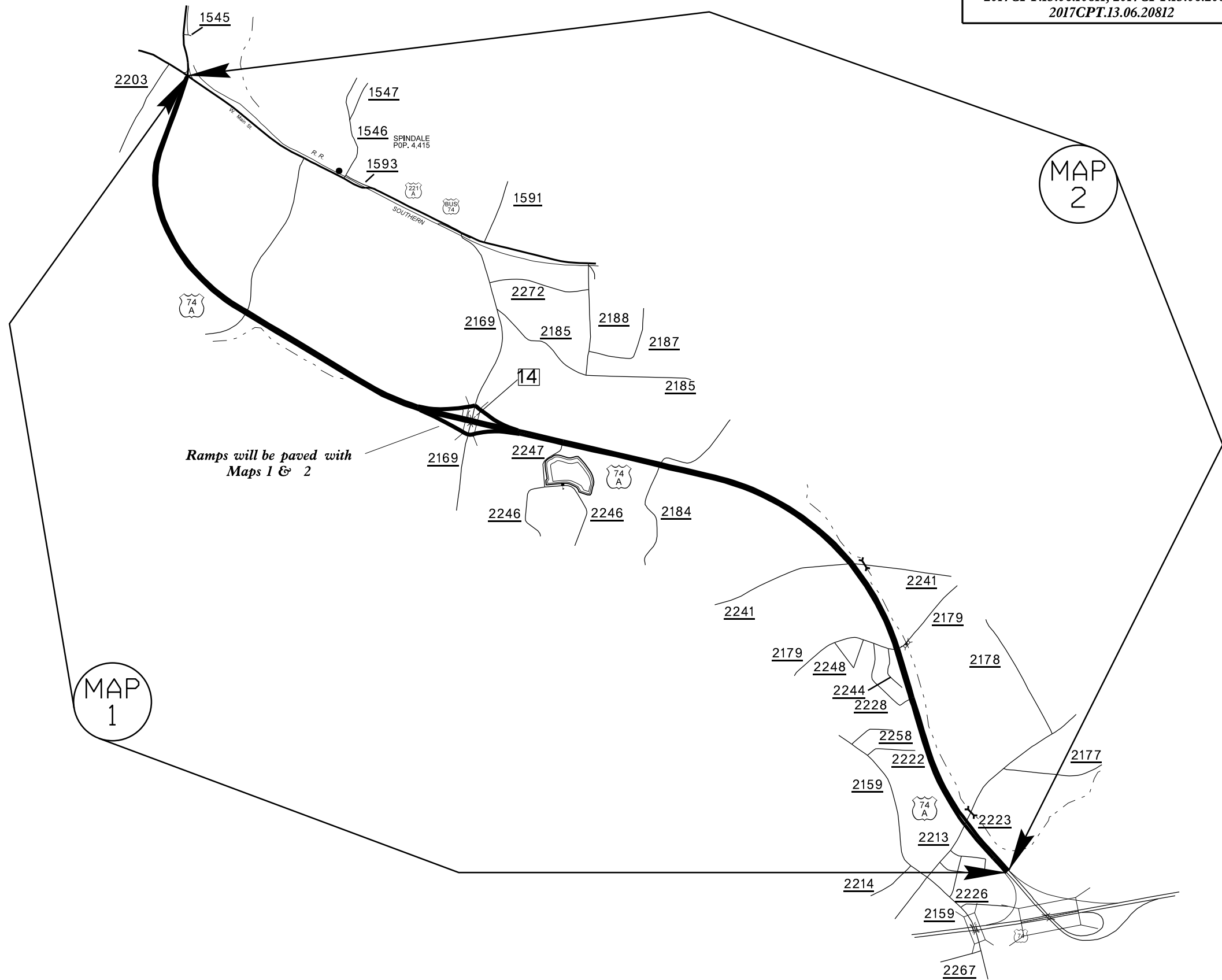


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PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812	1	



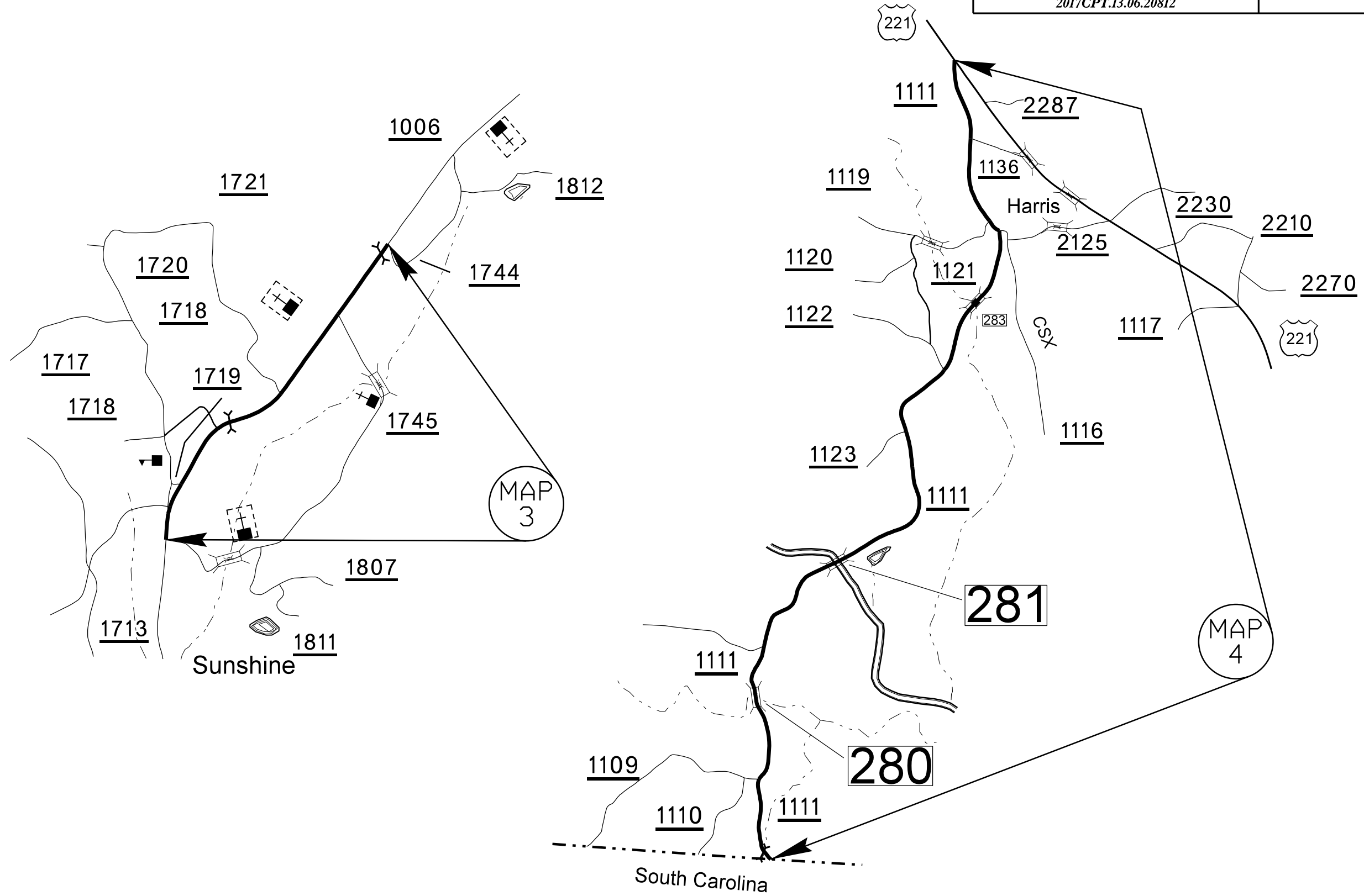
MAP
1

MAP
2

Ramps will be paved with
Maps 1 & 2

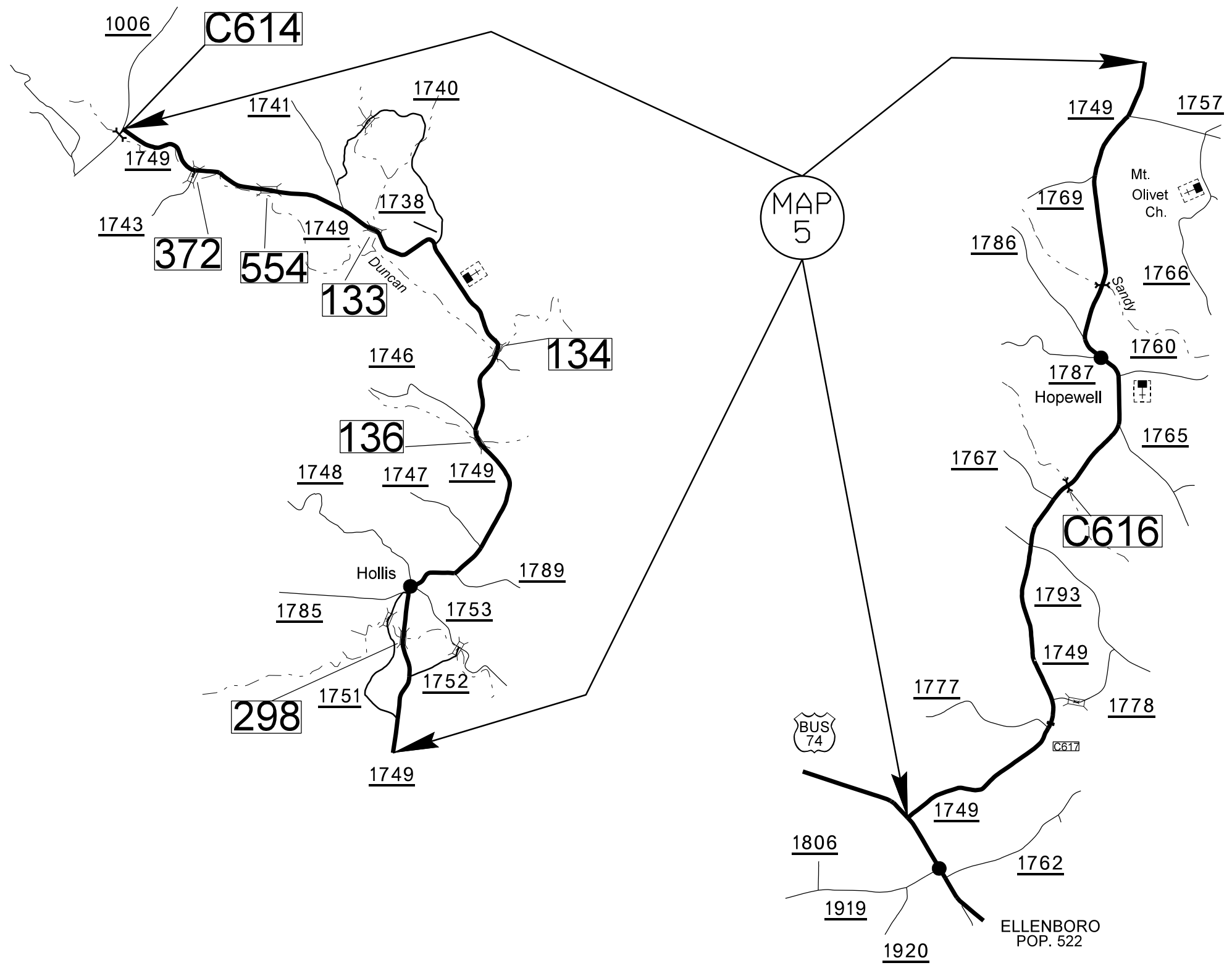
RUTHERFORD COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812	2	



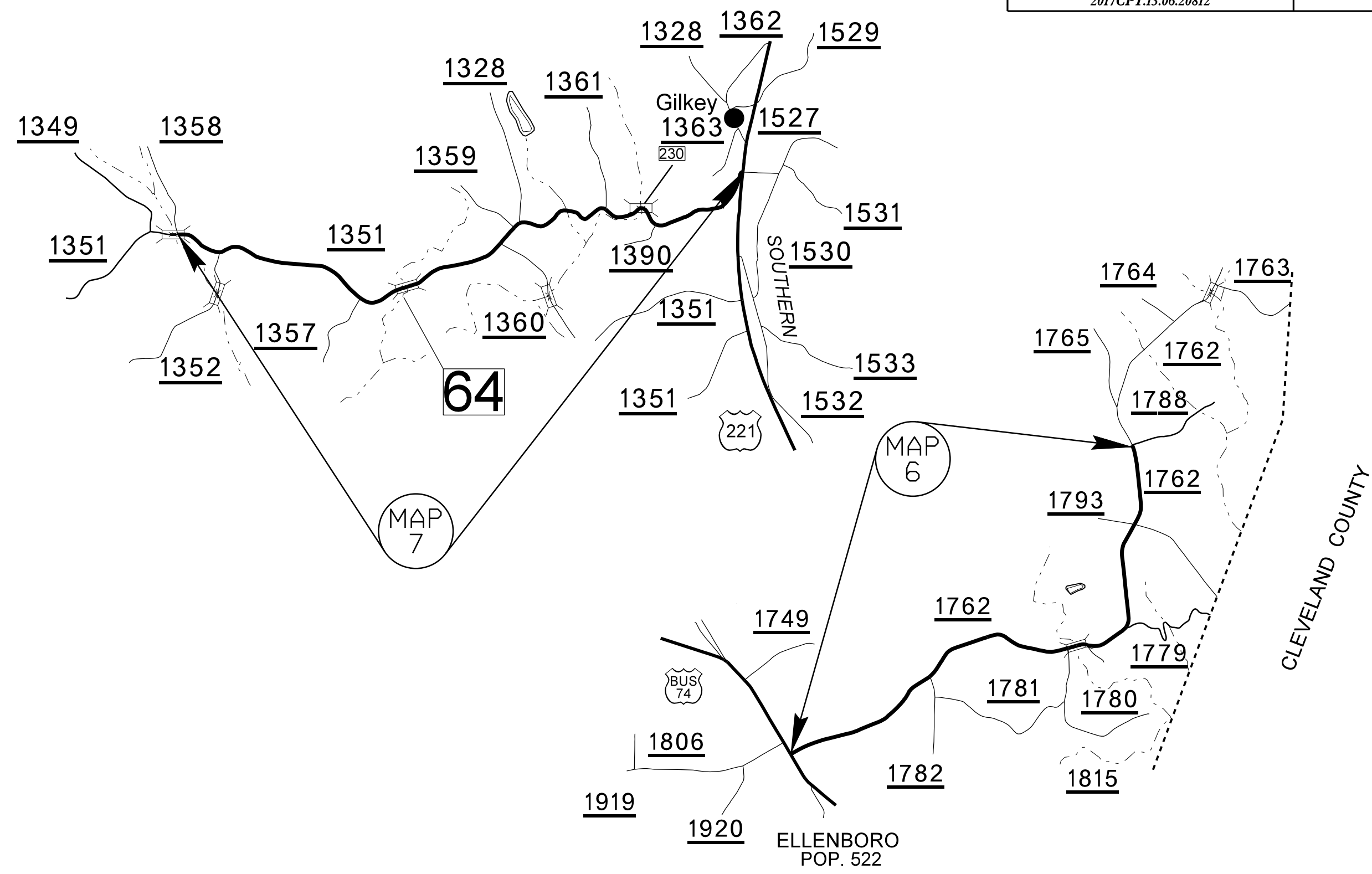
RUTHERFORD COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812	3	



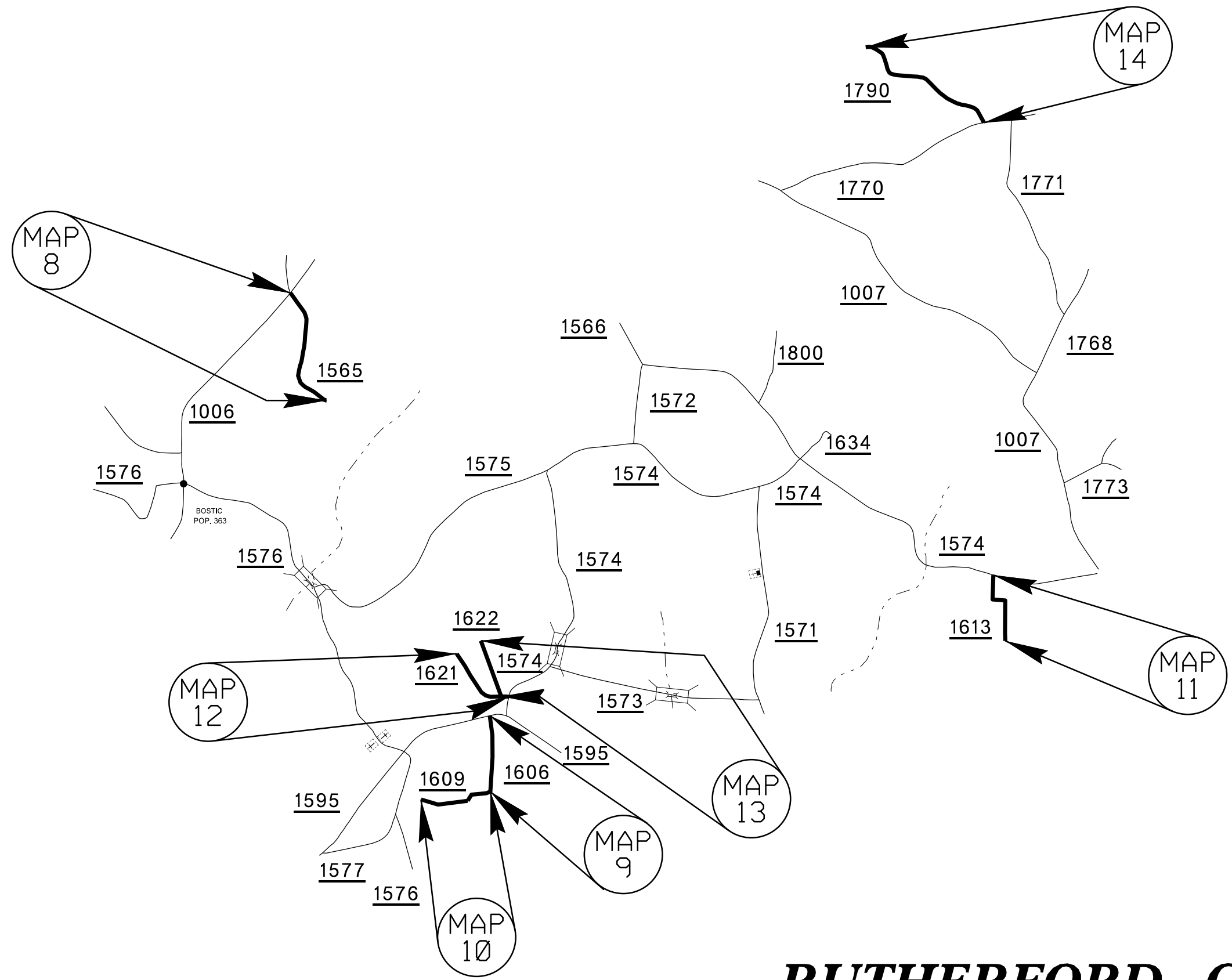
RUTHERFORD COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812	4	



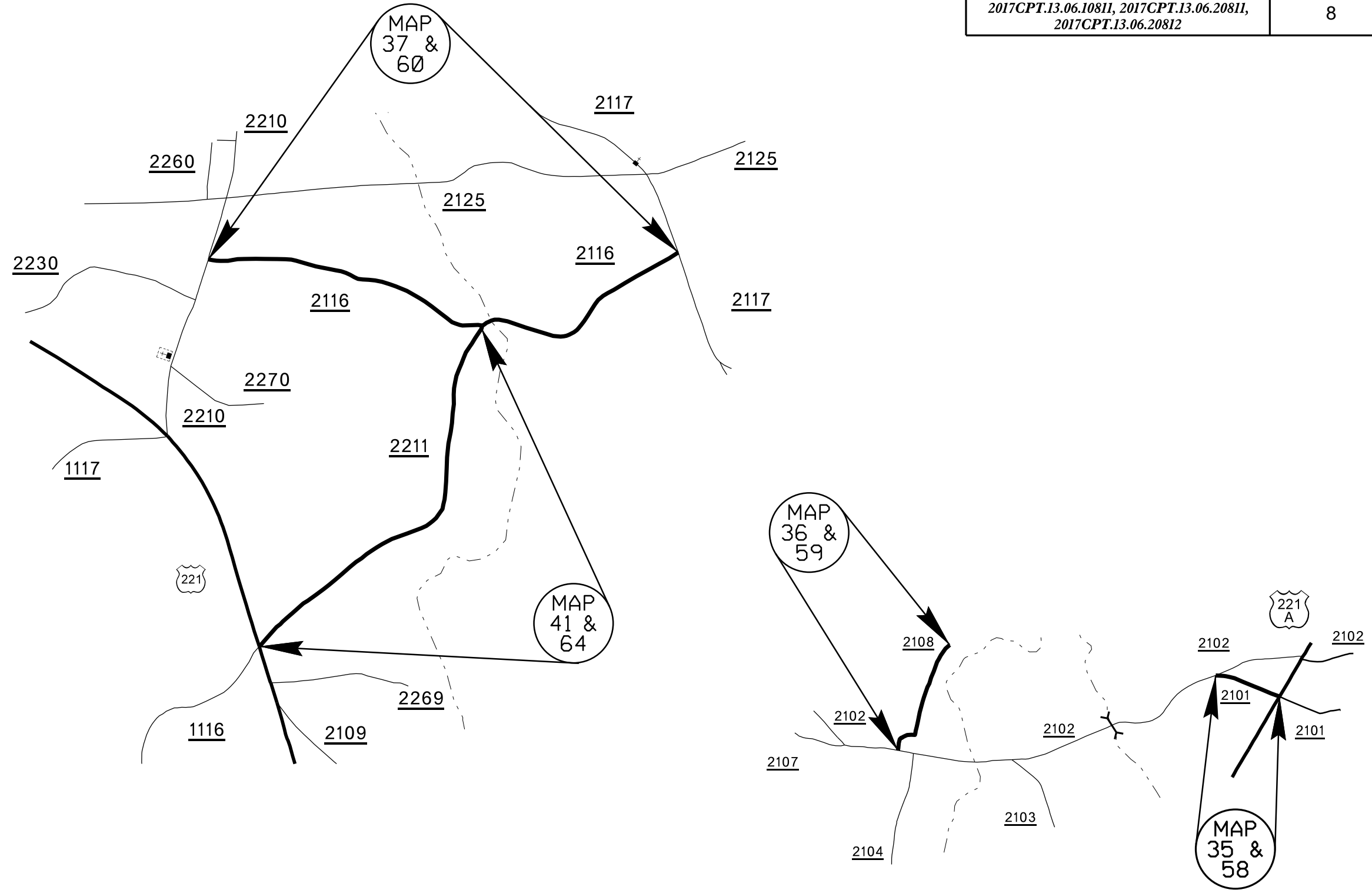
RUTHERFORD COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812	5	



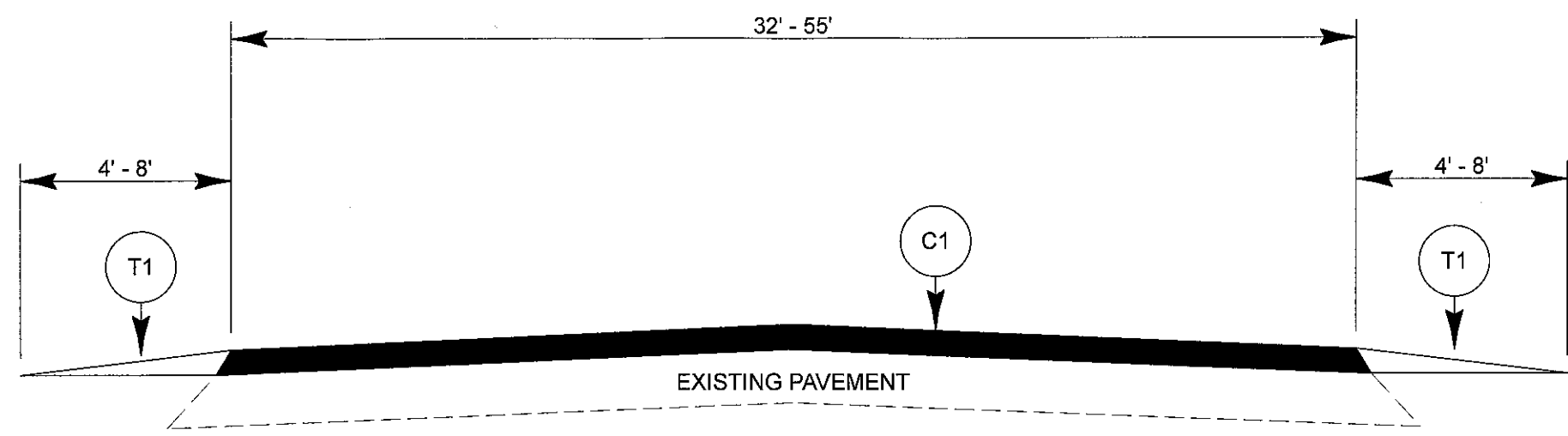
RUTHERFORD COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812	8	

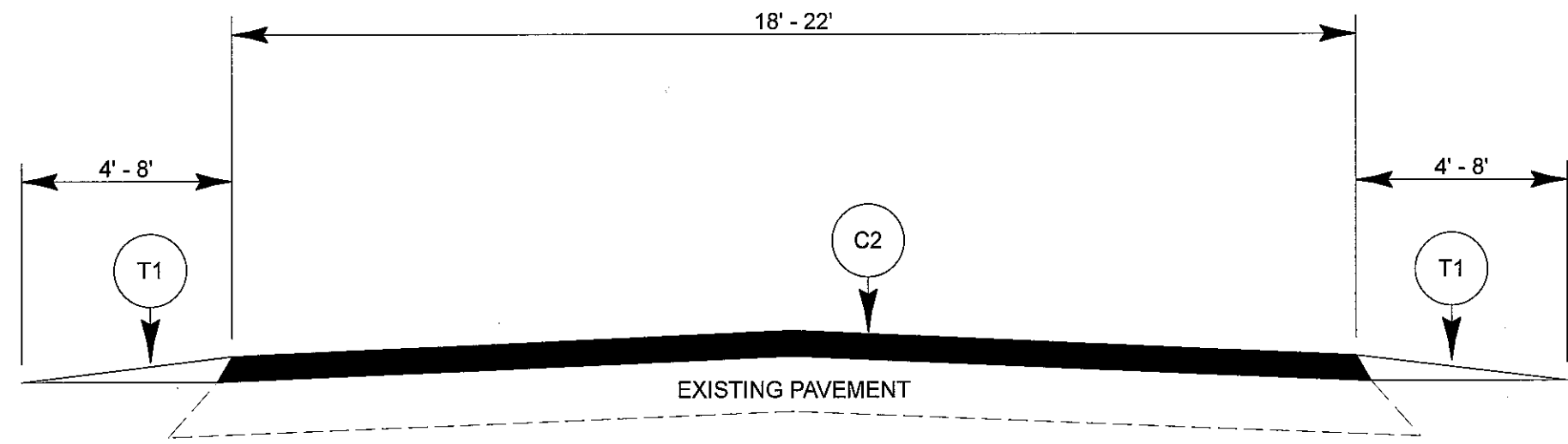
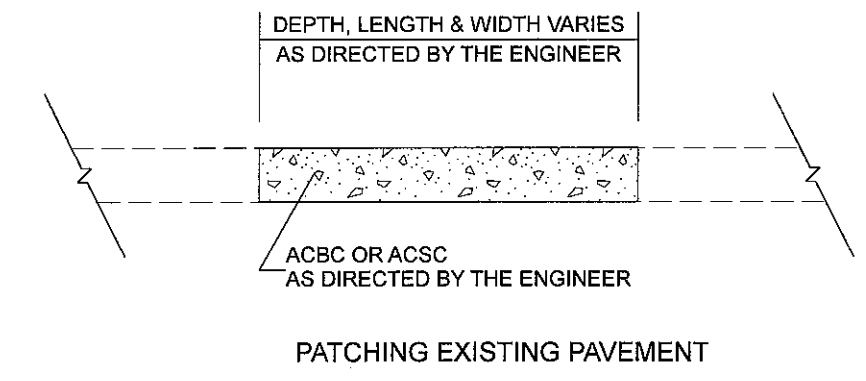


RUTHERFORD COUNTY

PROJECT NO. 2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812,	SHEET NO. 9	TOTAL SHEETS
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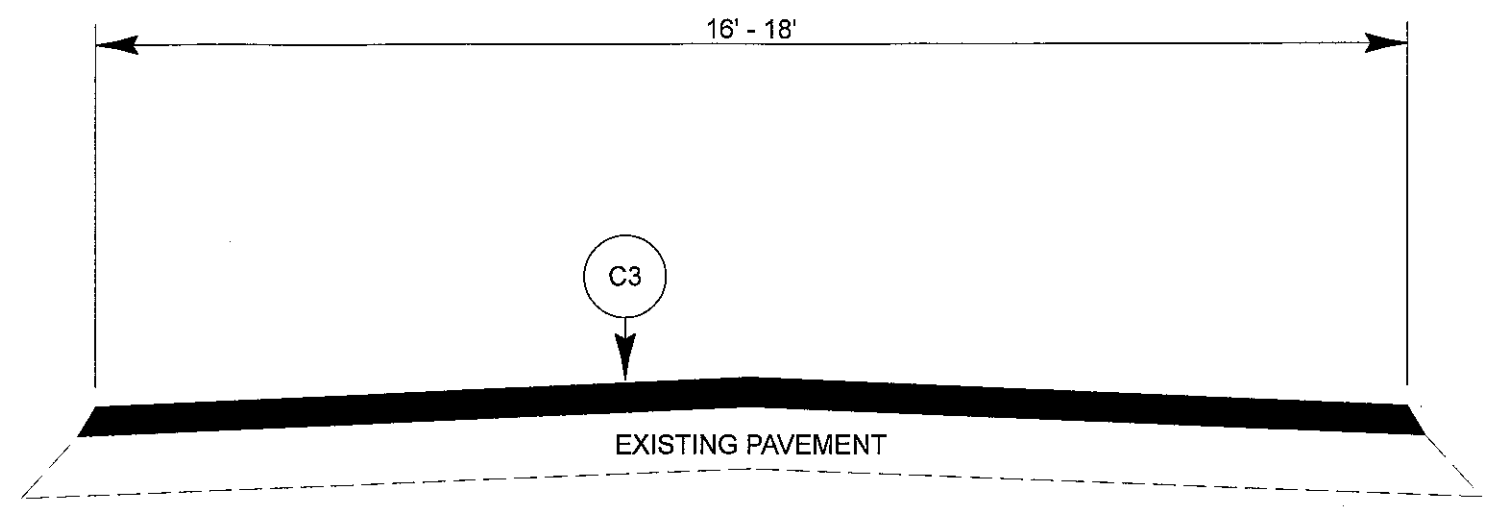
TYPICAL SECTION NO. 1



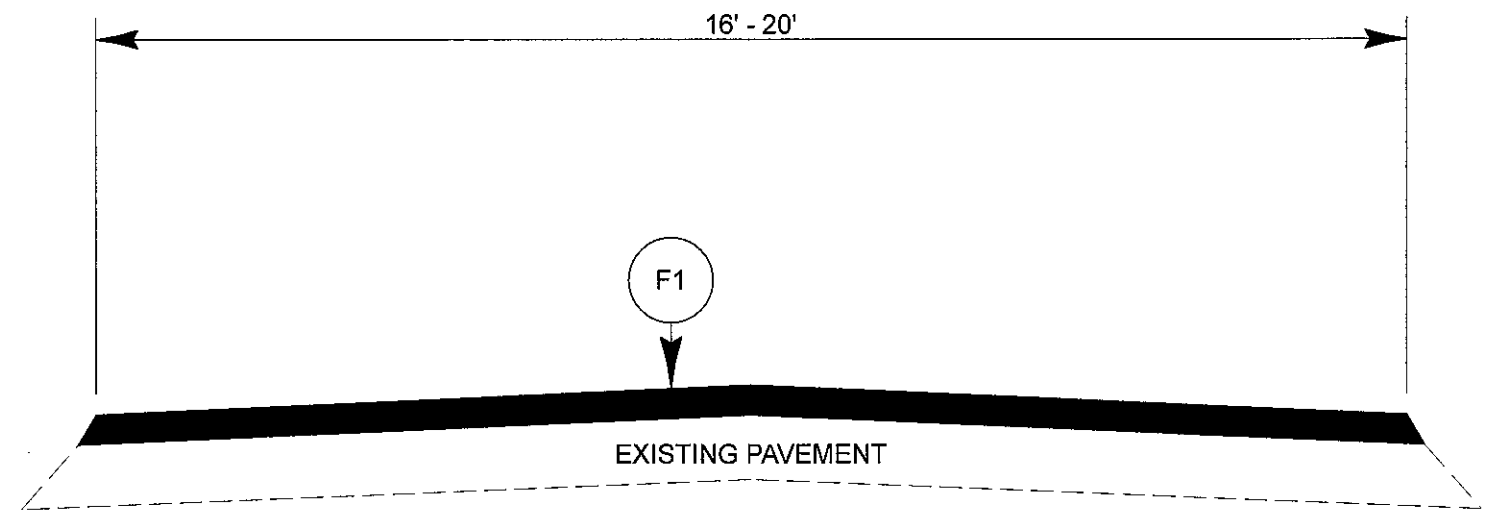
TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE	
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. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD
F1	ASPHALT SURFACE TREATMENT, DOUBLE SEAL (LIGHTWEIGHT AGGREGATE)
T1	SHOULDER RECONSTRUCTION
V1	MILLING ASPHALT PAVEMENT, 0 TO 1-1/2" DEPTH
V2	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH
V3	INCIDENTAL MILLING

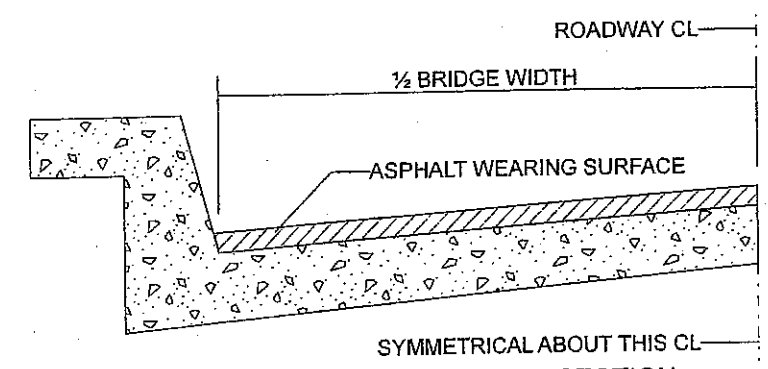
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812,	10	



TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4



BRIDGE HALF TYPICAL SECTION

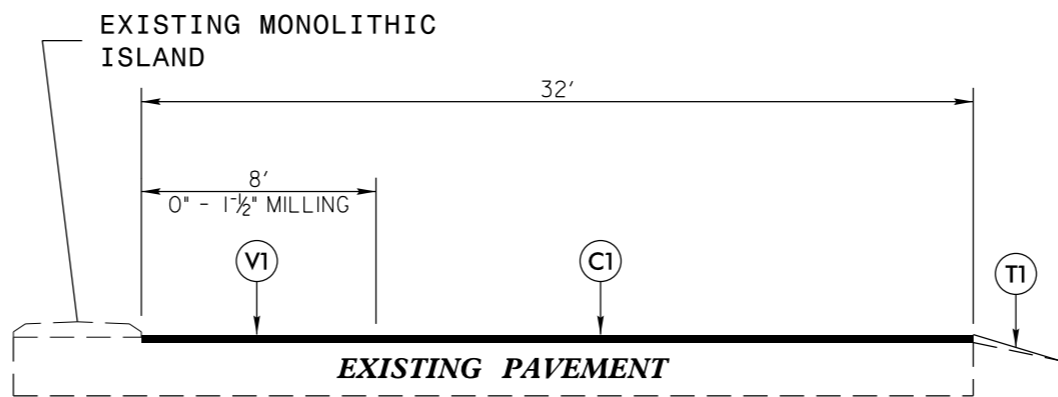
FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN

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 1/2", SF9.5A 1.0", S9.5X 1.5", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 1/2", 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 3/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2".

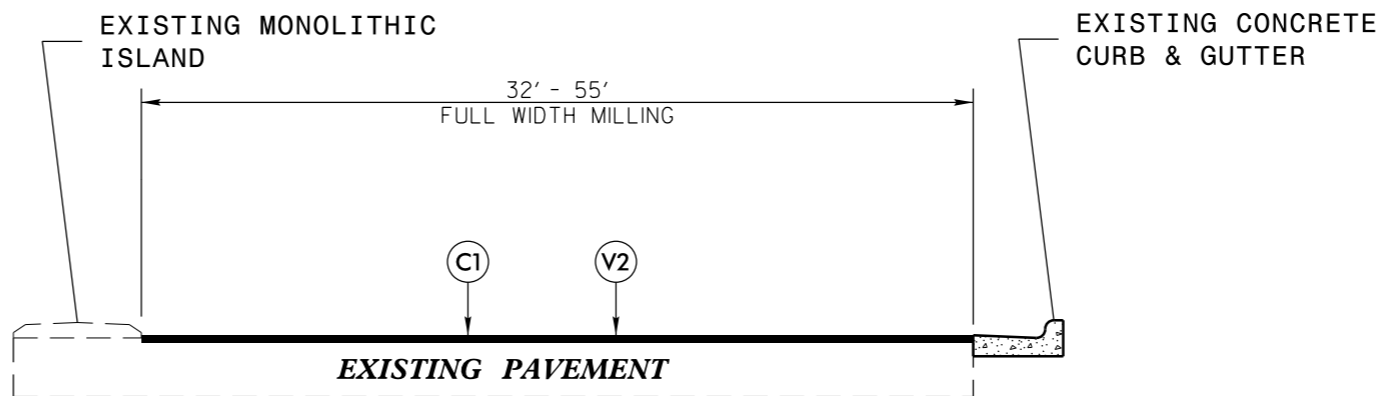
NOTES

- 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.

<i>PROJECT NO.</i>	<i>SHEET NO.</i>	<i>TOTAL SHEETS</i>
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812	11	

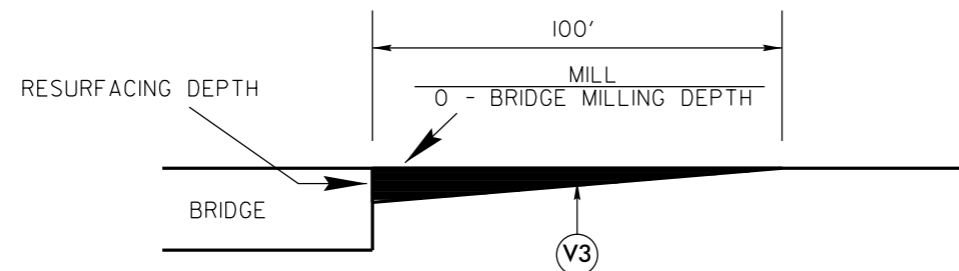


TYPICAL SECTION NO. 5



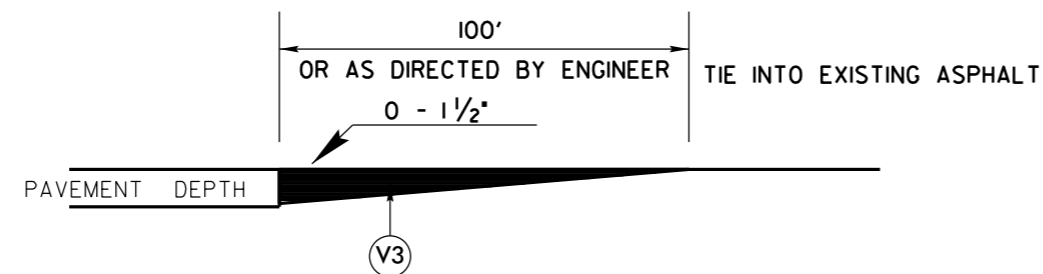
TYPICAL SECTION NO. 6

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.06.10811, 2017CPT.13.06.20811, 2017CPT.13.06.20812	12	



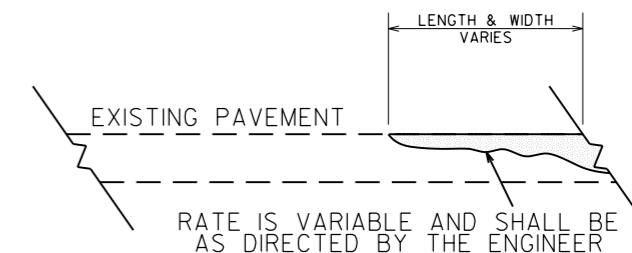
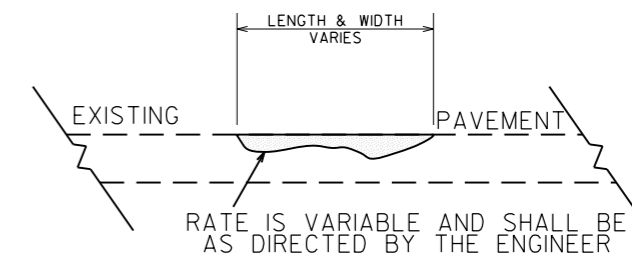
MILLING DETAIL AT BRIDGE APPROACHES

**WHERE BRIDGES WILL NOT BE RESURFACED.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.
USE AT BRIDGE NUMBER(S) 281.**



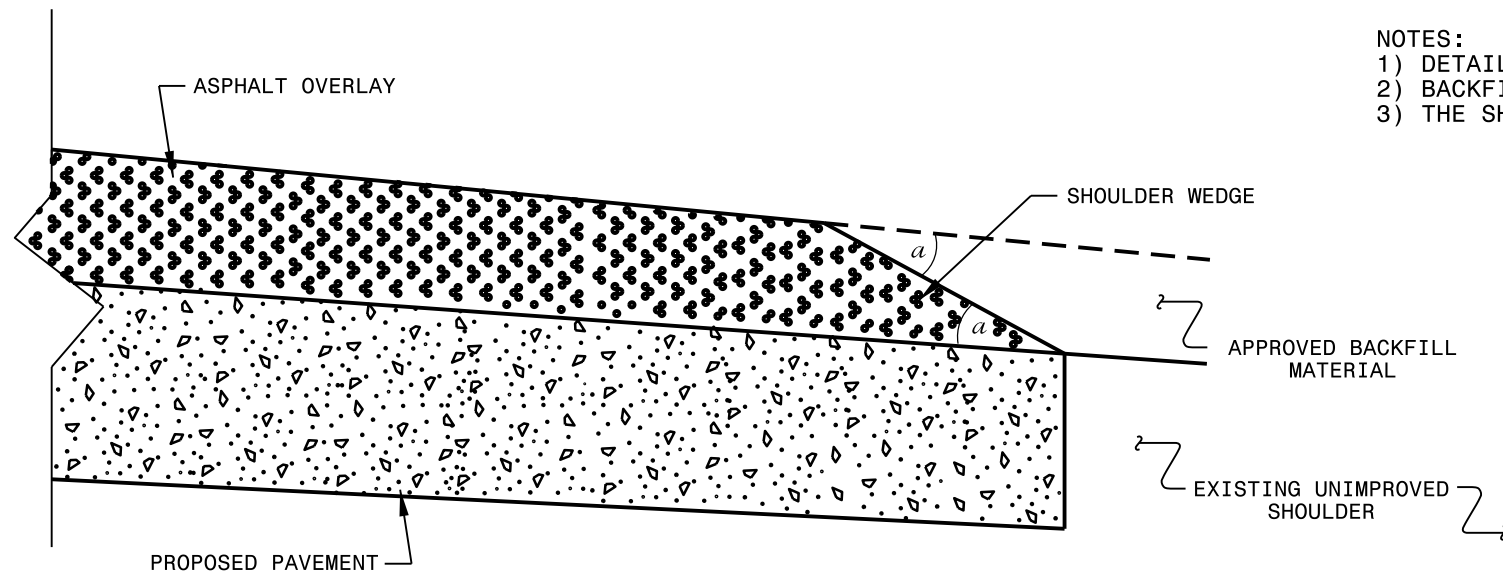
DETAIL TO TIE INTO EXIST PAVEMENT

**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.**

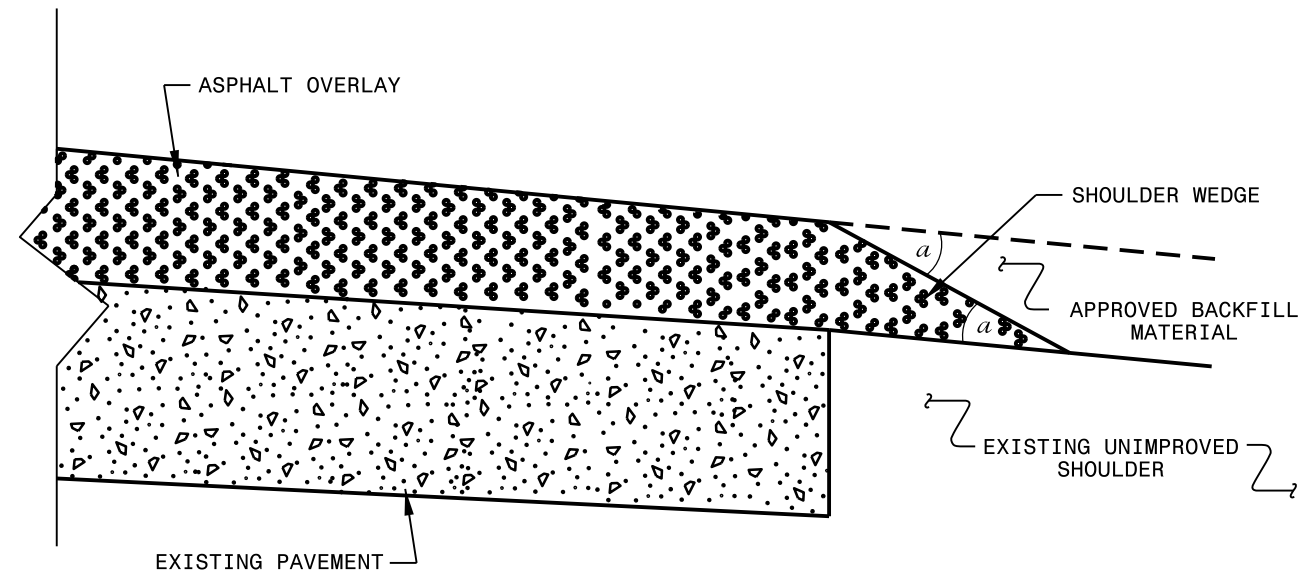


DETAIL SHOWING METHOD OF WEDGING

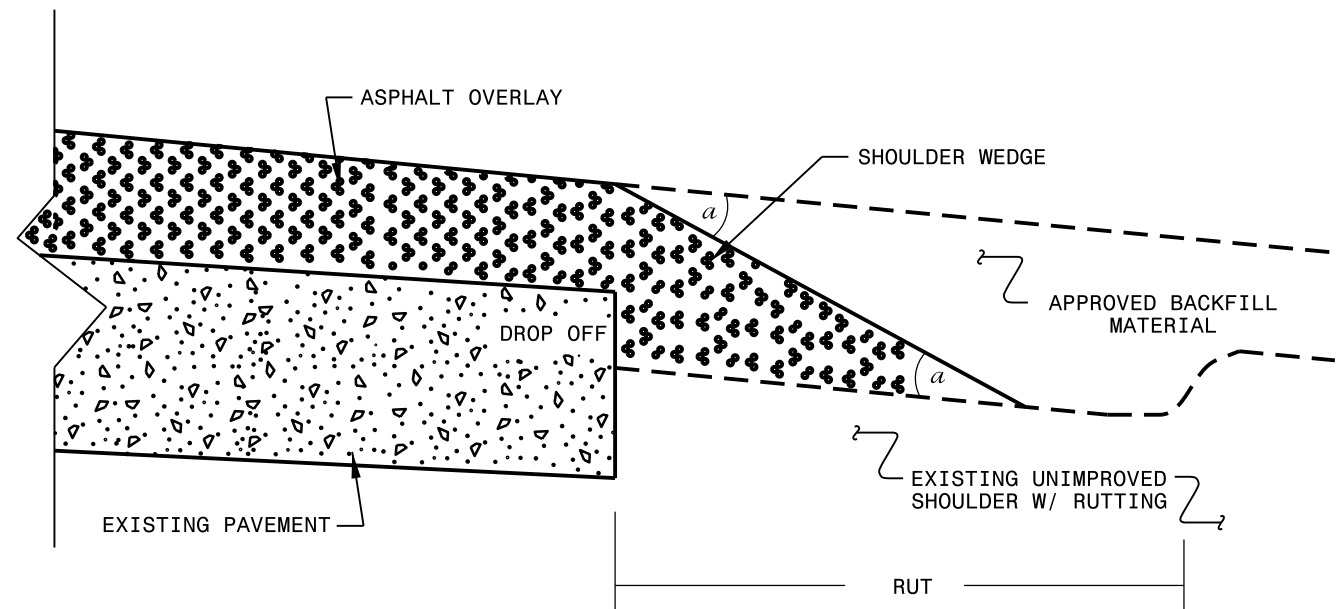
- NOTES:
 1) DETAIL DOES NOT APPLY TO OGAFc AND ULTRA-THIN BONDED WEARING COURSE.
 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



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.: susr/details/stand/shoulderwedgedetail.dgn			

SYSTEMS DESIGN
 USER NAME

PROJECT NO.	SHEET NO.	TOTAL NO.
2017CPT.13.06.10811, ETC.	14	

SUMMARY OF QUANTITIES

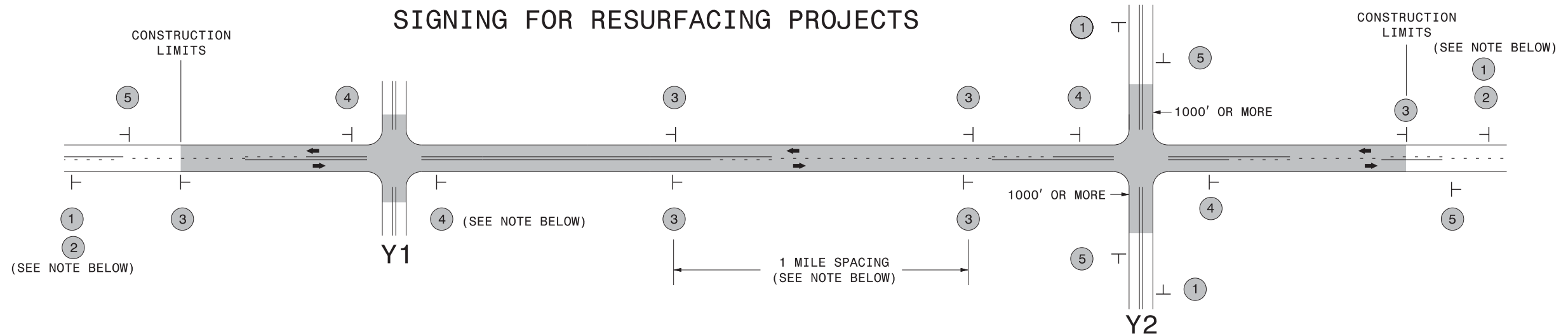
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TON	SHOULDER RECONSTRUCTION SMI	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH SY	MILLING ASPHALT PAVEMENT, 0" TO 1-1/2" DEPTH SY	INCIDENTAL MILLING SY	ASPHALT CONC SURFACE COURSE, TYPE SF9.5B TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A TON	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT TON	ASPHALT SURFACE TREATMENT, DOUBLE SEAL SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	ADJUSTMENT OF METER BOXES OR VALVE BOXES EA	INDUCTIVE LOOP SAWCUT LF
2017CPT.13.06.10811	Rutherford	1	US 74 A EBL	FROM US 221 ALT TO US 74 (MP 24.59 - MP 30.16)	1,5,6	2	MD	NO	NO	5.57	32	279	11.14	11,200	500	3,400	10,910		655	1,400				
		2	US 74 A WBL	FROM US 74 TO US 221 ALT (MP 0.48 - MP 6.03)	1,5,6	2	MD	NO	NO	5.55	32	278	11.10	6,400	5,000	3,400	11,425		685	1,300				1,000
TOTAL FOR PROJ NO. 2017CPT.13.06.10811										11.12		557	22.24	17,600	5,500	6,800	22,335		1,340	2,700				1,000
2017CPT.13.06.20811	Rutherford	3	SR 1006	FROM SR 1745 TO SR 1744 (MP 8.38 - MP 10.33)	2	2	2WU	NO	YES	1.95	22	98	3.90					2,297	154	350				
		4	SR 1111	FROM SC STATE LINE TO US 221 (MP 0.00 - MP 5.93)	2	2	2WU	NO	NO	5.93	19	297	11.86			450		6,038	405	1,650			1	
		5	SR 1749	FROM SR 1006 TO US 74 BUS (MP 0.00 - MP 14.58)	2	2	2WU	NO	YES	14.58	19	729	29.16					14,846	995	1,200				
		6	SR 1762	FROM SR 1788 TO US 74 BUS (MP 2.66 - MP 6.23)	2	2	2WU	NO	NO	3.57	20	179	7.14					3,825	256	700				
		7	SR 1351	FROM BRIDGE NO. 62 TO US 221 (MP 1.06 - MP 4.80)	2	2	2WU	NO	NO	3.74	19	187	7.48					3,808	255	1,600				
		8	SR 1565	FROM SR 1006 TO DEAD END (MP 1.78 - MP 2.27)	3	2	2WU	NO	YES	0.49	18							315	21	30				
		9	SR 1606	FROM SR 1595 TO SR 1609 (MP 0.00 - MP 0.40)	3	2	2WU	NO	NO	0.4	18							257	17	70			1	
		10	SR 1609	FROM SR 1606 TO EOM (MP 0.00 - MP 0.18)	3	2	2WU	NO	NO	0.18	18							116	8	25				
		11	SR 1613	FROM SR 1574 TO EOM (MP 0.00 - MP 0.19)	3	2	2WU	NO	YES	0.19	18							122	8	40				
		12	SR 1621	FROM SR 1574 TO DEAD END (MP 0.00 - MP 0.29)	3	2	2WU	NO	YES	0.29	17							176	12	55				
		13	SR 1622	FROM SR 1621 TO EOM (MP 0.00 - MP 0.23)	3	2	2WU	NO	YES	0.23	18							148	10	20				
		14	SR 1790	FROM SR 1770 TO DEAD END (MP 0.00 - MP 0.59)	3	2	2WU	NO	YES	0.59	18							379	25	45				
		15	SR 1803	FROM US 74 BUS TO SR 1784 (MP 0.00 - MP 0.28)	3	2	2WU	NO	YES	0.28	16							160	11	10				
		16	SR 1804	FROM SR 1782 TO DEAD END (MP 0.00 - MP 0.36)	3	2	2WU	NO	YES	0.36	17							218	15	10				
		17	SR 1805	FROM SR 1803 TO EOM (MP 0.00 - MP 0.18)	3	2	2WU	NO	YES	0.18	17							109	7	10				
		18	SR 1813	FROM SR 1805 TO SR 1804 (MP 0.00 - MP 0.16)	3	2	2WU	NO	NO	0.16	18							103	7	10			1	
		19	SR 1913	FROM US 74 BUS TO SR 1920 (MP 0.00 - MP 3.64)		2	2WU	NO	NO	3.64	18							50	3	200				
		20	SR 1915	FROM SR 1917 TO SR 1916 (MP 0.00 - MP 0.43)		2	2WU	NO	NO	0.43	18									30				
		21	SR 1916	FROM SR 1980 TO SR 1983 (MP 0.93 - MP 2.67)		2	2WU	NO	NO	1.74	18									155				
		22	SR 1918	FROM SR 1917 TO PVMT CHANGE (MP 0.00 - 0.20)		2	2WU	NO	NO	0.2	18									50				
		23	SR 1924	FROM CLEVELAND COUNTY LINE TO NC 120 (MP 0.00 - MP 0.17)		2	2WU	NO	NO	0.17	18									15				
		24	SR 1925	FROM CLEVELAND COUNTY LINE TO SR 1926 (MP 0.00 - MP 0.20)		2	2WU	NO	NO	0.2	19									20				
		25	SR 1926	FROM NC 120 TO NC 120 (MP 0.00 - MP 1.53)		2	2WU	NO	NO	1.53	19.5									140				
		26	SR 1927	FROM CLEVELAND COUNTY LINE TO SR 1926 (MP 0.00 - MP 0.23)		2	2WU	NO	NO	0.23	20									25				
		27	SR 1928	FROM CLEVELAND COUNTY LINE TO SR 1990 (MP 0.00 - MP 0.21)		2	2WU	NO	NO	0.21	19									15				
		28	SR 1929	FROM CLEVELAND COUNTY LINE TO SR 1990 (MP 0.00 - MP 0.37)		2	2WU	NO	NO	0.37	18									35				
		29	SR 1943	FROM SR 1942 TO SR 1935 (MP 0.37 - MP 1.10)		2	2WU	NO	NO	0.73	18									135				
		30	SR 1980	FROM SR 1916 TO SR 1917 (MP 0.00 - MP 0.20)		2	2WU	NO	NO	0.2	18									20				
		31	SR 1982	FROM CLEVELAND COUNTY LINE TO SR 1921 (MP 0.00 - MP 1.77)		2	2WU	NO	NO	1.77	20									230				
		32	SR 1983	FROM US 74 BUS TO SR 1913 (MP 0.00 - MP 1.31)		2	2WU	NO	NO	1.31	18									120				
		33	SR 1990	FROM NC 120 TO NC 120 (MP 0.00 - MP 1.71)		2	2WU	NO	NO	1.71	19							115	8	265				
		34	SR 2016	FROM SR 1913 TO EOM (MP 0.00 - MP 0.21)		2	2WU	NO	NO	0.21	18									30				
		35	SR 2101	FROM US 221 ALT TO SR 2102 (MP 0.31 - MP 0.63)		2	2WU	NO	NO	0.32	20									20				
		36	SR 2108	FROM SR 2102 TO DEAD END (MP 0.00 - MP 0.60)		2	2WU	NO	NO	0.6	18.5									90				
		37	SR 2116	FROM SR 2210 TO SR 2117 (MP 0.00 - MP 1.60)		2	2WU	NO	NO	1.6	19							245	16	200				
		38	SR 2128	FROM SR 2129 TO SR 2129 (MP 0.00 - MP 0.81)		2	2WU	NO	NO	0.81	17							50	3	100				
		39	SR 2142	FROM SR 2129 TO SR 2143 (MP 0.00 - MP 1.31)		2	2WU	NO	NO	1.31	18.5									200				
		40	SR 2147	FROM SR 2210 TO SR 2146 (MP 0.00 - MP 0.58)		2	2WU	NO	NO	0.58	18							60	4	90				
		41	SR 2211	FROM US 221 TO SR 2116 (MP 0.00 - MP 1.31)		2	2WU	NO	NO	1.31	18							190	13	350				
TOTAL FOR PROJ NO. 2017CPT.13.06.20811										54.3		1,490	59.54			450		33,627	2,253	8,360			3	
2017CPT.13.06.20812	Rutherford	42	SR 1913	FROM US 74 BUS TO SR 1920 (MP 0.00 - MP 3.64)	4	2	2WU	NO	NO	3.64	18										38,438	21,142		
		43	SR 1915	FROM SR 1917 TO SR 1916 (MP 0.00 - MP 0.43)	4	2	2WU	NO	NO	0.43	18										4,541	2,498		
		44	SR 1916	FROM SR 1980 TO SR 1983 (MP 0.93 - MP 2.67)	4	2	2WU	NO	NO	1.74	18										18,374	10,106		
		45	SR 1918	FROM SR 1917 TO PVMT CHANGE (MP 0.00 - 0.20)	4	2	2WU	NO	NO	0.2	18										2,112	1,162		
		46	SR 1924	FROM CLEVELAND COUNTY LINE TO NC 120 (MP 0.00 - MP 0.17)	4	2	2WU	NO	NO	0.17	18										1,795	976		
		47	SR 1925	FROM CLEVELAND COUNTY LINE TO SR 1926 (MP 0.00 - MP 0.20)	4	2	2WU	NO	NO	0.2	19										2,229	1,220		
		48	SR 1926	FROM NC 120 TO NC 120 (MP 0.00 - MP 1.53)	4	2	2WU	NO	NO	1.53	19.5										17,503	9,627		
		49	SR 1927	FROM CLEVELAND COUNTY LINE TO SR 1926 (MP 0.00 - MP 0.23)	4	2	2WU	NO	NO	0.23	20										2,699	1,485		
		50	SR 1928	FROM CLEVELAND COUNTY LINE TO SR 1990 (MP 0.00 - MP 0.21)	4	2	2WU	NO	NO	0.21	19										2,341	1,257		
		51	SR 1929	FROM CLEVELAND COUNTY LINE TO SR 1990 (MP 0.00 - MP 0.37)	4	2	2WU	NO	NO	0.37	18										3,907	2,149		
		52	SR 1943	FROM SR 1942 TO SR 1935 (MP 0.37 - MP 1.10)	4	2	2WU	NO	NO	0.73	18										7,709	4,240		
		53	SR 1980	FROM SR 1916 TO SR 1917 (MP 0.00 - MP 0.20)	4	2	2WU	NO	NO	0.2	18										2,112	1,162		
		54	SR 1982	FROM CLEVELAND COUNTY LINE TO SR 1921 (MP 0.00 - MP 1.77)	4	2	2WU	NO	NO	1.77	20										20,768	11,423		
		55	SR 1983	FROM US 74 BUS TO SR 1913 (MP 0.00 - MP 1.31)	4	2	2WU	NO	NO	1.31	18										13,834	7,609		
		56	SR 1990	FROM NC 120 TO NC 120 (MP 0.00 - MP 1.71)	4	2	2WU	NO	NO	1.71	19										19,061	10,484		
		57	SR 2016	FROM SR 1913 TO EOM (MP 0.00 - MP 0.21)	4	2	2WU																	

PROJECT NO.	SHEET NO.	TOTAL NO.
2017CPT.13.06.10811, ETC.	15	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E	4457000000-N	4695000000-E		4700000000-E	4705000000-E	4710000000-E	4721000000-E		4725000000-E					4810000000-E		4905000000-N				
										WORK ZONE ADVANCE/ GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	THERMO PAVEMENT MARKING LINES (8", 90 MILS) WHITE	THERMO PAVEMENT MARKING LINES (8", 90 MILS) YELLOW	THERMO PAVEMENT MARKING LINES (12", 90 MILS) YELLOW	THERMO PAVEMENT MARKING LINES (16", 120 MILS) WHITE	THERMO PAVEMENT MARKING LINES (24", 120 MILS) WHITE	THERMO PAVEMENT MARKING CHARACTER (120 MILS) RXR	THERMO PAVEMENT MARKING CHARACTER (120 MILS) SCHOOL	THERMO PAVEMENT MARKING SYMBOL (90 MILS) LT ARROW	THERMO PAVEMENT MARKING SYMBOL (90 MILS) RT ARROW	THERMO PAVEMENT MARKING SYMBOL (90 MILS) STR ARROW	THERMO PAVEMENT MARKING SYMBOL (90 MILS) STR & LT ARROW	THERMO PAVEMENT MARKING SYMBOL (90 MILS) STR & RT ARROW	THERMO PAVEMENT MARKING SYMBOL (90 MILS) MERGE ARROW	PAINT MARKING LINES (4") WHITE	PAINT MARKING LINES (4") YELLOW	SNOW-PLOWABLE PAVEMENT MARKERS			
NO		NO			NO					SF	LS	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA			
2017CPT.13.06.10811	Rutherford	1	US 74 A EBL	FROM US 221 ALT TO US 74 (MP 24.59 - MP 30.16)	1,5,6	2	MD	5.57	32	1,250	*	200	140	100		610			37	16	8	1	2				87,000	117,638	675	
		2	US 74 A WBL	FROM US 74 TO US 221 ALT (MP 0.48 - MP 6.03)	1,5,6	2	MD	5.55	32			600	250	570		815			27	22	5		3				87,600	117,216	650	
TOTAL FOR PROJ NO. 2017CPT.13.06.10811								11.12		1,250	1	800	390	670		1,425			64	38	13	1	4	3		174,600	234,854	1,325		
											1,190												123	409,454						
2017CPT.13.06.20811	Rutherford	3	SR 1006	FROM SR 1745 TO SR 1744 (MP 8.38 - MP 10.33)	2	2	2WU	1.95	22																			41,184	41,184	175
		4	SR 1111	FROM SC STATE LINE TO US 221 (MP 0.00 - MP 5.93)	2	2	2WU	5.93	19																			125,542	125,242	
		5	SR 1749	FROM SR 1006 TO US 74 BUS (MP 0.00 - MP 14.58)	2	2	2WU	14.58	19																			307,930	307,930	
		6	SR 1762	FROM SR 1788 TO US 74 BUS (MP 2.66 - MP 6.23)	2	2	2WU	3.57	20																			75,398	75,398	
		7	SR 1351	FROM BRIDGE NO. 62 TO US 221 (MP 1.06 - MP 4.80)	2	2	2WU	3.74	19																			78,989	78,989	
		8	SR 1565	FROM SR 1006 TO DEAD END (MP 1.78 - MP 2.27)	3	2	2WU	0.49	18																			10,349	10,349	
		9	SR 1606	FROM SR 1595 TO SR 1609 (MP 0.00 - MP 0.40)	3	2	2WU	0.4	18																					
		10	SR 1609	FROM SR 1606 TO EOM (MP 0.00 - MP 0.18)	3	2	2WU	0.18	18																					
		11	SR 1613	FROM SR 1574 TO EOM (MP 0.00 - MP 0.19)	3	2	2WU	0.19	18																					
		12	SR 1621	FROM SR 1574 TO DEAD END (MP 0.00 - MP 0.29)	3	2	2WU	0.29	17																					
		13	SR 1622	FROM SR 1621 TO EOM (MP 0.00 - MP 0.23)	3	2	2WU	0.23	18																					
		14	SR 1790	FROM SR 1770 TO DEAD END (MP 0.00 - MP 0.59)	3	2	2WU	0.59	18																					
		15	SR 1803	FROM US 74 BUS TO SR 1784 (MP 0.00 - MP 0.28)	3	2	2WU	0.28	16																					
		16	SR 1804	FROM SR 1782 TO DEAD END (MP 0.00 - MP 0.36)	3	2	2WU	0.36	17																					
		17	SR 1805	FROM SR 1803 TO EOM (MP 0.00 - MP 0.18)	3	2	2WU	0.18	17																					
		18	SR 1813	FROM SR 1805 TO SR 1804 (MP 0.00 - MP 0.16)	3	2	2WU	0.16	18																					
		19	SR 1913	FROM US 74 BUS TO SR 1920 (MP 0.00 - MP 3.64)	2	2	2WU	3.64	18																					
		20	SR 1915	FROM SR 1917 TO SR 1916 (MP 0.00 - MP 0.43)	2	2	2WU	0.43	18																					
		21	SR 1916	FROM SR 1980 TO SR 1983 (MP 0.93 - MP 2.67)	2	2	2WU	1.74	18																					
		22	SR 1918	FROM SR 1917 TO PVMT CHANGE (MP 0.00 - 0.20)	2	2	2WU	0.2	18																					
		23	SR 1924	FROM CLEVELAND COUNTY LINE TO NC 120 (MP 0.00 - MP 0.17)	2	2	2WU	0.17	18																					
		24	SR 1925	FROM CLEVELAND COUNTY LINE TO SR 1926 (MP 0.00 - MP 0.20)	2	2	2WU	0.2	19																					
		25	SR 1926	FROM NC 120 TO NC 120 (MP 0.00 - MP 1.53)	2	2	2WU	1.53	19.5																					
		26	SR 1927	FROM CLEVELAND COUNTY LINE TO SR 1926 (MP 0.00 - MP 0.23)	2	2	2WU	0.23	20																					
		27	SR 1928	FROM CLEVELAND COUNTY LINE TO SR 1990 (MP 0.00 - MP 0.21)	2	2	2WU	0.21	19																					
		28	SR 1929	FROM CLEVELAND COUNTY LINE TO SR 1990 (MP 0.00 - MP 0.37)	2	2	2WU	0.37	18																					
		29	SR 1943	FROM SR 1942 TO SR 1935 (MP 0.37 - MP 1.10)	2	2	2WU	0.73	18																					
		30	SR 1980	FROM SR 1916 TO SR 1917 (MP 0.00 - MP 0.20)	2	2	2WU	0.2	18																					
		31	SR 1982	FROM CLEVELAND COUNTY LINE TO SR 1921 (MP 0.00 - MP 1.77)	2	2	2WU	1.77	20																					
		32	SR 1983	FROM US 74 BUS TO SR 1913 (MP 0.00 - MP 1.31)	2	2	2WU	1.31	18																					
		33	SR 1990	FROM NC 120 TO NC 120 (MP 0.00 - MP 1.71)	2	2	2WU	1.71	19																					
		34	SR 2016	FROM SR 1913 TO EOM (MP 0.00 - MP 0.21)	2	2	2WU	0.21	18																					
		35	SR 2101	FROM US 221 ALT TO SR 2102 (MP 0.31 - MP 0.63)	2	2	2WU	0.32	20																					
		36	SR 2108	FROM SR 2102 TO DEAD END (MP 0.00 - MP 0.60)	2	2	2WU	0.6	18.5																					
		37	SR 2116	FROM SR 2210 TO SR 2117 (MP 0.00 - MP 1.60)	2	2	2WU	1.6	19																					
		38	SR 2128	FROM SR 2129 TO SR 2129 (MP 0.00 - MP 0.81)	2	2	2WU	0.81	17																					
		39	SR 2142	FROM SR 2129 TO SR 2143 (MP 0.00 - MP 1.31)	2	2	2WU	1.31	18.5																					
		40	SR 2147	FROM SR 2210 TO SR 2146 (MP 0.00 - MP 0.58)	2	2	2WU	0.58	18																					
		41	SR 2211	FROM US 221 TO SR 2116 (MP 0.00 - MP 1.31)	2	2	2WU	1.31	18																					
TOTAL FOR PROJ NO. 2017CPT.13.06.20811								54.3		3,724	1	500	45	70	2	12	2	12	2	2	2	2	2	2	2	2	639,392	639,092	175	
											500												14	2		1,278,484				
2017CPT.13.06.20812	Rutherford	42	SR 1913	FROM US 74 BUS TO SR 1920 (MP 0.00 - MP 3.64)	4	2	2WU	3.64	18																			76,877	76,877	
		43	SR 1915	FROM SR 1917 TO SR 1916 (MP 0.00 - MP 0.43)	4	2	2WU	0.43	18																			9,082	9,082	
		44	SR 1916	FROM SR 1980 TO SR 1983 (MP 0.93 - MP 2.67)	4	2	2WU	1.74	18																			36,749	36,749	
		45	SR 1918	FROM SR 1917 TO PVMT CHANGE (MP 0.00 - 0.20)	4	2	2WU	0.2	18																			4,224	4,224	
		46	SR 1924	FROM CLEVELAND COUNTY LINE TO NC 120 (MP 0.00 - MP 0.17)	4	2	2WU	0.17	18																			3,590	3,590	
		47	SR 1925	FROM CLEVELAND COUNTY LINE TO SR 1926 (MP 0.00 - MP 0.20)	4	2	2WU	0.2	19																			4,224	4,224	
		48	SR 1926	FROM NC 120 TO NC																										

SIGNING FOR RESURFACING PROJECTS



LEGEND	
⊥	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

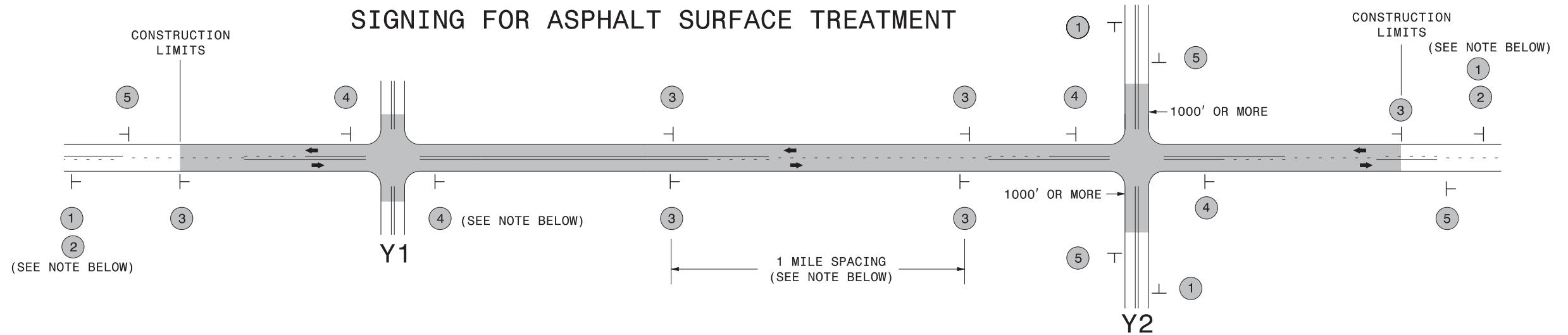
-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	MAINLINE (-L-) SIGNING		-Y- LINE SIGNING	
	1	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>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>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> W20-1 48" X 48" </div> <div style="text-align: center;"> W20-7 A 48" X 48" </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	2	 W7-3aP 24" X 18"	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	3	 SP 13107 48" X 48"	PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.	
	4	 SP 13106 48" X 48"	THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.	
5	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.		

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

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	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p>
	2	<p>#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)</p>
	3	<p>ALTERNATE THE FOLLOWING TWO SIGNS: STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT".</p> <p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p>
	4	<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	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>

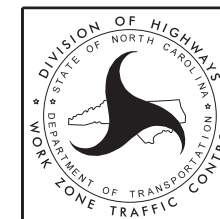
NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

- 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.

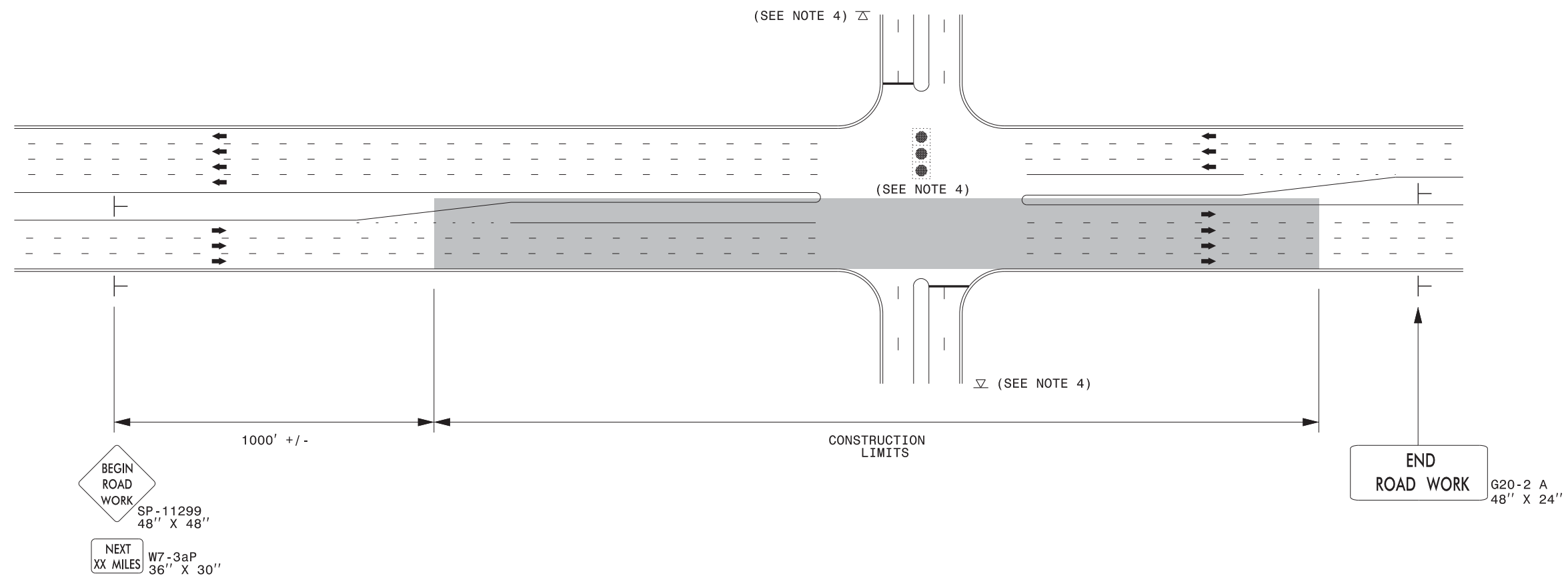


PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.



ADVANCE WARNING SIGNS FOR ASPHALT SURFACE TREATMENTS 2 LANE ROADWAYS

URBAN / SUBURBAN WORKZONES



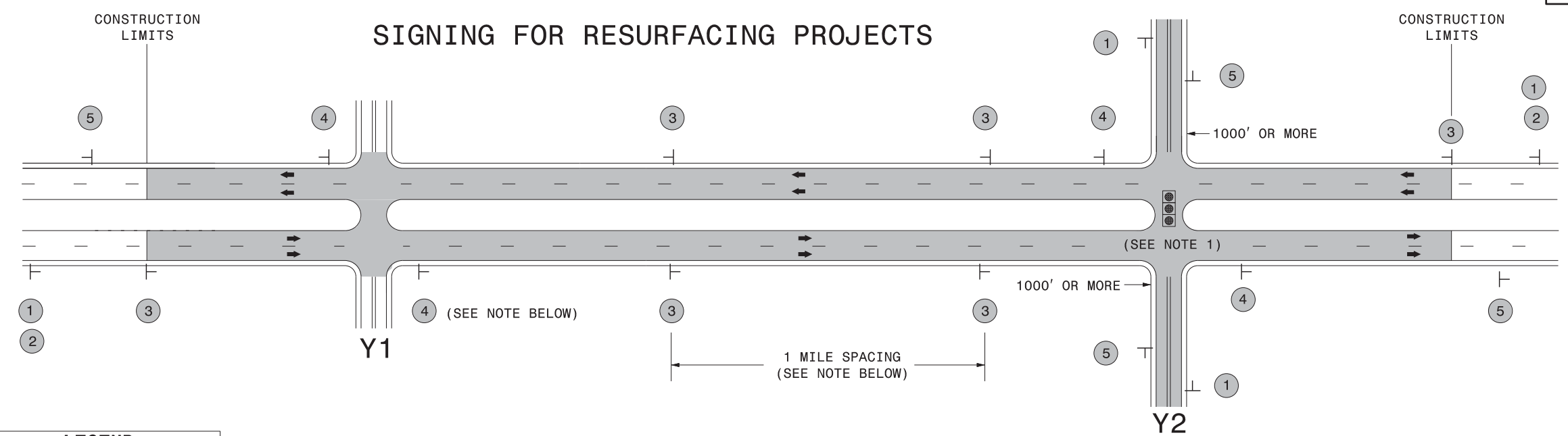
NOTES:

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

LEGEND	
├	STATIONARY SIGN
➔	DIRECTION OF TRAFFIC FLOW

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

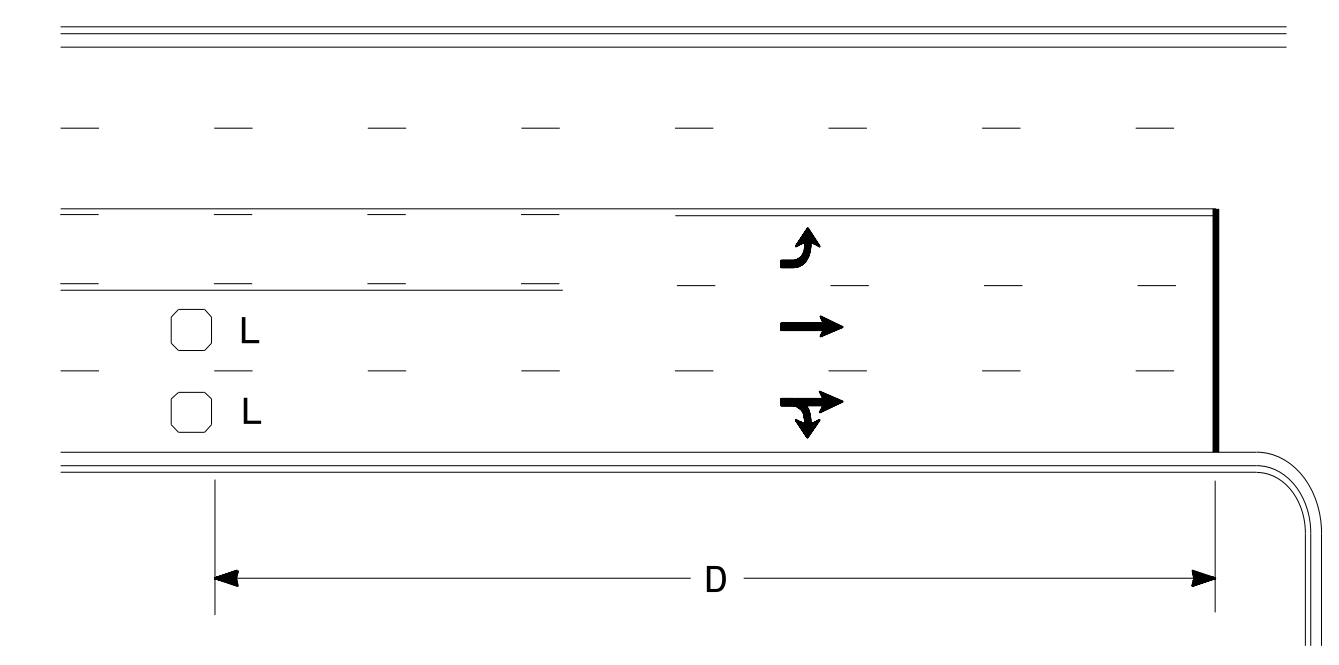
MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	①		PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <small>W20-1 48" X 48"</small> </div> <div style="text-align: center;"> <small>W20-7 A 48" X 48"</small> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	②		#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		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		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		PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.	
			<p>NOTES:</p> <ol style="list-style-type: none"> 1) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION. 	

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

High Speed Detection (≥40 mph)

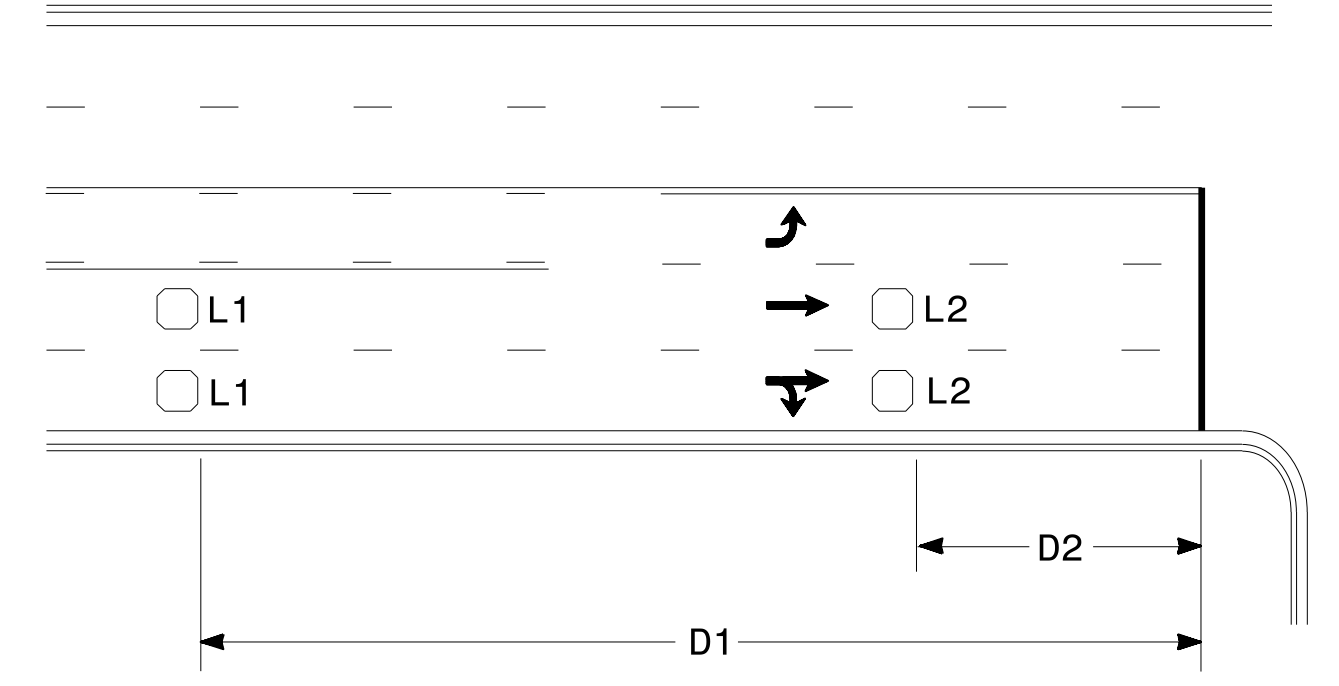


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

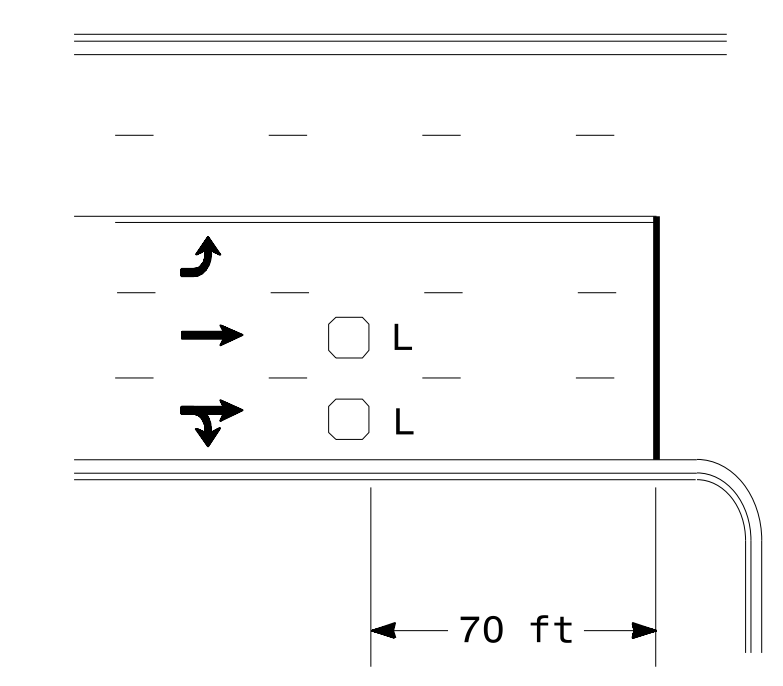


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

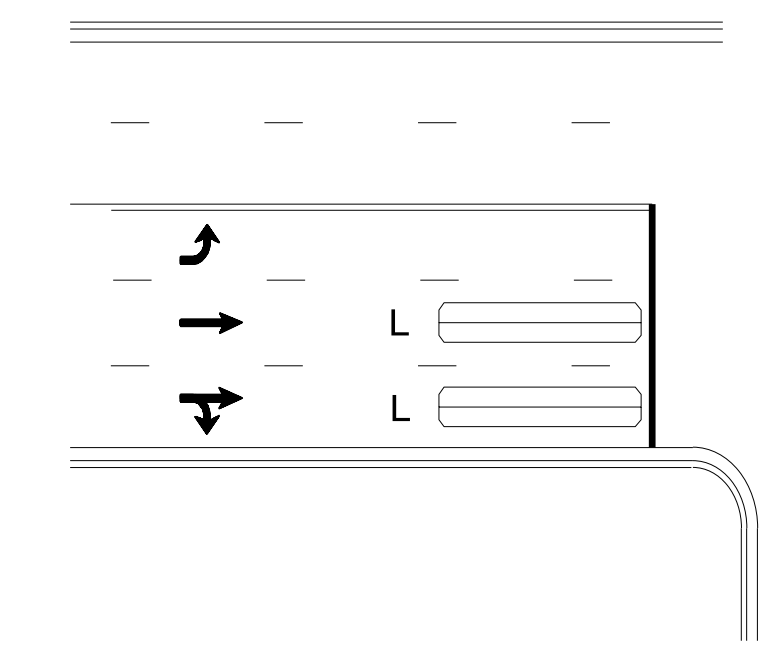
"Stretch" Operation

Low Speed Detection (≤35 mph)



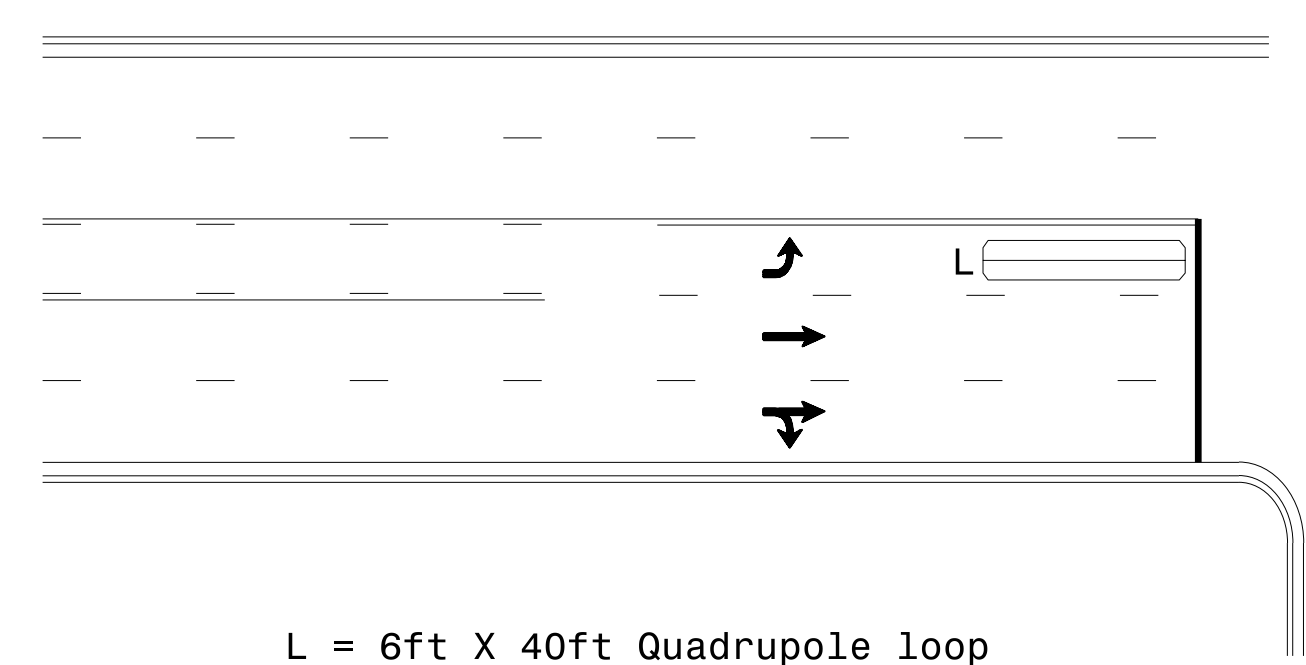
L = 6ft X 6ft
 Wired in series

OR



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

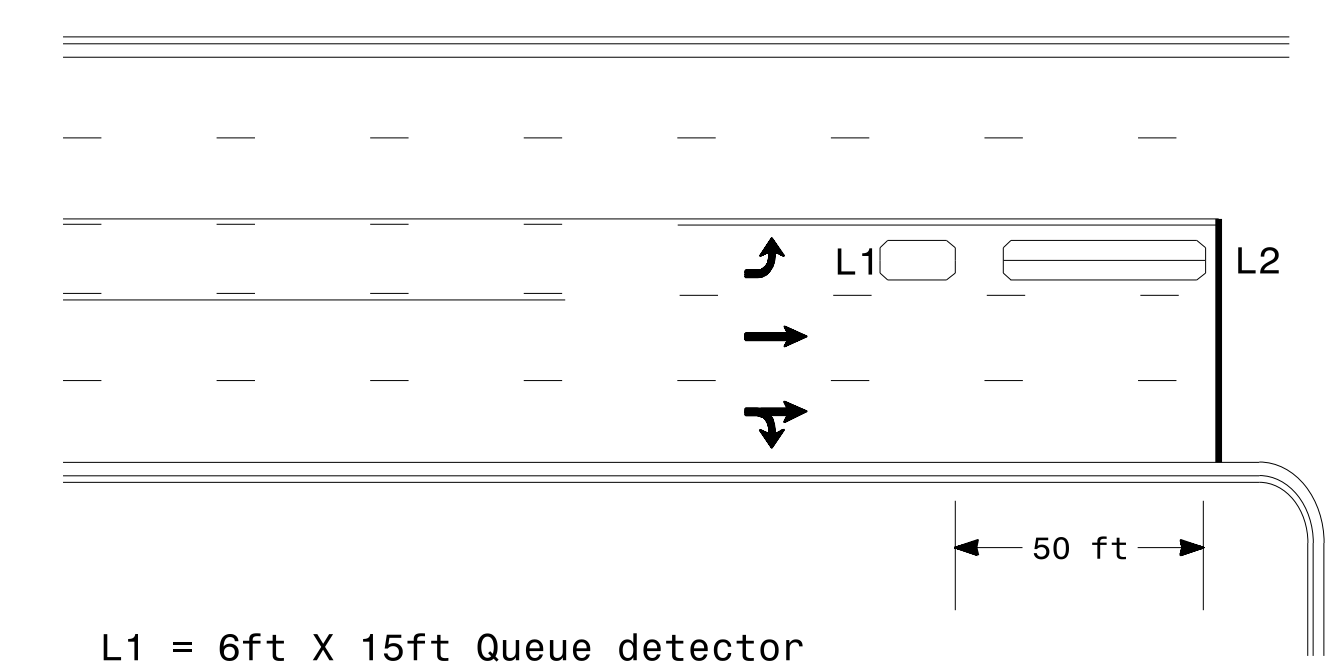
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

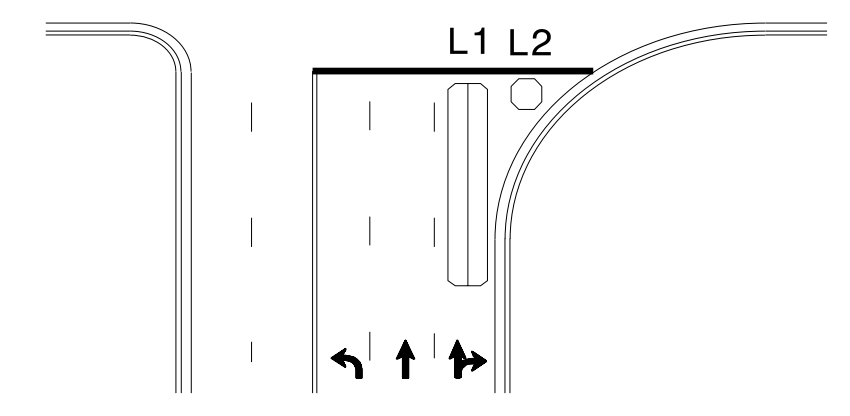
OR



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

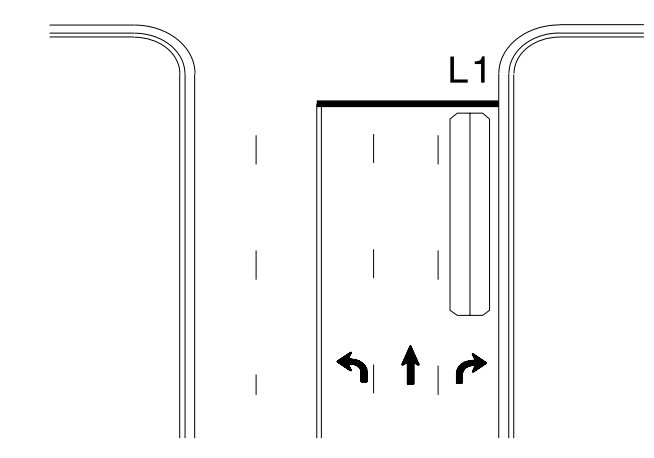
Queue Loop Detection

Right Turn Lane Detection

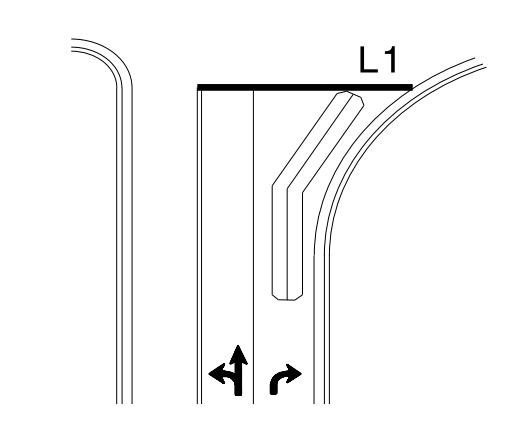


Shared Lane/
 Wide Radius Turn

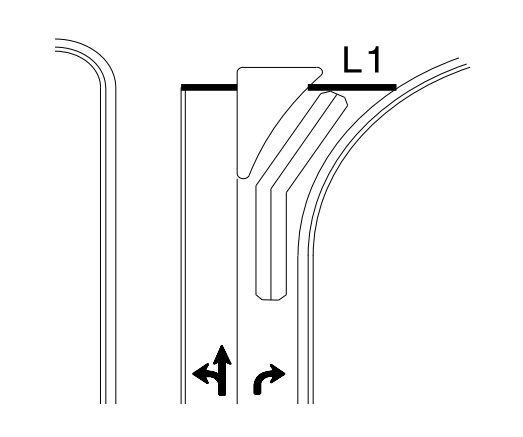
L1 = 6ft X 40ft Quadrupole loop
 L2 = 6ft X 6ft [Minimum] Presence loop
 Wired separately



Standard Turn

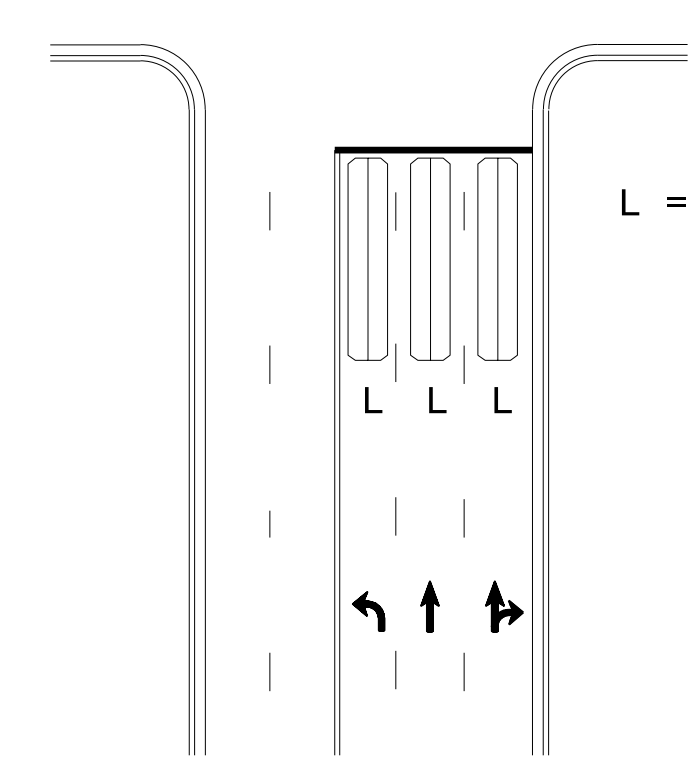


Wide Radius Turn



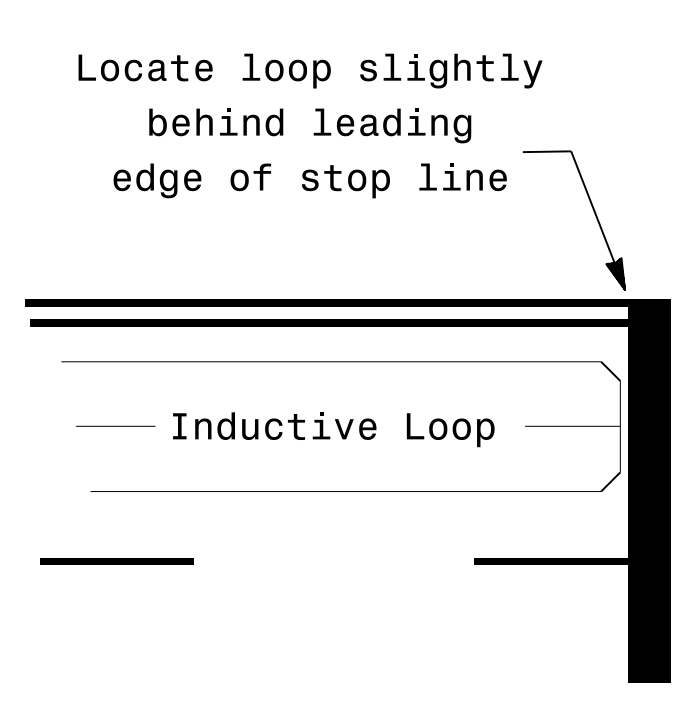
Channelized Turn

Side Street Detection



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

Presence Loop Placement at Stop Lines



Locate loop slightly
 behind leading
 edge of stop line

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

Recommended Number of Turns

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

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

Quadrupole loops: Use 2-4-2 turns
 6' X 15' Loops:
 Lead-in < 150', use 2 turns
 Lead-in > 150', use 3 turns

Prepared In the Offices of:
 TRANSPORTATION MOBILITY AND SAFETY DIVISION
 DEPARTMENT OF TRANSPORTATION
 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:
REVISIONS	INIT. DATE

SCALE
N/A

SEAL
 NORTH CAROLINA
 PROFESSIONAL ENGINEER
 PAMELA L. ALEXANDER
 23489
 1/30/2015
 DATE

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 S:\ITS\AS\13-219\SIG\13-219\SIG-1\SIG-1.dwg
 2/10/2015 10:15:15 AM
 alexander