

	ACTION	DATE
TO	1. SENIOR ENGINEER, CONTROLLER APPLICATIONS	
	2. STEVE BELZ, PROGRAM DELIVERY	
FROM	NATHAN CORCORAN	DATE 8/07/19
SITE	GISBORNE-KILMORE ROAD NR STATION STREET	SITE NO. 6306
REGION	RRV NORTHERN	MUNICIPALITY MACEDON RANGES

GENERAL

Works Program Job?	Yes	Project Number	DM187C
Classification	SIMPLE	Works Order Number	4A006476
Description	<input type="checkbox"/> New intersection signals <input checked="" type="checkbox"/> New pedestrian operated signals <input type="checkbox"/> Controller swap. Reason for swap		

CONTROLLER DETAILS

Type	QTC	Software Version & Release	V5 R20	Lanterns	LED
Number of Signal Groups	Vehicle 2	Pedestrians 1	Total	3	
Number of special outputs / Pedestrian Wait State Outputs					
Controller capacity	4				
Number of detectors	Vehicle 2	Pedestrians 1	Total	6	
	Tram	Other 3			

CONTROLLER APPLICATIONS

Target Date for Draft Opsheet	15 July 2019
Target Date for completion of Program	29 July 2019
Prepare Interlocking	

PERSONALITY CHECKSUMS

	Hex	Octal
Total	4E	116
Times	84	204
Pers	CA	312
Dispatched	17/07/19	

PROGRAM DELIVERY - SIGNAL INSTALLATION

If switch-on of a metro site is to occur without a Telstra line, seek approval of the T/L Signal Services

SCATS connection	Controller must be connected to SCATS at switch-on
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PRIOR NOTICE

A job must be entered into RAI Action database before this switch on will be allowed.

<input checked="" type="checkbox"/>	SCATS data changes - notify	NATHAN CORCORAN	Ext	8273
	OR	DARREN VAUGHAN	Ext	1210
before 3:00pm on the day before switch on.				

SCATS Data Changes - Slot data and graphics

TRAFFIC MANAGEMENT CENTRE

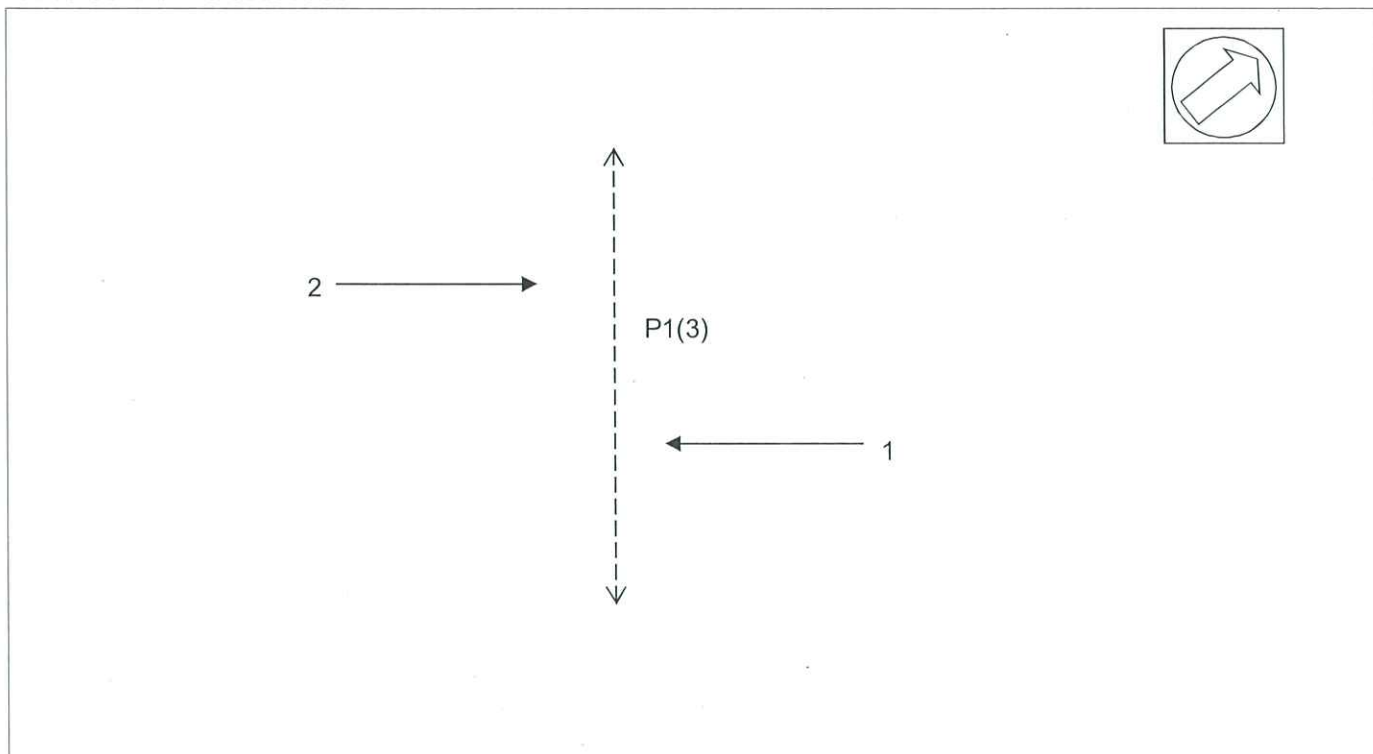
<input checked="" type="checkbox"/>	Please notify NATHAN CORCORAN (x8273) on job completion.
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DATE OF NEW CONTROLLER SWITCH ON

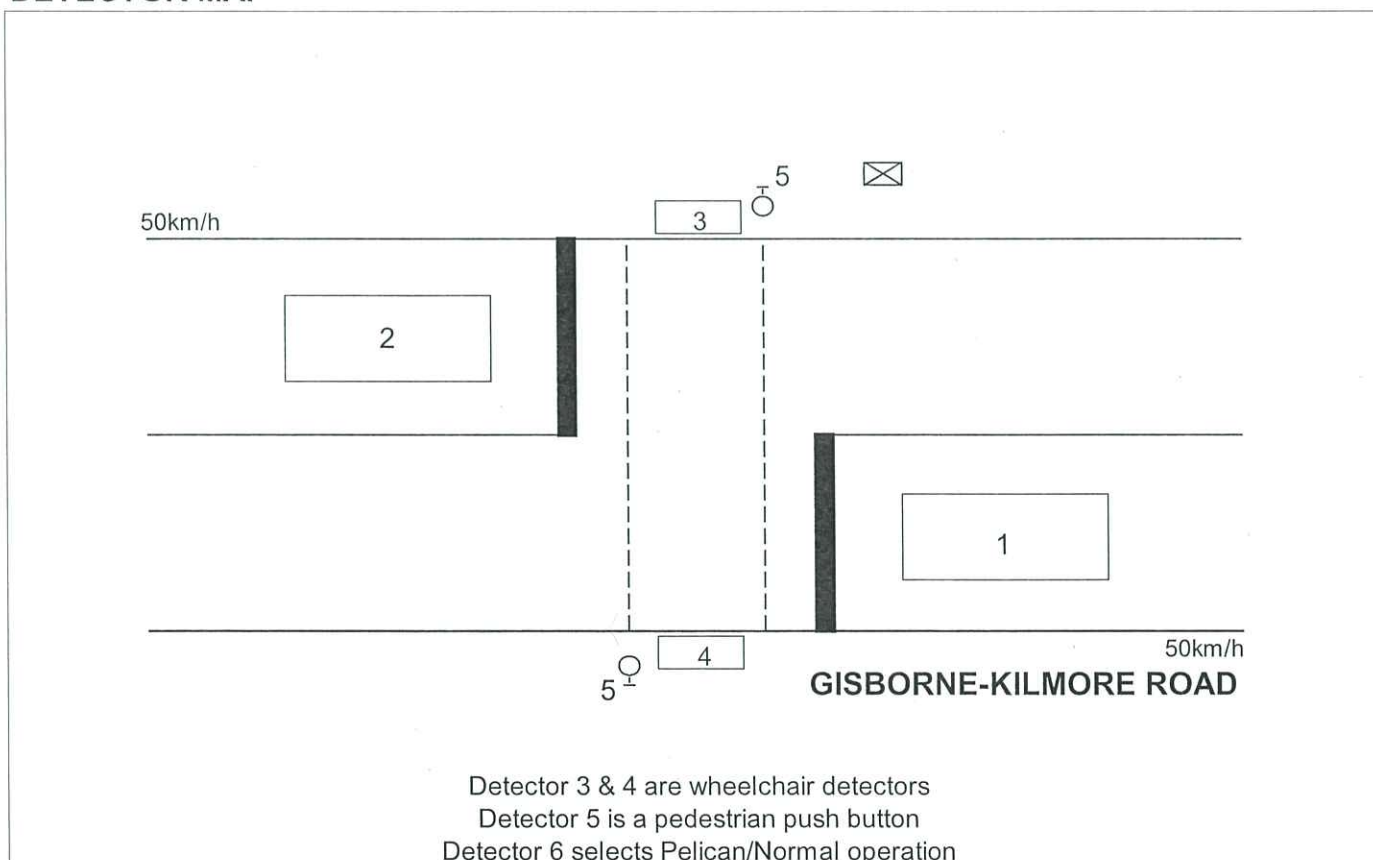
CONTROLLER OPERATION SPECIFICATION

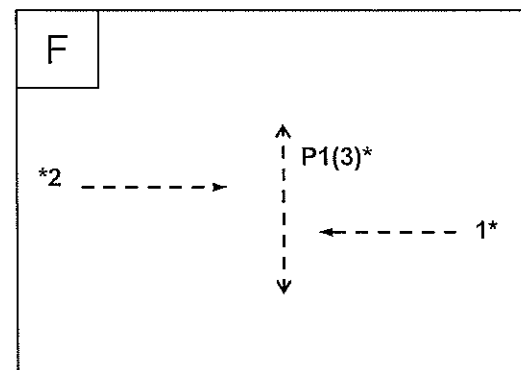
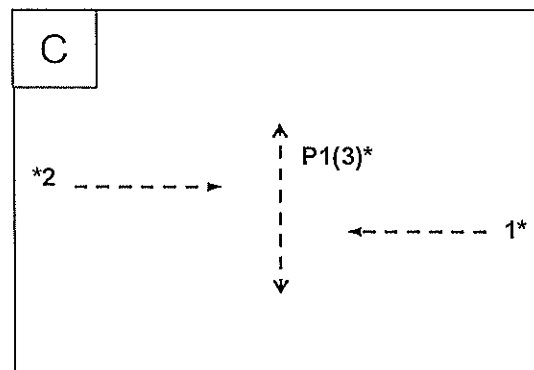
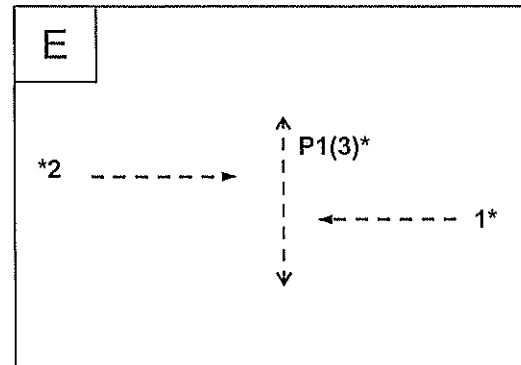
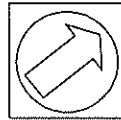
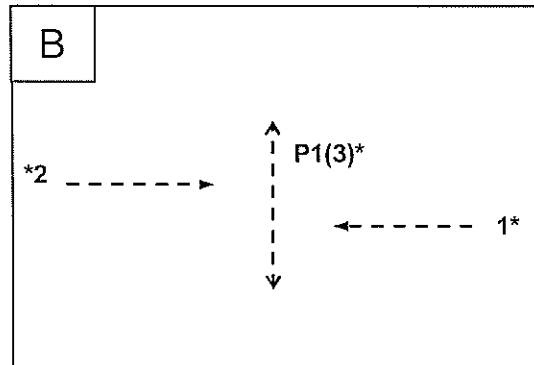
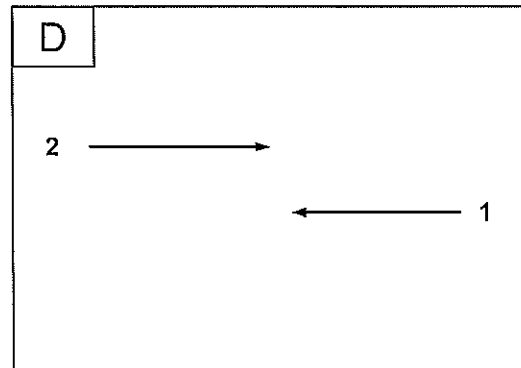
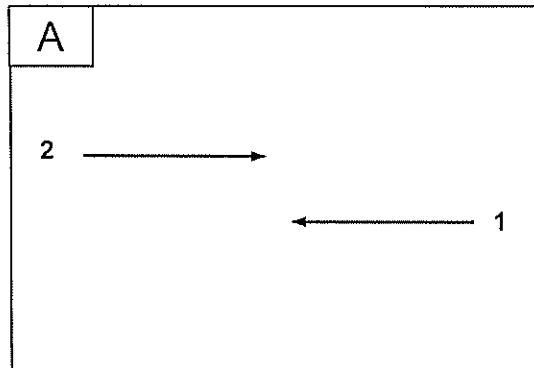
SITE NAME	GISBORNE-KILMORE ROAD NR STATION STREET			SITE NO.	6306
MUNICIPALITY	MACEDON RANGES	DESIGNED BY	NATHAN CORCORAN	DATE	8/07/19
PLAN NO.	779762	DESIGN CHECKED	<i>[Signature]</i>	DATE	11/7/19
CONTROLLER TYPE	QTC	PROM CHECKED	<i>[Signature]</i>	DATE	17/7/19

GROUP ALLOCATION



DETECTOR MAP



PHASING DIAGRAMOPERATION IN LINK MODE

1. Signal groups are independent of phasing. All phases have a permanent demand in Masterlink & Flexilink
2. SG1 & SG2 cannot close down during AØ (refer note 6 below for the exception).
- * 3. SG1 & SG2 can close down at any time during BØ green, provided SG1 & SG2 minimum green has expired and both approaches gap or waste. If SG1 & SG2 close down at the end of BØ green (i.e. at the start of BØ yellow), P1 introduces at the start of CØ
- * 4. SG1 & SG2 cannot close down during CØ
5. Any ped demand placed during BØ intergreen or during CØ will not be serviced until the next cycle.
6. If BØ is left out of the sequence in Masterlink or Flexilink, SG1 & SG2 can close down at the start of AØ yellow and P1 introduces at the start of CØ.
7. The operation of DØ, EØ, FØ are the same as for AØ, BØ, CØ respectively. DØ, EØ and FØ are only used when double phasing.
8. When XSF3 (Master & Flexi) is set, P1 uses Special Purpose Timesetting No. 9 for its walk time.

OPERATION IN V.A. AND FLEXI ISOLATED MODES

1. Controller runs AØ and CØ.
2. AØ is extended by the vehicle detectors. When AØ gaps or wastes, AØ and SG1 & SG2 close down together.
3. CØ is called by P1. P1 introduces at the start of CØ (SG1 & SG2 close down at the start of AØ yellow). CØ runs for the duration of P1 walk, clearance and solid don't walk time.

V.A. SEQUENCE AC

DESIGNED BY: NATHAN CORCORAN

DATE 8/07/19

DETECTOR FUNCTIONS

DETECTOR No.	Internal / External	Input Number	SPECIAL FUNCTION	DETECTOR ALARMS					
				DA Category	Disable	DA on S/C only	Fault Simulation		
							Call & Extend	Call Only	Ignore
1	I	1	Extend SG1, Approach 1 *	0			✓		
2	I	2	Extend SG2, Approach 2 *	0			✓		
3	I	3	Call Ped 1# (Wheelchair loop)	0		✓			
4	I	4	Call Ped 1# (Wheelchair loop)	0		✓			
5	E	1	Call CØ. Places demand for Ped 1**.	6		✓			
6	E	2	Off - Pelican POS; On - Normal POS	1	✓				
7									
8									
9									
10									
11									
12									
13									
14									
15									

* For Queuing Feature, refer notes on page 6.

Detectors 3 & 4 place locking calls for P1 when their presence time expires, substituting SPT No. 12 for P1 walk.

If ON continuously then do not recall P1 (from dets. 3 &/or 4) until they change state from OFF to ON.

** MSS11 is set for the duration of P1 demand. MSS12 is set for the duration of P1 demand from wheelchair detectors 3-4)

INTERGREEN AND PEDESTRIAN TIMES**INTERGREEN TIMES**

	LEGAL SPEED	DESIGN SPEED		INTERGREEN		
		YELLOW	RED	YELLOW	RED	TOTAL
SG1 & SG2	50	50	-	3.5	2.0	5.5

PEDESTRIAN TIMES

	WALK			CLEARANCE			MINIMUM SOLID DON'T WALK
	DISTANCE (m)	TIME		DISTANCE (m)	TIME		
		GRAPH	ADOPTED		GRAPH	ADOPTED	
P1	11.5	8	8	11.5	8	8	3.0

PEDESTRIAN OPERATION PELICAN OPERATION

OPERATION OF SG1 & SG2 WHEN CROSSING IS OPERATING AS A PELICAN POS

SG1 & SG2 close down to introduce P1 according to the notes on pages 2 and 4 of this Operation Specification. When closing down SG1 & SG2, they use the yellow and all red times as described in note 2 on page 4.

SG1 & SG2 remain red during SG1 & SG2 all red, P1 walk and P1 clearance 1.

At the start of P1 clearance 2, SG1 & SG2 go to flashing yellow mode.

SG1 & SG2 remain in flashing yellow mode during P1 clearance 2 and P1 solid DON'T WALK

SG1 & SG2 go green at the end of P1 solid DON'T WALK

The flash rate of SG1 & SG2 when in flashing yellow mode is as follows:

- SG1 & SG2 yellow is **on** for 0.5 seconds
- SG1 & SG2 yellow is **off** for 0.5 seconds

OPERATION OF SG1 & SG2 WHEN CROSSING IS OPERATING AS A NORMAL POS

When detector 6 is on, the operation of the crossing changes to that of a normal pedestrian crossing and SG1 & SG2 operate as described below.

SG1 & SG2 close down to introduce P1 according to the notes on pages 2 and 4 of this Operation Specification.

When closing down SG1 & SG2, they use the yellow and all red times as described in note 2 on page 4.

SG1 & SG2 remain red during SG1 & SG2 all red, P1 walk, P1 clearance 1, P1 clearance 2 and P1 solid DON'T WALK

SG1 & SG2 go green at the end of P1 solid DON'T WALK.

CONTROLLER TIMESETTINGS - 1

PHASE TIMESETTINGS

Front Panel Command: Phase No.Timesetting No (e.g. 1.6 accesses A phase maximum extension green)

DESCRIPTION	Timesetting No	PHASE						
		A (1)	B (2)	C (3)	D (4)	E (5)	F (6)	G (7)
RED / YELLOW	1	-	-	-	-	-	-	-
LATE START	2	-	-	-	-	-	-	-
MINIMUM GREEN (1)	3	3.0	0.0	3.0	3.0	0.0	3.0	-
INCREMENT	4	-	-	-	-	-	-	-
MAXIMUM INITIAL GREEN	5	-	-	-	-	-	-	-
MAXIMUM EXTENSION GREEN (4)	6	40	-	-	-	-	-	-
EARLY CUT OFF	7	-	-	-	-	-	-	-
YELLOW (2)	8	3.5	3.5	3.0	3.5	3.5	3.0	-
ALL RED (2)	9	2.0	2.0	0.0	2.0	2.0	0.0	-
SPECIAL ALL RED	10	0*	-	-	-	-	-	-
GAP 1 (3)	11	3.0	-	-	-	-	-	-
GAP 2 (3)	12	3.0	-	-	-	-	-	-
GAP 3	13	-	-	-	-	-	-	-
GAP 4	14	-	-	-	-	-	-	-
HEADWAY 1	15	1.2	-	-	-	-	-	-
HEADWAY 2	16	1.2	-	-	-	-	-	-
HEADWAY 3	17	-	-	-	-	-	-	-
HEADWAY 4	18	-	-	-	-	-	-	-
WASTE 1	19	7	-	-	-	-	-	-
WASTE 2	20	7	-	-	-	-	-	-
WASTE 3	21	-	-	-	-	-	-	-
WASTE 4	22	-	-	-	-	-	-	-

- For SG1 & SG2 minimum green in Isolated mode, refer Special Purpose Timesetting 10. * Special all red for AØ → BØ, DØ → EØ.
For SG1 & SG2 minimum green in link mode, refer Special Purpose Timesetting 11.
- When SG1 & SG2 close down they use the phase yellow time & the all-red specified in Special Movement Timesettings 1&2 (AØ all-red).
- SG1 & SG2 use the gap, headway and waste times specified in AØ timesettings.
- AØ maximum extension green is used only in Isolated mode.

PEDESTRIAN TIMESETTINGS

Front Panel Command: Pedestrian No.Timesetting No (e.g. 18.2 accesses P2 walk)

DESCRIPTION	Timesetting No	PEDESTRIAN							
		P1 (17)	P2 (18)	P3 (19)	P4 (20)	P5 (21)	P6 (22)	P7 (23)	P8 (24)
DELAY	1	-	-	-	-	-	-	-	-
WALK*	2	8	-	-	-	-	-	-	-
CLEARANCE 1	3	3	-	-	-	-	-	-	-
CLEARANCE 2	4	5	-	-	-	-	-	-	-

CONTROLLER TIMESETTINGS - 2**SPECIAL MOVEMENT TIMESETTINGS** Front Panel Command: B.Timesetting No (e.g. B.5 accesses Special Movement Timesetting No 5)

Timesetting No	Timesetting (Range: 0-5)	FUNCTION
1	2.0	SG1 ALL RED (SUBSTITUTE AØ ALL RED)
2	2.0	SG2 ALL RED (SUBSTITUTE AØ ALL RED)
3		
4		
5		
6		
7		
8		

SPECIAL PURPOSE TIMESETTINGS Front Panel Command: B.Timesetting No (e.g. B.19 accesses Special Movement Timesetting No 19)

Timesetting No	Timesetting (Range: 0-200)	FUNCTION
9	8	P1 WALK TIME SUBSTITUTION
10	10	SG1 & SG2 MINIMUM GREEN IN ISOLATED MODE
11	10	SG1 & SG2 MINIMUM GREEN IN LINK MODE
12	11	P1 WALK TIME SUBSTITUTION (DETECTORS 3-4)
13		
14		
15		
16		
17		
18	0	LIMIT GREEN WATCHDOG TIMER
19	0	SPECIAL FACILITY CONTROLS ALARM TIMER
20		
21		
22		
23		
24		
25		
26		
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40		

CONTROLLER TIMESETTINGS - 3**PRESENCE TIMESETTINGS**

Front Panel Command: D.Detector No (e.g. D.7 accesses Presence time for detector 7)

DETECTOR No	TIMESETTING (Range: 0-10)
1	6.0
2	6.0
3	3.0
4	3.0
5	
6	
7	
8	
9	
10	
11	
12	

QUEUING FEATURE**APPROACH 1:**

- If XSF9 (Masterlink) or R- (Flexilink) is set, and the presence time for detector 1 is expired in BØ, and there is a demand for P1, expire approach 1
- If XSF9 (Masterlink) or Q- (Flexilink) is set, and the presence time for detector 1 is expired in EØ, and there is a demand for P1, expire approach 1

APPROACH 2:

- If XSF10 (Masterlink) or R+ (Flexilink) is set, and the presence time for detector 2 is expired in BØ, and there is a demand for P1, expire approach 2
- If XSF10 (Masterlink) or Q+ (Flexilink) is set, and the presence time for detector 2 is expired in EØ, and there is a demand for P1, expire approach 2

DAILY EVENT TIMESETTINGS

FUNCTION	TIMESETTING
Daily start time (Hours)	
Daily start time (Minutes)	
Daily finish time (Hours)	
Daily finish time (Minutes)	

FLEXILINK OPERATION**PHASE SEQUENCES**

No	PHASE SEQUENCE
1 (No Y+)	ABCDEF (Only ABC run)
2 (Y+)	ABCDEF

NOTES:

1. All phases must be specified in the phase sequence
2. Only specify phase sequence 2 if it is different from phase sequence 1.

LOOK AHEADS & RELEASES

PHASE SEQUENCE 1		
PHASE	LOOK AHEAD*	RELEASE
A	No	No
B	No	No
C	No	No
D	No	No
E	No	No
F	No	No
G	No	No

PHASE SEQUENCE 2		
PHASE	LOOK AHEAD*	RELEASE
A	No	No
B	No	No
C	No	No
D	No	No
E	No	No
F	No	No
G	No	No

* Specify the phases to which look ahead is permitted, e.g. Yes (to E, F, G, A)

INHIBIT PHASES

The following phases can be inhibited in flexilink by setting the call pulse one step before the call pulse of the next phase in sequence B, E

PULSE STEP LENGTH

☐ One Second ☒ Two Second

MASTERLINK & FLEXILINK SPECIAL FLAGS

FLAG	FUNCTION
Y- Flexi	The site will operate in flexilink mode if the signal is continuously sent (C) or is used as an offset (e.g. 25)
Y- Master	
Y+ Flexi	Double phasing, i.e. Run ABCDEF
Z- Flexi	
Z- Master	
Z+ Flexi	
Z+ Master	
R- Flexi	Queuing Feature (refer notes on page 6)
R+ Flexi	Queuing Feature (refer notes on page 6)
Q- Flexi	Queuing Feature (refer notes on page 6)
Q+ Flexi	Queuing Feature (refer notes on page 6)

SCATS INTERSECTION DATA

The data shown on this page is typical data that can be used for testing controller operations.

This data is not necessarily applicable when the site is switched on in the field

TYPICAL SLOT DATA

SLOT <i>n</i>	=	6	,	1	,	0
		(phases)		(split plans)		(walks)
INT	=	6306				
VC	=	5				
CS	=					
COM	=	NET				
PK	=	!				
S#	=					
LM	=					
RMN	=	0				
DCL	=	0				
AT	=	4				
BT	=	6				
CT	=	3				
DT	=	4				
ET	=	6				
FT	=	3				
PP1	=	0,0A				
PP2	=	0,0A				
PP3	=	0,0A				
PP4	=	0,0A				

TYPICAL SPLIT PLAN DATA

PHASE SEQUENCE 1	
A =	0PDB
B =	50NGC
C* =	19#NGA
D =	1E
E =	1F
F =	1A

PED NO	PED NO			P1
	GROUP NO	1	2	3
	1			X
	2			X
P1	3	X	X	

* CØ = WALK + CLEARANCE + 3 SECONDS

TYPICAL VARIATION PARAMETERS

VP1 =		VP22 =		VP43 =	
VP2 =		VP23 =		VP44 =	
VP3 =		VP24 =		VP45 =	
VP4 =		VP25 =		VP46 =	
VP5 =		VP26 =		VP47 =	
VP6 =		VP27 =		VP48 =	
VP7 =		VP28 =		VP49 =	
VP8 =		VP29 =		VP50 =	
VP9 =		VP30 =		VP51 =	
VP10 =		VP31 =		VP52 =	
VP11 =		VP32 =		VP53 =	
VP12 =		VP33 =		VP54 =	
VP13 =		VP34 =		VP55 =	
VP14 =		VP35 =		VP56 =	
VP15 =		VP36 =		VP57 =	
VP16 =		VP37 =		VP58 =	
VP17 =		VP38 =		VP59 =	
VP18 =		VP39 =		VP60 =	
VP19 =		VP40 =		VP61 =	
VP20 =		VP41 =		VP62 =	
VP21 =		VP42 =			