

TO	1. SENIOR ENGINEER, CONTROLLER APPLICATIONS 2. STEVE BELZ, PROGRAM DELIVERY	ACTION	DATE
FROM	NECATI UYAR	DATE	28/02/20
SITE	CALDER HIGHWAY / LAUREL STREET	SITE NO.	6259
REGION	NORTHERN	MUNICIPALITY	GREATER BENDIGO

GENERAL

Works Program Job?	Yes	Project Number	45721JA1
Classification	MINOR	Works Order Number	4A006929

EXISTING CONTROLLER DETAILS

Type	PSC 2003	Software Version & Release	V5R81	Lanterns	QH
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CONTROLLER APPLICATIONS

Target Date for Draft Opsheet	3/05/2020
Target Date for completion of Program	19/3/20

PERSONALITY CHECKSUMS

	Hex	Octal
Total	7E	176
Times	B1	261
Pers	CF	317

Prepare Interlocking

Update Graphics, Site Notes No

Dispatched 18/03/20

☐ Site ID Revision updated to

Description of changes LED upgrade

PROGRAM DELIVERY - SIGNAL INSTALLATION

<input checked="" type="checkbox"/> Changes to signal hardware	<input type="checkbox"/> Changes to interlocking
<input type="checkbox"/> Additional detectors	<input type="checkbox"/> Changes to existing detector numbering
<input checked="" type="checkbox"/> Upgrade controller software to V5 R82	
<input type="checkbox"/> Other changes	
<input checked="" type="checkbox"/> Place new operation specification in controller	

PRIOR NOTICE

A job must be entered into RAI Action database before this PROM change will be allowed.

<input checked="" type="checkbox"/> SCATS data changes - notify	NECATI UYAR	Ext	1327
OR	DARREN VAUGHAN	Ext	1210

before 3:00pm on the day before switch on.

SCATS Data Changes - Slot data

TRAFFIC MANAGEMENT CENTRE

<input type="checkbox"/> Checksum update only
<input type="checkbox"/> Changes to trim or manual intervention features required
<input checked="" type="checkbox"/> Please notify NECATI UYAR (x1327) on job completion.

DATE PROM INSTALLED

CONTROLLER OPERATION SPECIFICATION

SITE NAME **CALDER HIGHWAY / LAUREL STREET**

SITE NO. **6259**

MUNICIPALITY **GREATER BENDIGO** DESIGNED BY **NECATI UYAR**

DATE **28/02/20**

PLAN NO. **426048A**

DESIGN CHECKED *[Signature]*

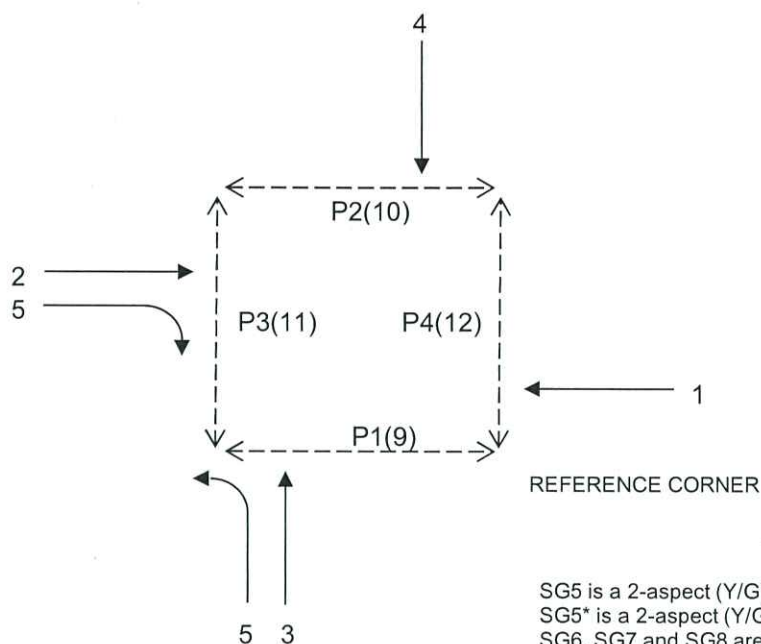
DATE **10/3/20**

CONTROLLER TYPE **PSC 2003**

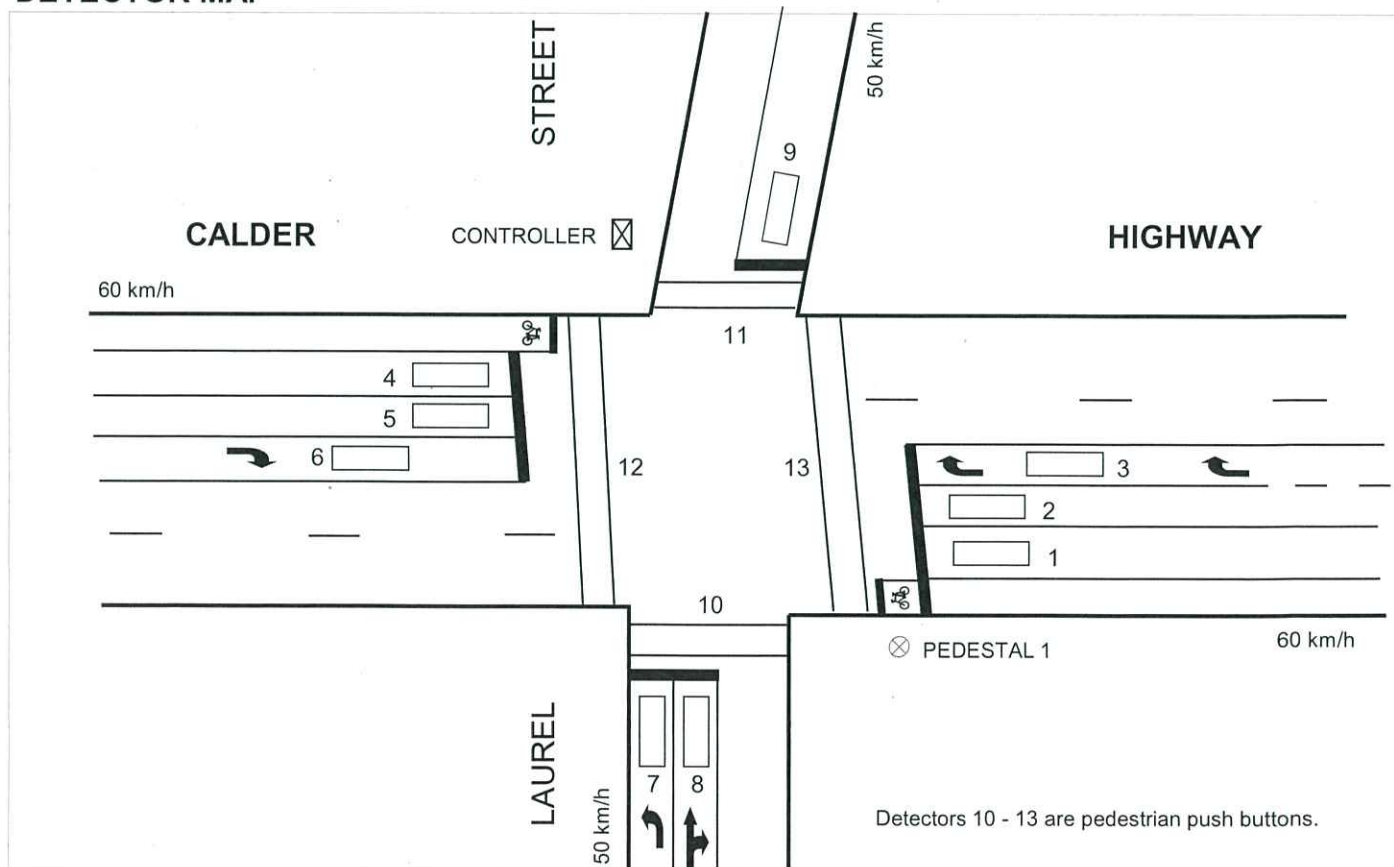
PROM CHECKED *[Signature]*

DATE **18/3/20**

GROUP ALLOCATION



DETECTOR MAP

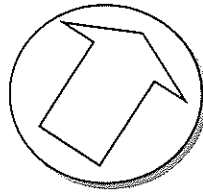
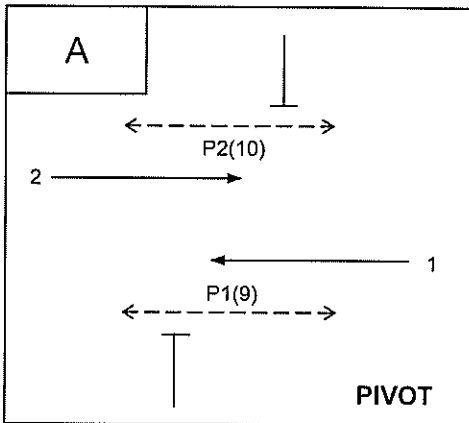


SITE NAME **CALDER HIGHWAY / LAUREL STREET**

SITE NO.

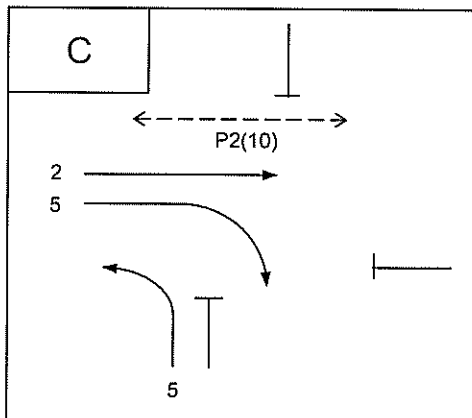
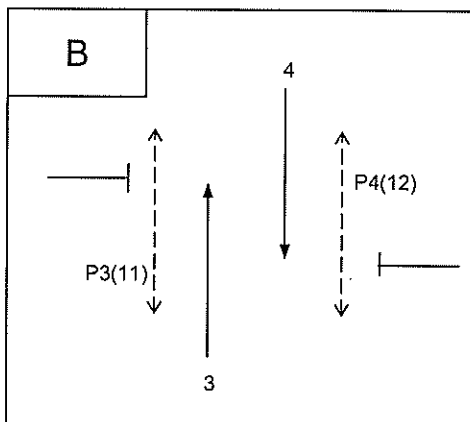
6259

PHASING DIAGRAM



Refer General Notes

PHASE	PROHIBITED PHASE CHANGES TO	REVERSION ON MAXIMUM	MAXIMUM V.I.G ON REVERSION
A	C		



V.A. SEQUENCE **ABC**

DESIGNED BY: **NECATI UYAR**

DATE **28/02/20**

Document ID: 18280425 6259aRNWOpsheet

DETECTOR FUNCTIONS

DETECTOR No.	Internal / External	Input Number	CALL PHASE	LOCKING CALL	NON-LOCKING CALL	SET VIG ON PHASE	EXTEND PHASE	SPECIAL FUNCTION			DETECTOR ALARMS						
								Detector Type	Description	Refer Special Notes	DA Category	Disable	DA on S/C only	Fault Simulation			
														Call & Extend	Call Only	Ignore Alarm	Refer Special Notes
1	I	1	A	✓			A				0			✓			
2	I	2	A	✓			A				0			✓			
3	I	3	A	✓			A				0			✓			
4	I	4	A	✓			A				0			✓			
5	I	5	A	✓			A				0			✓			
6	I	6	A,C	A	C		C				0			✓			
7	I	7	B	✓			B, C			✓	0			✓			
8	I	8	B	✓			B				0			✓			
9	I	9	B	✓			B				0			✓			
10	E	1	A		✓			P1		✓	6		✓				
11	E	2	A		✓			P2		✓	6		✓				
12	E	3	B		✓			P3		✓	6		✓				
13	E	4	B		✓			P4		✓	6		✓				
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	
31																	
32																	

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SITE NAME **CALDER HIGHWAY / LAUREL STREET**SITE NO. **6259****APPROACH DEFINITIONS****PHASE APPROACHES**

Approach No	EXTENDING DETECTORS	APPROACH TIMER AND TIMESETTING DEFINITION*	SIGNAL GROUP	APPROACH EXPIRY (EXPAP)	Refer Special Notes
1	1, 2	A11	1		
2	3	A22	1		
3	4, 5	A33	2		
4	7	B11, C22	3,5	BØ → CØ	
5	8	B22	3		
6	9	B33	4		
7	6	C11	5		
8					
9					
10					
11					
12					
13					
14					
15					
16					

* There are 8 approach timers and 4 approach timesettings available per phase:

- Where there are 4 or fewer approaches per phase, allocate one timesetting to each timer.

For example: A11, A22, A33, B11, C11.

- Where there are more than 4 approaches per phase, two or more timers must have the same timesetting.

For example: A11, A21, A32, A43, A54, B11.

SPECIAL APPROACHES

Approach No	EXTENDING DETECTORS	APPROACH TIMESETTING	SIGNAL GROUP	DESCRIPTION	Refer Special Notes
1					
2					
3					
4					

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GENERAL NOTES**SUMMARY OF XSF FLAGS**

(Communications Operation of XSF flags is required)

XSF1 - Allows the late introduction of P1 in AØ. (Master)

XSF2 - Allows the late introduction of P2 in AØ. (Master)

GENERAL OPERATION

1. If in AØ, clear demands for CØ.

PEDESTRIAN GROUP OPERATION**Pedestrian 1**

P1 is a SCATS ped.

P1 calls AØ.

P1 can introduce at the start of AØ.

In Master, P1 can introduce at any time in AØ while XSF1 is set.

Pedestrian 2

P2 is a SCATS ped.

P2 calls AØ.

P2 can introduce at any time in CØ and at the start of AØ and can overlap CØ → AØ.

In Master, P2 can introduce at any time in AØ while XSF2 is set.

Pedestrian 3

P3 is a SCATS ped.

P3 calls BØ.

P3 can introduce at the start of BØ.

Pedestrian 4

P4 is a SCATS ped.

P4 calls BØ.

P4 can introduce at the start of BØ.

PHASE OPERATION**B Phase**

1. When Y+ (Flex) flag is set, places a permanent demand for BØ.

C Phase

1. When Q+ (Flex) flag is set, places a permanent demand for CØ.

DETECTOR OPERATION**General**

Clear vehicle demands during associated phase green and yellow.

Detector 7

Clear demands for BØ from detector 7 during SG3 and SG5 green and yellow.

SITE NAME **CALDER HIGHWAY / LAUREL STREET**SITE NO. **6259****DESIGN OF INTERGREEN AND PEDESTRIAN TIMES****INTERGREEN TIMES**

PHASE	CLEARANCE DETAILS		LEGAL SPEED	DESIGN SPEED		INTERGREEN		
	GROUP TRANSITION	DISTANCE		YELLOW	RED	YELLOW	RED	TOTAL
A	1 → P3	32.0	60	60	60	4.0	2.0	6.0
B	3 → P2	32.0	50	50	50	3.5	2.5	6.0
C	5 → P1	27.0	60	45	45	3.0	2.5	5.5
D	→							
E	→							
F	→							
G	→							

PHASE SPECIAL ALL REDS AND SPECIAL MOVEMENT ALL REDS

FROM PHASE	TO PHASE	CLEARANCE DETAILS		DESIGN SPEED	ALL RED	PHASE or S.M. No*
		GROUP TRANSITION	DISTANCE			
		→				
		→				
		→				
		→				
		→				
		→				

* Specify where the timesetting is stored (the phase special all red or the special movement time setting number)

PEDESTRIAN TIMES

PEDESTRIAN TIMES									
PED	PHASE(S)	WALK			CLEARANCE				MINIMUM SOLID DON'T WALK
		DISTANCE (m)	TIME		DISTANCE (m)	TIME			
			GRAPH	ADOPTED		GRAPH	CL1	CL2	
P1	A	13.0	8	8	13.0	9	9.0		6.0
P2	A C	15.0	8	8	15.0	10	10.0		6.0
P3	B	20.0	8	8	20.0	13	13.0		6.0
P4	B	22.0	8	8	22.0	15	15.0		6.0

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CONTROLLER TIMESETTINGS - 1**PHASE TIMESETTINGS**

Front Panel Command: Phase No.Timesetting No (e.g. 3.2 accesses C phase late start)

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	3	10	8	6				
INCREMENT	4							
MAXIMUM INITIAL GREEN*	5							
MAXIMUM EXTENSION GREEN	6	25	15	6				
EARLY CUT OFF	7							
YELLOW	8	4.0	3.5	3.0				
ALL RED	9	2.0	2.5	2.5				
SPECIAL ALL RED	10							
GAP 1	11	5.0	2.5	2.5				
GAP 2	12	5.0	2.5	2.5				
GAP 3	13	5.0	2.5					
GAP 4	14							
HEADWAY 1	15	0.6	1.2	1.2				
HEADWAY 2	16	1.2	1.2	1.2				
HEADWAY 3	17	0.6	1.2					
HEADWAY 4	18							
WASTE 1	19	12	7	7				
WASTE 2	20	12	7	7				
WASTE 3	21	12	7					
WASTE 4	22							

* Maximum Initial Green = Minimum Green + V.I.G.

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	8.0	8.0	8.0	8.0				
CLEARANCE 1	3	9.0	10.0	13.0	15.0				
CLEARANCE 2	4								

* Minimum walk time - used in Isolated and Flexilink operation

For walk times in Masterlink operation, refer to slot data.

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SITE NAME **CALDER HIGHWAY / LAUREL STREET**SITE NO. **6259****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		
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		
10		
11		
12		
13		
14		
15		
16		
17		
18	0	LIMIT GREEN WATCHDOG TIMER
19	0	SPECIAL FACILITY CONTROLS ALARM TIMER
20	10	ALL RED START UP INTERVAL
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

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SITE NAME **CALDER HIGHWAY / LAUREL STREET**SITE NO. **6259****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	
2	
3	
4	
5	
6	2.0
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

NOTE: Set presence time to zero if the detector is not a presence detector

DAILY EVENT TIMESETTINGS

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

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FLEXILINK OPERATION**PHASE SEQUENCES**

No	PHASE SEQUENCE
1 (No Y+)	ABC
2 (Y+)	

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	R-
B	No	R+
C	Yes (to A)	Q-
D		
E		
F		
G		

PHASE SEQUENCE 2		
PHASE	LOOK AHEAD*	RELEASE
A		
B		
C		
D		
E		
F		
G		

* 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

C**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	PERMANENT DEMAND FOR BØ
Z- Flexi	
Z- Master	
Z+ Flexi	
Z+ Master	
R- Flexi	AØ RELEASE PULSE
R+ Flexi	BØ RELEASE PULSE
Q- Flexi	CØ RELEASE PULSE
Q+ Flexi	Permanent demand for CØ

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 n	=	3	,	1	,	4
		(phases)		(split plans)		(walks)
INT	=	6259				
VC	=	5				
CS	=					
COM	=	NET				
PK	=	!				
S#	=					
LM	=					
RMN	=	0				
DCL	=	0				
AT	=	6				
BT	=	6				
CT	=	6				
DT	=					
ET	=					
FT	=					
GT	=					
W1	=	-22	W1 T	=	15	
W2	=	-22A	W2 T	=	16	
W3	=	8	W3 T	=	19	
W4	=	8	W4 T	=	21	
W5	=		W5 T	=		
W6	=		W6 T	=		
W7	=		W7 T	=		
W8	=		W8 T	=		
PP1	=	0,0A				
PP2	=	0,0A				
PP3	=	0,0A				
PP4	=	0,0A				

TYPICAL SPLIT PLAN DATA

PHASE SEQUENCE 1		PHASE SEQUENCE 2		PHASE SEQUENCE 3	
A	= 0PDB	A	=	A	=
B	= 30C	B	=	B	=
C	= 15A	C	=	C	=

TYPICAL VARIATION PARAMETERS

VP1	=	3	VP22	=		VP43	=	
VP2	=	0	VP23	=		VP44	=	
VP3	=	1	VP24	=		VP45	=	
VP4	=	45	VP25	=		VP46	=	
VP5	=	153	VP26	=		VP47	=	
VP6	=	1	VP27	=		VP48	=	
VP7	=	45	VP28	=		VP49	=	
VP8	=	154	VP29	=		VP50	=	
VP9	=	2	VP30	=		VP51	=	
VP10	=	19	VP31	=		VP52	=	
VP11	=	57	VP32	=		VP53	=	
VP12	=	61	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	=				

SITE NAME **CALDER HIGHWAY / LAUREL STREET**

SITE NO.

6259

GROUP CONFLICT TABLE

PED NO	PED NO								m																P1 P2 P3 P4			
	GROUP NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
	1			X	X	X						X	X															
	2			X	X							X	X															
	3	X	X			X				X	X																	
	4	X	X			X				X	X																	
m	5	X		X	X					X		X																
	6																											
	7																											
	8																											
P1	9			X	X	X																						
P2	10			X	X																							
P3	11	X	X			X																						
P4	12	X	X																									
	13																											
	14																											
	15																											
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	20																											
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	23																											
	24																											

CHECKED: Soh Tan-hua

DATE: 15/10/07

DESIGNED BY: NECATI UYAR

DATE 28/02/20