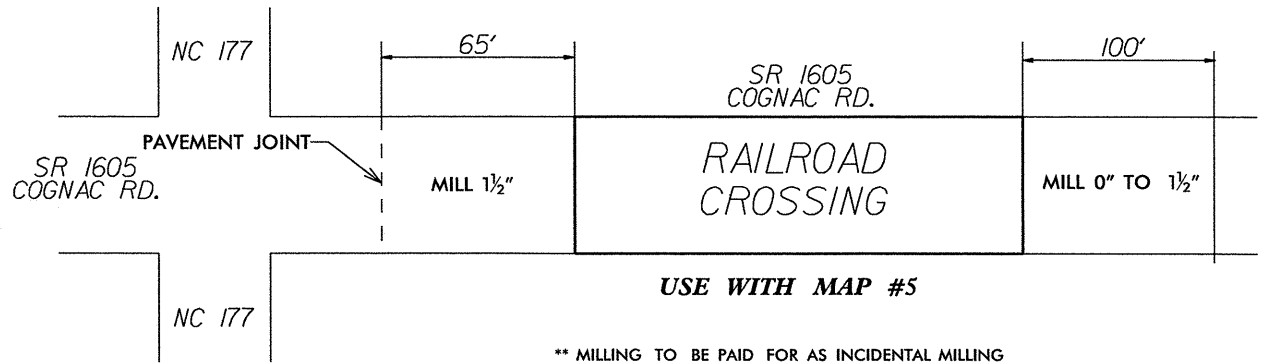
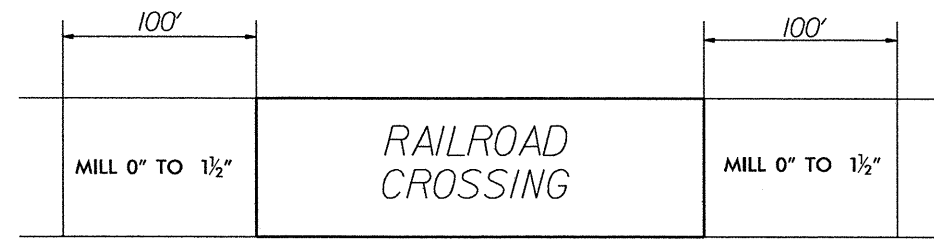
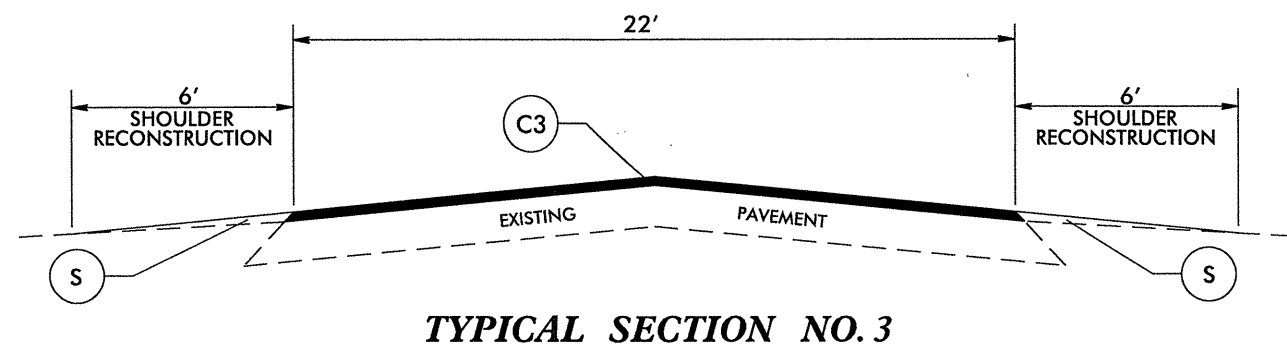
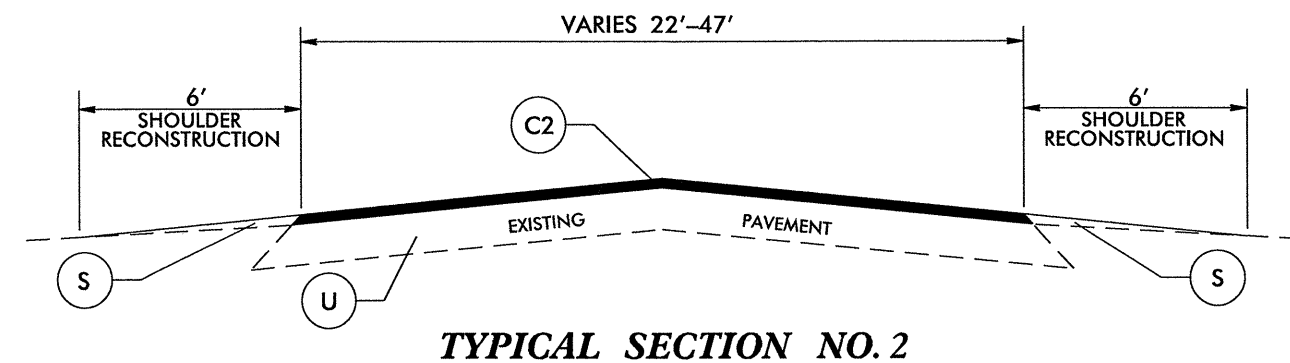
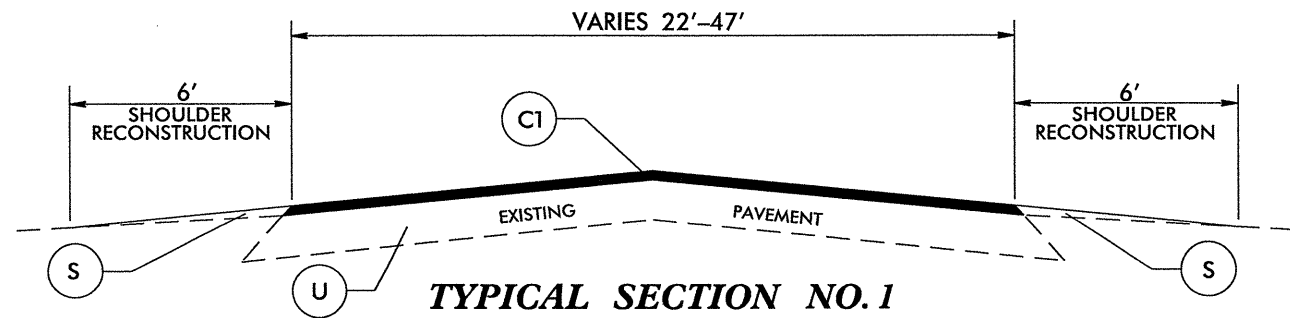


RICHMOND COUNTY

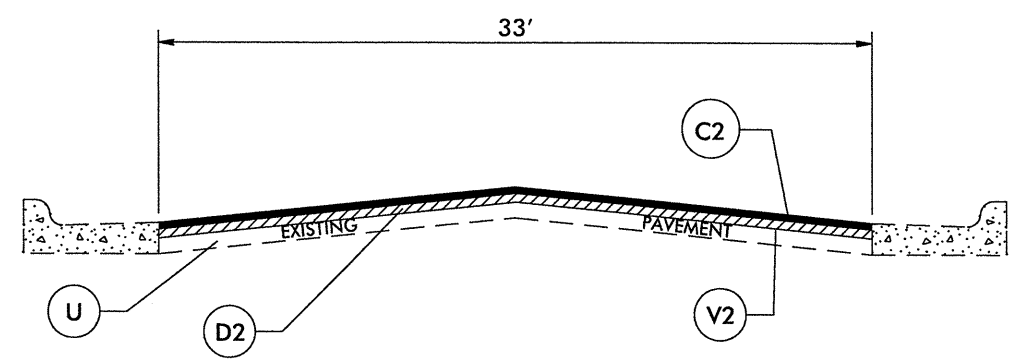
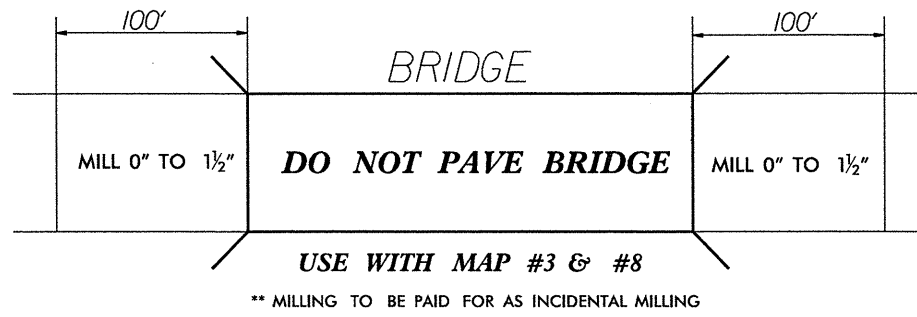
RICHMOND COUNTY TYPICAL SECTIONS



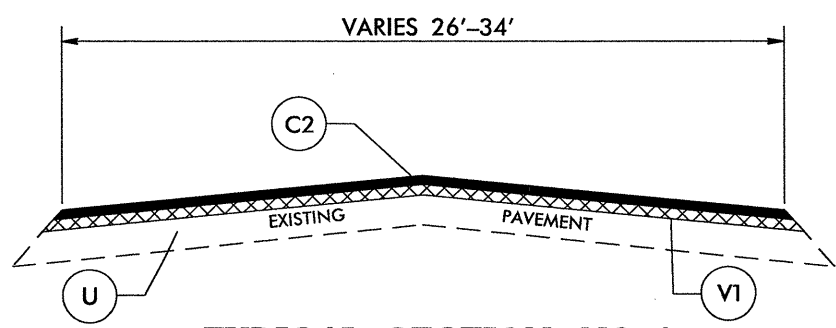
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D2	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
S	AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT.
V	MILLING 1½" TO 3" IN DEPTH.
V1	MILLING 1½" IN DEPTH.
V2	MILLING 3" IN DEPTH.

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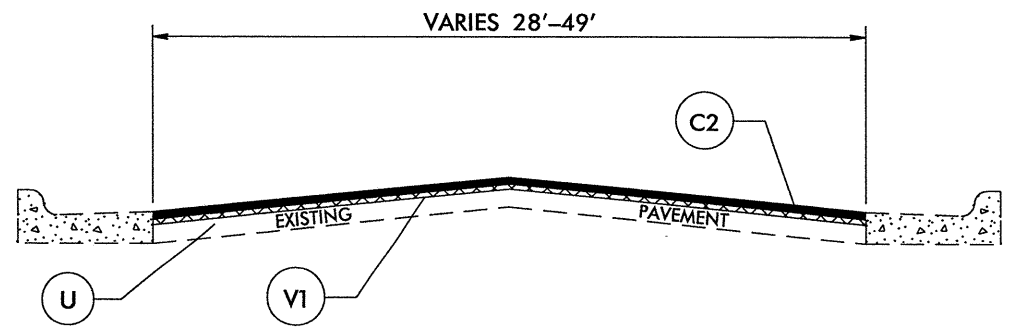
RICHMOND COUNTY TYPICAL SECTIONS



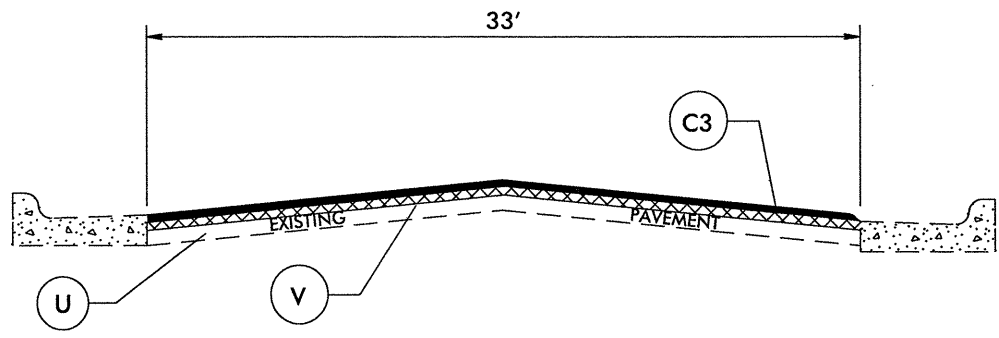
TYPICAL SECTION NO. 7



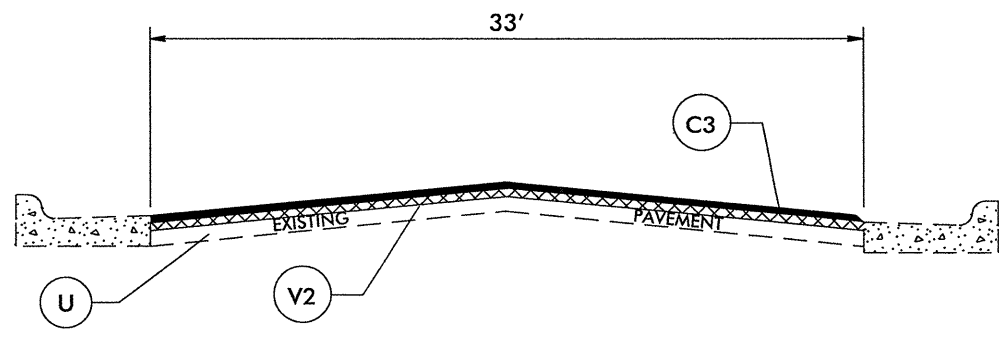
TYPICAL SECTION NO. 4



TYPICAL SECTION NO. 8



TYPICAL SECTION NO. 5

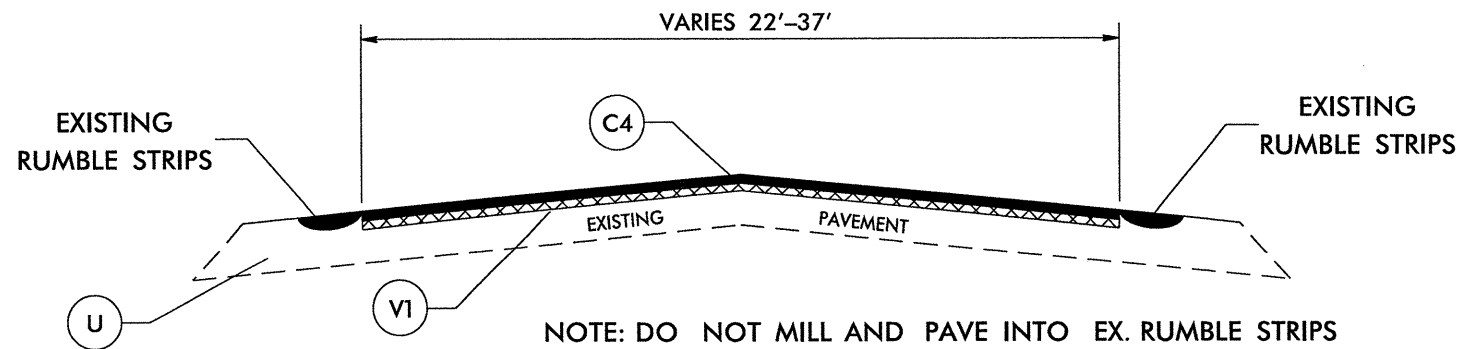


TYPICAL SECTION NO. 6

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. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D2	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
S	AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT.
V	MILLING 1½" TO 3" IN DEPTH.
V1	MILLING 1½" IN DEPTH.
V2	MILLING 3" IN DEPTH.

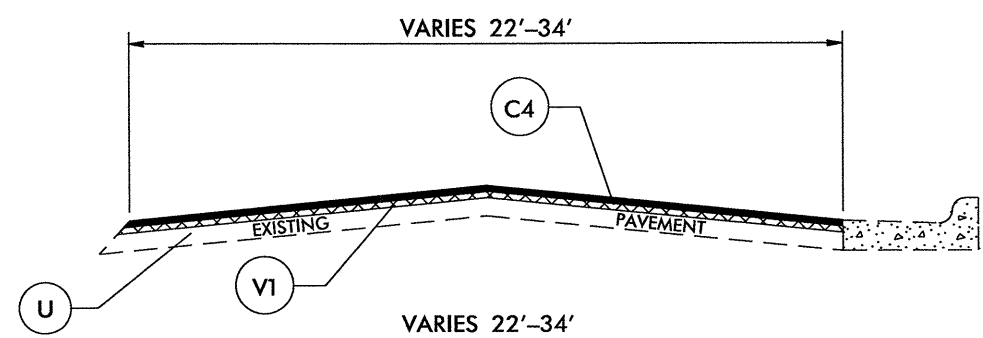
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RICHMOND COUNTY TYPICAL SECTIONS



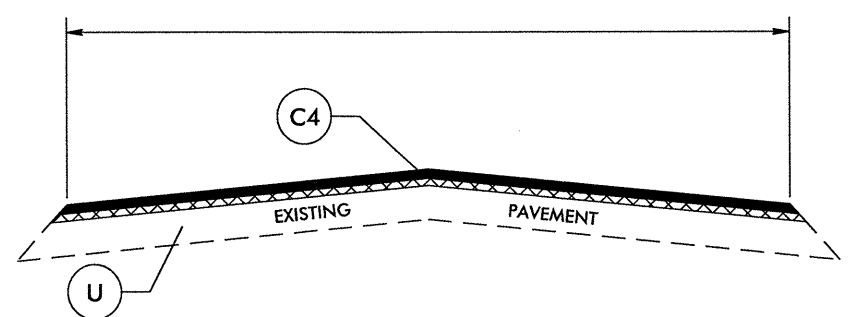
NOTE: DO NOT MILL AND PAVE INTO EX. RUMBLE STRIPS

TYPICAL SECTION NO. 9



VARIES 22'-34'

TYPICAL SECTION NO. 10



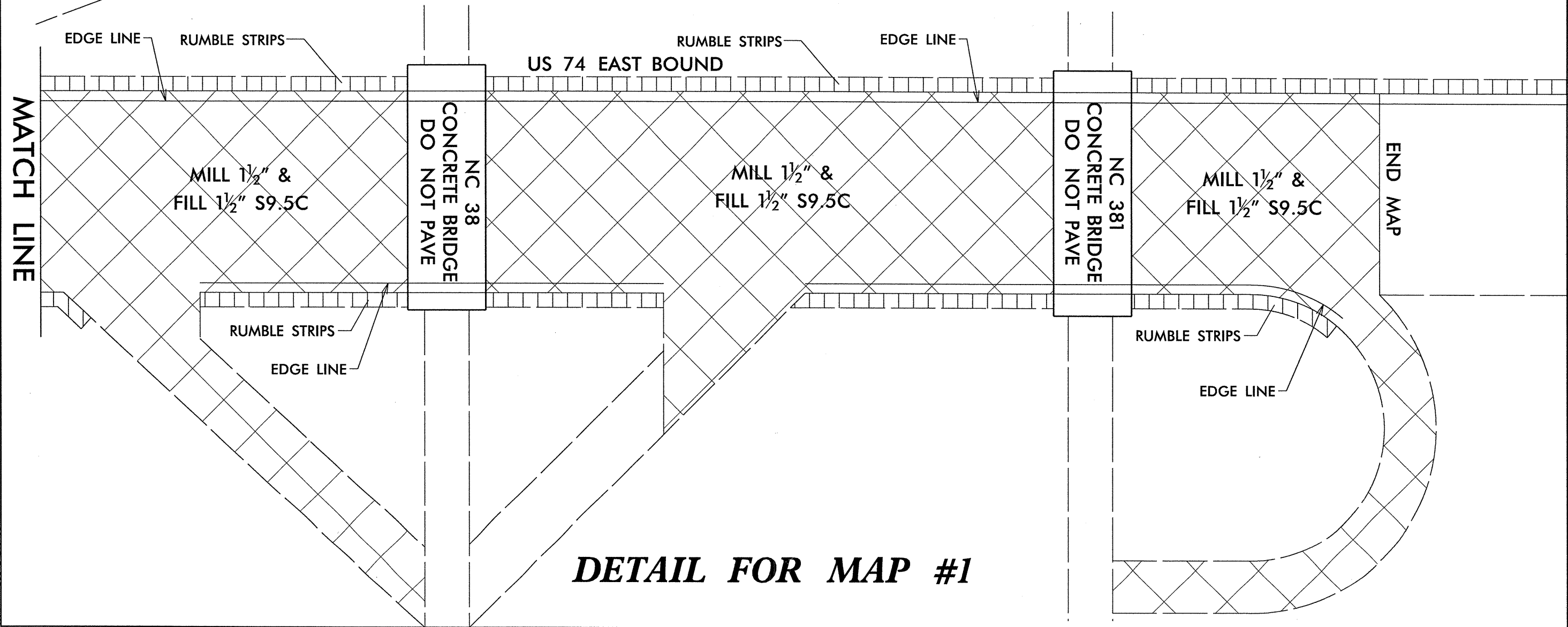
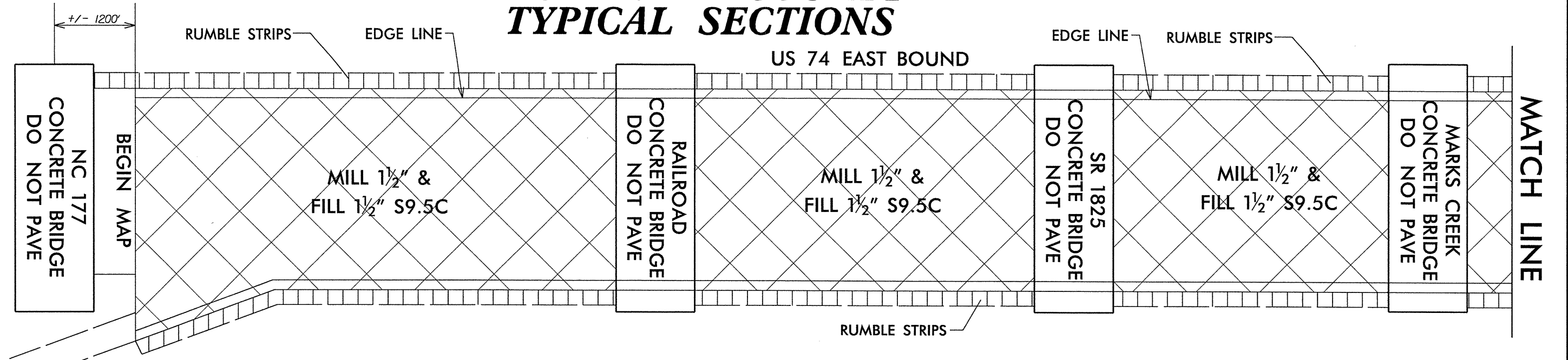
TYPICAL SECTION NO. 11

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. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D2	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
S	AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT.
V	MILLING 1½" TO 3" IN DEPTH.
V1	MILLING 1½" IN DEPTH.
V2	MILLING 3" IN DEPTH.

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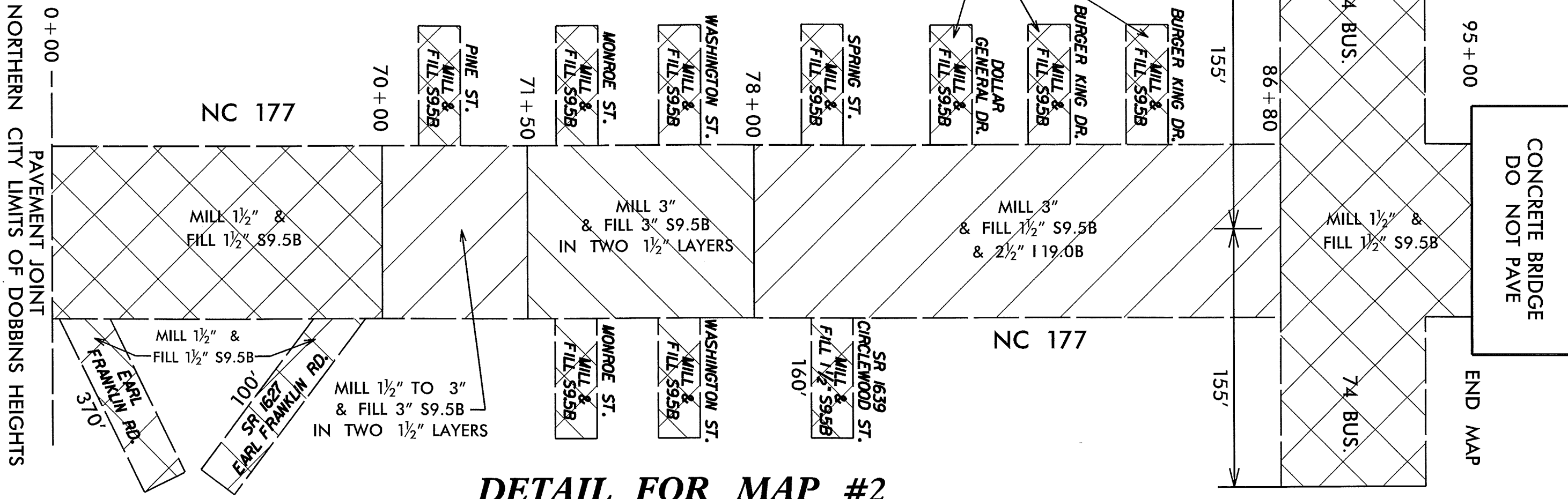
RICHMOND COUNTY TYPICAL SECTIONS

WBS ELEMENT	SHEET NO.
8CR.10771.20, 8CR.20771.20	5



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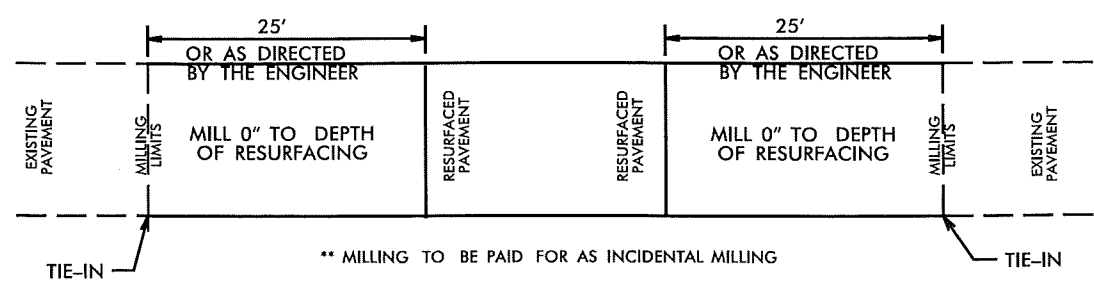
RICHMOND COUNTY TYPICAL SECTIONS



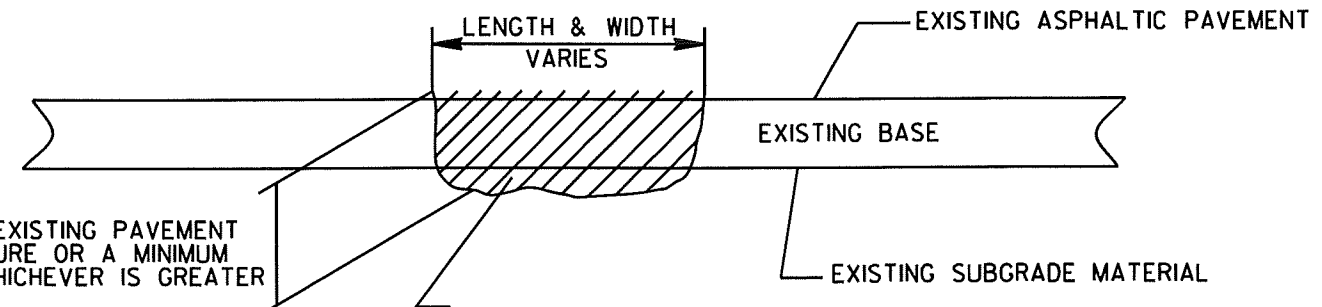
DETAIL FOR MAP #2

DETAILS OF PATCHING EXISTING PAVEMENT PRIOR TO RESURFACING

DETAIL NO. 1



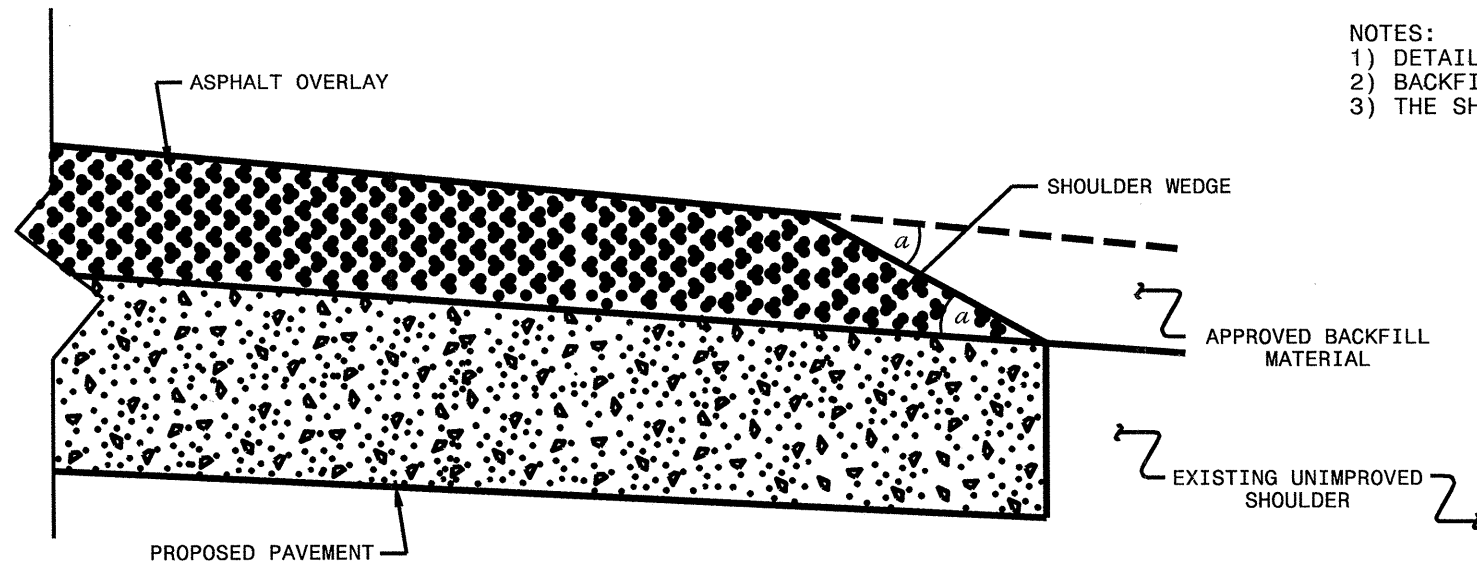
PAVEMENT TIE-IN DETAIL



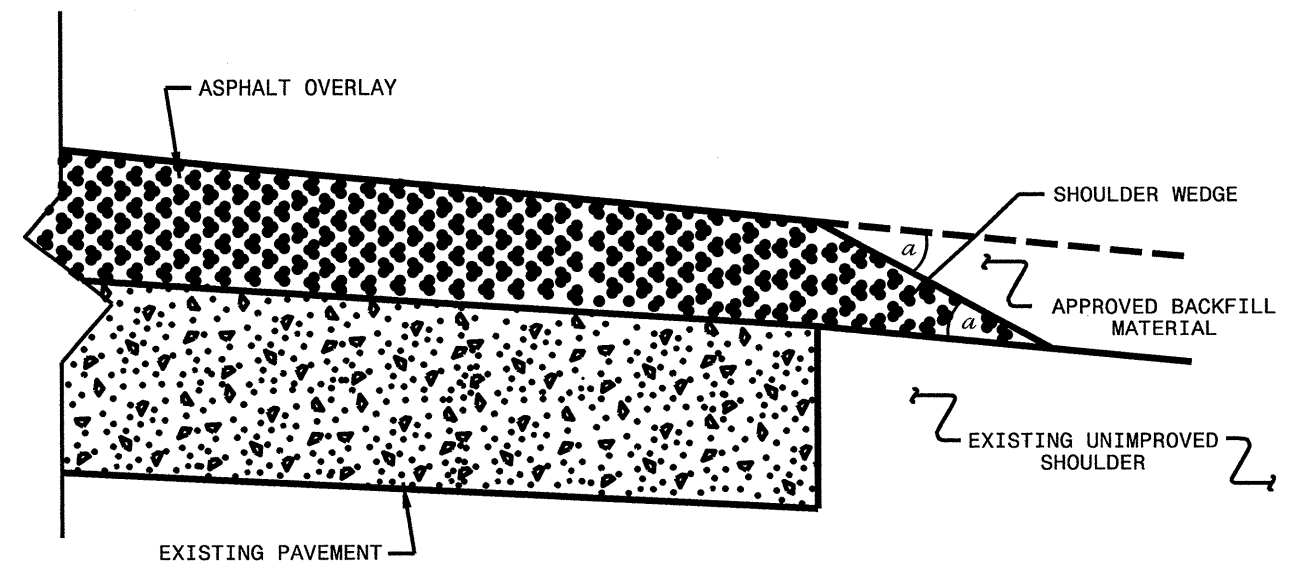
SAW AND REMOVE EXISTING ASPHALT PAVEMENT TO NEAT LINES AND REMOVE EXISTING LOOSE BASE AND/OR SUBGRADE MATERIAL AND REPLACE WITH ASPHALT CONCRETE SURFACE COURSE B-25.0 B OR I-19.0 B, AS DIRECTED BY THE ENGINEER

040397
ACTIVE \$\$\$\$\$\$
UNLAWFUL TO REPRODUCE OR TRANSMIT IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.

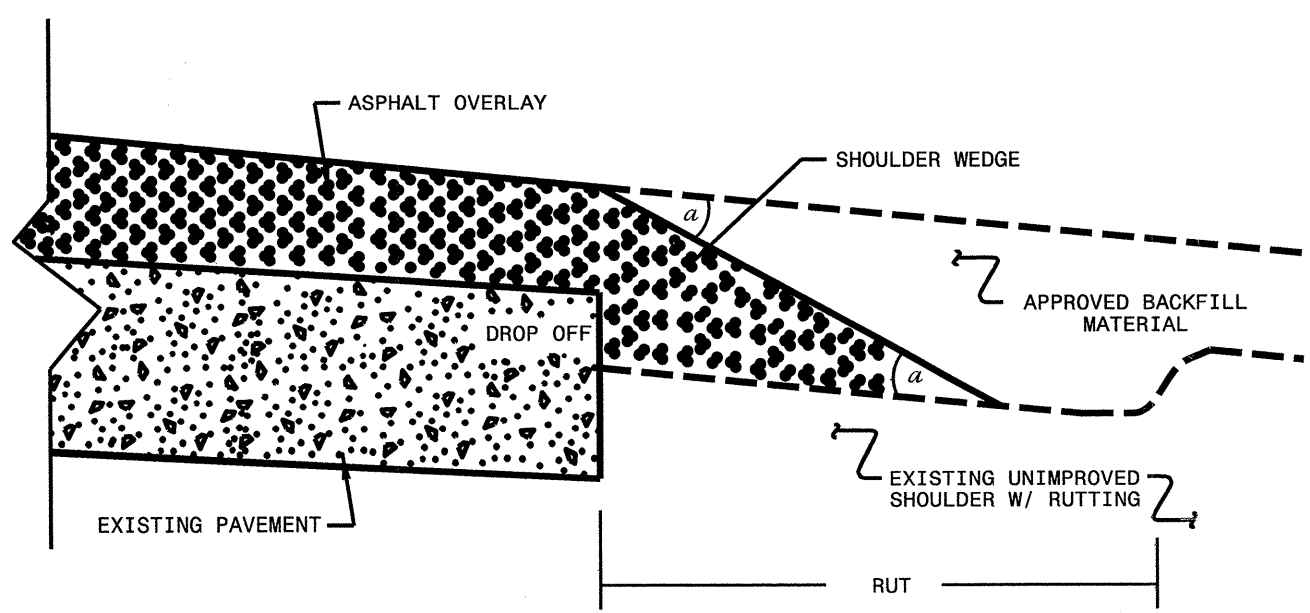
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFD AND ULTRA-THIN BONDED WEARING COURSE.
 - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



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:	10/16/12
CHECKED BY:		DATE:	
FILE SPEC.:	s:\usr\details\stand\shoulderwedge\detail.dwg		

 SYSTEMS

PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.10771.20, 8CR.20771.20	8	

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	GENERIC GRADING ITEM AGGREGATE SHOULDER BORROW TON	SHOULDER RECONSTRUCTION SMI	1.5" MILLING SY	3" MILLING SY	1.5" TO 3" MILLING SY	INCIDENTAL MILLING SY	INTERMEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, S9.5C TONS	SURFACE COURSE, SF9.5A TON	ASPHALT BINDER COURSE TON	PATCHING EXISTING PAVEMENT TONS	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2 PAIR) LF		
8CR.10771.20	Richmond	1	US 74 EAST BOUND	FROM NC 177 TO NC 381	9, 10, 11	2	MD	NO	NO	4.23	25			71,730						6,126		361							
		2	NC 177	FROM NORTHERN CITY LIMITS OF DOBBINS HEIGHTS TO RAILROAD BRIDGE	4,5,6,7,8	2	2WU	NO	NO	1.8	32			25,266	5,610	550	2,212	470	3,130			210	80	11	9	1,500	150		
TOTAL FOR PROJ NO. 8CR.10771.20										6.03				96,996	5,610	550	2,212	470	3,130	6,126		571	80	11	9	1,500	150		
8CR.20771.20	Richmond	3	SR 1900 (BATTLE DAIRY RD.)	FROM SR 1994 (ELLERBE GROVE CH. RD.) TO SR 1966 (AIRPORT RD.)	1	2	2WU	NO	NO	1.32	23	378	2.64				556				1,562	105							
		4	SR 1900 (BATTLE DAIRY RD.)	FROM SR 1966 (AIRPORT DR.) TO NC 177	1	2	2WU	NO	NO	1.6	22	444	3.20				489				1,843	123							
		5	SR 1605 (COGNAC RD.)	FROM NC 177 SOUTHEAST FOR 0.31 MILE	3	2		NO	NO	0.31	22	166	0.62				404		680			41	100						
		6	SR 1241 (SANDHILL RD.)	FROM SR 1108 MIZPAH RD.) TO SR 1966 (AIRPORT RD.)	1	2		NO	NO	1.71	23	487	3.42									2,067	138						
		7	SR 1005 (CARTLEDGE CREEK RD.)	FROM SR 1139 (SILVER GROVE CH. RD.) TO SR 1303 (DAVIE KINGS RD)	2	2		NO	NO	1.62	23	460	3.24						1,900			114	10						
		8	SR 1109 (GALESTOWN RD.)	FROM SR 1124 (MIDWAY RD.) TO SR 1118 (GEORGE MADDY RD.)	1	2		NO	NO	2.48	23	700	4.96				978				3,479	233							
		9	SR 1812 (FREEMAN MILL RD.)	FROM NC 177 TO SR 1900 (BATTLE DAIRY RD.)	1	2		NO	NO	0.56	22	153	1.10								600	40							
		10	SR 1914 (FREEMAN MILL RD.)	FROM SR 1900 (BATTLE DAIRY RD.) TO SR 1915 (CHALK RD.)	1	2		NO	NO	1.47	22	404	2.94									1,580	106						
TOTAL FOR PROJ NO. 8CR.20771.20										11.07		3,192	22.12				2,427		2,580		11,131	900	110						
GRAND TOTAL										17.1		3,192	22.12	96,996	5,610	550	4,639	470	5,710	6,126	11,131	1,471	190	11	9	1,500	150		

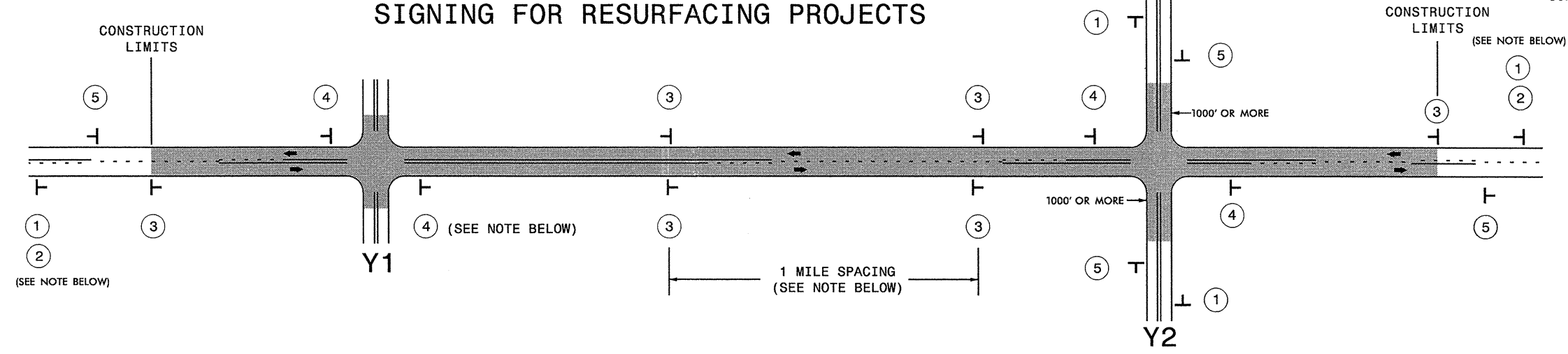
PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.10771.20, 8CR.20771.20	9	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4366000000-E	4589000000-N	4685000000-E	4686000000-E			4688000000-E		4690000000-E	4695000000-E		4697000000-E	4705000000-E	4710000000-E	4510000000-N
										GENERIC SIGNING ITEM WORK ZONE ADVANCE/GENERAL WARNING SIGNING, SF	GENERIC TRAFFIC CONTROL ITEM TEMP. TRAFFIC CONTROL, LS	4" X 90 M WHITE THERMO, LF	4" X 120 M YELLOW THERMO, LF	4" X 120 M WHITE THERMO, LF	6" X 90 M WHITE THERMO, LF	6" X 90 M YELLOW THERMO, LF	6" X 120 M WHITE THERMO, LF	8" X 90 M WHITE THERMO, LF	8" X 90 M YELLOW THERMO, LF	8" X 120 M WHITE THERMO, LF	16" X 120 M WHITE THERMO, LF	24" X 120 M WHITE THERMO, LF	LAW ENFORCEMENT, HR	
8CR.10771.20	Richmond	1	US 74 EAST BOUND	FROM NC 177 TO NC 381	4,12,13,14,15,16,17	2	MD	4.23	25	430	*	70			21,932	21,932	8,164	2,760					100	122.3
		2	NC 177	FROM NORTHERN CITY LIMITS OF DOBBINS HEIGHTS TO RAILROAD BRIDGE	4,5,6,7,8,9,10,11,18	2	2WU	1.8	32	160.16		14,540	18,450	2,000					40	770			218	
TOTAL FOR PROJ NO. 8CR.10771.20										590.16	*	14,610	18,450	2,000	21,932	21,932	8,164	2,760	40	770			318	122.3
													20,450	2,000	43,864			2,800						
8CR.20771.20	Richmond	3	SR 1900 (BATTLLEY DAIRY RD.)	FROM SR 1994 (ELLERBE GROVE CH. RD.) TO SR 1966 (AIRPORT RD.)	1	2	2WU	1.32	23	160.16														
		4	SR 1900 (BATTLLEY DAIRY RD.)	FROM SR 1966 (AIRPORT DR.) TO NC 177	1	2	2WU	1.6	22	160.16												100	72	
		5	SR 1605 (COGNAC RD.)	FROM NC 177 SOUTHEAST FOR 0.31 MILE	3	2	2WU	0.31	22	160.16												100	61	
		6	SR 1241 (SANDHILL RD.)	FROM SR 1108 MIZPAH RD.) TO SR 1966 (AIRPORT RD.)	1	2	2WU	1.71	23	160.16														
		7	SR 1005 (CARTLEDGE CREEK RD.)	FROM SR 1139 (SILVER GROVE CH. RD.) TO SR 1303 (DAVIE KINGS RD)	2	2	2WU	1.62	23	160.16														
		8	SR 1109 (GALESTOWN RD.)	FROM SR 1124 (MIDWAY RD.) TO SR 1118 (GEORGE MADDRY RD.)	1	2	2WU	2.48	23	160.16	*								250				42	
		9	SR 1812 (FREEMAN MILL RD.)	FROM NC 177 TO SR 1900 (BATTLLEY DAIRY RD.)	1	2	2WU	0.56	22	160.16														
		10	SR 1914 (FREEMAN MILL RD.)	FROM SR 1900 (BATTLLEY DAIRY RD.) TO SR 1915 (CHALK RD.)	1	2	2WU	1.47	22	160.16														
TOTAL FOR PROJ NO. 8CR.20771.20										1,281.28	*								250			200	175	
																		250						
GRAND TOTAL										17.1	1,871.44	1	14,610	18,450	2,000	21,932	21,932	8,164	2,760	290	770	200	493	122.3
													20,450	2,000	43,864			3,050						

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4721000000-E	4725000000-E					4810000000-E		4847000000-E	4847100000-E	4850000000-E	4900000000-N		
										THERMO RXR 120 M, EA	THERMO LT ARROW 90 M, EA	THERMO RT ARROW 90 M, EA	THERMO STR ARROW 90 M, EA	THERMO RAMP ARROW, 90 M, EA	THERMO STR & RT ARROW 90 M, EA	4" WHITE PAINT, LF	4" YELLOW PAINT, LF	POLYUREA PAVEMENT MARKING LINES (4", HRE), LF	POLYUREA PAVEMENT MARKING LINES (6", HRE), LF	4" LINE REMOVAL, LF	CRYSTAL & RED MARKERS, EA	YELLOW & YELLOW MARKERS, EA	
8CR.10771.20	Richmond	1	US 74 EAST BOUND	FROM NC 177 TO NC 381	4,12,13,14,15,16,17	2	MD	4.23	25		1	1	7	1		7,100			2,612	2,612	535		
		2	NC 177	FROM NORTHERN CITY LIMITS OF DOBBINS HEIGHTS TO RAILROAD BRIDGE	4,5,6,7,8,9,10,11,18	2	2WU	1.8	32		25	5	2		6	14,540	18,000				65	145	
TOTAL FOR PROJ NO. 8CR.10771.20											26	6	9	1	6	21,640	18,000		2,612	2,612	600	145	
													48			39,640						745	
8CR.20771.20	Richmond	3	SR 1900 (BATTLLEY DAIRY RD.)	FROM SR 1994 (ELLERBE GROVE CH. RD.) TO SR 1966 (AIRPORT RD.)	1	2	2WU	1.32	23							28,406	17,424						
		4	SR 1900 (BATTLLEY DAIRY RD.)	FROM SR 1966 (AIRPORT DR.) TO NC 177	1	2	2WU	1.6	22	4						32,800	22,960						
		5	SR 1605 (COGNAC RD.)	FROM NC 177 SOUTHEAST FOR 0.31 MILE	3	2	2WU	0.31	22	4						6,550	6,550						
		6	SR 1241 (SANDHILL RD.)	FROM SR 1108 MIZPAH RD.) TO SR 1966 (AIRPORT RD.)	1	2	2WU	1.71	23							36,799	22,572						
		7	SR 1005 (CARTLEDGE CREEK RD.)	FROM SR 1139 (SILVER GROVE CH. RD.) TO SR 1303 (DAVIE KINGS RD)	2	2	2WU	1.62	23							34,862	21,384						
		8	SR 1109 (GALESTOWN RD.)	FROM SR 1124 (MIDWAY RD.) TO SR 1118 (GEORGE MADDRY RD.)	1	2	2WU	2.48	23		2	2				56,900	43,000	1,050		1,050			
		9	SR 1812 (FREEMAN MILL RD.)	FROM NC 177 TO SR 1900 (BATTLLEY DAIRY RD.)	1	2	2WU	0.56	22							12,051	7,392						
		10	SR 1914 (FREEMAN MILL RD.)	FROM SR 1900 (BATTLLEY DAIRY RD.) TO SR 1915 (CHALK RD.)	1	2	2WU	1.47	22							31,634	19,404						
TOTAL FOR PROJ NO. 8CR.20771.20												2	2			240,002	160,686	1,050		1,050			
													4			400,688							
GRAND TOTAL										17.1	8	28	8	9	1	6	261,642	178,686	1,050	2,612	3,662	600	145
													52			440,328					745		

SIGNING FOR RESURFACING PROJECTS



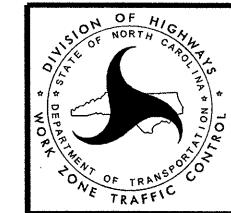
LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

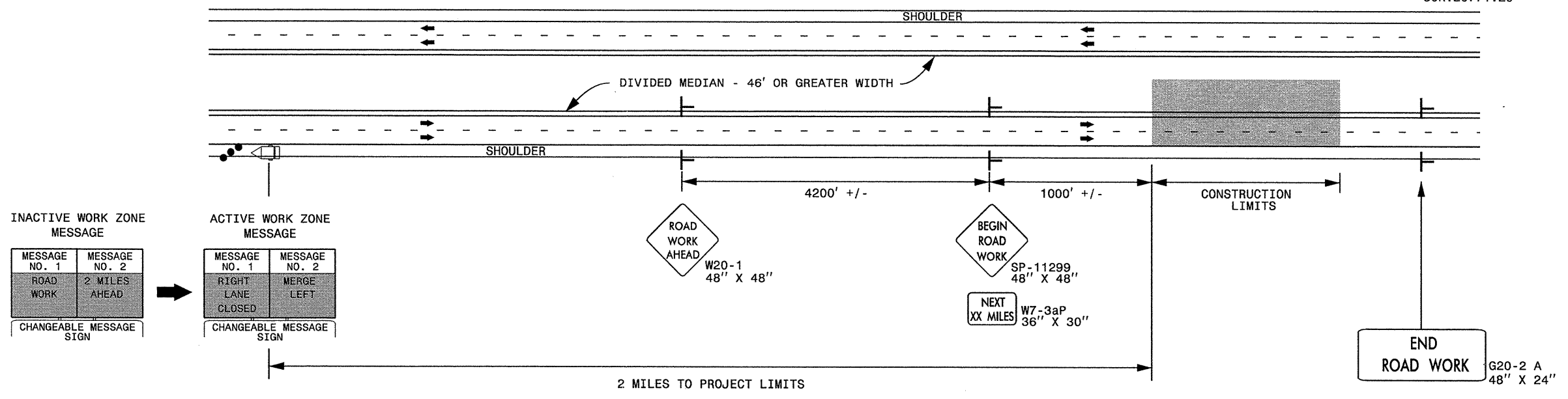
SIGNING NOTES AND PLACEMENT PER DIRECTION	①	 <small>W20-1 48" X 48"</small>	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p style="text-align: center;">NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <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;"> <small>W20-1 48" X 48"</small> </div> <div style="text-align: center;"> <small>W20-7 A 48" X 48"</small> </div> </div> <p style="text-align: center;">PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	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.	

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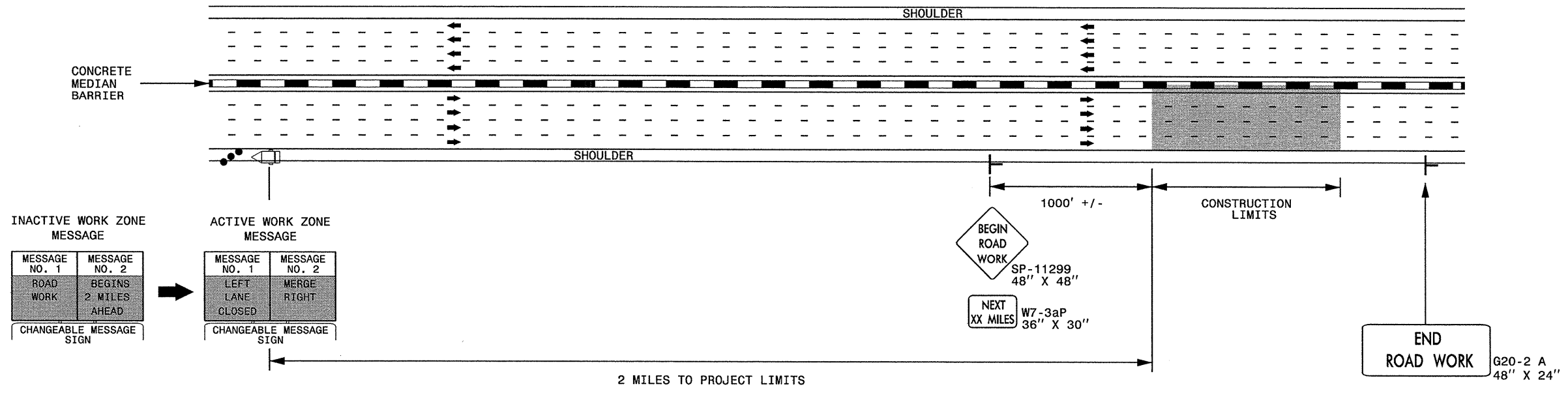


RESURFACING
ADVANCE WARNING SIGNS
FOR
RURAL AND SUBURBAN
2 LANE ROADWAYS

DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



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

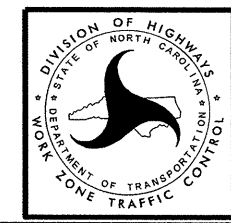


NOTES:

- 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

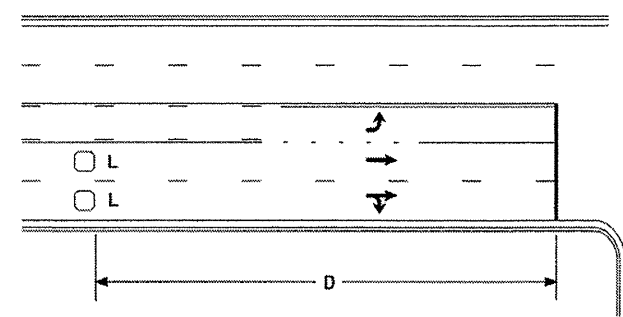
- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

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High Speed Detection [≥40 mph (64 km/hr)]

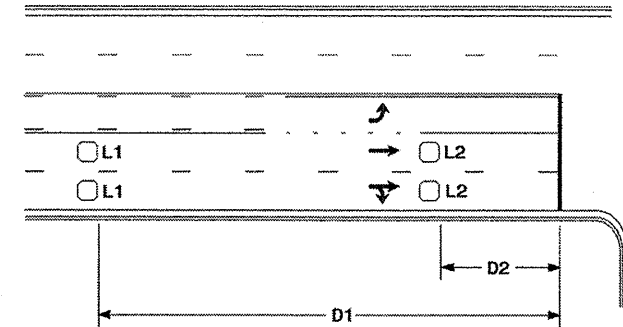


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

Volume Density Operation

OR

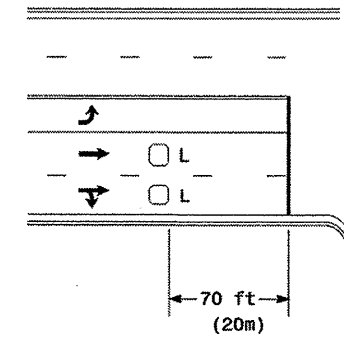


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

L1 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series
L2 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series

"Stretch" Operation

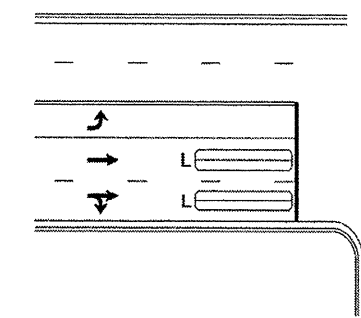
Low Speed Detection [≤35 mph (56 km/hr)]



L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

Volume Density Operation

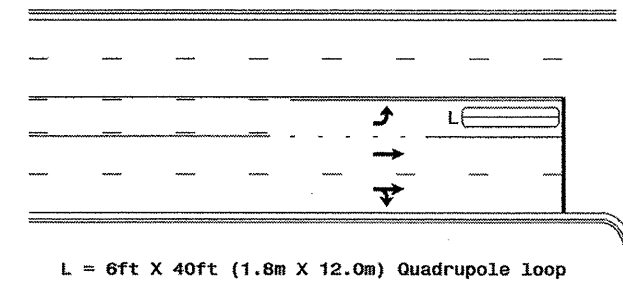
OR



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

"Stretch" Operation

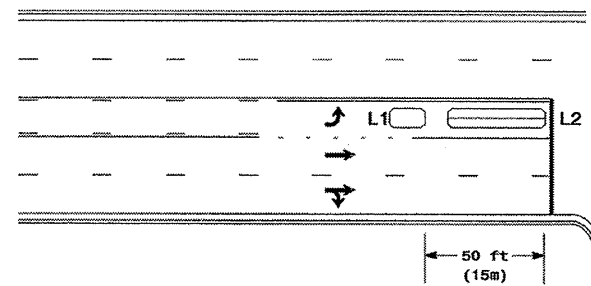
Left Turn Lane Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

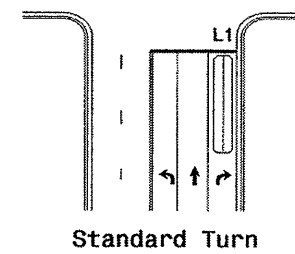
OR



L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

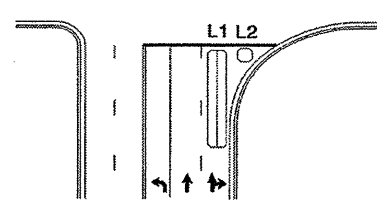
Queue Loop Detection

Right Turn Lane Detection

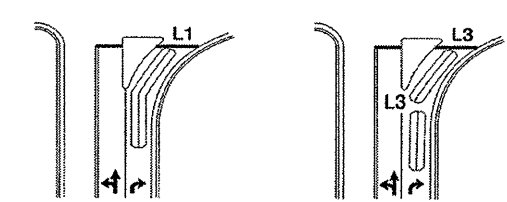


Standard Turn

L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

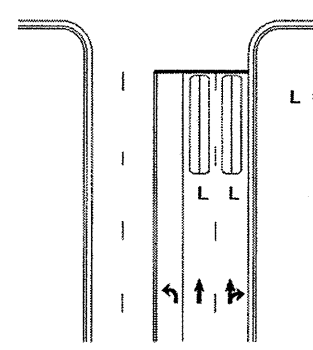


Wide Radius Turn



Channelized Turn

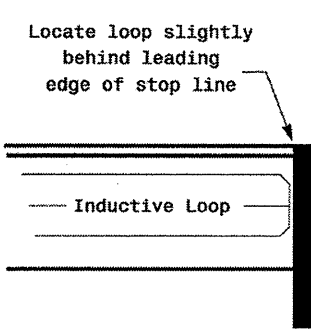
Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop
Wired to separate
detectors/channels

Side Street Detection

Presence Loop Placement at Stop Lines



Note:
Loop may be located in advance
of stop line when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permissive or
protected/permissive left turn.

Presence Loop Placement at Stop Lines

Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m)
loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

Quadrupole loops: Use 2-4-2 turns
6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns

	Typical Loop Locations		
	PLAN DATE: JUNE 2006 PREPARED BY: P. L. Alexander	REVIEWED BY: REVIEWED BY:	