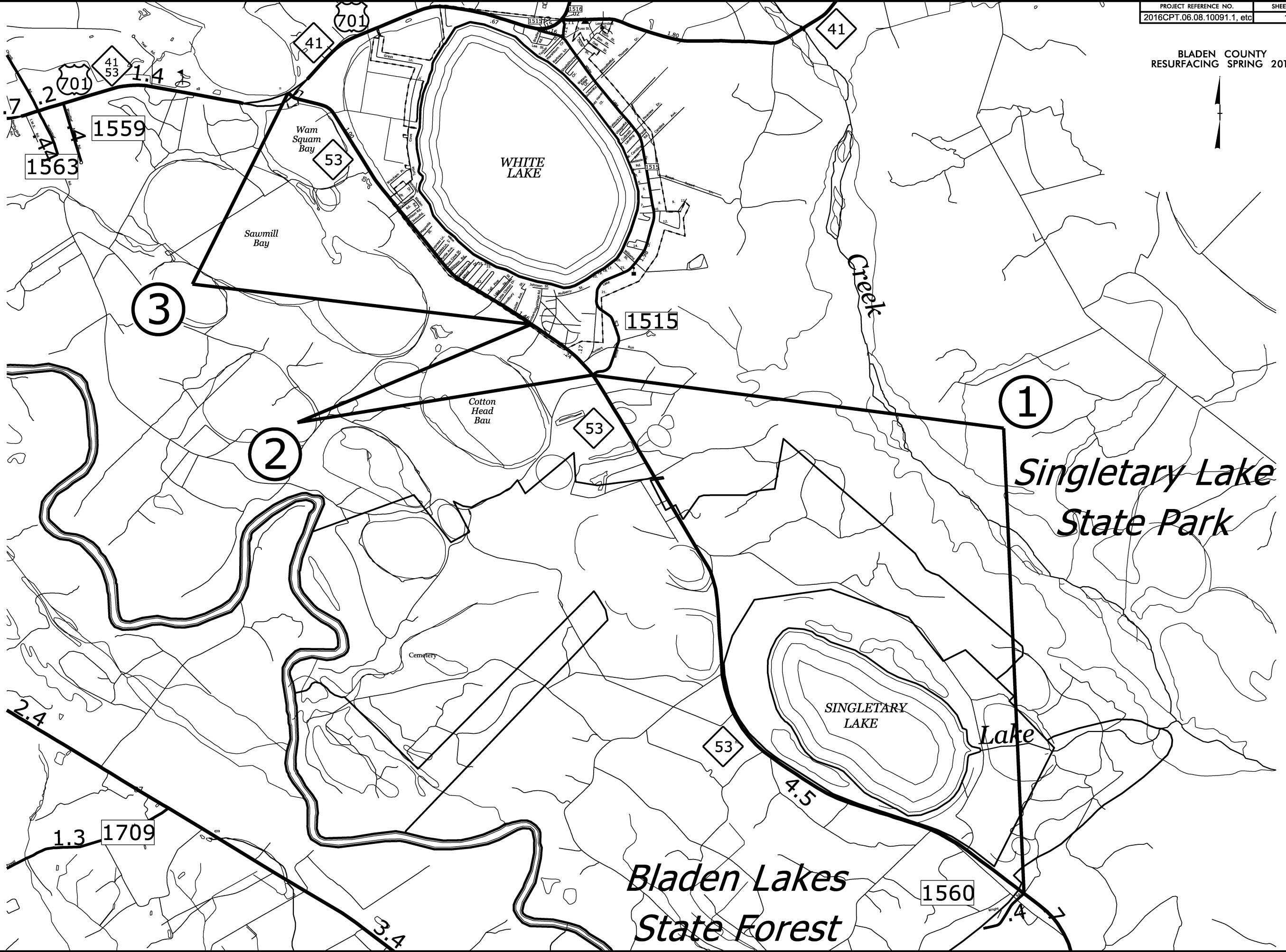


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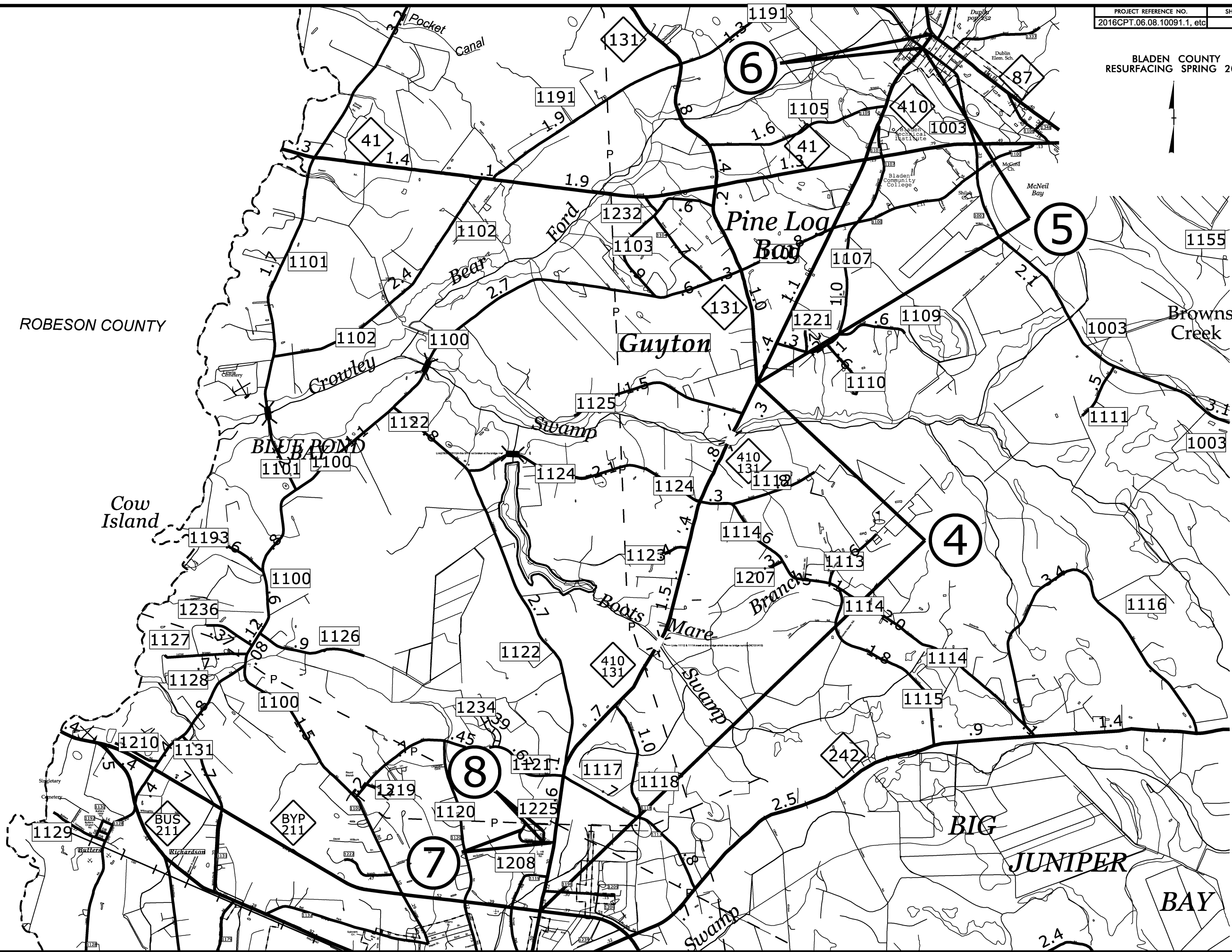
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REVISIONS

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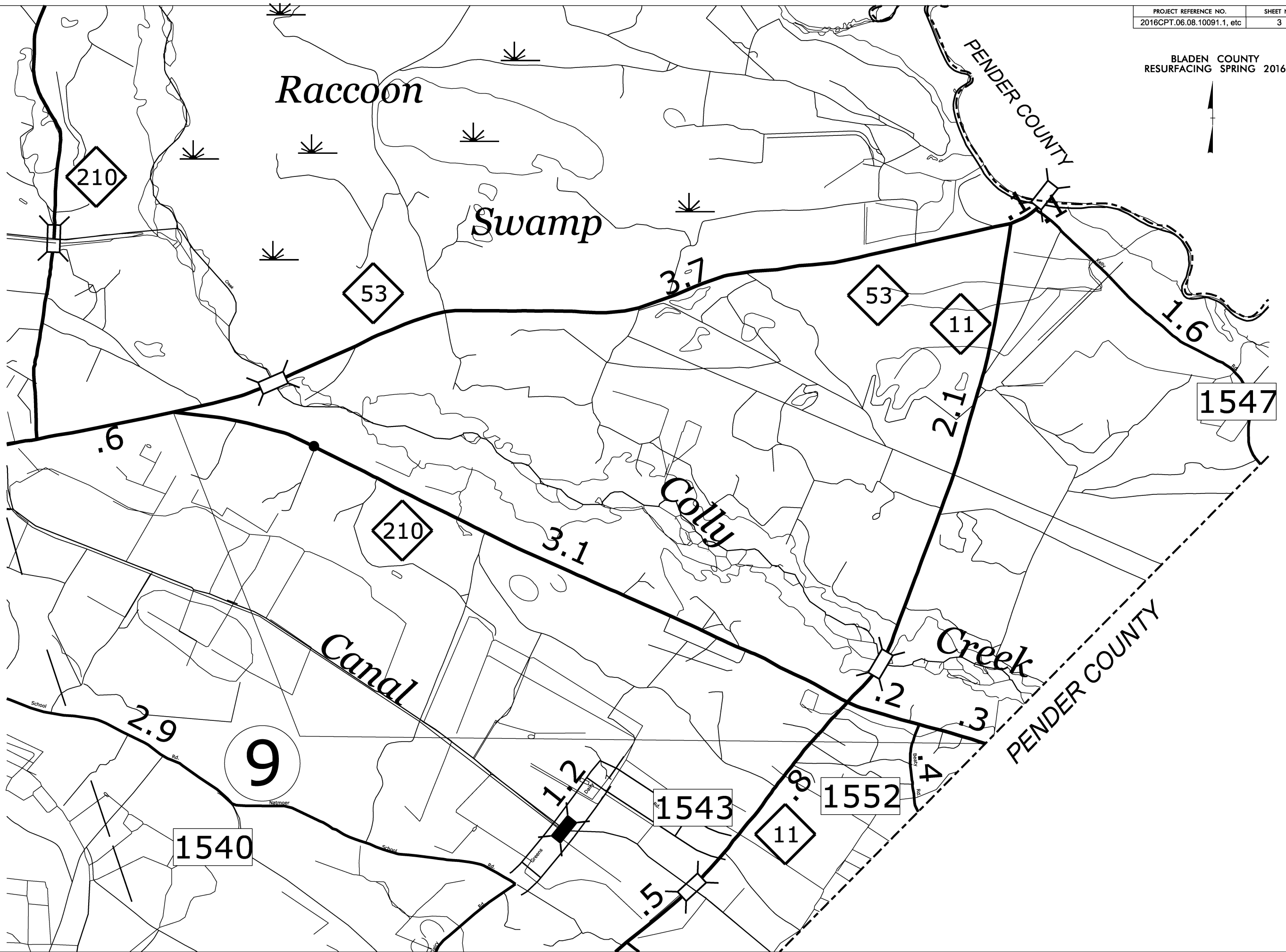
BLADEN COUNTY RESURFACING SPRING 2016



REVISIONS

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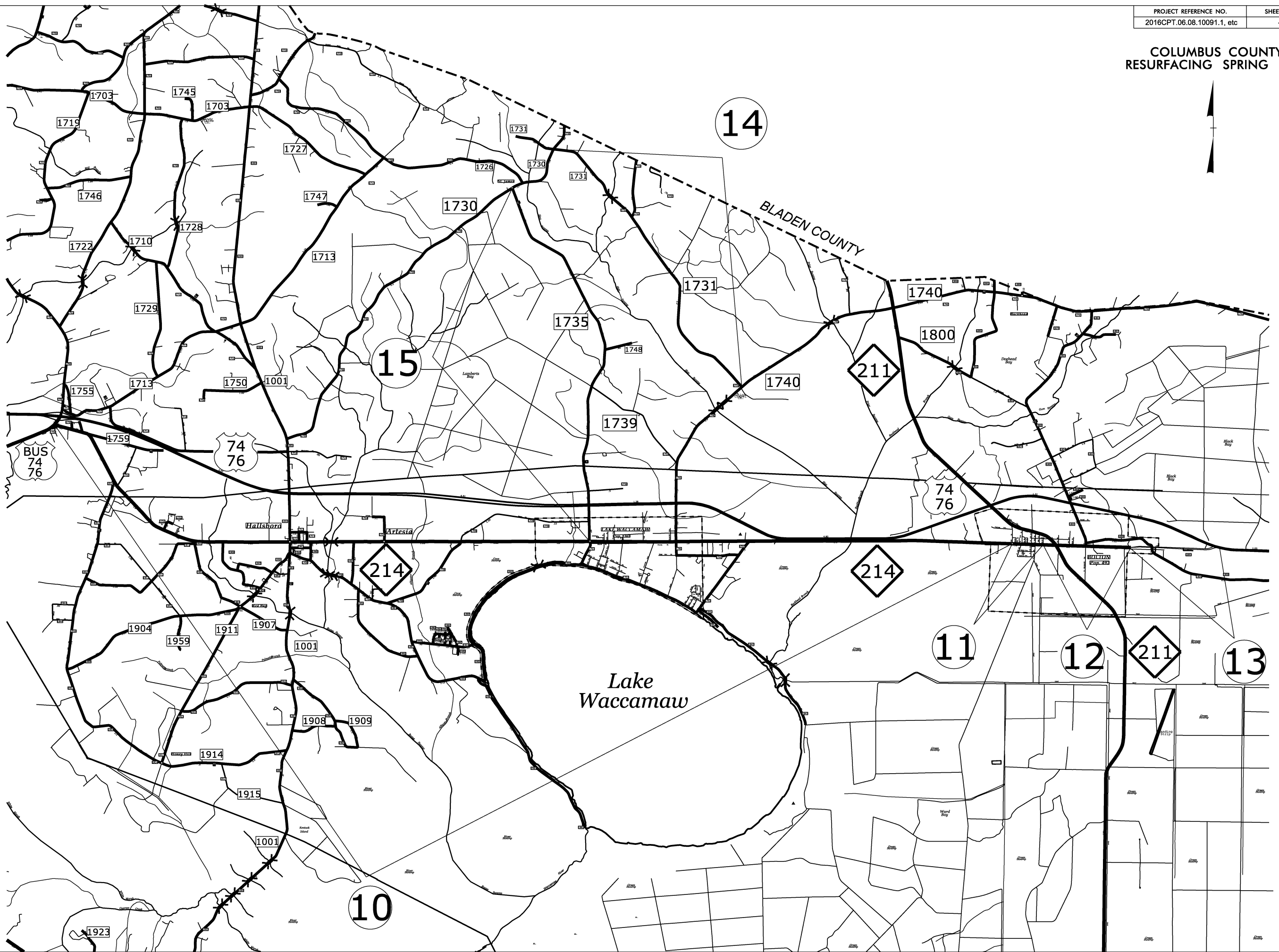
BLADEN COUNTY  
RESURFACING SPRING 2016



REVISIONS

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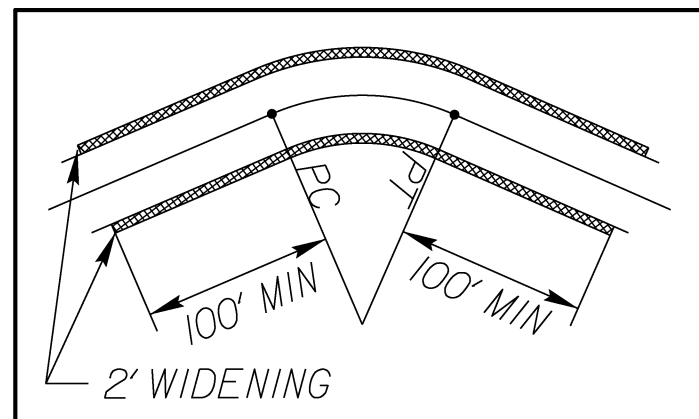
COLUMBUS COUNTY RESURFACING SPRING 2016



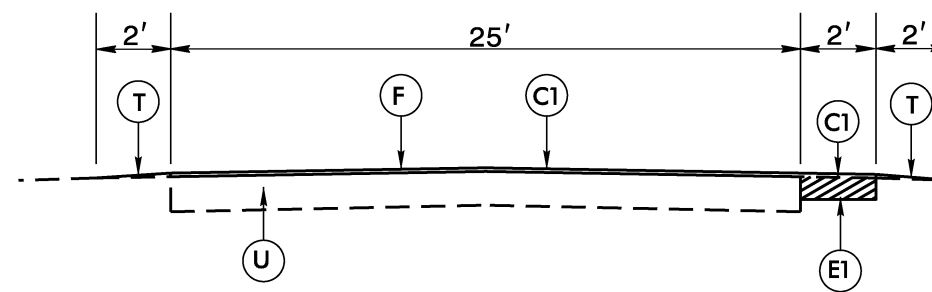
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PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH
D	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR DEPTH ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2½" NOR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. FOR 2' WIDENING AT INSIDE CURVE RADII, AS DIRECTED BY THE ENGINEER
F	#6M MAT COAT
R	EXISTING CURB AND GUTTER
V1	0" - 1½" MILLING AT CURB & GUTTER
V2	0" - 2" MILLING AT CURB & GUTTER
V3	1½" MILLING
V4	2½" OR 4" MILLING AT ALL DESIGNATED DISTRESSED AREAS, WITH A VARIABLE WIDTH FROM 9' - 12'
V5	¾" MILLING
V6	¾" - 1½" MILLING FROM THE CENTER OF THE ROADWAY TO THE EDGE OF THE ROADWAY
T	SHOULDER RECONSTRUCTION WITH AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT
W	WEDGING

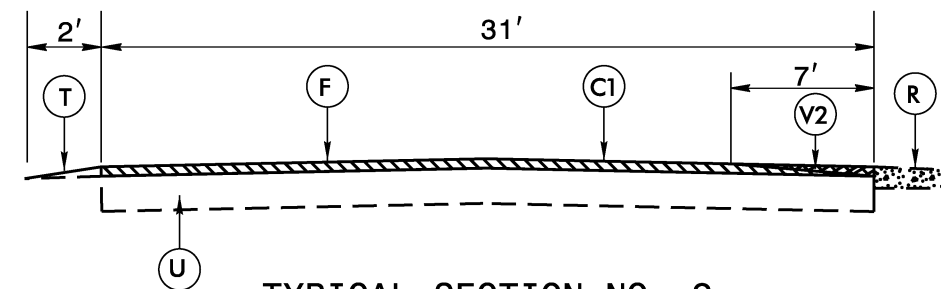


INSIDE CURVE WIDENING  
MAPS 1, 4, 9, 10, 14, & 15

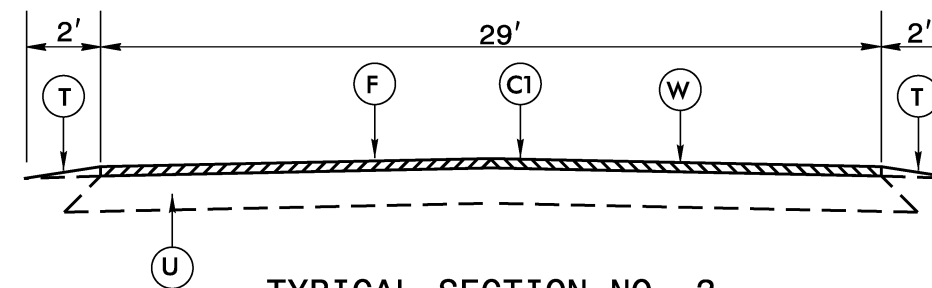


TYPICAL SECTION NO. 1

- INCLUDES INSIDE CURVE WIDENING AS DIRECTED BY THE ENGINEER. SEE DETAIL

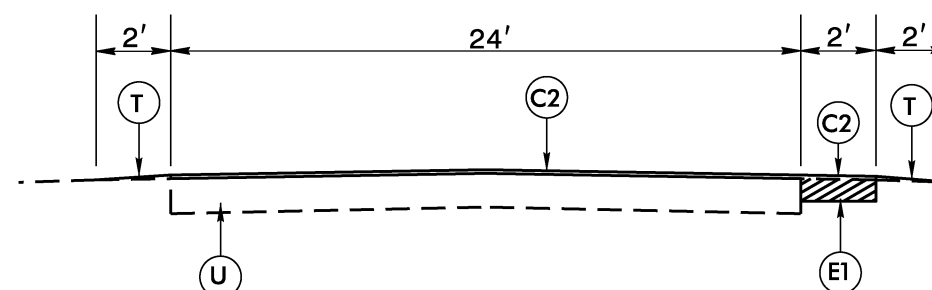


TYPICAL SECTION NO. 2



TYPICAL SECTION NO. 3

- INCLUDES CURVE WEDGING TO ESTABLISH SUPERELEVATION. GRADES TO BE DETERMINED BY THE ENGINEER IN THE FIELD

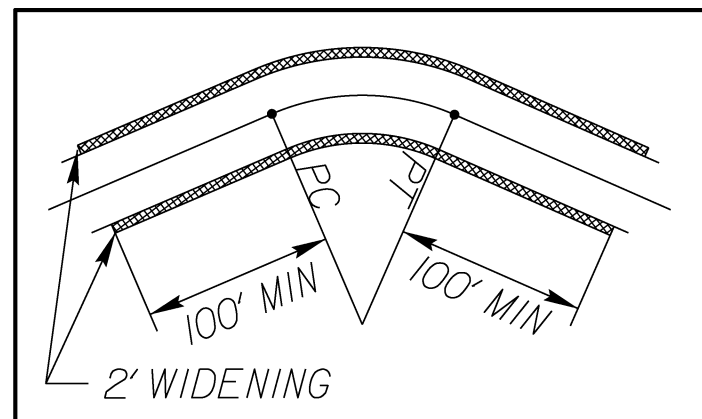
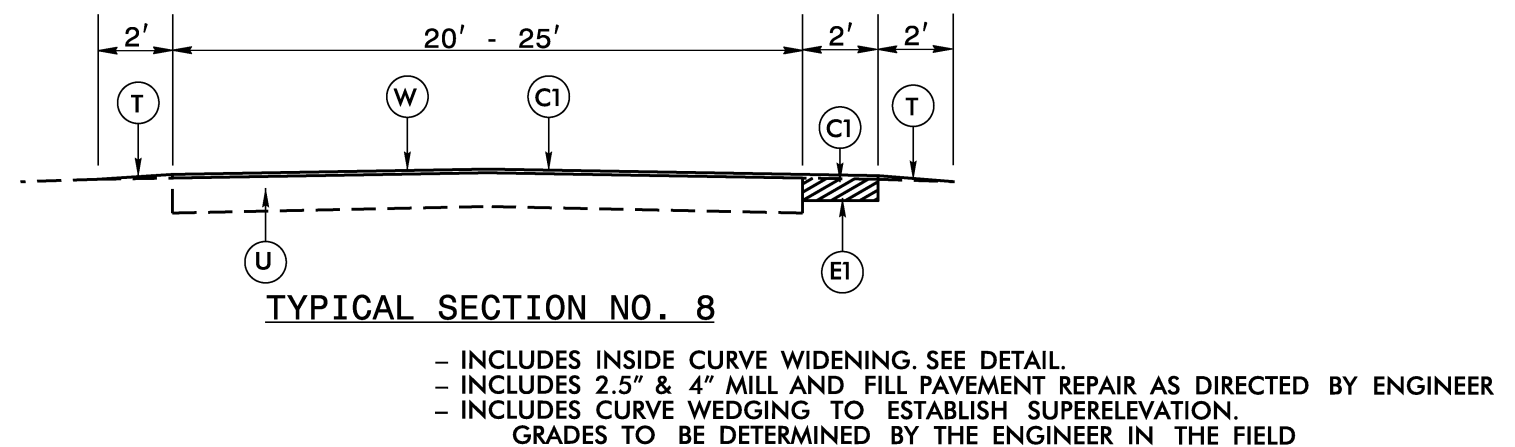
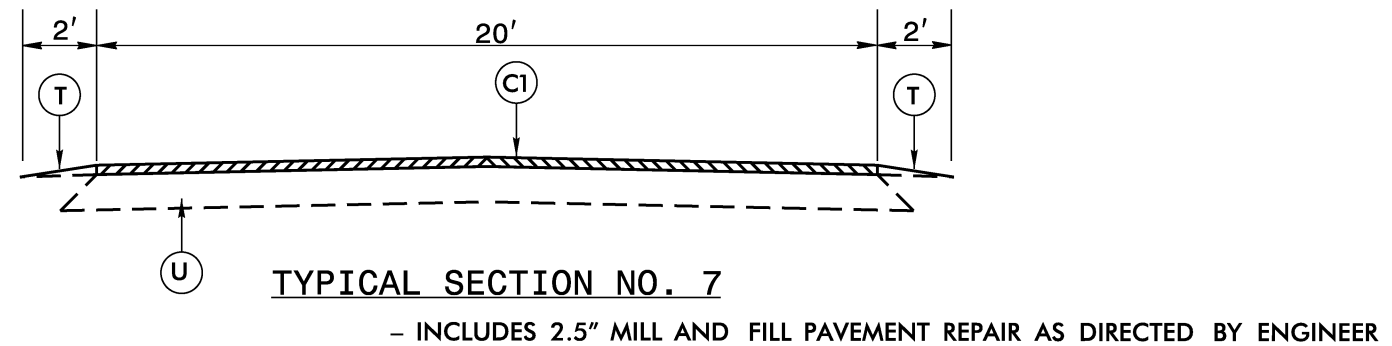
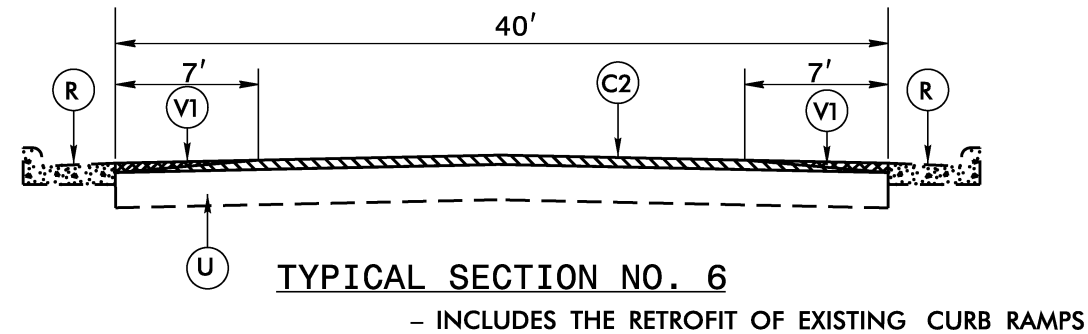
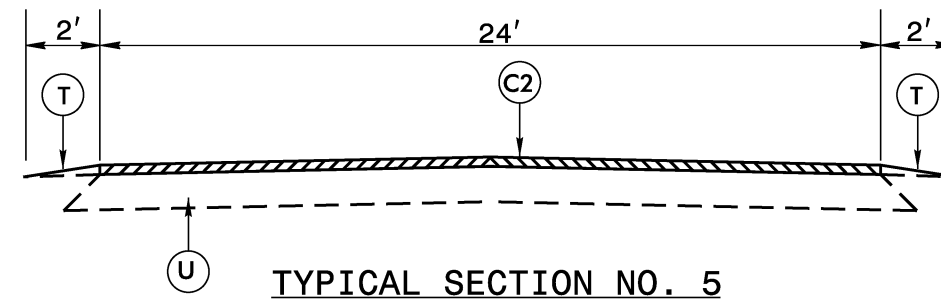


TYPICAL SECTION NO. 4

- INCLUDES INSIDE CURVE WIDENING AS DIRECTED BY THE ENGINEER. SEE DETAIL  
- INCLUDES EDGE MILLING AT CONCRETE ISLANDS  
- INCLUDES MILLING ON ASPHALT BRIDGE DECKS AND APPROACHES OR AS DIRECTED BY THE ENGINEER

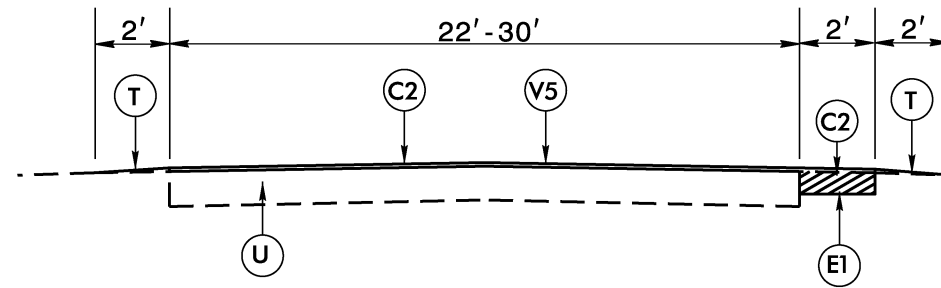
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PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH
D	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR DEPTH ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2½" NOR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. FOR 2' WIDENING AT INSIDE CURVE RADII, AS DIRECTED BY THE ENGINEER
F	#6M MAT COAT
R	EXISTING CURB AND GUTTER
V1	0" - 1½" MILLING AT CURB & GUTTER
V2	0" - 2" MILLING AT CURB & GUTTER
V3	1½" MILLING
V4	2½" OR 4" MILLING AT ALL DESIGNATED DISTRESSED AREAS, WITH A VARIABLE WIDTH FROM 9' - 12'
V5	¾" MILLING
V6	¾" - 1½" MILLING FROM THE CENTER OF THE ROADWAY TO THE EDGE OF THE ROADWAY
T	SHOULDER RECONSTRUCTION WITH AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT
W	WEDGING



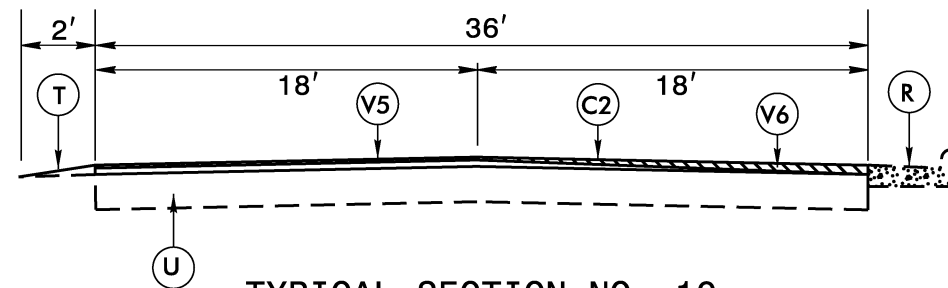
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PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
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T	SHOULDER RECONSTRUCTION WITH AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT
W	WEDGING



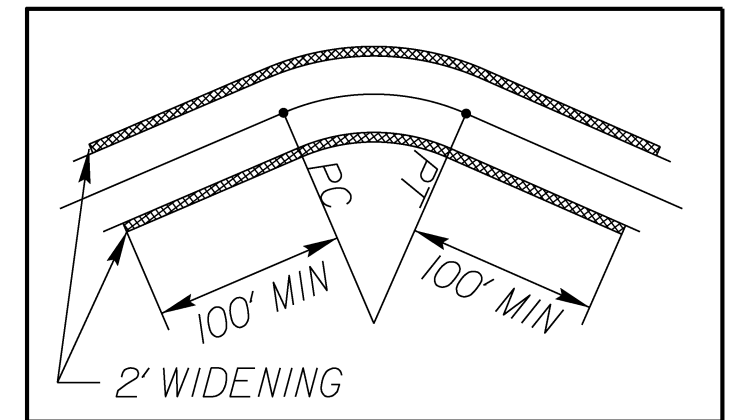
TYPICAL SECTION NO. 9

- INCLUDES INSIDE CURVE WIDENING. SEE DETAIL.
- INCLUDES 2.5" MILL AND FILL PAVEMENT REPAIR AS DIRECTED BY ENGINEER
- INCLUDES MILLING ON ASPHALT BRIDGE DECKS AND APPROACHES OR AS DIRECTED BY THE ENGINEER

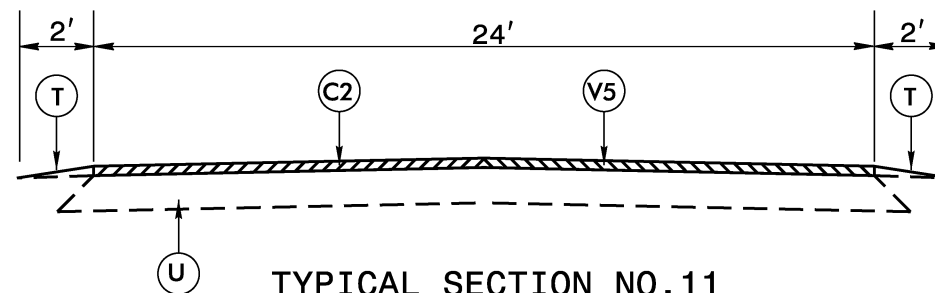


TYPICAL SECTION NO. 10

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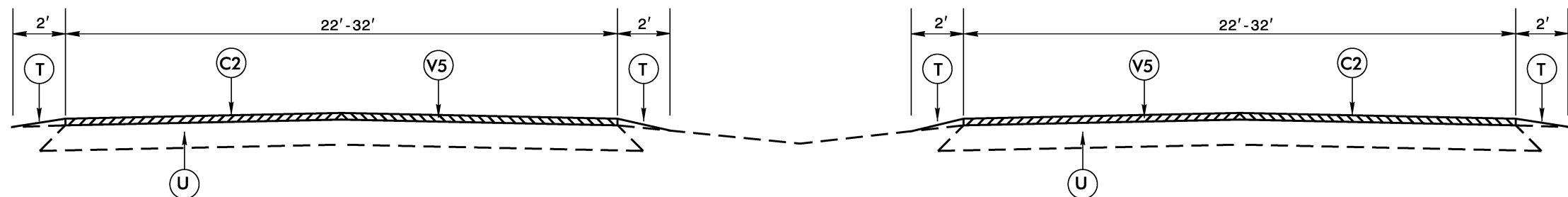


INSIDE CURVE WIDENING  
MAPS 1, 4, 9, 10, 14, & 15



TYPICAL SECTION NO. 11

- INCLUDES 2.5" MILL AND FILL PAVEMENT REPAIR AS DIRECTED BY ENGINEER



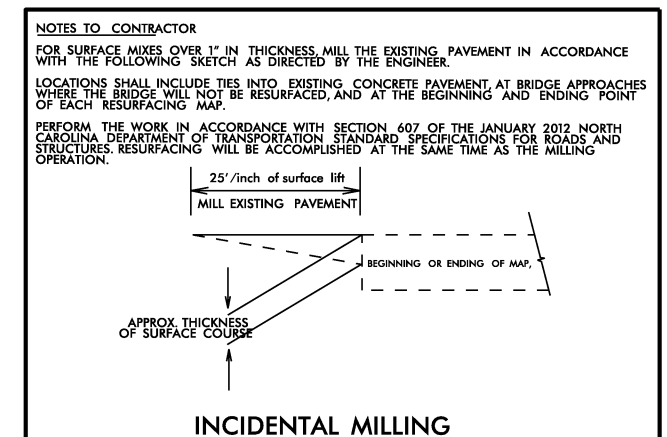
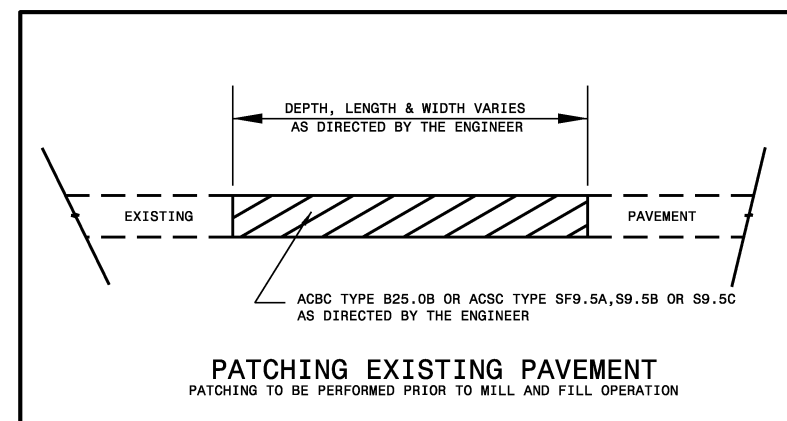
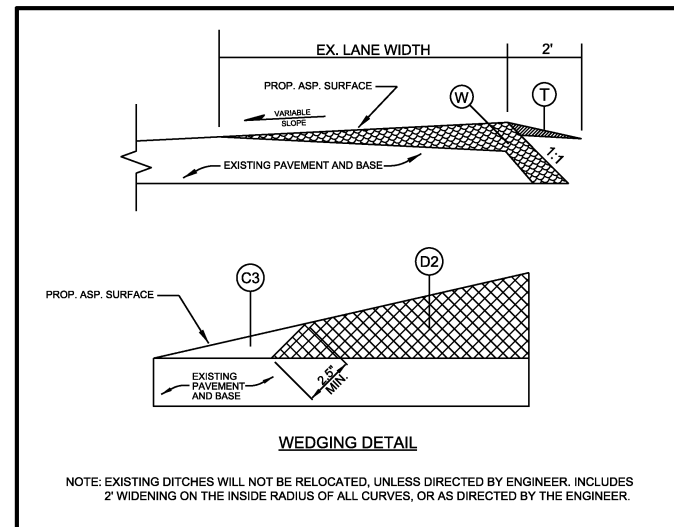
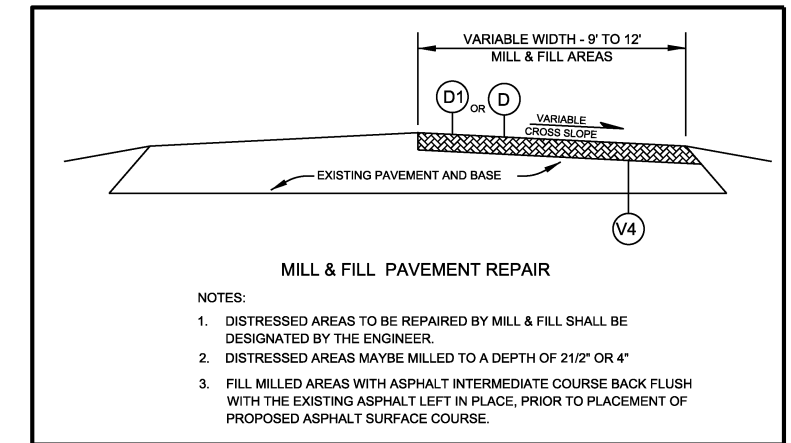
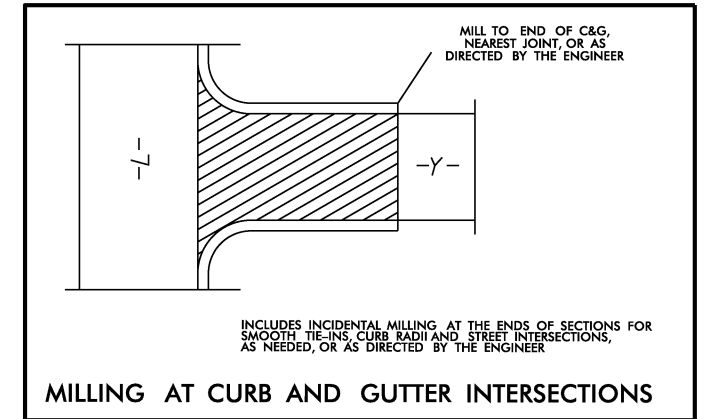
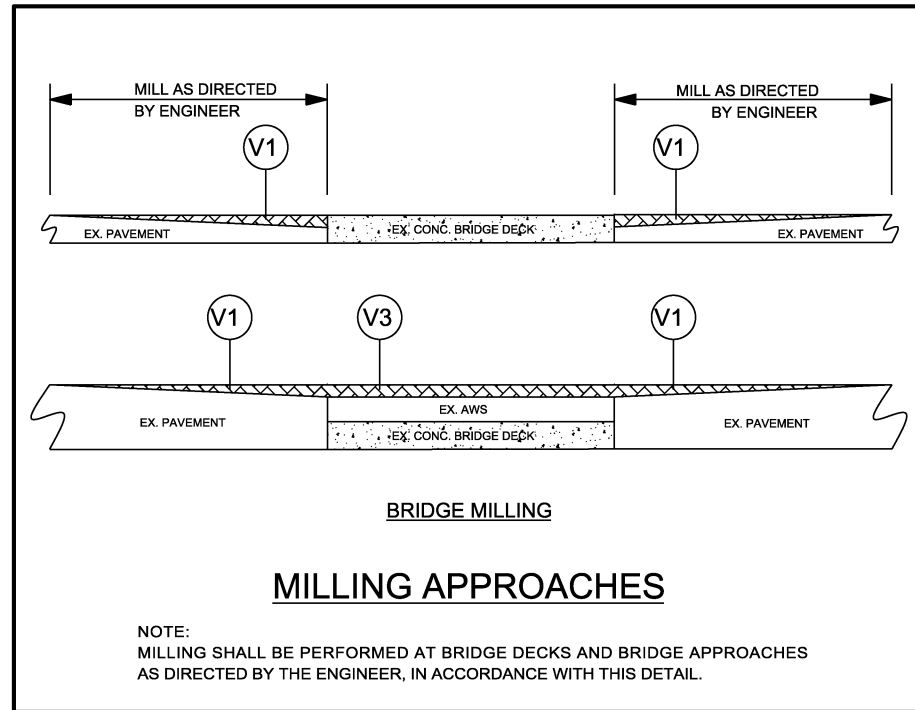
TYPICAL SECTION NO. 12

- INCLUDES 2.5" MILL AND FILL PAVEMENT REPAIR AS DIRECTED BY ENGINEER

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PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
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C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH
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D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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R	EXISTING CURB AND GUTTER
V1	0" - 1½" MILLING AT CURB & GUTTER
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V3	1½" MILLING
V4	2½" OR 4" MILLING AT ALL DESIGNATED DISTRESSED AREAS, WITH A VARIABLE WIDTH FROM 9' - 12'
V5	¾" MILLING
V6	¾" - 1½" MILLING FROM THE CENTER OF THE ROADWAY TO THE EDGE OF THE ROADWAY
T	SHOULDER RECONSTRUCTION WITH AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT
W	WEDGING



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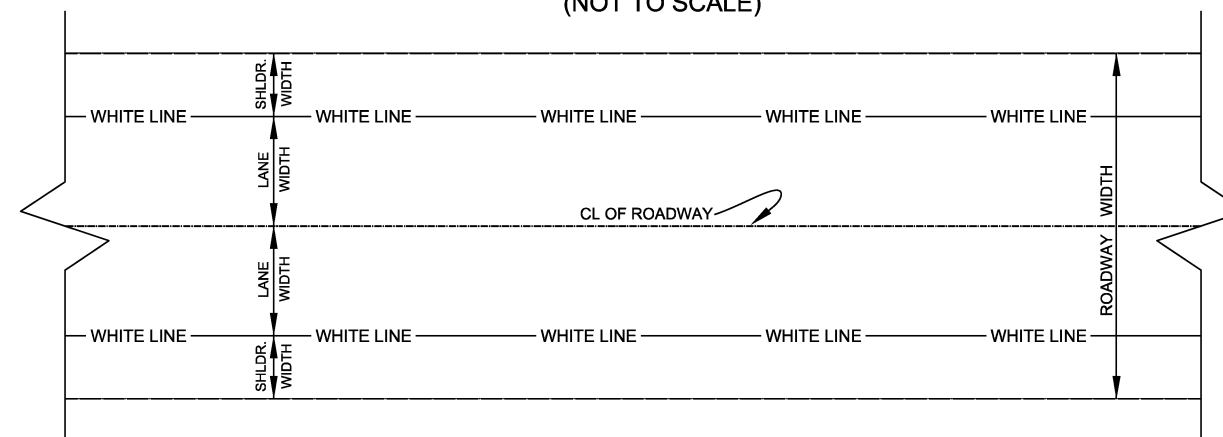
### GUIDELINES FOR LANE WIDTHS ON RESURFACING PROJECTS

Contractor shall place the new pavement markings in accordance with this table and detail unless otherwise directed by the Engineer.

TWO LANE - TWO WAY ROADWAY - 55 MPH		
ROADWAY WIDTH	LANE WIDTH	SHOULDER WIDTH
18'	9' *	0'
20'	10' *	0'
22'	10'	1'
24'	10'	2'
26'	11'	2'
28'	12'	2'
32'	12'	4'
* May vary due to pavement width		

TWO LANE - TWO WAY ROADWAY 50 MPH OR LESS		
ROADWAY WIDTH	LANE WIDTH	SHOULDER WIDTH
18'	9' *	0'
20'	10' *	0'
22'	10'	1'
24'	10'	2'
26'	11'	2'
28'	11'	3'
32'	11'	5'
* May vary due to pavement width		

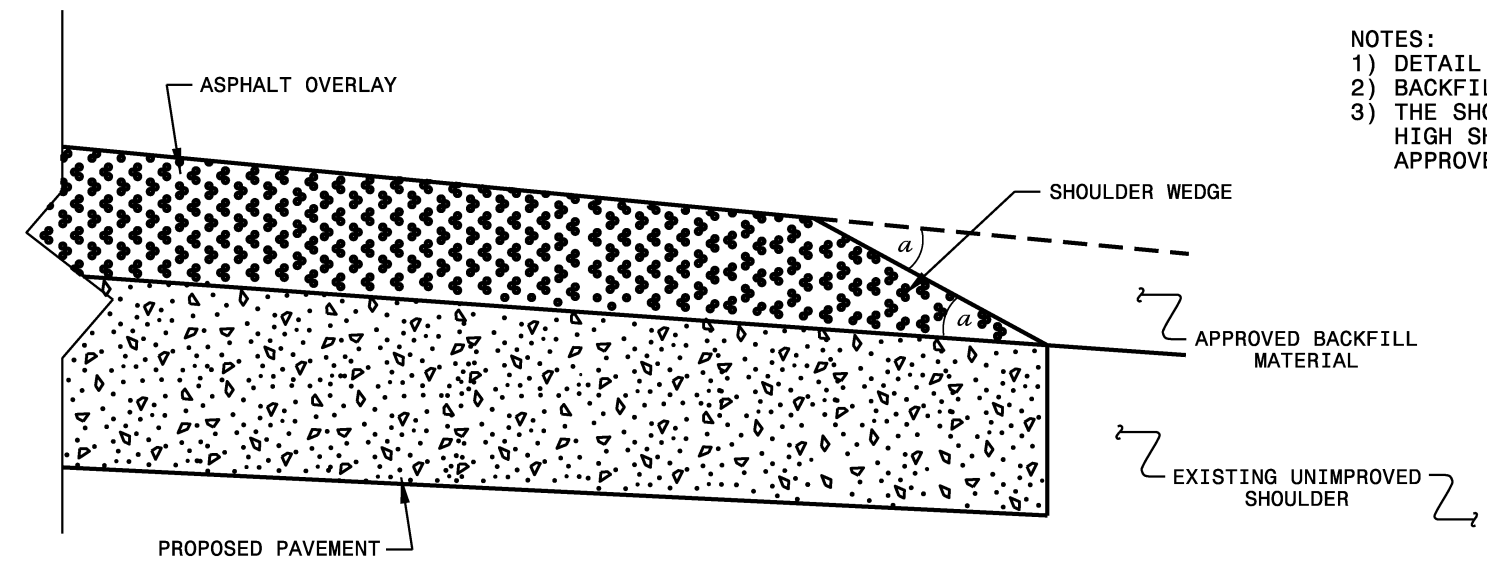
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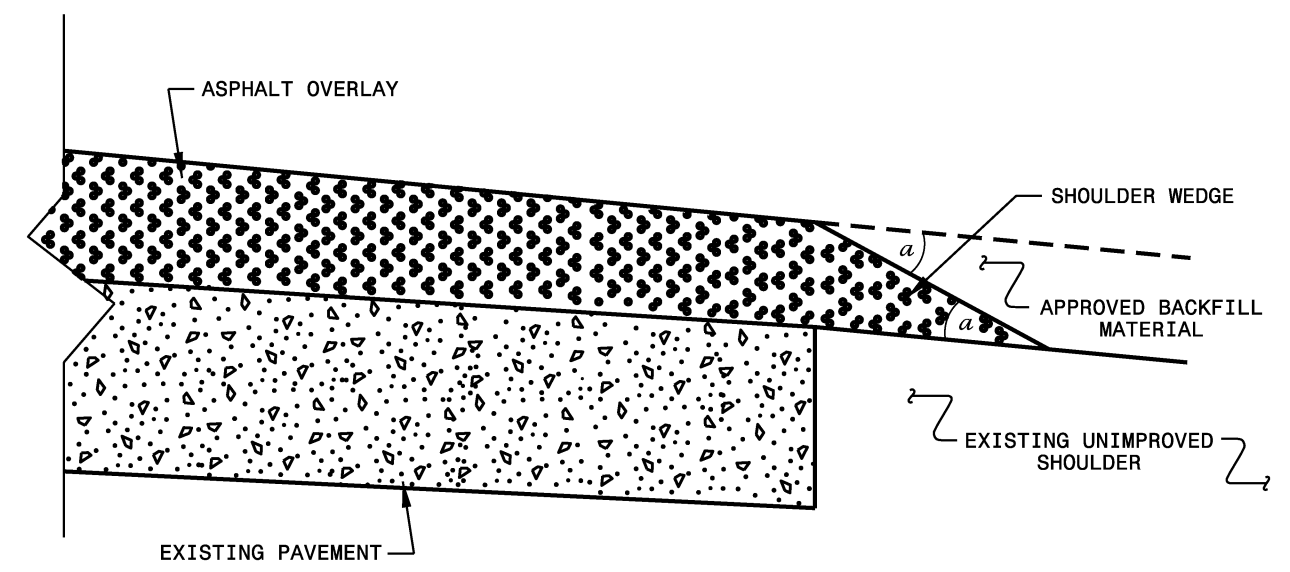
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 SYSTEMS  
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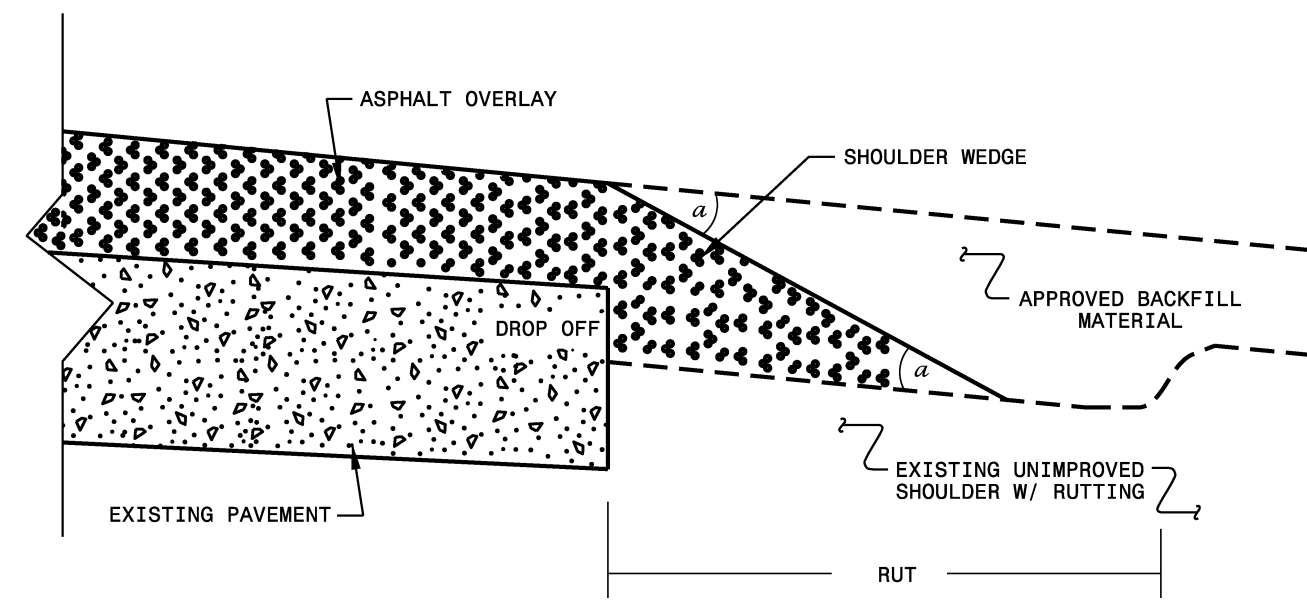
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



**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°

<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950 FAX 919-250-4119	
<b>SHOULDER WEDGE DETAILS</b>	
ORIGINAL BY: T.SPELL	DATE: 7-19-11
MODIFIED BY:	DATE: 2/2/16
CHECKED BY:	DATE:
FILE SPEC.: s:\usr\details\stand\shoulderwedgedetail.dgn	

22-MAR-2016 11:43 AM  
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 pporter

PROJECT NO.	SHEET NO.	TOTAL NO.
2016CPT.06.08.10091.1, etc	11	

**SUMMARY OF QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	AGGREGATE SHOULDER BORROW TON	SHOULDER RECONSTRUCTION SMI	4" MILLING SY	2.5" MILLING SY	3/4" MILLING SY	0" TO 2" MILLING SY	0" TO 1.5" MILLING SY	3/4" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	INTERMEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	
2016CPT.06.08.10091.1	Bladen	1	NC 53-A	FROM SR 1560 TO SR 1515	1	2	2WU	NO	NO	4.53	25	1,510	9.1							133	1,361			
2016CPT.06.08.10091.1	Bladen	2	NC 53-B	FROM SR 1515 TO TIMBERLODGE VILLAGE DR.	2	2	2WU	NO	NO	0.5	31	167	0.5				2,053			89				
2016CPT.06.08.10091.1	Bladen	3	NC 53-C	FROM TIMBERLODGE VILLAGE DR. TO US 701	3	2	2WU	NO	NO	2.16	29	721	4.3							222		81		
2016CPT.06.08.10091.1	Bladen	4	NC 131	FROM NC 211 BYP. TO NC 410	4	2	2WU	NO	NO	4.89	24	1,630	9.8					202		1,528	449		6,055	
2016CPT.06.08.10091.1	Bladen	5	NC 410-A	FROM NC 131 TO SR 1003	5	2	2WU	NO	NO	3.17	24	1,057	6.3							444			3,875	
2016CPT.06.08.10091.1	Bladen	6	NC 410-B	FROM SR 1003 TO NC 87	6	4	MU	NO	NO	0.13	40							1,068		89			281	
2016CPT.06.08.10091.1	Bladen	9	NC 210	FROM PENDER CL TO NC 53	8	2	2WU	NO	NO	3.71	25	1,237	7.4	3,333						178	206	827		
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.10091.1</b>										<b>19.09</b>		<b>6,322</b>	<b>37.4</b>	<b>3,333</b>			<b>2,053</b>	<b>1,270</b>		<b>2,683</b>	<b>2,016</b>	<b>908</b>	<b>10,211</b>	
2016CPT.06.08.20091.1	Bladen	7	SR 1208	FROM NC 131 TO END MAINT.	7	2	2WU	NO	NO	0.55	20	184	1.1		97					89		14		
2016CPT.06.08.20091.1	Bladen	8	SR 1225	FROM SR 1208 TO DEAD END	7	2	2WU	NO	NO	0.1	20	33	0.2							89				
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.20091.1</b>										<b>0.65</b>		<b>217</b>	<b>1.3</b>		<b>97</b>					<b>178</b>		<b>14</b>		
2016CPT.06.08.10241.1	Columbus	10	NC 214-A	FROM US 74 BUS. TO SR 1805	9	2	2WU	NO	NO	14.87	23	4,958	29.7		3,511	198,727				3,395	427	500	17,060	
2016CPT.06.08.10241.1	Columbus	11	NC 214-B	FROM SR 1805 TO SEVENTH ST.	10	2	2WU	NO	NO	0.45	36	151	0.5		111	4,752			4,752	356		16	899	
2016CPT.06.08.10241.1	Columbus	12	NC 214-C	SEVENTH ST. TO BEGIN DIVIDED HWY.	11	2	2WU	NO	NO	1.29	24	430	2.6		318	18,163				311		45	1,614	
2016CPT.06.08.10241.1	Columbus	13	NC 214-D	FROM BEGIN DIVIDED HWY. TO US 74	12	4	MD	NO	NO	1.31	44	874	5.2		323	33,815				222		46	3,174	
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.10241.1</b>										<b>17.92</b>		<b>6,413</b>	<b>38.0</b>		<b>4,263</b>	<b>255,457</b>			<b>4,752</b>	<b>4,284</b>	<b>427</b>	<b>607</b>	<b>22,747</b>	
2016CPT.06.08.20241.1	Columbus	14	SR 1731	FROM SR 1740 TO SR 1730	8	2	2WU	NO	NO	4.76	20	1,587	9.5		838					602	438	119		
2016CPT.06.08.20241.1	Columbus	15	SR 1735	FROM SR 1730 TO NC 214	8	2	2WU	NO	NO	5.74	20	1,913	11.4		1,010					267	530	144		
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.20241.1</b>										<b>10.5</b>		<b>3,500</b>	<b>20.9</b>		<b>1,848</b>					<b>869</b>	<b>968</b>	<b>263</b>		
<b>GRAND TOTAL</b>										<b>48.16</b>		<b>16,452</b>	<b>97.6</b>	<b>3,333</b>	<b>6,208</b>	<b>255,457</b>		<b>2,053</b>	<b>1,270</b>	<b>4,752</b>	<b>8,014</b>	<b>3,411</b>	<b>1,792</b>	<b>32,958</b>

**SUMMARY OF QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	LEVELING COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TONS	LEVELING COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ASPHALT SURFACE TREATMENT, MATCOAT, #6M STONE SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	REMOVE & REPLACE CURB RAMPS EA	ADJ. OF METER OR VALVE BOXES EA	JUNCTION BOX (STANDARD SIZE) EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY) EA	INDUCTIVE LOOP SAWCUT LF
2016CPT.06.08.10091.1	Bladen	1	NC 53-A	FROM SR 1560 TO SR 1515	1	2	2WU	NO	NO	4.53	25		5,877		454	136	66,440	28,571					
2016CPT.06.08.10091.1	Bladen	2	NC 53-B	FROM SR 1515 TO TIMBERLODGE VILLAGE DR.	2	2	2WU	NO	NO	0.5	31		775	6	52	15	9,093	3,910		2			
2016CPT.06.08.10091.1	Bladen	3	NC 53-C	FROM TIMBERLODGE VILLAGE DR. TO US 701	3	2	2WU	NO	NO	2.16	29		3,094	25	213	65	36,749	15,803					
2016CPT.06.08.10091.1	Bladen	4	NC 131	FROM NC 211 BYP. TO NC 410	4	2	2WU	NO	NO	4.89	24	72			388	147				1	2	1	1,325
2016CPT.06.08.10091.1	Bladen	5	NC 410-A	FROM NC 131 TO SR 1003	5	2	2WU	NO	NO	3.17	24	47			236	95							
2016CPT.06.08.10091.1	Bladen	6	NC 410-B	FROM SR 1003 TO NC 87	6	4	MU	NO	NO	0.13	40	3			17	4			4	4			
2016CPT.06.08.10091.1	Bladen	9	NC 210	FROM PENDER CL TO NC 53	8	2	2WU	NO	NO	3.71	25		4,534	52	356	49							
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.10091.1</b>										<b>19.09</b>		<b>122</b>	<b>14,280</b>	<b>83</b>	<b>1,716</b>	<b>511</b>	<b>112,282</b>	<b>48,284</b>	<b>4</b>	<b>7</b>	<b>2</b>	<b>1</b>	<b>1,325</b>
2016CPT.06.08.20091.1	Bladen	7	SR 1208	FROM NC 131 TO END MAINT.	7	2	2WU	NO	NO	0.55	20		557		38	11				1			
2016CPT.06.08.20091.1	Bladen	8	SR 1225	FROM SR 1208 TO DEAD END	7	2	2WU	NO	NO	0.1	20		122		8								
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.20091.1</b>										<b>0.65</b>		<b>679</b>	<b>46</b>	<b>11</b>						<b>1</b>			
2016CPT.06.08.10241.1	Columbus	10	NC 214-A	FROM US 74 BUS. TO SR 1805	9	2	2WU	NO	NO	14.87	23	211			1,080	149					2	1	500
2016CPT.06.08.10241.1	Columbus	11	NC 214-B	FROM SR 1805 TO SEVENTH ST.	10	2	2WU	NO	NO	0.45	36	10			55	14							
2016CPT.06.08.10241.1	Columbus	12	NC 214-C	SEVENTH ST. TO BEGIN DIVIDED HWY.	11	2	2WU	NO	NO	1.29	24	19			100	39							
2016CPT.06.08.10241.1	Columbus	13	NC 214-D	FROM BEGIN DIVIDED HWY. TO US 74	12	4	MD	NO	NO	1.31	44	36			195	39							
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.10241.1</b>										<b>17.92</b>		<b>276</b>	<b>1,430</b>	<b>241</b>							<b>2</b>	<b>1</b>	<b>500</b>
2016CPT.06.08.20241.1	Columbus	14	SR 1731	FROM SR 1740 TO SR 1730	8	2	2WU	NO	NO	4.76	20		4,760	46	347	48							
2016CPT.06.08.20241.1	Columbus	15	SR 1735	FROM SR 1730 TO NC 214	8	2	2WU	NO	NO	5.74	20		5,820	56	424	52							
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.20241.1</b>										<b>10.5</b>		<b>10,580</b>	<b>102</b>	<b>771</b>	<b>100</b>								
<b>GRAND TOTAL</b>										<b>48.16</b>		<b>398</b>	<b>25,539</b>	<b>185</b>	<b>3,963</b>	<b>863</b>	<b>112,282</b>	<b>48,284</b>	<b>4</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>1,825</b>

PROJECT NO.	SHEET NO.	TOTAL NO.
2016CPT.06.08.10091.1, etc	12	

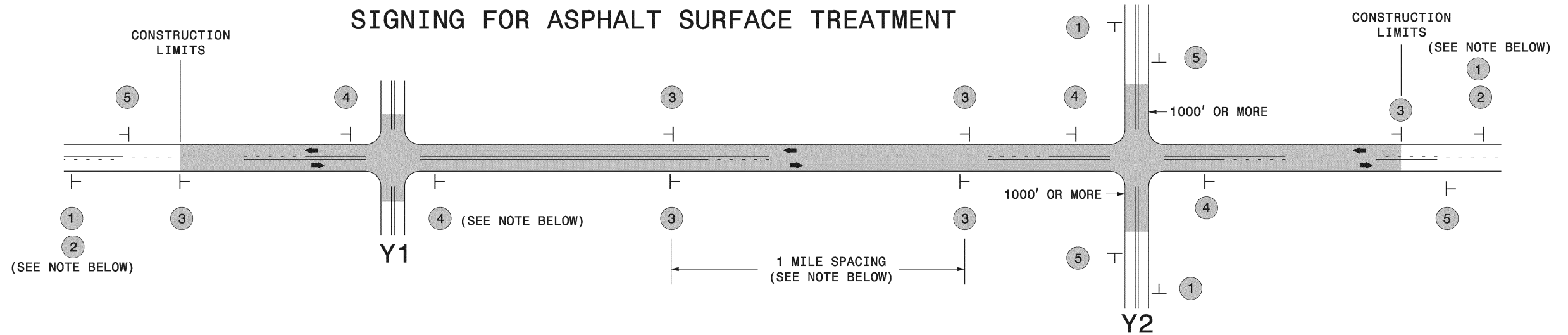
**THERMOPLASTIC AND PAINT QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH MI	WIDTH FT	4457000000-N	4413000000-E	4685000000-E	4686000000-E	4695000000-E	4697000000	4710000000-	4725000000-E								
										TEMP. TRAFFIC CONTROL	WORK ZONE ADVANCE/ GENERAL WARNING SIGNING	4" X 90 M WHITE THERMO	4" X 90 M YELLOW THERMO	4" X 120 M YELLOW THERMO	4" X 120 M WHITE THERMO	8" X 90 M WHITE THERMO	8" X 90 M YELLOW THERMO	8" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO MERGE ARROW 90 M	
NO		NO			NO					LS	SF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA				
2016CPT.06.08.10091.1	Bladen	1	NC 53-A	FROM SR 1560 TO SR 1515	1	2	2WU	4.53	25	*	507	48,200		33,740			60								
2016CPT.06.08.10091.1	Bladen	2	NC 53-B	FROM SR 1515 TO TIMBERLODGE VILLAGE DR.	2	2	2WU	0.5	31		126	5,410		4,250		120	2								
2016CPT.06.08.10091.1	Bladen	3	NC 53-C	FROM TIMBERLODGE VILLAGE DR. TO US 701	3	2	2WU	2.16	29		242	22,810		14,300											
2016CPT.06.08.10091.1	Bladen	4	NC 131	FROM NC 211 BYP. TO NC 410	4	2	2WU	4.89	24		548	51,900		40,550	425	100	780	40	3	1	1	1			
2016CPT.06.08.10091.1	Bladen	5	NC 410-A	FROM NC 131 TO SR 1003	5	2	2WU	3.17	24		355	32,600		28,490	325	2,020		310	3	4					
2016CPT.06.08.10091.1	Bladen	6	NC 410-B	FROM SR 1003 TO NC 87	6	4	MU	0.13	40		126			1,370	500					4					
2016CPT.06.08.10091.1	Bladen	9	NC 210	FROM PENDER CL TO NC 53	8	2	2WU	3.71	25		416	39,500		27,440											
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.10091.1</b>											<b>2,320</b>	<b>200,420</b>		<b>150,140</b>	<b>1,250</b>	<b>100</b>	<b>2,920</b>		<b>410</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>1</b>	<b>EA</b>	
												<b>200,420</b>		<b>151,390</b>		<b>3,020</b>								<b>19</b>	
2016CPT.06.08.20091.1	Bladen	7	SR 1208	FROM NC 131 TO END MAINT.	7	2	2WU	0.55	20	*	62														
2016CPT.06.08.20091.1	Bladen	8	SR 1225	FROM SR 1208 TO DEAD END	7	2	2WU	0.1	20		11														
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.20091.1</b>											<b>73</b>														
2016CPT.06.08.10241.1	Columbus	10	NC 214-A	FROM US 74 BUS. TO SIXTEENTH ST.	9	2	2WU	14.87	23	*	1,665	157,990		92,360		1,090		50	25		1				
2016CPT.06.08.10241.1	Columbus	11	NC 214-B	FROM SIXTEENTH ST. TO SEVENTH ST.	10	2	2WU	0.45	36		126	4,750		4,750											
2016CPT.06.08.10241.1	Columbus	12	NC 214-C	SEVENTH ST. TO BEGIN DIVIDED HWY.	11	2	2WU	1.29	24		144	13,620		8,580				20							
2016CPT.06.08.10241.1	Columbus	13	NC 214-D	FROM BEGIN DIVIDED HWY. TO US 74	12	4	MD	1.31	44		147	13,540	13,540	1,600	3,985	1,100	300	24	12		19	4	5		
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.10241.1</b>											<b>2,082</b>	<b>189,900</b>	<b>13,540</b>	<b>107,290</b>	<b>3,985</b>	<b>2,190</b>	<b>300</b>	<b>50</b>	<b>69</b>	<b>12</b>	<b>1</b>	<b>19</b>	<b>4</b>	<b>5</b>	
												<b>203,440</b>		<b>111,275</b>		<b>2,490</b>							<b>41</b>		
2016CPT.06.08.20241.1	Columbus	14	SR 1731	FROM SR 1740 TO SR 1730	8	2	2WU	4.76	20	*	533														
2016CPT.06.08.20241.1	Columbus	15	SR 1735	FROM SR 1730 TO NC 214	8	2	2WU	5.74	20		643														
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.20241.1</b>											<b>1,176</b>														
<b>GRAND TOTAL</b>										<b>1</b>	<b>5,651</b>	<b>390,320</b>	<b>13,540</b>	<b>257,430</b>	<b>5,235</b>	<b>2,290</b>	<b>3,220</b>	<b>50</b>	<b>479</b>	<b>20</b>	<b>10</b>	<b>20</b>	<b>5</b>	<b>5</b>	
												<b>403,860</b>		<b>262,665</b>		<b>5,510</b>								<b>60</b>	

**THERMOPLASTIC AND PAINT QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH MI	WIDTH FT	4721000000-E		4810000000-E		4820000000-E		4835000000	4845000000-N					4900000000-N		
										THERMO MSG SCHOOL 120 M	THERMO MSG ONLY 120 M	4" YELLOW PAINT	4" WHITE PAINT	8" WHITE PAINT	8" YELLOW PAINT	24" WHITE PAINT	PAINT LT ARROW	PAINT RT ARROW	PAINT STR ARROW	PAINT STR & RT ARROW	PAINT MERGE ARROW	YELLOW & YELLOW MARKERS	CRYSTAL & RED MARKERS	
NO		NO			NO					EA	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	
2016CPT.06.08.10091.1	Bladen	1	NC 53-A	FROM SR 1560 TO SR 1515	1	2	2WU	4.53	25			33,740										300		
2016CPT.06.08.10091.1	Bladen	2	NC 53-B	FROM SR 1515 TO TIMBERLODGE VILLAGE DR.	2	2	2WU	0.5	31			4,250					2					33		
2016CPT.06.08.10091.1	Bladen	3	NC 53-C	FROM TIMBERLODGE VILLAGE DR. TO US 701	3	2	2WU	2.16	29			14,300										143		
2016CPT.06.08.10091.1	Bladen	4	NC 131	FROM NC 211 BYP. TO NC 410	4	2	2WU	4.89	24													330	28	
2016CPT.06.08.10091.1	Bladen	5	NC 410-A	FROM NC 131 TO SR 1003	5	2	2WU	3.17	24	12												207	90	
2016CPT.06.08.10091.1	Bladen	6	NC 410-B	FROM SR 1003 TO NC 87	6	4	MU	0.13	40		8											13		
2016CPT.06.08.10091.1	Bladen	9	NC 210	FROM PENDER CL TO NC 53	8	2	2WU	3.71	25								2					250		
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.10091.1</b>										<b>12</b>	<b>8</b>	<b>52,290</b>					<b>2</b>					<b>1,276</b>	<b>118</b>	
											<b>20</b>	<b>52,290</b>					<b>2</b>					<b>1,394</b>		
2016CPT.06.08.20091.1	Bladen	7	SR 1208	FROM NC 131 TO END MAINT.	7	2	2WU	0.55	20															
2016CPT.06.08.20091.1	Bladen	8	SR 1225	FROM SR 1208 TO DEAD END	7	2	2WU	0.1	20															
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.20091.1</b>																								
2016CPT.06.08.10241.1	Columbus	10	NC 214-A	FROM US 74 BUS. TO SIXTEENTH ST.	9	2	2WU	14.87	23			92,360		1,140								987		
2016CPT.06.08.10241.1	Columbus	11	NC 214-B	FROM SIXTEENTH ST. TO SEVENTH ST.	10	2	2WU	0.45	36			4,750										30		
2016CPT.06.08.10241.1	Columbus	12	NC 214-C	SEVENTH ST. TO BEGIN DIVIDED HWY.	11	2	2WU	1.29	24			8,580										85		
2016CPT.06.08.10241.1	Columbus	13	NC 214-D	FROM BEGIN DIVIDED HWY. TO US 74	12	4	MD	1.31	44			15,140	17,540	1,100	300	24	12		19	4	5	15	200	
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.10241.1</b>												<b>120,830</b>	<b>17,540</b>	<b>2,240</b>	<b>300</b>	<b>69</b>	<b>12</b>	<b>1</b>	<b>19</b>	<b>4</b>	<b>5</b>	<b>1,117</b>	<b>200</b>	
												<b>138,370</b>		<b>2,540</b>					<b>41</b>			<b>1,317</b>		
2016CPT.06.08.20241.1	Columbus	14	SR 1731	FROM SR 1740 TO SR 1730	8	2	2WU	4.76	20			34,860	49,800									310		
2016CPT.06.08.20241.1	Columbus	15	SR 1735	FROM SR 1730 TO NC 214	8	2	2WU	5.74	20			44,360	63,360									400		
<b>TOTAL FOR PROJ NO. 2016CPT.06.08.20241.1</b>												<b>79,220</b>	<b>113,160</b>									<b>710</b>		
												<b>192,380</b>										<b>710</b>		
<b>GRAND TOTAL</b>										<b>12</b>	<b>8</b>	<b>252,340</b>	<b>130,700</b>	<b>2,240</b>	<b>300</b>	<b>69</b>	<b>14</b>	<b>1</b>	<b>19</b>	<b>4</b>	<b>5</b>	<b>3,103</b>	<b>318</b>	
											<b>20</b>	<b>383,040</b>		<b>2,540</b>				<b>43</b>					<b>3,421</b>	

## SIGNING FOR ASPHALT SURFACE TREATMENT



LEGEND	
	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

### MAINLINE (-L-) SIGNING

### -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION		
1 2	 W20-1 48" X 48" W7-3aP 24" X 18"	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p> <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	 W8-7 48" X 48" SP 48" X 48"	<p>ALTERNATE THE FOLLOWING TWO SIGNS: STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT".</p> <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	 SP 13106 48" X 48"	<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	 G20-2 A 48" X 24"	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>

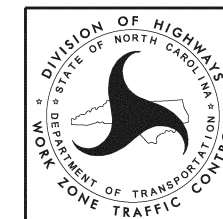
NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

- 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE
- 2) SUBDIVISION ROADS
- 3) DEAD END ROADS

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.

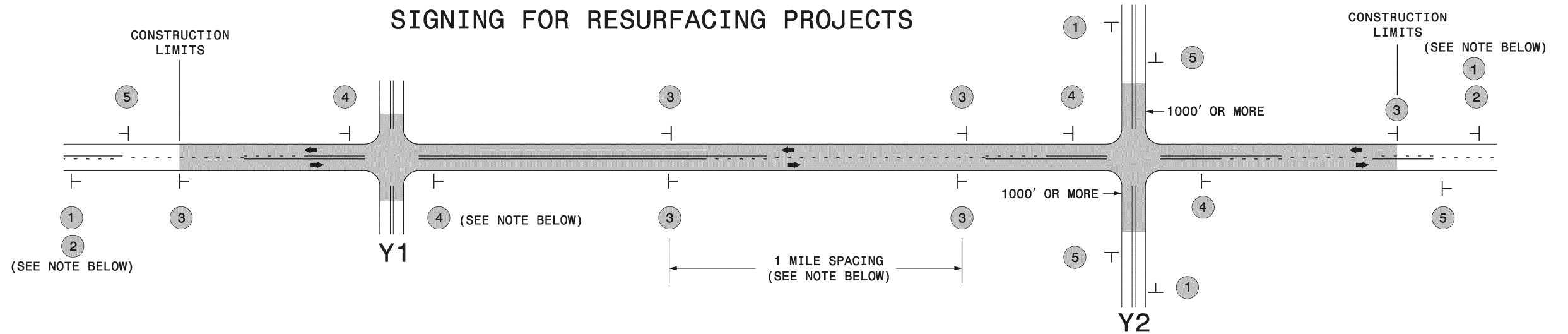


PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.



**ADVANCE WARNING SIGNS  
FOR  
ASPHALT SURFACE TREATMENTS  
2 LANE ROADWAYS**

## SIGNING FOR RESURFACING PROJECTS



LEGEND	
	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

### MAINLINE (-L-) SIGNING

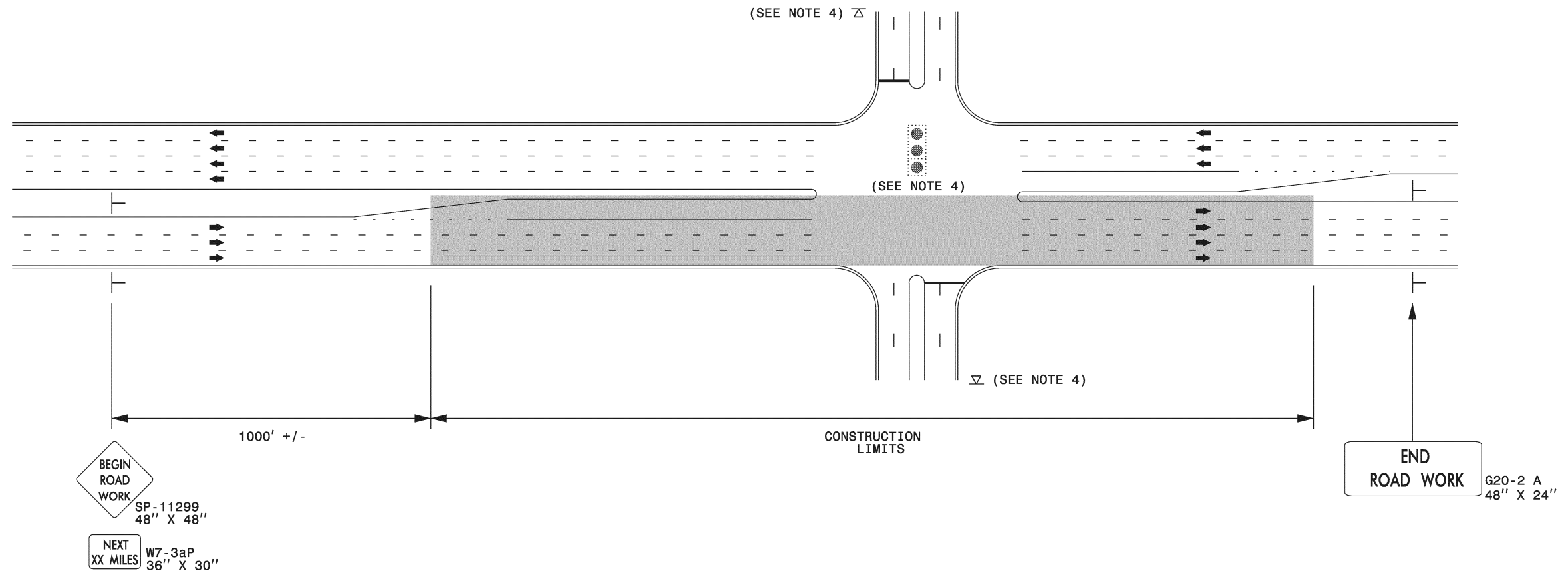
### -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION		
1 2		<p style="text-align: center;"><b>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</b></p> <ol style="list-style-type: none"> <li>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>2) SUBDIVISION ROADS</li> <li>3) DEAD END ROADS</li> </ol> <p style="text-align: center;">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; align-items: center;"> <div style="text-align: center;"> <p style="font-size: small;">W20-1 48" X 48"</p> </div> <div style="text-align: center;"> <p style="font-size: small;">W20-7 A 48" X 48"</p> </div> </div> <p style="text-align: center;">PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
3		
4		
5		

3/19/2015  
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 User:rmgarrrett

**RESURFACING  
ADVANCE WARNING SIGNS  
FOR  
RURAL AND SUBURBAN  
2 LANE ROADWAYS**

## URBAN / SUBURBAN WORKZONES

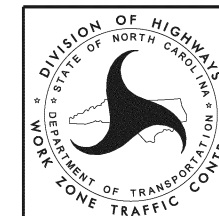


### NOTES:

- 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.

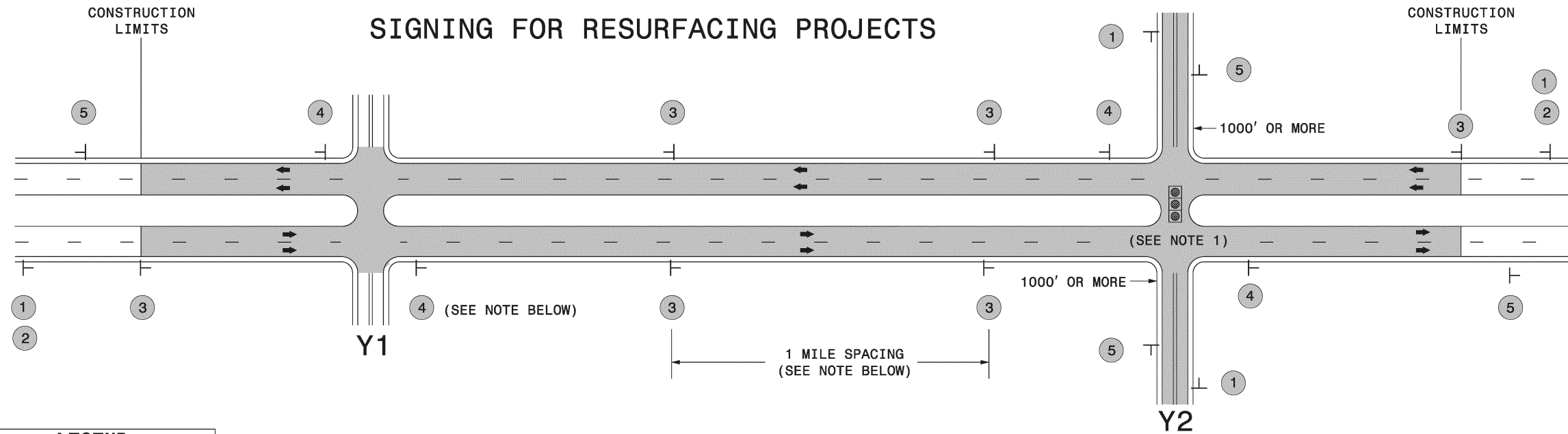
### LEGEND

- ┆ STATIONARY SIGN
- ➔ DIRECTION OF TRAFFIC FLOW



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



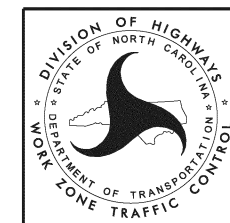


LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

### MAINLINE (-L-) SIGNING

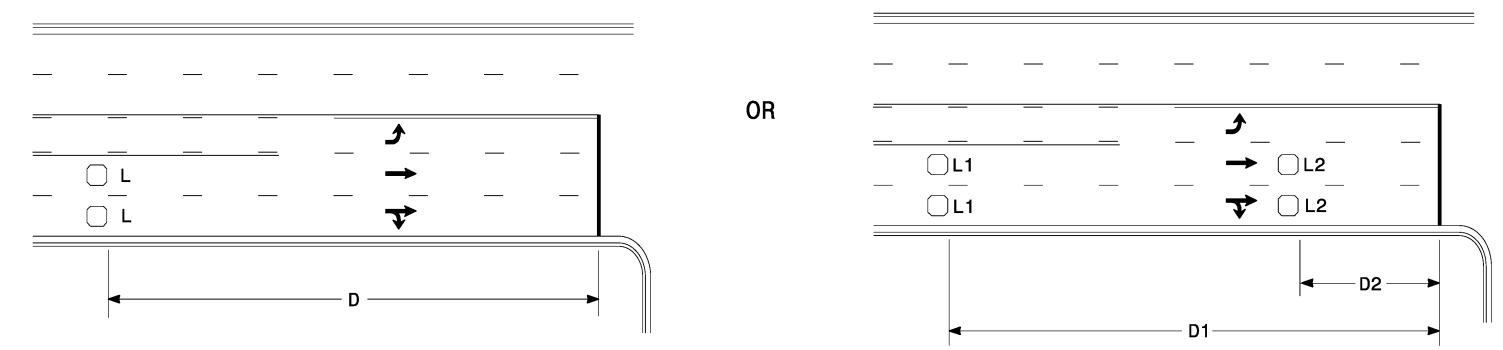
### -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	MAINLINE (-L-) SIGNING		-Y- LINE SIGNING	
	1	 <small>W20-1 48" X 48"</small>	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p><b>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</b></p> <ol style="list-style-type: none"> <li>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>2) SUBDIVISION ROADS</li> <li>3) 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> <p><b>NOTES:</b></p> <ol style="list-style-type: none"> <li>1) 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.</li> </ol>
	2	 <small>W7-3aP 24" X 18"</small>	#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)	
	3	 <small>SP 13107 48" X 48"</small>	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.	
	4	 <small>SP 13106 48" X 48"</small>	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.	
5	 <small>G20-2 A 48" X 24"</small>	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.		



**RESURFACING  
ADVANCE WARNING SIGNS  
FOR RURAL AND SUBURBAN  
MULTI-LANE ROADWAYS  
W/ SHOULDER SECTIONS**

### High Speed Detection (≥40 mph)



Speed Limit mph	D ft
40	250
45	300
50	355
55	420

L = 6ft X 6ft  
Wired in series for TS1  
Controllers  
Wired separately for TS2,  
170, and 2070L Controllers

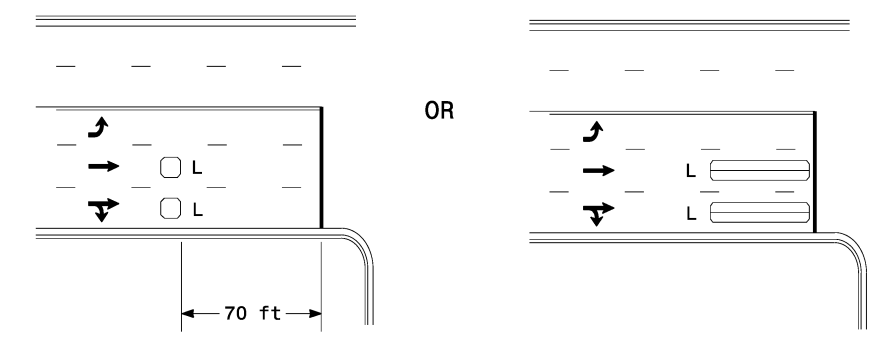
Volume Density Operation

Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft  
Wired in series  
  
L2 = 6ft X 6ft  
Wired in series

"Stretch" Operation

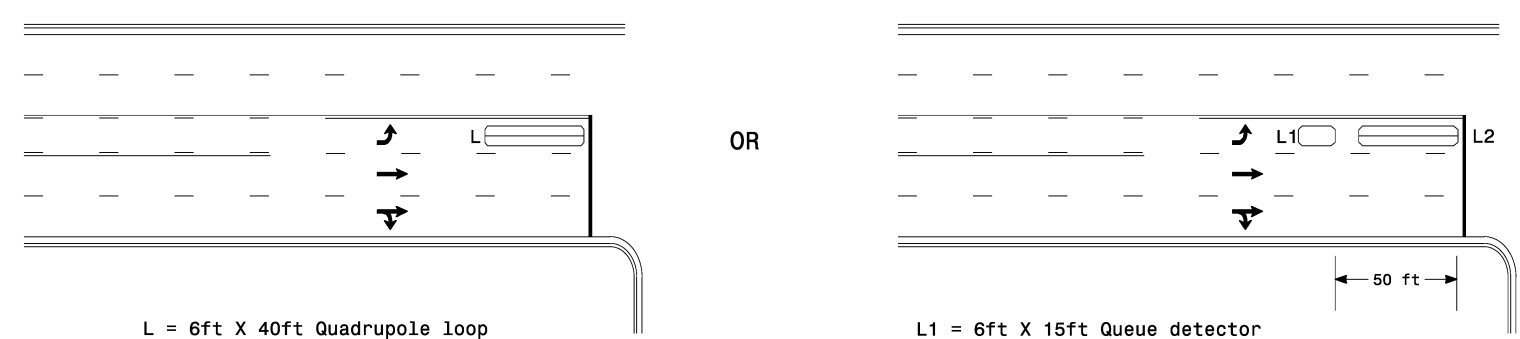
### Low Speed Detection (≤35 mph)



L = 6ft X 6ft  
Wired in series

L = 6ft X 40ft  
Quadrupole loop, wired separately

### Left Turn Lane Detection



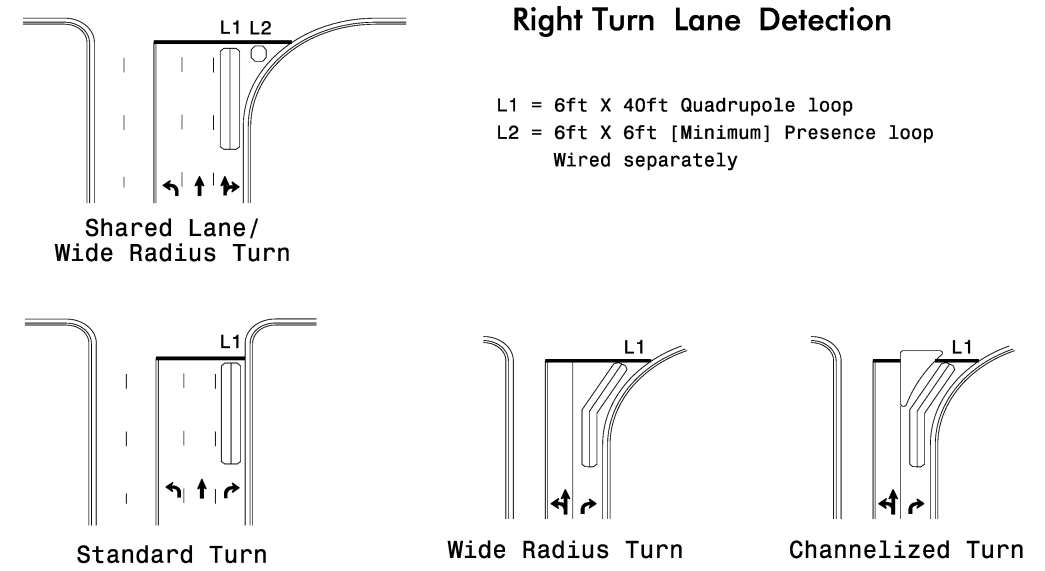
L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

L1 = 6ft X 15ft Queue detector  
L2 = 6ft X 40ft Quadrupole loop

Queue Loop Detection

### Right Turn Lane Detection



L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately

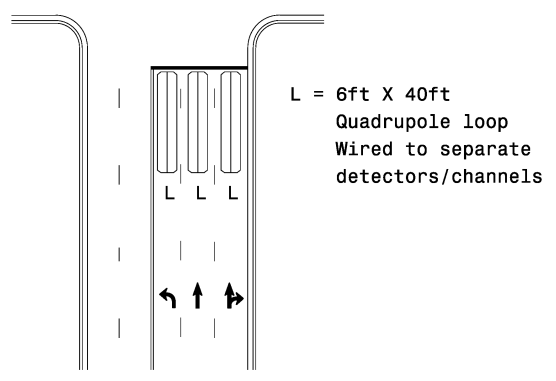
Shared Lane/  
Wide Radius Turn

Standard Turn

Wide Radius Turn

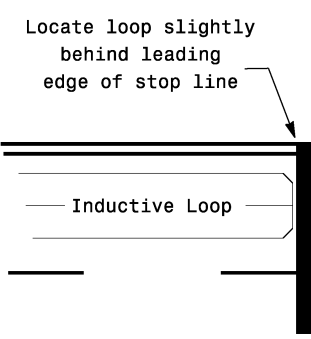
Channelized Turn

### Side Street Detection



L = 6ft X 40ft  
Quadrupole loop  
Wired to separate  
detectors/channels

### Presence Loop Placement at Stop Lines



- Note:  
Loop may be located in advance of stop line under any of the following conditions:
- 1) stop line is greater than 15' from edge of intersecting roadway
  - 2) loop detects a permissive or protected/permissive left turn
  - 3) for an exclusive right turn lane

### Recommended Number of Turns

Single 6' X 6' loop  
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' Loops:  
Lead-in < 150', use 2 turns  
Lead-in > 150', use 3 turns

	Typical Signal Loop Locations		
	Prepared In the Offices of: 	PLAN DATE: January 2015 PREPARED BY: PLA SCALE: N/A	