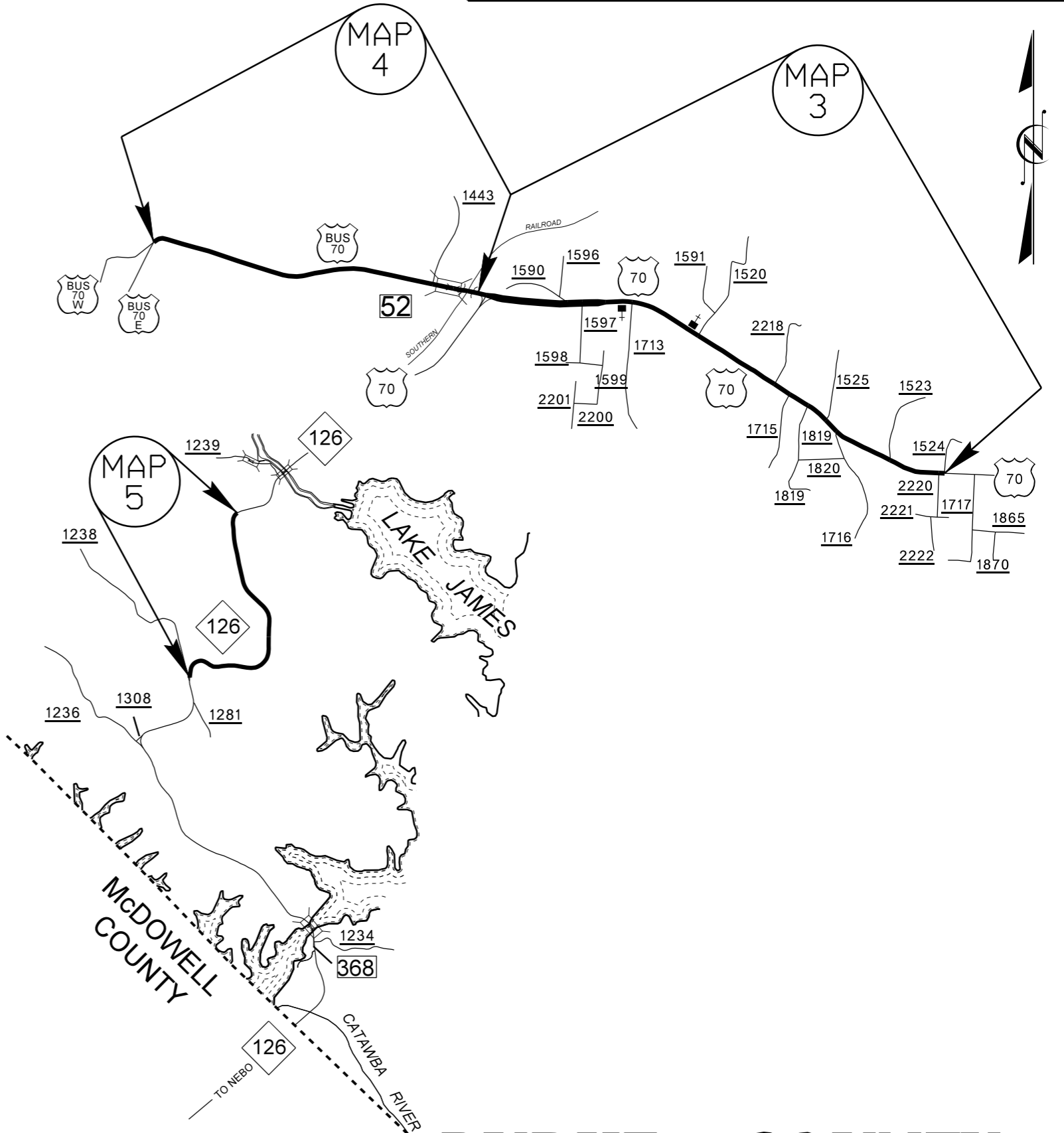
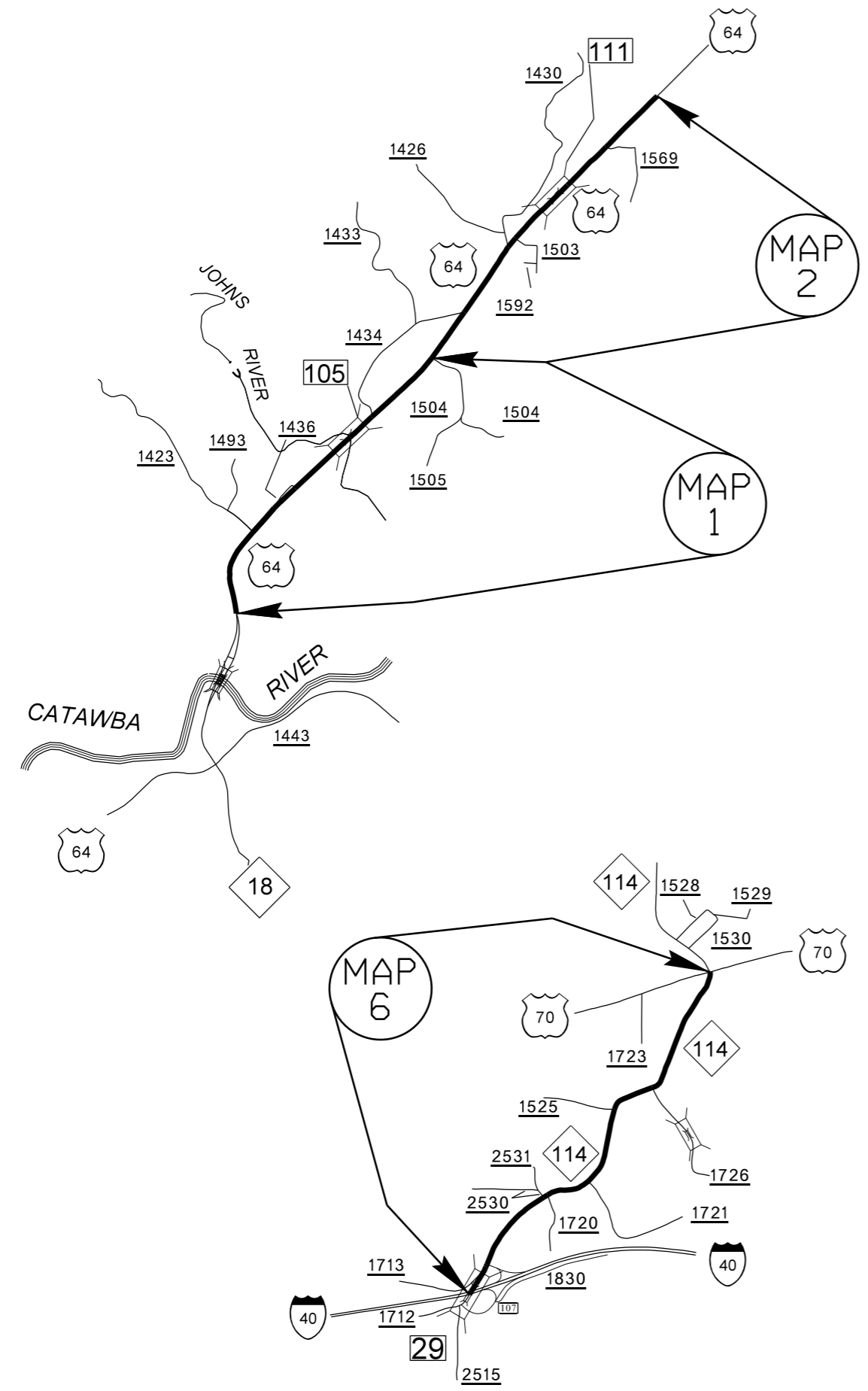
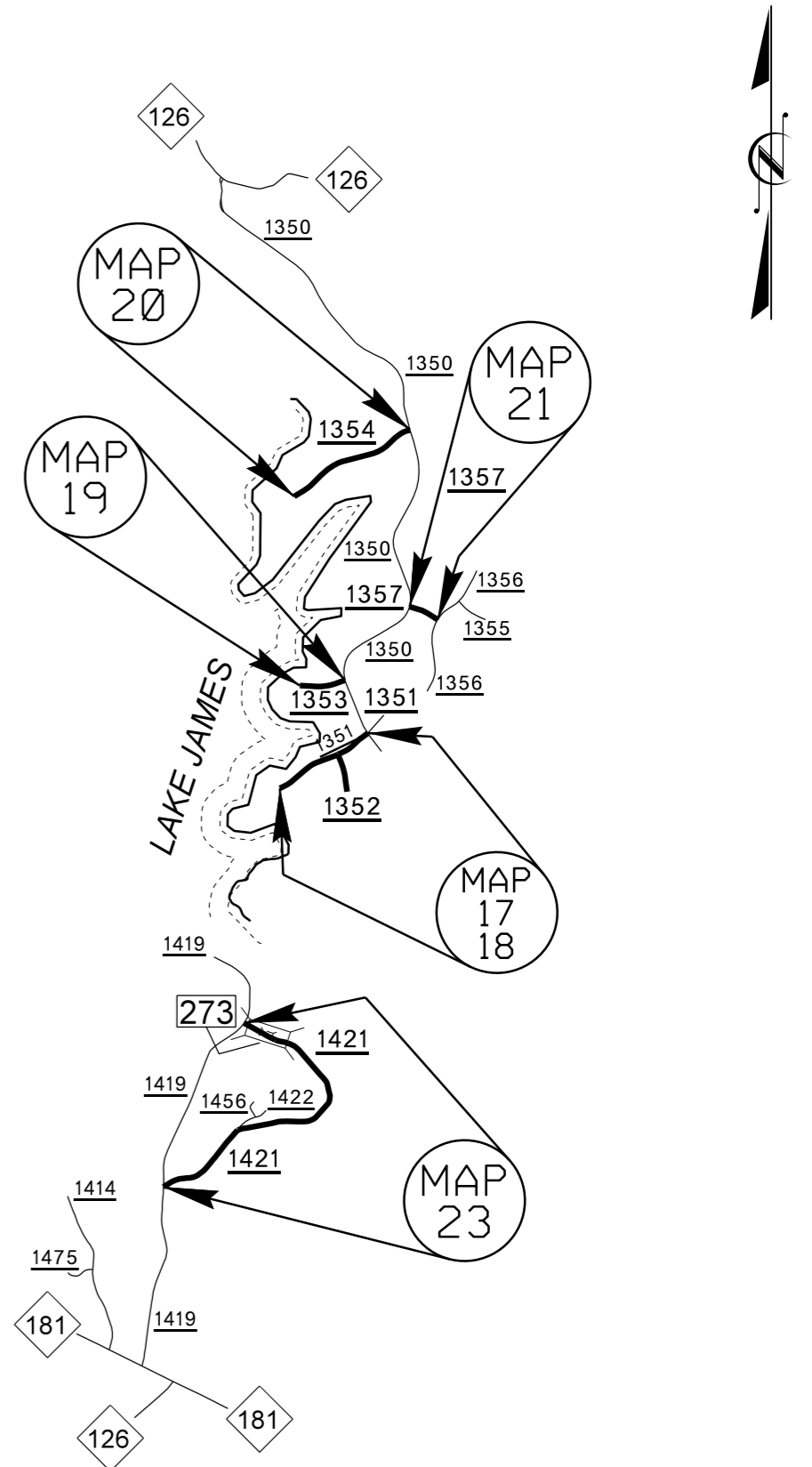
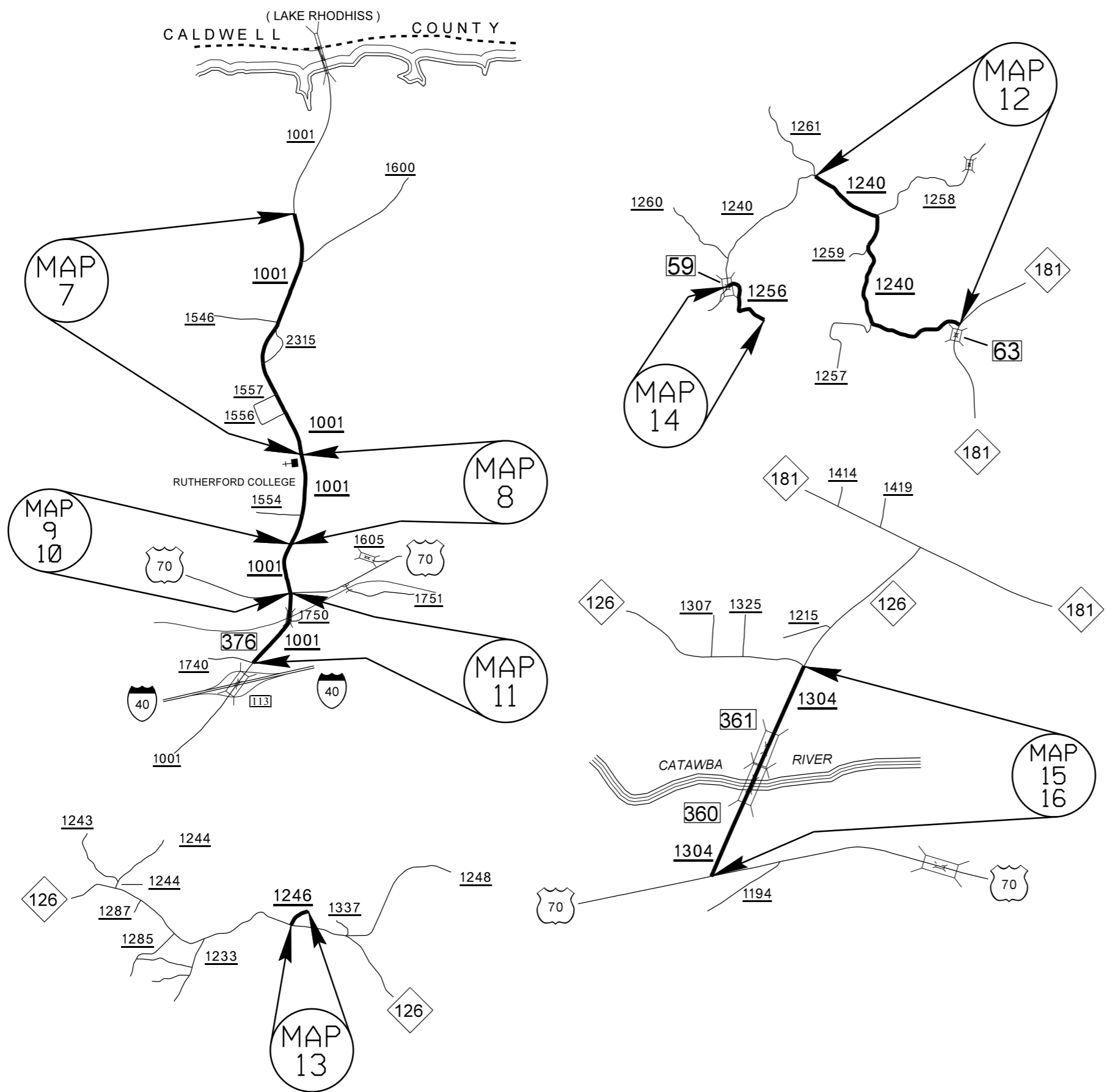


PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.02.10121, 2019CPT.13.02.20121, 2019CPT.13.02.20122	1	



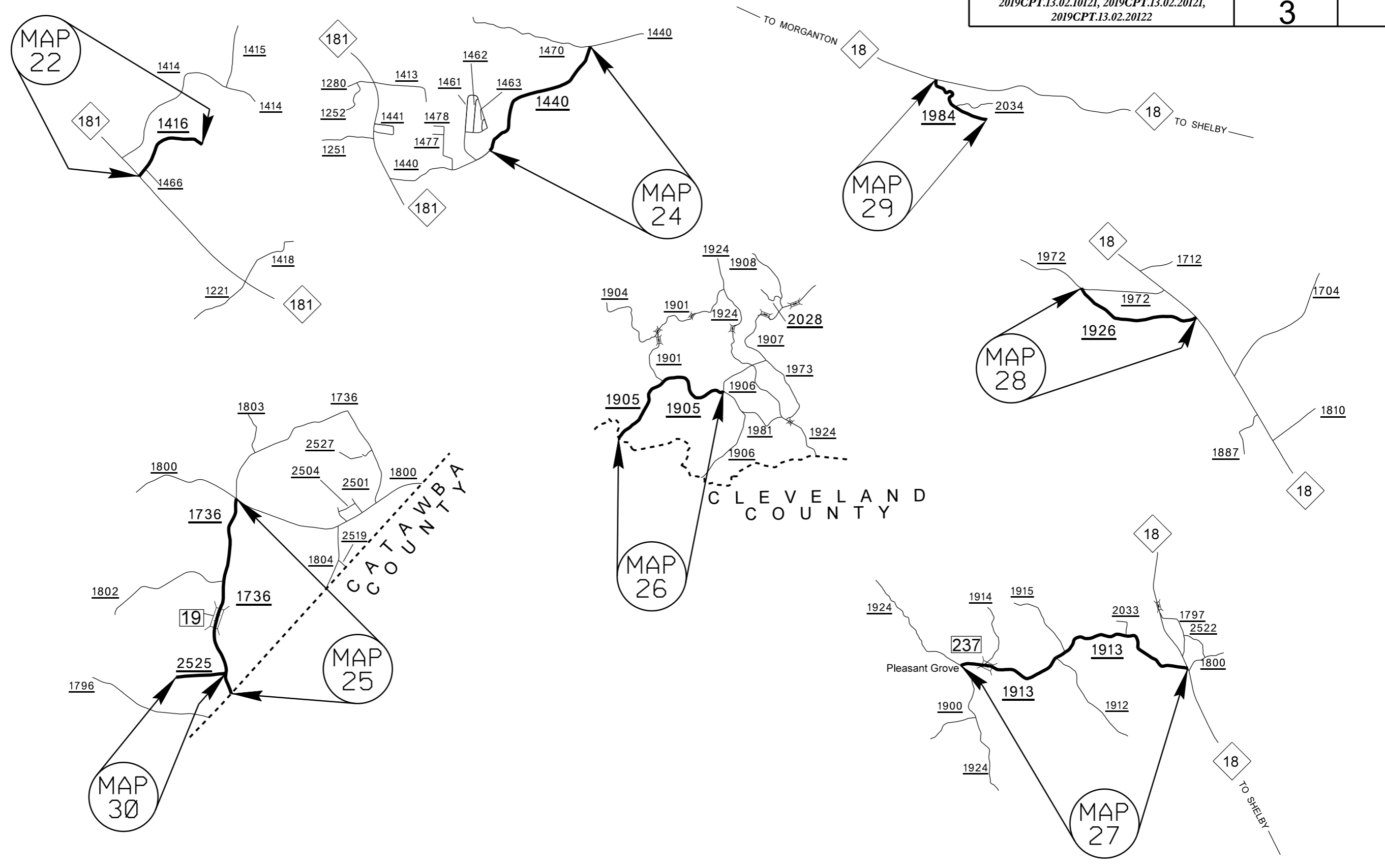
BURKE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.02.10121, 2019CPT.13.02.20121, 2019CPT.13.02.20122	2	

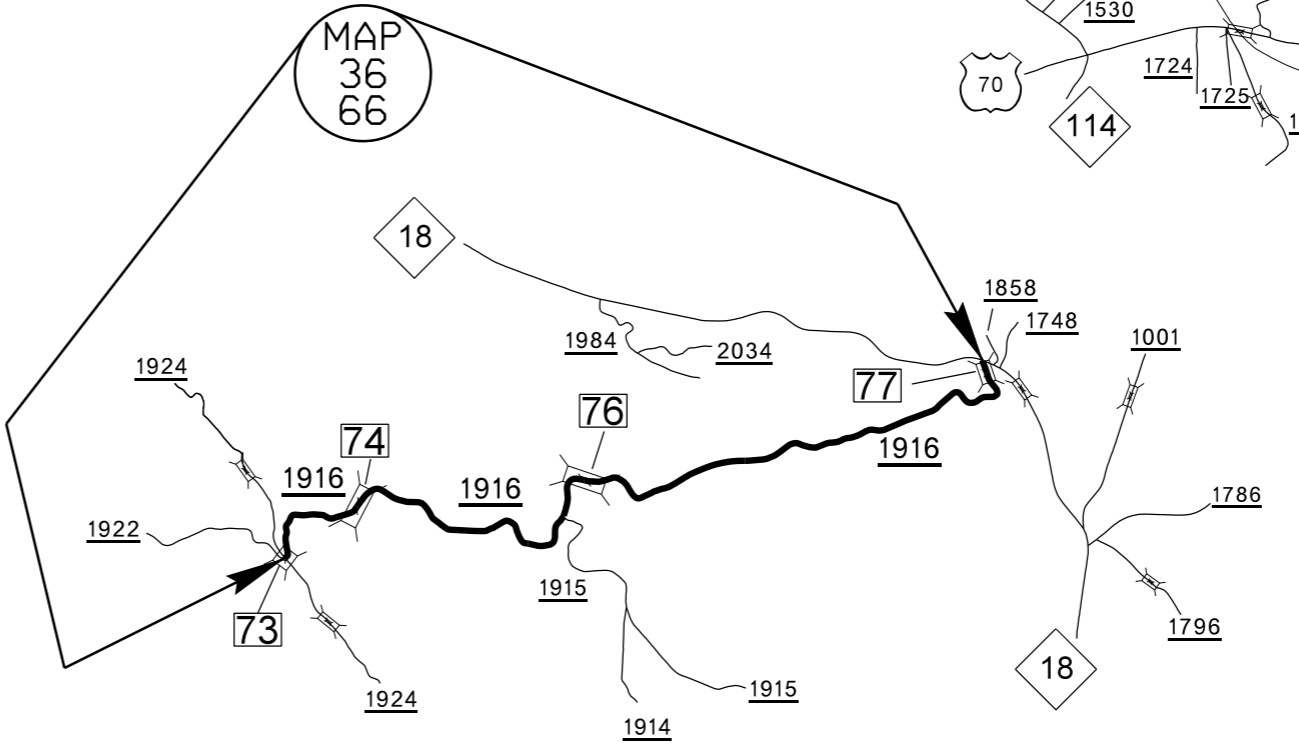
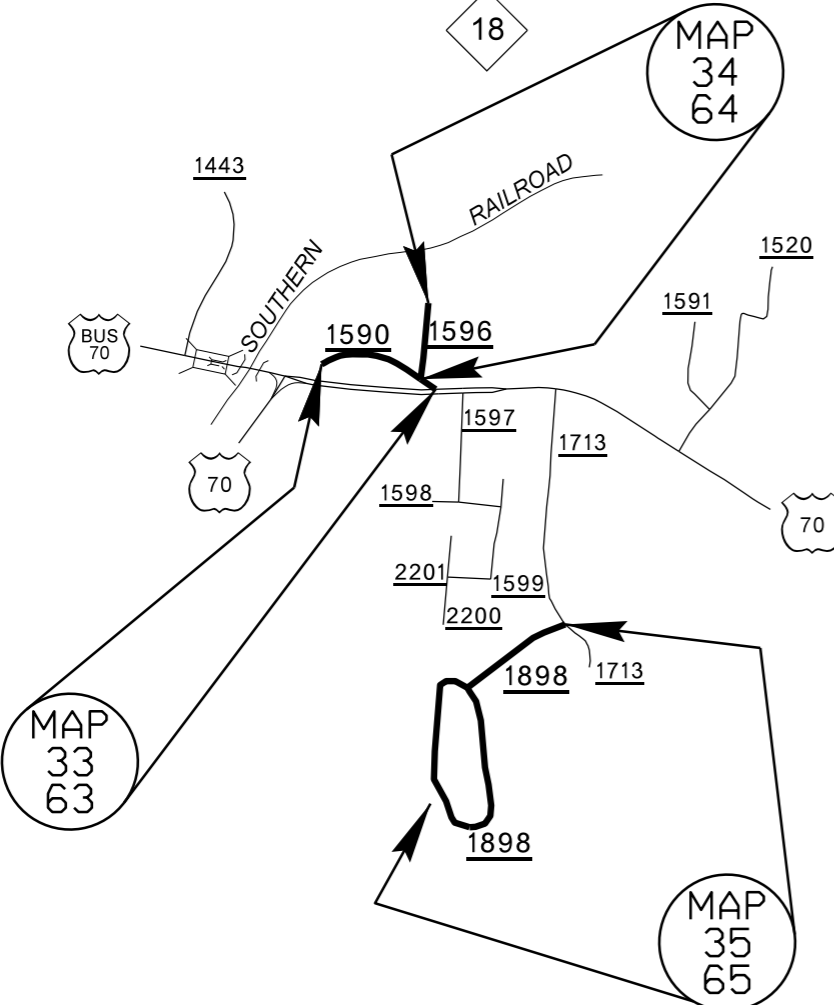
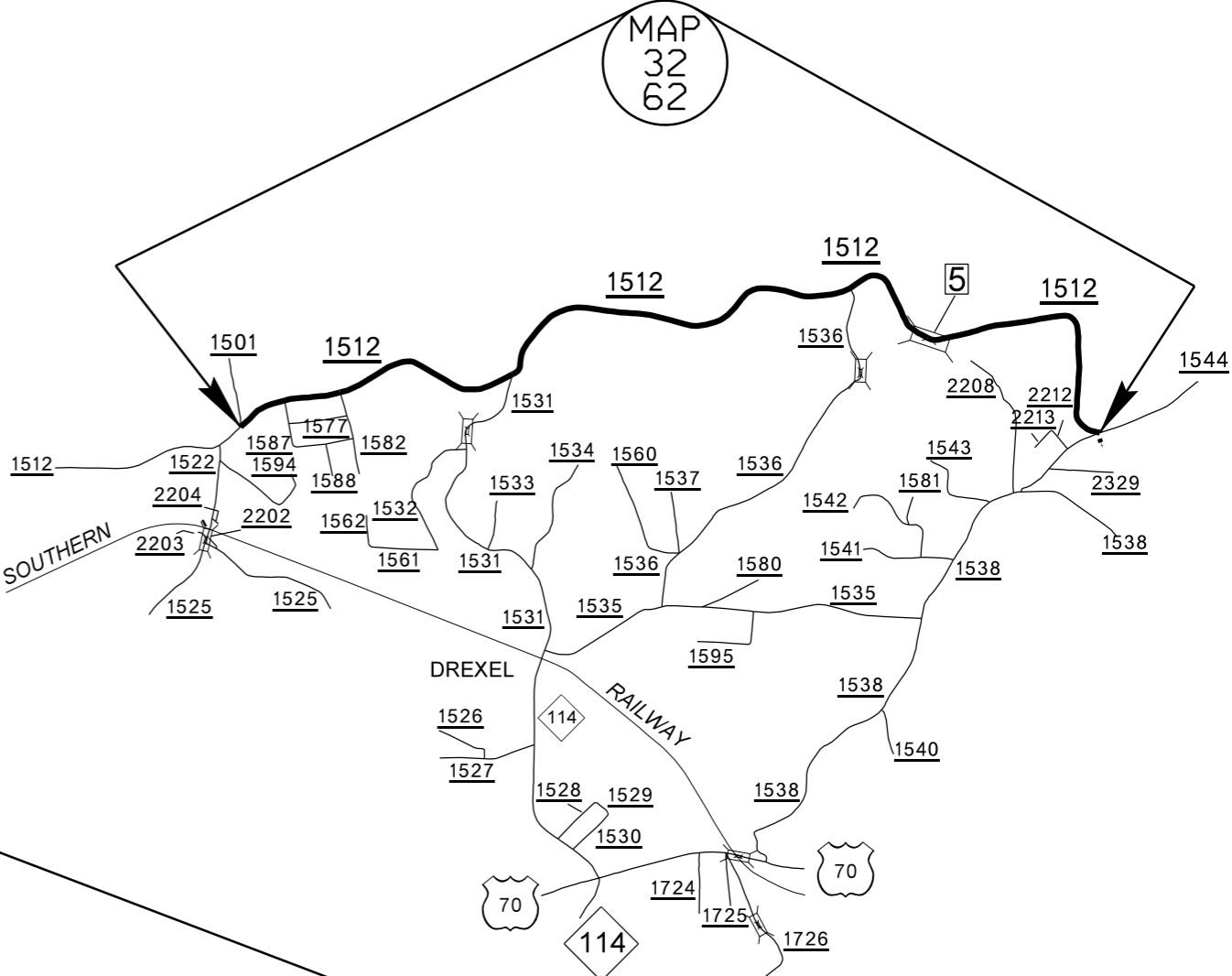
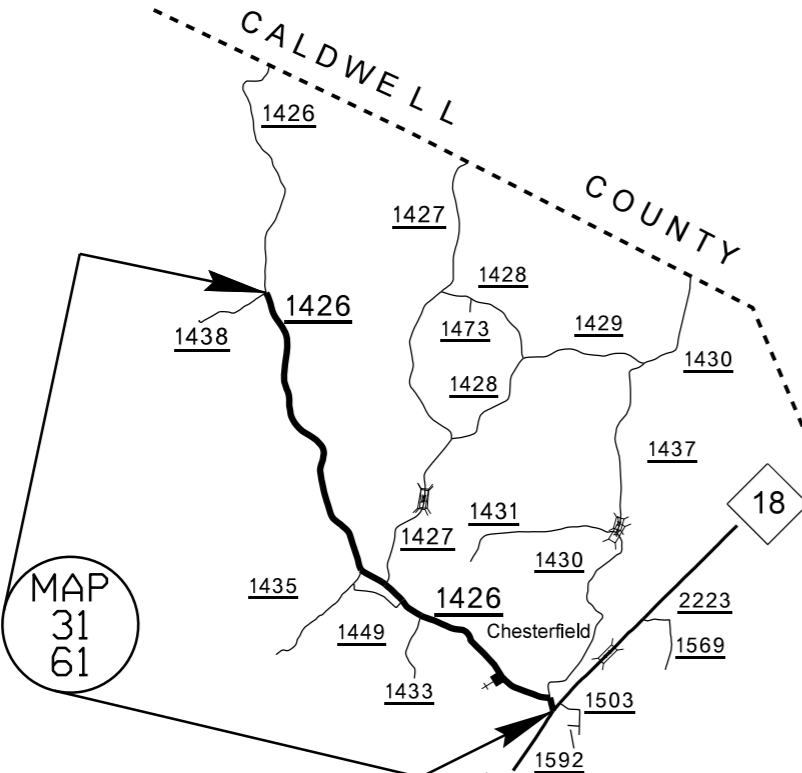


BURKE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.02.10121, 2019CPT.13.02.20121, 2019CPT.13.02.20122	3	



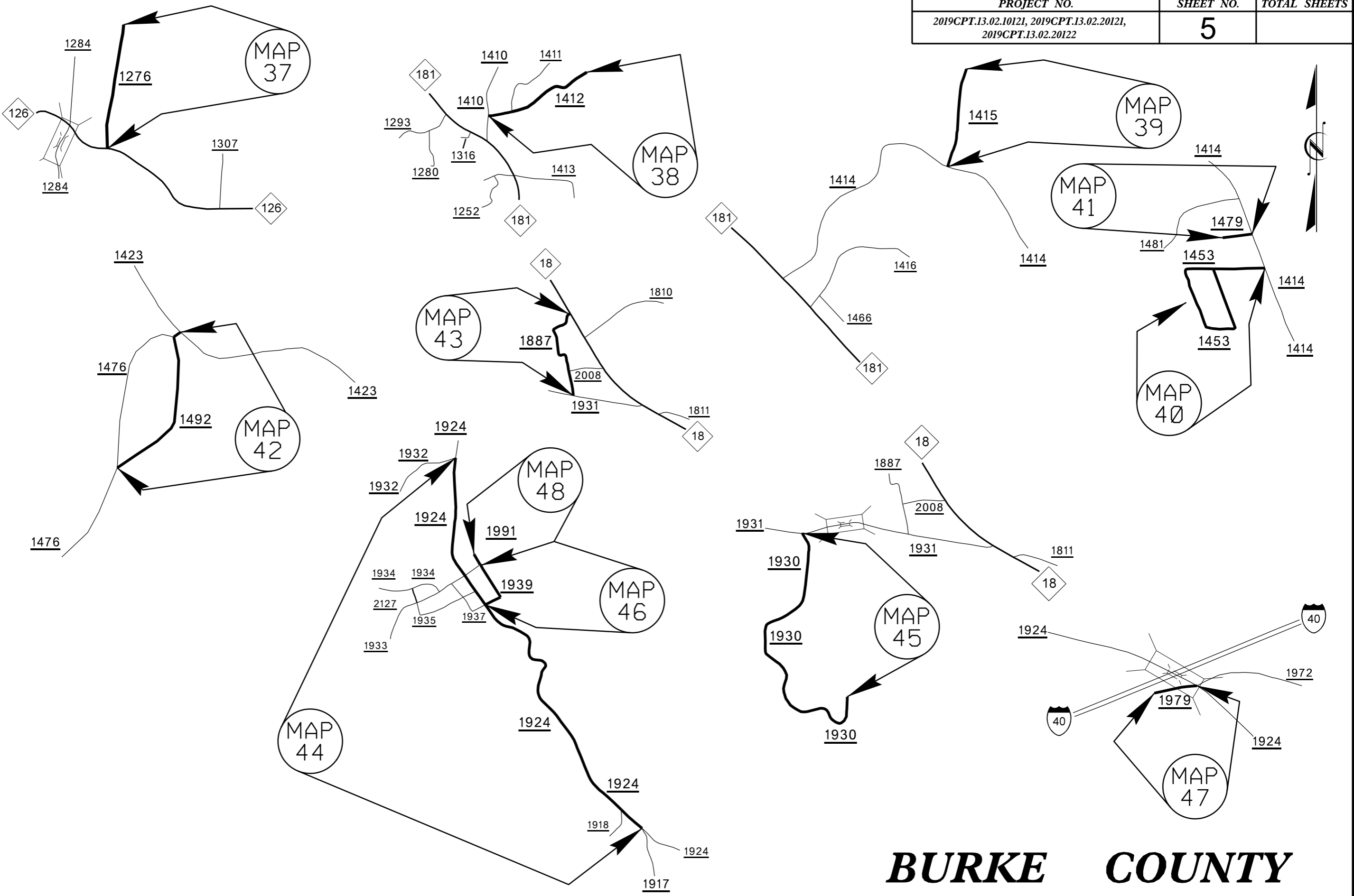
BURKE COUNTY



BURKE COUNTY

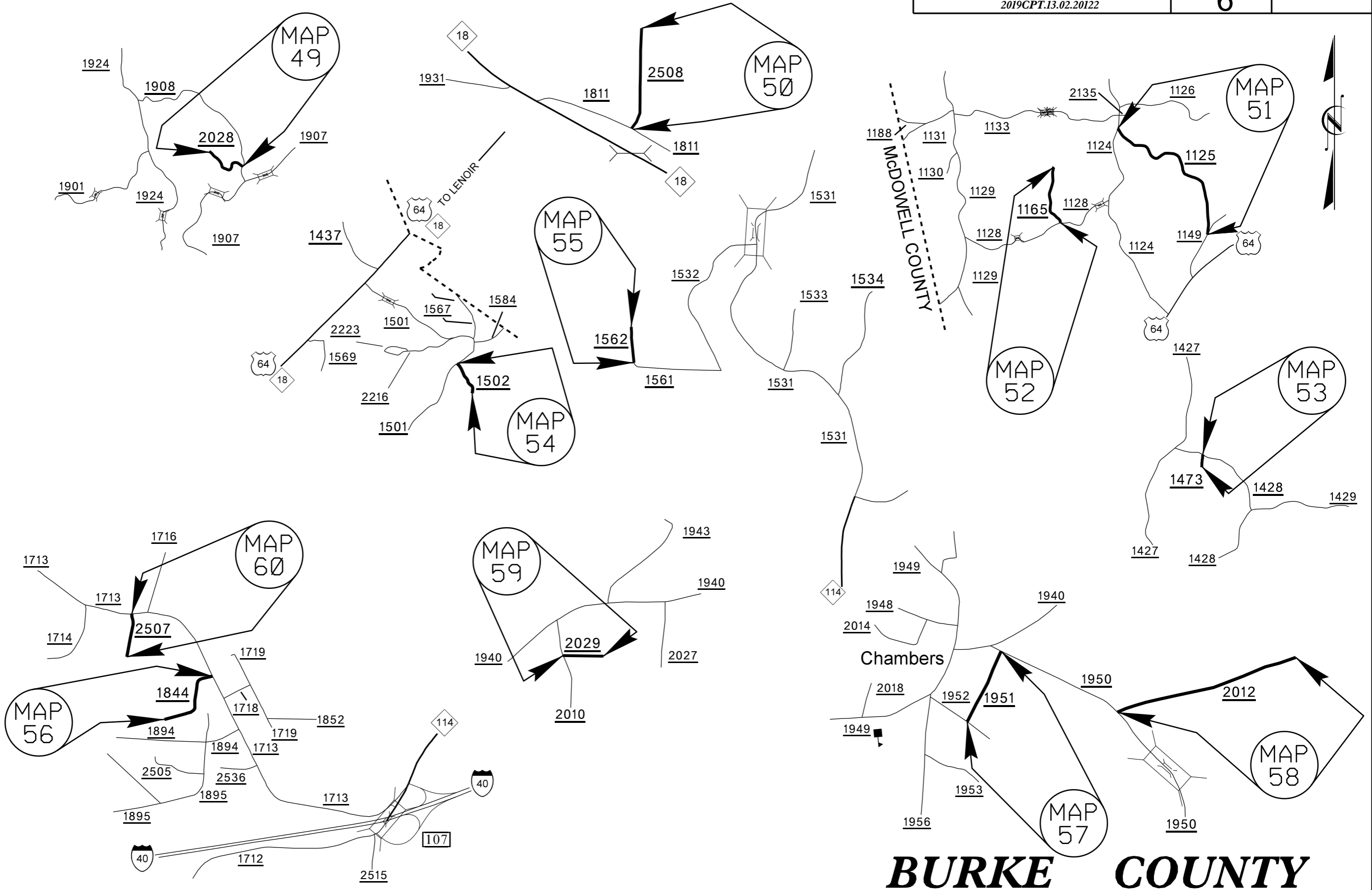


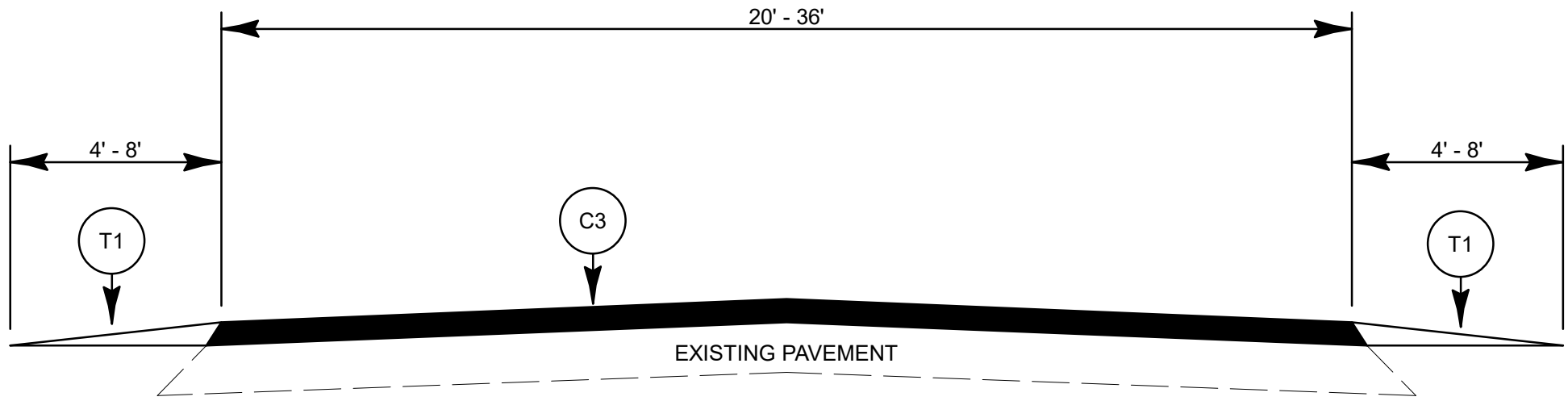
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.02.10121, 2019CPT.13.02.20121, 2019CPT.13.02.20122	5	



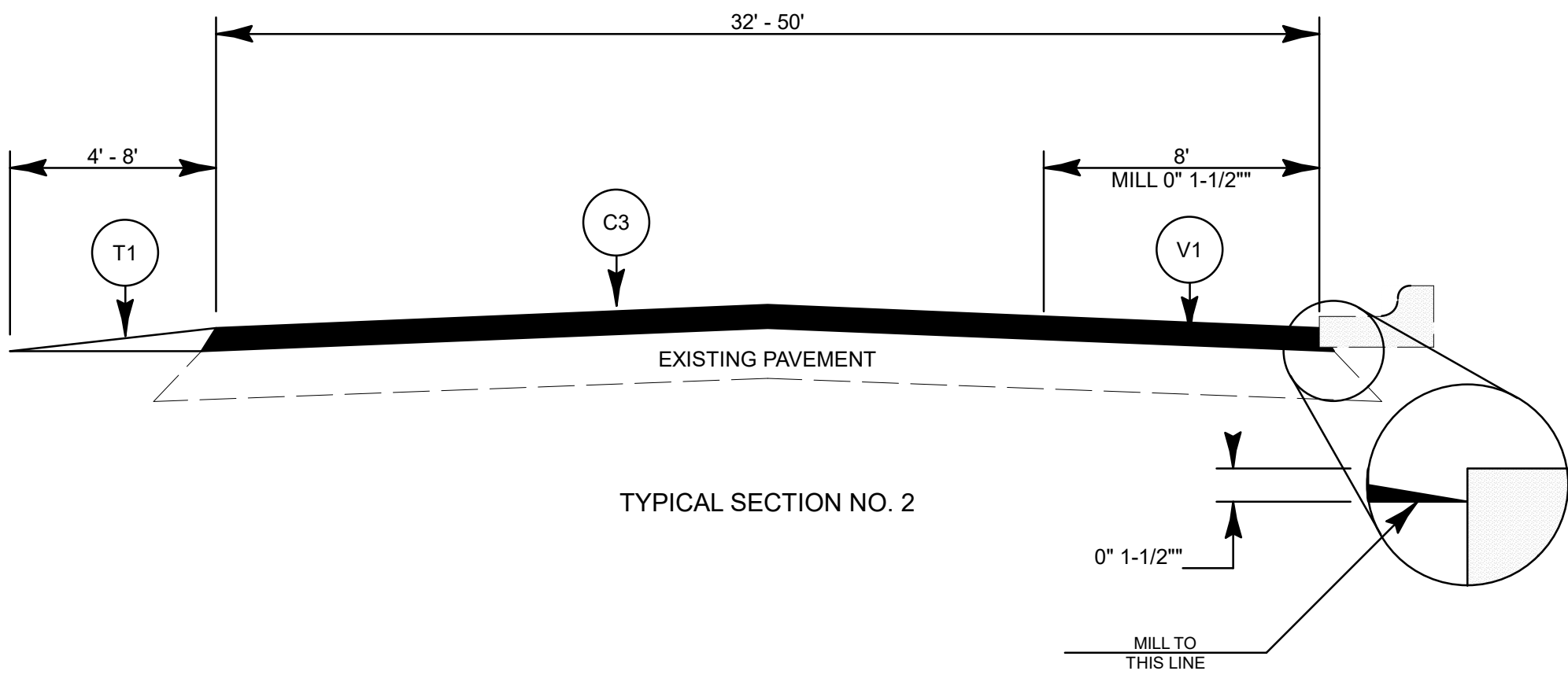
BURKE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.02.10121, 2019CPT.13.02.20121, 2019CPT.13.02.20122	6	



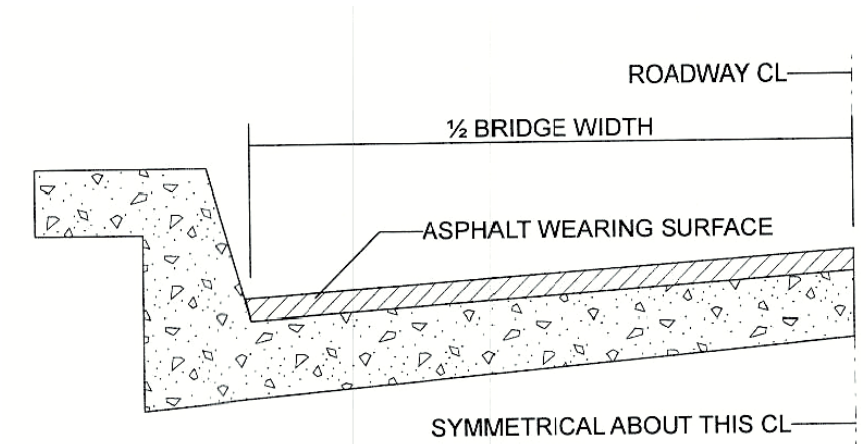
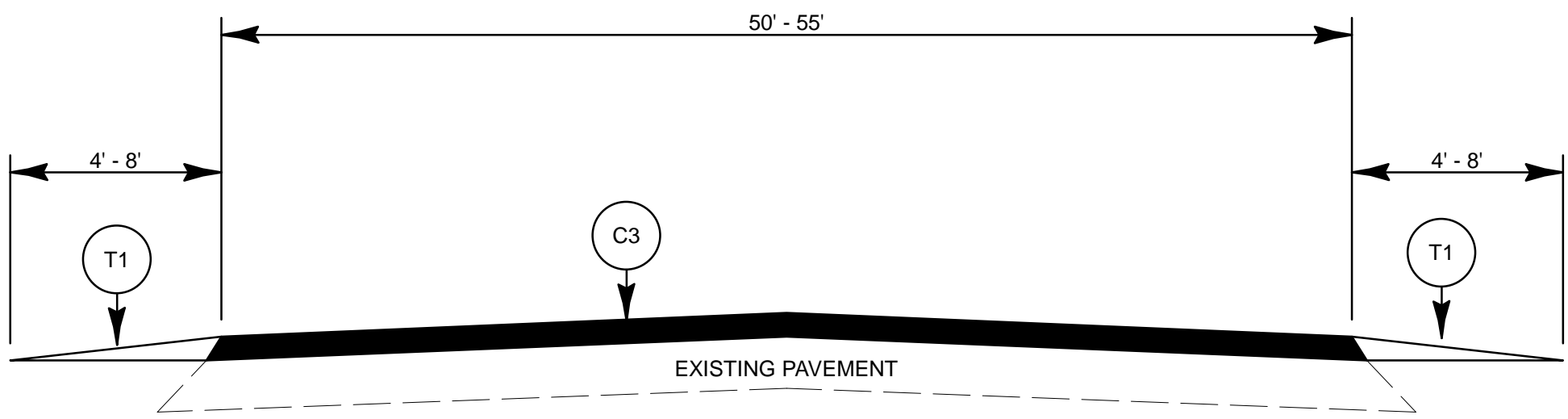
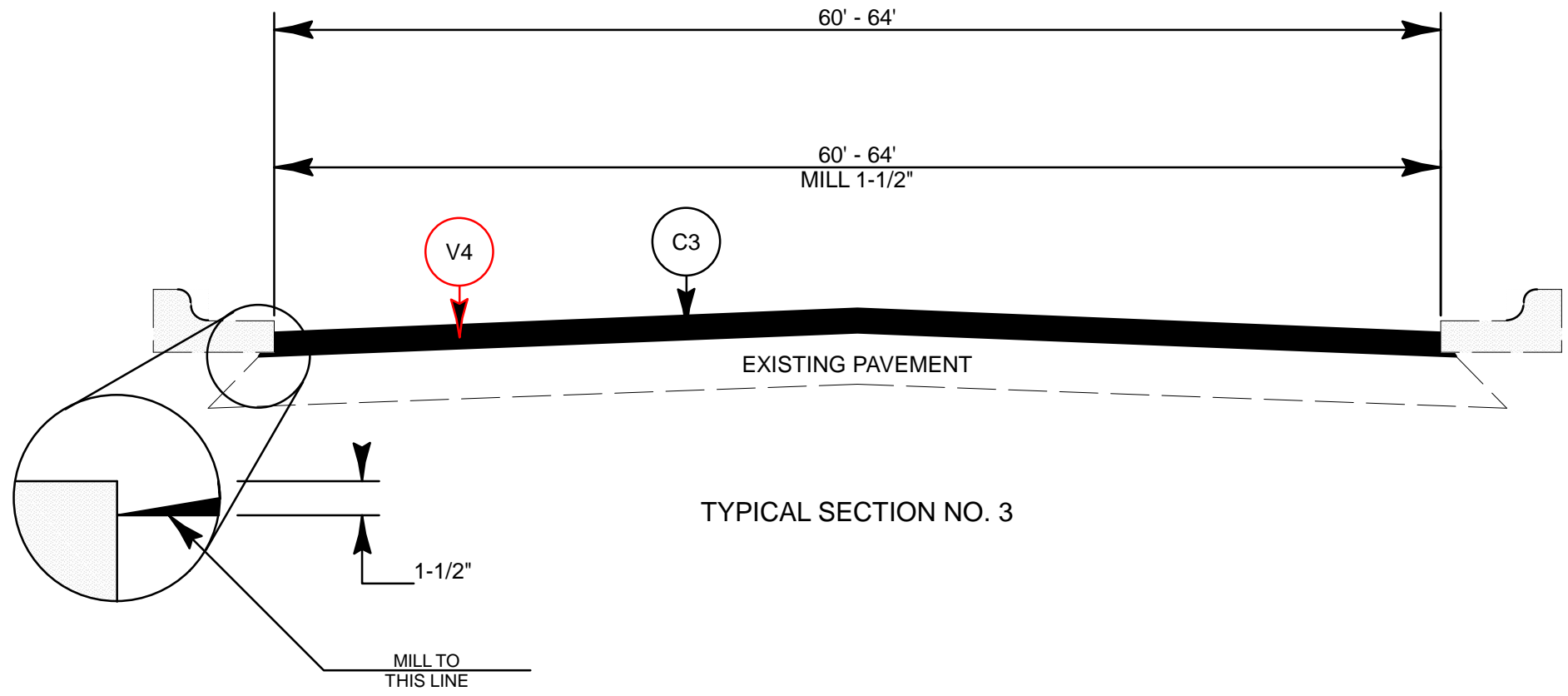


TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD
C2	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD
C3	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD
F1	ASPHALT SURFACE TREATMENT, DOUBLE SEAL
F2	ASPHALT SURFACE TREATMENT, FOG SEAL
R1	EXISTING CONCETE MEDIAN
T1	SHOULDER RECONSTRUCTION
V1	MILLING ASPHALT PAVEMENT, 0 TO 1-1/2" DEPTH
V2	MILLING ASPHALT PAVEMENT, 1" DEPTH
V3	INCIDENTAL MILLING
V4	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH



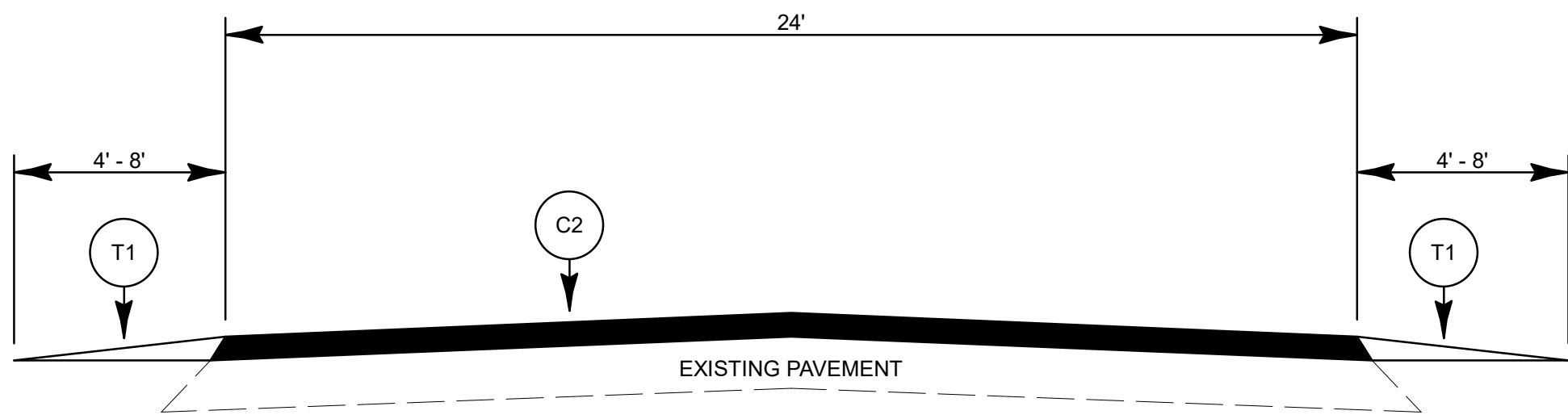
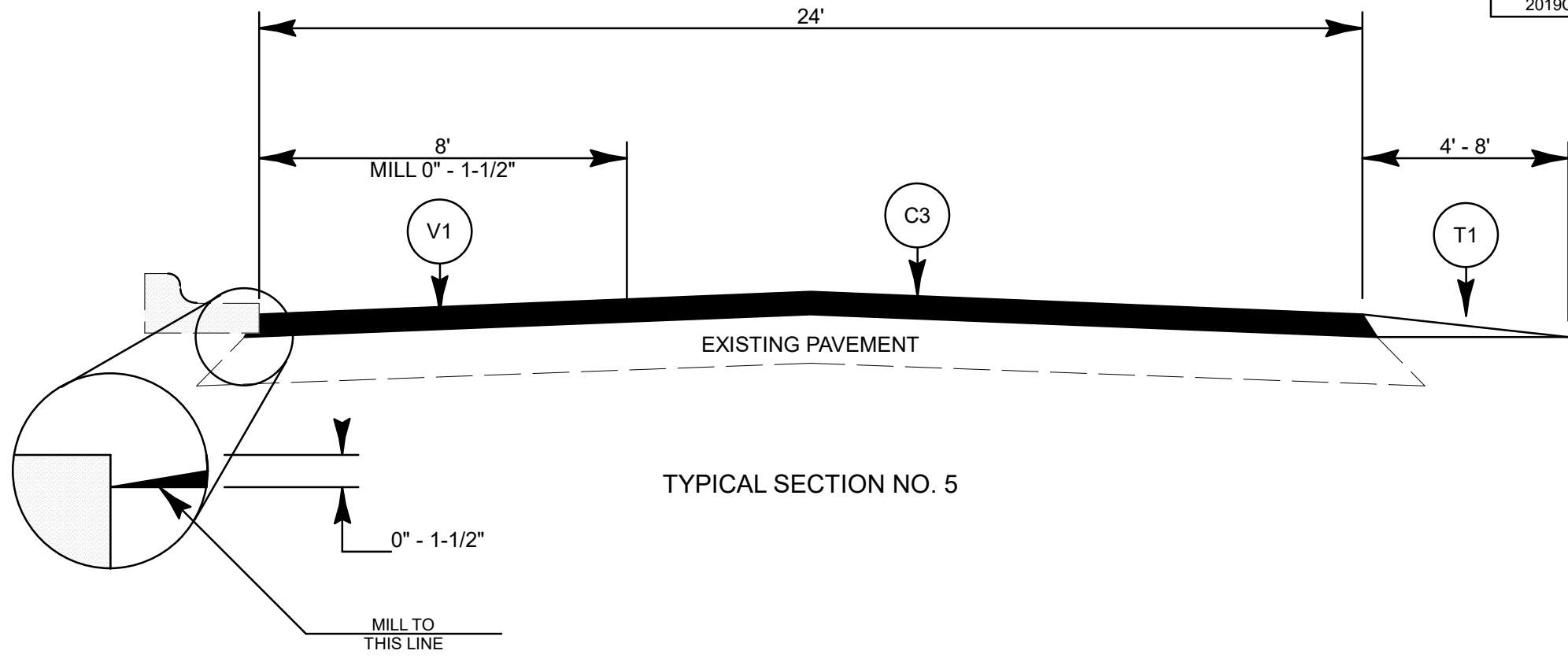
BRIDGE HALF TYPICAL SECTION

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

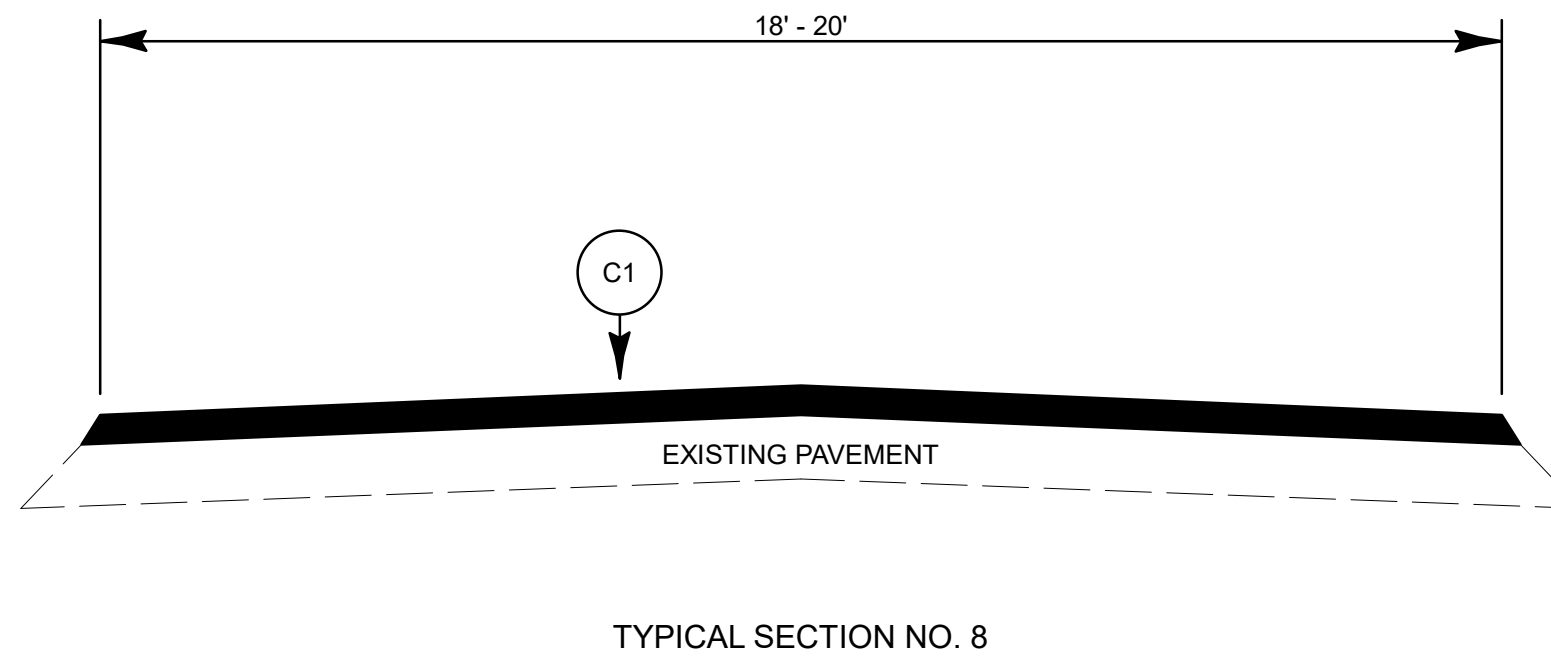
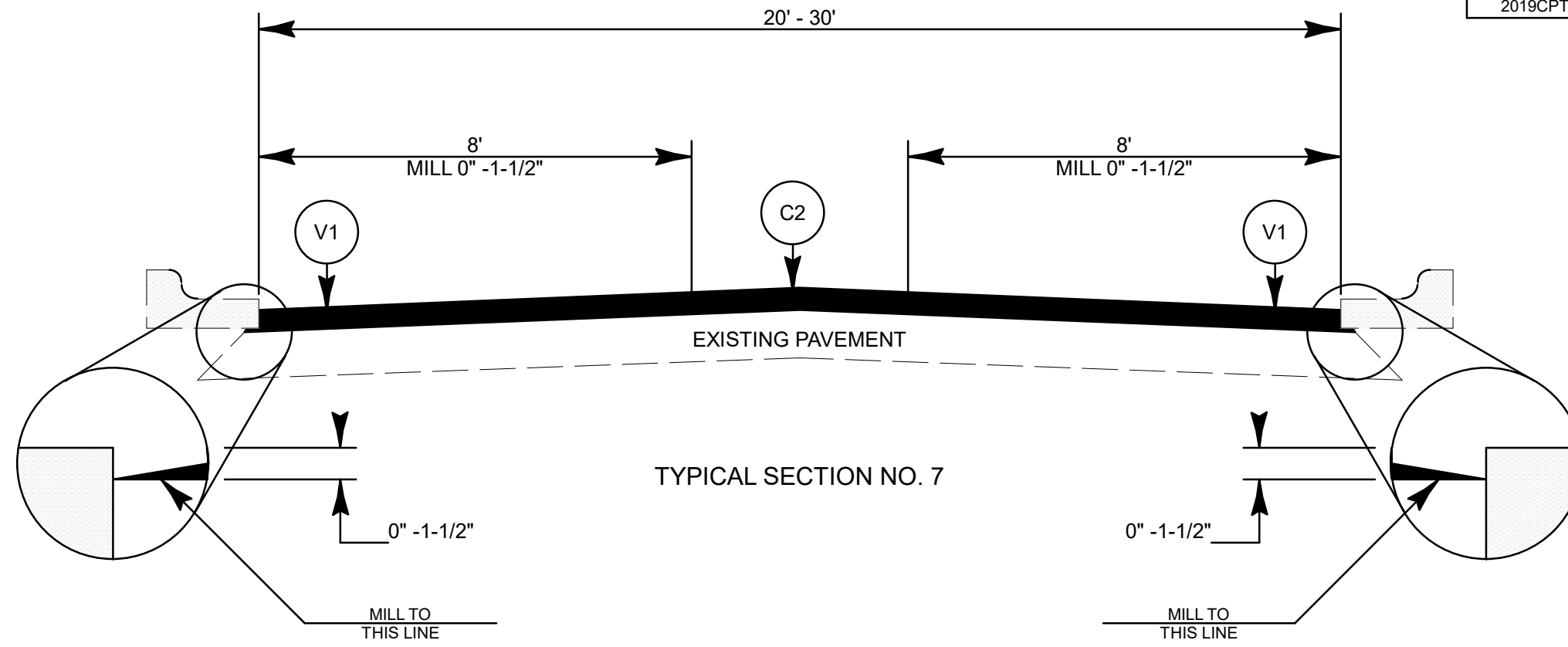
THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. THE MINIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1/2", SF9.5A 1.0", S9.5X 1.5", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 3/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN 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 3/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2".

NOTES

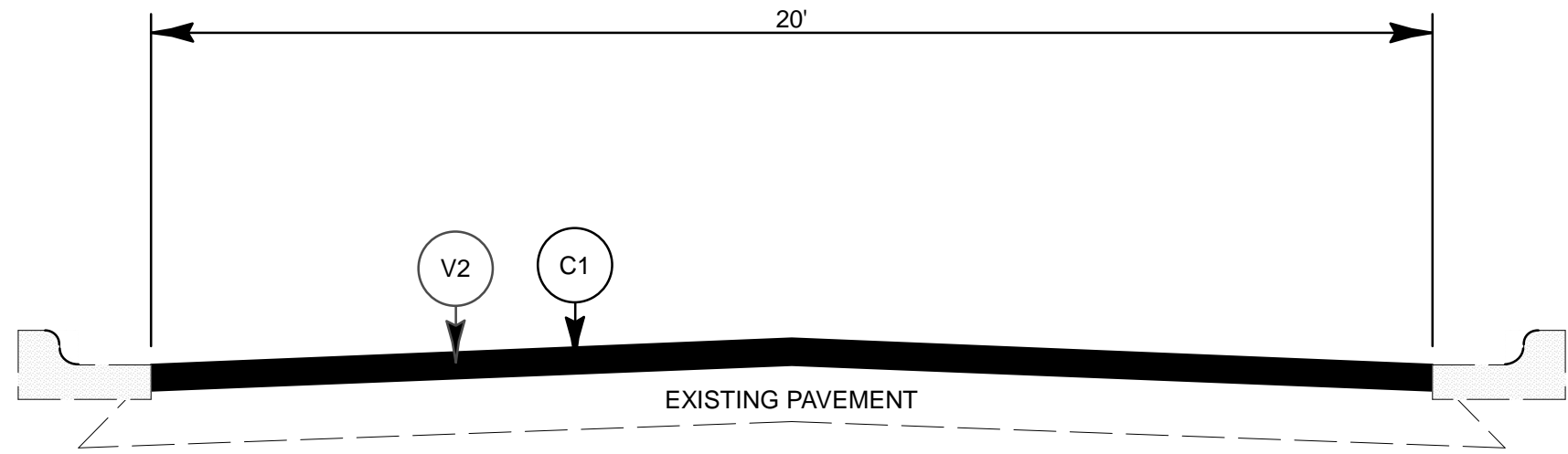
ALL UNPAVED ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT.
 ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADII, OR AS DIRECTED BY THE ENGINEER.
 EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
 SHOULDERS AND DITCHES ARE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



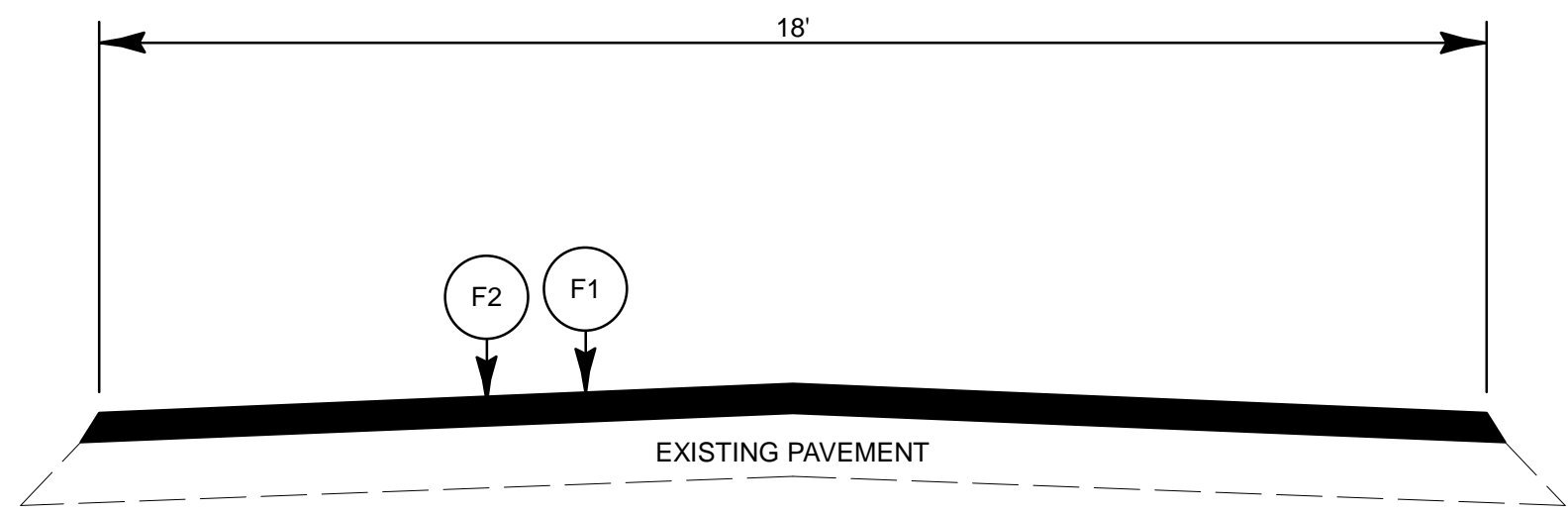
TYPICAL SECTION NO. 6



PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.02.10121, 2019CPT.13.02.20121, 2019CPT.13.02.20122,	11	

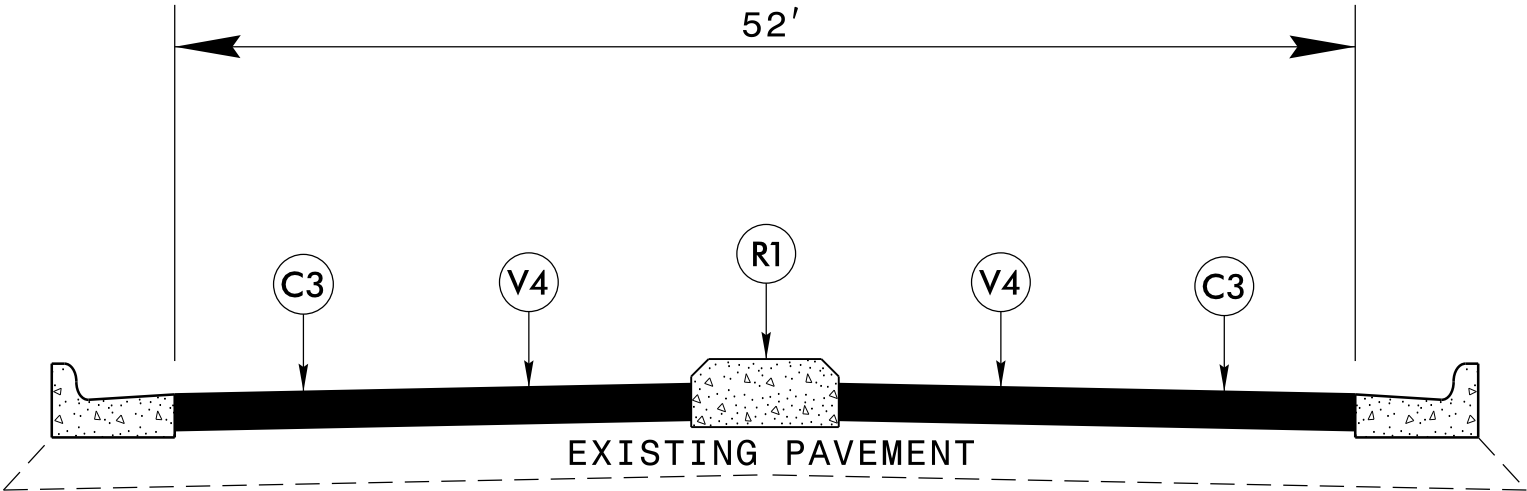


TYPICAL SECTION NO. 9



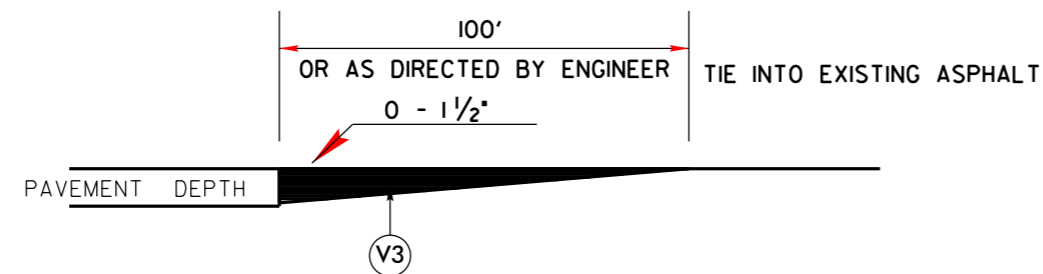
TYPICAL SECTION NO. 10

<i>PROJECT NO.</i>	<i>SHEET NO.</i>	<i>TOTAL SHEETS</i>
2019CPT.13.02.10121, 2019CPT.13.07.20121, 2019CPT.13.02.20122	12	



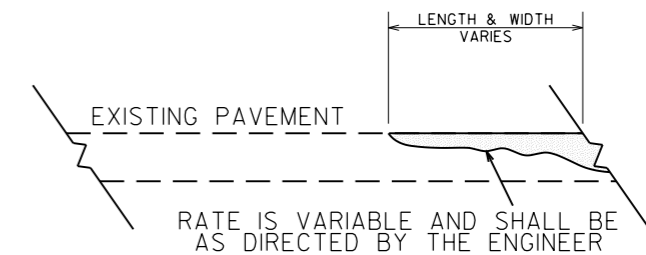
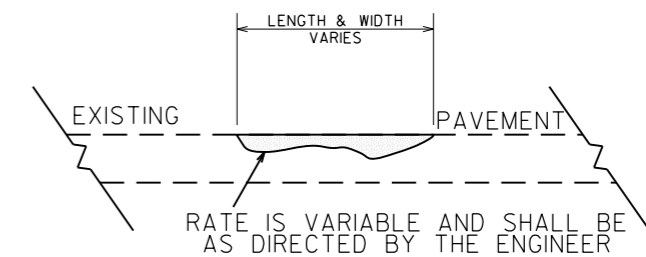
TYPICAL SECTION NO. 11

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.02.10121, 2019CPT.13.02.20121, 2019CPT.13.02.20122	13	



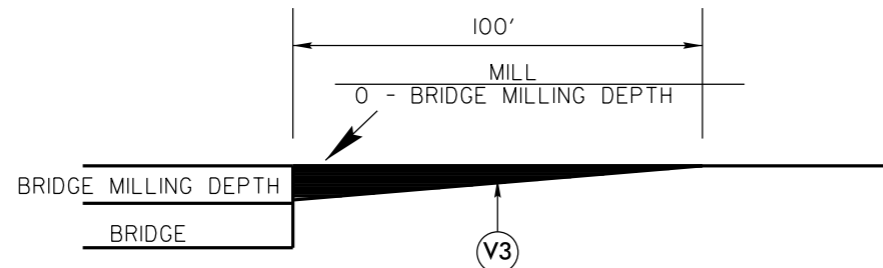
DETAIL TO TIE INTO EXIST PAVEMENT

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 S9.5C. THIS WILL BE PAID FOR AS INCIDENTAL MILLING.



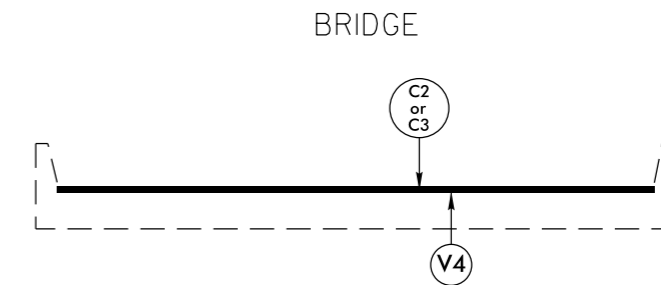
DETAIL SHOWING METHOD OF WEDGING

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.02.10121, 2019CPT.13.02.20121, 2019CPT.13.02.20122	14	



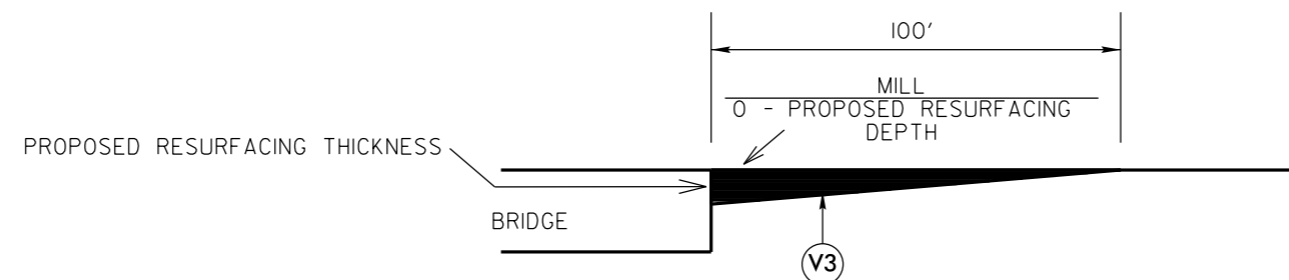
MILLING DETAIL AT BRIDGE APPROACHES

**WHERE BRIDGES WILL BE MILLED THEN RESURFACED.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.
USE AT BRIDGE NUMBERS: 105 MAP 1, III MAP 2, 96 MAP 4,
273 MAP 23, 19 MAP 25, AND 237 MAP 27.**



BRIDGE DETAIL

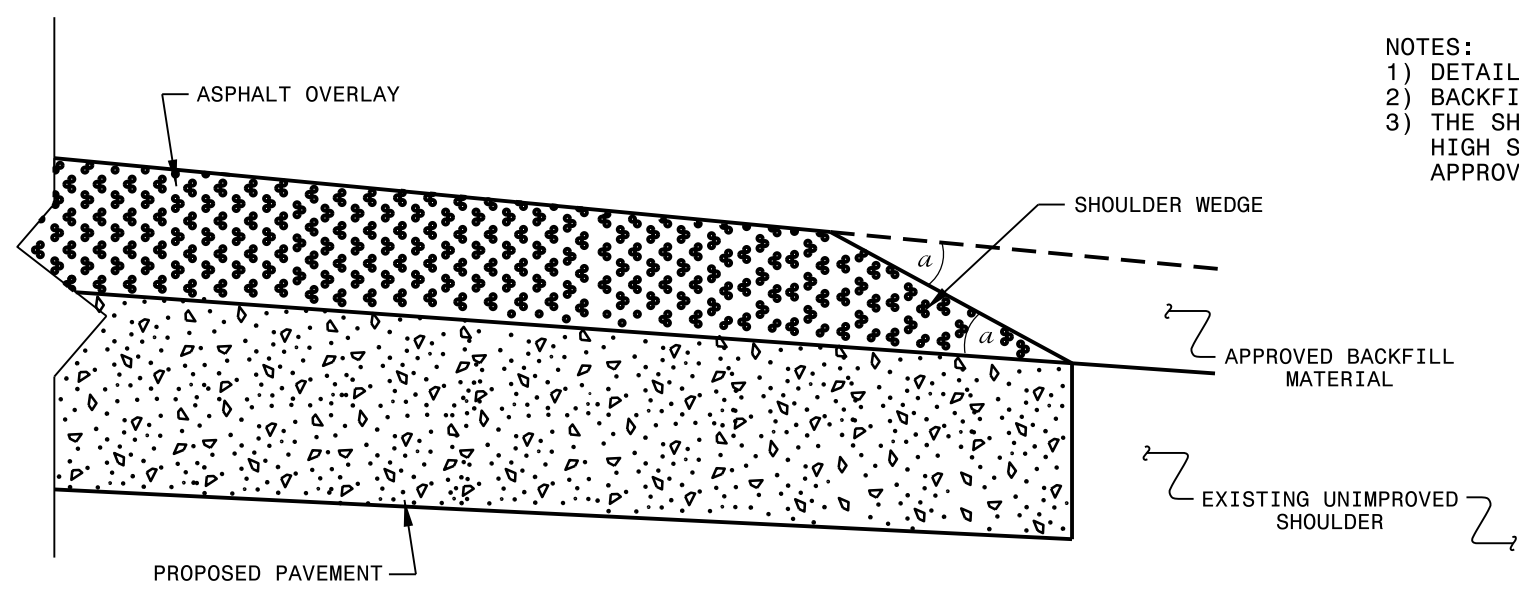
**BRIDGE NUMBER 105 MAP 1, III MAP 2, 96 MAP 4,
273 MAP 23, 19 MAP 25, AND 237 MAP 27.
MILL 1-1/2" OFF EXISTING PAVEMENT
SEE MAPS FOR BRIDGE LOCATION**



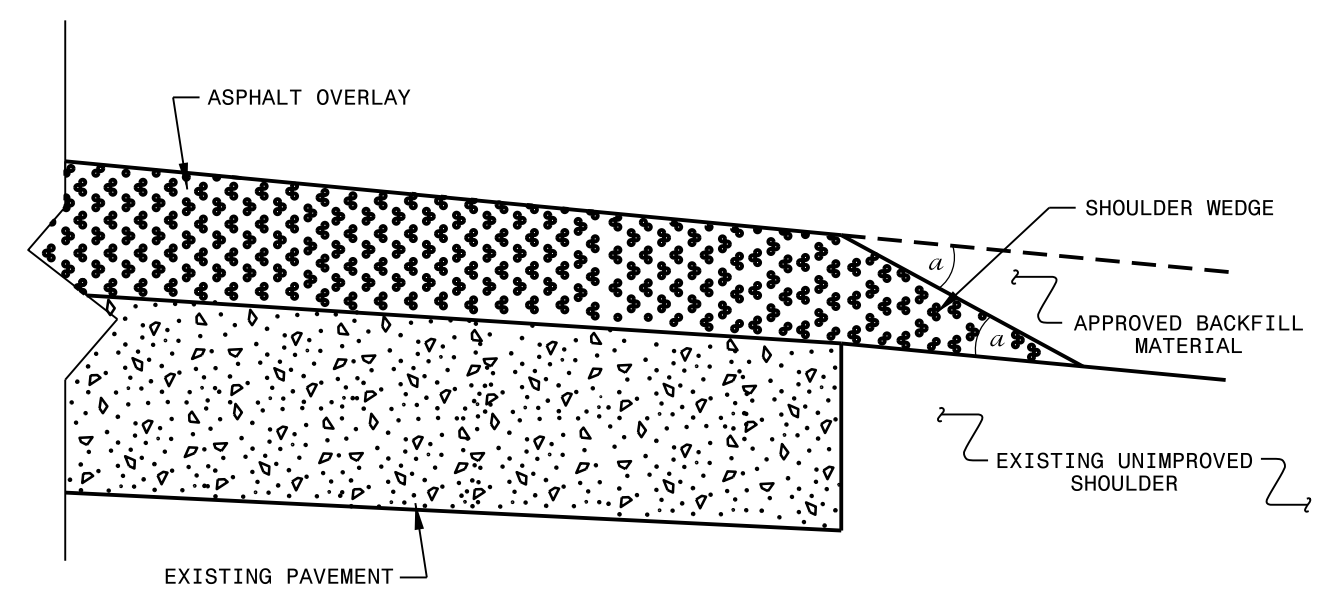
MILLING DETAIL AT BRIDGE APPROACHES

**WHERE BRIDGES WILL NOT BE RESURFACED.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.
USE AT BRIDGE NUMBERS: 52 MAP 4, 376 MAP 11,
AND 360 AND 361 MAP 15.**

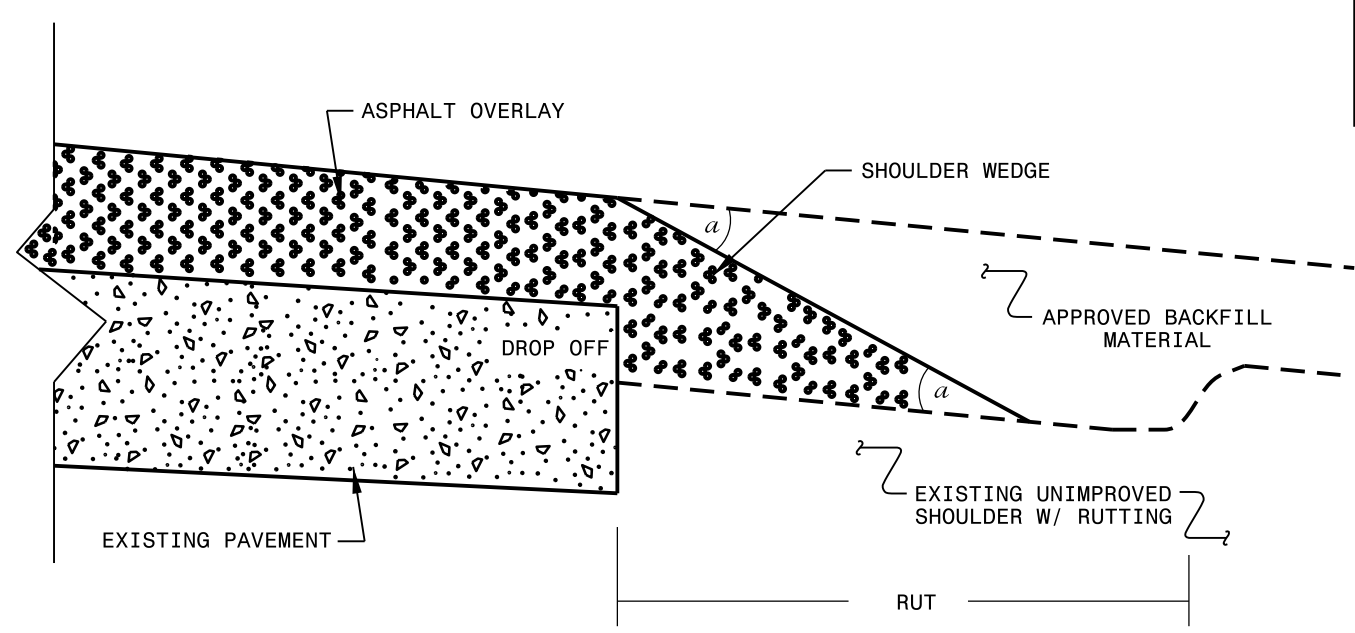
- NOTES:
 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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		

22 JAN-2018 09:41
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 P:\piper\41_CSD-215342

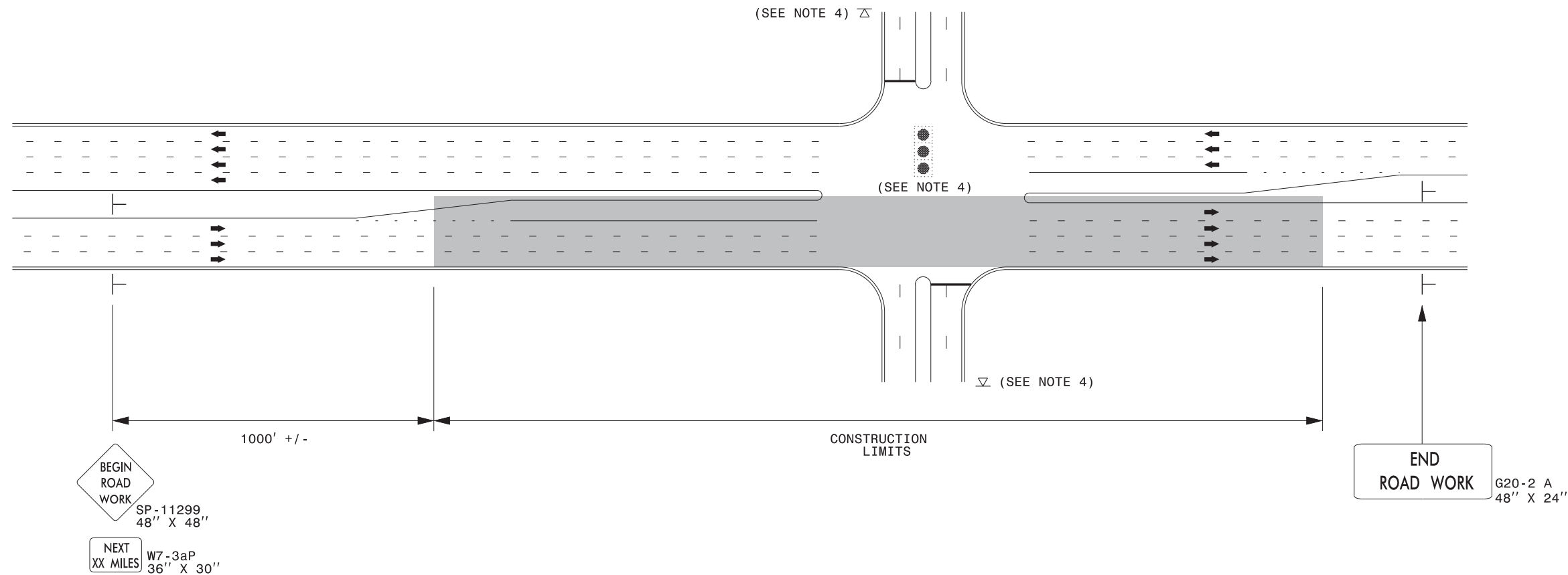
SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	INCIDENTAL STONE BASE	SHOULDER RECONSTRUCTION	AGGR. SH. BORROW	MILLING 1-1/2" DEPTH	1" MILLING	MILLING 0" TO 1-1/2" DEPTH	INCIDENTAL MILLING	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	ASPHALT SURFACE TREATMENT, DOUBLE SEAL	ASPHALT SURFACE TREATMENT, FOG SEAL	EMULSION FOR ASPHALT SURFACE TREATMENT	VACUUM TRUCK	CONC CURB RAMP std. 848.05	ADJ. OF DROPS	ADJ. OF MAN-HOLES	ADJ. OF METER BOXES OR VALVE BOXES	INDUCTIVE LOOP SAWCUT						
																																MI	FT	TON	SMI	TON	SY
2019CPT.13.02.20121	Burke	35	SR 1898	FROM SR 1713 TO SR 1898 (MP 0.00 - MP 0.937)	10	2	2WU	NO	NO	0.937	18											160															
		36	SR 1916	FROM NC 18 TO SR 1924 (MP 0.00 - MP 5.381)	10	2	2WU	NO	NO	5.381	18											350															
		37	SR 1276	FROM NC 126 TO DEAD END (MP 0.00 - MP 0.349)	8	2	2WU	NO	NO	0.349	18	17							228		15	35								3							
		38	SR 1412	FROM SR 1410 TO CUL-DE-SAC (MP 0.00 - MP 0.813)	8	2	2WU	NO	NO	0.813	18	41							531		36	150								1							
		39	SR 1415	FROM SR 1414 TO END MAINT (MP 0.00 - MP 0.278)	8	2	2WU	NO	NO	0.278	18	14							182		12	50															
		40	SR 1453	FROM SR 1414 TO SR 1453 (MP 0.00 - MP 0.519)	8	2	2WU	NO	YES	0.519	20	26							377		25	30							1								
		41	SR 1479	FROM SR 1414 TO CUL DE SAC (MP 0.00 - MP 0.065)	8	2	2WU	NO	NO	0.065	17								40		3	10															
		42	SR 1492	FROM SR 1476 TO SR 1423 (MP 0.00 - MP 0.213)	9	2	2WU	NO	YES	0.213	20					2,500				155		10	100														
		43	SR 1887	FROM NC 18 TO SR 1931 (MP 0.00 - MP 0.420)	8	2	2WU	NO	NO	0.42	20	21							305		20	12															
		44	SR 1924	FROM SR 1917 TO SR 1932 (MP 11.042 - MP 12.817)	8	2	2WU	NO	NO	1.775	18	89							1,160		78	480															
		45	SR 1930	FROM SR 1931 TO END PVMT (MP 0.00 - MP 0.868)	8	2	2WU	NO	NO	0.868	20	43							630		42	80															
		46	SR 1939	FROM SR 1924 TO END PVMT (MP 0.00 - MP 0.194)	8	2	2WU	NO	NO	0.194	17	10							120		8	40															
		47	SR 1979	FROM SR 1924 TO END PVMT (MP 0.00 - MP 0.094)	8	2	2WU	NO	NO	0.094	18	5							61		4	10															
		48	SR 1991	FROM SR 1939 TO END MAINT (MP 0.00 - MP 0.068)	8	2	2WU	NO	NO	0.068	17	3							42		3	10															
		49	SR 2028	FROM SR 1908 TO END MAINT (MP 0.00 - MP 0.420)	8	2	2WU	NO	NO	0.42	18	21							274		18	18															
		50	SR 2508	FROM 1811 TO END MAINT (MP 0.00 - MP 0.274)	8	2	2WU	NO	NO	0.274	18	14							179		12	30															
		51	SR 1125	FROM SR 1149 TO SR 1124 (MP 0.00 - MP 1.790)	8	2	2WU	NO	NO	1.79	18	90							1,170		78	700								2							
		52	SR 1165	FROM SR 1128 TO DEAD END (MP 0.00 - MP 0.654)	8	2	2WU	NO	NO	0.654	18	33							427		29	95								1							
		53	SR 1473	FROM SR 1428 TO DEAD END (MP 0.00 - MP 0.092)	8	2	2WU	NO	NO	0.092	18	5							60		4	10															
		54	SR 1502	FROM SR 1501 TO DEAD END (MP 0.00 - MP 0.366)	8	2	2WU	NO	NO	0.366	20	18							266		18	30															
		55	SR 1562	FROM SR 1561 O END MAINT (MP 0.00 - MP 0.094)	8	2	2WU	NO	NO	0.094	17	5							58		4	10															
		56	SR 1844	FROM SR 1713 TO END MAINT (MP 0.00 - MP 0.249)	8	2	2WU	NO	NO	0.249	18	12							163		11	30															
		57	SR 1951	FROM SR 1952 TO SR 1950 (MP 0.00 - MP 0.208)	8	2	2WU	NO	NO	0.208	17	10							128		9	10															
		58	SR 2012	FROM SR 1950 TO DEAD END (MP 0.00 - MP 0.500)	8	2	2WU	NO	NO	0.5	18	25							327		22	30															
		59	SR 2029	FROM SR 2010 TO CUL DE SAC (MP 0.00 - MP 0.117)	8	2	2WU	NO	NO	0.117	18	6							76		5	10															
		60	SR 2507	FROM SR 1713 TO DEAD END (MP 0.00 -MP 0.145)	8	2	2WU	NO	NO	0.145	20	7							105		7	30															
TOTAL FOR PROJ NO. 2019CPT.13.02.20121										44.484		1,492	36.16	4,618	18,896	2,500	16,150	5,075	23,587	6,133	1,948	7,040							26	1	16	25	3,092				
2019CPT.13.02.20122	Burke	61	SR 1426	FROM SR 1438 TO NC 18 (MP 1.700 - MP 5.313)	10	2	2WU	NO	NO	3.613	18												38,153	38,153	20,984	1.8											
		62	SR 1512	FROM SR 1501 TO SR 1544 (MP 2.245 - MP 5.847)	10	2	2WU	NO	NO	3.602	18													38,037	38,037	20,920	1.8										
		63	SR 1590	FROM US 70 TO END MAINT (MP 0.00 - MP 0.228)	10	2	2WU	NO	NO	0.228	18													2,408	2,408	1,324	0.1										
		64	SR 1596	FROM SR 1590 TO END MAINT (MP 0.00 - MP 0.172)	10	2	2WU	NO	NO	0.172	18													1,816	1,816	999	0.1										
		65	SR 1898	FROM SR 1713 TO SR 1898 (MP 0.00 - MP 0.937)	10	2	2WU	NO	NO	0.937	18													9,895	9,895	5,442	0.5										
		66	SR 1916	FROM NC 18 TO SR 1924 (MP 0.00 - MP 5.381)	10	2	2WU	NO	NO	5.381	18													56,823	56,823	31,253	2.7										
TOTAL FOR PROJ NO. 2019CPT.13.02.20122										13.933																		147,132	147,132	80,922	7						
GRAND TOTAL										69.36		2,040	58.05	7,464	39,044	2,500	20,320	8,955	25,758	23,220	3,119	8,750	147,132	147,132	80,922	7	35	11	40	51	4,304						

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LA NES	LANE TYPE	LENGTH		WK ZN ADV/ GEN WARN. SIGNING	TEMP. TRAF. CONT ROL	4695000000-E		4697000000-E		4710000000-E		4721000000-E		4725000000-E		4810000000-E		4847010000-E		4905..-N					
								MI	FT			SF	LS	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
2019C		35	SR 1898	FROM SR 1713 TO SR 1898 (MP 0.00 - MP 0.937)	10	2	2WU	0.937	18																						
		36	SR 1916	FROM NC 18 TO SR 1924 (MP 0.00 - MP 5.381)	10	2	2WU	5.381	18																						
		37	SR 1276	FROM NC 126 TO DEAD END (MP 0.00 - MP 0.349)	8	2	2WU	0.349	18	40																					
		38	SR 1412	FROM SR 1410 TO CUL-DE-SAC (MP 0.00 - MP 0.813)	8	2	2WU	0.813	18	92																					
		39	SR 1415	FROM SR 1414 TO END MAINT (MP 0.00 - MP 0.278)	8	2	2WU	0.278	18	32																					
		40	SR 1453	FROM SR 1414 TO SR 1453 (MP 0.00 - MP 0.519)	8	2	2WU	0.519	20	59																					
		41	SR 1479	FROM SR 1414 TO CUL DE SAC (MP 0.00 - MP 0.065)	8	2	2WU	0.065	17	8																					
		42	SR 1492	FROM SR 1476 TO SR 1423 (MP 0.00 - MP 0.213)	9	2	2WU	0.213	20	24																					
		43	SR 1887	FROM NC 18 TO SR 1931 (MP 0.00 - MP 0.420)	8	2	2WU	0.42	20	48																					
		44	SR 1924	FROM SR 1917 TO SR 1932 (MP 11.042 - MP 12.817)	8	2	2WU	1.775	18	199																					
		45	SR 1930	FROM SR 1931 TO END PVTM (MP 0.00 - MP 0.868)	8	2	2WU	0.868	20	98																					
		46	SR 1939	FROM SR 1924 TO END PVTM (MP 0.00 - MP 0.194)	8	2	2WU	0.194	17	22																					
		47	SR 1979	FROM SR 1924 TO END PVTM (MP 0.00 - MP 0.094)	8	2	2WU	0.094	18	11																					
		48	SR 1991	FROM SR 1939 TO END MAINT (MP 0.00 - MP 0.068)	8	2	2WU	0.068	17	8																					
		49	SR 2028	FROM SR 1908 TO END MAINT (MP 0.00 - MP 0.420)	8	2	2WU	0.42	18	48																					
		50	SR 2508	FROM 1811 TO END MAINT (MP 0.00 - MP 0.274)	8	2	2WU	0.274	18	31																					
		51	SR 1125	FROM SR 1149 TO SR 1124 (MP 0.00 - MP 1.790)	8	2	2WU	1.79	18	201																					
		52	SR 1165	FROM SR 1128 TO DEAD END (MP 0.00 - MP 0.654)	8	2	2WU	0.654	18	74																					
		53	SR 1473	FROM SR 1428 TO DEAD END (MP 0.00 - MP 0.092)	8	2	2WU	0.092	18	11																					
		54	SR 1502	FROM SR 1501 TO DEAD END (MP 0.00 - MP 0.366)	8	2	2WU	0.366	20	41																					
		55	SR 1562	FROM SR 1561 O END MAINT (MP 0.00 - MP 0.094)	8	2	2WU	0.094	17	11																					
		56	SR 1844	FROM SR 1713 TO END MAINT (MP 0.00 - MP 0.249)	8	2	2WU	0.249	18	228																					
		57	SR 1951	FROM SR 1952 TO SR 1950 (MP 0.00 - MP 0.208)	8	2	2WU	0.208	17	24																					
		58	SR 2012	FROM SR 1950 TO DEAD END (MP 0.00 - MP 0.500)	8	2	2WU	0.5	18	56																					
		59	SR 2029	FROM SR 2010 TO CUL DE SAC (MP 0.00 - MP 0.117)	8	2	2WU	0.117	18	14																					
		60	SR 2507	FROM SR 1713 TO DEAD END (MP 0.00 - MP 0.145)	8	2	2WU	0.145	20	17																					
		TOTAL FOR PROJ NO. 2019CPT.13.02.20121							44.484		3,648				340	170	132	562		20	52	9	16		2	2	424,597	424,597	37,071	45,951	374
													510								20			81				849,194	83,022		
2019CPT.13.02.20122	Burke	61	SR 1426	FROM SR 1438 TO NC 18 (MP 1.700 - MP 5.313)	10	2	2WU	3.613	18	405	*																				
		62	SR 1512	FROM SR 1501 TO SR 1544 (MP 2.245 - MP 5.847)	10	2	2WU	3.602	18	404																					
		63	SR 1590	FROM US 70 TO END MAINT (MP 0.00 - MP 0.228)	10	2	2WU	0.228	18	26																					
		64	SR 1596	FROM SR 1590 TO END MAINT (MP 0.00 - MP 0.172)	10	2	2WU	0.172	18	20																					
		65	SR 1898	FROM SR 1713 TO SR 1898 (MP 0.00 - MP 0.937)	10	2	2WU	0.937	18	105																					
		66	SR 1916	FROM NC 18 TO SR 1924 (MP 0.00 - MP 5.381)	10	2	2WU	5.381	18	603																					
		TOTAL FOR PROJ NO. 2019CPT.13.02.20122							13.933		1,563																				
		GRAND TOTAL							69.36		6,437	1	720	1,500	372	912	36	20	76	21	25	8	3	2	690,625	690,625	156,026	170,935	1,455		
													2,220				56				135			1,381,250	690,625	326,961					

URBAN / SUBURBAN WORKZONES

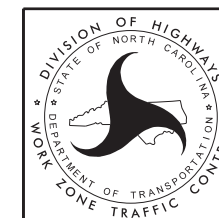


NOTES:

- 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

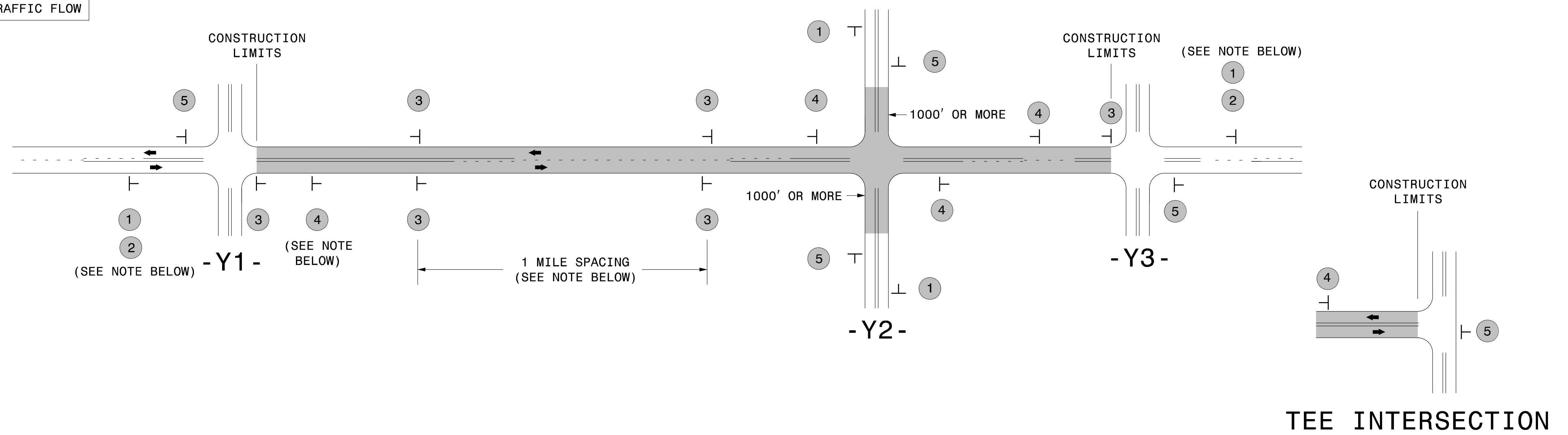
- ┆ STATIONARY SIGN
- ➔ DIRECTION OF TRAFFIC FLOW



RESURFACING ADVANCE
 WARNING SIGNS FOR
 URBAN / SUBURBAN
 FACILITIES




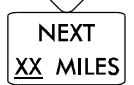


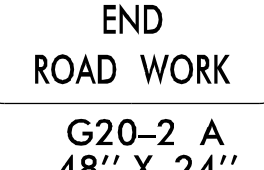
SIGNING FOR RESURFACING PROJECTS

LEGEND
 STATIONARY SIGN
 DIRECTION OF TRAFFIC FLOW



MAINLINE (-L-) SIGNING

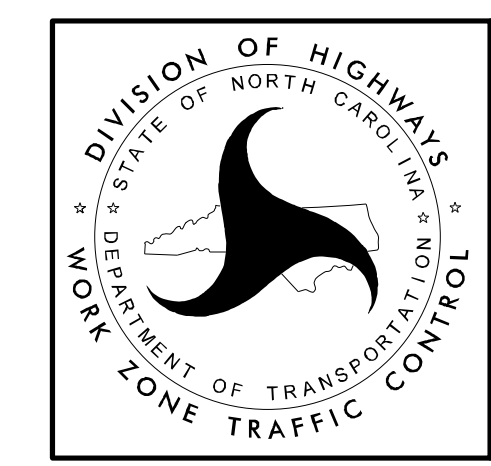
-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>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, PORTABLE ADVANCE WARNING SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  W20-1 48" X 48" PLACED 500' IN ADVANCE OF FLAGGER. </div> <div style="text-align: center;">  W20-7 A 48" X 48" PLACED 250' IN ADVANCE OF FLAGGER. </div> </div>
	2	 NEXT XX MILES W7-3aP 24" X 18"	#2 SIGN ONLY USED WHEN CONSTRUCTION LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	3	 LOW SOFT SHOULDER SP 13107 48" X 48"	<ul style="list-style-type: none"> - PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 1/2 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER. 	
	4	 ROAD UNDER CONST SP 13106 48" X 48"	<ul style="list-style-type: none"> - THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. - DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. - INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. - FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. - A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN. - FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE. 	
	5	 END ROAD WORK G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.	

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

MAPS LESS THAN 2 MILES

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



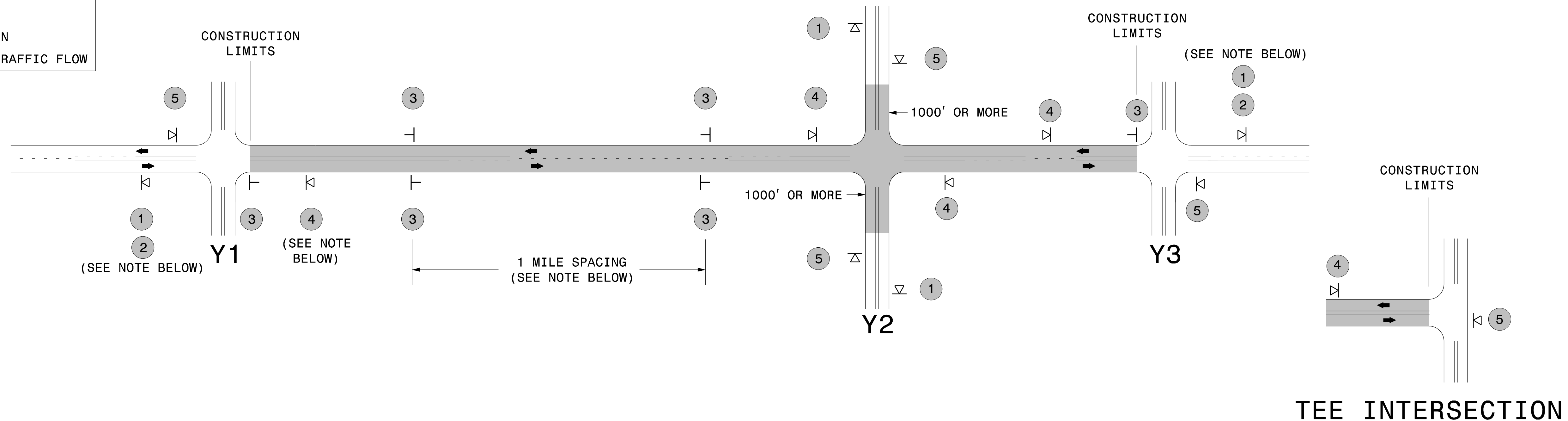
ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2-LANE ROADWAY RESURFACING

5/15/2017 S:\TMU\WZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing_AdvWarn_2Ln.dgn User:kadai

SIGNING FOR ASPHALT SURFACE TREATMENT

LEGEND

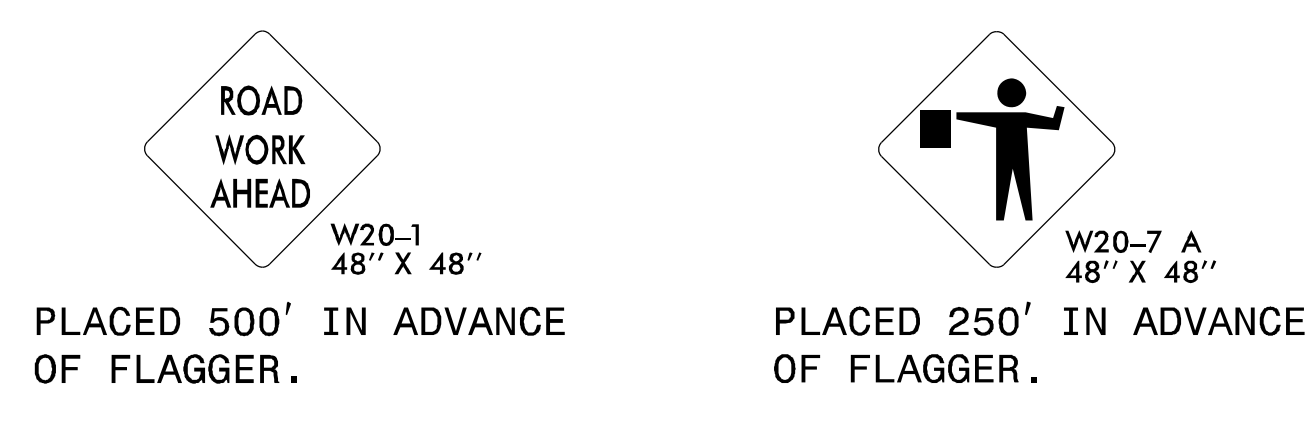
- ▷ PORTABLE SIGN
- └ STATIONARY SIGN
- ← DIRECTION OF TRAFFIC FLOW



MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	 W20-1 48" X 48"	- PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	STATIONARY SIGNING NOT REQUIRED 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, PORTABLE ADVANCE WARNING SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.
	2	 W7-3qP 24" X 18"	- SIGN #2 ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO THE NEAREST WHOLE NUMBER. DO NOT USE FRACTIONAL OR DECIMAL NUMBERS.	
	3	 W8-7 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.	
	4	 SP 48" X 48"	- AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.	
	5	 G20-2 A 48" X 24"	- 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.	



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

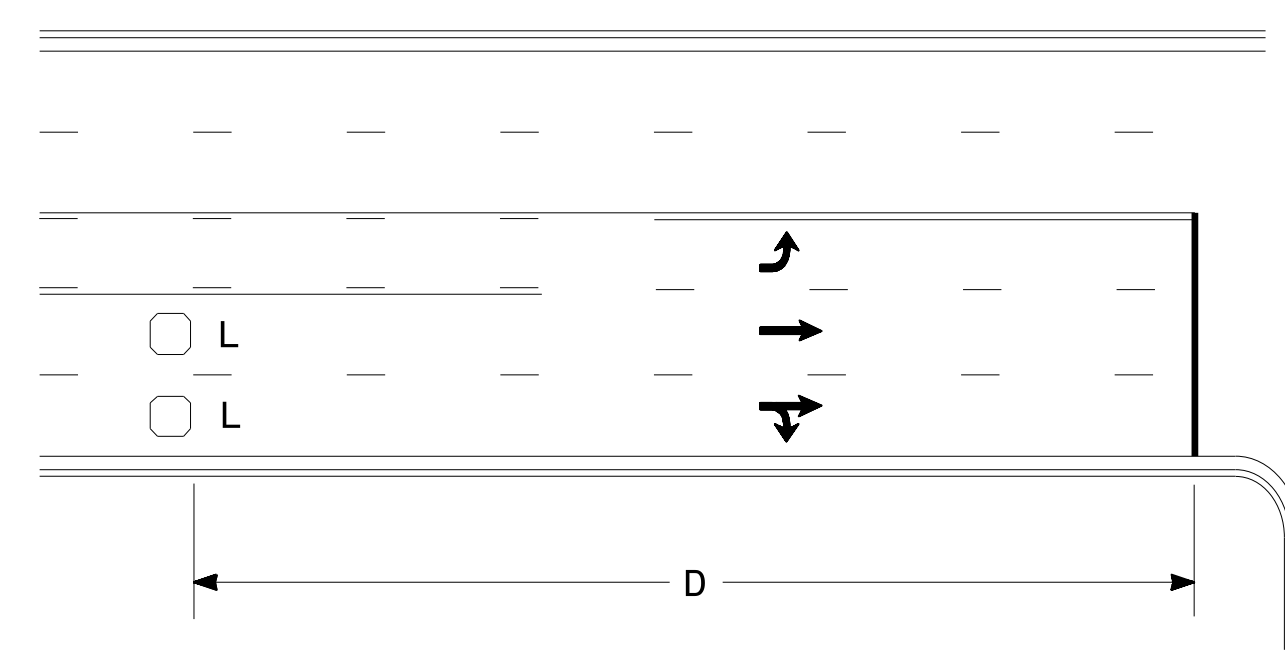
MAPS LESS THAN 2 MILES

FOR AST RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, USE A STATIONARY "LOOSE GRAVEL" SIGN AT THE BEGINNING CONSTRUCTION LIMIT FOLLOWED BY AN "UNMARKED PAVEMENT" SIGN MIDWAY THROUGH AND AN "END ROAD WORK" SIGN AT THE END CONSTRUCTION LIMIT.

ADVANCE WARNING SIGNS FOR 2-LANE ROADWAY ASPHALT SURFACE TREATMENT

5/12/2017 S:\TUXWZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing_AdvWarn_2Ln - AST.dgn User:kdais

High Speed Detection (≥40 mph)

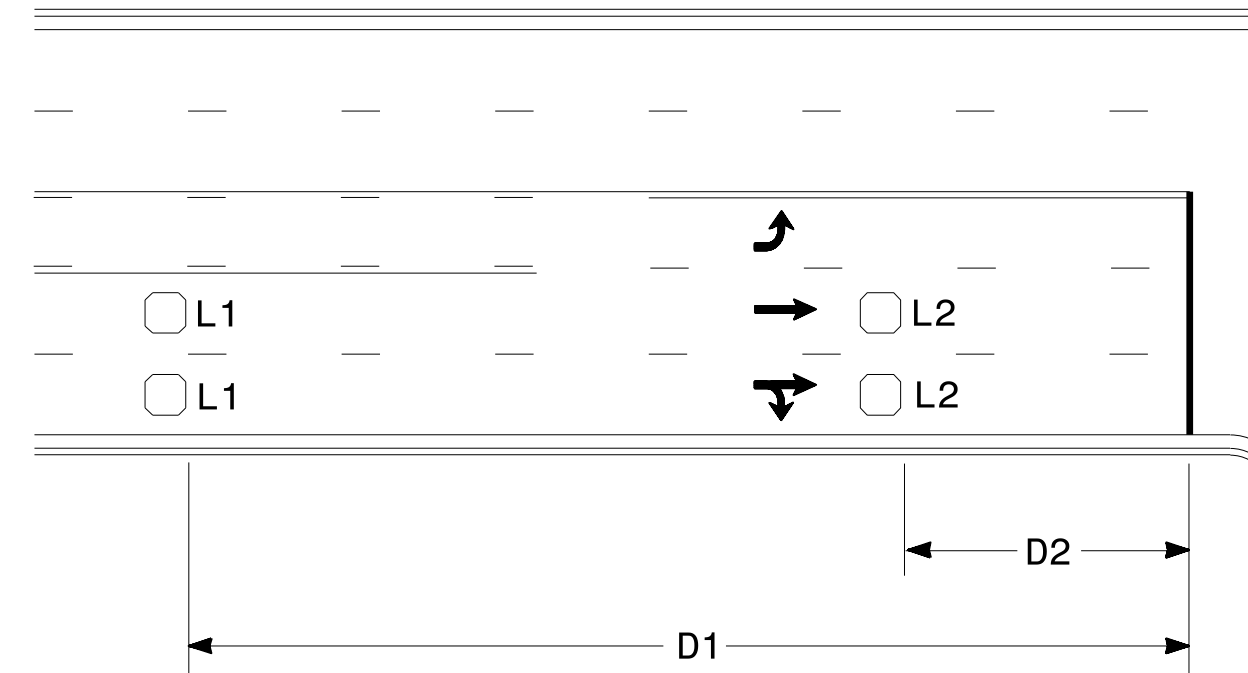


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

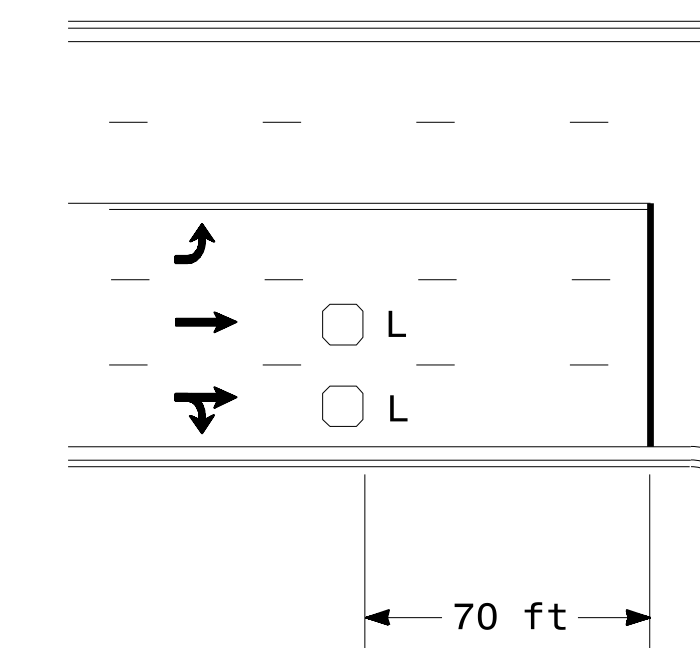


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

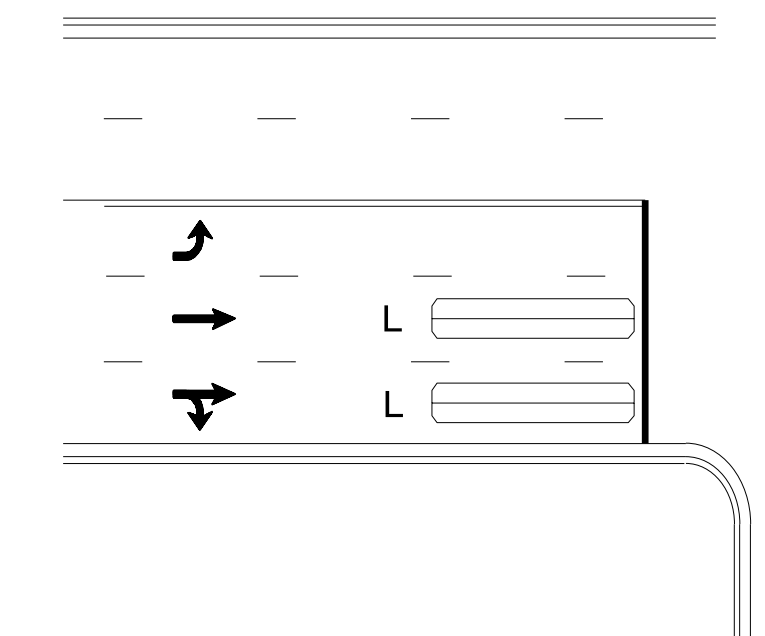
"Stretch" Operation

Low Speed Detection (≤35 mph)



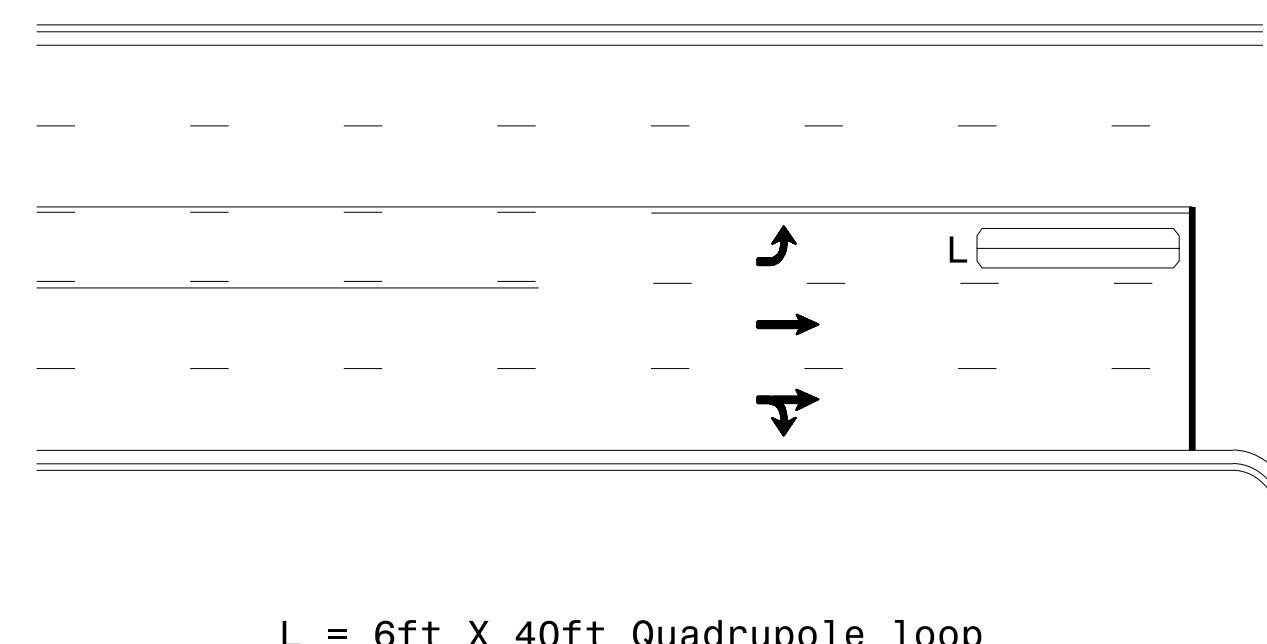
L = 6ft X 6ft
Wired in series

OR



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

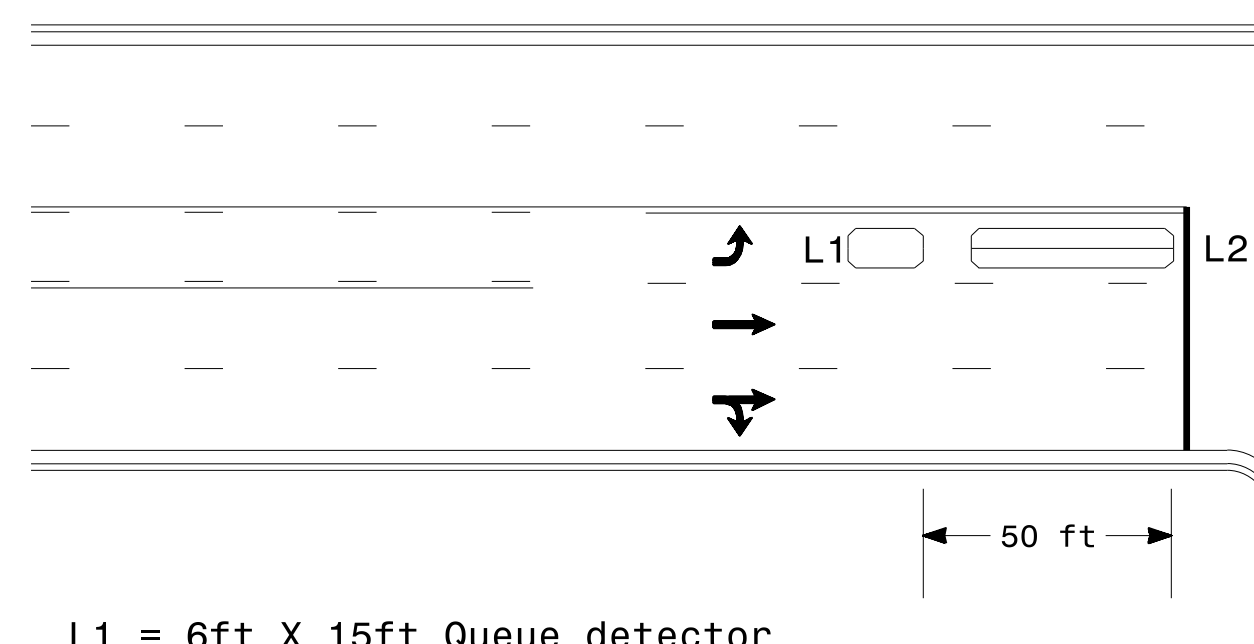
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

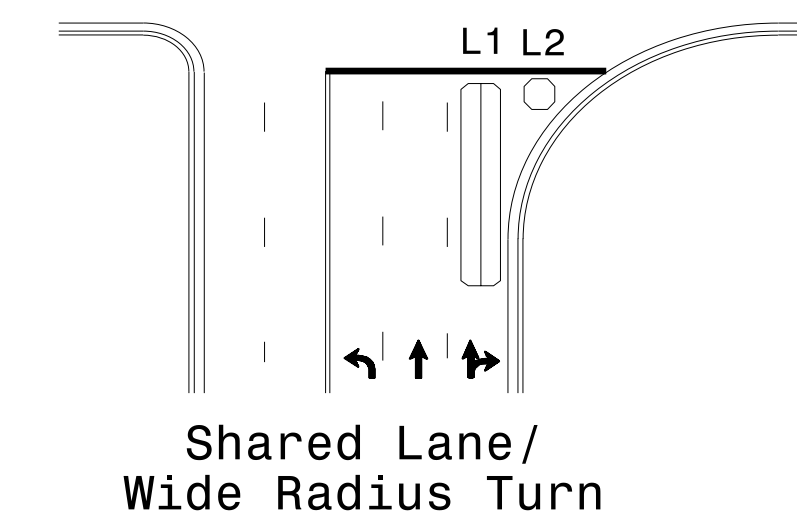
OR



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

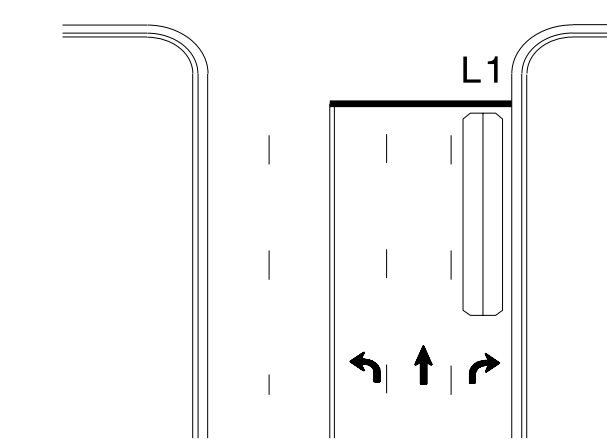
Queue Loop Detection

Right Turn Lane Detection

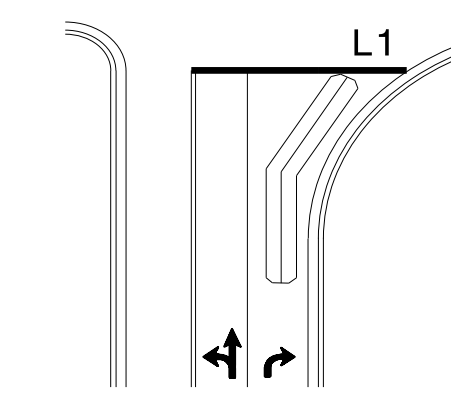


Shared Lane/
Wide Radius Turn

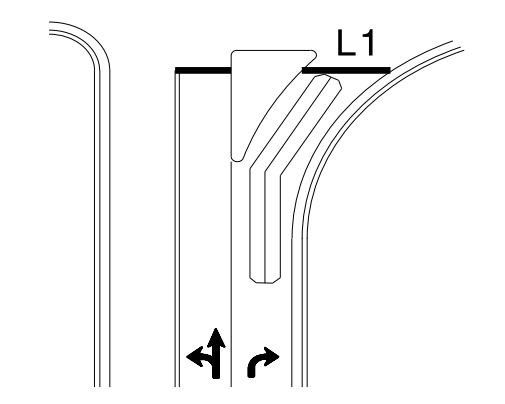
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

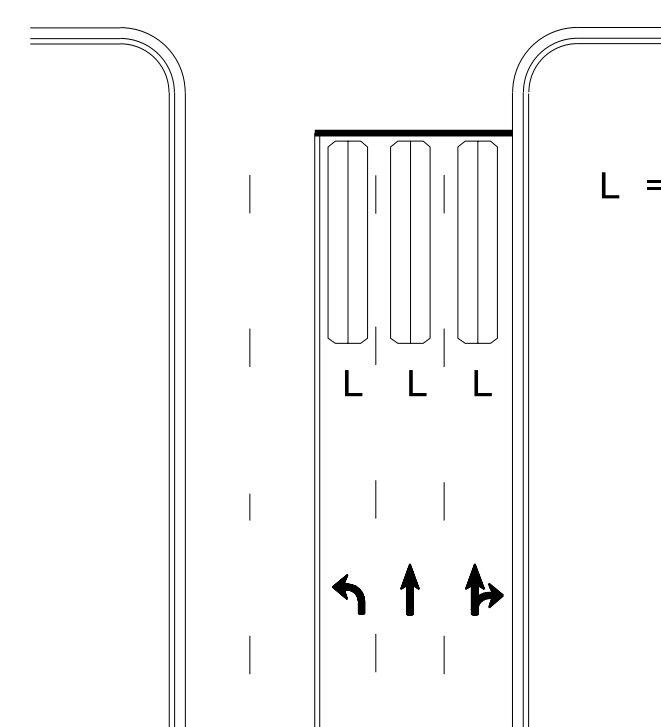


Wide Radius Turn



Channelized Turn

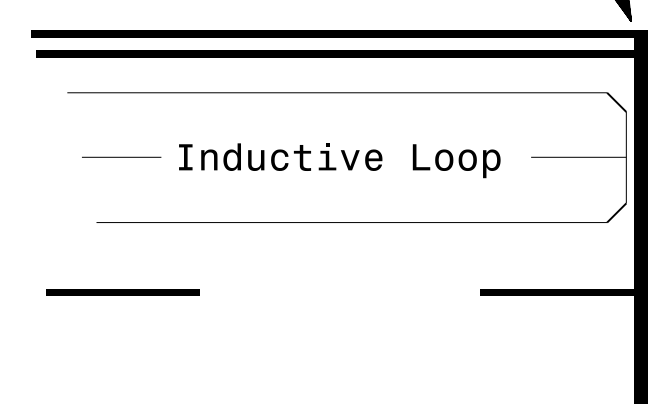
Side Street Detection



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>SEAL NORTH CAROLINA PROFESSIONAL ENGINEER PAMELA L. ALEXANDER 23489</p>	
	<p>Typical Signal Loop Locations</p>	
<p>PLAN DATE: January 2015 REVIEWED BY: JPG</p>	<p>PREPARED BY: PLA REVIEWED BY:</p>	
<p>SCALE N/A</p>	<p>REVISIONS</p>	<p>INIT. DATE</p>
<p>DocuSigned by: P. Alexander 1/30/2015 10:44:44 AM B4756E00CE4E4ED SIG. INVENTORY NO.</p>		