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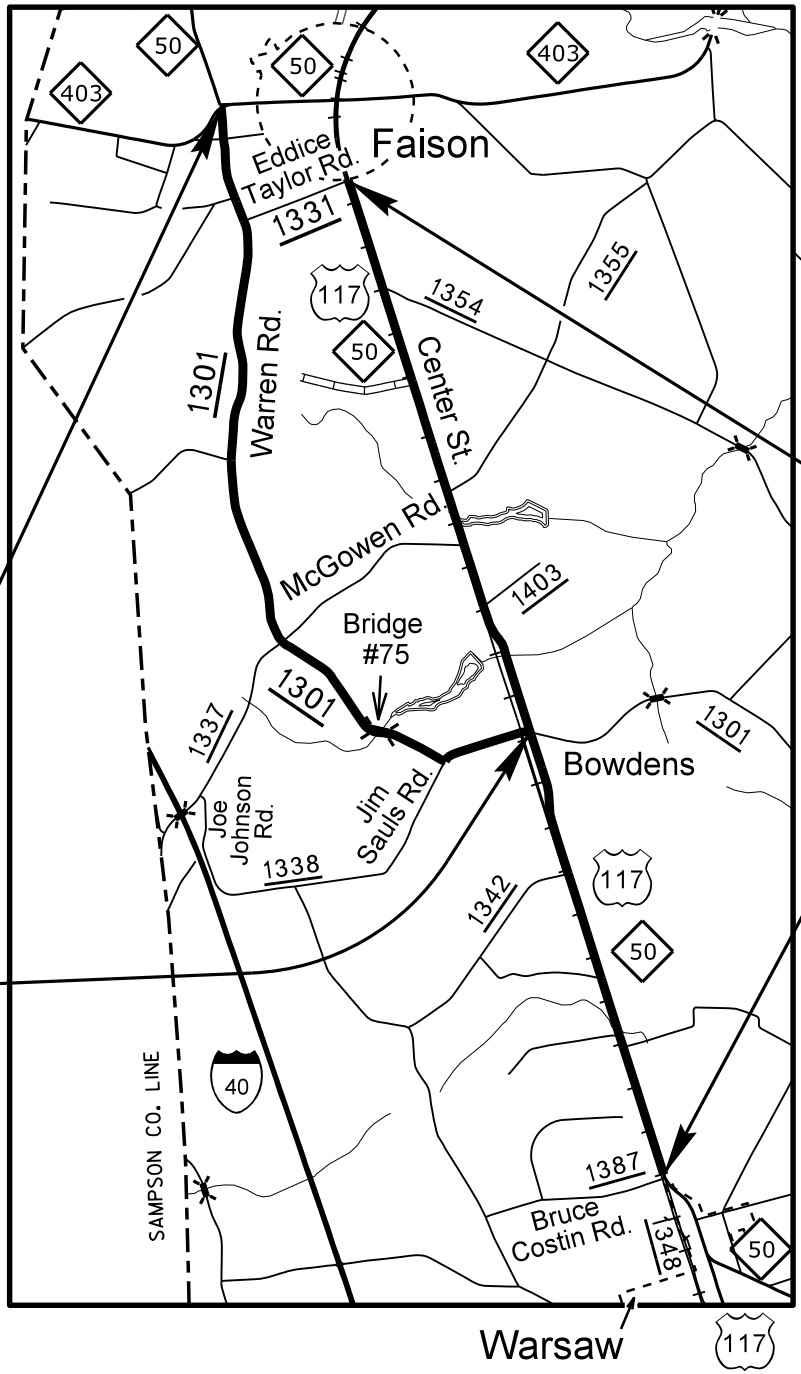
# DUPLIN COUNTY

REVISIONS

18-SEP-2016 14:14 S:\Division\Resurfacing\Resurfacing Data\2017 Resurfacing\Duplin\_Co\2017CPT.03.04.10311.US.117 & SEC. Res.\2017CPT.03.04.10311.Etc. TSH Duplin.dgn 8/17/99

**3**

SR 1301  
WARREN ROAD

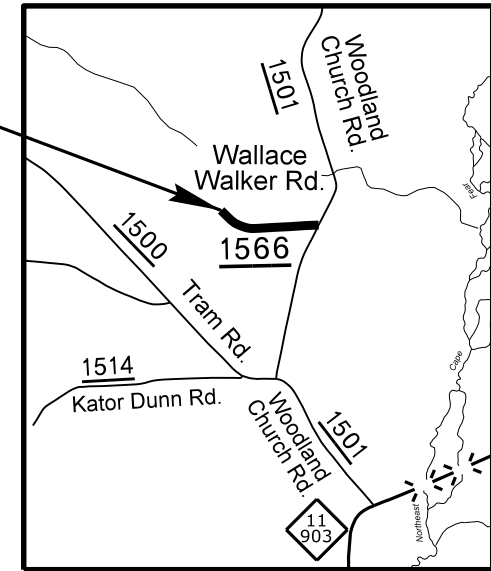


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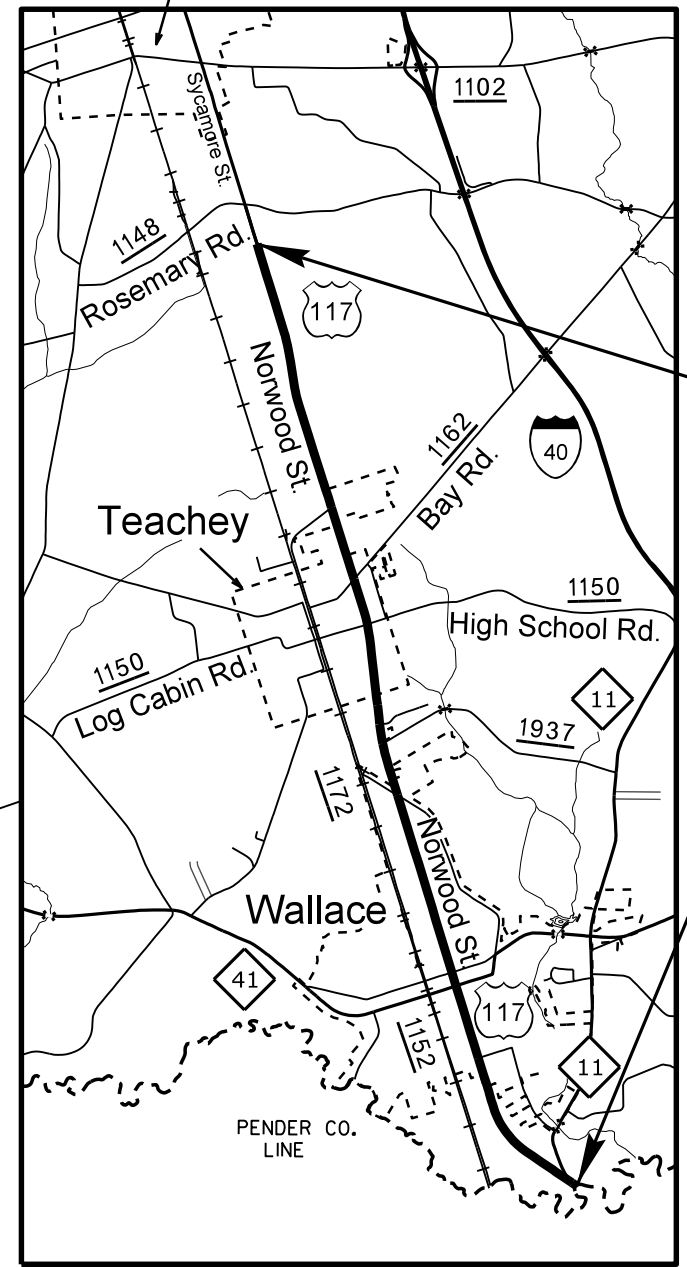
US 117/  
NC 50  
CENTER STREET

**6**

SR 1566  
WALLACE  
WALKER RD.



Rose Hill



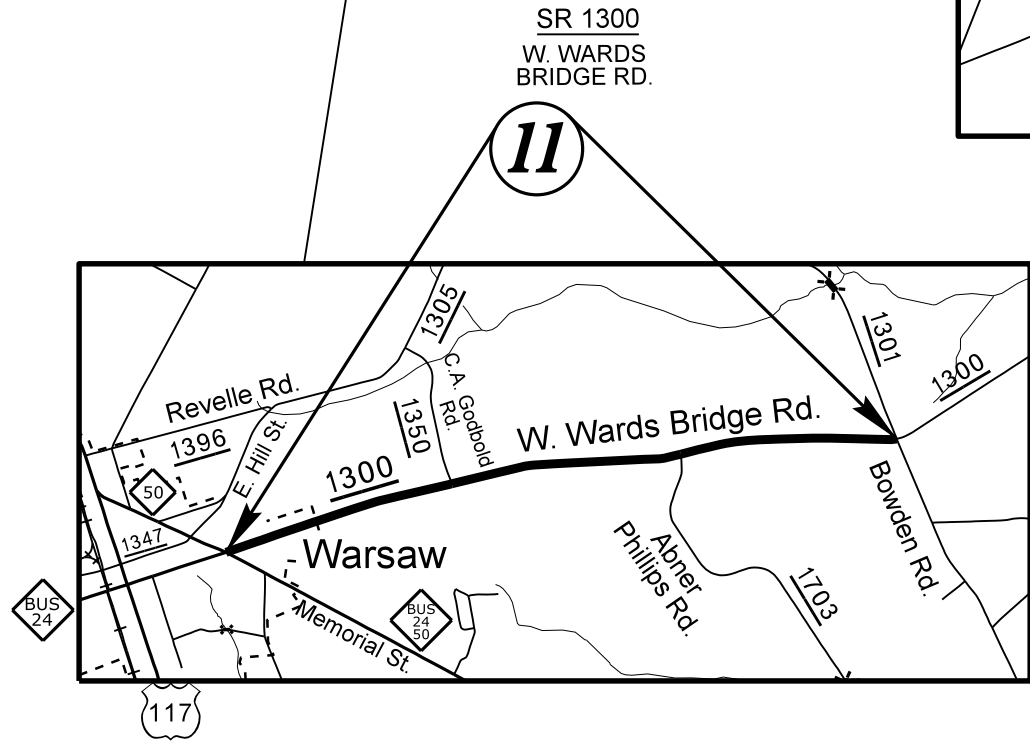
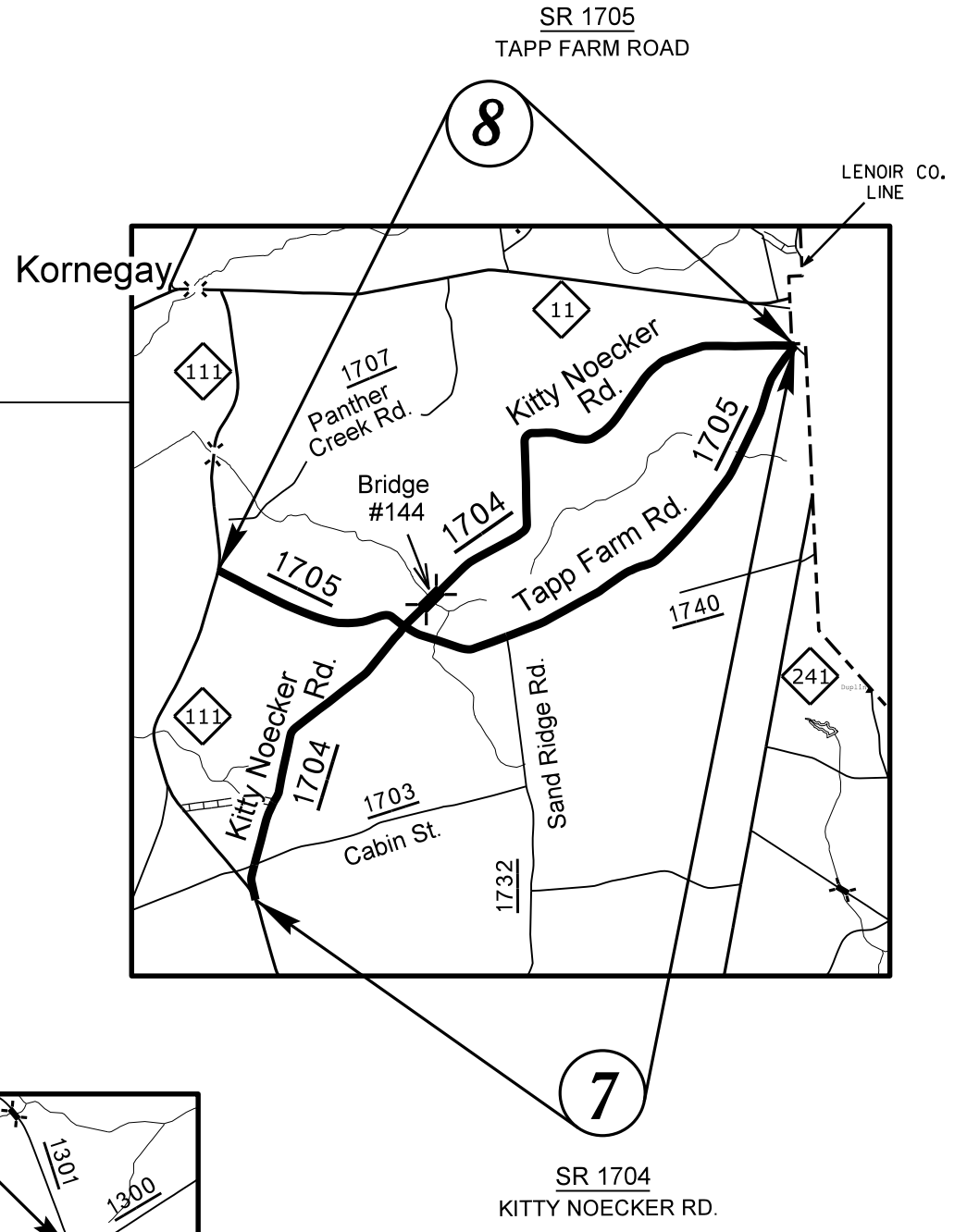
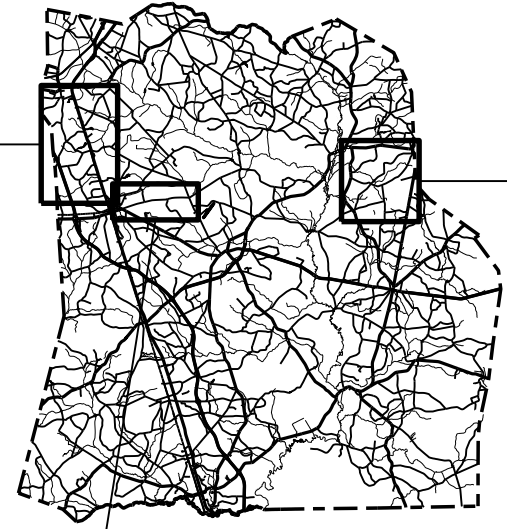
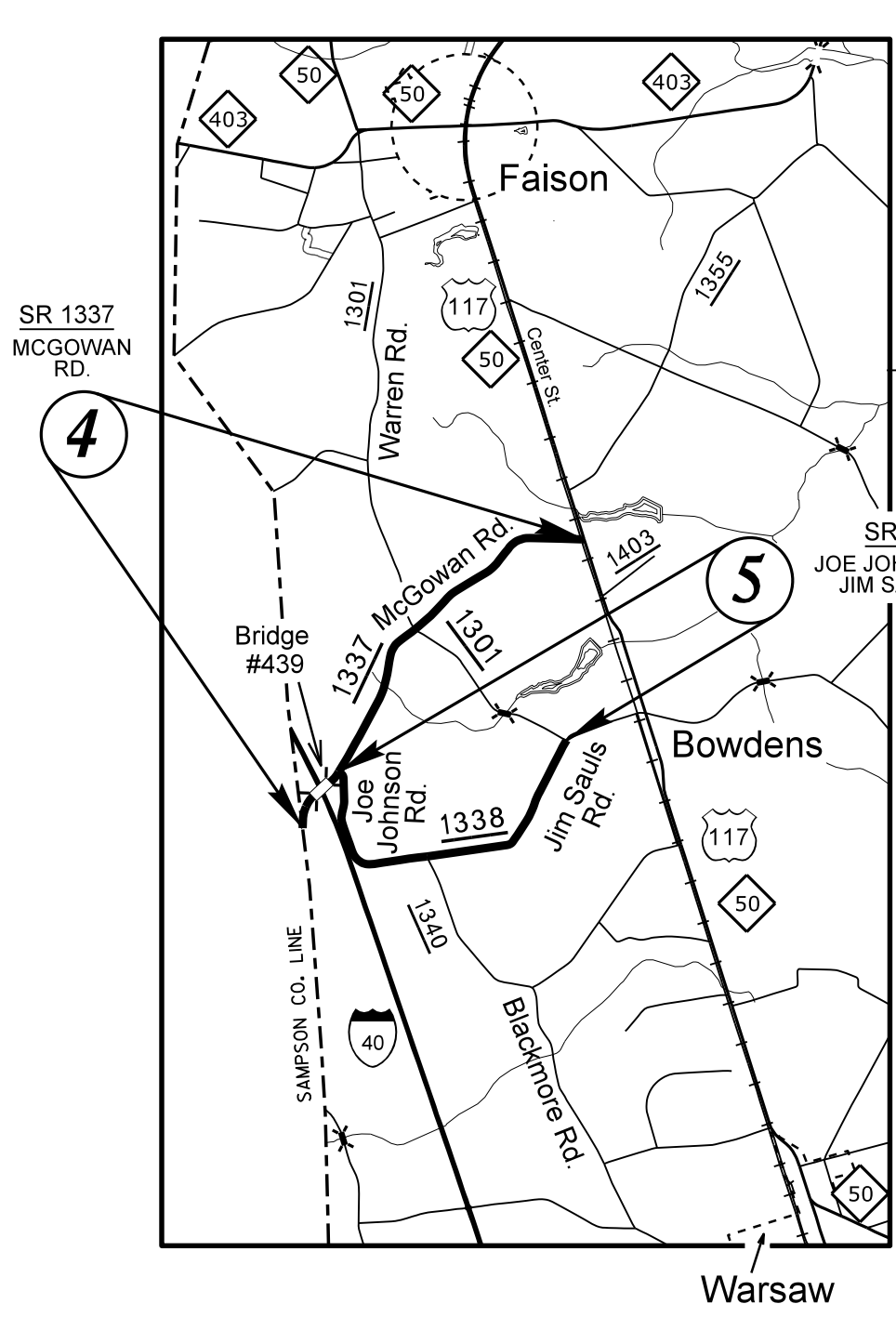
**1**

US 117  
NORWOOD  
STREET



MAPS N.T.S.

# DUPLIN COUNTY - CONT.



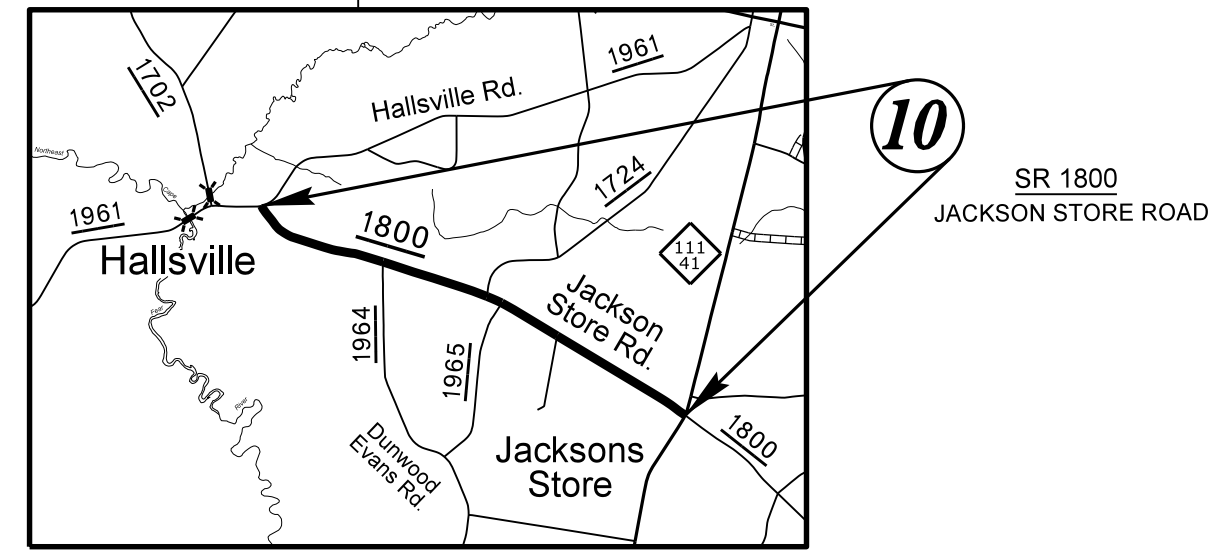
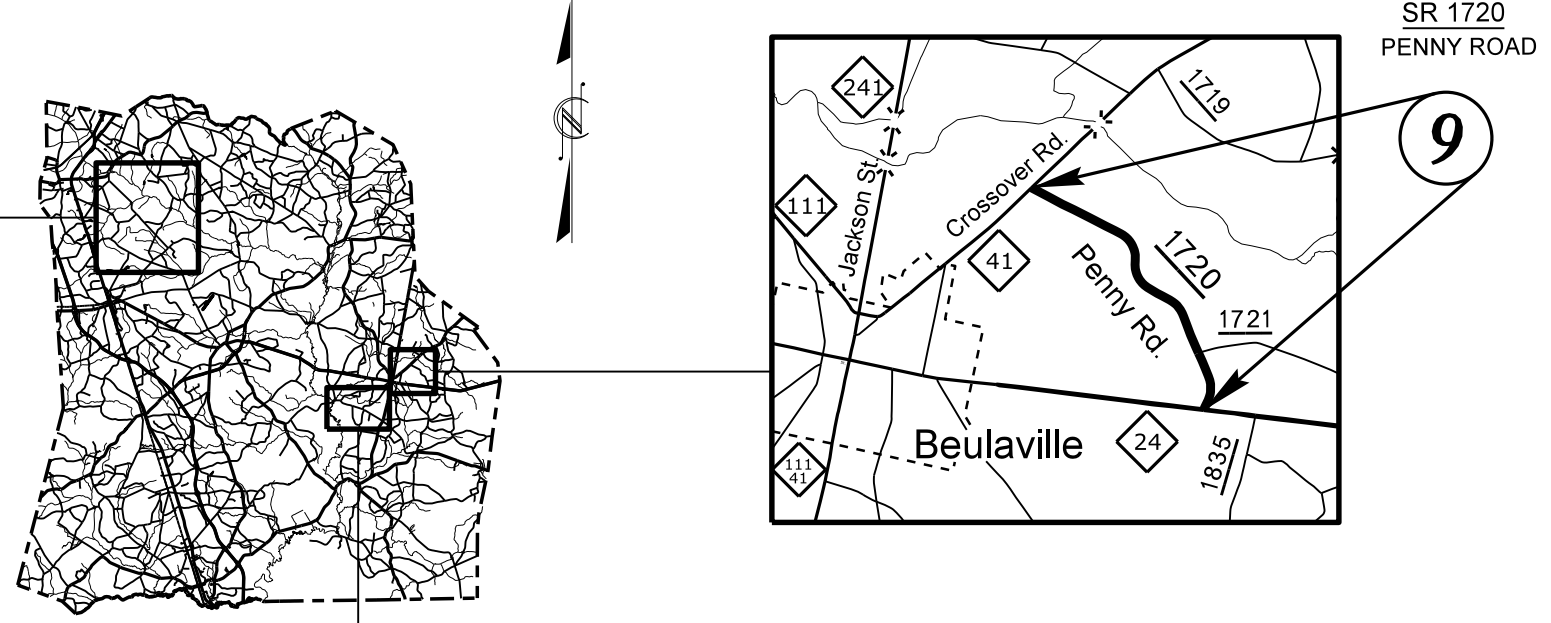
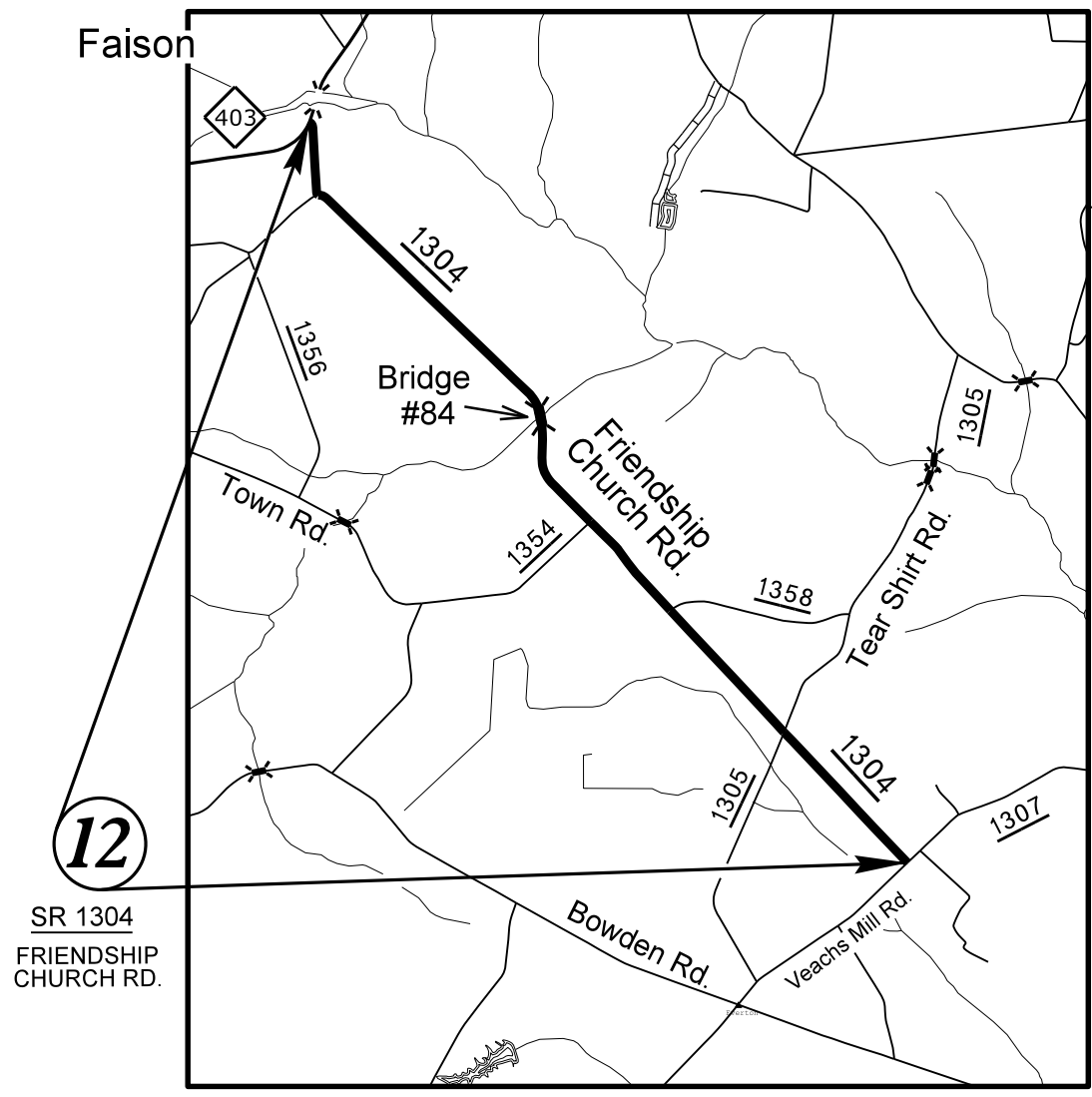
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**MAPS N.T.S.**

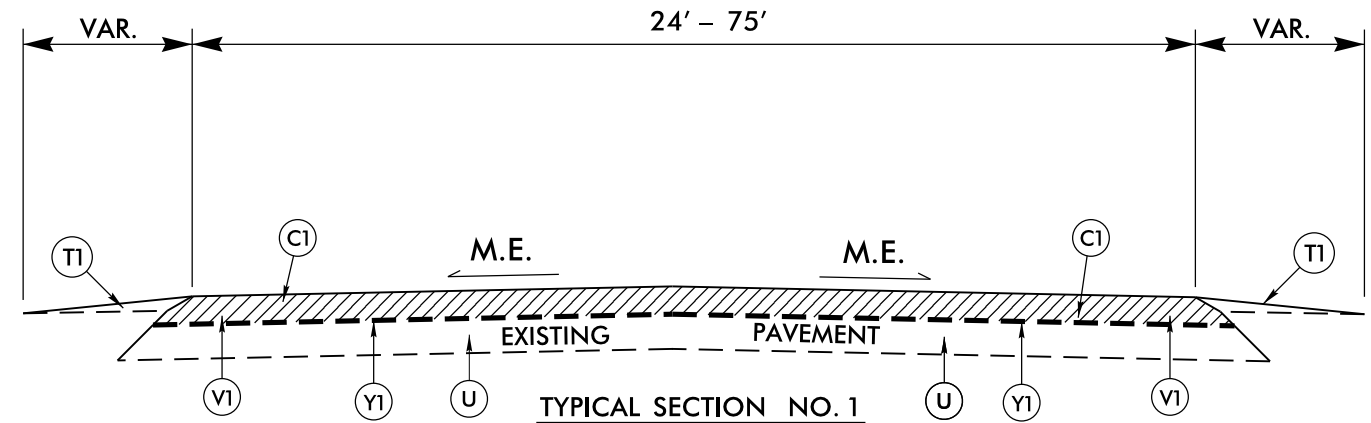
# DUPLIN COUNTY - CONT.

REVISIONS

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**MAPS N.T.S.**



MAP NO. 1  
US 117 (NORWOOD ST.)  
MP 0.000 - MP 0.970  
MP 3.210 - MP 6.623

MAP NO. 2  
US 117/NC 50 (CENTER CT.)  
MP 21.975 - MP 28.645

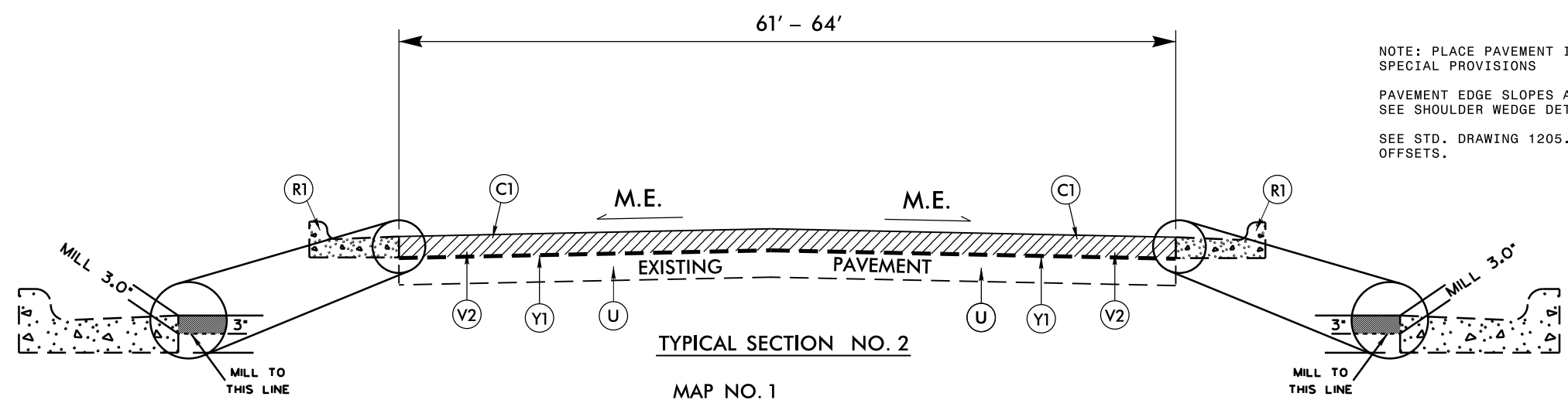
NOTE: -Y- LINE TIE-INS WILL BE MILLED 1.5"  
AND RESURFACED 1.5" WITH S9.5B ACSC.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS
C2	PROP. APPROX. 1½" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
R1	EXISTING CONCRETE 2'-6" CURB & GUTTER
R2	EXISTING CONCRETE BRIDGE RAIL
T1	EARTH MATERIAL (SHOULDER RECONSTRUCTION)
U	EXISTING PAVEMENT
V1	FINE MILLING ASPHALT PAVEMENT, 1½" DEPTH
V2	FINE MILLING ASPHALT PAVEMENT, 3" DEPTH
Y1	PAVEMENT INTERLAYER

NOTE: PLACE PAVEMENT INTERLAYER PRIOR TO RESURFACING. SEE PROJECT SPECIAL PROVISIONS

PAVEMENT EDGE SLOPES ARE 1:1, EXCEPT FINAL SURFACE COURSE. SEE SHOULDER WEDGE DETAIL.

SEE STD. DRAWING 1205.01, SHEET 2 OF 2, TABLE 1 FOR EDGE LINE OFFSETS.

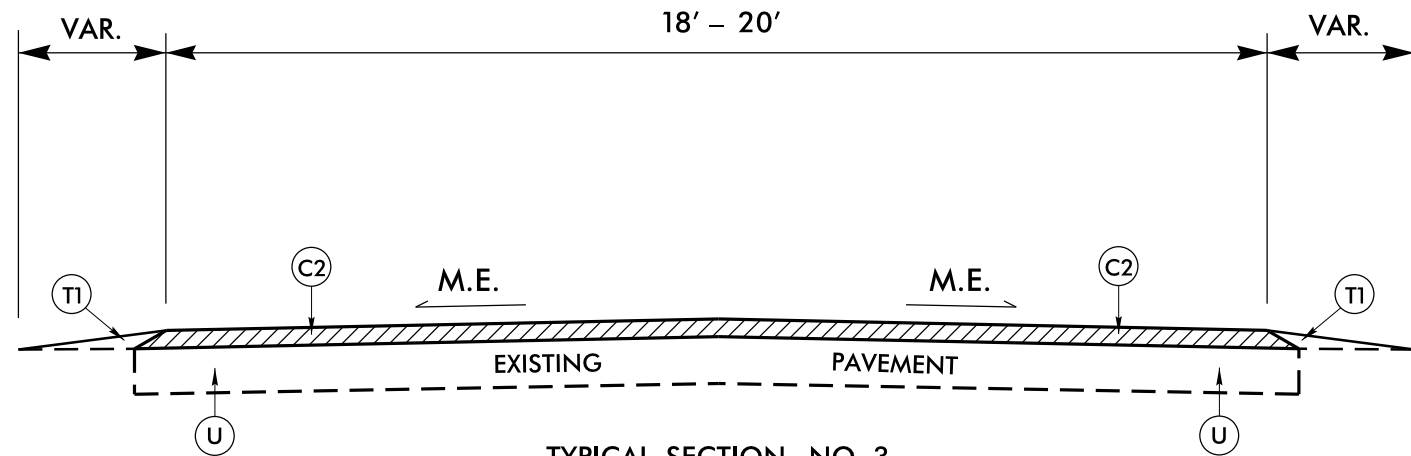


MAP NO. 1  
US 117 (NORWOOD ST.)  
MP 0.970 - MP 3.210

NOTE: -Y- LINE TIE-INS WILL BE MILLED 1.5" AND RESURFACED 1.5" WITH S9.5B ACSC.  
SEE SIGNAL PLANS FOR LOOP REPLACEMENTS ON -Y- LINES.

REVISIONS

8/17/99  
21-SEP-2016 15:03  
C:\Users\jgarcia\Documents\Projects\2017CPT.03.04.10311, Etc.Rdy.TYP - Revised RCK.dgn



TYPICAL SECTION NO. 3

MAP NO. 3  
SR 1301 (WARREN RD.)  
MP 11.920 – MP 17.407  
NO PAVING BRIDGE NO. 75  
MP 12.975 – MP 12.985

MAP NO. 4  
SR 1337 (McGOWAN RD.)  
MP 0.000 – MP 3.045  
NO PAVING BRIDGE NO. 439  
MP 2.689 – MP 2.727

MAP NO. 5  
SR 1338 (JOE JOHNSON RD.)  
MP 0.000 – MP 2.550

MAP NO. 6  
SR 1566 (WALLACE WALKER RD.)  
MP 0.000 – MP 0.500

MAP NO. 7  
SR 1704 (KITTY NOECKER RD.)  
MP 0.000 – MP 6.190  
NO PAVING BRIDGE NO. 144  
MP 3.613 – MP 3.623

MAP NO. 8  
SR 1705 (TAPP FARM RD.)  
MP 0.000 – MP 5.170

MAP NO. 9  
SR 1720 (PENNY RD.)  
MP 0.000 – MP 2.016

MAP NO. 10  
SR 1800 (JACKSON STORE RD.)  
MP 0.000 – MP 3.103

MAP NO. 11  
SR 1300 (WARDS BRIDGE RD.)  
MP 0.000 – MP 4.410

MAP NO. 12  
SR 1304 (FRIENDSHIP CHURCH RD.)  
MP 0.000 – MP 2.509  
MP 2.528 – MP 6.330

PAVEMENT SCHEDULE	
C2	1 1/2" S9.5B
R2	EXISTING CONCRETE BRIDGE RAIL
T1	EARTH MATERIAL (SH. RECONSTR.)
U	EXISTING PAVEMENT
V1	FINE MILLING 1 1/2" DEPTH

2012 ROADWAY ENGLISH STANDARD DRAWINGS

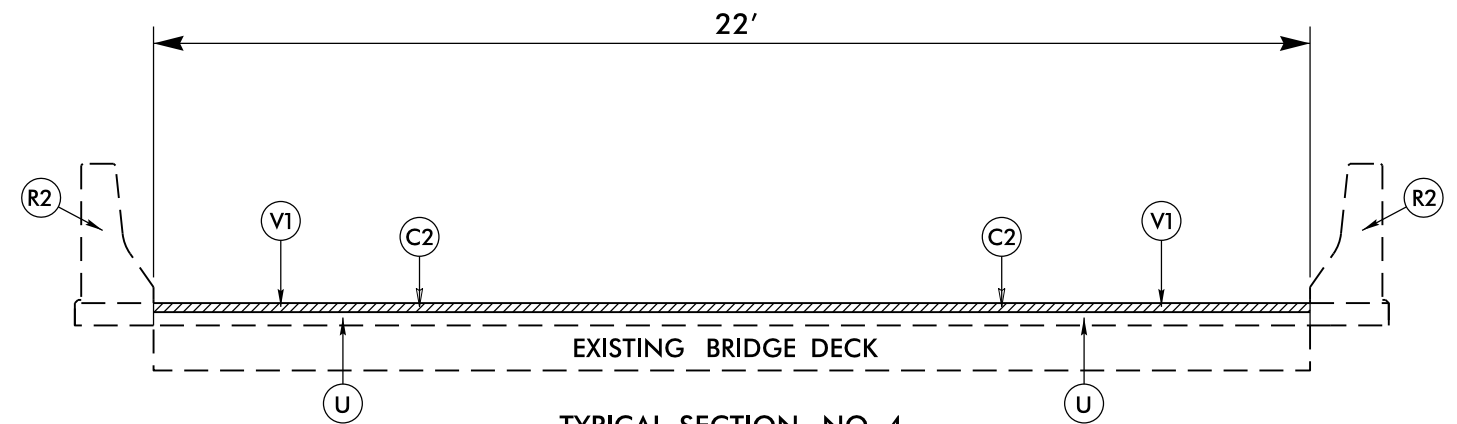
EFF. 01-17-2012  
REV. 02-29-2016

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N.C. Department of Transportation – Raleigh, N.C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO. TITLE

DIVISION 8 – INCIDENTALS

- 846.01 Concrete Curb, Gutter and Curb & Gutter
- 848.01 Concrete Sidewalk
- 848.05 Curb Ramp – Proposed Curb & Gutter
- 848.06 Curb Ramp – Existing Curb & Gutter
- 862.01 Guardrail Placement
- 862.02 Guardrail Installation
- 862.03 Structure Anchor Units



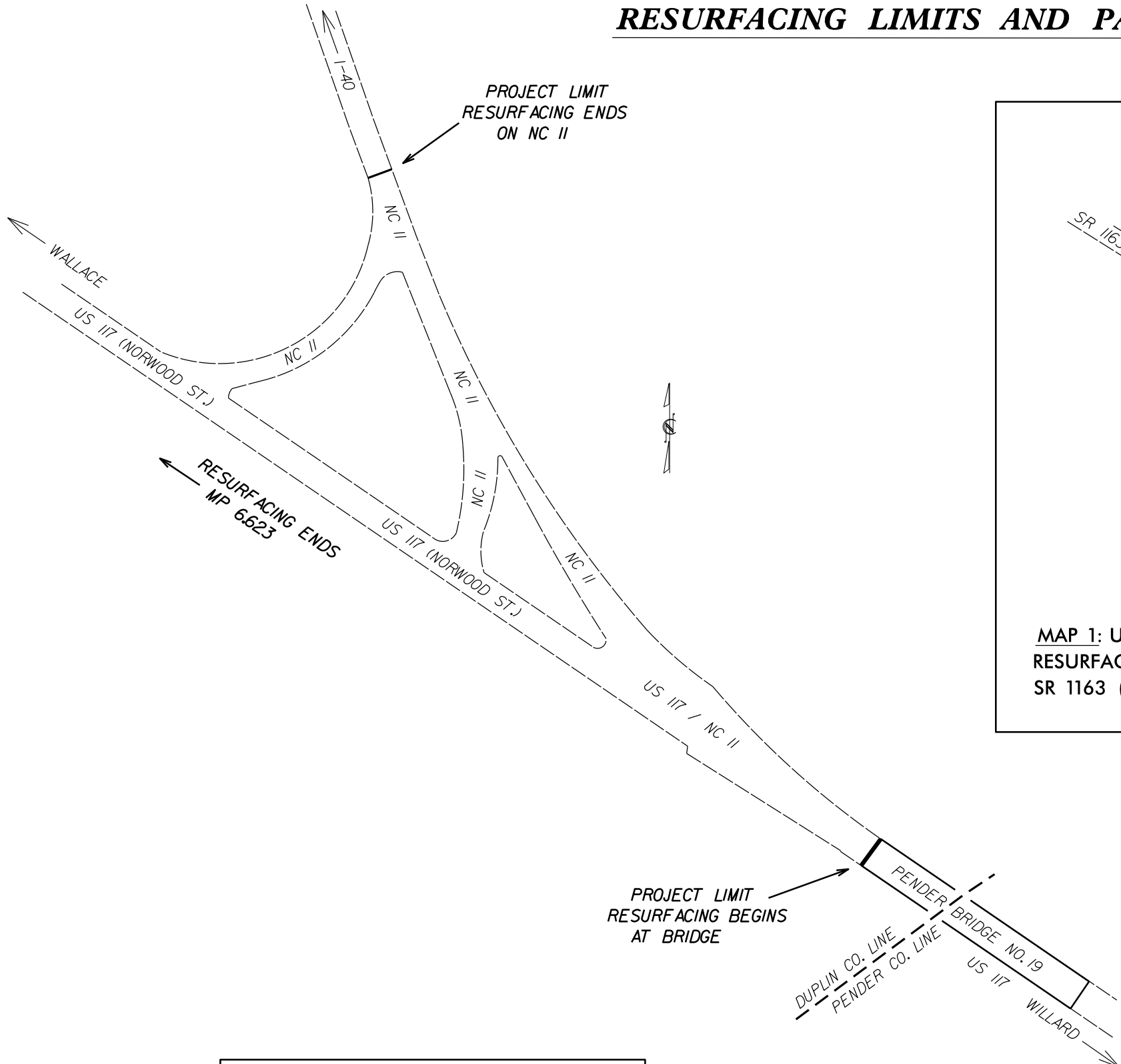
TYPICAL SECTION NO. 4

MAP NO. 12  
SR 1304 (FRIENDSHIP CHURCH RD.)  
BRIDGE NO. 84  
MP 2.509 – MP 2.528

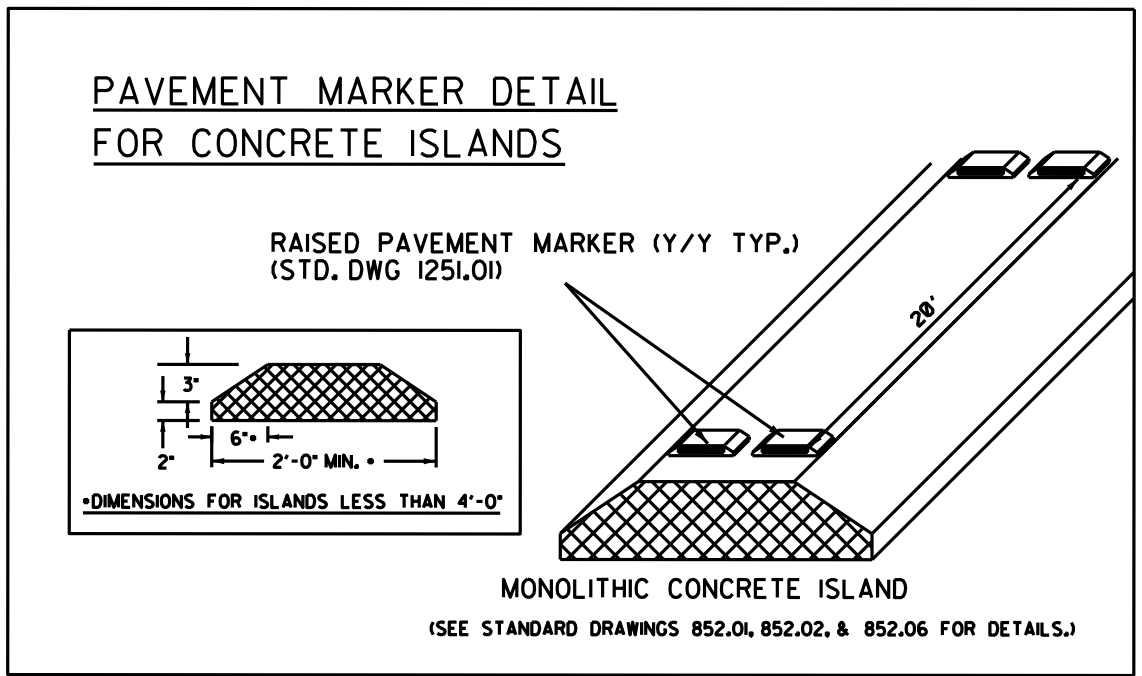
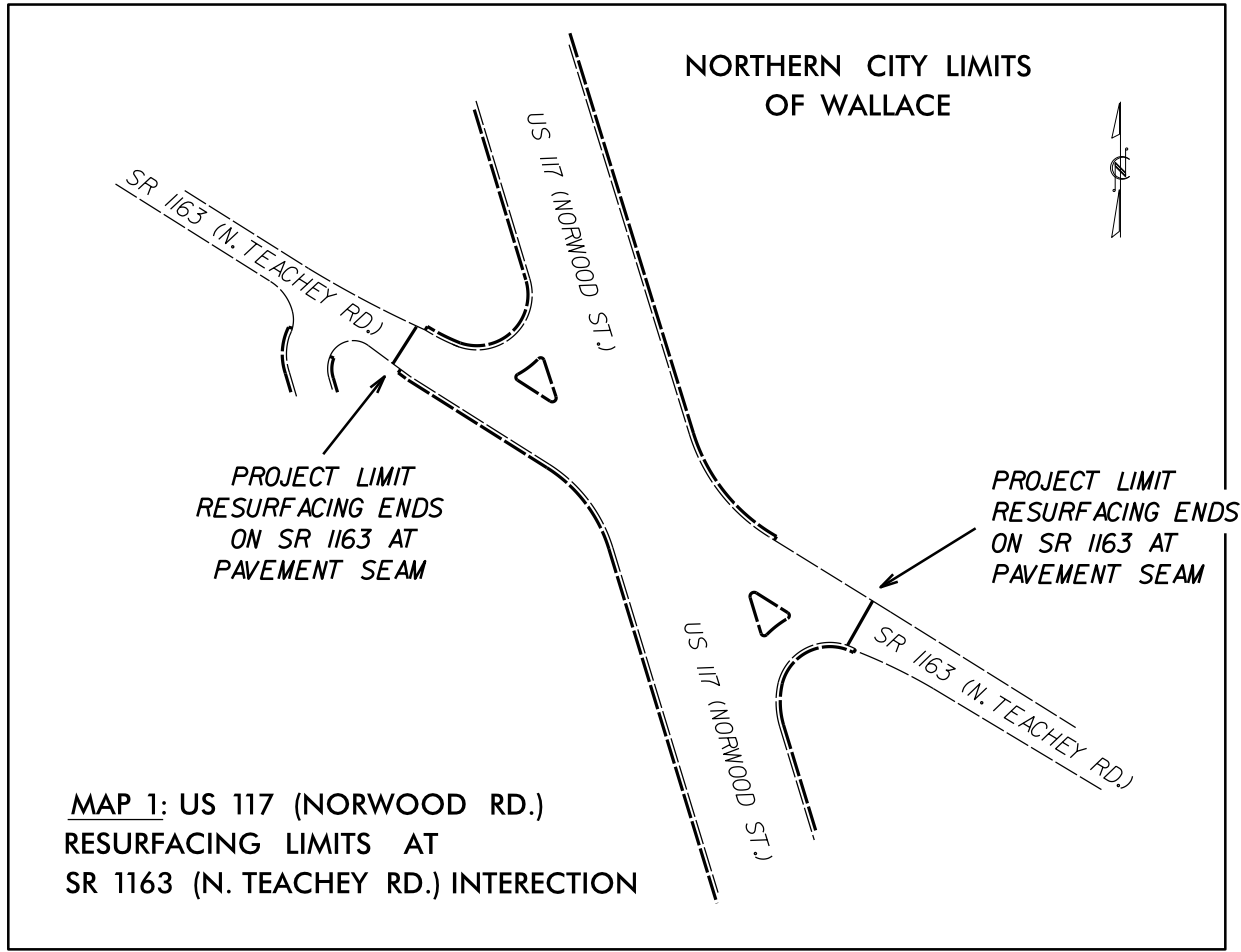
REVISIONS

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# RESURFACING LIMITS AND PAVEMENT MARKER DETAILS



**MAP 1: US 117 /NC 11 (NORWOOD RD.)  
RESURFACING LIMITS BEGIN AT  
END OF PENDER BRIDGE NO. 19**

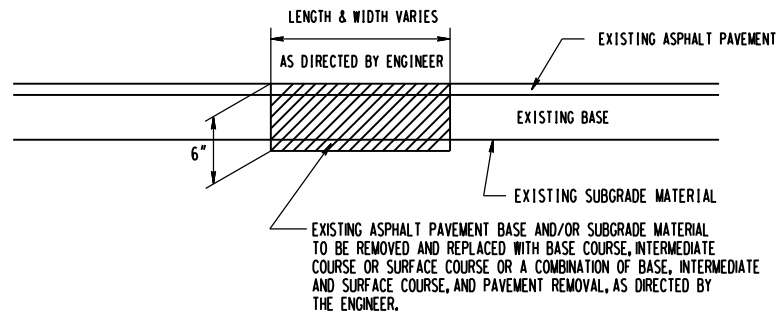


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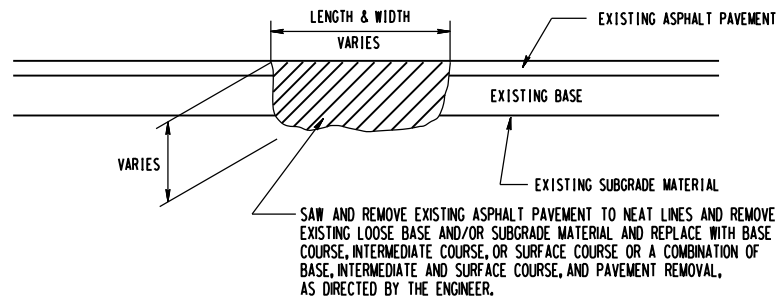
REVISIONS

8/17/99

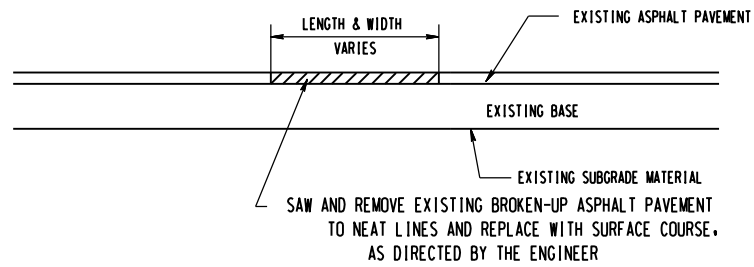
DETAILS OF REPAIRING EXISTING PAVEMENT PRIOR TO RESURFACING FOR FULL DEPTH AND MILLING



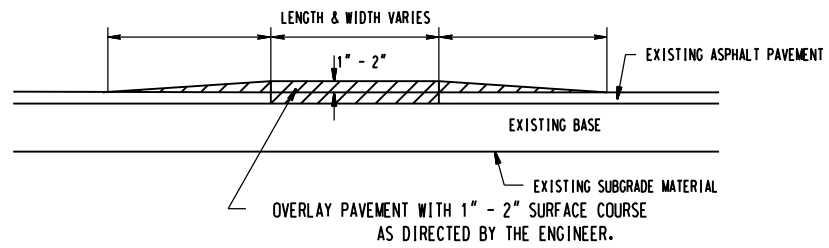
DETAIL NO. 1



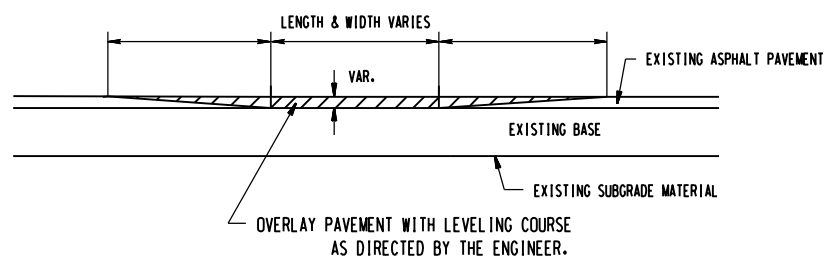
DETAIL NO. 2



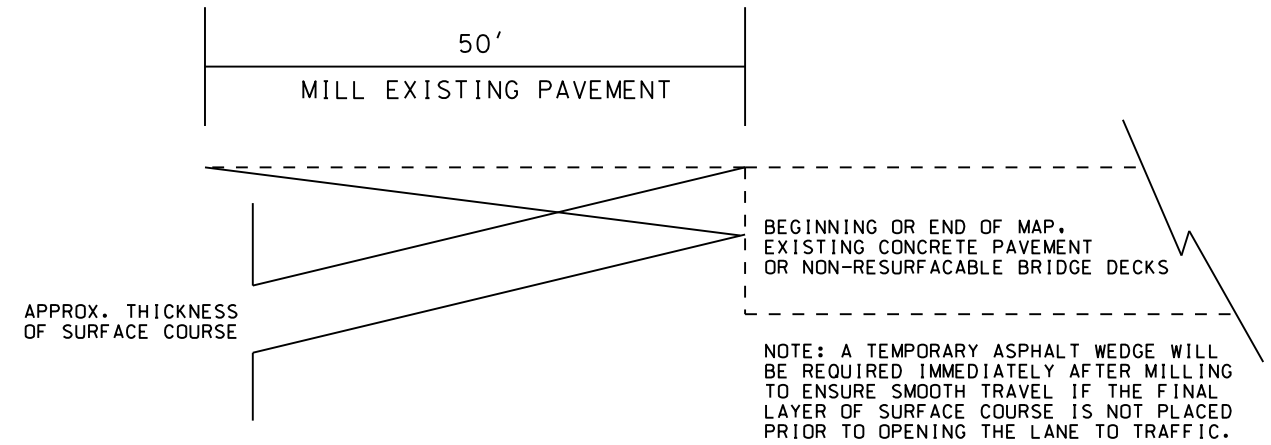
DETAIL NO. 3



DETAIL NO. 4



DETAIL NO. 5



DETAIL FOR MILLING:  
MAY BE USED AT THE BEGINNING & END OF MAPS  
AND AT APPROACH & TRAILING ENDS OF BRIDGES

19-SEP-2016 17:31 c:\p\2016\1731\_Sheets\Microstation\_Files\1731\_patch.dgn

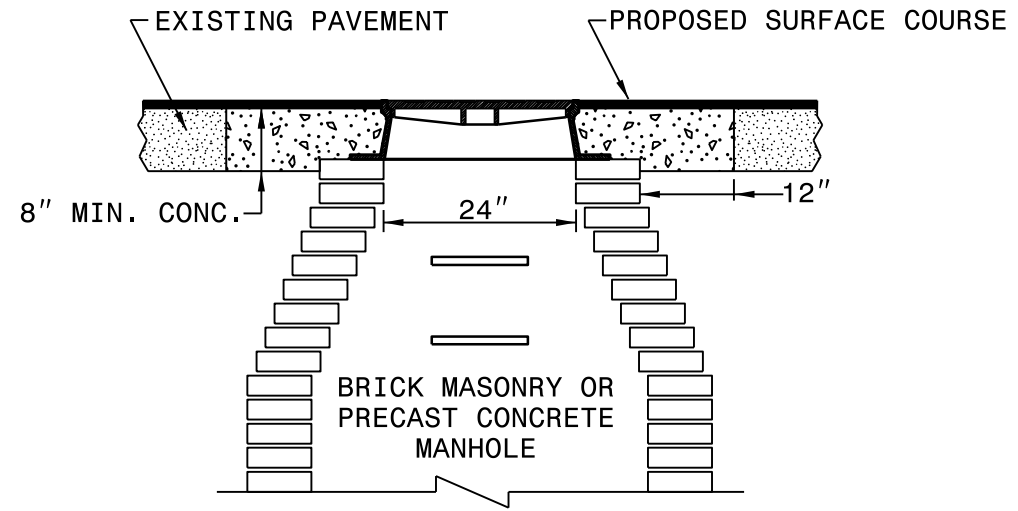


STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

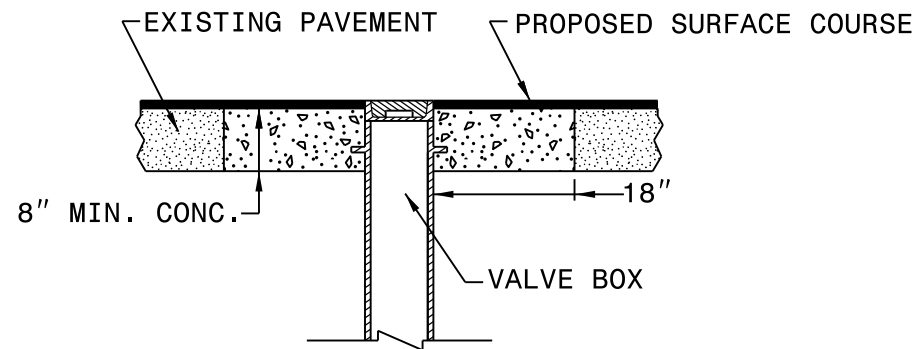
ENGLISH DETAIL DRAWING FOR  
**MANHOLE AND VALVE BOX ADJUSTMENTS**

GENERAL NOTES:

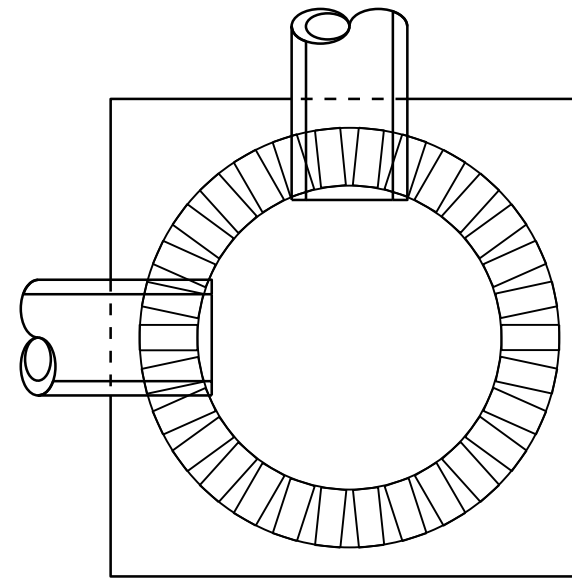
1. USE RAPID SET GROUT, MORTAR, OR CONCRETE THAT WILL TAKE FULL SET AND BECOME LOAD BEARING WITHIN SIXTY MINUTES OF PLACEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
2. REMOVE ALL FAULTY EXISTING BRICKWORK AND REPLACE WITH NEW BRICK MASONRY.
3. SHEER CUT EXCAVATION FOR THE ADJUSTMENT ON ALL SIDES.
4. FILL AREA BELOW 8" DEPTH WITH 78M OR NO. 57 CLEAN STONE.
5. MIX MORTAR TO NCDOT SPECIFICATIONS.
6. MORTAR JOINTS  $\frac{1}{2}$ " +/-  $\frac{1}{8}$ "
7. CONSTRUCT AN ASPHALT RAMP IN ACCORDANCE WITH SECTION 858-3 OF THE 2012 STANDARD SPECIFICATIONS.



**MANHOLE CONCRETE ENCASEMENT**



**VALVE BOX CONCRETE ENCASEMENT**



**ELEVATION VIEW**

PLACE BRICK ACCORDING TO ELEVATION VIEW

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**MANHOLE AND VALVE BOX ADJUSTMENTS**

SHEET 1 OF 1

**840D55**

SHEET 1 OF 1

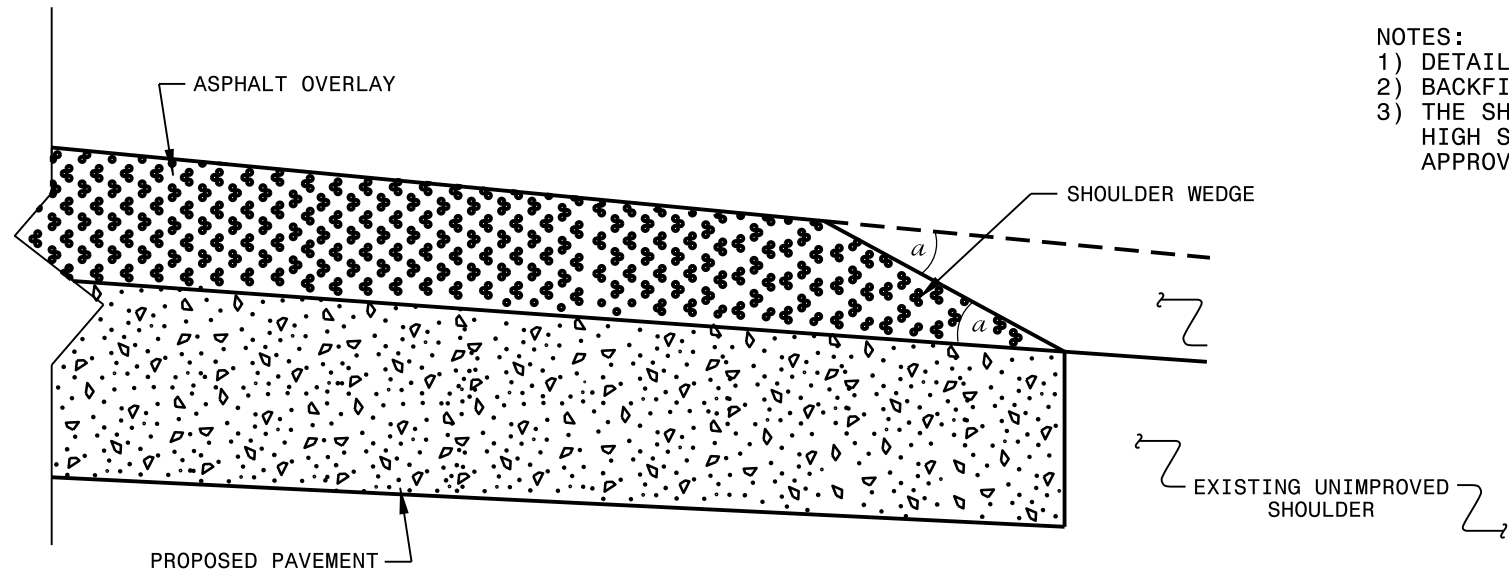
**840D55**

REVISIONS

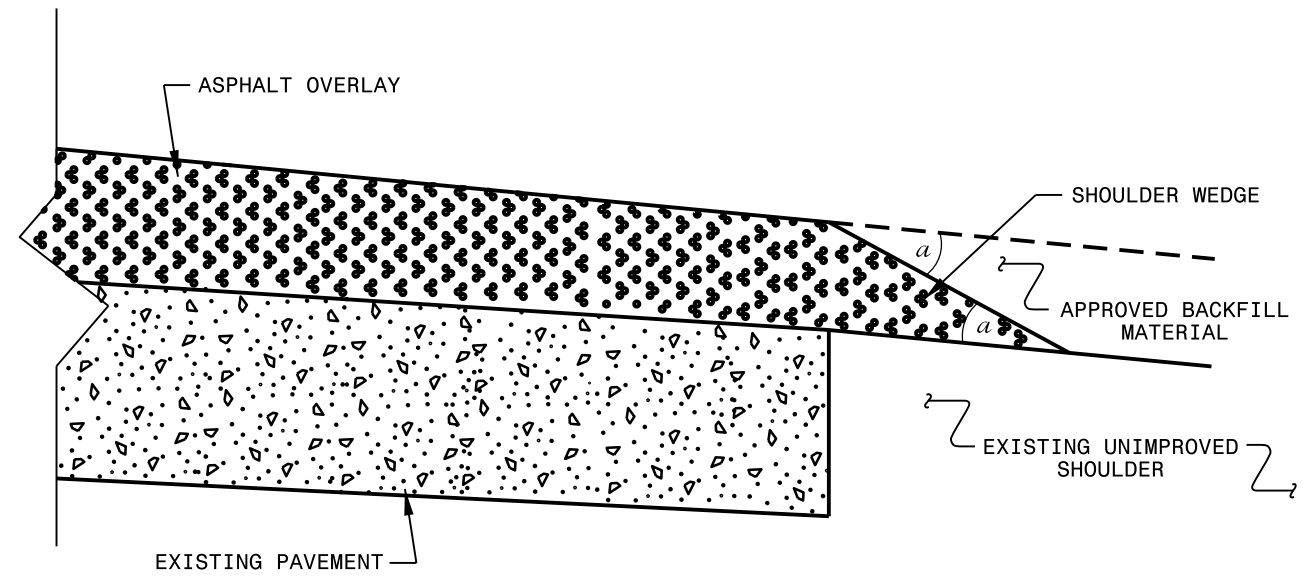
8/17/99

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\$\$\$\$\$USERNAME\$\$\$\$\$

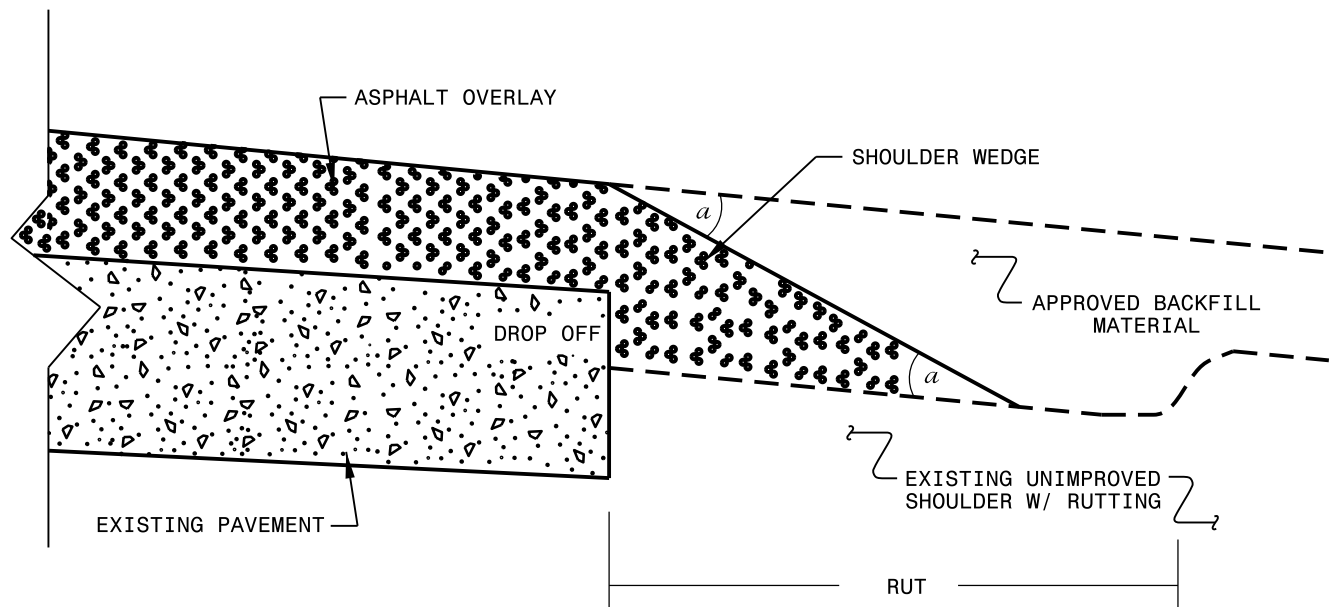
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



**SHOULDER WEDGE DETAIL**  
 (Resurfacing Projects w/ Widening or  
 with Existing Paved Shoulder having no dropoffs)



**SHOULDER WEDGE DETAIL**  
 (Resurfacing Projects w/ NO Widening)

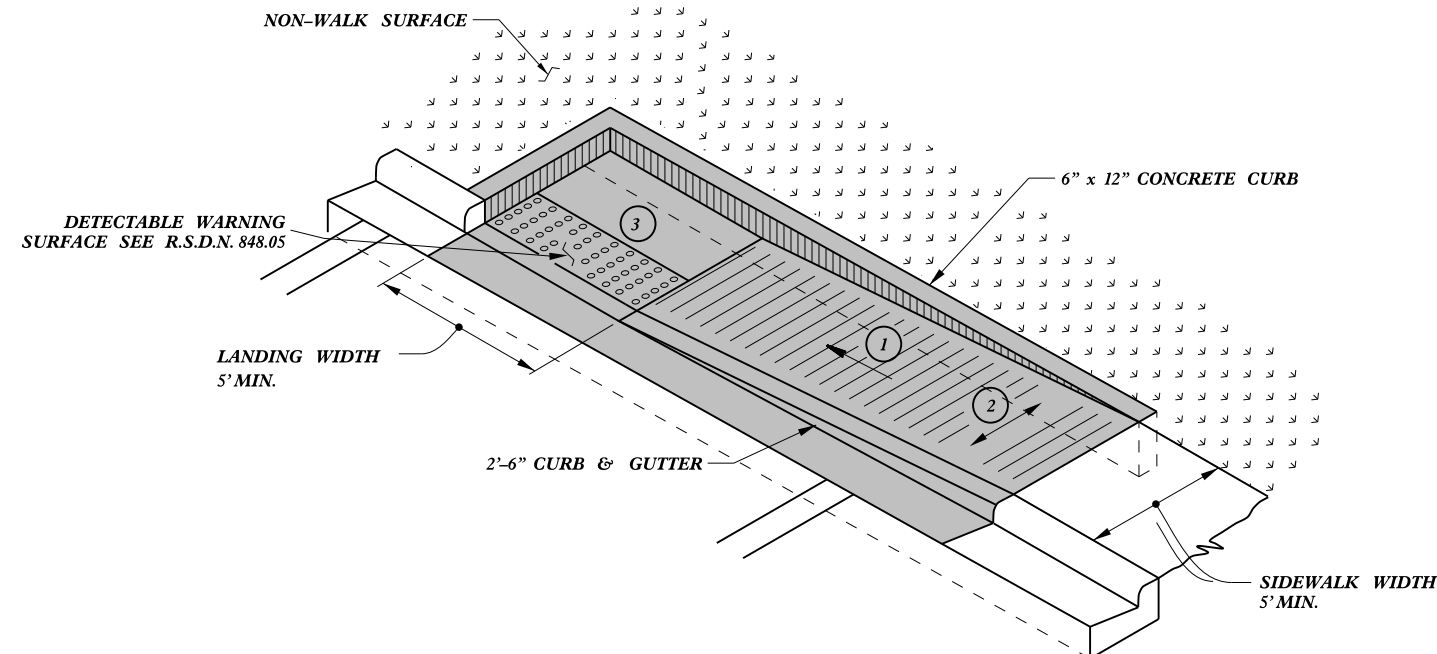



**SHOULDER WEDGE DETAIL**  
 (Resurfacing Adjacent to  
 Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

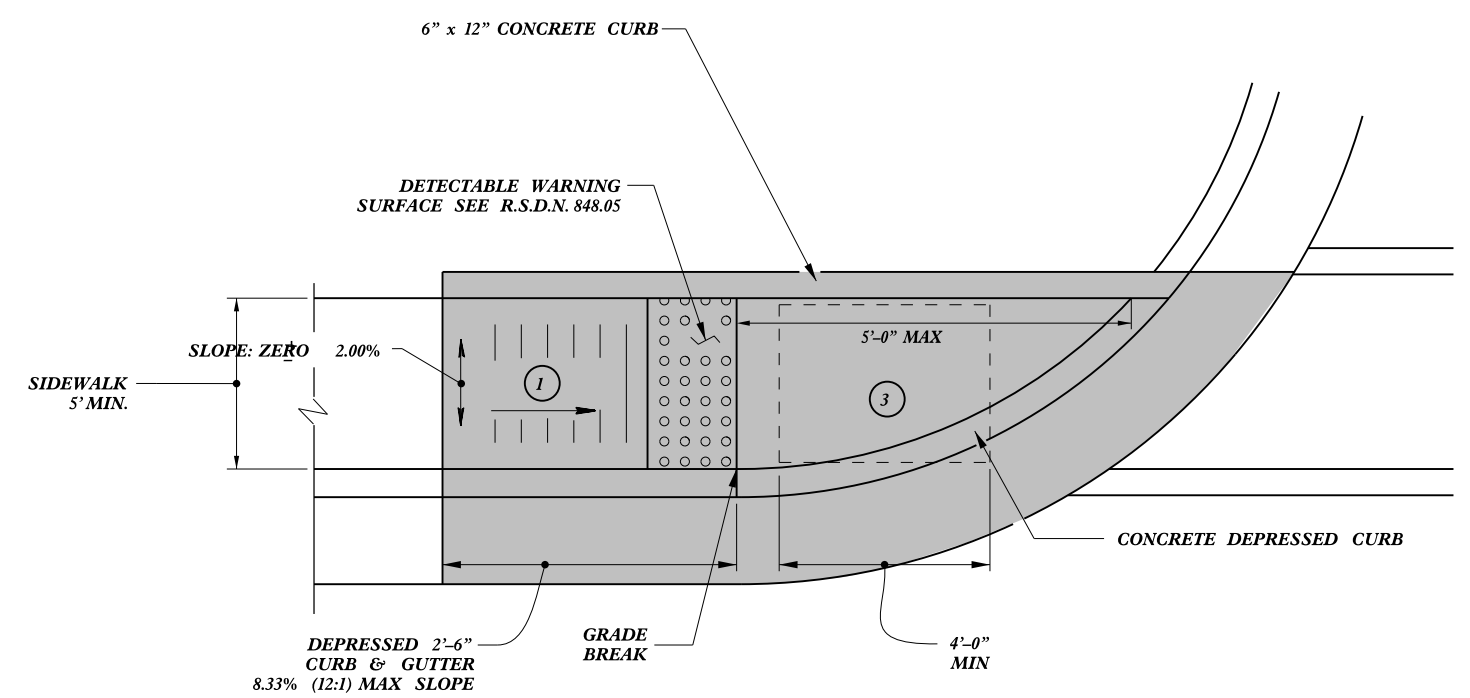
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Office 919-707-6950		FAX 919-250-4119	
<b>SHOULDER WEDGE DETAILS</b>			
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MODIFIED BY:	DATE: 2/2/16		
CHECKED BY:	DATE:		
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SYSTEMS DESIGN  
 USER NAME



 PAY LIMITS FOR CURB RAMP

**TYPE 1A**



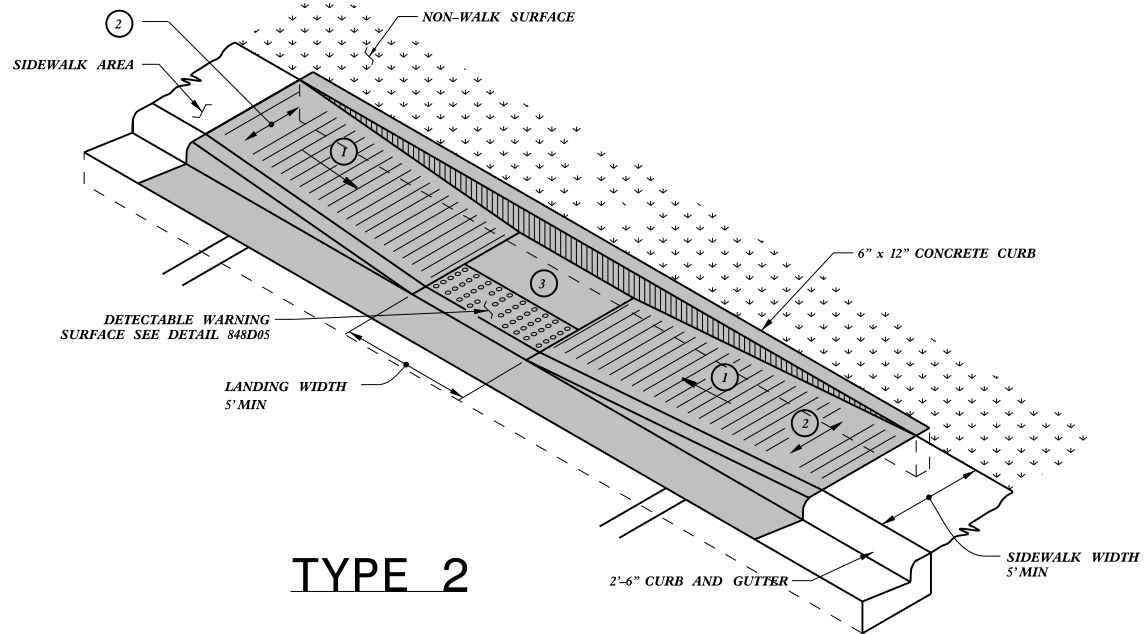
**TYPE 1**

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950	FAX 919-250-4119
<b>CURB RAMPS</b>	
Directional Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: sstds/2012CurbRamp/CurbRampDetails.dwg	

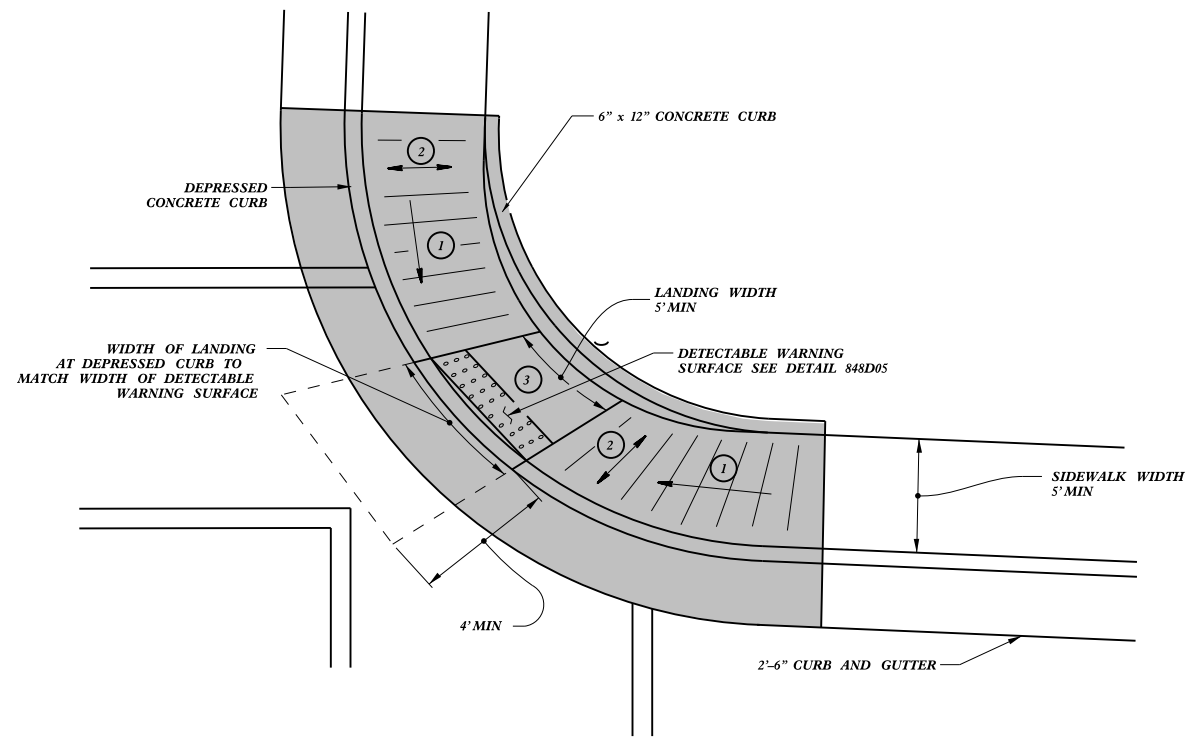
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 JHowerton AT 05023750



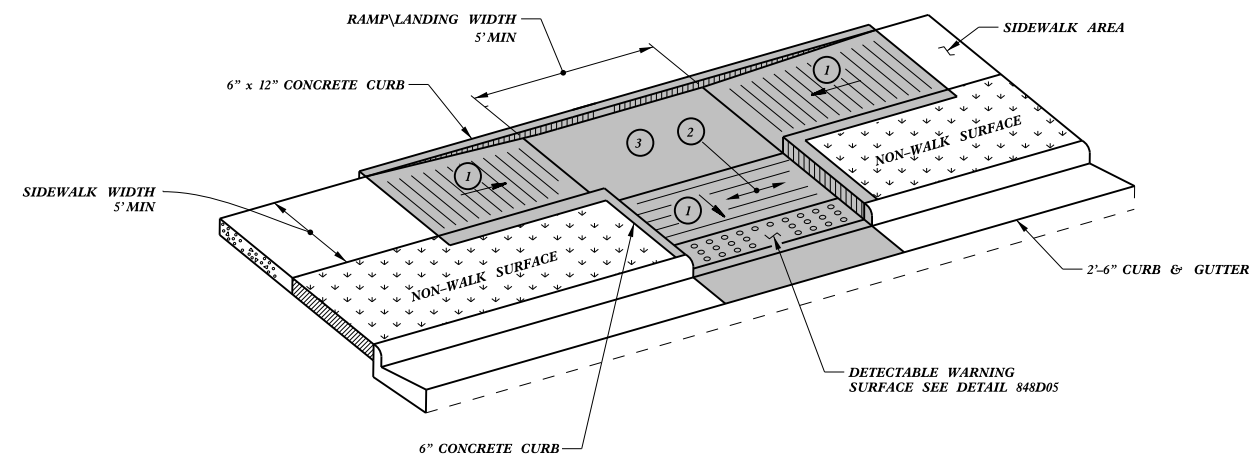
**TYPE 2**

**PAY LIMITS FOR CURB RAMP**

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



**TYPE 2A**

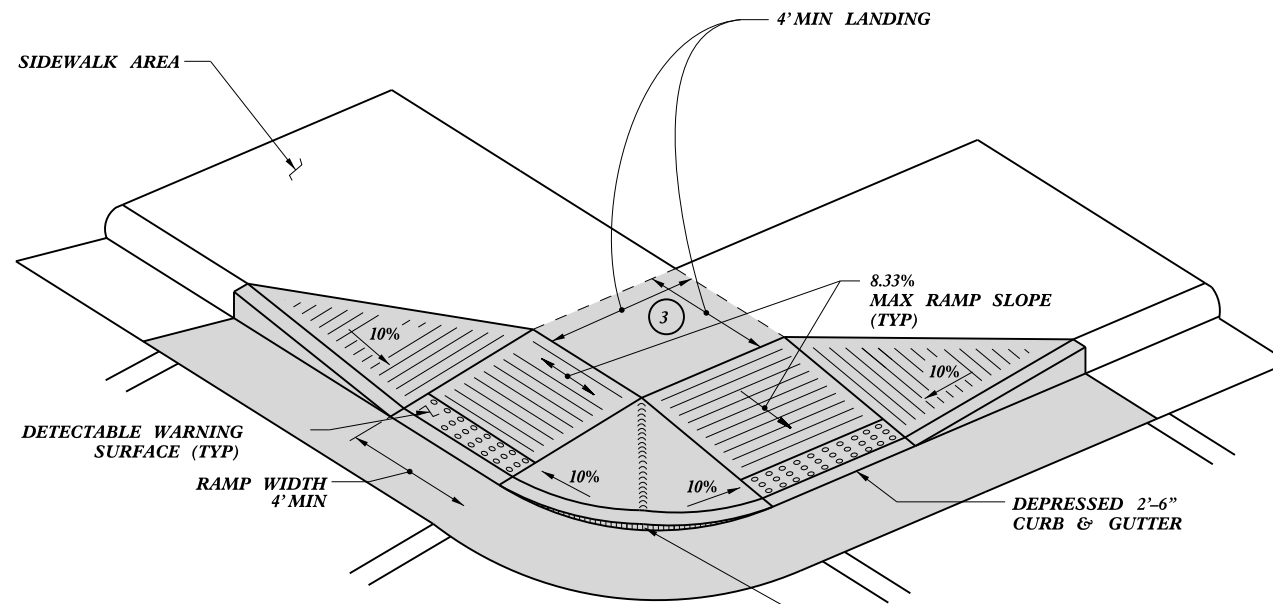


**TYPE 3**

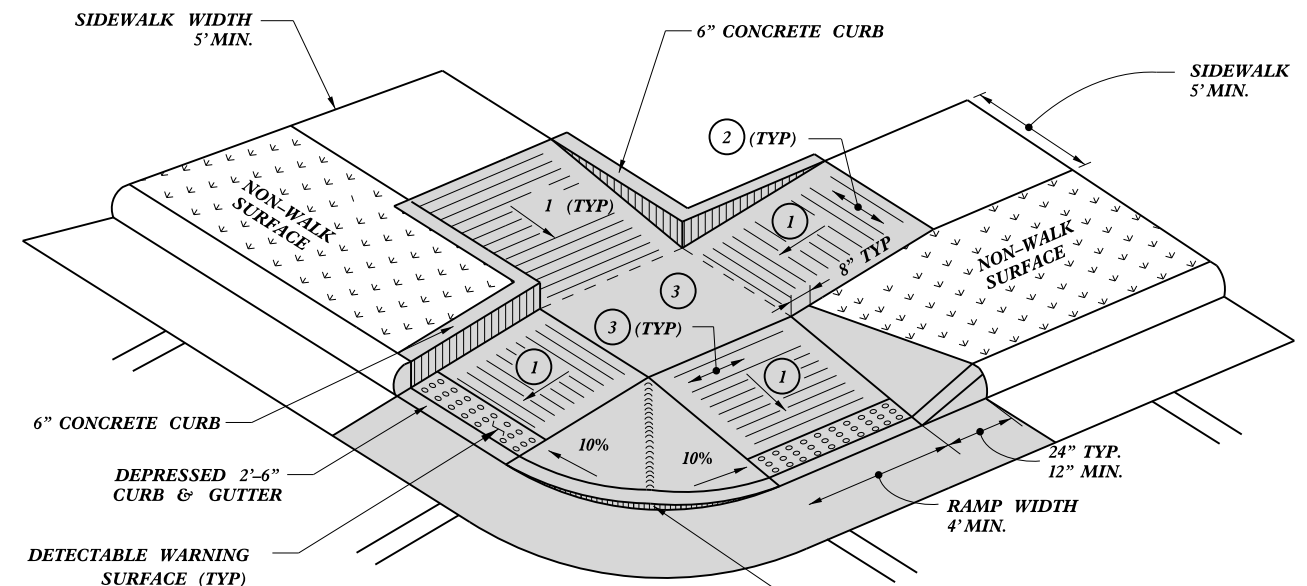
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Office 919-707-6950	FAX 919-250-4119
<b>CURB RAMPS</b>	
Parallel Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
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REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

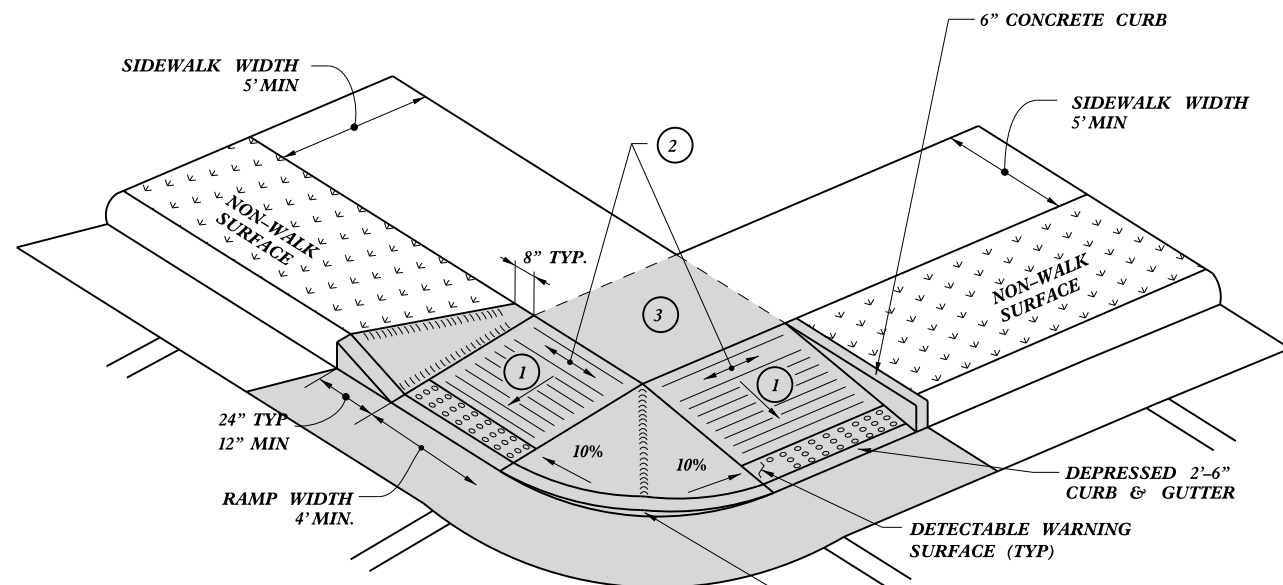
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**TYPE 4**



**TYPE 5**



**TYPE 4A**

PAY LIMITS FOR CURB RAMP

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

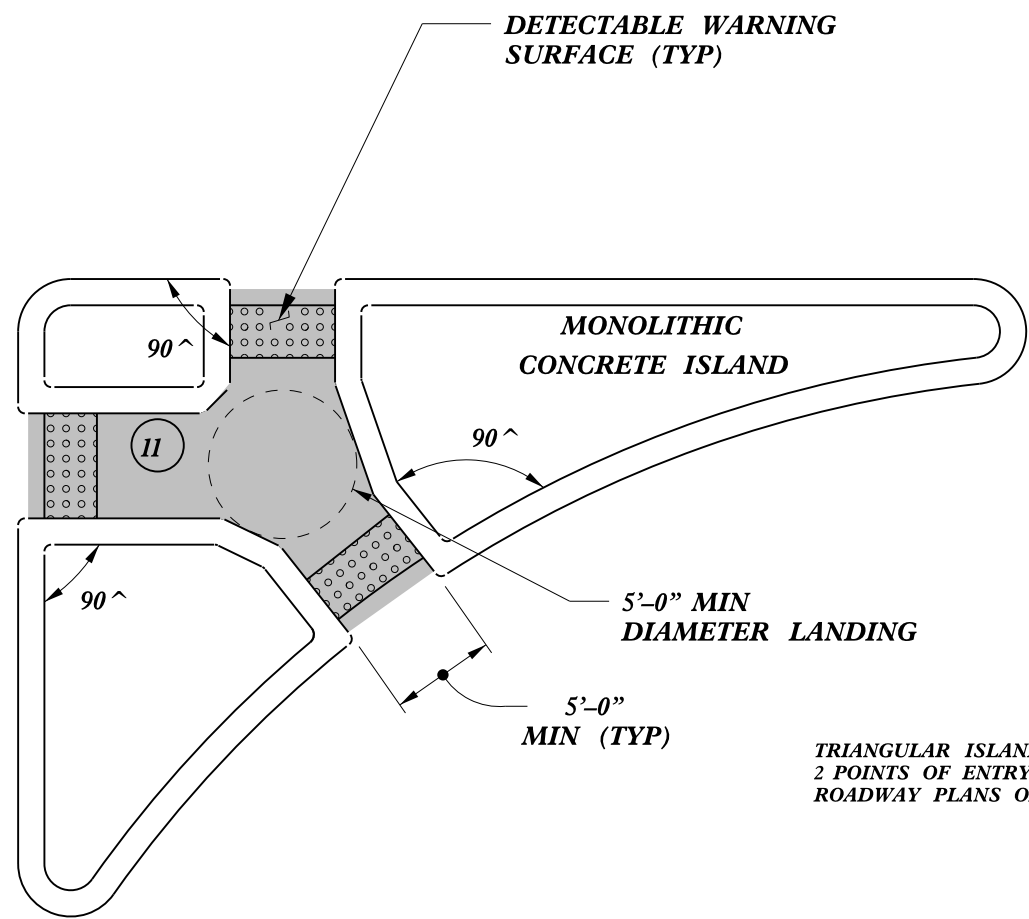
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Office 919-707-6950	FAX 919-250-4119
<b>CURB RAMPS</b>	
Shared Landing	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
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REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

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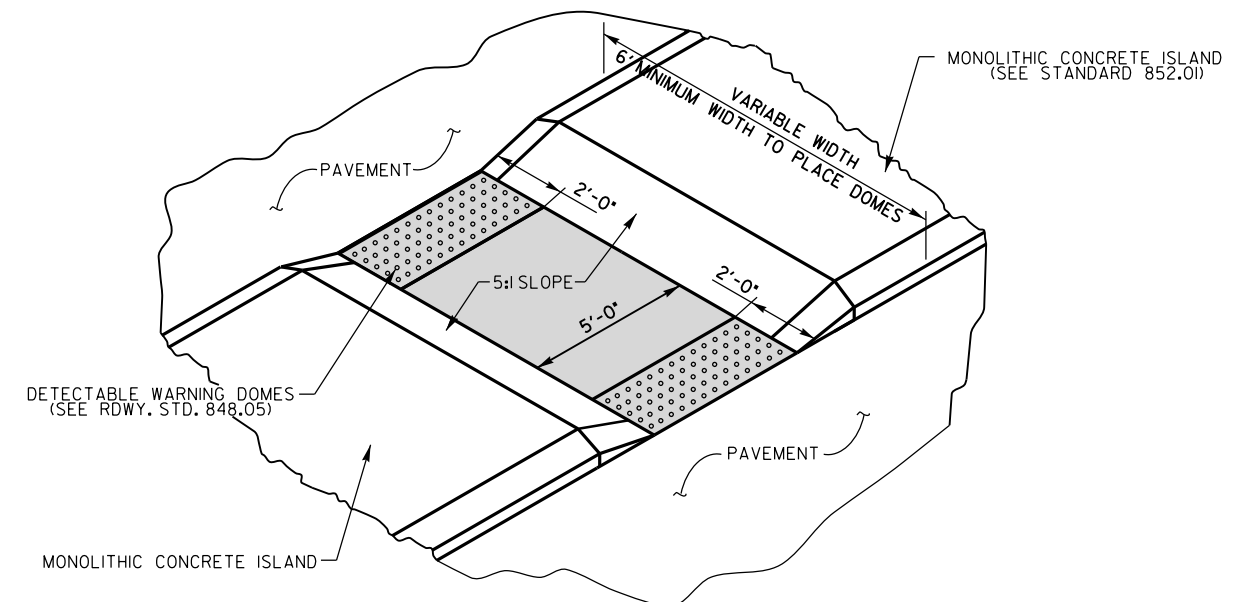
5/14/99

PAY LIMITS FOR 1 CURB RAMP

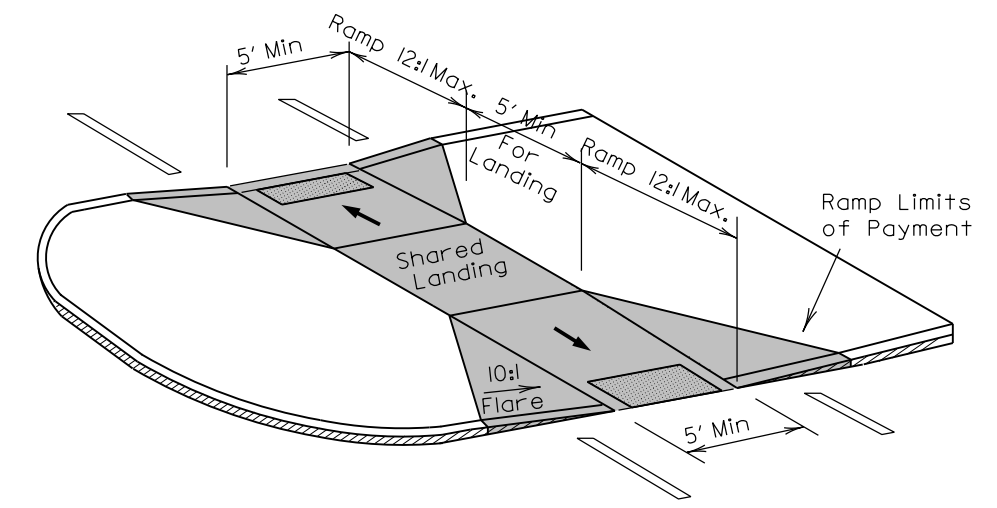


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

**TRIANGULAR ISLAND WITH CUT THROUGH**



**MEDIAN ISLAND WITH CUT THROUGH**



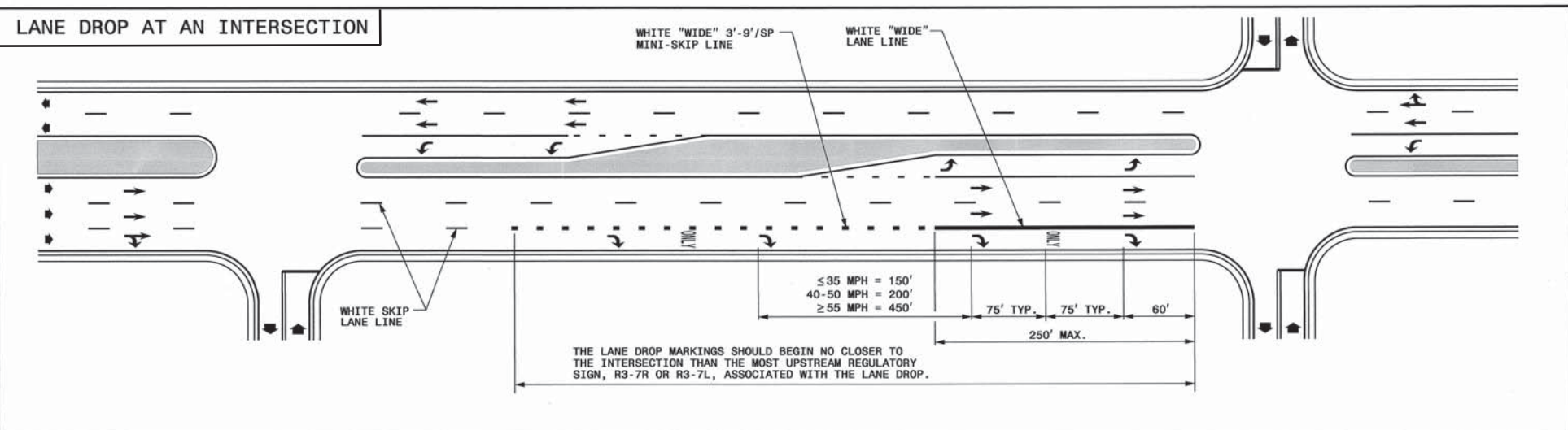
**MEDIAN ISLAND CURB RAMPS**

<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950	FAX 919-250-4119
<b>CURB RAMPS</b>	
Median or Turn Lane Islands	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
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5/14/99  
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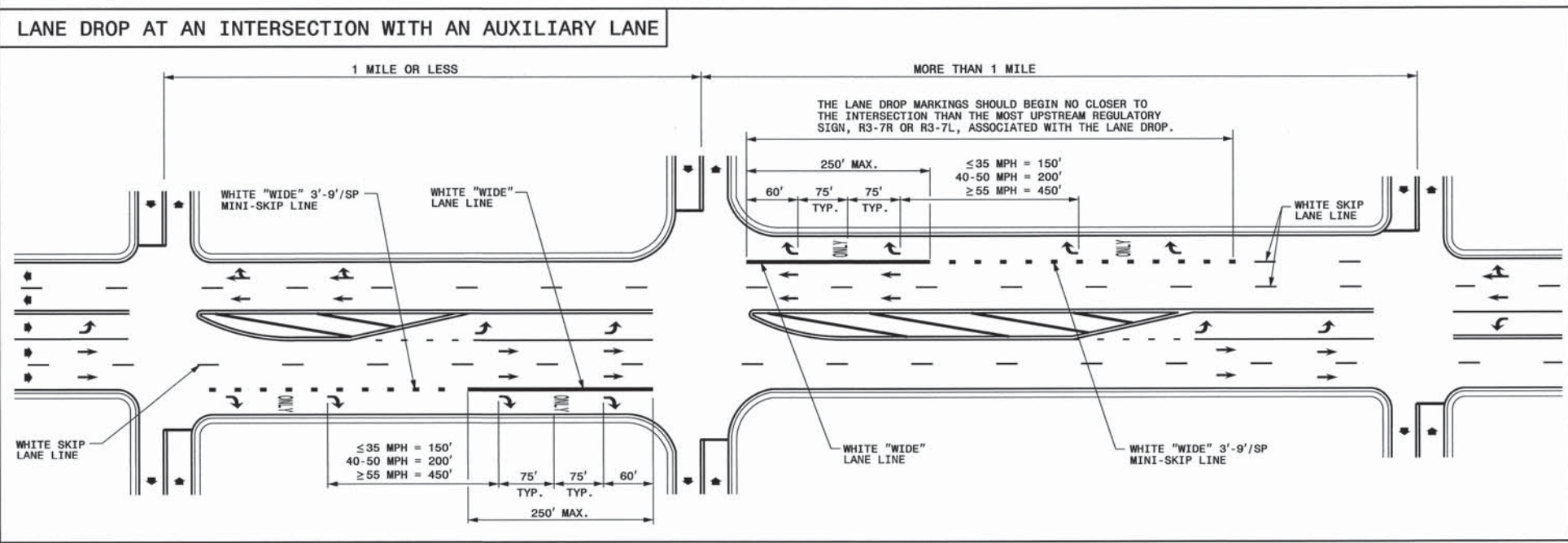


STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.



STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**PAVEMENT MARKINGS**  
 LANE DROPS



ENGLISH DETAIL DRAWING FOR  
**PAVEMENT MARKINGS**  
 LANE DROPS

- GENERAL NOTES:**
- USE THE GUIDANCE SHOWN ON THE ABOVE DETAILS IN CONJUNCTION WITH INTERSECTION GUIDANCE SHOWN ON ROADWAY STANDARD DRAWING 1205.04.
  - LANE LINES INDICATED AS "WIDE" SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.

LEGEND	
W = WIDTH OF TRAVEL LANE	ONLY PAVEMENT MARKING SYMBOLS & CHARACTERS
➔ DIRECTION OF TRAFFIC FLOW	

SHEET 1 OF 3  
**1205D06**

SHEET 1 OF 3  
**1205D06**

**REVISED PAVEMENT MARKING  
 ROADWAY STANDARD DRAWING**

08-MAR-2012 10:09 S:\S&DU\Standards\_Group\NMP\2012 Standard Drawings\Standard Dwg 8-17-11\Revised\1205D06\_Rev12.dwg 9-14-11 Sealed.dgn AT TE244745

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

1-12

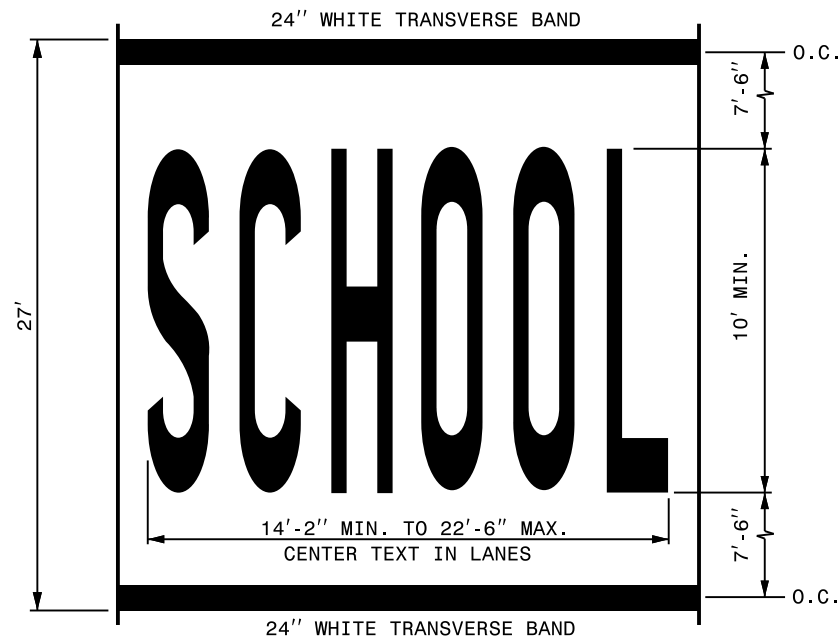
ENGLISH DETAIL DRAWING FOR  
**PAVEMENT MARKINGS**  
SYMBOLS AND WORD MESSAGES

REVISED  
9/14/11

SHEET 3 OF 8

**1205D08**

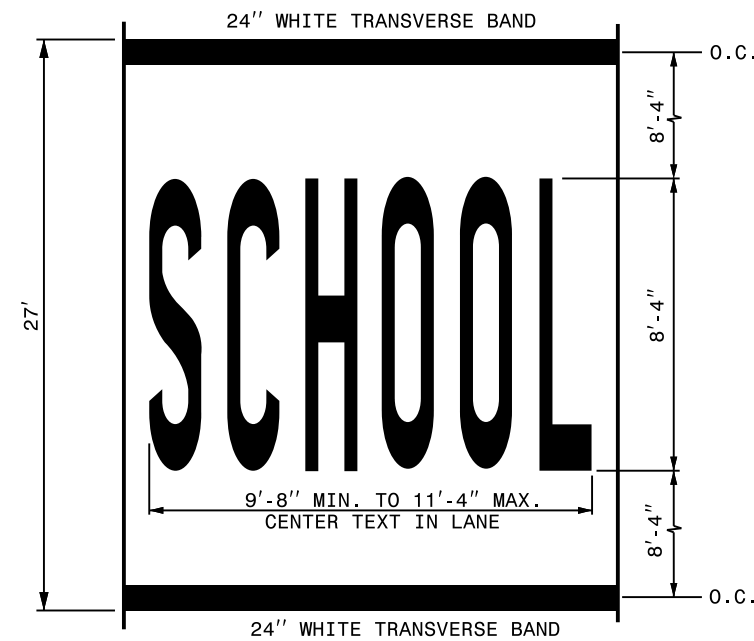
**MULTI-LANE WIDTH "SCHOOL"**



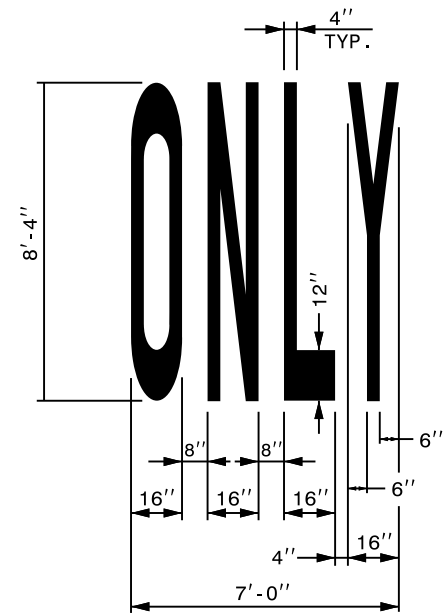
LETTER HEIGHT = 10' MIN.  
LETTER WIDTH = 20"  
SPACING = 10" MIN./30" MAX. (USE EQUAL SPACING BETWEEN LETTERS)

NOTE: THE TWO-LANE PAVEMENT MARKING DIMENSIONS OF "SCHOOL" SHOWN IN PART 7 OF THE MUTCD MAY ALSO BE USED.

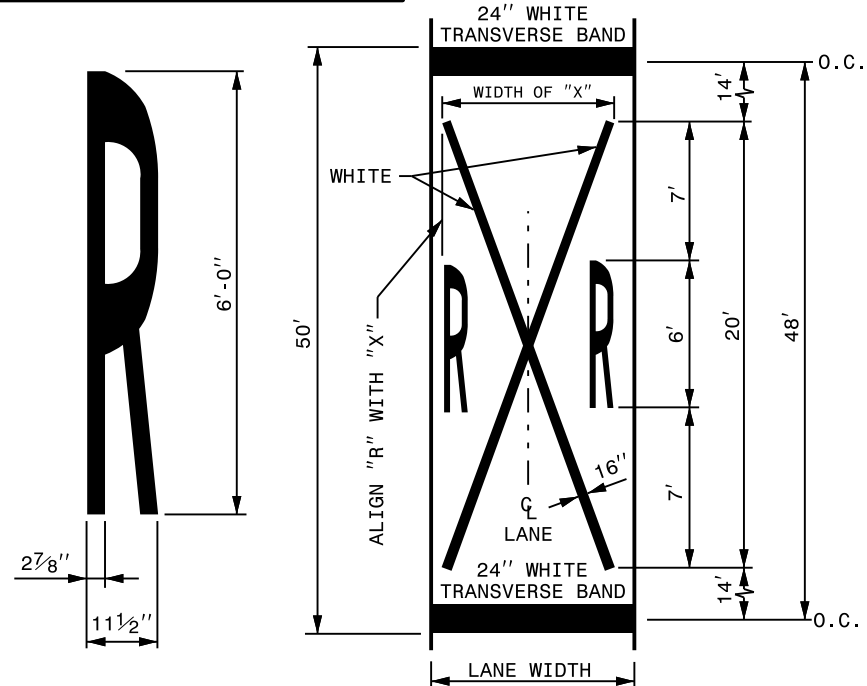
**SINGLE LANE WIDTH "SCHOOL"**



LETTER HEIGHT = 8'-4"  
LETTER WIDTH = 16"  
SPACING = 4" MIN./8" MAX. (USE EQUAL SPACING BETWEEN LETTERS)



**RAILROAD RXR SYMBOL**



LANE WIDTH (FEET)	WIDTH OF "X" (FEET)
8' ≤ W ≤ 9'	7'
9' < W ≤ 12'	8'
W > 12'	10'

GENERAL NOTES:

- 1- THE SCHOOL PAVEMENT MARKING CONSISTS OF SIX (6) CHARACTERS. THE TWO (2) 24" TRANSVERSE BANDS WILL BE PAID FOR UNDER A SEPARATE PAY ITEM. REFER TO ROADWAY STANDARD DRAWING 1205.10 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.
- 2- PAVEMENT MARKING ADVANCE OF A HIGHWAY-RAIL CROSSING SHALL CONSIST OF TWO (2) CHARACTERS AND TWO (2) 16" LINES (FORMING AN X) WHICH ARE PAID FOR UNDER TWO SEPARATE PAY ITEMS. THE TWO (2) 24" TRANSVERSE BANDS WILL BE PAID FOR UNDER A SEPARATE PAY ITEM. REFER TO ROADWAY STANDARD DRAWING 1205.11 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

ENGLISH DETAIL DRAWING FOR  
**PAVEMENT MARKINGS**  
SYMBOLS AND WORD MESSAGES

REVISED  
9/14/11

SHEET 3 OF 8

**1205D08**

CONTRACT STANDARDS  
AND DEVELOPMENT UNIT  
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

ORIGINAL BY: J. HOWERTON DATE: 10/5/11  
MODIFIED BY: DATE:  
CHECKED BY: DATE:  
FILE SPEC.: s:\oel\12 Stds to Special Details\560d01



PROJECT NO.	SHEET NO.
2017CPT.03.04.10311 , ETC.	16

## SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	BORROW EXC. CY	INC. STONE BASE TONS	SHOULDER RECONST. SMI	INC. MILLING SY	SURFACE COURSE, S9.5B TONS	LEVELING COURSE, S9.5B TONS	ASPHALT FOR PAVEMENT INTERLAYER (SA-1) TON	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT (MILL) TON	PATCHING EXISTING PAVEMENT (FULL DEPTH) TON	PAVEMENT INTERLAYER SY	FINE MILLING (1.5") SY	FINE MILLING (3") SY	REMOVE AND REPLACE 4" CONCRETE SIDEWALK SY	REMOVE AND REPLACE 2'6" CURB & GUTTER, LF	RETRO FIT CONCRETE CURB RAMP EA	
2017CPT.03.04.10311	Duplin	1	US 117 (NORWOOD ST.)	FROM PENDER CO. LINE TO 0.181 MI. SOUTH OF SR 1148 AT PVMT SEAM (MP 0.00- 6.623)	1, 2	2-5	2WU	YES	NO	6.623	24 - 75	183	70	9.12		29,546	25	500	1,808.00	285	100	161,377	83,082	92,790	10	120	1	
<b>TOTAL FOR MAP NO. 1</b>										<b>6.623</b>		<b>183</b>	<b>70</b>	<b>9.12</b>		<b>29,546</b>	<b>25</b>	<b>500</b>	<b>1,808.00</b>	<b>285</b>	<b>100</b>	<b>161,377</b>	<b>83,082</b>	<b>92,790</b>	<b>10</b>	<b>120</b>	<b>1</b>	
2017CPT.03.04.10311	Duplin	2	US 117 / NC 50 (CENTER ST.)	FROM NORTH OF SR 1387 AT PVMT. SEAM TO SR 1331 (MP 21.975 - MP 28.645)	1	2	2WU	YES	NO	6.67	24 - 36	267	130	13.34		16,878	40	500	1,034.00	185	50	95,273	100,839					
<b>TOTAL FOR MAP NO. 2</b>										<b>6.67</b>		<b>267</b>	<b>130</b>	<b>13.34</b>		<b>16,878</b>	<b>40</b>	<b>500</b>	<b>1,034.00</b>	<b>185</b>	<b>50</b>	<b>95,273</b>	<b>100,839</b>					
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.10311</b>										<b>13.293</b>		<b>450</b>	<b>200</b>	<b>22.46</b>		<b>46,424</b>	<b>65</b>	<b>1,000</b>	<b>2,842.00</b>	<b>470</b>	<b>150</b>	<b>256,650</b>	<b>183,921</b>	<b>92,790</b>	<b>10</b>	<b>120</b>	<b>1</b>	
2017CPT.03.04.20311	Duplin	3	SR 1301 (WARREN RD.)	FROM US 117 TO NC 403 (MP 11.920- 17.407) NO PAVING BRIDGE NO. 75 [MP 12.975 - MP 12.985]	3	2	2WU	NO	NO	5.487	18	219	10	10.97	100	5,146	50		312.00	50								
<b>TOTAL FOR MAP NO. 3</b>										<b>5.487</b>		<b>219</b>	<b>10</b>	<b>10.97</b>	<b>100</b>	<b>5,146</b>	<b>50</b>		<b>312.00</b>	<b>50</b>								
2017CPT.03.04.20311	Duplin	4	SR 1337 (MCGOWAN RD.)	FROM US 117 TO SAMPSON CO. LINE (MP 0.000- 3.045) NO PAVING BRIDGE NO. 439 [MP 2.689 - MP 2.727]	3	2	2WU	NO	NO	3.045	20	122	10	6.09	111	3,171			190.00	25								
<b>TOTAL FOR MAP NO. 4</b>										<b>3.045</b>		<b>122</b>	<b>10</b>	<b>6.09</b>	<b>111</b>	<b>3,171</b>			<b>190.00</b>	<b>25</b>								
2017CPT.03.04.20311	Duplin	5	SR 1338 (JOE JOHNSON/JOE SAULS RD.)	FROM SR 1337 TO SR 1301 (MP 0.000- 2.550)	3	2	2WU	NO	NO	2.55	20	102	10	5.10	111	2,655			159.00	74								
<b>TOTAL FOR MAP NO. 5</b>										<b>2.55</b>		<b>102</b>	<b>10</b>	<b>5.10</b>	<b>111</b>	<b>2,655</b>			<b>159.00</b>	<b>74</b>								
2017CPT.03.04.20311	Duplin	6	SR 1566 (WALLACE WALKER RD.)	FROM SR 1501 TO DEAD END (MP 0.000- 0.500)	3	2	2WU	NO	NO	0.5	18	20	10	1.00	50	469	25		30.00	10								
<b>TOTAL FOR MAP NO. 6</b>										<b>0.5</b>		<b>20</b>	<b>10</b>	<b>1.00</b>	<b>50</b>	<b>469</b>	<b>25</b>		<b>30.00</b>	<b>10</b>								
2017CPT.03.04.20311	Duplin	7	SR 1704 (KITTY NOECKER RD.)	FROM SR 1705 TO NC 111 (MP 0.000 - MP 6.190) NO PAVING BRIDGE NO. 144 [MP 3.613 - MP 3.623]	3	2	2WU	NO	NO	6.19	18	248	10	12.38	100	5,805	25		350.00	50								
<b>TOTAL FOR MAP NO. 7</b>										<b>6.19</b>		<b>248</b>	<b>10</b>	<b>12.38</b>	<b>100</b>	<b>5,805</b>	<b>25</b>		<b>350.00</b>	<b>50</b>								
2017CPT.03.04.20311	Duplin	8	SR 1705 (TAPP FARM RD.)	FROM LENOIR COUNTY TO NC 111 (MP 0.000- 5.170)	3	2	2WU	NO	NO	5.17	18	207	10	10.34	100	4,849	25		293.00	50								
<b>TOTAL FOR MAP NO. 8</b>										<b>5.17</b>		<b>207</b>	<b>10</b>	<b>10.34</b>	<b>100</b>	<b>4,849</b>	<b>25</b>		<b>293.00</b>	<b>50</b>								
2017CPT.03.04.20311	Duplin	9	SR 1720 (PENNY RD.)	FROM NC 41 TO NC 24 (MP 0.000- 2.016)	3	2	2WU	NO	NO	2.016	20	81	10	4.03	111	2,099	25		128.00	30								
<b>TOTAL FOR MAP NO. 9</b>										<b>2.016</b>		<b>81</b>	<b>10</b>	<b>4.03</b>	<b>111</b>	<b>2,099</b>	<b>25</b>		<b>128.00</b>	<b>30</b>								
2017CPT.03.04.20311	Duplin	10	SR 1800 (JACKSON STORE RD.)	FROM SR 1961 TO NC 41 (MP 0.000- 3.103)	3	2	2WU	NO	NO	3.103	18	124	10	6.21	100	2,910	28		176.00	32								
<b>TOTAL FOR MAP NO. 10</b>										<b>3.103</b>		<b>124</b>	<b>10</b>	<b>6.21</b>	<b>100</b>	<b>2,910</b>	<b>28</b>		<b>176.00</b>	<b>32</b>								
2017CPT.03.04.20311	Duplin	11	SR 1300 (W. WARDS BRIDGE RD.)	FROM NC 24 TO SR 1301 (MP 0.000- 4.410)	3	2	2WU	NO	NO	4.41	20	176	10	8.82	111	4,592	20		277.00	50								
<b>TOTAL FOR MAP NO. 11</b>										<b>4.41</b>		<b>176</b>	<b>10</b>	<b>8.82</b>	<b>111</b>	<b>4,592</b>	<b>20</b>		<b>277.00</b>	<b>50</b>								
2017CPT.03.04.20311	Duplin	12	SR 1304 (FRIENDSHIP CHURCH RD.)	FROM NC 403 TO SR 1307 (MP 0.000- 6.330)	3,4	2	2WU	NO	NO	6.33	18 - 22	253	10	12.66		5,937	50		359.00	50				583				
<b>TOTAL FOR MAP NO. 12</b>										<b>6.33</b>		<b>253</b>	<b>10</b>	<b>12.66</b>		<b>5,937</b>	<b>50</b>		<b>359.00</b>	<b>50</b>			<b>583</b>					
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.20311</b>										<b>38.801</b>		<b>1,552</b>	<b>100</b>	<b>77.60</b>	<b>894</b>	<b>37,633</b>	<b>248</b>		<b>2,274.00</b>	<b>421</b>			<b>583</b>					
<b>GRAND TOTAL</b>										<b>52.094</b>		<b>2,002</b>	<b>300</b>	<b>100.06</b>	<b>894</b>	<b>84,057</b>	<b>313</b>		<b>1,000</b>	<b>5,116.00</b>	<b>891</b>	<b>150</b>	<b>256,650</b>	<b>184,504</b>	<b>92,790</b>	<b>10</b>	<b>120</b>	<b>1</b>

PROJECT NO.	SHEET NO.
2017CPT.03.04.10311 , ETC.	17

### SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	ADJ. OF MON	REMOVE AND REPLACE CONCRETE CURB RAMP	ADJ. OF DROP INLET	ADJ. OF MANHOLES	ADJ. OF METER OR VALVE BOX	ADD GR POSTS	GR ANCHOR UNITS, TYPE CAT-1	GR ANCHOR UNITS, TYPE B-83	GR ANCHOR UNITS, TYPE 350	REMOVE AND REPLACE EXISTING GUARDRAIL	TEMP. SILT FENCE	STONE FOR EC CLASS B	SEDIMENT CONTROL STONE	TEMP. MULCHING	SEED FOR TEMP. SEEDING	FERTILIZER FOR TEMP. SEEDING	MATTING FOR EROSION CONTROL	1/4" HARDWARE CLOTH	WATTLE
NO		NO			NO				EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
2017CPT.03.04.10311	Duplin	1	US 117 (NORWOOD ST.)	FROM PENDER CO. LINE TO 0.181 MI. SOUTH OF SR 1148 AT PVMT SEAM (MP 0.00- 6.623)	1, 2	2-5	2WU	YES	1	41	5	37	35	5	1	2	1	350.00	456	114	114	3.31	228	1.14	30	228	70
<b>TOTAL FOR MAP NO. 1</b>									<b>1</b>	<b>41</b>	<b>5</b>	<b>37</b>	<b>35</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>350.00</b>	<b>456</b>	<b>114</b>	<b>114</b>	<b>3.31</b>	<b>228</b>	<b>1.14</b>	<b>30</b>	<b>228</b>	<b>70</b>
2017CPT.03.04.10311	Duplin	2	US 117 / NC 50 (CENTER ST.)	FROM NORTH OF SR 1387 AT PVMT. SEAM TO SR 1331 (MP 21.975 - MP 28.645)	1	2	2WU	YES						0	0	0			787	197	197	5.70	394	1.96	50	394	120
<b>TOTAL FOR MAP NO. 2</b>										<b>0</b>				<b>0</b>	<b>0</b>	<b>0</b>			<b>787</b>	<b>197</b>	<b>197</b>	<b>5.70</b>	<b>394</b>	<b>1.96</b>	<b>50</b>	<b>394</b>	<b>120</b>
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.10311</b>									<b>1</b>	<b>41</b>	<b>5</b>	<b>37</b>	<b>35</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>350.00</b>	<b>1,243</b>	<b>311</b>	<b>311</b>	<b>9.01</b>	<b>622</b>	<b>3.10</b>	<b>80</b>	<b>622</b>	<b>190</b>
2017CPT.03.04.20311	Duplin	3	SR 1301 (WARREN RD.)	FROM US 117 TO NC 403 (MP 11.920- 17.407) NO PAVING BRIDGE NO. 75 [MP 12.975 - MP 12.985]	3	2	2WU	NO					1						549	137	137	3.99	274	1.37	40	274	90
<b>TOTAL FOR MAP NO. 3</b>													<b>1</b>						<b>549</b>	<b>137</b>	<b>137</b>	<b>3.99</b>	<b>274</b>	<b>1.37</b>	<b>40</b>	<b>274</b>	<b>90</b>
2017CPT.03.04.20311	Duplin	4	SR 1337 (MCGOWAN RD.)	FROM US 117 TO SAMPSON CO. LINE (MP 0.000- 3.045) NO PAVING BRIDGE NO. 439 [MP 2.689 - MP 2.727]	3	2	2WU	NO											305	76	76	2.21	152	0.76	20	152	50
<b>TOTAL FOR MAP NO. 4</b>																			<b>305</b>	<b>76</b>	<b>76</b>	<b>2.21</b>	<b>152</b>	<b>0.76</b>	<b>20</b>	<b>152</b>	<b>50</b>
2017CPT.03.04.20311	Duplin	5	SR 1338 (JOE JOHNSON/JOE SAULS RD.)	FROM SR 1337 TO SR 1301 (MP 0.000- 2.550)	3	2	2WU	NO											255	64	64	1.85	128	0.63	20	40	40
<b>TOTAL FOR MAP NO. 5</b>																			<b>255</b>	<b>64</b>	<b>64</b>	<b>1.85</b>	<b>128</b>	<b>0.63</b>	<b>20</b>	<b>40</b>	<b>40</b>
2017CPT.03.04.20311	Duplin	6	SR 1566 (WALLACE WALKER RD.)	FROM SR 1501 TO DEAD END (MP 0.000- 0.500)	3	2	2WU	NO											50	13	13	0.36	25	0.13	10	25	10
<b>TOTAL FOR MAP NO. 6</b>																			<b>50</b>	<b>13</b>	<b>13</b>	<b>0.36</b>	<b>25</b>	<b>0.13</b>	<b>10</b>	<b>25</b>	<b>10</b>
2017CPT.03.04.20311	Duplin	7	SR 1704 (KITTY NOECKER RD.)	FROM SR 1705 TO NC 111 (MP 0.000 - MP 6.190) NO PAVING BRIDGE NO. 144 [MP 3.613 - MP 3.623]	3	2	2WU	NO											619	155	155	4.50	310	1.54	40	310	100
<b>TOTAL FOR MAP NO. 7</b>																			<b>619</b>	<b>155</b>	<b>155</b>	<b>4.50</b>	<b>310</b>	<b>1.54</b>	<b>40</b>	<b>310</b>	<b>100</b>
2017CPT.03.04.20311	Duplin	8	SR 1705 (TAPP FARM RD.)	FROM LENOIR COUNTY TO NC 111 (MP 0.000- 5.170)	3	2	2WU	NO											517	129	129	3.76	259	1.29	40	259	80
<b>TOTAL FOR MAP NO. 8</b>																			<b>517</b>	<b>129</b>	<b>129</b>	<b>3.76</b>	<b>259</b>	<b>1.29</b>	<b>40</b>	<b>259</b>	<b>80</b>
2017CPT.03.04.20311	Duplin	9	SR 1720 (PENNY RD.)	FROM NC 41 TO NC 24 (MP 0.000- 2.016)	3	2	2WU	NO											201	50	50	1.47	101	0.50	20	101	40
<b>TOTAL FOR MAP NO. 9</b>																			<b>201</b>	<b>50</b>	<b>50</b>	<b>1.47</b>	<b>101</b>	<b>0.50</b>	<b>20</b>	<b>101</b>	<b>40</b>
2017CPT.03.04.20311	Duplin	10	SR 1800 (JACKSON STORE RD.)	FROM SR 1961 TO NC 41 (MP 0.000- 3.103)	3	2	2WU	NO											310	78	78	2.26	155	0.78	20	155	50
<b>TOTAL FOR MAP NO. 10</b>																			<b>310</b>	<b>78</b>	<b>78</b>	<b>2.26</b>	<b>155</b>	<b>0.78</b>	<b>20</b>	<b>155</b>	<b>50</b>
2017CPT.03.04.20311	Duplin	11	SR 1300 (W. WARDS BRIDGE RD.)	FROM NC 24 TO SR 1301 (MP 0.000- 4.410)	3	2	2WU	NO					1						441	110	110	3.20	221	3.20	30	221	70
<b>TOTAL FOR MAP NO. 11</b>													<b>1</b>						<b>441</b>	<b>110</b>	<b>110</b>	<b>3.20</b>	<b>221</b>	<b>3.20</b>	<b>30</b>	<b>221</b>	<b>70</b>
2017CPT.03.04.20311	Duplin	12	SR 1304 (FRIENDSHIP CHURCH RD.)	FROM NC 403 TO SR 1307 (MP 0.000- 6.330)	3,4	2	2WU	NO					2						633	158	158	4.60	317	1.58	40	317	100
<b>TOTAL FOR MAP NO. 12</b>													<b>2</b>						<b>633</b>	<b>158</b>	<b>158</b>	<b>4.60</b>	<b>317</b>	<b>1.58</b>	<b>40</b>	<b>317</b>	<b>100</b>
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.20311</b>													<b>4</b>						<b>3,880</b>	<b>970</b>	<b>970</b>	<b>28.20</b>	<b>1,942</b>	<b>11.77</b>	<b>280</b>	<b>1,854</b>	<b>630</b>
<b>GRAND TOTAL</b>									<b>1</b>	<b>41</b>	<b>5</b>	<b>37</b>	<b>39</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>350.00</b>	<b>5,123</b>	<b>1,281</b>	<b>1,281</b>	<b>37.21</b>	<b>2,564</b>	<b>14.88</b>	<b>360</b>	<b>2,476</b>	<b>820</b>

PROJECT NO.	SHEET NO.
2017CPT.03.04.10311 , ETC.	18

## SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	SEED & MULCHING AC	SEED FOR REPAIR SEEDING LB	FERTILIZER FOR REPAIR SEEDING TON	RESPONSE FOR EROSION CONTROL EA	UNPAVED TRENCHING (1 CONDUIT, 2 INCH) LF	JUNCTION BOX (STANDARD SIZE) EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2) LF
2017CPT.03.04.10311	Duplin	1	US 117 (NORWOOD ST.)	FROM PENDER CO. LINE TO 0.181 MI. SOUTH OF SR 1148 AT PVMT SEAM (MP 0.00- 6.623)	1, 2	2-5	2WU	YES	3.31	228	1.14	5	390	10	2,730	6,670
<b>TOTAL FOR MAP NO. 1</b>									<b>3.31</b>	<b>228</b>	<b>1.14</b>	<b>5</b>	<b>390</b>	<b>10</b>	<b>2,730</b>	<b>6,670</b>
2017CPT.03.04.10311	Duplin	2	US 117 / NC 50 (CENTER ST.)	FROM NORTH OF SR 1387 AT PVMT. SEAM TO SR 1331 (MP 21.975 - MP 28.645)	1	2	2WU	YES	5.70	394	1.96	2				
<b>TOTAL FOR MAP NO. 2</b>									<b>5.70</b>	<b>394</b>	<b>1.96</b>	<b>2</b>				
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.10311</b>									<b>9.01</b>	<b>622</b>	<b>3.10</b>	<b>7</b>	<b>390</b>	<b>10</b>	<b>2,730</b>	<b>6,670</b>
2017CPT.03.04.20311	Duplin	3	SR 1301 (WARREN RD.)	FROM US 117 TO NC 403 (MP 11.920- 17.407) NO PAVING BRIDGE NO. 75 [MP 12.975 - MP 12.985]	3	2	2WU	NO	3.99	274	1.37	2				
<b>TOTAL FOR MAP NO. 3</b>									<b>3.99</b>	<b>274</b>	<b>1.37</b>	<b>2</b>				
2017CPT.03.04.20311	Duplin	4	SR 1337 (MCGOWAN RD.)	FROM US 117 TO SAMPSON CO. LINE (MP 0.000- 3.045) NO PAVING BRIDGE NO. 439 [MP 2.689 - MP 2.727]	3	2	2WU	NO	2.21	152	0.76	2				
<b>TOTAL FOR MAP NO. 4</b>									<b>2.21</b>	<b>152</b>	<b>0.76</b>	<b>2</b>				
2017CPT.03.04.20311	Duplin	5	SR 1338 (JOE JOHNSON/JOE SAULS RD.)	FROM SR 1337 TO SR 1301 (MP 0.000- 2.550)	3	2	2WU	NO	1.85	128	0.63	2				
<b>TOTAL FOR MAP NO. 5</b>									<b>1.85</b>	<b>128</b>	<b>0.63</b>	<b>2</b>				
2017CPT.03.04.20311	Duplin	6	SR 1566 (WALLACE WALKER RD.)	FROM SR 1501 TO DEAD END (MP 0.000- 0.500)	3	2	2WU	NO	0.36	25	0.13	1				
<b>TOTAL FOR MAP NO. 6</b>									<b>0.36</b>	<b>25</b>	<b>0.13</b>	<b>1</b>				
2017CPT.03.04.20311	Duplin	7	SR 1704 (KITTY NOECKER RD.)	FROM SR 1705 TO NC 111 (MP 0.000 - MP 6.190) NO PAVING BRIDGE NO. 144 [MP 3.613 - MP 3.623]	3	2	2WU	NO	4.50	310	1.54	2				
<b>TOTAL FOR MAP NO. 7</b>									<b>4.50</b>	<b>310</b>	<b>1.54</b>	<b>2</b>				
2017CPT.03.04.20311	Duplin	8	SR 1705 (TAPP FARM RD.)	FROM LENOIR COUNTY TO NC 111 (MP 0.000- 5.170)	3	2	2WU	NO	3.76	259	1.29	2				
<b>TOTAL FOR MAP NO. 8</b>									<b>3.76</b>	<b>259</b>	<b>1.29</b>	<b>2</b>				
2017CPT.03.04.20311	Duplin	9	SR 1720 (PENNY RD.)	FROM NC 41 TO NC 24 (MP 0.000- 2.016)	3	2	2WU	NO	1.47	101	0.50	2				
<b>TOTAL FOR MAP NO. 9</b>									<b>1.47</b>	<b>101</b>	<b>0.50</b>	<b>2</b>				
2017CPT.03.04.20311	Duplin	10	SR 1800 (JACKSON STORE RD.)	FROM SR 1961 TO NC 41 (MP 0.000- 3.103)	3	2	2WU	NO	2.26	155	0.78	2				
<b>TOTAL FOR MAP NO. 10</b>									<b>2.26</b>	<b>155</b>	<b>0.78</b>	<b>2</b>				
2017CPT.03.04.20311	Duplin	11	SR 1300 (W. WARDS BRIDGE RD.)	FROM NC 24 TO SR 1301 (MP 0.000- 4.410)	3	2	2WU	NO	3.20	221	1.10	2				
<b>TOTAL FOR MAP NO. 11</b>									<b>3.20</b>	<b>221</b>	<b>1.10</b>	<b>2</b>				
2017CPT.03.04.20311	Duplin	12	SR 1304 (FRIENDSHIP CHURCH RD.)	FROM NC 403 TO SR 1307 (MP 0.000- 6.330)	3,4	2	2WU	NO	4.60	317	1.58	2				
<b>TOTAL FOR MAP NO. 12</b>									<b>4.60</b>	<b>317</b>	<b>1.58</b>	<b>2</b>				
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.20311</b>									<b>28.20</b>	<b>1,942</b>	<b>9.68</b>	<b>19</b>				
<b>GRAND TOTAL</b>									<b>37.21</b>	<b>2,564</b>	<b>12.78</b>	<b>26</b>	<b>390</b>	<b>10</b>	<b>2,730</b>	<b>6,670</b>

PROJECT NO.	SHEET NO.
2017CPT.03.04.10311, ETC.	19

**THERMOPLASTIC AND PAINT QUANTITIES**

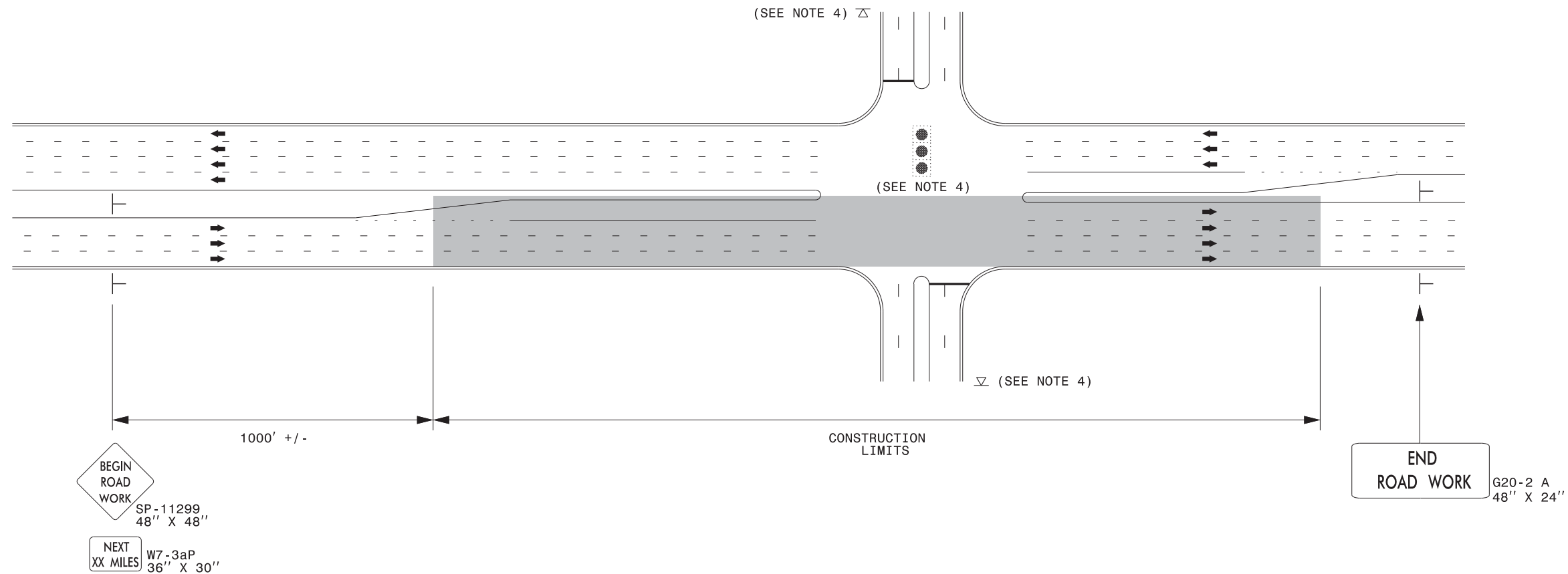
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	441300000-E	445700000-N	451000000-N	468500000-E	468600000-E		469500000-E		469700000-E	470000000-E	470500000-E	471000000-E	472100000-E		472500000-E			
										WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	LAW ENFORCEMENT	4" X 90 M WHITE THERMO	4" X 120 M WHITE THERMO	4" X 120 M YELLOW THERMO	8" X 90 M WHITE THERMO	8" X 90 M YELLOW THERMO	8" X 120 M WHITE THERMO	12" X 90 M YELLOW THERMO	16" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMO MSG ONLY 120 M	THERMO RXR 120 M	THERMO LT ARROW 90 M	THERMO STR ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR & RT ARROW 90 M
NO		NO			NO					SF	LS	HR	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	
2017CPT.03.04.10311	Duplin	1	US 117 (NORWOOD ST.)	FROM PENDER CO. LINE TO 0.181 MI. SOUTH OF SR 1148 AT PVMT SEAM (MP 0.00- 6.623)	1, 2	2-5	2WU	6.623	24 - 75	768	0.13	80.00	51,000	8,185	68,075	790	50	620	850		390	16		106	32	8	26
<b>TOTAL FOR MAP NO. 1</b>										<b>768</b>	<b>0.13</b>	<b>80</b>	<b>51,000</b>	<b>8,185</b>	<b>68,075</b>	<b>790</b>	<b>50</b>	<b>620</b>	<b>850</b>		<b>390</b>	<b>16</b>		<b>106</b>	<b>32</b>	<b>8</b>	<b>26</b>
2017CPT.03.04.10311	Duplin	2	US 117 / NC 50 (CENTER ST.)	FROM NORTH OF SR 1387 AT PVMT. SEAM TO SR 1331 (MP 21.975 - MP 28.645)	1	2	2WU	6.67	24 - 36	880	0.13		70,335	922	40,525				175		73			4			
<b>TOTAL FOR MAP NO. 2</b>										<b>880</b>	<b>0.13</b>		<b>70,335</b>	<b>922</b>	<b>40,525</b>				<b>175</b>		<b>73</b>			<b>4</b>			
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.10311</b>										<b>1,648</b>	<b>0.26</b>	<b>80</b>	<b>121,335</b>	<b>9,107</b>	<b>108,600</b>	<b>790</b>	<b>50</b>	<b>620</b>	<b>1,025</b>		<b>463</b>	<b>16</b>		<b>110</b>	<b>32</b>	<b>8</b>	<b>26</b>
										<b>117,707</b>					<b>840</b>				<b>16</b>		<b>176</b>						
2017CPT.03.04.20311	Duplin	3	SR 1301 (WARREN RD.)	FROM US 117 TO NC 403 (MP 11.920-17.407) NO PAVING BRIDGE NO. 75 [MP 12.975 - MP 12.985]	3	2	2WU	5.487	18	288	0.10		59,040	218	36,214					100	74			4			
<b>TOTAL FOR MAP NO. 3</b>										<b>288</b>	<b>0.10</b>		<b>59,040</b>	<b>218</b>	<b>36,214</b>				<b>100</b>	<b>74</b>			<b>4</b>				
2017CPT.03.04.20311	Duplin	4	SR 1337 (MCGOWAN RD.)	FROM US 117 TO SAMPSON CO. LINE (MP 0.000- 3.045) NO PAVING BRIDGE NO. 439 [MP 2.689 - MP 2.727]	3	2	2WU	3.045	20	336	0.06		32,764	35	20,097					50	37			2			
<b>TOTAL FOR MAP NO. 4</b>										<b>336</b>	<b>0.06</b>		<b>32,764</b>	<b>35</b>	<b>20,097</b>				<b>50</b>	<b>37</b>			<b>2</b>				
2017CPT.03.04.20311	Duplin	5	SR 1338 (JOE JOHNSON/JOE SAULS RD.)	FROM SR 1337 TO SR 1301 (MP 0.000- 2.550)	3	2	2WU	2.55	20	288	0.05		27,438	36	16,830												
<b>TOTAL FOR MAP NO. 5</b>										<b>288</b>	<b>0.05</b>		<b>27,438</b>	<b>36</b>	<b>16,830</b>												
2017CPT.03.04.20311	Duplin	6	SR 1566 (WALLACE WALKER RD.)	FROM SR 1501 TO DEAD END (MP 0.000- 0.500)	3	2	2WU	0.5	18	64	0.01		5,380		3,300												
<b>TOTAL FOR MAP NO. 6</b>										<b>64</b>	<b>0.01</b>		<b>5,380</b>		<b>3,300</b>												
2017CPT.03.04.20311	Duplin	7	SR 1704 (KITTY NOECKER RD.)	FROM SR 1705 TO NC 111 (MP 0.000- MP 6.190) NO PAVING BRIDGE NO. 144 [MP 3.613 - MP 3.623]	3	2	2WU	6.19	18	640	0.12		66,604		40,854												
<b>TOTAL FOR MAP NO. 7</b>										<b>640</b>	<b>0.12</b>		<b>66,604</b>		<b>40,854</b>												
2017CPT.03.04.20311	Duplin	8	SR 1705 (TAPP FARM RD.)	FROM LENOIR COUNTY TO NC 111 (MP 0.000- 5.170)	3	2	2WU	5.17	18	576	0.10		55,629	125	34,122												
<b>TOTAL FOR MAP NO. 8</b>										<b>576</b>	<b>0.10</b>		<b>55,629</b>	<b>125</b>	<b>34,122</b>												
2017CPT.03.04.20311	Duplin	9	SR 1720 (PENNY RD.)	FROM NC 41 TO NC 24 (MP 0.000- 2.016)	3	2	2WU	2.016	20	224	0.04		21,692	28	13,306												
<b>TOTAL FOR MAP NO. 9</b>										<b>224</b>	<b>0.04</b>		<b>21,692</b>	<b>28</b>	<b>13,306</b>												
2017CPT.03.04.20311	Duplin	10	SR 1800 (JACKSON STORE RD.)	FROM SR 1961 TO NC 41 (MP 0.000- 3.103)	3	2	2WU	3.103	18	352	0.06		33,388	120	20,480												
<b>TOTAL FOR MAP NO. 10</b>										<b>352</b>	<b>0.06</b>		<b>33,388</b>	<b>120</b>	<b>20,480</b>												
2017CPT.03.04.20311	Duplin	11	SR 1300 (W. WARDS BRIDGE RD.)	FROM NC 24 TO SR 1301 (MP 0.000- 4.410)	3	2	2WU	4.41	20	496	0.08		47,452	106	29,106												
<b>TOTAL FOR MAP NO. 11</b>										<b>496</b>	<b>0.08</b>		<b>47,452</b>	<b>106</b>	<b>29,106</b>												
2017CPT.03.04.20311	Duplin	12	SR 1304 (FRIENDSHIP CHURCH RD.)	FROM NC 403 TO SR 1307 (MP 0.000- 6.330)	3, 4	2	2WU	6.33	18 - 22	704	0.12		68,111	160	41,778												
<b>TOTAL FOR MAP NO. 12</b>										<b>704</b>	<b>0.12</b>		<b>68,111</b>	<b>160</b>	<b>41,778</b>												
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.20311</b>										<b>38,801</b>	<b>0.74</b>	<b>80</b>	<b>417,498</b>	<b>828</b>	<b>256,087</b>				<b>150</b>	<b>111</b>		<b>6</b>					
										<b>256,915</b>							<b>6</b>										
<b>GRAND TOTAL</b>										<b>52,094</b>		<b>80</b>	<b>538,833</b>	<b>9,935</b>	<b>364,687</b>	<b>790</b>	<b>50</b>	<b>620</b>	<b>1,025</b>	<b>150</b>	<b>574</b>	<b>16</b>	<b>6</b>	<b>110</b>	<b>32</b>	<b>8</b>	<b>26</b>
										<b>374,622</b>					<b>840</b>				<b>22</b>		<b>176</b>						

PROJECT NO.	SHEET NO.
2017CPT.03.04.10311 , ETC.	20

**THERMOPLASTIC AND PAINT QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4810000000-E		4825000000-E	4830000000-E	4835000000-E	4840000000-N				4845000000-N		4847000000-E		4850000000-E	4900000000-N		4905000000-N		
										4" WHITE PAINT	4" YELLOW PAINT	12" YELLOW PAINT	16" WHITE PAINT	24" WHITE PAINT	PAINT MSG ONLY	PAINT MSG RXR	PAINT LT ARROW	PAINT RT ARROW	PAINT STR ARROW	PAINT STR & RT ARROW	4" WHITE POLYUREA (HIGHLY REFLECTIVE ELEMENTS) LF	4" YELLOW POLYUREA (HIGHLY REFLECTIVE ELEMENTS) LF	REMOVAL OF PAVEMENT MARKING LINES (4")	CRYSTAL & RED MARKERS	YELLOW & YELLOW MARKERS	SNOW PLOWABLE MARKERS (Y/Y)	SNOW PLOWABLE MARKERS (C/R)	
										LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
2017CPT.03.04.10311	Duplin	1	US 117 (NORWOOD ST.)	FROM PENDER CO. LINE TO 0.181 MI. SOUTH OF SR 1148 AT PVMT SEAM (MP 0.00- 6.623)	1, 2	2-5	2WU	6.623	24 - 75	71,190	96,175			780	16		200	14	60	46				36	18	703	401	
<b>TOTAL FOR MAP NO. 1</b>										<b>71,190</b>	<b>96,175</b>			<b>780</b>	<b>16</b>		<b>200</b>	<b>14</b>	<b>60</b>	<b>46</b>			<b>36</b>	<b>18</b>	<b>703</b>	<b>401</b>		
2017CPT.03.04.10311	Duplin	2	US 117 / NC 50 (CENTER ST.)	FROM NORTH OF SR 1387 AT PVMT. SEAM TO SR 1331 (MP 21.975 - MP 28.645)	1	2	2WU	6.67	24- 36	70,535	40,525	175		12			4									480	22	
<b>TOTAL FOR MAP NO. 2</b>										<b>6.67</b>	<b>70,535</b>	<b>40,525</b>	<b>175</b>	<b>12</b>			<b>4</b>									<b>480</b>	<b>22</b>	
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.10311</b>										<b>13.293</b>	<b>141,725</b>	<b>136,700</b>	<b>175</b>	<b>792</b>	<b>16</b>		<b>204</b>	<b>14</b>	<b>60</b>	<b>46</b>			<b>36</b>	<b>18</b>	<b>1,183</b>	<b>423</b>		
										<b>278,425</b>					<b>16</b>		<b>324</b>					<b>54</b>		<b>1,606</b>				
2017CPT.03.04.20311	Duplin	3	SR 1301 (WARREN RD.)	FROM US 117 TO NC 403 (MP 11.920- 17.407) NO PAVING BRIDGE NO. 75 [MP 12.975 - MP 12.985]	3	2	2WU	5.487	18				100	50		4					104	104	208			362		
<b>TOTAL FOR MAP NO. 3</b>										<b>5.487</b>				<b>100</b>	<b>50</b>		<b>4</b>				<b>104</b>	<b>104</b>	<b>208</b>			<b>362</b>		
2017CPT.03.04.20311	Duplin	4	SR 1337 (MCGOWAN RD.)	FROM US 117 TO SAMPSON CO. LINE (MP 0.000- 3.045) NO PAVING BRIDGE NO. 439 [MP 2.689 - MP 2.727]	3	2	2WU	3.045	20				50	25		2					400	400	800			201		
<b>TOTAL FOR MAP NO. 4</b>										<b>3.045</b>				<b>50</b>	<b>25</b>		<b>2</b>				<b>400</b>	<b>400</b>	<b>800</b>			<b>201</b>		
2017CPT.03.04.20311	Duplin	5	SR 1338 (JOE JOHNSON/JOE SAULS RD.)	FROM SR 1337 TO SR 1301 (MP 0.000- 2.550)	3	2	2WU	2.55	20																168			
<b>TOTAL FOR MAP NO. 5</b>										<b>2.55</b>															<b>168</b>			
2017CPT.03.04.20311	Duplin	6	SR 1566 (WALLACE WALKER RD.)	FROM SR 1501 TO DEAD END (MP 0.000- 0.500)	3	2	2WU	0.5	18																33			
<b>TOTAL FOR MAP NO. 6</b>										<b>0.5</b>															<b>33</b>			
2017CPT.03.04.20311	Duplin	7	SR 1704 (KITTY NOECKER RD.)	FROM SR 1705 TO NC 111 (MP 0.000 - MP 6.190) NO PAVING BRIDGE NO. 144 [MP 3.613 - MP 3.623]	3	2	2WU	6.19	18												104	104	208			409		
<b>TOTAL FOR MAP NO. 7</b>										<b>6.19</b>											<b>104</b>	<b>104</b>	<b>208</b>			<b>409</b>		
2017CPT.03.04.20311	Duplin	8	SR 1705 (TAPP FARM RD.)	FROM LENOIR COUNTY TO NC 111 (MP 0.000- 5.170)	3	2	2WU	5.17	18																341			
<b>TOTAL FOR MAP NO. 8</b>										<b>5.17</b>															<b>341</b>			
2017CPT.03.04.20311	Duplin	9	SR 1720 (PENNY RD.)	FROM NC 41 TO NC 24 (MP 0.000- 2.016)	3	2	2WU	2.016	20																133			
<b>TOTAL FOR MAP NO. 9</b>										<b>2.016</b>															<b>133</b>			
2017CPT.03.04.20311	Duplin	10	SR 1800 (JACKSON STORE RD.)	FROM SR 1961 TO NC 41 (MP 0.000- 3.103)	3	2	2WU	3.103	18																205			
<b>TOTAL FOR MAP NO. 10</b>										<b>3.103</b>															<b>205</b>			
2017CPT.03.04.20311	Duplin	11	SR 1300 (W. WARDS BRIDGE RD.)	FROM NC 24 TO SR 1301 (MP 0.000- 4.410)	3	2	2WU	4.41	20																291			
<b>TOTAL FOR MAP NO. 11</b>										<b>4.41</b>															<b>291</b>			
2017CPT.03.04.20311	Duplin	12	SR 1304 (FRIENDSHIP CHURCH RD.)	FROM NC 403 TO SR 1307 (MP 0.000- 6.330)	3, 4	2	2WU	6.33	18 - 22																418			
<b>TOTAL FOR MAP NO. 12</b>										<b>6.33</b>															<b>418</b>			
<b>TOTAL FOR PROJ NO. 2017CPT.03.04.20311</b>										<b>38.801</b>				<b>150</b>	<b>75</b>		<b>6</b>					<b>608</b>	<b>608</b>	<b>1,216</b>		<b>2,561</b>		
<b>GRAND TOTAL</b>										<b>52.094</b>	<b>141,725</b>	<b>136,700</b>	<b>175</b>	<b>150</b>	<b>867</b>	<b>16</b>	<b>6</b>	<b>204</b>	<b>14</b>	<b>60</b>	<b>46</b>	<b>608</b>	<b>608</b>	<b>1,216</b>	<b>36</b>	<b>2,579</b>	<b>1,183</b>	<b>423</b>
										<b>278,425</b>					<b>22</b>		<b>324</b>			<b>1,216</b>		<b>2,615</b>		<b>1,606</b>				

## URBAN / SUBURBAN WORKZONES

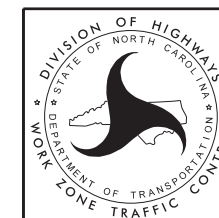


### NOTES:

- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
- 4) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
- 5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
- 6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
- 7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 8) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

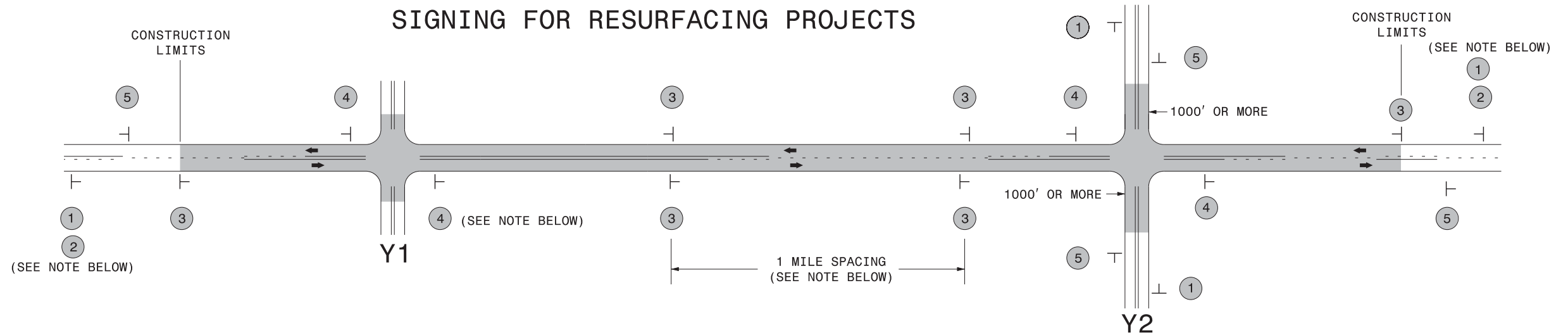
### LEGEND

- ┆ STATIONARY SIGN
- ➔ DIRECTION OF TRAFFIC FLOW



**RESURFACING ADVANCE  
WARNING SIGNS FOR  
URBAN / SUBURBAN  
FACILITIES**

## SIGNING FOR RESURFACING PROJECTS

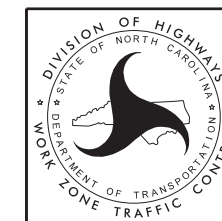


LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

### MAINLINE (-L-) SIGNING

### -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	MAINLINE (-L-) SIGNING		-Y- LINE SIGNING	
	1	 <small>W20-1 48" X 48"</small>	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p>	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> <li>LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>SUBDIVISION ROADS</li> <li>DEAD END ROADS</li> </ol> <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">   <small>W20-1 48" X 48"</small> </div> <div style="text-align: center;">   <small>W20-7 A 48" X 48"</small> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	2	 <small>W7-3aP 24" X 18"</small>	<p>#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)</p>	
	3	 <small>SP 13107 48" X 48"</small>	<p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p>	
	4	 <small>SP 13106 48" X 48"</small>	<p>THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.</p>	
5	 <small>G20-2 A 48" X 24"</small>	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>		



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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## ***SOIL STABILIZATION TIMEFRAMES***

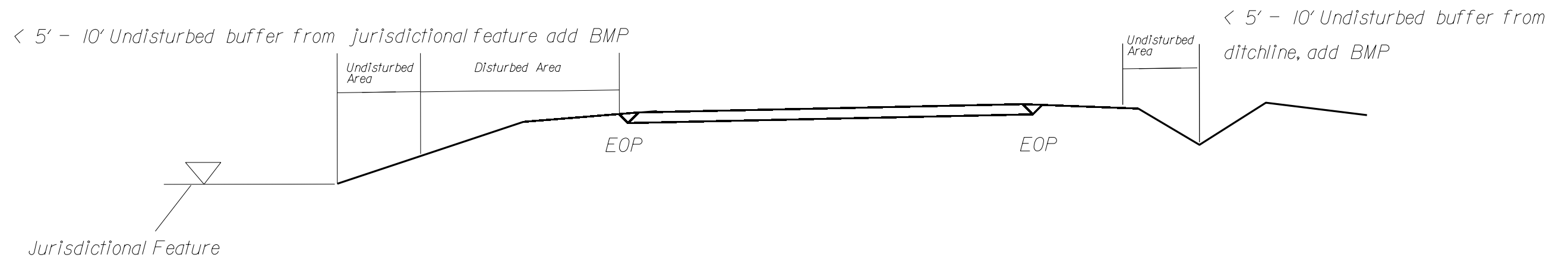
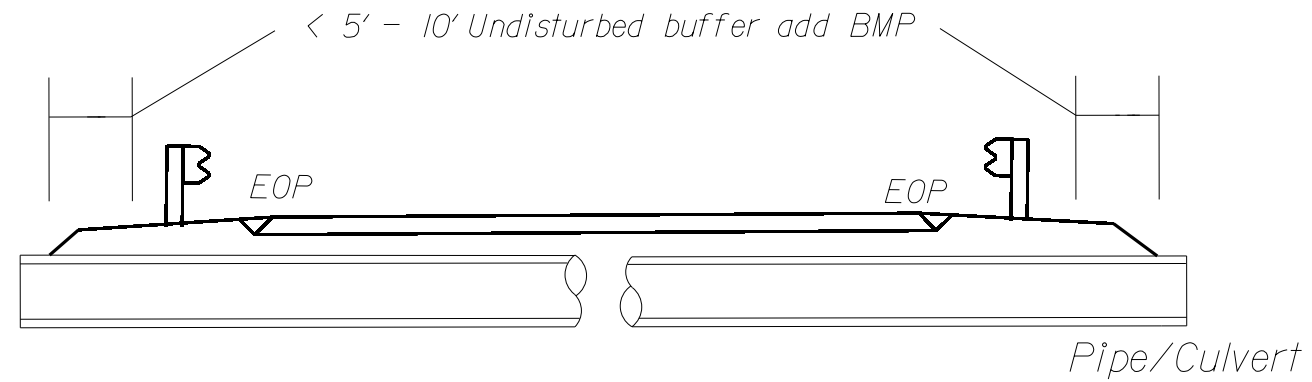
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.



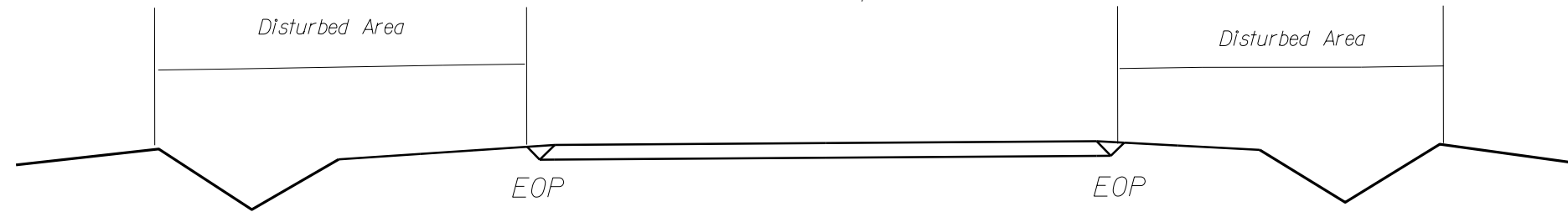
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle or Silt Fence

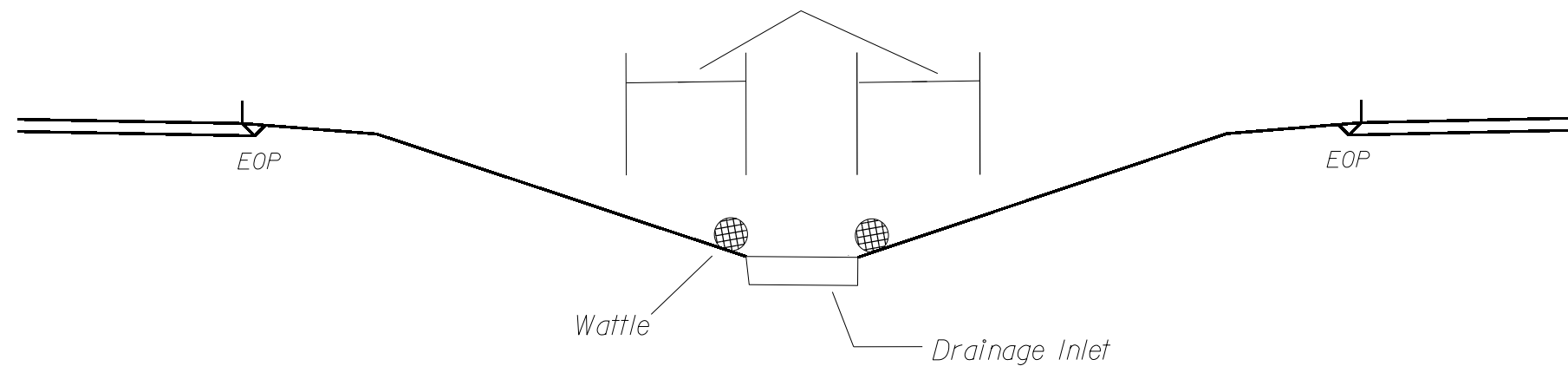
# EROSION CONTROL DETAIL



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed

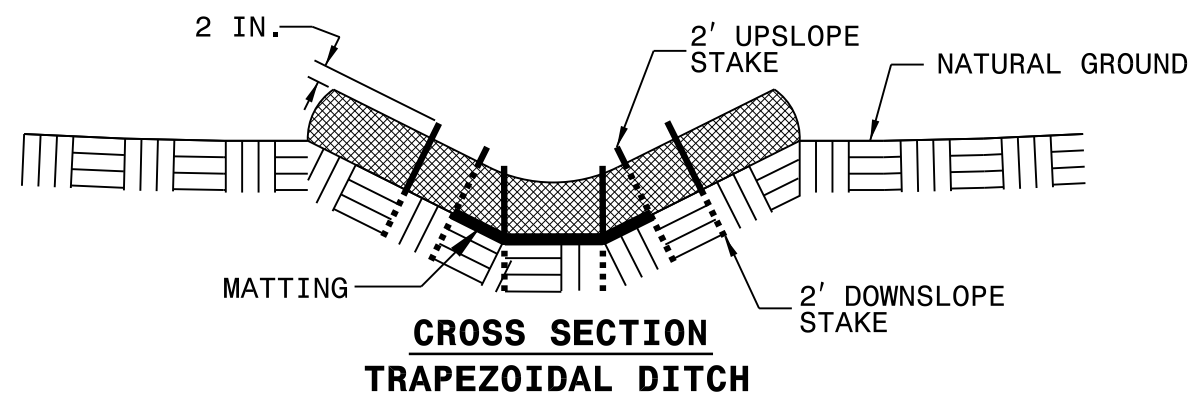
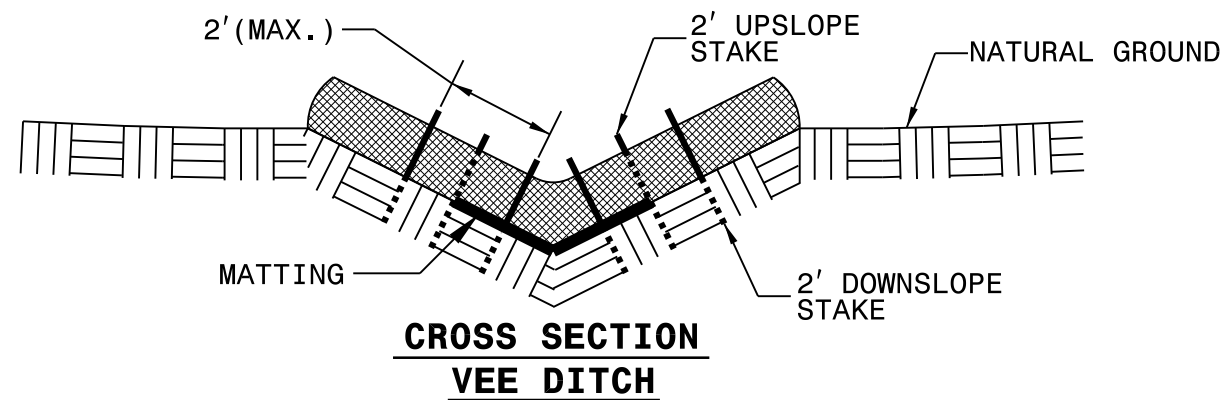
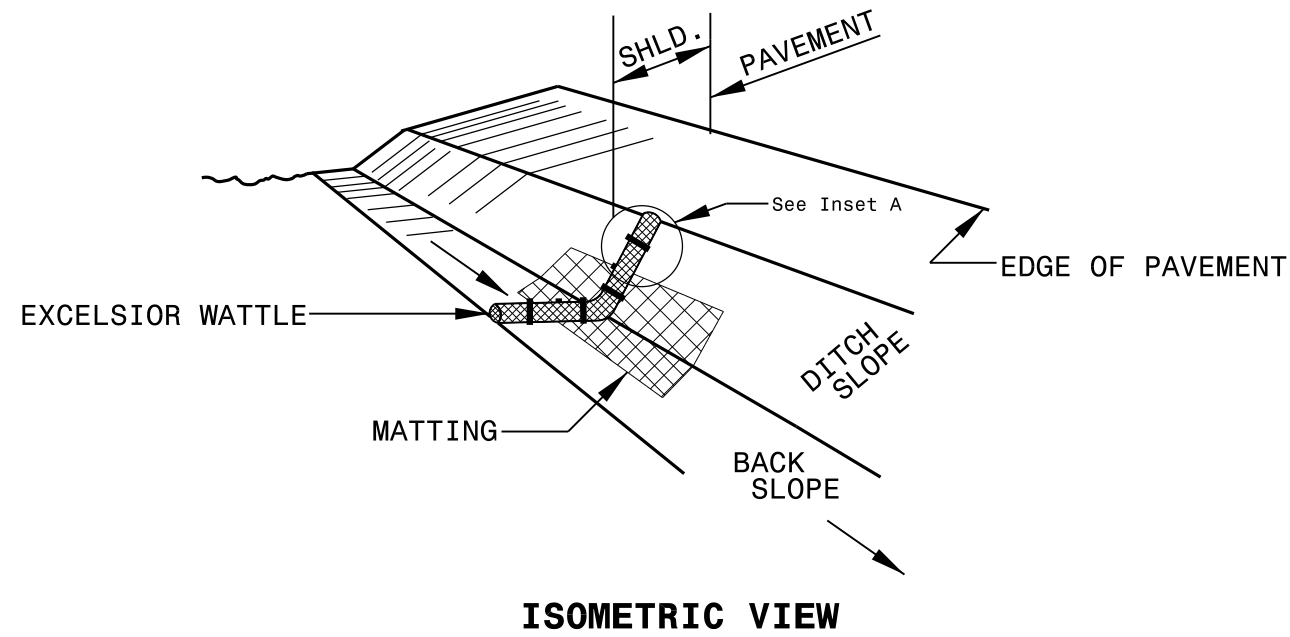


< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

# WATTLE DETAIL



**NOTES:**

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

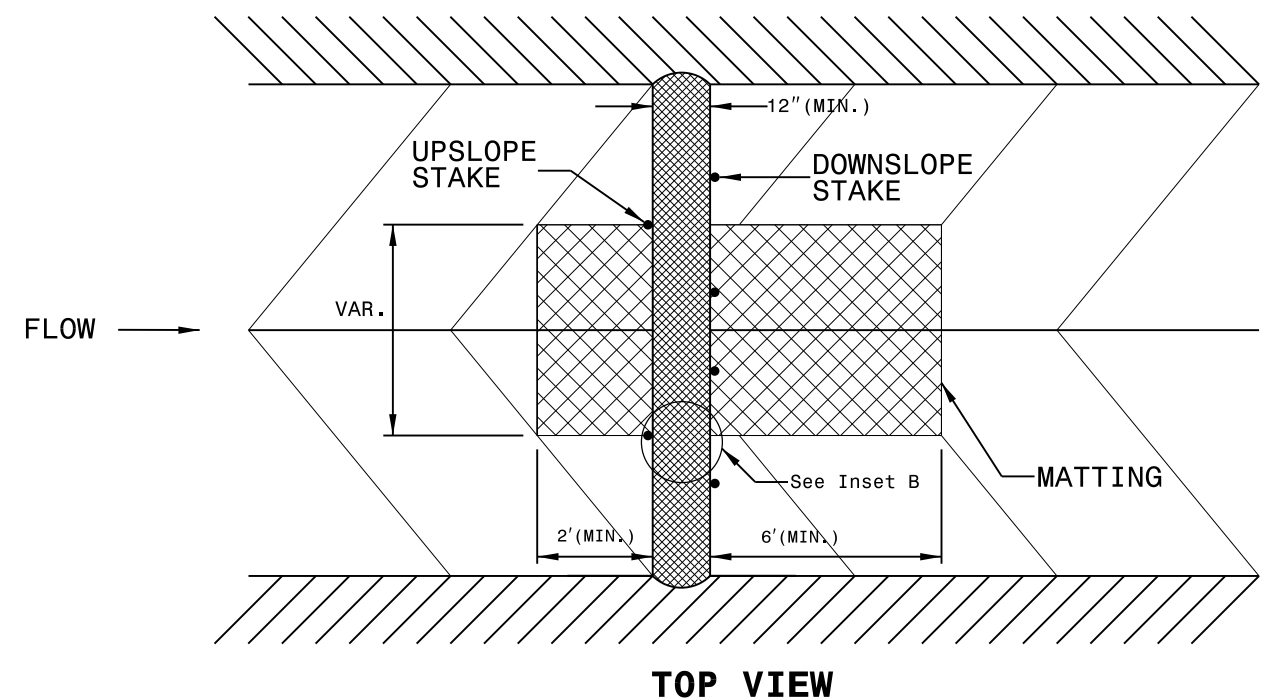
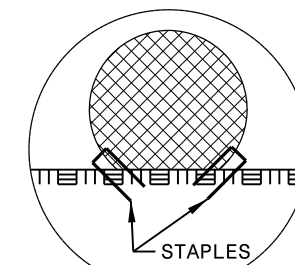
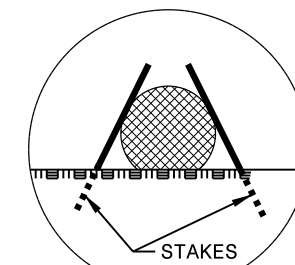
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

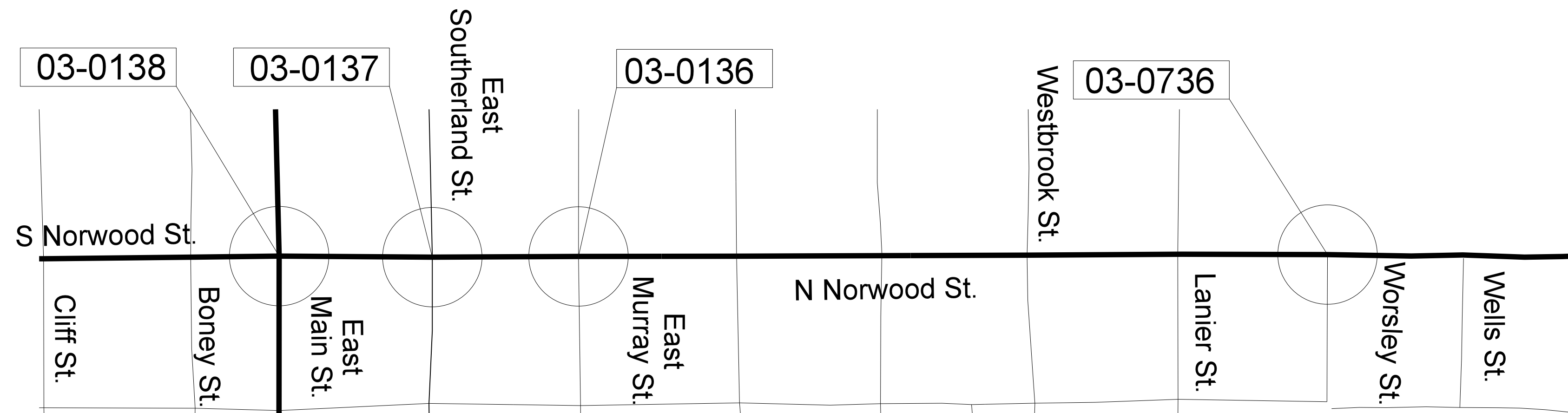
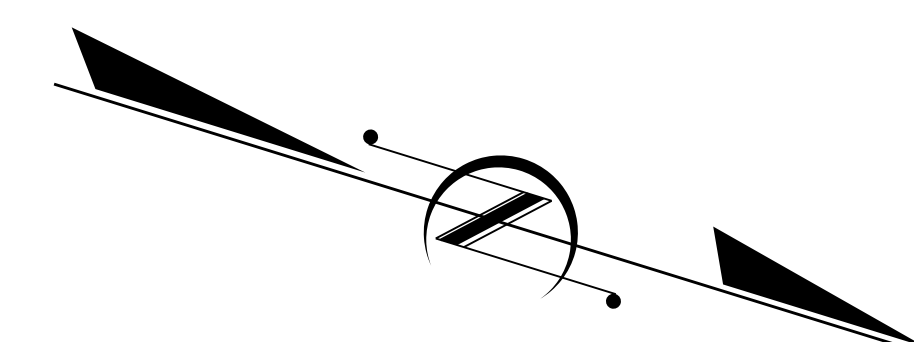
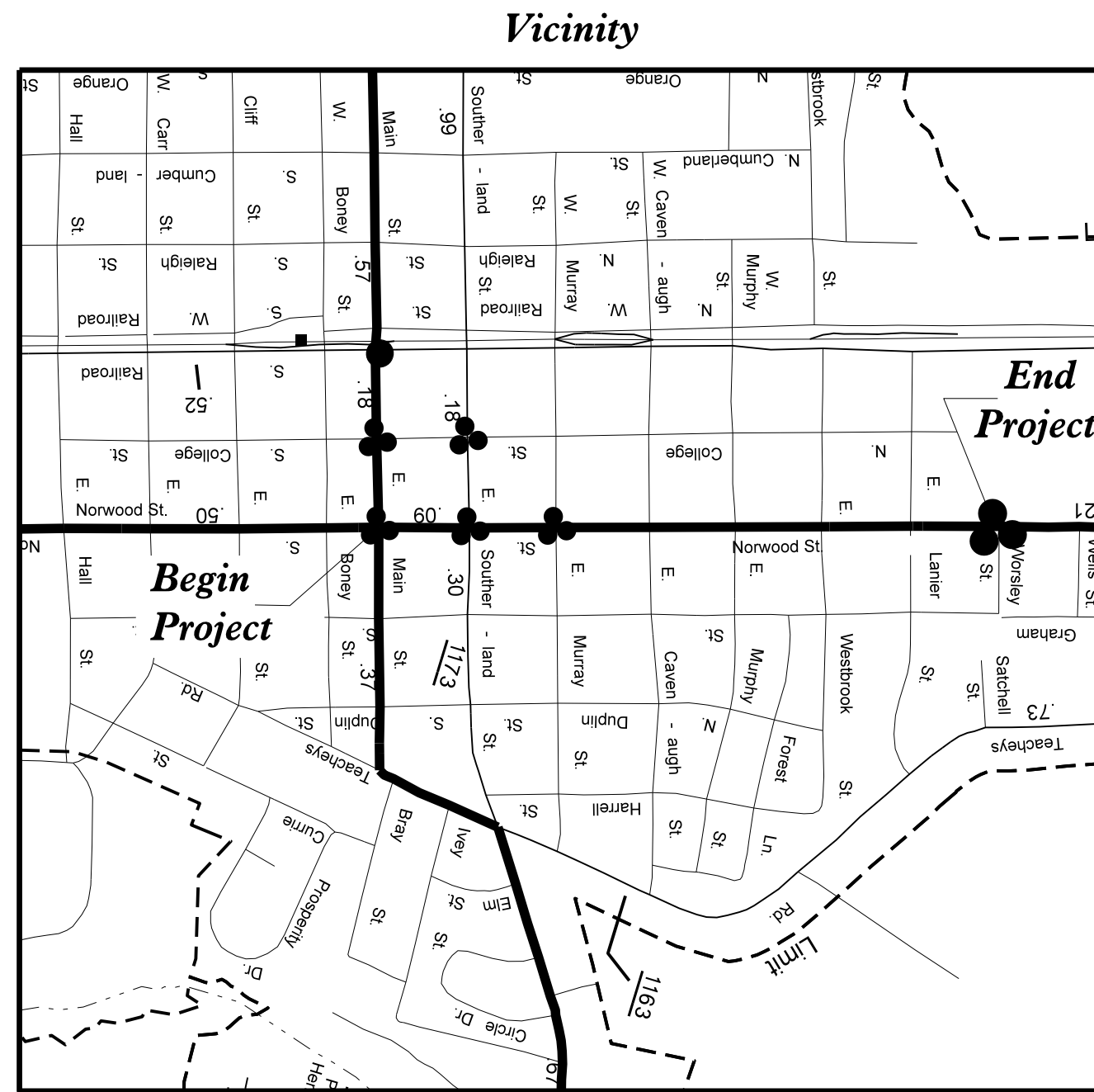
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# Duplin County

**LOCATION:** US 117 (Norwood Street) from NC 41 (Main Street) to Worsley Street / Wallace Crossing Shopping Center  
**TYPE OF WORK:** TRAFFIC SIGNAL



**Resurfacing Project: 2017CPT.03.04.10311**

Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.

Sheet #	Reference #	Index of Plans	Location/Description
Sig. 0.0	-----	Title Sheet	
Sig. 1.0-1.1	03-0138		US 117 (Norwood Street) at NC 41 (E Main Street)
Sig. 2.0-2.4	03-0137		US 117 (N Norwood Street) at SR 1173 (E Southerland Street)
Sig. 3.0-3.1	03-0136		US 117 (N Norwood Street) at East Murray Street
Sig. 4.0-4.1	03-0736		US 117 (N Norwood Street) at Worsley Street / Wallace Crossing Shopping Center

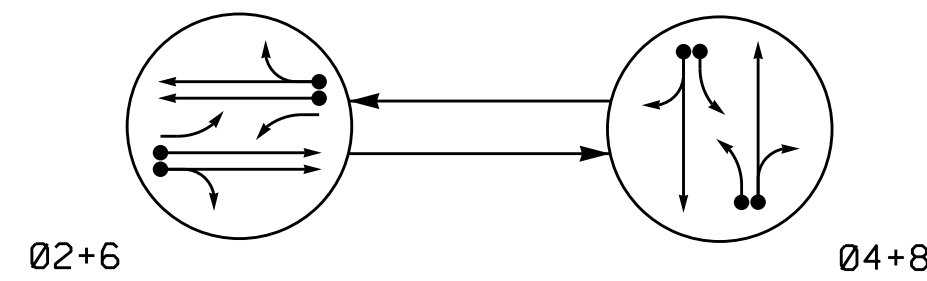
**INTELLIGENT TRANSPORTATION AND SIGNALS UNIT**  
Contacts:  
**Pamela Alexander, PE** - Eastern Region Signals Engineer  
**Keith M. Mims, PE** - Signal Equipment Design Engineer

Prepared In the Office of:  
DIVISION OF HIGHWAYS  
TRANSPORTATION MOBILITY AND SAFETY  
DIVISION

750 N. Greenfield Parkway, Garner, NC 27529

27-APR-2016 13:09 S:\175&S0\175 Signals\Signal Design Section\Eastern Region\Div-03\Duplin Resurfacing\Title Sheet\Title Sheet.dgn

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

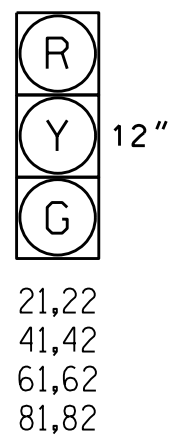
- ● DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLIGHT
21,22	G	R	Y
41,42	R	G	R
61,62	G	R	Y
81,82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



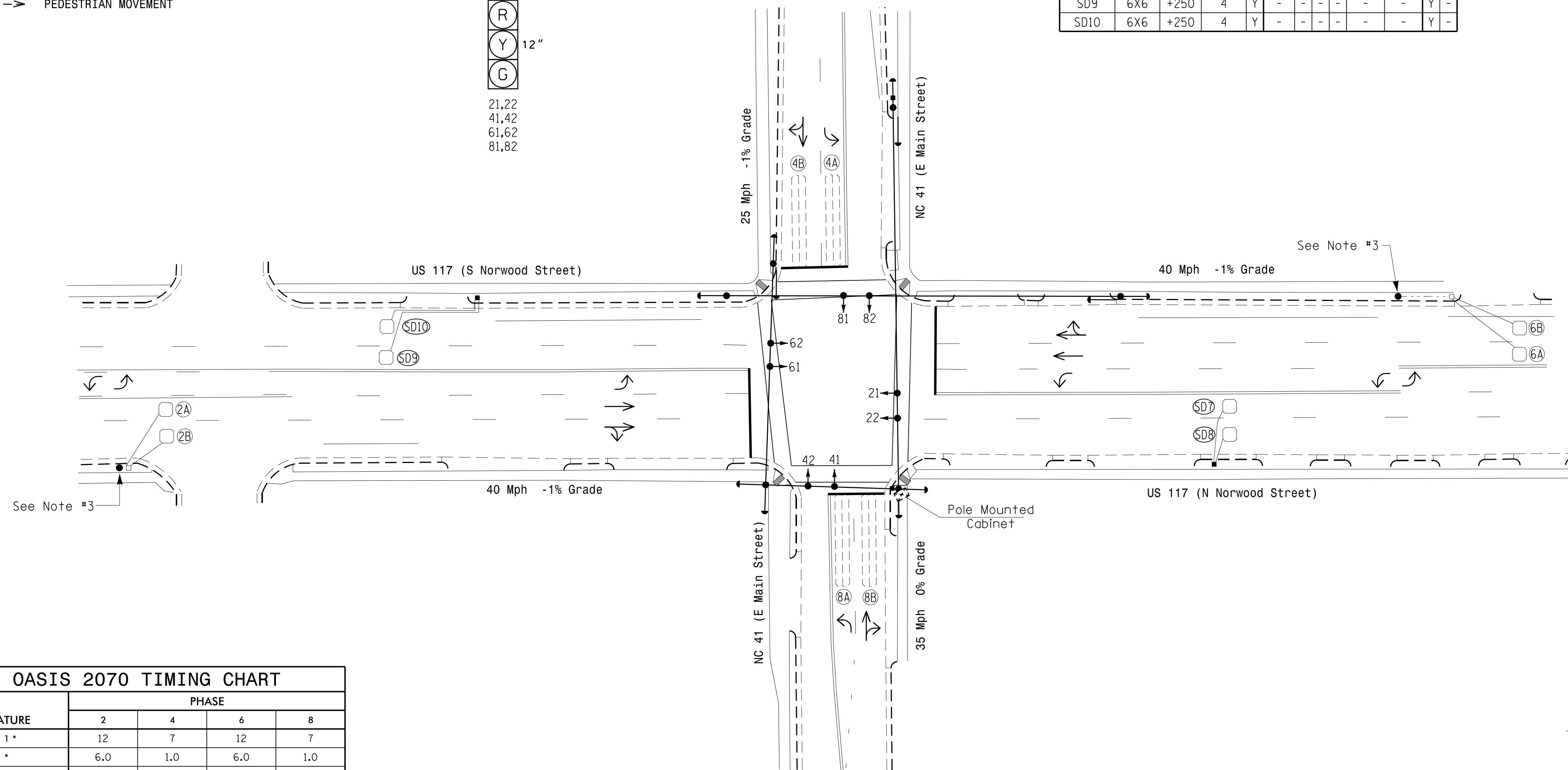
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	INDUCTIVE LOOPS			DETECTOR PROGRAMMING							
	SIZE	DISTANCE FROM STOPBAR (FT)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	250	5	Y	2	Y	Y	-	-	-	Y
2B	6X6	250	5	Y	2	Y	Y	-	-	-	Y
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	3	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-
6A	6X6	250	5	Y	6	Y	Y	-	-	-	Y
6B	6X6	250	5	Y	6	Y	Y	-	-	-	Y
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	3	-
8B	6X40	0	2-4-2	-	8	Y	Y	-	-	10	-
SD7	6X6	+205	3	Y	-	-	-	-	-	-	Y
SD8	6X6	+205	3	Y	-	-	-	-	-	-	Y
SD9	6X6	+250	4	Y	-	-	-	-	-	-	Y
SD10	6X6	+250	4	Y	-	-	-	-	-	-	Y

2 Phase Fully Actuated US 117 (Wallace) CLS

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Run all lead-in cable overhead on existing utility poles where possible.
- Set all detector units to presence mode.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset # 0138.



OASIS 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	12	7	12	7
Extension 1 *	6.0	1.0	6.0	1.0
Max Green 1 *	60	30	60	30
Yellow Clearance	4.2	3.2	4.2	3.8
Red Clearance	1.1	2.4	1.2	1.7
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	1.5	-
Max Variable Initial *	29	-	29	-
Time Before Reduction *	15	-	15	-
Time To Reduce *	30	-	30	-
Minimum Gap	3.0	-	3.0	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

\* 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.

LEGEND

PROPOSED	EXISTING

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

750 N. Greenfield Pkwy, Garner, NC 27529

US 117 (Norwood Street) at NC 41 (E Main Street)

Division 3 Duplin County Wallace

PLAN DATE: February 2016 PREPARED BY: Jeff Spence REVIEWED BY: PLA

REVISIONS: \_\_\_\_\_ INIT. DATE \_\_\_\_\_

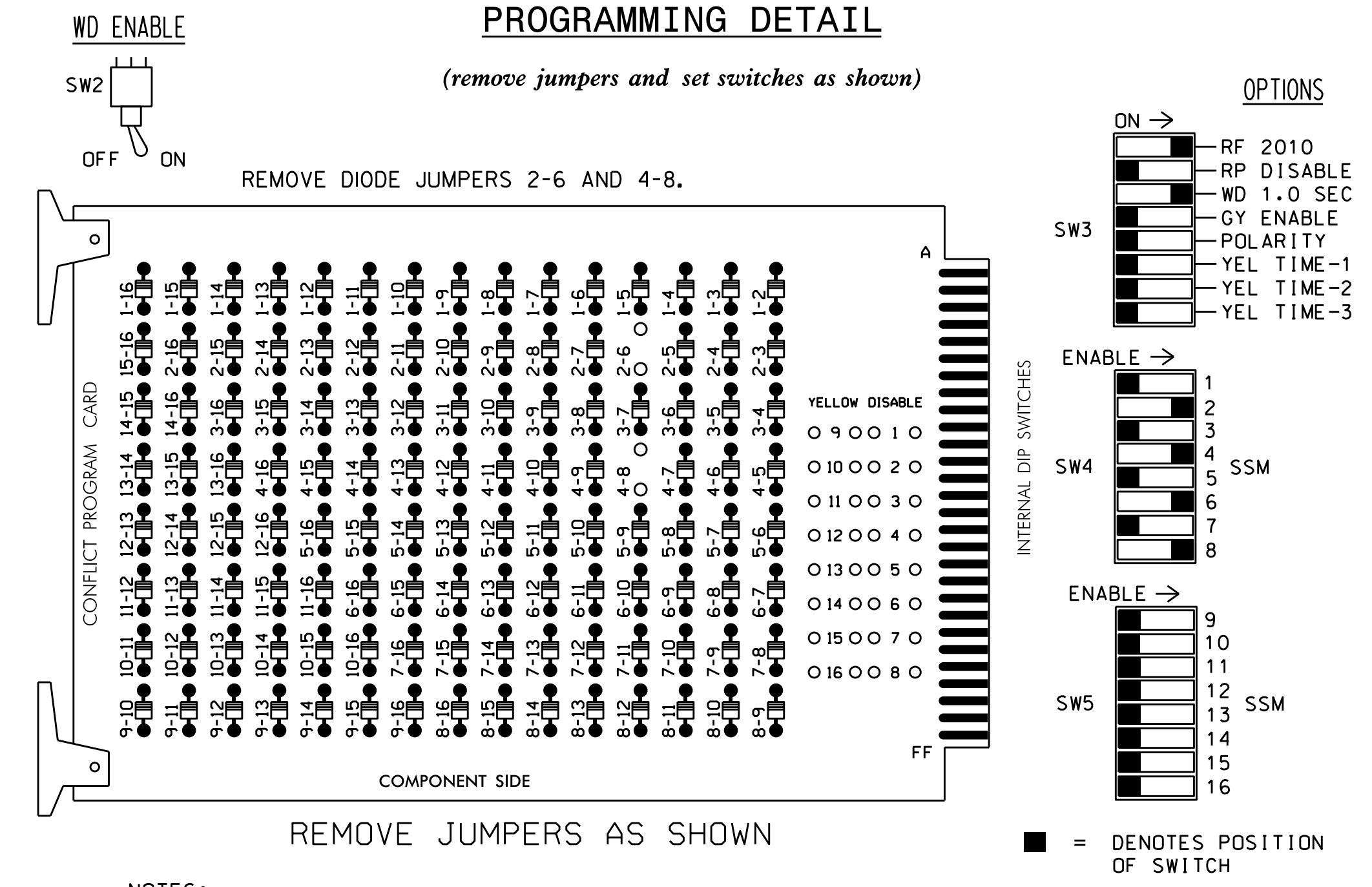
SEAL

3/31/16

SIG. INVENTORY NO. 03-0138

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 Resurfacings\030138\_s.dgn, 20160331.dgn  
 J. Spence

### EDI MODEL 2010ECL CONFLICT MONITOR PROGRAMMING DETAIL



**NOTES:**

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

### 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. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,3,5,7, 9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program phases 4 and 8 for Dual Entry.
4. Enable Simultaneous Gap-Out for all phases.
5. Program phases 2 and 6 for Variable Initial and Gap Reduction.
6. Program phases 2 and 6 for Start Up In Green.
7. Program phases 2 and 6 for Yellow Flash.
8. The cabinet and controller are part of the US 117 (Wallace) Closed Loop System.

### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

NU = Not Used

### EQUIPMENT INFORMATION

CONTROLLER.....2070  
 CABINET.....336  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....POLE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S2,S4,S6,S8  
 PHASES USED.....2,4,6,8  
 OVERLAPS.....NONE

### INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
SYS. DET. SD7	SYS. DET. SD9	∅ 2	∅ 4	S-∅ 5	∅ 6	S-∅ 7	∅ 8	S-∅ 9	S-∅ 10	S-∅ 11	S-∅ 12	S-∅ 13	S-∅ 14	FS DC ISOLATOR
SYS. DET. SD8	SYS. DET. SD10	∅ 2	∅ 4	S-∅ 5	∅ 6	S-∅ 7	∅ 8	S-∅ 9	S-∅ 10	S-∅ 11	S-∅ 12	S-∅ 13	S-∅ 14	ST DC ISOLATOR

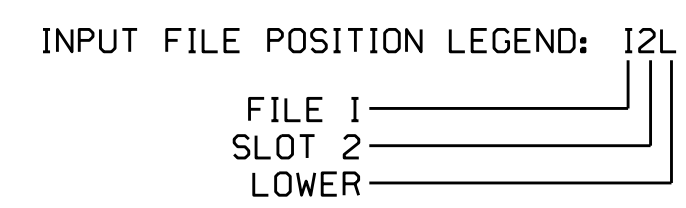
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB21-5,6	I3U	58	20	3	2	Y	Y			
2B	TB23-5,6	I3L	49	11	24	2	Y	Y			
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			3
4B	TB23-7,8	I4L	45	7	14	4	Y	Y			10
6A	TB21-11,12	I6U	40	2	6	6	Y	Y			
6B	TB23-11,12	I6L	44	6	16	6	Y	Y			
8A	TB22-1,2	I8U	42	4	8	8	Y	Y			3
8B	TB24-1,2	I8L	46	8	18	8	Y	Y			10
* SD7	TB21-1,2	I1U	56	18	1	SYS					
* SD8	TB23-1,2	I1L	47	9	22	SYS					
* SD9	TB21-3,4	I2U	39	1	2	SYS					
* SD10	TB23-3,4	I2L	43	5	12	SYS					

\* SYSTEM DETECTOR ONLY. REMOVE THE VEHICLE PHASE ASSIGNED TO THIS DETECTOR IN THE DEFAULT PROGRAMMING.



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0138  
 DESIGNED: February 2016  
 SEALED: 3-31-16  
 REVISED: N/A

### Electrical Detail

Electrical and Programming Details For: US 117 (Norwood Street) at NC 41 (E. Main Street)

Prepared In the Offices of:

Division 3 Duplin County Wallace

PLAN DATE: March 2016 REVIEWED BY: DTJ

PREPARED BY: James Peterson REVIEWED BY:

REVISIONS: INIT. DATE

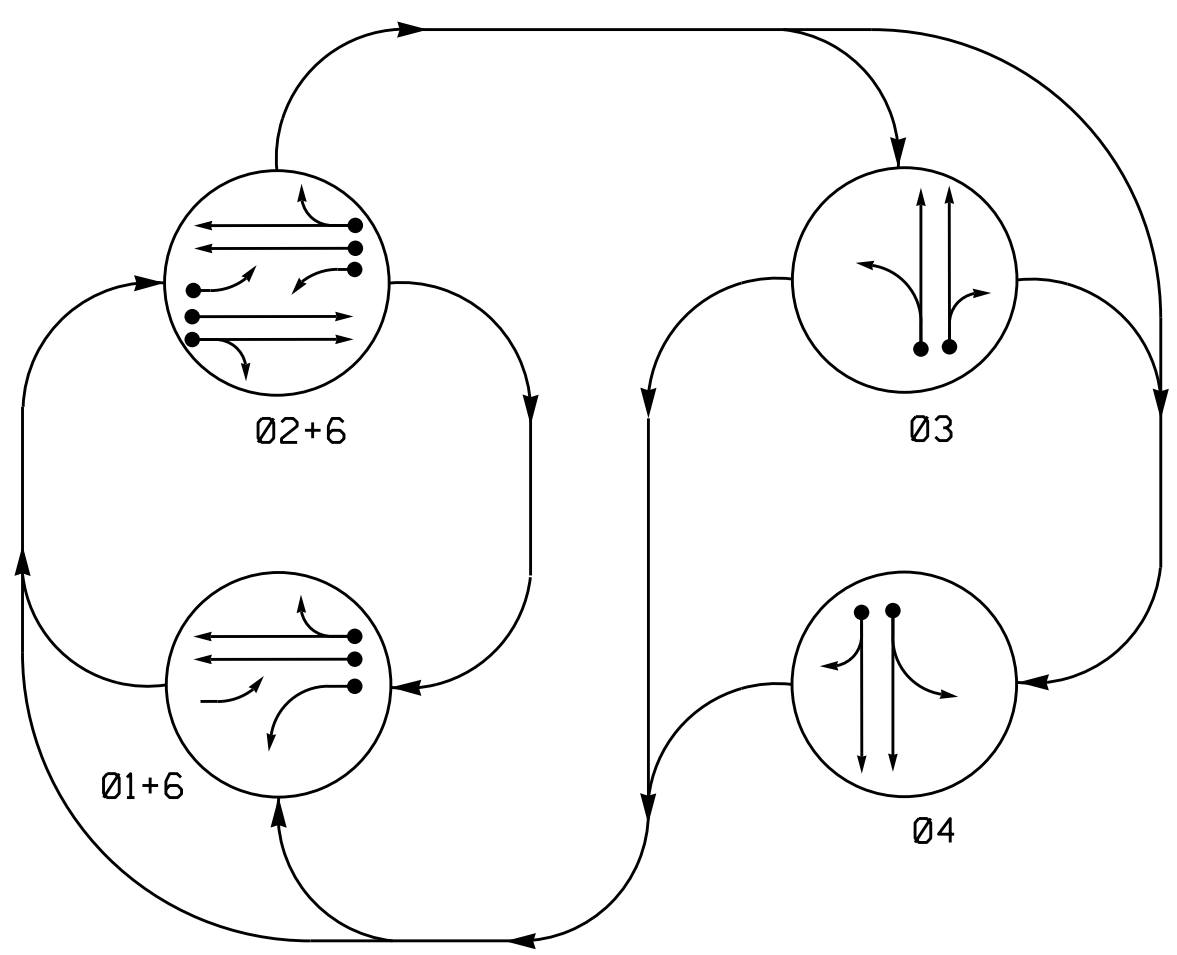
Seal:

DocuSigned by: Keith M. Mins 4/8/2016

SIG. INVENTORY NO. 03-0138

04-APR-2016 14:17 S:\IT\251\TSS\Sigma\work\garner\030138\_sm.ele\_20140110.dgn J.peterson

**PHASING DIAGRAM**



**PHASING DIAGRAM DETECTION LEGEND**

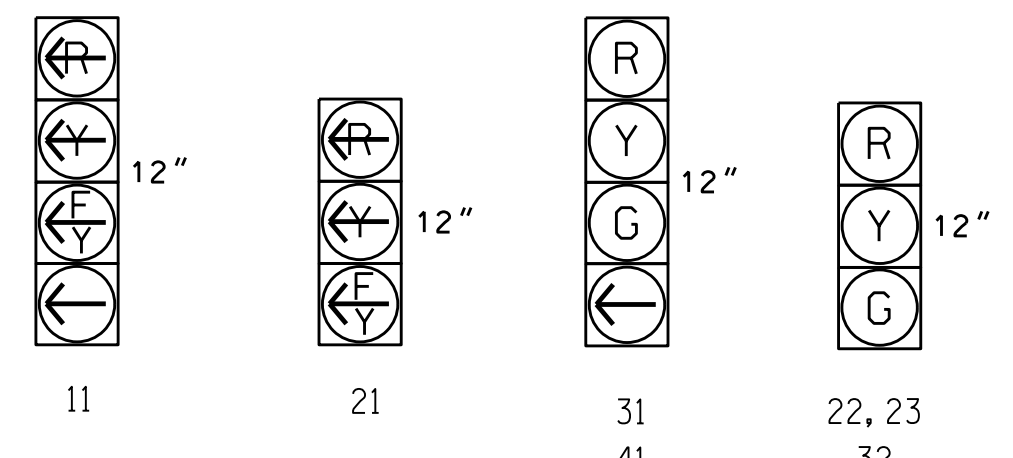
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

**TABLE OF OPERATION**

SIGNAL FACE	PHASE				
	01+6	02+6	03	04	F L S D H
11	Y	Y	R	R	Y
21	Y	Y	R	R	Y
22,23	R	G	R	R	Y
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
61,62	G	G	R	R	Y

**SIGNAL FACE I.D.**

All Heads L.E.D.



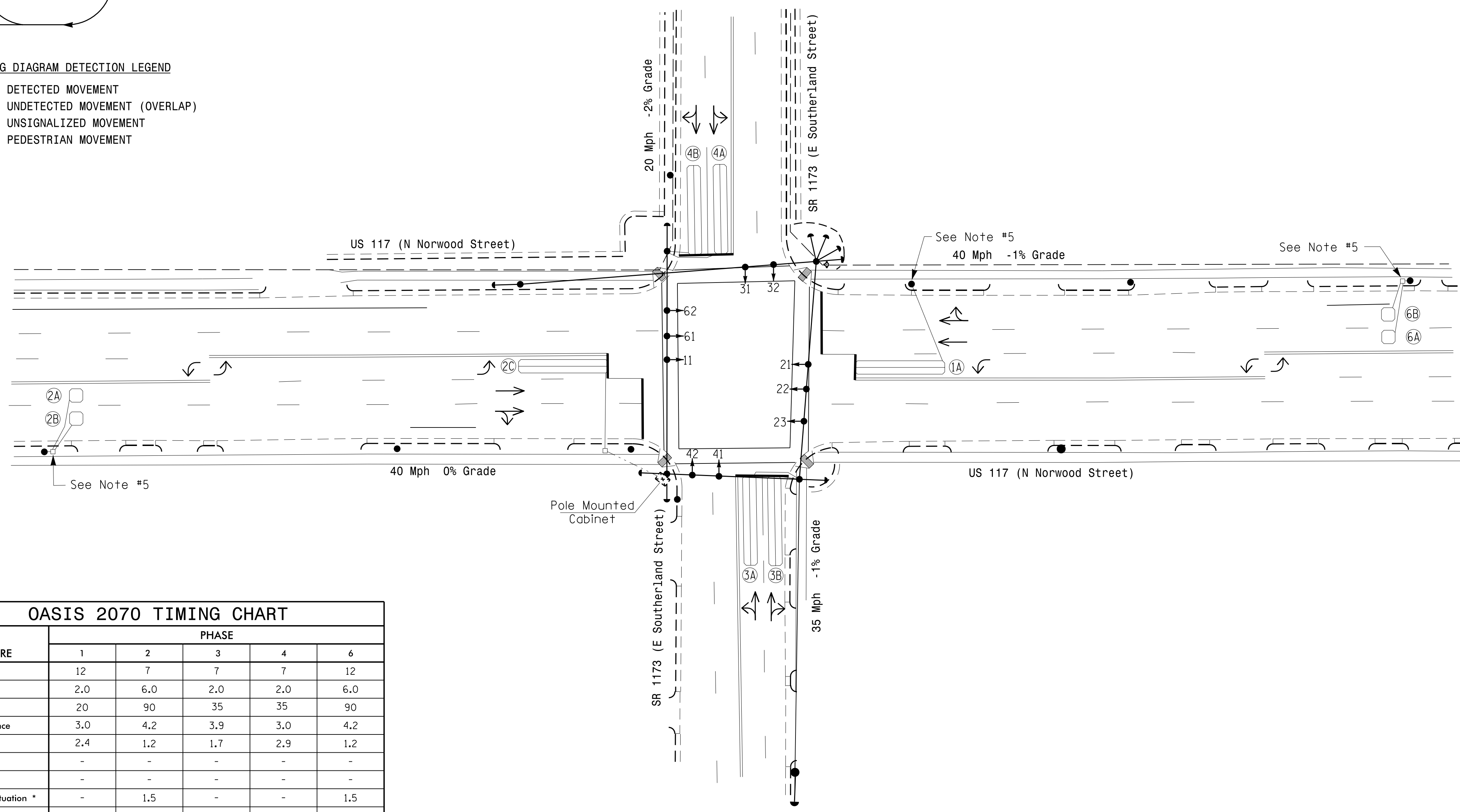
**OASIS 2070 LOOP & DETECTOR INSTALLATION CHART**

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING					SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME			DELAY TIME
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	-
2A	6X6	250	4	Y	2	Y	Y	-	-	3	-	-
2B	6X6	250	4	Y	2	Y	Y	-	-	-	-	Y
2C	6X40	0	2-4-2	Y	2	Y	Y	-	-	3	-	-
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	3	-	-
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	10	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-	-
6A	6X6	250	5	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	250	5	Y	6	Y	Y	-	-	-	-	Y

4 Phase Fully Actuated US 117 (Wallace) CLS

**NOTES**

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Run all lead-in cable overhead on existing utility poles where possible.
6. Set all detector units to presence mode.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed loop system data: Controller Asset # 0137.



**OASIS 2070 TIMING CHART**

FEATURE	PHASE				
	1	2	3	4	6
Min Green 1 *	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	6.0
Max Green 1 *	20	90	35	35	90
Yellow Clearance	3.0	4.2	3.9	3.0	4.2
Red Clearance	2.4	1.2	1.7	2.9	1.2
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	1.5
Max Variable Initial *	-	29	-	-	29
Time Before Reduction *	-	15	-	-	15
Time To Reduce *	-	30	-	-	30
Minimum Gap	-	3.0	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON

\* 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.

**LEGEND**

- |  |  |  |  |
|--|--|--|--|
|  | Proposed Traffic Signal Head           |  | Existing Traffic Signal Head           |
|  | Proposed Modified Signal Head          |  | Existing Modified Signal Head          |
|  | Proposed Pedestrian Signal Head        |  | Existing Pedestrian Signal Head        |
|  | Proposed Signal Pole with Guy          |  | Existing Signal Pole with Guy          |
|  | Proposed Signal Pole with Sidewalk Guy |  | Existing Signal Pole with Sidewalk Guy |
|  | Proposed Inductive Loop Detector       |  | Existing Inductive Loop Detector       |
|  | Proposed Controller & Cabinet          |  | Existing Controller & Cabinet          |
|  | Proposed Junction Box                  |  | Existing Junction Box                  |
|  | Proposed 2-in Underground Conduit      |  | Existing 2-in Underground Conduit      |
|  | Proposed Right of Way                  |  | Existing Right of Way                  |
|  | Proposed Directional Arrow             |  | Existing Directional Arrow             |
|  | Proposed Wheel Chair Ramp              |  | Existing Wheel Chair Ramp              |
|  | Proposed Fire Hydrant                  |  | Existing Fire Hydrant                  |

**Signal Upgrade**

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

**US 117 (N Norwood Street) at SR 1173 (E Southerland Street)**

Division 3 Duplin County Wallace

PLAN DATE: February 2016 REVIEWED BY: PLA

PREPARED BY: Jeff Spence REVIEWED BY:

SEAL

3/24/16

SIG. INVENTORY NO. 03-0137

SCALE: 1"=30'

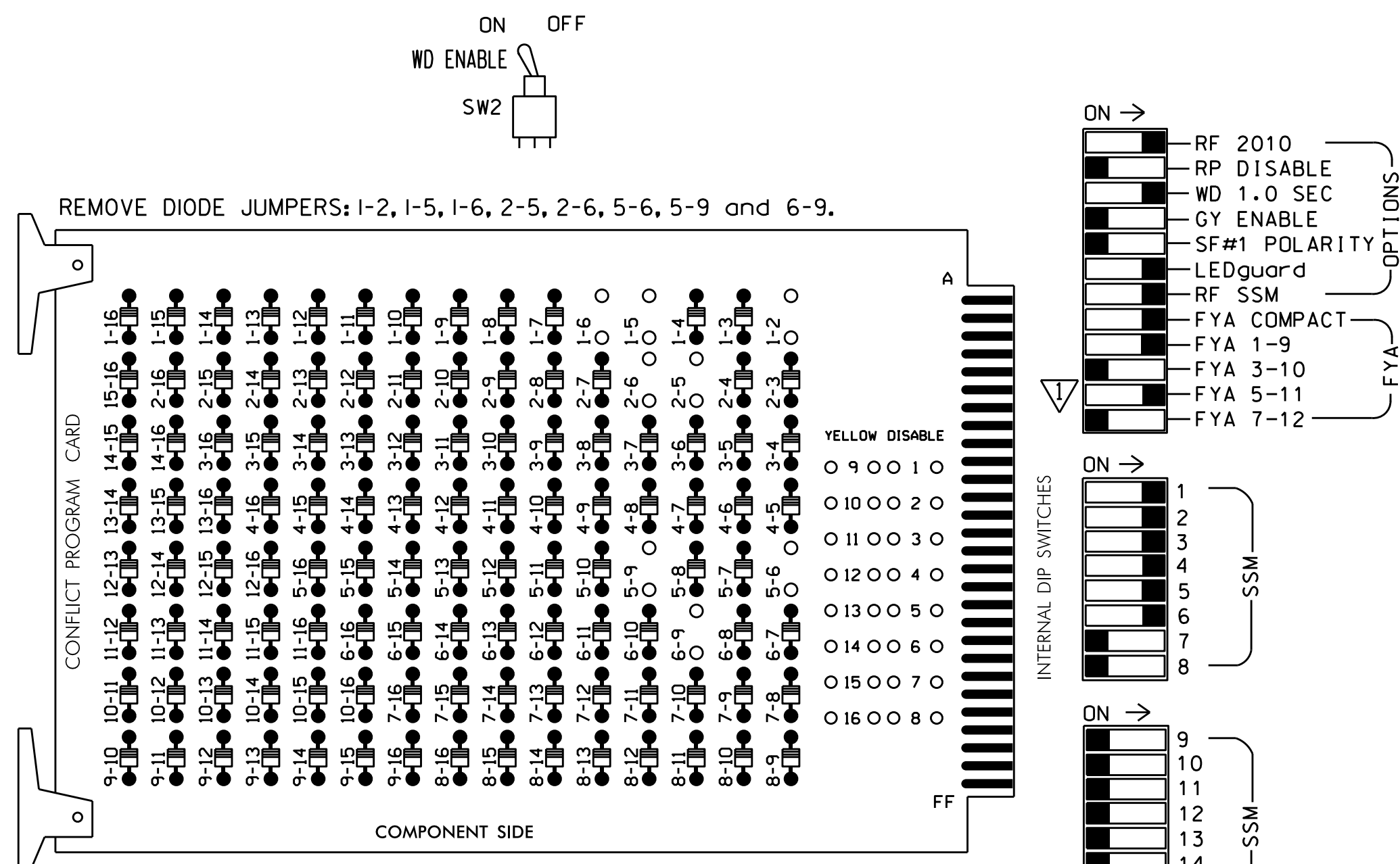
REVISIONS: \_\_\_\_\_

INIT. DATE

20170304.dwg  
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 20160324.dgn  
 J. Spence

**EDI MODEL 2010ECL-NC CONFLICT MONITOR  
PROGRAMMING DETAIL**

*(remove jumpers and set switches as shown)*



- REMOVE DIODE JUMPERS: 1-2, 1-5, 1-6, 2-5, 2-6, 5-6, 5-9 and 6-9.**
- REMOVE JUMPERS AS SHOWN**
- NOTES:**
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
  - Make sure jumpers SEL2-SEL5 are present on the monitor board.
  - Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on this sheet.
- = DENOTES POSITION OF SWITCH

**INPUT FILE POSITION LAYOUT**

*(front view)*

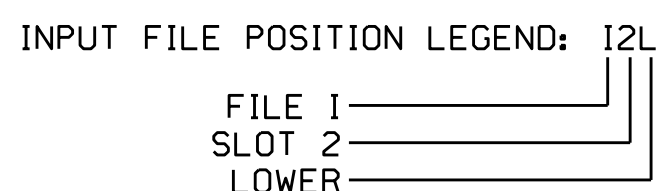
FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1 1A	∅ 2 2A	∅ 3 3A	∅ 4 4A	NOT USED	∅ 6 6A	S-OFF WIRE	S-OFF WIRE	S-OFF WIRE	S-OFF WIRE	S-OFF WIRE	S-OFF WIRE	S-OFF WIRE	FS DC ISOLATOR ST
L	WIRED INPUT	∅ 2 2B	∅ 3 3B	∅ 4 4B	∅ 2 2C	∅ 6 6B	Y-WIRE	Y-WIRE	Y-WIRE	Y-WIRE	Y-WIRE	Y-WIRE	Y-WIRE	DC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S FS = FLASH SENSE ST = STOP TIME  
⊗ Wired Input - turn off Channel 2.

**INPUT FILE CONNECTION & PROGRAMMING CHART**

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A'	TB21-1,2	I1U	56	18	1	1	Y	Y			15
2A	TB21-3,4	I2U	39	1	2	2	Y	Y	Y		3
2B	TB23-3,4	I2L	43	5	12	2	Y	Y			
3A	TB21-5,6	I3U	58	20	3	3	Y	Y			3
3B	TB23-5,6	I3L	49	11	24	3	Y	Y			10
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			3
4B	TB23-7,8	I4L	45	7	14	4	Y	Y			10
2C	TB23-9,10	I5L	48	10	26	2	Y	Y	Y		3
6A	TB21-11,12	I6U	40	2	6	6	Y	Y			
6B	TB23-11,12	I6L	44	6	16	6	Y	Y			

^ Add jumper from I1-F to I1-W, on rear of input file.



**NOTES**

- 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.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 7,8,9,10, 11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
- The cabinet and controller are part of the US 117 (Wallace) CLS.

**EQUIPMENT INFORMATION**

CONTROLLER.....2070L  
 CABINET.....McCain/CONTROL TECHNOLOGIES (DWG.NO.9500-336-NC DOT)  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....POLE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S1,S2,S2P,S3,S4,S5,S6.  
 PHASES USED.....1,2,3,4,6  
 OVERLAP "A".....1+2  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....6  
 OVERLAP "D".....NOT USED

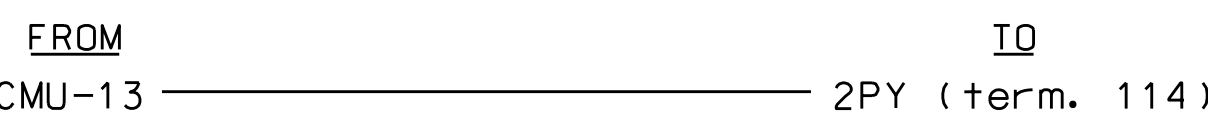
**PED YELLOW CONFLICT MONITOR WIRING DETAIL**

*(make cabinet wiring changes as shown below)*

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the phase 2 Ped Yellow load switch output is wired to the conflict monitor as follows: From 2 PY (field term. 114) to chan. 9 green (monitor pin 13).

Follow the instructions below to make the appropriate connections:

- STEP 1: Fold down rear panel of output file.
- STEP 2: Find unused wiring harness from conflict monitor card edge connector (which should be tied and bundled together).
- STEP 3: Within the harness, find the wire that corresponds to the conflict monitor card edge pin CMU-13. Solder this wire to the 2PY terminal (114), which is located on the rear of the output file.



NOTE: Some cabinet manufacturers use a Molex plug to accomplish this wiring configuration. If connectors are used, simply plug the two connectors together that are labeled with the pin-out as shown above.

**SIGNAL HEAD HOOK-UP CHART**

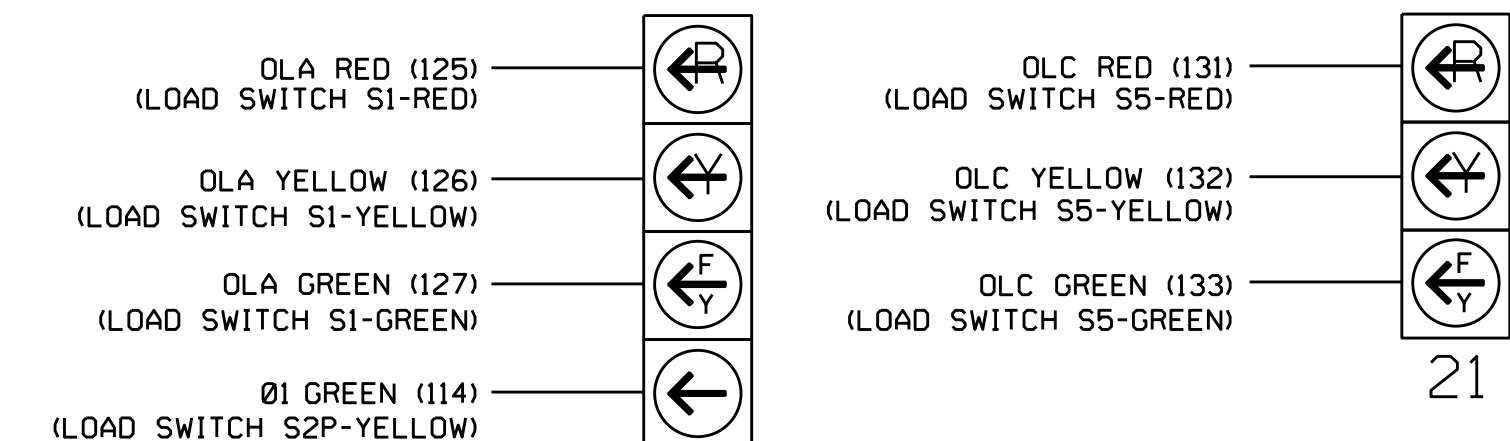
LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	OLA	2	1 GRN 2 PED	3	4	4	OLC	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11*	22,23	11*	31	32	41	42	21*	61,62	NU	NU	NU
RED		128		116	116	101	101		134			
YELLOW		129		117	117	102	102		135			
GREEN		130		118	118	103	103		136			
RED ARROW	125								131			
YELLOW ARROW	126								132			
FLASHING YELLOW ARROW	127								133			
GREEN ARROW		114		118	103							
⚡			*									

NU = Not Used  
 \* Denotes install load resistor. See load resistor installation detail this sheet.  
 \* See pictorial of head wiring in detail below.

NOTE: Load Switches S1, S2P and S5 require output remapping. See sheets 3 and 4 of this electrical detail for instructions.

**FYA SIGNAL WIRING DETAIL**

*(wire signal heads as shown)*

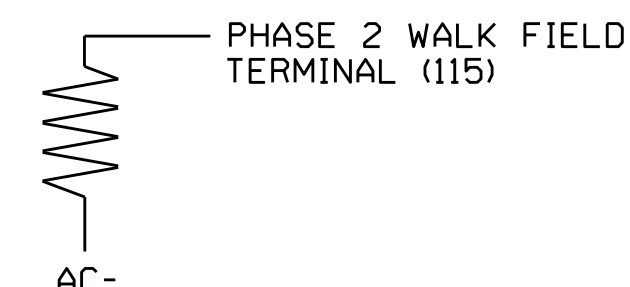


NOTE: 1. The sequence display for head 11 requires special logic programming. See sheet 2 for programming instructions.

**LOAD RESISTOR INSTALLATION DETAIL**

*(install resistors as shown below)*

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



ELECTRICAL DETAIL SHEET 1 OF 4

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0137  
 DESIGNED: February 2016  
 SEALED: 3-24-16  
 REVISED: N/A

REVISION SEAL

DocuSigned by: Keith M. Mims  
 3/31/2016

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

**US 117 (N. Norwood Street)  
at  
SR 1173 (E Southerland Street)**

Division 08	Duplin County	Wallace
PLAN DATE: January 2014	REVIEWED BY: JTR	
PREPARED BY: James Peterson	REVIEWED BY:	
REVISIONS		
1	Added loops and switched on FYA S-11 on the conflict monitor. (UP)	3/31/2016

SEAL

Not a certified document as to the Original Document but Only as to the Revisions - This document originally issued and sealed by John T. Rowe, PE #08453, on 1/29/14. This document is only certified as to the revisions.

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
 SIG. INVENTORY NO. 03-0137

**LOGICAL I/O PROCESSOR PROGRAMMING DETAIL  
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE**

(program controller as shown below)

- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)  
IF ACTIVE PHASE #1 IS ON  
AND RED CLEAR ON PHASE #1 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #14 ON  
SET OUTPUT ASSIGNMENT #15 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)  
IF ACTIVE PHASE #1 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #16 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)  
IF YELLOW ON PHASE #1 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #15 ON

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

**OUTPUT REFERENCE SCHEDULE**

OUTPUT 14 = Overlap A Red  
OUTPUT 15 = Overlap A Yellow  
OUTPUT 16 = Overlap A Green  
OUTPUT 33 = Phase 1 Green

Note: All outputs shown above have been remapped. See sheet 3 of this electrical detail.

**OVERLAP PROGRAMMING DETAIL**

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS  
PHASE: |12345678910111213141516  
VEH OVL PARENTS: |XX  
VEH OVL NOT VEH: |  
VEH OVL NOT PED: |  
VEH OVL GRN EXT: |  
STARTUP COLOR: \_ RED \_ YELLOW \_ GREEN  
FLASH COLORS: \_ RED \_ YELLOW X GREEN  
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)  
FLASH YELLOW IN CONTROLLER FLASH?...Y  
GREEN EXTENSION (0-255 SEC)...0.0  
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0  
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0  
OUTPUT AS PHASE # (0=NONE, 1-16)...0.0

← NOTICE GREEN FLASH

PRESS '+' TWICE

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS  
PHASE: |12345678910111213141516  
VEH OVL PARENTS: | X  
VEH OVL NOT VEH: |  
VEH OVL NOT PED: |  
VEH OVL GRN EXT: |  
STARTUP COLOR: \_ RED \_ YELLOW \_ GREEN  
FLASH COLORS: \_ RED \_ YELLOW X GREEN  
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)  
FLASH YELLOW IN CONTROLLER FLASH?...Y  
GREEN EXTENSION (0-255 SEC)...0.0  
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0  
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0  
OUTPUT AS PHASE # (0=NONE, 1-16)...0.0

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 03-0137  
DESIGNED: February 2016  
SEALED: 3-24-16  
REVISED: N/A



ELECTRICAL DETAIL SHEET 2 OF 4

	REVISION SEAL DocuSigned by: Keith M. Mims 3/31/2016	ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	US 117 (N. Norwood Street) at SR 1173 (E Southerland Street) Division 03 Duplin County Wallace PLAN DATE: January 2014 REVIEWED BY: JTR PREPARED BY: James Peterson REVIEWED BY:	SEAL Not a certified document as to the Original Document but only as to the Revisions - This document originally issued and sealed by John T. Rowe, PE #008453, on 1/29/14. This document is only certified as to the revisions.
	SIGNATURE DATE	REVISIONS Added, loops and switched on FYA 5-11 on the conflict monitor. (UP)	SIGNATURE DATE	SIGNATURE DATE



# FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 11

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS), WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

STEP 1

```
PAGE:1 C1 PIN:16 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....Y
DETECTOR RESET.....Y
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....Y
RUN FREE.....Y
RESERVED.....Y
PREEMPT.....Y
SOFT PREEMPT.....Y
ANY PREEMPT.....Y
COORDINATION PLAN.....Y
OFFSET.....Y
PHASE CHECK.....Y
PHASE ON.....Y
PHASE NEXT.....Y
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT, THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.  
ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1 C1 PIN:16 VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN)...0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1 C1 PIN16 VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....Y
DETECTOR RESET.....Y
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....Y
RUN FREE.....Y
RESERVED.....Y
PREEMPT.....Y
SOFT PREEMPT.....Y
ANY PREEMPT.....Y
COORDINATION PLAN.....Y
OFFSET.....Y
PHASE CHECK.....Y
PHASE ON.....Y
PHASE NEXT.....Y
```

PRESS "+" KEY FOR OUTPUT 15

STEP 2

```
PAGE:1 C1 PIN:17 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....Y
DETECTOR RESET.....Y
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....Y
RUN FREE.....Y
RESERVED.....Y
PREEMPT.....Y
SOFT PREEMPT.....Y
ANY PREEMPT.....Y
COORDINATION PLAN.....Y
OFFSET.....Y
PHASE CHECK.....Y
PHASE ON.....Y
PHASE NEXT.....Y
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT, THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.  
ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1 C1 PIN:17 VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN)...1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1 C1 PIN:17 VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....Y
DETECTOR RESET.....Y
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....Y
RUN FREE.....Y
RESERVED.....Y
PREEMPT.....Y
SOFT PREEMPT.....Y
ANY PREEMPT.....Y
COORDINATION PLAN.....Y
OFFSET.....Y
PHASE CHECK.....Y
PHASE ON.....Y
PHASE NEXT.....Y
```

PRESS "+" KEY FOR OUTPUT 16

STEP 3

```
PAGE:1 C1 PIN:18 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....Y
DETECTOR RESET.....Y
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....Y
RUN FREE.....Y
RESERVED.....Y
PREEMPT.....Y
SOFT PREEMPT.....Y
ANY PREEMPT.....Y
COORDINATION PLAN.....Y
OFFSET.....Y
PHASE CHECK.....Y
PHASE ON.....Y
PHASE NEXT.....Y
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT, THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.  
ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1 C1 PIN:18 VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN)...2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1 C1 PIN:18 VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....Y
DETECTOR RESET.....Y
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....Y
RUN FREE.....Y
RESERVED.....Y
PREEMPT.....Y
SOFT PREEMPT.....Y
ANY PREEMPT.....Y
COORDINATION PLAN.....Y
OFFSET.....Y
PHASE CHECK.....Y
PHASE ON.....Y
PHASE NEXT.....Y
```

PRESS "+" UNTIL OUTPUT 33 IS REACHED.

STEP 4

```
PAGE:1 C1 PIN:35 NOT ENABLED
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....Y
DETECTOR RESET.....Y
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....Y
RUN FREE.....Y
RESERVED.....Y
PREEMPT.....Y
SOFT PREEMPT.....Y
ANY PREEMPT.....Y
COORDINATION PLAN.....Y
OFFSET.....Y
PHASE CHECK.....Y
PHASE ON.....Y
PHASE NEXT.....Y
```

THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT, THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.  
ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1 C1 PIN:35 NOT ENABLED
SELECT VEHICLE PHASE (1-16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN)...2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1 C1 PIN:35 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....Y
DETECTOR RESET.....Y
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....Y
RUN FREE.....Y
RESERVED.....Y
PREEMPT.....Y
SOFT PREEMPT.....Y
ANY PREEMPT.....Y
COORDINATION PLAN.....Y
OFFSET.....Y
PHASE CHECK.....Y
PHASE ON.....Y
PHASE NEXT.....Y
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0137  
DESIGNED: February 2016  
SEALED: 3-24-16  
REVISED: N/A

ELECTRICAL DETAIL SHEET 3 OF 4

	REVISION SEAL KEITH M. MIMS 3/31/2016 DATE	ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SEAL Not a certified document as to the Original Document but only as to the Revisions - This document originally issued and sealed by John T. Rowe, PE #008453, on 1/29/14. This document is only certified as to the revisions.
	US 117 (N. Norwood Street) at SR 1173 (E Southerland Street) Division 03 Duplin County Wallace PLAN DATE: January 2014 REVIEWED BY: JTR PREPARED BY: James Peterson REVIEWED BY: REVISIONS V Added, loops and switched on FYA 5-11 on the conflict monitor. (JP) KMA 3/31/2016 SIGNATURE DATE SIG. INVENTORY NO. 03-0137		

## FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 21

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN  
'1' (OUTPUT ASSIGNMENTS).  
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT  
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

STEP 1

```

PAGE:1 C1 PIN:32 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....30
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS  
"Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.  
ENTER A "Y" FOR VEHICLE OVERLAP.

```

PAGE:1 C1 PIN:32 VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)....3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
    
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'  
THE SCREEN SHOWN ABOVE WILL APPEAR.  
ENTER DATA AS SHOWN.  
PRESS THE 'ENT' KEY AFTER INPUTTING DATA,  
THEN 'ESC'.

```

PAGE:1 C1 PIN32 VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....30
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

PRESS "+" KEY FOR OUTPUT 31

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT  
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

STEP 2

```

PAGE:1 C1 PIN:33 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....31
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS  
"Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.  
ENTER A "Y" FOR VEHICLE OVERLAP.

```

PAGE:1 C1 PIN:33 VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)....3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
    
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'  
THE SCREEN SHOWN ABOVE WILL APPEAR.  
ENTER DATA AS SHOWN.  
PRESS THE 'ENT' KEY AFTER INPUTTING DATA,  
THEN 'ESC'.

```

PAGE:1 C1 PIN:33 VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....31
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

PRESS "+" KEY FOR OUTPUT 32

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT  
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

STEP 3

```

PAGE:1 C1 PIN:34 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....32
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS  
"Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.  
ENTER A "Y" FOR VEHICLE OVERLAP.

```

PAGE:1 C1 PIN:34 VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)....3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
    
```

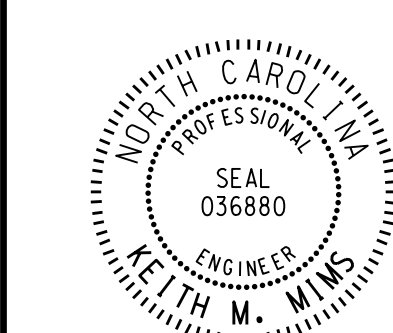
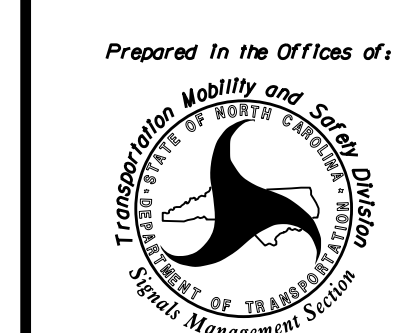
WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'  
THE SCREEN SHOWN ABOVE WILL APPEAR.  
ENTER DATA AS SHOWN.  
PRESS THE 'ENT' KEY AFTER INPUTTING DATA,  
THEN 'ESC'.

```

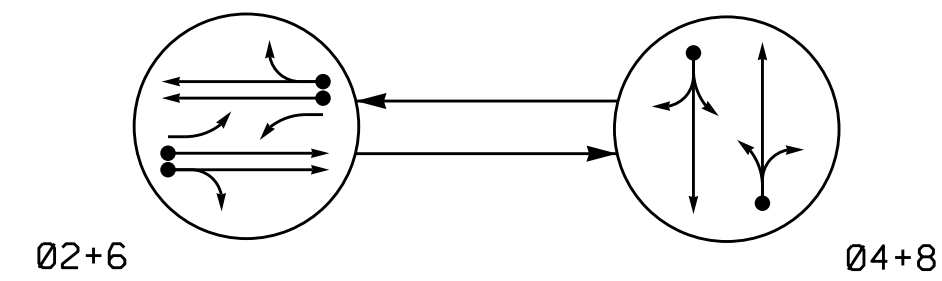
PAGE:1 C1 PIN:34 VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....32
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 03-0137  
DESIGNED: February 2016  
SEALED: 3-24-16  
REVISED: N/A

ELECTRICAL DETAIL SHEET 4 OF 4

REVISION SEAL 	ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 	US 117 (N. Norwood Street) at SR 1173 (E Southerland Street) Division 03 Duplin County Wallace PLAN DATE: January 2014 REVIEWED BY: JTR PREPARED BY: James Peterson REVIEWED BY: REVISIONS Added loops and switched on FYA 5-11 on the conflict monitor. (JP) KMM 3/31/2016 SIGNATURE DATE SIG. INVENTORY NO. 03-0137	SEAL Not a certified document as to the Original Document but only as to the Revisions - This document originally issued and sealed by John T. Rowe, PE #008453, on 1/29/14. This document is only certified as to the revisions.
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PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

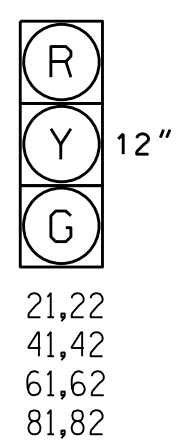
- → DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- - - UNSIGNALIZED MOVEMENT
- ← - - - PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLIGHT
21,22	G	R	Y
41,42	R	G	R
61,62	G	R	Y
81,82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



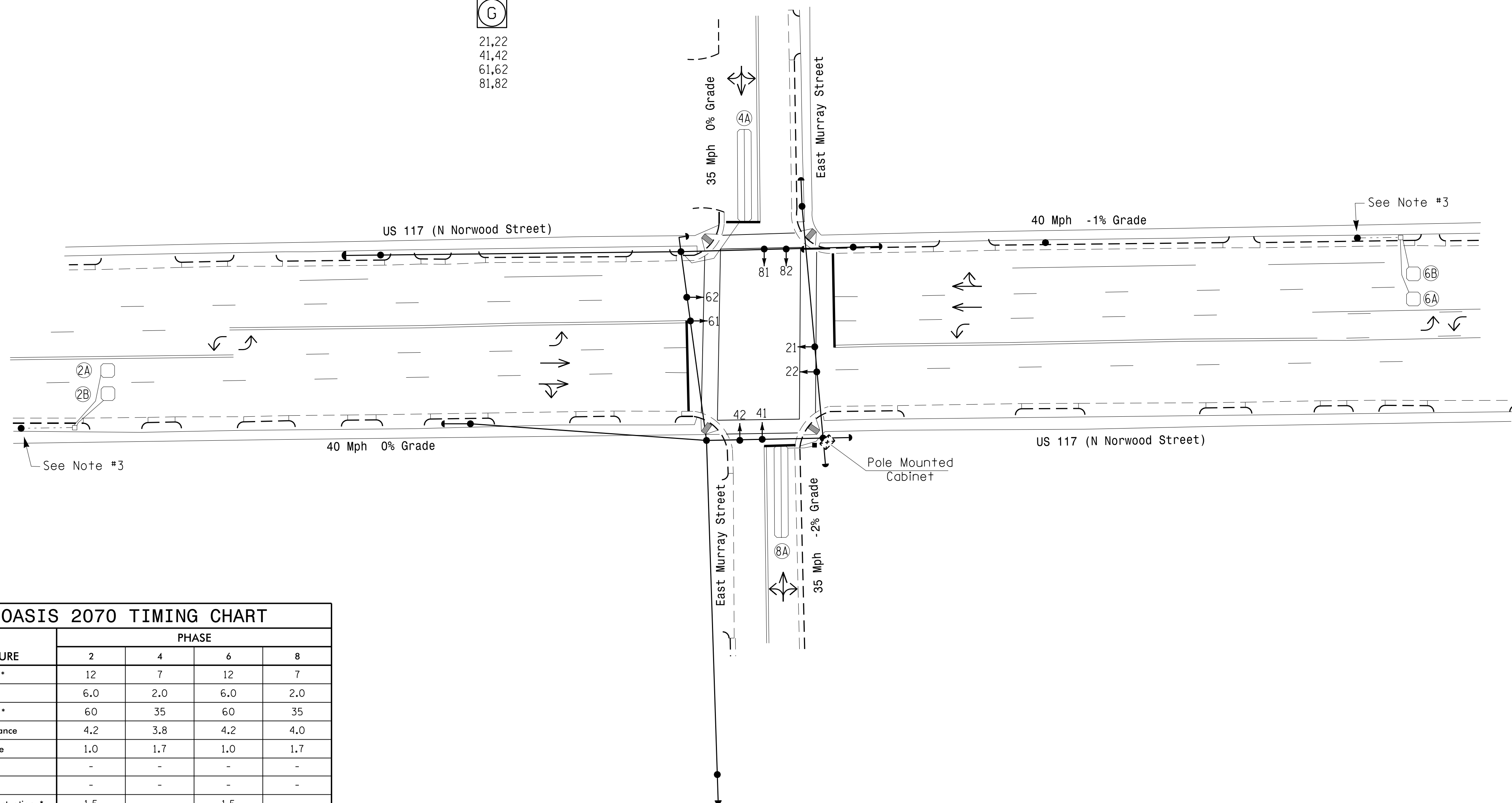
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	INDUCTIVE LOOPS			DETECTOR PROGRAMMING							
	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	250	5	Y	2	Y	Y	-	-	-	Y
2B	6X6	250	5	Y	2	Y	Y	-	-	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-
6A	6X6	250	5	Y	6	Y	Y	-	-	-	Y
6B	6X6	250	5	Y	6	Y	Y	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	3	-

2 Phase Fully Actuated US 117 (Wallace) CLS

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Run all lead-in cable overhead on existing utility poles where possible.
- Set all detector units to presence mode.
- 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.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset # 0136.



OASIS 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	12	7	12	7
Extension 1 *	6.0	2.0	6.0	2.0
Max Green 1 *	60	35	60	35
Yellow Clearance	4.2	3.8	4.2	4.0
Red Clearance	1.0	1.7	1.0	1.7
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	1.5	-
Max Variable Initial *	29	-	29	-
Time Before Reduction *	15	-	15	-
Time To Reduce *	30	-	30	-
Minimum Gap	3.0	-	3.0	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

\* 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.

LEGEND

- | PROPOSED   | EXISTING |
|--|----------|
| ○ → Traffic Signal Head                          | ● → N/A  |
| ● → 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 Wheelchair Ramp                              | ▲        |

Signal Upgrade

US 117 (N Norwood Street) at East Murray Street

Division 3 Duplin County Wallace

PLAN DATE: February 2016 REVIEWED BY: PLA

PREPARED BY: Jeff Spence REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Seal: 023489

3/31/2016

DATE

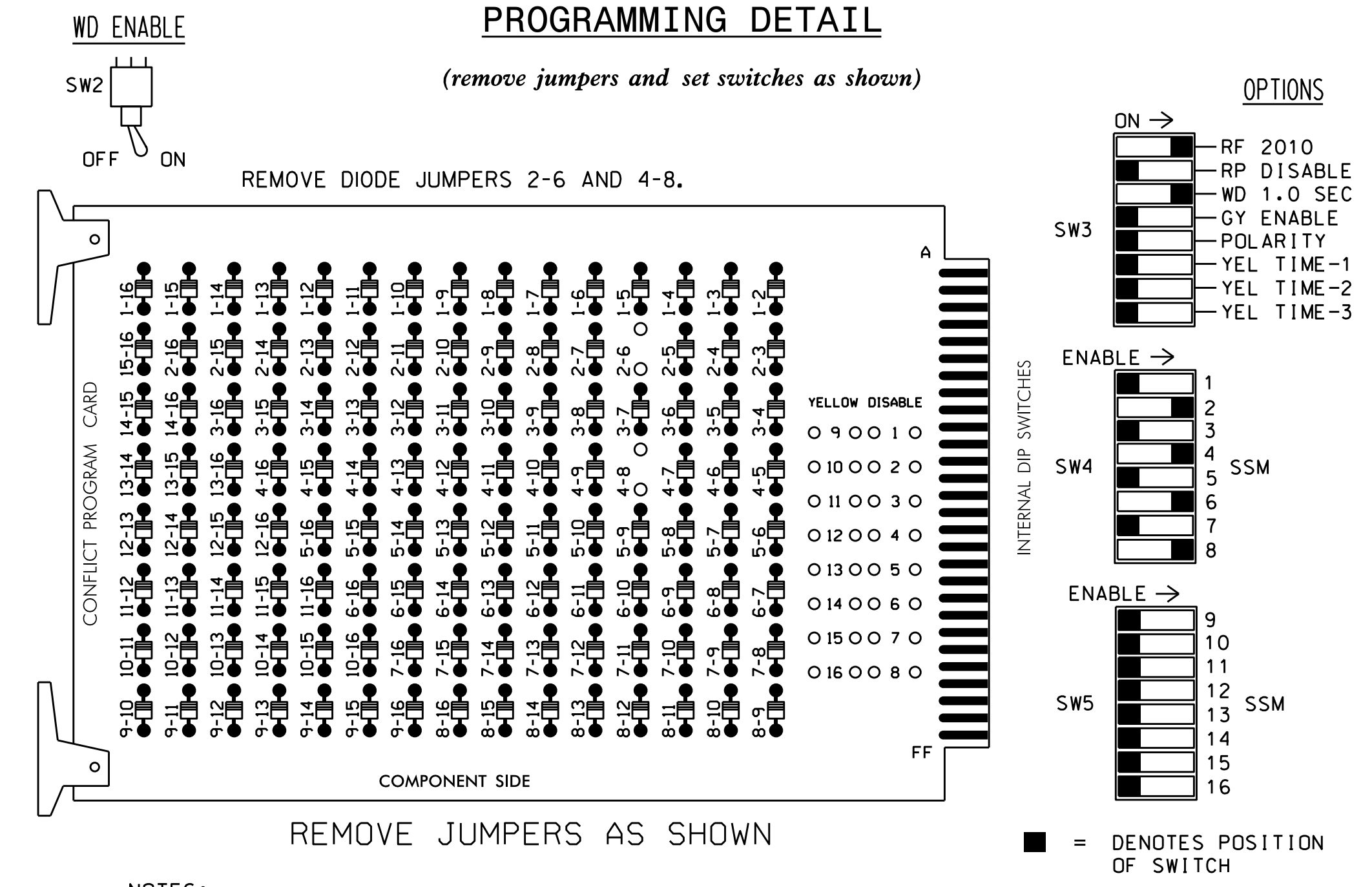
SIG. INVENTORY NO. 03-0136

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE 0 30 1"=30'

3D-MSE-2016-10275  
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 T:spence

### EDI MODEL 2010ECL CONFLICT MONITOR PROGRAMMING DETAIL



### NOTES

- 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.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,3,5,7, 9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.
- The cabinet and controller are part of the US 117 (Wallace) Closed Loop System.

### SIGNAL HEAD HOOK-UP CHART

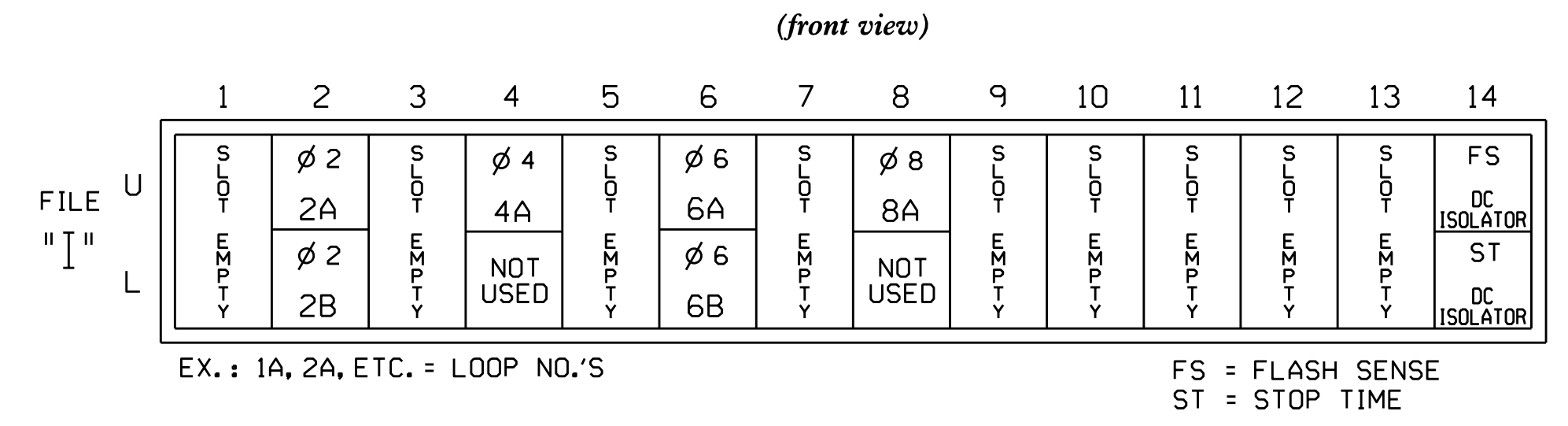
LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

NU = Not Used

### EQUIPMENT INFORMATION

CONTROLLER.....2070  
 CABINET.....336  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....POLE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S2,S4,S6,S8  
 PHASES USED.....2,4,6,8  
 OVERLAPS.....NONE

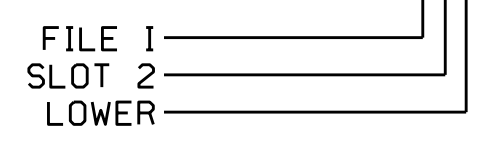
### INPUT FILE POSITION LAYOUT



### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB21-3,4	I2U	39	1	2	2	Y	Y			
2B	TB23-3,4	I2L	43	5	12	2	Y	Y			
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			3
6A	TB21-11,12	I6U	40	2	6	6	Y	Y			
6B	TB23-11,12	I6L	44	6	16	6	Y	Y			
8A	TB22-1,2	I8U	42	4	8	8	Y	Y			3

#### INPUT FILE POSITION LEGEND: I2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0136  
 DESIGNED: February 2016  
 SEALED: 03-31-16  
 REVISED: N/S

### Electrical Detail

Electrical and Programming Details For:

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

US 117 (N Norwood Street) at East Murray Street

Division 3 Duplin County Wallace

PLAN DATE: March 2016 REVIEWED BY: DTJ  
 PREPARED BY: James Peterson REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: Keith M. Mins 4/8/2016

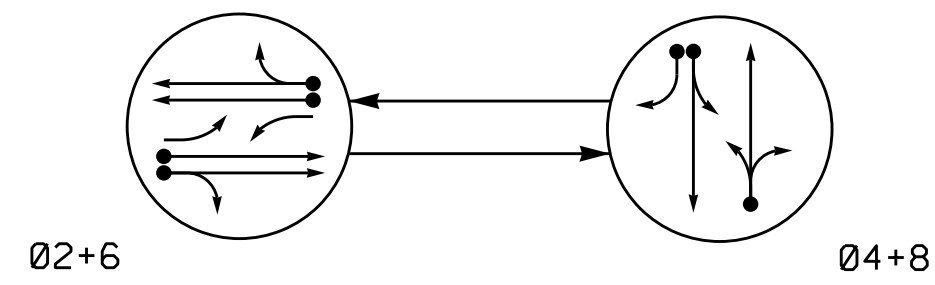
SEAL NORTH CAROLINA PROFESSIONAL ENGINEER KEITH M. MINS SEAL 036880

SIG. INVENTORY NO. 03-0136

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 T.peterson

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

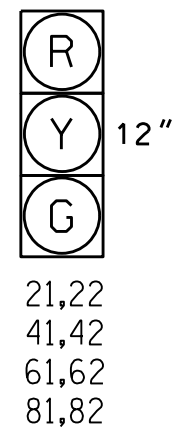
- ←●→ DETECTED MOVEMENT
- ←→ UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ←--- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	Ø 2+6	Ø 4+8	FLIGHT
21,22	G	R	Y
41,42	R	G	R
61,62	G	R	Y
81,82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



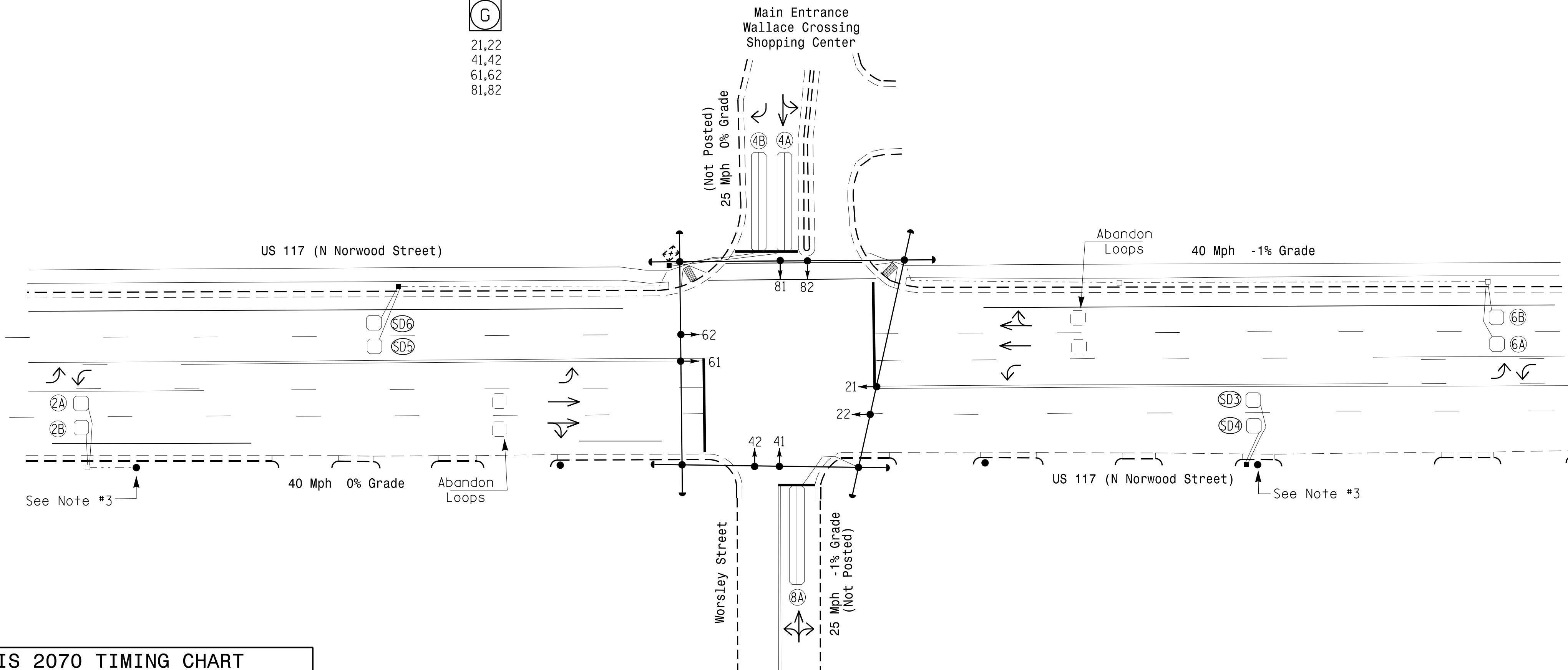
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	250	5	Y	2	Y	Y	-	-	-	-	-
2B	6X6	250	5	Y	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	15	-	-
6A	6X6	250	5	Y	6	Y	Y	-	-	-	-	-
6B	6X6	250	5	Y	6	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	-
SD3	6X6	+220	5	Y	-	-	-	-	-	-	Y	-
SD4	6X6	+220	5	Y	-	-	-	-	-	-	Y	-
SD5	6X6	+200	3	Y	-	-	-	-	-	-	Y	-
SD6	6X6	+200	3	Y	-	-	-	-	-	-	Y	-

2 Phase Fully Actuated US 117 (Wallace) CLS

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Run all lead-in cable overhead on existing utility poles where possible.
- Set all detector units to presence mode.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset # 0736.



OASIS 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	12	7	12	7
Extension 1 *	6.0	2.0	6.0	2.0
Max Green 1 *	60	15	60	15
Yellow Clearance	4.2	3.2	4.2	3.2
Red Clearance	1.1	2.4	1.0	2.4
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	1.5	-
Max Variable Initial *	29	-	29	-
Time Before Reduction *	15	-	15	-
Time To Reduce *	30	-	30	-
Minimum Gap	3.0	-	3.0	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

\* 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.

LEGEND

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

Signal Upgrade

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

**US 117 (N Norwood Street) at Worsley Street / Wallace Crossing Shopping Center**

Division 3 Duplin County Wallace

PLAN DATE: February 2016 REVIEWED BY: PLA

PREPARED BY: Jeff Spence REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

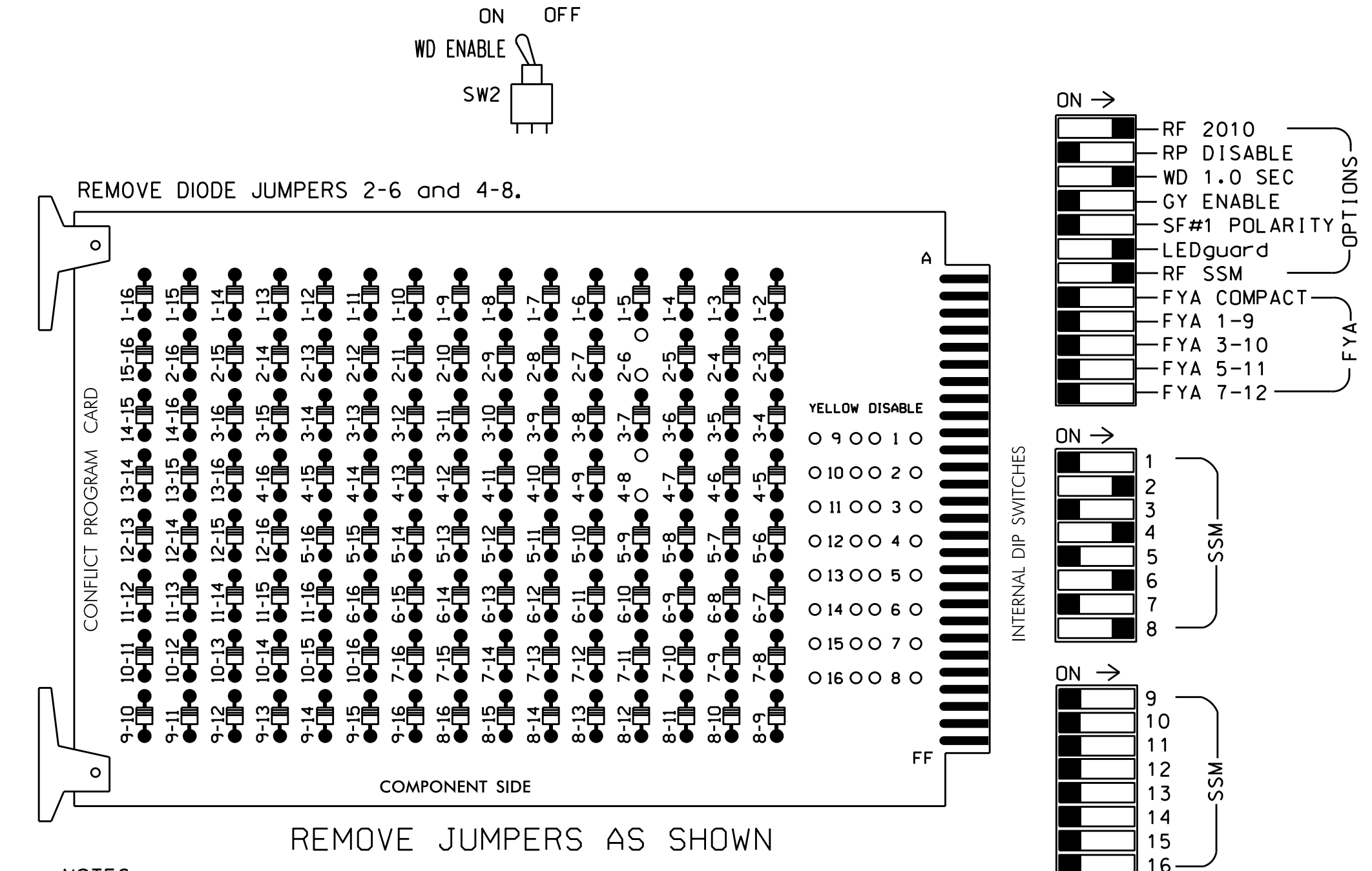
4/21/2016

SIG. INVENTORY NO. 03-0736

21-Apr-2016 13:15  
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 J. Spence

### EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

### NOTES

- 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.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,3,5,7,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.
- The cabinet and controller are part of the US 117 (Wallace) Closed Loop System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070L  
 CABINET.....332  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S2,S4,S6,S8  
 PHASES USED.....2,4,6,8  
 OVERLAPS.....NONE

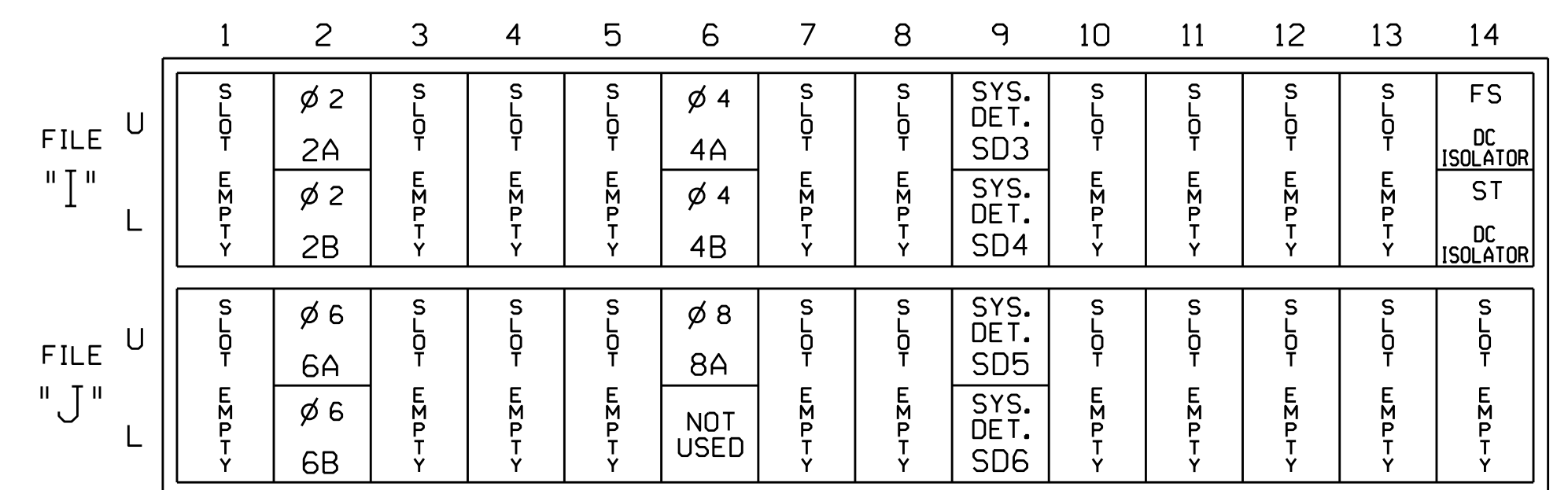
### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

NU = Not Used

### INPUT FILE POSITION LAYOUT

(front view)



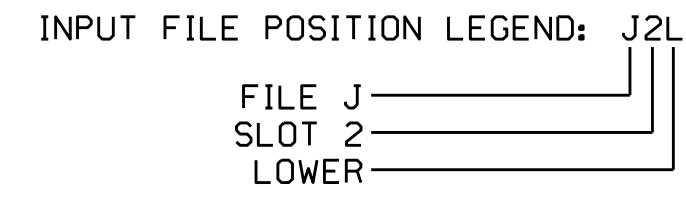
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			10
*SD3	TB6-9,10	I9U	60	22	11	SYS					
*SD4	TB6-11,12	I9L	62	24	13	SYS					
*SD5	TB7-9,10	J9U	59	21	15	SYS					
*SD6	TB7-11,12	J9L	61	23	17	SYS					

\* System Detector only. Remove the vehicle phase assigned to this detector in the default programming.



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0736  
 DESIGNED: February 2016  
 SEALED: 4/21/2016  
 REVISED:

### Electrical Detail

Electrical AND PROGRAMMING DETAILS FOR: US 117 (N. Norwood Street) at Worsley Street/Wallace Crossing Shopping Center

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

Division 3 Duplin County Wallace

PLAN DATE: April 2016 REVIEWED BY: BAS

PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS: INIT. DATE

DocuSigned by: Keith M. Mims 4/25/2016

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER KEITH M. MIMS SEAL 036880

SIG. INVENTORY NO. 03-0736

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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