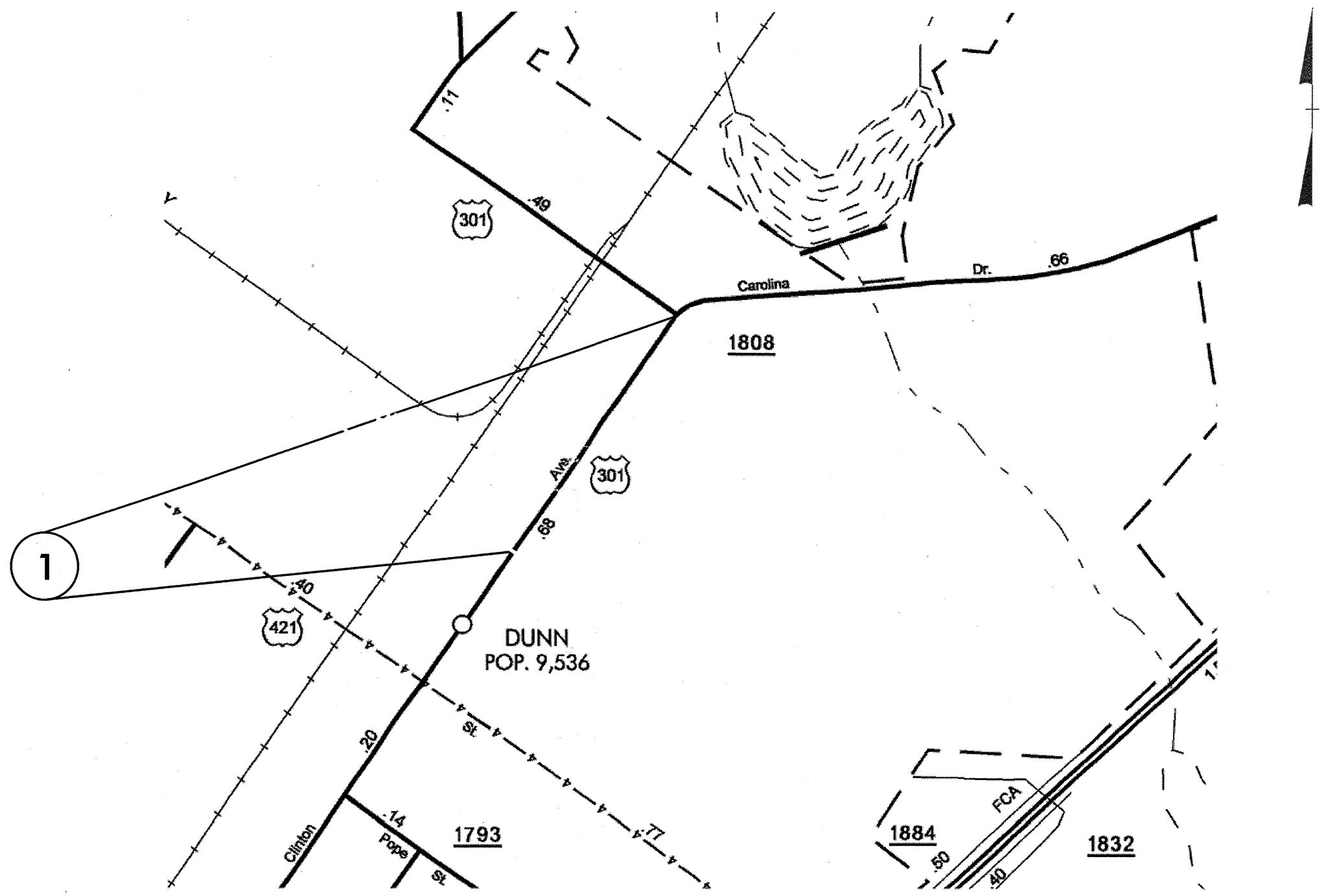
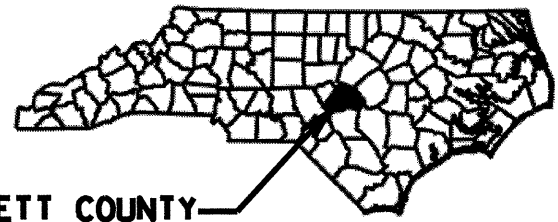
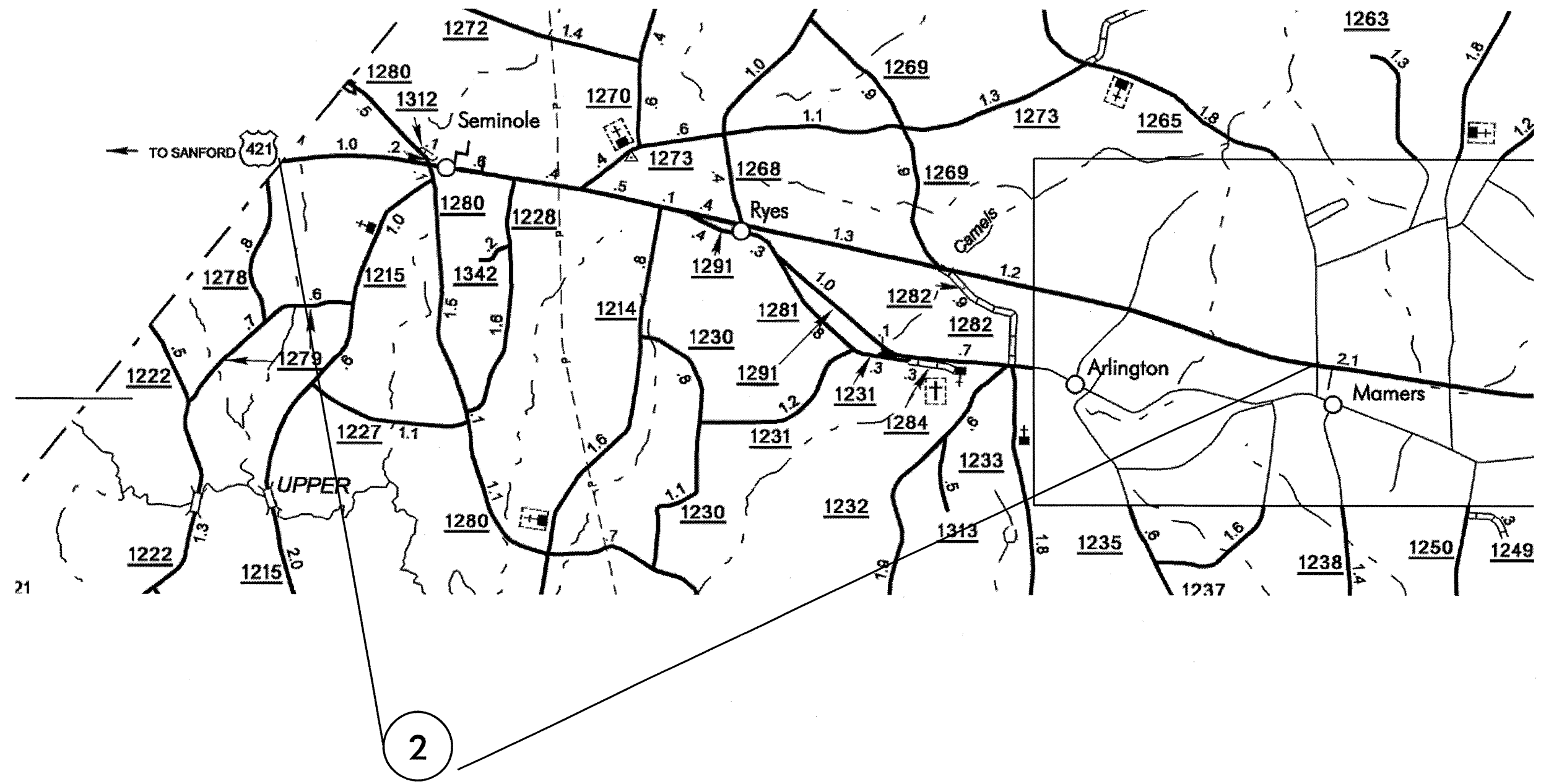


RESURFACING MAPS - HARNETT COUNTY

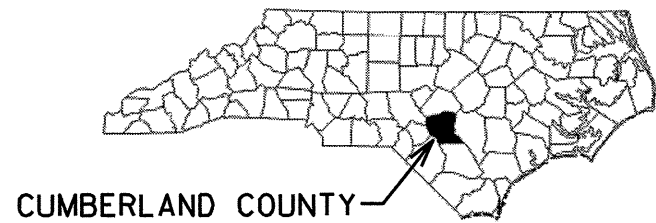




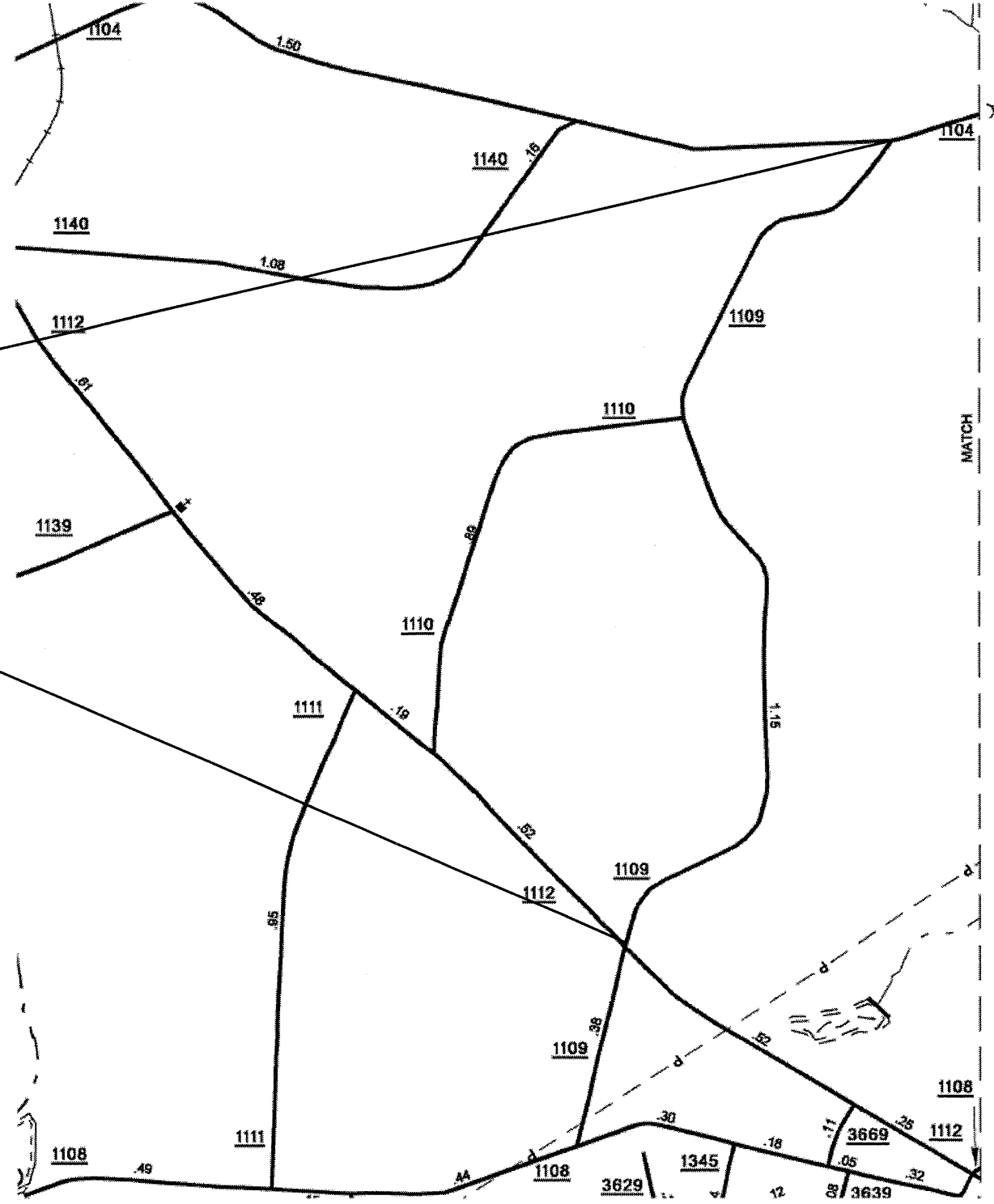
RESURFACING MAPS - HARNETT COUNTY



RESURFACING MAPS - CUMBERLAND COUNTY



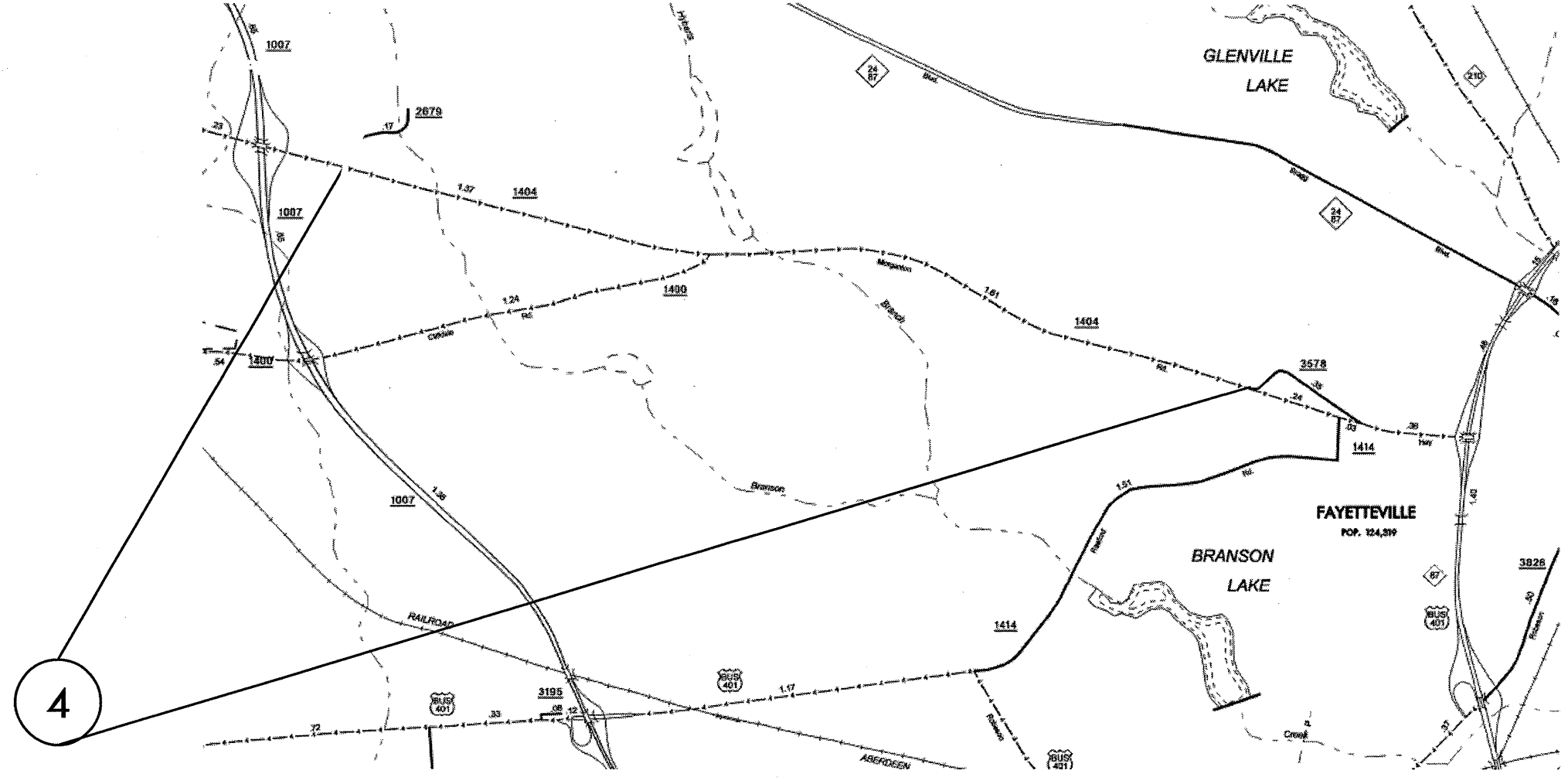
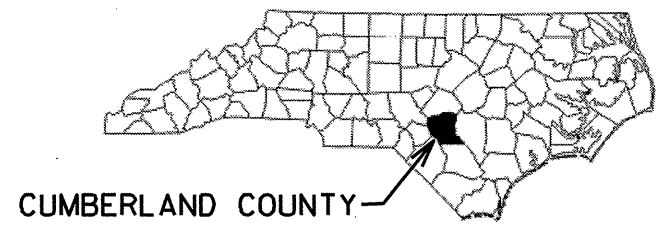
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MATCH

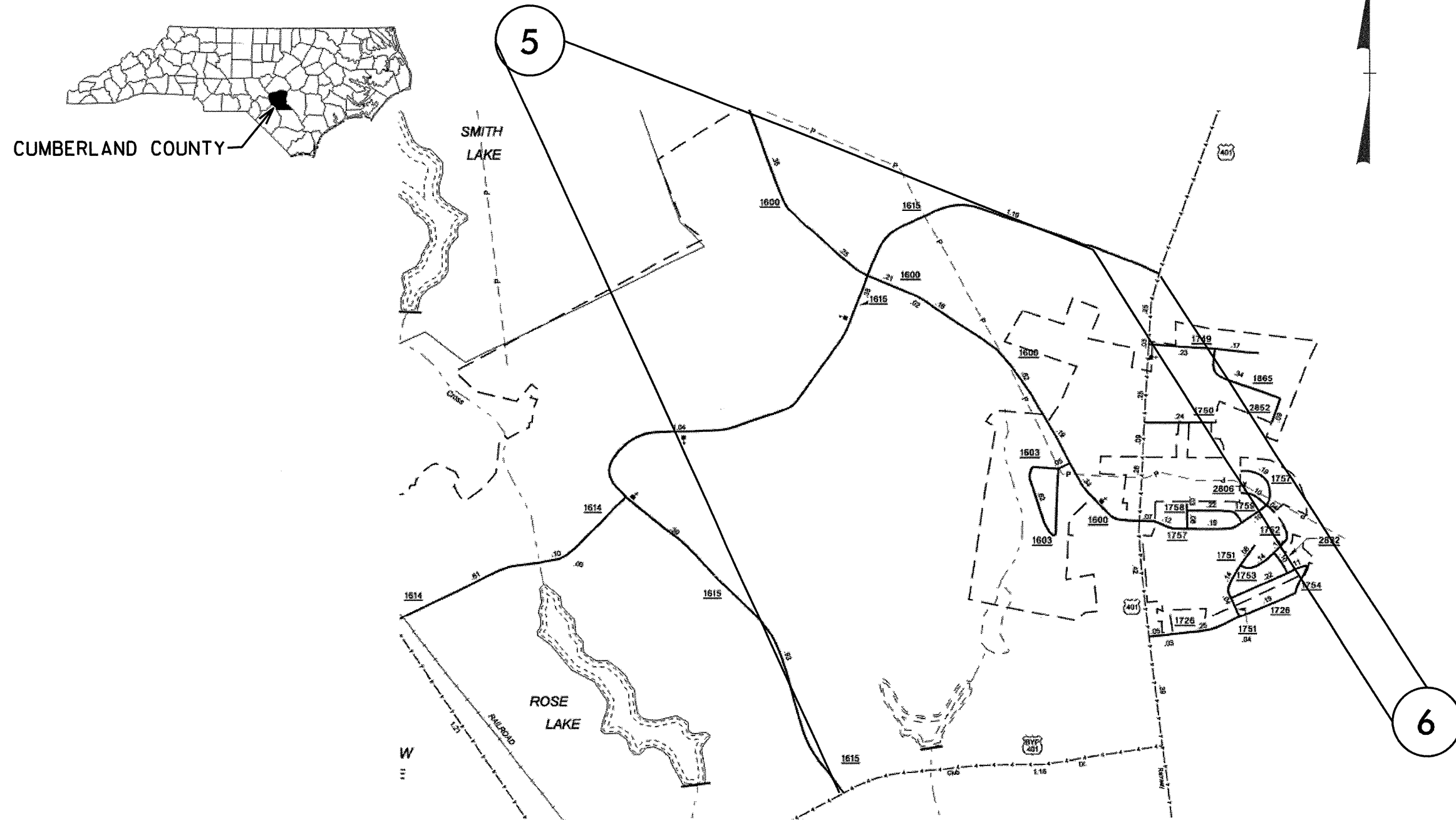


RESURFACING MAPS - CUMBERLAND COUNTY

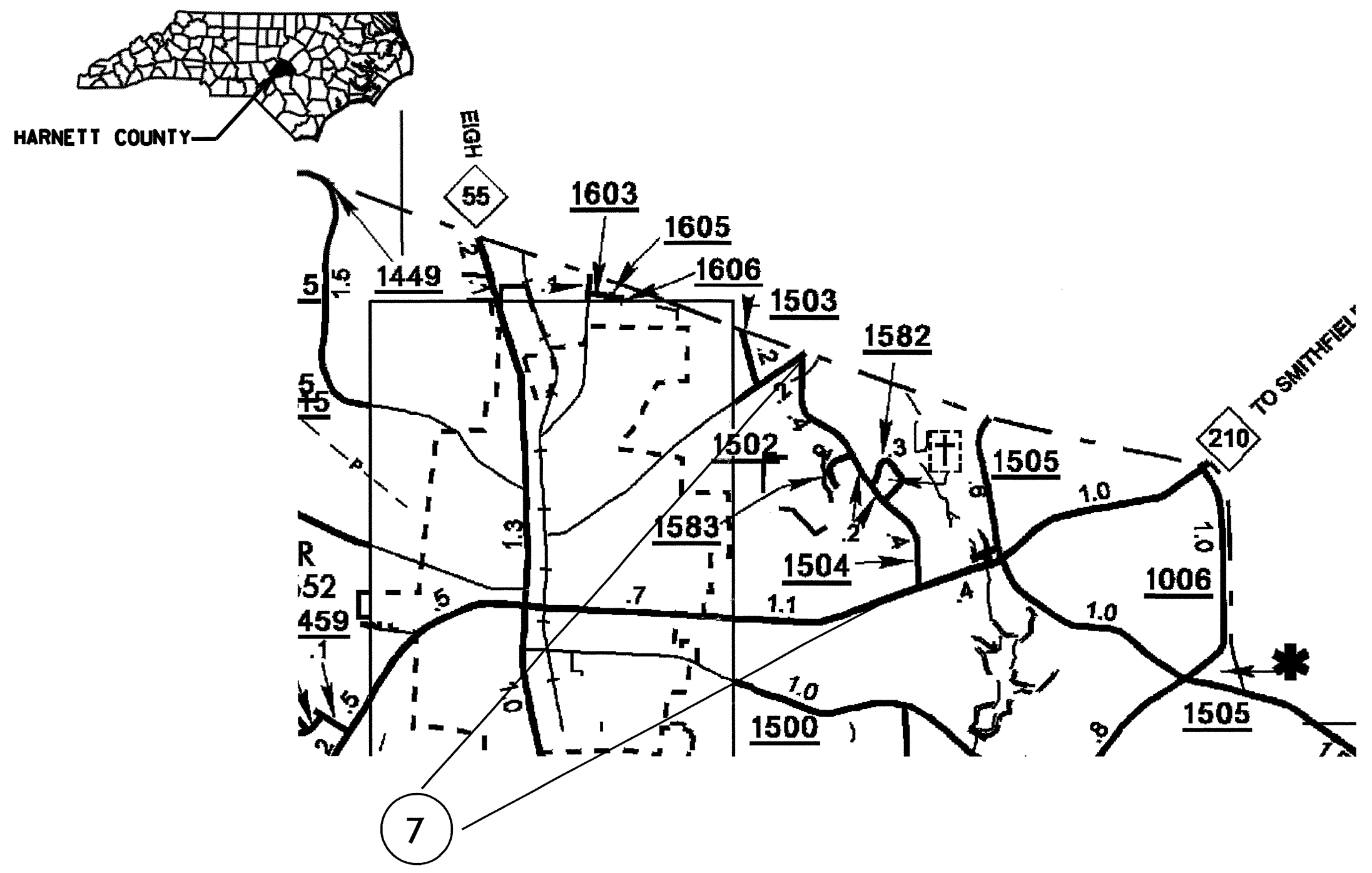


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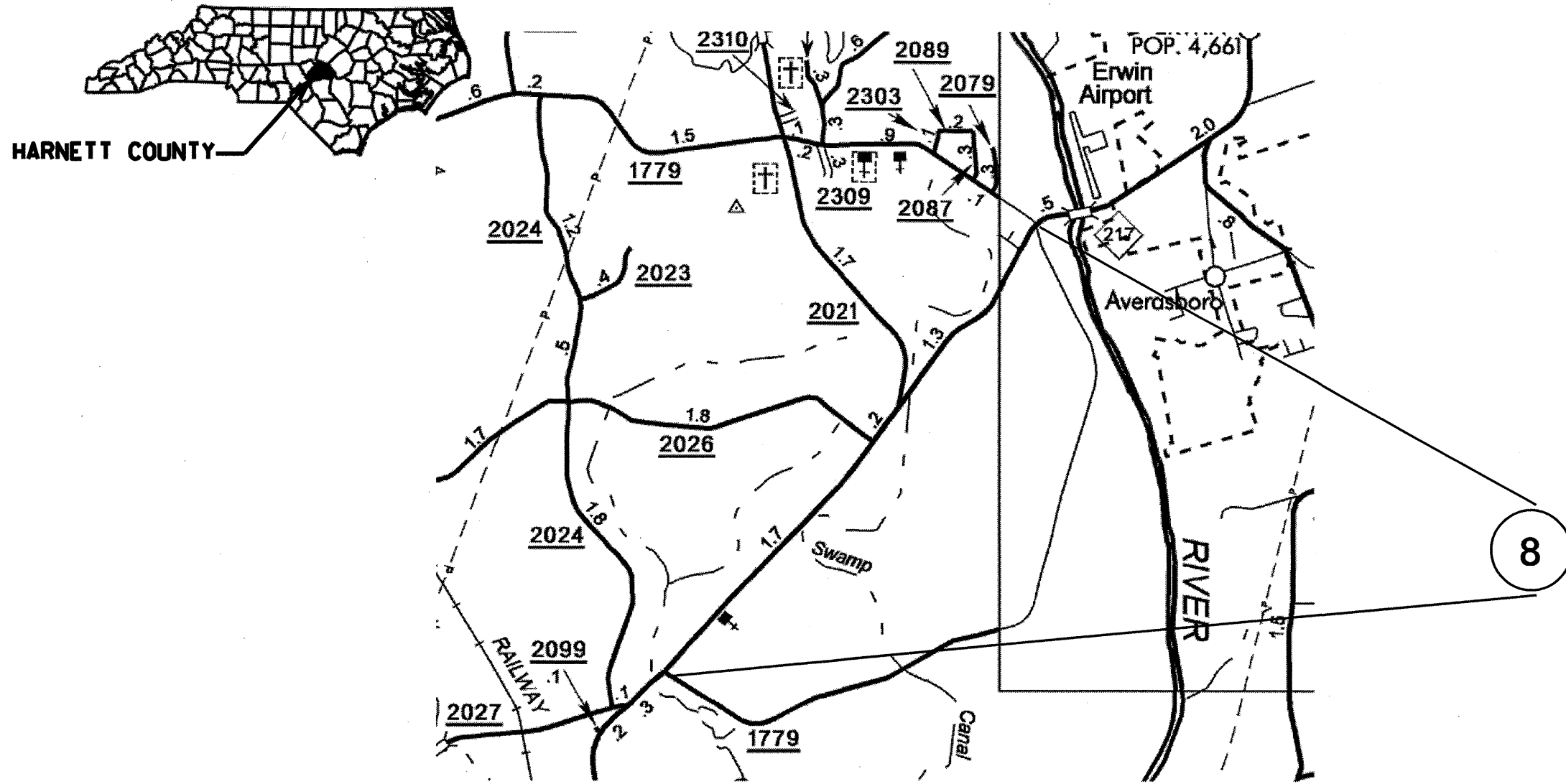
RESURFACING MAPS - CUMBERLAND COUNTY

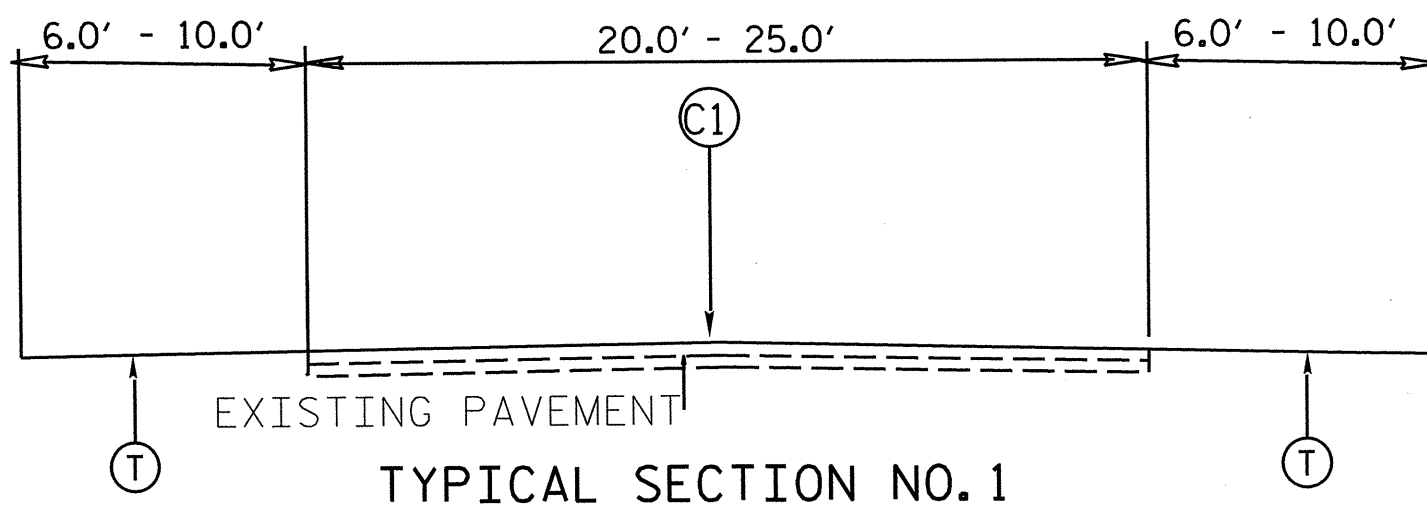


RESURFACING MAPS - HARNETT COUNTY

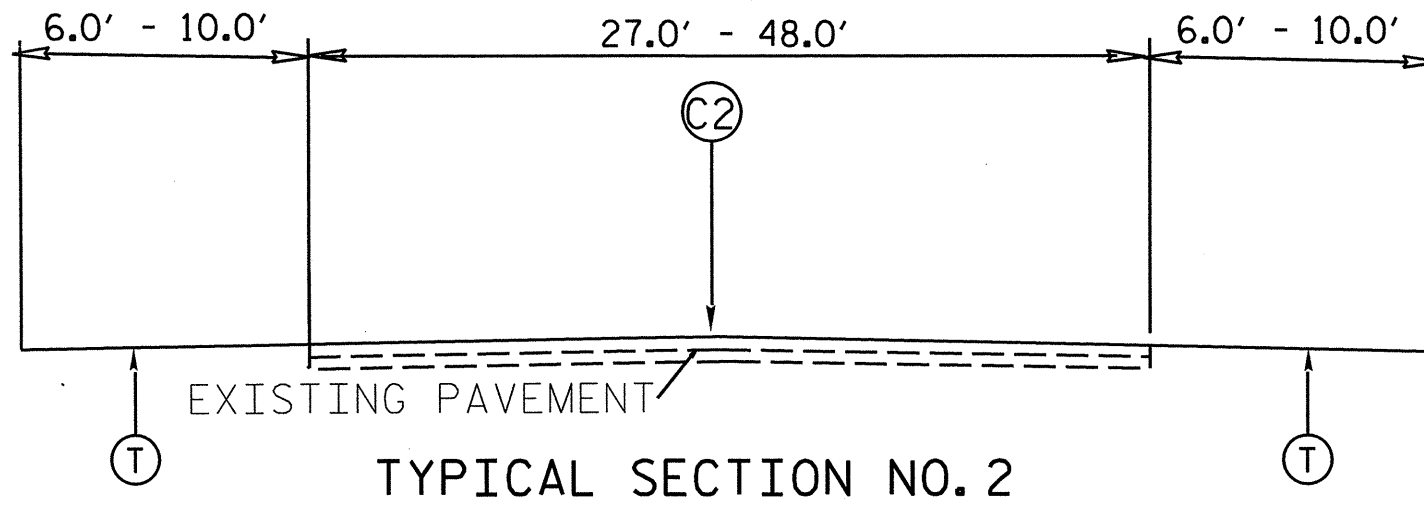


RESURFACING MAPS - HARNETT COUNTY

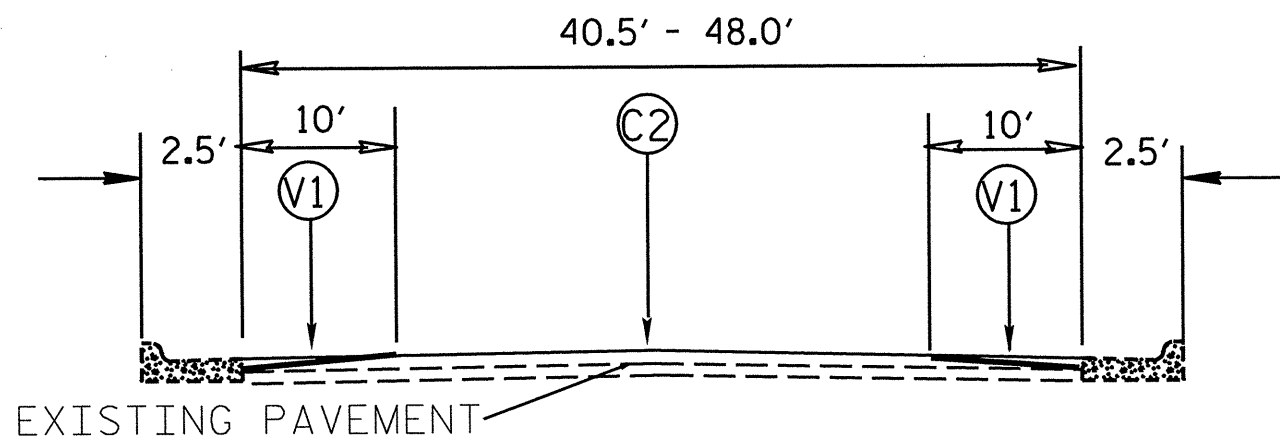




TYPICAL SECTION NO. 1

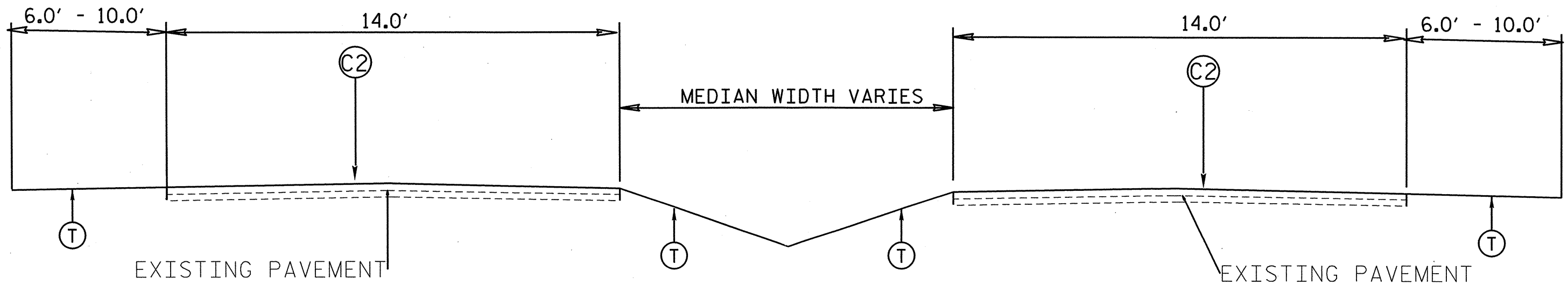


TYPICAL SECTION NO. 2



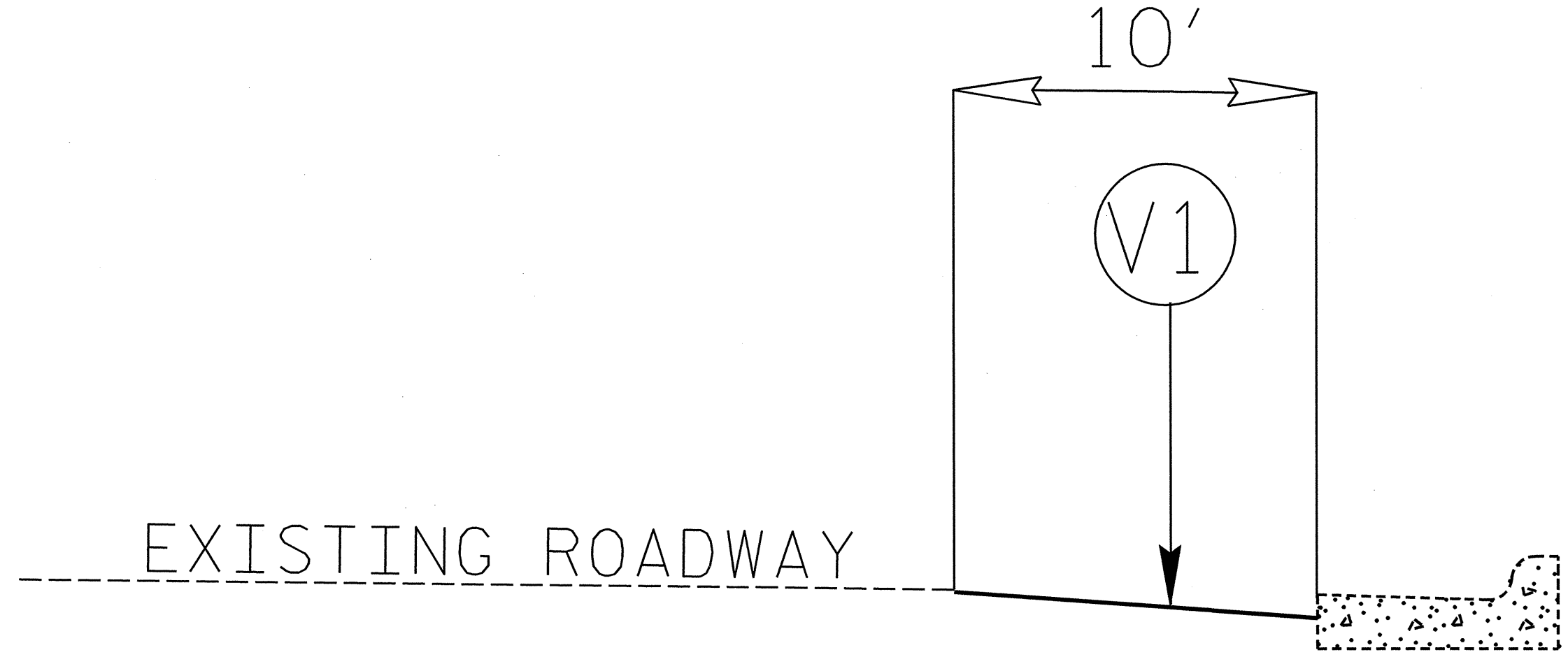
TYPICAL SECTION NO. 3

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.50" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1.50" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
V1	MILLING AT A DEPTH OF 0" TO 1.50" TO BE MILLED TO A DEPTH OF 1.50" BELOW THE GUTTER AT EP AS DIRECTED BY THE ENGINEER.
T	SHOULDER RECONSTRUCTION.



TYPICAL SECTION NO. 4

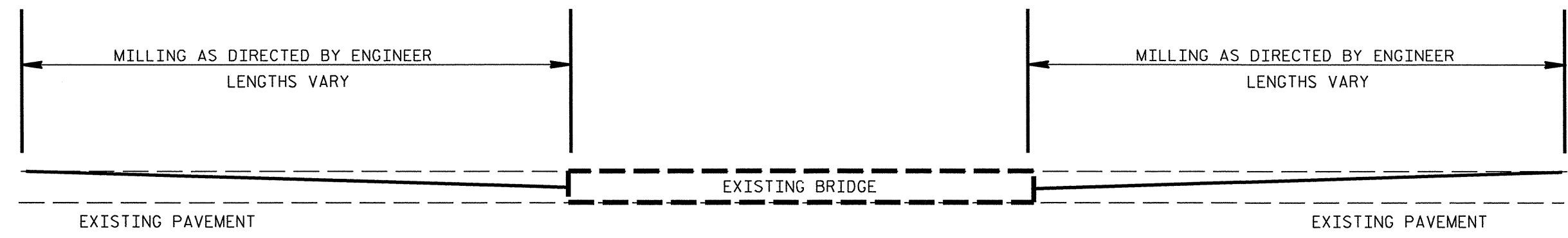
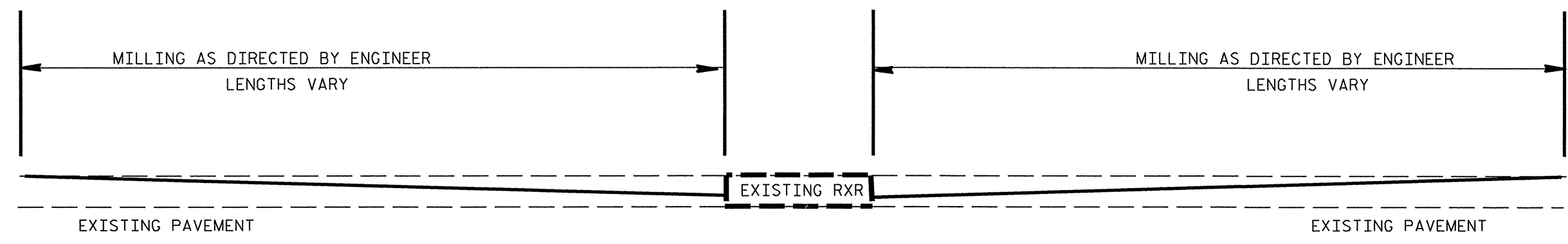
CURB MILLING DETAIL

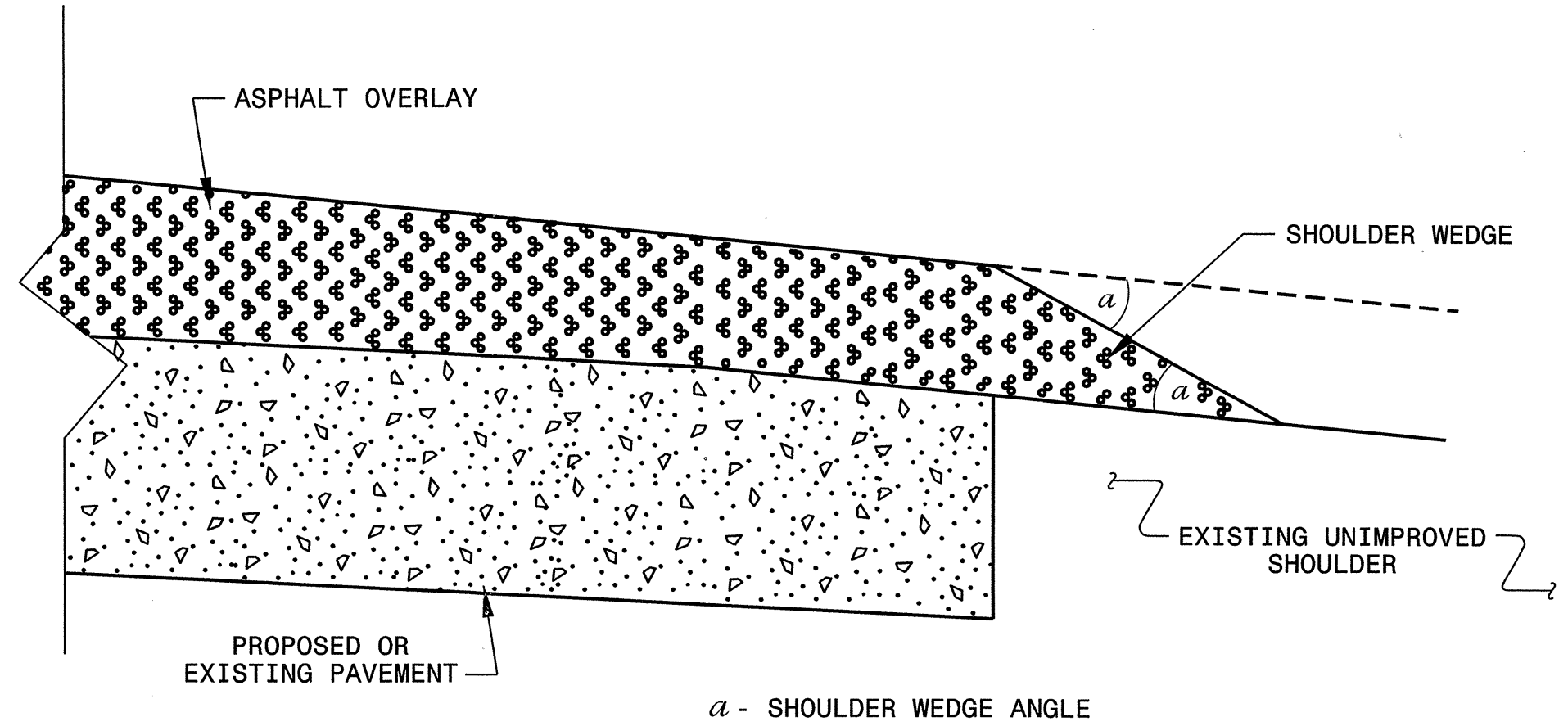


CURB MILLING DETAIL IS FOR MAPS 1, 4, 5 & 6

6 CB. 104 31.76 etc.
Sht. 11

BRIDGE AND RXR MILLING TYPICAL





SHOULDER WEDGE DETAIL

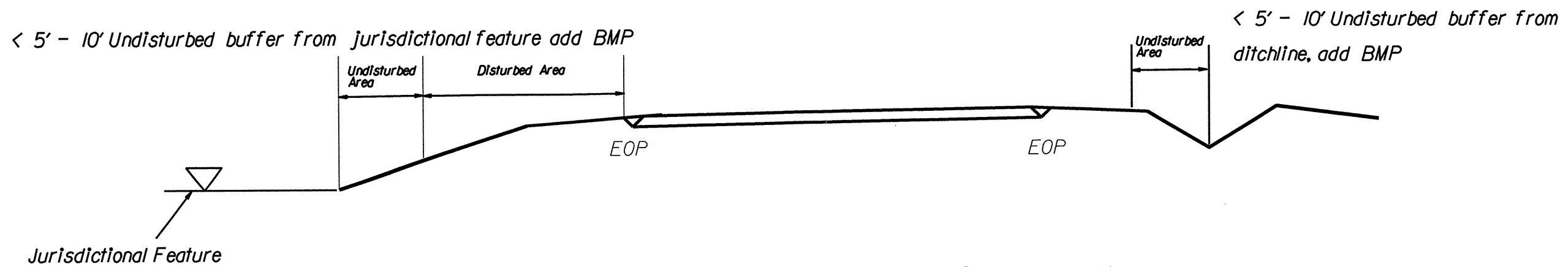
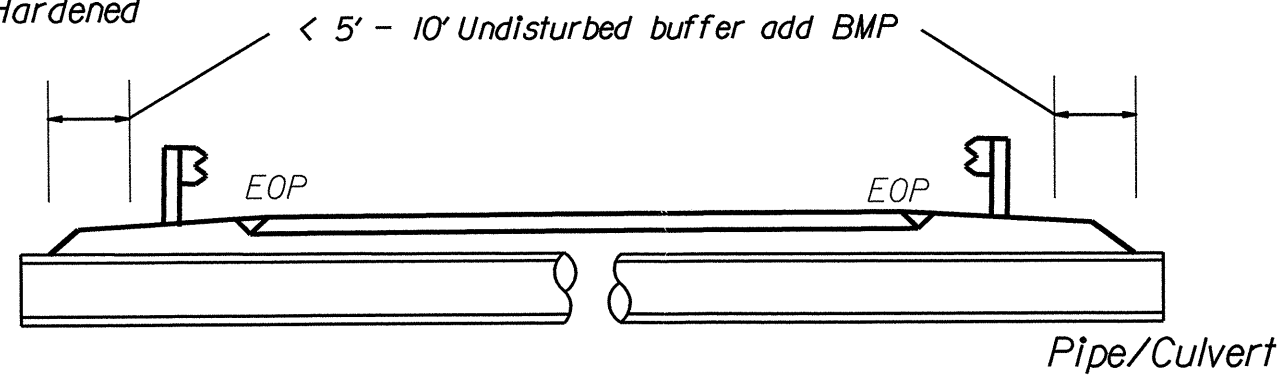
C:\APR-2012\1208\Projects\Special Details\howerton\shoulderwedgedetail.dwg
 \$\$\$USERNAME\$\$\$

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
SHOULDER WEDGE DETAIL	
ORIGINAL BY: T.SPELL	DATE: 7-19-11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: s:\usr\details\stand\shoulderwedgedetail.dgn	

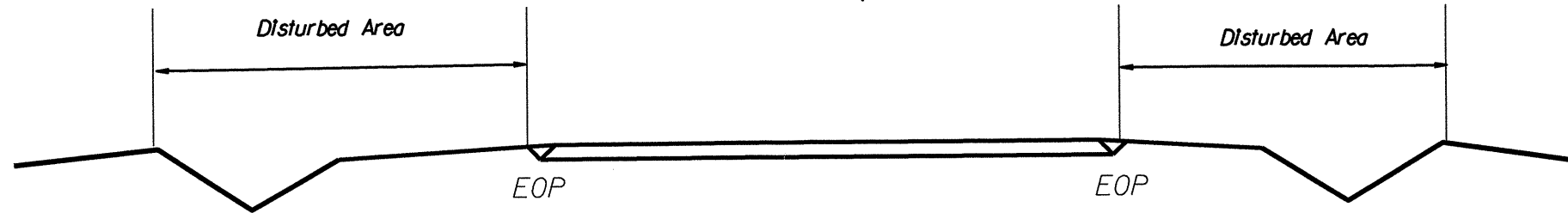
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle, Silt Fence or Hardened Aggregate.

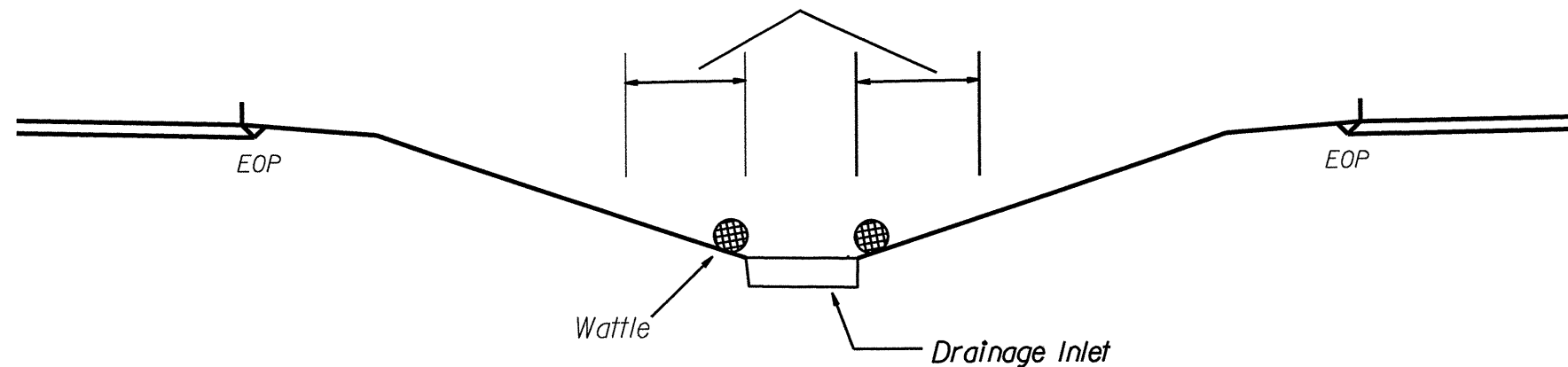
EROSION CONTROL DETAIL



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed



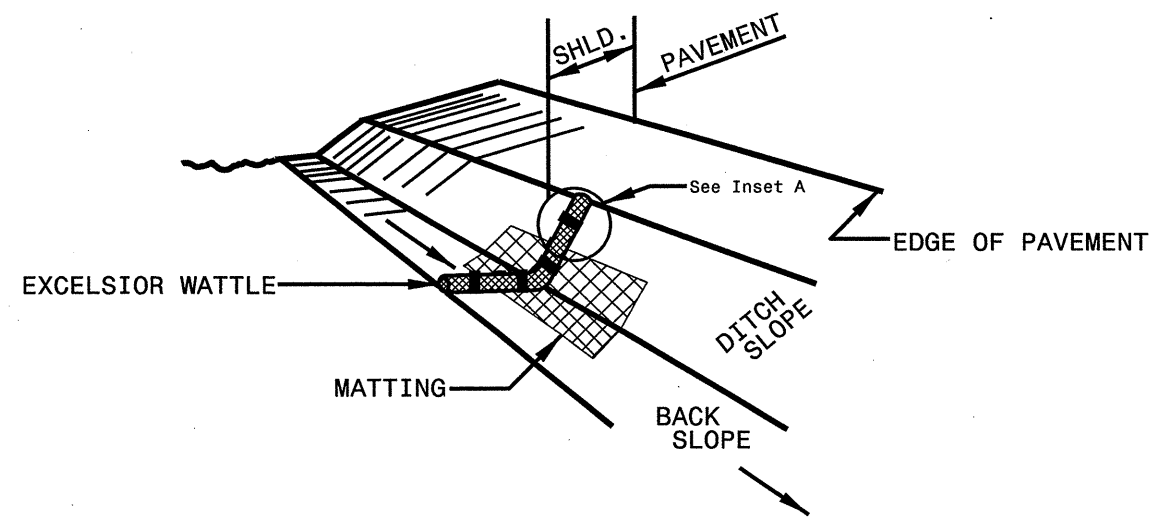
< 5' - 10' Undisturbed buffer from inlet, add wattle



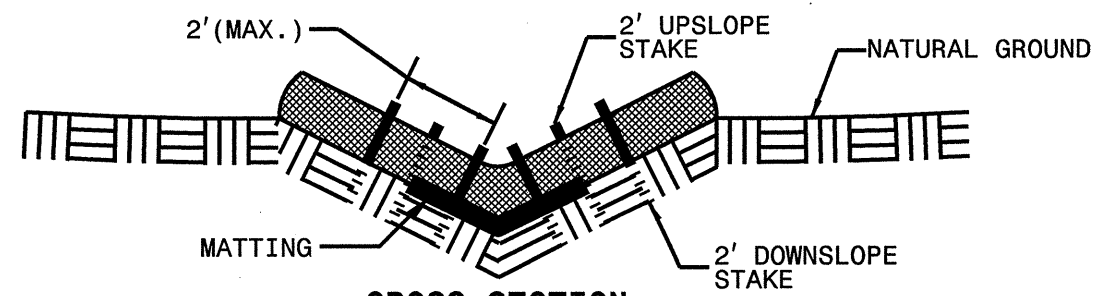
NOT TO SCALE

PROJECT REFERENCE NO. 6CR101376 etc.	SHEET NO. 11

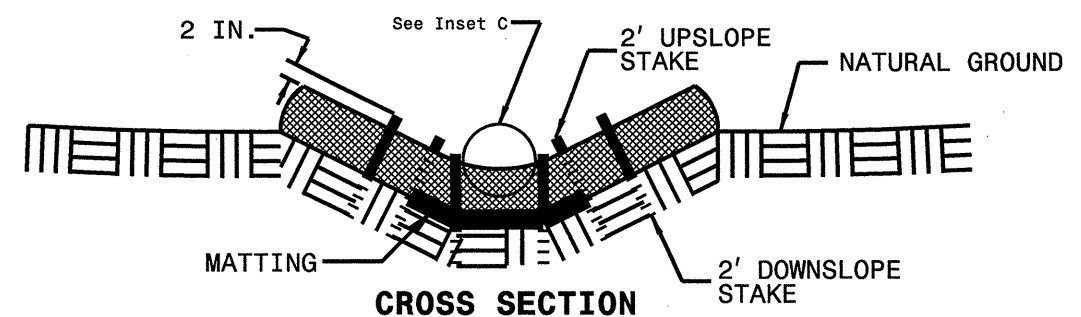
WATTLE WITH POLYACRYLAMIDE DETAIL



ISOMETRIC VIEW

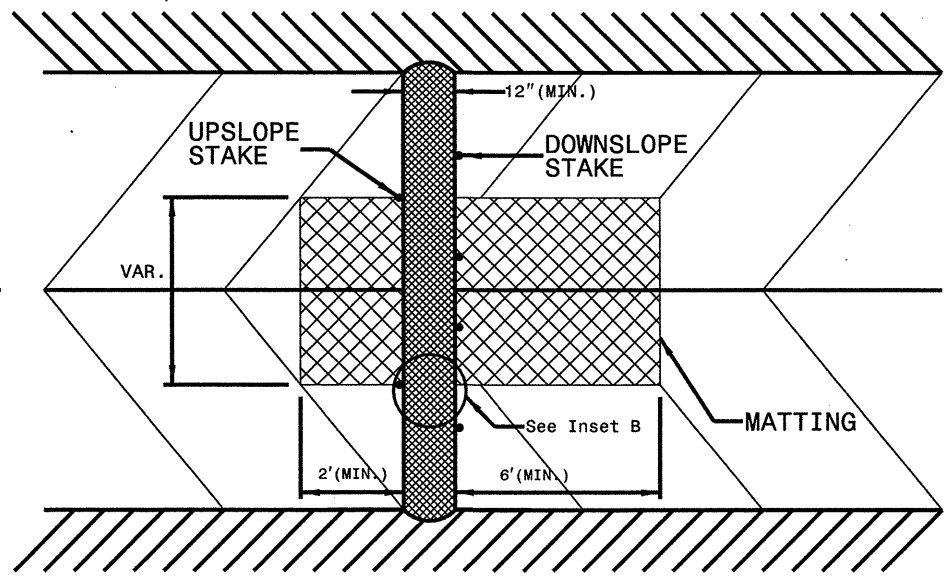
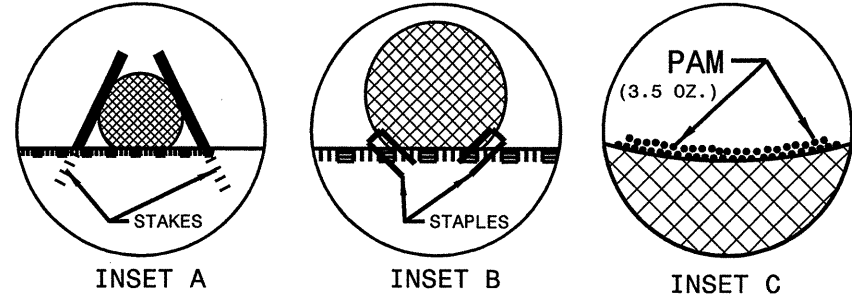


**CROSS SECTION
VEE DITCH**



**CROSS SECTION
TRAPEZOIDAL DITCH**

- NOTES:
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
 - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. CROSS SECTION.
 - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
 - PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
 - INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
 - INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
 - PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
 - INITIALLY APPLY 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



TOP VIEW

PROJECT NO.	SHEET NO.	TOTAL NO.
6CR.10431.76, 6CR.20261.76, 6CR.20431.76,	15	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TONS	BORROW CY	SHOULDER RECONSTRUCTION SMI	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	RETROFIT EXISTING CURB RAMP EA	CONCRETE CURB RAMP EA	ADJ. OF MANHOLES EA
6CR.10431.76	Harnett	1	US 301	FROM EAST EDGERTON ST TO SR 1808	3	NO	NO	0.54	40.5				6,336		1,078		65	50	6		10
		2	US 421	FROM LEE CO LINE (MP32.2) TO SR1265 (MP25.51)	2	NO	NO	6.69	30-32	160	1,004	13.40		1,111	10,585		635	2,500			1
TOTAL FOR PROJ NO. 6cr.10431.76								7.23		160	1,004	13.40	6,336	1,111	11,663		700	2,550	6		11
6CR.20261.76	Cumberland	3	SR 1109	FROM SR 1.04 (MP0.00) TO SR 1112(MP1.80)	1	NO	NO	1.8	25	43	270	3.60		278		2,411	162	100			1
		4	SR 1404	FROM PVMT JT@ FT BRAGG RD (MP0.73) TO MCPHERSON CH RD (MP3.34)	3	NO	NO	2.61	44-48				30,624		5,931		356	200	45	2	92
		5	SR 1615A	FROM US 401 BYP (MP0.00) TO DIVIDED SECT (MP3.71)	2	NO	NO	3.67	27	88	551	7.30	821	278	5,969		358	100	15	2	12
		6	SR1615B	FROM DIVIDED SECT (MP3.71) TO US 401 (MP3.99)	4	NO	NO	0.28	28	7	42	1.12	763	208	596		36	100			4
TOTAL FOR PROJ NO. 6CR.20261.76								8.36		138	863	12.02	32,208	764	12,496	2,411	912	500	60	4	109
6CR.20431.76	Harnett	7	SR 1504	FROM NC 210 (MP1.18) TO SR 1502 (0.00)	1	NO	NO	1.18	20	28	177	3.30		347		1,204	81	200			
		8	SR 1779	FROM NC 217 (MP5.37) TO NC 217 (MP9.89)	1	NO	NO	4.52	20.5	108	678	13.88		139		4,627	310	1,500			
TOTAL FOR PROJ NO. 6CR.20431.76								5.7		136	855	17.18		486		5,831	391	1,700			
GRAND TOTAL								21.29		434	2,722	42.60	38,544	2,361	24,159	8,242	2,003	4,750	66	4	120

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	ADJ. OF METER OR VALVE BOX EA	TEMPORARY SILT FENCE LF	MATTING FOR EROSION CONTROL SY	WATTLE LF	POLYACRYL AMIDE (PAM) LB	SEED & MULCHING AC	PAVED TRENCHING (1CONDUIT, 2") LF	UNPAVED TRENCHING (1CONDUIT, 2") LF	JUNCTION BOX (STANDARD SIZE) EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY) EA	2" RISER WITH WEATHERHEAD EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2)(FT) LF
6CR.10431.76	Harnett	1	US 301	FROM EAST EDGERTON ST TO SR 1808	3	NO	NO	0.54	40.5	9						20	200	2	2	2	1,000	200
		2	US 421	FROM LEE CO LINE (MP32.2) TO SR1265 (MP25.51)	2	NO	NO	6.69	30-32	1	669	50	110	5	16.22	10	100	1	1	1	100	100
TOTAL FOR PROJ NO. 6cr.10431.76								7.23		10	669	50	110	5	16.22	30	300	3	3	3	1,100	300
6CR.20261.76	Cumberland	3	SR 1109	FROM SR 1104 (MP0.00) TO SR 1112(MP1.80)	1	NO	NO	1.8	25	2	180	20	30	1	4.36							
		4	SR 1404	FROM PVMT JT@ FT BRAGG RD (MP0.73) TO MCPHERSON CH RD (MP3.34)	3	NO	NO	2.61	44-48	65						70	700	7	7	7	1,600	700
		5	SR 1615A	FROM US 401 BYP (MP0.00) TO DIVIDED SECT (MP3.71)	2	NO	NO	3.67	27	25	367	30	60	2		20	200	2	2	2	925	200
		6	SR1615B	FROM DIVIDED SECT (MP3.71) TO US 401 (MP3.99)	4	NO	NO	0.28	28	2	28	10	10	0	0.68							
TOTAL FOR PROJ NO. 6CR.20261.76								8.36		94	575	60	100	3	5.04	90	900	9	9	9	2,525	900
6CR.20431.76	Harnett	7	SR 1504	FROM NC 210 (MP1.18) TO SR 1502 (0.00)	1	NO	NO	1.18	20		118	10	20	1	2.86							
		8	SR 1779	FROM NC 217 (MP5.37) TO NC 217 (MP9.89)	1	NO	NO	4.52	20.5		452	30	70	3	10.96							
TOTAL FOR PROJ NO. 6CR.20431.76								5.7			570	40	90	4	13.82							
GRAND TOTAL								21.29		104	1,814	150	300	12	35.08	120	1,200	12	12	12	3,625	1,200

PROJECT NO.	SHEET NO.	TOTAL NO.
6CR.10431.76, 6CR.20261.76 6CR.20431.76,	16	

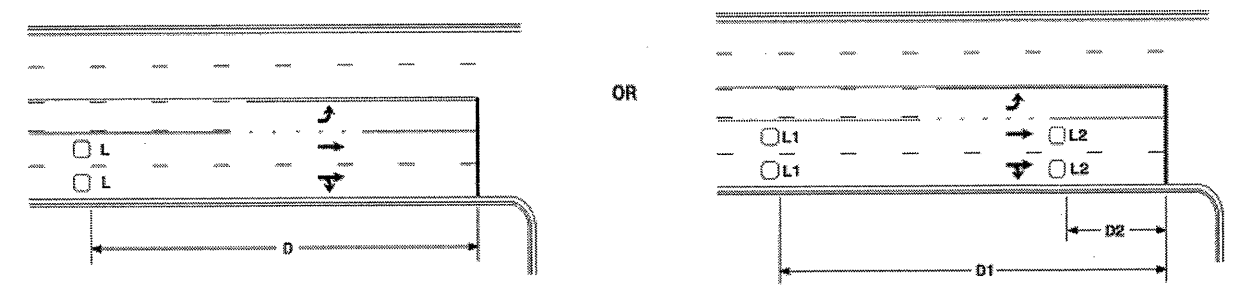
THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4685000000-E		4686000000-E		4695000000-E		4697000000-E	4710000000-E	4721000000-E			
							4" X 90 M WHITE THERMO LF	4" X 90 M YELLOW THERMO LF	4" X 120 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	8" X 90 M WHITE THERMO LF	8" X 90 M YELLOW THERMO LF	8" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO MSG AHEAD 120 M EA	THERMO MSG SIGNAL 120 M EA	THERMO MSG SCHOOL 120 M EA	THERMO MSG ONLY 120 M EA
6CR.10431.76	Harnett	1	US 301	FROM EAST EDGERTON ST TO SR 1808	0.54	40.5	400		150	6,000				80				
		2	US 421	FROM LEE CO LINE (MP32.2) TO SR1265 (MP25.51)	6.69	30-32	70,000		725	63,200	300	1,295		120	5	6		
TOTAL FOR PROJ NO. 6CR.10431.76					7.23		70,400		875	69,200	300	1,295		200	5	6		
							70,400		70,075		1,595						11	
6CR.20261.76	Cumberland	3	SR 1109	FROM SR 1104 (MP0.00) TO SR 1112(MP1.80)	1.8	25								50				
		4	SR 1404	FROM PVMT JT@ FT BRAGG RD (MP0.73) TO MCPHERSON CH RD (MP3.34)	2.61	44-48			8,175	36,200	810	330	220	895			24	
		5	SR 1615A	FROM US 401 BYP (MP0.00) TO DIVIDED SECT (MP3.71)	3.67	27	40,900		7,770	57,590		1,335	500	825			24	12
		6	SR1615B	FROM DIVIDED SECT (MP3.71) TO US 401 (MP3.99)	0.28	28	3,300	3,000	575	600	270			60			48	12
TOTAL FOR PROJ NO. 6CR.20261.76					8.36		44,200	3,000	16,520	94,390	1,080	1,665	720	1,830			48	12
							47,200		110,910		2,745						60	
6CR.20431.76	Harnett	7	SR 1504	FROM NC 210 (MP1.18) TO SR 1502 (0.00)	1.18	20												
		8	SR 1779	FROM NC 217 (MP5.37) TO NC 217 (MP9.89)	4.52	20.5												
TOTAL FOR PROJ NO. 6CR.20431.76					5.7													
GRAND TOTAL					21.29		114,600	3,000	17,395	163,590	1,380	2,960	720	2,030	5	6	48	12
							117,600		180,985		4,340						71	

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4725000000-E				4810000000-E		4820000000-E	4900000000-N		
							THERMO LT ARROW 90 M EA	THERMO STR & RT ARROW 90 M EA	THERMO STR ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO STR & RT ARROW 90 M EA	THERMO STR & LT ARROW 90 M EA	4" WHITE PAINT LF	4" YELLOW PAINT LF	8" YELLOW PAINT LF	CRYSTAL & RED MARKERS EA
6CR.10431.76	Harnett	1	US 301	FROM EAST EDGERTON ST TO SR 1808	0.54	40.5	1	1						10	40	
		2	US 421	FROM LEE CO LINE (MP32.2) TO SR1265 (MP25.51)	6.69	30-32	6		4	4				78	496	
TOTAL FOR PROJ NO. 6CR.10431.76					7.23		7	1	4	4				88	536	
									16					624		
6CR.20261.76	Cumberland	3	SR 1109	FROM SR 1104 (MP0.00) TO SR 1112(MP1.80)	1.8	25	2			2		39,850	41,800	525	155	
		4	SR 1404	FROM PVMT JT@ FT BRAGG RD (MP0.73) TO MCPHERSON CH RD (MP3.34)	2.61	44-48	91		26	2	10				455	365
		5	SR 1615A	FROM US 401 BYP (MP0.00) TO DIVIDED SECT (MP3.71)	3.67	27	33	4	17	20					416	526
		6	SR1615B	FROM DIVIDED SECT (MP3.71) TO US 401 (MP3.99)	0.28	28	6			4					52	12
TOTAL FOR PROJ NO. 6CR.20261.76					8.36		132	4	43	28	10	39,850	41,800	525	953	1,058
									222			81,650			2,011	
6CR.20431.76	Harnett	7	SR 1504	FROM NC 210 (MP1.18) TO SR 1502 (0.00)	1.18	20						27,000	21,000			
		8	SR 1779	FROM NC 217 (MP5.37) TO NC 217 (MP9.89)	4.52	20.5						96,000	81,600			
TOTAL FOR PROJ NO. 6CR.20431.76					5.7							123,000	102,600			
												225,600				
GRAND TOTAL					21.29		139	5	47	32	10	162,850	144,400	525	1,041	1,594
									238			307,250			2,635	

PROJECT REFERENCE NO. GCR.10431.76
SHEET NO. SIG 1
Cumberland and Harnett Co

High Speed Detection [≥40 mph (64 km/hr)]



Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

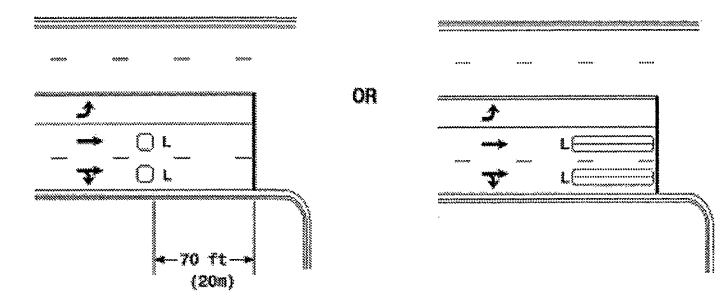
Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (33)

L1 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series
L2 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series

Volume Density Operation

"Stretch" Operation

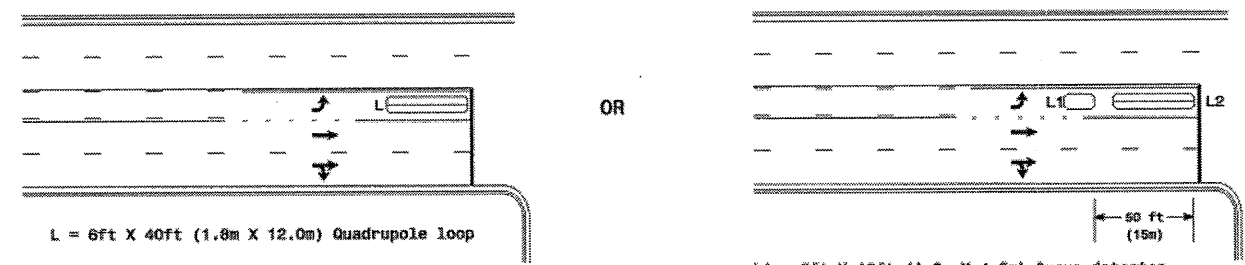
Low Speed Detection [≤35 mph (56 km/hr)]



L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

Left Turn Lane Detection



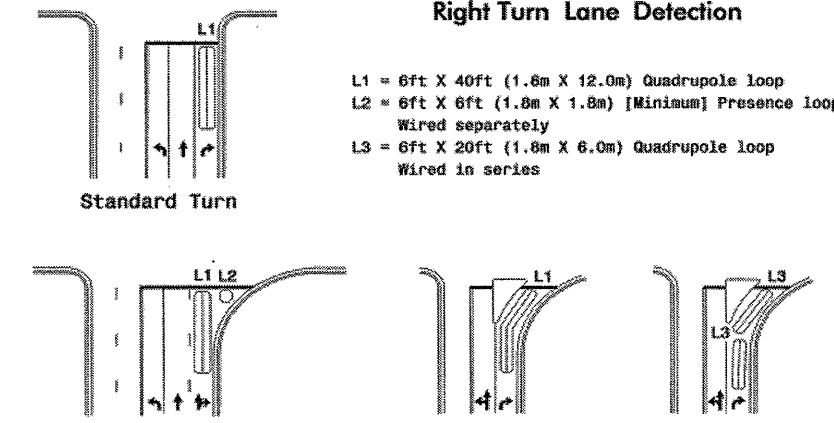
L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

Queue Loop Detection

Right Turn Lane Detection



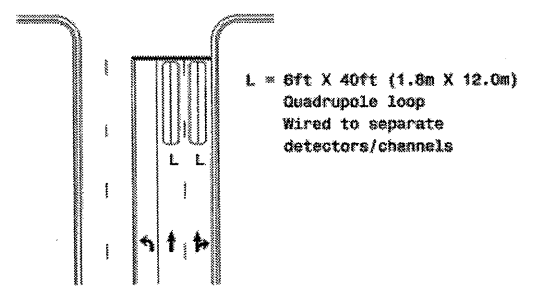
L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence Loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

Standard Turn

Wide Radius Turn

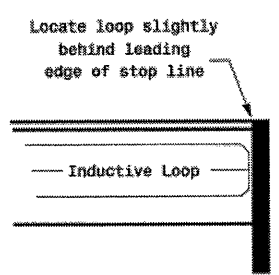
Channelized Turn

Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines



Note:
Loop may be located in advance
of stop line when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permissive or
protected/permissive left turn.

Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m)
loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

Quadrupole Loops: Use 2-4-2 turns
6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns

222 N. McDowell St., Raleigh, NC 27603

Typical Loop Locations

PLAN DATE: JUN 2008
PREPARED BY: P. I. Alexander
SCALE: N/A

SEAL

REVISIONS

NO.	DATE
1	06/17/08

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