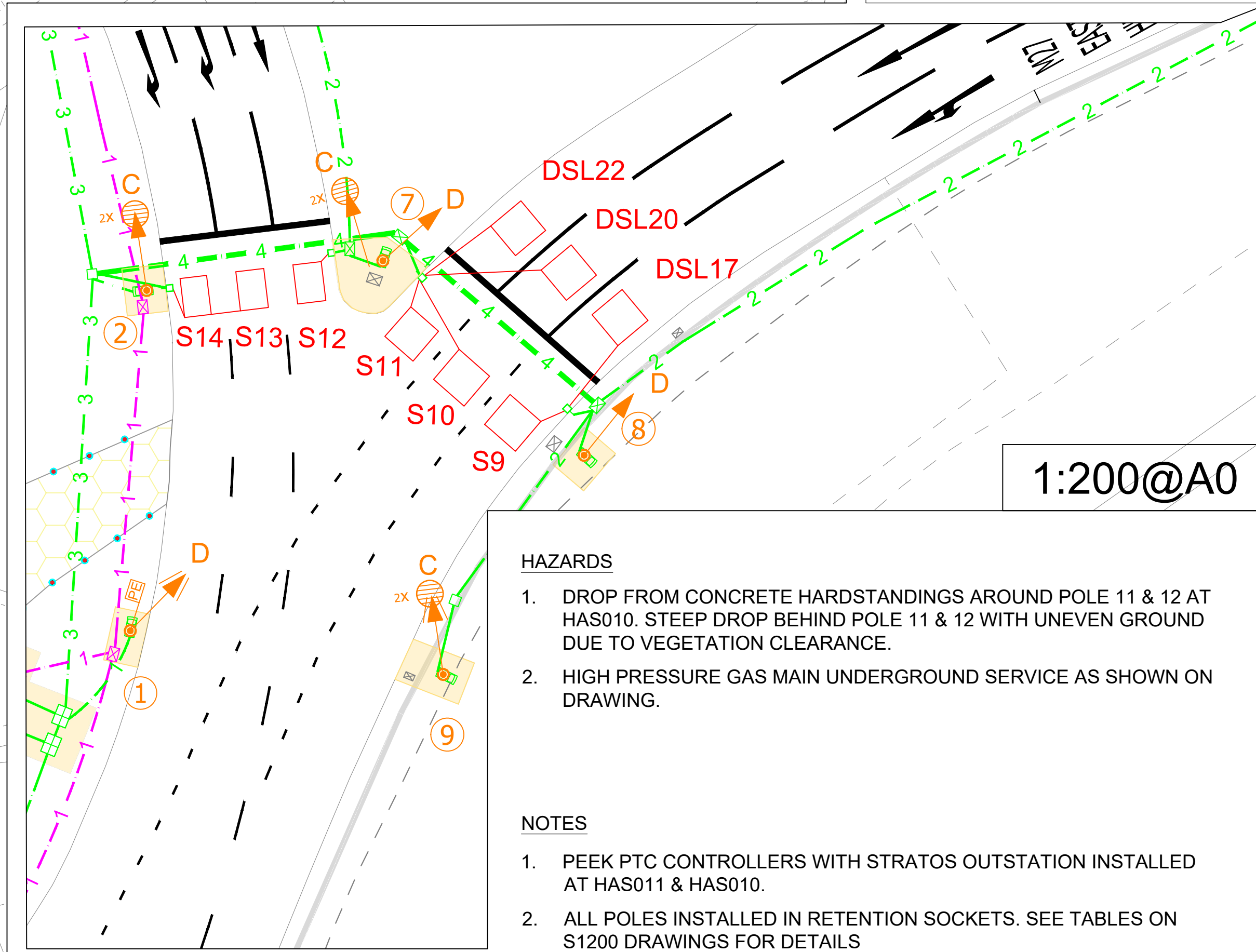
AS BUILT

1:200@A0

HAS011



1:200@A0



HAZARDS

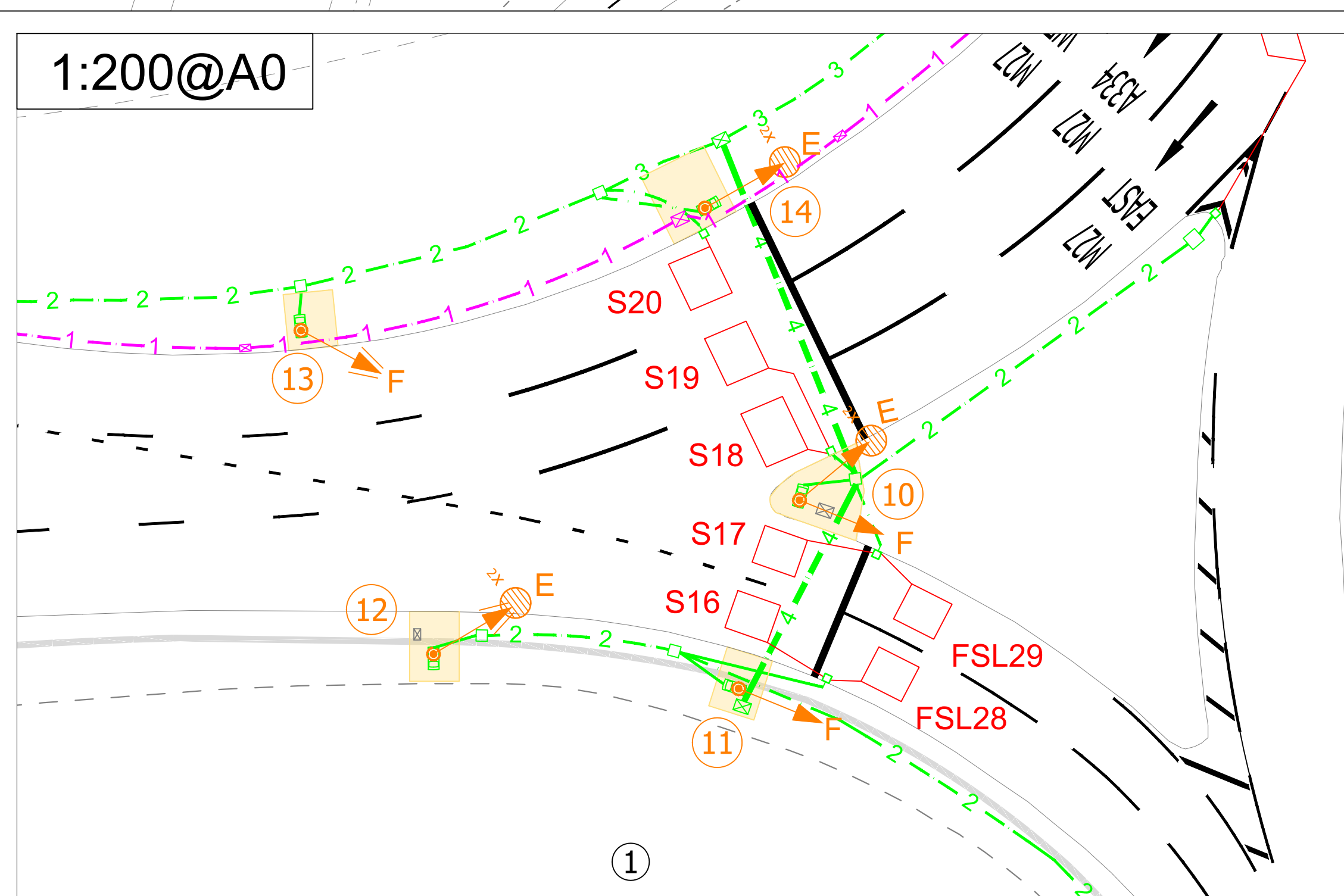
- DROP FROM CONCRETE HARDSTANDINGS AROUND POLE 11 & 12 AT HAS010. STEEP DROP BEHIND POLE 11 & 12 WITH UNEVEN GROUND DUE TO VEGETATION CLEARANCE.
- HIGH PRESSURE GAS MAIN UNDERGROUND SERVICE AS SHOWN ON DRAWING.

NOTES

- PEEK PTC CONTROLLERS WITH STRATOS OUTSTATION INSTALLED AT HAS011 & HAS010.
- ALL POLES INSTALLED IN RETENTION SOCKETS. SEE TABLES ON S1200 DRAWINGS FOR DETAILS
- ALL POLES INCLUDE AN SIS DISCONNECTION SYSTEM.
- CONTROLLER CABINETS AND MEC CABINETS INSTALLED ON NAL CABINET BASE.
- MEC CABINETS HOUSE SIS DISCONNECTION SYSTEM.
- ALL DRAWPITS LABELED TRAFFIC SIGNALS OR STREET LIGHTING.
- ALL TRAFFIC SIGNAL DETECTION LOOPS CUT BACK INTO CARRIAGEWAY LOOP BOX EXCEPT LOOPS AX2 & AX4 OF HAS011. AX2 & AX4 CUT BACK INTO KERB DUE TO LOCATION ON BRIDGE DECK.
- ALL CROSSROAD DUCTS INSTALLED IN NAL MULTIDUCT SYSTEM (4 WAY).
- AUTHORISED VEHICLE ONLY SIGNS INSTALLED AT BOTH MAINTENANCE PARKING BAYS.

1:500@A0

1:200@A0



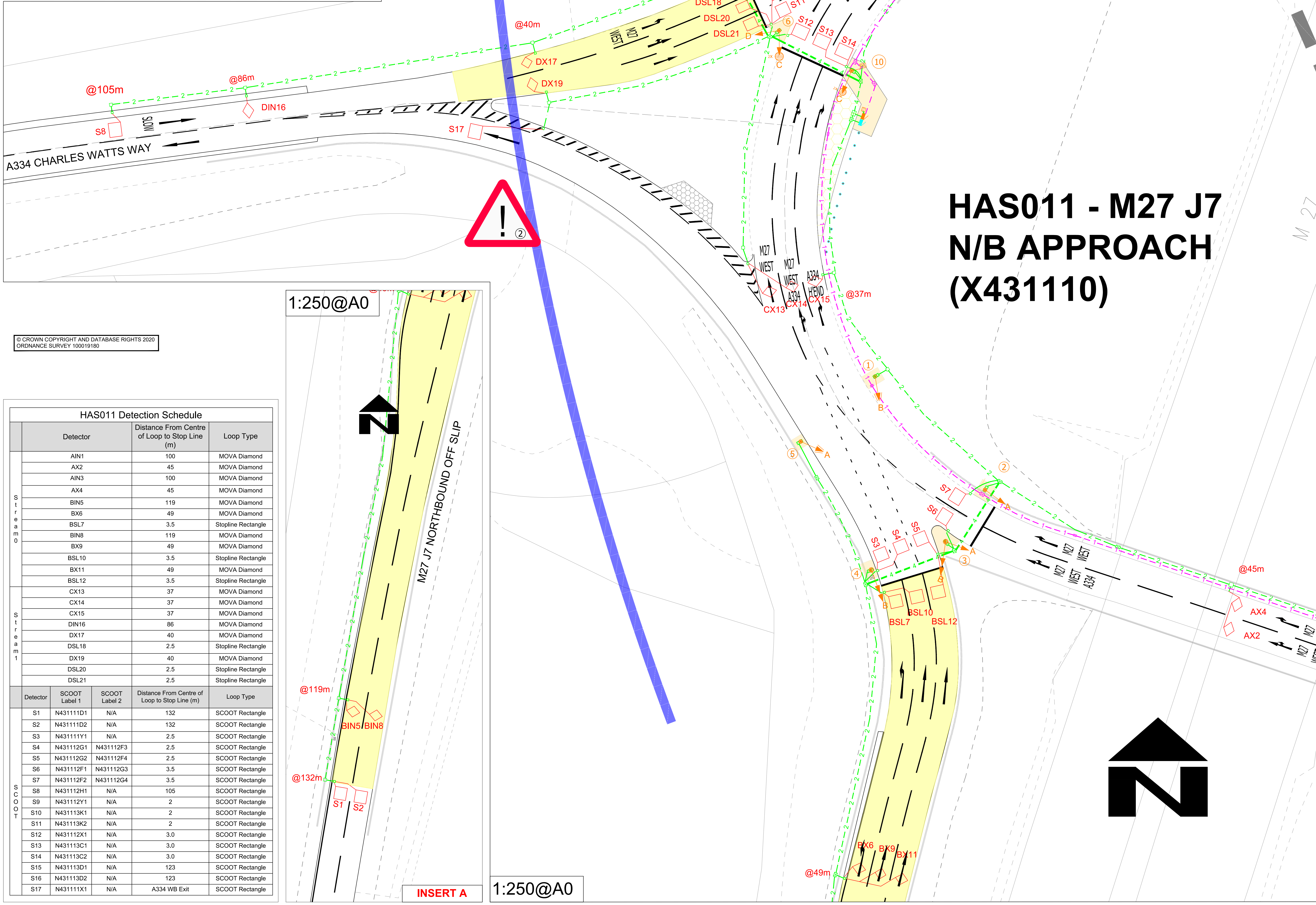
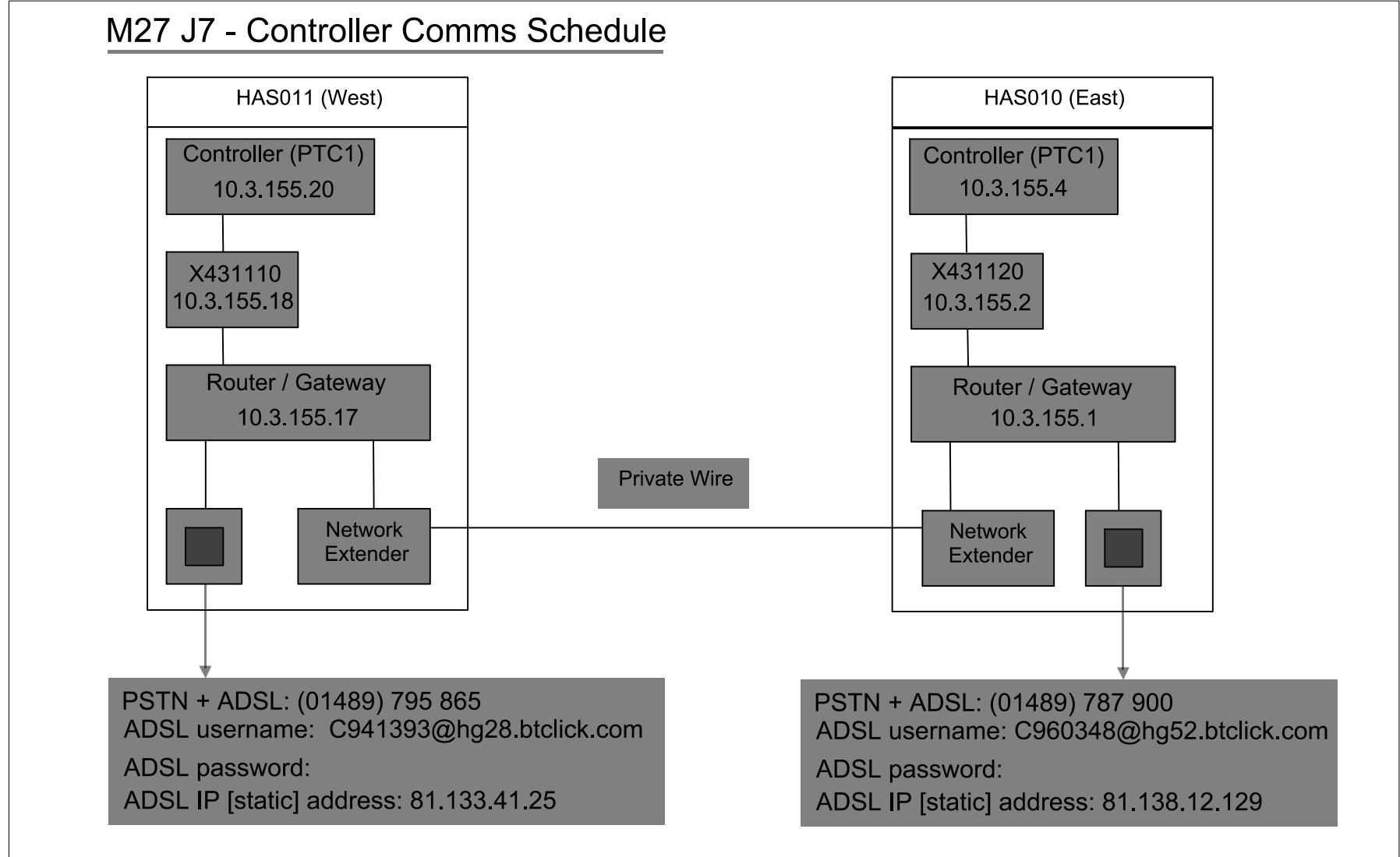
S3	0	FIRST ISSUE	AMENDMENTS	04/03/2021	CS	RAO	AW
SUIT	REV	DATE	CAD	CHD	APPD		



CLIENT
KIER SERVICES - HIGHWAYS
INTELLIGENT TRANSPORT SYSTEMS

CONSULTANT
HAMPSHIRE COUNTY COUNCIL
ECONOMY, TRANSPORT AND ENVIRONMENT DEPARTMENT
INTELLIGENT TRANSPORT SYSTEMS

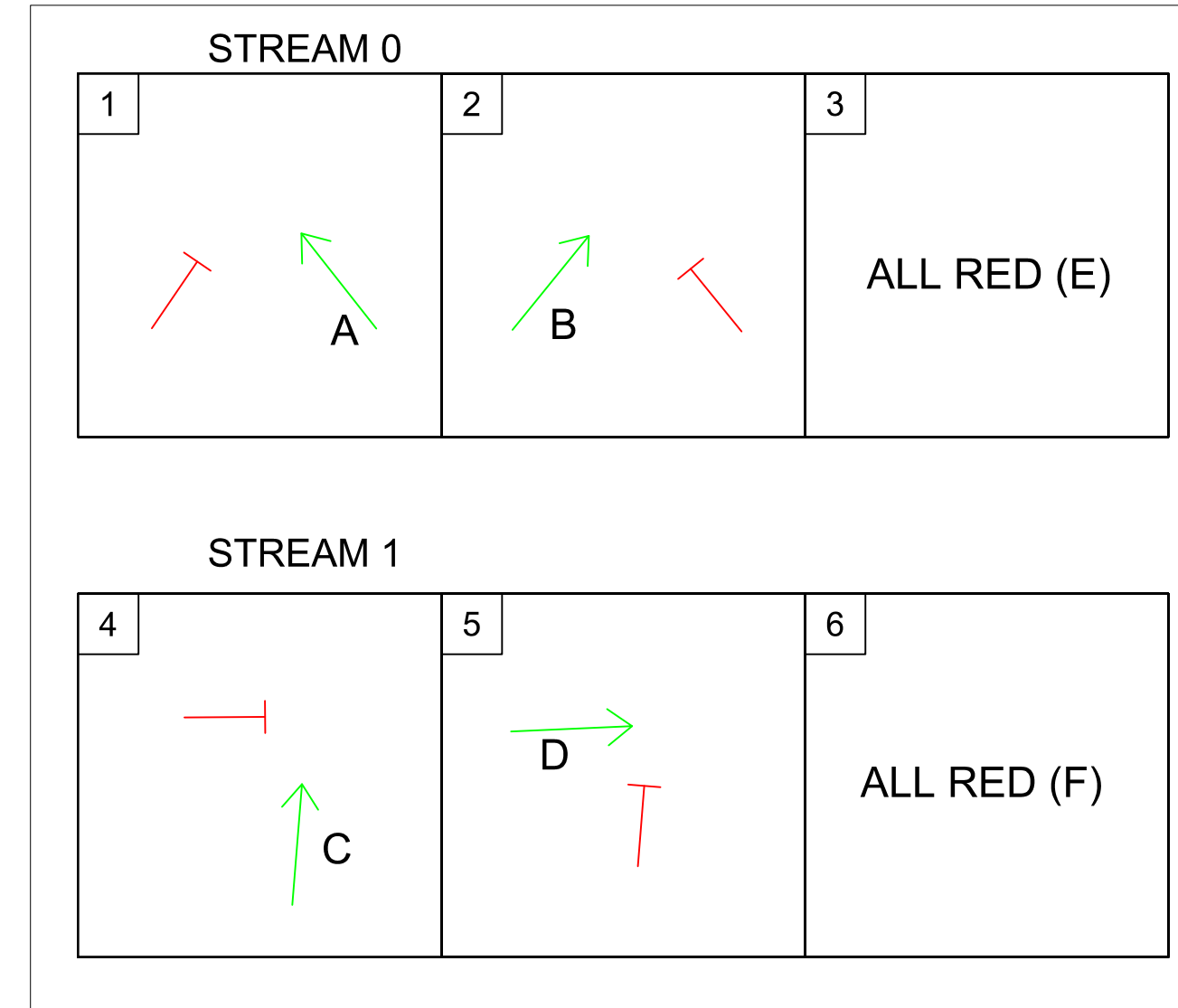
DESIGNER	SCALE @ A0	SCHEME	DRAWING TITLE
AW	1:500	HAS010 / HAS011 M27 JUNCTION 7	HAS011 / HAS010 GENERAL ARRANGEMENT AS BUILT
CAD	DATE MAR 2021		
CHECKED RAD	SHEET NUMBER 1 OF 4		
APPROVED JAM	DRAWING NUMBER ITS_RJ506521_101_Gen_Arrangement		



HAS011 (N/B APPROACH) POLE / EQUIPMENT SCHEDULE

Pole	Height	Low-Level Access	Passively Safe	Socket Type	Phase	Pri (P) / Sec (S)	Type of Aspects	No. of Heads	Louvers	Comment
1	4.00	Y	Y	RS115DF(600)	B	S	RAG	1		
2	4.00	Y	Y	RS115DF(600)	A	P	RAG	1		
3	6.00	Y	Y	RS115DF(900)	A / B	P	RAG	3		
4	6.00	Y	Y	RS115DF(900)	B	P	RAG	2		
5	4.00	Y	Y	RS115DF(600)	A	S	RAG	1		
6	4.00	Y	Y	RS115DF(600)	C / D	P	RAG	2	Y	Phase C on Amber & Green
7	4.00	Y	Y	RS115DF(600)	D	P	RAG	1		
8	4.00	Y	Y	RS115DF(600)	C	S	RAG	1		Photo Electronic Cell
9	4.00	Y	Y	RS115DF(600)	D	S	RAG	1		
10	4.00	Y	Y	RS115DF(600)	C	P	RAG	1	Y	On Amber & Green
TOTALS	10	10						14	2	

- KEY - SERIES 1200
- 4m Pole Low Level Access (Passive)
 - 6m Pole Low Level Access (Passive)
 - Primary RAG Signal Head with Phase
 - Primary Signal Head with High Level Repeater
 - Secondary RAG Signal Head
 - 100 x Horizontal Louvers
 - Photoelectric Cell
 - ELV Traffic Signal Controller Cabinet
 - MEC - SIS Electrical Disconnection System Cabinet
 - Electric Feeder Pillar (FP)
 - MOVA Loops
 - SCOOT Loops
 - Ducts - 1 no. of Polyethylene 100mm duct (or as labeled)
 - Ducts - 4x Orange 100mm dia. Multiduct
 - Drawpits - (450x300mm / 600x450mm / 600x600mm)
 - Carriageway Loop Box with 50mm Under Kerb Duct (140mmx140mm)
 - NAL Pole Retention Socket RS115
 - Street Lighting Drawpits
 - Ducts / Drawpits for BT Communications
 - New Maintenance Vehicle Bay
 - Controller / Pole Hard Standing
 - Vehicle Restraint System (VRS)
 - New Pole Numbers
 - High Friction Surfacing (HFS)
 - Bollard
 - Hazard - See Notes
 - HP Gas Line



- HAZARDS
- HAZARD - HIGH PRESSURE GAS MAIN UNDERGROUND SERVICE AS SHOWN ON DRAWING.
- NOTES
- PEEK PTC CONTROLLER WITH STRATOS OUTSTATION INSTALLED.
 - ALL POLES INSTALLED IN RETENTION SOCKETS. SEE TABLE.
 - ALL POLES INCLUDE AN SIS DISCONNECTION SYSTEM.
 - CONTROLLER CABINET AND MEC CABINET INSTALLED ON NAL CABINET BASE.
 - MEC CABINET HOUSES SIS DISCONNECTION SYSTEM.
 - ALL DRAWPITS LABELED TRAFFIC SIGNALS OR STREET LIGHTING.
 - ALL TRAFFIC SIGNAL DETECTION LOOPS CUT BACK INTO CARRIAGEWAY LOOP BOX EXCEPT LOOPS AX2 & AX4 OF HAS011. AX2 & AX4 CUT BACK INTO KERB DUE TO LOCATION ON BRIDGE DECK.
 - ALL CROSSROAD DUCTS INSTALLED IN NAL MULTIDUCT SYSTEM (4 WAY).
 - AUTHORISED VEHICLE ONLY SIGNS INSTALLED.

HAS011 Detection Schedule

Detector	Distance From Centre of Loop to Stop Line (m)	Loop Type
AIN1	100	MOVA Diamond
AX2	45	MOVA Diamond
AIN3	100	MOVA Diamond
AX4	45	MOVA Diamond
BIN5	119	MOVA Diamond
BX6	49	MOVA Diamond
BSL7	3.5	Stopline Rectangle
BIN8	119	MOVA Diamond
BX9	49	MOVA Diamond
BSL10	3.5	Stopline Rectangle
BX11	49	MOVA Diamond
BSL12	3.5	Stopline Rectangle
CX13	37	MOVA Diamond
CX14	37	MOVA Diamond
CX15	37	MOVA Diamond
DIN16	86	MOVA Diamond
DX17	40	MOVA Diamond
DSL18	2.5	Stopline Rectangle
DX19	40	MOVA Diamond
DSL20	2.5	Stopline Rectangle
DSL21	2.5	Stopline Rectangle

Detector	SCOOT Label 1	SCOOT Label 2	Distance From Centre of Loop to Stop Line (m)	Loop Type
S1	N431111D1	N/A	132	SCOOT Rectangle
S2	N431111D2	N/A	132	SCOOT Rectangle
S3	N431111Y1	N/A	2.5	SCOOT Rectangle
S4	N431112G1	N431112F3	2.5	SCOOT Rectangle
S5	N431112G2	N431112F4	2.5	SCOOT Rectangle
S6	N431112F1	N431112G3	3.5	SCOOT Rectangle
S7	N431112F2	N431112G4	3.5	SCOOT Rectangle
S8	N431112H1	N/A	105	SCOOT Rectangle
S9	N431112Y1	N/A	2	SCOOT Rectangle
S10	N431113K1	N/A	2	SCOOT Rectangle
S11	N431113K2	N/A	2	SCOOT Rectangle
S12	N431112X1	N/A	3.0	SCOOT Rectangle
S13	N431113C1	N/A	3.0	SCOOT Rectangle
S14	N431113C2	N/A	3.0	SCOOT Rectangle
S15	N431113D1	N/A	123	SCOOT Rectangle
S16	N431113D2	N/A	123	SCOOT Rectangle
S17	N431111X1	N/A	A334 WB Exit	SCOOT Rectangle

