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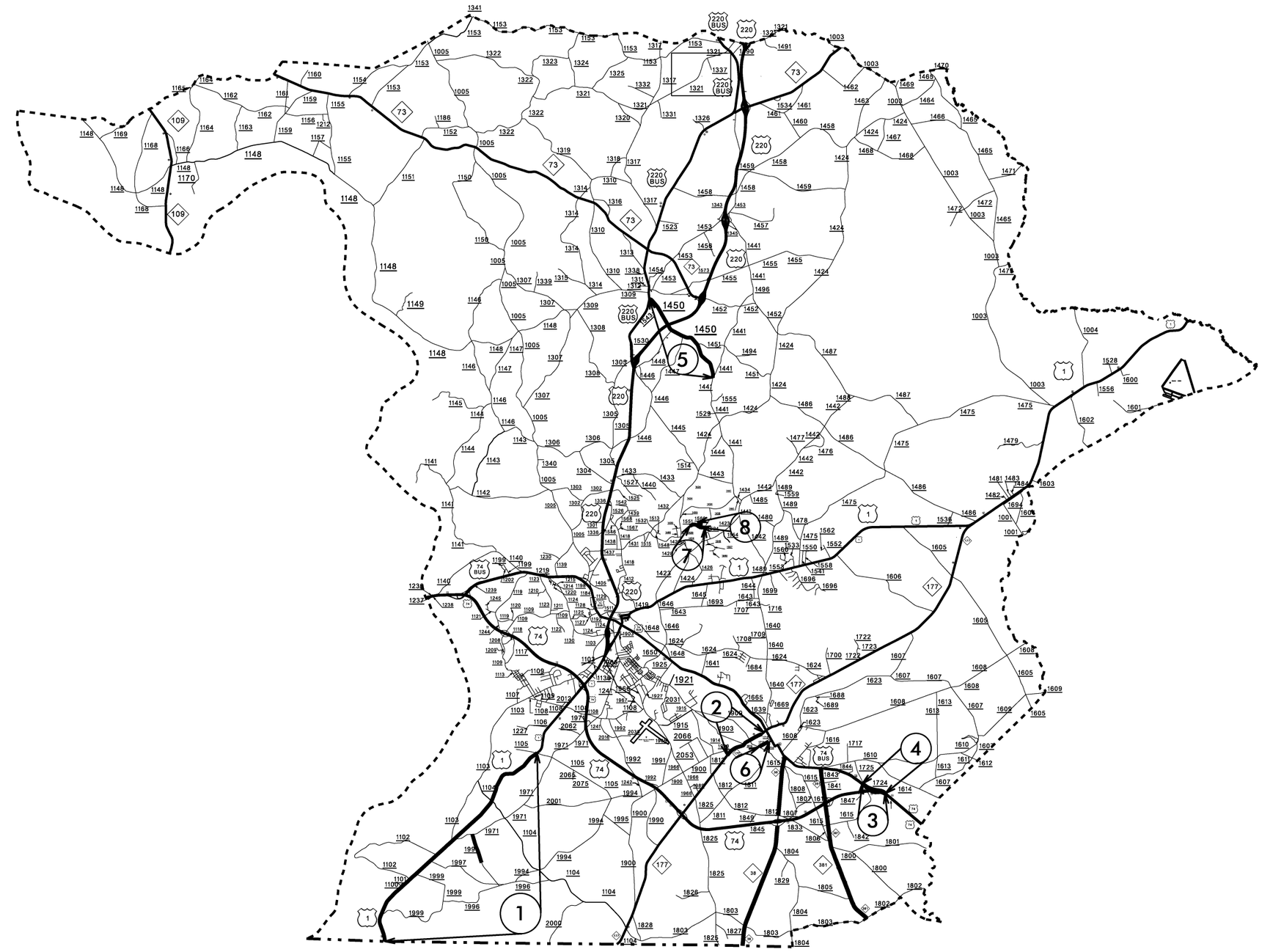
5/28/99

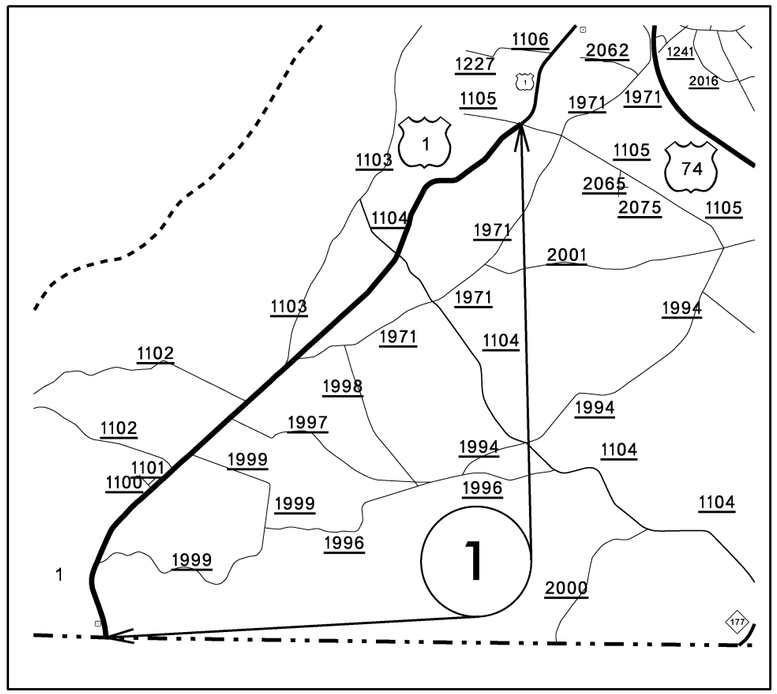
PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	1

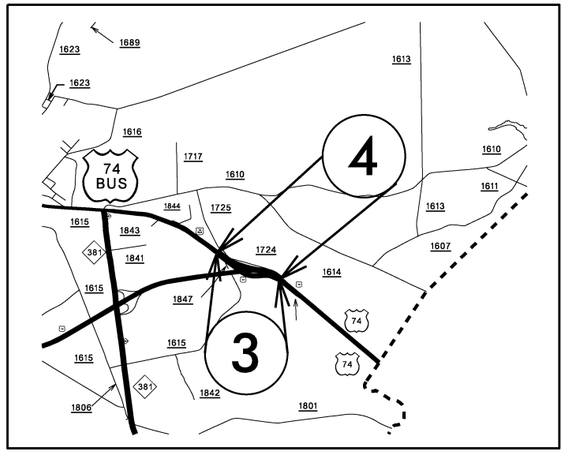


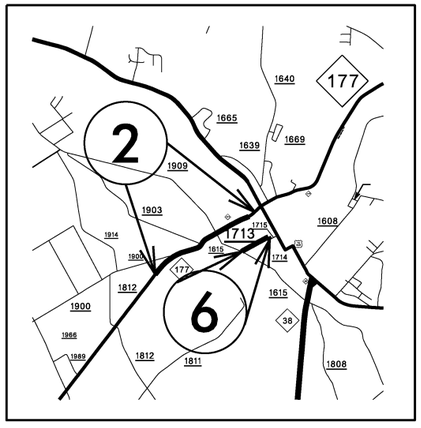
RICHMOND COUNTY

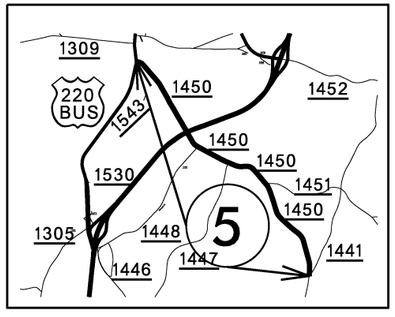
5/28/99

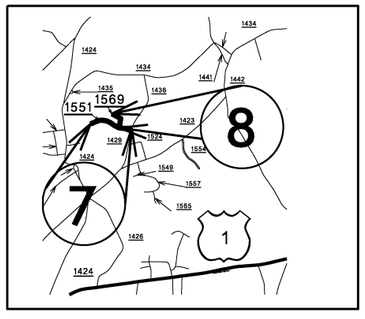
PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	2







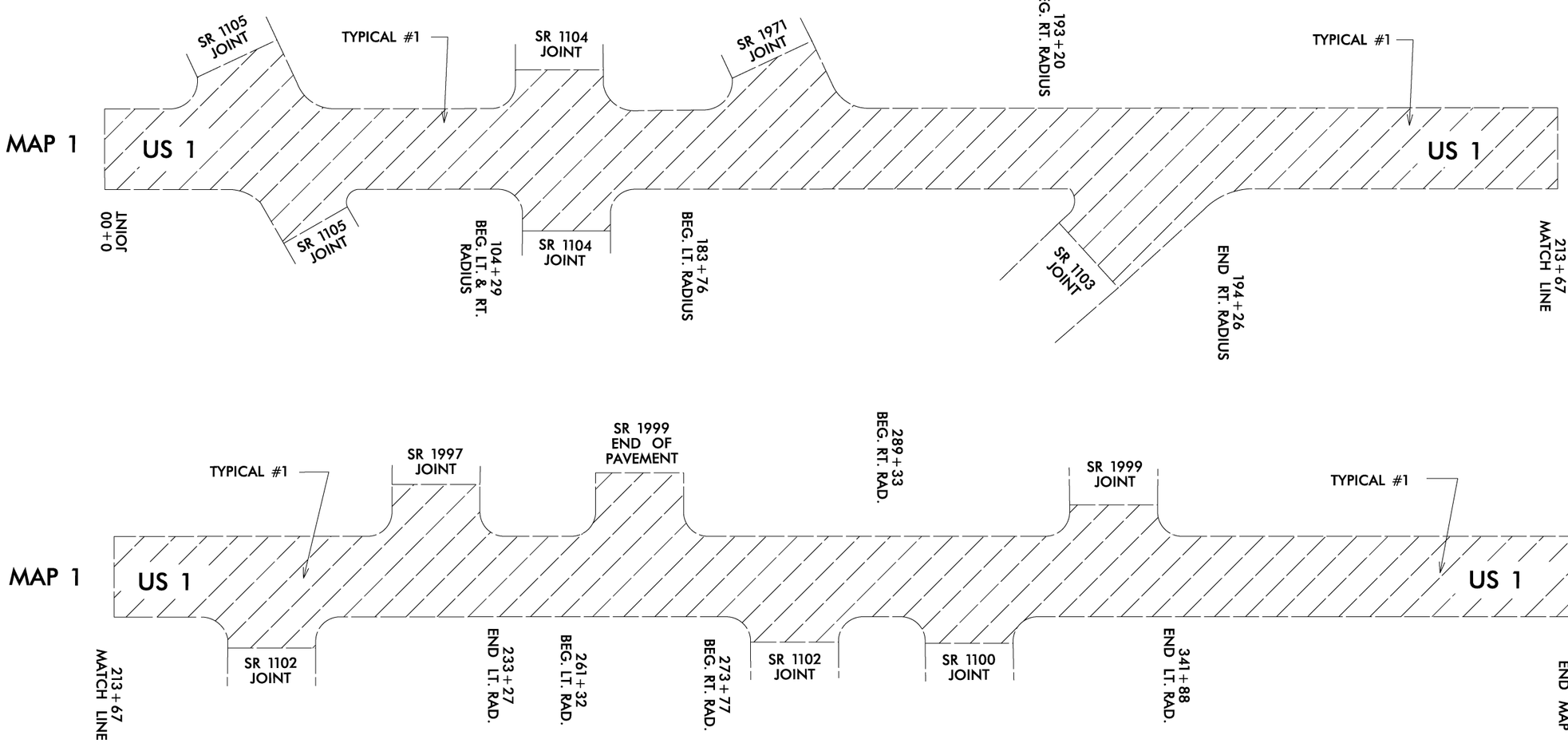




RICHMOND COUNTY

PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	3

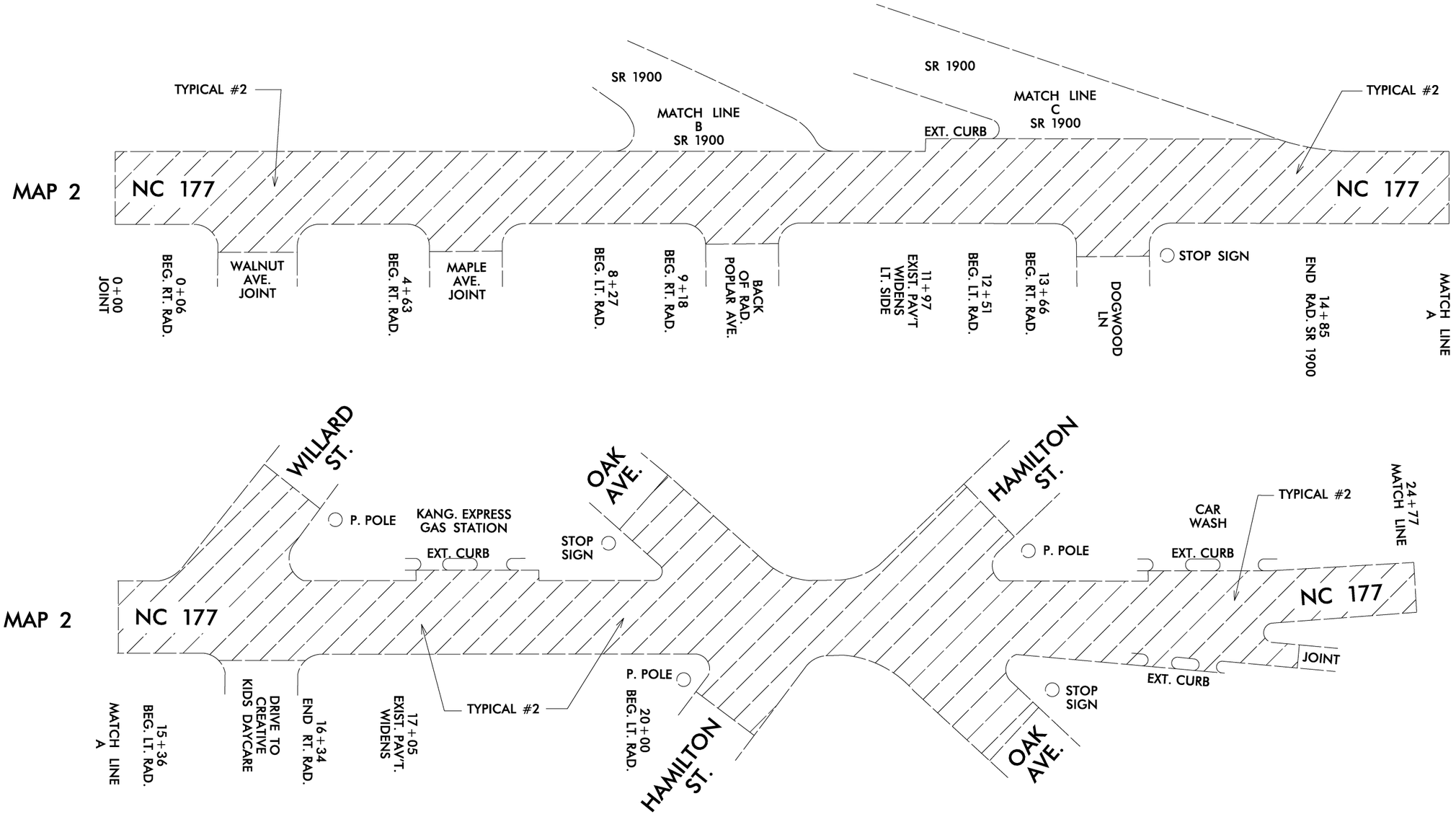
RICHMOND COUNTY



5/28/99

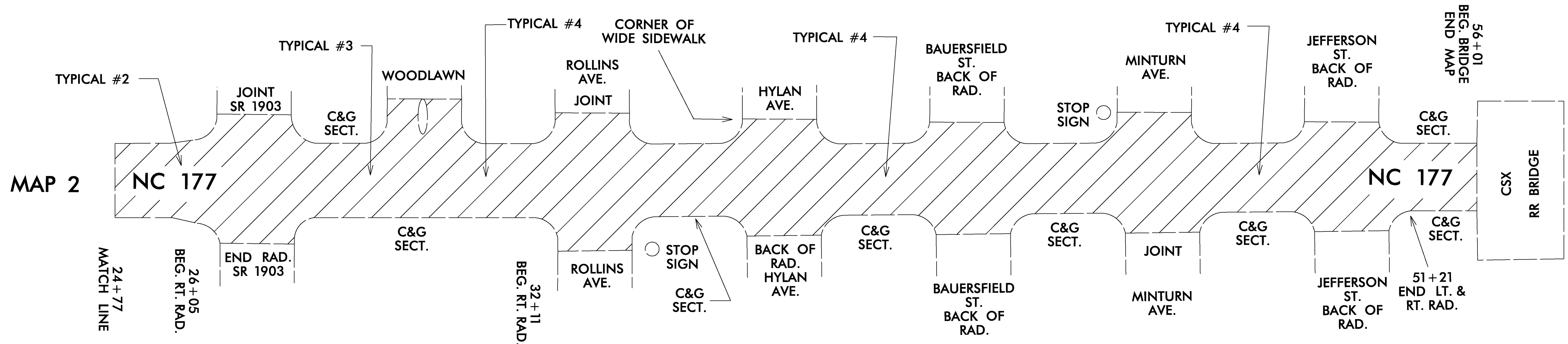
PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	4

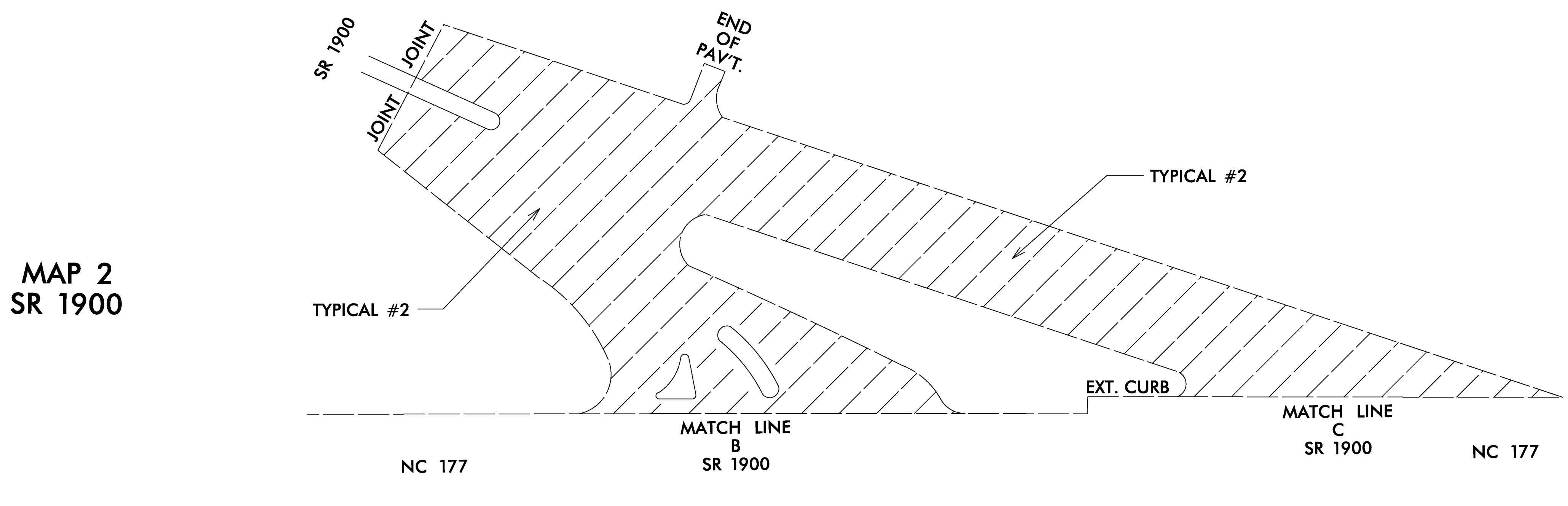
RICHMOND COUNTY



PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	5

RICHMOND COUNTY





5/28/99

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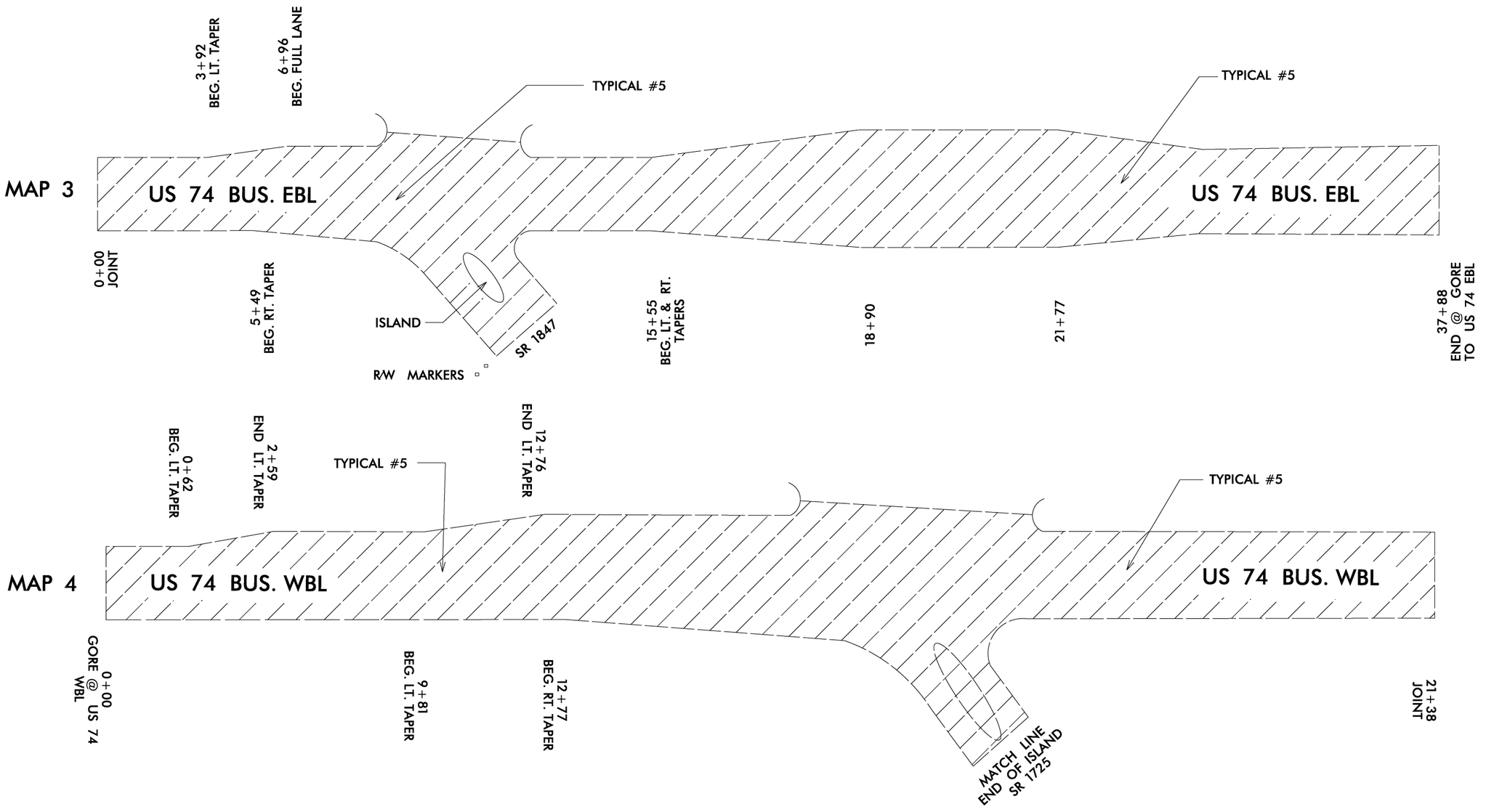
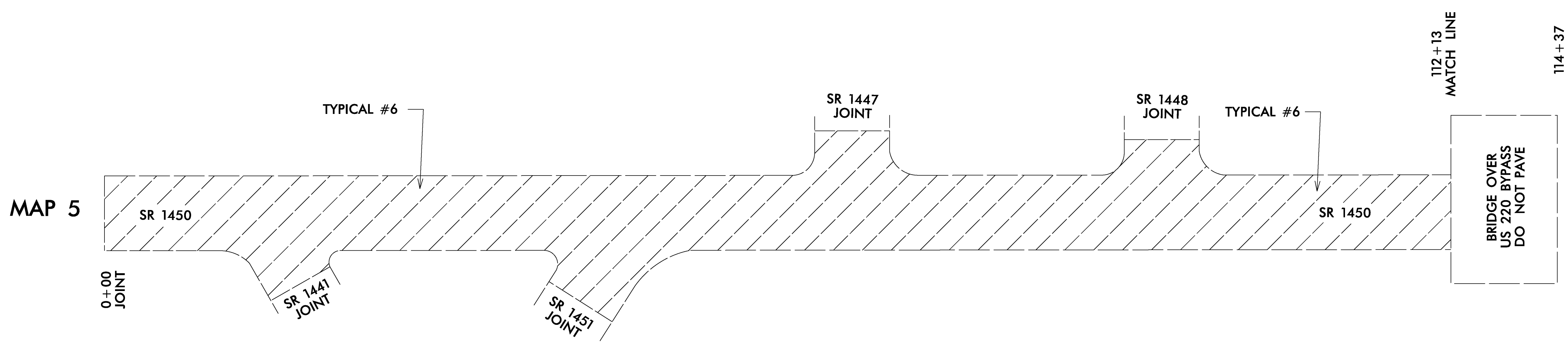
PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	6

RICHMOND COUNTY

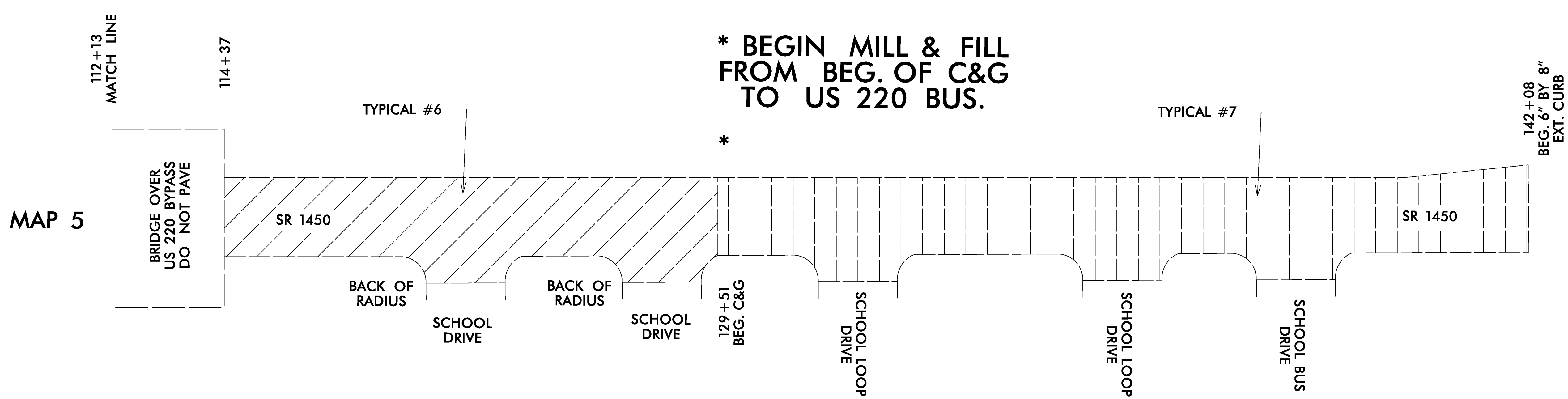


PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	7

RICHMOND COUNTY



* BEGIN MILL & FILL FROM BEG. OF C&G TO US 220 BUS.



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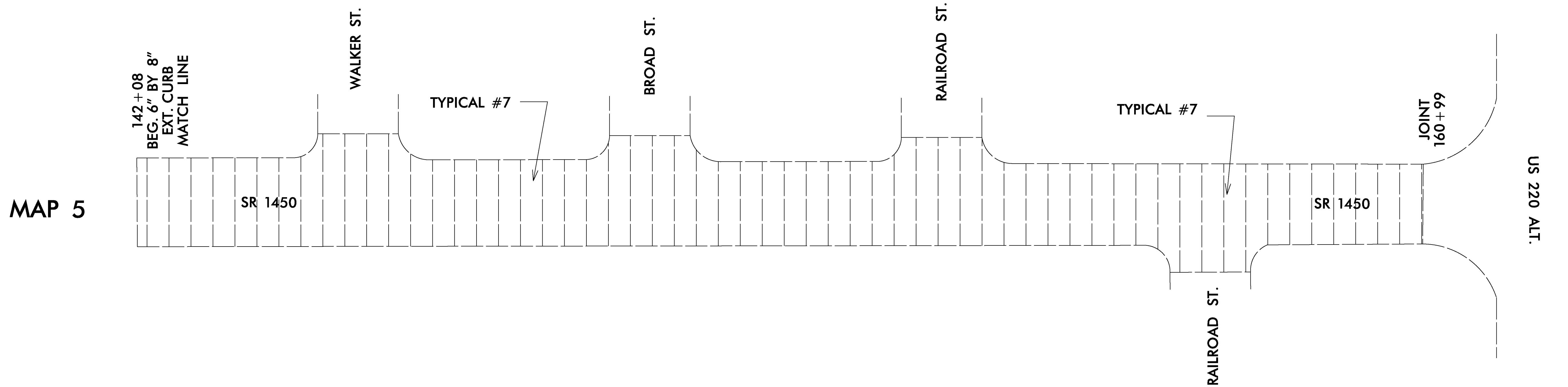
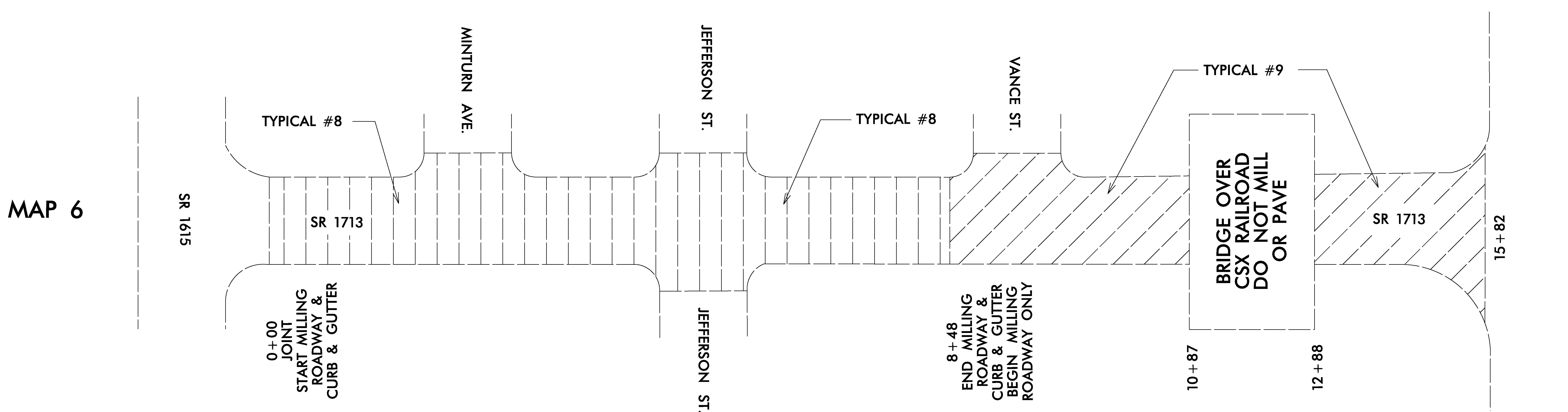
RICHMOND COUNTY





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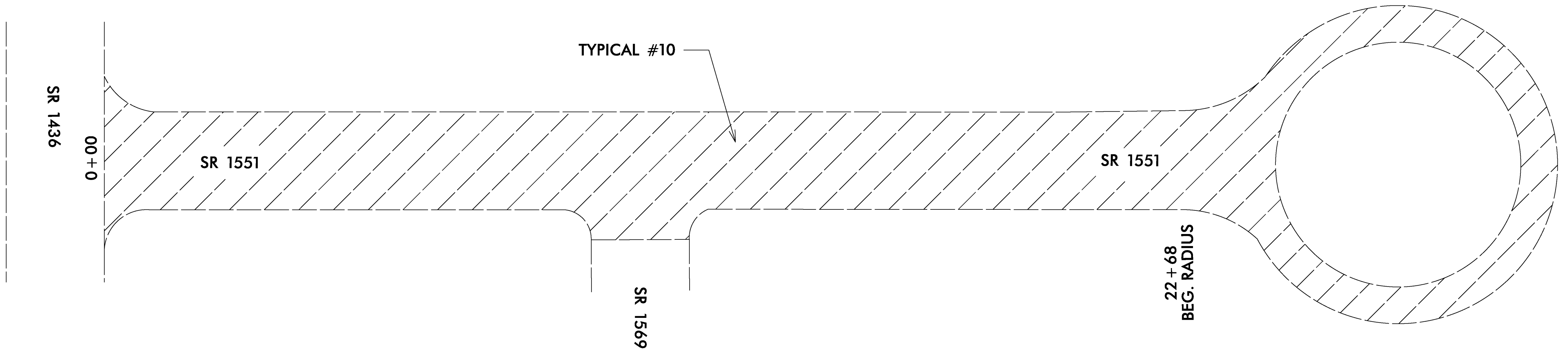
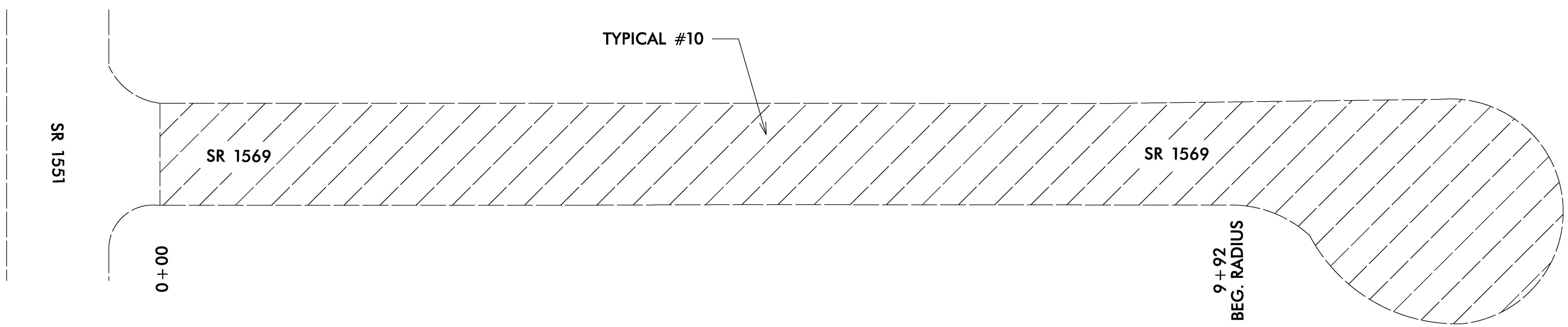
PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	9

RICHMOND COUNTY

MAP 7



MAP 8



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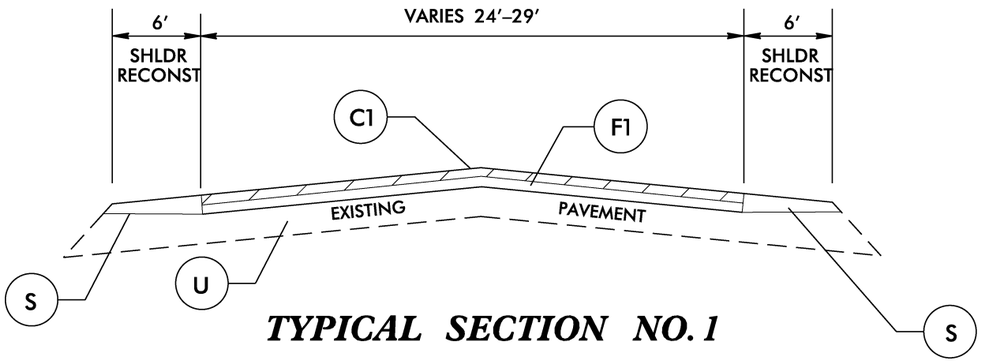
PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	10

RICHMOND COUNTY
TYPICAL SECTIONS



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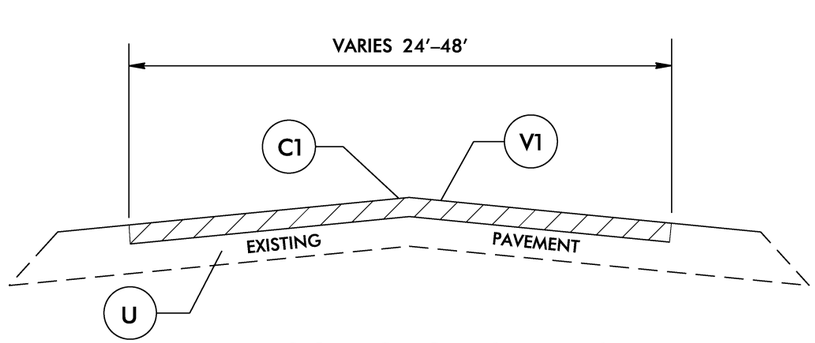

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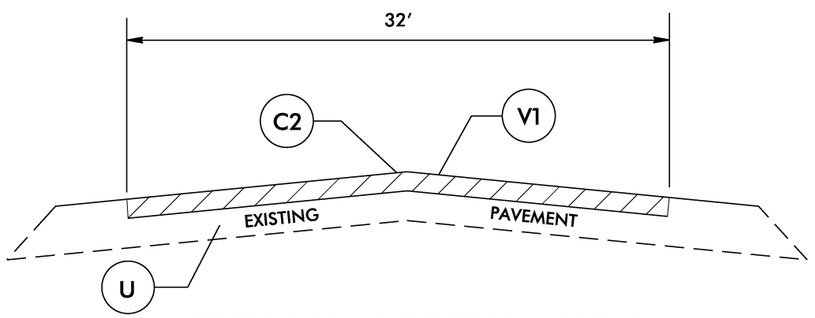

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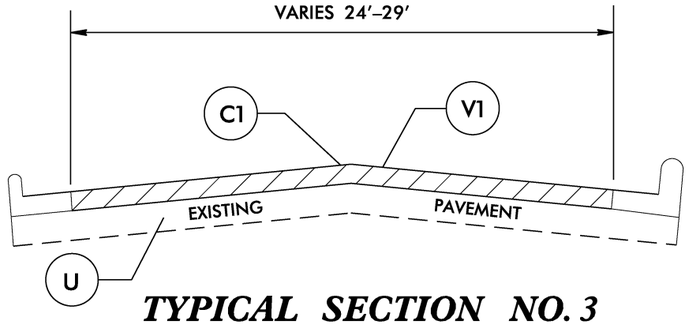

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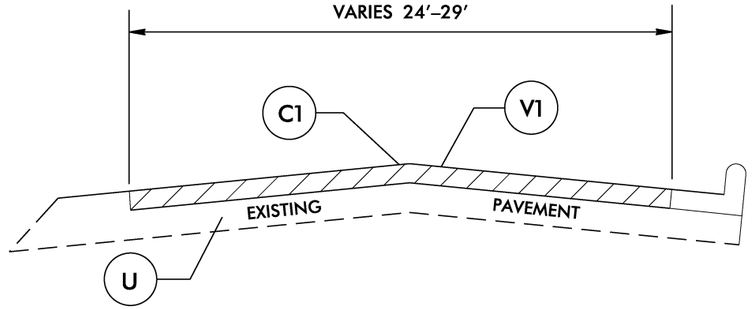


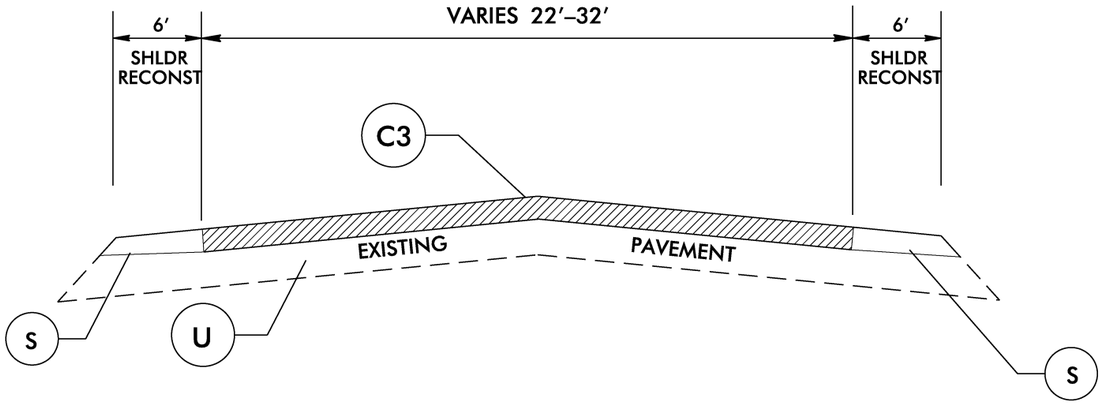
TYPICAL SECTION NO. 4

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2″ ASPHALT SURFACE COURSE TYPE S9.5B AT AN AVERAGE RATE OF 168.0 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/2″ ASPHALT SURFACE COURSE TYPE S9.5C AT AN AVERAGE RATE OF 168.0 LBS. PER SQ. YD.
F1	ASPHALT SURFACE TREATMENT, SINGLE SEAL (78M STONE)
S	AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT
V1	MILLING 1.50″ IN DEPTH

PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	11

RICHMOND COUNTY
TYPICAL SECTIONS



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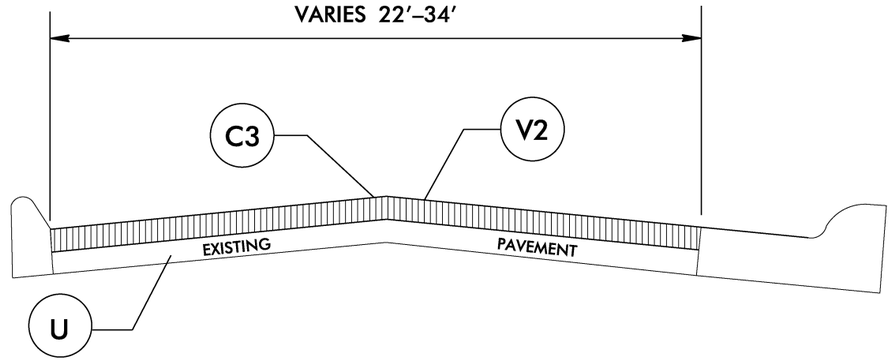
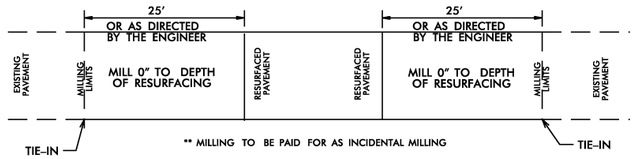


TYPICAL SECTION NO. 7

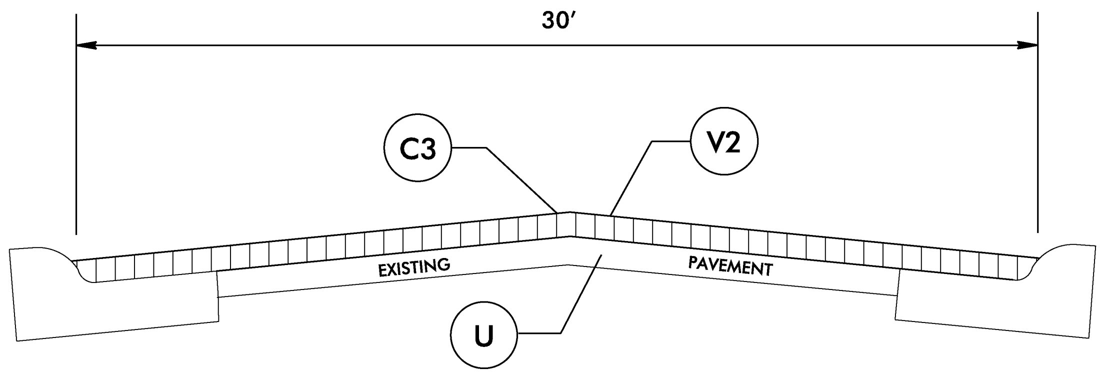


PAVEMENT TIE–IN DETAIL

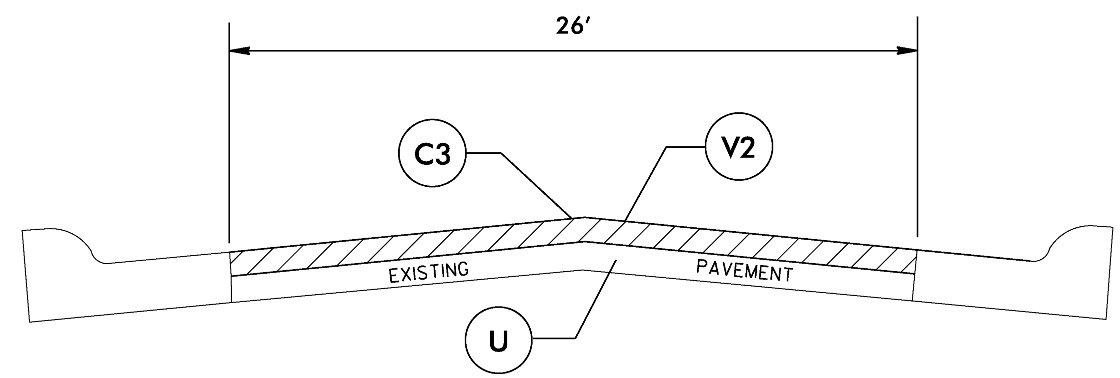
PAVEMENT SCHEDULE	
C3	PROP. APPROX. 1 1⁄4" ASPHALT SURFACE COURSE TYPE SF9.5A AT AN AVERAGE RATE OF 137.50 LBS. PER SQ. YD.
S	AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT
V2	MILLING 1.25" IN DEPTH

PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, 8CR.20771.27 8SP.20775.1	12

RICHMOND COUNTY
TYPICAL SECTIONS



TYPICAL SECTION NO. 8



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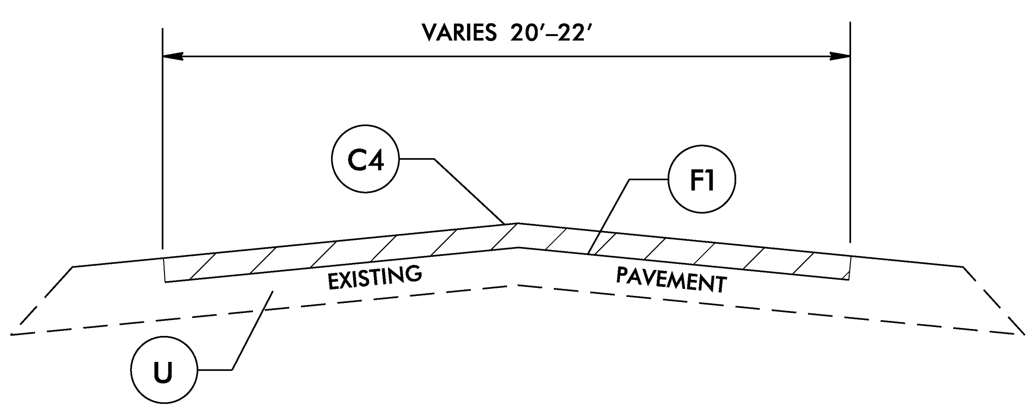
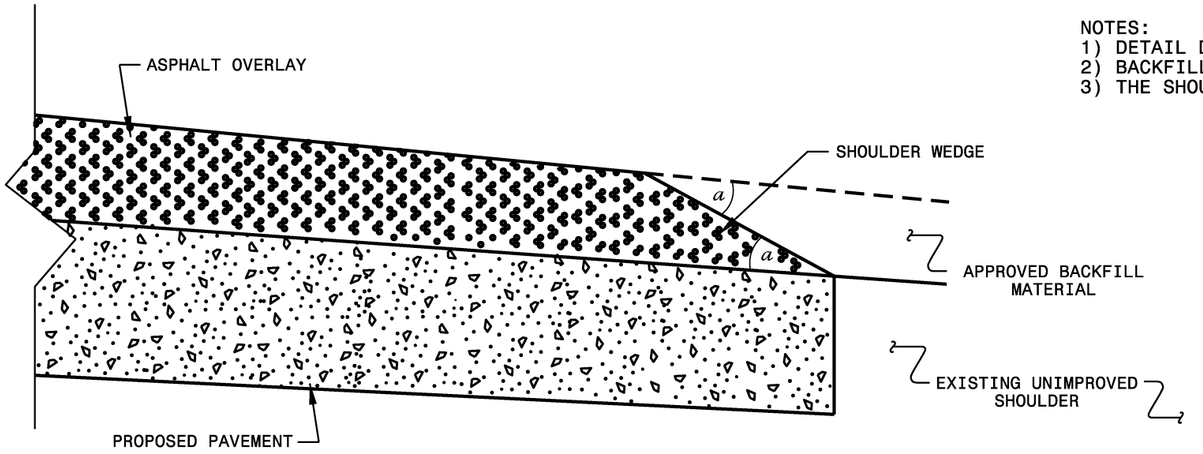


TYPICAL SECTION NO. 10

PAVEMENT SCHEDULE	
C3	PROP. APPROX. 1 1⁄4" ASPHALT SURFACE COURSE TYPE SF9.5A AT AN AVERAGE RATE OF 137.50 LBS. PER SQ. YD.
C4	PROP. APPROX. 3⁄4" ASPHALT SURFACE COURSE TYPE S4.75A AT AN AVERAGE RATE OF 75.00 LBS. PER SQ. YD.
F1	ASPHALT SURFACE TREATMENT, SINGLE SEAL (78M STONE)
U	EXISTING PAVEMENT
V2	MILLING 1.25" IN DEPTH

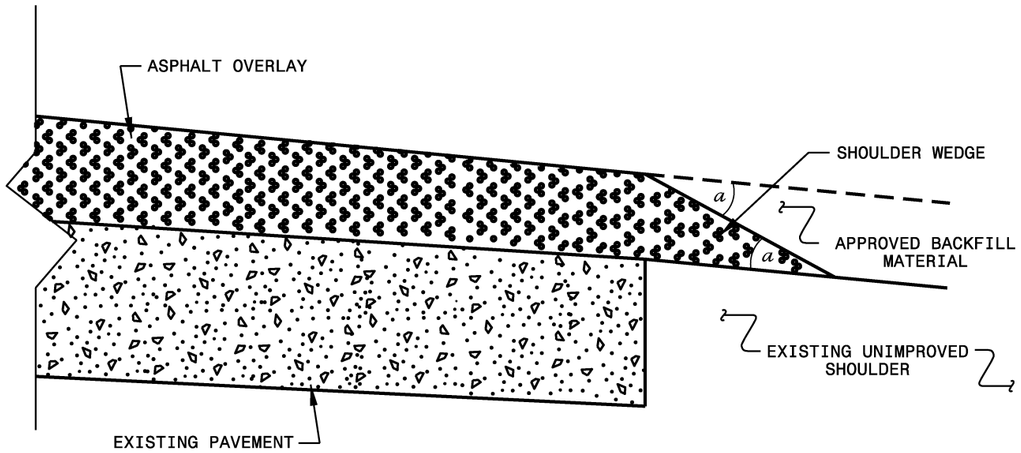
PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, Etc.	13

NOTES:
1) DETAIL DOES NOT APPLY TO OGAFC 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.



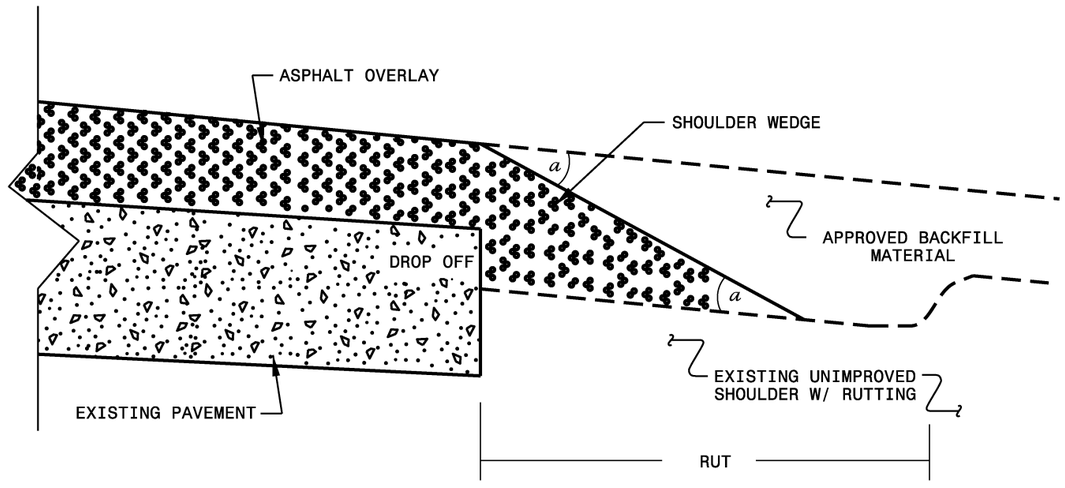
SHOULDER WEDGE DETAIL

(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/shoulderwedgedetail.dgn

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.10771.27, 8CR.20771.27	14	
8SP.20775.1,		

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	GENERIC GRADING ITEM - AGGREGATE SHOULDER BORROW TON	SHOULDER RECONSTRUCTION SMI	1.5" MILLING SY	1.25" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, S9.5C TONS	SURFACE COURSE, SF9.5A TON	SURFACE COURSE, S4.75A TONS	ASPHALT BINDER FOR PLANT MIX TONS	ASPHALT SURFACE TREATMENT, SINGLE SEAL SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	INDUCTIVE LOOP SAWCUT LF
8CR.10771.27	Richmond	1	US 1	FROM SC LINE TO SR 1105 (HAMMER MILL RD.)	1	2	2WU	NO	NO	7.27	24-29	2,054.00	14.67			175	10,565				634	114,309.00	40,009			
TOTAL FOR MAP NO. 1										**7.27**		**2,054.00**	**14.67**			**175**	**10,565**				**634**	**114,309.00**	**40,009**			
8CR.10771.27	Richmond	2	NC 177	FROM PVT. JT. 0.18 MI. SOUTH OF SR 1900 TO CSX RR BRIDGE	2,3, & 4	2	2WU	NO	NO	1.06	24-48			22,941			2,125				128			17	17	1,000
TOTAL FOR MAP NO. 2										**1.06**				**22,941**			**2,125**				**128**			**17**	**17**	**1,000**
8CR.10771.27	Richmond	3	US 74 BUS EBL	FROM PVT. JT. 0.18 MI WEST OF SR 1847 TO GORE AT US 74 BYPASS EBL	5	2	MD	NO	NO	0.72	32			17,432				1,615			95					
TOTAL FOR MAP NO. 3										**0.72**				**17,432**				**1,615**			**95**					
8CR.10771.27	Richmond	4	US 74 BUS WBL	FROM GORE @ US 74 BYPASS WBL TO PAVT. JT. 0.09 MI WEST OF SR 1725	5	2	MD	NO	NO	0.48	32			10,611				985			58					
TOTAL FOR MAP NO. 4										**0.48**				**10,611**				**985**			**58**					
TOTAL FOR PROJ NO. 8CR.10771.27										**9.53**		**2,054.00**	**14.67**	**50,984**		**175**	**12,690**	**2,600**			**915**	**114,309.00**	**40,009**	**17**	**17**	**1,000**
8CR.20771.27	Richmond	5	SR 1450	FROM US 220 BUS. TO SR 1441	6,7	2	2WU	NO	NO	3.06	22-34	754.00	5.38		11,927	2,345			3,405		228			1		
TOTAL FOR MAP NO. 5										**3.06**		**754.00**	**5.38**		**11,927**	**2,345**			**3,405**		**228**			**1**		
8CR.20771.27	Richmond	6	SR 1713	FROM SR 1615 TO SR 1714	8,9	2	2WU	NO	NO	0.3	26-30				2,345				380		25			7	2	
TOTAL FOR MAP NO. 6										**0.3**					**2,345**				**380**		**25**			**7**	**2**	
TOTAL FOR PROJ NO. 8CR.20771.27										**3.36**		**754.00**	**5.38**		**14,272**	**2,345**			**3,785**		**253**			**8**	**2**	
8SP.20775.1	Richmond	7	SR 1551	FROM SR 1436 TO DEAD END	10	2	2WU	NO	NO	0.44	20									240	16	5,782.00	2,024			
TOTAL FOR MAP NO. 7										**0.44**										**240**	**16**	**5,782.00**	**2,024**			
8SP.20775.1	Richmond	8	SR 1569	FROM SR 1551 TO DEAD END	10	2	2WU	NO	NO	0.2	22									125	9	2,992.00	1,048			
TOTAL FOR MAP NO. 8										**0.2**										**125**	**9**	**2,992.00**	**1,048**			
TOTAL FOR PROJ NO. 8SP.20775.1										**0.64**										**365**	**25**	**8,774.00**	**3,072**			
GRAND TOTAL										**13.53**		**2,808.00**	**20.05**	**50,984**	**14,272**	**2,520**	**12,690**	**2,600**	**3,785**	**365**	**1,193**	**123,083.00**	**43,081**	**25**	**19**	**1,000**

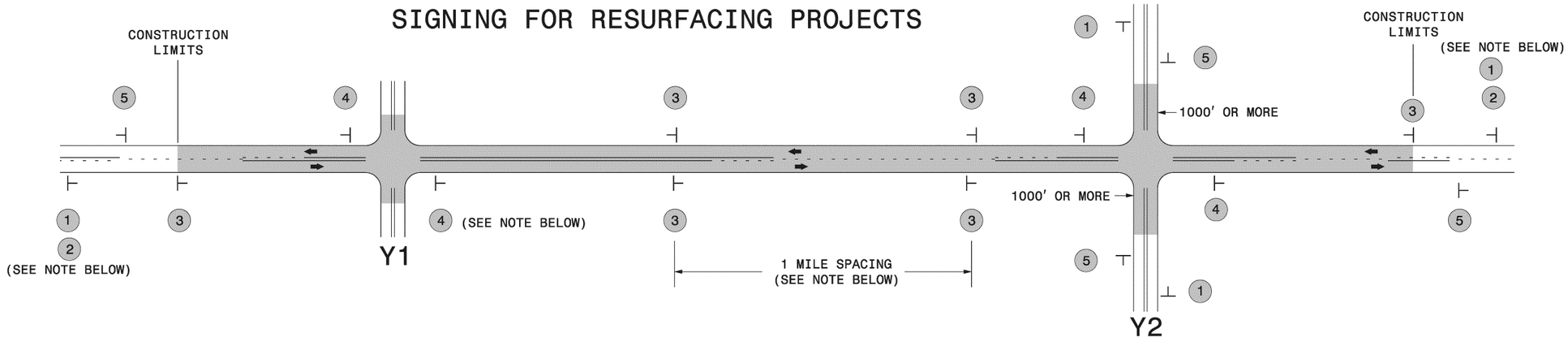
PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.10771.27, 8CR.20771.27	15	
8SP.20775.1,		

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E WORK ZONE ADVANCE/GENERAL WARNING SIGNING SF	4457000000-N TEMPORARY TRAFFIC CONTROL LS	4510000000-N LAW ENFORCEMENT HR	4685000000-E 4" X 90 M WHITE THERMO LF	4" X 90 M YELLOW THERMO LF	4686000000-E 4" X 120 M YELLOW THERMO LF	4" X 120 M WHITE THERMO LF	4688000000-E 6" X 90 M WHITE THERMO LF	6" X 90 M YELLOW THERMO LF	4690000000-E 6" X 120 M WHITE THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4721000000-E THERMO MSG SCHOOL 120 M EA	4725000000-E THERMO LT ARROW 90 M EA	THERMO STR ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO MERGE ARROW 90 M EA	4770000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE II (4") LF	4810000000-E 4" WHITE PAINT LF	4" YELLOW PAINT LF	4815000000-E 6" WHITE PAINT LF	6" YELLOW PAINT LF	4835000000-E 24" WHITE PAINT LF	4900000000-N YELLOW & YELLOW MARKERS EA	4905000000-N SNOW PLOWABLE MARKERS Y & Y MARKERS EA	SNOW PLOWABLE MARKERS C & R MARKERS EA
8CR.10771.27	Richmond	1	US 1	FROM SC LINE TO SR 1105 (HAMMER MILL RD.)	1	2	2WU	7.27	24	815			76,253		58,279	243																	10	500	
TOTAL FOR MAP NO. 1								**7.27**		**815**			**76,253**		**58,279**	**243**																	**10**	**500**	
8CR.10771.27	Richmond	2	NC 177	FROM PVT. JT. 0.18 MI. SOUTH OF SR 1900 TO CSX RR BRIDGE	2,3, & 4	2	2WU	1.06	26	119		40	11,406		9,591	134				71							21,100				71	2	72	
TOTAL FOR MAP NO. 2								**1.06**		**119**		**40**	**11,406**		**9,591**	**134**				**71**							**21,100**				**71**	**2**	**72**	
8CR.10771.27	Richmond	3	US 74 BUS EBL	FROM PVT. JT. 0.18 MI WEST OF SR 1847 TO GORE AT US 74 BYPASS EBL	5	2	MD	0.72	32	239			1,567	958	160	304	2,710	2,780	530	66		3	4	1	5		1,900	1,200	3,150	2,300	66		2	62
TOTAL FOR MAP NO. 3								**0.72**		**239**			**1,567**	**958**	**160**	**304**	**2,710**	**2,780**	**530**	**66**		**3**	**4**	**1**	**5**		**1,900**	**1,200**	**3,150**	**2,300**	**66**		**2**	**62**
8CR.10771.27	Richmond	4	US 74 BUS WBL	FROM GORE @ US 74 BYPASS WBL TO PAVT. JT. 0.09 MI WEST OF SR 1725	5	2	MD	0.48	32	158			400	523	246	200	1,847	1,542	426	40		3	4	1			522	240	2,275	1,550	40	2	4	43
TOTAL FOR MAP NO. 4								**0.48**		**158**			**400**	**523**	**246**	**200**	**1,847**	**1,542**	**426**	**40**		**3**	**4**	**1**			**522**	**240**	**2,275**	**1,550**	**40**	**2**	**4**	**43**
TOTAL FOR PROJ NO. 8CR.10771.27								**9.53**		**1,331**	*	**40**	**89,626**	**1,481**	**68,276**	**881**	**4,557**	**4,322**	**956**	**177**		**6**	**8**	**2**	**5**		**23,522**	**1,440**	**5,425**	**3,850**	**177**	**14**	**578**	**105**
													91,107		**69,157**		**8,879**					**21**					**24,962**		**9,275**				**683**	
8CR.20771.27	Richmond	5	SR 1450	FROM US 220 BUS. TO SR 1441	6,7	2	2WU	3.06	22	377										100	12		2			732	63,820	48,816				210		
TOTAL FOR MAP NO. 5								**3.06**		**377**										**100**	**12**		**2**			**732**	**63,820**	**48,816**				**210**		
8CR.20771.27	Richmond	6	SR 1713	FROM SR 1615 TO SR 1714	8,9	2	2WU	0.3	26-30																	1,206	5,524	5,100						
TOTAL FOR MAP NO. 6								**0.3**																		**1,206**	**5,524**	**5,100**						
TOTAL FOR PROJ NO. 8CR.20771.27								**3.36**		**377**	*									**100**	**12**		**2**			**1,938**	**69,344**	**53,916**				**210**		
																							2				**123,260**							
8SP.20775.1	Richmond	7	SR 1551	FROM SR 1436 TO DEAD END	10	2	2WU	0.44	20	50																								
TOTAL FOR MAP NO. 7								**0.44**		**50**																								
8SP.20775.1	Richmond	8	SR 1569	FROM SR 1551 TO DEAD END	10	2	2WU	0.2	22	23																								
TOTAL FOR MAP NO. 8								**0.2**		**23**																								
TOTAL FOR PROJ NO. 8SP.20775.1								**0.64**		**73**	*																							
GRAND TOTAL								**13.53**		**1,781**	**1**	**40**	**89,626**	**1,481**	**68,276**	**881**	**4,557**	**4,322**	**956**	**277**	**12**	**6**	**10**	**2**	**5**	**1,938**	**92,866**	**55,356**	**5,425**	**3,850**	**177**	**224**	**578**	**105**
													91,107		**69,157**		**8,879**					**23**					**148,222**		**9,275**				**683**	

PROJ. REFERENCE NO.	SHEET NO.
8CR.10771.27, Etc.	TMP-1

SIGNING FOR RESURFACING PROJECTS



LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1 — ROAD WORK AHEAD, 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.

2 — NEXT XX MILES, 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 — LOW/SOFT SHOULDER, 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 ½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.

4 — ROAD UNDER CONST, 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 — END ROAD WORK, G20-2 A, 48″ X 24″
PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS.

-Y- LINE SIGNING

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.

ROAD WORK AHEAD, W20-1, 48″ X 48″ — PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A, 48″ X 48″ — PLACED 250′ IN ADVANCE OF FLAGGER.

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

RESURFACING ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2 LANE ROADWAYS

3/19/2015
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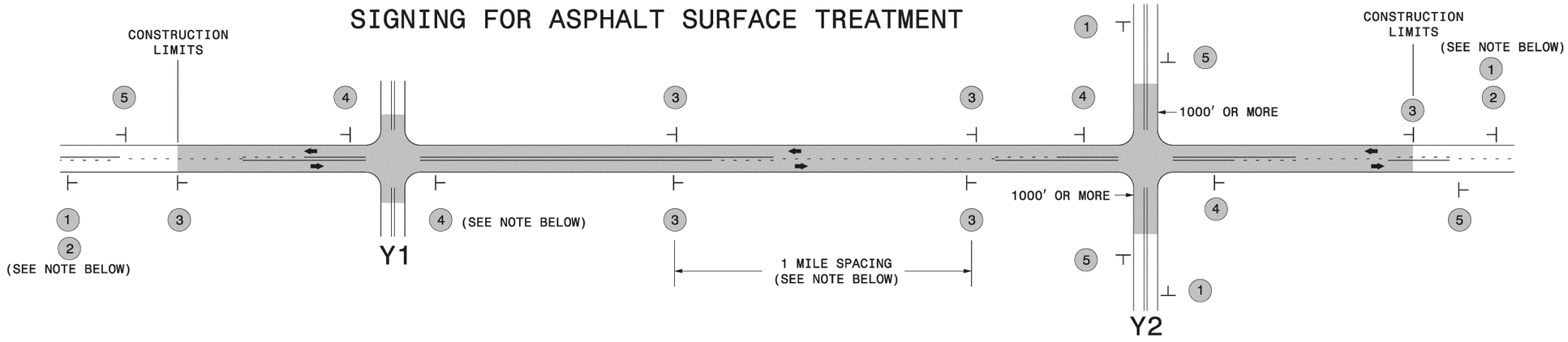
User:rmgarrett

PROJ. REFERENCE NO.	SHEET NO.
8CR.10771.27, Etc.	TMP-2

SIGNING FOR ASPHALT SURFACE TREATMENT



LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1 — ROAD WORK AHEAD — 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.

2 — NEXT XX MILES — 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 — LOOSE GRAVEL — W8-7, 48″ X 48″
UNMARKED PAVEMENT — SP, 48″ X 48″
ALTERNATE THE FOLLOWING TWO SIGNS:
STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT".
PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET ½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.

4 — ROAD UNDER CONST — 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 — END ROAD WORK — G20-2 A, 48″ X 24″
PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS.

-Y- LINE SIGNING

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.

ROAD WORK AHEAD — W20-1, 48″ X 48″ — PLACED 500′ IN ADVANCE OF FLAGGER.

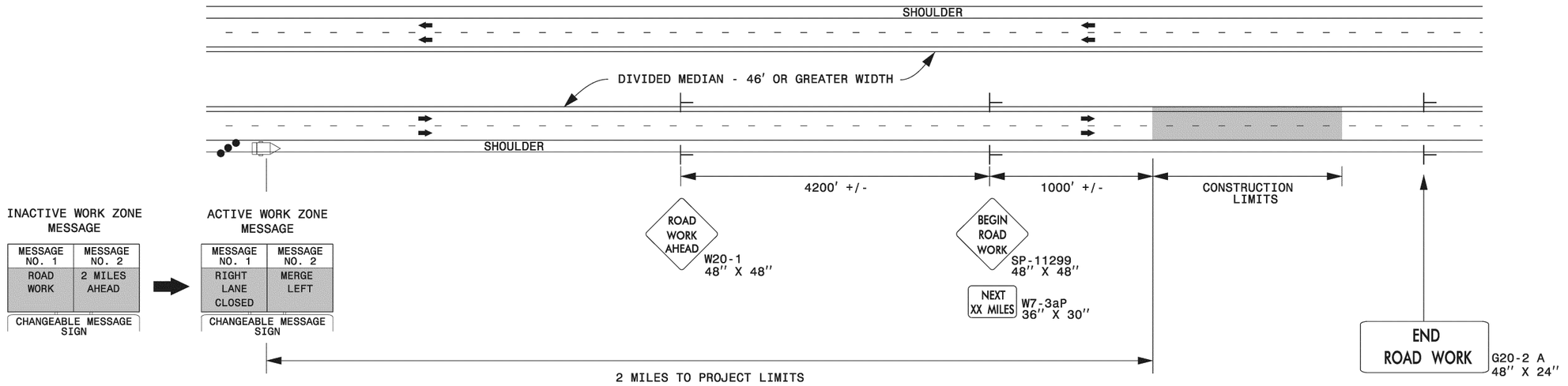
W20-7 A, 48″ X 48″ — PLACED 250′ IN ADVANCE OF FLAGGER.

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

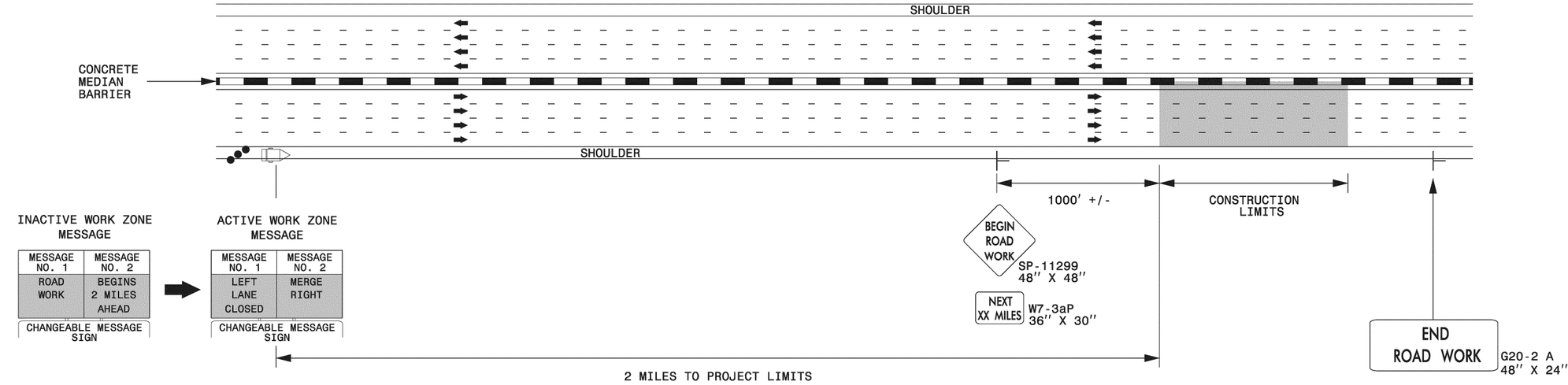
ADVANCE WARNING SIGNS FOR ASPHALT SURFACE TREATMENTS 2 LANE ROADWAYS

PROJ. REFERENCE NO.	SHEET NO.
8CR.10771.27, Etc.	TMP-3

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 RAMPS 500′ PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMPS 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

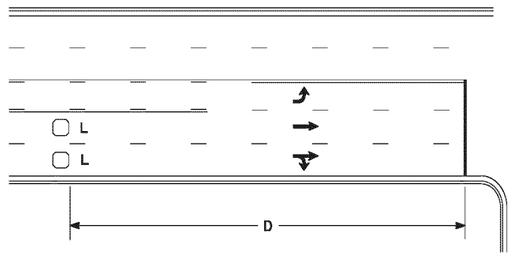
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

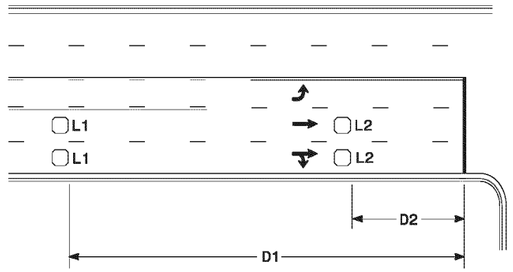
3/23/2015
C:\Users\rmgarrett\Downloads\Resurfacing_AdvWarn_HSpd.dgn
User:rmgarrett

PROJECT REFERENCE NO.	SHEET NO.
8CR.10771.27, ETC.	SIG-1

High Speed Detection
(≥40 mph)



OR



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

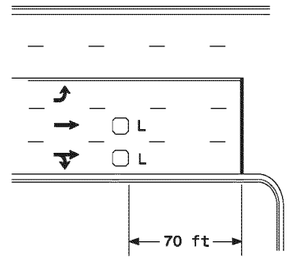
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft
Wired in series

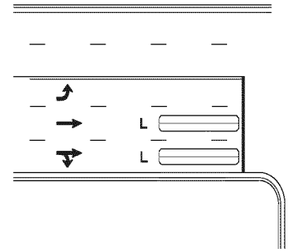
L2 = 6ft X 6ft
Wired in series

"Stretch" Operation

Low Speed Detection
(≤35 mph)



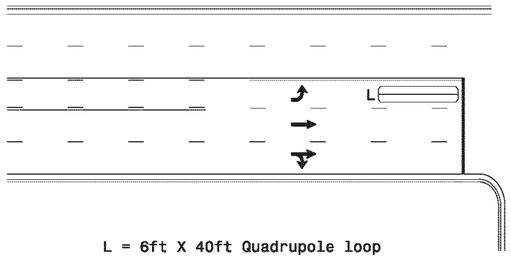
OR



L = 6ft X 6ft
Wired in series

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

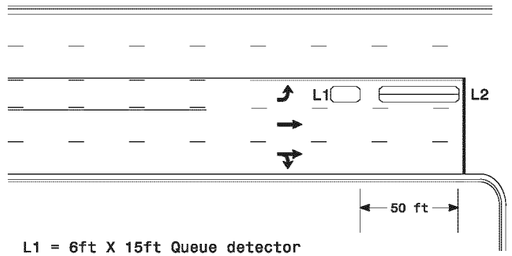
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

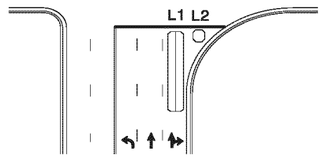
OR



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

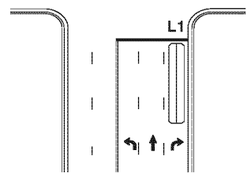
Queue Loop Detection

Right Turn Lane Detection

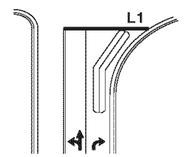


L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately

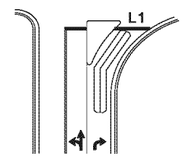
Shared Lane/
Wide Radius Turn



Standard Turn

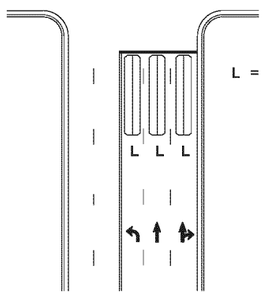


Wide Radius Turn



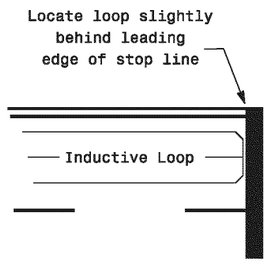
Channelized Turn

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

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

Typical Signal Loop Locations

PLAN DATE: January 2015 | REVIEWED BY: JPG
PREPARED BY: PLA | REVIEWED BY:

SCALE: N/A

REVISIONS	INIT.	DATE

Drawn by: P.L. Alexander 1/30/2015
DRAWING NAME: DATE
SIG. INVENTORY NO.

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 23489 ENGINEER PAMELA L. ALEXANDER

30-JAN-2015 12:39
S:\TSSG\MTS Signals\Signal Design Section\Eastern Region\loop-yo(2015.dgn
palexander