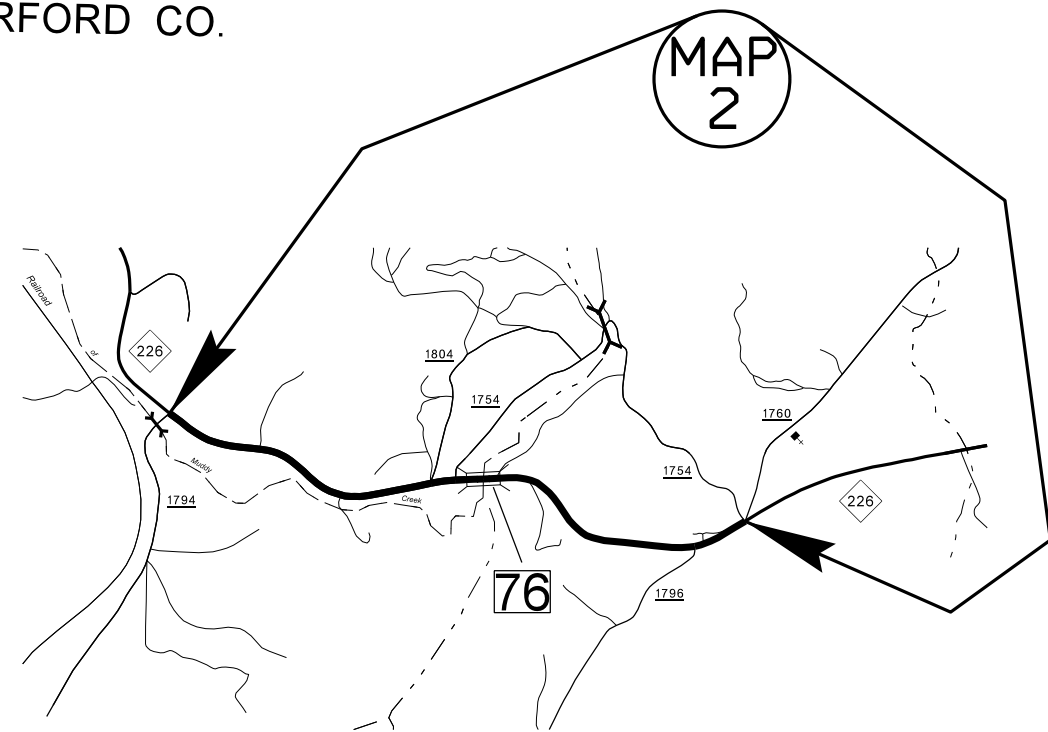
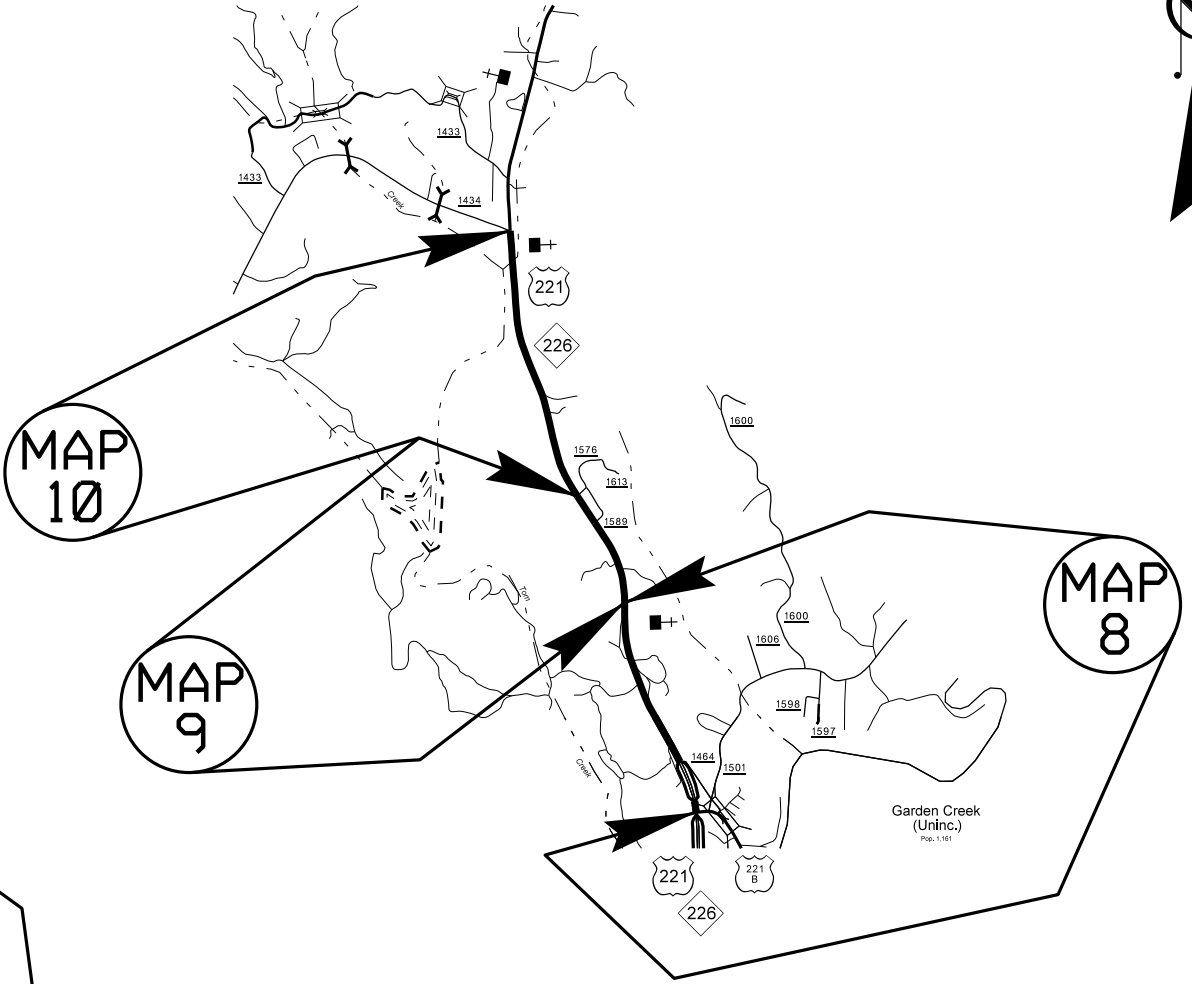
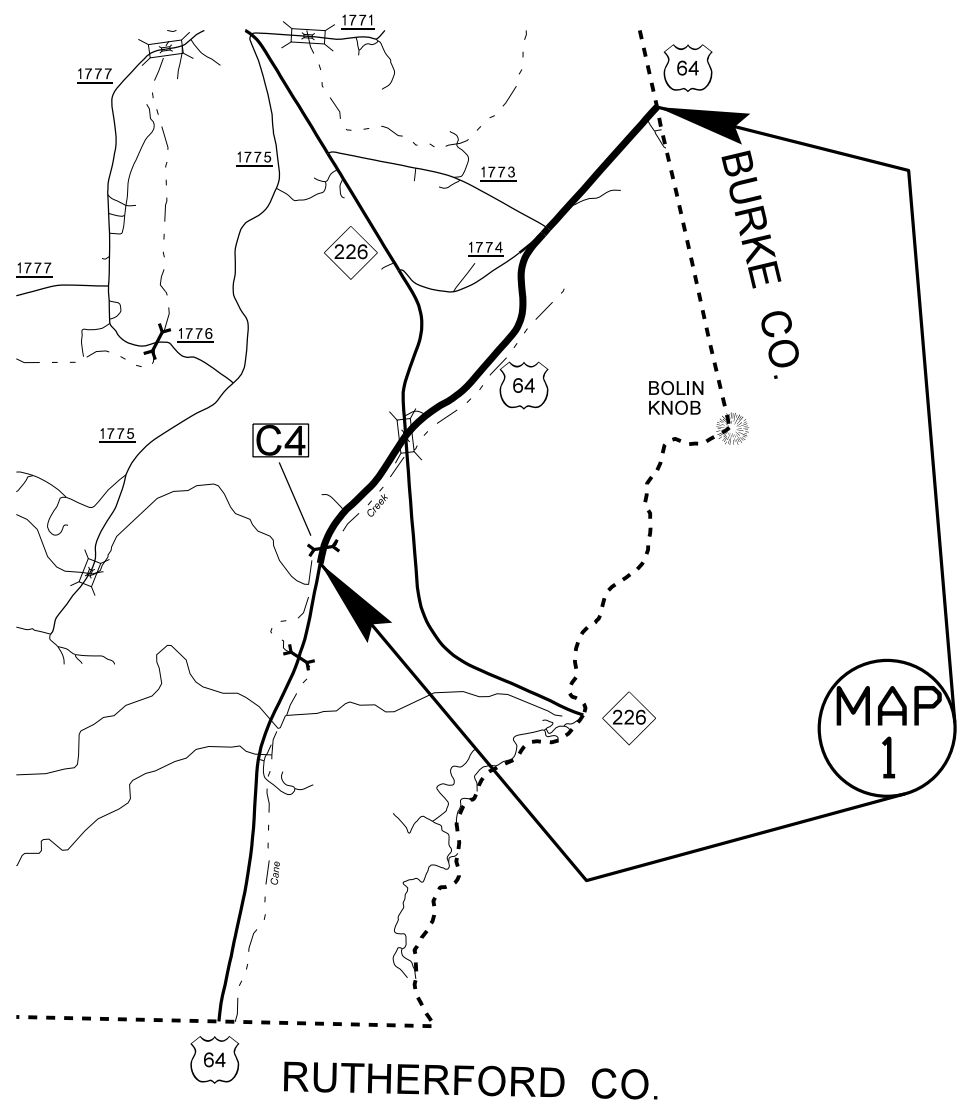


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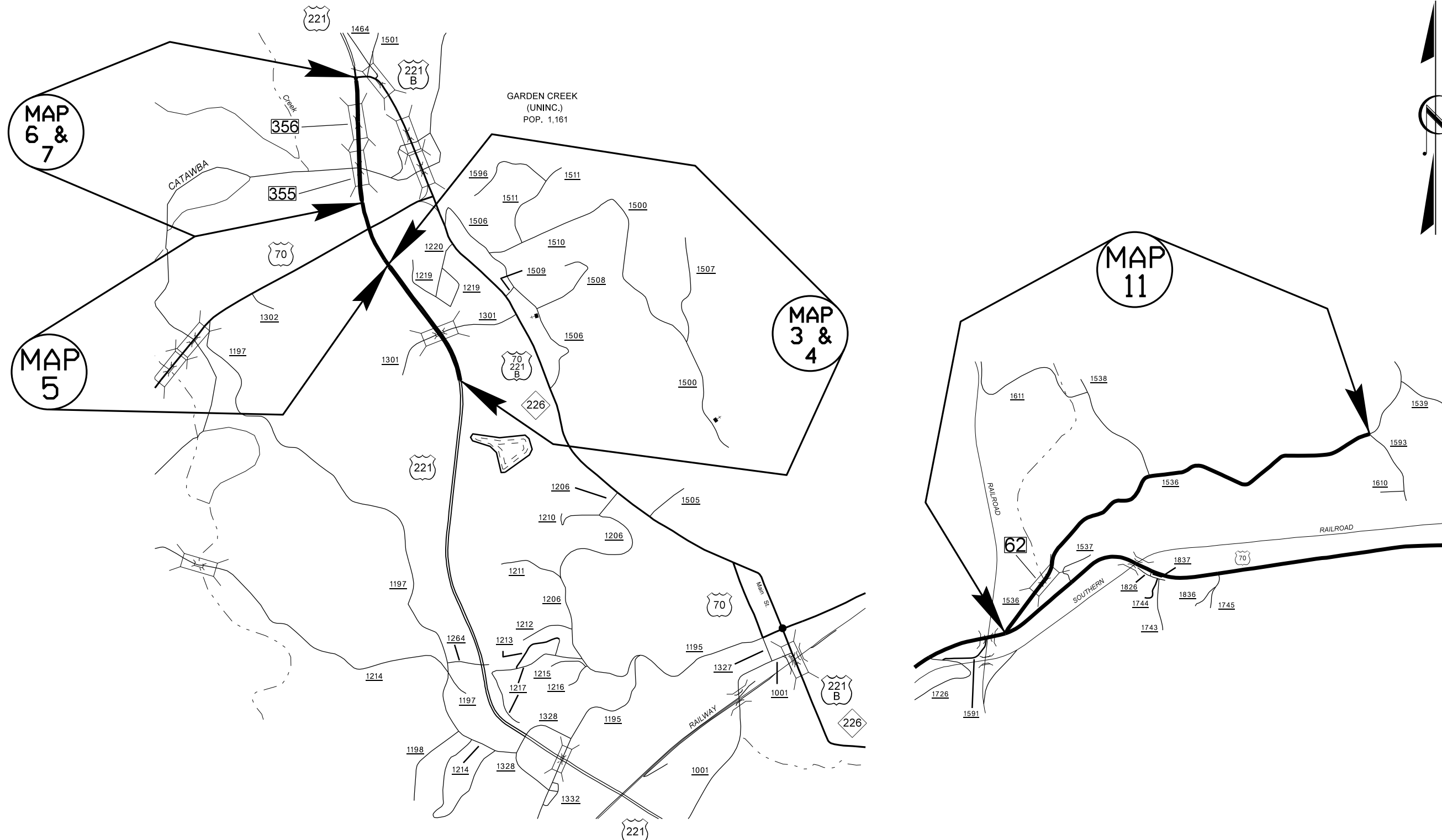
**This file or an individual page
shall not be considered a certified document.**

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	1	



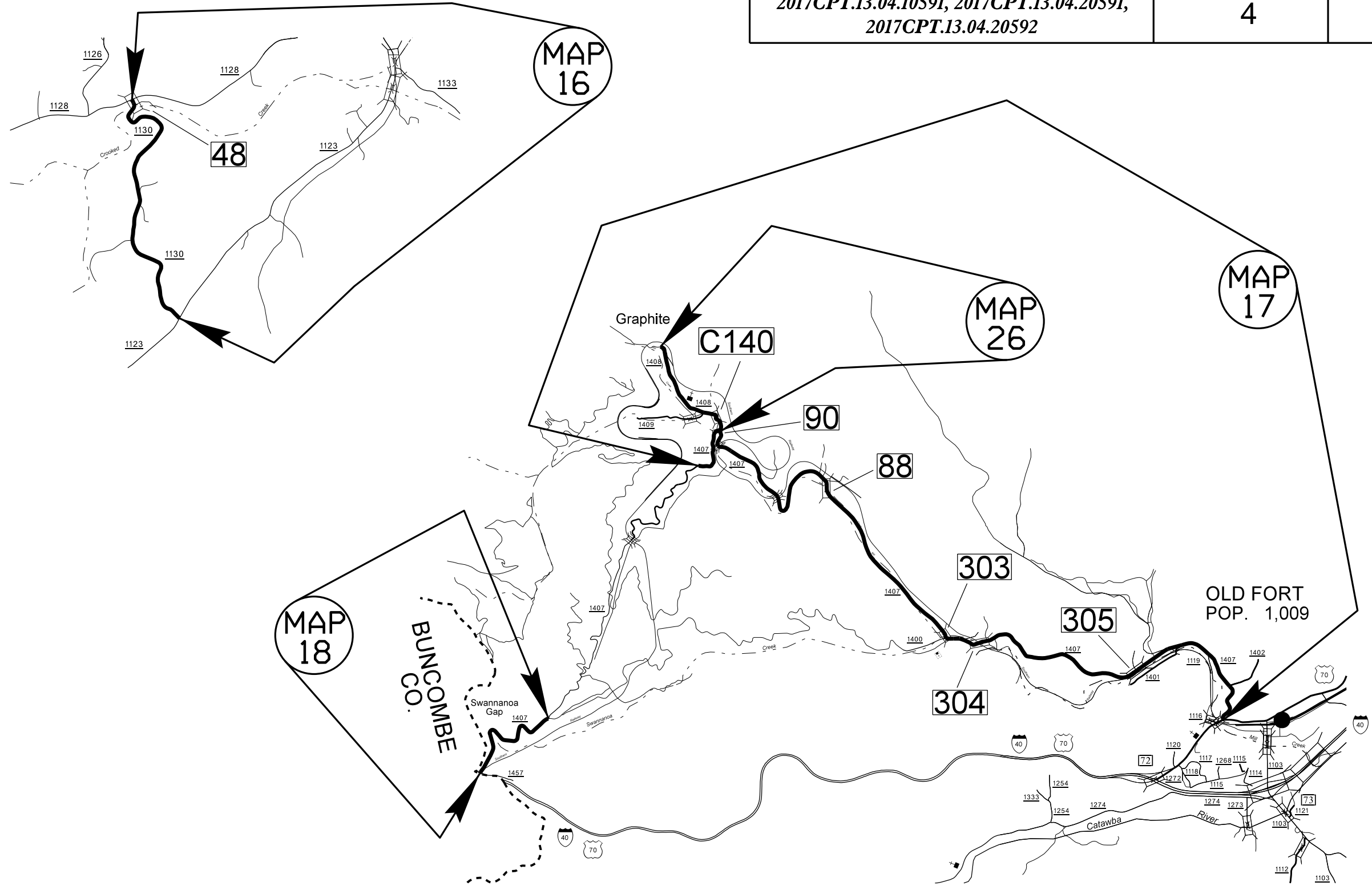
McDOWELL COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	2	



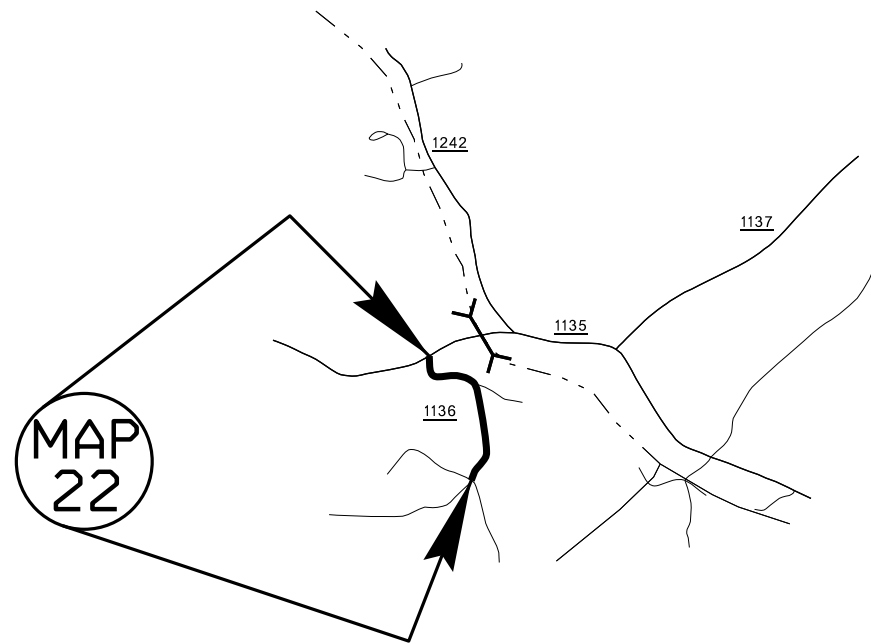
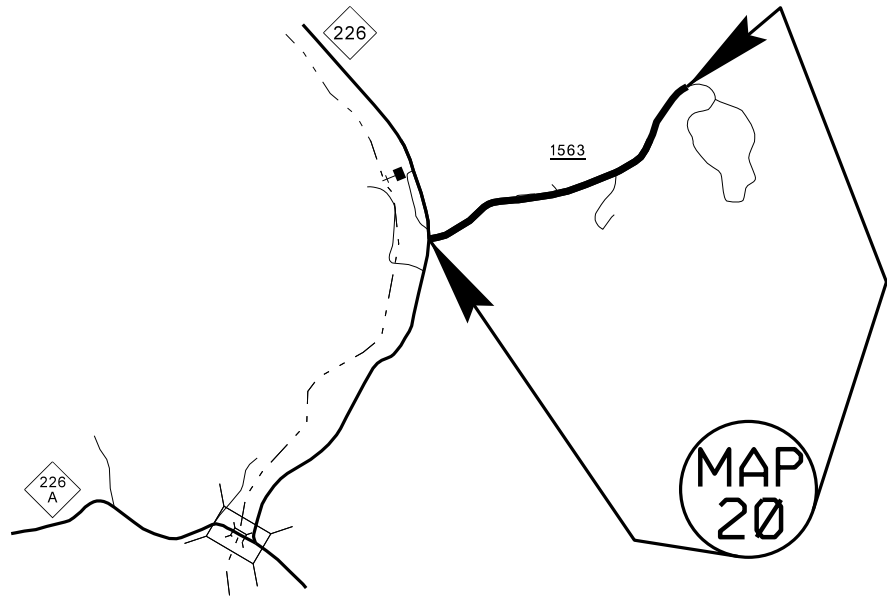
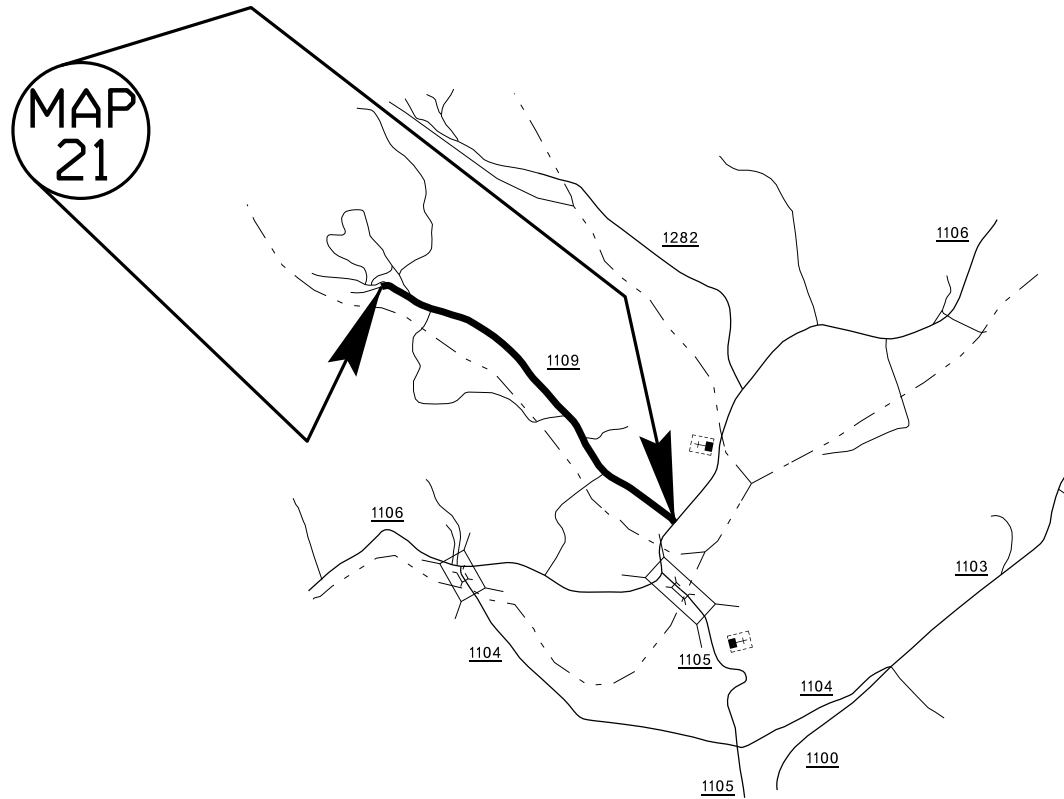
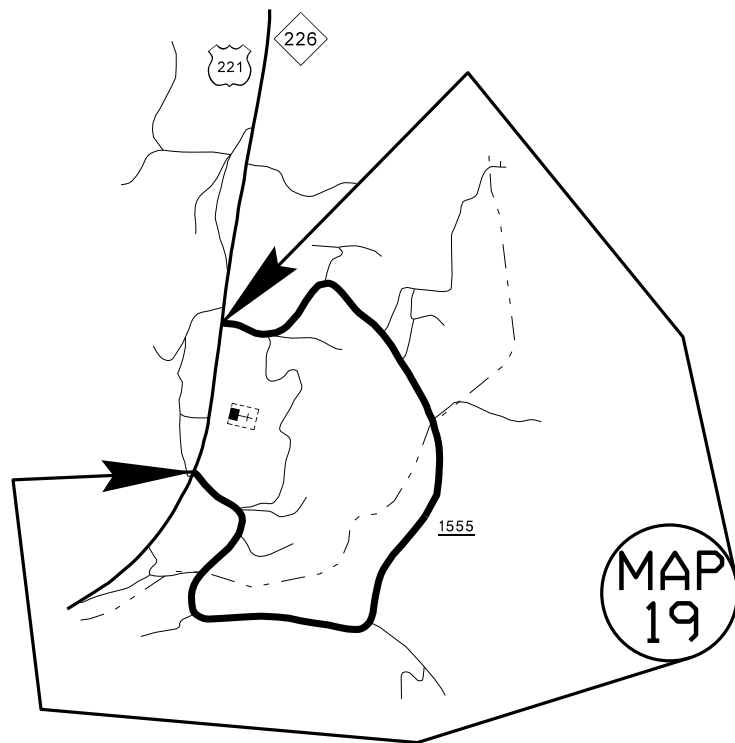
McDOWELL COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	4	



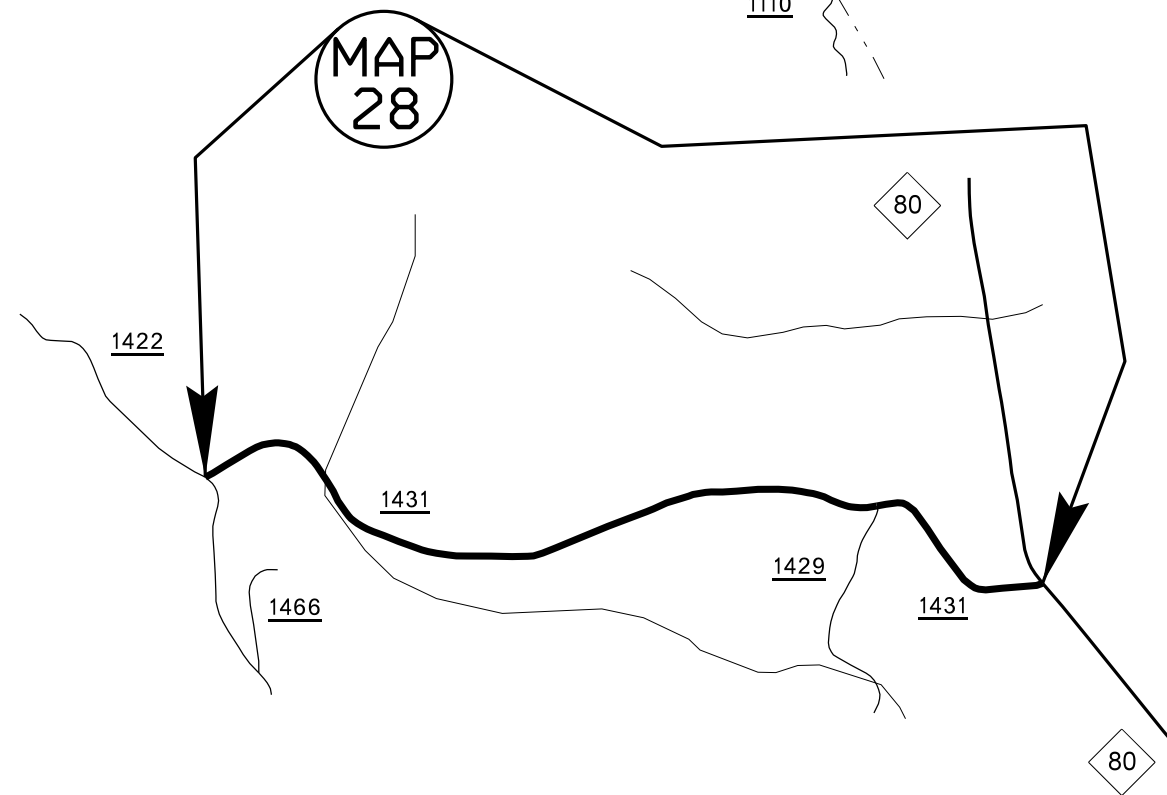
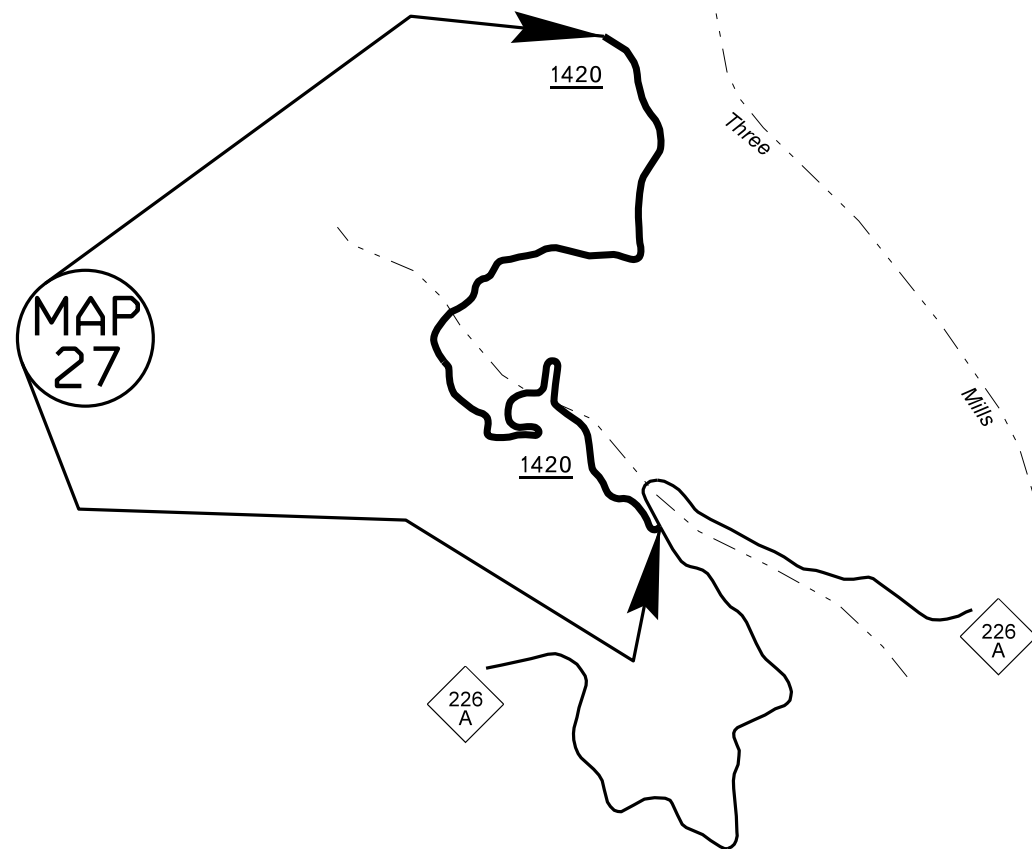
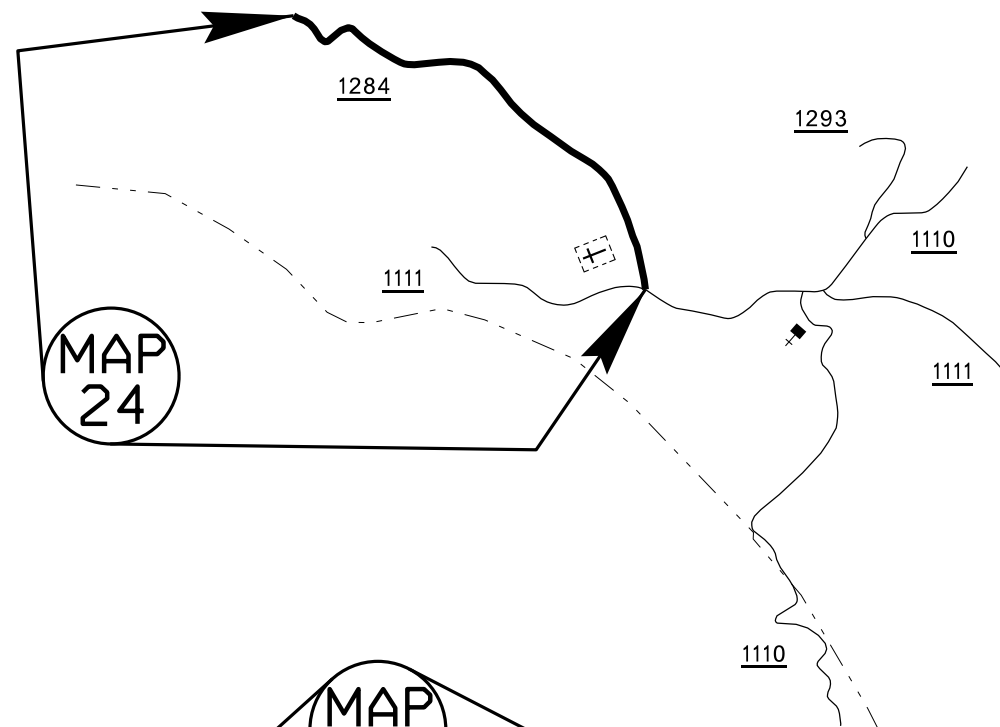
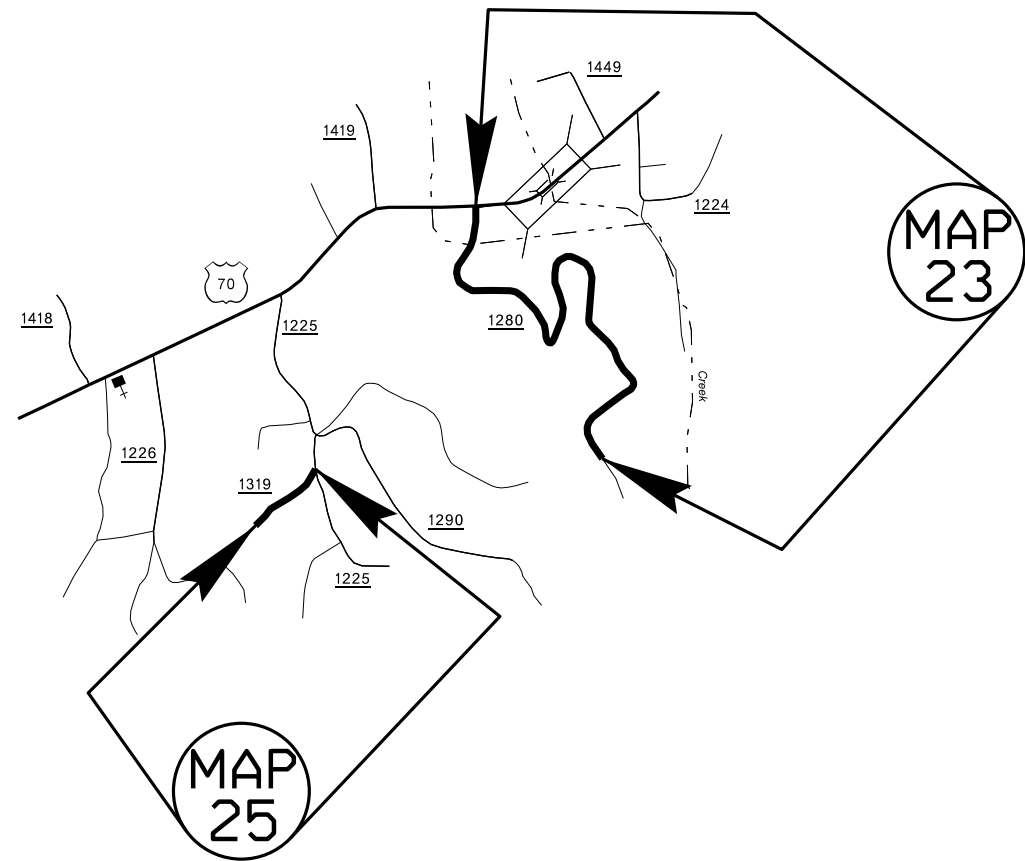
McDOWELL COUNTY

<i>PROJECT NO.</i>	<i>SHEET NO.</i>	<i>TOTAL SHEETS</i>
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	5	



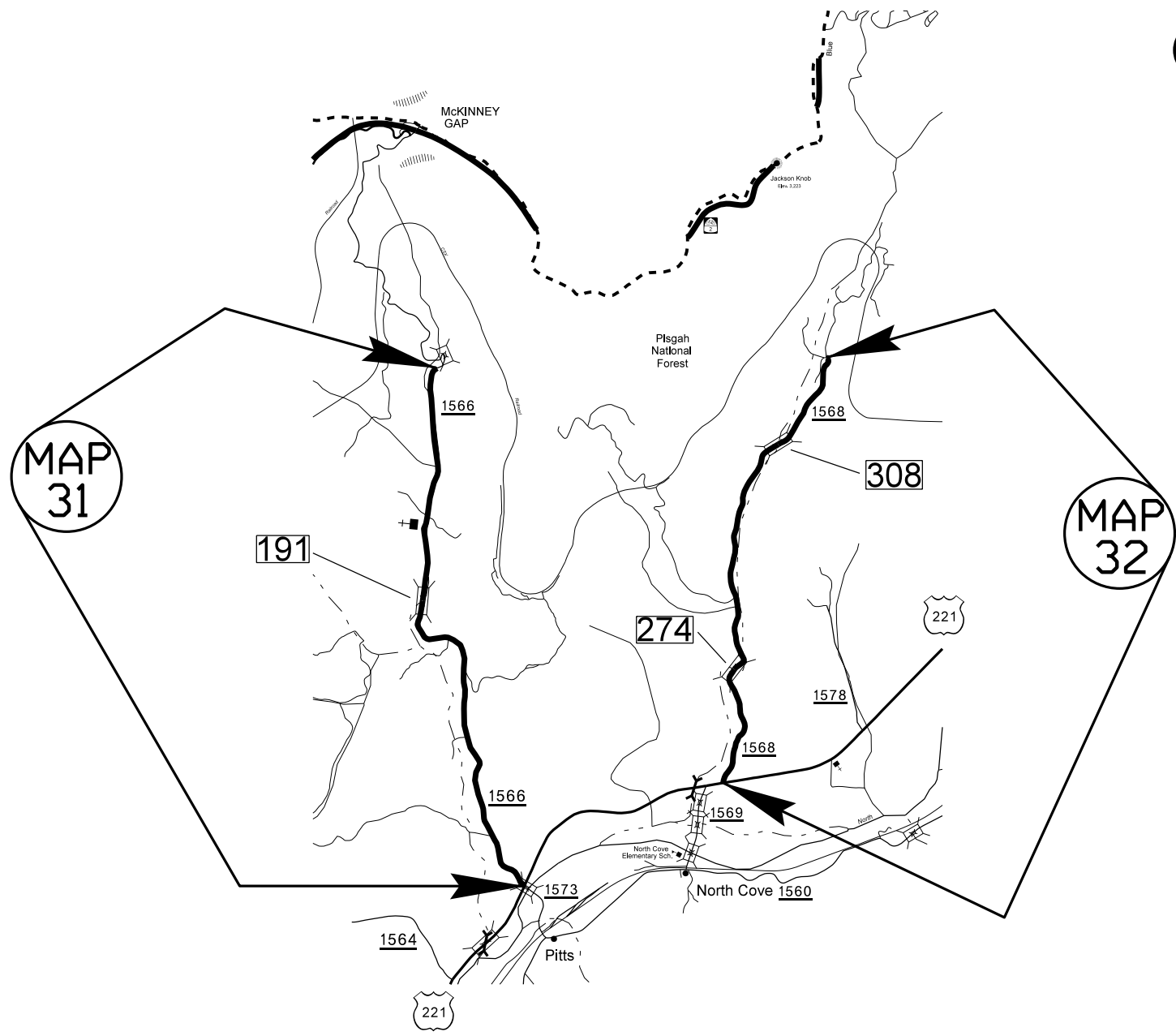
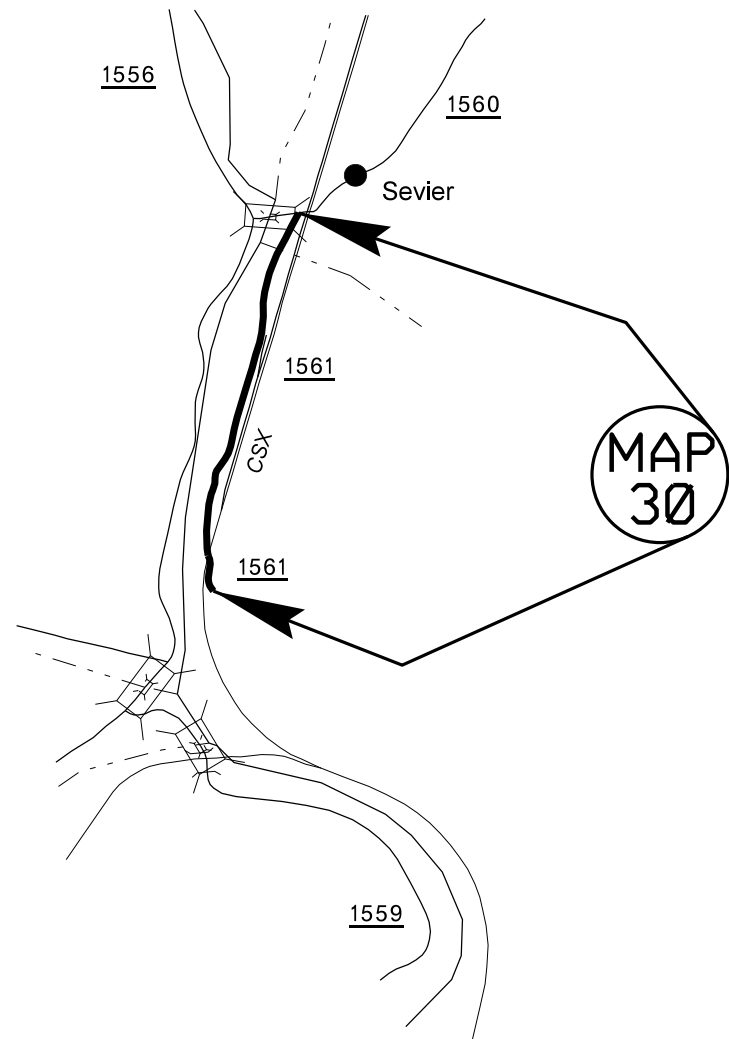
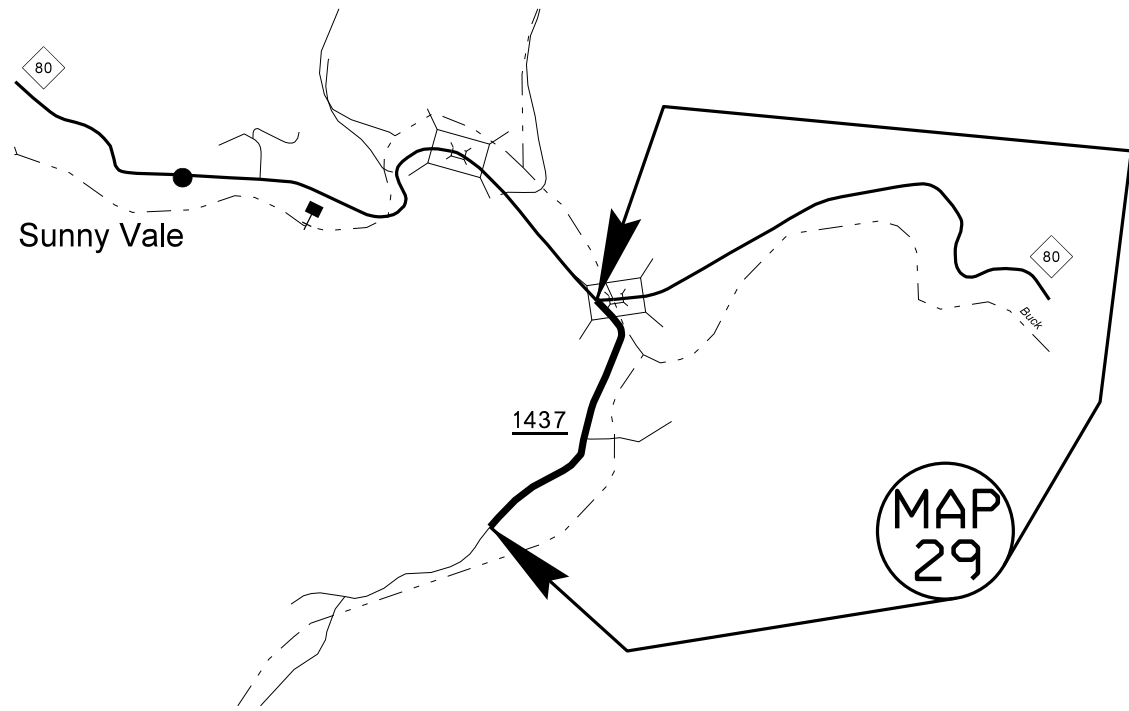
McDOWELL COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	6	



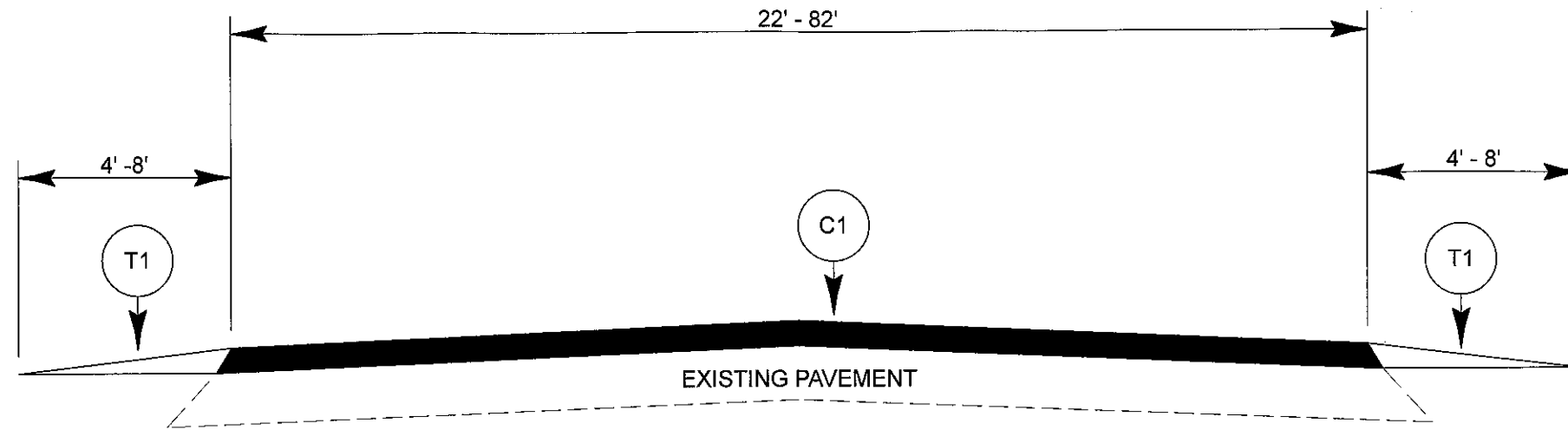
McDOWELL COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	7	

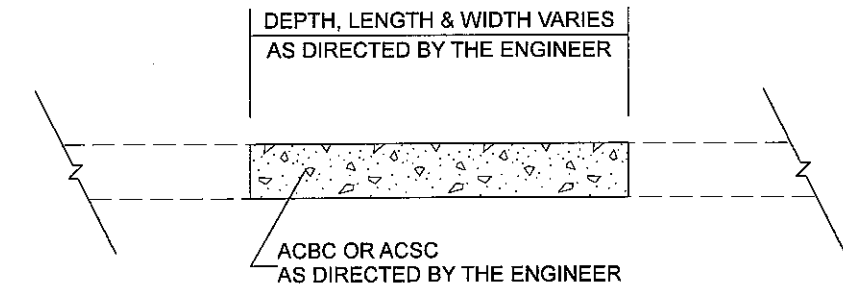


McDOWELL COUNTY

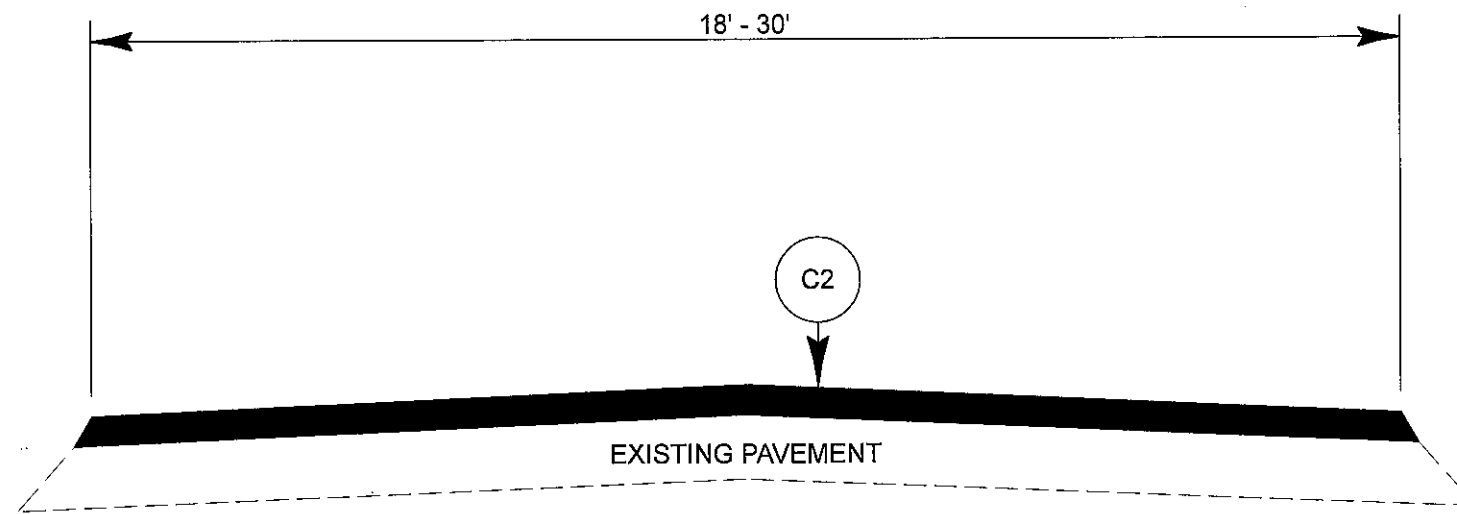
PROJECT NO. 2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592,	SHEET NO. 8	TOTAL SHEETS
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TYPICAL SECTION NO. 1



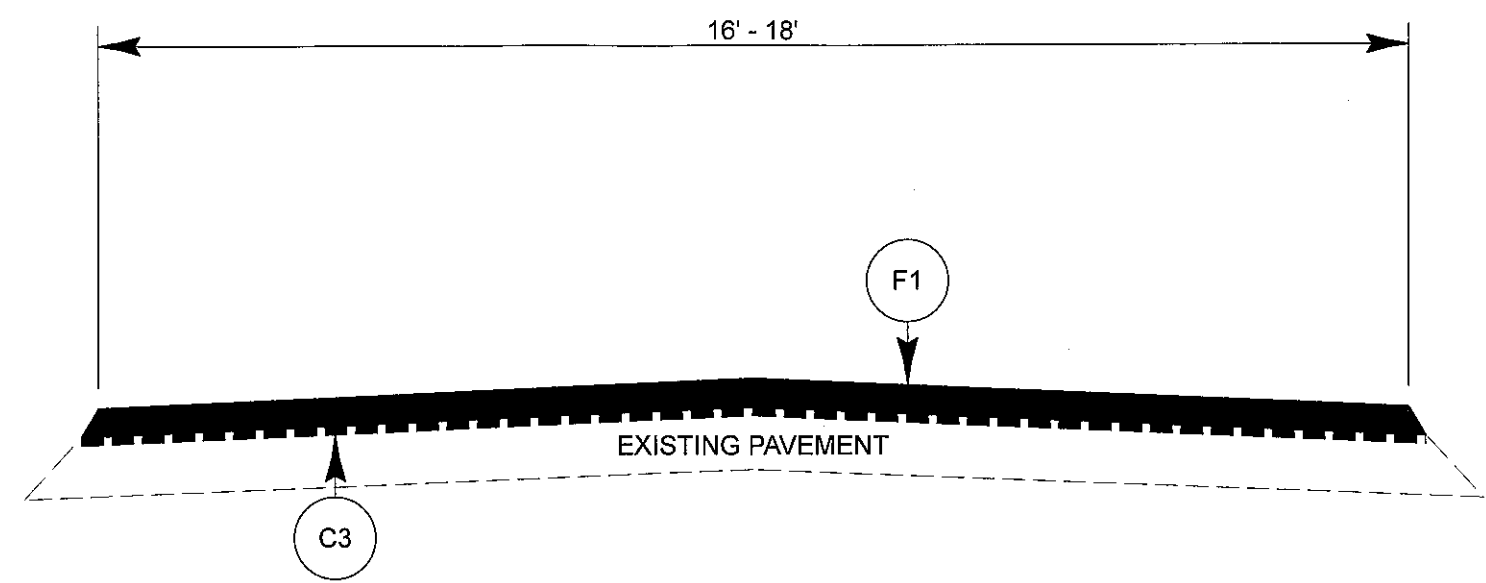
PATCHING EXISTING PAVEMENT



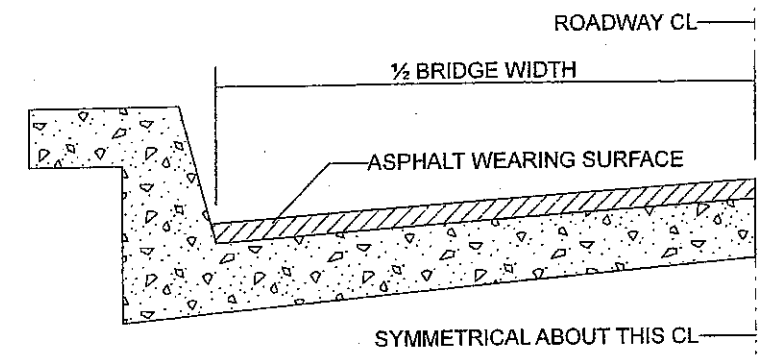
TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE	
B1	PROP. APPROX. 3/4" OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MODIFIED, AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
C1	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD
C2	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD
C3	PROP. WEDGE COURSE, TYPE SF9.5A AT AN AVERAGE RATE NOT TO EXCEED 165 LBS. PER SQ. YARD
F1	ASPHALT SURFACE TREATMENT, DOUBLE SEAL (5/16" LW / 78M)
T1	SHOULDER RECONSTRUCTION
V1	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH
V2	MILLING ASPHALT PAVEMENT, 3/4" DEPTH
V3	INCIDENTAL MILLING
Z1	MILLED RUMBLE STRIPS

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592,	9	



TYPICAL SECTION NO. 3



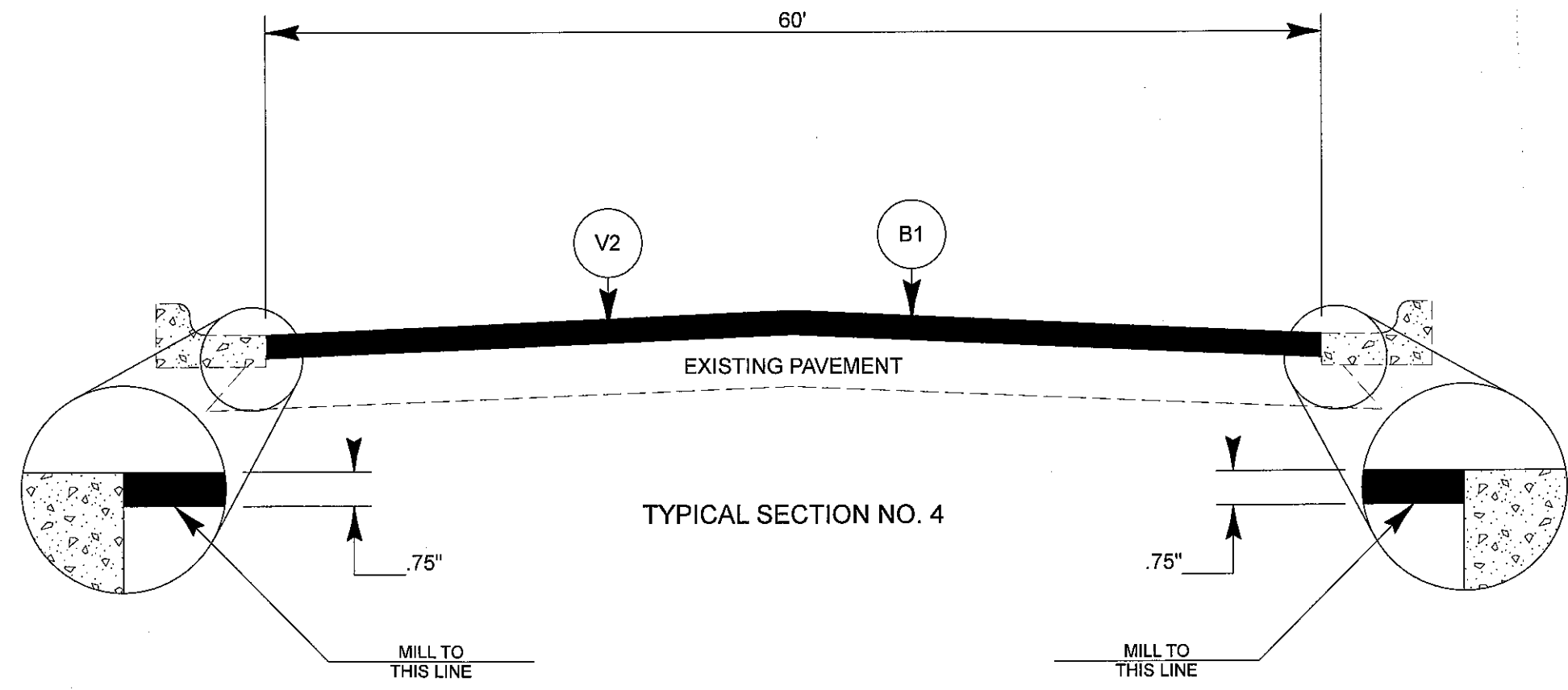
BRIDGE HALF TYPICAL SECTION

FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN

THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. THE MINIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1/4", SF9.5A 1.0", S9.5X 1.5", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 1/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2". THE MAXIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1.0", SF9.5A 1.5", S9.5X 2.0", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 1/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2".

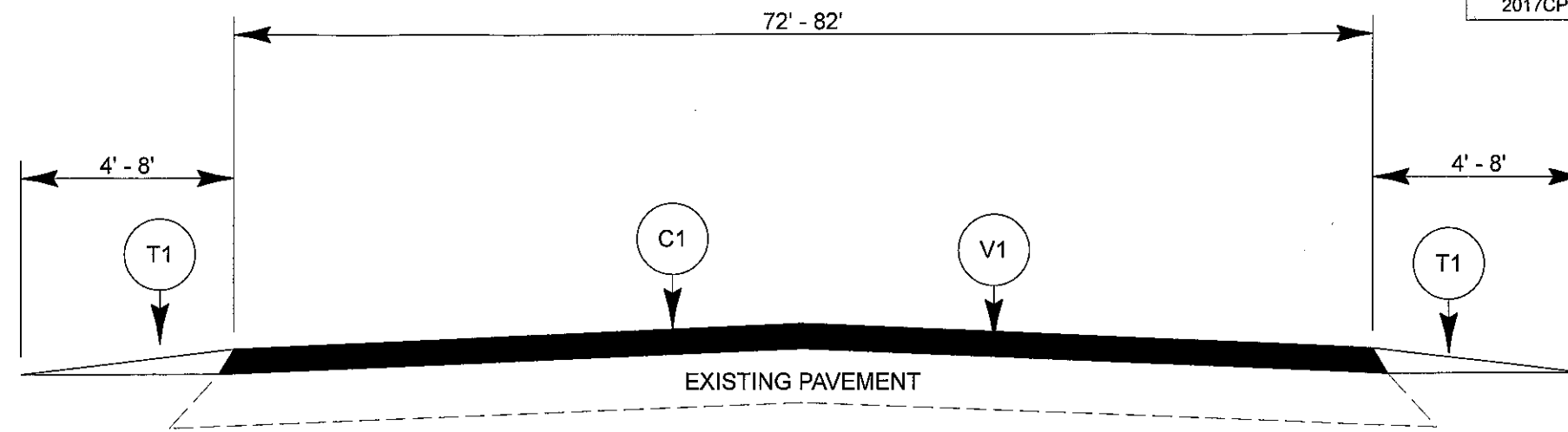
NOTES

ALL UNPAVED ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT.
 ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADII, OR AS DIRECTED BY THE ENGINEER.
 EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
 SHOULDERS AND DITCHES ARE TO BE CONSTRUCTED BY OTHERS UNLESS OTHERWISE INDICATED.
 BRIDGES ARE TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

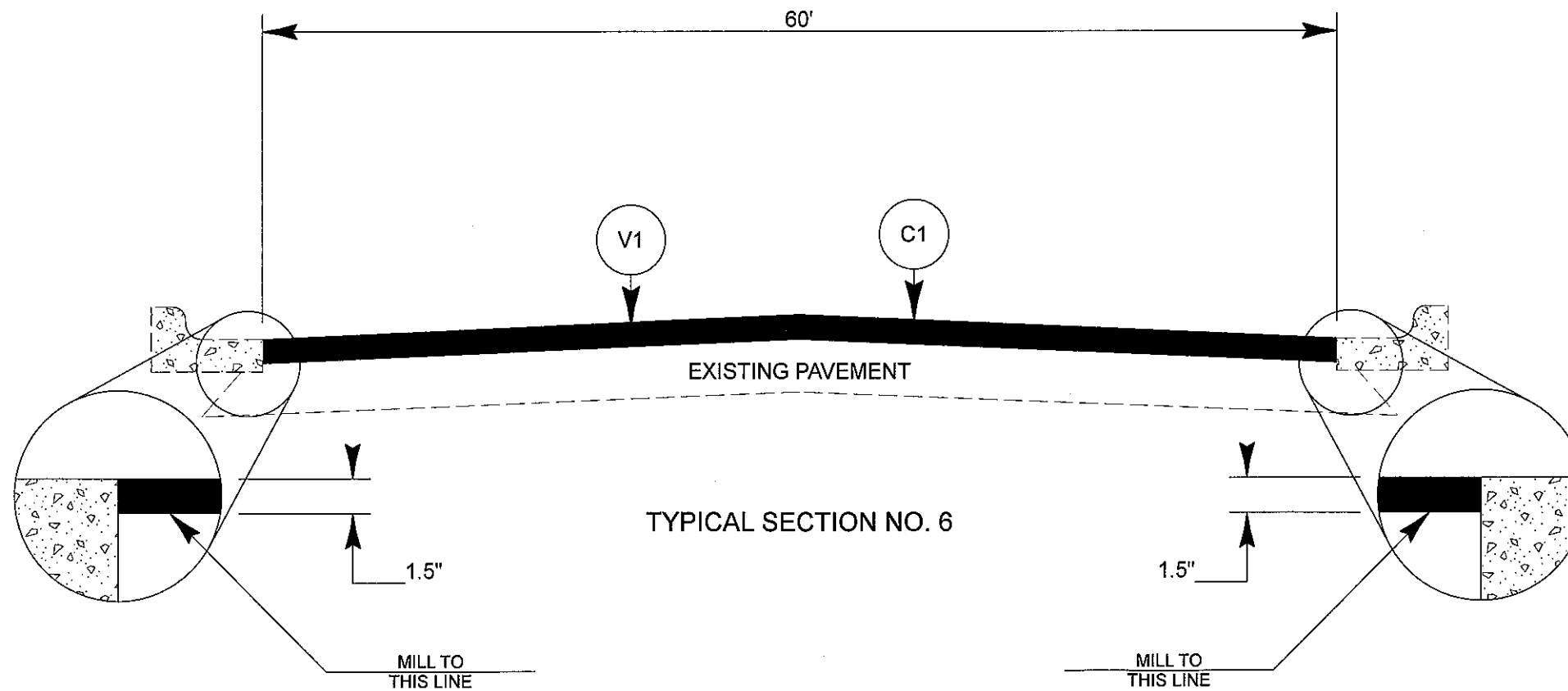


TYPICAL SECTION NO. 4

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592,	10	

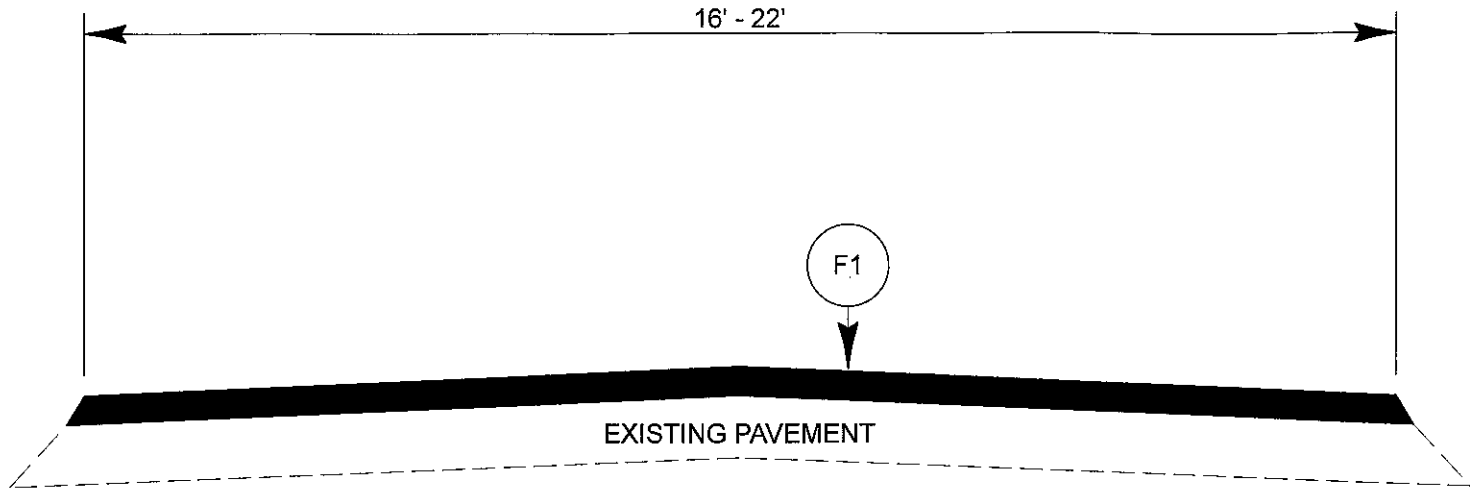


TYPICAL SECTION NO. 5



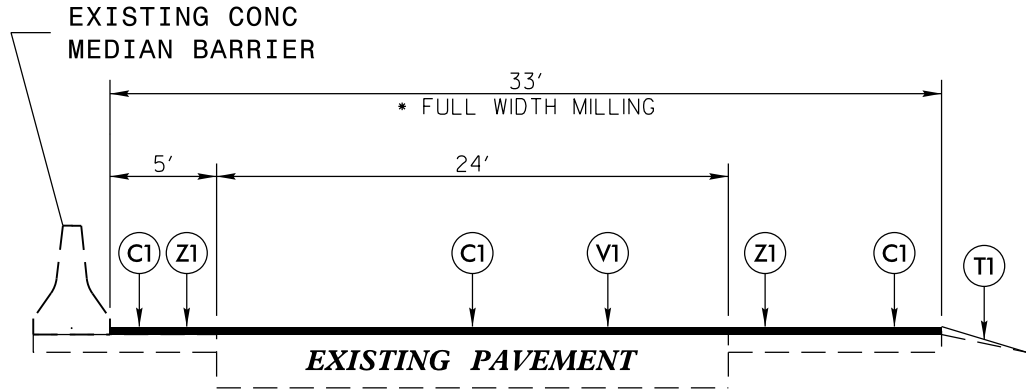
TYPICAL SECTION NO. 6

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592,	11	



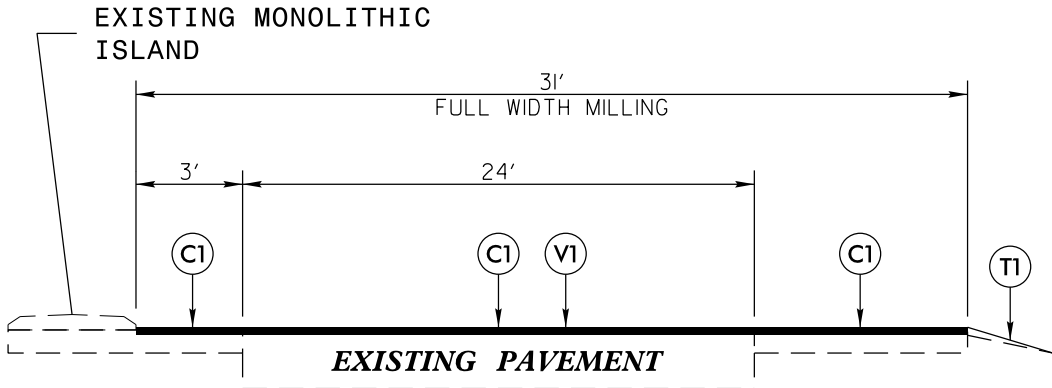
TYPICAL SECTION NO. 7

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	12	



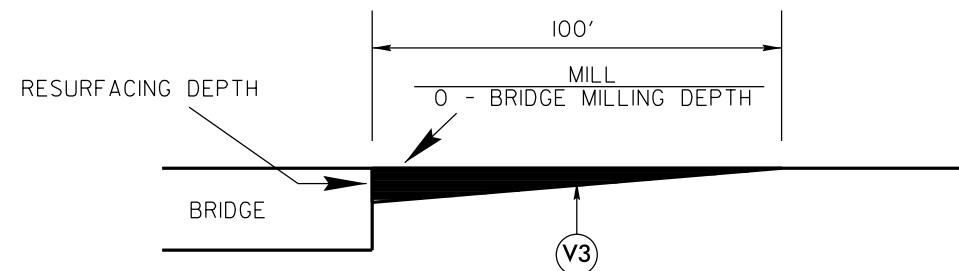
TYPICAL SECTION NO. 8

*** FULL WIDTH MILLING (1-1/2" DEPTH) TO BE COMPLETED ONLY AT LOCATION OF IMPACT ATTENUATOR**



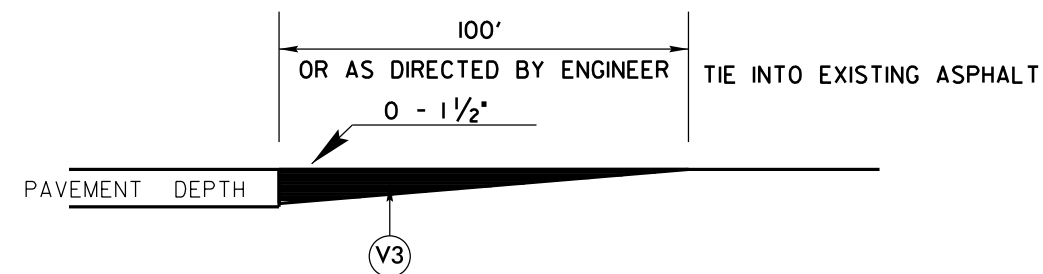
TYPICAL SECTION NO. 9

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	13	



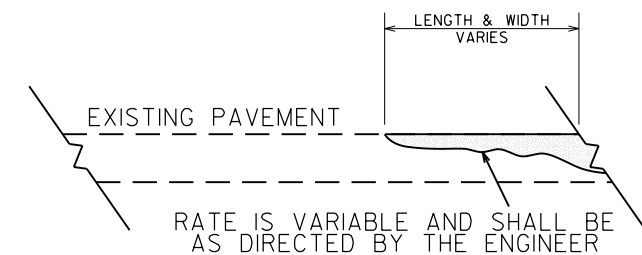
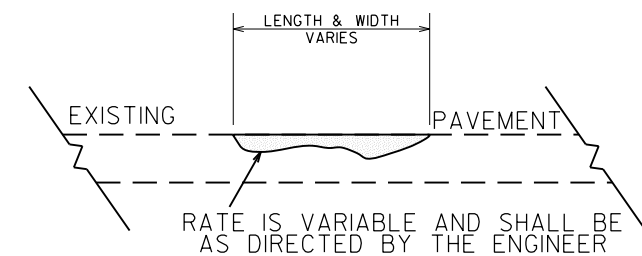
MILLING DETAIL AT BRIDGE APPROACHES

**WHERE BRIDGES WILL NOT BE RESURFACED.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.
USE AT BRIDGE NUMBERS 65, 76, 304, 355, and 356.**



DETAIL TO TIE INTO EXIST PAVEMENT

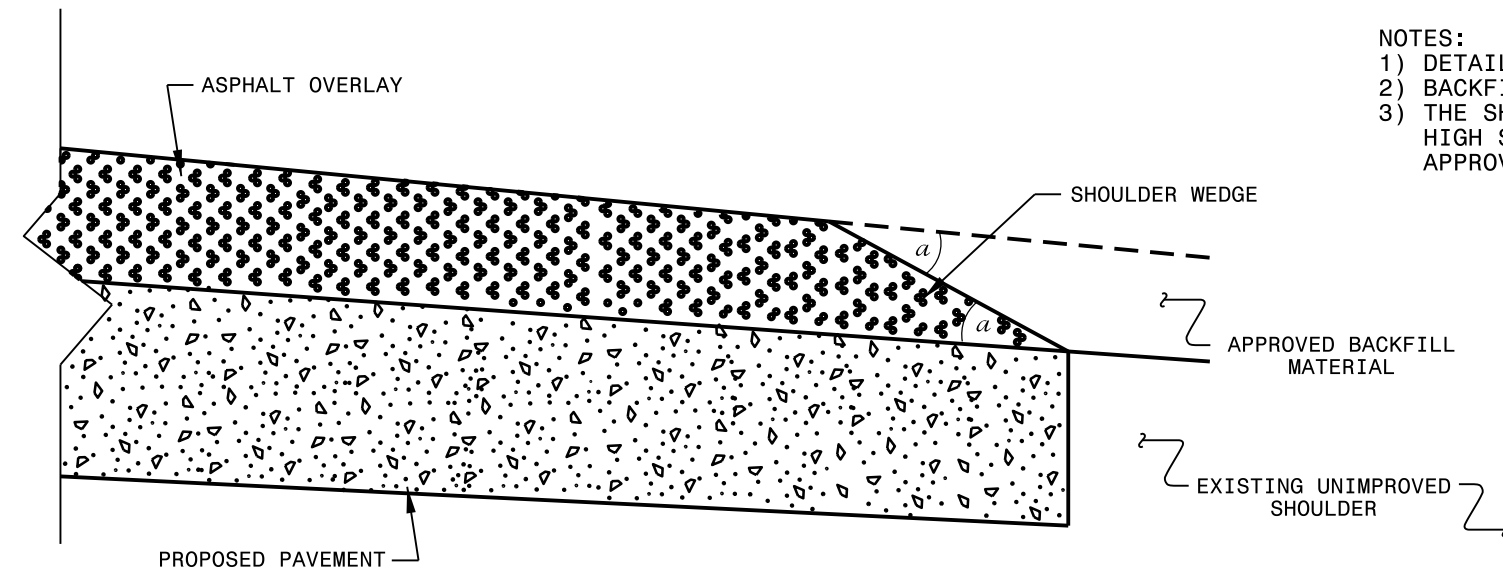
**THE CONTRACTOR'S ATTENTION IS DIRECTED TO
THE FACT THAT HE WILL BE REQUIRED TO MILL
THE EXISTING ASPHALT PAVEMENT TO ENSURE A PROPER
TIE-IN WITH THE EXISTING SURFACE AT THE BEGINNING, END
AND Y LINES OF EACH MAP TO BE RESURFACED WITH
ASPHALT CONC SURFACE COURSE, TYPE S9.5B.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.**



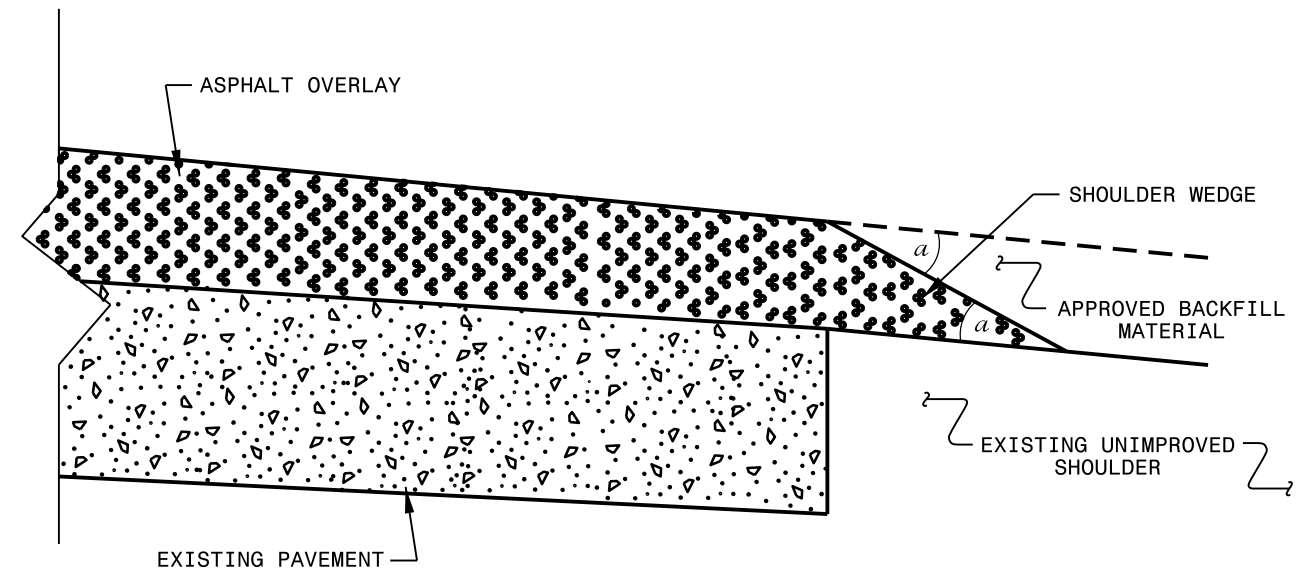
DETAIL SHOWING METHOD OF WEDGING

NOTES:

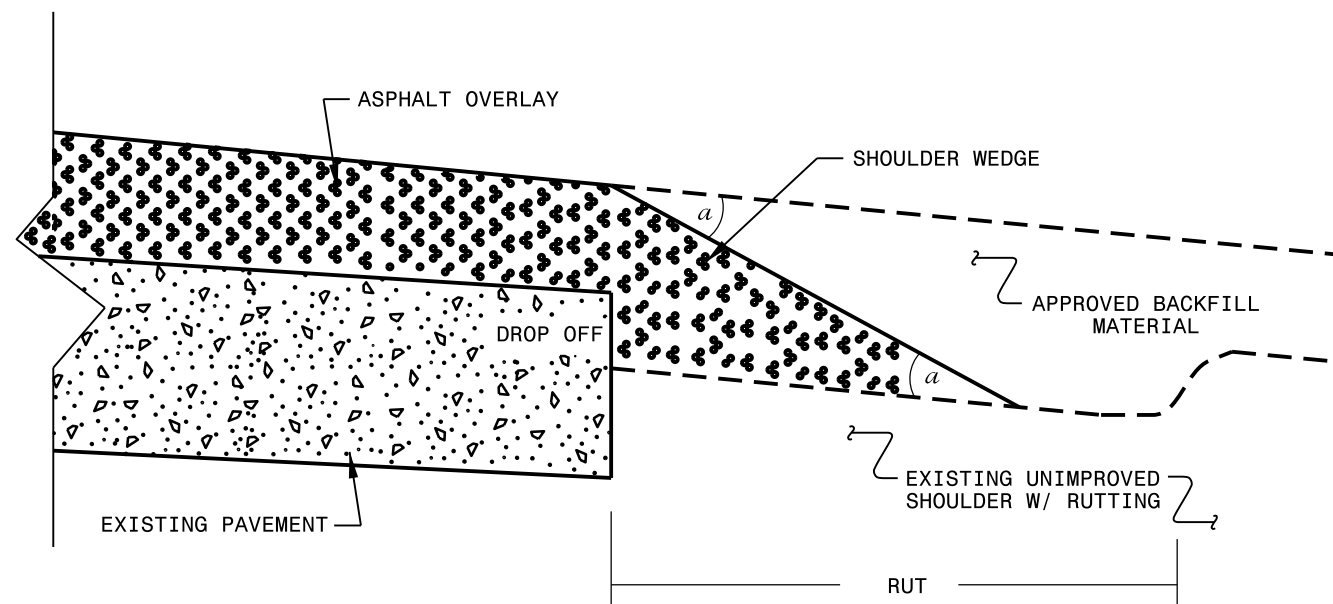
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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	

24-MAR-2016 11:45
 S:\Contracts\Resurfacing Projects\Shoulder Wedge Details\Revised Shoulder Wedge Detail.dgn
 \$\$\$USERNAME\$\$\$

PROJECT NO.	SHEET NO.	TOTAL NO.
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	15	

SUMMARY OF QUANTITIES

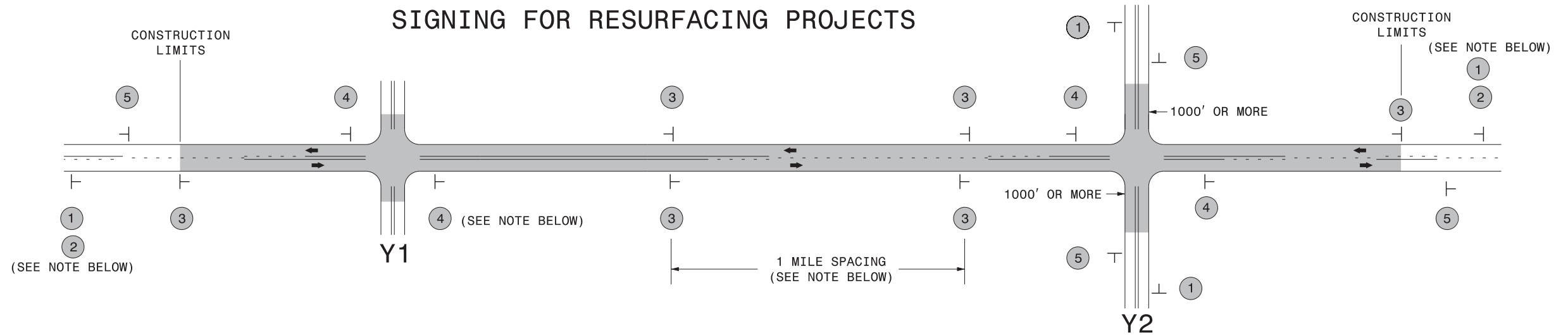
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TON	SHOULDER RECONSTRUCTION SMI	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH SY	MILLING ASPHALT PAVEMENT, 3/4" DEPTH SY	INCIDENTAL MILLING SY	ASPHALT CONC SURFACE COURSE, TYPE S9.5B TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A TON	ASPHALT BINDER FOR PLANT MIX TON	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX TON	OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MODIFIED TON	PATCHING EXISTING PAVEMENT TON	ASPHALT SURFACE TREATMENT, DOUBLE SEAL SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	MILLED RUMBLE STRIPS (ASPHALT CONCRETE) STD. 665.01 LF	ADJUSTMENT OF DROP INLET EA	ADJUSTMENT OF MANHOLES EA	INDUCTIVE LOOP SAWCUT LF		
2017CPT.13.04.10591	McDowell	1	US 64	FROM RUTHERFORD COUNTY LINE +1.75 MILES TO BURKE COUNTY LINE (MP 1.75 - MP 3.93)	1	2	2WU	NO	NO	2.18	22 - 24	109	4.36			1,033	2,733		164			420								
		2	NC 226	FROM SR 1754 TO SR 1794 (MP 9.62 - MP 11.04)	1	2	2WU	NO	YES	1.42	24 - 32	71	2.84			1,400	2,011		121			300								
		3	US 221 NBL	FROM SR 1328 +1.39 MILES TO END MEDIAN WALL (MP 14.89 - MP 15.32)	8	2	MD	NO	NO	0.43	33	22	0.43	750		375	772		46			125			4,600	3	3			
		4	US 221 SBL	FROM BEGIN MEDIAN WALL TO SR 1328 -1.39 MILES (MP 21.08 - MP 21.51)	8	2	MD	NO	YES	0.43	33	22	0.43	750		375	772		46			125			4,600					
		5	US 221	FROM END MEDIAN WALL TO BEGIN MEDIAN ISLAND (MP 15.32 - MP 15.60)	1,5	5	MU	NO	YES	0.28	72 - 82	14	0.56	1,600		1,200	1,247		75			225				1		1,000		
		6	US 221 NBL	FROM BEGIN MEDIAN ISLAND TO US 221BUS (MP 15.60 - MP 16.05)	9	2	MD	NO	YES	0.45	31	23	0.45	8,100			759		46			125							850	
		7	US 221 SBL	FROM US 221BUS TO END MEDIAN ISLAND (MP 20.35 - MP 20.80)	9	2	MD	NO	NO	0.45	31	23	0.45	8,100			759		46			125								
		8	US 221	FROM US 221BUS TO PVMT CHANGE (MP 16.05 - MP 16.82)	6	5	MU	NO	NO	0.78	60			27,456		400	2,542		153			220								
		9	US 221	FROM PVMT CHANGE TO SR 1576 (MP 16.82 - MP 17.19)	4	5	MU	NO	NO	0.37	60									49	803	220								
		10	US 221	FROM SR 1576 TO SR 1434 (MP 17.19 - MP 18.11)	6	5	MU	NO	NO	0.92	60			32,600		650	2,999		180			180								
TOTAL FOR PROJ NO. 2017CPT.13.04.10591										7.71			284	9.52	79,356	13,024	5,433	14,594		877	49	803	2,065		9,200	4	3	1,850		
2017CPT.13.04.20591	McDowell	11	SR 1536	FROM US 70 TO SR 1593 (MP 0.00 - MP 1.89)	2	2	2WU	NO	NO	1.89	18 - 20	95					1,924	129			630									
		12	SR 1747	FROM US 70 TO SR 1760 (MP 0.00 - MP 2.22)	2	2	2WU	NO	NO	2.22	18 - 20	111					2,260	151			600									
		13	SR 1760	FROM SR 1755 TO SR 1747 (MP 1.91 - MP 4.62)	2	2	2WU	NO	NO	2.71	19 - 30	136					3,481	233			580									
		14	SR 1760	FROM SR 1747 TO US 70 (MP 4.62 - MP 6.82)	2	2	2WU	NO	NO	2.2	20 - 24	110					2,474	166			480									
		15	SR 1803	FROM SR 1760 TO SR 1763 (MP 0.00 - MP 2.99)	2	2	2WU	NO	NO	2.99	18 - 19	150					2,965	199			800									
		16	SR 1130	FROM SR 1123 TO SR 1128 (MP 0.00 - MP 1.41)	3	2	2WU	NO	NO	1.41	18						225	15			14,890	8,207								
		17	SR 1407	FROM US 70 TO EOP (MP 0.00 - MP 5.34)	7	2	2WU	NO	NO	5.34	18 - 22											65,789	36,157							
		18	SR 1407	FROM BEGIN PVMT TO BUNCOMBE COUNTY LINE(MP 8.04 - MP 8.87)	7	2	2WU	NO	NO	0.83	18 - 20											9,252	5,083							
		19	SR 1555	FROM US 221 TO US 221 (MP 0.00 - MP 1.28)	3	2	2WU	NO	NO	1.28	16 - 18						300	20			12,766	7,033								
		20	SR 1563	FROM NC 226 TO DEAD END (MP 0.00 - MP 0.46)	7	2	2WU	NO	NO	0.46	18 - 19											4,993	2,717							
TOTAL FOR PROJ NO. 2017CPT.13.04.20591										21.33		602					13,629	913			3,090	107,690	59,197							
2017CPT.13.04.20592	McDowell	21	SR 1109	FROM SR 1106 TO EOM (MP 0.00 - MP 0.69)	7	2	2WU	NO	NO	0.69	18											7,286	4,020							
		22	SR 1136	FROM SR 1135 TO EOM (MP 0.00 - MP 0.30)	7	2	2WU	NO	NO	0.3	18											3,168	1,731							
		23	SR 1280	FROM US 70 TO DEAD END (MP 0.00 - MP 0.89)	7	2	2WU	NO	NO	0.89	18 - 20											9,921	5,426							
		24	SR 1284	FROM SR 1111 TO EOP (MP 0.00 - MP 0.53)	7	2	2WU	NO	NO	0.53	18											5,597	3,079							
		25	SR 1319	FROM SR 1225 TO EOM (MP 0.00 - MP 0.11)	7	2	2WU	NO	NO	0.11	18											1,162	651							
		26	SR 1408	FROM SR 1407 TO EOM (MP 0.00 - MP 0.72)	7	2	2WU	NO	NO	0.72	18											7,603	4,194							
		27	SR 1420	FROM US 226 ALT TO EOM (MP 0.00 - MP 1.17)	7	2	2WU	NO	NO	1.17	18 - 20											13,042	7,161							
		28	SR 1431	FROM NC 80 TO SR 1422 (MP 0.00 - MP 1.18)	7	2	2WU	NO	NO	1.18	18 - 20											13,153	7,216							
		29	SR 1437	FROM NC 80 TO EOM (MP 0.00 - MP 0.39)	7	2	2WU	NO	NO	0.39	18											4,118	2,271							
		30	SR 1561	FROM SR 1560 TO EOM (MP 0.00 - MP 0.45)	7	2	2WU	NO	NO	0.45	19											5,016	2,747							
		31	SR 1566	FROM END PVMT TO US 221 (MP 1.80 - MP 4.51)	7	2	2WU	NO	NO	2.71	18 - 20											30,207	16,639							
		32	SR 1568	FROM US 221 TO EOM (MP 0.00 - MP 2.16)	7	2	2WU	NO	NO	2.16	18											22,810	12,557							
TOTAL FOR PROJ NO. 2017CPT.13.04.20592										11.3												123,083	67,692							
GRAND TOTAL										40.34		886	9.52	79,356	13,024	5,433	14,594	13,629	1,790	49	803	5,155	230,773	126,889	9,200	4	3	1,850		

PROJECT NO.	SHEET NO.	TOTAL NO.
2017CPT.13.04.10591, 2017CPT.13.04.20591, 2017CPT.13.04.20592	16	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E	4457000000-N	4695000000-E	4705000000-E	4710000000-E	4721000000-E	4725000000-E			4810000000-E		4905000000-N
										WORK ZONE ADVANCE/ GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS) YELLOW	THERMOPLASTIC PAVEMENT MARKING LINES (16", 120 MILS) WHITE	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS) WHITE	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS) RXR EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) LT ARROW EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) STR ARROW EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) RT ARROW EA	PAINT PAVEMENT MARKING LINES (4") WHITE	PAINT PAVEMENT MARKING LINES (4") YELLOW	SNOWPLOWABLE PAVEMENT MARKERS
NO		NO			NO					SF	LS	LF	LF	LF		EA	EA	EA	EA	EA	EA
2017CPT.13.04.10591	McDowell	1	US 64	FROM RUTHERFORD COUNTY LINE +1.75 MILES TO BURKE COUNTY LINE (MP 1.75 - MP 3.93)	1	2	2WU	2.18	22 - 24	1,025	*							46,042	46,042	144	
				FROM SR 1754 TO SR 1794 (MP 9.62 - MP 11.04)	1	2	2WU	1.42	24 - 32			65			2	1		30,330	29,990	125	
				FROM SR 1328 +1.39 MILES TO END MEDIAN WALL (MP 14.89 - MP 15.32)	8	2	MD	0.43	33										5,800	1,978	30
				FROM BEGIN MEDIAN WALL TO SR 1328 -1.39 MILES (MP 21.08 - MP 21.51)	8	2	MD	0.43	33										5,800	4,600	30
				FROM END MEDIAN WALL TO BEGIN MEDIAN ISLAND (MP 15.32 - MP 15.60)	1,5	5	MU	0.28	72 - 82					225		8	12	5	10,600	12,000	160
				FROM BEGIN MEDIAN ISLAND TO US 221BUS (MP 15.60 - MP 16.05)	9	2	MD	0.45	31					35					6,000	9,398	30
				FORM US 221BUS TO END MEDIAN ISLAND (MP 20.35 - MP 20.80)	9	2	MD	0.45	31										6,000	9,398	30
				FROM US 221BUS TO PVMT CHANGE (MP 16.05 - MP 16.82)	6	5	MU	0.78	60					80		28			4,600	24,800	210
				FROM PVMT CHANGE TO SR 1576 (MP 16.82 - MP 17.19)	4	5	MU	0.37	60							12			2,000	11,800	100
				FROM SR 1576 TO SR 1434 (MP 17.19 - MP 18.11)	6	5	MU	0.92	60							30			5,000	29,600	250
TOTAL FOR PROJ NO. 2017CPT.13.04.10591										1,025		65		340		80	13	5	122,172	179,606	1,109
															98			301,778			
2017CPT.13.04.20591	McDowell	11	SR 1536	FROM US 70 TO SR 1593 (MP 0.00 - MP 1.89)	2	2	2WU	1.89	18 - 20	2,398	*							39,916	39,916		
				FROM US 70 TO SR 1760 (MP 0.00 - MP 2.22)	2	2	2WU	2.22	18 - 20									46,886	46,886		
				FROM SR 1755 TO SR 1747 (MP 1.91 - MP 4.62)	2	2	2WU	2.71	19 - 30									57,236	57,236		
				FROM SR 1747 TO US 70 (MP 4.62 - MP 6.82)	2	2	2WU	2.2	20 - 24					12				46,464	46,464		
				FROM SR 1760 TO SR 1763 (MP 0.00 - MP 2.99)	2	2	2WU	2.99	18 - 19									63,148	63,148		
				FROM SR 1123 TO SR 1128 (MP 0.00 - MP 1.41)	3	2	2WU	1.41	18									29,779	29,779		
				FROM US 70 TO EOP (MP 0.00 - MP 5.34)	7	2	2WU	5.34	18 - 22									112,781	112,781		
				FROM BEGIN PVMT TO BUNCOMBE COUNTY LINE(MP 8.04 - MP 8.87)	7	2	2WU	0.83	18 - 20									17,530	17,530		
				FROM US 221 TO US 221 (MP 0.00 - MP 1.28)	3	2	2WU	1.28	16 - 18									27,034	27,034		
				FROM NC 226 TO DEAD END (MP 0.00 - MP 0.46)	7	2	2WU	0.46	18 - 19												
TOTAL FOR PROJ NO. 2017CPT.13.04.20591										2,398			12				440,774	440,774			
															881,548						
2017CPT.13.04.20592	McDowell	21	SR 1109	FROM SR 1106 TO EOM (MP 0.00 - MP 0.69)	7	2	2WU	0.69	18	1,290	*										
				FROM SR 1135 TO EOM (MP 0.00 - MP 0.30)	7	2	2WU	0.3	18												
				FROM US 70 TO DEAD END (MP 0.00 - MP 0.89)	7	2	2WU	0.89	18 - 20									18,797	18,797		
				FROM SR 1111 TO EOP (MP 0.00 - MP 0.53)	7	2	2WU	0.53	18												
				FROM SR 1225 TO EOM (MP 0.00 - MP 0.11)	7	2	2WU	0.11	18												
				FROM SR 1407 TO EOM (MP 0.00 - MP 0.72)	7	2	2WU	0.72	18												
				FROM US 226 ALT TO EOM (MP 0.00 - MP 1.17)	7	2	2WU	1.17	18 - 20									24,710	24,710		
				FROM NC 80 TO SR 1422 (MP 0.00 - MP 1.18)	7	2	2WU	1.18	18 - 20									24,922	24,922		
				FROM NC 80 TO EOM (MP 0.00 - MP 0.39)	7	2	2WU	0.39	18												
				FROM SR 1560 TO EOM (MP 0.00 - MP 0.45)	7	2	2WU	0.45	19					45	20	2					
				FROM END PVMT TO US 221 (MP 1.80 - MP 4.51)	7	2	2WU	2.71	18 - 20									57,235	57,235		
				FROM US 221 TO EOM (MP 0.00 - MP 2.16)	7	2	2WU	2.16	18									45,619	45,619		
TOTAL FOR PROJ NO. 2017CPT.13.04.20592										1,290		45	20	2			171,283	171,283			
															342,566						
GRAND TOTAL									40.34	4,713	1	65	45	372	2	80	13	5	734,229	791,663	1,109
															98			1,525,892			

SIGNING FOR RESURFACING PROJECTS

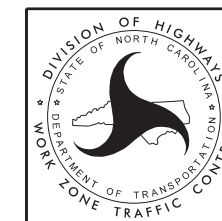


LEGEND	
	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

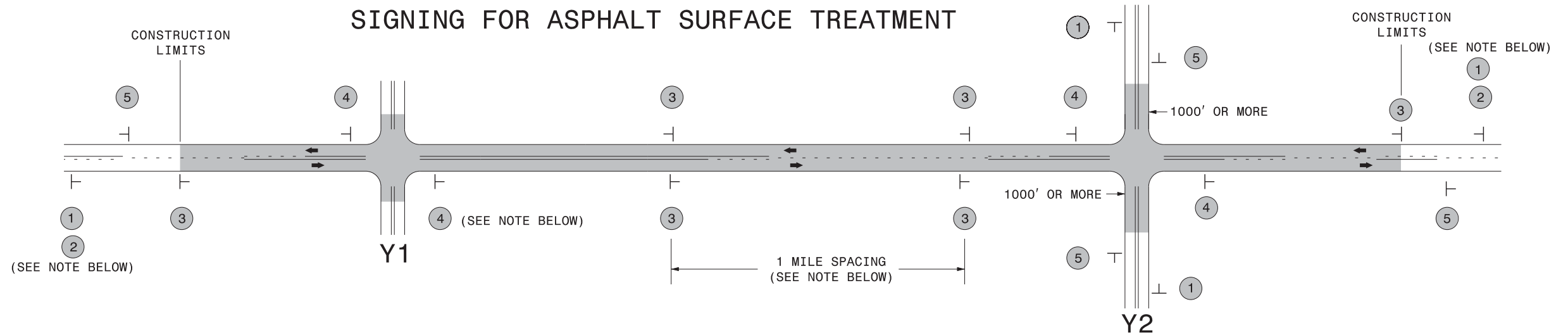
MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p> <p>#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)</p>	NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:		
	2			1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS	
	3	<p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p>		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.	
	4	<p>THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.</p>		<p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>	
	5	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>			



SIGNING FOR ASPHALT SURFACE TREATMENT



LEGEND	
	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION		
1	 <small>W20-1 48" X 48"</small>	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p> <p>#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)</p>
2	 <small>W7-3aP 24" X 18"</small>	
3	 <small>W8-7 48" X 48"</small> <small>SP 48" X 48"</small>	<p>ALTERNATE THE FOLLOWING TWO SIGNS:</p> <p>STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT".</p> <p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p>
4	 <small>SP 13106 48" X 48"</small>	<p>THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.</p>
5	 <small>G20-2 A 48" X 24"</small>	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>

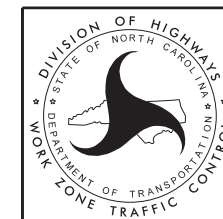
NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

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

WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

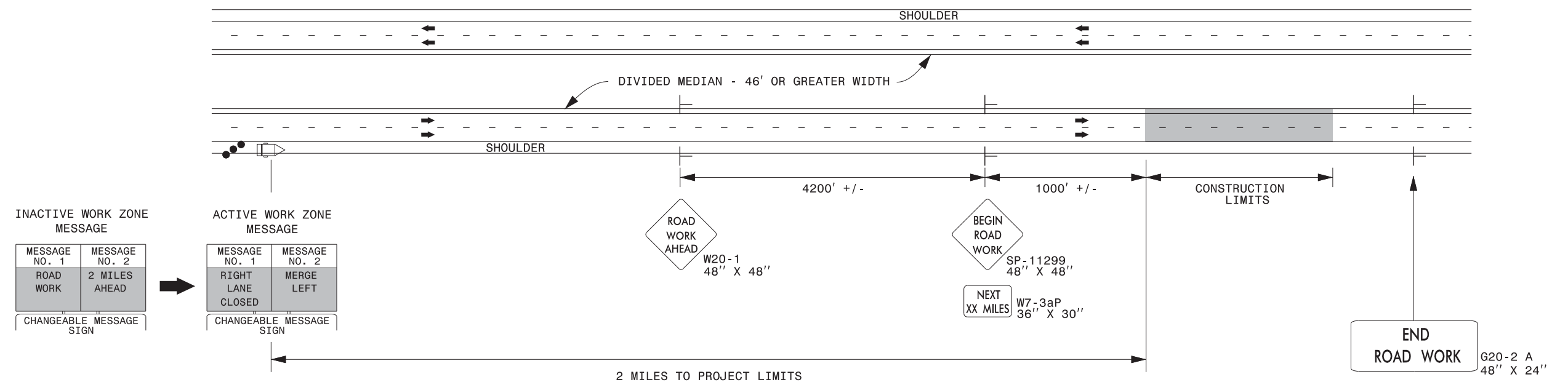


PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.

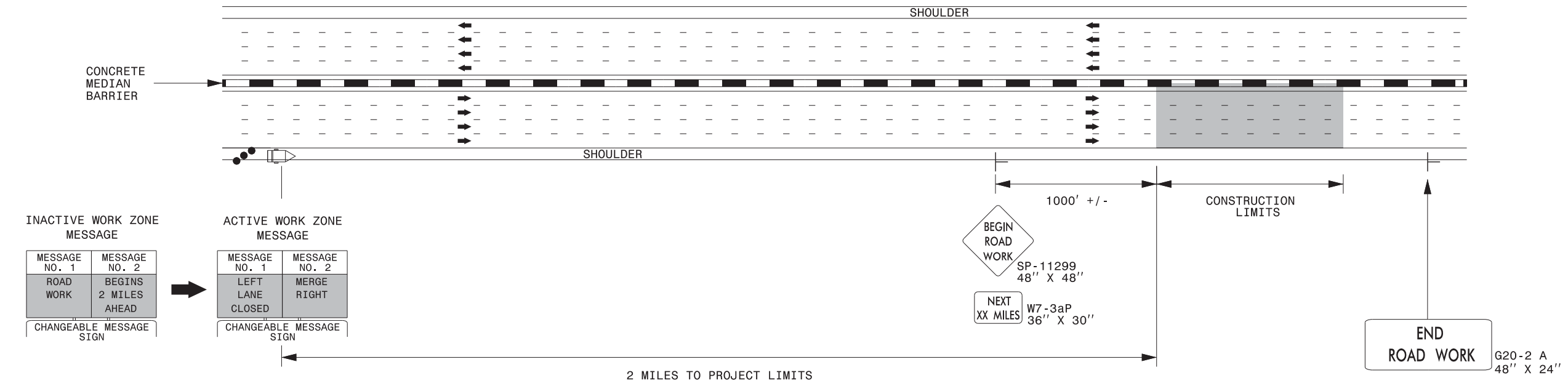


ADVANCE WARNING SIGNS
FOR
ASPHALT SURFACE TREATMENTS
2 LANE ROADWAYS

DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



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

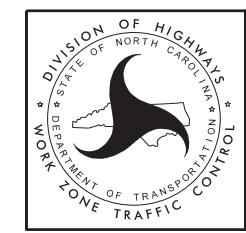


NOTES:

- 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

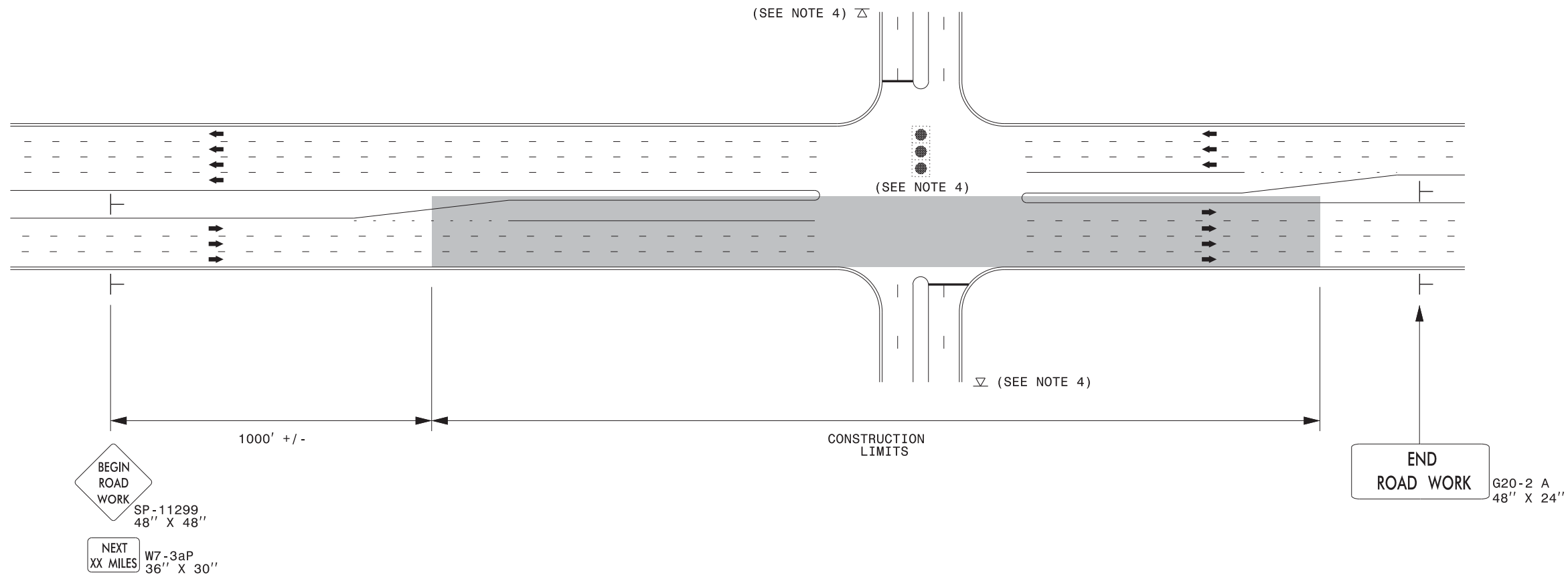
- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

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

URBAN / SUBURBAN WORKZONES

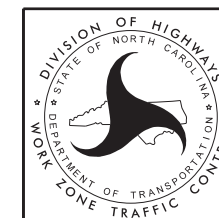


NOTES:

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

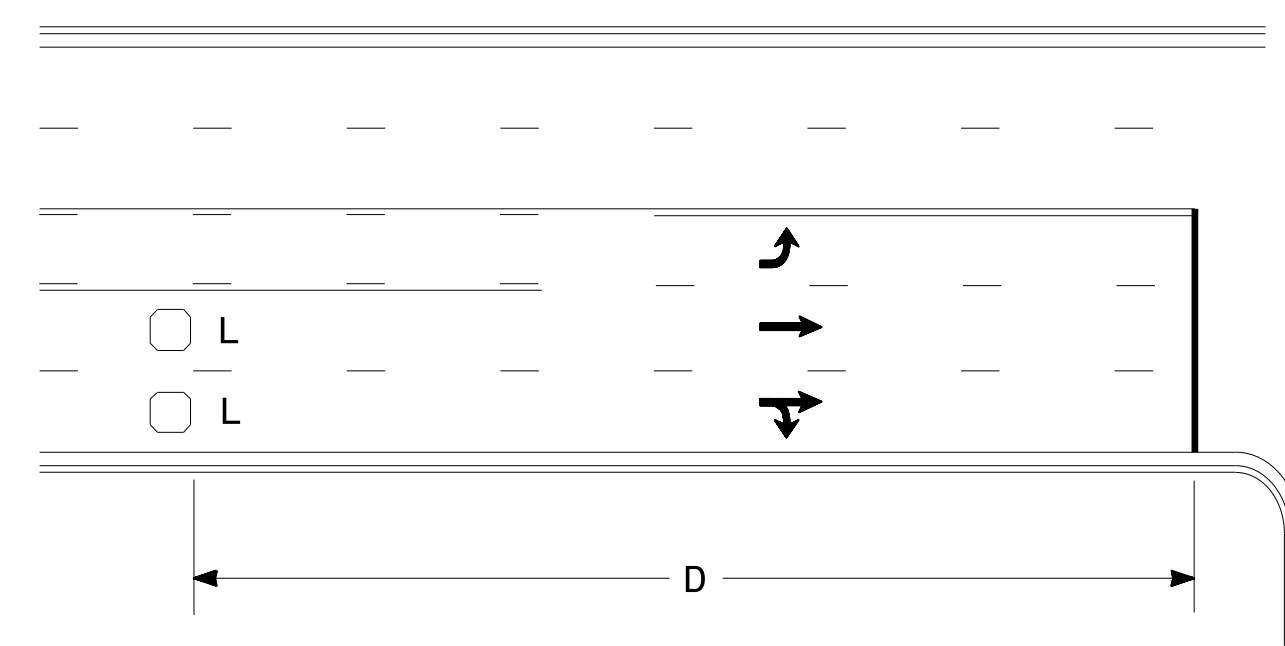
LEGEND

- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW



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

High Speed Detection (≥40 mph)

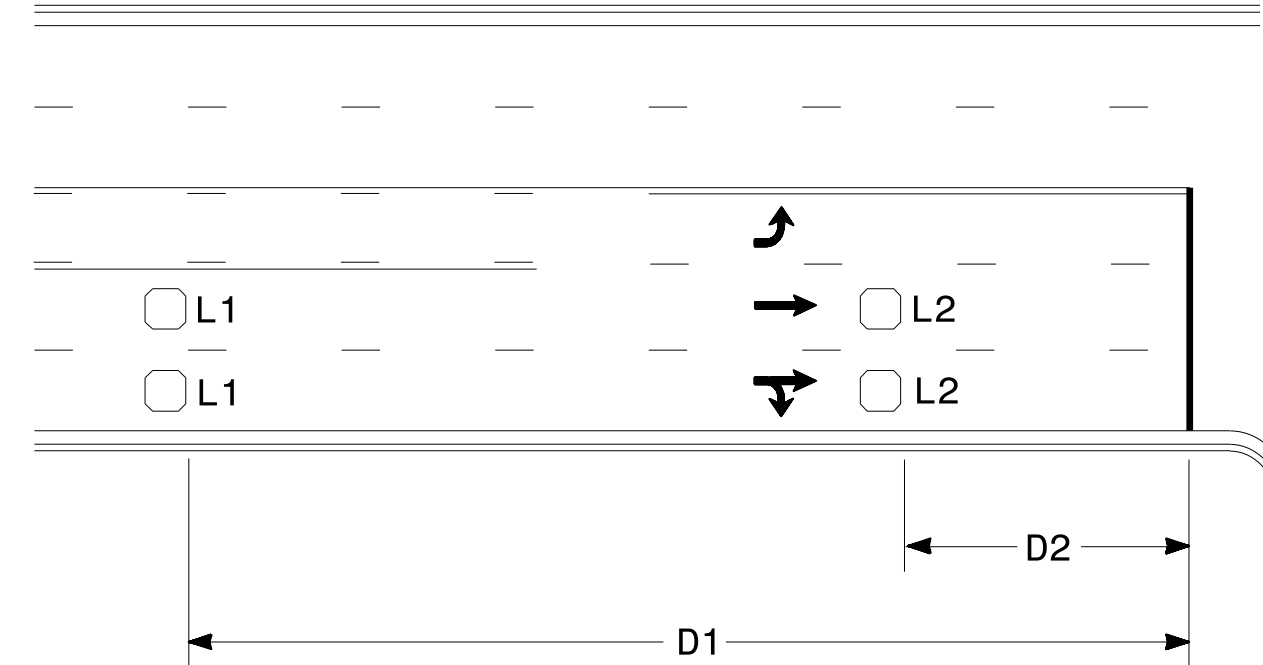


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

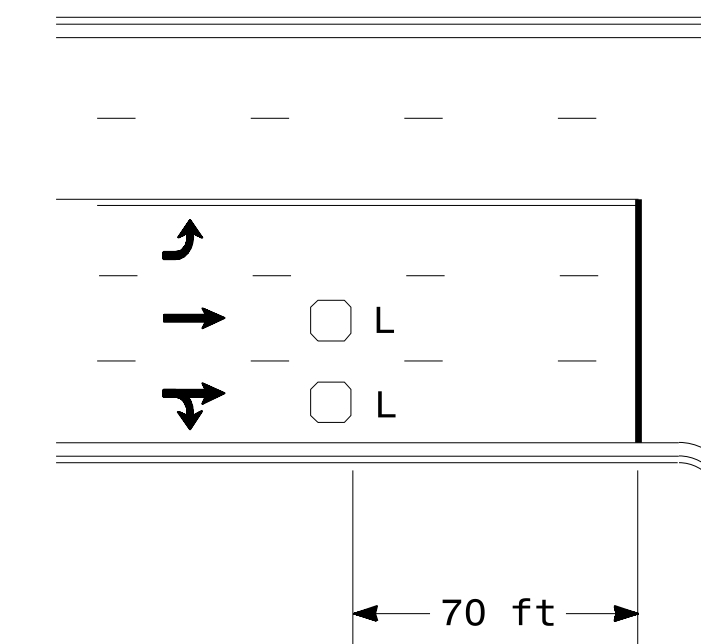


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

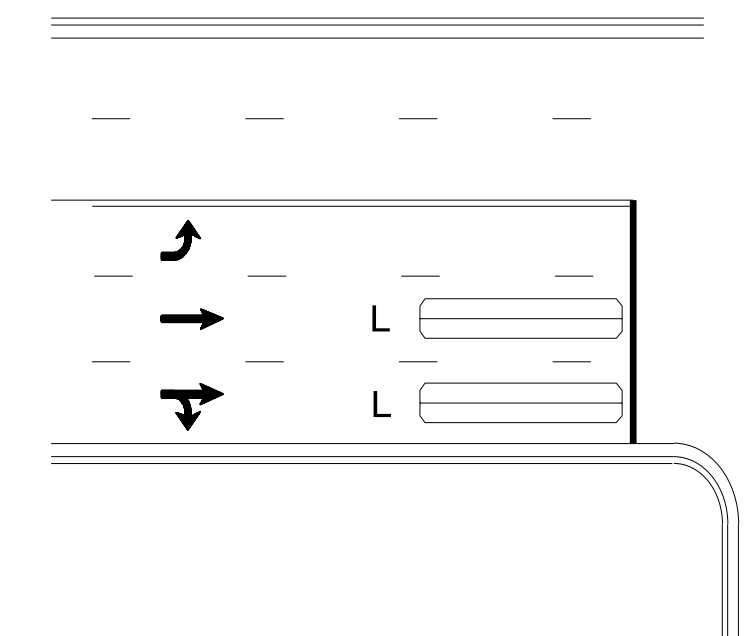
"Stretch" Operation

Low Speed Detection (≤35 mph)



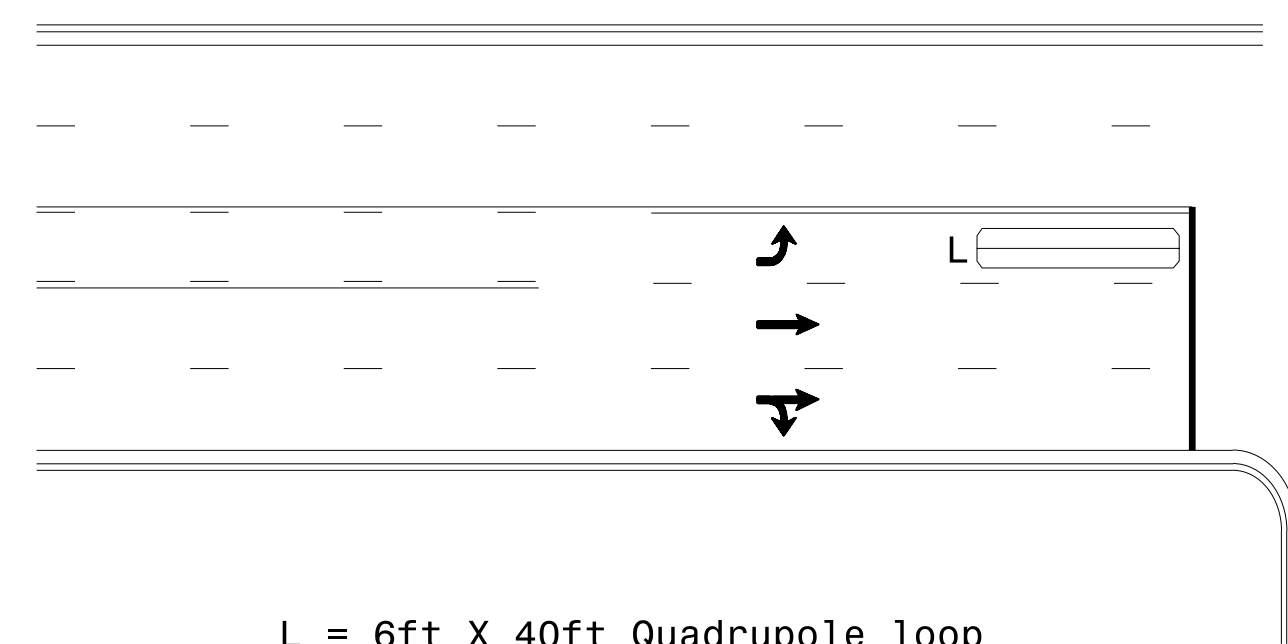
L = 6ft X 6ft
Wired in series

OR



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

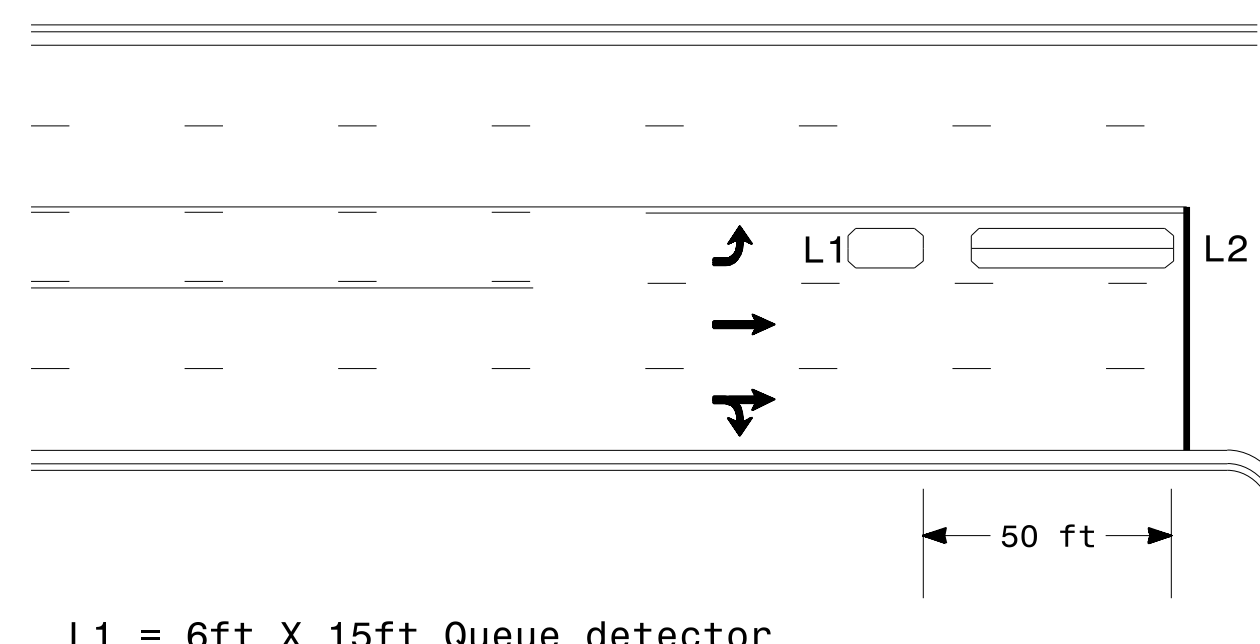
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

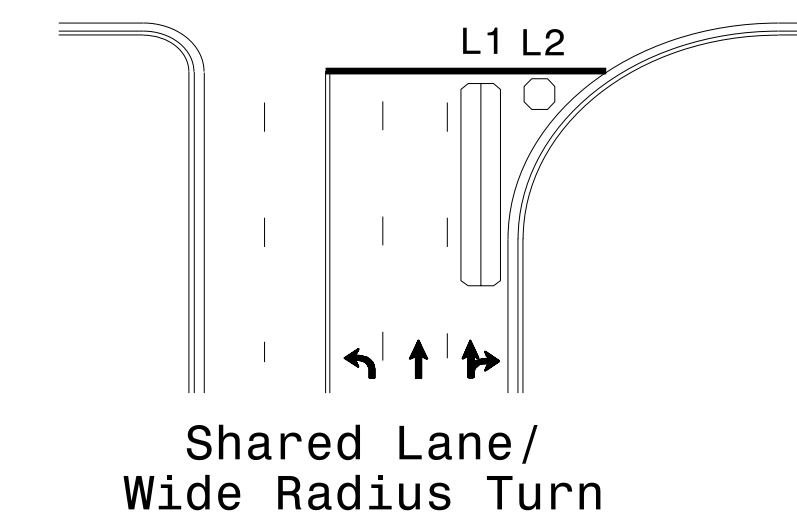
OR



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

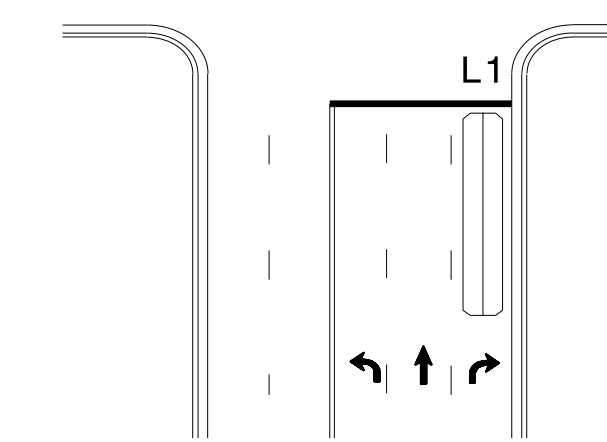
Queue Loop Detection

Right Turn Lane Detection

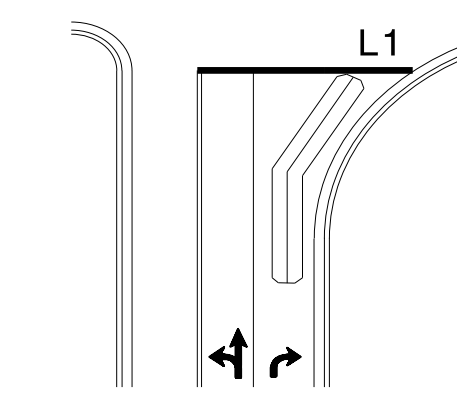


Shared Lane/
Wide Radius Turn

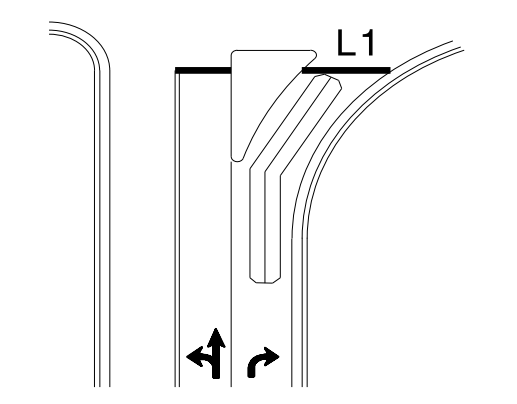
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

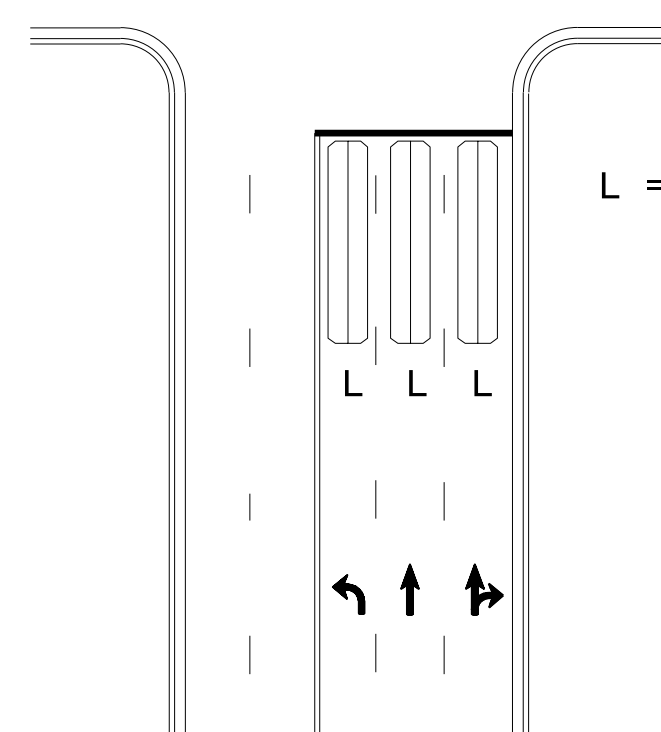


Wide Radius Turn



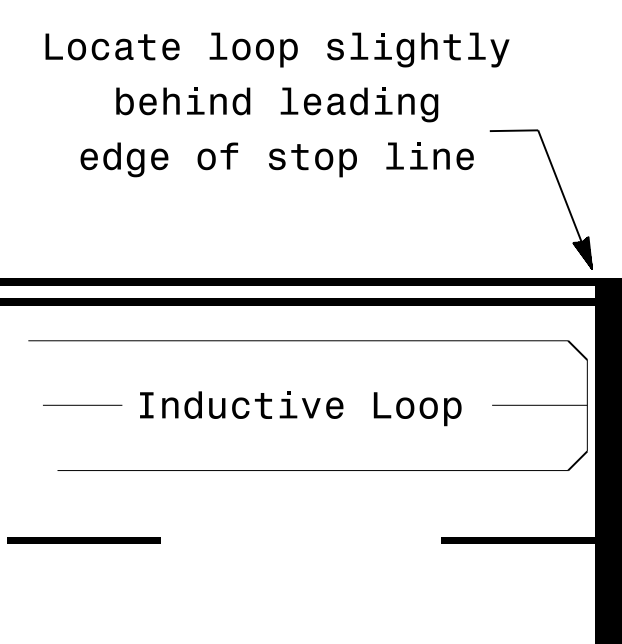
Channelized Turn

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

<p>Prepared In the Offices of: TRANSPORTATION MOBILITY AND SAFETY SOLUTIONS, INC. SIGNAL DESIGN SECTION 750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>Typical Signal Loop Locations</p>		<p>SEAL NORTH CAROLINA PROFESSIONAL ENGINEER PAMELA L. ALEXANDER 23489</p>
	<p>PLAN DATE: January 2015</p>	<p>REVIEWED BY: JPG</p>	
<p>PREPARED BY: PLA</p>	<p>REVIEWED BY:</p>	<p>REVISIONS</p>	<p>INIT. DATE</p>
<p>DocuSigned by: P. Alexander 1/30/2015 10:44:44 AM</p>			<p>SIG. INVENTORY NO.</p>