

		ACTION	DATE
TO	1. SENIOR ENGINEER, CONTROLLER APPLICATIONS		
	2. STEVE BELZ, PROGRAM DELIVERY		
FROM	AZADEH EMAMI	DATE	3/03/21
SITE	BARNARD ST/IRONBARK RD/WATTLE ST NTH	SITE NO.	6264
REGION	NORTHERN	MUNICIPALITY	GREATER BENDIGO

**GENERAL**

Works Program Job?	No	Project Number	BC122C
Classification	SIMPLE	Works Order Number	4A007449

**EXISTING CONTROLLER DETAILS**

Type	PSC 2003	Software Version & Release	V5R81	Lanterns	LED
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**CONTROLLER APPLICATIONS**

Target Date for Draft Opsheet	2/3/2021
Target Date for completion of Program	23/03/2021

Prepare Interlocking	
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**PERSONALITY CHECKSUMS**

	Hex	Octal
Total	A8	250
Times	50	120
Pers	F8	370

Dispatched	31/03/21
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Update Graphics, Site Notes	Yes	<input type="checkbox"/> Site ID Revision updated to
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Description of changes	Changes to detector functions for addition of bike detectors
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**PROGRAM DELIVERY - SIGNAL INSTALLATION**

<input type="checkbox"/> Changes to signal hardware	<input type="checkbox"/> Changes to interlocking
<input checked="" type="checkbox"/> Additional detectors	<input checked="" type="checkbox"/> Changes to existing detector numbering
( VEHICLE )	
<input type="checkbox"/> Upgrade controller software to	
<input type="checkbox"/> Other changes	
<input 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	AZADEH EMAMI	Ext	1210
OR	NATHAN CORCORAN	Ext	1210

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

**SCATS Data Changes -Slot data, update graphics, delete RAM data**

**TRAFFIC MANAGEMENT CENTRE**

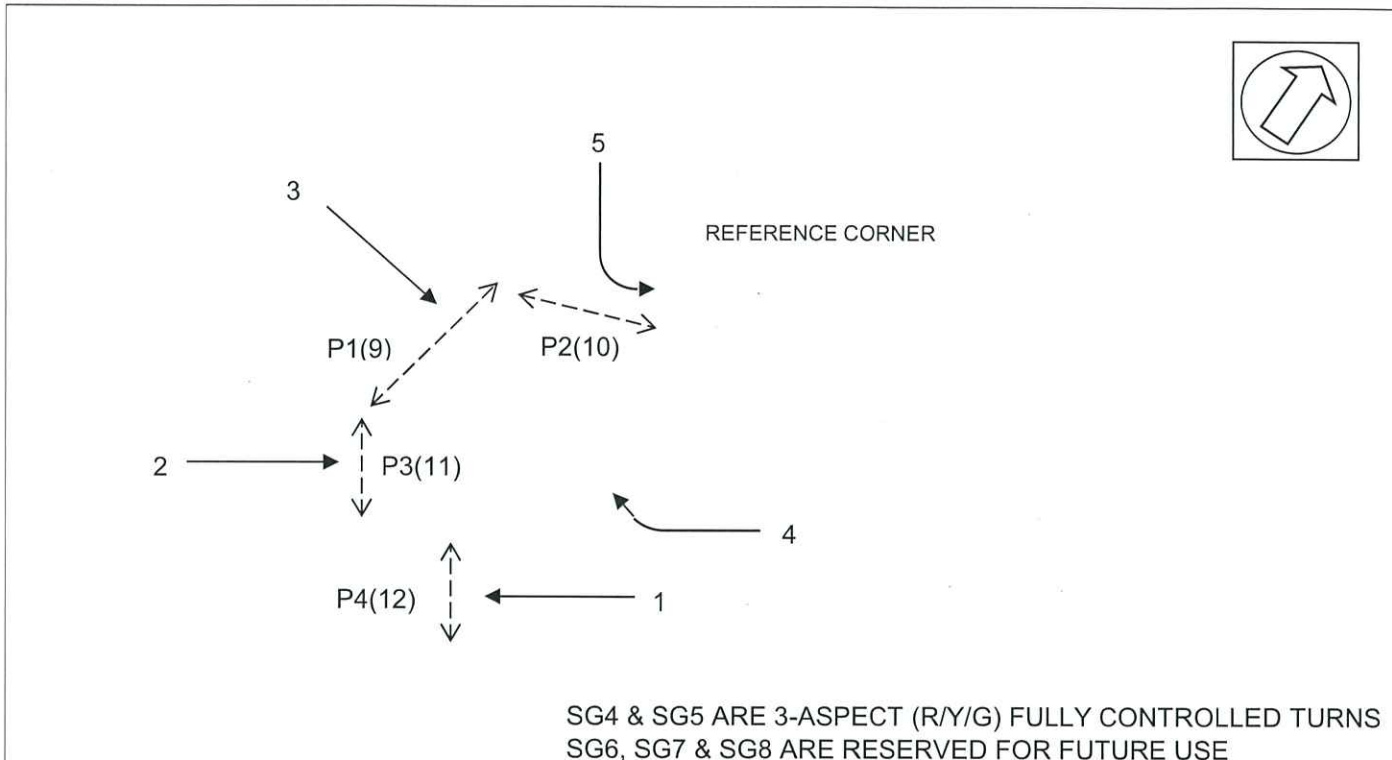
<input checked="" type="checkbox"/> Checksum update only
<input type="checkbox"/> Changes to trim or manual intervention features required
<input checked="" type="checkbox"/> Please notify AZADEH EMAMI (x1210) on job completion.

**DATE PROM INSTALLED**

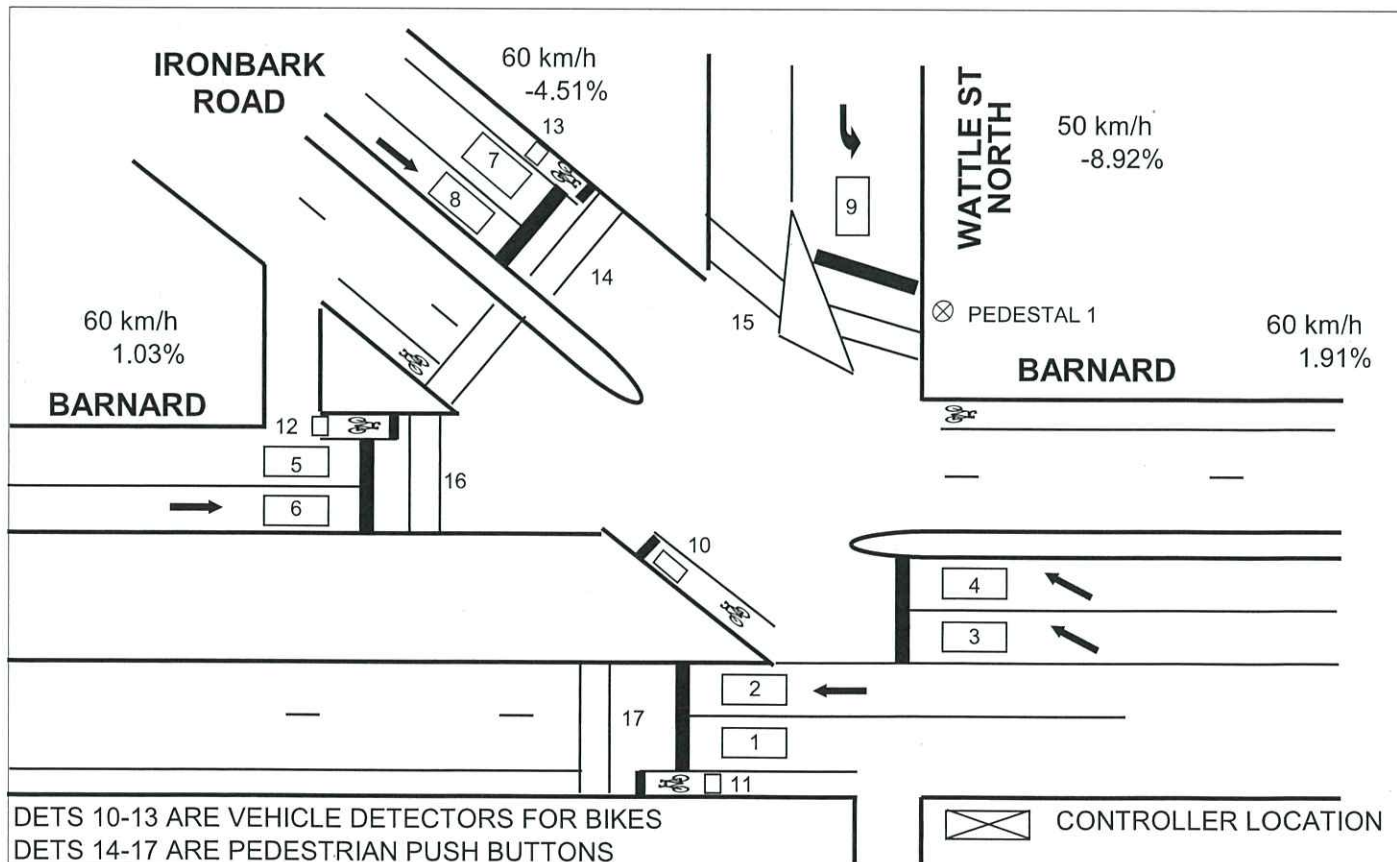
# CONTROLLER OPERATION SPECIFICATION

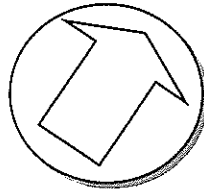
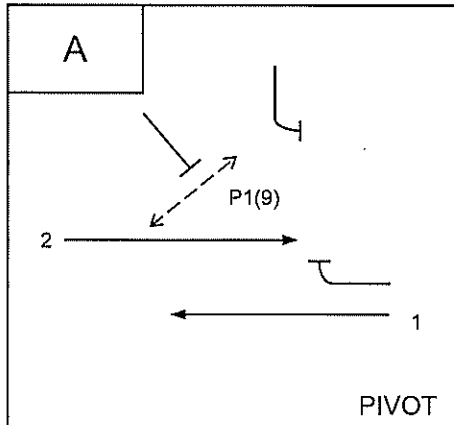
SITE NAME	<b>BARNARD ST/IRONBARK RD/WATTLE ST NTH</b>	SITE NO.	<b>6264</b>
MUNICIPALITY	GREATER BENDIGO	DESIGNED BY	AZADEH EMAMI
PLAN NO.	565922	DESIGN CHECKED	<i>[Signature]</i>
CONTROLLER TYPE	PSC 2003	PROM CHECKED	<i>Azadeh Emami</i>
		DATE	3/03/21
		DATE	05/03/21
		DATE	31/03/21

## GROUP ALLOCATION



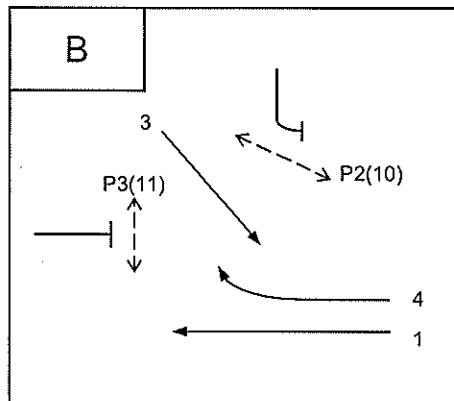
## DETECTOR MAP



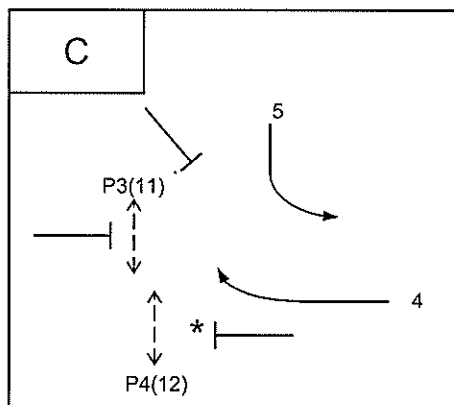
**PHASING DIAGRAM**

Refer General Notes

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



\* CONDITIONAL ON PEDESTRIAN DEMAND

V.A. SEQUENCE ABC

DESIGNED BY: AZADEH EMAMI

DATE 3/03/21

Document Number: 20063659 6264aMNWOpsheet

SITE NAME

BARNARD ST/IRONBARK RD/WATTLE ST NTH

SITE NO. 6264

## 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,B				0			✓			
2	I	2	A	✓			A,B				0			✓			
3	I	3	B	✓			B,C			✓	0			✓			
4	I	4	B	✓			B,C			✓	0			✓			
5	I	5	A	✓			A				0			✓			
6	I	6	A	✓			A				0			✓			
7	I	7	B	✓			B				0			✓			
8	I	8	B	✓			B				0			✓			
9	I	9	C	✓			C				0		✓	✓			
10	I	10	B	✓			-		Bike loop	✓	0		✓		✓		
11	I	11	A	✓			-		Bike loop		0		✓		✓		
12	I	12	A	✓			-		Bike loop		0		✓		✓		
13	I	13	B	✓			-		Bike loop		0		✓		✓		
14	E	1	A		✓			P1		✓	6		✓				
15	E	2	B		✓			P2		✓	6		✓				
16	E	3	B		✓			P3		✓	6		✓				
17	E	4	C		✓			P4		✓	6		✓				
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	
31																	
32																	

DESIGNED BY: AZADEH EMAMI

DATE 3/03/21

## 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,B33	1	AØ↔BØ	
2	5,6	A22	2		
3	7,8	B11	3		
4	3,4	B22,C22	4	BØ→CØ	
5	9	C11	5		
6					
7					
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					

## **GENERAL NOTES**

### **SUMMARY OF XSF FLAGS**

(Communications Operation of XSF flags is required)

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

### **GENERAL OPERATION**

1. Use AØ special all red if going AØ→CØ.
2. Use CØ all red if going BØ→AØ.
3. Use AØ yellow if going BØ→CØ.

### **PEDESTRIAN GROUP OPERATION**

#### **Pedestrian 1**

1. P1 calls AØ.
2. P1 can introduce at the start of AØ.
3. In Master, P1 can introduce at anytime in AØ while XSF1 is set.

#### **Pedestrian 2**

1. P2 calls BØ.
2. P2 can introduce at the start of BØ.
3. Late start P2 in BØ.

#### **Pedestrian 3**

1. P3 calls BØ.
2. P3 can introduce at the start of BØ and at the start of CØ and can overlap BØ→CØ.
3. P3 can introduce at anytime in BØ if there is a demand for CØ.
4. If in AØ with a demand for CØ, clear demands for BØ from P3.

#### **Pedestrian 4**

1. P4 calls CØ.
2. P4 calls P3.
3. P4 can introduce at the start of CØ.

### **DETECTOR OPERATION**

#### **General**

1. Clear vehicle demands during associated phase green and yellow.

#### **Detectors 3, 4 and 10**

1. Clear demands for BØ from detectors 3, 4 and 10 during SG4 green and yellow.
2. If in AØ with a demand for CØ, clear demands for BØ from detectors 3, 4 and 10.

**DESIGN OF INTERGREEN AND PEDESTRIAN TIMES****INTERGREEN TIMES**

PHASE	CLEARANCE DETAILS			LEGAL SPEED	DESIGN SPEED		INTERGREEN		
	GROUP TRANSITION	DISTANCE	GRADE (%)*		YELLOW	RED	YELLOW	RED	TOTAL
A	2 → 4	38.0	1.03	60	60	60	4.0	2.5	6.5
B	3 → 5	36.0	-4.51	60	50	50	3.5	3.0	6.5
C	4 → P1	38.0	1.91	60	45	45	3.0	3.0	6.0
D	→								
E	→								
F	→								
G	→								

\*Positive grade indicates an uphill approach & negative grade indicates a downhill approach. Specify negative grade values with a "-" prefix

**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			
A	C	2 → 5	50	60	3.0	A SAR
B	A	4 → P1	38	45	3.0	C AR
A	B	2 → P2	43	45	3.5	LS P2
		→				
		→				
		→				

\*\* 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	
1	A	14.5	14	14	10.5	7	7.0		6.5
2	B	13.0	13	13	7.0	5	5.0		6.5
3	B C	7.5	8	8	7.5	5	5.0		6.5
4	C	7.2	8	8	7.2	5	5.0		6.0



**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		1					
MINIMUM GREEN	3	10	9	8				
INCREMENT	4							
MAXIMUM INITIAL GREEN*	5							
MAXIMUM EXTENSION GREEN	6	35	15	10				
EARLY CUT OFF	7							
YELLOW	8	4.0	3.5	3.0				
ALL RED	9	2.5	3.0	3.0				
SPECIAL ALL RED	10	3.0						
GAP 1	11	2.5	2.5	2.5				
GAP 2	12	2.5	2.5	2.5				
GAP 3	13		2.5					
GAP 4	14							
HEADWAY 1	15	0.6	0.6	1.2				
HEADWAY 2	16	0.6	0.6	0.6				
HEADWAY 3	17		0.6					
HEADWAY 4	18							
WASTE 1	19	7	7	7				
WASTE 2	20	7	7	7				
WASTE 3	21		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	14.0	13.0	8.0	8.0				
CLEARANCE 1	3	7.0	5.0	5.0	5.0				
CLEARANCE 2	4								

\* Minimum walk time - used in Isolated and Flexilink operation

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



## 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	
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)	

**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		

**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 \_\_\_\_\_

**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	
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	

**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>	=	3	,	4	,	4
		(phases)		(split plans)		(walks)
INT	=	6264				
VC	=	5				
CS	=					
COM	=	NET				
PK	=	!				
S#	=					
LM	=					
RMN	=	0				
DCL	=	0				
AT	=	7				
BT	=	7				
CT	=	6				
DT	=					
ET	=					
FT	=					
GT	=					
W1	=	0	W1 T	=	14	
W2	=	13	W2 T	=	12	
W3	=	8C	W3 T	=	12	
W4	=	8	W4 T	=	11	
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 =	0PDFGB	A =		A =	
B =	20C	B =		B =	
C =	15TGA	C =		C =	

**TYPICAL VARIATION PARAMETERS**

VP1	=	3	VP22	=		VP43	=	
VP2	=	0	VP23	=		VP44	=	
VP3	=	1	VP24	=		VP45	=	
VP4	=	45	VP25	=		VP46	=	
VP5	=	158	VP26	=		VP47	=	
VP6	=	1	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	=				

# GROUP CONFLICT TABLE

PED NO	PED NO								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													
	2			X	X	X					X	X														
	3		X			X				X																
	4		X							X																
	5		X	X							X															
	6																									
	7																									
	8																									
P1	9			X	X																					
P2	10		X			X																				
P3	11		X																							
P4	12	X																								
	13																									
	14																									
	15																									
	16																									
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	24																									

CHECKED: Paul Barugahare DATE: 3/03/21