

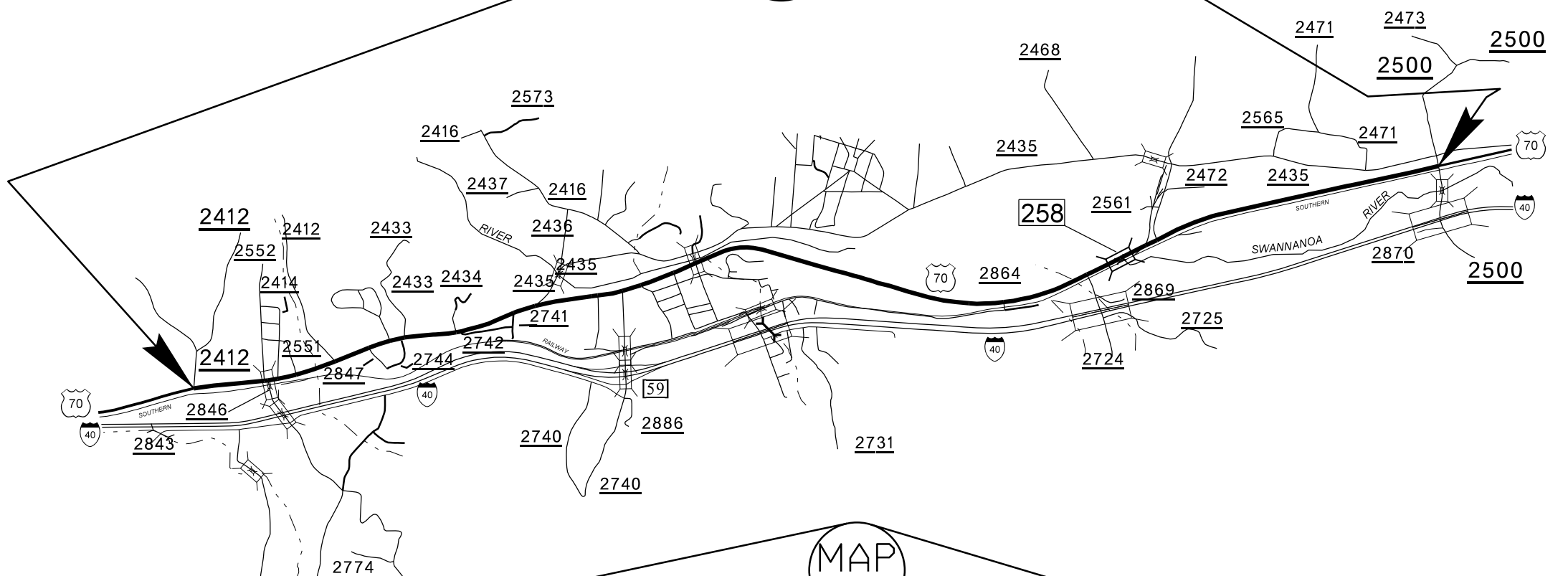
**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

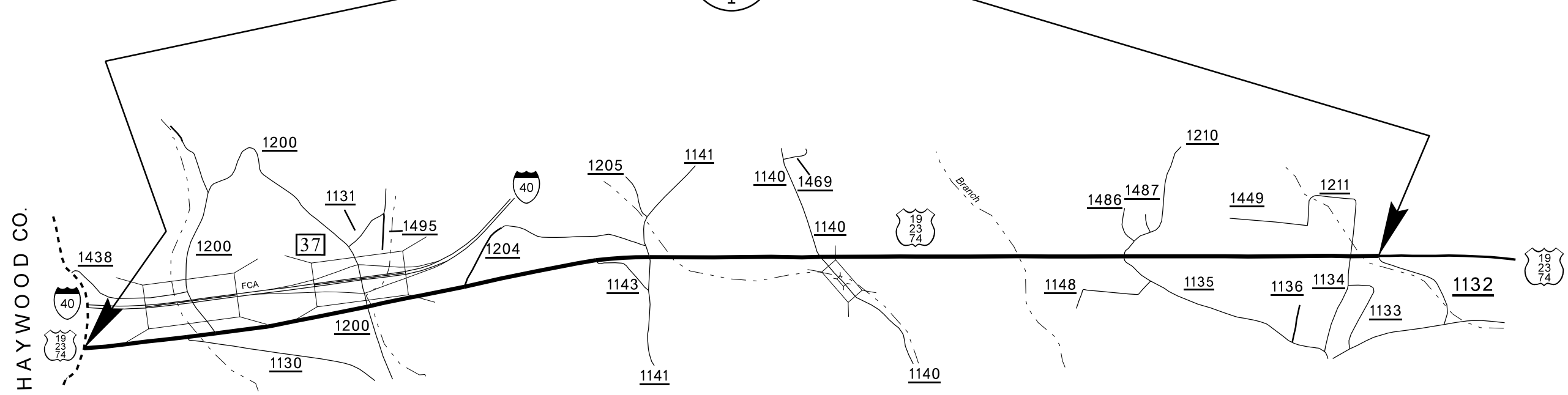
**This file or an individual page
shall not be considered a certified document.**

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111	1	
2017CPT.13.01.20111		
2017CPT.13.01.20112		

MAP
4



MAP
1

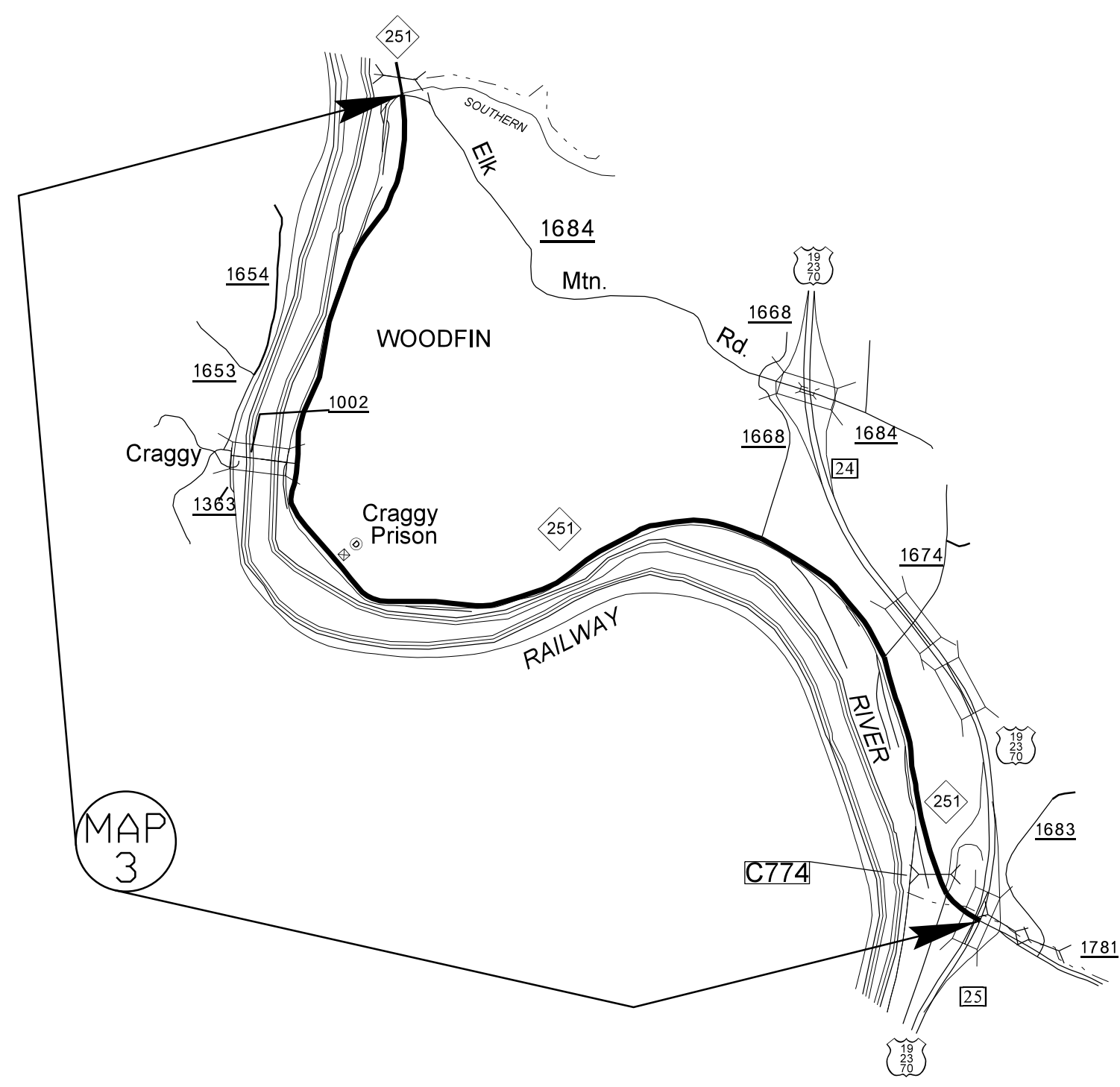
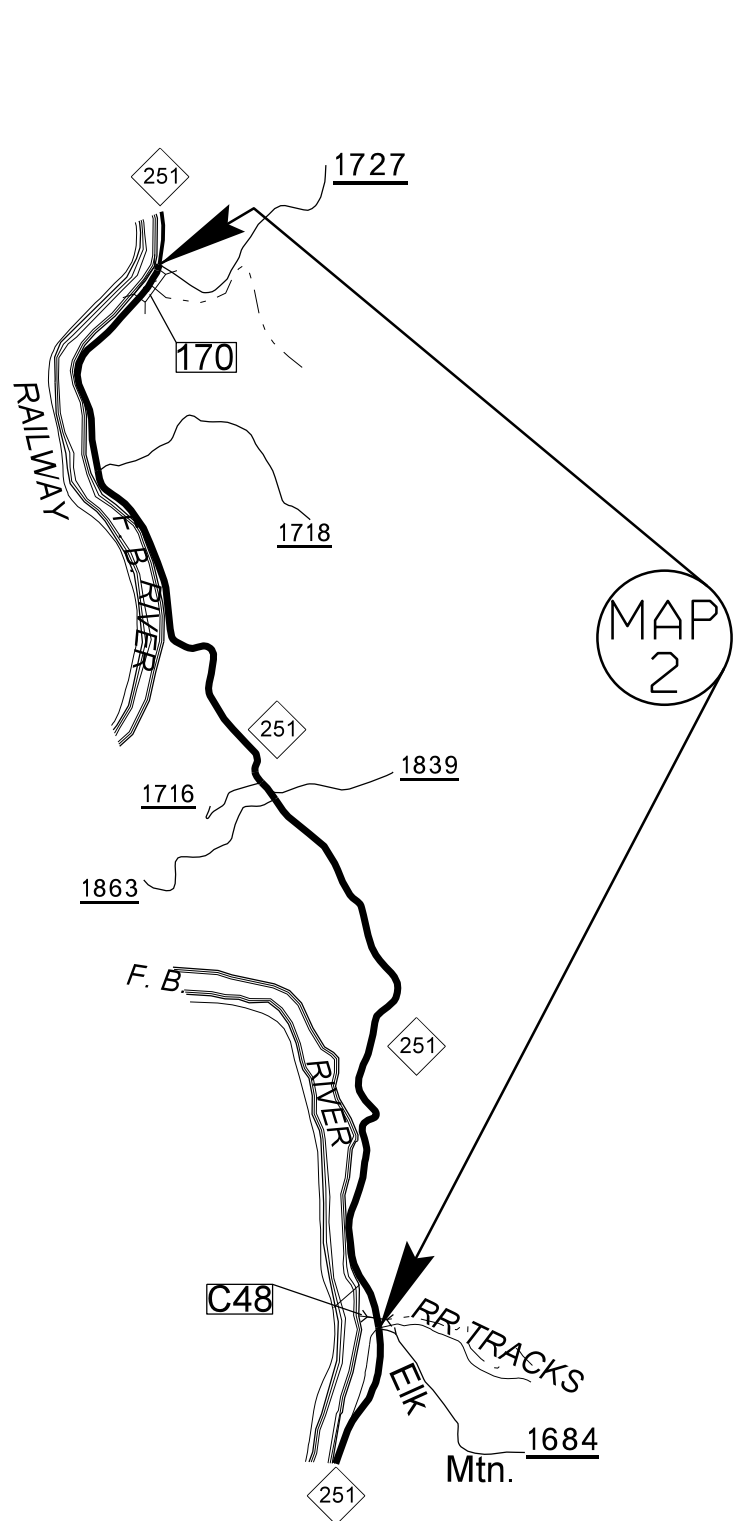


HAYWOOD CO.

BUNCOMBE COUNTY

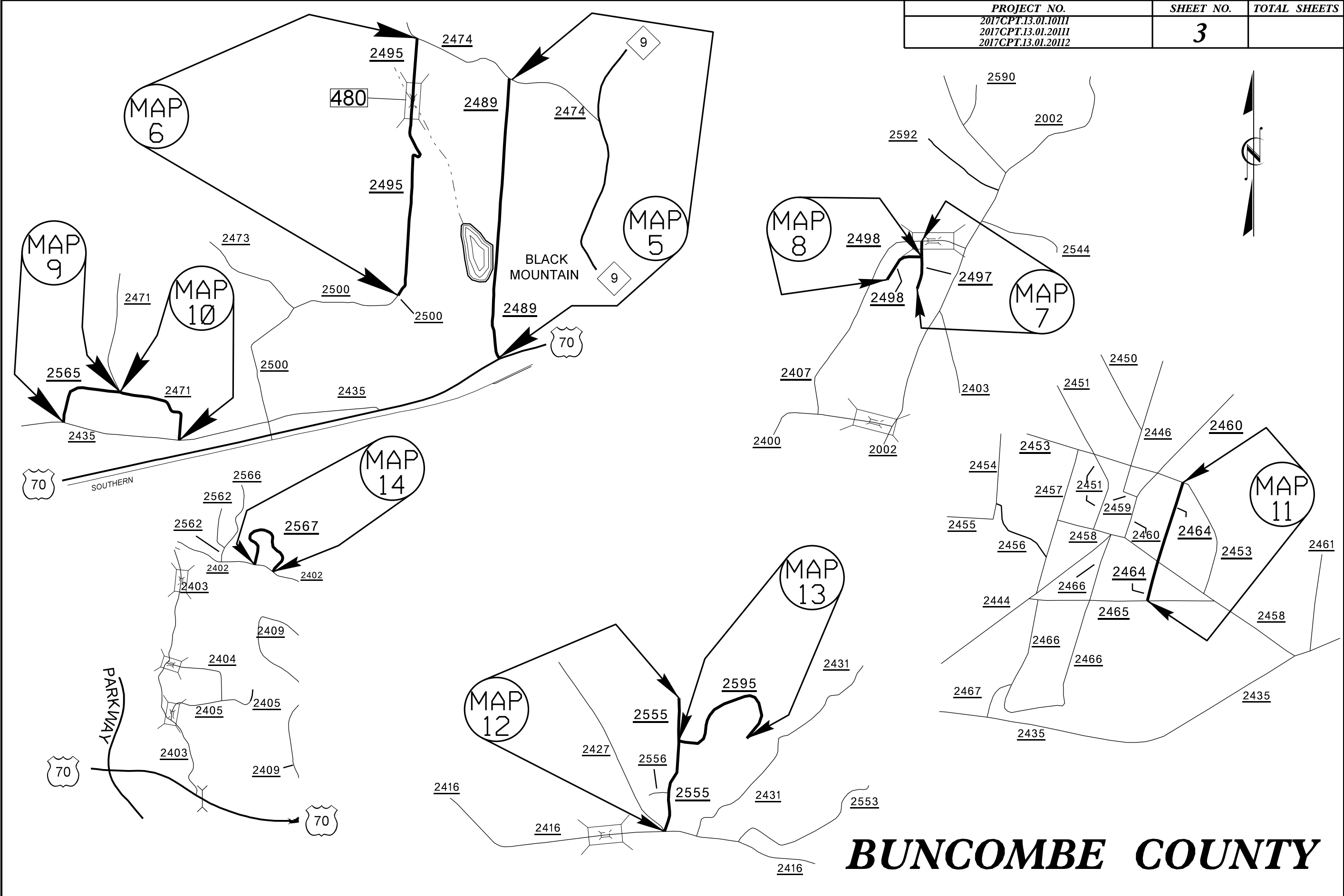


PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111	2	
2017CPT.13.01.20111		
2017CPT.13.01.20112		



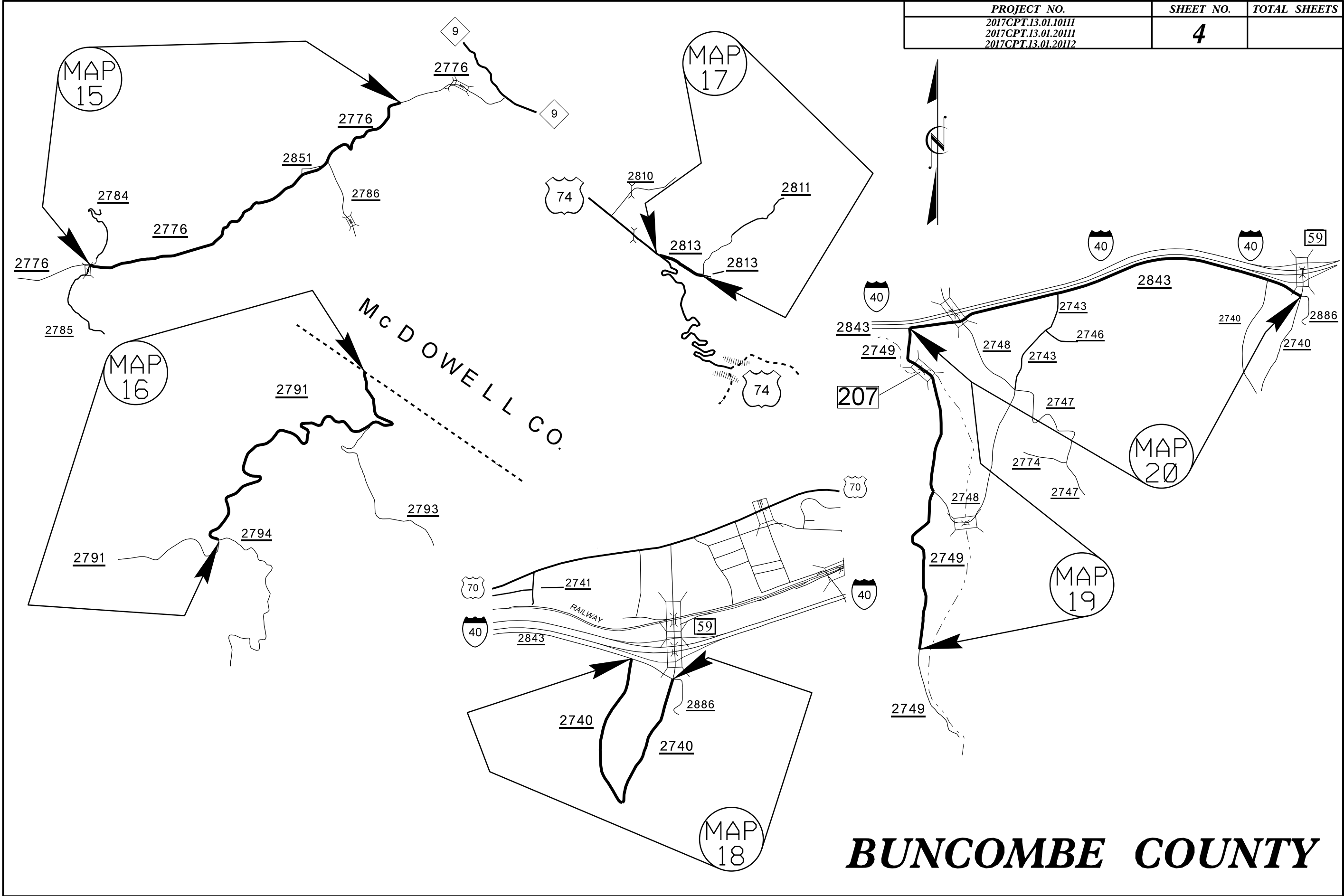
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111	3	
2017CPT.13.01.20111		
2017CPT.13.01.20112		



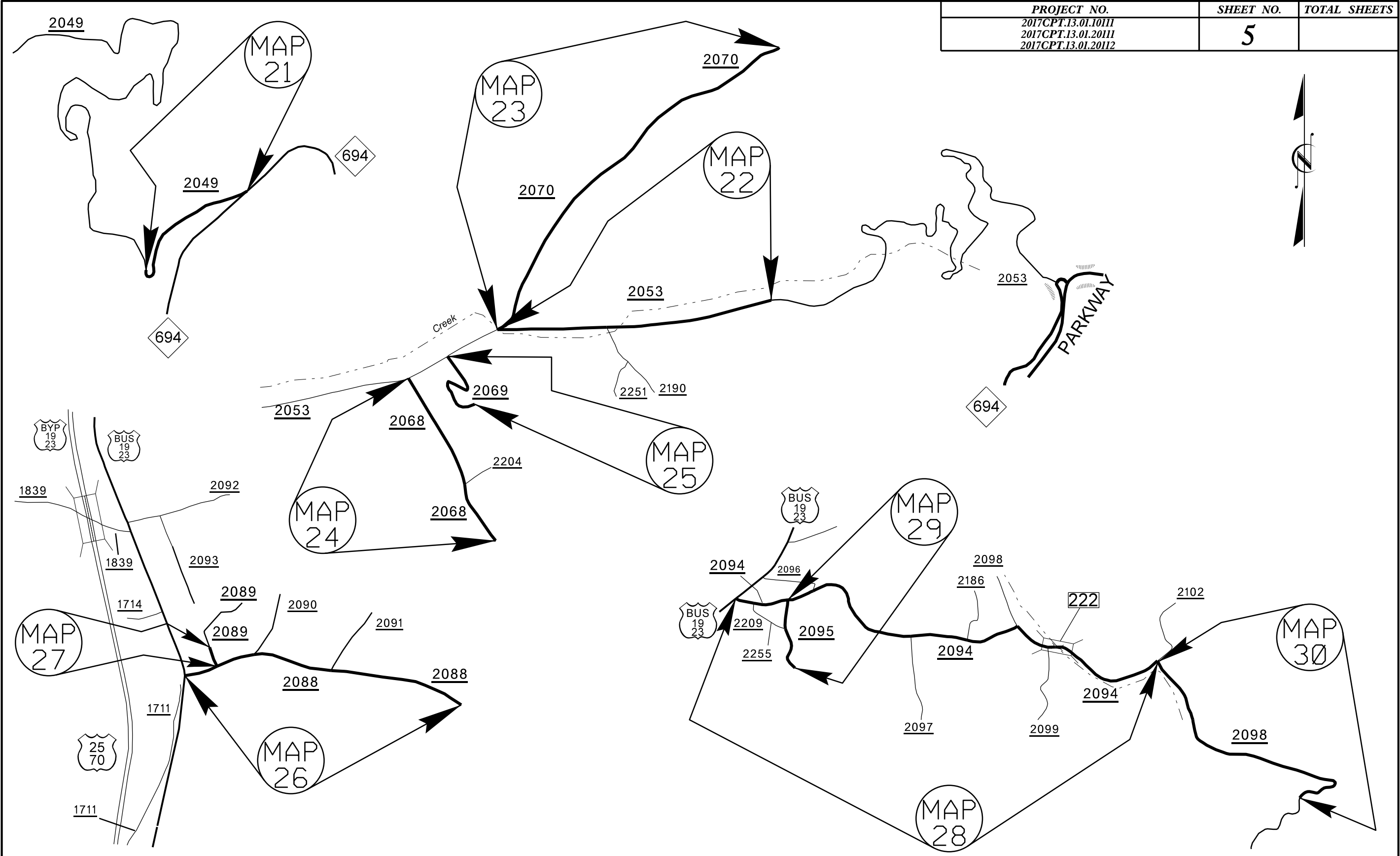
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111 2017CPT.13.01.20111 2017CPT.13.01.20112	4	



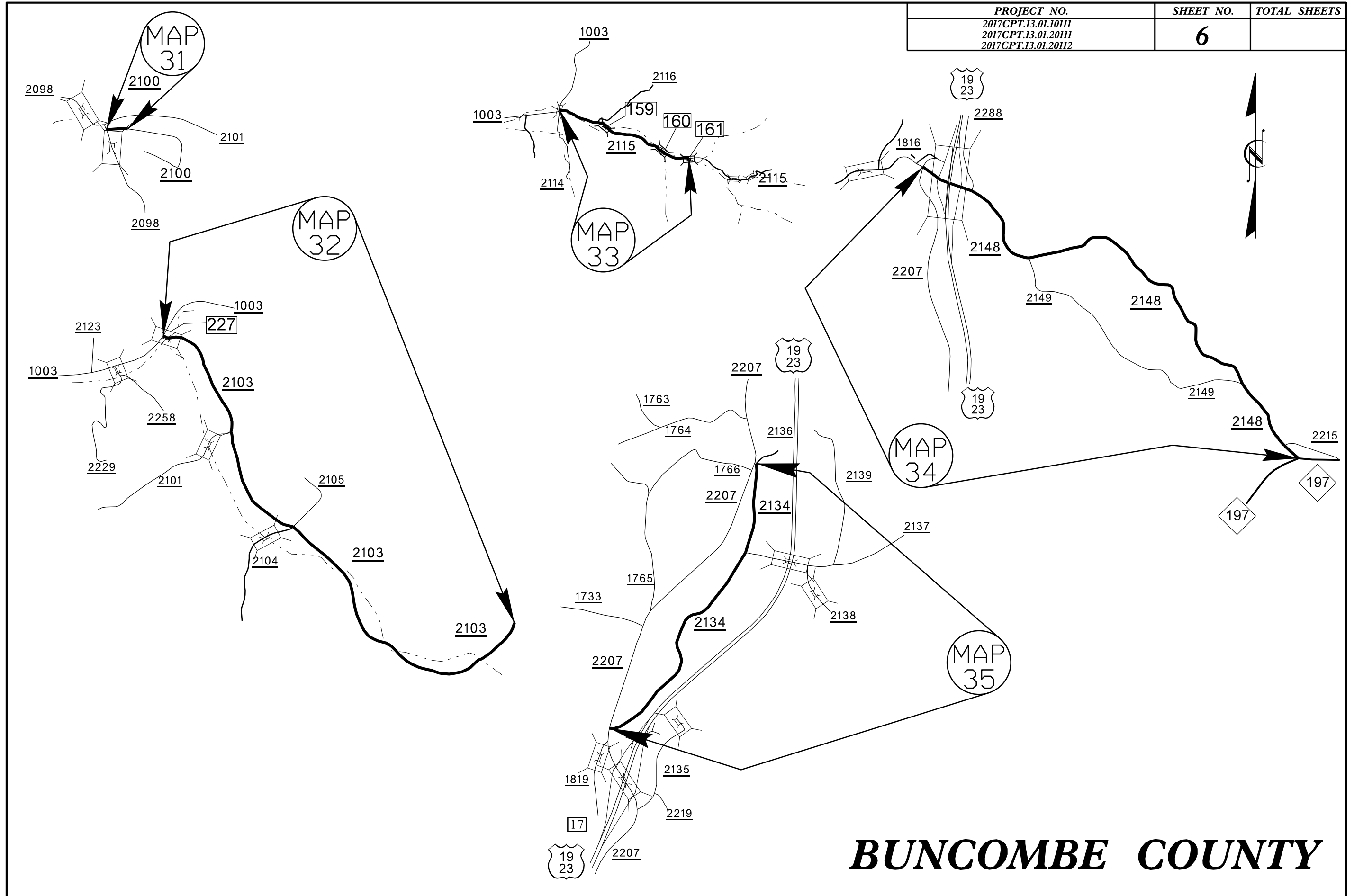
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.1011 2017CPT.13.01.2011 2017CPT.13.01.2012	5	



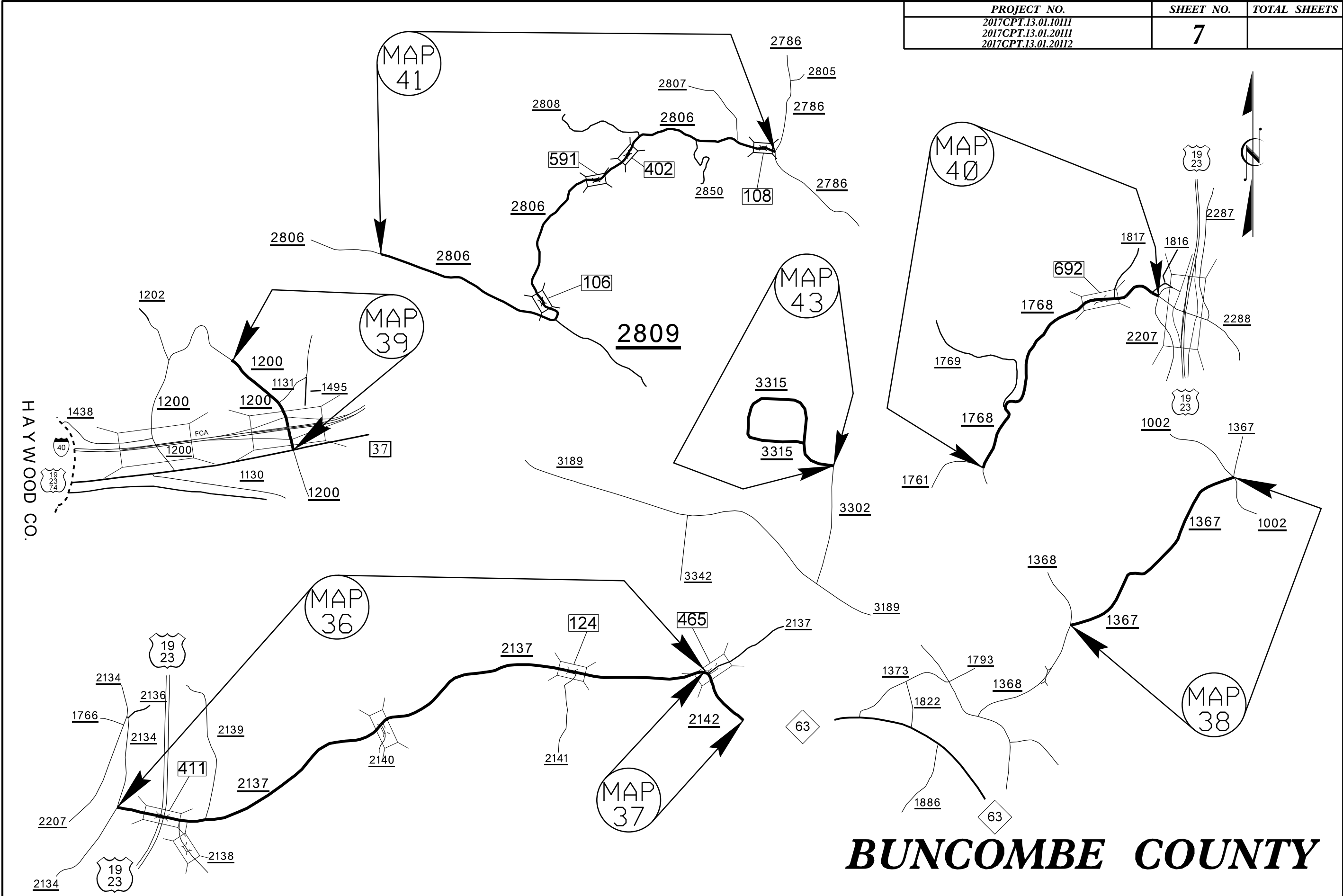
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111 2017CPT.13.01.20111 2017CPT.13.01.20112	6	



BUNCOMBE COUNTY

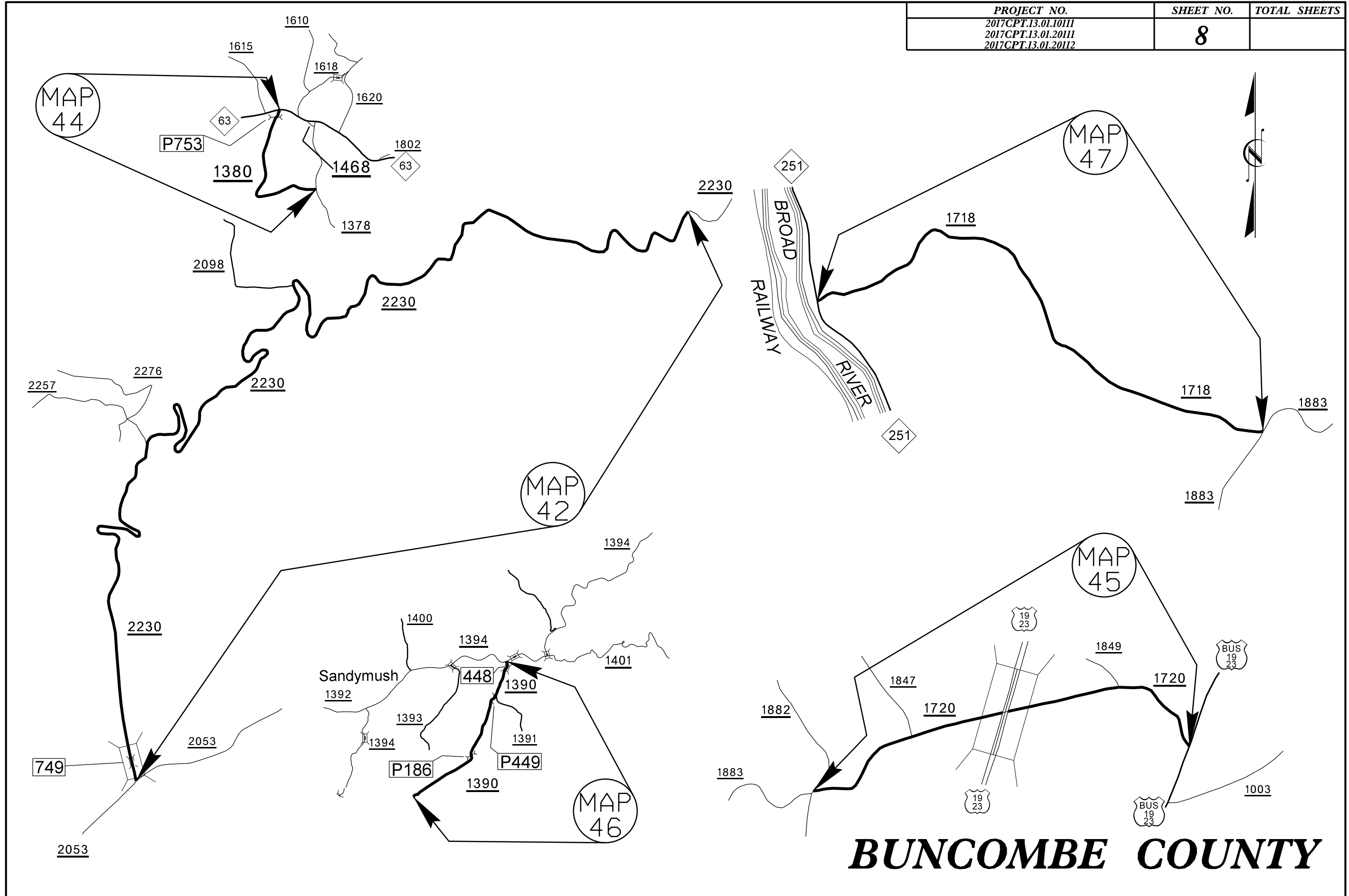
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111 2017CPT.13.01.20111 2017CPT.13.01.20112	7	



HAYWOOD CO.

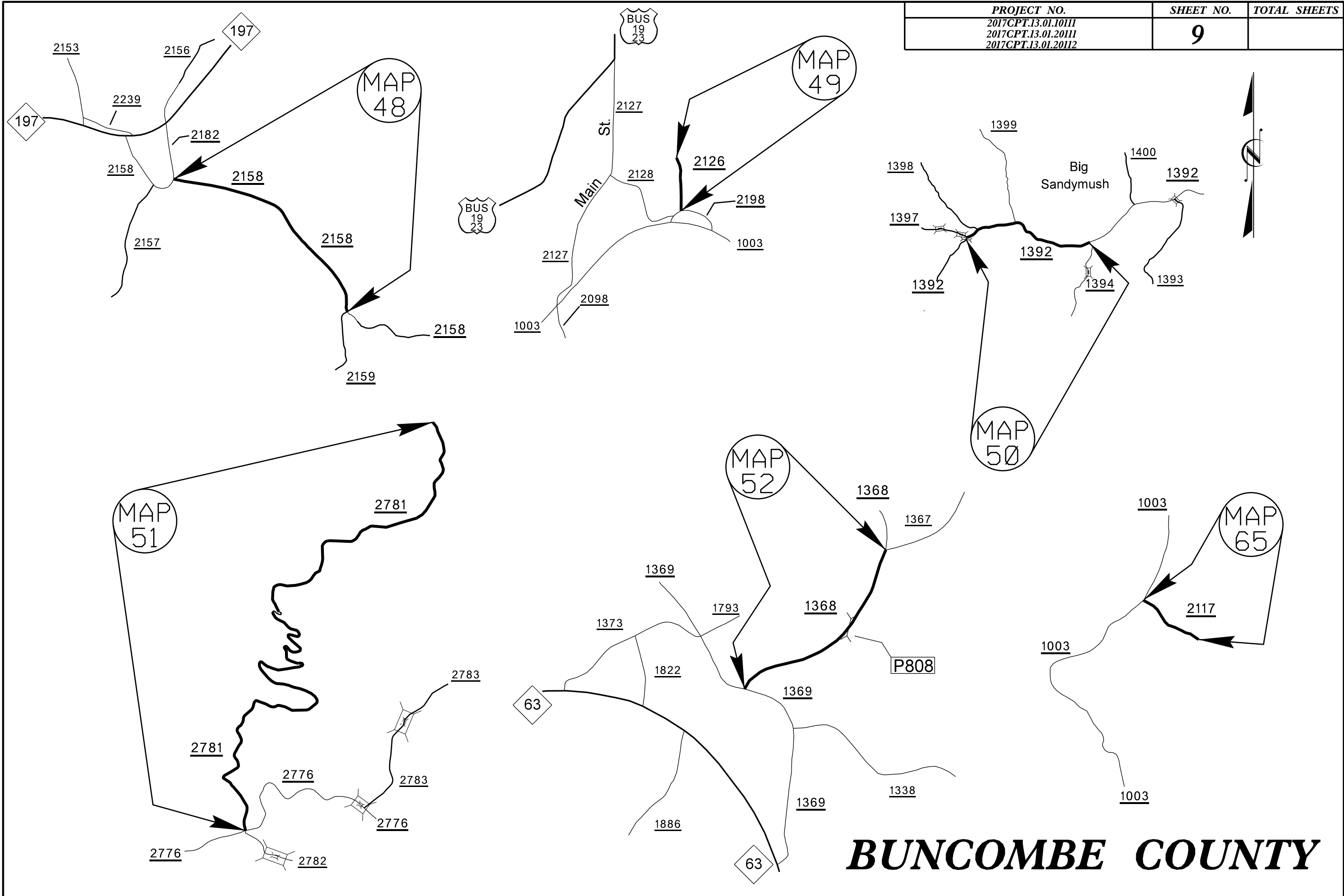
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111 2017CPT.13.01.20111 2017CPT.13.01.20112	8	



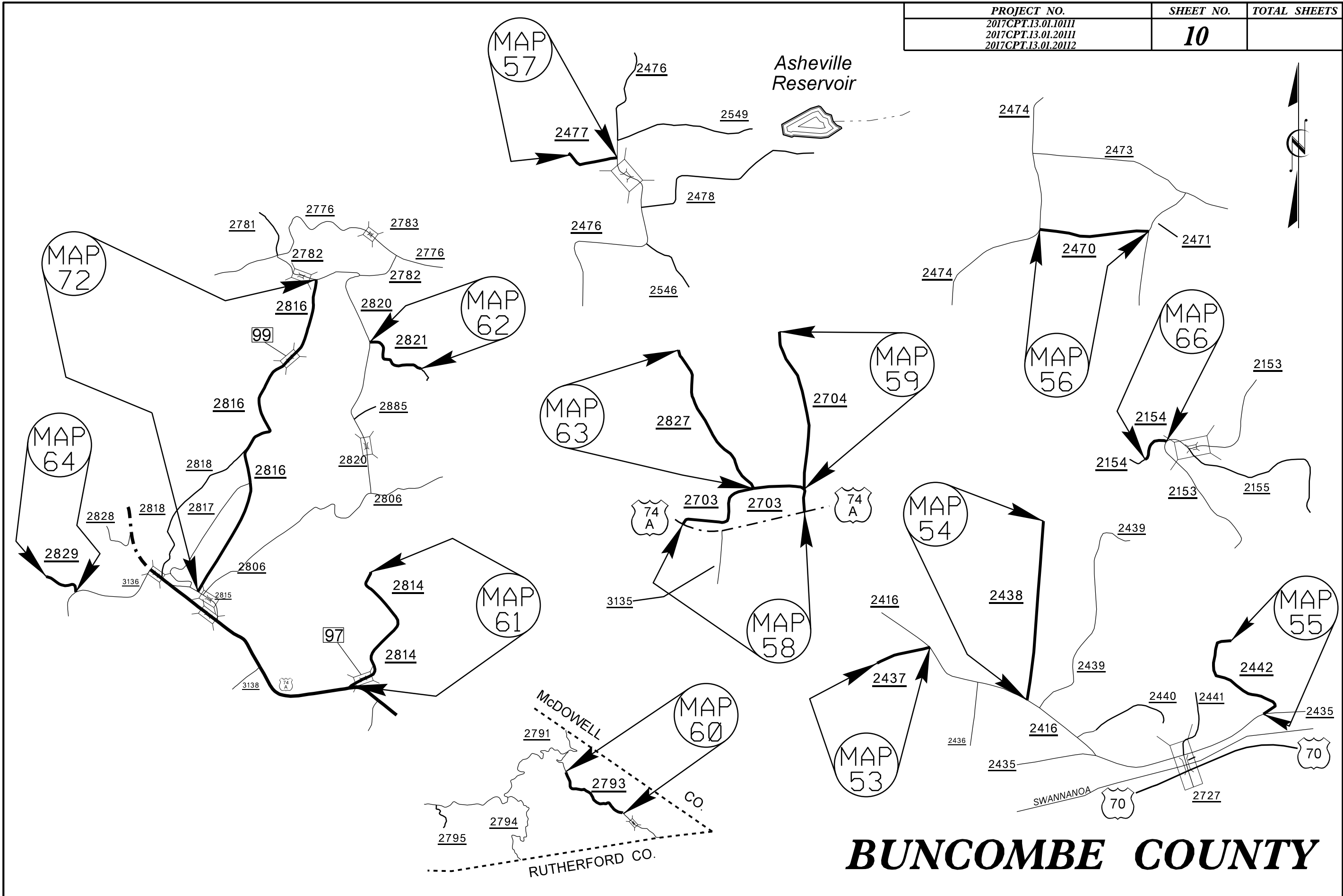
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111 2017CPT.13.01.20111 2017CPT.13.01.20112	9	



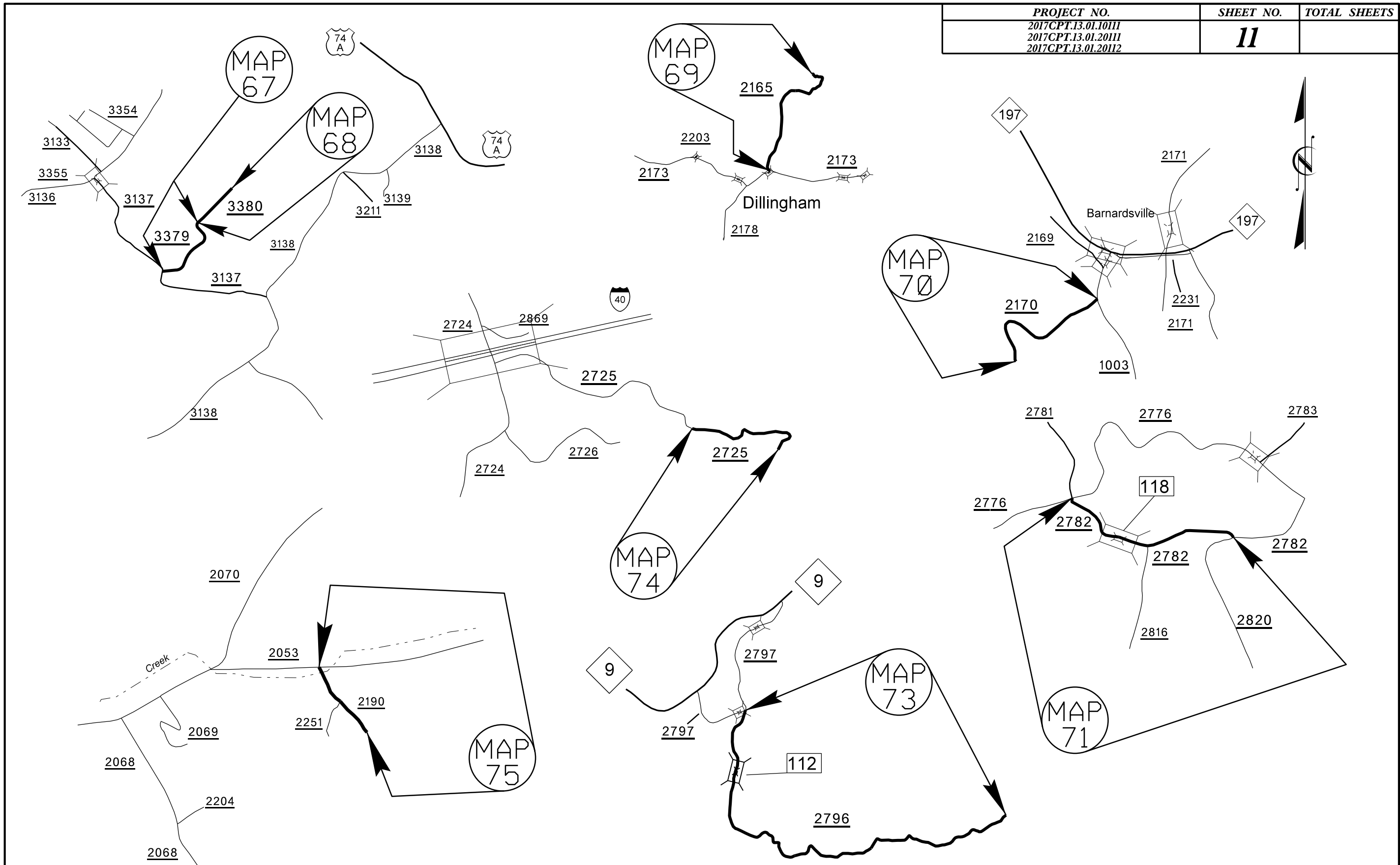
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111 2017CPT.13.01.20111 2017CPT.13.01.20112	10	



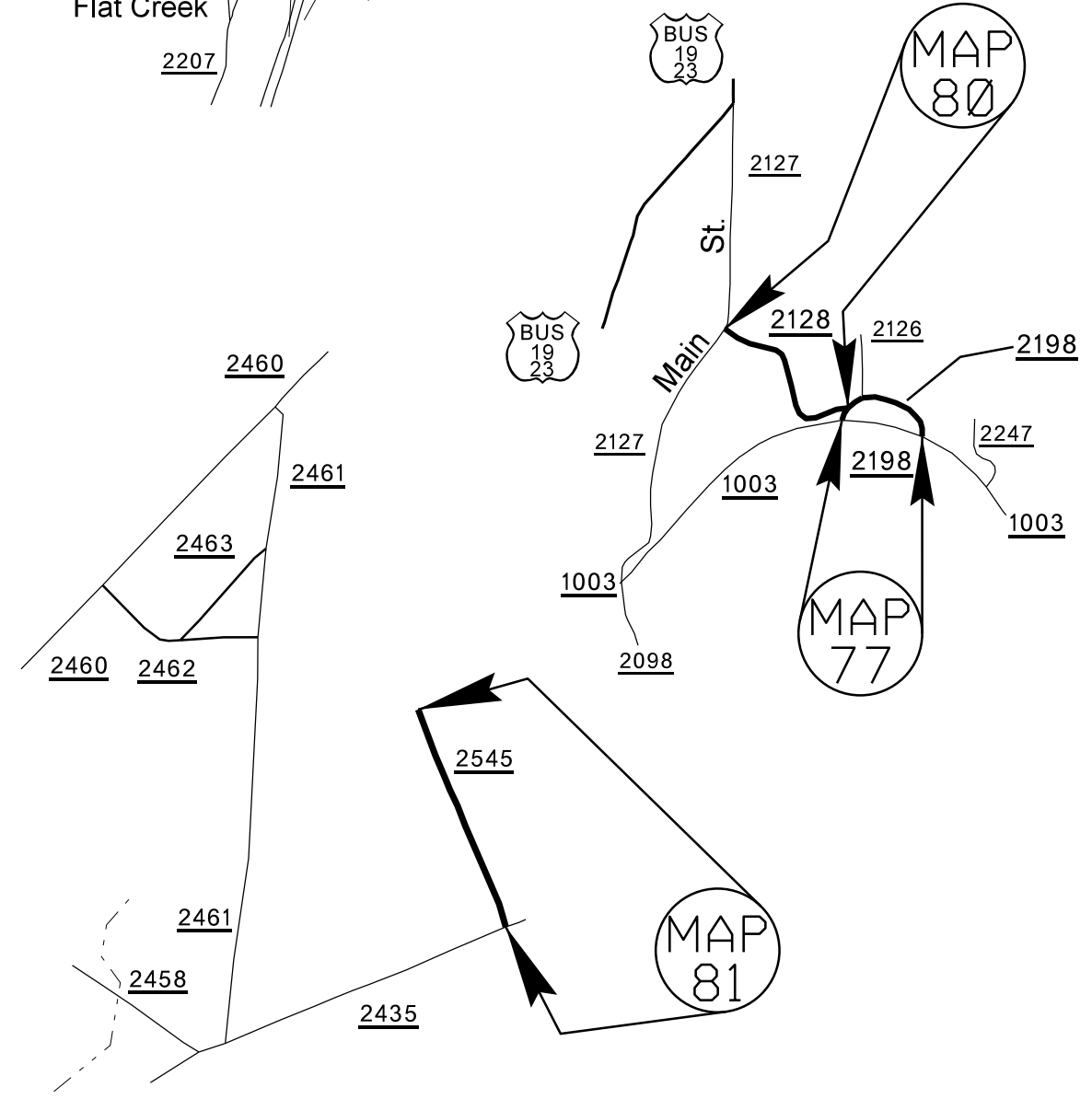
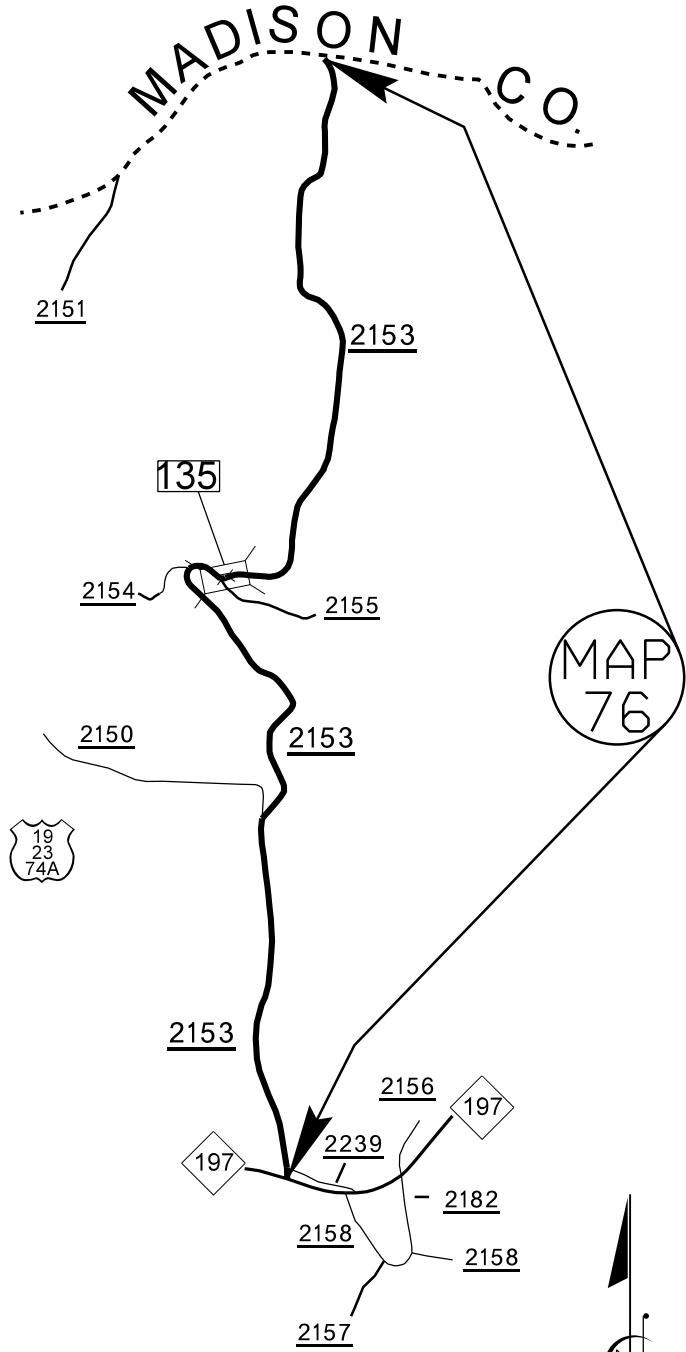
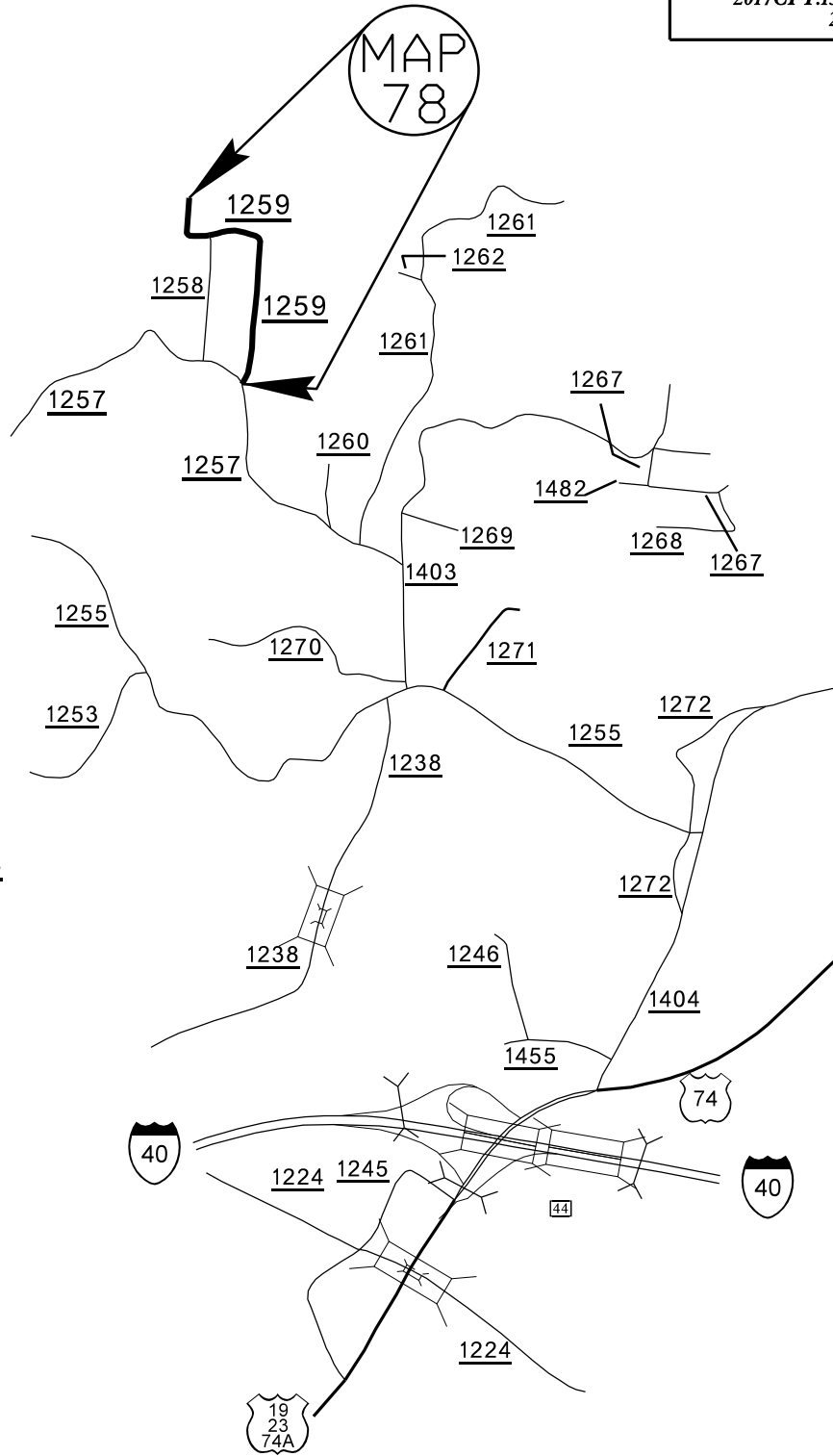
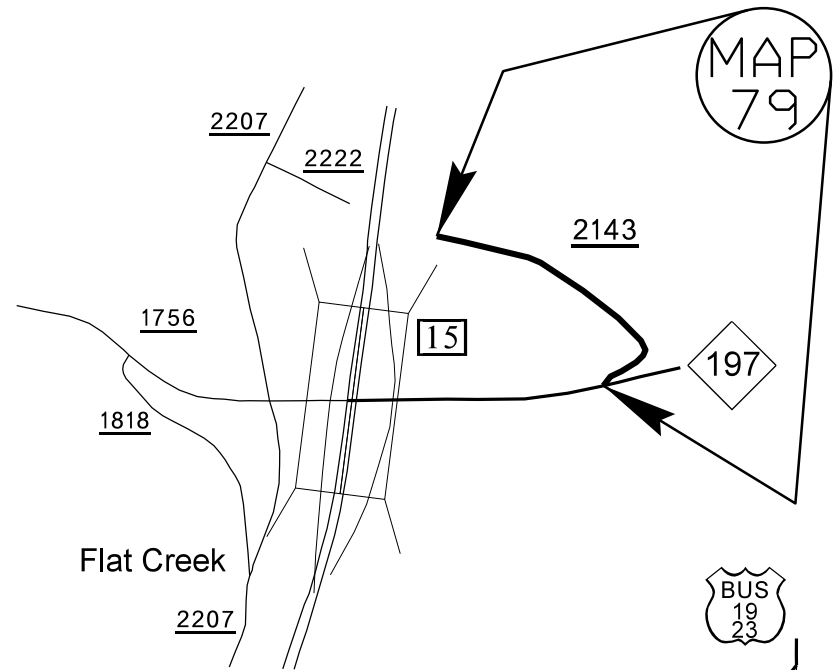
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.1011 2017CPT.13.01.2011 2017CPT.13.01.2012	11	

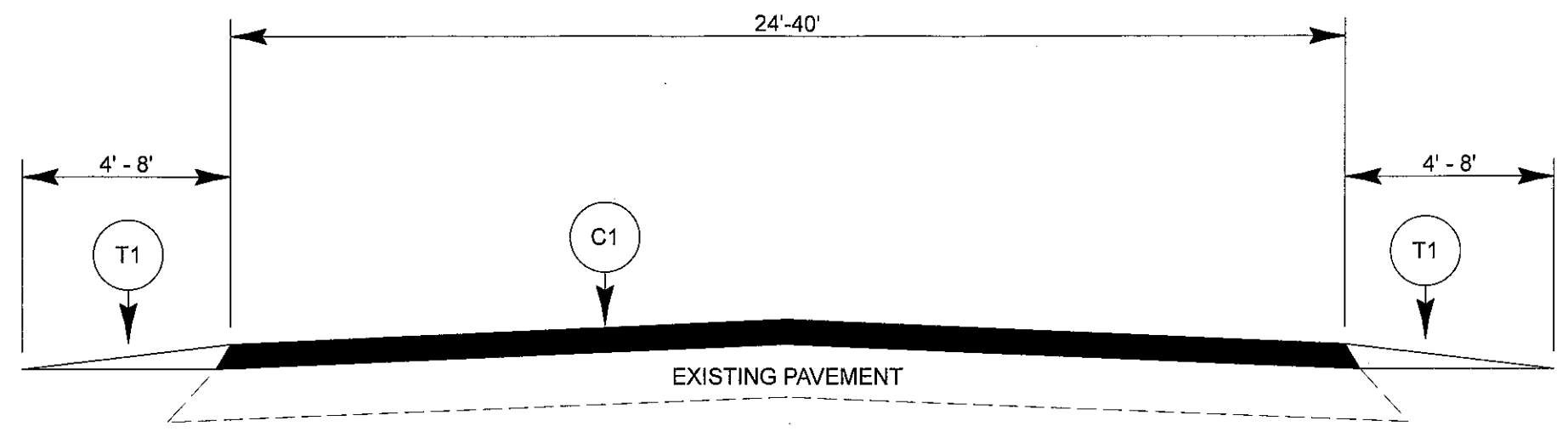


BUNCOMBE COUNTY

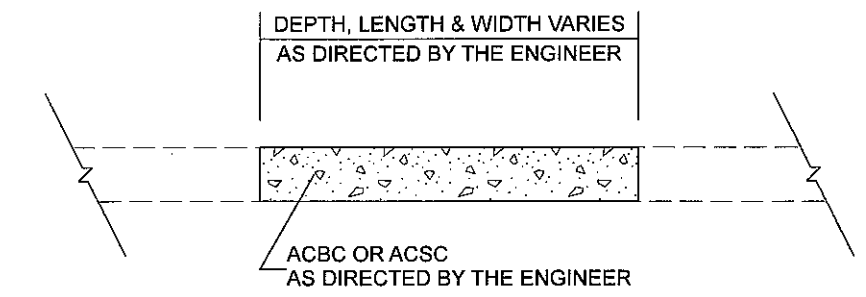
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112	12	



BUNCOMBE COUNTY

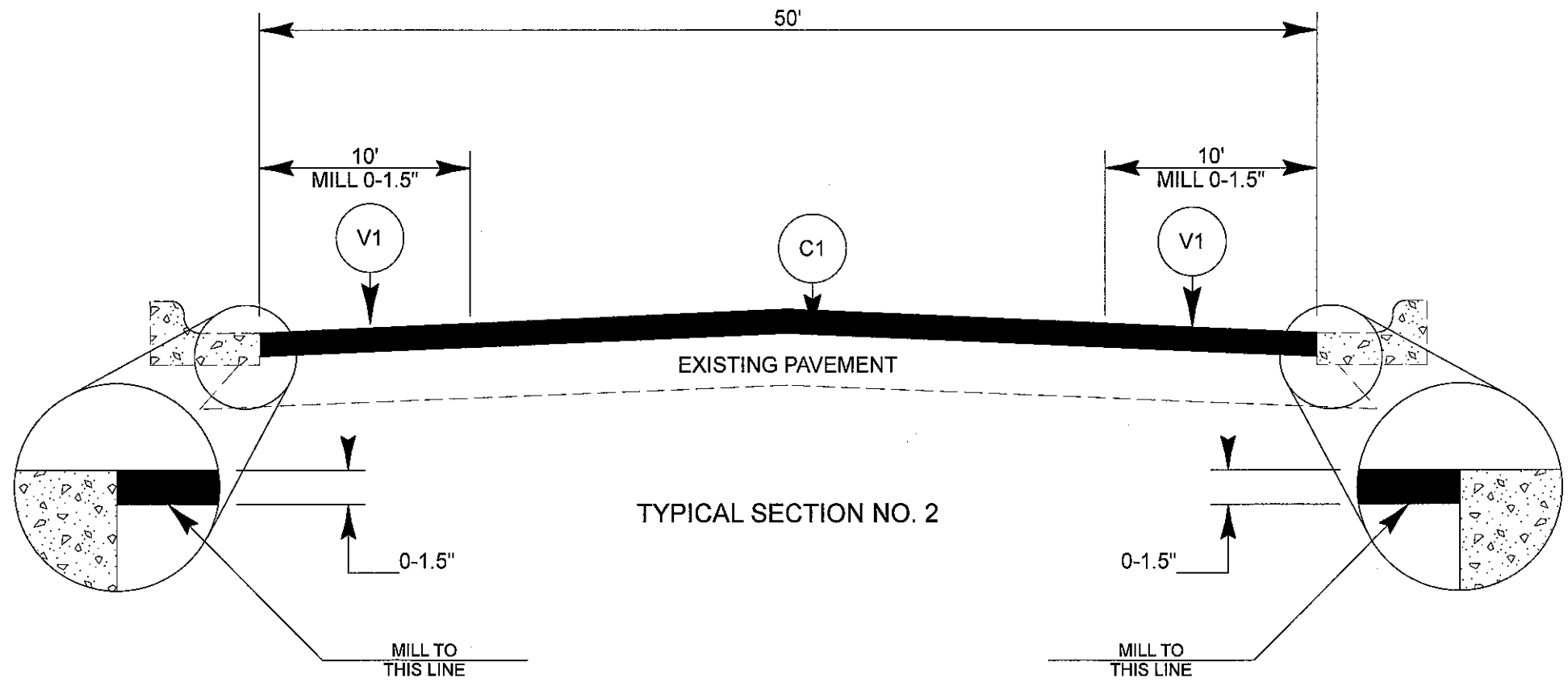


TYPICAL SECTION NO. 1



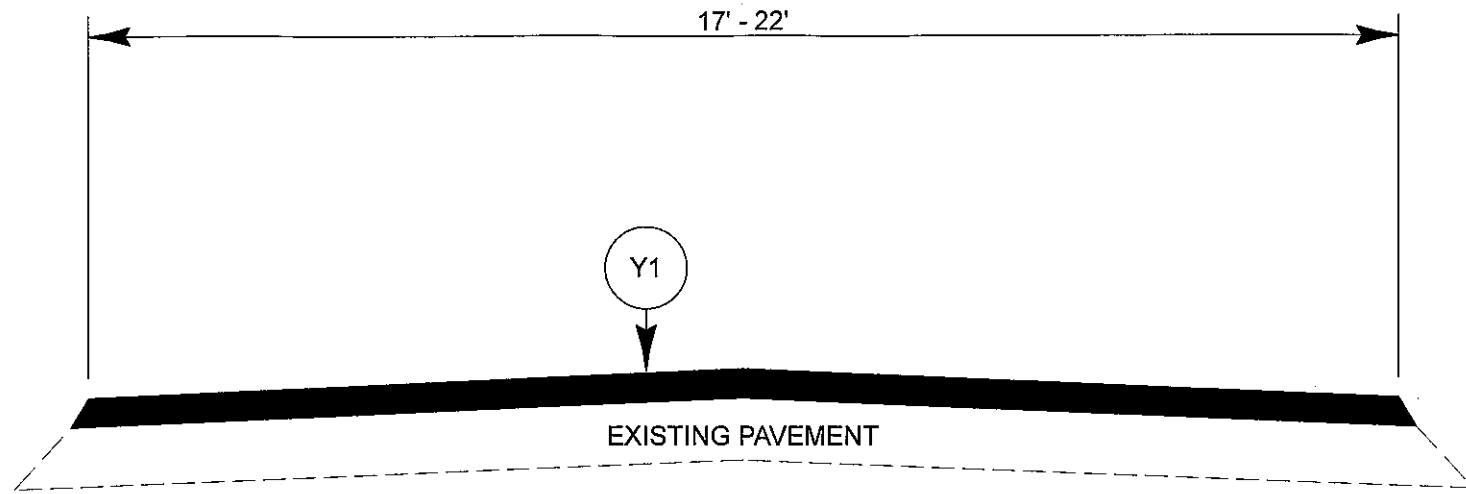
PATCHING EXISTING PAVEMENT

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 S4.75A, AT AN AVERAGE RATE OF 100 LBS. PER SQ. YARD
D1	PROP. APPROX. 2-1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
F1	ASPHALT SURFACE TREATMENT, DOUBLE SEAL
F2	ASPHALT SURFACE TREATMENT, FOG SEAL
T1	SHOULDER RECONSTRUCTION
V1	MILLING ASPHALT PAVEMENT, 0 TO 1-1/2" DEPTH
V2	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH
V3	INCIDENTAL MILLING
Y1	LATEX MODIFIED MICRO-SURFACING, TYPE III

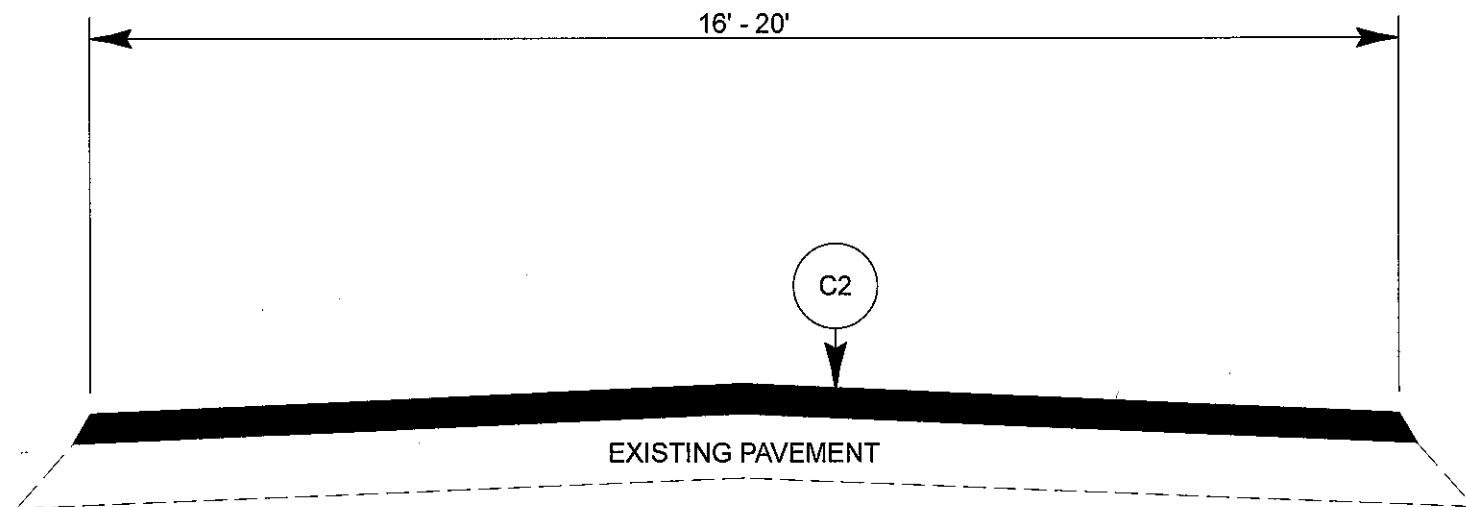


TYPICAL SECTION NO. 2

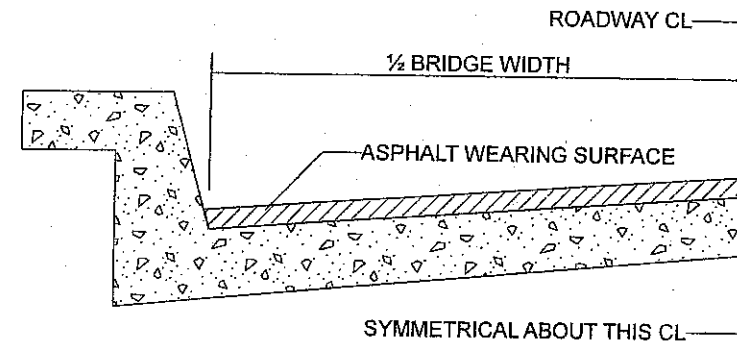
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112,	14	



TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4



BRIDGE HALF TYPICAL SECTION

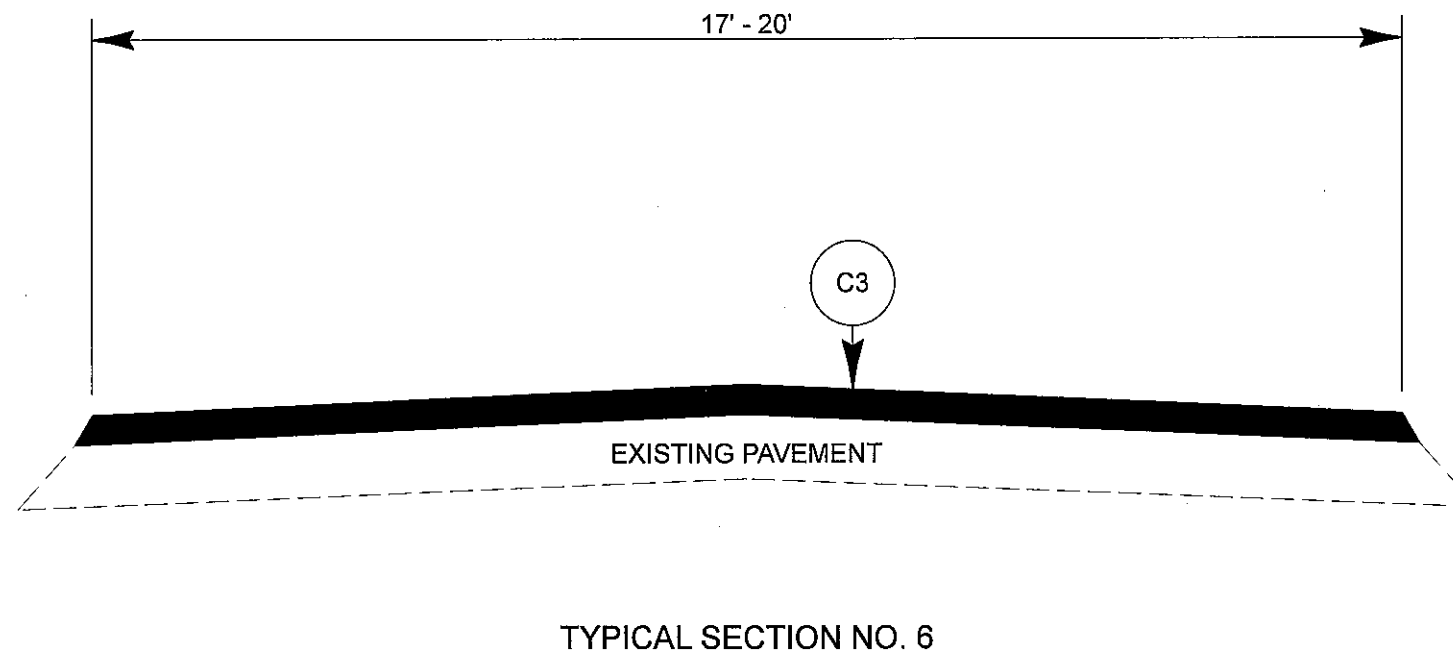
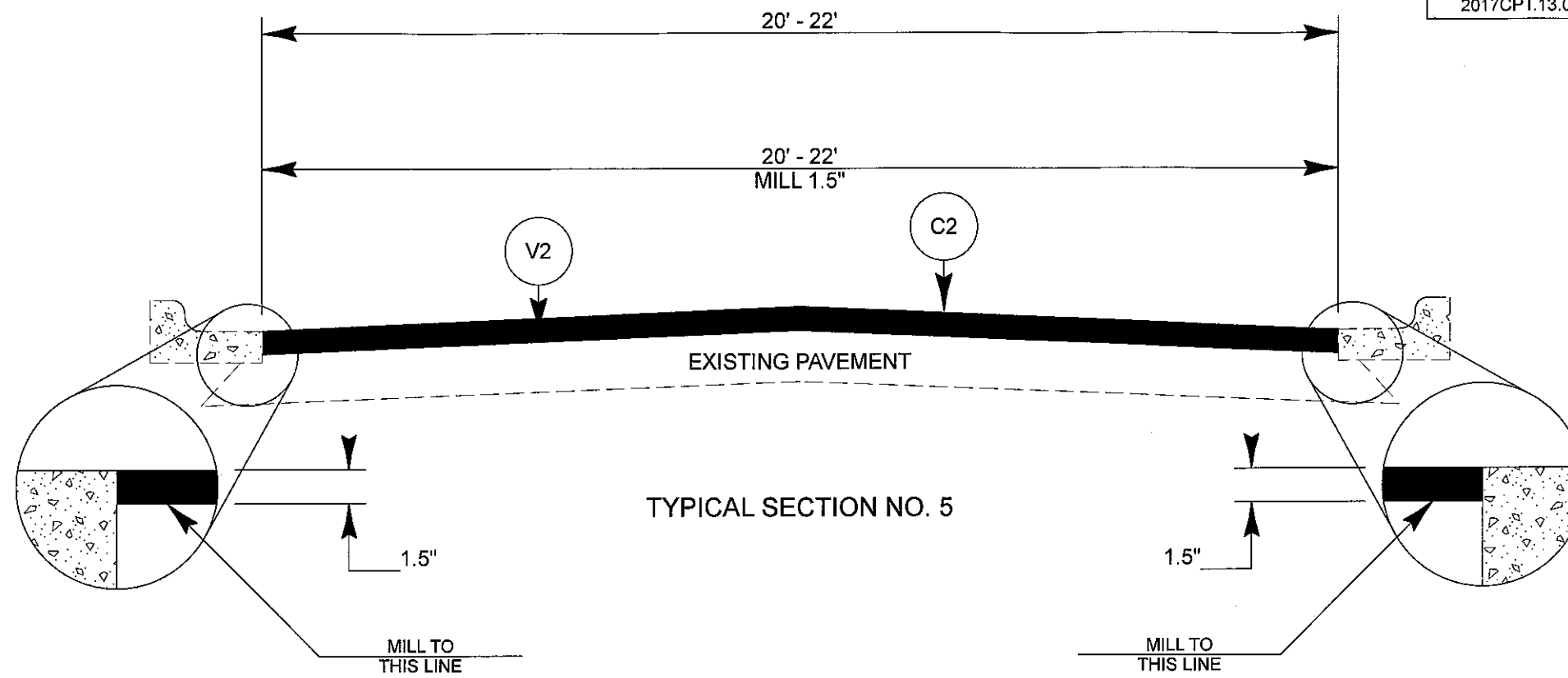
FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN

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 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".

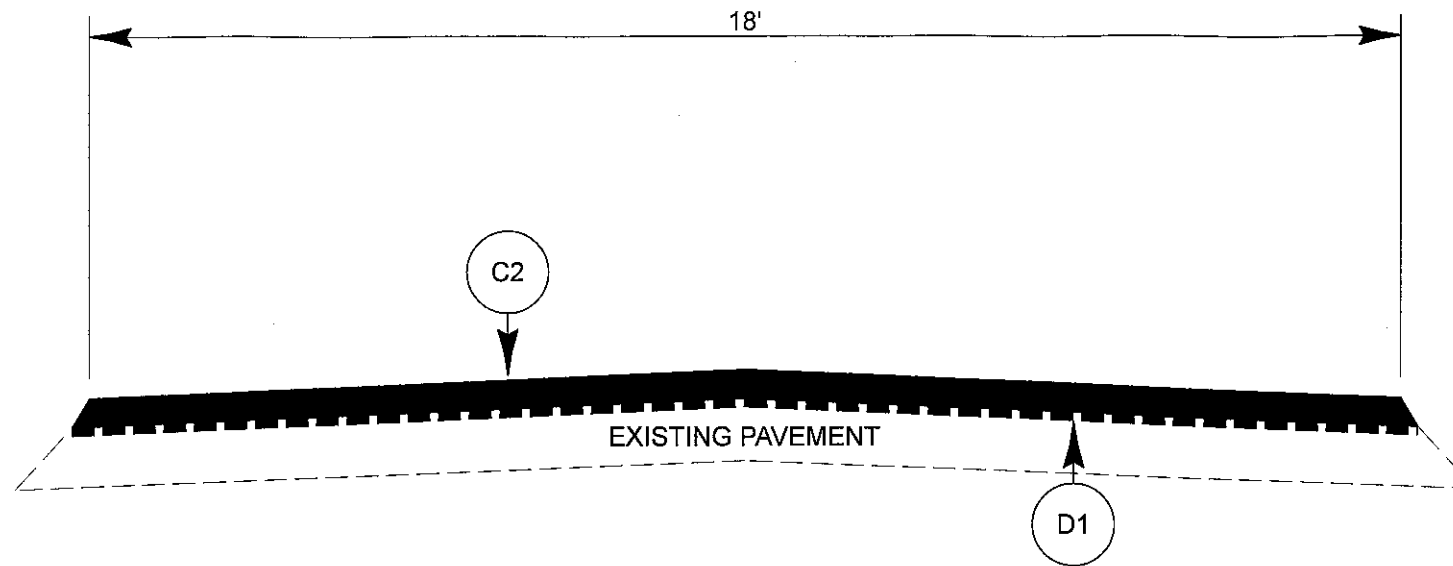
NOTES

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.

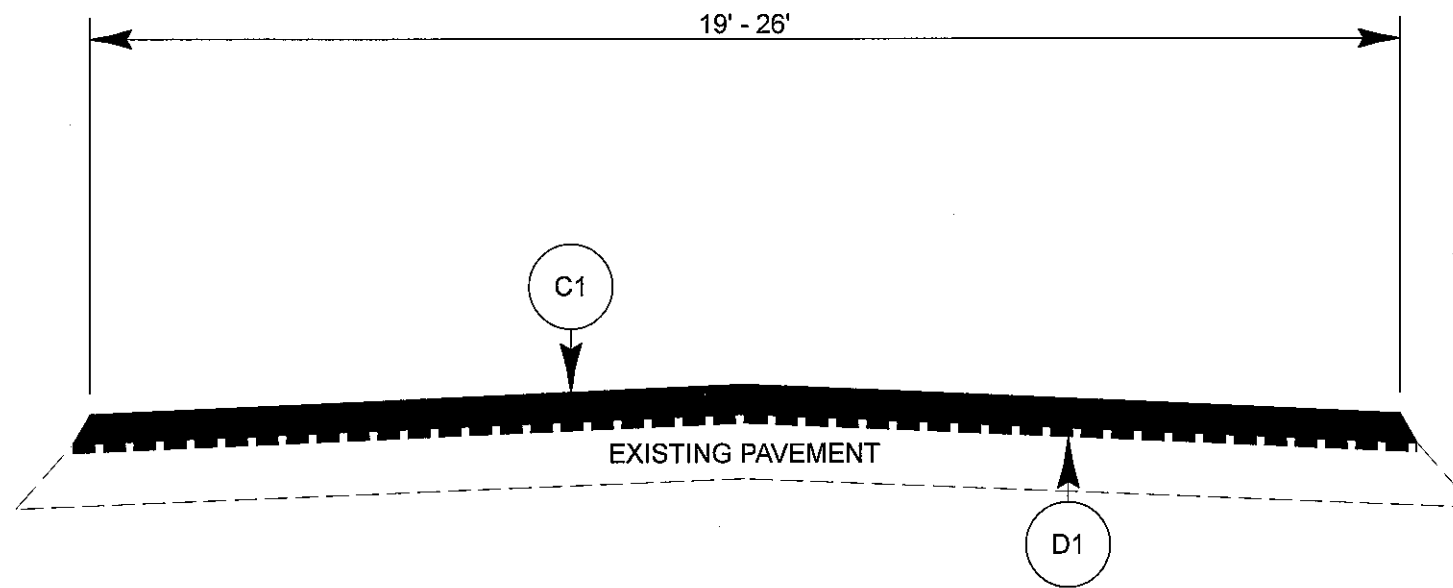
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112,	15	



PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112,	16	

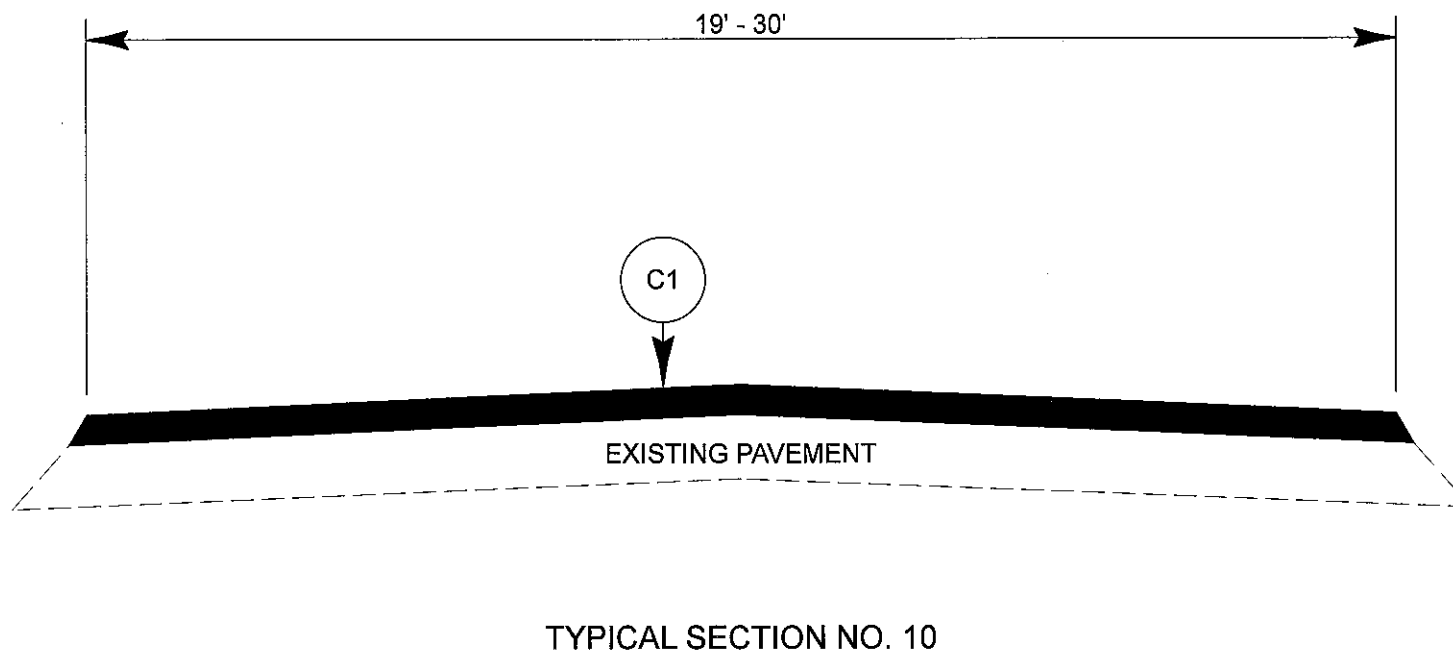
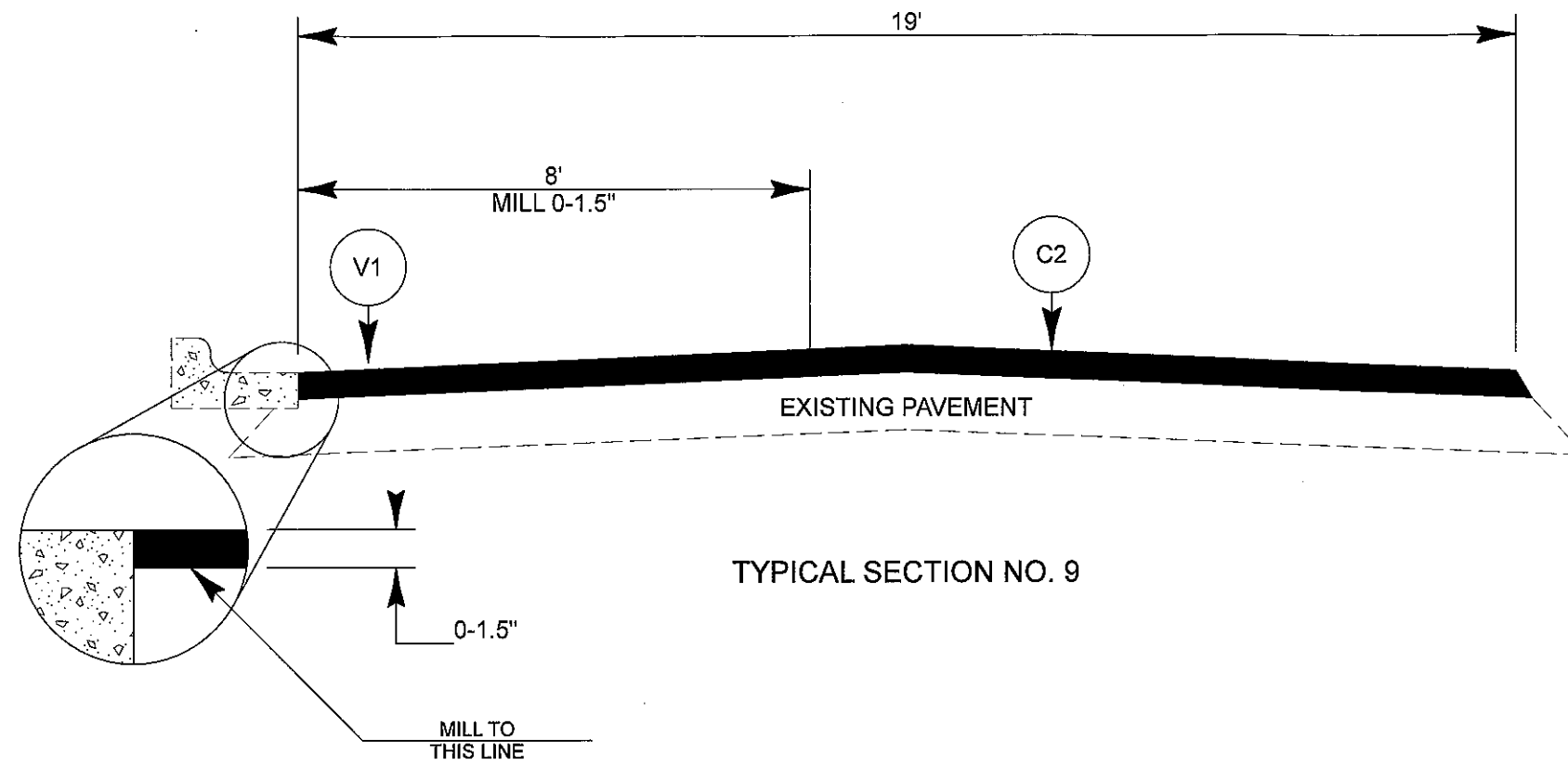


TYPICAL SECTION NO. 7

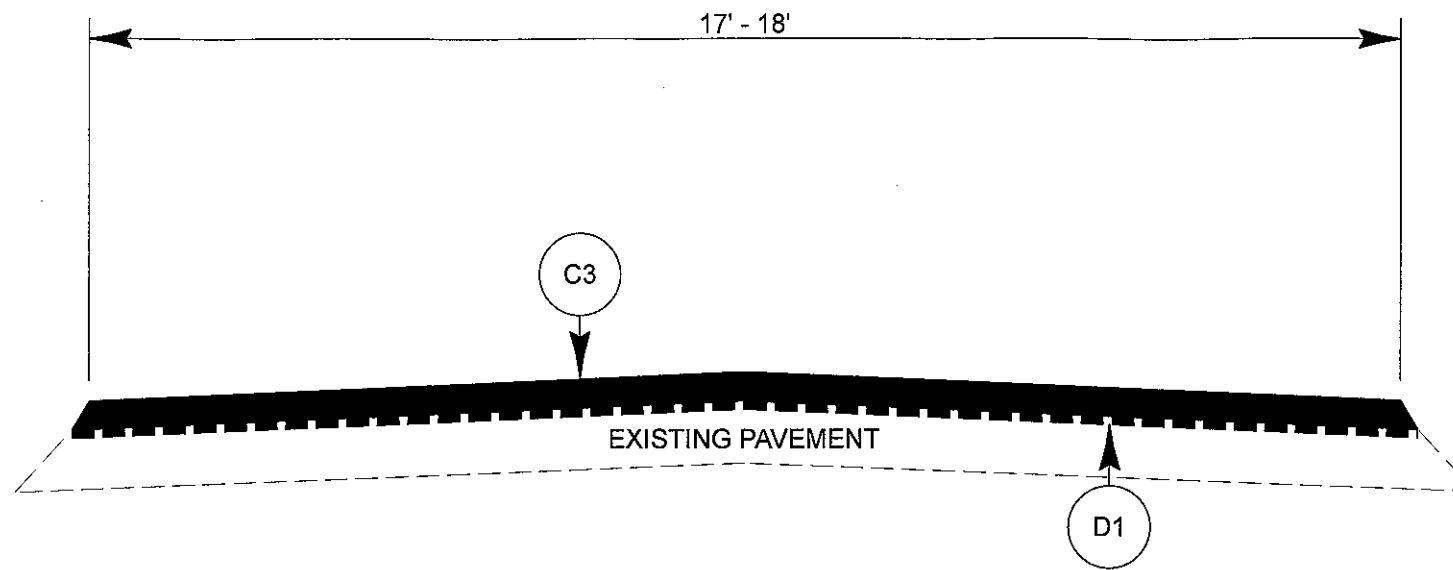


TYPICAL SECTION NO. 8

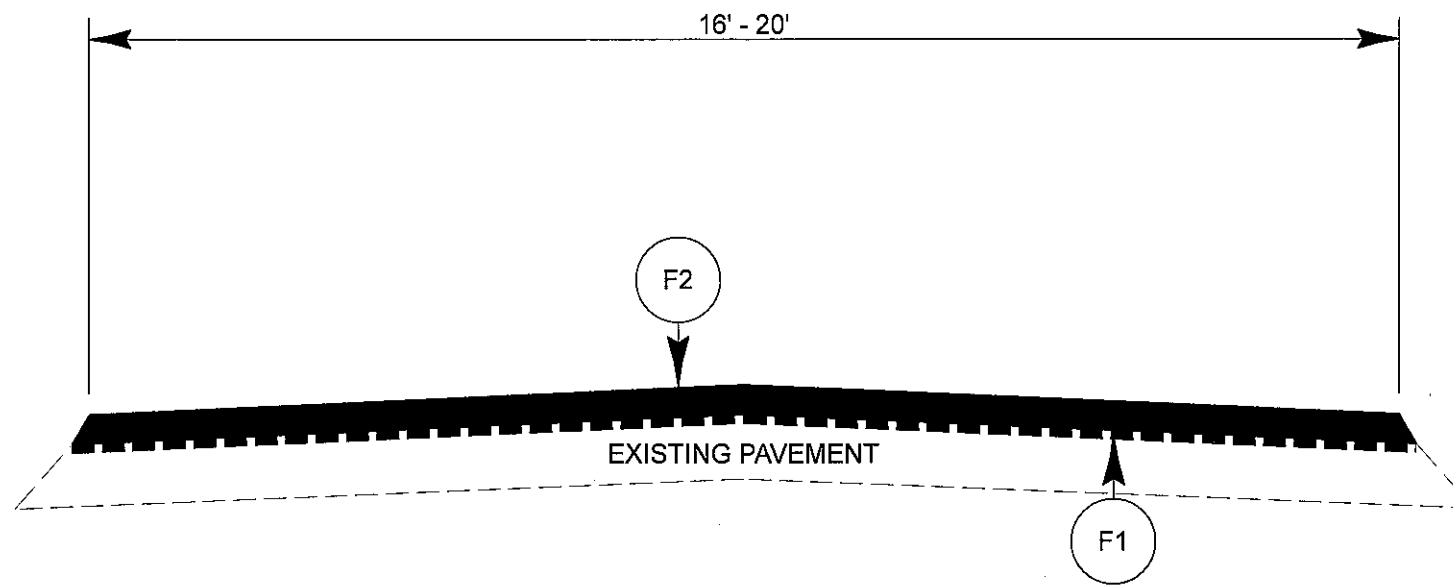
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112,	17	



PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112,	18	

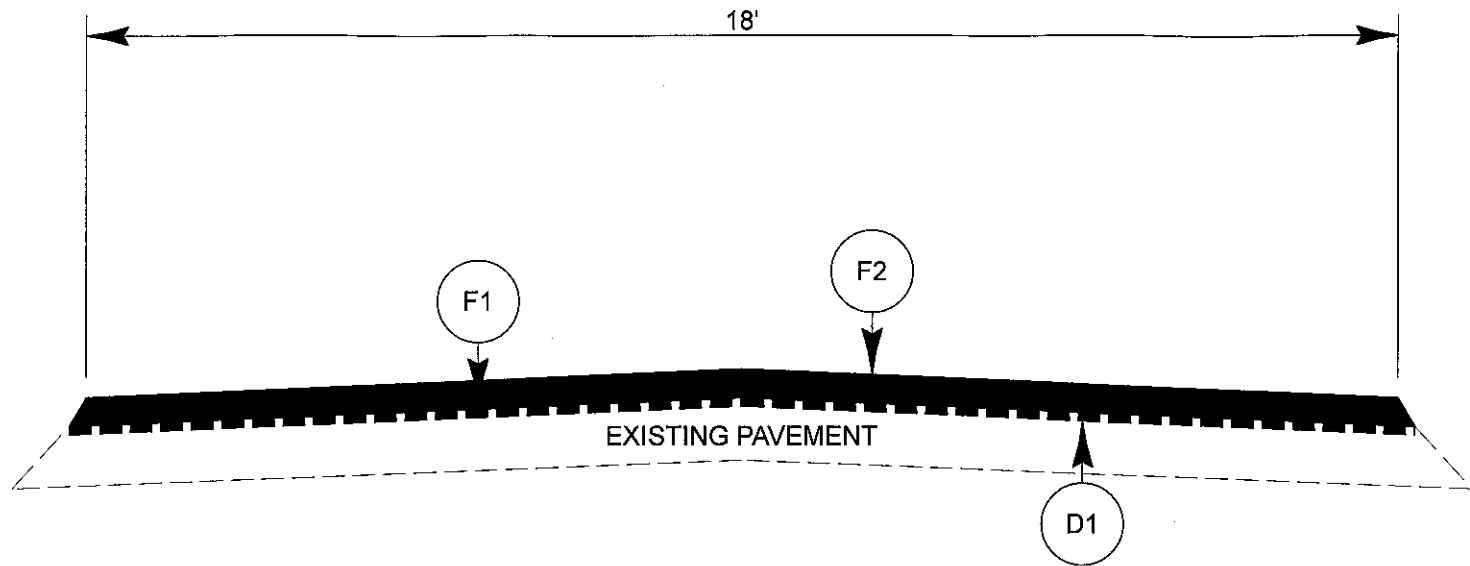


TYPICAL SECTION NO. 11

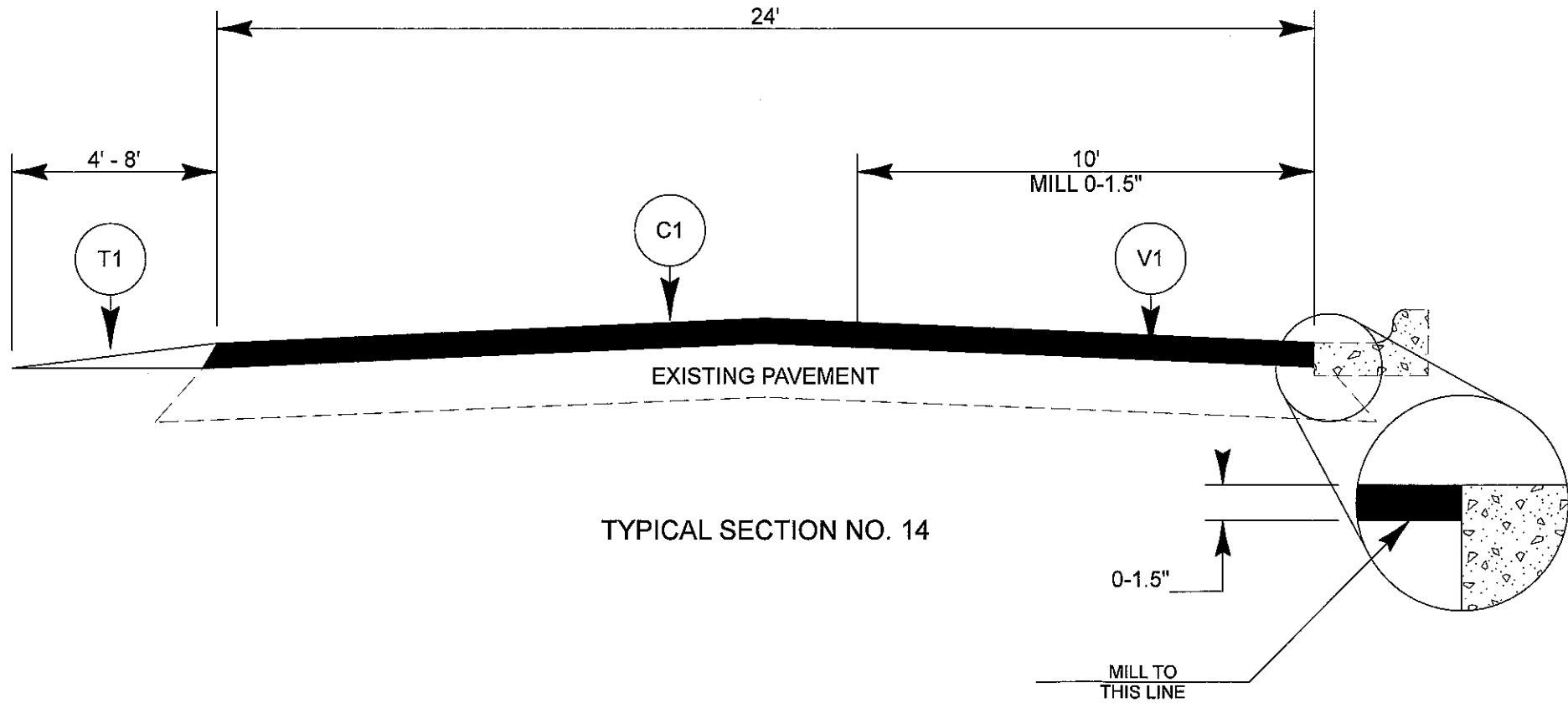


TYPICAL SECTION NO. 12

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112,	19	

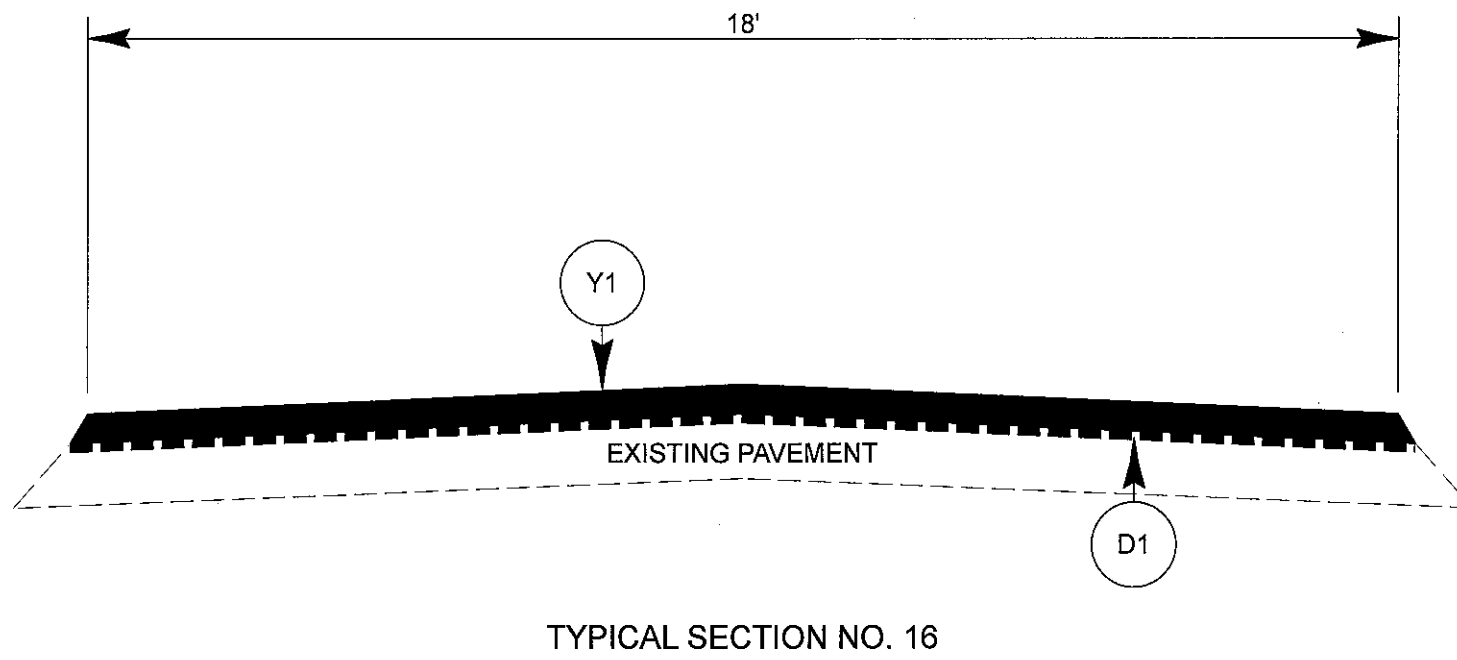
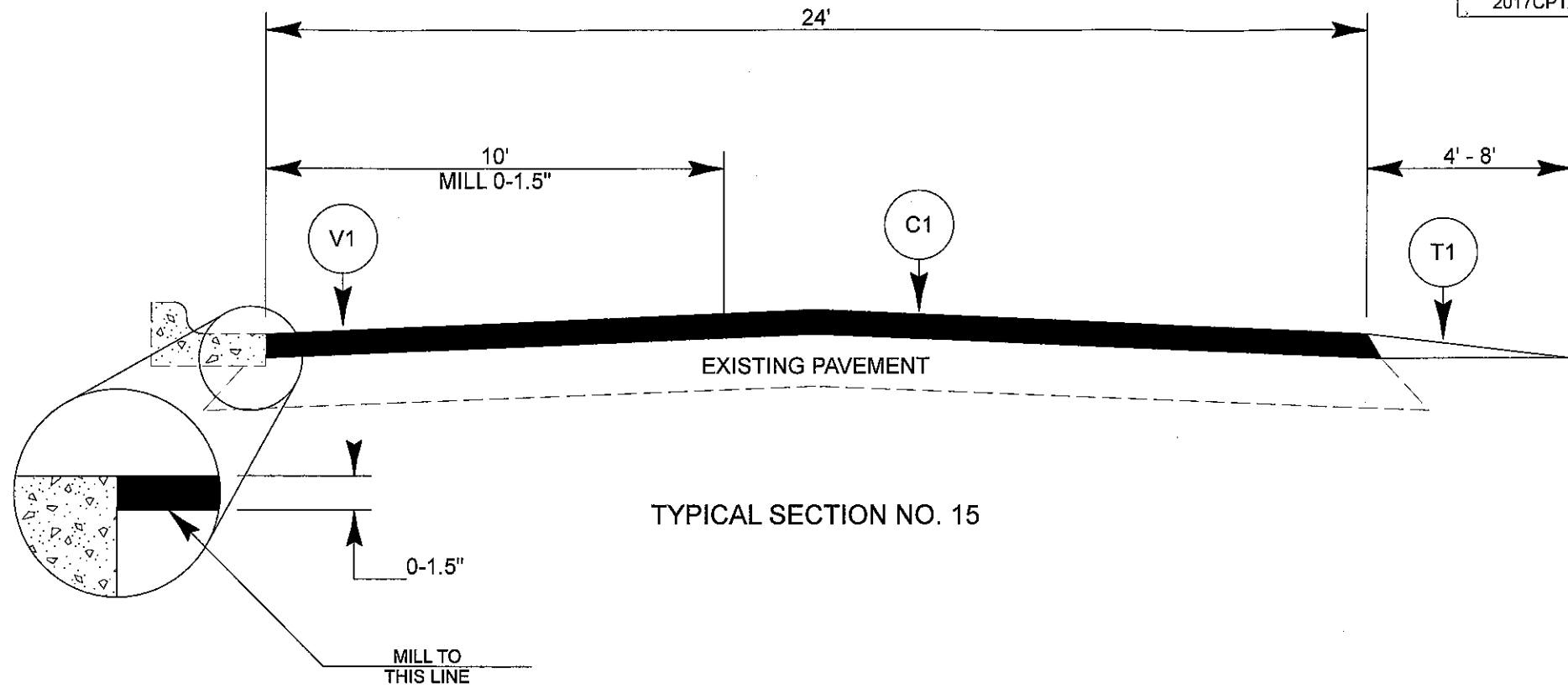


TYPICAL SECTION NO. 13

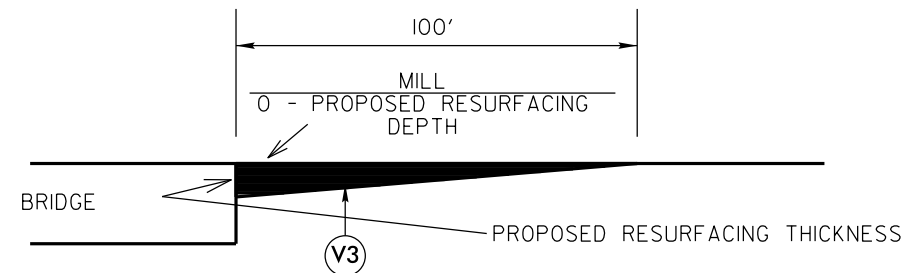


TYPICAL SECTION NO. 14

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112,	20	

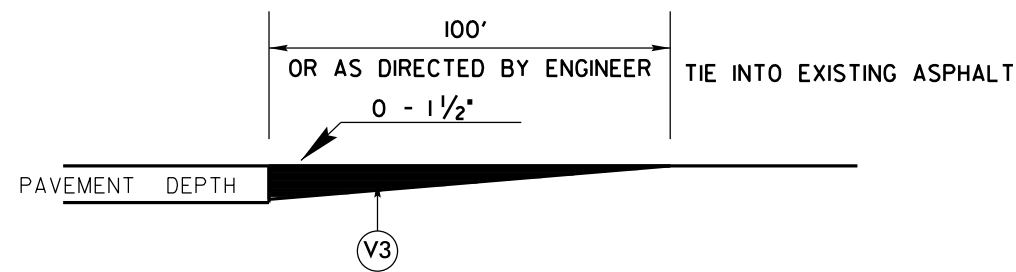


PROJECT NO.	SHEET NO.	TOTAL SHEETS
2017CPT.13.01.10111, 2017CPT.13.01.20111, 2017CPT.13.01.20112	21	



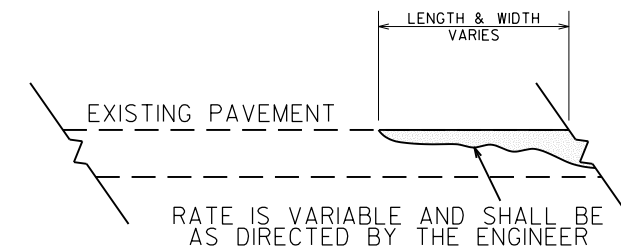
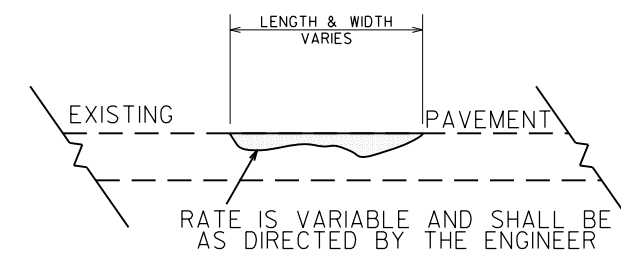
MILLING DETAIL AT BRIDGE APPROACHES

**WHERE BRIDGES WILL NOT BE RESURFACED.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.
USE AT BRIDGE NUMBERS: 170, MAP 2
AND 448, MAP 46.**



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.**



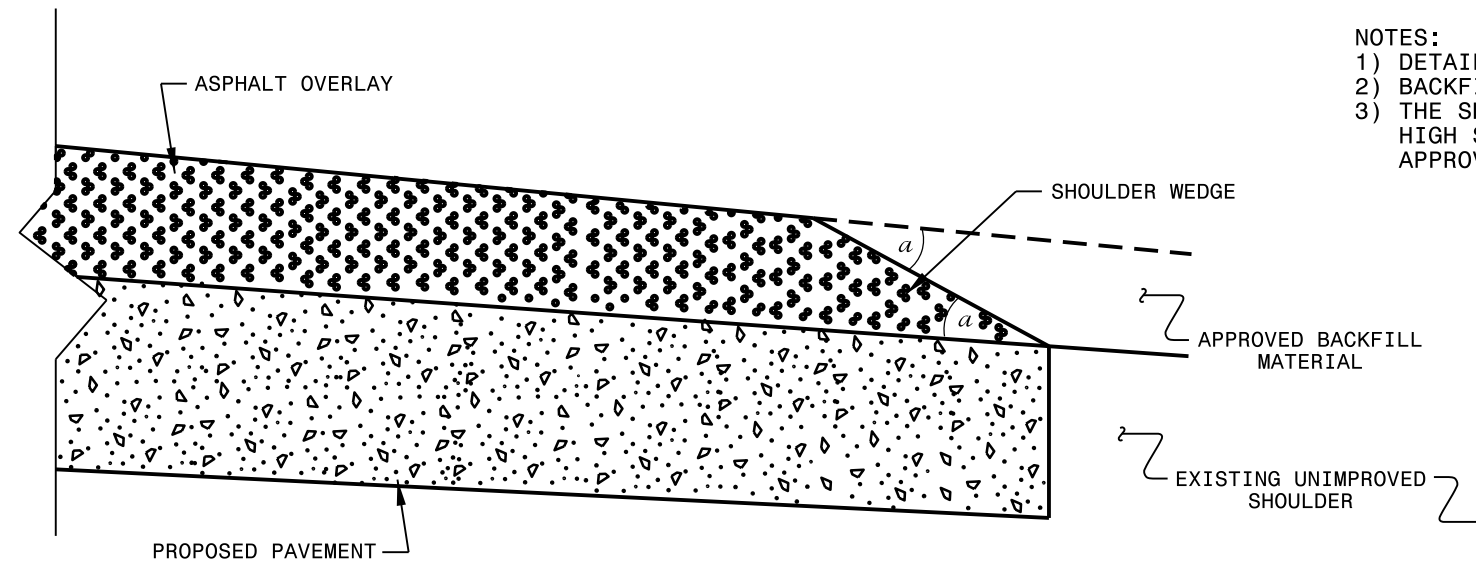
**DETAIL SHOWING
METHOD OF WEDGING**

Note: Shoulder work for typicals 4, 6-13 & 16 will be by state forces.

etc

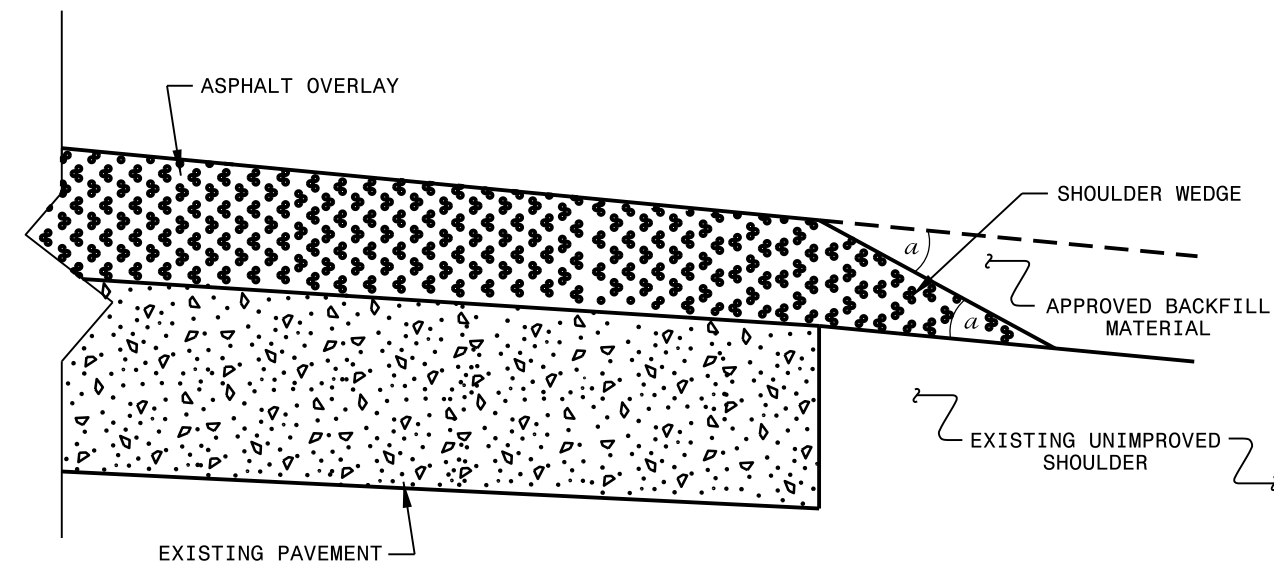
NOTES:

- 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, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



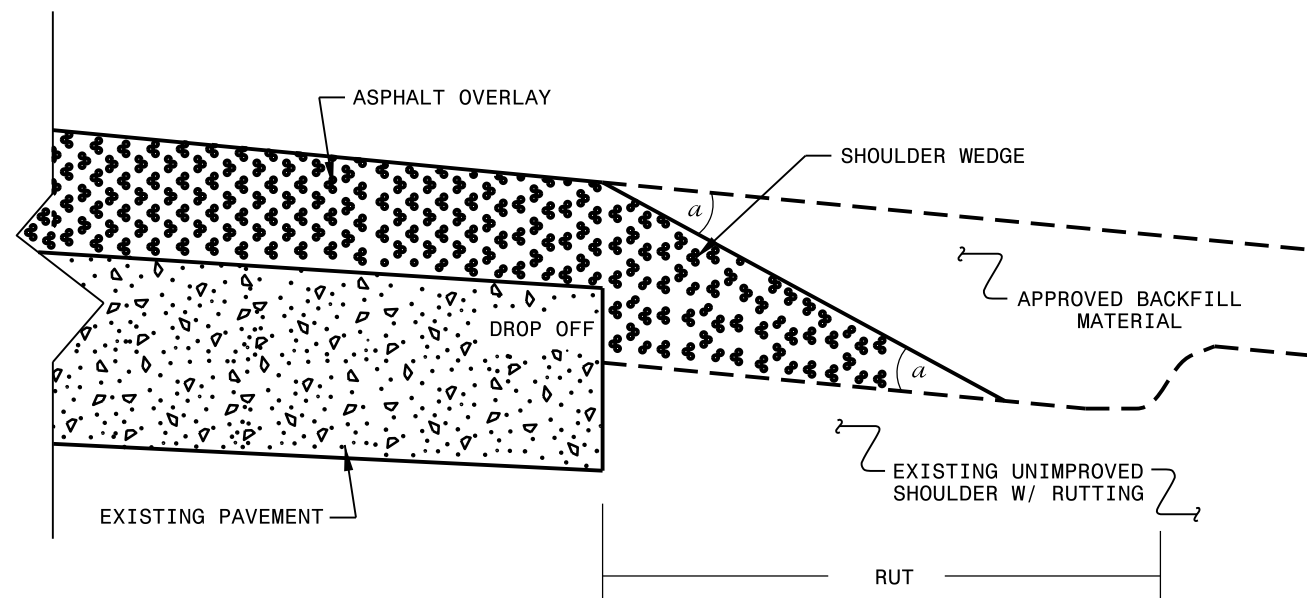
SHOULDER WEDGE DETAIL

(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°

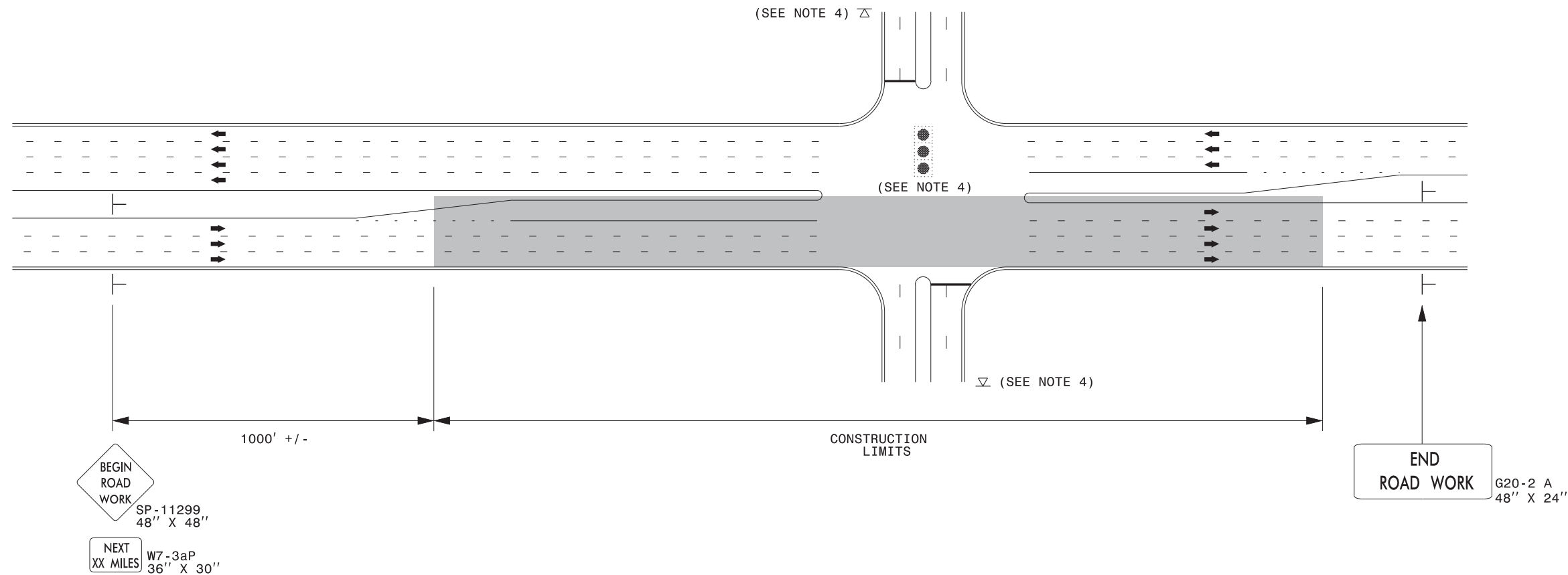
CONTRACT STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950		FAX 919-250-4119	
SHOULDER WEDGE DETAILS			
ORIGINAL BY:	T.SPELL	DATE:	7-19-11
MODIFIED BY:		DATE:	2/2/16
CHECKED BY:		DATE:	
FILE SPEC.:	_szusr/details/stand/shoulderwedgedetail.dgn		

25 MAY 2016 12:42
 C:\Users\TSpell\Documents\Projects\Resurfacing Projects\Division 13\Buncombe July 2016\Revised Shoulder Wedge Detail.dgn
 P:\pcenter\AT\CSD\2016

SUMMARY OF QUANTITIES

PROJ ECT NO	COU NTY	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 RECONSTRU CTION SMI	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH SY	MILLING ASPHALT PAVEMENT, 0" TO 1-1/2" DEPTH SY	INCIDENTAL MILLING SY	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5A TON	ASPHALT CONC SURFACE COURSE, TYPE S4.75A TON	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT TON	ASPHALT SURFACE TREATMENT, DOUBLE SEAL SY	ASPHALT SURFACE TREATMENT, FOG SEAL SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	LATEX MODIFIED MICRO- SURFACING, TYPE III SY	ADJ. OF MAN- HOLES EA	ADJ. OF METER BOXES OR VALVE BOXES EA	INDUCTIVE LOOP SAWCUT LF		
2017CPT.13.01.10111	Burcombe	1	US 19/23/74	FROM HAYWOOD COUNTY LINE TO SR 1132 (MP 0.00 - MP 3.55)	1	3	MU	NO	NO	3.55	40	178	7.10		1,500		7,766			466	70								9		
		2	NC 251	FROM SR 1727 TO SR 1684 (MP 7.65 - MP 3.15)	1,14	2	2WU	NO	NO	4.5	24	225	9.00		360	2,550		5,885			353	70									
		3	NC 251	FROM SR 1684 TO US 19/23/70 (MP 3.15 - MP 0.00)	1,2,15	2	2WU	NO	NO	3.15	24	158	6.30		1,190	1,700		4,526			272	90						3	15	1,000	
		4	US 70	FROM SR 2412 TO SR 2500 (MP 22.19 - MP 27.72)	2	5	MU	NO	NO	5.53	50					65,000	4,000		15,136			908	150					20	20	5,000	
TOTAL FOR PROJ NO. 2017CPT.13.01.10111										16.73			22.40		66,550	9,750		33,313			1,999	380					23	44	6,000		
2017CPT.13.01.20111	Burcombe	5	SR 2489	FROM SR 2474 TO US 70 (MP 0.00 - MP 0.97)	3	2	2WU	NO	NO	0.97	19										10						11,893	24	4		
		6	SR 2495	FROM SR 2500 TO SR 2474 (MP 0.00 - MP 0.90)	4	2	2WU	NO	NO	0.9	18	45						868			58	10							7		
		7	SR 2497	FROM SR 2407 TO CUL-DE-SAC (MP 0.00 - MP 0.11)	5	2	2WU	NO	NO	0.11	22				1,600			130			9	2							3		
		8	SR 2498	FROM SR 2497 TO CUL-DE-SAC (MP 0.00 - MP 0.10)	5	2	2WU	NO	NO	0.1	22				1,600			118			8	2							3		
		9	SR 2565	FROM SR 2435 TO SR 2471 (MP 0.00 - MP 0.28)	3	2	2WU	NO	NO	0.28	21												10					3,795			
		10	SR 2471	FROM SR 2435 TO SR 2565 (MP 0.00 - MP 0.33)	3	2	2WU	NO	NO	0.33	21												6					4,472			
		11	SR 2464	FROM SR 2465 TO SR 2453 (MP 0.00 - MP 0.18)	3	2	2WU	NO	NO	0.18	18												2					2,091	1		
		12	SR 2555	FROM SR 2427 TO CUL-DE-SAC (MP 0.00 - MP 0.39)	5	2	2WU	NO	NO	0.39	20					4,800			418			28	10						7		
		13	SR 2595	FROM SR 2555 TO CUL-DE-SAC (MP 0.00 - MP 0.38)	4	2	2WU	NO	NO	0.38	18	19							367			25	5							2	
		14	SR 2567	FROM SR 2402 TO SR 2402 (MP 0.00 - MP 0.45)	4	2	2WU	NO	NO	0.45	20	23							482			32	5								
		15	SR 2776	FROM SR 2784 TO 1.26 MILES EAST OF SR 2851 (MP 5.54 - MP 9.07)	3	2	2WU	NO	NO	3.53	22												30					50,117			
		16	SR 2791	FROM SR 2794 TO MCDOWELL COUNTY LINE (MP 3.17 - MP 4.97)	10	2	2WU	NO	NO	1.8	20	90				600		1,964				118	28								
		17	SR 2813	FROM US 74 ALT TO SR 2811 (MP 0.00 - MP 0.36)	3	2	2WU	NO	NO	0.36	17												4					3,949			
		18	SR 2740	FROM SR 2843 TO SR 2843 (MP 0.48 - MP 1.50)	3	2	2WU	NO	NO	1.02	18												12					11,848			
		19	SR 2749	FROM SR 2843 TO PVMIT CHANGE (MP 0.00 - MP 1.47)	3	2	2WU	NO	NO	1.47	18												15					17,076			
		20	SR 2843	FROM SR 2749 TO SR 2740 (MP 0.40 - MP 2.15)	3	2	2WU	NO	NO	1.75	20												18					22,587			
		21	SR 2049	FROM NC 694 TO EOP (MP 0.00 - MP 0.28)	4	2	2WU	NO	NO	0.28	17	14							255			17	10							6	
		22	SR 2053	FROM SR 2070 TO EOP (MP 1.96 - MP 2.87)	3	2	2WU	NO	NO	0.91	18												10					10,571			
		23	SR 2070	FROM SR 2053 TO EOP (MP 0.00 - MP 1.08)	3	2	2WU	NO	NO	1.08	17												20					11,848			
		24	SR 2068	FROM SR 2053 TO EOP (MP 0.00 - MP 0.50)	4	2	2WU	NO	NO	0.5	16	25							429			29	20						2		
		25	SR 2069	FROM SR 2053 TO EOM (MP 0.00 - MP 0.29)	6	2	2WU	NO	NO	0.29	20										197	13	10								
		26	SR 2088	FROM US 19/23 BUS TO EOM (MP 0.00 - MP 0.77)	4	2	2WU	NO	NO	0.77	19	39							784			53	15						3		
		27	SR 2089	FROM SR 2088 TO EOP (MP 0.00 - MP 0.06)	4	2	2WU	NO	NO	0.06	18	3							58			4	2								
		28	SR 2094	FROM US 19/23 BUS TO SR 2098 (MP 0.00 - MP 1.30)	4	2	2WU	NO	NO	1.3	18	65								1,254			84	18							
		29	SR 2095	FROM SR 2094 TO EOM (MP 0.00 - MP 0.30)	3	2	2WU	NO	NO	0.3	18												5					3,485			
		30	SR 2098	FROM SR 2102 TO EOP (MP 1.58 - MP 2.92)	4,7	2	2WU	NO	NO	1.34	18	67				400	300		1,293			101	40								
		31	SR 2100	FROM SR 2098 TO EOP (MP 0.00 - MP 0.10)	3	2	2WU	NO	NO	0.1	18												17					1,162		2	
		32	SR 2103	FROM SR 1003 TO EOM (MP 0.00 - MP 1.96)	4	2	2WU	NO	NO	1.96	18	98								1,891			127	20							
		33	SR 2115	FROM SR 1003 TO EOP (MP 0.00 - MP 1.77)	4	2	2WU	NO	NO	1.77	18	89								1,708			114	20							
		34	SR 2148	FROM SR 2207 TO NC 197 (MP 0.00 - MP 1.88)	4	2	2WU	NO	NO	1.88	20	94								2,014			135	19							
		35	SR 2134	FROM SR 2207 TO SR 2207 (MP 0.00 - MP 1.15)	4	2	2WU	NO	NO	1.15	20	57								1,232			83	15							
		36	SR 2137	FROM SR 2134 TO SR 2142 (MP 0.00 - MP 2.21)	4	2	2WU	NO	NO	2.21	20	111								2,368			159	30							
		37	SR 2142	FROM SR 2137 TO EOM (MP 0.00 - 0.21)	4	2	2WU	NO	NO	0.21	20	11								225			15	6							

URBAN / SUBURBAN WORKZONES



NOTES:

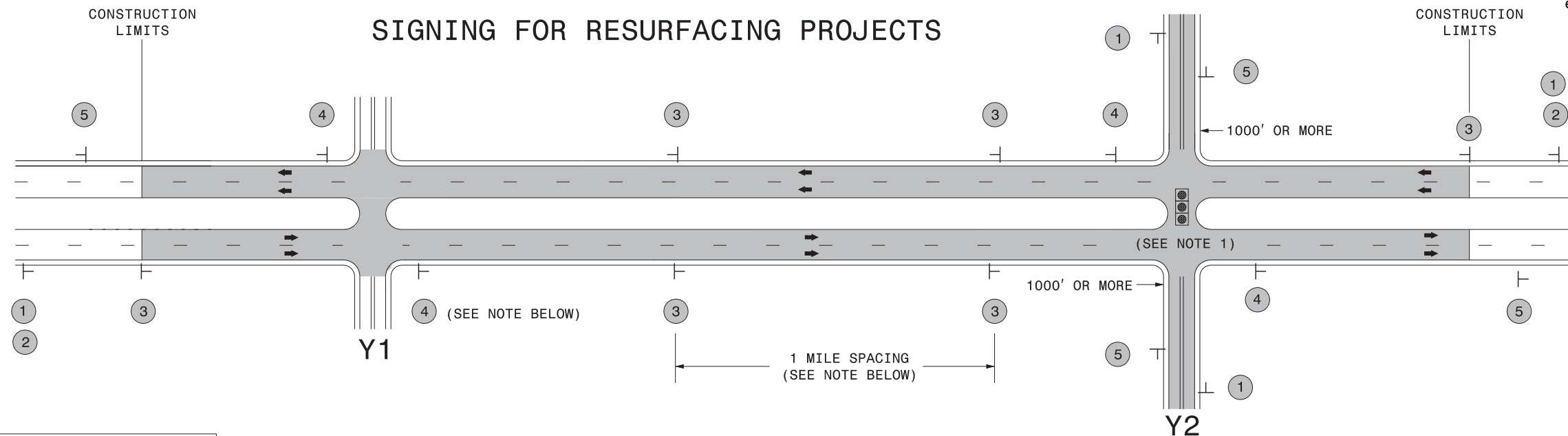
- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. 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**



LEGEND
 ┆ STATIONARY SIGN
 ← DIRECTION OF TRAFFIC FLOW

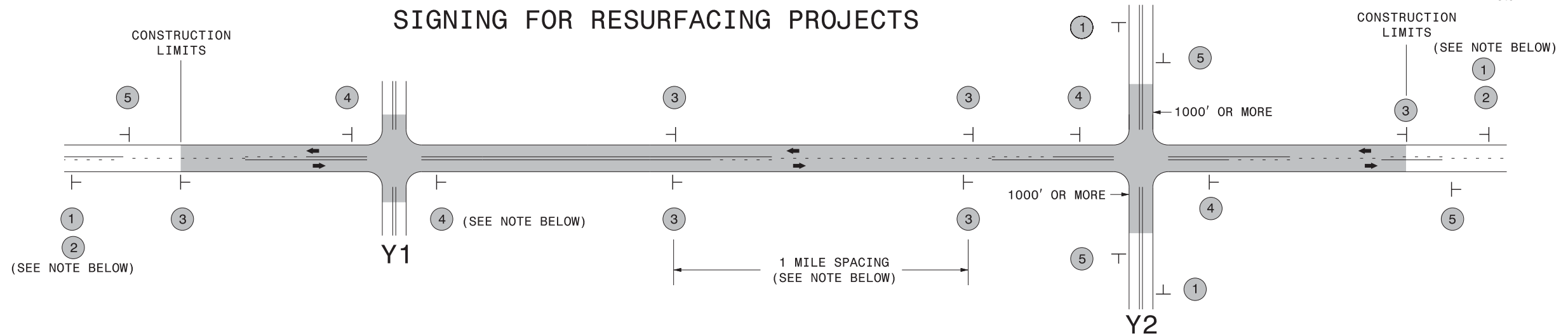
MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	 	<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>	<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;"> <small>W20-1 48" X 48"</small> <small>W20-7 A 48" X 48"</small> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p> <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.
		<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>	
		<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>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>	

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

SIGNING FOR RESURFACING PROJECTS



LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

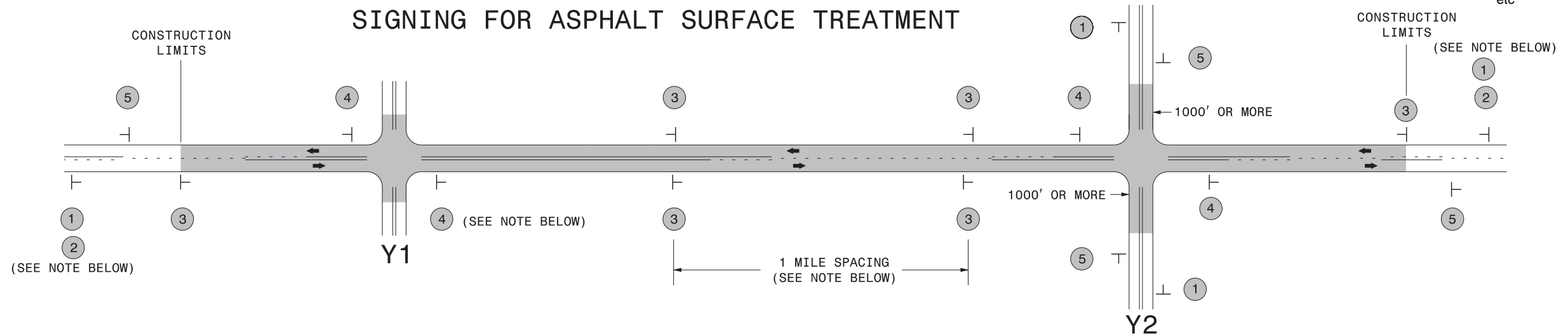
-Y- LINE SIGNING

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.		

3/19/2015
 C:\Users\rmgarrett\Downloads\Resurfacing_AdvWarn.2Ln (2).dgn
 User:rmgarrett

**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 2	 W20-1 48" X 48" W7-3aP 24" X 18"	<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>
3	 W8-7 48" X 48" SP 48" X 48"	<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	 SP 13106 48" X 48"	<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	 G20-2 A 48" X 24"	<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

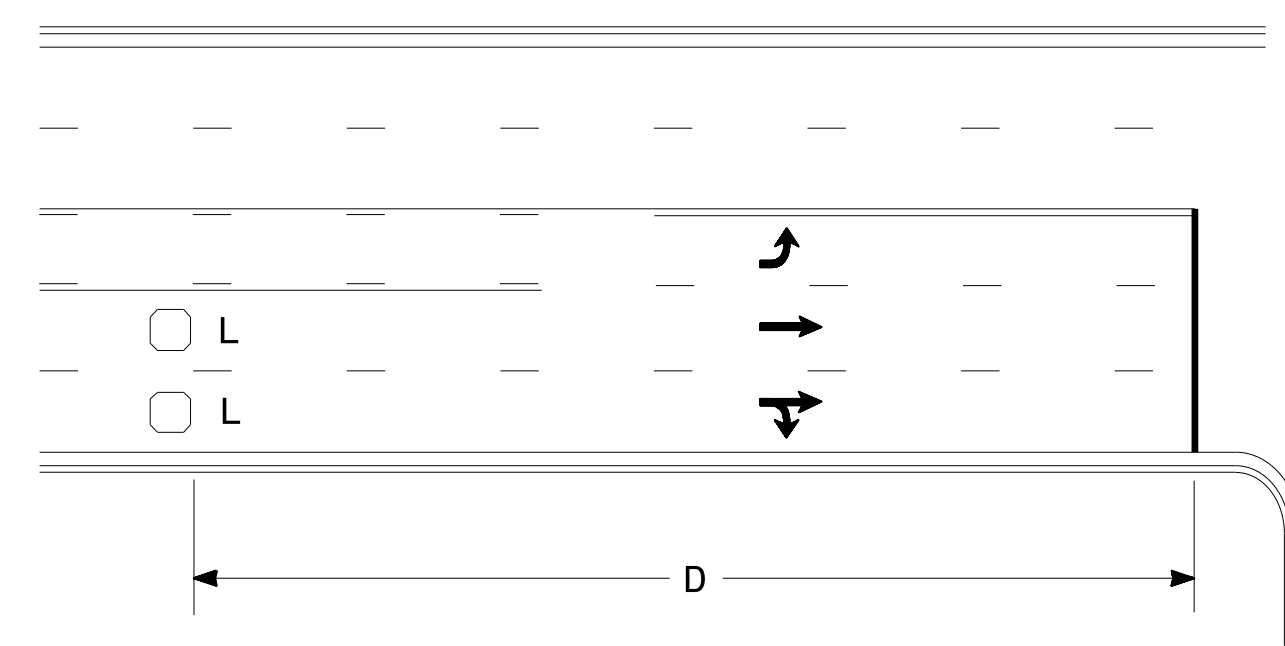
WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.



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

**ADVANCE WARNING SIGNS
FOR
ASPHALT SURFACE TREATMENTS
2 LANE ROADWAYS**

High Speed Detection (≥40 mph)

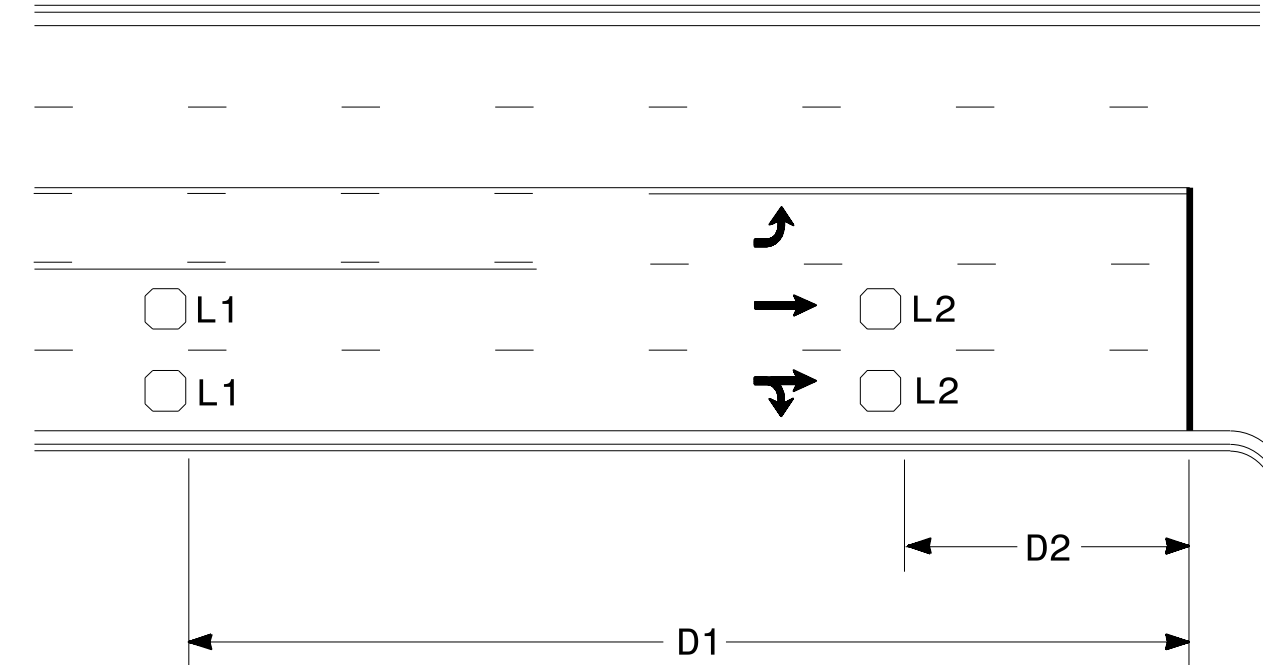


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

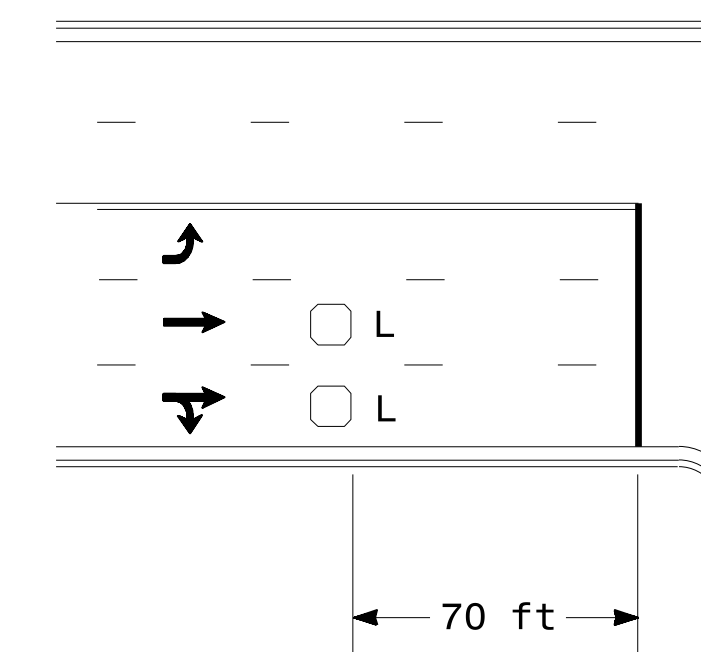


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

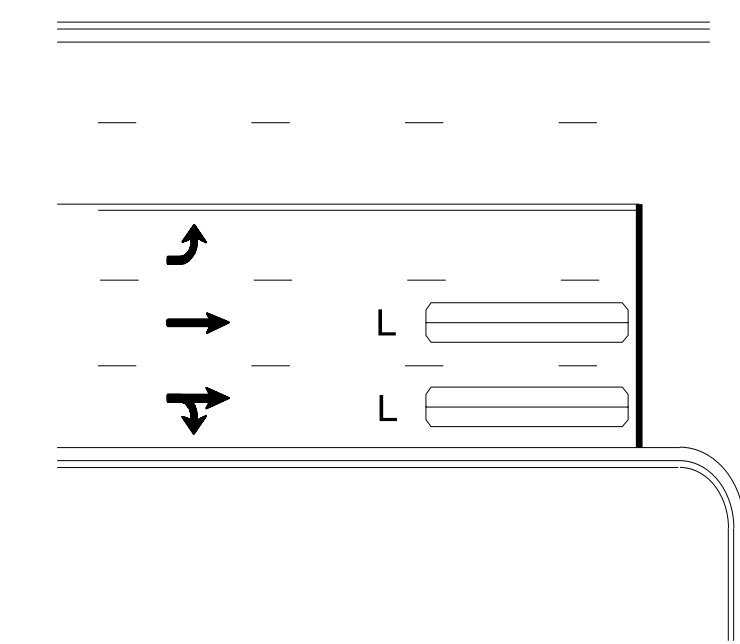
"Stretch" Operation

Low Speed Detection (≤35 mph)



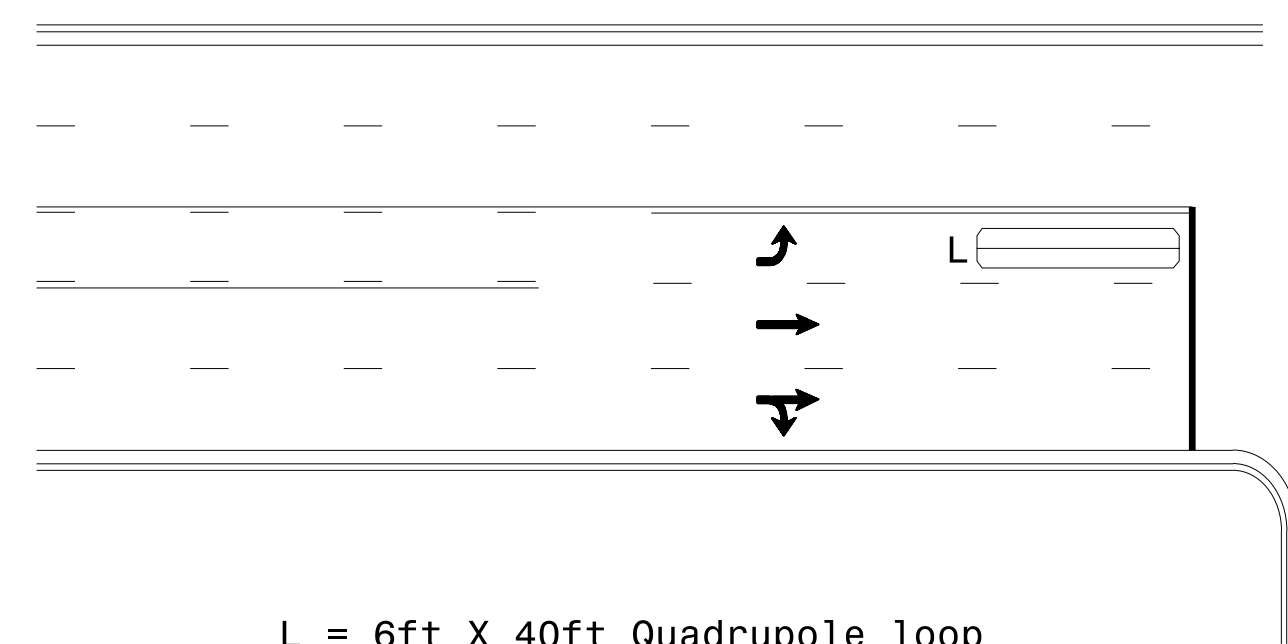
L = 6ft X 6ft
Wired in series

OR



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

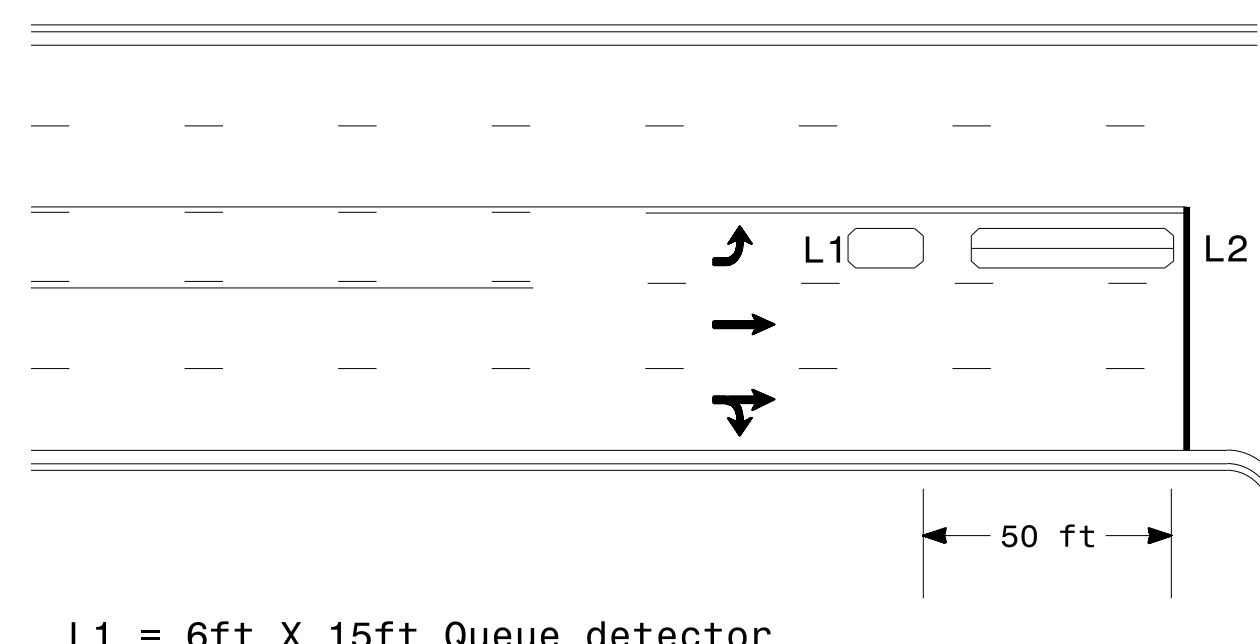
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

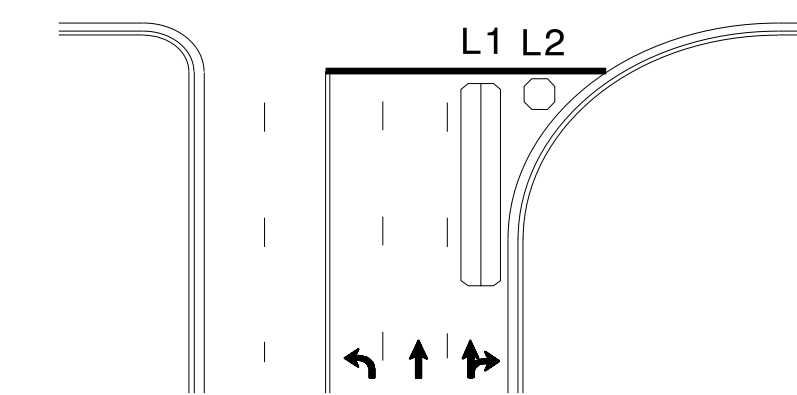
OR



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

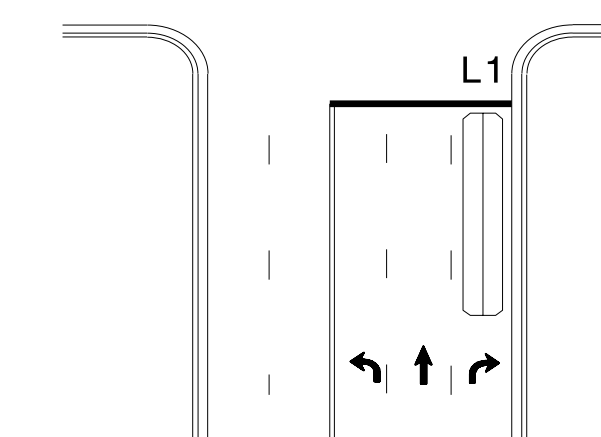
Queue Loop Detection

Right Turn Lane Detection

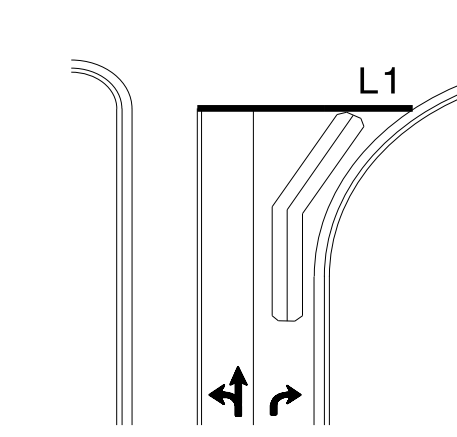


Shared Lane/
Wide Radius Turn

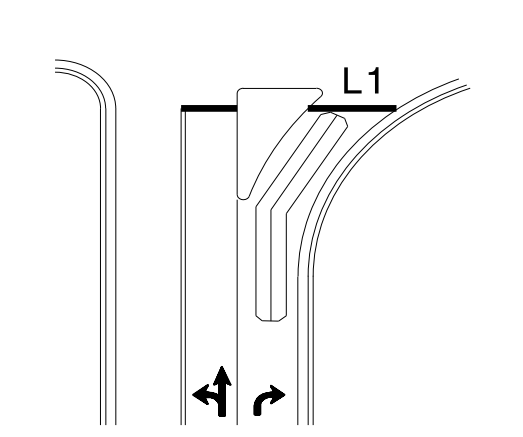
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

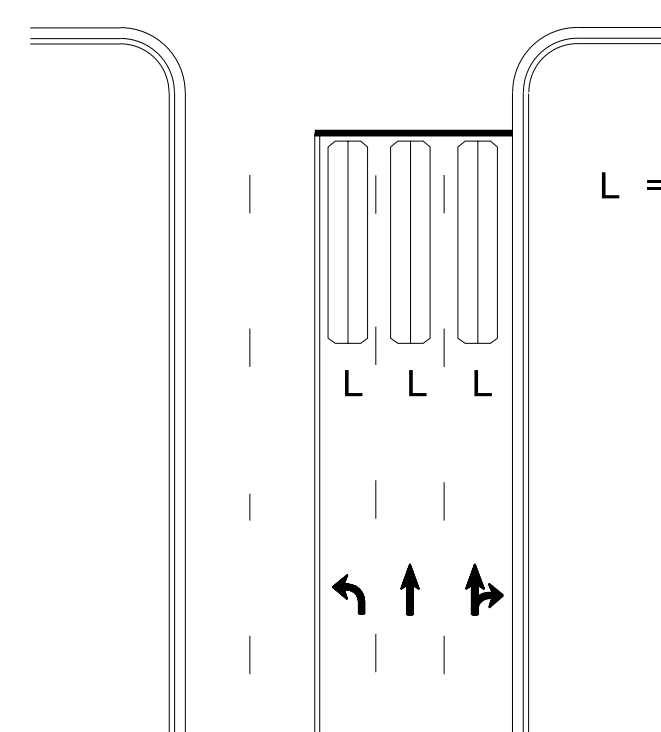


Wide Radius Turn



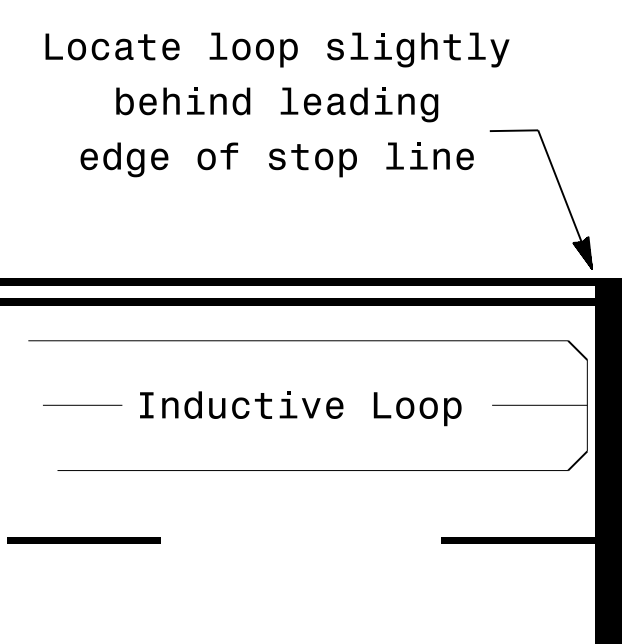
Channelized Turn

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:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE
N/A

Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
PAMELA L. ALEXANDER
23489

DocuSigned by:
P. Alexander
1/30/2015 10:44:44 AM

SIG. INVENTORY NO.