ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPTOR/TSP/SCP Submenu select [1. PREEMPT PLAN 1-10]

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```
PREEMPT PLAN [  3]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH X . . . . X . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . . . X . . . X . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC> NO    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CLR|MN GR|YEL|RED
ENTRANCE TM.  255|   255|     1|25.5|25.5
-----------MIN GR|EXT GR|MX GR|YEL|RED
TRACK CLEAR     0|     0|     0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM|YEL|RED
DWL/CYC-EXIT   12|   2.0|   120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```
PREEMPT PLAN [  4]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . X . . X . . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . . . X . . . X . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CLR|MN GR|YEL|RED
ENTRANCE TM.  255|   255|     1|25.5|25.5
-----------MIN GR|EXT GR|MX GR|YEL|RED
TRACK CLEAR     0|     0|     0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM|YEL|RED
DWL/CYC-EXIT   12|   2.0|   120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```
PREEMPT PLAN [  5]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . X . . . . X . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP .F1 .F1 . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CLR|MN GR|YEL|RED
ENTRANCE TM.  255|   255|     1|25.5|25.5
-----------MIN GR|EXT GR|MX GR|YEL|RED
TRACK CLEAR     0|     0|     0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM|YEL|RED
DWL/CYC-EXIT    7|   2.0|   120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```
PREEMPT PLAN [  6]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . . X . . X . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP .F1 .F1 . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CLR|MN GR|YEL|RED
ENTRANCE TM.  255|   255|     1|25.5|25.5
-----------MIN GR|EXT GR|MX GR|YEL|RED
TRACK CLEAR     0|     0|     0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM|YEL|RED
DWL/CYC-EXIT    7|   2.0|   120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0013
DESIGNED: MARCH 2018
SEALED: 08/21/2018
REVISED: N/A

Electrical Detail - Sheet 3 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division — State of North Carolina Department of Transportation — Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (Hughes Blvd.)
at
SR 1309 (W. Main St.)/
W. Main St.

Division 1	Pasquotank County	Elizabeth City	
PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0013

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 11.4

ECONOLITE ASC/3-2070 RAILROAD PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPTOR/TSP/SCP Submenu select [1. PREEMPT PLAN 1-10]

Place cursor in [ ] next to Preempt Plan and press 1. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Railroad Preempt #1.

```
PREEMPT PLAN [  1]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . X . . X . . . . . . . . .
TRKCLR O .F1 .F1. . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . . . . . . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  X X X . . X . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . . . X . . X . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YESIPMT OVRIDE.XIINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV YESIDWELL FL   OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR     7I     0I    0I25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT   12I    0.0I    0I25.5I25.5
PMT ACTIVE OUT..ON    PMT ACT DWELL...NO
OTHER - PRI PMT.OFF   NON-PRI PMT.....OFF
INH EXT TIME... 0.0   PED PR RETURN...OFF
PRIORITY RETURN.OFF   QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES      1   2   3   4   5   6   7   8
PR RTN%     0   0   0   0   0   0   0   0
PHASES      9  10  11  12  13  14  15  16
PR RTN%     0   0   0   0   0   0   0   0
```

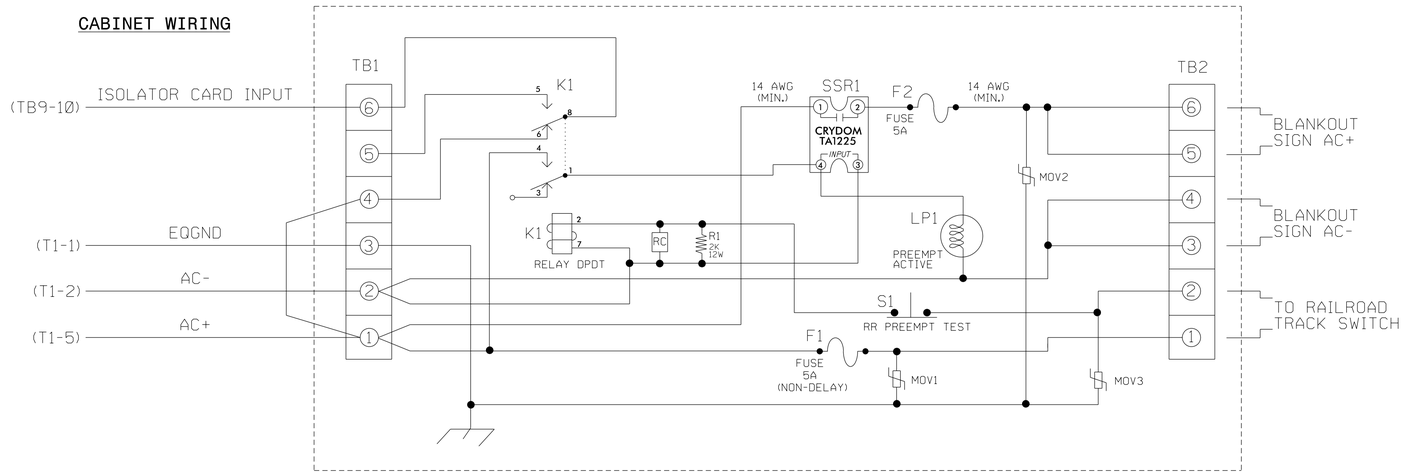
NOTICE DWL/CYC-EXIT IS ADJUSTED TO 12 →

RAILROAD PREEMPTION WIRING DETAIL

(wire as shown below)

PREEMPTION AND BLANKOUT SIGN CONTROL BOX

CABINET WIRING

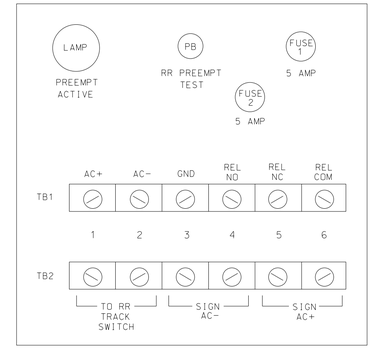


NOTES

1. Relay K1 is shown in the energized (Preempt not active) normal operation state.
2. Relay K1 is an enclosed DPDT general purpose relay with a 12 OVAC coil, 10A contacts and octal style plug.
3. Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output.
4. AC Isolator Card shall activate preemption upon removal of AC+ from the input (as shown above). To accomplish this set invert dip switch on AC Isolator Card.

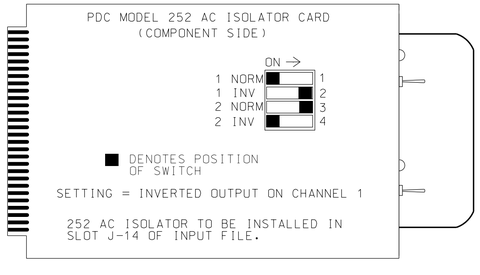
5. IMPORTANT!! Terminal TB9-12 (on input panel) shall be connected to AC neutral (jumper may have to be added).

FRONT VIEW



PREEMPT 1 AC ISOLATOR (MODEL 252) OUTPUT PROGRAMMING DETAIL

(set DIP switches as shown below)



NOTE: IF ANOTHER MANUFACTURER TYPE OF AC ISOLATOR IS USED, OUTPUT PROGRAMMING IS LIKELY NOT TO EQUATE TO THAT SHOWN ABOVE.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0013
DESIGNED: MARCH 2018
SEALED: 08/21/2018
REVISED: N/A

Electrical Detail - Sheet 4 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (Hughes Blvd.)
at
SR 1309 (W. Main St.)/
W. Main St.

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

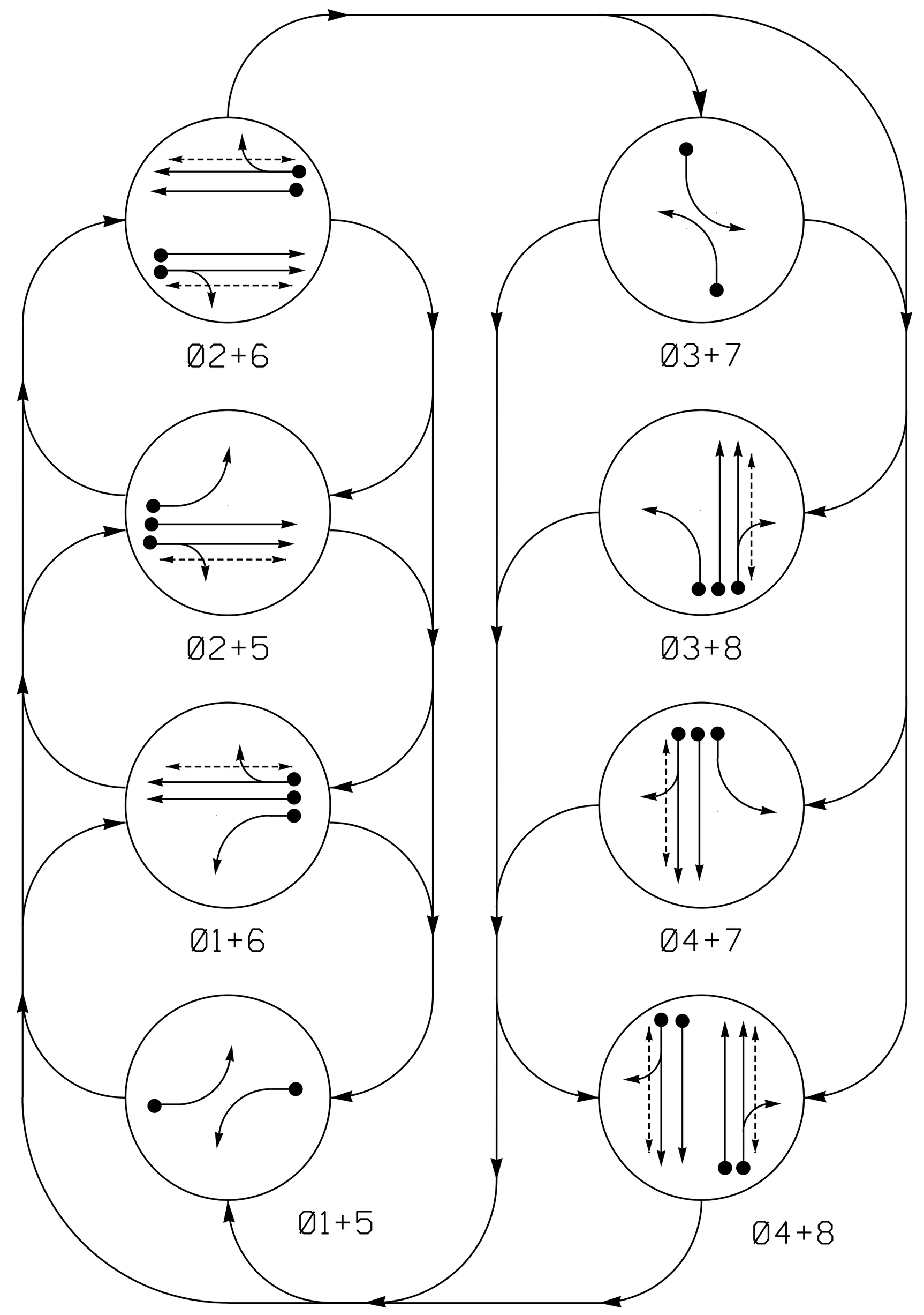
DocuSigned by: Lisa M Moon 9/20/2018
68CE58DB830042F... DATE

SIG. INVENTORY NO. 01-0013

20-SEP-2018 19:19
R:\U5942\Signals\Design\Wiring\01-0013-20180821e.dgn
lmoon
AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 12.0

PHASING DIAGRAM



EV PREEMPT PHASES

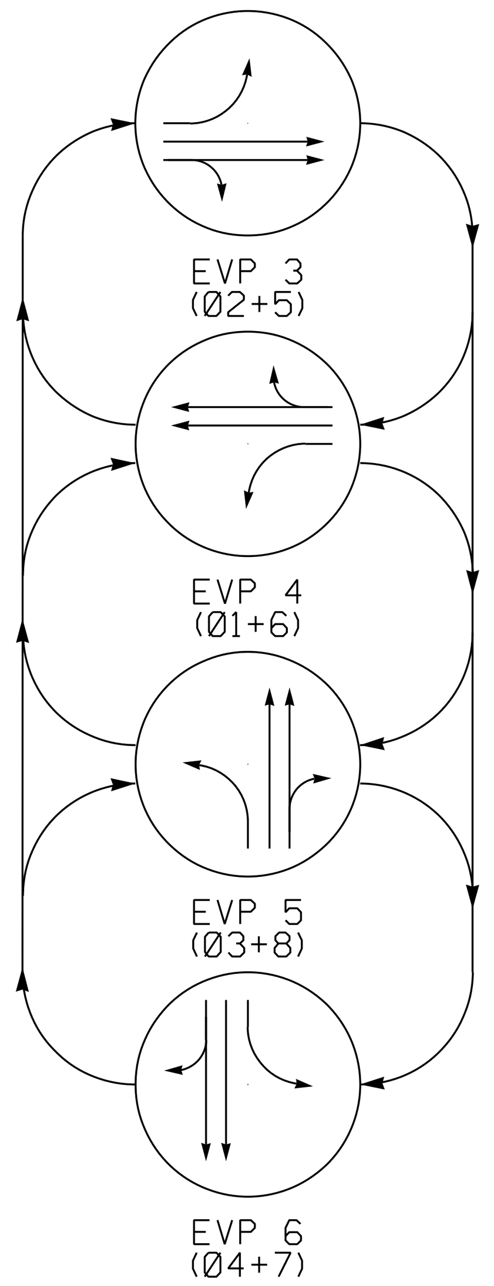


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	EVP 3	EVP 4	EVP 5	EVP 6	FLASH
11	←	←	←R	←R	←R	←R	←R	←R	←R	←	←R	←R	←R
21, 22	R	R	G	G	R	R	R	R	G	R	R	R	Y
31	←R	←R	←R	←R	←	←	←R	←R	←R	←R	←	←R	←R
41, 42	R	R	R	R	R	R	G	G	R	R	R	G	R
51	←	←R	←	←R	←R	←R	←R	←R	←	←R	←R	←R	←R
61, 62	R	G	R	G	R	R	R	R	R	G	R	R	Y
71	←R	←R	←R	←R	←	←R	←	←R	←R	←R	←R	←	←R
81, 82	R	R	R	R	R	G	R	G	R	R	G	R	R
P21, P22	DW	DW	W	W	DW	DW	DW	DW	DW	DW	DW	DW	DRK
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DW	DW	DW	DW	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	DW	W	DW	W	DW	DW	DW	DW	DRK

ASC/3 DETECTOR INSTALLATION CHART

DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Yes	-	3	-	S	-	X
2A	6X6	62	EXIST	-	2	Yes	-	-	-	S	-	X
2B	6X6	62	EXIST	-	2	Yes	-	-	-	S	-	X
3A	6X40	+2	2-4-2	-	3	Yes	-	3	-	S	-	X
4A	6X6	298	EXIST	-	4	No	3.4	-	-	N	-	X
4B	6X6	298	EXIST	-	4	No	3.4	-	-	N	-	X
4C	6X40	+2	2-4-2	-	4	Yes	-	-	-	G	-	X
4D	6X40	+2	2-4-2	-	4	Yes	-	10	-	G	-	X
5A	6X40	0	2-4-2	-	5	Yes	-	3	-	S	-	X
6A	6X6	64	EXIST	-	6	Yes	-	-	-	S	-	X
6B	6X6	64	EXIST	-	6	Yes	-	-	-	S	-	X
7A	6X40	0	2-4-2	-	7	Yes	-	3	-	S	-	X
8A	6X6	298	EXIST	-	8	No	3.4	-	-	N	-	X
8B	6X6	298	EXIST	-	8	No	3.4	-	-	N	-	X
8C	6X40	+2	2-4-2	-	8	Yes	-	-	-	G	-	X
8D	6X40	+2	2-4-2	-	8	Yes	-	10	-	G	-	X
S1	6X6	+131	EXIST	-	-	-	-	-	-	N	X	X
S2	6X6	+131	EXIST	-	-	-	-	-	-	N	X	X
S3	6X6	+158	EXIST	-	-	-	-	-	-	N	X	X
S4	6X6	+158	EXIST	-	-	-	-	-	-	N	X	X

8 Phase Fully Actuated w/ Emergency Preemption (Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "DON'T WALK" time only.
8. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
9. Pavement markings are existing unless otherwise shown.
10. The Division Traffic Engineer will determine the Delay before Preempt and Preempt Dwell Min Green time for the emergency vehicle preemption timing.
11. This intersection features an optical preemption system. Shown locations of optical detectors are based on previous plan and/or field observations.
12. Optical detector 3 calls EVP 3:
    Optical detector 4 calls EVP 4:
    Optical detector 5 calls EVP 5:
    Optical detector 6 calls EVP 6.
13. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
14. Remove three (3) unused wheel chair ramps. Repair affected curb & gutter and sidewalk.

ASC/3 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Exit Phase(s)	2,6	2,6	2,6	2,6
Preempt Override	OFF	OFF	OFF	OFF
Delay Time	***	***	***	***
Ped Clear Through Yellow	Y	Y	Y	Y
Terminate Phases	N	N	N	N
Entrance Walk	255*	255*	255*	255*
Entrance Ped Clear	255*	255*	255*	255*
Entrance Min Green	255*	255*	255*	255*
Entrance Yellow Change	25.5*	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*	25.5*
Minimum Dwell Time	***	***	***	***
Preempt Input Extension Time	2	2	2	2
Preempt Max Time	120	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*	25.5*

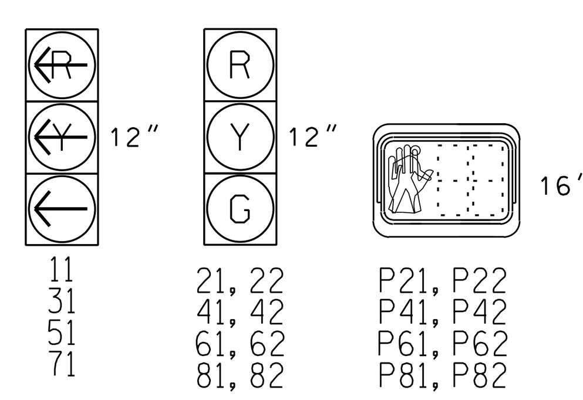
* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit
*** See Note 10.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.

All Heads L.E.D.

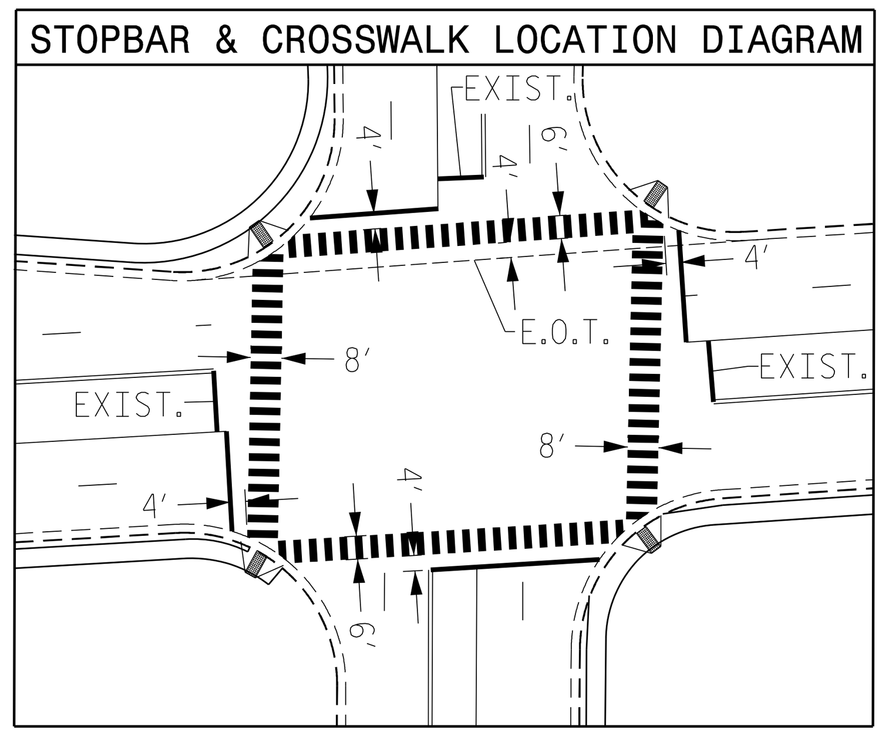


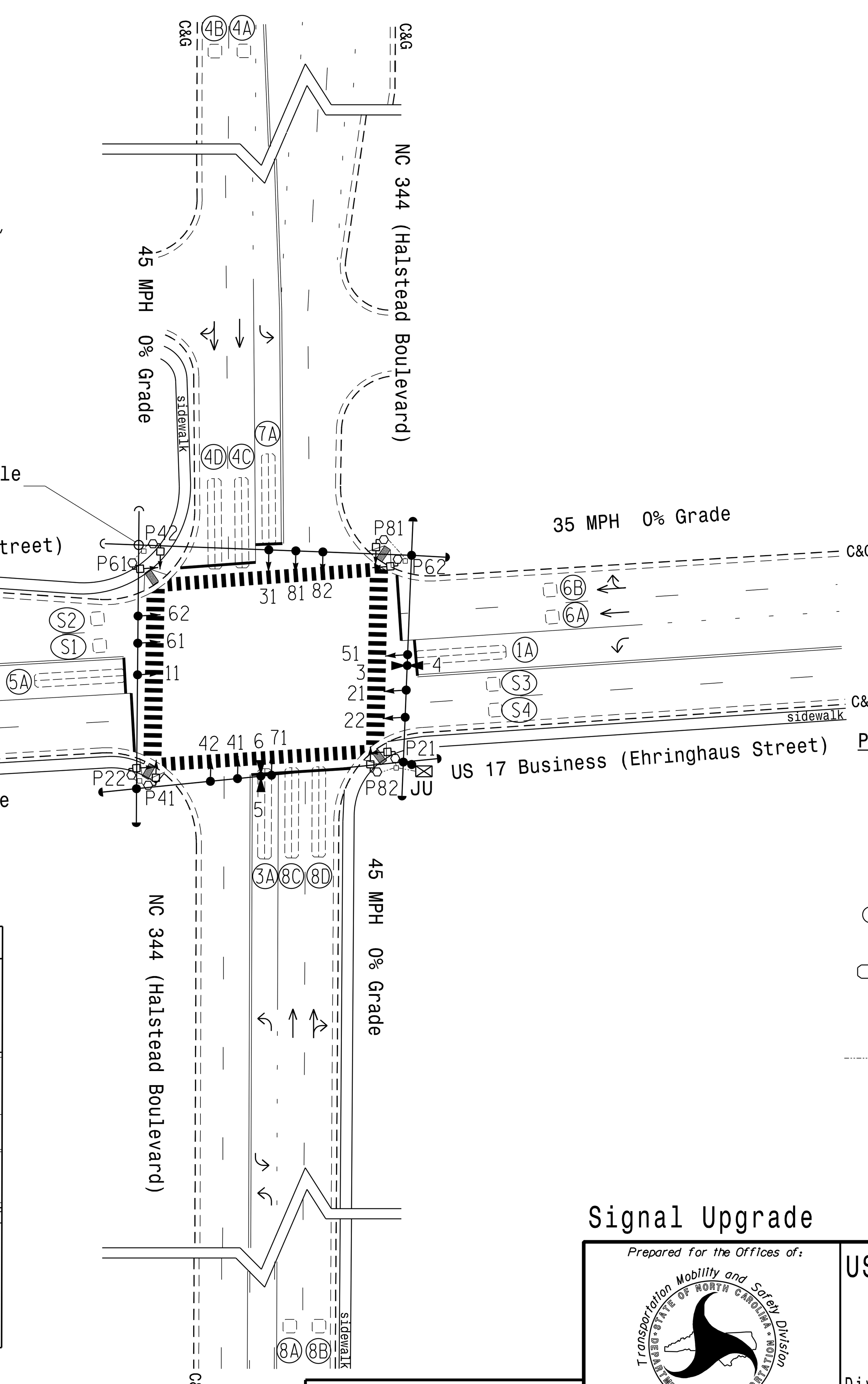
ASC/3 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green *	7	10	7	7	7	10	7	7
Delayed Green **	0	0	0	7	0	0	0	7
Walk *	-	7	-	7	-	7	-	7
Ped Clear	-	25	-	19	-	25	-	19
Veh. Extension *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	25	35	35	35	25	35	35	35
Yellow	3.0	3.8	3.0	4.5	3.0	3.8	3.0	4.5
Red Clear	3.1	2.1	2.6	1.3	2.9	2.1	2.8	1.3
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds /Actuation *	-	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
** See Note 15.

STOPBAR & CROSSWALK LOCATION DIAGRAM





LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Optical Detector	
	Type II Signal Pedestal	
N/A	Curb Ramp	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

PLANS PREPARED BY: RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

SCALE 0 50
1"=50'

US 17 Business (Ehringhaus St.) at NC 344 (Halstead Boulevard)

Division 1 Pasquotank County Elizabeth City

PLAN DATE: September 2018	REVIEWED BY: CBHolden
PREPARED BY: DTSears	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033753 ENGINEER C. BYRON HOLDEN

DocuSigned by: C. Byron Holden
SIGNATURE 9/21/2018 DATE

SIG. INVENTORY NO. 01-0014

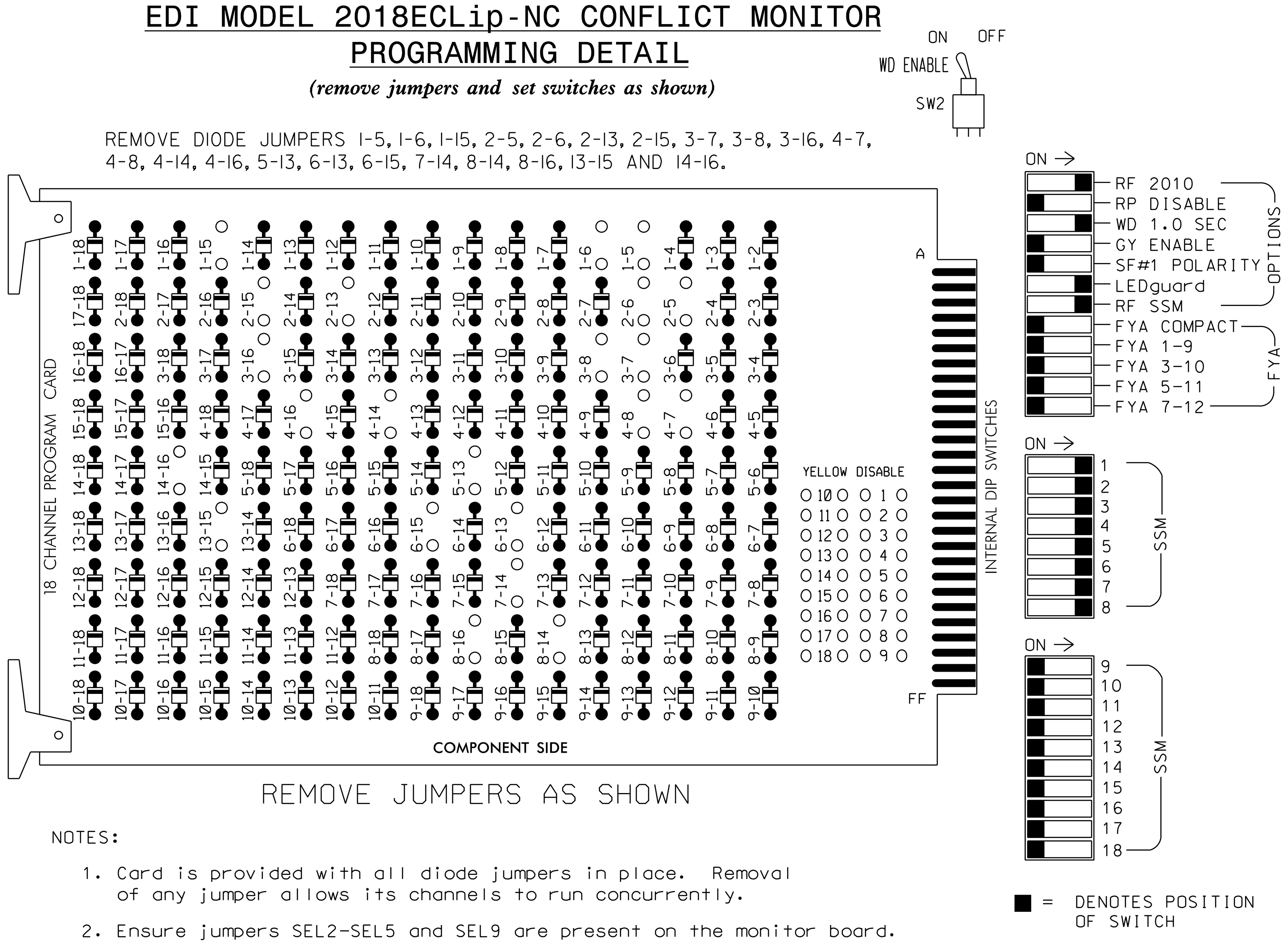
9/21/2018
R:\Traffic\Design\Signals\U-5942_sig_dsn_01-0014.dgn
dsears

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 12.1

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-15, 2-5, 2-6, 2-13, 2-15, 3-7, 3-8, 3-16, 4-7, 4-8, 4-14, 4-16, 5-13, 6-13, 6-15, 7-14, 8-14, 8-16, 13-15 AND 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 WALK and 6 WALK.
3. The cabinet and controller are part of the Elizabeth City Signal System.
4. Ensure Delayed Green times shown in the Timing Chart on the signal design plan are accounted for to facilitate leading pedestrian interval.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S3,S4,S5,S6,S7,S8,S9, S10,S11,S12
PHASES USED.............1,2,3,4,5,6,7,8,2PED,4PED, 6PED,8PED
OVERLAPS................NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	P21, P22	31	41,42	P41, P42	51	61,62	P61, P62	71	81,82	P81, P82	NU	NU	NU	NU	NU	NU
RED		128			101			134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW	125			116			131			122								
YELLOW ARROW	126			117			132			123								
GREEN ARROW	127			118			133			124								
(Don't Walk hand)			113			104			119			110						
(Walk person)			115			106			121			112						

NU = Not Used

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPT/TSP/SCP Submenu select [2. ENABLE PREEMPT FILTERING & TSP/SCP]

```
ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED       SOLID            PULSING
INPUT   1 ...BYPASSED.. ...BYPASSED..
        2 ...BYPASSED.. ...BYPASSED..
        3 ..PREEMPT  3. ...BYPASSED..
        4 ..PREEMPT  4. ...BYPASSED..
        5 ..PREEMPT  5. ...BYPASSED..
        6 ..PREEMPT  6. ...BYPASSED..
        7 ...BYPASSED.. ...BYPASSED..
        8 ...BYPASSED.. ...BYPASSED..
        9 ...BYPASSED.. ...BYPASSED..
       10 ...BYPASSED.. ...BYPASSED..
```

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	Ø 1 1A	Ø 2 2A	SLOT EMPTY	SLOT EMPTY	Ø 3 3A	Ø 4 4A	Ø 4 4C	SLOT EMPTY	SYS. DET. S1	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
"I"	L	NOT USED	Ø 2 2B			NOT USED	Ø 4 4B	Ø 4 4D		SYS. DET. S2			Ø4 PED DC ISOLATOR	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
"J"	U	Ø 5 5A	Ø 6 6A	SLOT EMPTY	SLOT EMPTY	Ø 7 7A	Ø 8 8A	Ø 8 8C	SLOT EMPTY	SYS. DET. S3	SLOT EMPTY	SLOT EMPTY	PRE3 *	PRE4 * (OPTICAL 4-CHANNEL)	SLOT EMPTY
"J"	L	NOT USED	Ø 6 6B			NOT USED	Ø 8 8B	Ø 8 8D		SYS. DET. S4			PRE5	PRE6	

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES		3		S
2A	TB2-5,6	I2U	39	2	2	YES				S
2B	TB2-7,8	I2L	43	12	2	YES				S
3A	TB4-5,6	I5U	58	3	3	YES		3		S
4A	TB4-9,10	I6U	41	4	4	NO	3.4			N
4B	TB4-11,12	I6L	45	14	4	NO	3.4			N
4C	TB6-1,2	I7U	65	34	4	YES				G
4D	TB6-3,4	I7L	78	44	4	YES		10		G
* S1	TB6-9,10	I9U	60	11	SYS	NO				N
* S2	TB6-11,12	I9L	62	13	SYS	NO				N
5A	TB3-1,2	J1U	55	5	5	YES		3		S
6A	TB3-5,6	J2U	40	6	6	YES				S
6B	TB3-7,8	J2L	44	16	6	YES				S
7A	TB5-5,6	J5U	57	7	7	YES		3		S
8A	TB5-9,10	J6U	42	8	8	NO	3.4			N
8B	TB5-11,12	J6L	46	18	8	NO	3.4			N
8C	TB7-1,2	J7U	66	38	8	YES				G
8D	TB7-3,4	J7L	79	48	8	YES		10		G
* S3	TB7-9,10	J9U	59	15	SYS	NO				N
* S4	TB7-11,12	J9L	61	17	SYS	NO				N
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED					

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

* System detector only. Remove any assigned vehicle phase.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

** OPTICAL PREEMPTION SYSTEM

1. Install an optical preeemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
2. Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0014
DESIGNED: September 2018
SEALED: 09/21/2018
REVISED: N/A

Signal Upgrade - Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 Business (Ehringhaus St.) at NC 344 (Halstead Boulevard)

Division 1 Pasquotank County Elizabeth City

PLAN DATE: September 2018	REVIEWED BY: J O Deaton
PREPARED BY: M W Yalch	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 07438 ENGINEER JAMES O. DEATON

DocuSigned by: James O. Deaton 9/21/2018
DATE

SIG. INVENTORY NO. 01-0014

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 12.2

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select **4. PREEMPTOR/TSP**
2. From PREEMPTOR/TSP/SCP Submenu select **1. PREEMPT PLAN 1-10**

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```
PREEMPT PLAN [  3]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . X . . X . . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  O
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL   YESITERM PH    NO
PED DARK.. NOITC RESRV  NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I  255I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR     OI     OI    OI25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT    OI   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```
PREEMPT PLAN [  4]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH X . . . . X . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  O
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL   YESITERM PH    NO
PED DARK.. NOITC RESRV  NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I  255I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR     OI     OI    OI25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT    OI   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```
PREEMPT PLAN [  5]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . X . . . . X . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  O
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL   YESITERM PH    NO
PED DARK.. NOITC RESRV  NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I  255I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR     OI     OI    OI25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT    OI   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```
PREEMPT PLAN [  6]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . . X . . X . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  O
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL   YESITERM PH    NO
PED DARK.. NOITC RESRV  NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I  255I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR     OI     OI    OI25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT    OI   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0014
DESIGNED: September 2018
SEALED: 09/21/2018
REVISED: N/A

Signal Upgrade - Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

ITS & Signals Management Section — Transportation Mobility and Safety Division — State of North Carolina Department of Transportation

750 N.Greenfield Pkwy.Garner,NC 27529

US 17 Business (Ehringhaus St.)
at
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Division 1	Pasquotank County	Elizabeth City

PLAN DATE: September 2018	REVIEWED BY: J O Deaton
PREPARED BY: M W Yalch	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL

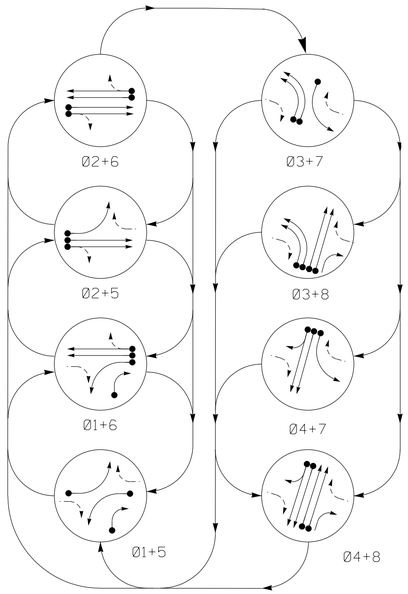
NORTH CAROLINA PROFESSIONAL SEAL 07438 ENGINEER JAMES O. DEATON

DocuSigned by: James O. Deaton 9/21/2018
DATE

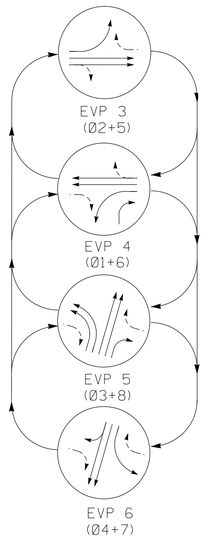
SIG. INVENTORY NO. 01-0014

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig 13.0

PHASING DIAGRAM



EV PREEMPT PHASES



PHASING DIAGRAM DETECTION LEGEND

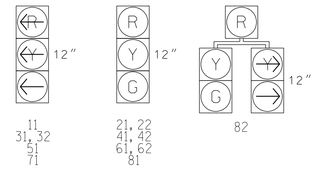
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE												
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	EVP3	EVP4	EVP5	EVP6	FLASH
11	~~←~~	~~←~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~R~~	~~R~~	~~R~~	
21,22	R	R	G	G	R	R	R	G	R	R	R	Y	
31,32	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~←~~	~~R~~	~~R~~	~~R~~	~~←~~	~~R~~	~~R~~	
41,42	R	R	R	R	R	R	G	G	R	R	R	G	R
51	~~←~~	~~R~~	~~←~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~R~~	~~R~~	~~R~~	
61,62	R	G	R	G	R	R	R	R	G	R	R	Y	
71	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~R~~	~~←~~	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	
81	R	R	R	R	R	G	R	G	R	R	G	R	R
82	R/~~R~~		R	R	R	G	R	G	R	R/~~R~~	G	R	R

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X60	0	2-4-2	-	1	Yes	-	3	-	S	-	X
1B	6X40	0	2-4-2	-	1	Yes	-	15	-	S	-	X
2A	6X6	300	EXIST	-	2	Yes	1.6	-	-	S	-	X
2B	6X6	300	EXIST	-	2	Yes	1.6	-	-	S	-	X
2C, 2D	6X6	90	EXIST	-	2	Yes	-	-	-	S	-	X
3A	6X40	0	2-4-2	-	3	Yes	-	3	-	S	-	X
3B	6X40	0	2-4-2	-	3	Yes	-	-	-	S	-	X
4A	6X60	0	2-4-2	-	4	Yes	-	-	-	S	-	X
4B	6X60	0	2-4-2	-	4	Yes	-	10	-	S	-	X
5A	6X60	0	2-4-2	-	5	Yes	-	3	-	S	-	X
6A	6X6	300	EXIST	-	6	Yes	1.6	-	-	S	-	X
6B	6X6	300	EXIST	-	6	Yes	1.6	-	-	S	-	X
6C, 6D	6X6	96	EXIST	-	6	Yes	-	-	-	S	-	X
7A	6X60	0	2-4-2	-	7	Yes	-	-	-	S	-	X
8A	6X40	0	2-4-2	-	8	Yes	-	-	-	S	-	X
8B	6X40	0	2-4-2	-	8	Yes	-	-	-	S	-	X
S22	6X6	+235	EXIST	-	-	-	-	-	-	N	X	X
S23	6X6	+235	EXIST	-	-	-	-	-	-	N	X	X
S24	6X6	+200	EXIST	-	-	-	-	-	-	N	X	X
S25	6X6	+200	EXIST	-	-	-	-	-	-	N	X	X
S26	6X6	+265	EXIST	-	-	-	-	-	-	N	X	X
S27	6X6	+265	EXIST	-	-	-	-	-	-	N	X	X

ASC/3 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Exit Phase(s)	2,6	2,6	2,6	2,6
Preempt Override	OFF	OFF	OFF	OFF
Delay Time	0	0	0	0
Ped Clear Through Yellow	N	N	N	N
Terminate Phases	N	N	N	N
Entrance Walk	255*	255*	255*	255*
Entrance Ped Clear	255*	255*	255*	255*
Entrance Min Green	1	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7	7
Preempt Input Extension Time	2	2	2	2
Preempt Max Time	120	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*	25.5*

* Allows normal phase times to be used.

ASC/3 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	12	7	7	7	12	7	7
Walk *	0	0	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0	0	0
Veh. Extension *	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Max 1 *	30	60	25	40	20	60	15	40
Yellow	3.2	4.5	3.0	5.0	3.2	4.5	3.0	4.5
Red Clear	3.0	1.7	3.7	1.5	3.0	1.9	3.4	1.6
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds /Actuation *	-	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

8 Phase
Fully Actuated
w/ EV Preemption
(Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
8. Pavement markings are existing.
9. Relocate emergency vehicle preemption equipment from existing cabinet to new cabinet.
10. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
11. Optical detector 10 calls EVP 3;
    Optical detector 20 calls EVP 4;
    Optical detector 30 calls EVP 5;
    Optical detector 40 calls EVP 6;
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
N/A	Fire Hydrant	
	Metal Strain Pole	
	EVP Optical Detector	
Ⓐ	"YIELD" Sign	Ⓐ

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Prepared for the Offices of:

Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (S. Hughes Blvd.) at NC 344 (Halstead Blvd./ Halstead Blvd. Ext.)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

SCALE 0 50' 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M Moon 8/21/2018
SIG. INVENTORY NO. 01-0015

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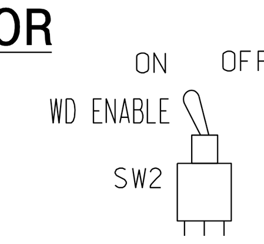
lmoon At CAR-LMOON-W7

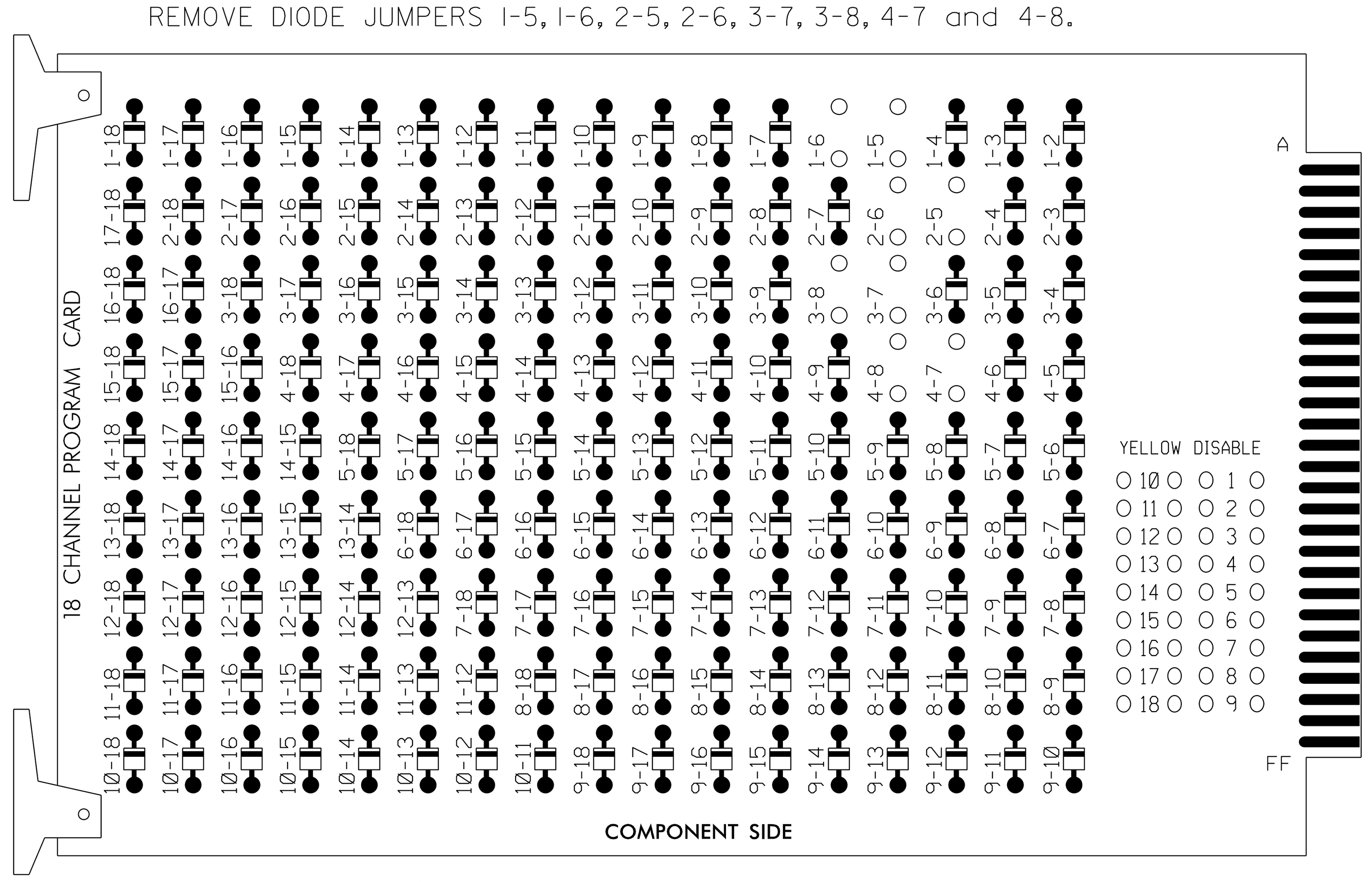
PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 13.1

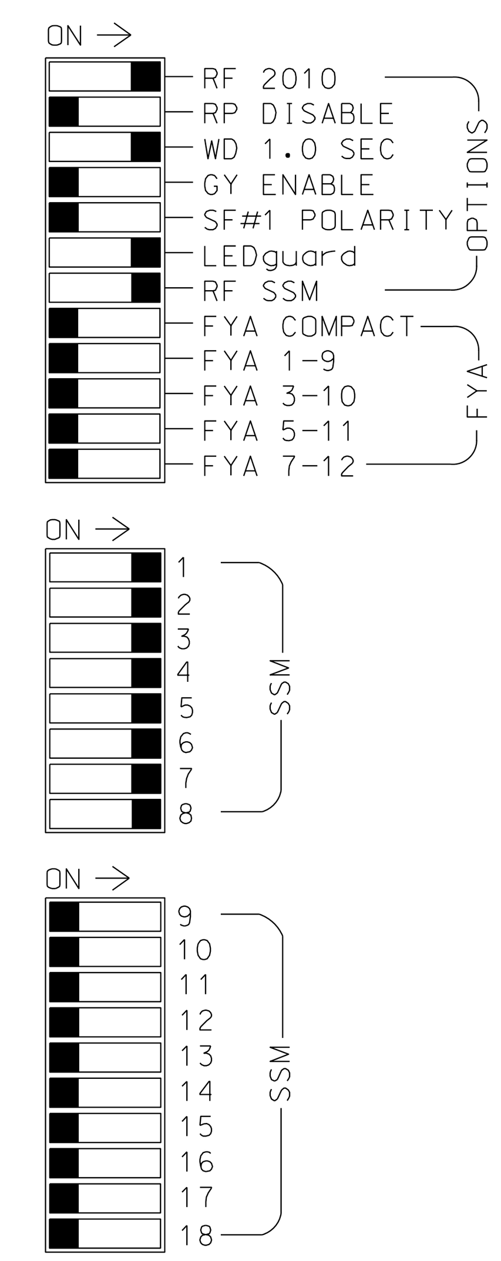
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 2-5, 2-6, 3-7, 3-8, 4-7 and 4-8.





REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the Elizabeth City Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S4,S5,S7,S8,S10,S11
PHASES USED.............1,2,3,4,5,6,7,8
OVERLAP "A".............NOT USED
OVERLAP "B".............NOT USED
OVERLAP "C".............NOT USED
OVERLAP "D".............NOT USED

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1		S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1		2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1		2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	82	21,22	NU	31,32	41,42	NU	51	61,62	NU	71	81,82	NU	NU	NU	NU	NU	NU	NU
RED			128			101			134			107							
YELLOW			129			102			135			108							
GREEN			130			103			136			109							
RED ARROW	125				116			131			122								
YELLOW ARROW	126	132			117			132			123								
GREEN ARROW	127	133			118			133			124								

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	Ø 1 1A	Ø 2 2A	Ø 2 2C,2D	Ø 3 3A	Ø 3 3B	Ø 4 4A	SLOT EMPTY	SYS. DET. S22	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		Ø 1 1B	Ø 2 2B	NOT USED	NOT USED	NOT USED	Ø 4 4B		SYS. DET. S23					ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 6 6A	Ø 6 6C,6D	SLOT EMPTY	Ø 7 7A	Ø 8 8A	SYS. DET. S24	SLOT EMPTY	SYS. DET. S26	SLOT EMPTY	SLOT EMPTY	PRE 3 PRE 4 ** Optical 4 Ch. Card PRE 5 PRE 6	SLOT EMPTY
	L	NOT USED	Ø 6 6B	NOT USED		NOT USED	Ø 8 8B	SYS. DET. S25		SYS. DET. S27				

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-5,6	I2U	39	2	1	YES		3		S
1B	TB2-7,8	I2L	43	12	1	YES		15		S
2A	TB2-9,10	I3U	63	32	2	YES	1.6			S
2B	TB2-11,12	I3L	76	42	2	YES	1.6			S
2C,2D	TB4-1,2	I4U	47	22	2	YES				S
3A	TB4-5,6	I5U	38	3	3	YES		3		S
3B	TB4-9,10	I6U	41	4	3	YES				S
4A	TB6-1,2	I7U	65	34	4	YES				S
4B	TB6-3,4	I6U	78	44	4	YES		10		S
*S22	TB6-9,10	I9U	60	11	SYS	NO				N
*S23	TB6-11,12	I9L	62	13	SYS	NO				N
5A	TB3-1,2	J1U	55	5	5	YES		3		S
6A	TB3-5,6	J2U	40	6	6	YES	1.6			S
6B	TB3-7,8	J2L	44	16	6	YES	1.6			S
6C,6D	TB3-9,10	J3U	64	36	6	YES				S
7A	TB5-5,6	J5U	57	7	7	YES				S
8A	TB5-9,10	J6U	42	8	8	YES				S
8B	TB5-11,12	J6L	46	18	8	YES				S
*S24	TB7-1,2	J7U	66	38	SYS	NO				N
*S25	TB7-3,4	J7L	79	48	SYS	NO				N
*S26	TB7-9,10	J9U	59	15	SYS	NO				N
*S27	TB7-11,12	J9L	61	17	SYS	NO				N

* System detector only. Remove any assigned vehicle phase.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

**OPTICAL PREEMPTION SYSTEM

1. Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
2. Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0015
DESIGNED: MARCH 2018
SEALED: 08/21/2018
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (S. Hughes Blvd.)
at
NC 344 (Halstead Blvd./
Halstead Blvd. Ext.)

Division 1 Pasquotank County Elizabeth City

PLAN DATE: March 2018	REVIEWED BY: AJ Davis
PREPARED BY: DJ White	REVIEWED BY: LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
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DATE

SIG. INVENTORY NO. 01-0015

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lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 13.2

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select **4. PREEMPTOR/TSP**
2. From PREEMPTOR/TSP/SCP Submenu select **1. PREEMPT PLAN 1-10**

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```
PREEMPT PLAN [  3]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . X . . X . . . . . .
DWEL PED . . . . . .
DWEL OLP . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL   OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2   NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I  255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    0I    0I    0I25.5I25.5
----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT  12I   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES    1  2  3  4  5  6  7  8
PR RTN%   0  0  0  0  0  0  0  0
PHASES    9 10 11 12 13 14 15 16
PR RTN%   0  0  0  0  0  0  0  0
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```
PREEMPT PLAN [  4]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH X . . . X . . . . . .
DWEL PED . . . . . .
DWEL OLP . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL   OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2   NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I  255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    0I    0I    0I25.5I25.5
----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT  12I   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES    1  2  3  4  5  6  7  8
PR RTN%   0  0  0  0  0  0  0  0
PHASES    9 10 11 12 13 14 15 16
PR RTN%   0  0  0  0  0  0  0  0
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```
PREEMPT PLAN [  5]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . . X . . . . X . . . . .
DWEL PED . . . . . .
DWEL OLP . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL   OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2   NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I  255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    0I    0I    0I25.5I25.5
----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT   7I   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES    1  2  3  4  5  6  7  8
PR RTN%   0  0  0  0  0  0  0  0
PHASES    9 10 11 12 13 14 15 16
PR RTN%   0  0  0  0  0  0  0  0
```

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```
PREEMPT PLAN [  6]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . . . X . . X . . . . .
DWEL PED . . . . . .
DWEL OLP . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL   OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2   NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I  255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    0I    0I    0I25.5I25.5
----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT   7I   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES    1  2  3  4  5  6  7  8
PR RTN%   0  0  0  0  0  0  0  0
PHASES    9 10 11 12 13 14 15 16
PR RTN%   0  0  0  0  0  0  0  0
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0015
DESIGNED: MARCH 2018
SEALED: 08/21/2018
REVISED: N/A

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 17 (S. Hughes Blvd.)
at
NC 344 (Halstead Blvd./
Halstead Blvd. Ext.)

Division 1 Pasquotank County Elizabeth City

Prepared for the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL

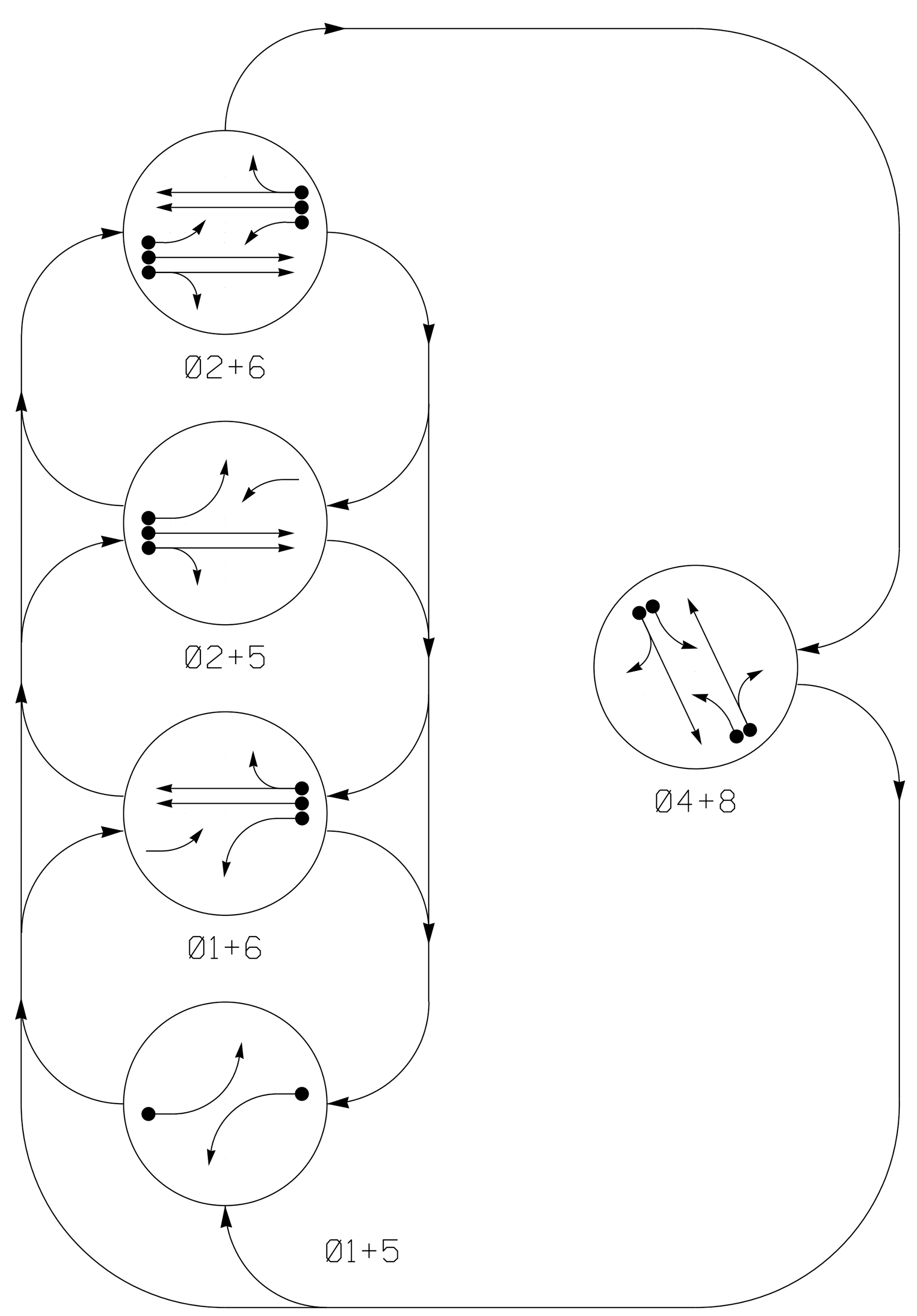
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M Moon 9/20/2018
5BCE59E0B3D0421... DATE

SIG. INVENTORY NO. 01-0015

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 14.0

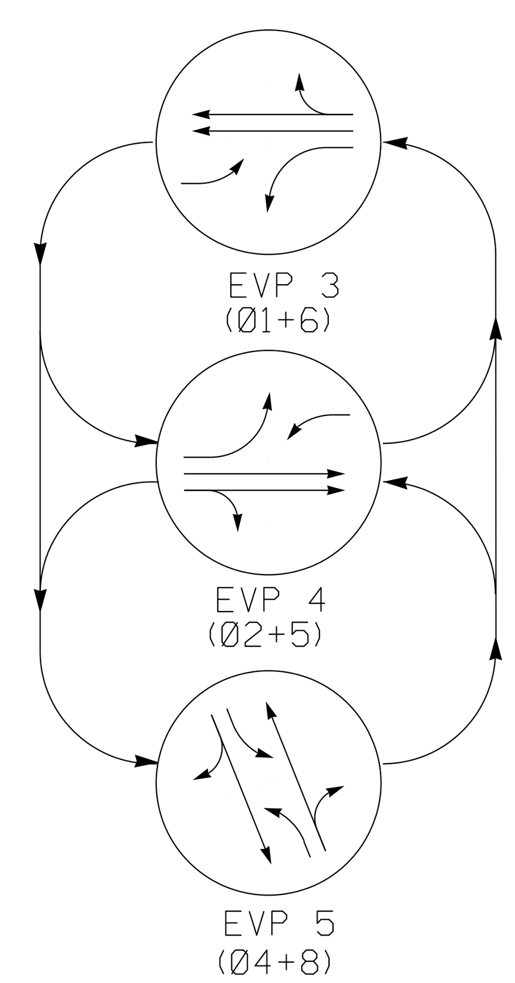
PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

EV PREEMPT PHASES



SIGNAL FACE I.D.

All Heads L.E.D.

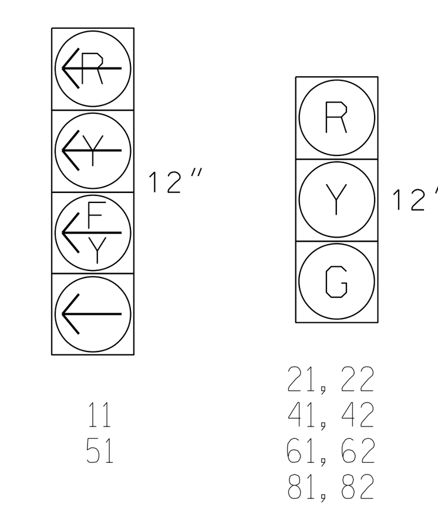


TABLE OF OPERATION

SIGNAL FACE	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	EVP3	EVP4	EVP5	FLASH
11	←	←	← F/Y	← F/Y	← R	←	← F/Y	← R	← Y
21, 22	R	R	G	G	R	R	G	R	Y
41, 42	R	R	R	R	G	R	R	G	R
51	←	← F/Y	←	← F/Y	← R	← F/Y	←	← R	← Y
61, 62	R	G	R	G	R	G	R	R	Y
81, 82	R	R	R	R	G	R	R	R	R

ASC/3 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green *	7	12	7	7	12	7
Walk *	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0
Max 1 *	30	90	30	30	90	30
Yellow	3.0	4.5	3.8	3.0	4.5	3.2
Red Clear	2.8	1.6	2.2	3.1	1.6	3.2
Actuations B4 Add *	-	0	-	-	0	-
Seconds /Actuation *	-	1.5	-	-	1.5	-
Max Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	45	-	-	45	-
Minimum Gap	-	3.0	-	-	3.0	-
Locking Detector	-	X	-	-	X	-
Recall Position	-	VEH. RECALL	-	-	VEH. RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

ASC/3 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Exit Phase(s)	2,6	2,6	2,6
Preempt Override	OFF	OFF	OFF
Delay Time	0	0	0
Ped Clear Through Yellow	N	N	N
Terminate Phases	N	N	N
Entrance Walk	255*	255*	255*
Entrance Ped Clear	255*	255*	255*
Entrance Min Green	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*
Minimum Dwell Time	7	7	7
Preempt Input Extension Time	2	2	2
Preempt Max Time	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*

* Allows normal phase times to be used.

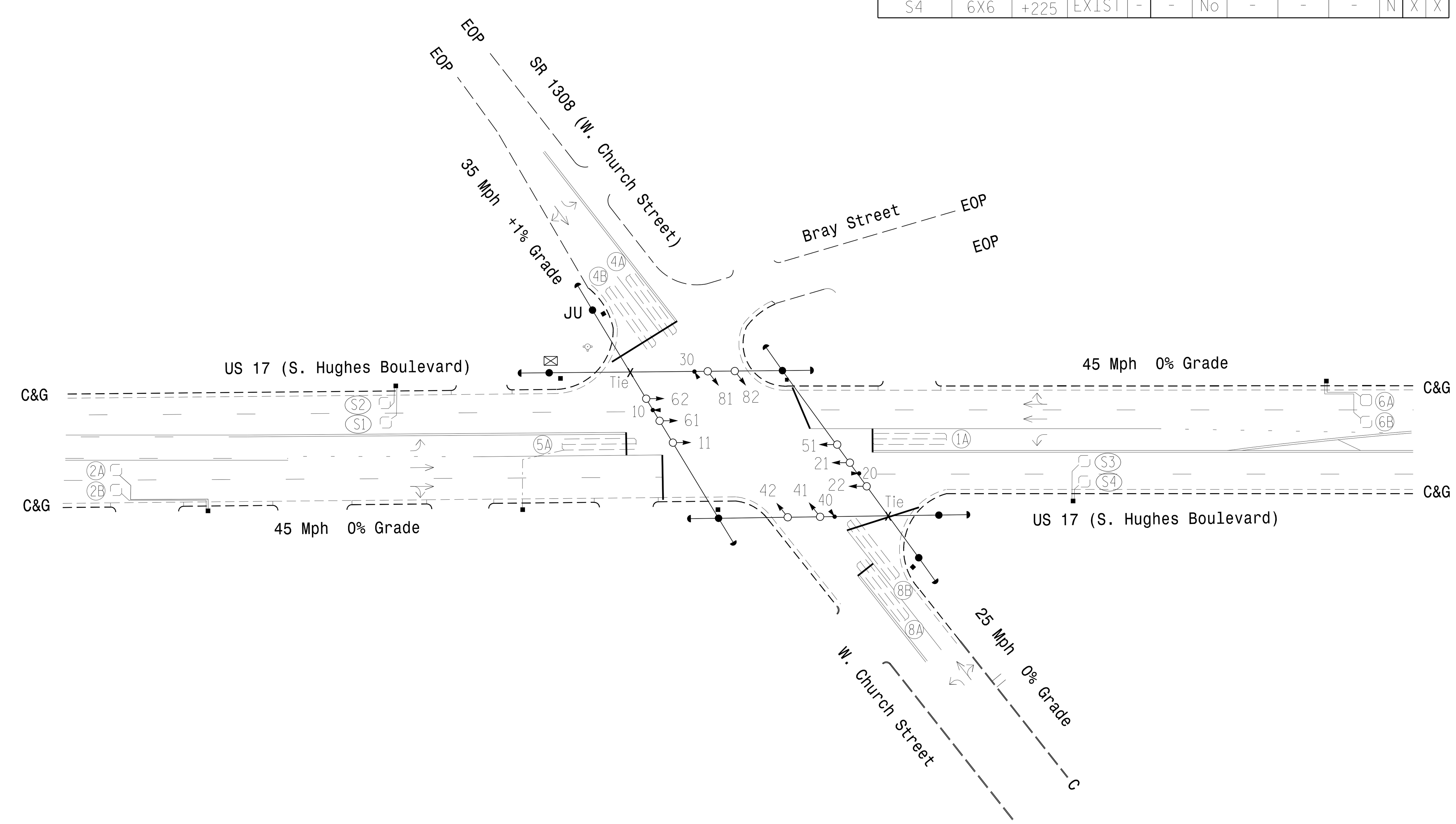
ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Yes	-	15	-	S	-	X
					6	Yes	-	3	-	G	-	X
2A	6X6	300	EXIST	-	2	Yes	-	-	X	N	-	X
2B	6X6	300	EXIST	-	2	Yes	-	-	X	N	-	X
4A	6X40	+5	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X40	+5	2-4-2	-	4	Yes	-	10	-	S	-	X
5A	6X40	+5	2-4-2	-	5	Yes	-	15	-	S	-	X
					2	Yes	-	3	-	G	-	X
6A	6X6	300	5	X	6	Yes	-	-	X	N	-	X
6B	6X6	300	EXIST	-	6	Yes	-	-	X	N	-	X
8A	6X40	+5	2-4-2	-	8	Yes	-	-	-	S	-	X
8B	6X40	+5	2-4-2	-	8	Yes	-	10	-	S	-	X
S1	6X6	+225	EXIST	-	-	No	-	-	-	N	X	X
S2	6X6	+225	EXIST	-	-	No	-	-	-	N	X	X
S3	6X6	+225	EXIST	-	-	No	-	-	-	N	X	X
S4	6X6	+225	EXIST	-	-	No	-	-	-	N	X	X

5 Phase
Fully Actuated
w/ EV Preemption
(Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red
6. Pavement markings are existing.
7. This intersection features an optical preemption system. Shown location of optical detectors are conceptual only.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Relocate existing optical detection equipment from existing cabinet to new cabinet.
9. Optical detector 10 calls EVP 3; Optical detector 20 calls EVP 4; Optical detector 30 calls EVP 5; Optical detector 40 calls EVP 6.
10. Raise spans to obtain 17' minimum clearance for signal head hights.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede this values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Optical Detector	

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Prepared for the Offices of:
Transportation Mobility and Safety Division
State of North Carolina Department of Transportation
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (S. Hughes Blvd.) at SR 1308 (W. Church St.)

Divison 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

SCALE 0 50' 1"=50'

REVISIONS	INIT.	DATE

SEAL
North Carolina Professional Engineer Seal 022516 Lisa M. Moon

DocuSigned by: Lisa M. Moon 58CE58BD83D0421... 8/21/2018 DATE

SIG. INVENTORY NO. 01-0016

21-AUG-2018 17:02
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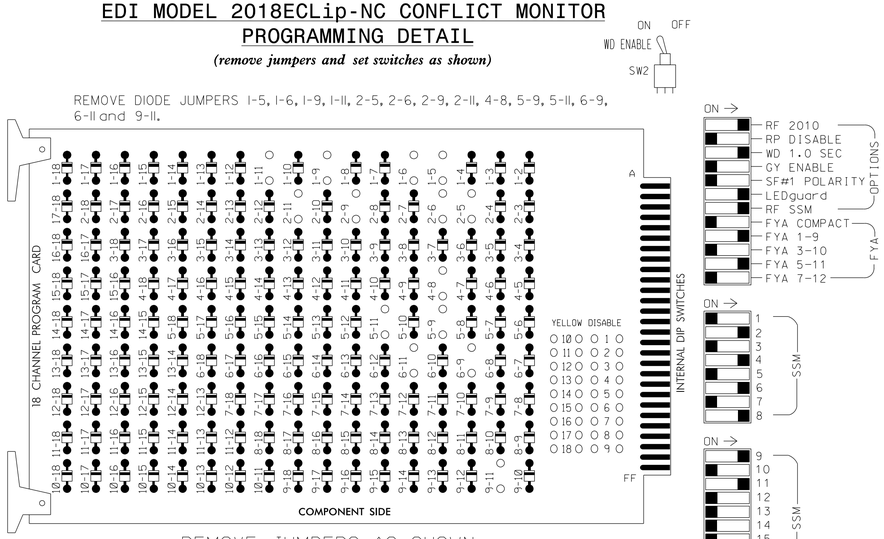
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 14.1

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green and 6 Green.
4. The cabinet and controller are part of the Elizabeth City Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S5,S7,S8,S11,AUX S1, AUX S4
PHASES USED.....1,2,4,5,6,8
OVERLAP "A".....*
OVERLAP "B".....NOT USED
OVERLAP "C".....*
OVERLAP "D".....NOT USED

* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	21,22	NU	NU	41,42	NU	51 ★	61,62	NU	NU	81,82	NU	11 ★	NU	NU	51 ★	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127						133											

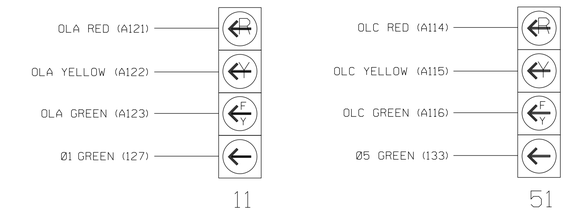
NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE
See overlap programming instructions on sheet 2 of 3

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 2 2A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S1	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø 2 2B				Ø 4 4B			SYS. DET. S2					ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø 8 8A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S3	SLOT EMPTY	SLOT EMPTY	PRE 3 PRE 4 ** Opticom 4 Ch. Card PRE 5 NU		SLOT EMPTY
	L	NOT USED	Ø 6 6B				Ø 8 8B			SYS. DET. S4					

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A [1]	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES		3		S
2A	TB2-5,6	I2U	39	2	2	YES			X	S
2B	TB2-7,8	I2L	43	12	2	YES			X	S
4A	TB4-9,10	I6U	41	4	4	YES		3		S
4B	TB4-11,12	I6L	45	14	4	YES		10		S
* S1	TB6-9,10	I9U	60	11	SYS	NO				N
* S2	TB6-11,12	I9L	62	13	SYS	NO				N
5A [2]	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES		3		S
6A	TB3-5,6	J2U	40	6	6	YES			X	S
6B	TB3-7,8	J2L	44	16	6	YES			X	S
8A	TB5-9,10	J6U	42	8	8	YES				S
8B	TB5-11,12	J6L	46	18	8	YES		10		S
* S3	TB7-9,10	J9U	59	15	SYS	NO				N
* S4	TB7-11,12	J9L	61	17	SYS	NO				N

[1] Add jumper from I1-W to J4-W, on rear of input file.

[2] Add jumper from I5-W to J8-W, on rear of input file.

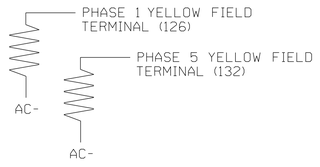
* System detector only. Remove any assigned vehicle phase.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



**OPTICAL PREEMPTION SYSTEM

1. Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
2. Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0016
DESIGNED: FEBRUARY 2018
SEALED: 08/21/2018
REVISED: N/A

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 17 (S. Hughes Blvd.) at SR 1308 (W. Church St.)

Prepared for the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

Divison 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
SIG. INVENTORY NO. 01-0016

20-SEP-2018 19:49
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lmoon AT CAR-LMOON1-W7

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPTOR/TSP/SCP Submenu select [1. PREEMPT PLAN 1-10]

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```
PREEMPT PLAN [  3]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH X . . . . X . . . . . .
DWEL PED . . . . . .
DWEL OLPF1 .F1 . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT... 0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR     OI     OI    OI25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT    7I    2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON    PMT ACT DWELL...NO
OTHER - PRI PMT.OFF   NON-PRI PMT.....OFF
INH EXT TIME... 0.0   PED PR RETURN...OFF
PRIORITY RETURN.OFF   QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```
PREEMPT PLAN [  4]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . X . . X . . . . . .
DWEL PED . . . . . .
DWEL OLPF1 .F1 . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT... 0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR     OI     OI    OI25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT    7I    2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON    PMT ACT DWELL...NO
OTHER - PRI PMT.OFF   NON-PRI PMT.....OFF
INH EXT TIME... 0.0   PED PR RETURN...OFF
PRIORITY RETURN.OFF   QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```
PREEMPT PLAN [  5]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . . . X . . . X . . . . . .
DWEL PED . . . . . .
DWEL OLP . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT... 0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR     OI     OI    OI25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT    7I    2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON    PMT ACT DWELL...NO
OTHER - PRI PMT.OFF   NON-PRI PMT.....OFF
INH EXT TIME... 0.0   PED PR RETURN...OFF
PRIORITY RETURN.OFF   QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 14.2

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....[PPLT FYA]

PROTECTED LEFT TURN....   PHASE    1
OPPOSING THROUGH.......   PHASE    2

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.......... 0
```

Toggle Twice

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

```
TMG VEH OVLP...[C] TYPE: .....[PPLT FYA]

PROTECTED LEFT TURN....   PHASE    5
OPPOSING THROUGH.......   PHASE    6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.......... 0
```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0016
DESIGNED: FEBRUARY 2018
SEALED: 08/21/2018
REVISED: N/A

Electrical Detail - Sheet 2 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 17 (S. Huhges Blvd.) at SR 1308 (W. Church St.)		
Prepared for the Offices of:	Divison 1	Pasquotank County	Elizabeth City
	PLAN DATE: February 2018	REVIEWED BY:	AJ Davis
	PREPARED BY: DJ White	REVIEWED BY:	LM Moon
	REVISIONS	INIT.	DATE

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
DATE

SIG. INVENTORY NO. 01-0016

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 14.3

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPT/TSP/SCP Submenu select [2. ENABLE PREEMPT FILTERING & TSP/SCP]

```
ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED     SOLID          PULSING
INPUT  1 ...BYPASSED.. ...BYPASSED..
       2 ...BYPASSED.. ...BYPASSED..
       3 ..PREEMPT  3. ...BYPASSED..
       4 ..PREEMPT  4. ...BYPASSED..
       5 ..PREEMPT  5. ...BYPASSED..
       6 ...BYPASSED.. ...BYPASSED..
       7 ...BYPASSED.. ...BYPASSED..
       8 ...BYPASSED.. ...BYPASSED..
       9 ...BYPASSED.. ...BYPASSED..
      10 ...BYPASSED.. ...BYPASSED..
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0016
DESIGNED: FEBRUARY 2018
SEALED: 08/21/2018
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 3 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
ITS & Signals Management Section
State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (S. Hughes Blvd.)
at
SR 1308 (W. Church St.)

Divison 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

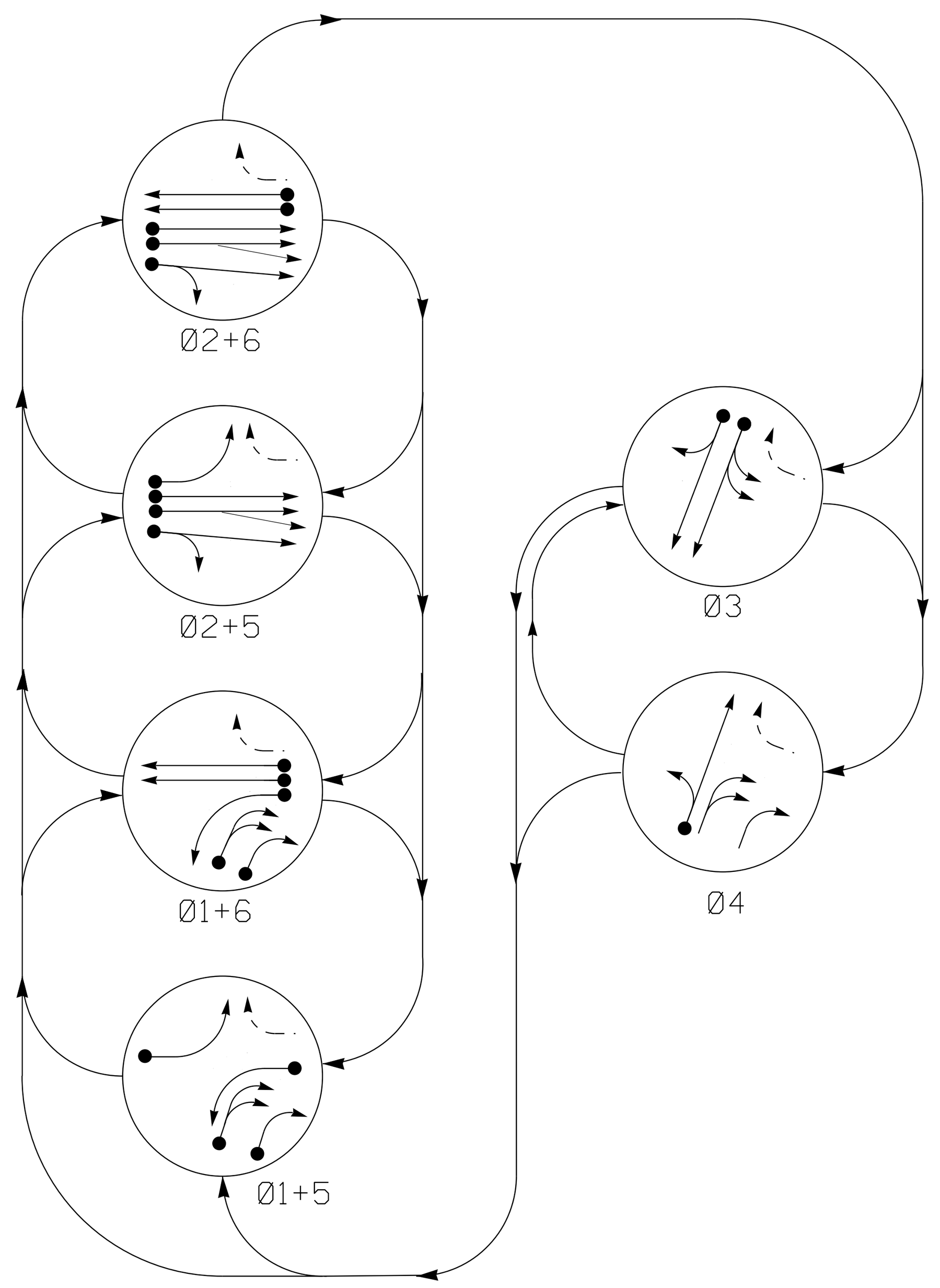
DocuSigned by: Lisa M. Moon 58CE58BD83D0421
9/20/2018
DATE

SIG. INVENTORY NO. 01-0016

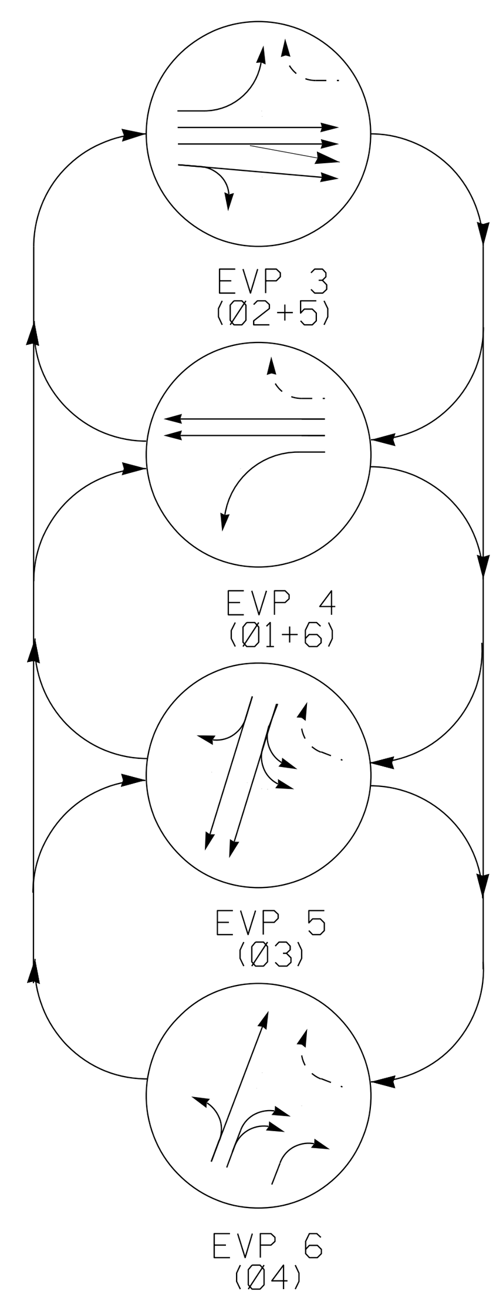
20-SEP-2018 19:49
R:*U5942*Signals*Design*Wiring*01-0016-20180821e.dgn
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig 15.0

PHASING DIAGRAM



EV PREEMPT PHASES



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 4	EVP 5	EVP 6	FLASH
11	←	←	←R	←R	←R	←R	←R	←	←R	←R	←R
12, 13	F/Y→	F/Y→	R	R	R	F/Y→	R	R	R	F/Y→	R
21,22,23	R	R	G	G	R	R	G	R	R	R	Y
31	R	R	R	R	G←	R	R	R	G←	R	R
32	R	R	R	R	G	R	R	R	G	R	R
41	R	R	R	R	R	G←	R	R	R	G←	R
42	R	R	R	R	R	G	R	R	R	G	R
51	←	←R	←	←R	←R	←R	←	←R	←R	←R	←R
61,62	R	G	R	G	R	R	R	G	R	R	Y

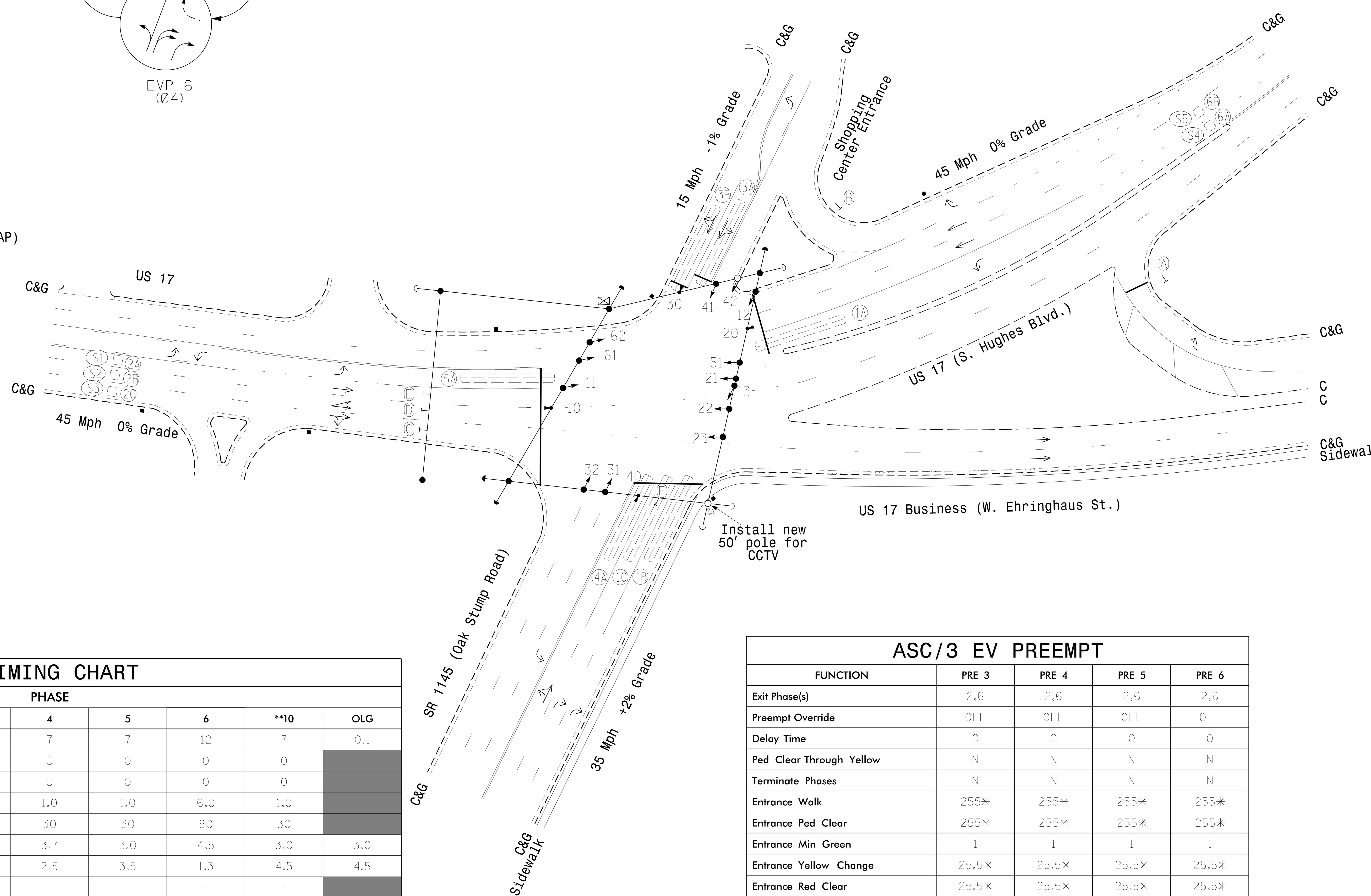
ASC/3 DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INTIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X60	+5	2-4-2	-	1	Yes	-	-	-	S	-	X
1B	6X60	+5	2-4-2	-	1	Yes	-	15	-	S	-	X
1C	6X60	+5	2-4-2	-	1	Yes	-	-	-	S	-	X
2A/S1	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X
2B/S2	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X
2C/S3	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X
3A	6X60	+5	2-4-2	-	3/10	Yes	-	-	-	S	-	X
3B	6X60	+5	2-4-2	-	3/10	Yes	-	10	-	S	-	X
4A	6X60	+5	2-4-2	-	4	Yes	-	-	-	S	-	X
5A	6X60	+5	2-4-2	-	5	Yes	-	3	-	S	-	X
6A/S4	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	X
6B/S5	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	X

6 Phase
Fully Actuated
w/ EV Preemption
(Elizabeth City Signal System)

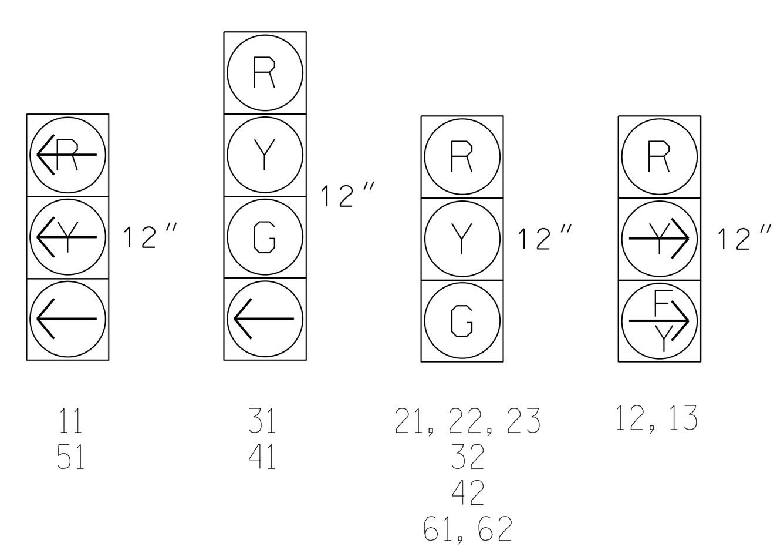
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Maintain backplates for signal heads 11 and 13.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Pavement markings are existing.
7. Relocate emergency vehicle preemption equipment from exisiting cabinet to new cabinet
8. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
9. Optical detector 10 calls EVP 3; Optical detector 20 calls EVP 4; Optical detector 30 calls EVP 5; Optical detector 40 calls EVP 6.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



SIGNAL FACE I.D.

All Heads L.E.D.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Fire Hydrant	
	Optical Detector	
A	"STOP" Sign (R1-1)	A
B	"YIELD" Sign (R1-2)	B
C	Combined Through and Right Arrow Sign (R3-6R)	C
D		D
E	ONLY	E
F	NO TURN ON RED FROM THIS LANE	F

ASC/3 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	**10	OLG
Min Green *	7	12	7	7	7	12	7	0.1
Walk *	0	0	0	0	0	0	0	
Ped Clear	0	0	0	0	0	0	0	
Veh. Extension *	1.0	6.0	1.0	1.0	1.0	6.0	1.0	
Max 1 *	30	90	30	30	30	90	30	
Yellow	3.0	4.5	3.0	3.7	3.0	4.5	3.0	3.0
Red Clear	3.5	2.0	4.5	2.5	3.5	1.3	4.5	4.5
Actuations B4 Add *	-	-	-	-	-	-	-	
Seconds /Actuation *	-	1.5	-	-	-	1.5	-	
Max Initial *	-	34	-	-	-	34	-	
Time Before Reduction *	-	15	-	-	-	15	-	
Time To Reduce *	-	30	-	-	-	30	-	
Minimum Gap	-	3.0	-	-	-	3.0	-	
Locking Detector	-	X	-	-	-	X	-	
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	
Dual Entry	-	-	-	-	-	-	-	
Simultaneous Gap	X	X	X	X	X	X	X	

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
** Phase used for timing purposes only.

ASC/3 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Exit Phase(s)	2,6	2,6	2,6	2,6
Preempt Override	OFF	OFF	OFF	OFF
Delay Time	0	0	0	0
Ped Clear Through Yellow	N	N	N	N
Terminate Phases	N	N	N	N
Entrance Walk	255*	255*	255*	255*
Entrance Ped Clear	255*	255*	255*	255*
Entrance Min Green	1	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7	7
Preempt Input Extension Time	2	2	2	2
Preempt Max Time	120	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*	25.5*

* Allows normal phase times to be used.

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Signal Upgrade

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Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (S. Hughes Blvd.) at
US 17 Bus. (W. Ehringhaus St.)/
SR 1145 (Oak Stump Rd.)/
Shopping Center Entrance

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	June 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SCALE 0 50' 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/24/2018
58CE58BD83D0421...
DATE

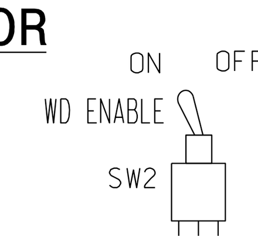
SIG. INVENTORY NO. 01-0019

DocuSign Envelope ID: DF5CE362-E52A-469B-8532-111926D4AE35

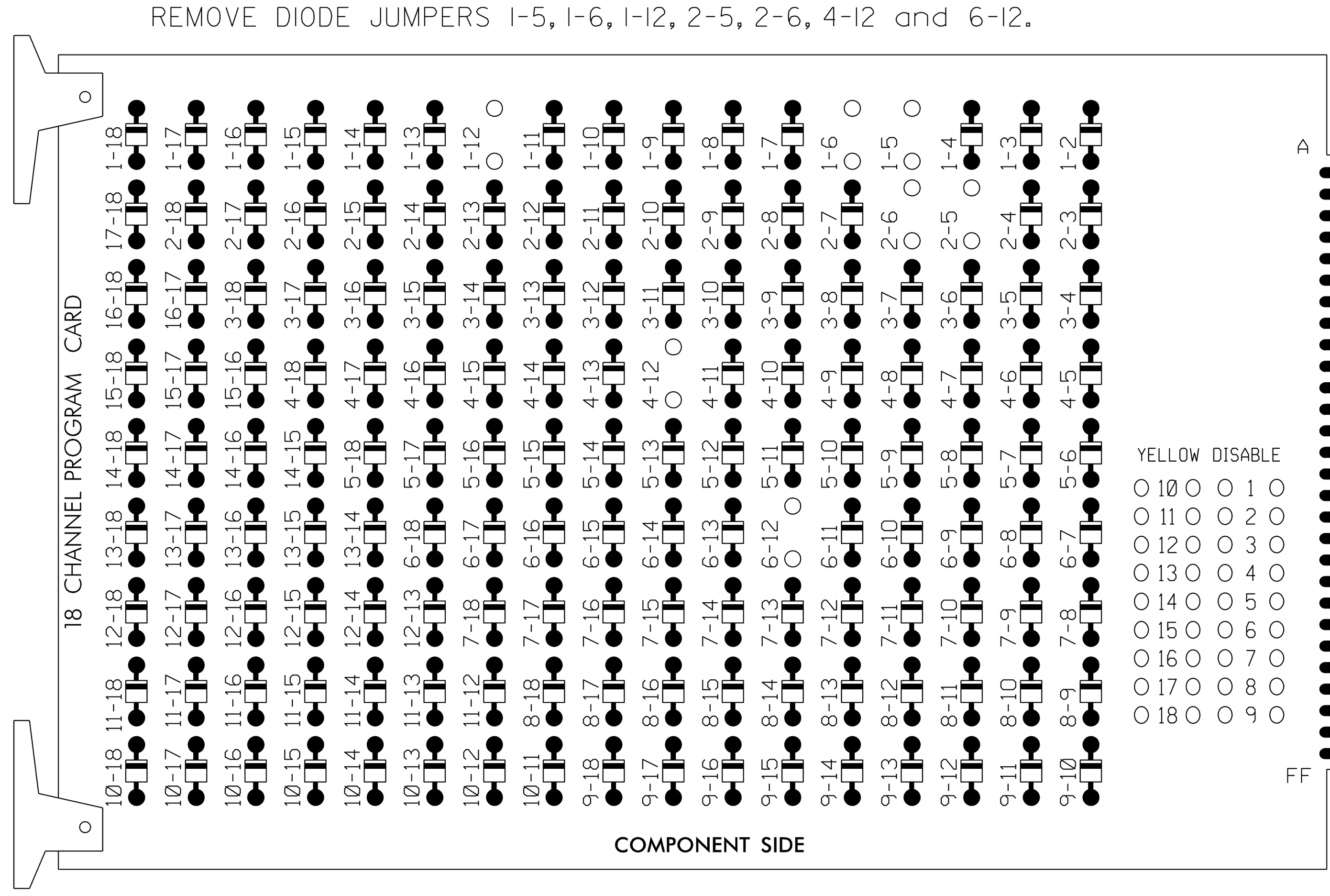
PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 15.1

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

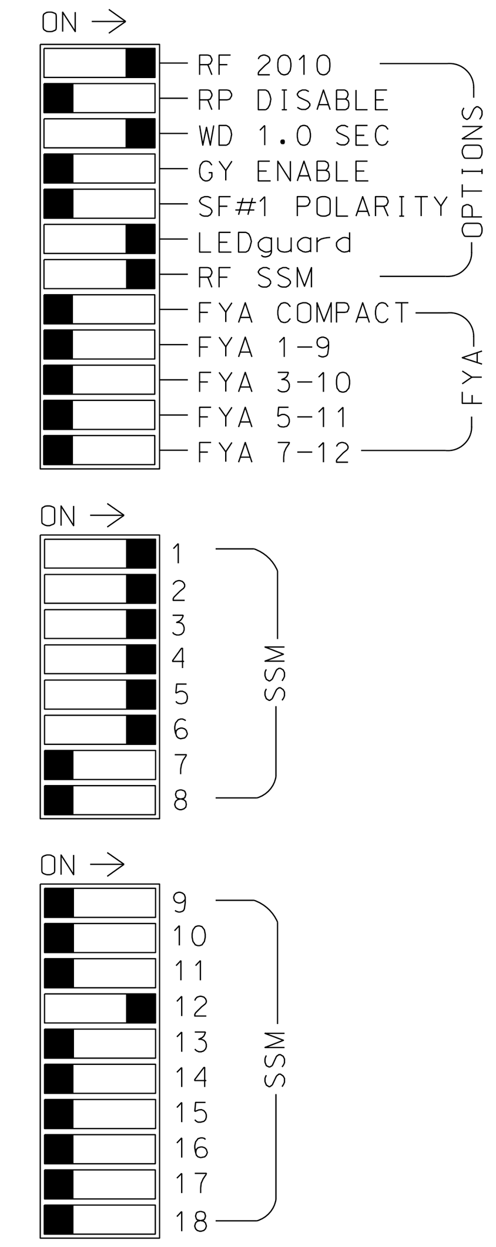
(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 1-12, 2-5, 2-6, 4-12 and 6-12.



REMOVE JUMPERS AS SHOWN



■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the Elizabeth City Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S4,S5,S7,S8,AUX S5
PHASES USED.............1,2,3,4,5,6,**10
OVERLAP "A".............NOT USED
OVERLAP "B".............NOT USED
OVERLAP "C".............NOT USED
OVERLAP "D".............*
OVERLAP "G".............*

* See overlap programming detail on sheet 2.
** Phase used for timing purposes only.

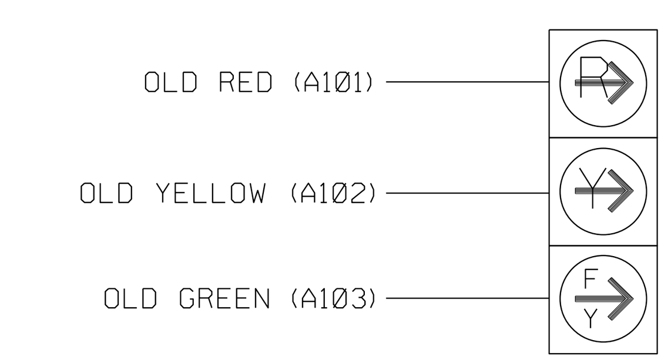
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	OLG		4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22 23	NU	31	32	41	42	NU	51	61,62	NU	NU	NU	NU	NU	NU	NU	NU	12,13	NU
RED		128		116	116	101	101			134										
YELLOW		129		117	117	102	102			135										
GREEN		130		118	118	103	103			136										
RED ARROW	125								131										A101	
YELLOW ARROW	126								132										A102	
FLASHING YELLOW ARROW																			A103	
GREEN ARROW	127			118		103			133											

NU = Not Used

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 1 1B	Ø2/SYS 2A/S1	Ø2/SYS 2C/S3	Ø 3 3A	Ø 3 3B	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø 1 1C	Ø2/SYS 2B/S2	NOT USED	NOT USED	NOT USED	NOT USED							ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø6/SYS 6A/S4	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE 3 PRE 4 ** Opticom 4 Ch. Card PRE 5 PRE 6		SLOT EMPTY
	L	NOT USED	Ø6/SYS 6B/S5												

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES				S
1B	TB2-5,6	I2U	39	2	1	YES		15		S
1C	TB2-7,8	I2L	43	12	1	YES				S
2A/S1	TB2-9,10	I3U	63	32	2/SYS	YES			X	N
2B/S2	TB2-11,12	I3L	76	42	2/SYS	YES			X	N
2C/S3	TB4-1,2	I4U	47	22	2/SYS	YES			X	N
3A	TB4-5,6	I5U	58	3	3/10	YES				S
3B	TB4-9,10	I6U	41	4	3/10	YES		10		S
4A	TB6-1,2	I7U	65	34	4	YES				S
5A	TB3-1,2	J1U	55	5	5	YES		3		S
6A/S4	TB3-5,6	J2U	40	6	6/SYS	YES			X	N
6B/S5	TB3-7,8	J2L	44	16	6/SYS	YES			X	N

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0019
DESIGNED: JUNE 2018
SEALED: 09/24/2018
REVISED: N/A

**OPTICAL PREEMPTION SYSTEM

1. Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
2. Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
ITS & Signals Management Section
State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (S. Hughes Blvd.) at
US 17 Bus. (W. Ehringhaus St.)/
SR 1145 (Oak Stump Rd.)/
Shopping Center Entrance

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	June 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/24/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0019

24-SEP-2018 10:19
R:*U5942*Signals*Design*Wiring*01-0019-08232018e.dgn
rlawton AT CAR-RLAWTON-W7

ECONOLITE ASC/3-2070 CONTROLLER SEQUENCE PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [1. CONTROLLER SEQ]
3. From CONTROLLER SEQUENCE Submenu select [1. PHASE RING SEQUENCE AND ASSIGNMENT]

```
CONTROLLER SEQUENCE [ 1]
SEQUENCE COMMANDS  . HW ALT SEQ ENA.           NO.
   01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16
BC-B  -  B  -  B  -  -  -  -  -  -  -  -  -  -  -
R1-¦1  2 ¦3  4 ¦10 .  .  .  .  .  .  .  .  .  .  .
R2-¦5  6 ¦.  .  ¦.  .  .  .  .  .  .  .  .  .  .  .
R3-¦.  .  ¦.  .  ¦.  .  .  .  .  .  .  .  .  .  .  .
R4-¦.  .  ¦.  .  ¦.  .  .  .  .  .  .  .  .  .  .  .

R1-R4=RING 1-4, DATA ENTRY, PHASES 1-16
BC=BARRIER CONTROL, VALUES; B,C
B=BARRIER MODE
C=COMPATIBILITY MODE
```

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switch S4 as OLE, program LD SWITCH 3 as OVLP '5' TYPE 'O' as shown below.

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [3. LOAD SW ASSIGN]

NOTICE OVLP 7 ASSIGNED TO LD SWITCH 3 →

LD SWITCH ASSIGN

LD SWITCH	PHASE /OVLP	TYPE	DIMMING R	DIMMING Y	DIMMING G	DIMMING D	FLASH PWR	FLASH AUT	FLASH TGR
1	1	V	.	.	.	+	A	R	X
2	2	V	.	.	.	+	A	Y	.
3	7	O	.	.	.	+	A	R	X
4	4	V	.	.	.	+	A	R	.
5	5	V	.	.	.	-	A	R	.
6	6	V	.	.	.	-	A	Y	X
7	7	V	.	.	.	-	A	R	.
8	8	V	.	.	.	-	A	R	X
9	1	O	.	.	.	+	A	R	X
10	2	O	.	.	.	+	A	R	X
11	3	O	.	.	.	-	A	R	.
12	4	O	.	.	.	-	A	R	.
13	2	P	.	.	.	+	A	.	.
14	4	P	.	.	.	-	A	.	.
15	6	P	.	.	.	+	A	.	.
16	8	P	.	.	.	-	A	.	.

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP D

Select TMG VEH OVLP [D] and 'OTHER/ECONOLITE'

```
TMG VEH OVLP...[D] TYPE:OTHER/ECONOLITE
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED X . . X . . . . . . . . . . . .
PROTECT  . . . . . . . . . . . . . . . .
PED PRTC . . . . . . . . . . . . . . . .
NOT OVLP . . . . . . . . . . . . . . . .
FLSH GRN 1 . . 1 . . . . . . . . . . . .
LAG X PH . . . . . . . . . . . . . . . .
LAG 2 PH . . . . . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0
```

TOGGLE 3x

OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

```
TMG VEH OVLP...[G] TYPE: .......NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . X . . . . . . . X . . . . .

LAG GRN 0.1 YEL 3.0 RED 4.5
```

END PROGRAMMING

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPT/TSP/SCP Submenu select [2. ENABLE PREEMPT FILTERING & TSP/SCP]

```
ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED      SOLID          PULSING
INPUT  1 ...BYPASSED.. ...BYPASSED..
       2 ...BYPASSED.. ...BYPASSED..
       3 ..PREEMPT  3. ...BYPASSED..
       4 ..PREEMPT  4. ...BYPASSED..
       5 ..PREEMPT  5. ...BYPASSED..
       6 ..PREEMPT  6. ...BYPASSED..
       7 ...BYPASSED.. ...BYPASSED..
       8 ...BYPASSED.. ...BYPASSED..
       9 ...BYPASSED.. ...BYPASSED..
      10 ...BYPASSED.. ...BYPASSED..
```

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [6. DETECTORS]
2. From DETECTOR Submenu select [2. VEHICLE DETECTOR SETUP]

```
VEH DETECTOR [ 3]   VEH DET PLAN [ 1]
TYPE: S-STANDARD
TS2 DETECTOR..... X ECPI LOG.......   NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 3  3     . . X . . . . . . X . . . . . .
EXTEND TIME...  0.0 DELAY TIME...    0.0
USE ADDED INITIAL . CROSS SWITCH PH..  0
LOCK IN....... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
```

```
VEH DETECTOR [ 4]   VEH DET PLAN [ 1]
TYPE: S-STANDARD
TS2 DETECTOR..... X ECPI LOG.......   NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 4  3     . . X . . . . . . X . . . . . .
EXTEND TIME...  0.0 DELAY TIME...    0.0
USE ADDED INITIAL . CROSS SWITCH PH..  0
LOCK IN....... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0019
DESIGNED: JUNE 2018
SEALED: 09/24/2018
REVISED: N/A

Electrical Detail - Sheet 2 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 17 (S. Hughes Blvd.) at
US 17 Bus. (W. Ehringhaus St.)/
SR 1145 (Oak Stump Rd.)/
Shopping Center Entrance

Division 1 | Pasquotank County | Elizabeth City

PLAN DATE:	June 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

Prepared for the Offices of: Transportation Mobility and Safety Division, ITS & Signals Management Section, State of North Carolina Department of Transportation

750 N.Greenfield Pkwy,Garner,NC 27529

Plans Prepared By: DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/24/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0019

24-SEP-2018 10:19
R:*U5942*Signals*Design*Wiring*01-0019-08232018e.dgn
rlawton AT CAR-RLAWTON-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 15.3

ECONOLITE ASC/3-2070 LOGIC PROCESSOR
PROGRAMMING DETAIL FOR SIDE STREET PHASING

(program controller as shown)

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [8. LOGIC PROCESSOR]
3. From LOGIC PROCESSOR Submenu select [2. LOGIC STATEMENTS]

ENTER A "1" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```
LP#:   1  COPY FROM:   1  ACTIVE:  M   (T/F)
IF     VEH GREEN ON PH       3      IS    ON

THEN  LP SET LOGIC FLAG      1            ON

ELSE
```

PHASE 3 GREEN SETS
LOGIC FLAG 1 ON
(SIDESTREET BACKUP)

ENTER A "2" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```
LP#:   2  COPY FROM:   2  ACTIVE:  M   (T/F)
IF     LP FLAG               1      IS    ON

THEN  CTR OMIT PHASE        10            ON

ELSE
```

OMIT PHASE 10 SO
PHASE 3 MOVEMENTS
RUN ONCE PER CYCLE

ENTER A "3" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```
LP#:   3  COPY FROM:   3  ACTIVE:  M   (T/F)
IF     VEH GREEN ON PH       2      IS    ON

THEN  LP SET LOGID FLAG      1            OFF

ELSE
```

TURNS LOGIC FLAG 1
OFF TO ALLOW NORMAL
OPERATION

4. From LOGIC PROCESSOR Submenu select [1. LOGIC STATEMENT CONTROL]

ENABLE LOGIC PROCESSOR STATEMENTS 1, 2 & 3 BY POSITIONING THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE THEM.

LOGIC STATEMENT CONTROL

	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5
LP 1-15	E	E	E	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0019
DESIGNED: MARCH 2018
SEALED: 09/24/2018
REVISED: N/A

24-SEP-2018 10:19
R:*U5942*Signals*Design*Wiring*01-0019-08232018e.dgn
rlawton AT CAR-RLAWTON-W7

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 17 (S. Hughes Blvd.) at
US 17 Bus. (W. Ehringhaus St.)/
SR 1145 (Oak Stump Rd.)/
Shopping Center Entrance

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

Plans Prepared By:
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/24/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0019

DocuSign Envelope ID: DF5CE362-E52A-469B-8532-111926D4AE35

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 15.4

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select `4. PREEMPTOR/TSP`
2. From PREEMPTOR/TSP/SCP Submenu select `1. PREEMPT PLAN 1-10`

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```
PREEMPT PLAN [  3]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . X . . X . . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT   12|   2.0|  120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```
PREEMPT PLAN [  4]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH X . . . . X . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT   12|   2.0|  120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```
PREEMPT PLAN [  5]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . X . . . . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT    7|   2.0|  120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```
PREEMPT PLAN [  6]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . . X . . . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP . . .F1 . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT    7|   2.0|  120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0019
DESIGNED: MARCH 2018
SEALED: 09/24/2018
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 4 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (S. Hughes Blvd.) at
US 17 Bus. (W. Ehringhaus St.)/
SR 1145 (Oak Stump Rd.)/
Shopping Center Entrance

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022516 LISA M. MOON

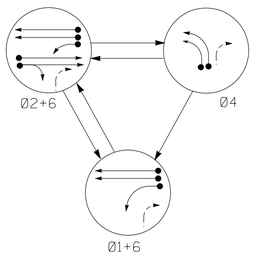
DocuSigned by: Lisa M. Moon 9/24/2018
58CE58BD83D0421
DATE

SIG. INVENTORY NO. 01-0019

24-SEP-2018 10:19
R:*U5942*Signals*Design*Wiring*01-0019-08232018e.dgn
rlawton AT CAR-RLAWTON-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 16.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

EV PREEMPT PHASES

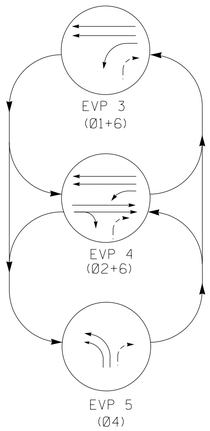
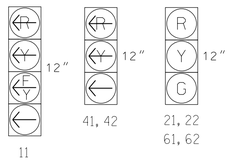


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø2+6	Ø4	EVP 3	EVP 4	EVP 5	FLASH
11	←	←Y	←R	←	←Y	←R	←Y
21, 22	R	G	R	R	G	R	Y
41, 42	←R	←R	←	←R	←R	←	←R
61, 62	G	G	R	G	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



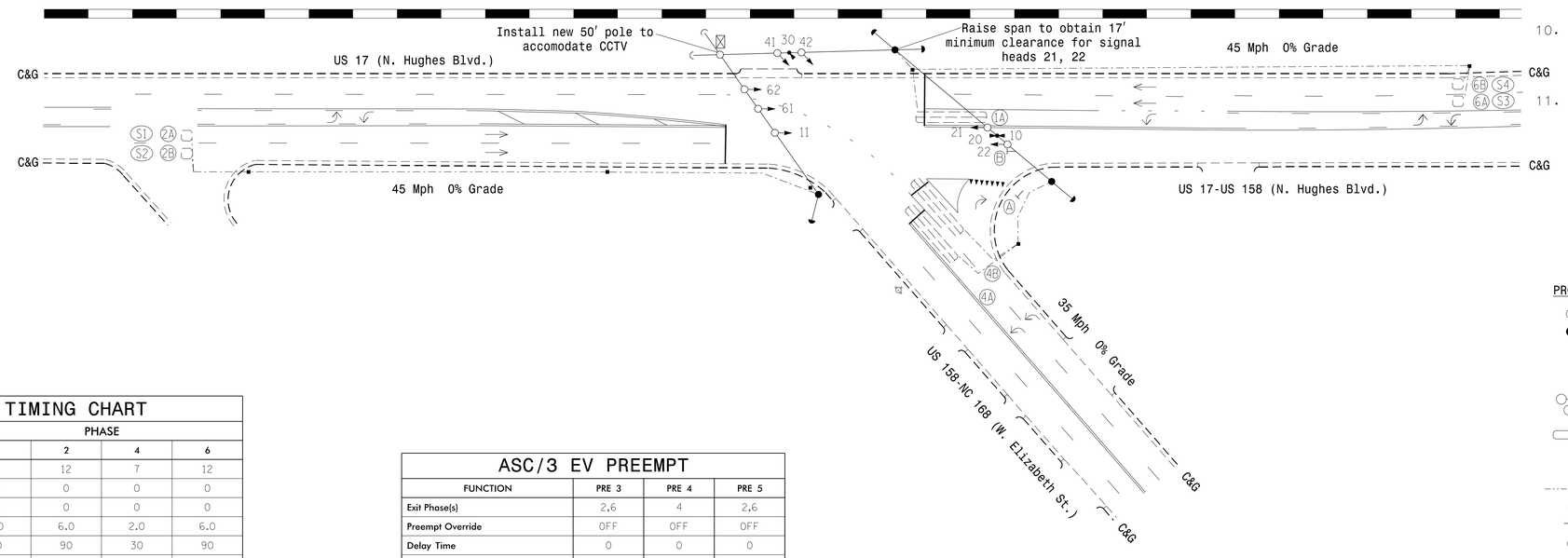
ASC/3 DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	+5	2-4-2	-	1	Yes	-	15	-	S	-	X
				-	6	Yes	-	3	-	G	-	X
2A/S1	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X
2B/S2	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X
4A	6X40	+5	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X40	+5	2-4-2	-	4	Yes	-	-	-	S	-	X
6A/S3	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	X
6B/S4	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	X

3 Phase Fully Actuated w/ EV Preemption (Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Phase 1 may be lagged.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Pavement markings are existing.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Optical detector 10 calls EVP 3:
   Optical detector 20 calls EVP 4:
   Optical detector 30 calls EVP 5:
9. Install new pole directly adjacent to existing pole and raise signal spans to obtain 17' minimum clearance for signal head heights.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Remove existing "Left Turn Yield on Green" ball sign(s)-(R10-12).



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▭↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●
○⤵	Signal Pole with Sidewalk Guy	●⤵
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----------	2-in Underground Conduit	----------
N/A	Right of Way	----------
→	Directional Arrow	→
⋈	Optical Detector	⋈
(A)	"YIELD" SIGN (R1-2)	(A)
(B)	"DOWNTOWN" Sign (D1-1)	(B)

ASC/3 TIMING CHART

FEATURE	PHASE 1	2	4	6
Min Green *	7	12	7	12
Walk *	0	0	0	0
Ped Clear	0	0	0	0
Veh. Extension *	2.0	6.0	2.0	6.0
Max 1 *	30	90	30	90
Yellow	3.0	4.5	3.0	4.5
Red Clear	1.8	1.8	3.6	1.8
Actuations B4 Add *	-	0	-	0
Seconds /Actuation *	-	1.5	-	1.5
Max Initial *	-	34	-	34
Time Before Reduction *	-	15	-	15
Time To Reduce *	-	30	-	30
Minimum Gap	-	3.0	-	3.0
Locking Detector	-	X	-	X
Recall Position	-	VEH RECALL	-	VEH RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

ASC/3 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Exit Phase(s)	2,6	4	2,6
Preempt Override	OFF	OFF	OFF
Delay Time	0	0	0
Ped Clear Through Yellow	N	N	N
Terminate Phases	N	N	N
Entrance Walk	255*	255*	255*
Entrance Ped Clear	255*	255*	255*
Entrance Min Green	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7
Preempt Input Extension Time	2	2	2
Preempt Max Time	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*

* Allows normal phase times to be used.

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:

Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 17-US 158 (N. Hughes Blvd.) at US 158-NC 168 (W.Elizabeth St.)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

SCALE 0 40' 1"=40"

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

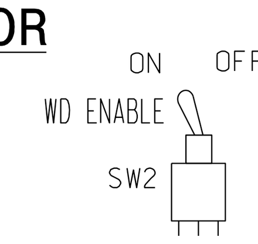
DocuSigned by: Lisa M Moon 8/22/2018
DATE

SIG. INVENTORY NO. 01-0020

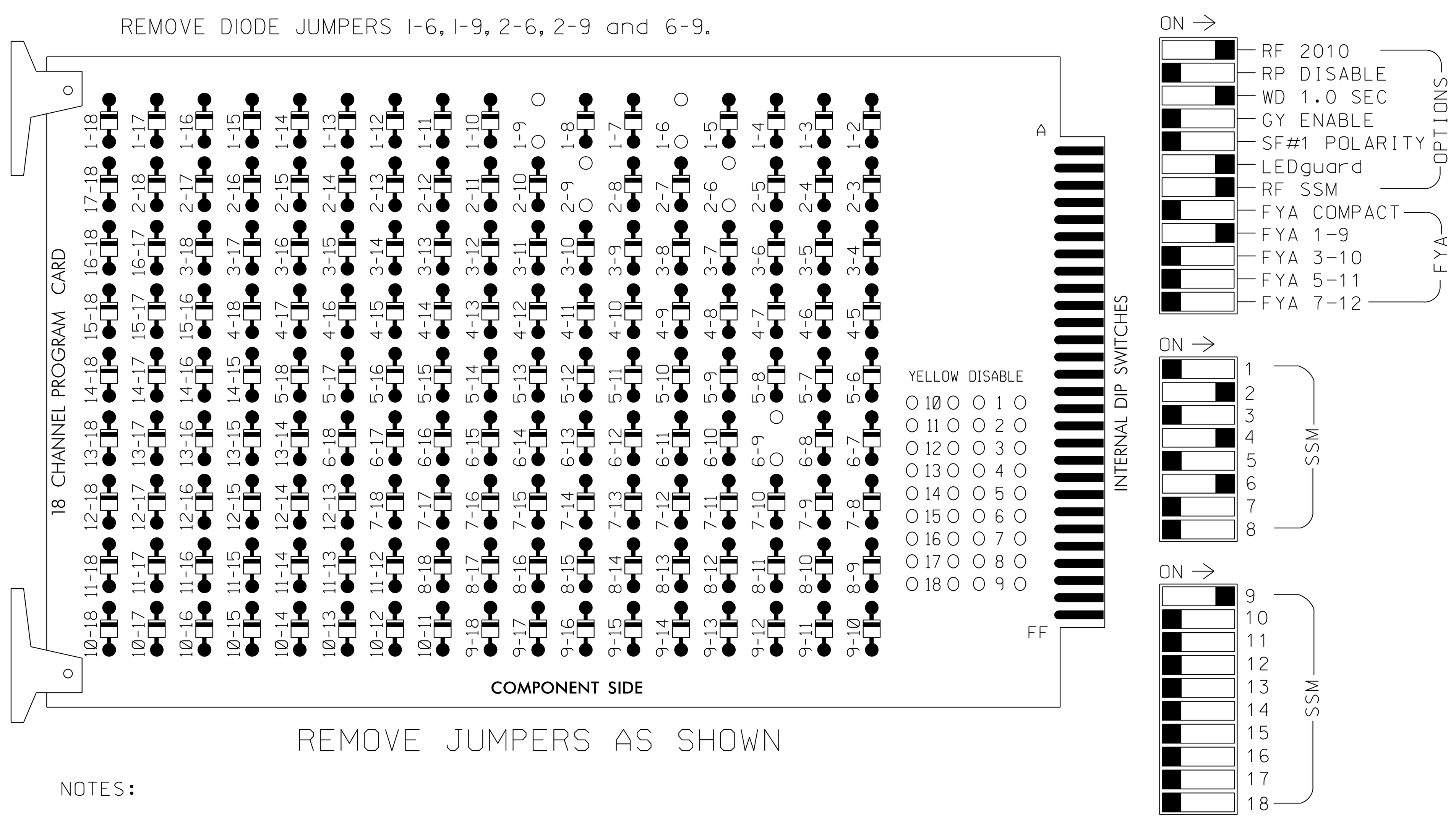
22-AUG-2018 08:59
R:\U5942\Signal\Design\Signals\01-0020.dgn
dwhite AT CAR-DWHITE-LTW7

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-6, 1-9, 2-6, 2-9 and 6-9.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the Elizabeth City Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S5,S8,AUX S1
PHASES USED.............1,2,4,6
OVERLAP "A".............*
OVERLAP "B".............NOT USED
OVERLAP "C".............NOT USED
OVERLAP "D".............NOT USED

* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	NU	NU	11 ★	NU	NU	NU	NU	NU
RED		128						134										
YELLOW	*	129						135										
GREEN		130						136										
RED ARROW					101								A121					
YELLOW ARROW					102								A122					
FLASHING YELLOW ARROW													A123					
GREEN ARROW	127				103													

NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø2/SYS 2A/S1	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2/SYS 2B/S2				Ø 4 4B								ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø6/SYS 6A/S3	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE 3 PRE 4 ** Optical 4 Ch. Card PRE 5 NU		SLOT EMPTY
	L		Ø6/SYS 6B/S4												

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

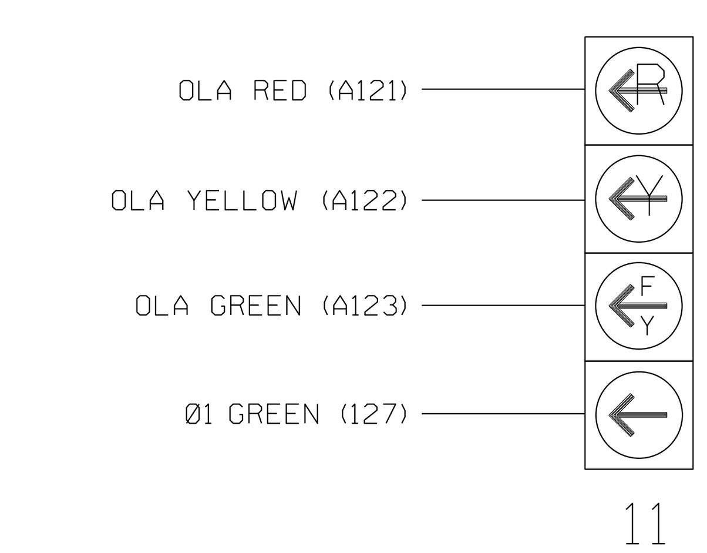
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A[1]	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES		3		G
2A/S1	TB2-5,6	I2U	39	2	2/SYS	YES			X	N
2B/S2	TB2-7,8	I2L	43	12	2/SYS	YES			X	N
4A	TB4-9,10	I6U	41	4	4	YES		3		S
4B	TB4-11,12	I6L	45	14	4	YES				S
6A/S3	TB3-5,6	J2U	40	6	6/SYS	YES			X	N
6B/S4	TB3-7,8	J2L	44	16	6/SYS	YES			X	N

[1] Add jumper from I1-W to J4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



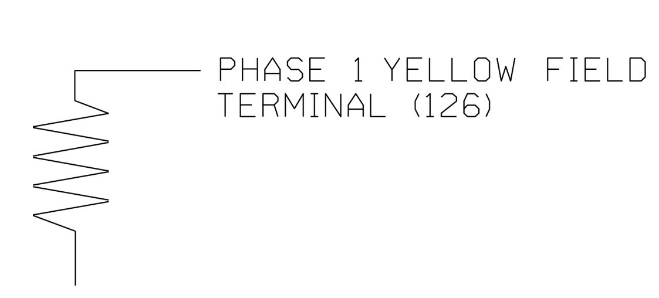
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0020
DESIGNED: MARCH 2018
SEALED: 08/22/2018
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



** OPTICAL PREEMPTION SYSTEM

1. Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
2. Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division - ITS & Signals Management Section - State of North Carolina Department of Transportation
750 N.Greenfield Pkwy, Garner, NC 27529

US 17-US 158
(N. Hughes Blvd.)
at
US 158-NC 168 (W.Elizabeth St.)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0020

20-SEP-2018 18:51
R:*U5942*Signals*Design*Wiring*01-0020-08222018e.dgn
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 16.2

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPTOR/TSP/SCP Submenu select [1. PREEMPT PLAN 1-10]

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```
PREEMPT PLAN [  3]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH X . . . . X . . . . . .
DWEL PED . . . . . .
DWEL OLPF1 . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL   OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    OI    OI     OI25.5I25.5
----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT   12I   2.0I   120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```
PREEMPT PLAN [  4]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . X . . . X . . . . . .
DWEL PED . . . . . .
DWEL OLPF1 . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . . . X . . . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL   OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    OI    OI     OI25.5I25.5
----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT   12I   2.0I   120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```
PREEMPT PLAN [  5]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . . . X . . . . . . . .
DWEL PED . . . . . .
DWEL OLP . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . . . . . .
EXIT CAL . X . . . X . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL     NOITERM PH    NO
PED DARK.. NOITC RESRV   NOIDWELL FL   OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I   255I    1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    OI    OI     OI25.5I25.5
----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT    7I   2.0I   120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0020
DESIGNED: MARCH 2018
SEALED: 08/22/2018
REVISED: N/A

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    1
OPPOSING THROUGH.......   PHASE    2

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.......... 0
```

END PROGRAMMING

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPT/TSP/SCP Submenu select [2. ENABLE PREEMPT FILTERING & TSP/SCP]

```
ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED      SOLID          PULSING
INPUT  1 ...BYPASSED.. ...BYPASSED..
       2 ...BYPASSED.. ...BYPASSED..
       3 ..PREEMPT  3. ...BYPASSED..
       4 ..PREEMPT  4. ...BYPASSED..
       5 ..PREEMPT  5. ...BYPASSED..
       6 ..PREEMPT  6. ...BYPASSED..
       7 ...BYPASSED.. ...BYPASSED..
       8 ...BYPASSED.. ...BYPASSED..
       9 ...BYPASSED.. ...BYPASSED..
      10 ...BYPASSED.. ...BYPASSED..
```

Electrical Detail - Sheet 2 of 2

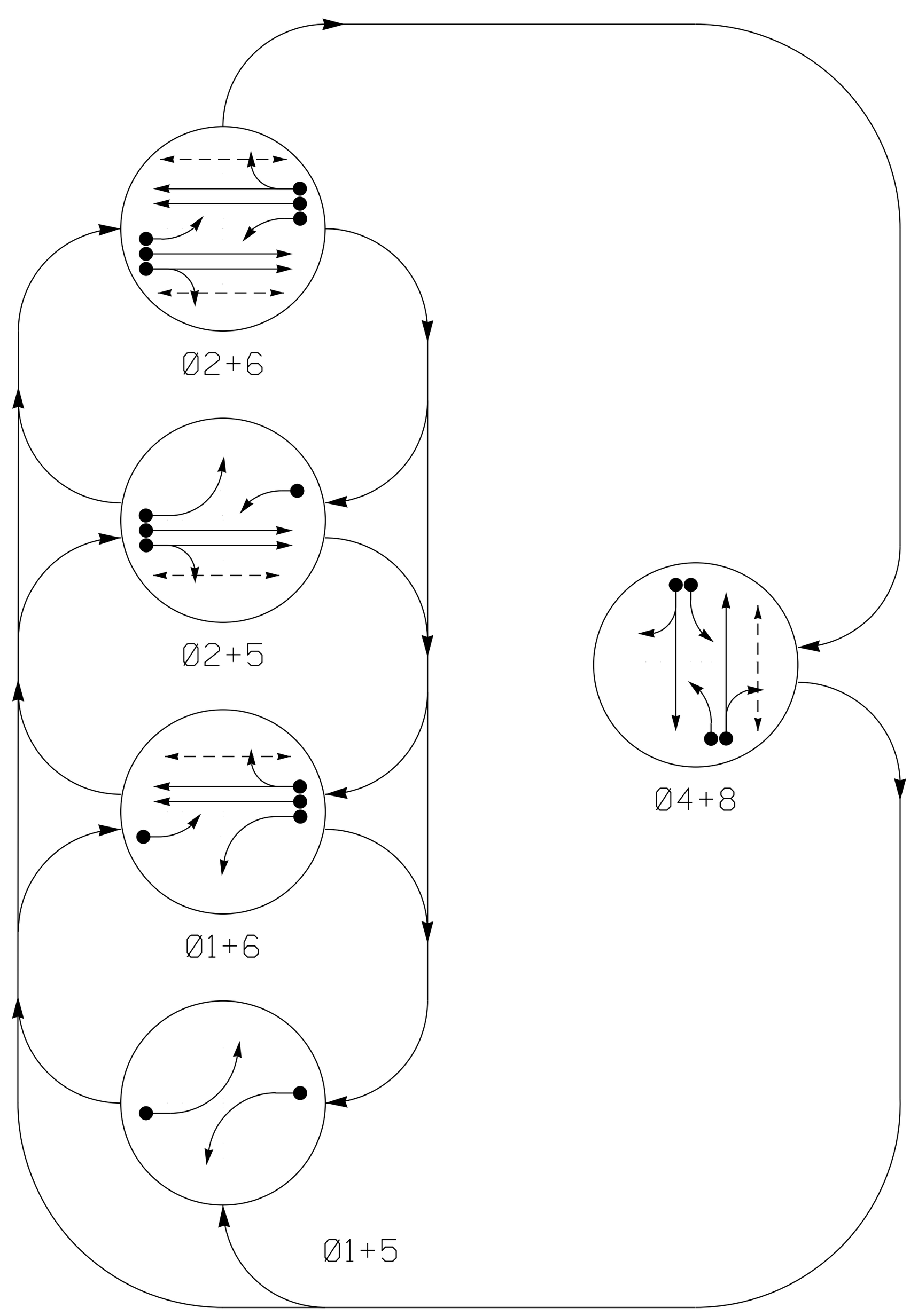
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 17-US 158 (N. Hughes Blvd.) at US 158-NC 168 (W.Elizabeth St.)	SEAL
Prepared for the Offices of: Transportation Mobility and Safety Division, NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, Signals Management Section	Division 1 Pasquotank County Elizabeth City	NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON
750 N.Greenfield Pkwy,Garner,NC 27529	PLAN DATE: March 2018 REVIEWED BY: AJ Davis PREPARED BY: DJ White REVIEWED BY: LM Moon	DocuSigned by: Lisa M Moon 9/20/2018 DATE
	REVISIONS INIT. DATE	SIG. INVENTORY NO. 01-0020

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

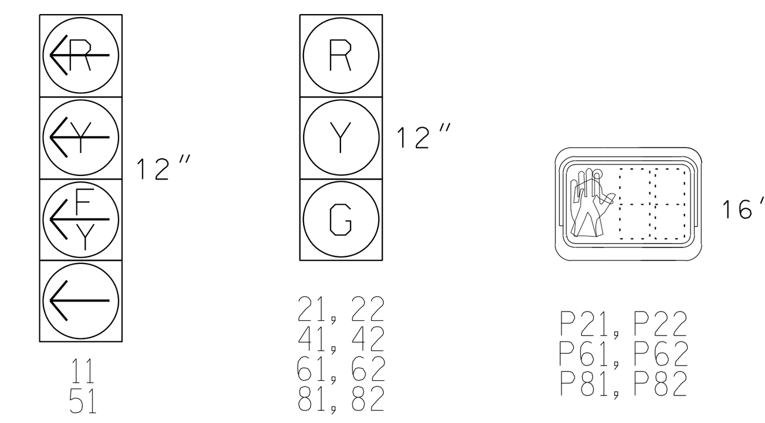
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	←FY	←FY	←R	←Y
21, 22	R	R	G	G	R	Y
41, 42	R	R	R	R	G	R
51	←	←FY	←	←FY	←R	←Y
61, 62	R	G	R	G	R	Y
81, 82	R	R	R	R	G	R
P21, P22	DW	DW	W	W	DW	DRK
P61, P62	DW	W	DW	W	DW	DRK
P81, P82	DW	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



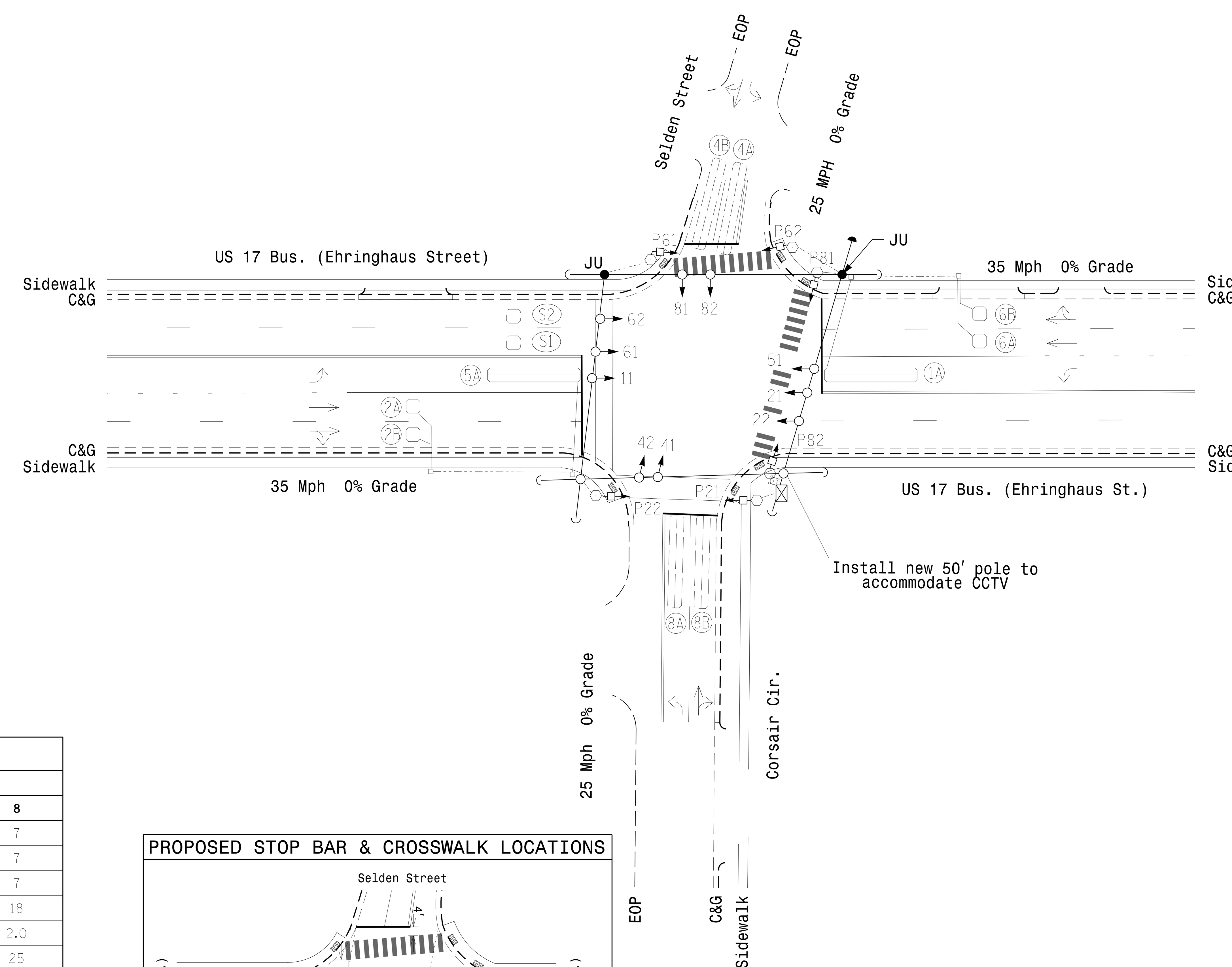
ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	X	1	Yes	-	15	-	S	-	X
					6	Yes	-	-	-	S	-	X
2A	6X40	70	3	X	2	Yes	-	-	-	S	-	X
2B	6X40	70	3	X	2	Yes	-	-	-	S	-	X
4A	6X40	0	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X40	0	2-4-2	-	4	Yes	-	10	-	S	-	X
5A	6X40	0	2-4-2	X	5	Yes	-	15	-	S	-	X
					2	Yes	-	-	-	S	-	X
6A	6X6	70	3	X	6	Yes	-	-	-	S	-	X
6B	6X6	70	3	X	6	Yes	-	-	-	S	-	X
8A	6X40	0	2-4-2	-	8	Yes	-	3	-	S	-	X
8B	6X40	0	2-4-2	-	8	Yes	-	10	-	S	-	X
S1	6X6	+125	4	-	-	-	-	-	-	N	X	X
S2	6X6	+125	4	-	-	-	-	-	-	N	X	X

5 Phase
Fully Actuated
(Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
7. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
8. Program phase 8 ped detector to call phase 4 and 8 ped.
9. Phase 4 ped is dummy ped to enable phase 8 leading ped interval.
10. Pavement markings are existing unless otherwise noted.
11. Install new poles directly adjacent to existing poles and raise signal spans to obtain 17′ minimum clearance for signal head heights.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

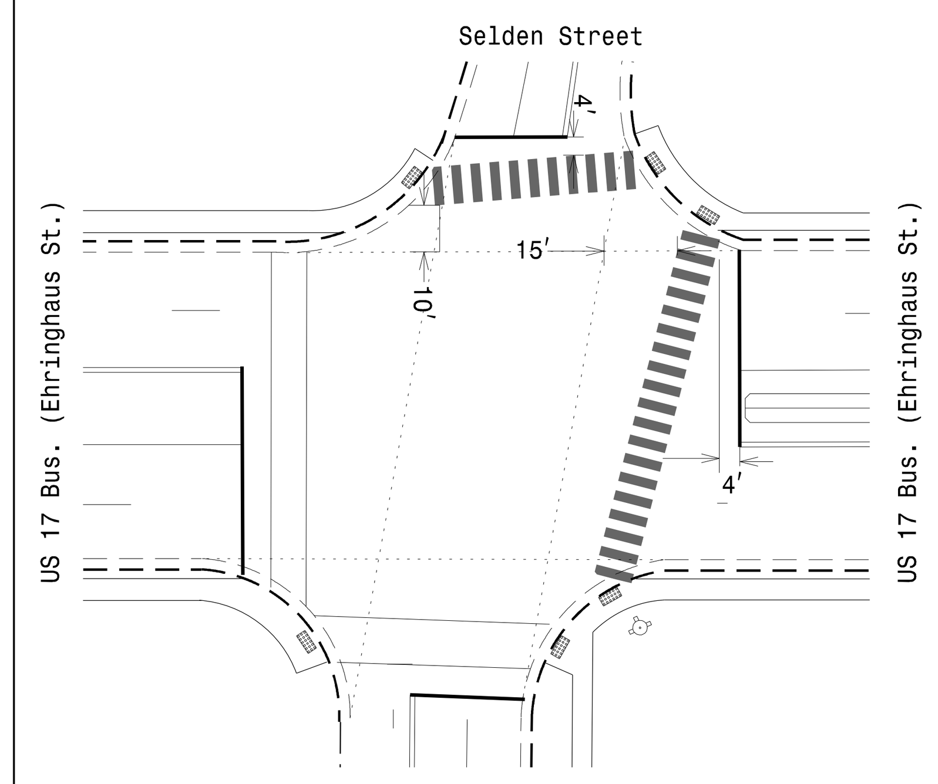
PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Type II Signal Pedestal	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Fire Hydrant	
N/A	Truncated Dome	

ASC/3 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green *	7	10	7	7	10	7
Delayed Green	-	-	7	-	-	7
Walk *	0	7	0	0	7	7
Ped Clear	0	10	0	0	9	18
Veh. Extension *	2.0	3.0	2.0	2.0	3.0	2.0
Max 1 *	25	60	25	25	60	25
Yellow	3.0	3.8	3.2	3.0	3.8	3.2
Red Clear	3.1	2.3	2.9	2.9	2.3	3.0
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Locking Detector	-	X	-	-	X	-
Recall Position	-	VEH. RECALL	-	-	VEH. RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

PROPOSED STOP BAR & CROSSWALK LOCATIONS



21-AUG-2018 17:03
R:*U5942*Signals*Design*Signals*01-0022.dgn
lmoon AT CAR-LMOON1-W7

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 17 Bus. (Ehringhaus St.) at Selden St.

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

SCALE 0 40′ 1″=40′

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

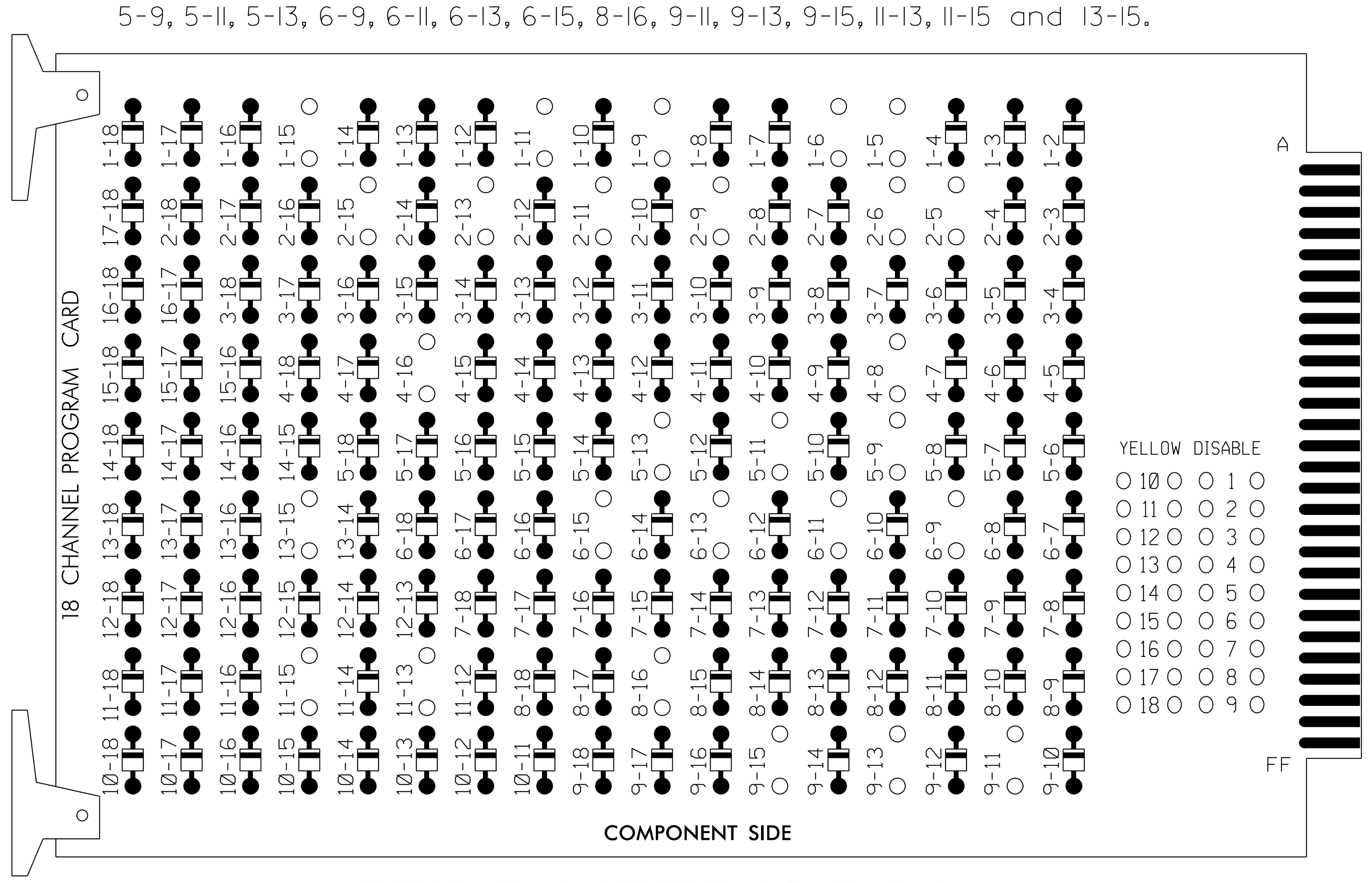
DocuSigned by: Lisa M. Moon
58CE58BD83D0421...
8/21/2018
DATE

SIG. INVENTORY NO. 01-0022

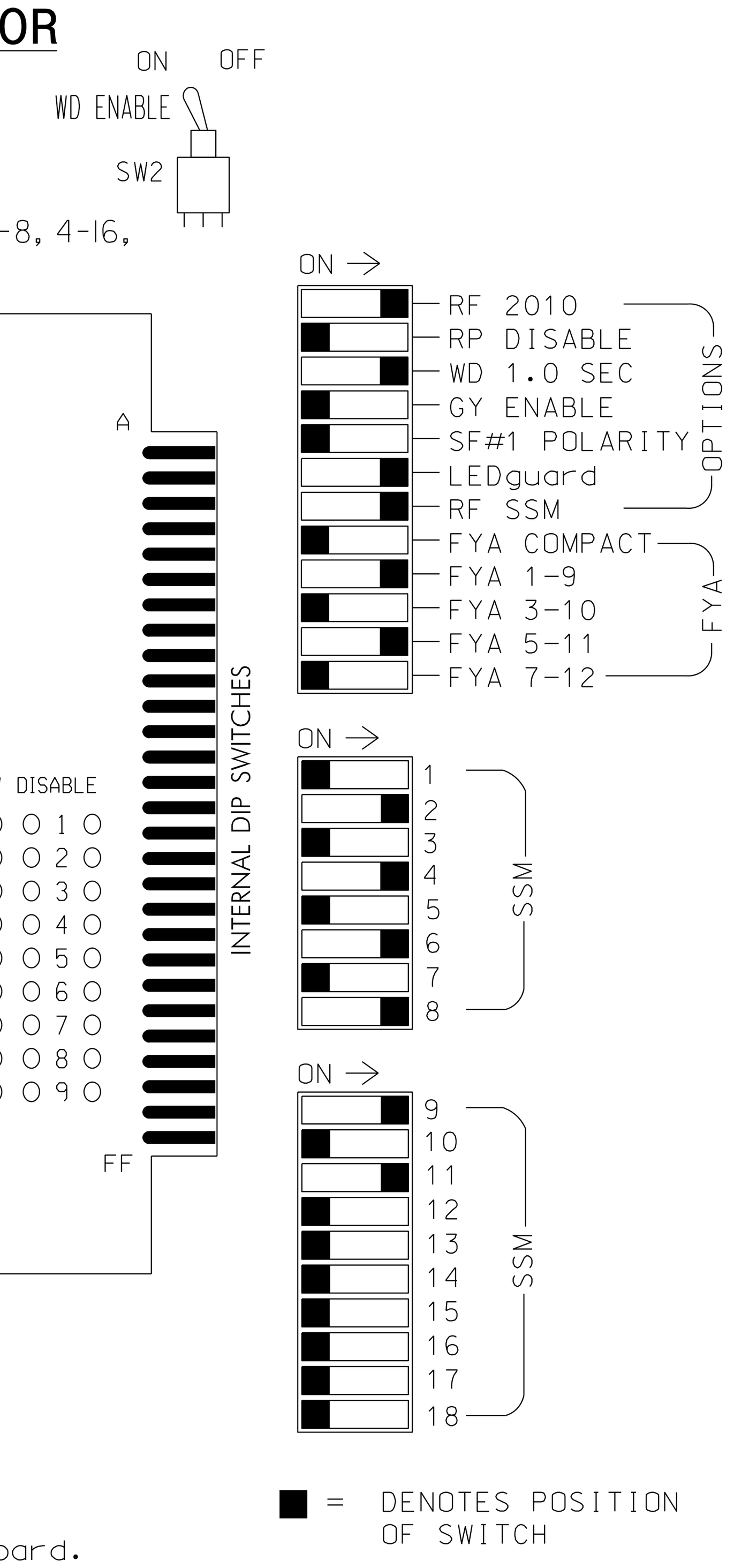
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 4-8, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 8-16, 9-11, 9-13, 9-15, 11-13, 11-15 and 13-15.



REMOVE JUMPERS AS SHOWN



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Walk and 6 Walk.
4. The cabinet and controller are part of the Elizabeth City Signal System.
5. Ensure Delayed Green times shown in the Timing Chart on the signal design plan are accounted for to facilitate leading pedestrian interval.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S3,S5,S7,S8,S9,S11, S12, AUX S1,AUX S4
PHASES USED.............1,2,2PED,4,5,6,6PED, 8,8PED
OVERLAP "A".............*
OVERLAP "B".............NOT USED
OVERLAP "C".............*
OVERLAP "D".............NOT USED
* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	21,22	P21, P22	NU	41,42	NU	51 ★	61,62	P61, P62	NU	81,82	P81, P82	11 ★	NU	NU	51 ★	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127						133											
(Don't Walk hand)			113						119			110						
(Walk person)			115						121			112						

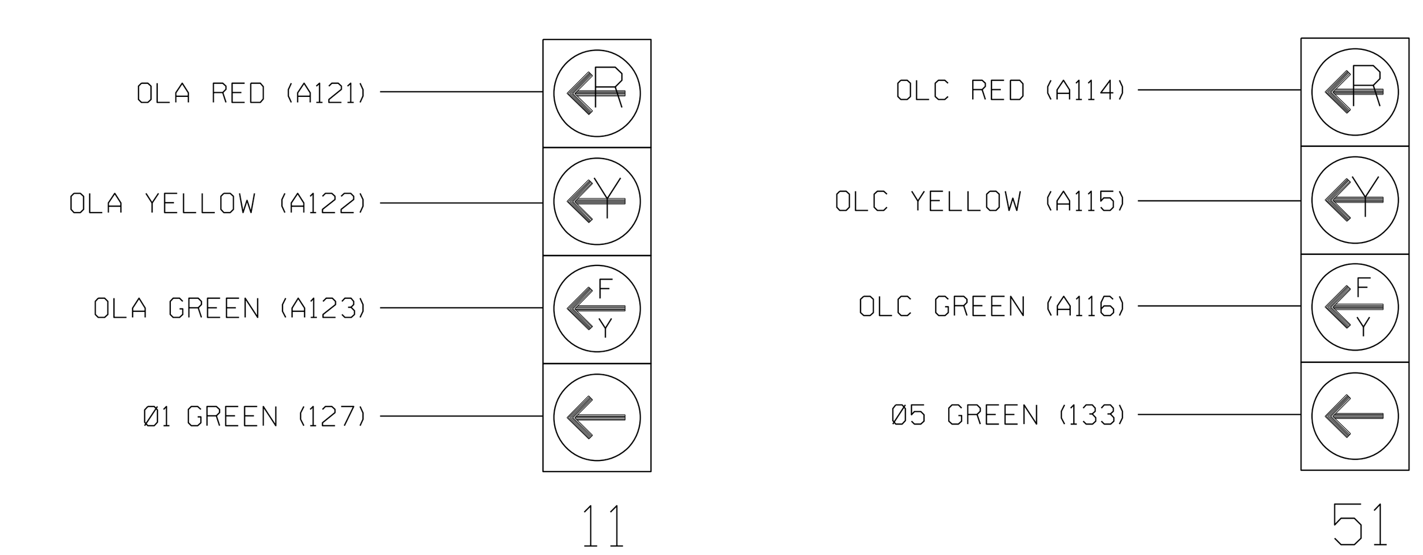
NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 2 2A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S1	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED	Ø 2 2B				Ø 4 4B			SYS. DET. S2			NOT USED	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø 8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø 6 6B				Ø 8 8B								

EX.: 1A, 2A, ETC. = LOOP NO.'S
⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A [1]	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES				S
2A	TB2-5,6	I2U	39	2	2	YES				S
2B	TB2-7,8	I2L	43	12	2	YES				S
4A	TB4-9,10	I6U	41	4	4	YES		3		S
4B	TB4-11,12	I6L	45	14	4	YES		10		S
* S1	TB6-9,10	I9U	60	11	SYS	NO				N
* S2	TB6-11,12	I9L	62	13	SYS	NO				N
5A [2]	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES				S
6A	TB3-5,6	J2U	40	6	6	YES				S
6B	TB3-7,8	J2L	44	16	6	YES				S
8A	TB5-9,10	J6U	42	8	8	YES		3		S
8B	TB5-11,12	J6L	46	18	8	YES		10		S
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED					

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

[1] Add jumper from I1-W to J4-W, on rear of input file.

[2] Add jumper from J1-W to I4-W, on rear of input file.

* System detector only. Remove any assigned vehicle phase.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

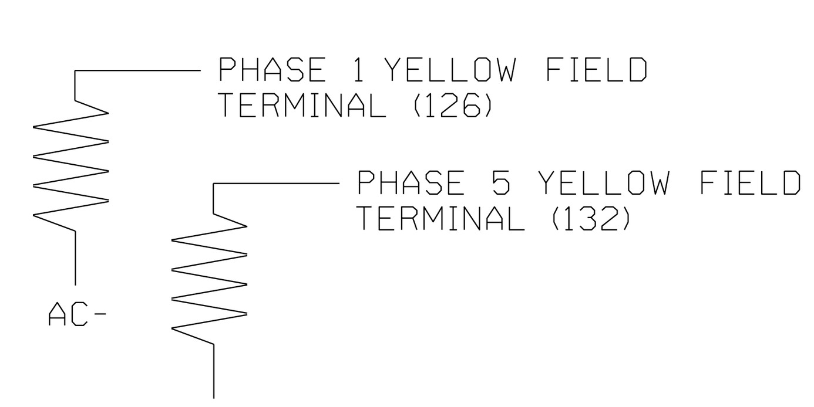
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0022
DESIGNED: FEBRUARY 2018
SEALED: 08/21/2018
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 17 Bus. (Ehringhaus St.) at Selden St.

Division 1 Pasquotank County Elizabeth City

Prepared for the Offices of:
Transportation Mobility and Safety Division, ITS & Signals Management Section, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE: February 2018	REVIEWED BY: AJ Davis
PREPARED BY: DJ White	REVIEWED BY: LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 58CE58BD83D0421 9/20/2018 DATE

SIG. INVENTORY NO. 01-0022

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    1
OPPOSING THROUGH.......   PHASE    2

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

Toggle Twice

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

```
TMG VEH OVLP...[C] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    5
OPPOSING THROUGH.......   PHASE    6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

END PROGRAMMING

ECONOLITE ASC/3-2070 PED 4 PROGRAMMING ASSIGNMENT DETAIL

(program controller as shown)

1. From Main Menu select [6. DETECTORS]
2. From DETECTOR Submenu select [3. PED DETECTOR INPUT ASSIGNMENT]

PED DET PHASE ASSIGNMENT MODE: NTCIP

PHASE	1	2	3	4	5	6	7	8
DETECTOR	0	2	0	8	0	6	0	8

PHASE	9	10	11	12	13	14	15	16
DETECTOR	0	0	0	0	0	0	0	0

NOTICE PED DETECTOR 8 ASSIGNED TO PHASE 4 & 8

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0022
DESIGNED: FEBRUARY 2018
SEALED: 08/21/2018
REVISED: N/A

Electrical Detail - Sheet 2 of 2

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 Bus. (Ehringhaus St.)
at
Selden St.

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

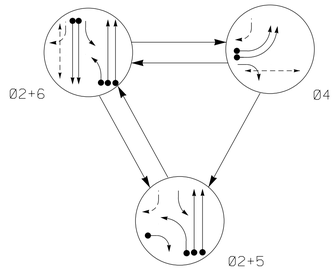
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0022

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 18.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

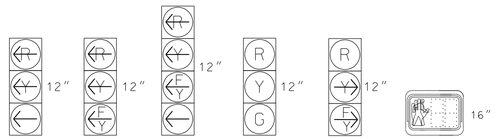
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	PHASE Ø2+6	PHASE Ø4	FLASH
21, 22	G	G	R	Y
41, 42	←R	←R	←	←R
43	F↓	R	F↓	R
51	←	F↓	←R	←Y
61	F↓	F↓	←R	←Y
62, 63	R	G	R	Y
P41, P42	DW	DW	W	DRK
P61, P62	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 DETECTOR INSTALLATION CHART

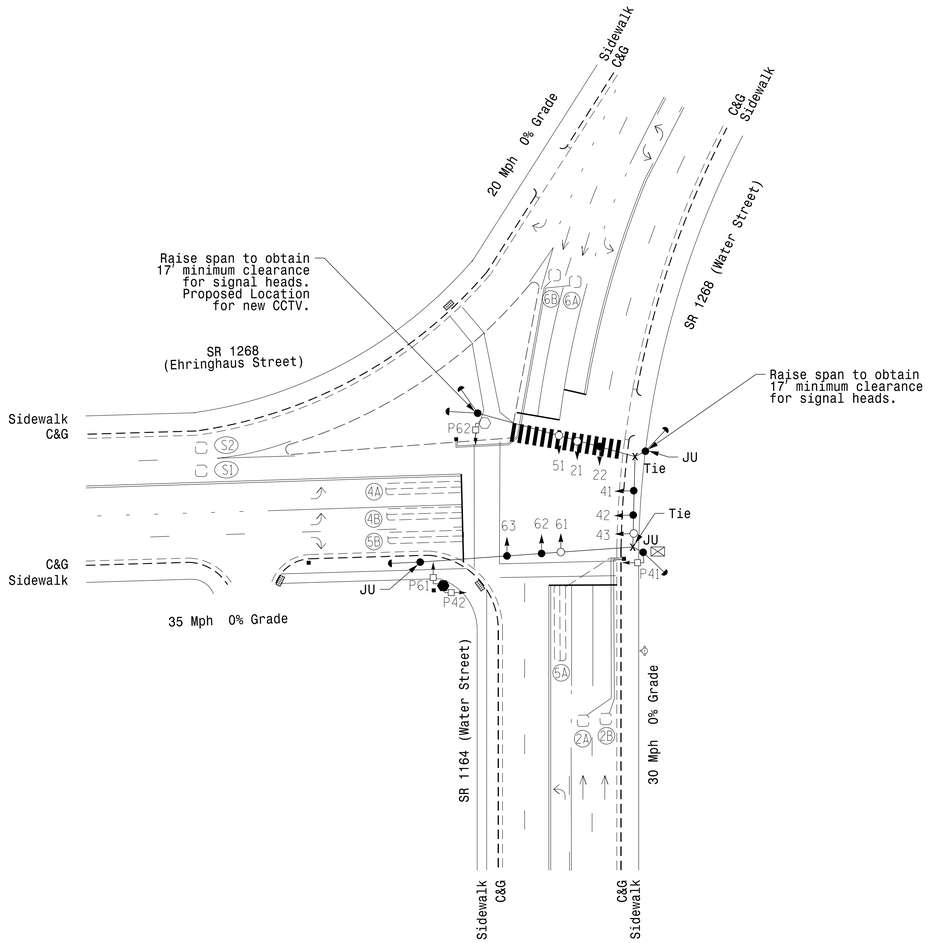
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
2A	6X6	70	EXIST	-	2	Yes	-	-	-	S	-	X
2B	6X6	70	EXIST	-	2	Yes	-	-	-	S	-	X
4A	6X40	0	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X40	0	2-4-2	-	4	Yes	-	-	-	S	-	X
5A	6X40	0	2-4-2		5	Yes	-	15	-	S	-	X
					2	Yes	-	-	-	S	-	X
5B	6X40	0	2-4-2	-	5	Yes	-	15	-	S	-	X
6A	6X6	70	EXIST	-	6	Yes	-	-	-	S	-	X
6B	6X6	70	EXIST	-	6	Yes	-	-	-	S	-	X
S1*	6X6	+125	EXIST	-	-	No	-	-	-	N	X	X
S2*	6X6	+125	EXIST	-	-	No	-	-	-	N	X	X

*Measured from Edge of Crosswalk Across Ehringhaus St.

3 Phase
Fully Actuated
(Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
9. Pavement markings are existing.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Metal Strain Pole	
N/A	Fire Hydrant	
N/A	Truncated Domes	
	Type II Signal Pedestal	

ASC/3 TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 5	PHASE 6
Min Green *	10	7	7	10
Delayed Green *	-	7	-	-
Walk *	0	7	0	7
Ped Clear	0	19	0	18
Veh. Extension *	3.0	2.0	2.0	3.0
Max 1 *	60	60	15	60
Yellow	3.5	3.0	3.0	3.5
Red Clear	2.3	2.9	2.6	2.3
Actuations B4 Add *	-	-	-	-
Seconds /Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	X	-	-	X
Recall Position	VEH. RECALL	-	-	VEH. RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

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8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 1268 (Water St.)/
SR 1164 (Water St.)
at
SR 1268 (Ehringhaus St.)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

SCALE 0 40' 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022516 LISA M. MOON

DocuSigned by: Lisa M. Moon 8/21/2018
DATE

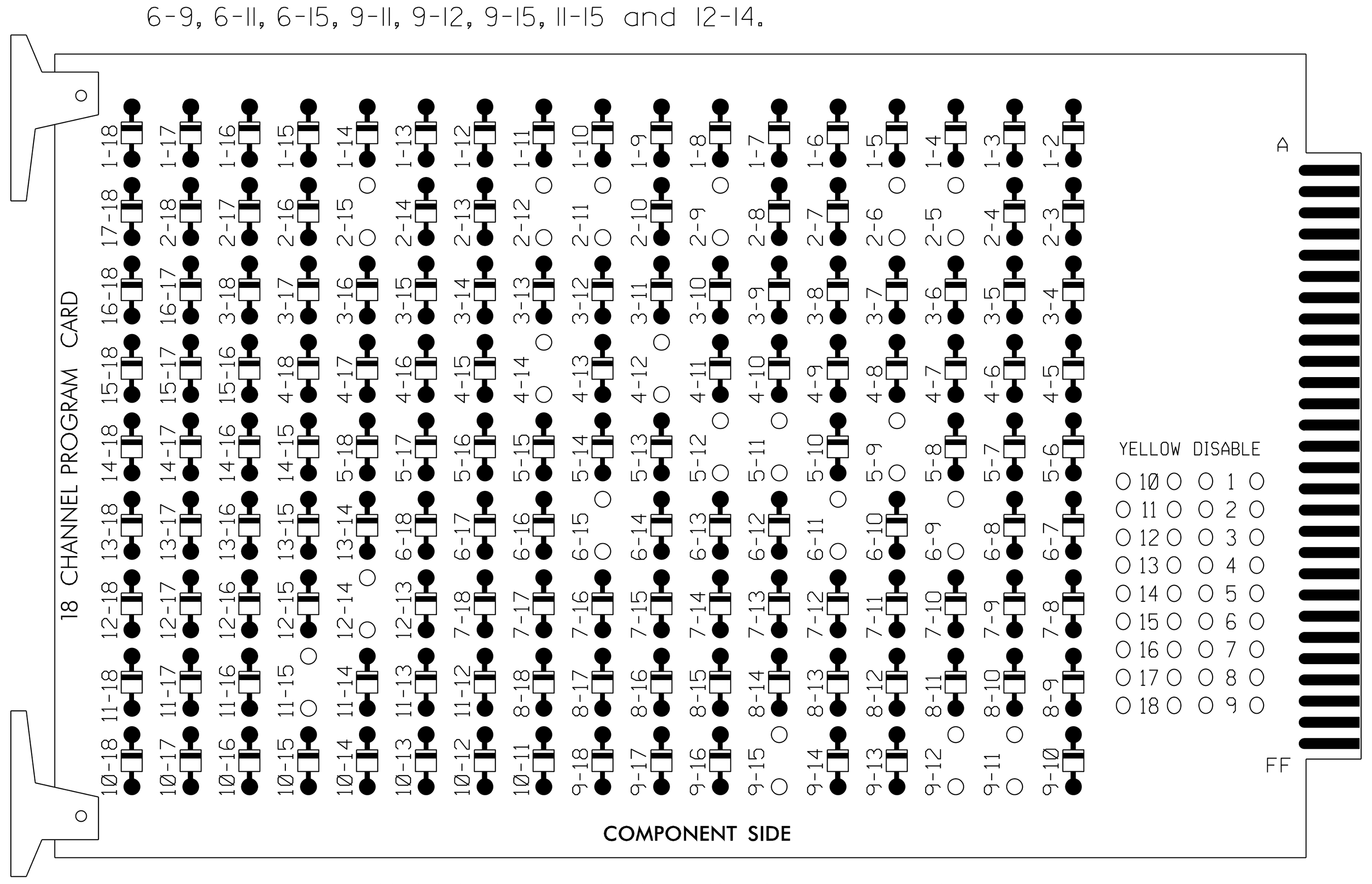
SIG. INVENTORY NO. 01-0024

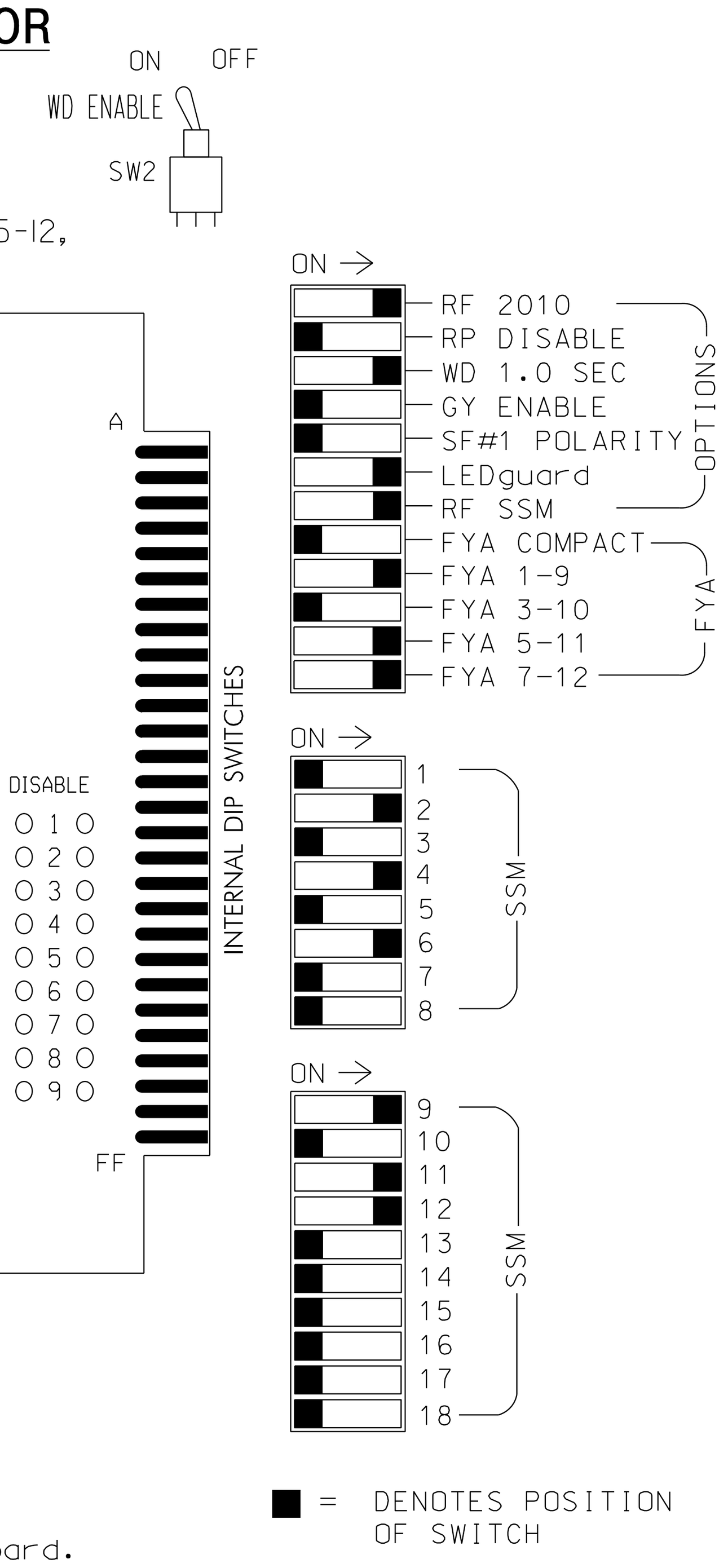
PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 18.1

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-5, 2-6, 2-9, 2-11, 2-12, 2-15, 4-12, 4-14, 5-9, 5-11, 5-12, 6-9, 6-11, 6-15, 9-11, 9-12, 9-15, 11-15 and 12-14.





REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 GREEN and 6 WALK.
3. The cabinet and controller are part of the Elizabeth City Signal System.
4. Ensure Delayed Green times shown in the Timing Chart on the signal design plan are accounted for to facilitate leading pedestrian interval.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S2, S5, S6, S7, S8, S9, AUX S1, AUX S4, AUX S5
PHASES USED.............2, 4, 4PED, 5, 6, 6PED
OVERLAP "A".............*
OVERLAP "B".............NOT USED
OVERLAP "C".............*
OVERLAP "D".............*

* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	P41, P42	51 ★	62,63	P61, P62	NU	NU	NU	61 ★	NU	NU	51 ★	43 ★	NU
RED		128						134									A101	
YELLOW		129					✳	135										
GREEN		130						136										
RED ARROW					101								A121			A114		
YELLOW ARROW					102								A122			A115	A102	
FLASHING YELLOW ARROW													A123			A116	A103	
GREEN ARROW					103		133											
(DON'T WALK symbol)						104			119									
(WALK symbol)						106			121									

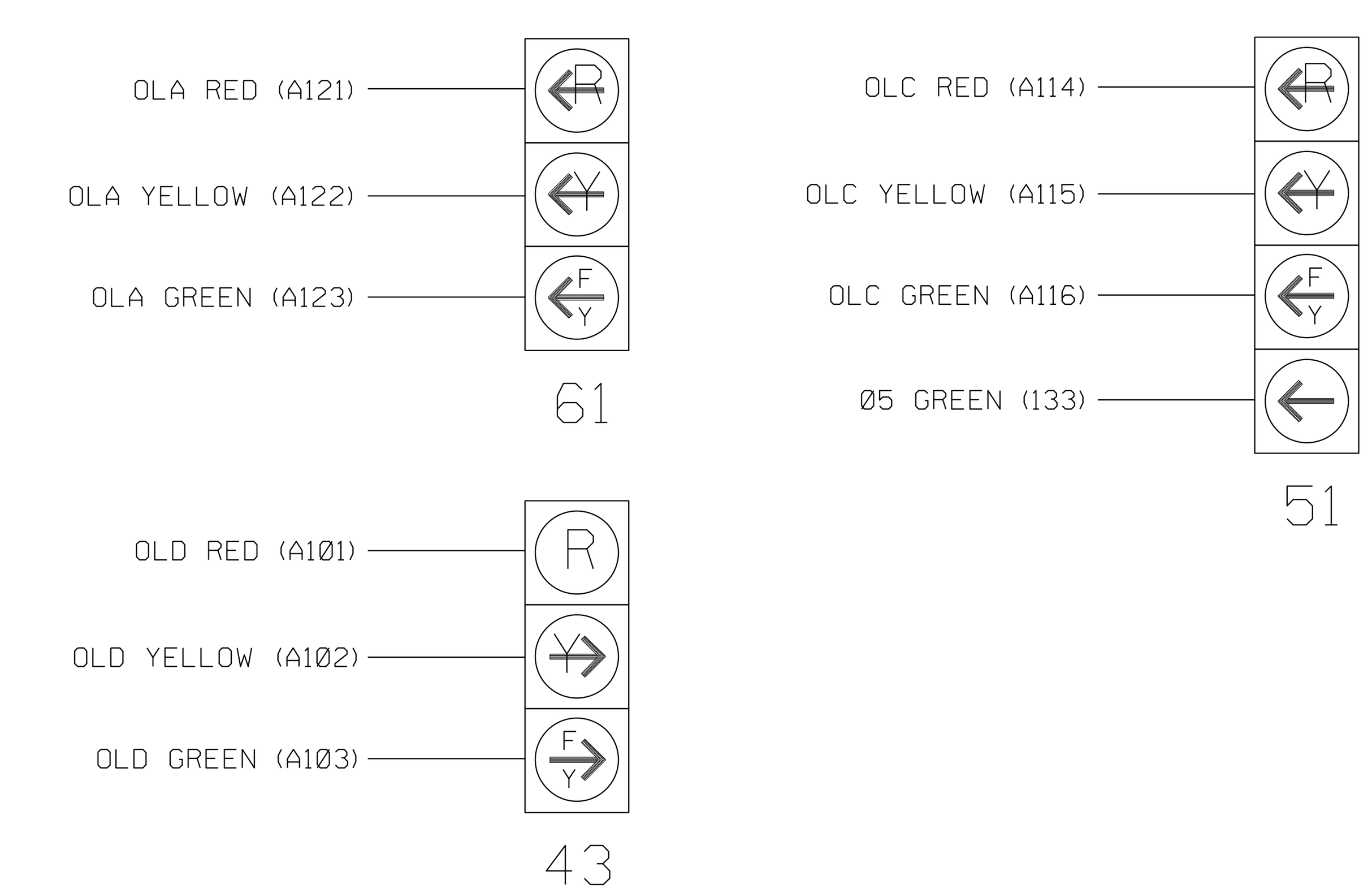
NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	Ø 2 2A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S1	SLOT EMPTY	SLOT EMPTY	NOT USED	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L		Ø 2 2B				Ø 4 4B			SYS. DET. S2			Ø4 PED DC ISOLATOR	NOT USED	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 5 5B	Ø 6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	NOT USED	Ø 6 6B											

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
2A	TB2-5,6	I2U	39	2	2	YES				S
2B	TB2-7,8	I2L	43	12	2	YES				S
4A	TB4-9,10	I6U	41	4	4	YES		3		S
4B	TB4-11,12	I6L	45	14	4	YES				S
* S1	TB6-9,10	I9U	60	11	SYS	NO				N
* S2	TB6-11,12	I9L	62	13	SYS	NO				N
5A[1]	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES				S
5B	TB3-5,6	J2U	40	6	6	YES		15		S
6A	TB3-9,10	J3U	64	36	6	YES				S
6B	TB3-7,8	J3L	77	16	6	YES				S
PED PUSH BUTTONS										
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

[1] Add jumpers from J1-W to I4-W, on rear of input file.

* System detector only. Remove any assigned vehicle phase.

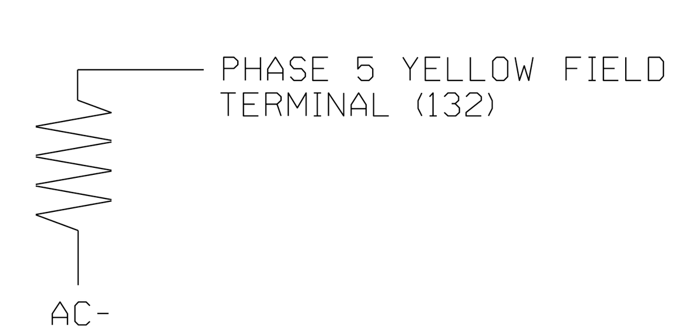
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0024
DESIGNED: FEBRUARY 2018
SEALED: 08/21/2018
REVISED: N/A

Plans Prepared By:

DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

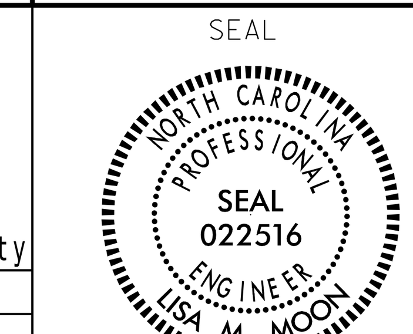
SR 1268 (Water St.)/
SR 1164 (Water St.)
at
SR 1268 (Ehringhaus St.)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL



DocuSigned by:
Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0024

20-SEP-2018 18:51
R:*U5942*Signals*Design*Wiring*01-0024-08212018e.dgn
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 18.2

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP A

Select TMG VEH OVLP [A] and 'OTHER/ECONOLITE'

```
TMG VEH OVLP...[A] TYPE:OTHER/ECONOLITE
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . X . . . . . . . . . . . . . .
PROTECT  . . . . . . . . . . . . . . . .
PED PRTC . . . . . . . . . . . . . . . .
NOT OVLP . . . . . . . . . . . . . . . .
FLSH GRN . 1 . . . . . . . . . . . . . .
LAG X PH . . . . . . . . . . . . . . . .
LAG 2 PH . . . . . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0
```

Toggle Twice

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

```
TMG VEH OVLP...[C] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    5
OPPOSING THROUGH.......   PHASE    6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

Toggle Once

OVERLAP D

Select TMG VEH OVLP [D] and 'OTHER/ECONOLITE'

```
TMG VEH OVLP...[D] TYPE:OTHER/ECONOLITE
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . . X X . . . . . . . . . . .
PROTECT  . . . . . . . . . . . . . . . .
PED PRTC . . . . . . . . . . . . . . . .
NOT OVLP . . . . . . . . . . . . . . . .
FLSH GRN . . . 1 1 . . . . . . . . . . .
LAG X PH . . . . . . . . . . . . . . . .
LAG 2 PH . . . . . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0
```

END PROGRAMMING

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0024
DESIGNED: FEBRUARY 2018
SEALED: 08/21/2018
REVISED: N/A

Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1268 (Water St.)/
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at
SR 1268 (Ehringhaus St.)

Division 1 Pasquotank County Elizabeth City

PLAN DATE: February 2018	REVIEWED BY: AJ Davis
PREPARED BY: DJ White	REVIEWED BY: LM Moon

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

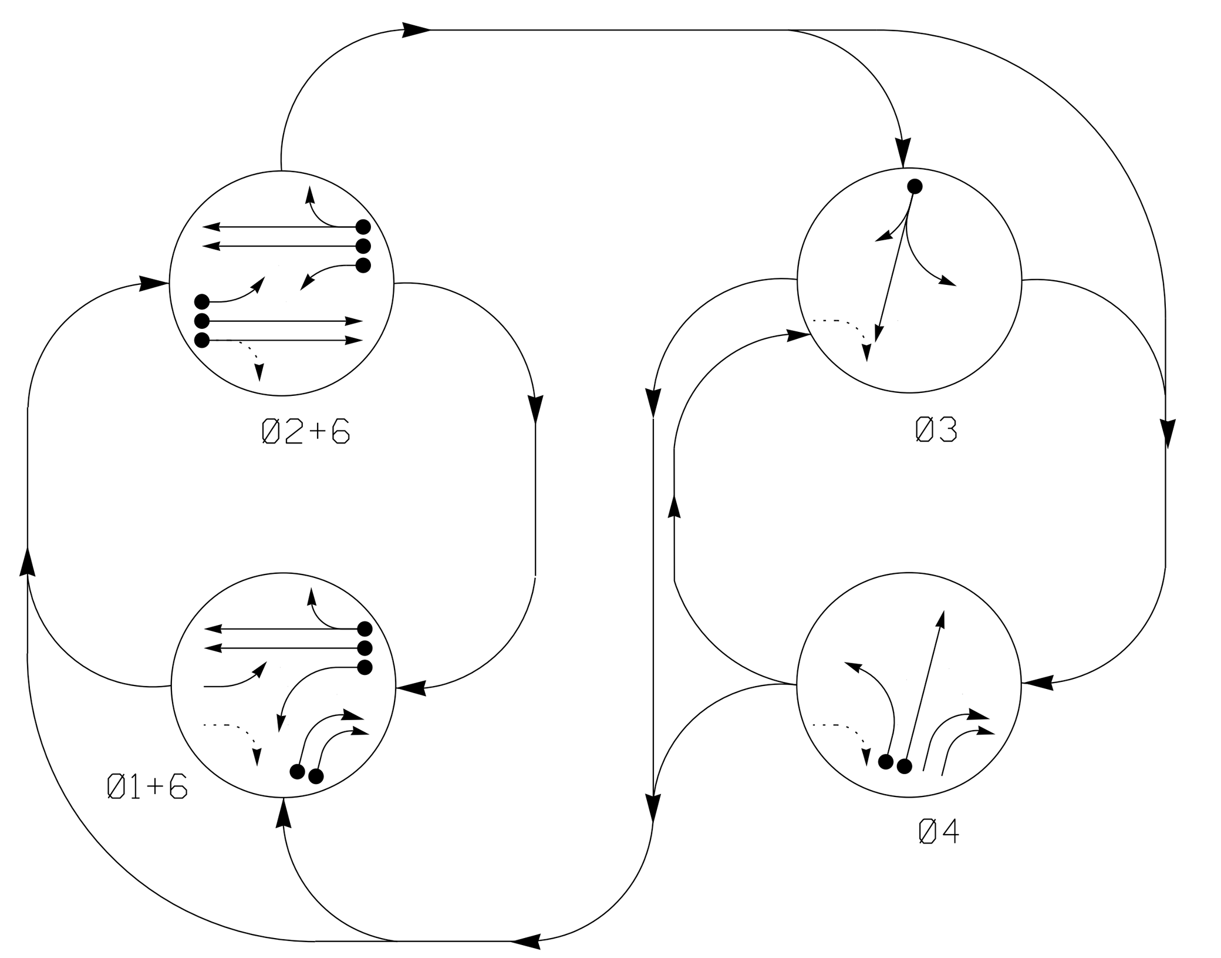
DocuSigned by: Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0024

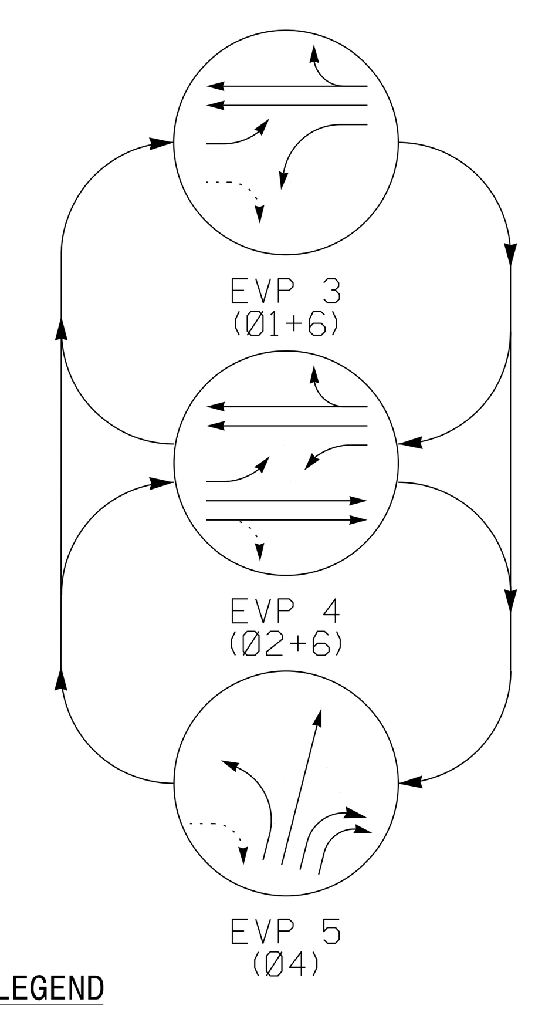
20-SEP-2018 18:51
R:*U5942*Signals*Design*Wiring*01-0024-08212018e.dgn
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 19.0

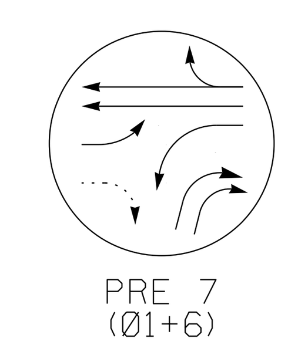
PHASING DIAGRAM



EV PREEMPT PHASES



BACKUP PREEMPT PHASES



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø2+6	Ø3	Ø4	EVP3	EVP4	EVP5	PRE7	FLASH
11	←	FY	←R	←R	←	FY	←R	←	←R
21	←FY	←FY	←R	←R	←FY	←FY	←R	←FY	←R
22,23	R	G	R	R	R	G	R	R	Y
31	R	R	G←	R	R	R	R	R	R
32	R	R	G	R	R	R	R	R	R
41	R	R	R	G←	R	R	G←	R	R
42	R	R	R	G	R	R	G	R	R
43, 44	↗	R	R	↗	R	R	↗	↗	R
61, 62, 63	G	G	R	R	G	G	R	G	Y

ASC/3 DETECTOR INSTALLATION CHART

DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X60	+5	2-4-2	-	1	Yes	-	15	-	S	-	X
					6	Yes	-	3	-	G	-	X
1B	6X60	+5	2-4-2	-	1	Yes	-	15✱	-	S	-	X
1C	6X60	+5	2-4-2	-	1	Yes	-	15✱	-	S	-	X
1D	6X6	180	EXIST	-	Pre7	-	-	5	-	N	-	X
2A	6X6	300	EXIST	-	2	Yes	-	-	X	N	-	X
2B	6X6	300	EXIST	-	2	Yes	-	-	X	N	-	X
2C	6X60	+5	2-4-2	-	2	Yes	-	3	-	S	-	X
3A	6X60	+5	2-4-2	-	3/10	Yes	-	-	-	S	-	X
4A	6X60	+5	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X60	+5	2-4-2	-	4	Yes	-	-	-	S	-	X
6A	6X6	300	EXIST	-	6	Yes	-	-	X	N	-	X
6B	6X6	300	EXIST	-	6	Yes	-	-	X	N	-	X

✱ Disable Delay From 6:00a.m. to 7:00p.m.

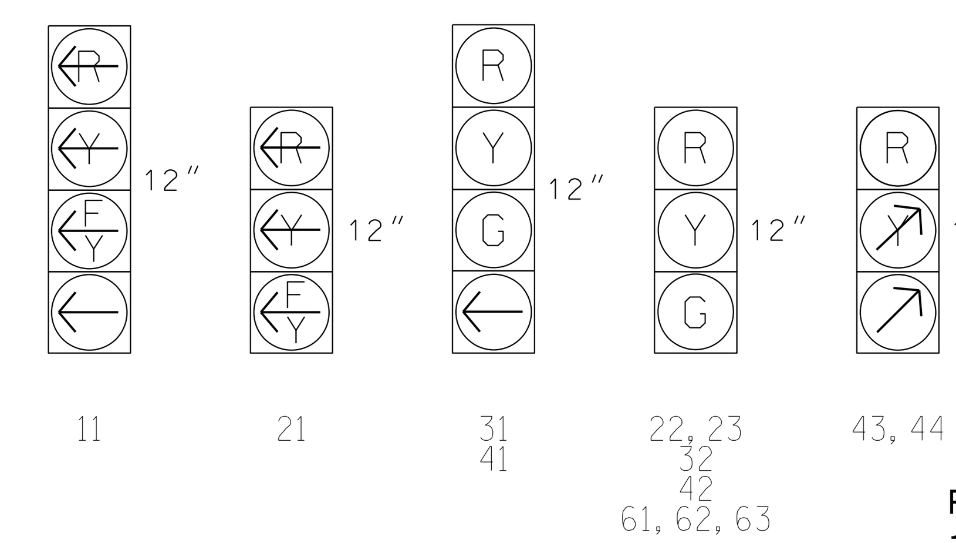
4 Phase Fully Actuated W/ EV Preemption (Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Pavement markings are existing.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Relocate existing optical detection equipment from existing cabinet to new cabinet.
9. Optical detector 10 calls EVP3; Optical detector 20 calls EVP4; Optical detector 30 calls EVP5.
10. Install new poles directly adjacent to existing poles and raise signal spans to obtain 17' minimum clearance for signal head heights.
11. Loop 1D serves as queue backup detector. After 5 seconds of constant actuation, the detector unit places a call to the controller to preempt normal operation to clear out the storage lanes.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

SIGNAL FACE I.D.

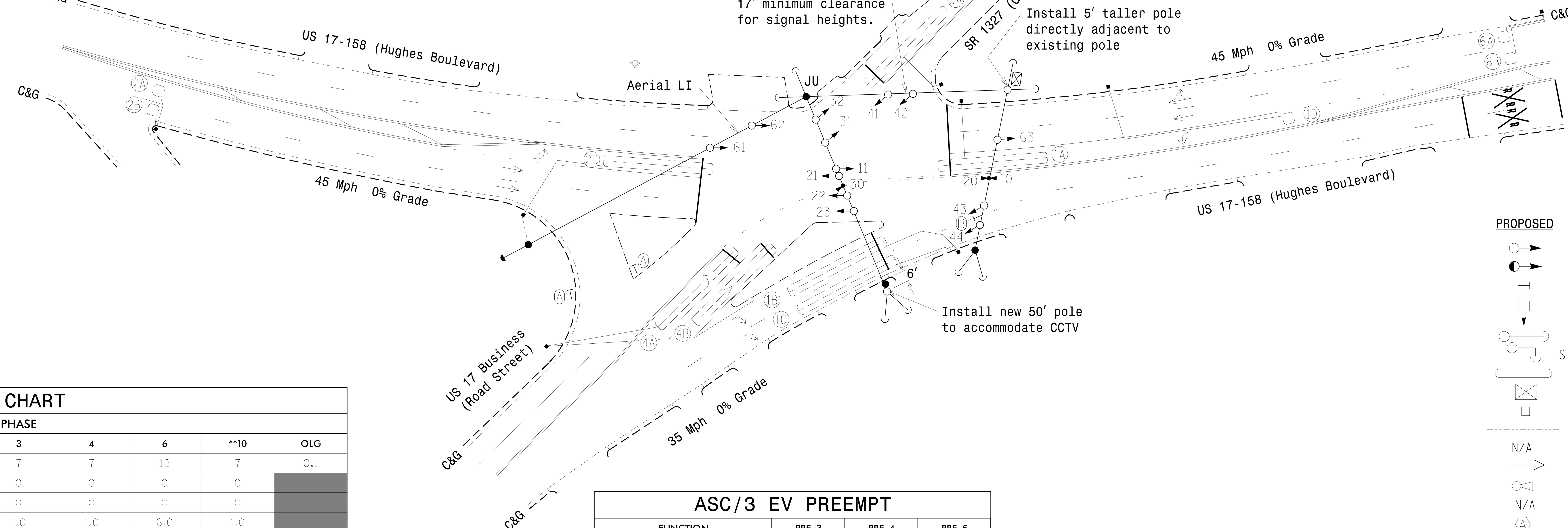
All Heads L.E.D.



ASC/3 BACKUP PREEMPT

FUNCTION	PRE 7
Exit Phase(s)	2,6
Preempt Override	OFF
Delay Time	0
Ped Clear Through Yellow	N
Terminate Phases	N
Entrance Walk	255✱
Entrance Ped Clear	255✱
Entrance Min Green	1
Entrance Yellow Change	25.5✱
Entrance Red Clear	25.5✱
Minimum Dwell Time	25
Exit Yellow Change	25.5✱
Exit Red Clear	25.5✱

* Time defaults to time used for phase during normal operation.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Optical Detector	
N/A	Fire Hydrant	
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ
Ⓑ	NO TURN ON RED 6:00A.M.-7:00P.M. (R10-11)	Ⓑ

ASC/3 TIMING CHART

FEATURE	PHASE 1	2	3	4	6	**10	OLG
Min Green *	7	12	7	7	12	7	0.1
Walk *	0	0	0	0	0	0	
Ped Clear	0	0	0	0	0	0	
Veh. Extension *	1.0	6.0	1.0	1.0	6.0	1.0	
Max 1 *	30	90	15	30	90	15	
Yellow	3.0	4.5	3.8	3.8	4.5	3.8	3.8
Red Clear	3.5	2.0	2.3	2.0	2.0	2.3	2.3
Actuations B4 Add *	-	0	-	-	0	-	
Seconds /Actuation *	-	1.5	-	-	1.5	-	
Max Initial *	-	34	-	-	34	-	
Time Before Reduction *	-	15	-	-	15	-	
Time To Reduce *	-	30	-	-	30	-	
Minimum Gap	-	3.0	-	-	3.0	-	
Locking Detector	-	X	-	-	X	-	
Recall Position	-	VEH. RECALL	-	-	VEH. RECALL	-	
Dual Entry	-	-	-	-	-	-	
Simultaneous Gap	X	X	X	X	X	X	

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

** Phase used for timing purposes only.

ASC/3 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Exit Phase(s)	2,6	3	2,6
Preempt Override	OFF	OFF	ON
Delay Time	0	0	0
Ped Clear Through Yellow	N	N	N
Terminate Phases	N	N	N
Entrance Walk	255✱	255✱	255✱
Entrance Ped Clear	255✱	255✱	255✱
Entrance Min Green	1	1	1
Entrance Yellow Change	25.5✱	25.5✱	25.5✱
Entrance Red Clear	25.5✱	25.5✱	25.5✱
Minimum Dwell Time	12	12	7
Preempt Input Extension Time	2	2	2
Preempt Max Time	120	120	120
Exit Yellow Change	25.5✱	25.5✱	25.5✱
Exit Red Clear	25.5✱	25.5✱	25.5✱

* Allows normal phase times to be used.

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 17-158 (Hughes Boulevard) at US 17 Business (Road Street)/ SR 1327 (Griggs Street)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

SCALE 0 40' 1"=40'

REVISIONS INIT. DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022516 LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018

DATE

SIG. INVENTORY NO. 01-0025

20-SEP-2018 16:34
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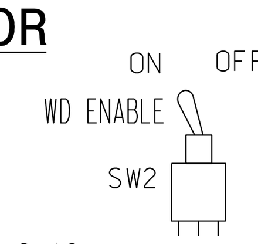
lmoon AT CAR-LMOON1-W7

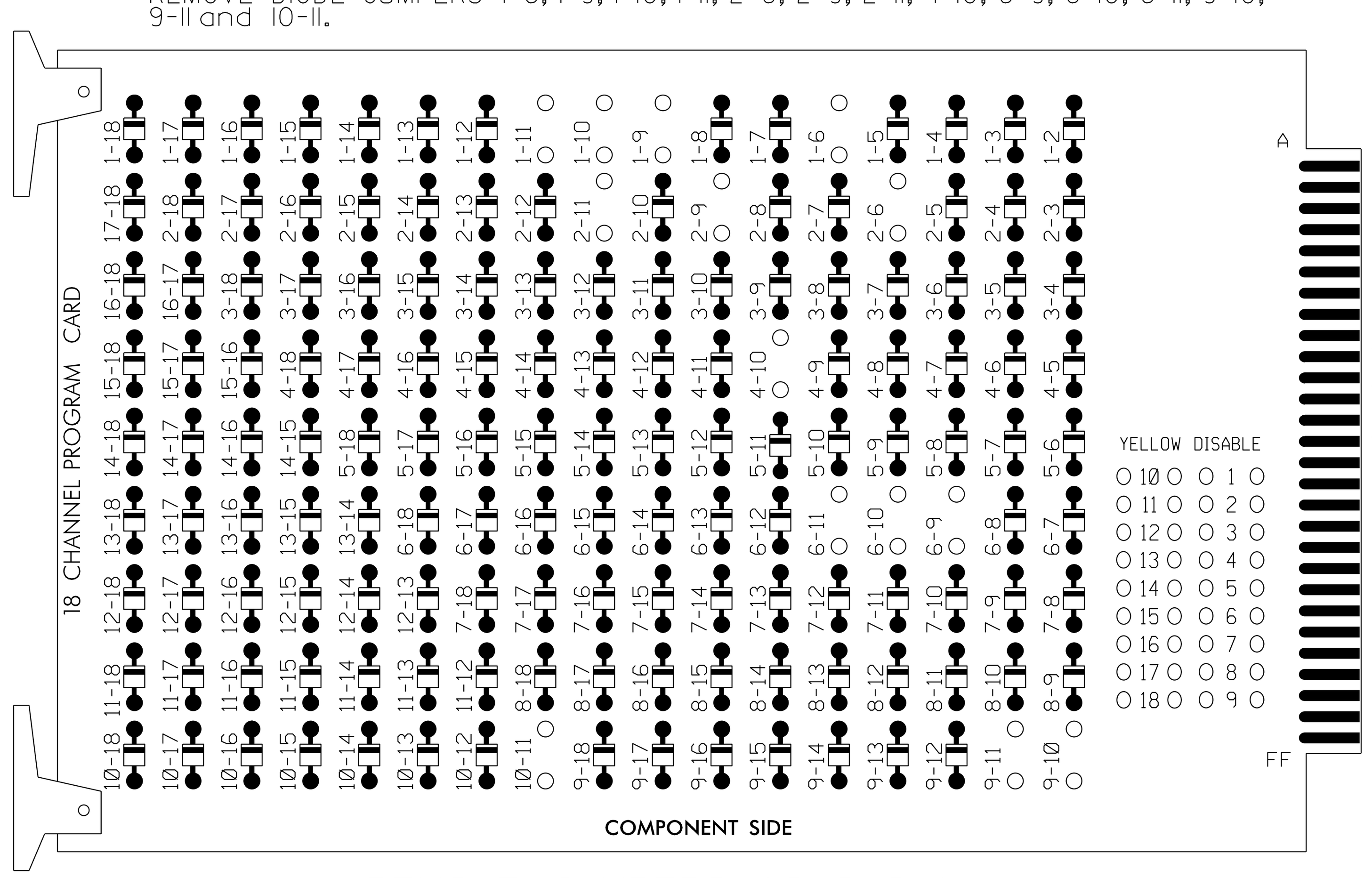
PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 19.1

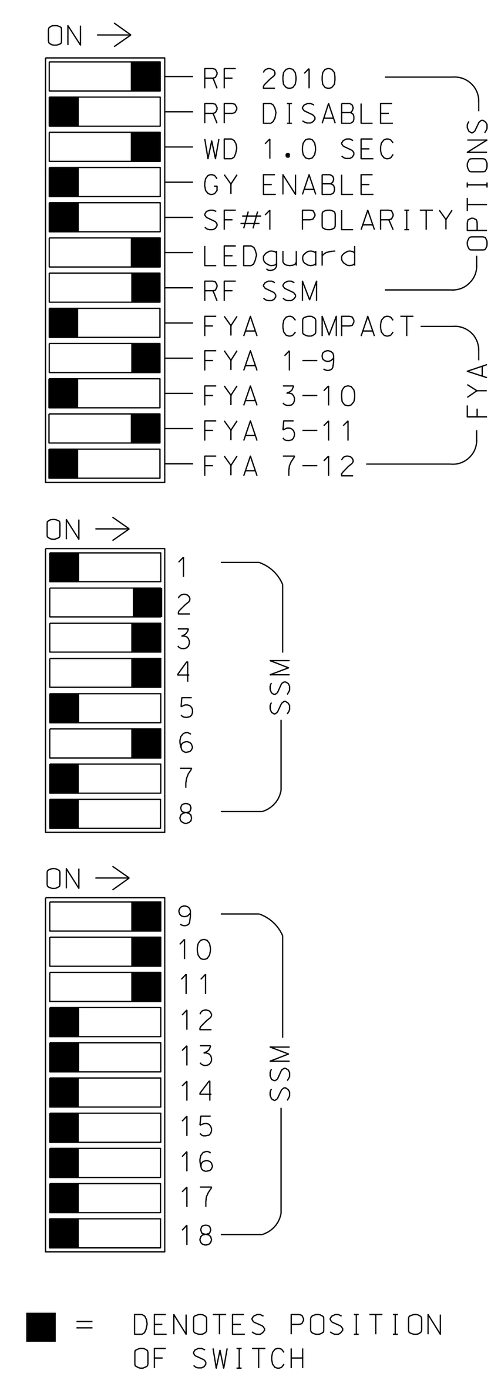
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-6, 1-9, 1-10, 1-11, 2-6, 2-9, 2-11, 4-10, 6-9, 6-10, 6-11, 9-10, 9-11 and 10-11.





REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the Elizabeth City Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S4,S5,S8,AUX S1,AUX S2, AUX S4
PHASES USED.............1,2,3,4,6,**10
OVERLAP "A".............*
OVERLAP "B".............*
OVERLAP "C".............*
OVERLAP "D".............NOT USED
OVERLAP "G".............*
* See overlap programming detail on sheet 2
** Phase used for timing purposes only.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	OLG		4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	22,23	NU	31	32	41	42	NU	NU	61,62,63	NU	NU	NU	NU	11 ★	43,44	NU	21 ★	NU	NU
RED		128		116	116	101	101			134						A124				
YELLOW	✳	129		117	117	102	102			135										
GREEN		130		118	118	103	103			136										
RED ARROW															A121			A114		
YELLOW ARROW															A122	A125		A115		
FLASHING YELLOW ARROW															A123			A116		
GREEN ARROW	127			118		103										A126				

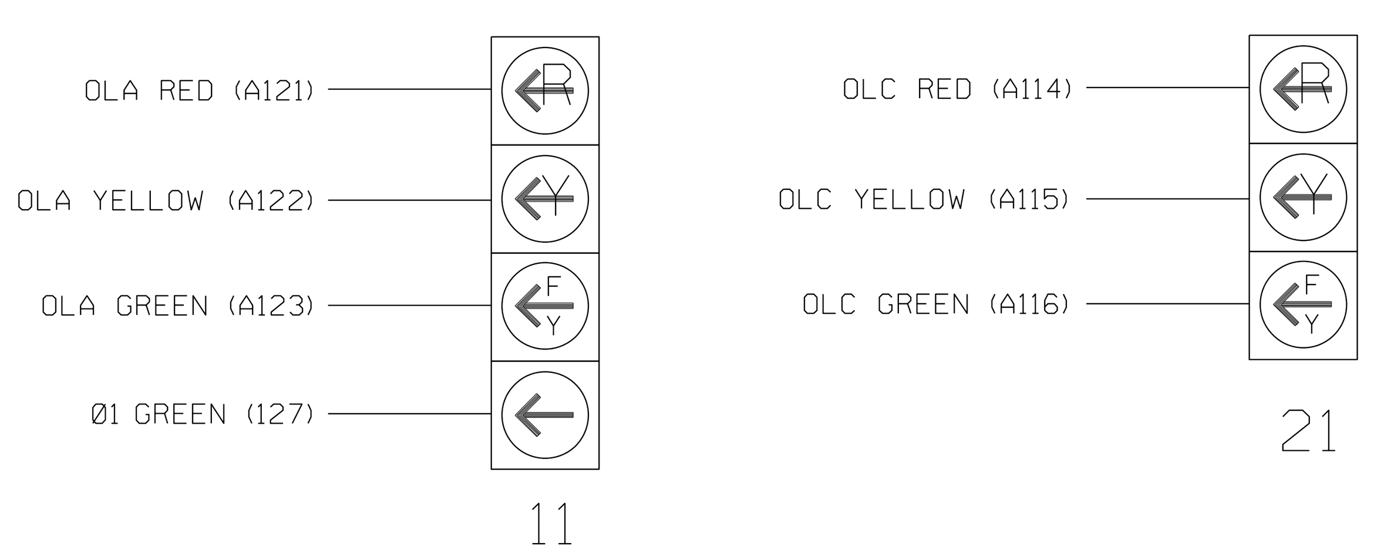
NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 1 1B	Ø 2 2A	Ø 2 2C	Ø 3 3A	Ø 4 4A	PRE 7 1D	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø 1 1C	Ø 2 2B	NOT USED	NOT USED	Ø 4 4B	NOT USED							ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø 6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE 3 PRE 4 Optical ** 4 Ch. Card PRE 5 NU	SLOT EMPTY	SLOT EMPTY
	L		Ø 6 6B												

EX.: 1A, 2A, ETC. = LOOP NO.'S
⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A[1]	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES		3		G
1B	TB2-5,6	I2U	39	2 ★	1	YES				S
1C	TB2-7,8	I2L	43	12 ★	1	YES		5		S
1D	TB6-1,2	I7U	65	34 ✳	PRE7	NO				N
2A	TB2-9,10	I3U	63	32	2	YES			X	N
2B	TB2-11,12	I3L	76	42	2	YES			X	N
2C	TB4-1,2	I4U	47	22	2	YES		3		G
3A	TB4-5,6	I5U	58	3	3/10	YES				S
4A	TB4-9,10	I6U	41	4	4	YES		3		S
4B	TB4-11,12	I6L	45	14	4	YES				S
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N

[1] Add jumper from I1-W to J4-W, on rear of input file.

✳ See Logic Processor programming detail on sheet 3 of 5 for Backup Preempt

★ See vehicle detector setup programming detail for delay on loops in the Action Plan Detail & Vehicle Detector Setup Programming on sheet 4 of 5.

INPUT FILE POSITION LEGEND: J2L

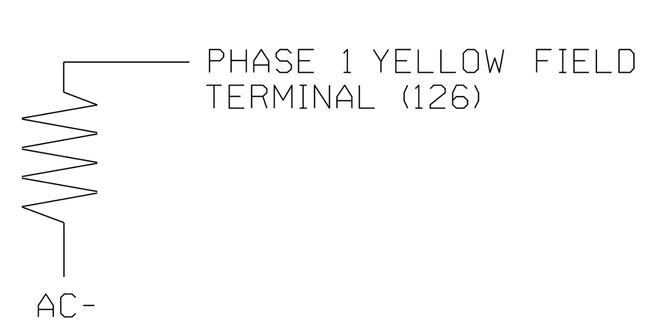
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



**OPTICAL PREEMPTION SYSTEM

1. Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
2. Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0025
DESIGNED: MARCH 2018
SEALED: 09/20/2018
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of: Transportation Mobility and Safety Division, ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

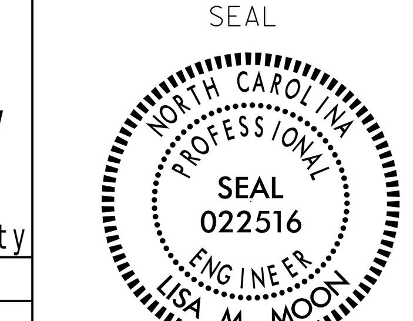
US 17-158 (Hughes Boulevard) at US 17 Business (Road Street)/ SR 1327 (Griggs Street)

Division 1 | Pasquotank County | Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL



DocuSigned by: Lisa M. Moon 9/20/2018
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DATE

SIG. INVENTORY NO. 01-0025

20-SEP-2018 18:51
R:*U5942*Signals*Design*Wiring*01-0025-08232018e.dgn
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 19.2

ECONOLITE ASC/3-2070 CONTROLLER SEQUENCE PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [1. CONTROLLER SEQ]
3. From CONTROLLER SEQUENCE Submenu select [1. PHASE RING SEQUENCE AND ASSIGNMENT]

```
CONTROLLER SEQUENCE [ 1]
SEQUENCE COMMANDS  . HW ALT SEQ ENA.            NO.
   01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16
BC-B  -  B  -  B  -  -  -  -  -  -  -  -  -  -  -
R1-|1  2 |3  4 |10 .  .  .  .  .  .  .  .  .  .  .
R2-|.  6 |.  . |.  .  .  .  .  .  .  .  .  .  .  .
R3-|.  . |.  . |.  .  .  .  .  .  .  .  .  .  .  .
R4-|.  . |.  . |.  .  .  .  .  .  .  .  .  .  .  .

R1-R4=RING 1-4, DATA ENTRY, PHASES 1-16
BC=BARRIER CONTROL, VALUES: B.C
B=BARRIER MODE
C=COMPATIBILITY MODE
```

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switch S4 as OLE, program LD SWITCH 3 as OVLP '5' TYPE 'O' as shown below.

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [3. LOAD SW ASSIGN]

NOTICE OVLP 7 ASSIGNED TO LD SWITCH 3 →

LD SWITCH	PHASE /OVLP	TYPE	DIMMING R	Y	G	D	---FLASH--- PWR	AUT	TGR
1	1	V	.	.	.	+	A	R	X
2	2	V	.	.	.	+	A	Y	.
3	7	O	.	.	.	+	A	R	X
4	4	V	.	.	.	+	A	R	.
5	5	V	.	.	.	−	A	R	.
6	6	V	.	.	.	−	A	Y	X
7	7	V	.	.	.	−	A	R	.
8	8	V	.	.	.	−	A	R	X
9	1	O	.	.	.	+	A	R	X
10	2	O	.	.	.	+	A	R	X
11	3	O	.	.	.	−	A	R	.
12	4	O	.	.	.	−	A	R	.
13	2	P	.	.	.	+	A	.	.
14	4	P	.	.	.	−	A	.	.
15	6	P	.	.	.	+	A	.	.
16	8	P	.	.	.	−	A	.	.

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    1
OPPOSING THROUGH.......   PHASE    2

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.......... 0
```

Toggle Once

↓

OVERLAP B

Select TMG VEH OVLP [B] and 'NORMAL'

```
TMG VEH OVLP...[B] TYPE: .......NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED X . . X . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0
```

Toggle Once

↓

OVERLAP C

Select TMG VEH OVLP [C] and 'OTHER/ECONOLITE'

```
TMG VEH OVLP...[C] TYPE:OTHER/ECONOLITE
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . . . . X . . . . . . . . . .
PROTECT  . . . . . . . . . . . . . . . .
PED PRTC . . . . . . . . . . . . . . . .
NOT OVLP . . . . . . . . . . . . . . . .
FLSH GRN . . . . . 1 . . . . . . . . . .
LAG X PH . . . . . . . . . . . . . . . .
LAG 2 PH . . . . . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0
```

Toggle 4x

↓

OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

```
TMG VEH OVLP...[G] TYPE: .......NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . X . . . . . . . X . . . . .

LAG GRN 0.1 YEL 3.8 RED 2.3
```

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [6. DETECTORS]
2. From DETECTOR Submenu select [2. VEHICLE DETECTOR SETUP]

```
VEH DETECTOR [ 3]   VEH DET PLAN [ 1]
TYPE: S-STANDARD
TS2 DETECTOR..... X ECPI LOG.......   NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 3  3    . . X . . . . . . X . . . . . .
EXTEND TIME...  0.0 DELAY TIME...     0.0
USE ADDED INITIAL . CROSS SWITCH PH..  0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0025
DESIGNED: MARCH 2018
SEALED: 09/20/2018
REVISED: N/A

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 2 of 5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 17-158 (Hughes Boulevard) at US 17 Business (Road Street)/ SR 1327 (Griggs Street)

Division 1 Pasquotank County Elizabeth City

Prepared for the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M Moon 9/20/2018
-18CE58BDB3D0421...

SIG. INVENTORY NO. 01-0025

ECONOLITE ASC/3-2070 BACKUP PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPTOR/TSP/SCP Submenu select [1. PREEMPT PLAN 1-10]

Place cursor in [ ] next to Preempt Plan and press 7. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Backup Preempt #7.

```
PREEMPT PLAN [  7]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH X . . . . X . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLPF1 XF1 . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT   25|     0|   25|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES      1   2   3   4   5   6   7   8
PR RTN%     0   0   0   0   0   0   0   0
PHASES      9  10  11  12  13  14  15  16
PR RTN%     0   0   0   0   0   0   0   0
```

ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL FOR SIDE STREET PHASING & FOR BACKUP PREEMPT

(program controller as shown)

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [8. LOGIC PROCESSOR]
3. From LOGIC PROCESSOR Submenu select [2. LOGIC STATEMENTS]

ENTER A "1" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```
LP#:   1  COPY FROM:   1  ACTIVE:  M   (T/F)
IF    VEH GREEN ON PH       3     IS   ON

THEN  LP SET LOGIC FLAG     1         ON

ELSE
```

PHASE 3 GREEN SETS LOGIC FLAG 1 ON (SIDESTREET BACKUP)

ENTER A "2" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```
LP#:   2  COPY FROM:   2  ACTIVE:  M   (T/F)
IF    LP FLAG               1     IS   ON

THEN  CTR OMIT PHASE       10         ON

ELSE
```

OMIT PHASE 10 SO PHASE 3 MOVEMENTS RUN ONCE PER CYCLE

ENTER A "3" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```
LP#:   3  COPY FROM:   3  ACTIVE:  M   (T/F)
IF    VEH GREEN ON PH       2     IS   ON

THEN  LP SET LOGID FLAG     1         OFF

ELSE
```

TURNS LOGIC FLAG 1 OFF TO ALLOW NORMAL OPERATION

ENTER A "4" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```
LP#:   4  COPY FROM:   4  ACTIVE:  M   (T/F)
IF    DET                   34    IS   ON
THEN  LP  DELAY FOR            5.0  SECONDS
      PMT CALL PMT SEQ      7        ON
ELSE
```

END PROGRAMMING

4. From LOGIC PROCESSOR Submenu select [1. LOGIC STATEMENT CONTROL]

ENABLE LOGIC PROCESSOR STATEMENTS 1, 2, 3 & 4 BY POSITIONING THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE THEM.

```
LOGIC STATEMENT CONTROL
          1  2  3  4  5  6  7  8  9  0  1  2  3  4  5
LP 1-15   E  E  E  E  .  .  .  .  .  .  .  .  .  .  .
LP 16-30  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 31-45  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 46-60  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 61-75  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 76-90  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0025
DESIGNED: MARCH 2018
SEALED: 09/20/2018
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 3 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 17-158 (Hughes Boulevard)
at
US 17 Business (Road Street)/
SR 1327 (Griggs Street)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
58CE58BD83D0421
DATE

SIG. INVENTORY NO. 01-0025

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lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 19.4

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL FOR LOOP 1B & 1C

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu selet [8. UTILITIES]
2. From UTILITIES Submenu select [1. COPY/CLEAR]
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

```
COPY / CLEAR UTILITY
        FROM                TO
PHASE TIMING.... . > PHASE TIMING.... .
TIMING PLAN..... . > TIMING PLAN..... .
PH DET OPT PLAN. . > PH DET OPT PLAN. .
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
  TOGGLE TO SELECT A "FROM" AND A "TO"
             THEN PRESS ENTER
```

4. From Main Menu select [6. DETECTORS]
5. From DETECTOR Submenu select [2. VEHICLE DETECTOR SETUP]
6. Place cursor in VEH DET PLAN [ ] position and enter "2".

- Place cursor in VEH DETECTOR [ ] position and enter "2".
- Set delay time to "15".

```
VEH DETECTOR ["2"]   VEH DET PLAN [ 2]
TYPE: S-STANDARD
TS2 DETECTOR..... X ECPI LOG.......   NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 2  1    . . . . . . . . . . . . . . . .
EXTEND TIME...  0.0 DELAY TIME...   15.0
USE ADDED INITIAL . CROSS SWITCH PH..  0
LOCK IN....... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
```

← NOTICE VEH DET PLAN 2

← ENSURE DELAY IS SET TO 15

- Place cursor in VEH DETECTOR [ ] position and enter "12".
- Set delay time to "15".

```
VEH DETECTOR ["12"]   VEH DET PLAN [ 2]
TYPE: S-STANDARD
TS2 DETECTOR..... X ECPI LOG.......   NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 12  1   . . . . . . . . . . . . . . . .
EXTEND TIME...  0.0 DELAY TIME...   15.0
USE ADDED INITIAL . CROSS SWITCH PH..  0
LOCK IN....... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
```

← NOTICE VEH DET PLAN 2

← ENSURE DELAY IS SET TO 15

END PROGRAMMING

ECONOLITE ASC/3-2070 TOD ACTION PLAN PROGRAMMING DETAIL FOR PHASE 1B & 1C

(program controller as shown)

1. From Main Menu select [5. TIME BASE]
2. From TIME BASE Submenu select [2. ACTION PLAN]

```
ACTION PLAN...[  1]
PATTERN..........AUTO   SYS OVERRIDE.... NO
TIMING PLAN........ 0   SEQUENCE.......   0
VEH DETECTOR PLAN.. 2   DET LOG........NONE
FLASH...........   --   RED REST........ NO
VEH DET DIAG PLN... 0   PED DET DIAG PLN..0
DIMMING ENABLE..   NO   PRIORITY RETURN. NO
PED PR RETURN..    NO   QUEUE DELAY..... NO
PMT COND DELAY     NO
  PHASE  1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
PED RCL  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
WALK 2   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEX 2    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEH RCL  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX RCL  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX 2    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
  PHASE  1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
MAX 3    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
CS INH   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
OMIT     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
SPC FCT  .  .  .  .  .  .  .  .  .
AUX FCT  .  .  .  .
         1  2  3  4  5  6  7  8  9  0  1  2  3  4  5
LP 1-15  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 16-30 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 31-45 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 46-60 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 61-75 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 76-90 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 91-100 . .  .  .  .  .  .  .  .  .  .  .  .  .  .
```

1. From Main Menu select [5. TIME BASE]
2. From TIME BASE Submenu select [3. DAY PLAN/EVENT]

```
DAY PLAN [ 1]  DAY PLAN IN EFFECT  [ 0] V
EVENT        ACTION PLAN       START TIME
  1               1               19:00
  2               0               06:00
  3               0               00:00
  4               0               00:00
  5               0               00:00
  6               0               00:00
  7               0               00:00
  8               0               00:00
  9               0               00:00
  10              0               00:00
  11              0               00:00
  12              0               00:00
  13              0               00:00
  //
  50              0               00:00
```

1. From Main Menu select [5. TIME BASE]
2. From TIME BASE Submenu select [4. SCHEDULE NUMBER]

```
SCHEDULE NUMBER  [  1]
DAY PLAN NO .....  1  CLEAR ALL FIELDS.. .
SELECT ALL MONTHS..  X  DOW..  .  DOM..  .
MONTH       J F M A M J J A S O N D
            X X X X X X X X X X X X
DAY (DOW): SUN MON TUE WED THU FRI SAT
            X   X   X   X   X   X   X
DAY(DOM):1  2  3  4  5  6  7  8  9 10 11
         X  X  X  X  X  X  X  X  X  X  X
        12 13 14 15 16 17 18 19 20 21 22
         X  X  X  X  X  X  X  X  X  X  X
        23 24 25 26 27 28 29 30 31
         X  X  X  X  X  X  X  X  X
```

ECONOLITE ASC/3-2070 CLOCK & CALENDAR PROGRAMMING DATAIL

(program controller as shown)

1. From Main Menu select [5. TIME BASE]
2. From DETECTOR Submenu select [1. CLOCK/CALENDAR DATA]

DATE, DAY & TIME →

```
CLOCK/CALENDAR DATA
XX/XX/XXXX              DAY      XX:XX:XX
ENA ACTION PLAN.  0
SYNC REF TIME.00:00  SYNC REF..  REF TIME
TIME FROM GMT...-04  DAY LIGHT SAVE.USDLS
TIME RESET INPUT SET TIME......  00:00:00
```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0025
DESIGNED: MARCH 2018
SEALED: 09/20/2018
REVISED: N/A

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 4 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division, ITS & Signals Management Section, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 17-158 (Hughes Boulevard)
at
US 17 Business (Road Street)/
SR 1327 (Griggs Street)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0025

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPTOR/TSP/SCP Submenu select [1. PREEMPT PLAN 1-10]

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```
PREEMPT PLAN [  3]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH X . . . . X . . . . . .
DWEL PED . . . . . .
DWEL OLPF1 .F1 . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL    NOITERM PH    NO
PED DARK.. NOITC RESRV  NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I  255I   1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    0I    0I    0I25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT  12I   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```
PREEMPT PLAN [  4]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . X . . . X . . . . . .
DWEL PED . . . . . .
DWEL OLPF1.F1 . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . . X . . . . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL    NOITERM PH    NO
PED DARK.. NOITC RESRV  NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I  255I   1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    0I    0I    0I25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT  12I   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```
PREEMPT PLAN [  5]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . .
TRKCLR O . . . . . .
ENA TRL  . . . . . .
DWEL VEH . . . X . . . . . . . .
DWEL PED . . . . . .
DWEL OLP . X . . . . . .
CYC VEH  . . . . . .
CYC PED  . . . . . .
CYC OLP  . . . . . .
EXIT PH  . X . . . X . . . . . .
EXIT CAL . . . . . .
SP FUNC  . . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY..    OIINHIBIT...  0
OVERIDE FL. .IDURATION   OICLR-GRN... NO
TERM OLP.  NOIPC>YEL    NOITERM PH    NO
PED DARK.. NOITC RESRV  NOIDWELL FL  OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV..  OIFLT TYPE.HARD
FREE DUR PMTIR1  NOIR2  NOIR3  NOIR4  NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM.  255I  255I   1I25.5I25.5
-----------MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR    0I    0I    0I25.5I25.5
-----------MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT   7I   2.0I  120I25.5I25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES     1   2   3   4   5   6   7   8
PR RTN%    0   0   0   0   0   0   0   0
PHASES     9  10  11  12  13  14  15  16
PR RTN%    0   0   0   0   0   0   0   0
```

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPT/TSP/SCP Submenu select [2. ENABLE PREEMPT FILTERING & TSP/SCP]

```
ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED     SOLID          PULSING
INPUT  1 ...BYPASSED.. ...BYPASSED..
       2 ...BYPASSED.. ...BYPASSED..
       3 ..PREEMPT  3. ...BYPASSED..
       4 ..PREEMPT  4. ...BYPASSED..
       5 ..PREEMPT  5. ...BYPASSED..
       6 ...BYPASSED.. ...BYPASSED..
       7 ..PREEMPT  7. ...BYPASSED..
       8 ...BYPASSED.. ...BYPASSED..
       9 ...BYPASSED.. ...BYPASSED..
      10 ...BYPASSED.. ...BYPASSED..
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0025
DESIGNED: MARCH 2018
SEALED: 09/20/2018
REVISED: N/A

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 5 of 5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 17-158 (Hughes Boulevard) at US 17 Business (Road Street)/ SR 1327 (Griggs Street)

Division 1 Pasquotank County Elizabeth City

Prepared for the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	March 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SEAL

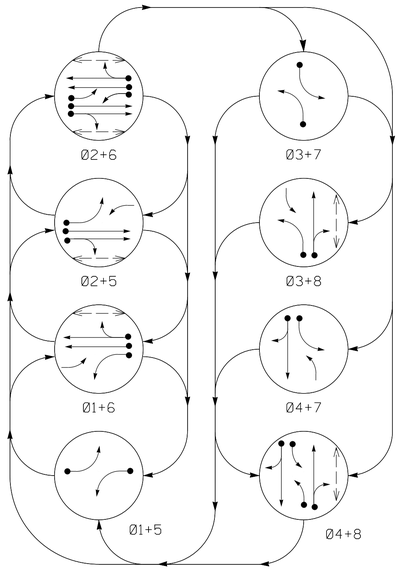
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022516 LISA M. MOON

DocuSigned by: Lisa M Moon 9/20/2018
48CE68BDB3304A3... DATE

SIG. INVENTORY NO. 01-0025

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig.20.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

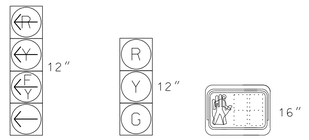
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

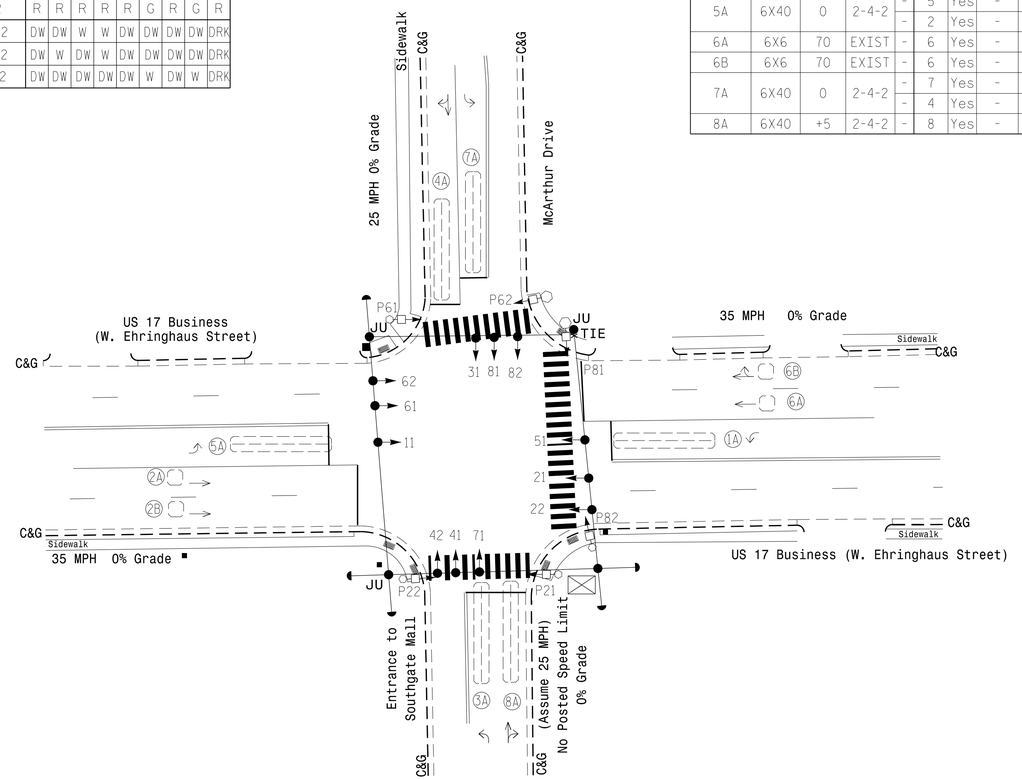
TABLE OF OPERATION

SIGNAL FACE	PHASE							
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø4+7	Ø4+8	FLASH
11	↚	←	↚ Fy	Fy	↚ R	↚ R	↚ R	↚ Y
21, 22	R	R	G	G	R	R	R	Y
31	↚ R	↚ R	↚ R	↚ R	←	↚ Fy	↚ Fy	↚ R
41, 42	R	R	R	R	R	G	G	R
51	↚	↚ Fy	←	Fy	↚ R	↚ R	↚ R	↚ Y
61, 62	R	G	R	G	R	R	R	Y
71	↚ R	↚ R	↚ R	↚ R	↚	↚ Fy	←	↚ R
81, 82	R	R	R	R	G	R	G	R
P21,P22	DW	DW	W	W	DW	DW	DW	DRK
P61,P62	DW	W	DW	W	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	W	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.





ASC/3 DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Yes	-	15	-	S	-	X
				-	6	Yes	-	-	-	S	-	X
2A	6X6	70	EXIST	-	2	Yes	-	-	-	S	-	X
2B	6X6	70	EXIST	-	2	Yes	-	-	-	S	-	X
3A	6X40	+5	2-4-2	-	3	Yes	-	15	-	S	-	X
				-	8	Yes	-	3	-	S	-	X
4A	6X40	0	2-4-2	-	4	Yes	-	10	-	S	-	X
5A	6X40	0	2-4-2	-	5	Yes	-	15	-	S	-	X
				-	2	Yes	-	-	-	S	-	X
6A	6X6	70	EXIST	-	6	Yes	-	-	-	S	-	X
6B	6X6	70	EXIST	-	6	Yes	-	-	-	S	-	X
7A	6X40	0	2-4-2	-	7	Yes	-	15	-	S	-	X
				-	4	Yes	-	3	-	S	-	X
8A	6X40	+5	2-4-2	-	8	Yes	-	10	-	S	-	X

8 Phase
Fully Actuated
(Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Pedestrian pedastals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
10. Crosswalk markings and stop bars for the northbound approach and the through-left lane of the southbound approach are proposed, all other pavement markings are existing.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

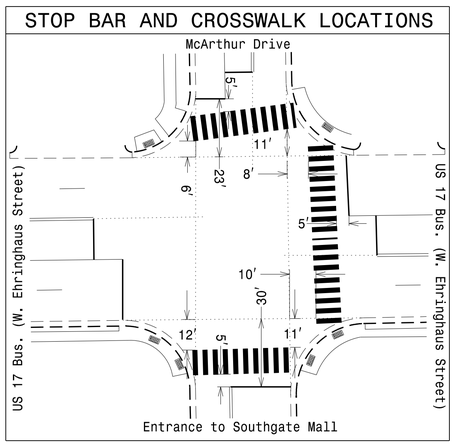
PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●
○ ◡	Signal Pole with Sidewalk Guy	● ◡
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----------	2-in Underground Conduit	----------
N/A	Right of Way	- - - - -
→	Directional Arrow	→
N/A	Truncated Dome	▦
⬡	Type II Signal Pedestal	⬢

ASC/3 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green *	7	10	7	7	7	10	7	7
Delay Green	0	0	0	7	0	0	0	7
Walk *	0	7	0	0	0	7	0	7
Ped Clear	0	9	0	0	0	9	0	18
Veh. Extension *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	20	60	20	20	20	60	20	20
Yellow	3.0	3.8	3.0	3.2	3.0	3.8	3.0	3.2
Red Clear	2.8	2.1	2.6	2.9	2.9	2.1	2.9	2.9
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds /Actuation *	-	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	X	-	-	-	X
Simultaneous Gap	X	X	X	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BAR AND CROSSWALK LOCATIONS



Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Prepared for the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 17 Bus. (W. Ehringhaus St.) at McArthur Dr./ Ent. to Southgate Mall

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	JA Le	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SCALE 0 30 1" = 30'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M Moon 9/20/2018
5BCE58EDB3D042... DATE

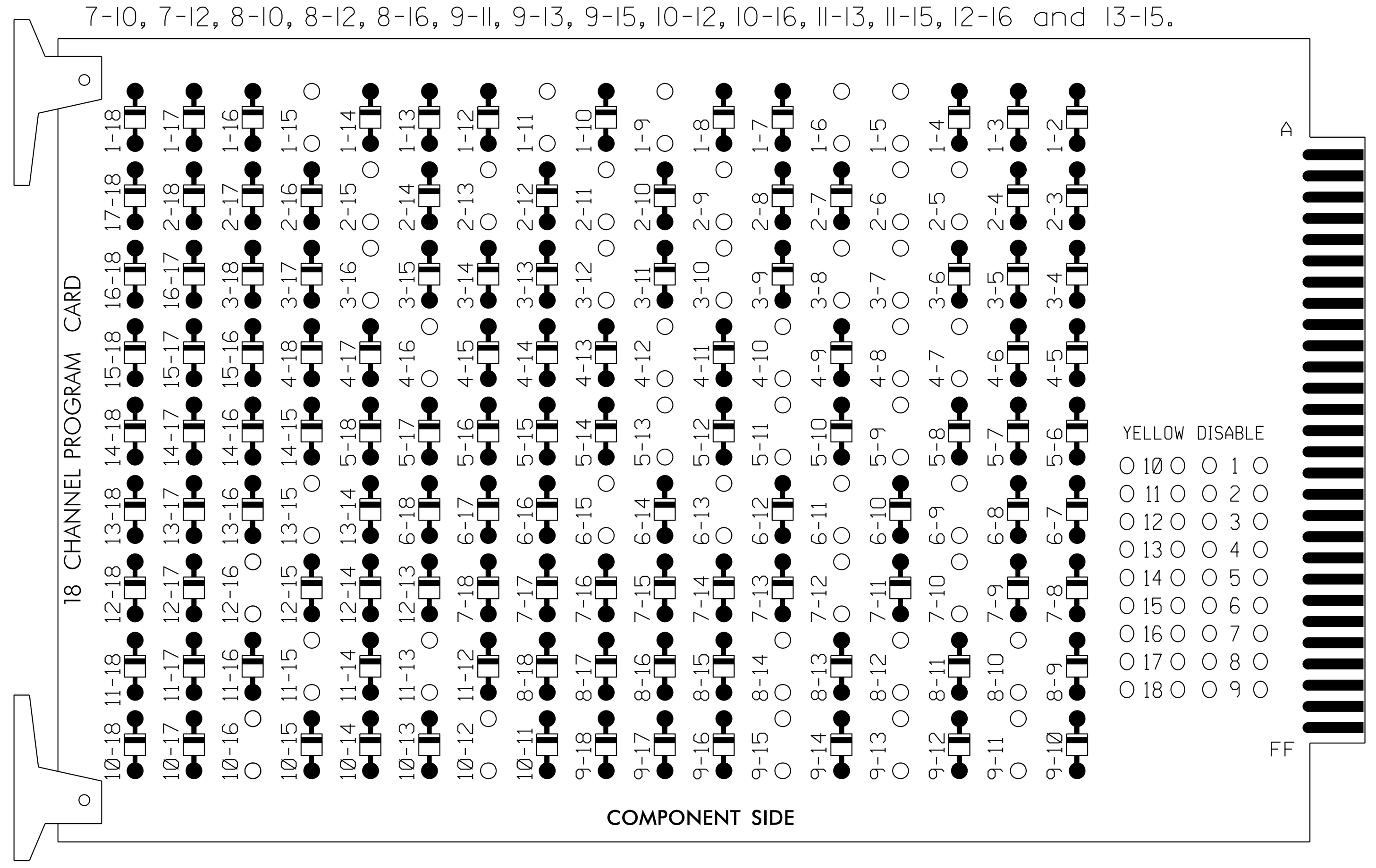
SIG. INVENTORY NO. 01-0034

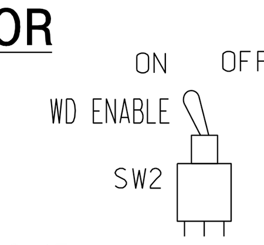
PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 20.1

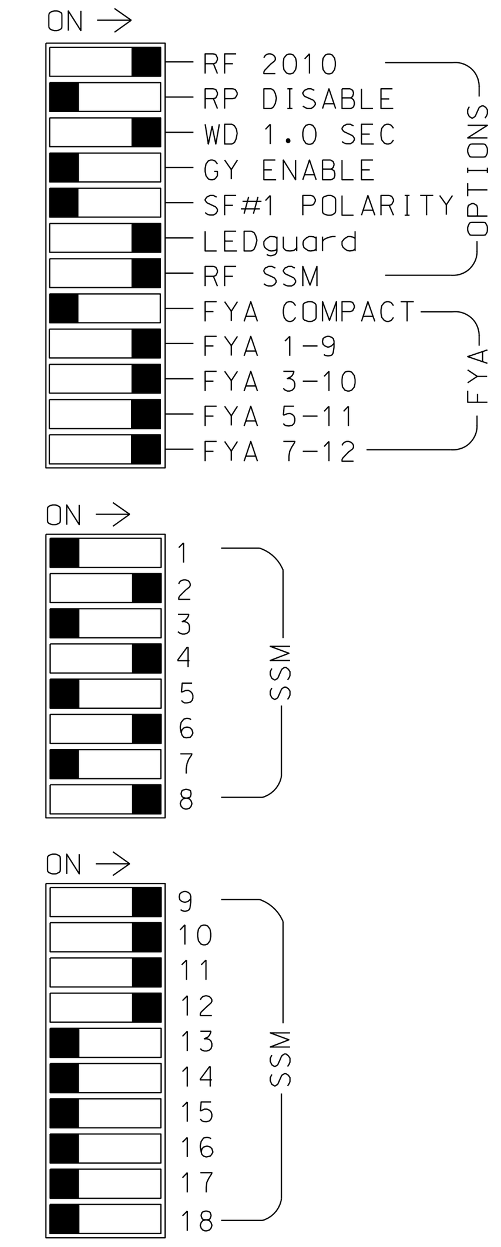
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 7-10, 7-12, 8-10, 8-12, 8-16, 9-11, 9-13, 9-15, 10-12, 10-16, 11-13, 11-15, 12-16 and 13-15.







■ = DENOTES POSITION OF SWITCH

REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 WALK and 6 WALK.
4. The cabinet and controller are part of the Elizabeth City Signal System.
5. Ensure Delayed Green times shown in the Timeing Chart on the signal design plan are accounted for to facilitate leading pedestrian interval.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S3,S4,S5,S7,S8,S9,S10,S11, S12,AUX S1,AUX S2,AUX S4,AUX S5
PHASES USED.............1,2,2PED,3,4,5,6,6PED,7,8,8PED
OVERLAP "A".............✳
OVERLAP "B".............✳
OVERLAP "C".............✳
OVERLAP "D".............✳

✳ See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	21,22	P21, P22	31 ★	41,42	NU	51 ★	61,62	P61, P62	71 ★	81,82	P81, P82	11 ★	31 ★	NU	51 ★	71 ★	NU
RED		128			101			134			107							
YELLOW	✳	129		✳	102		✳	135		✳	108							
GREEN		130			103			136			109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW													A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118			133			124								
(Don't Walk hand)			113						119			110						
(Walk person)			115						121			112						

NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail on next sheet.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 2 2A	SLOT EMPTY	WIRED INPUT ⊗	Ø 3 3A	Ø 4 4A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED	Ø 2 2B			NOT USED	NOT USED						NOT USED	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 6 6A	SLOT EMPTY	WIRED INPUT ⊗	Ø 7 7A	Ø 8 8A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø 6 6B			NOT USED	NOT USED								

EX.: 1A, 2A, ETC. = LOOP NO.'S
⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A[1]	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES				S
2A	TB2-5,6	I2U	39	2	2	YES				S
2B	TB2-7,8	I2L	43	12	2	YES				S
3A[2]	TB4-5,6	I5U	58	3	3	YES		15		S
	-	J8U	50	28	8	YES		3		S
4A	TB4-9,10	I6U	41	4	4	YES		10		S
5A[3]	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES				S
6A	TB3-5,6	J2U	40	6	6	YES				S
6B	TB3-7,8	J2L	44	16	6	YES				S
7A[4]	TB5-5,6	J5U	57	7	7	YES		15		S
	-	I8U	49	24	4	YES		3		S
8A	TB5-9,10	J6U	42	8	8	YES		10		S
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED					

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

[1] Add jumper from I1-W to J4-W, on rear of input file.
[2] Add jumper from I5-W to J8-W, on rear of input file.
[3] Add jumper from J1-W to I4-W, on rear of input file.
[4] Add jumper from J5-W to I8-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

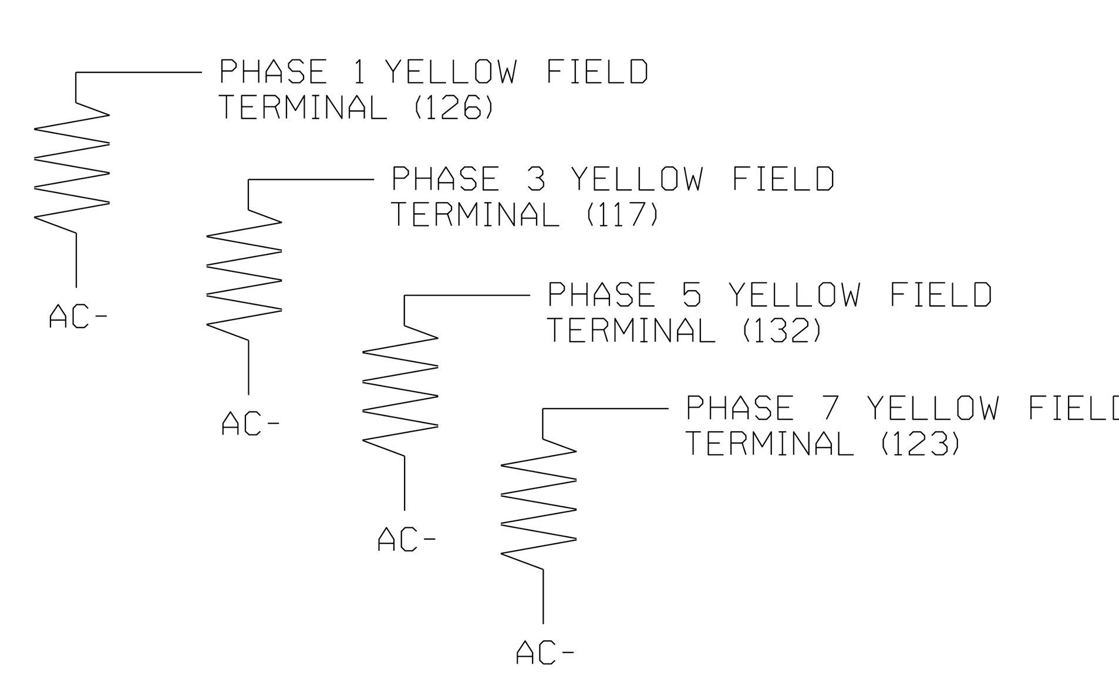
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0034
DESIGNED: FEBRUARY 2018
SEALED: 09/20/2018
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 17 Bus. (W. Ehringhaus St.)
at
McArthur Dr./
Ent. to Southgate Mall

Division 1 Pasquotank County Elizabeth City

Prepared for the Offices of:
Transportation Mobility and Safety Division
ITS & Signals Management Section
State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by:
Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0034

20-SEP-2018 18:51
R:*U5942*Signals*Design*Wiring*01-0034-08212018e.dgn
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 20.2

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    1
OPPOSING THROUGH.......   PHASE    2

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

Toggle Once

OVERLAP B

Select TMG VEH OVLP [B] and 'PPLT FYA'

```
TMG VEH OVLP...[B] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    3
OPPOSING THROUGH.......   PHASE    4

FLASHING ARROW OUTPUT.....CH10 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

Toggle Once

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

```
TMG VEH OVLP...[C] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    5
OPPOSING THROUGH.......   PHASE    6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

Toggle Once

OVERLAP D

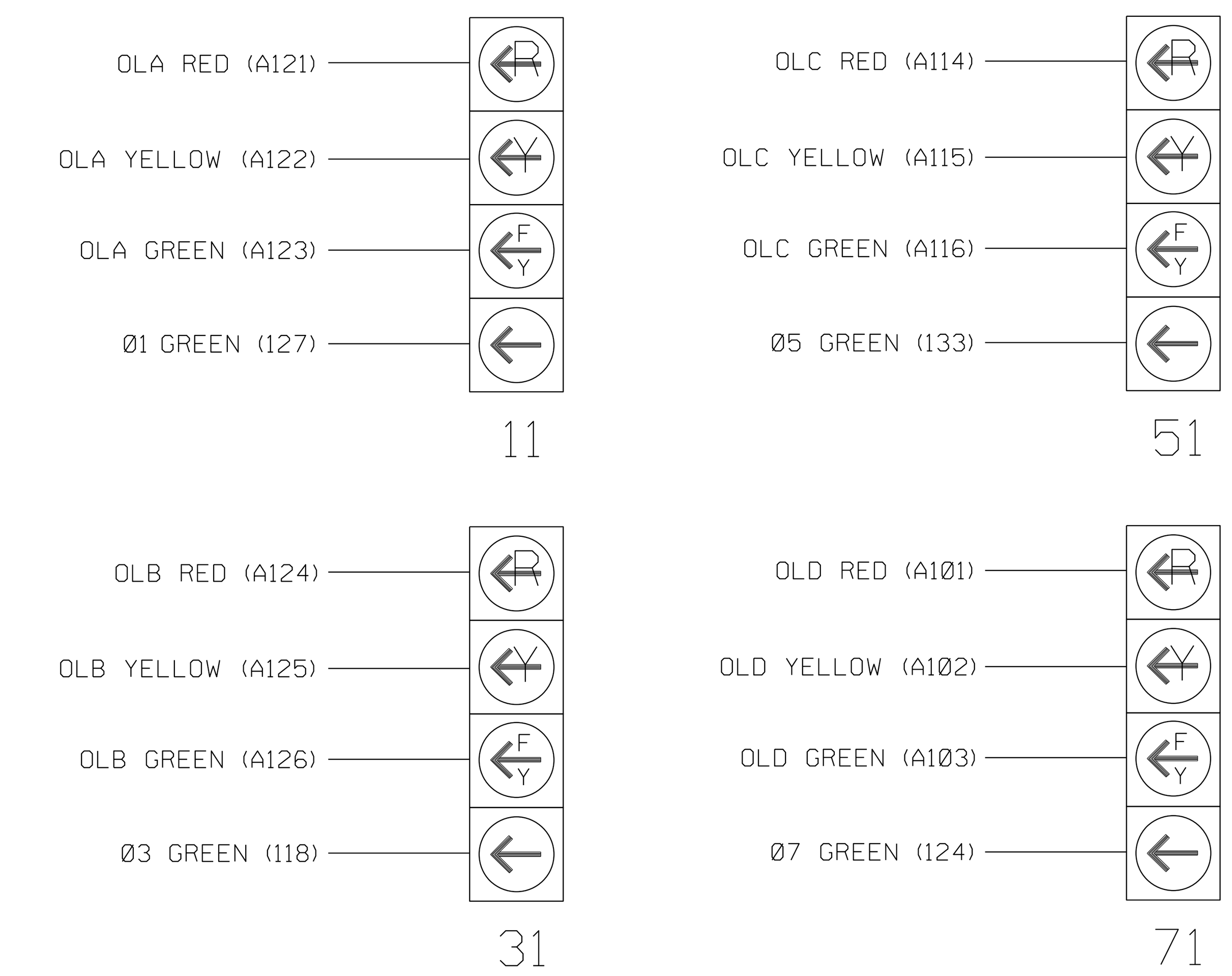
Select TMG VEH OVLP [D] and 'PPLT FYA'

```
TMG VEH OVLP...[D] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE    7
OPPOSING THROUGH.......   PHASE    8

FLASHING ARROW OUTPUT.....CH12 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

END PROGRAMMING

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: Ø1-ØØ34
DESIGNED: FEBRUARY 2Ø18
SEALED: Ø9/2Ø/2Ø18
REVISED: N/A

Electrical Detail - Sheet 2 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 Bus. (W. Ehringhaus St.)
at
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Ent. to Southgate Mall

Division 1 Pasquotank County Elizabeth City

PLAN DATE: February 2018	REVIEWED BY: AJ Davis
PREPARED BY: DJ White	REVIEWED BY: LM Moon

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0034

20-SEP-2018 18:51
R:*U5942*Signals*Design*Wiring*01-0034-08212018e.dgn
lmoon AT CAR-LMOON1-W7

ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL FOR LEADING PED INTERVAL (DELAYED GREEN)

(program controller as shown)

The following logic processor configuration holds the FYA's on signal head 71 red for the duration of the delayed green time (leading ped interval) when serving a ped call on the opposing through phase.

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [8. LOGIC PROCESSOR]
3. From the LOGIC PROCESSOR Submenu select [2. LOGIC STATEMENTS]

ENTER A "1" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```
LP#:   1  COPY FROM:   4  ACTIVE:  M   (T/F)
IF     PED ON PH WALK        8      IS    ON
AND    VEH GREEN ON PH       8      IS    OFF

THEN   SIG SET OLP RED       4            ON
       SIG SET OLP YELLOW    4            OFF
       SIG SET OVLP GREEN    4            OFF

ELSE
```

HOLD SIGNAL HEAD 71 FYA RED DURING THE PHASE 8 DELAYED GREEN TIME (LEADING PED INTERVAL)

4. From the LOGIC PROCESSOR Submenu select [1. LOGIC STATEMENT CONTROL]

ENABLE LOGIC PROCESSOR STATEMENT 1 BY POSITIONING THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE THEM .

```
LOGIC STATEMENT CONTROL
         1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
LP 1-15  E  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 16-30 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 31-45 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 46-60 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 61-75 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 76-90 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
```

END PROGRAMMING

ECONOLITE ASC/3-2070 PED 8 PROGRAMMING ASSIGNMENT DETAIL

(program controller as shown)

1. From Main Menu select [6. DETECTORS]
2. From DETECTOR Submenu select [3. PED DETECTOR INPUT ASSIGNMENT]

```
PED DET PHASE ASSIGNMENT MODE:  NTCIP

   PHASE  1   2   3   4   5   6   7   8
DETECTOR  0   2   0   8   0   6   0   8

   PHASE  9  10  11  12  13  14  15  16
DETECTOR  0   0   0   0   0   0   0   0
```

NOTICE PED DETECTOR 8 ASSIGNED TO PHASE 4 & 8

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0034
DESIGNED: FEBRUARY 2018
SEALED: 09/20/2018
REVISED: N/A

Electrical Detail - Sheet 3 of 3

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

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Prepared for the Offices of:
Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 Bus. (W. Ehringhaus St.) at McArthur Dr./ Ent. to Southgate Mall

Division 1 Pasquotank County Elizabeth City

PLAN DATE: February 2018	REVIEWED BY: AJ Davis
PREPARED BY: DJ White	REVIEWED BY: LM Moon

REVISIONS	INIT.	DATE

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 58CE58BD83D0421 9/20/2018
DATE

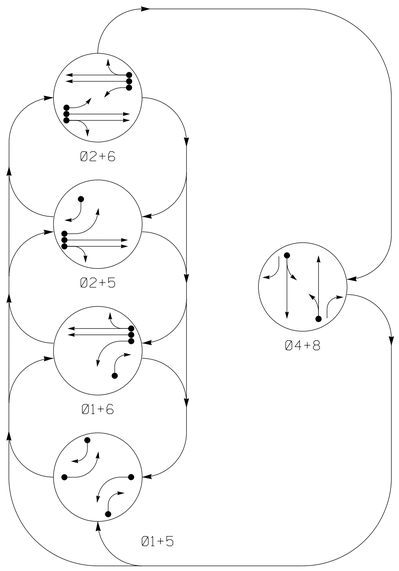
SIG. INVENTORY NO. 01-0034

20-SEP-2018 18:51
R:*U5942*Signals*Design*Wiring*01-0034-08212018e.dgn
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig.21.0

5 Phase
Fully Actuated
(Elizabeth City Signal System)

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

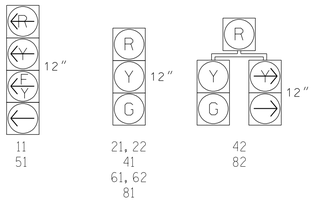
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	F Y	F Y	R	Y
21, 22	R	R	G	G	R	Y
41	R	R	R	R	G	R
42	R →	R →	R	R	G	R
51	←	F Y	←	F Y	R	Y
61, 62	R	G	R	G	R	Y
81	R	R	R	R	G	R
82	R →	R →	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6x40	0	2-4-2	X	1	Yes	-	15	-	S	-	X
					6	Yes	-	3	-	G	-	X
1B	6x60	+5	2-4-2	-	1	Yes	-	15	-	S	-	X
2A/S1	6x6	300	EXIST	-	2	Yes	-	-	X	N	-	X
2B/S2	6x6	300	EXIST	-	2	Yes	-	-	X	N	-	X
4A	6x40	+5	2-4-2	X	4	Yes	-	3	-	S	-	X
5A	6x40	0	2-4-2	X	5	Yes	-	15	-	S	-	X
					2	Yes	-	3	-	G	-	X
5B	6x40	0	2-4-2	-	5	Yes	-	15	-	S	-	X
6A	6x6	290	EXIST	-	6	Yes	-	-	X	N	-	X
6B	6x6	290	EXIST	-	6	Yes	-	-	X	N	-	X
8A	6x60	+5	2-4-2	-	8	Yes	-	3	-	S	-	X

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red
6. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
7. Pavement markings existing unless noted.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Install new pole adjacent to existing pole and raise spans to obtain 17' minimum clearance for signal head heights.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Fire Hydrant	

ASC/3 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green *	7	12	7	7	12	7
Walk *	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	1.0
Max 1 *	15	90	25	15	90	25
Yellow	3.0	4.6	3.8	3.0	4.6	3.2
Red Clear	2.4	1.0	1.8	1.9	1.0	1.8
Actuations B4 Add *	-	0	-	-	0	-
Seconds /Actuation *	-	2.0	-	-	2.0	-
Max Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Locking Detector	-	X	-	-	X	-
Recall Position	-	VEH. RECALL	-	-	VEH. RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade

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Plans Prepared By:

DRMP

DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Prepared for the Offices of:

Transportation Mobility and Safety Division
Signal Design Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (US 17 South)
at
SR 1306 (Forest Park Road)/
Central Elementary School Ent.

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

SCALE 1" = 30' (0 30)

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

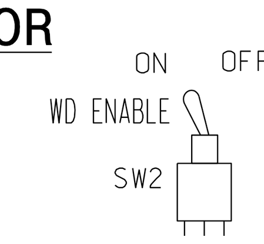
DocuSigned by: Lisa M Moon 8/22/2018
-SAC656BDB3004A1... DATE

SIG. INVENTORY NO. 01-0092

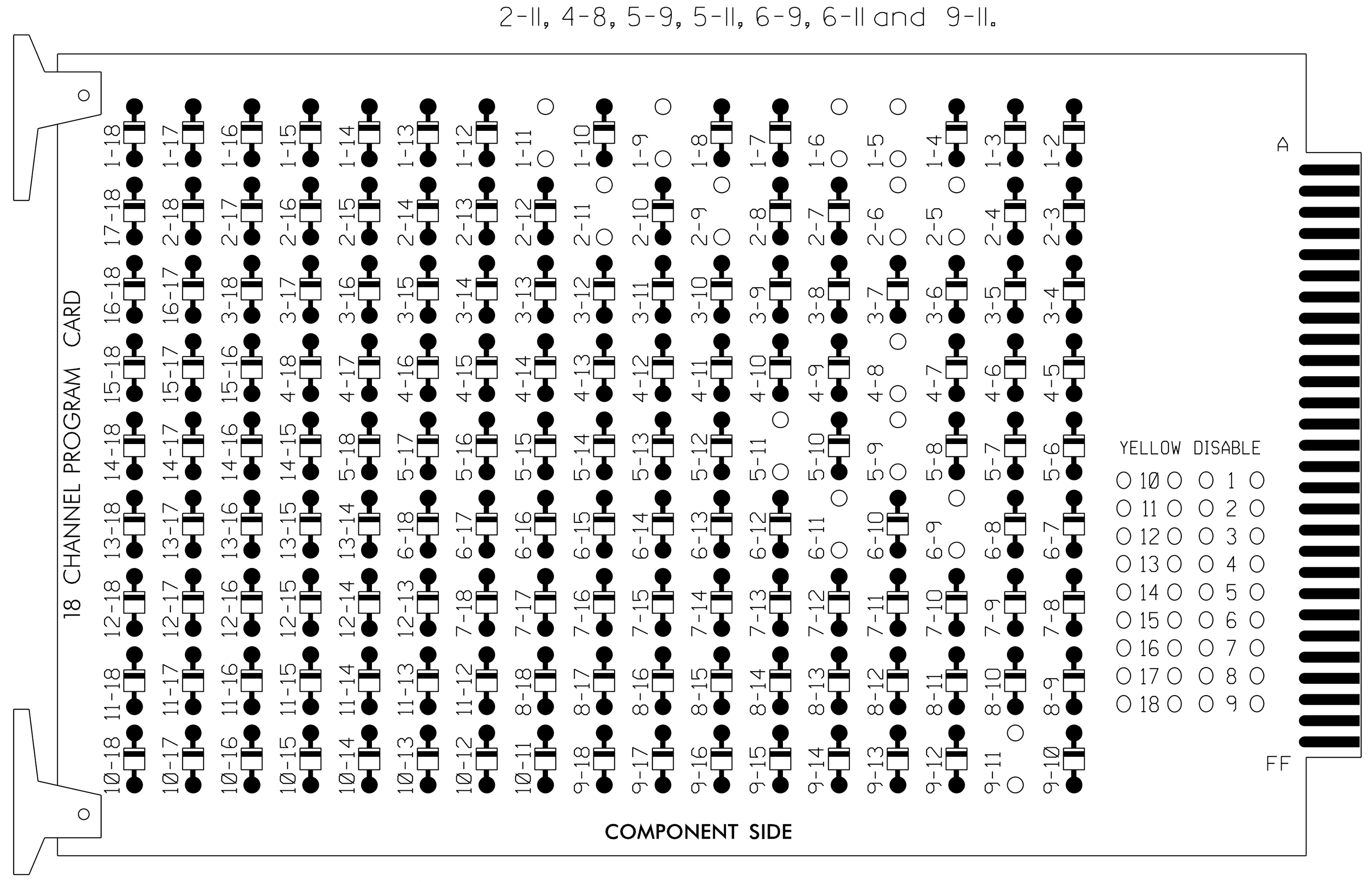
PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 21.1

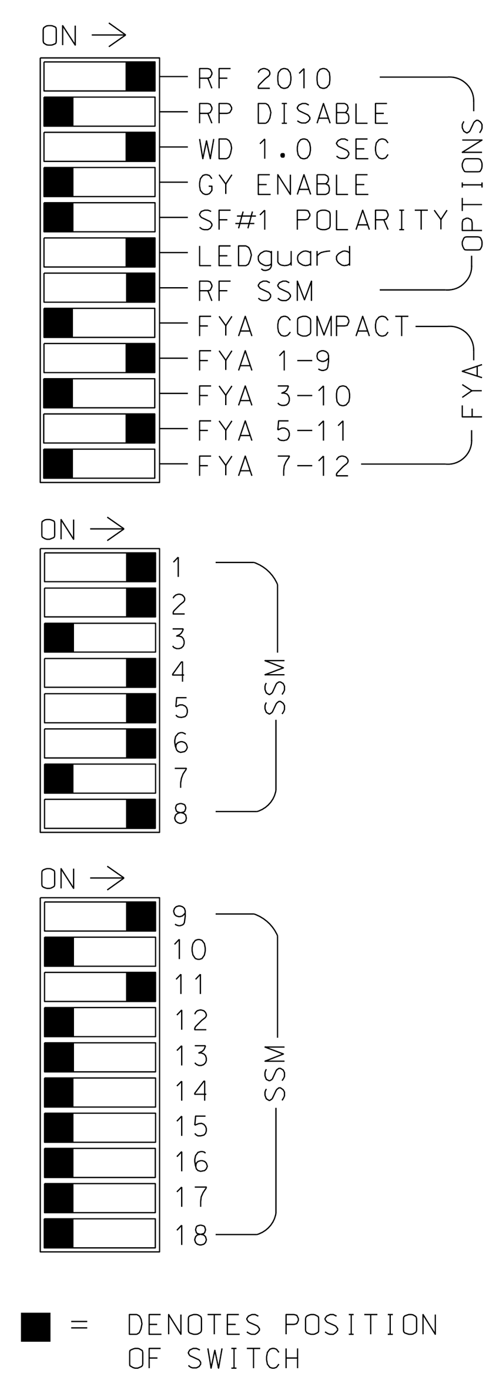
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 4-8, 5-9, 5-11, 6-9, 6-11 and 9-11.





REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green and 6 Green.
4. The cabinet and controller are part of the Elizabeth City Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S5,S7,S8,S11,AUX S1, AUX S4
PHASES USED.............1,2,4,5,6,8
OVERLAP "A".............✳
OVERLAP "B".............NOT USED
OVERLAP "C".............✳
OVERLAP "D".............NOT USED

✳ See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1		S2	S3	S4	S5	S6	S7		S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1		2	13	3	4	14	5		6	15	7	8	16	9	10	17	11	12	18
PHASE	1		2	2 PED	3	4	4 PED	5		6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	82	21,22	NU	NU	41,42	NU	51 ★	42	61,62	NU	NU	81,82	NU	11 ★	NU	NU	51 ★	NU	NU
RED	✳		128			101		✳		134			107							
YELLOW			129			102				135			108							
GREEN			130			103				136			109							
RED ARROW															A121			A114		
YELLOW ARROW		126							132						A122			A115		
FLASHING YELLOW ARROW															A123			A116		
GREEN ARROW	127	127						133	133											

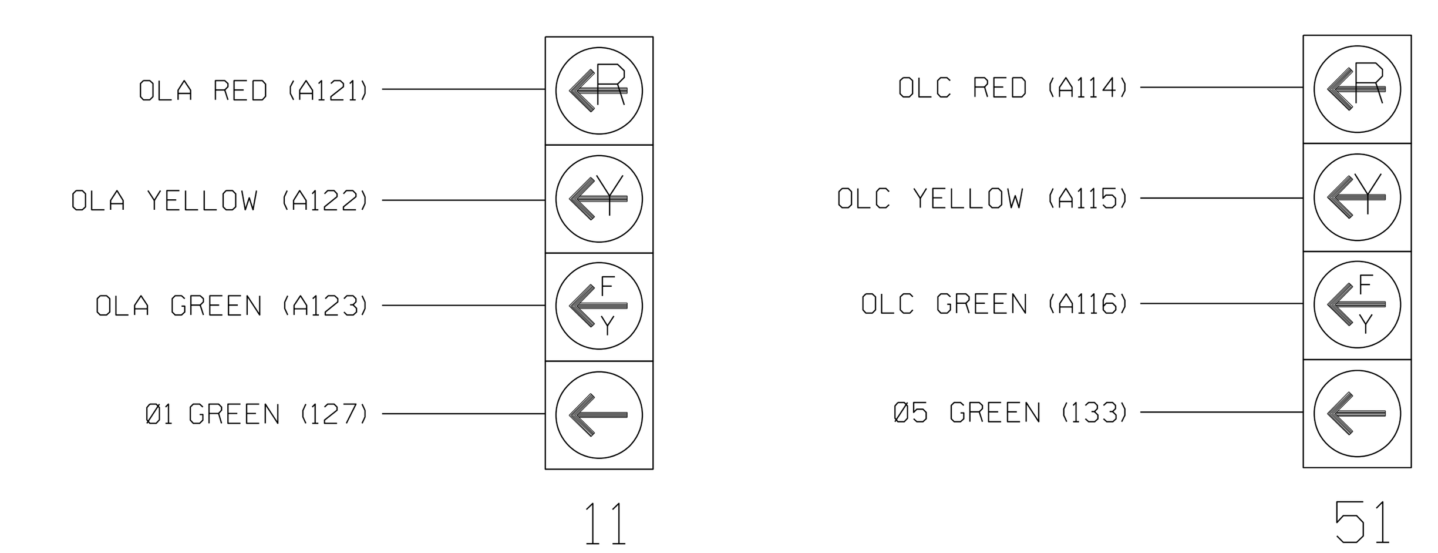
NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø1 1B	Ø2/SYS 2A/S1	WIRED INPUT ⊗	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	NOT USED	Ø2/SYS 2B/S2			NOT USED								ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø5 5B	Ø6/SYS 6A/S3	WIRED INPUT ⊗	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	NOT USED	Ø6/SYS 6B/S4			NOT USED								

EX.: 1A, 2A, ETC. = LOOP NO.'S
⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A[1]	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES		3		S
1B	TB2-5,6	I2U	39	2	1	YES		15		S
2A/S1	TB2-9,10	I3U	63	32	2/SYS	YES				S
2B/S2	TB2-11,12	I3L	76	42	2/SYS	YES				S
4A	TB4-9,10	I6U	41	4	4	YES		3		S
5A[2]	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES		3		S
5B	TB3-5,6	J2U	40	6	5	YES		15		S
6A/S3	TB3-9,10	J3U	64	36	6/SYS	YES				S
6B/S4	TB3-11,12	J3L	77	46	6/SYS	YES				S
8A	TB5-9,10	J6U	42	8	8	YES		3		S

[1] Add jumper from I1-W to J4-W, on rear of input file.
[2] Add jumper from J1-W to I4-W, on rear of input file.

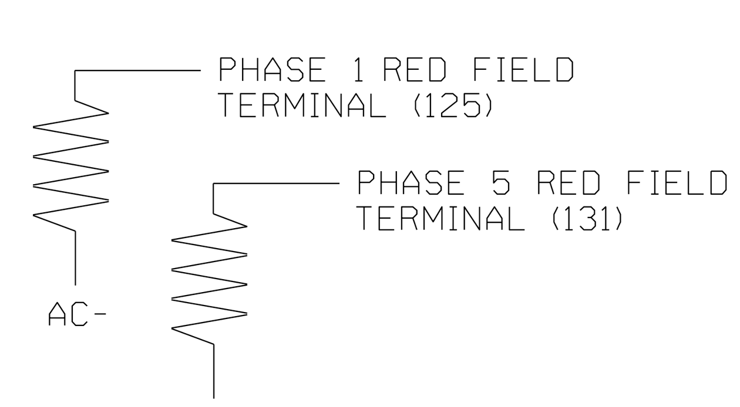
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0092
DESIGNED: FEBRUARY 2018
SEALED: 08/22/2018
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (US 17 South)
at
SR 1306 (Forest Park Road)/
Central Elementary School Ent.

Division 1 Pasquotank County Elizabeth City

PLAN DATE: February 2018	REVIEWED BY: AJ Davis
PREPARED BY: DJ White	REVIEWED BY: LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by: Lisa M. Moon 9/20/2018
58CE58BD83D0421...
DATE

SIG. INVENTORY NO. 01-0092

20-SEP-2018 18:51
R:\U5942\Signals\Design\Wiring\01-0092-08222018e.dgn
lmoon AT CAR-LMOON1-W7

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 21.2

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE   1
OPPOSING THROUGH.......   PHASE   2

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

Toggle Twice

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

```
TMG VEH OVLP...[C] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   PHASE   5
OPPOSING THROUGH.......   PHASE   6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 0
```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0092
DESIGNED: FEBRUARY 2018
SEALED: 08/22/2018
REVISED: N/A

20-SEP-2018 18:51
R:*U5942*Signals*Design*Wiring*01-0092-08222018e.dgn
lmoon AT CAR-LMOON1-W7

Electrical Detail - Sheet 2 of 2

Plans Prepared By:
DRMP
DRMP, Inc.
8000 Regency Parkway, Suite 175
Cary, NC 27518
NC License No. C-2213 (919) 650-1038

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
State of North Carolina Department of Transportation
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 17 (US 17 South)
at
SR 1306 (Forest Park Road)/
Central Elementary School Ent.

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	February 2018	REVIEWED BY:	AJ Davis
PREPARED BY:	DJ White	REVIEWED BY:	LM Moon

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

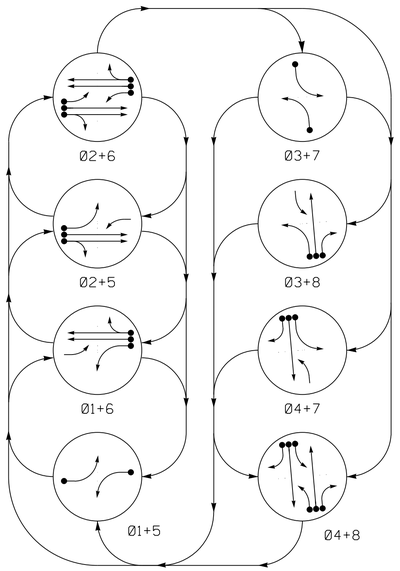
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by:
Lisa M. Moon
58CE58BD83D0421...
9/20/2018
DATE

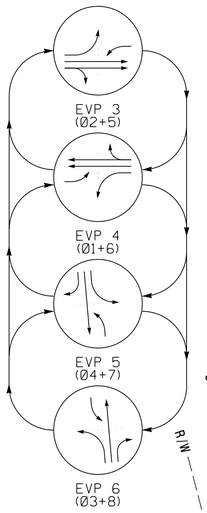
SIG. INVENTORY NO. 01-0092

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 22.0

PHASING DIAGRAM

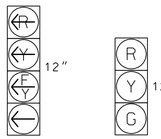


EV PREEMPT PHASES



SIGNAL FACE I.D.

All Heads L.E.D.



11	21, 22
31	41, 42
51	61, 62
71	81, 82

TABLE OF OPERATION

SIGNAL FACE	PHASE												
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	EVP3	EVP4	EVP5	EVP6	FLASH
11	←●	←	F Y	F Y	R	R	R	R	F Y	←	R	R	Y
21,22	R	R	G	G	R	R	R	R	G	R	R	R	Y
31	R	R	R	R	←●	←	F Y	F Y	R	R	F Y	←	R
41,42	R	R	R	R	R	R	G	G	R	R	G	R	R
51	←●	F Y	←	F Y	R	R	R	R	←	F Y	R	R	Y
61,62	R	G	R	G	R	R	R	R	R	G	R	R	Y
71	R	R	R	R	←●	F Y	←	F Y	R	R	R	←	F Y
81,82	R	R	R	R	R	G	R	G	R	R	R	G	R

ASC/3 DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Yes	-	15	-	S	-	X
					6	Yes	-	3	-	G	-	X
2A/S1	6X6	355	EXIST	-	2	Yes	-	-	X	N	X	X
2B/S2	6X6	355	EXIST	-	2	Yes	-	-	X	N	X	X
3A	6X60	+5	2-4-2	-	3	Yes	-	15	-	S	-	X
					8	Yes	-	3	-	G	-	X
4A	6X60	+5	2-4-2	-	4	Yes	-	-	-	S	-	X
4B	6X40	+5	2-4-2	-	4	Yes	-	15	-	S	-	X
5A	6X40	0	2-4-2	-	5	Yes	-	15	-	S	-	X
					2	Yes	-	3	-	G	-	X
6A/S3	6X6	355	EXIST	-	6	Yes	-	-	X	N	X	X
6B/S4	6X6	355	EXIST	-	6	Yes	-	-	X	N	X	X
7A	6X60	+5	2-4-2	-	7	Yes	-	15	-	S	-	X
					4	Yes	-	3	-	G	-	X
8A	6X60	+5	2-4-2	-	8	Yes	-	-	-	S	-	X
8B	6X40	+5	2-4-2	-	8	Yes	-	15	-	S	-	X
S5	6X6	+160	3	X	-	-	-	-	-	N	X	X
S6	6X6	+160	3	X	-	-	-	-	-	N	X	X
S7	6X6	+160	4	X	-	-	-	-	-	N	X	X
S8	6X6	+160	4	X	-	-	-	-	-	N	X	X

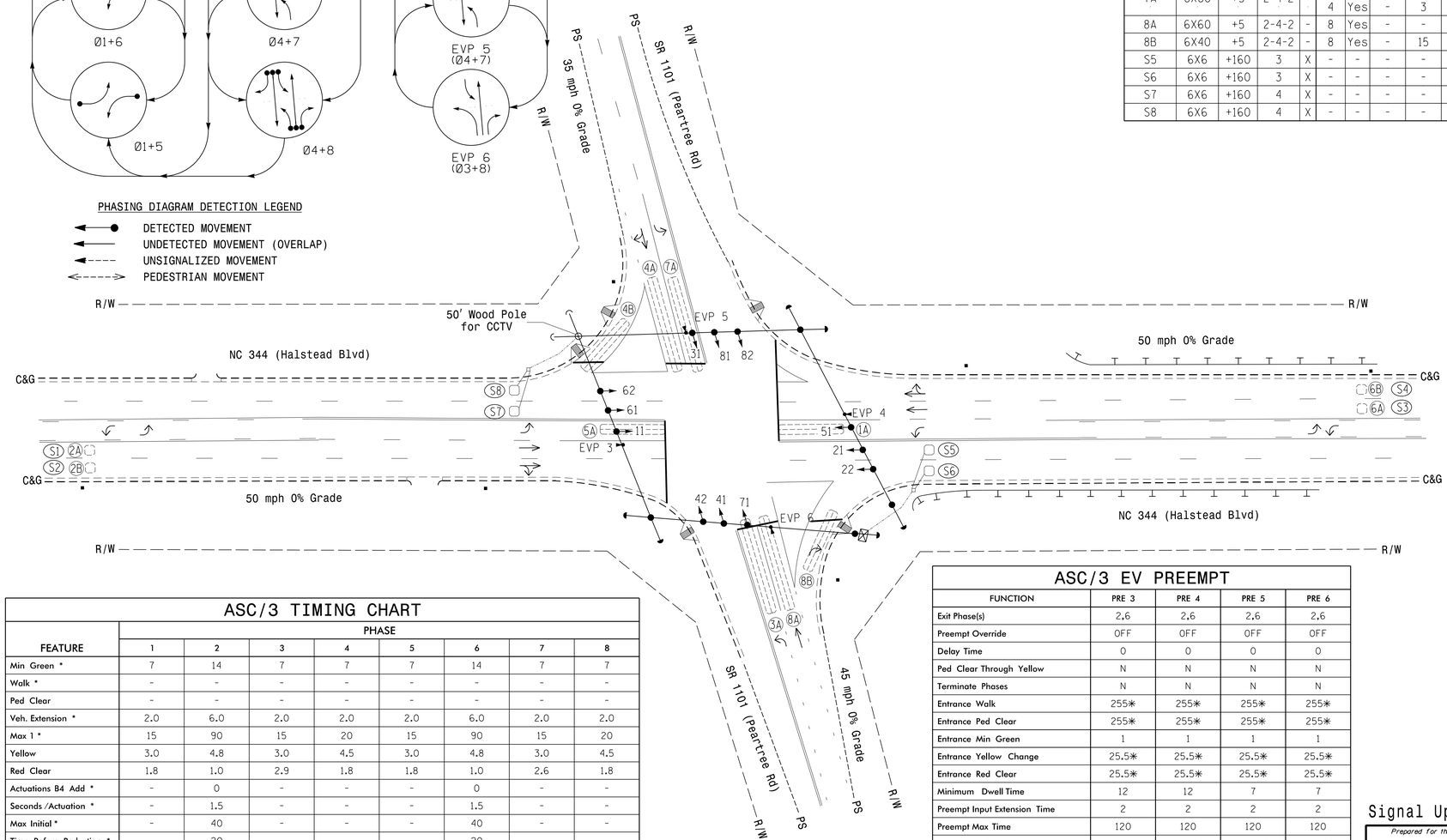
8 Phase Fully Actuated w/ EV Preemption (Elizabeth City Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
8. Pavement markings are existing.
9. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
10. Optical detector 3 calls EVP 3; Optical detector 4 calls EVP 4; Optical detector 5 calls EVP 5; Optical detector 6 calls EVP 6.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○→	Signal Pole with Guy	●→
○↓	Signal Pole with Sidewalk Guy	●↓
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·····	2-in Underground Conduit	·····
N/A	Right of Way	———
→	Directional Arrow	→
○◁	Optical Detector	●◀

ASC/3 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	14	7	7	7	14	7	7
Walk *	-	-	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-	-	-
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max 1 *	15	90	15	20	15	90	15	20
Yellow	3.0	4.8	3.0	4.5	3.0	4.8	3.0	4.5
Red Clear	1.8	1.0	2.9	1.8	1.8	1.0	2.6	1.8
Actuations B4 Add *	-	0	-	-	-	0	-	-
Seconds /Actuation *	-	1.5	-	-	-	1.5	-	-
Max Initial *	-	40	-	-	-	40	-	-
Time Before Reduction *	-	20	-	-	-	20	-	-
Time To Reduce *	-	50	-	-	-	50	-	-
Minimum Gap	-	3.3	-	-	-	3.3	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	X	-	-	-	X
Simultaneous Gap	X	X	X	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

ASC/3 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Exit Phase(s)	2,6	2,6	2,6	2,6
Preempt Override	OFF	OFF	OFF	OFF
Delay Time	0	0	0	0
Ped Clear Through Yellow	N	N	N	N
Terminate Phases	N	N	N	N
Entrance Walk	255*	255*	255*	255*
Entrance Ped Clear	255*	255*	255*	255*
Entrance Min Green	1	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7	7
Preempt Input Extension Time	2	2	2	2
Preempt Max Time	120	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*	25.5*

*Time defaults to time used for phase during normal operation

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

Signal Upgrade

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 344 (Halstead Boulevard) At SR 1101 (Peartree Road)

Division 1 Pasquotank County Elizabeth City

PLAN DATE:	September 2018	REVIEWED BY:	CBHolden
PREPARED BY:	DTSears	REVIEWED BY:	

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL NORTH CAROLINA PROFESSIONAL SEAL 033753 ENGINEER C. BYRON HOLDEN

DocuSigned by: C. Byron Holden 9/21/2018
SIGNATURE DATE

SIG. INVENTORY NO. 01-0217

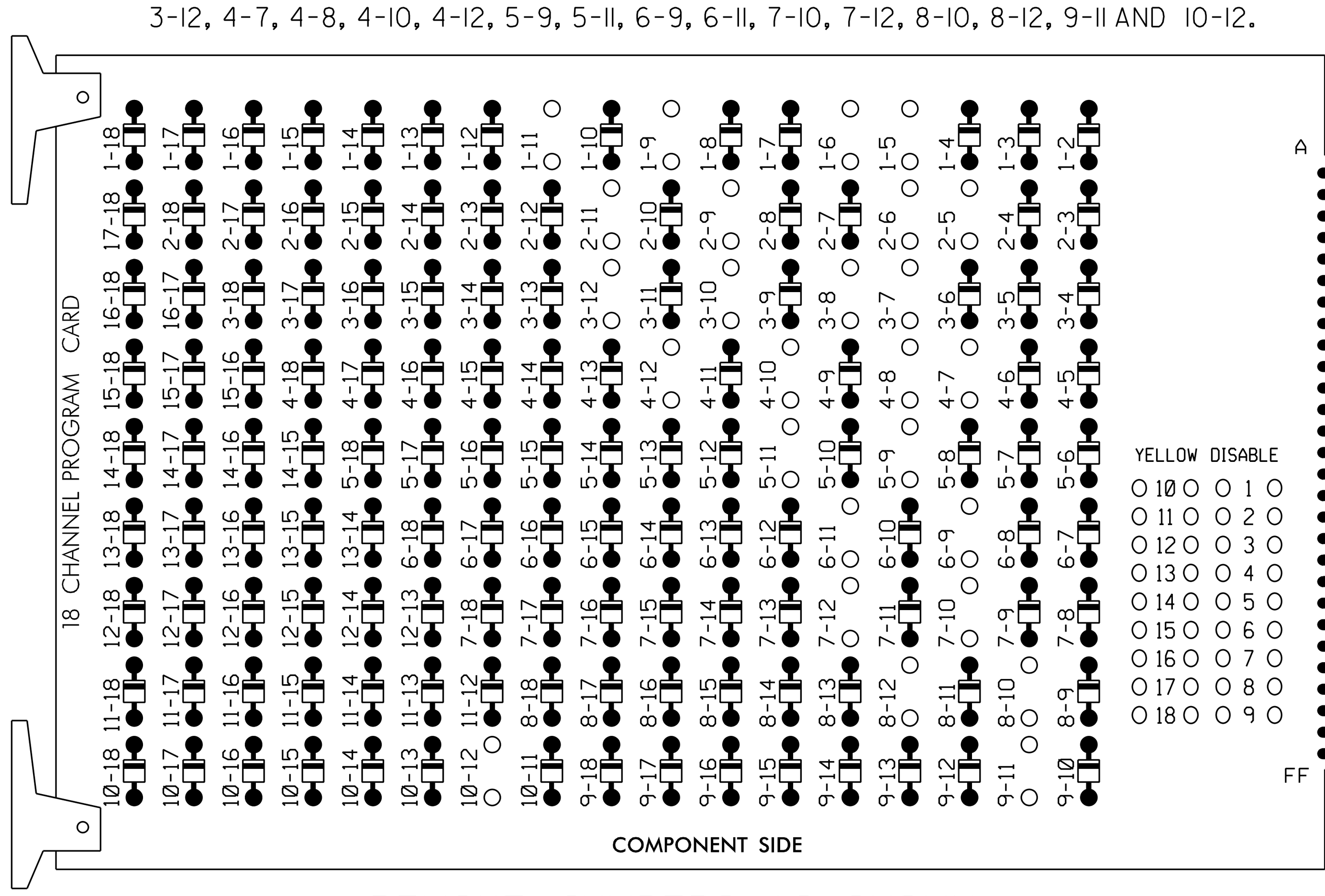
9/21/2018
R:\Traffic\Signals\Design\Signals\U-5942_sig_dsn_01-0217.dgn
dsears

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 22.1

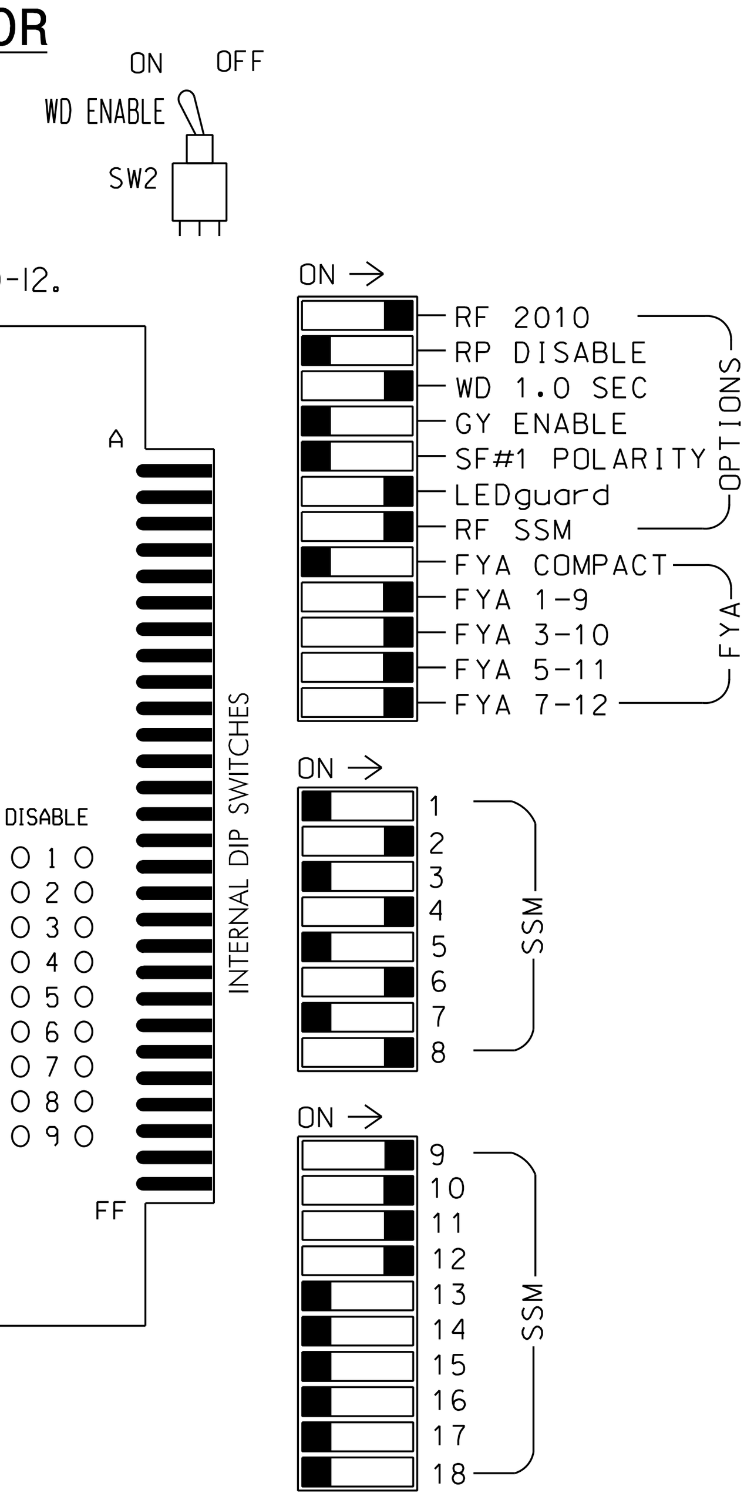
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 7-10, 7-12, 8-10, 8-12, 9-11 AND 10-12.



REMOVE JUMPERS AS SHOWN



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green and 6 Green.
4. The cabinet and controller are part of the Elizabeth City Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET.................332 W/AUX
SOFTWARE................ECONOLITE ASC/3-2070
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S4,S5,S7,S8,S10,S11, AUX S1,AUX S2,AUX S4,AUX S5
PHASES USED.............1,2,3,4,5,6,7,8
OVERLAP "A".............*
OVERLAP "B".............*
OVERLAP "C".............*
OVERLAP "D".............*

* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	21,22	NU	31 ★	41,42	NU	51 ★	61,62	NU	71 ★	81,82	NU	11 ★	31 ★	NU	51 ★	71 ★	NU
RED		128			101			134			107							
YELLOW	*	129		*	102		*	135		*	108							
GREEN		130			103			136			109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW													A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118			133			124								

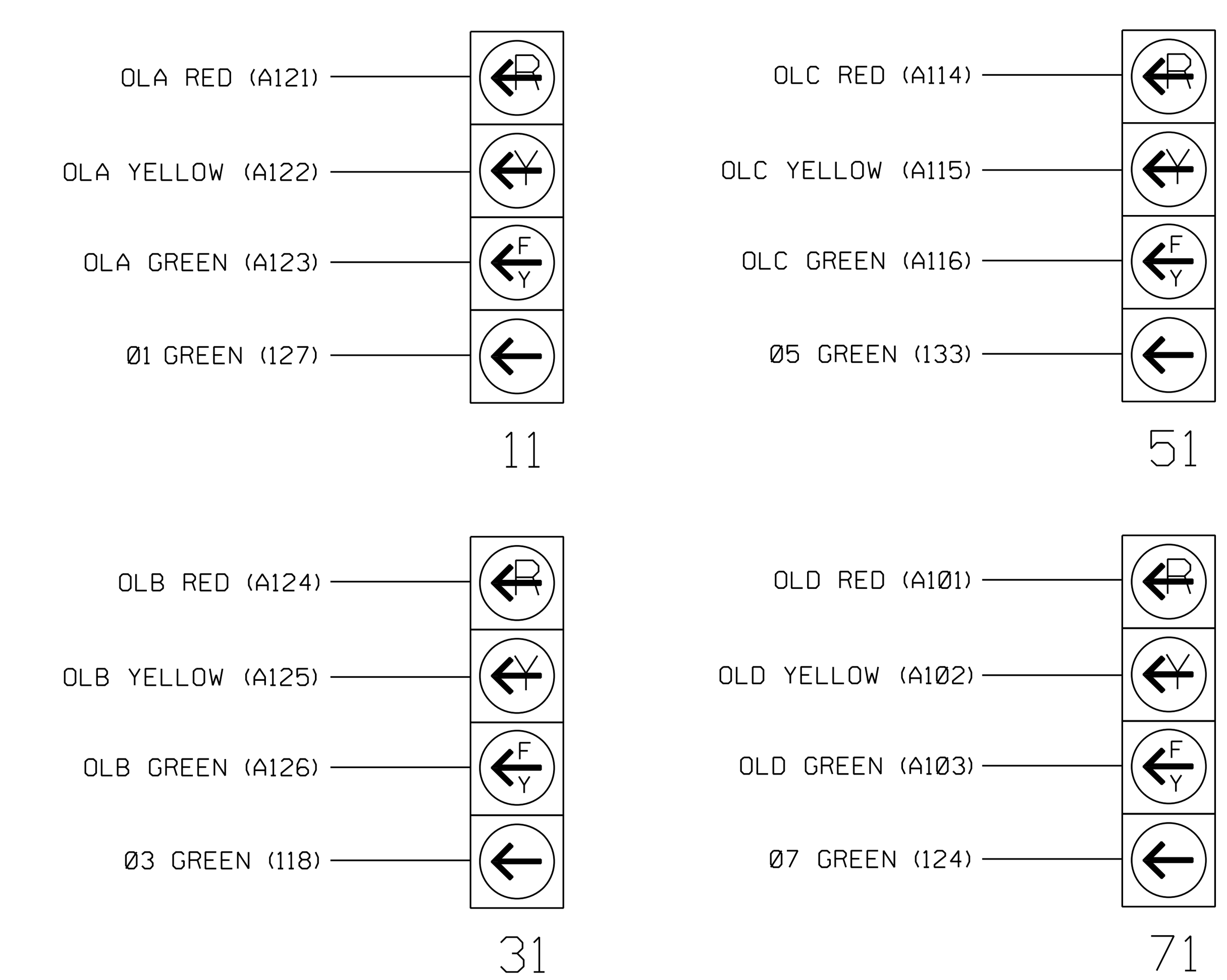
NU = Not Used

* Denotes install load resistor. See load resistor installation detail on sheet 2 of 3.

★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø2/SYS 2A/S1	SLOT EMPTY	WIRED INPUT ⊗	Ø 3 3A	Ø 4 4A	SLOT EMPTY	WIRED INPUT ⊗	SYS. DET. S5	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2/SYS 2B/S2			NOT USED	Ø 4 4B			SYS. DET. S6					ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø6/SYS 6A/S3	SLOT EMPTY	WIRED INPUT ⊗	Ø 7 7A	Ø 8 8A	SLOT EMPTY	WIRED INPUT ⊗	SYS. DET. S7	SLOT EMPTY	SLOT EMPTY	PRE3 *	PRE4 * (OPTICAL 4-CHANNEL)	SLOT EMPTY
	L	NOT USED	Ø6/SYS 6B/S4			NOT USED	Ø 8 8B			SYS. DET. S8			PRE5	PRE6	

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A [1]	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES		3		G
2A/S1	TB2-5,6	I2U	39	2	2/SYS	YES			X	N
2B/S2	TB2-7,8	I2L	43	12	2/SYS	YES			X	N
3A [2]	TB4-5,6	I5U	58	3	3	YES		15		S
	-	J8U	50	28	8	YES		3		G
4A	TB4-9,10	I6U	41	4	4	YES				S
4B	TB4-11,12	I6L	45	14	4	YES		15		S
* S5	TB6-9,10	I9U	60	11	SYS	NO				N
* S6	TB6-11,12	I9L	62	13	SYS	NO				N
5A [3]	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES		3		G
6A/S3	TB3-5,6	J2U	40	6	6/SYS	YES			X	N
6B/S4	TB3-7,8	J2L	44	16	6/SYS	YES			X	N
7A [4]	TB5-5,6	J5U	57	7	7	YES		15		S
	-	I8U	49	24	4	YES		3		G
8A	TB5-9,10	J6U	42	8	8	YES				S
8B	TB5-11,12	J6L	46	18	8	YES		15		S
* S7	TB7-9,10	J9U	59	15	SYS	NO				N
* S8	TB7-11,12	J9L	61	17	SYS	NO				N

* System detector only. Remove any assigned vehicle phase.

[1] Add jumper from I1-W to J4-W, on rear of input file.
[2] Add jumper from I5-W to J8-W, on rear of input file.
[3] Add jumper from J1-W to I4-W, on rear of input file.
[4] Add jumper from J5-W to I8-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

** OPTICAL PREEMPTION SYSTEM

1. Install an optical preeemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
2. Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0217
DESIGNED: September 2018
SEALED: 09/21/2018
REVISED: N/A

Electrical Detail - Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division — State of North Carolina Department of Transportation — ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 344 (Halstead Boulevard)
at
SR 1101 (Peartree Road)

Division 1 Pasquotank County Elizabeth City

PLAN DATE: September 2018	REVIEWED BY: J O Deaton
PREPARED BY: M W Yalch	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 07438 ENGINEER JAMES O. DEATON

DocuSigned by: James O. Deaton 9/21/2018
DATE

SIG. INVENTORY NO. 01-0217

9/21/2018
R:*Traffic*Signals*Design*Electrical Details*01-0217e-04-200.dgn
dsears

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....[PPLT FYA]

PROTECTED LEFT TURN....   PHASE    1
OPPOSING THROUGH.......   PHASE    2

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.......... 0
```

Toggle Once

↓

OVERLAP B

Select TMG VEH OVLP [B] and 'PPLT FYA'

```
TMG VEH OVLP...[B] TYPE: .....[PPLT FYA]

PROTECTED LEFT TURN....   PHASE    3
OPPOSING THROUGH.......   PHASE    4

FLASHING ARROW OUTPUT.....CH10 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.......... 0
```

Toggle Once

↓

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

```
TMG VEH OVLP...[C] TYPE: .....[PPLT FYA]

PROTECTED LEFT TURN....   PHASE    5
OPPOSING THROUGH.......   PHASE    6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.......... 0
```

Toggle Once

↓

OVERLAP D

Select TMG VEH OVLP [D] and 'PPLT FYA'

```
TMG VEH OVLP...[D] TYPE: .....[PPLT FYA]

PROTECTED LEFT TURN....   PHASE    7
OPPOSING THROUGH.......   PHASE    8

FLASHING ARROW OUTPUT.....CH12 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.......... 0
```

END PROGRAMMING

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

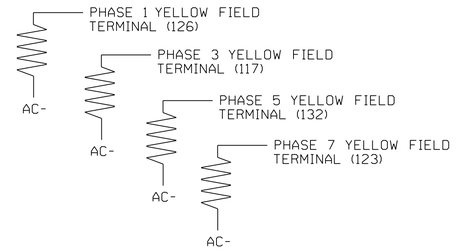
PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig. 22.2

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPT/TSP/SCP Submenu select [2. ENABLE PREEMPT FILTERING & TSP/SCP]

```
ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED      SOLID          PULSING
INPUT  1 ...BYPASSED.. ...BYPASSED..
       2 ...BYPASSED.. ...BYPASSED..
       3 ..PREEMPT  3. ...BYPASSED..
       4 ..PREEMPT  4. ...BYPASSED..
       5 ..PREEMPT  5. ...BYPASSED..
       6 ..PREEMPT  6. ...BYPASSED..
       7 ...BYPASSED.. ...BYPASSED..
       8 ...BYPASSED.. ...BYPASSED..
       9 ...BYPASSED.. ...BYPASSED..
      10 ...BYPASSED.. ...BYPASSED..
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0217
DESIGNED: September 2018
SEALED: 09/21/2018
REVISED: N/A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ITS & Signals Management Section

750 N.Greenfield Pkwy.Garner,NC 27529

NC 344 (Halstead Boulevard)
at
SR 1101 (Peartree Road)

Division 1 | Pasquotank County | Elizabeth City

PLAN DATE: September 2018	REVIEWED BY: J O Deaton		
PREPARED BY: M W Yalch	REVIEWED BY:		

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 07438 ENGINEER JAMES O. DEATON

DocuSigned by: James O. Deaton 9/21/2018
DATE

SIG. INVENTORY NO. 01-0217

PROJECT REFERENCE NO.	SHEET NO.
U-5942	Sig.22.3

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [4. PREEMPTOR/TSP]
2. From PREEMPTOR/TSP/SCP Submenu select [1. PREEMPT PLAN 1-10]

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```
PREEMPT PLAN [  3]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . X . . X . . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLPF1 .F1 . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT   12|   2.0|  120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES      1   2   3   4   5   6   7   8
PR RTN%     0   0   0   0   0   0   0   0
PHASES      9  10  11  12  13  14  15  16
PR RTN%     0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```
PREEMPT PLAN [  4]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH X . . . . X . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLPF1 .F1 . . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT   12|   2.0|  120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES      1   2   3   4   5   6   7   8
PR RTN%     0   0   0   0   0   0   0   0
PHASES      9  10  11  12  13  14  15  16
PR RTN%     0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```
PREEMPT PLAN [  5]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . . X . . X . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP .F1 .F1 . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT    7|   2.0|  120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES      1   2   3   4   5   6   7   8
PR RTN%     0   0   0   0   0   0   0   0
PHASES      9  10  11  12  13  14  15  16
PR RTN%     0   0   0   0   0   0   0   0
```

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```
PREEMPT PLAN [  6]    ENABLE....YES
 VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . . . . . . . . . . . . .
TRKCLR O . . . . . . . . . . . . . . . .
ENA TRL  . . . . . . . . . . . . . . . .
DWEL VEH . . X . . . . X . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . .
DWEL OLP .F1 .F1 . . . . . . . . . . . .
CYC VEH  . . . . . . . . . . . . . . . .
CYC PED  . . . . . . . . . . . . . . . .
CYC OLP  . . . . . . . . . . . . . . . .
EXIT PH  . X . . . X . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . .
SP FUNC  . . . . . . . . . . . . . . . .

ENABLE... YES|PMT OVRIDE..|INTERLOCK. NO
DET LOCK... X|DELAY..    0|INHIBIT...  0
OVERIDE FL. .|DURATION   0|CLR-GRN... NO
TERM OLP.  NO|PC>YEL    NO|TERM PH    NO
PED DARK.. NO|TC RESRV  NO|DWELL FL  OFF
LINK PMT....0|X FLCOLR RED|EXIT OPT. OFF
X TMG PLN...0|RE-SERV..  0|FLT TYPE.HARD
FREE DUR PMT|R1  NO|R2  NO|R3  NO|R4  NO
--TIMING-----WALK|PED CL|MN GR| YEL| RED
ENTRANCE TM.  255|   255|    1|25.5|25.5
-----------MIN GR|EXT GR|MX GR| YEL| RED
TRACK CLEAR     0|     0|    0|25.5|25.5
-----------MIN DL|PMTEXT|MX TM| YEL| RED
DWL/CYC-EXIT    7|   2.0|  120|25.5|25.5
PMT ACTIVE OUT..ON   PMT ACT DWELL...NO
OTHER - PRI PMT.OFF  NON-PRI PMT.....OFF
INH EXT TIME... 0.0  PED PR RETURN...OFF
PRIORITY RETURN.OFF  QUEUE DELAY.... OFF
COND DELAY......OFF
PHASES      1   2   3   4   5   6   7   8
PR RTN%     0   0   0   0   0   0   0   0
PHASES      9  10  11  12  13  14  15  16
PR RTN%     0   0   0   0   0   0   0   0
```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 01-0217
DESIGNED: September 2018
SEALED: 09/21/2018
REVISED: N/A

Electrical Detail - Sheet 3 of 3

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation

750 N.Greenfield Pkwy,Garner,NC 27529

NC 344 (Halstead Boulevard)
at
SR 1101 (Peartree Road)

Division 1 | Pasquotank County | Elizabeth City

PLAN DATE:	September 2018	REVIEWED BY:	J O Deaton
PREPARED BY:	M W Yalch	REVIEWED BY:	

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 07438 ENGINEER JAMES O. DEATON

DocuSigned by: James O. Deaton 9/21/2018
40FF8AC430BD40F...
DATE

SIG. INVENTORY NO. 01-0217

9/21/2018
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deors