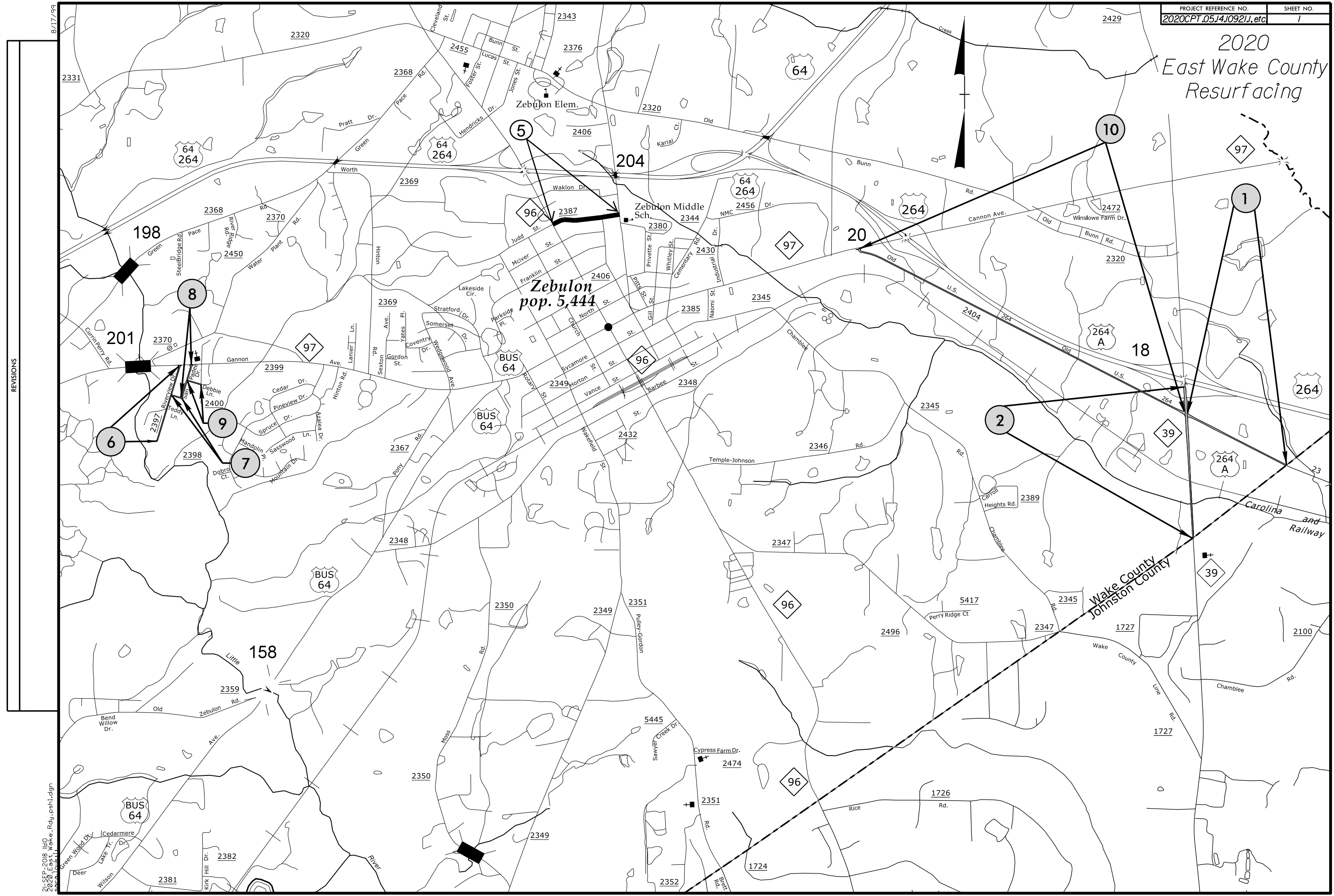


# 2020 East Wake County Resurfacing

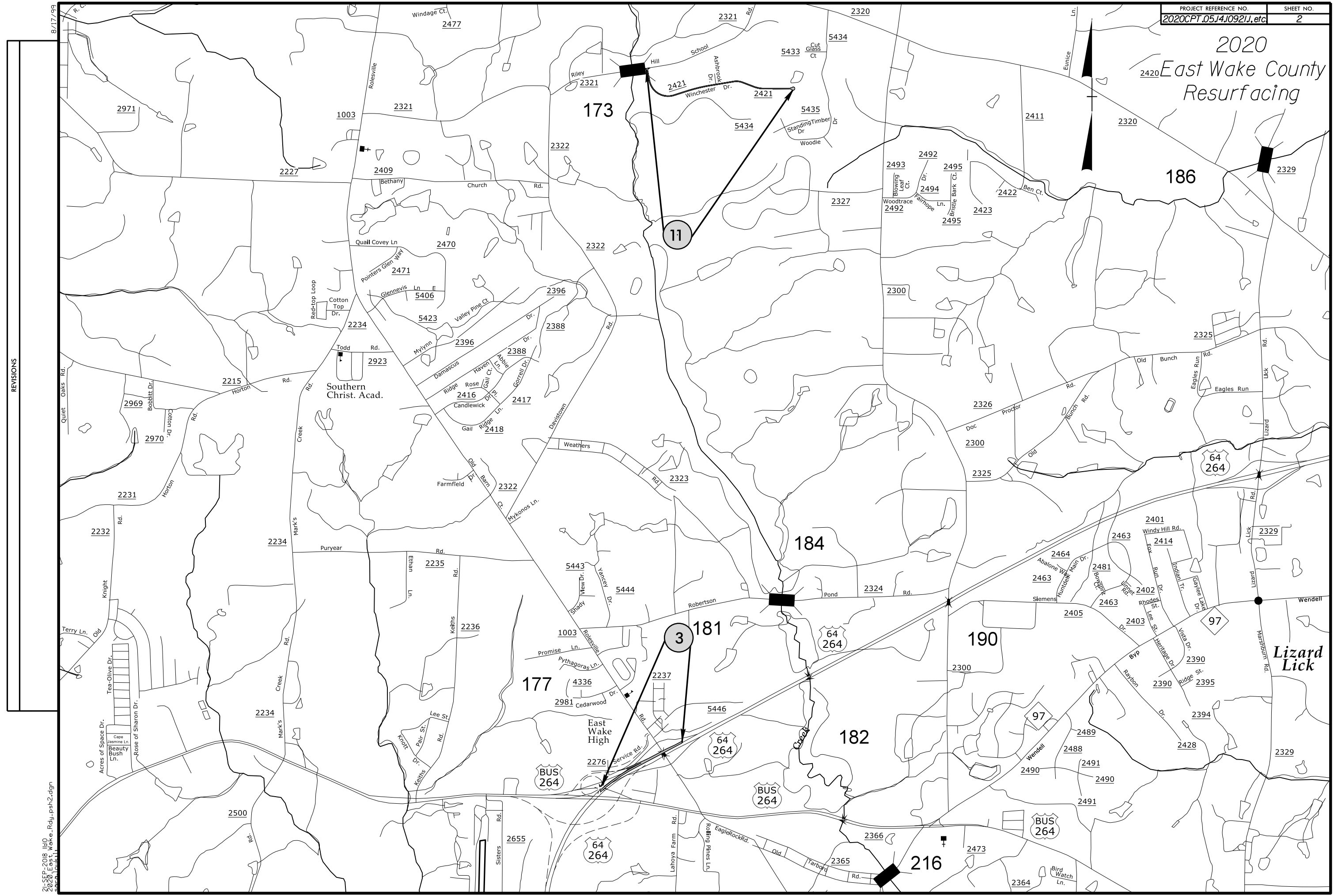


REVISIONS

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2020\_East\_Wake\_Rdy\_psh1.dgn

8/17/99

# 2020 East Wake County Resurfacing



REVISIONS

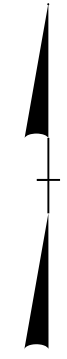
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sarah.lambert

Lizard Lick





# 2020 East Wake County Resurfacing



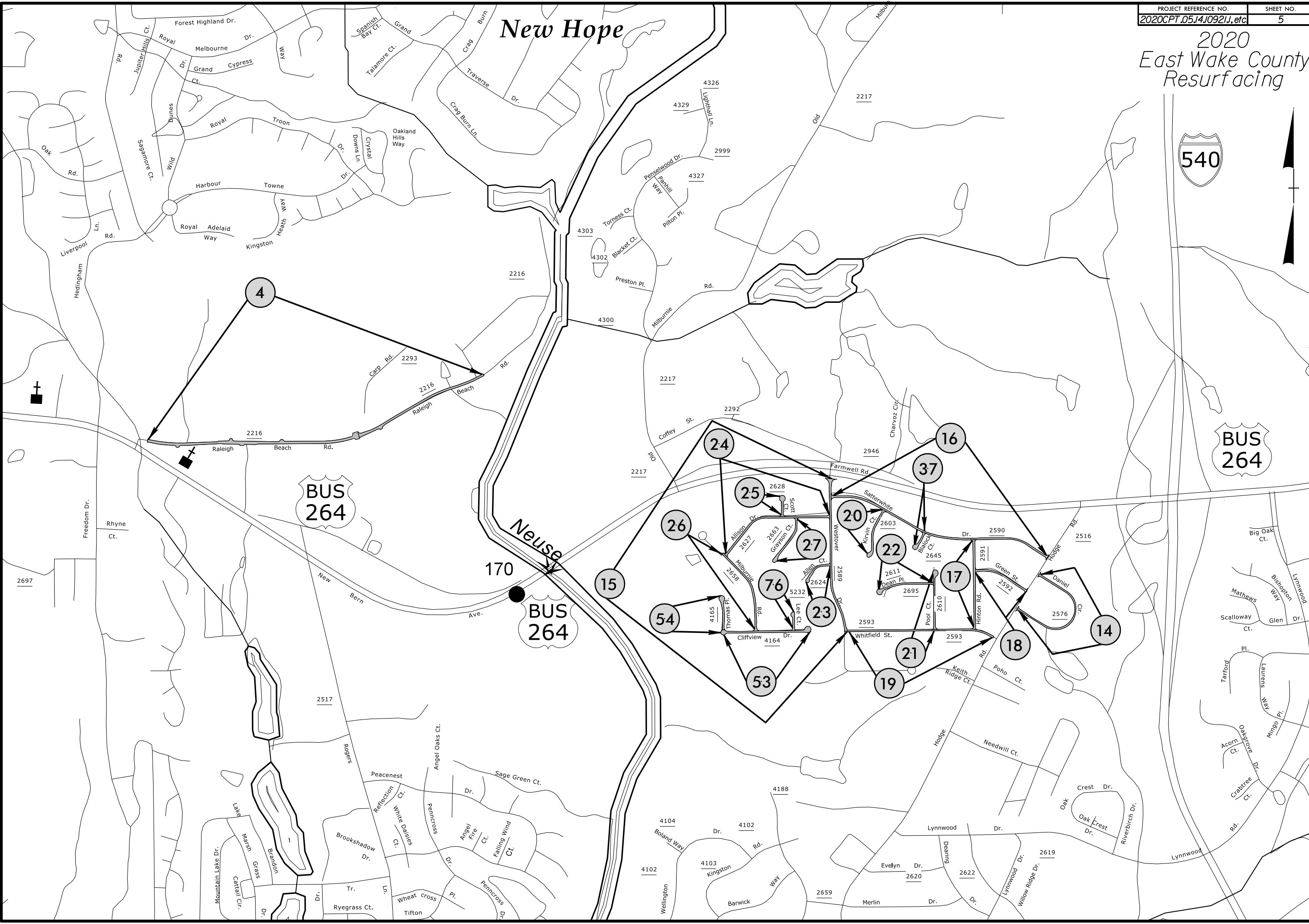
## New Hope

## Neuse

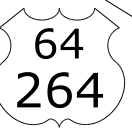
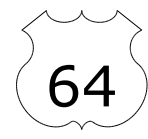
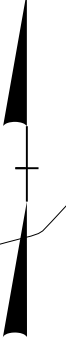
REVISIONS

8/17/99

21-SEP-2018 11:0  
2020\_East\_Wake\_Rdy\_psh5.dgn  
sac@larkhill.com



2020 East Wake County Resurfacing



38

28

236

77

RAILWAY

Creek

Neuse

REVISIONS

8/17/99  
21-SEP-2018 11:0  
2020\_East\_Wake\_Rdy\_psh6.dgn  
sac@larkllc





# 2020 East Wake County Resurfacing



REVISIONS

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s:\work\2020\2020CPT.0514J0921J

A

70





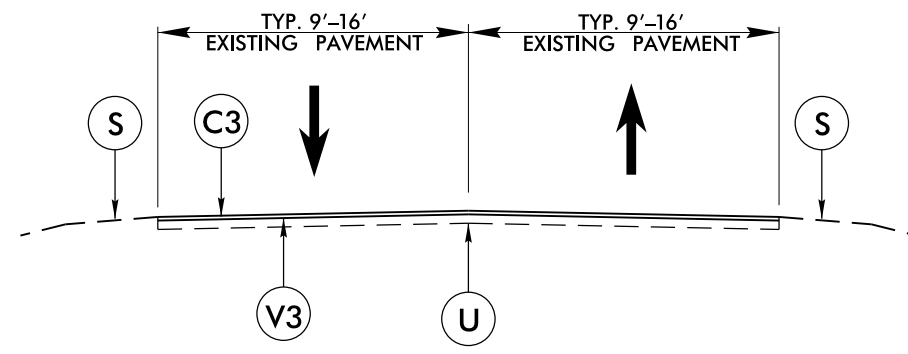


6/2/19  
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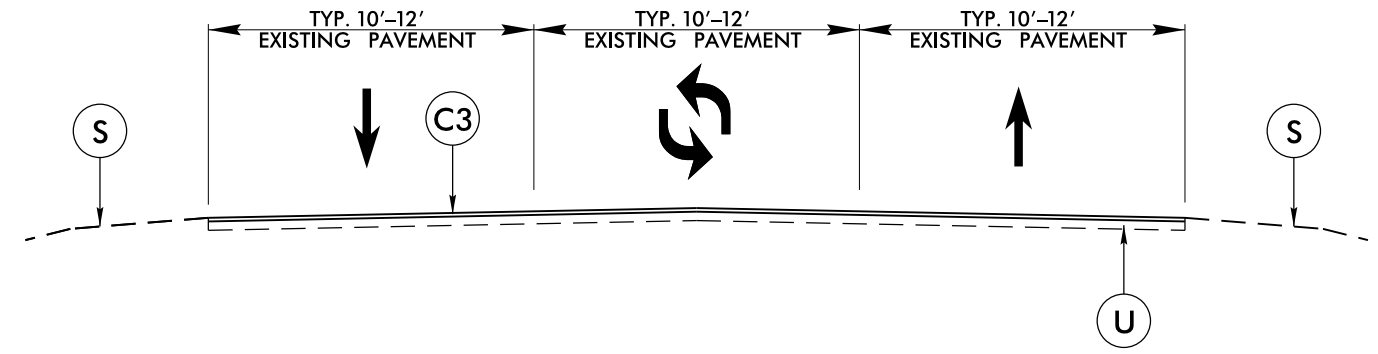
**\* VARIABLE OUTSIDE SHOULDER – PARTIAL C&G, PARTIAL EARTH SHOULDER**

PAVEMENT SCHEDULE

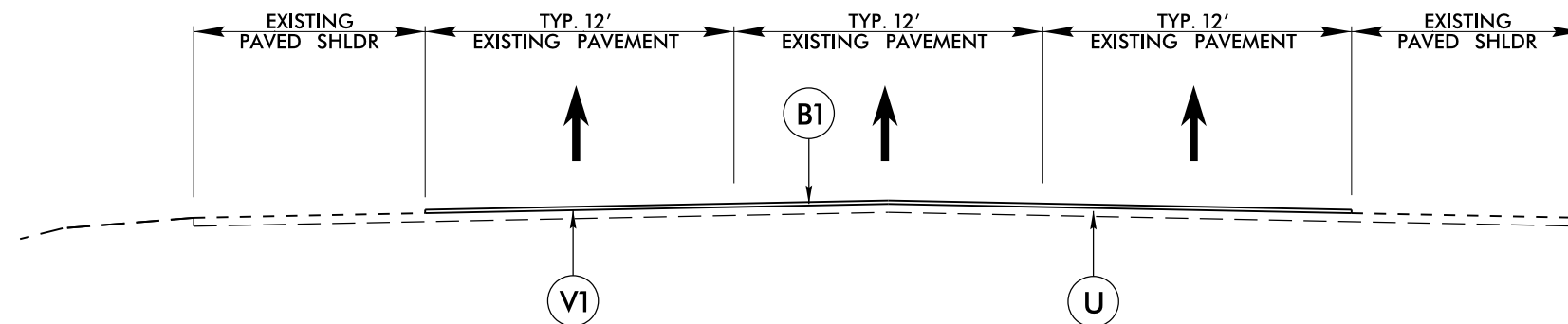
B1	PROP. APPROX. 3/4" OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MODIFIED AT AN AVERAGE RATE OF 90 LBS. PER SQ. YD.	E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE DEPTH OF 627 LBS. PER SQ. YD.	V2	MILL ASPHALT PAVEMENT, 1 1/4" DEPTH
C1	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.	R	EXISTING CURB AND GUTTER/ VALLEY CURB	V3	MILL ASPHALT PAVEMENT, 1 1/2" DEPTH
C2	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	S	SHOULDER GRADING, ASB REQUIRED (EXCEPT AT RESIDENTIAL AREAS)	V4	MILL ASPHALT PAVEMENT, 0-1 1/4" DEPTH
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	U	EXISTING PAVEMENT	V5	MILL ASPHALT PAVEMENT, 0-1 1/2" DEPTH
C4	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	V1	MILL ASPHALT PAVEMENT, 3/4" DEPTH		



**TYPICAL SECTION 1**  
 MILL & RESURFACE S9.5B  
 MAP NOS. 1, 10, 14, 76



**TYPICAL SECTION NO. 2**  
 FULL DEPTH PATCHING AND RESURFACE S9.5B  
 MAP NO. 2 (NC 39)  
 \*\*MILLING REQUIRED AROUND 5" MONOLITHIC ISLAND AND RAILROAD CROSSING

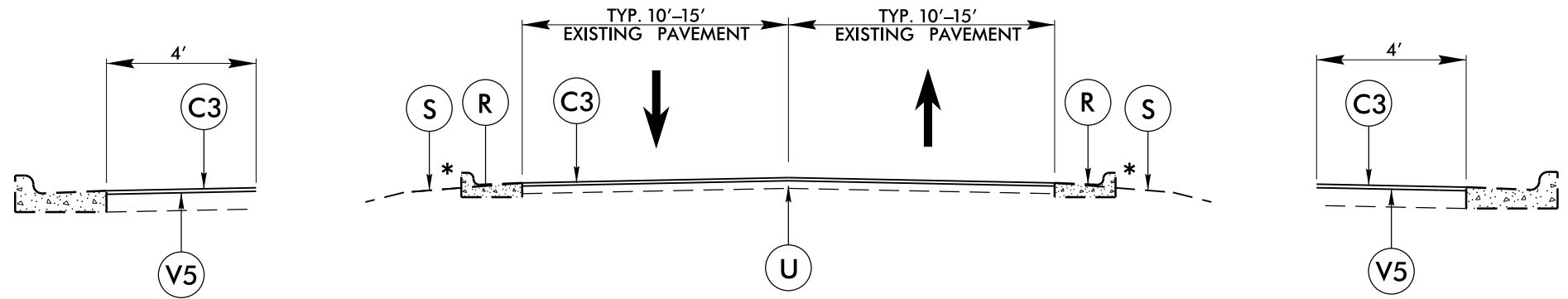


**TYPICAL SECTION NO. 3**  
 MILL AND RESURFACE FC-1 MODIFIED  
 MAP NO. 3 (US 64 BYPASS WESTBOUND LANE)

PAVEMENT SCHEDULE	
B1	3/4" OGAF C FC-1 MODIFIED
C1	1" S9.5B
C2	1 1/4" S9.5B
C3	1 1/2" S9.5B
C4	2" S9.5B
E1	5.5" B25.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	3/4" MILLING
V2	1 1/4" MILLING
V3	1 1/2" MILLING
V4	0-1 1/4" MILLING
V5	0-1 1/2" MILLING

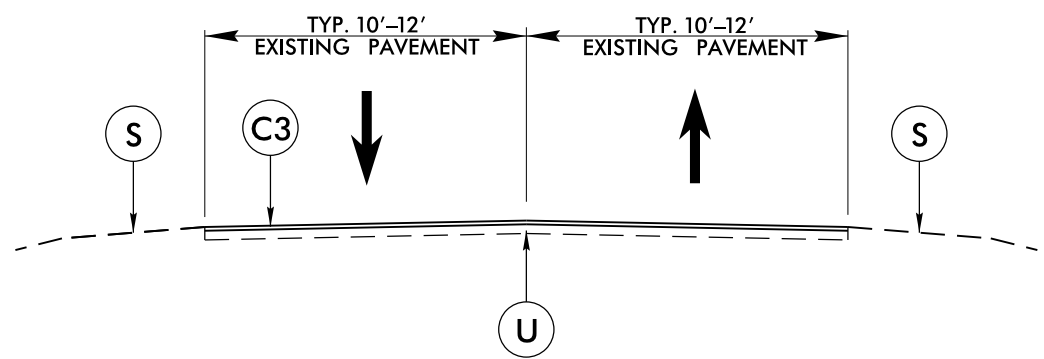
2020 EAST WAKE RESURFACING

\* VARIABLE OUTSIDE SHOULDER - PARTIAL C&G, PARTIAL EARTH SHOULDER



**TYPICAL SECTION 4**  
RESURFACE S9.5B

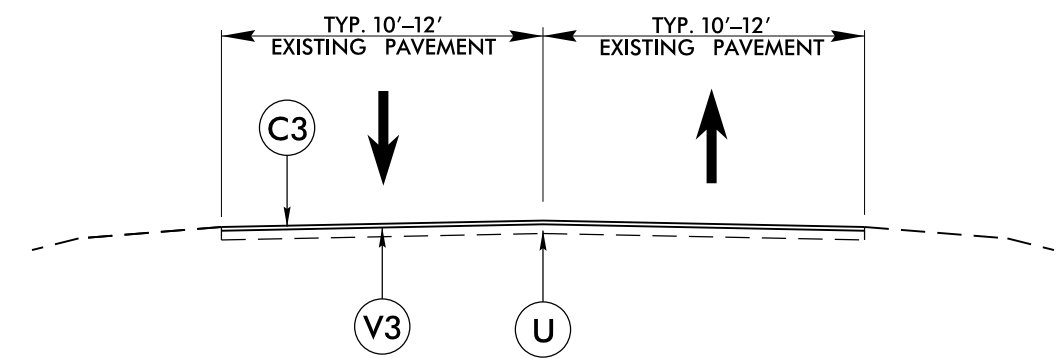
MAP NO. 4 (RALEIGH BEACH RD)



**TYPICAL SECTION 5**  
FULL DEPTH PATCHING AND RESURFACE S9.5B

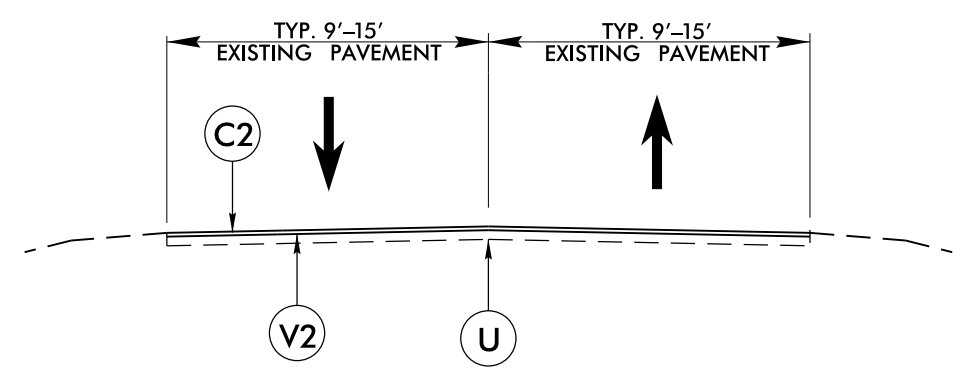
MAP NOS. 5, 69

MAP NO. 13 (AUBURN CHURCH RD)  
-From End of Shoulder Section to G St.



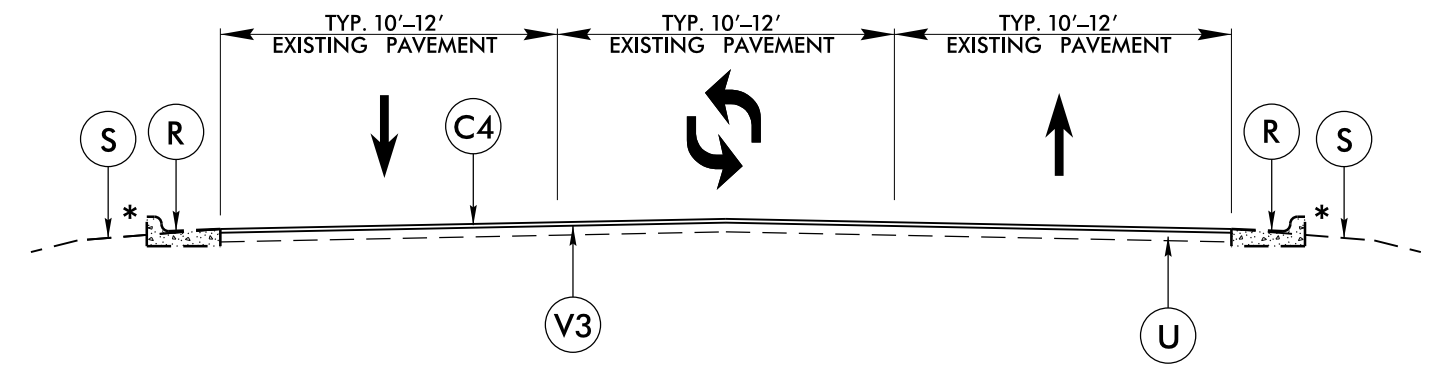
**TYPICAL SECTION 6**  
MILL AND RESURFACE S9.5B

MAP NOS. 6-9



**TYPICAL SECTION 7**  
MILL & RESURFACE S9.5B

MAP NOS. 11, 15, 17-19, 45-49, 51-52, 70-71



**TYPICAL SECTION NO. 8**  
MILL AND RESURFACE S9.5B

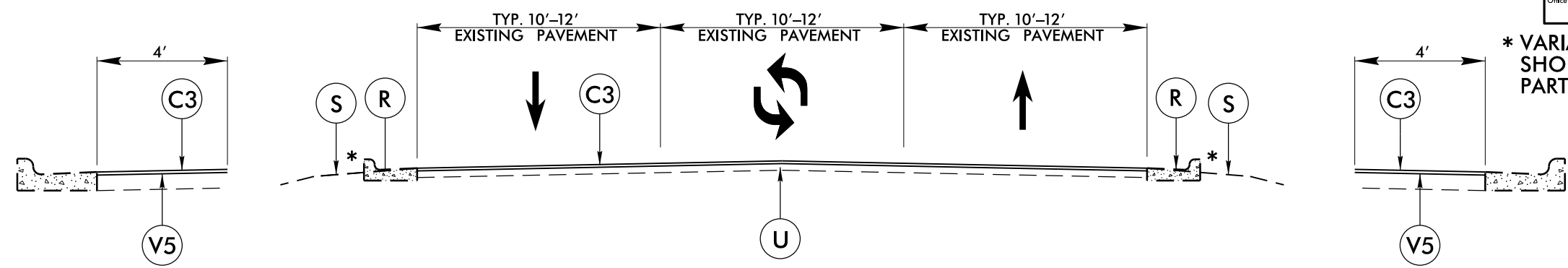
MAP NO. 12 (MECHANICAL BLVD)

6/2/09  
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6/2/09

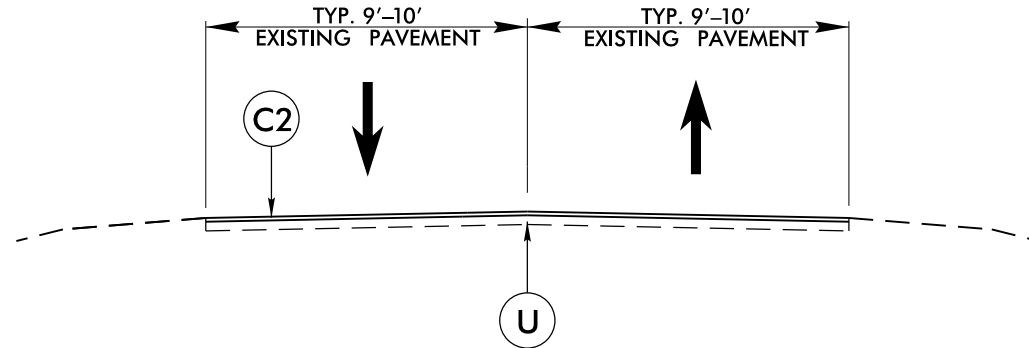
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PAVEMENT SCHEDULE	
B1	3/4" OGAF C FC-1 MODIFIED
C1	1" S9.5B
C2	1 1/4" S9.5B
C3	1 1/2" S9.5B
C4	2" S9.5B
E1	5.5" B25.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	3/4" MILLING
V2	1 1/4" MILLING
V3	1 1/2" MILLING
V4	0-1 1/4" MILLING
V5	0-1 1/2" MILLING

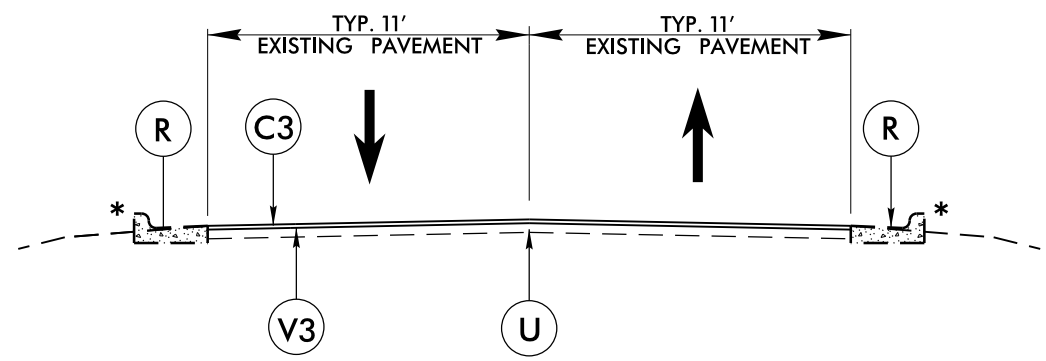


**TYPICAL SECTION NO. 9**  
RESURFACE S9.5B

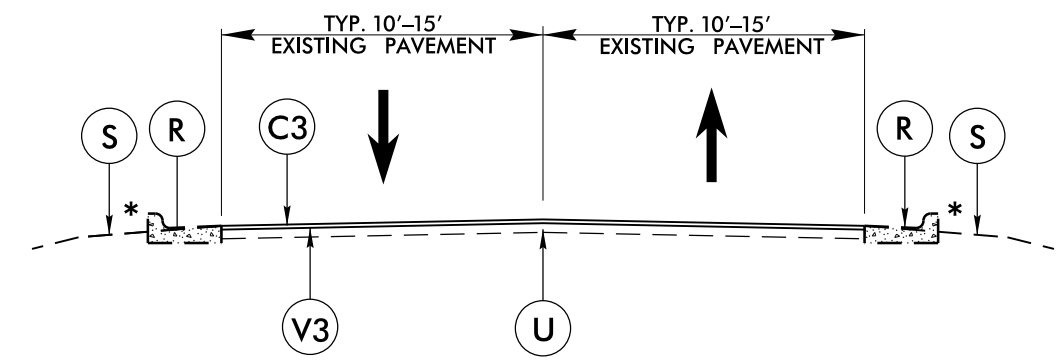
MAP NO. 13 (AUBURN CHURCH RD)  
-From US 70 to End of Shoulder Section



**TYPICAL SECTION 10**  
FULL DEPTH PATCHING AND RESURFACE S9.5B  
MAP NOS. 28, 40-44, 72-74, 83-84



**TYPICAL SECTION 11**  
MILL AND RESURFACE S9.5B  
MAP NO. 38 (WOODLAND RD)



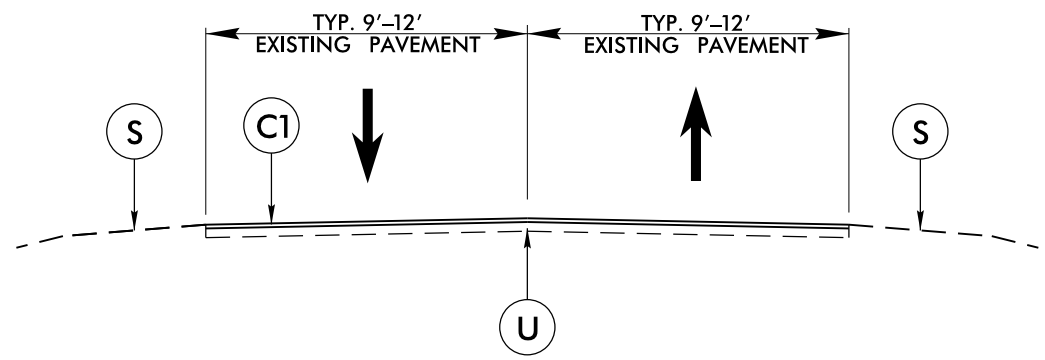
**TYPICAL SECTION 12**  
MILL AND RESURFACE S9.5B  
MAP NOS. 77, 86

6/2/09

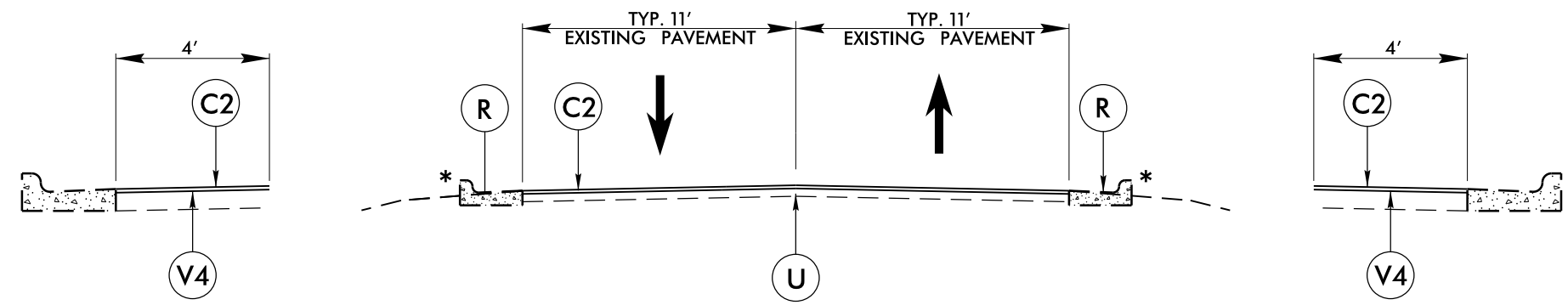
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PAVEMENT SCHEDULE	
B1	3/4" OGAF C FC-1 MODIFIED
C1	1" S9.5B
C2	1 1/4" S9.5B
C3	1 1/2" S9.5B
C4	2" S9.5B
E1	5.5" B25.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	3/4" MILLING
V2	1 1/4" MILLING
V3	1 1/2" MILLING
V4	0-1 1/4" MILLING
V5	0-1 1/2" MILLING

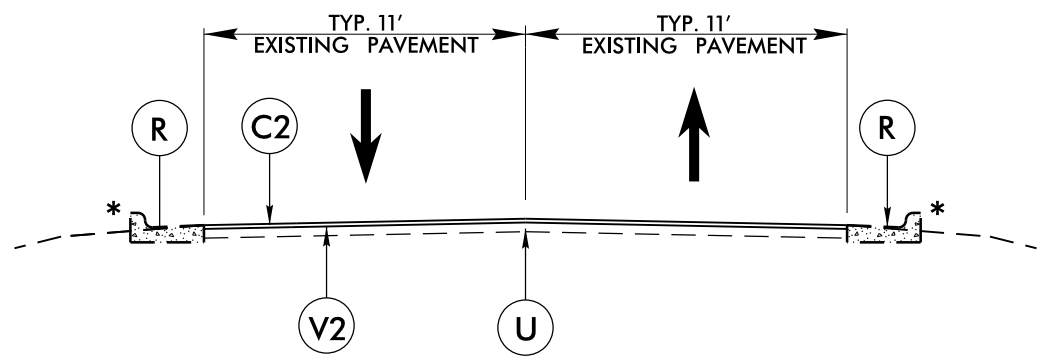
\* VARIABLE OUTSIDE SHOULDER - PARTIAL C&G, PARTIAL EARTH SHOULDER



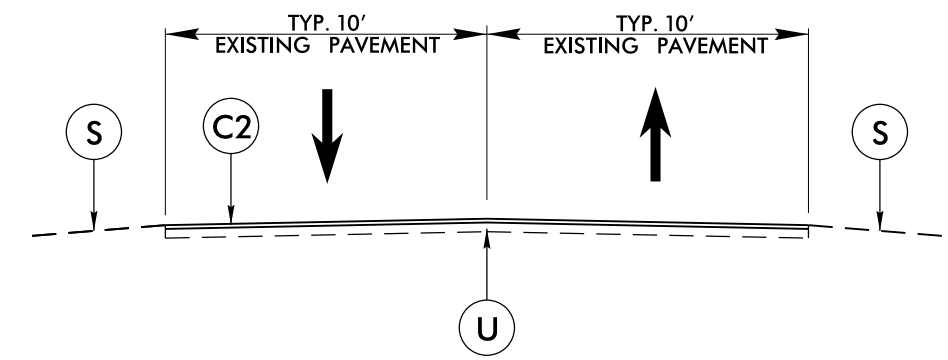
**TYPICAL SECTION 13**  
 RESURFACE S9.5B  
 MAP NOS. 16, 20-27, 53-54



**TYPICAL SECTION 14**  
 FULL DEPTH PATCHING AND RESURFACE S9.5B  
 MAP NOS. 56, 59, 63, 65



**TYPICAL SECTION 15**  
 MILL AND RESURFACE S9.5B  
 MAP NO. 55, 57-58, 60, 62, 64, 66-67



**TYPICAL SECTION 16**  
 FULL DEPTH PATCHING AND RESURFACE S9.5B  
 MAP NOS. 29, 31-36, 39, 61

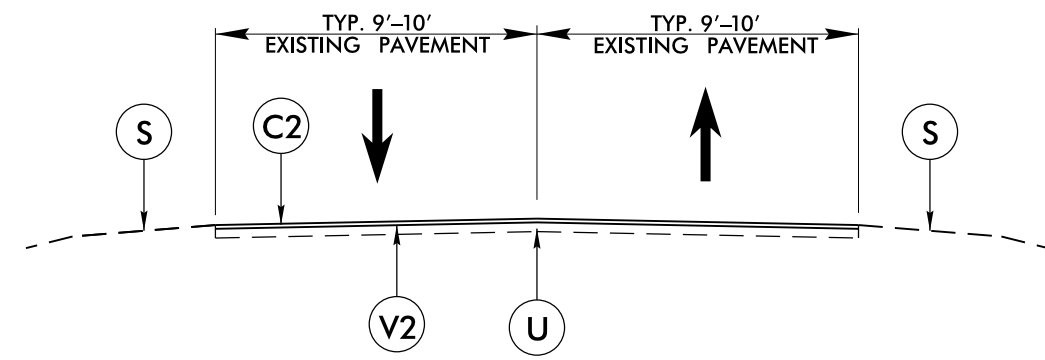
6/2/09

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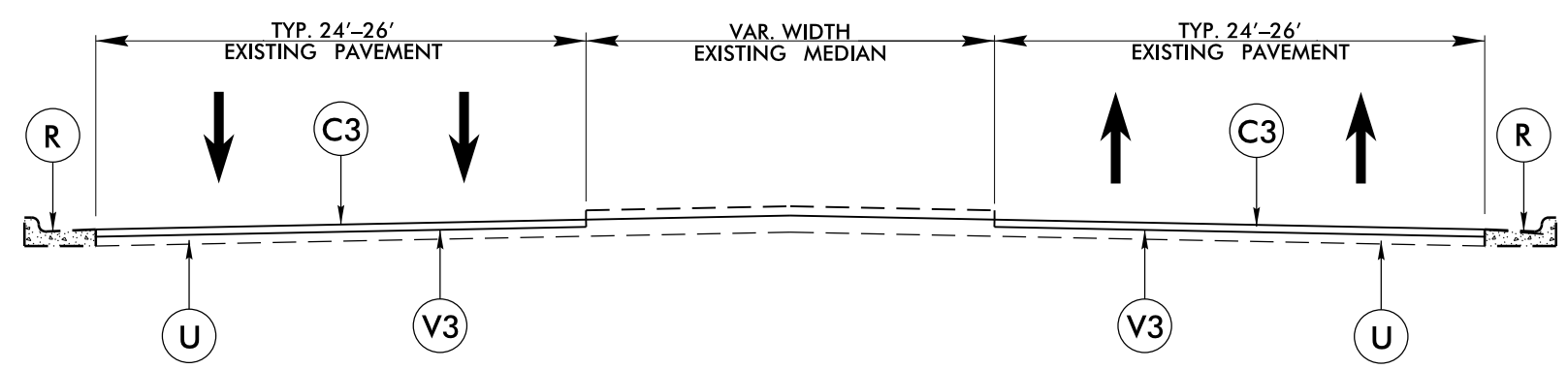
PAVEMENT SCHEDULE	
B1	3/4" OGAF C FC-1 MODIFIED
C1	1" S9.5B
C2	1 1/4" S9.5B
C3	1 1/2" S9.5B
C4	2" S9.5B
E1	5.5" B25.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	3/4" MILLING
V2	1 1/4" MILLING
V3	1 1/2" MILLING
V4	0-1 1/4" MILLING
V5	0-1 1/2" MILLING

2020 EAST WAKE RESURFACING

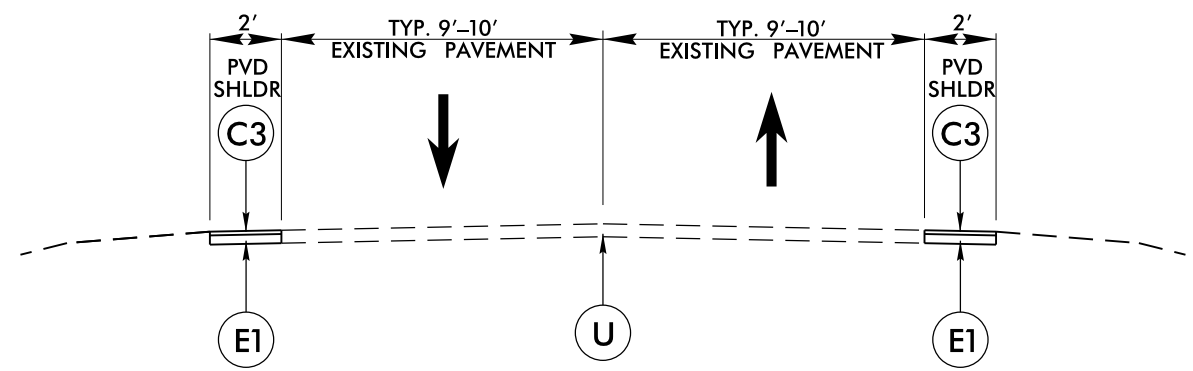
PROJECT REFERENCE NO. 2020CPT.05.14.20921J, etc.	SHEET NO. 14
<small>           Prepared in the Office of:  <b>SUMMIT</b>            NC FIRM LICENSE No: P-0339            504 Meadows Road            Hillsborough, NC 27278            (919) 732-5883 ~ (919) 732-6676 (FAX)         </small>	



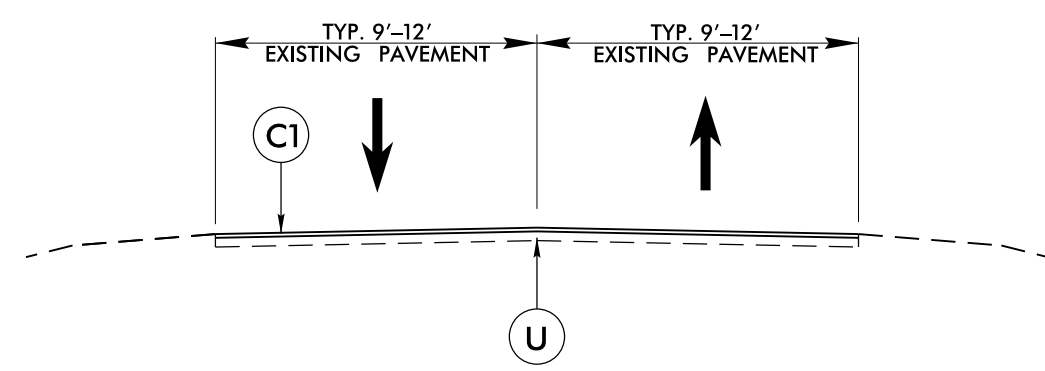
**TYPICAL SECTION 17**  
 MILL AND RESURFACE S9.5B  
 MAP NOS. 30, 50, 75, 78-82



**TYPICAL SECTION NO. 18**  
 MILL AND RESURFACE S9.5B  
 MAP NO. 68 (CENTENNIAL PKWY)



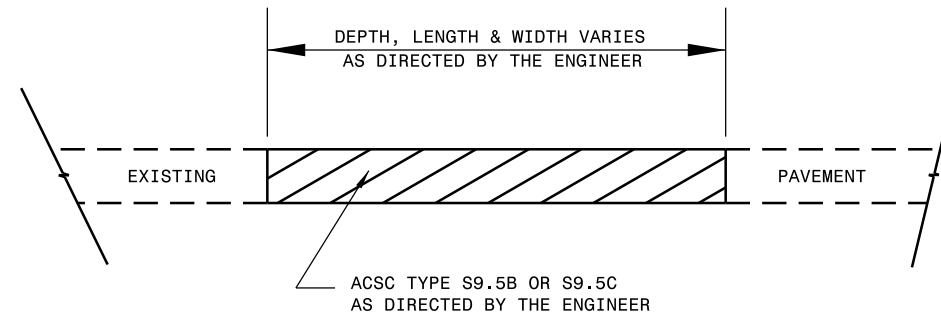
**TYPICAL SECTION 19**  
 WIDENING S9.5B  
 MAP NO. 85 (EAGLE ROCK RD)



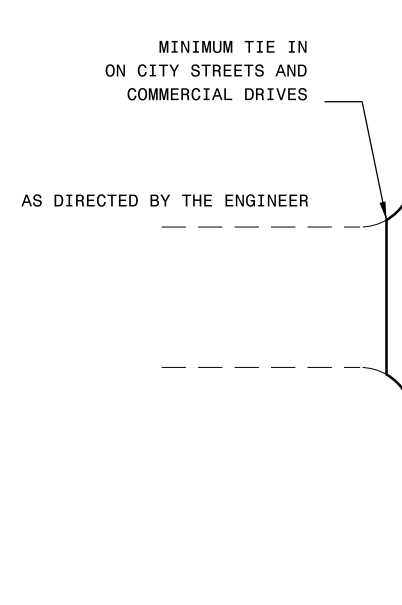
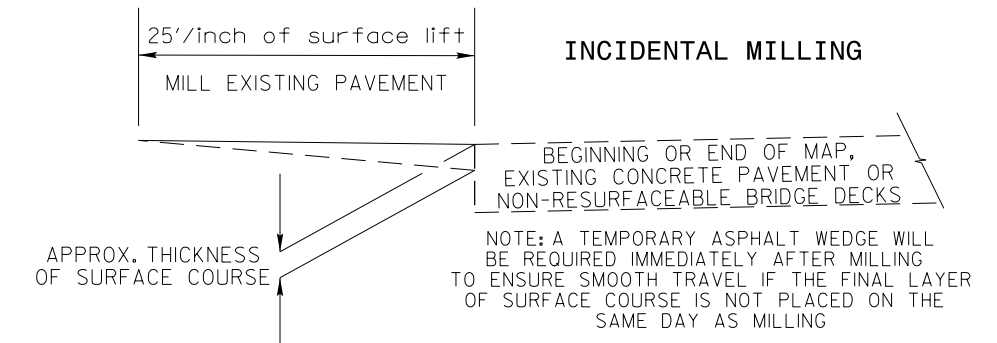
**TYPICAL SECTION 20**  
 RESURFACE S9.5B  
 MAP NO. 37



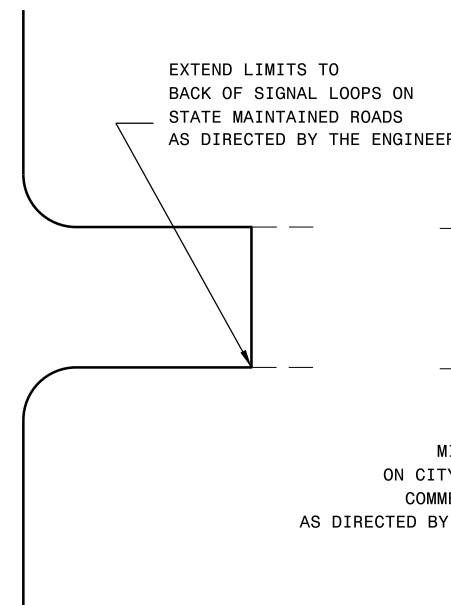
PAVEMENT SCHEDULE	
B1	3/4" OGAFc FC-1 MODIFIED
C1	1" S9.5B
C2	1 1/4" S9.5B
C3	1 1/2" S9.5B
C4	2" S9.5B
E1	5" B25.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	3/4" MILLING
V2	1 1/4" MILLING
V3	1 1/2" MILLING
V4	0-1 1/4" MILLING
V5	0-1 1/2" MILLING



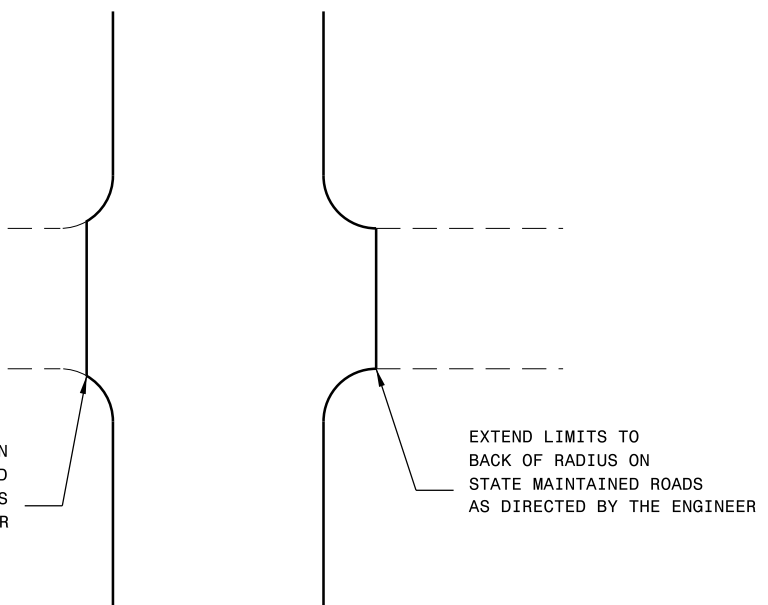
**PATCHING EXISTING PAVEMENT**  
MILLING TO BE PERFORMED PRIOR TO PATCHING



**DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES**



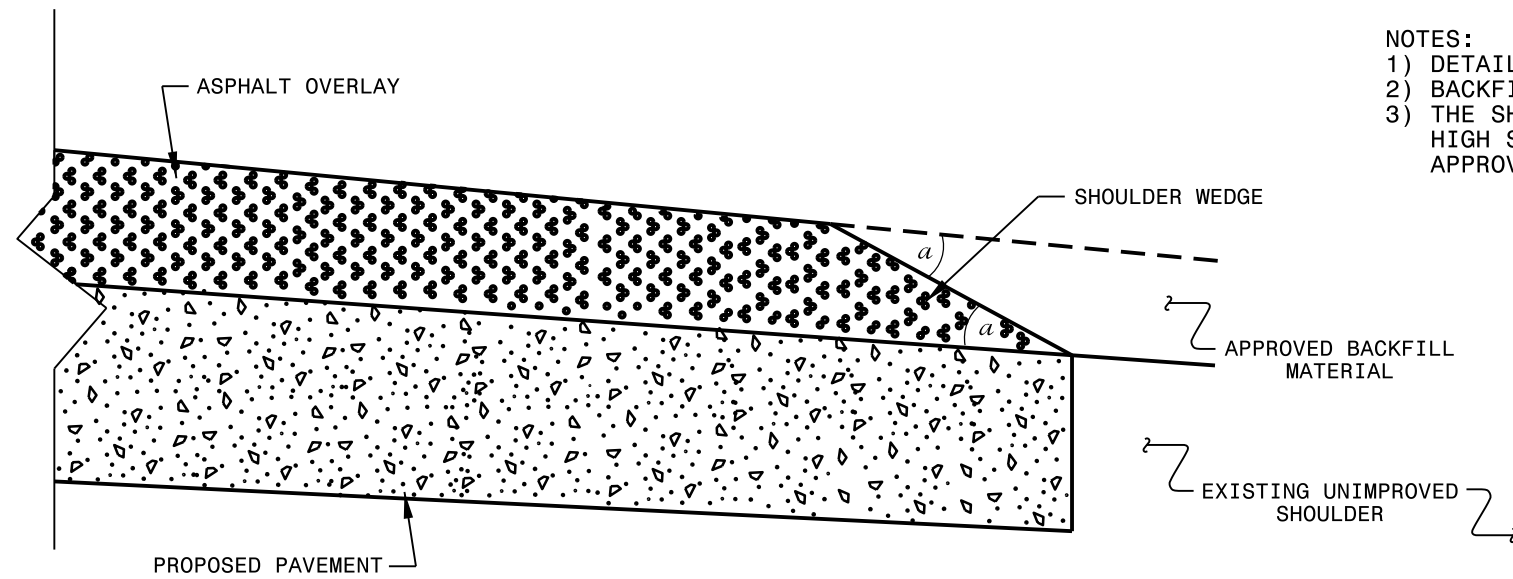
**DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES**



6/2/09  
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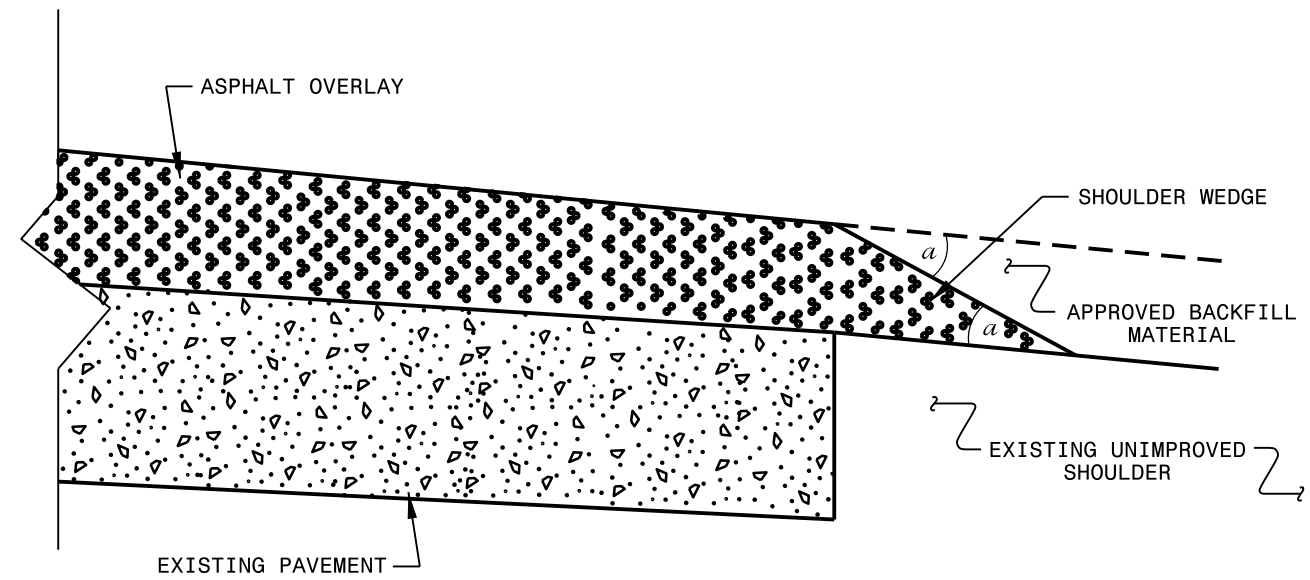
**NOTES:**

- 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.



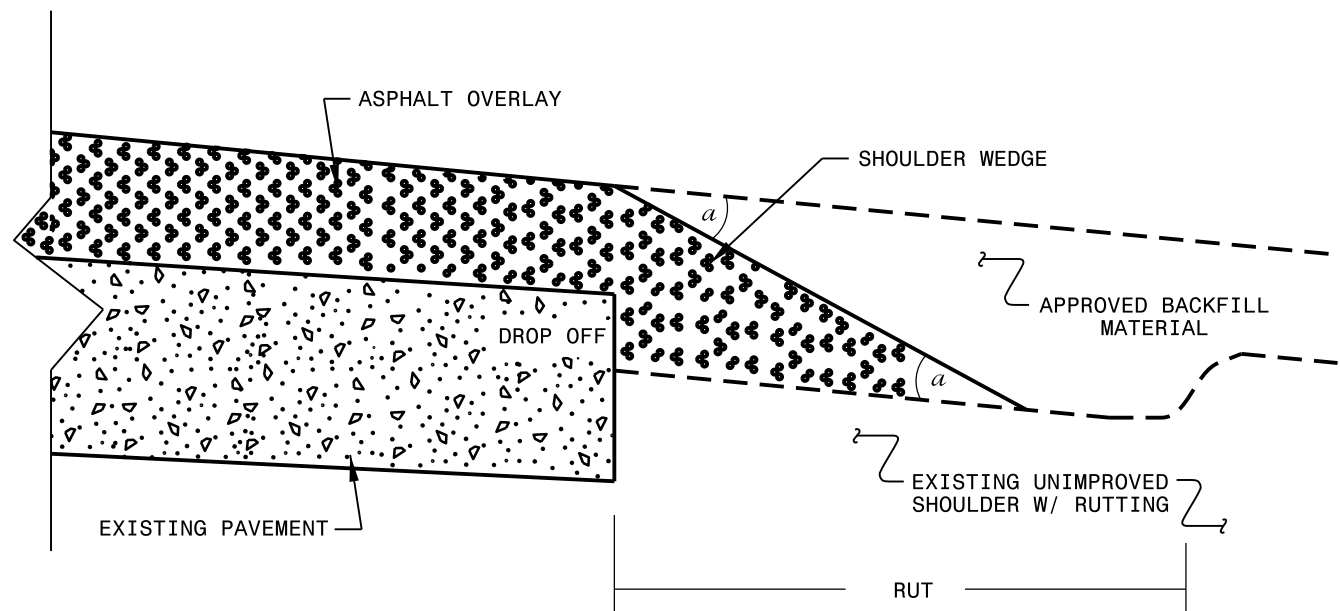
**SHOULDER WEDGE DETAIL**

(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°

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

**SHOULDER WEDGE DETAILS**

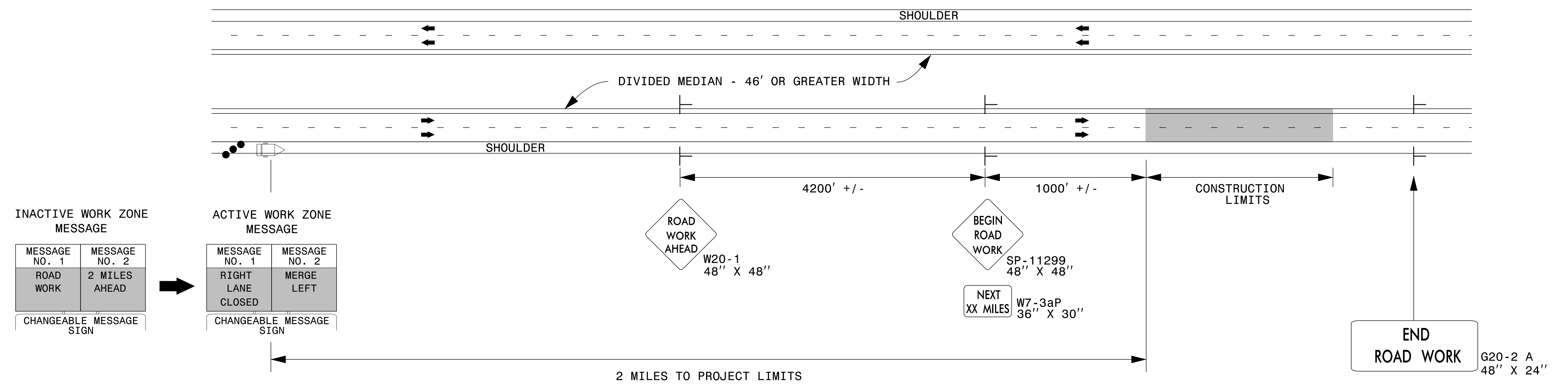
ORIGINAL BY: T.SPELL DATE: 7-19-11  
 MODIFIED BY: DATE: 2/2/16  
 CHECKED BY: DATE:  
 FILE SPEC.: szusr/details/stand/shoulderwedgedetail.dgn

## SUMMARY OF QUANTITIES

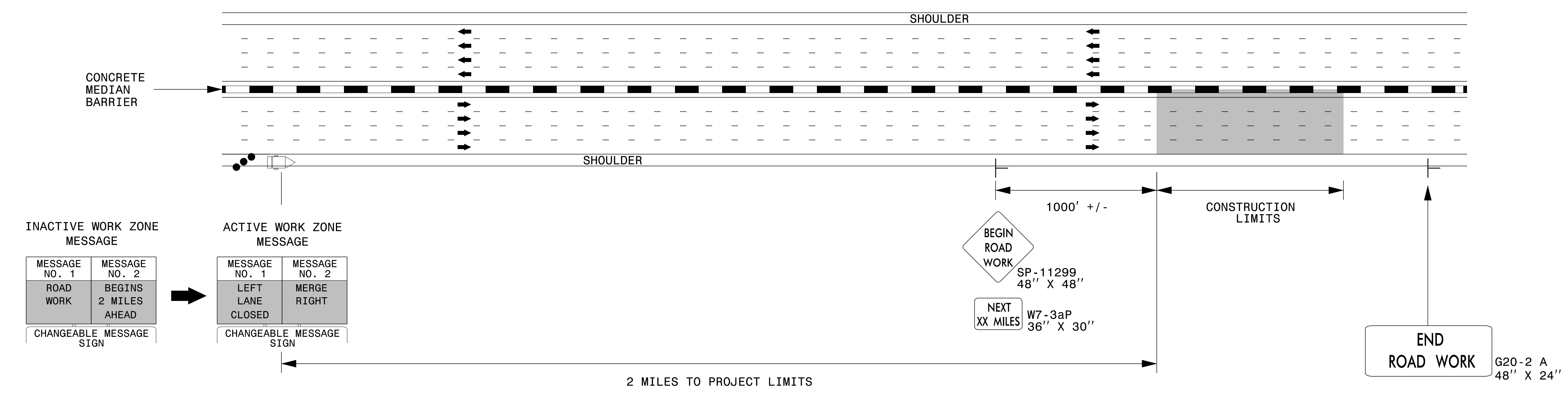
PROJECT NO	COUN TY	MA P NO	ROUTE	DESCRIPTION	TYP NO	LA NE S	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGT H MI	WID TH FT	BORROW CY	SHOULDER GRADING SMI	INCIDENTAL STONE BASE TONS	ASB TON	1 1/2" MILLING SY	0.75" MILLING SY	1.25" MILLING SY	0" TO 1.5" MILLING SY	0" TO 1.25" MILLING SY	INCI- DENTAL MILLING SY	BASE COURSE, B25.0C TONS	SURFACE COURSE, S9.5B TONS	ASPHALT BINDER FOR PLANT MIX TON	POLYMER MODIFIED ASPH. BINDER FOR PLANT MIX TON	OPEN-GRADED ASPH. FRICTION COURSE, TYPE FC-1 MODIFIED TON	PATCHING EXISTING PAVEMENT TONS	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOXES EA	TEMP. SILT FENCE LF	WATTL E LF	SEED & MULCHIN G AC	INDUCTIVE LOOP SAWCUT LF				
																																	NO	NO	NO	NO
2020CPT.05.14.10921.1	Wake	1	US 264A	NC 39 - JOHNSTON CO.	1	2	NO	NO	0.53	22	17	1.32	33	91	8,518							742	50			50				24	60	0.24				
			2	NC 39	JOHNSTON CO - US 264A	2	3	NO	NO	0.67	38	17	1.34	34	93								595	1,298	87				1	24	70	0.24				
			TOTAL FOR PROJ NO. 2020CPT.05.14.10921.1								1.2	34	34	2.66	67	184	8,518							595	2,040	137		60			1	48	130	0.48		
2020CPT.05.14.10922.1	Wake	3	US 64	SR 1003 (ROLESVILLE RD) - US 64 BUS - WEST BOUND LANE	3	3	NO	NO	0.43	44	43	0.86	22																63	160	0.63					
TOTAL FOR PROJ NO. 2020CPT.05.14.10922.1								0.43	43	43	0.86	22																	63	160	0.63					
2020CPT.05.14.20921.1	Wake	1	4 SR 2216 (RALEIGH BEACH RD)	SR 2293 (CARP RD) - END OF MAINTENANCE/ALLEN DR	4	2	NO	NO	0.75	32	17	0.92	23	42				1,369			1,365	77			120				33	90	0.33					
			5 SR 2387 (E JUDD ST)	US 64 BUS - SR 2406 (SHEPARD SCHOOL RD)	5	2	NO	NO	0.3	24	9	0.60	15		15								415	25			100				44	110	0.44			
			6 SR 2397 (RIVERVIEW DR)	NC 97 - DEAD END	6	2	NO	NO	0.36	20							4,224								25											
			7 SR 2398 (TEDDY LN)	SR 2397 (RIVERVIEW DR) - SR 2399 (SAN PADEE DR)	6	2	NO	NO	0.05	21															4											
			8 SR 2399 (SAN PADEE DR)	NC 97 - SR 2398 (TEDDY LN)	6	2	NO	NO	0.15	24															12											
			9 SR 2400 (DEBBIE LN)	SR 2399 (SAN PADEE DR) - DEAD END	6	2	NO	NO	0.06	23							810								5											
			10 SR 2404 (OLD US 264)	NC 97 - NC 39	1	2	NO	YES	1.65	25	41	3.30	83	229	24,200										141		390				60	150	0.60			
			11 SR 2421 (WINCHESTER DR)	SR 2321 (RILEY HIGH SCHOOL RD) - CUL-DE-SAC	7	2	NO	NO	0.75	20	75	1.50	38							8,800					43			25				109	280	1.09		
			12 SR 2538 (MECHANICAL BLVD)	SR 4753 (OLD MECHANICAL CT) - US 70	8	3	NO	NO	0.36	28	19	0.74	19	34	5,914										46			8	3	2	27	30	0.27			
			13 SR 2548 (AUBURN CHURCH RD)	SR 5220 (JONES SAUSAGE RD) - SR 5225 (G ST) - SKIP FIRST 450 FT FROM SR 5220	5,9	3	NO	NO	1.71	28	34	3.36	84	248						151				564	164			210			49	130	0.49			
			14 SR 2576 (DANIEL CIR)	SR 2516 (HODGE RD) - SR 2516 (HODGE RD)	1	2	NO	NO	0.28	18	28	0.56	14		2,957										17			90			41	110	0.41			
			15 SR 2589 (WESTOVER DR)	JOINT BEFORE US 64 BUS - SR 2593 (WHITFIELD ST)	7	2	NO	NO	0.37	20									4,341						21											
			16 SR 2590 (SATTERWHITE DR)	SR 2516 (HODGE RD) - SR 2589 (WESTOVER DR)	13	2	NO	NO	0.5	20	50	1.00	25												23			60				73	190	0.73		
			17 SR 2591 (HINTON ST)	SR 2590 (SATTERWHITE DR) - SR 2593 (WHITFIELD ST)	7	2	NO	NO	0.2	22										2,581					13											
			18 SR 2592 (GREEN ST)	SR 2516 (HODGE RD) - SR 2591 (HINTON ST)	7	2	NO	NO	0.13	20					0.26	7				1,525					7											
			19 SR 2593 (WHITFIELD ST)	SR 2516 (HODGE RD) - SR 2589 (WESTOVER DR)	7	2	NO	NO	0.33	20					0.66	17									19											
			20 SR 2603 (KIRVIN CT)	SR 2590 (SATTERWHITE DR) - CUL-DE-SAC	13	2	NO	NO	0.11	23	11	0.22	6												6			45				16	40	0.16		
			21 SR 2610 (POOLE CT)	SR 2593 (WHITFIELD ST) - CUL-DE-SAC	13	2	NO	NO	0.13	21	13	0.26	7												6			55				19	50	0.19		
			22 SR 2611 (DEAN PL)	SR 2610 (POOLE CT) - CUL-DE-SAC	13	2	NO	NO	0.13	21	13	0.26	7												6			30				19	50	0.19		
			23 SR 2624 (ALLEN CT)	SR 2589 (WESTOVER DR) - CUL-DE-SAC	13	2	NO	NO	0.06	26	6	0.12	3												4			18				9	30	0.09		
			24 SR 2627 (ALLISON DR)	SR 2589 (WESTOVER DR) - SR 2658 (MILBURNIE RD)	13	2	NO	NO	0.27	20	27	0.54	14												12			35				39	100	0.39		
			25 SR 2628 (SCOTT CT)	SR 2627 (ALLISON DR) - CUL-DE-SAC	13	2	NO	NO	0.05	30	5	0.10	3												3			15				7	20	0.07		
			26 SR 2658 (MILBURNIE RD)	SR 2627 (ALLISON DR) - SR 4164 (CLIFFVIEW DR)	13	2	NO	NO	0.19	20	19	0.38	10												9			60				28	70	0.28		
			27 SR 2663 (GRAYSON CT)	SR 2627 (ALLISON DR) - CUL-DE-SAC	13	2	NO	NO	0.11	23	11	0.22	6												6			35				16	40	0.16		
			28 SR 2674 (MEADOW RUN)	SR 2233 (S SMITHFIELD RD) - SR 4133 (WALTON HILL RD)	10	2	NO	NO	0.8	21	80	1.60	40												48			170	5	2		116	300	1.16		
			29 SR 2675 (N BEND DR)	CUL-DE-SAC - CUL-DE-SAC	16	2	NO	NO	0.38	22	38	0.76	19												24			8			1	55	140	0.55		
			30 SR 2685 (SANDY RUN)	SR 2233 (S SMITHFIELD RD) - END OF MAINTENANCE AT MAILBOX #5951	17	2	NO	NO	0.72	21	72	1.44	36						8,870						43			15				105	270	1.05		
			31 SR 2685 (SANDY RUN)	SR 2689 (PINE RUN) - SR 2233 (S SMITHFIELD RD)	16	2	NO	NO	0.55	23	55	1.10	28												36			220				80	200	0.80		
			32 SR 2686 (COY PL)	SR 2685 (SANDY RUN) - CUL-DE-SAC	16	2	NO	NO	0.04	30	4	0.08	2												3							6	20	0.06		
			33 SR 2687 (S BEND DR)	SR 2685 (SANDY RUN) - CUL-DE-SAC	16	2	NO	NO	0.3	26	30	0.60	15												22			6	2	1		44	110	0.44		
			34 SR 2688 (LINK RD)	SR 2675 (N BEND DR) - SR 2685 (SANDY RUN)	16	2	NO	NO	0.09	20	9	0.18	5												5			5				13	40	0.13		
			35 SR 2689 (PINE RUN)	SR 2685 (SANDY RUN) - SR 4118 (DWELLING PL)	16	2	NO	NO	0.28	20	28	0.56	14												16			60	1	2		41	110	0.41		
			36 SR 2690 (WOODS RUN)	CUL-DE-SAC - CUL-DE-SAC	16	2	NO	NO	0.42	22	42	0.84	21												26			51				61	160	0.61		
			37 SR 2695 (BLALOCK CT)	SR 2590 (SATTERWHITE DR) - CUL-DE-SAC	20	2	NO	NO	0.04	31	4	0.08	2												3							6	20	0.06		
			38 SR 2715 (WOODLAND RD)	SR 2812 (TIMBER DR) - SR 2713 (VANDORA SPRINGS RD)	11	2	NO	NO	0.68	29	45	0.91	23				8,777								49			205				66	170	0.66		
			39 SR 4118 (DWELLING PL)	CUL-DE-SAC - CUL-DE-SAC	16	2	NO	NO	0.2	26	20	0.40	10												15			50	2			29	80	0.29		
			40 SR 4133 (WALTON HILL RD)	SR 2233 (S SMITHFIELD RD) - SR 2674 (MEADOW RUN)	10	2	NO	NO	0.74	21	74	1.48	37												44			200	16			108	270	1.08		
			41 SR 4134 (RENEE CT)	SR 4133 (WALTON HILL RD) - CUL-DE-SAC	10	2	NO	NO	0.08	28	8	0.16	4												6			5	2			12	30	0.12		
			42 SR 4135 (RANCO RUN)	SR 4133 (WALTON HILL RD) - CUL-DE-SAC	10	2	NO	NO	0.03	34	3	0.06	2												3							1	2	4	20	0.04
			43 SR 4137 (FAIRBLUFF LN)	SR 4133 (WALTON HILL RD) - CUL-DE-SAC	10	2	NO	NO	0.04	33	4	0.08	2												4			3	1	1		6	20	0.06		
			44 SR 4144 (LANTIS LN)	SR 4133 (WALTON HILL RD) - CUL-DE-SAC	10	2	NO	NO	0.03	38	3	0.06	2												3			4				1	3	4	20	0.04
			45 SR 4145 (BONAIRE WAY)	SR 2674 (MEADOW RUN) - SR 2685 (SANDY RUN)	7	2	NO	NO	0.34																											



### DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



### DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER

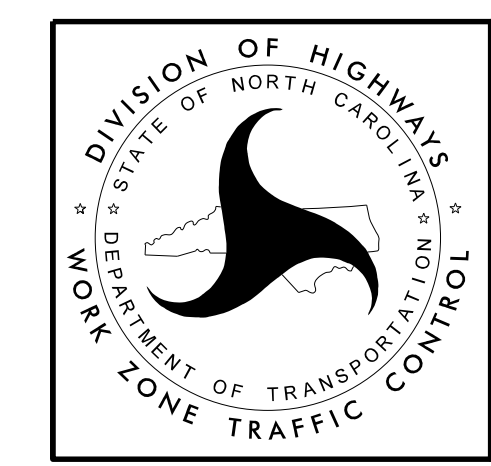


**NOTES:**

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 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) FOR MEDIAN WIDTHS LESS THAN 46' (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
- 4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 5) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMP 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMP WITHIN THE WORK ZONE.
- 6) 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 AND WITH DIVIDED MEDIANS OF 46' OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

**LEGEND**

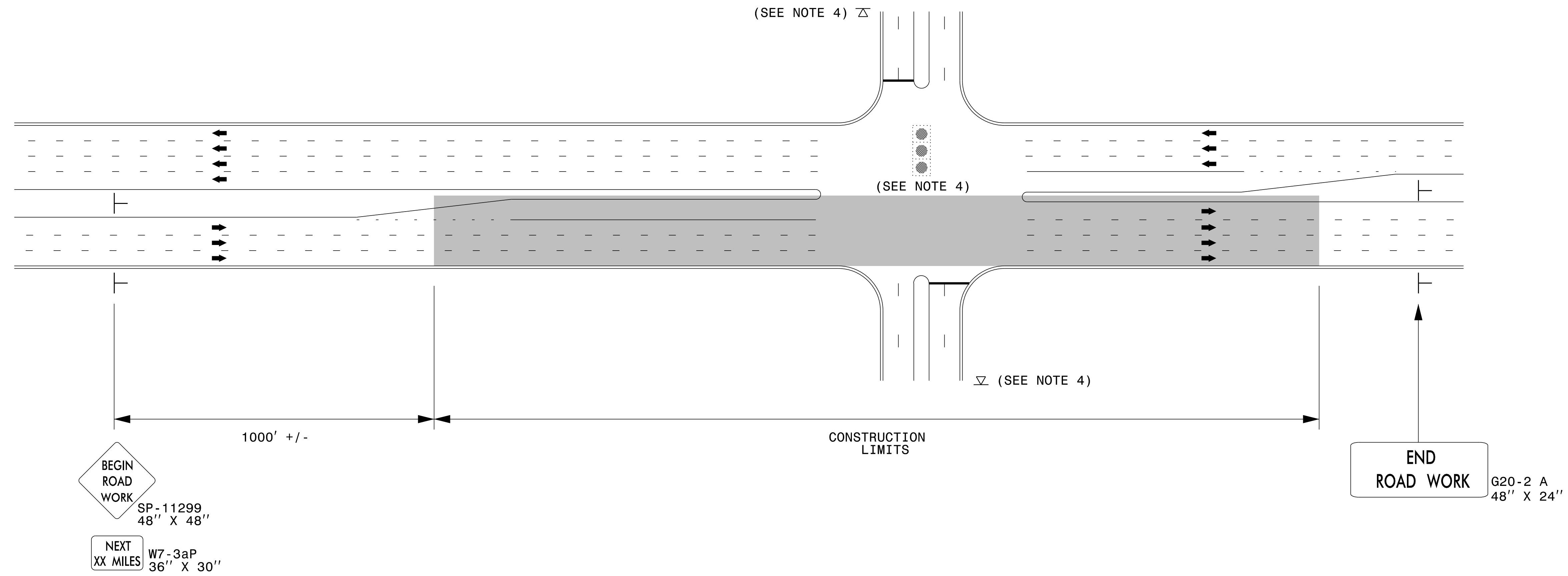
- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



**RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH**

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## URBAN / SUBURBAN WORKZONES



**NOTES:**

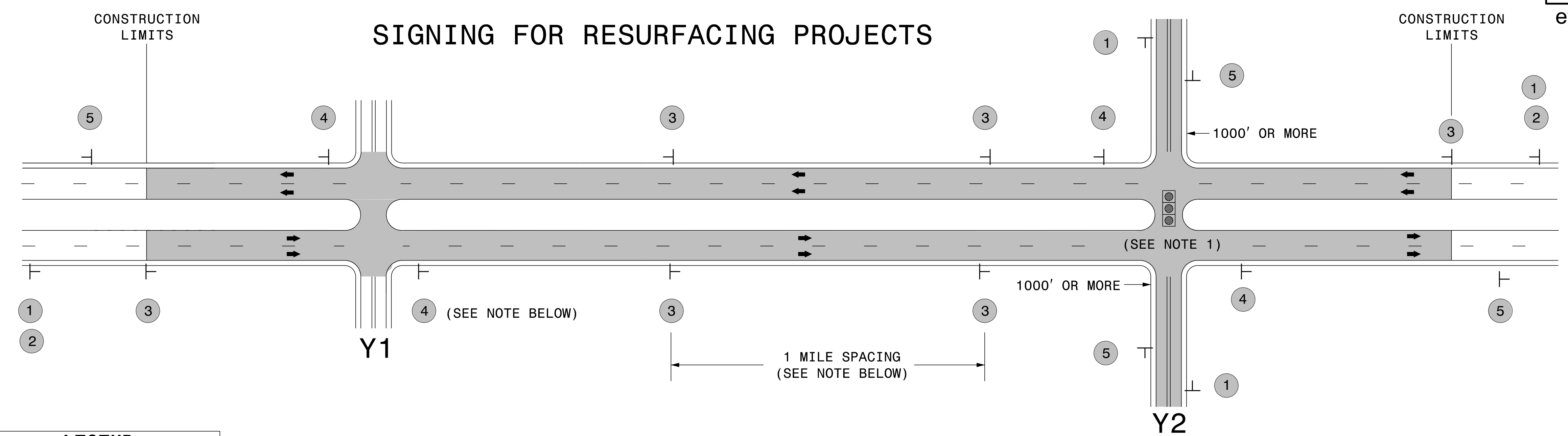
- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. 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

	<p><b>RESURFACING ADVANCE WARNING SIGNS FOR URBAN / SUBURBAN FACILITIES</b></p>
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**LEGEND**  
 ┆ STATIONARY SIGN  
 ← DIRECTION OF TRAFFIC FLOW

**MAINLINE (-L-) SIGNING**

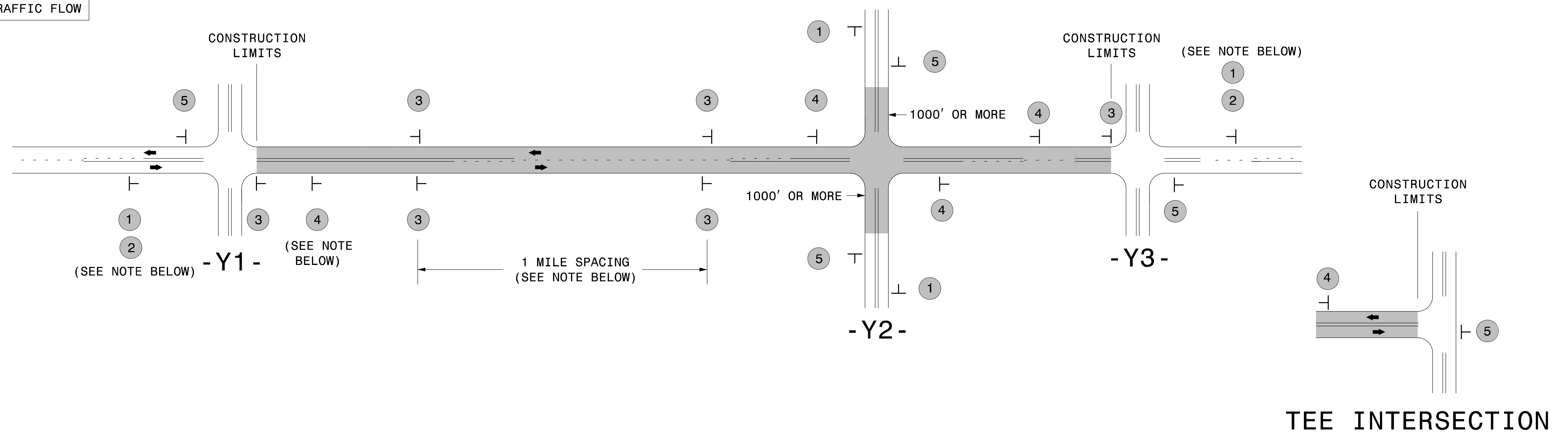
**-Y- LINE SIGNING**

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	 W20-1 48" X 48"	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; align-items: center;"> <div style="text-align: center;">           W20-1          48" X 48"       </div> <div style="text-align: center;">           W20-7 A          48" X 48"       </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	 W7-3aP 24" X 18"	#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	 SP 13107 48" X 48"	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	 SP 13106 48" X 48"	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	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.	

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

# SIGNING FOR RESURFACING PROJECTS

**LEGEND**  
 ┆ STATIONARY SIGN  
 ← DIRECTION OF TRAFFIC FLOW



## MAINLINE (-L-) SIGNING

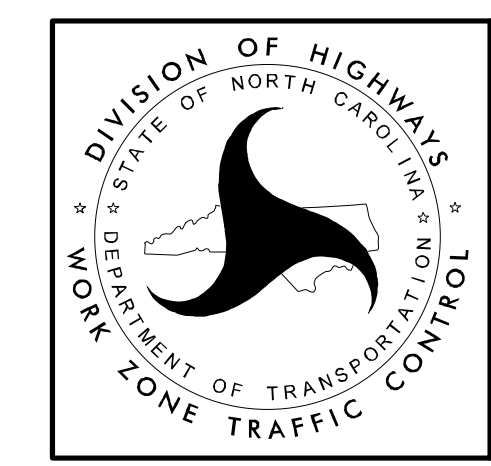
## -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1		PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</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, PORTABLE ADVANCE WARNING 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;">             PLACED 500' IN ADVANCE OF FLAGGER.         </div> <div style="text-align: center;">             PLACED 250' IN ADVANCE OF FLAGGER.         </div> </div>
	2		#2 SIGN ONLY USED WHEN CONSTRUCTION LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	3		- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 1/2 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.	
	4		- 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. - FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE.	
	5		PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.	

THE ABOVE SIGNS ARE ALL THAT ARE REQUIRED FOR A CONTRACTOR TO BEGIN A RESURFACING CONTRACT. ANY ADDITIONAL SIGNS REQUESTED BY NCDOT DIVISIONS SHALL BE INSTALLED WITHIN 7 BUSINESS DAYS OF THE START OF CONTRACT WORK.

### MAPS LESS THAN 2 MILES

FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.



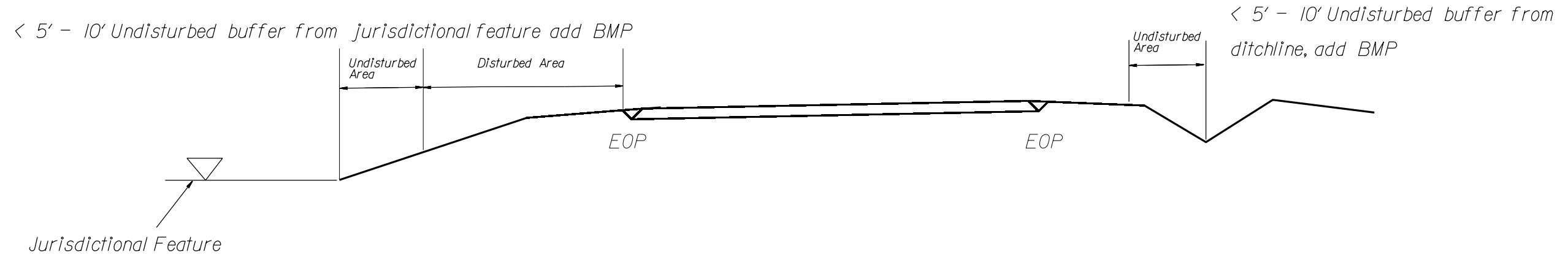
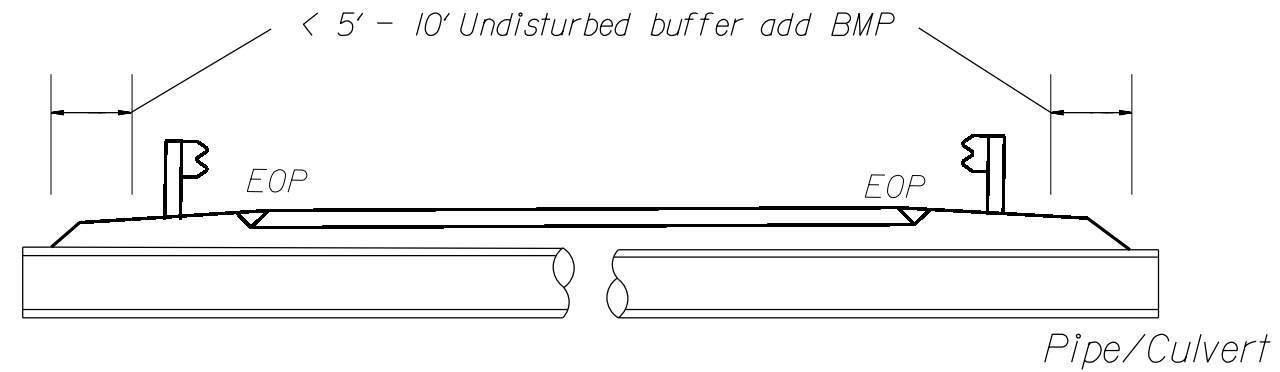
ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2-LANE ROADWAY RESURFACING

5/15/2017 S:\TMU\WZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing\_AdvWarn\_2Ln.dgn User:kadai

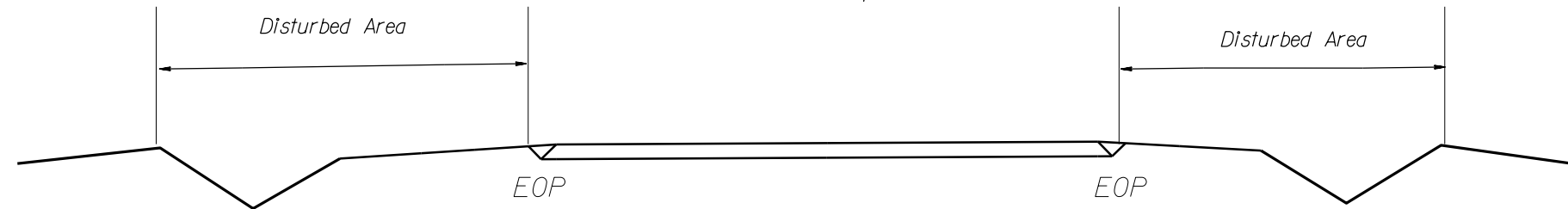
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle, Silt Fence or Hardened Aggregate.

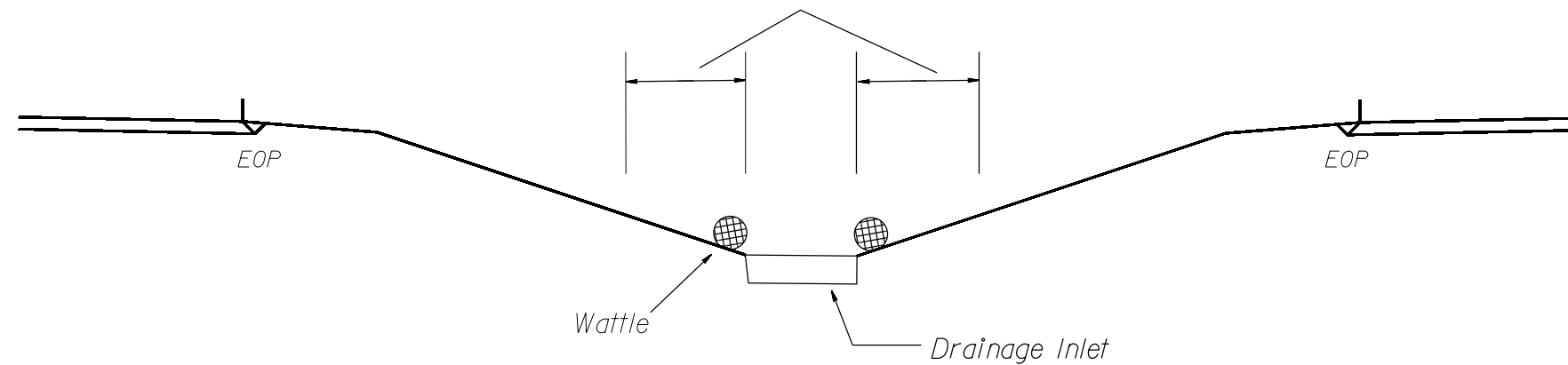
# EROSION CONTROL DETAIL



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

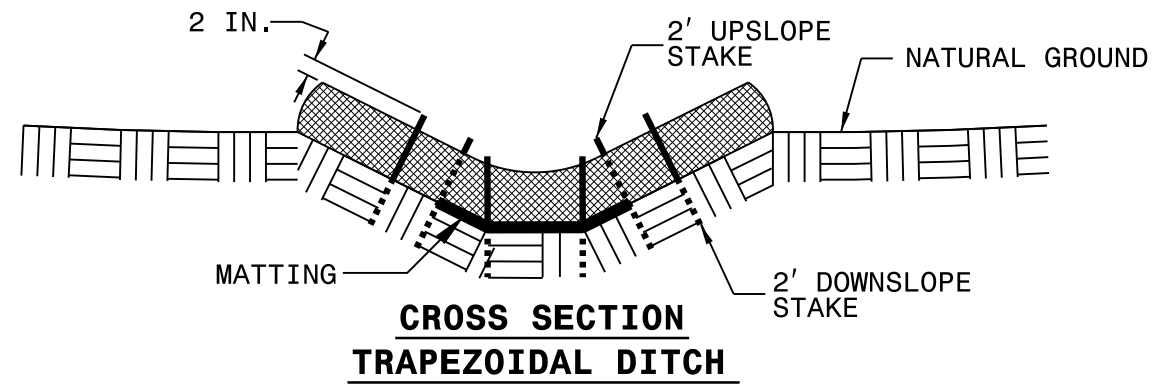
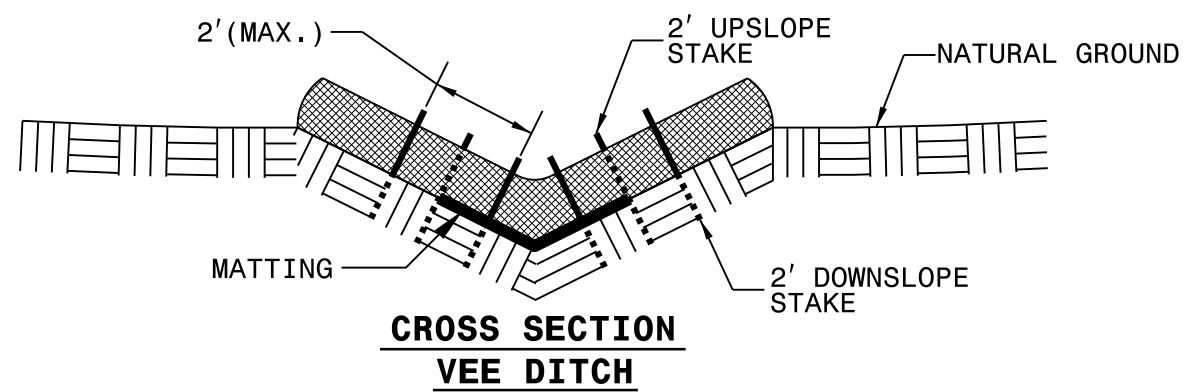
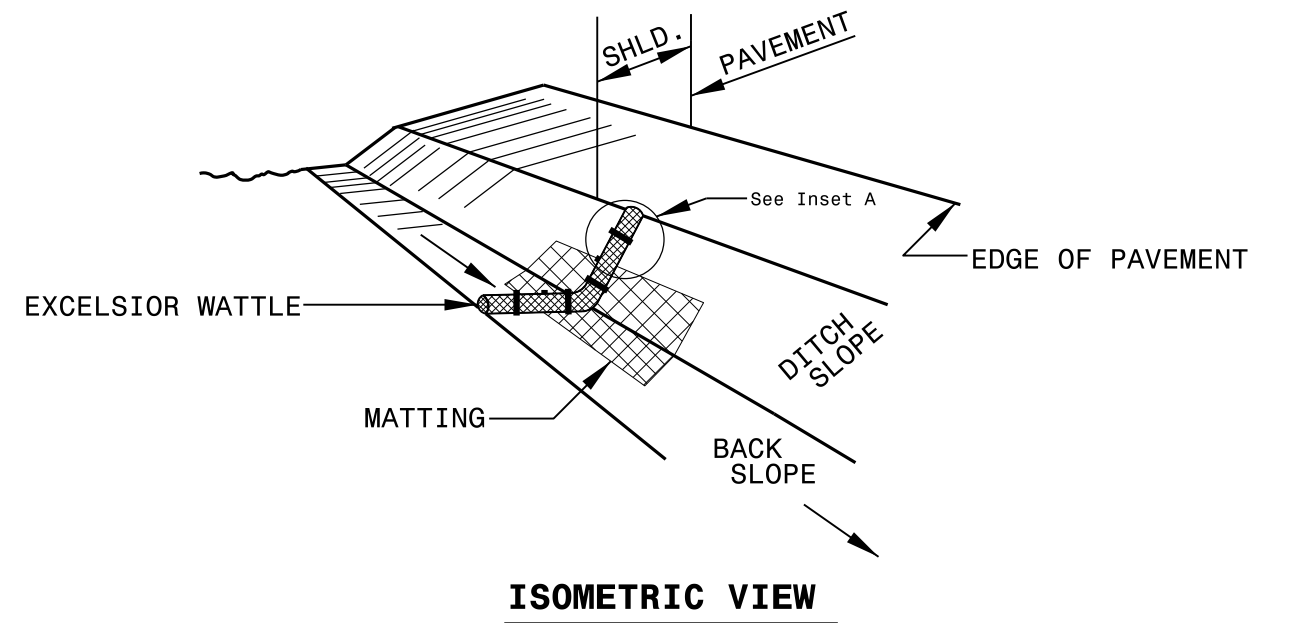


< 5' - 10' Undisturbed buffer from inlet, add wattle



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.

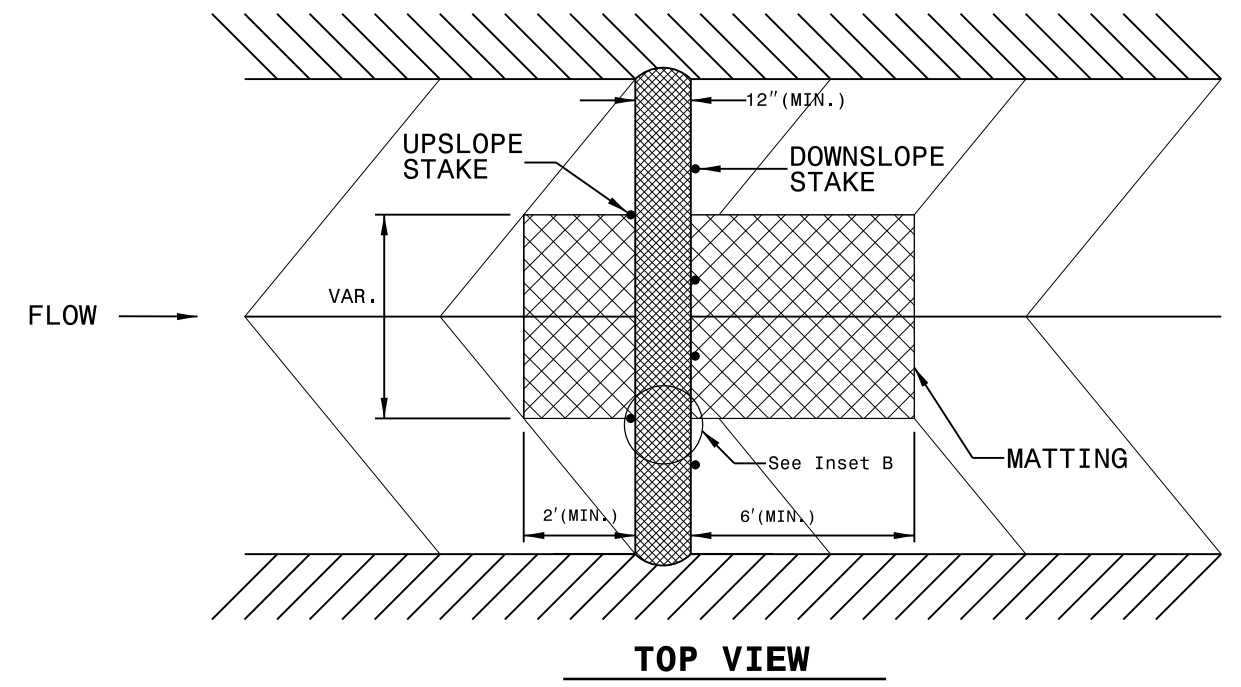
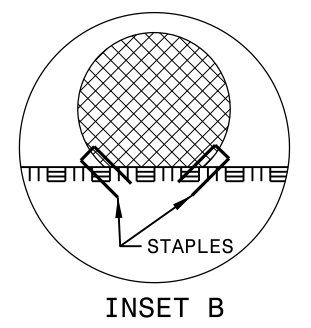
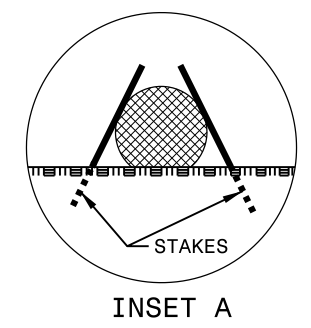
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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.



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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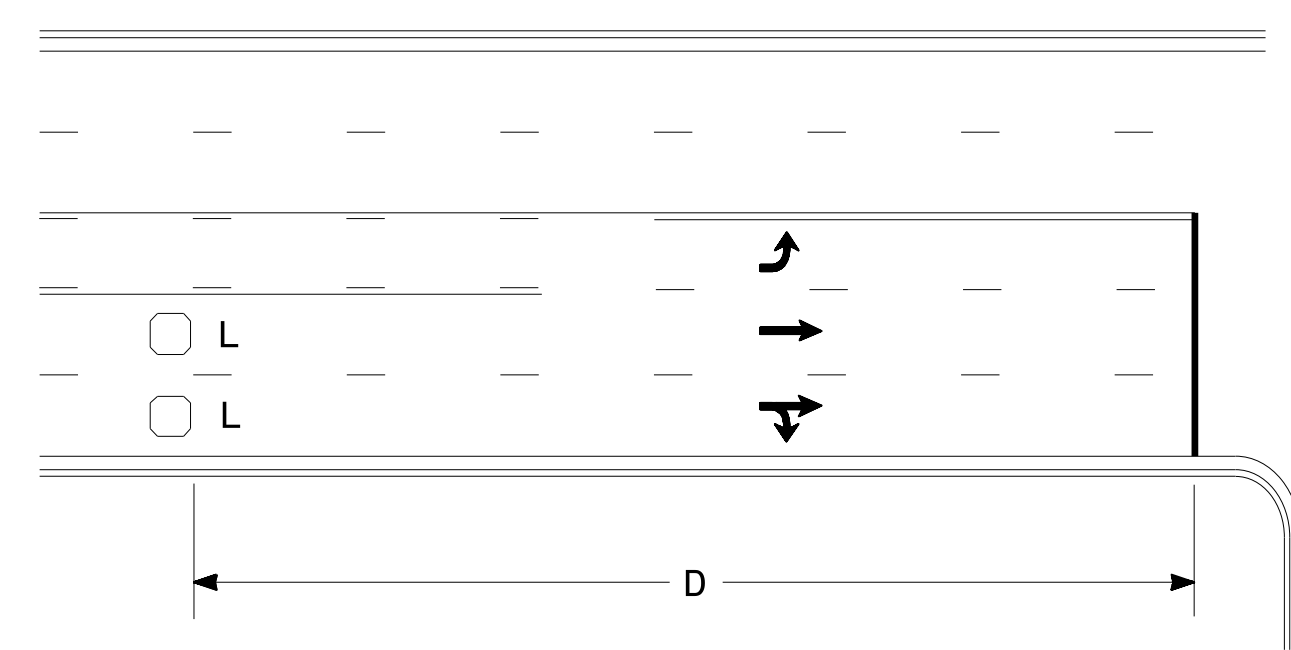
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# *SOIL STABILIZATION TIMEFRAMES*

PROJECT REFERENCE NO.	SHEET NO.
2020CPT.05.14.10921.1, EC-3	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

<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.

### High Speed Detection (≥40 mph)

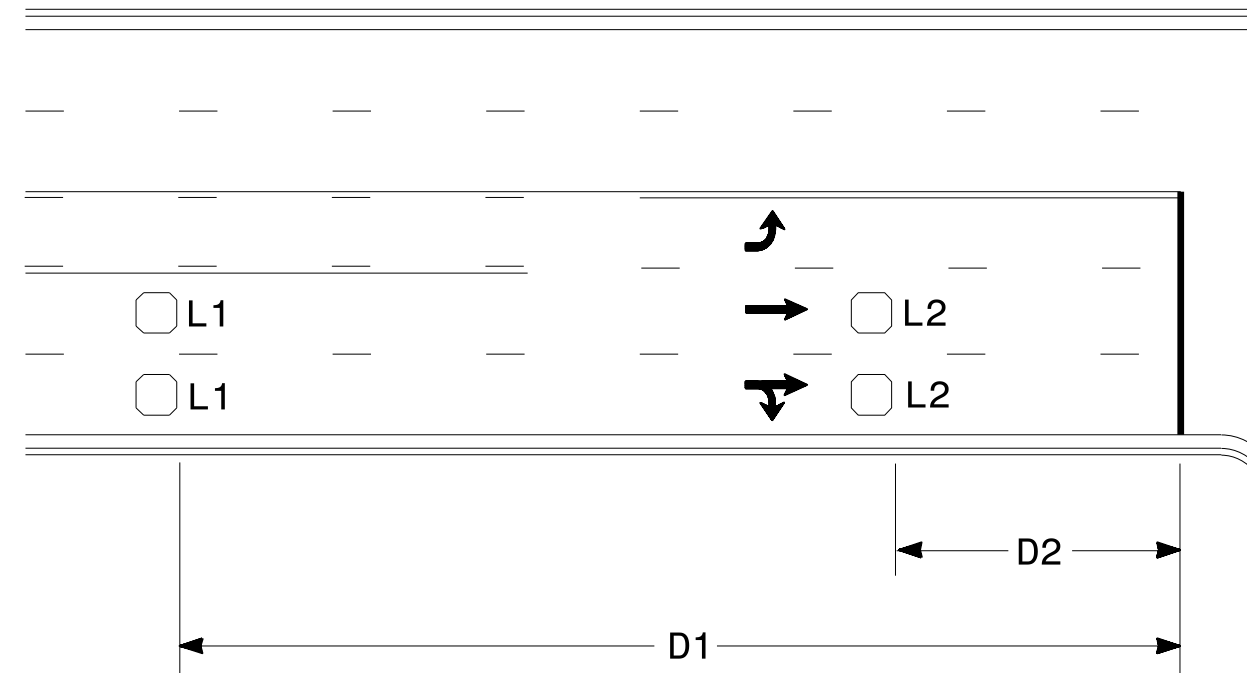


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

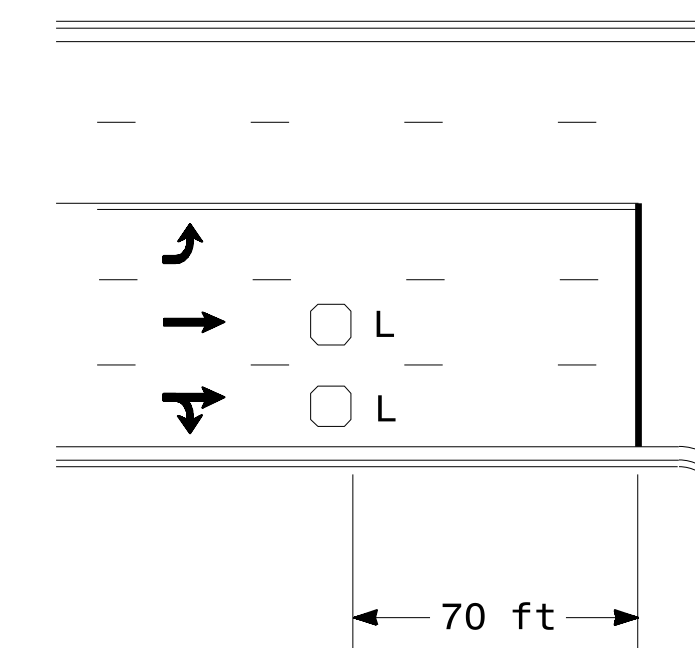


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

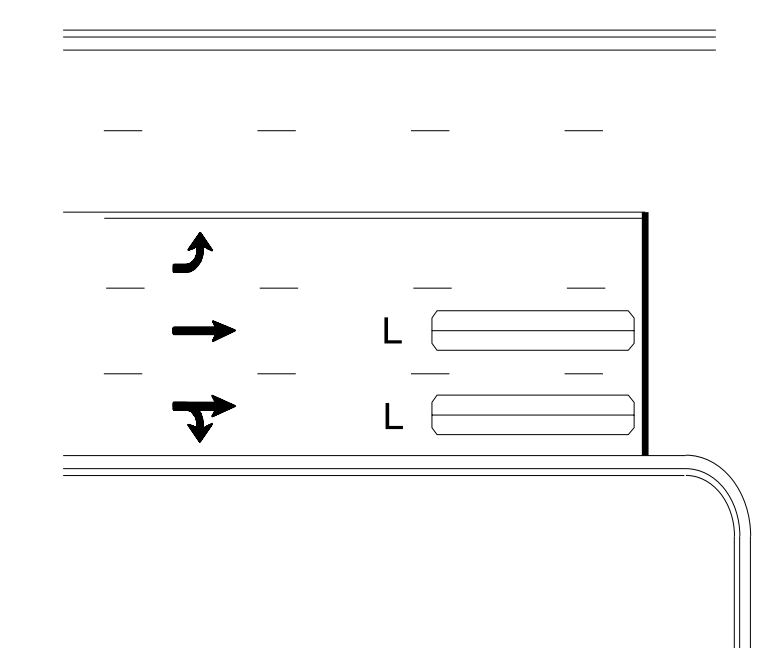
"Stretch" Operation

### Low Speed Detection (≤35 mph)



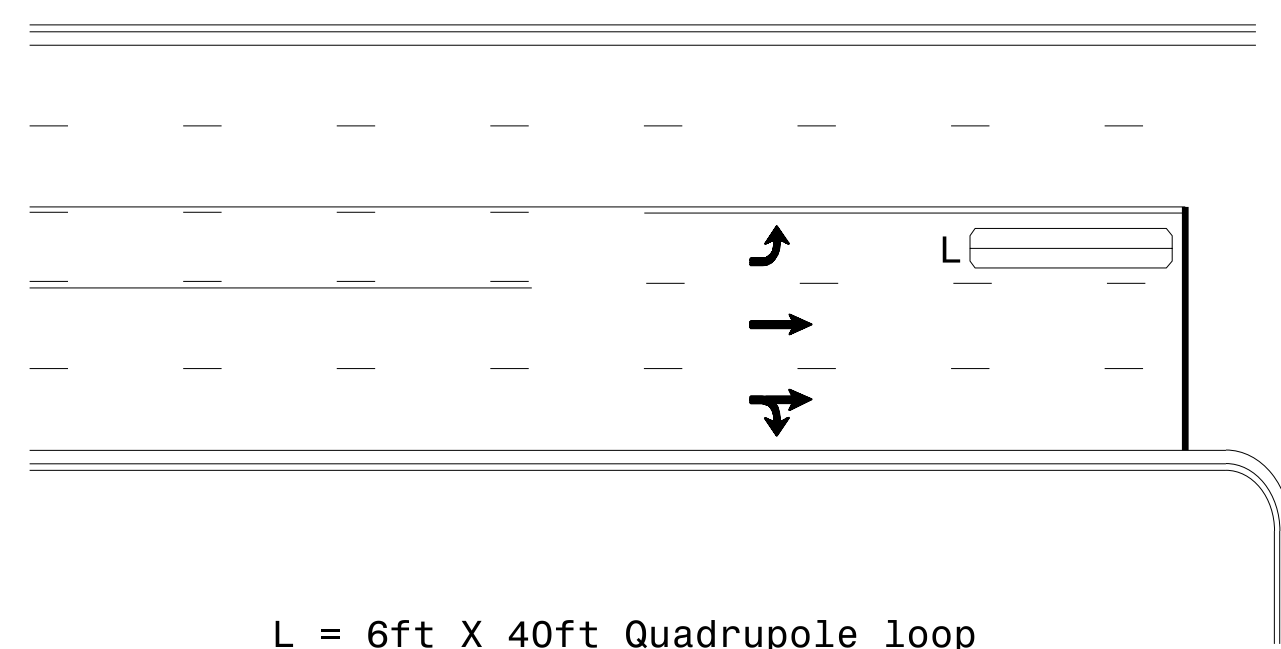
L = 6ft X 6ft  
Wired in series

OR



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

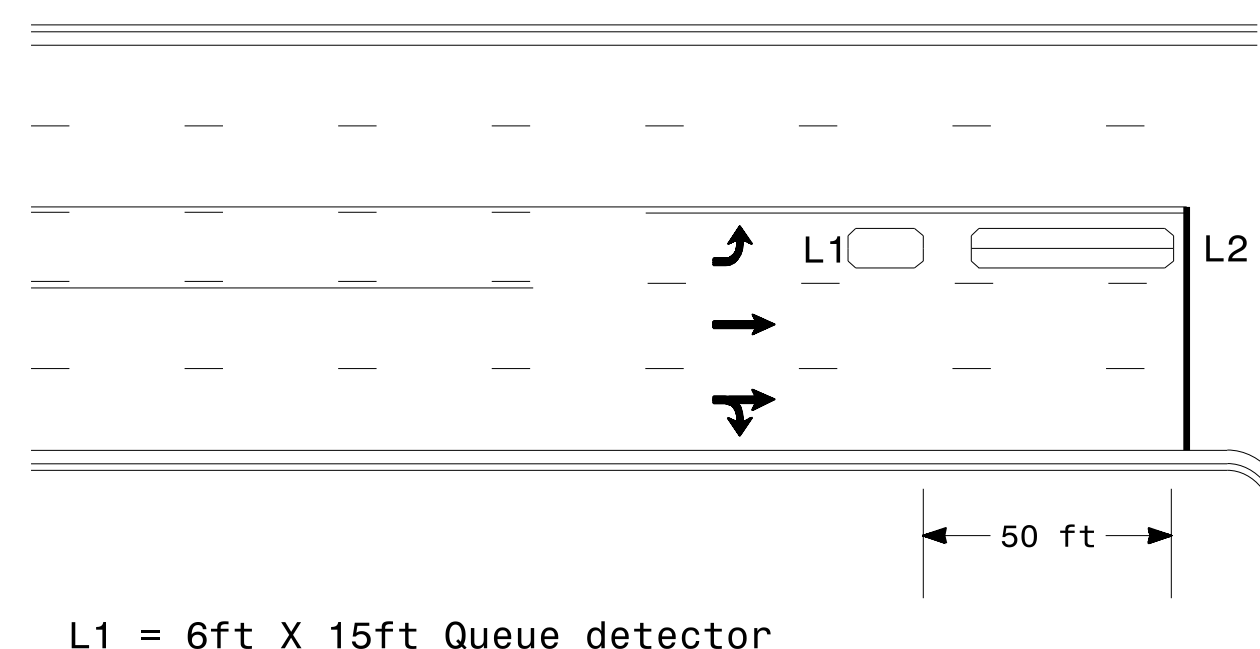
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

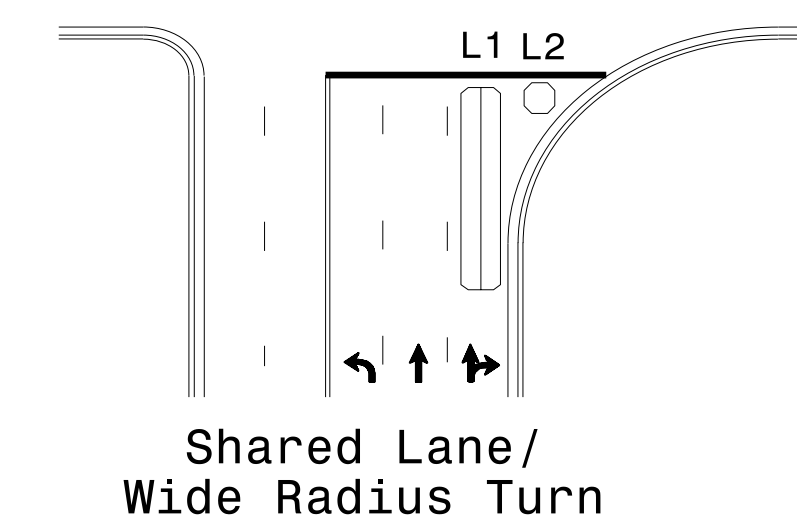
OR



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

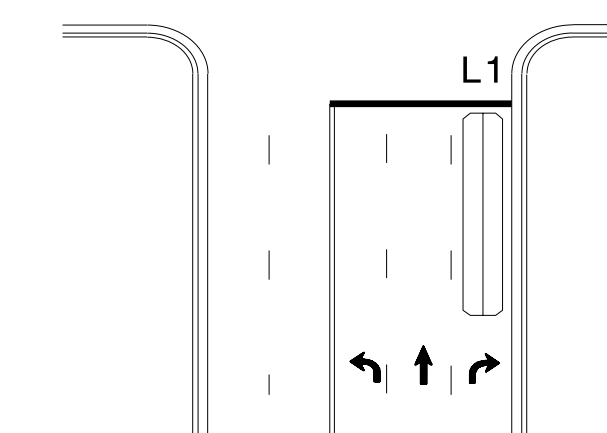
Queue Loop Detection

### Right Turn Lane Detection

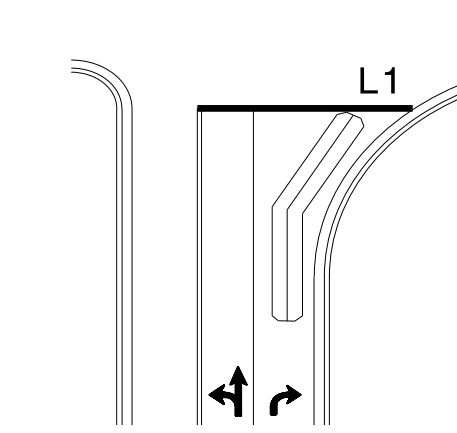


Shared Lane/  
Wide Radius Turn

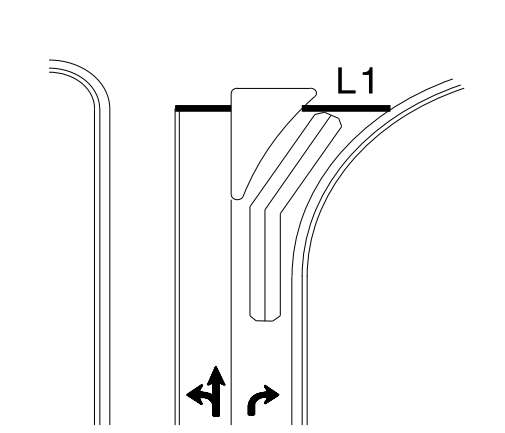
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

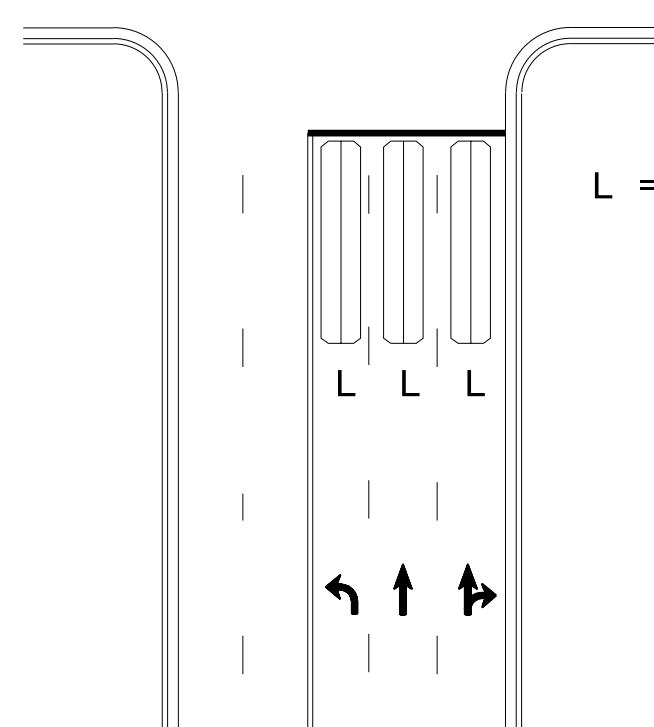


Wide Radius Turn



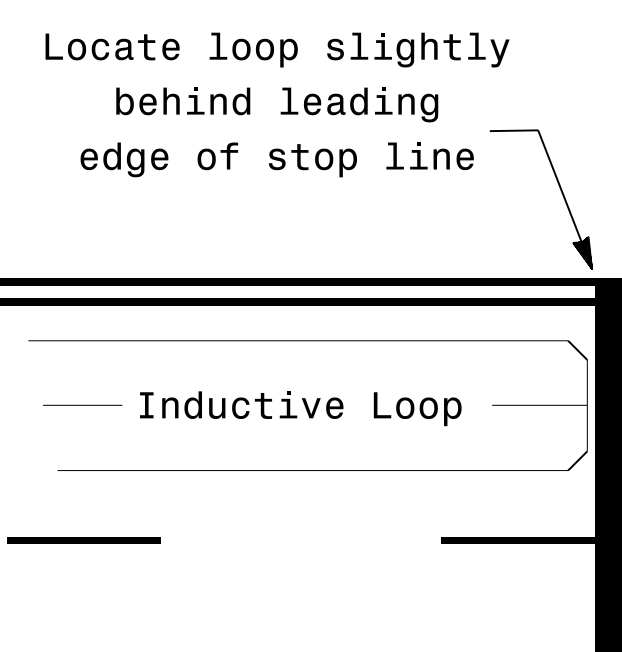
Channelized Turn

### Side Street Detection



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

### Presence Loop Placement at Stop Lines



Locate loop slightly  
behind leading  
edge of stop line

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

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE  
N/A

#### Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SEAL  
NORTH CAROLINA  
PROFESSIONAL ENGINEER  
PAMELA L. ALEXANDER  
23489

DocuSigned by:  
*P. Alexander*  
1/30/2015 10:44:44 AM  
SIG. INVENTORY NO.