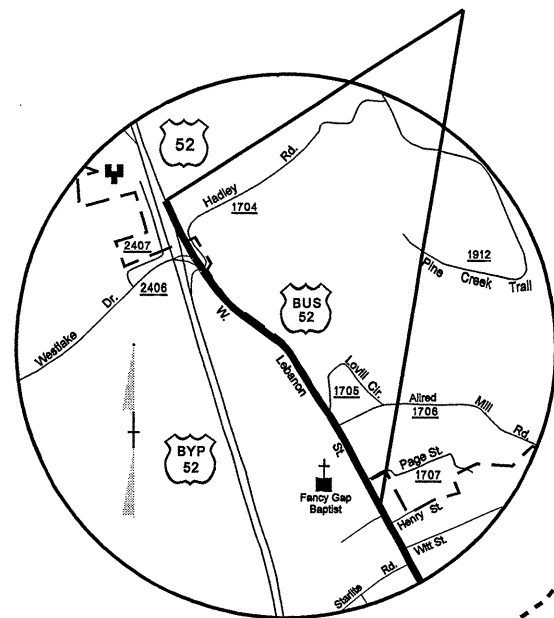


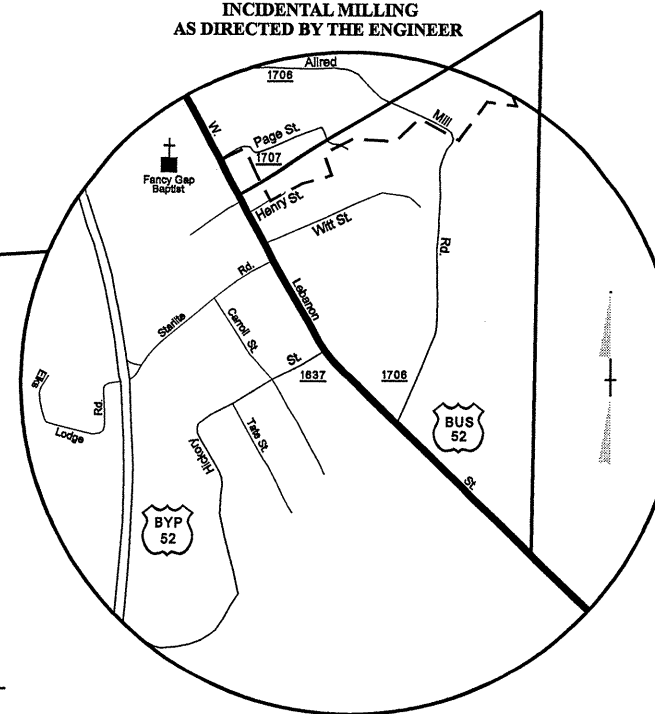
**MAP #1 US 52 BUSINESS
FROM N. INTERSECTION WITH US 52
TO 0.2 MI. SOUTH OF PAIGE STREET**



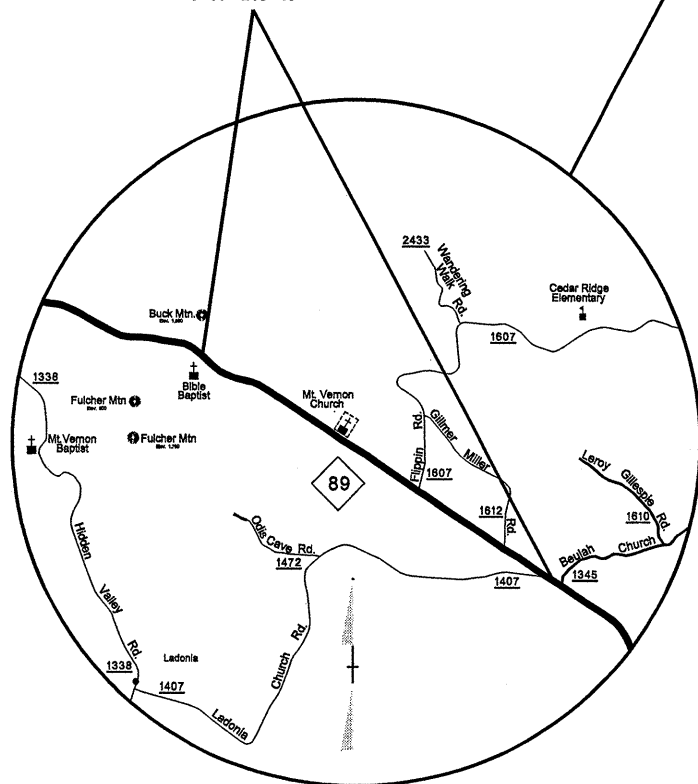
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SURRY COUNTY

**MAP #2 US 52 BUSINESS
FROM 0.2 MI. SOUTH OF PAIGE STREET
TO BRIDGE AT VETERAN'S PARK**

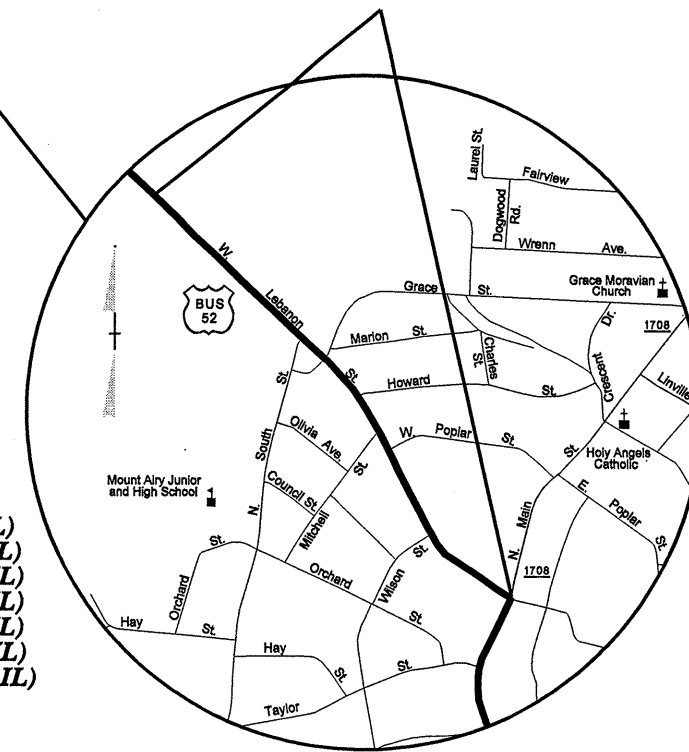
INCIDENTAL MILLING
AS DIRECTED BY THE ENGINEER



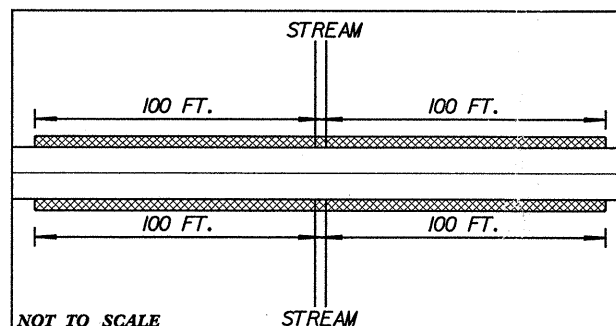
**MAP #4 NC 89
FROM 0.94 MI. WEST OF SR 1607
TO 300' WEST OF SR 1345
RESURFACE STATIONS
0+00 - 205+48**



**MAP #3 US 52 BUSINESS
FROM BRIDGE AT VETERAN'S PARK TO SR 1708
MILL FULL WIDTH INCLUDING BRIDGE DECK**



***DETAIL FOR AGGREGATE SHOULDER BORROW
AT STREAM CROSSING**



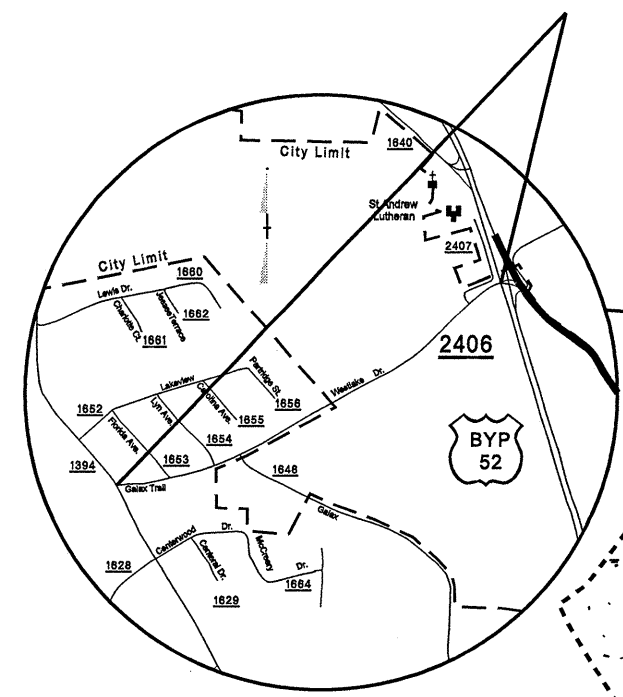
NOT TO SCALE
HATCHED AREA SHOWS PLACEMENT OF AGGREGATE SHOULDER BORROW

- NOTE: AGGREGATE SHOULDER BORROW TO BE PLACED**
- * MAP #4 APPROX. STATION 7+96 400' (SEE DETAIL)
 - * MAP #4 APPROX. STATION 16+15 400' (SEE DETAIL)
 - * MAP #4 APPROX. STATION 31+53 400' (SEE DETAIL)
 - * MAP #4 APPROX. STATION 41+00 400' (SEE DETAIL)
 - * MAP #4 APPROX. STATION 71+87 400' (SEE DETAIL)
 - * MAP #4 APPROX. STATION 95+30 400' (SEE DETAIL)
 - * MAP #4 APPROX. STATION 178+52 400' (SEE DETAIL)

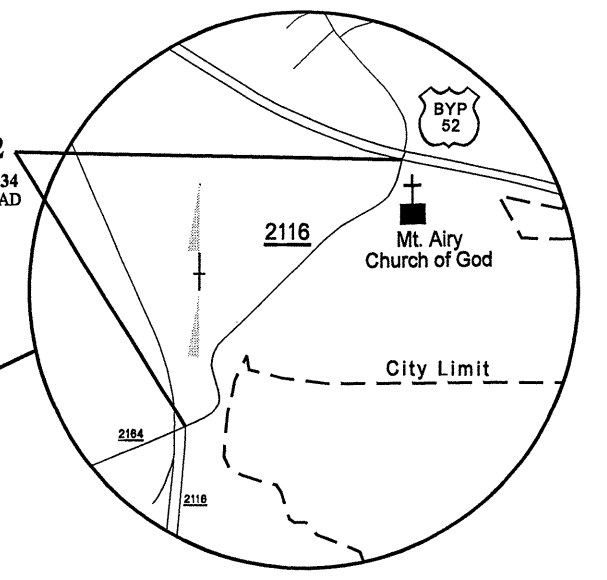
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SURRY COUNTY

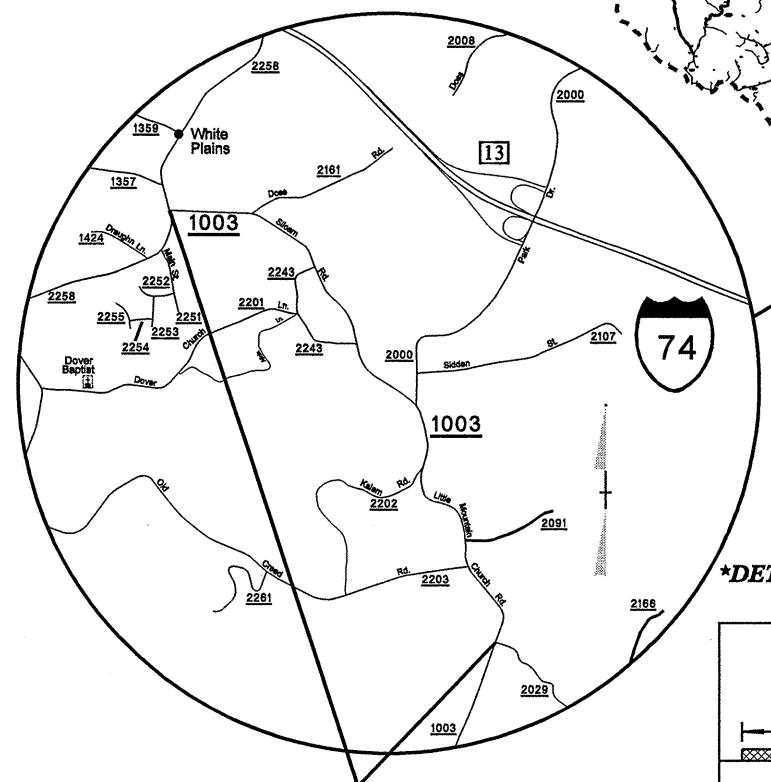
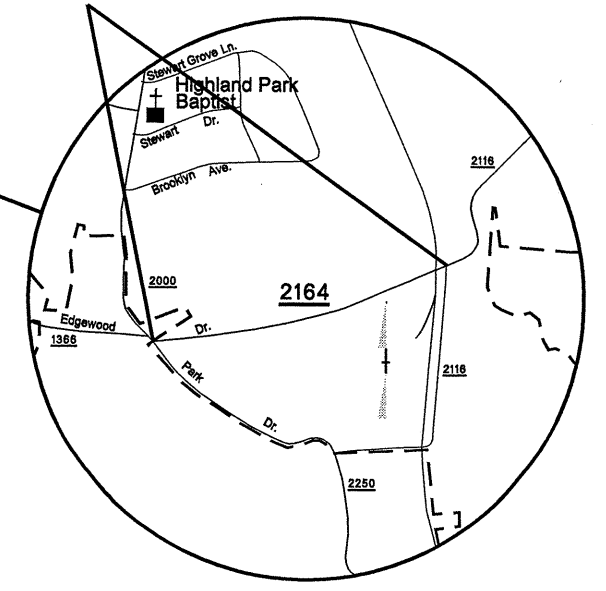
MAP #9 SR 2406
FROM US 52 TO SR 1394



MAP #8 SR 2116
FROM SR 2164 TO US 52
MILL APPROACHES & DECK AT BRG 334
MILL APPROACHES EACH SIDE OF RAILROAD

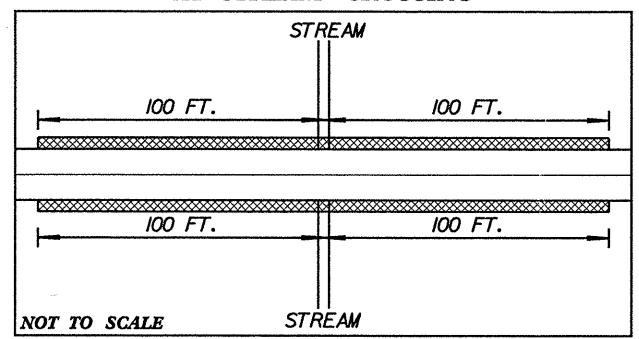


MAP #7 SR 2164
FROM SR 2000 TO SR 2116



MAP #6 SR 1003
FROM SR 2258 TO SR 2029
RESURFACE STATIONS
0+00 - 106+43

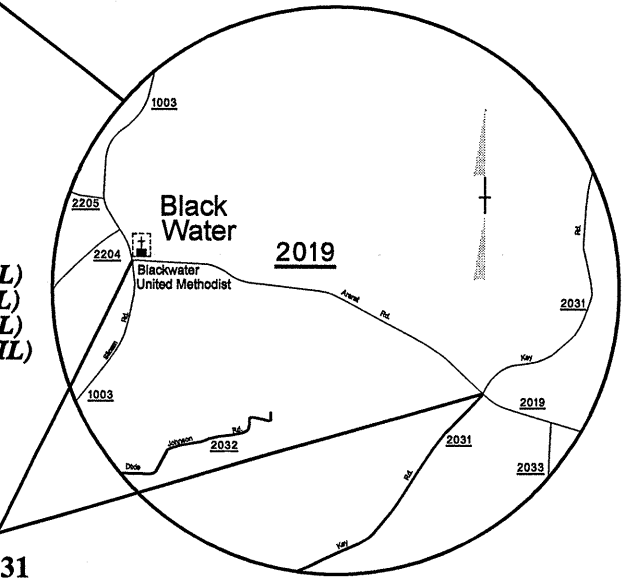
***DETAIL FOR AGGREGATE SHOULDER BORROW AT STREAM CROSSING**



NOT TO SCALE
HATCHED AREA SHOWS PLACEMENT OF AGGREGATE SHOULDER BORROW

NOTE: AGGREGATE SHOULDER BORROW TO BE PLACED
 * MAP #6 APPROX. STATION 36+49 400' (SEE DETAIL)
 * MAP #6 APPROX. STATION 61+06 400' (SEE DETAIL)
 * MAP #6 APPROX. STATION 68+89 400' (SEE DETAIL)
 * MAP #6 APPROX. STATION 104+90 400' (SEE DETAIL)

MAP #5 SR 2019
FROM SR 1003 TO SR 2031



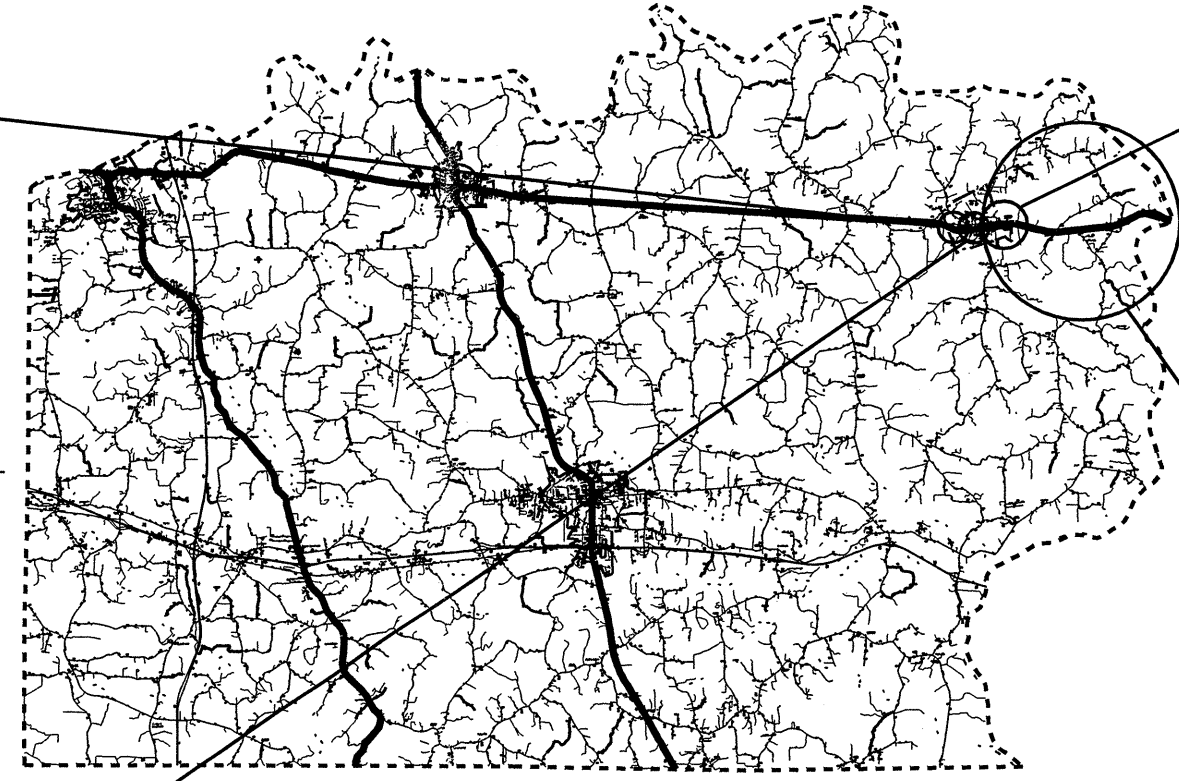
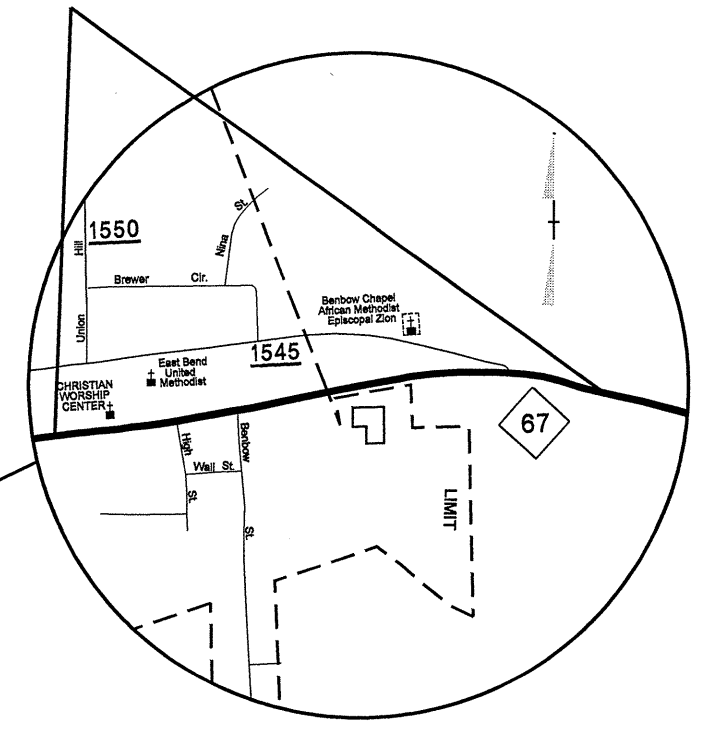
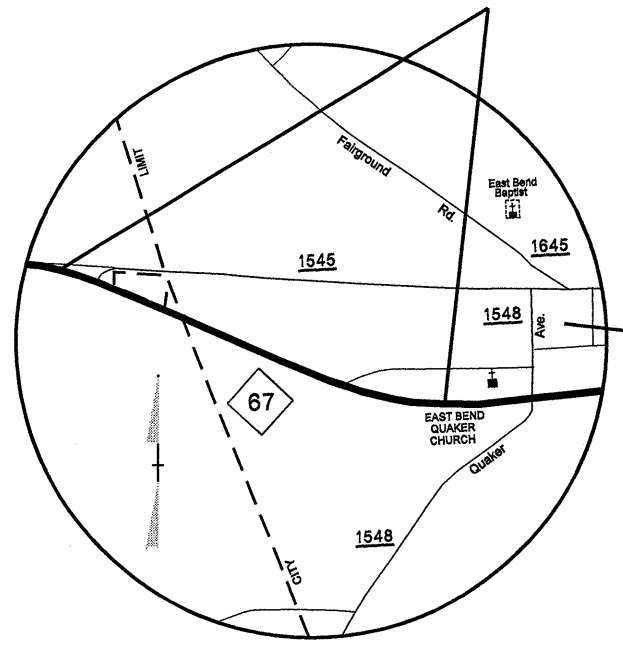
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

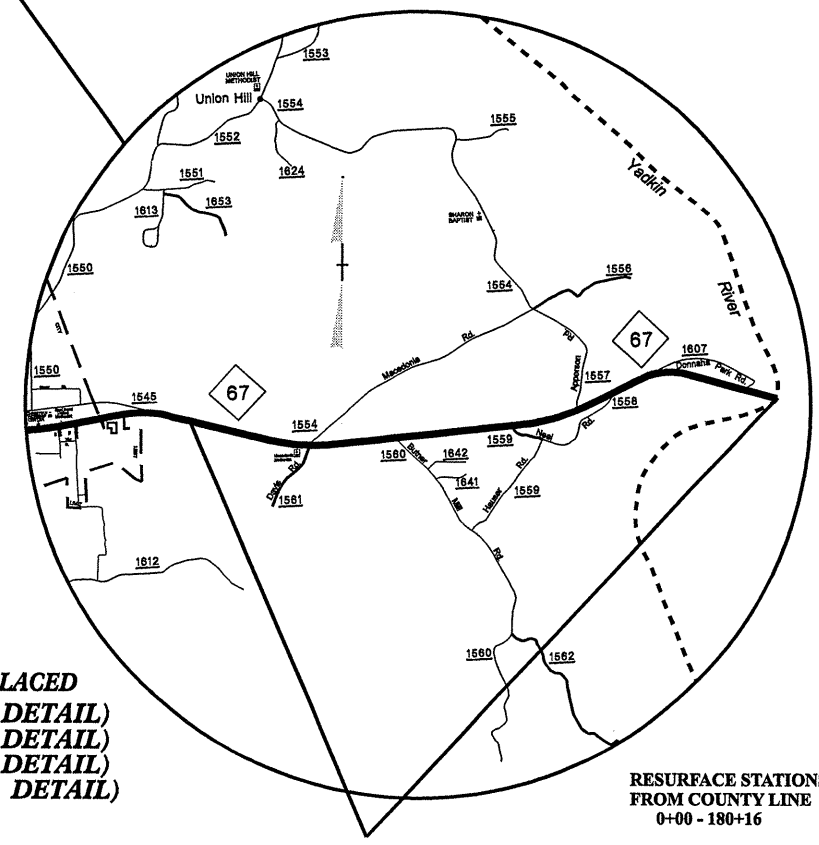
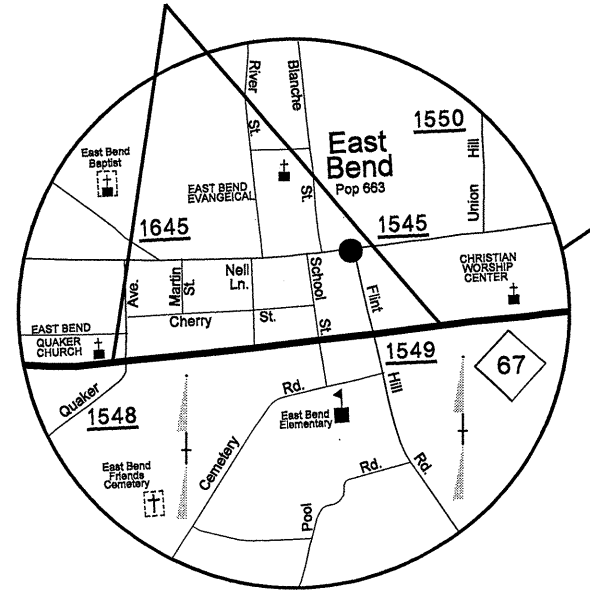
YADKIN COUNTY

MAP #12 NC 67
FROM 600' EAST OF SR 1549
TO 600' EAST OF SR 1545

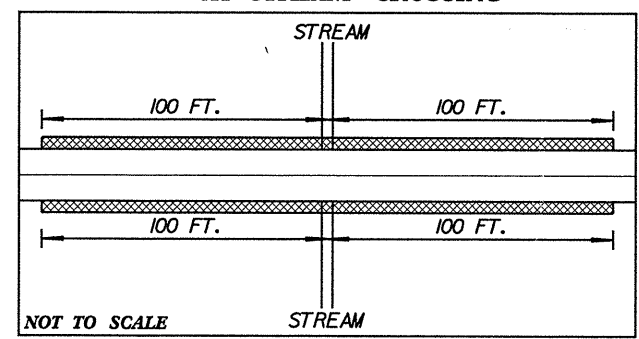
MAP #10 NC 67
FROM 50' WEST OF SR 1545
TO 300' WEST OF SR 1548



MAP #11 NC 67
FROM 300' WEST OF SR 1548
TO 600' EAST OF SR 1549



***DETAIL FOR AGGREGATE SHOULDER BORROW AT STREAM CROSSING**



HATCHED AREA SHOWS PLACEMENT OF AGGREGATE SHOULDER BORROW

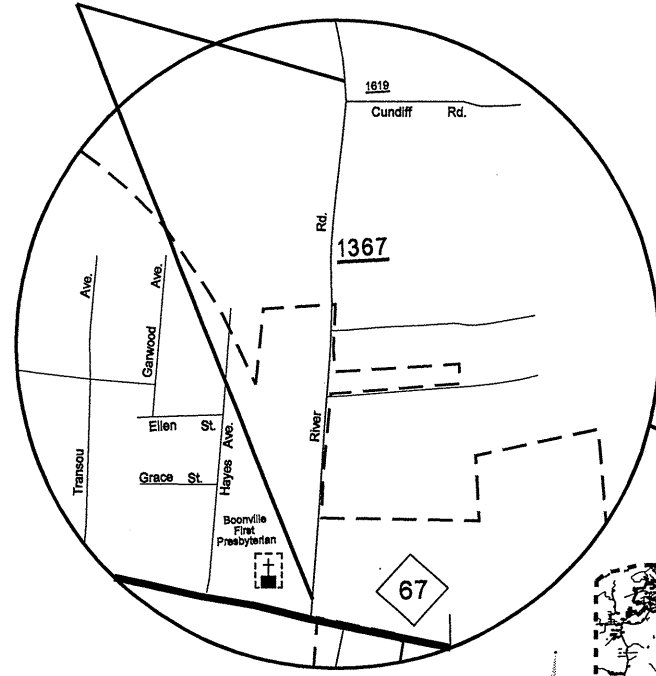
NOTE: AGGREGATE SHOULDER BORROW TO BE PLACED
 * MAP #4 APPROX. STATION 35+60 400' (SEE DETAIL)
 * MAP #4 APPROX. STATION 64+68 400' (SEE DETAIL)
 * MAP #4 APPROX. STATION 74+67 400' (SEE DETAIL)
 * MAP #4 APPROX. STATION 175+05 400' (SEE DETAIL)

MAP #13 NC 67
FROM 600' EAST OF SR 1545
TO FORSYTH COUNTY LINE
MILL WEST APPROACH FOR BRIDGE # 35

RESURFACE STATIONS FROM COUNTY LINE
0+00 - 180+16

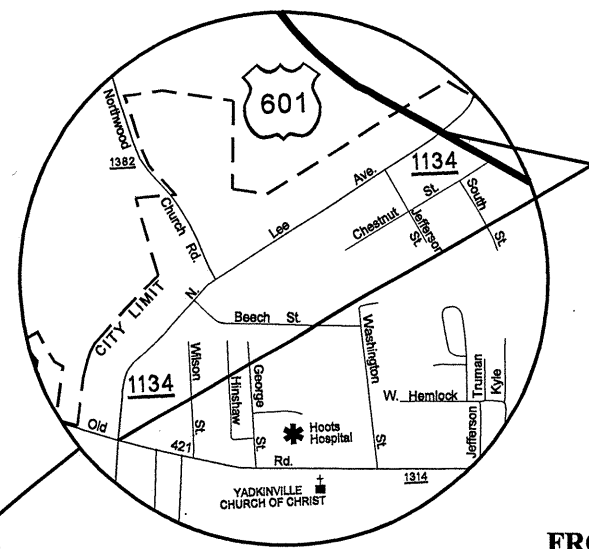
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MAP #18 SR 1367
FROM 50' NORTH OF NC 67
TO 50' NORTH OF SR 1619

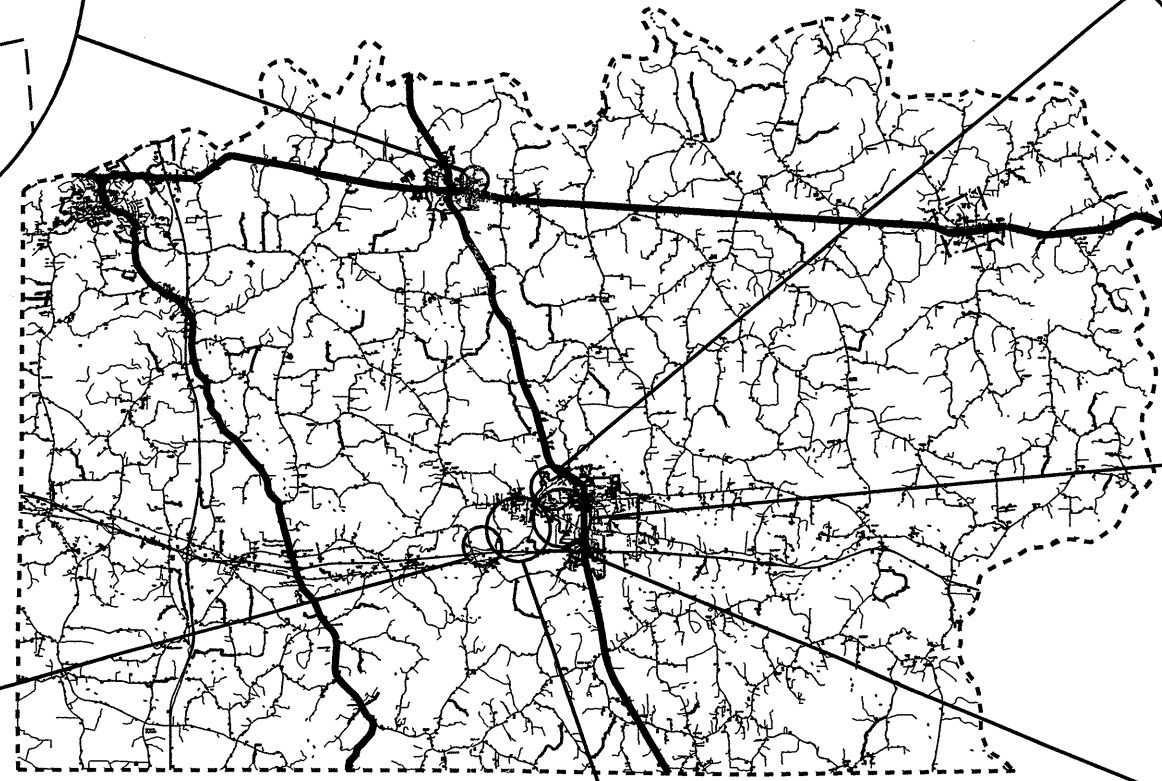


STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

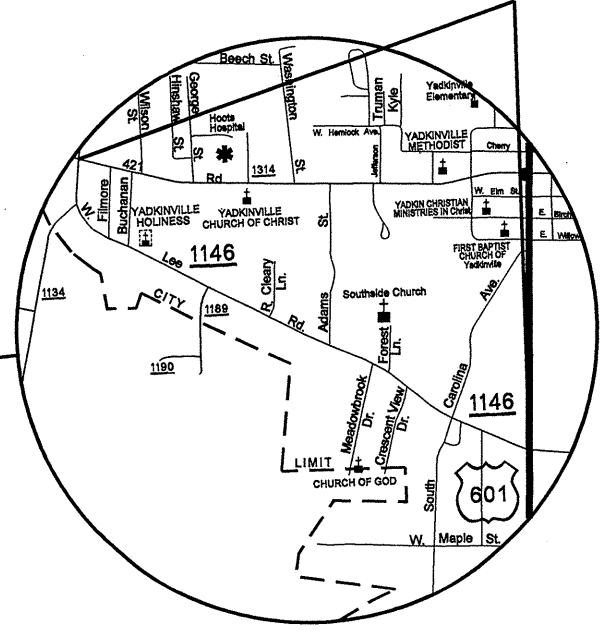
YADKIN COUNTY



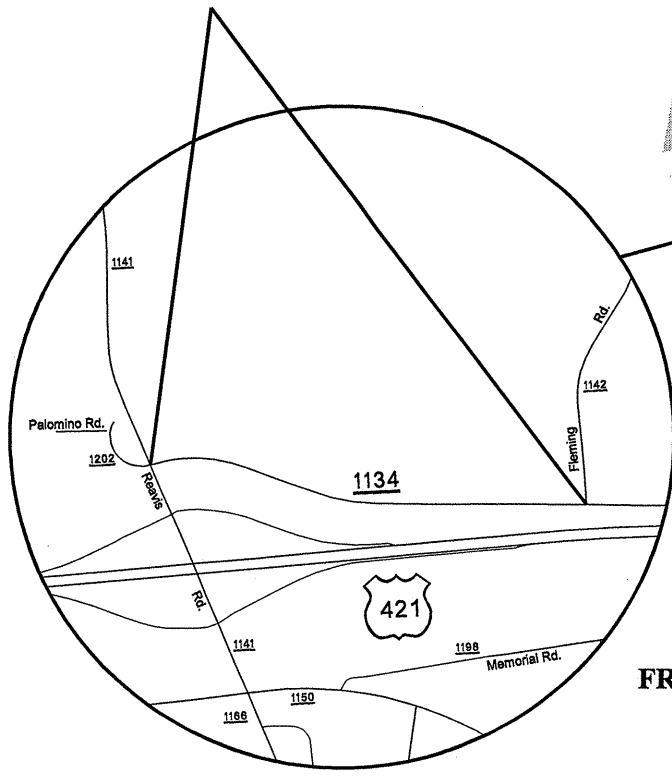
MAP #17 SR 1134
FROM SR 1314 TO US 601 N



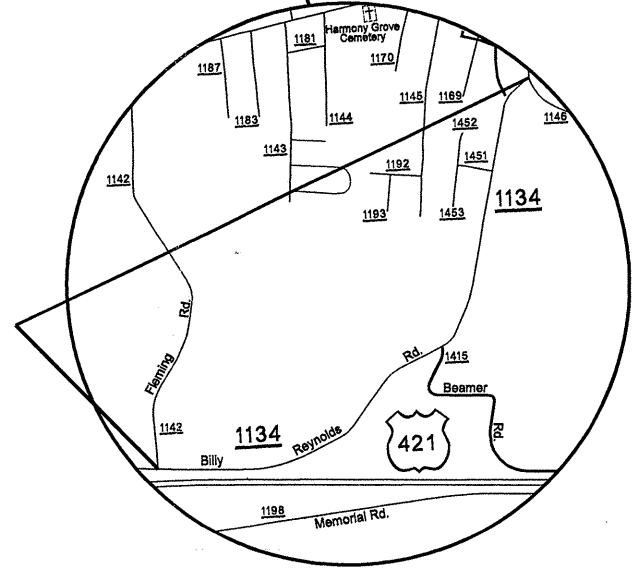
MAP #14 SR 1146
FROM US 601 S TO SR 1134



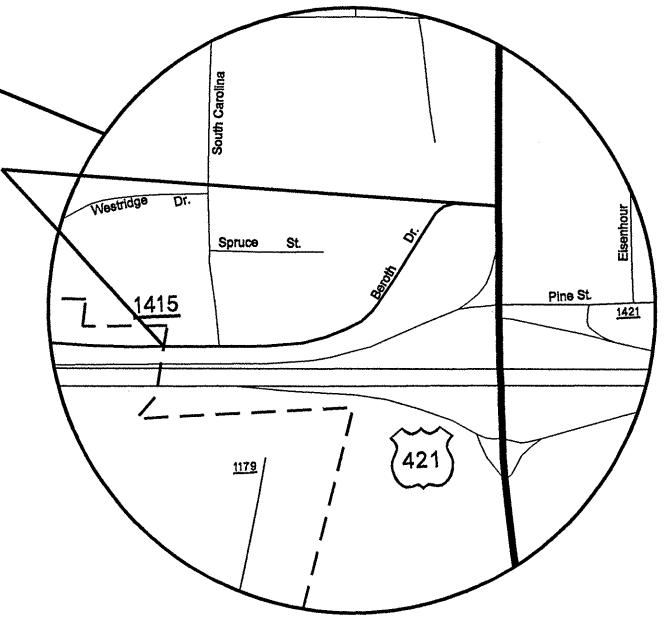
MAP #16 SR 1134
FROM SR 1142 TO SR 1141



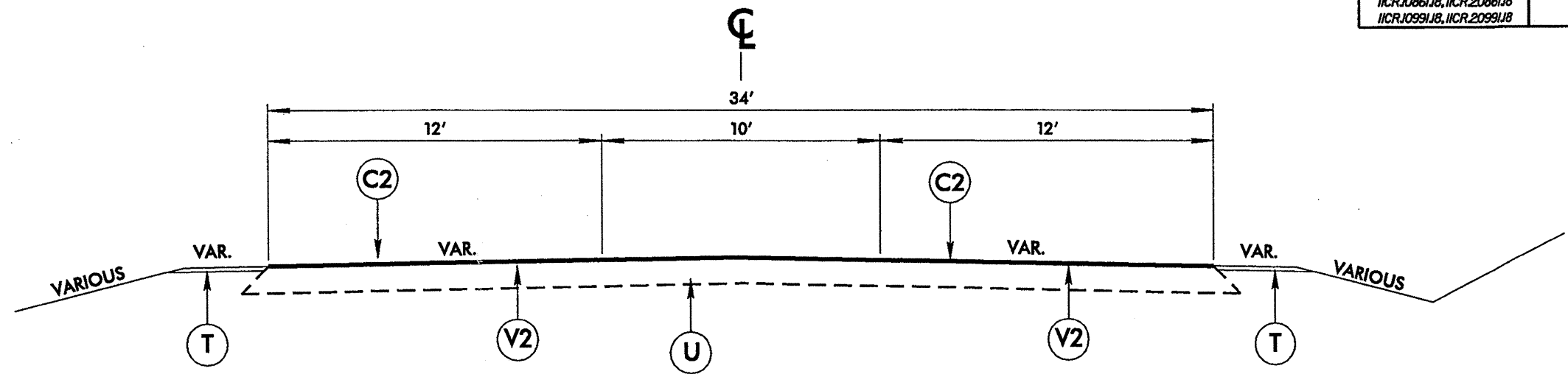
MAP #15 SR 1134
FROM SR 1146 TO SR 1142



MAP #19 SR 1415
FROM US 601 TO
WCL YADKINVILLE

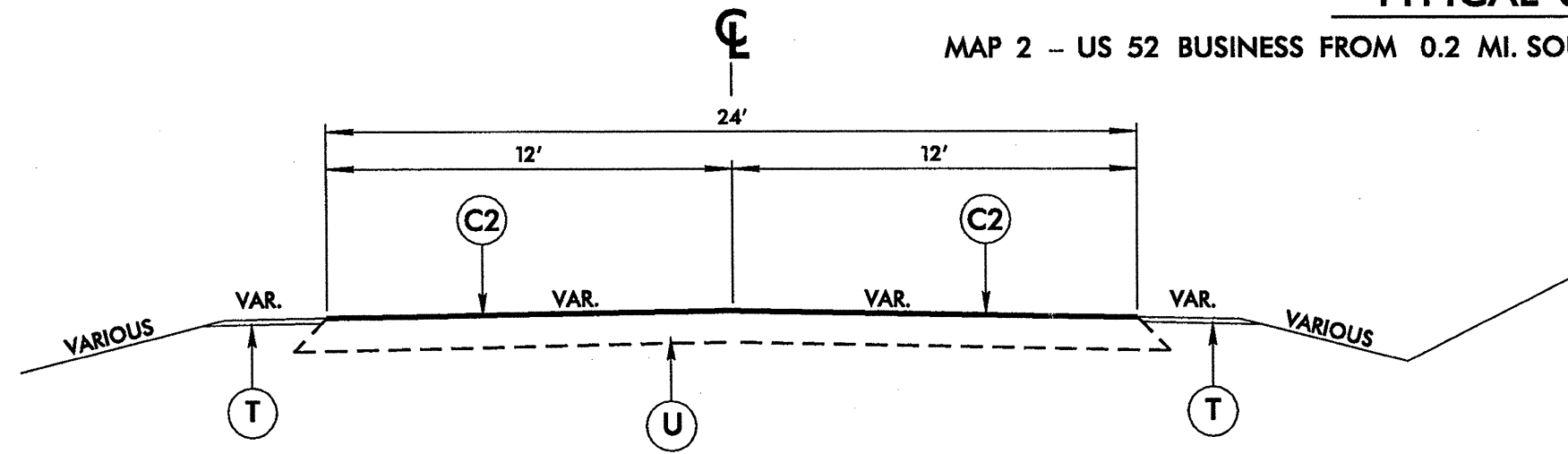


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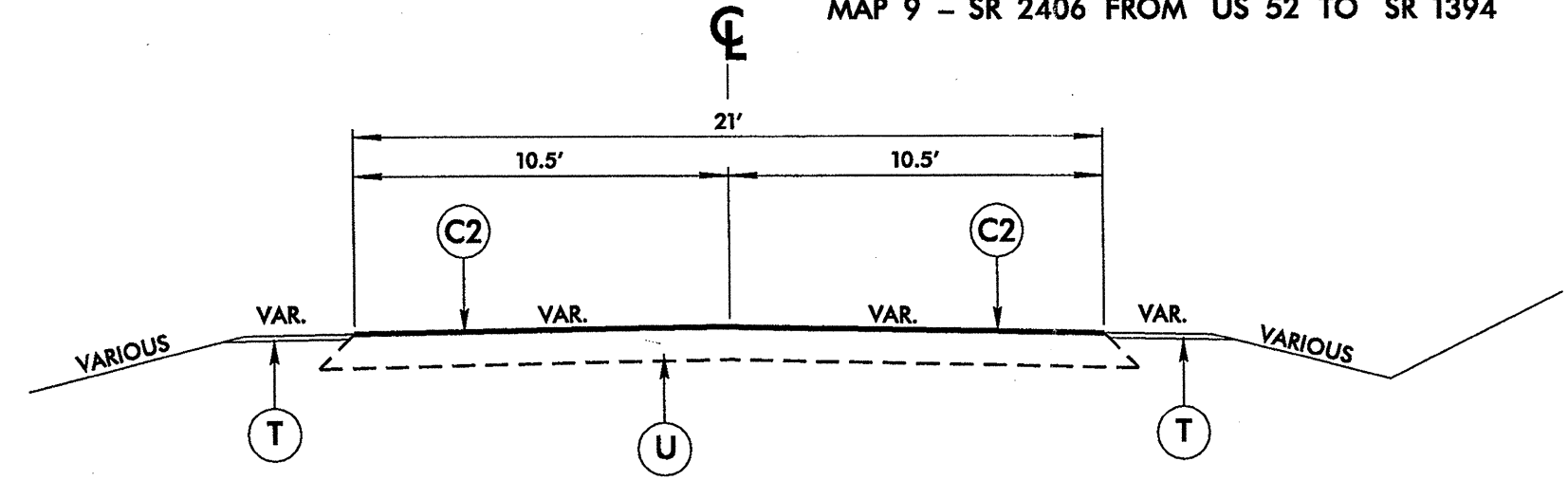
TYPICAL SECTION NO. 3

MAP 2 - US 52 BUSINESS FROM 0.2 MI. SOUTH OF PAIGE STREET TO BRIDGE AT VETERAN'S PARK



TYPICAL SECTION NO. 2

MAP 6 - SR 1003 FROM SR 2258 TO SR 2029
MAP 7 - SR 2164 FROM SR 2000 TO SR 2116
MAP 9 - SR 2406 FROM US 52 TO SR 1394



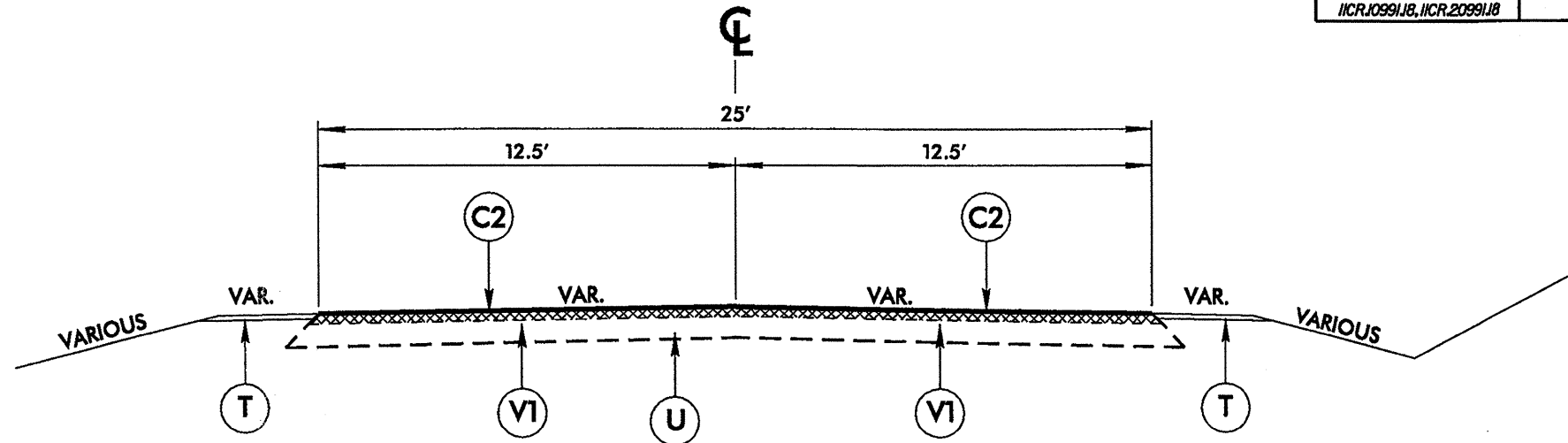
TYPICAL SECTION NO. 1

MAP 1 - US 52 BUSINESS FROM N. INTERSECTION WITH US 52 TO 0.2 MI. SOUTH OF PAIGE STREET
MAP 4 - NC 89 FROM 0.94 MI. WEST OF SR 1607 TO 300' WEST OF SR 1345

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 185 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.
T	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT
V1	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0" - 1½"
V2	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0 - 3"

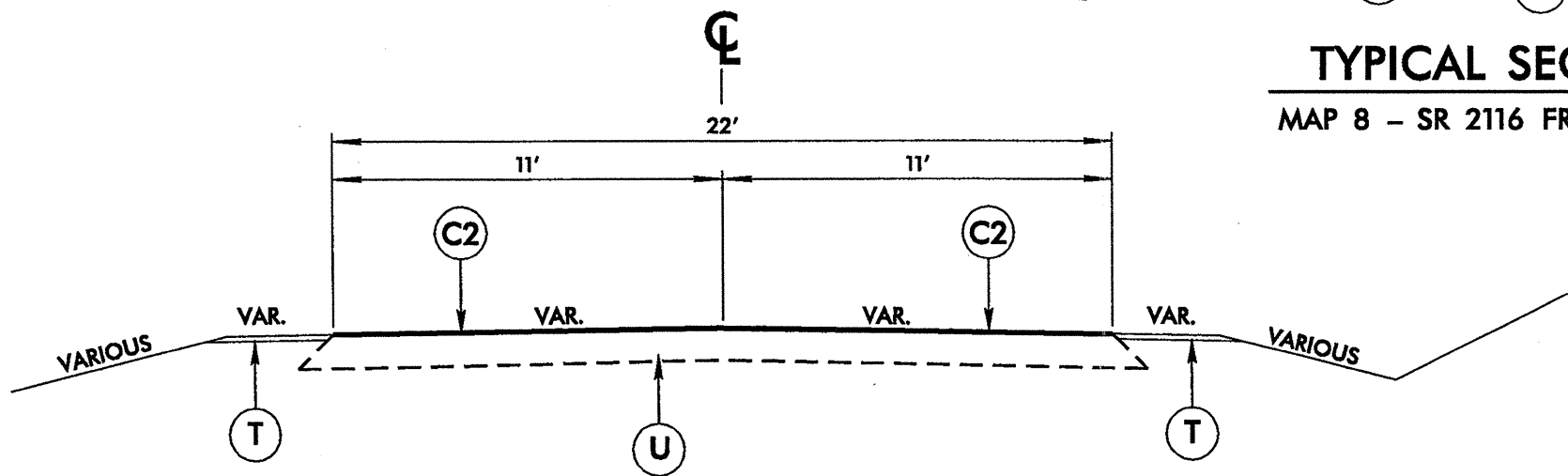
SURRY AND YADKIN COUNTIES PRIMARY AND SECONDARY RESURFACING			
DIVISION II			
REVISIONS	INT.	DATE	
N.C. DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS DIVISION ELEVEN			SCALE: N/A DATE: 12/2010 PREPARED BY: J. L. LAWS REVIEWED BY: REVIEWED BY:

8/17/99



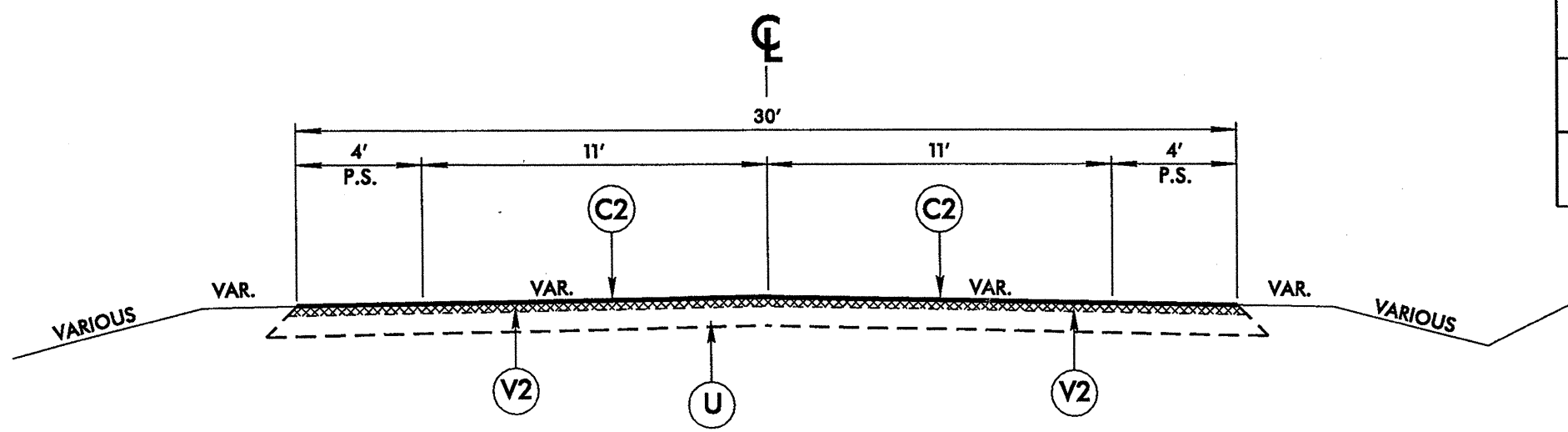
TYPICAL SECTION NO. 6

MAP 8 - SR 2116 FROM SR 2146 TO US 52



TYPICAL SECTION NO. 5

MAP 5 - SR 2019 FROM SR 1003 TO SR 2031
 MAP 10 - NC 67 FROM 50' WEST OF SR 1545 TO 300' WEST OF SR 1548
 MAP 12 - NC 67 FROM 600' EAST OF SR 1549 TO 600' EAST OF SR 1545



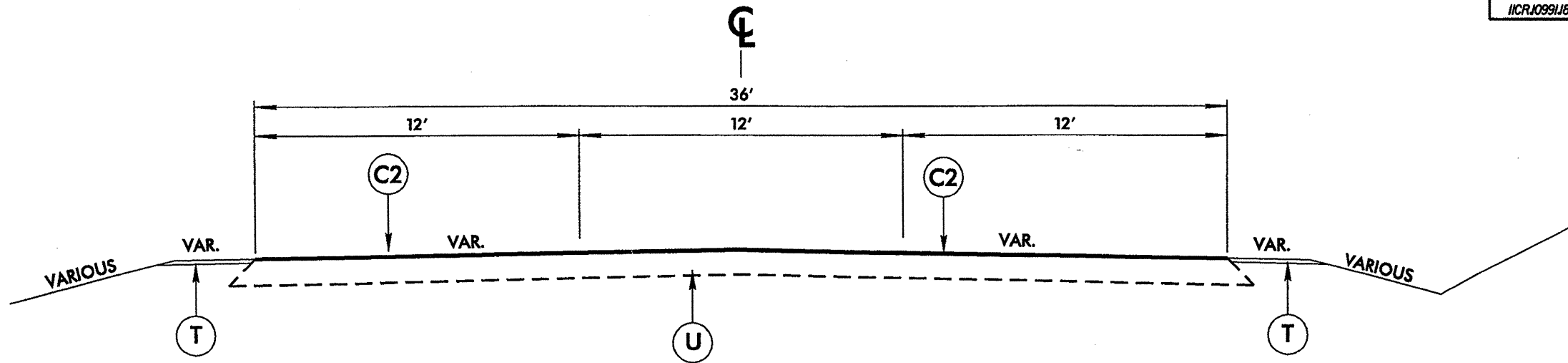
TYPICAL SECTION NO. 4

MAP 3 - US 52 BUSINESS FROM BRIDGE AT VETERAN'S PARK TO SR 1708

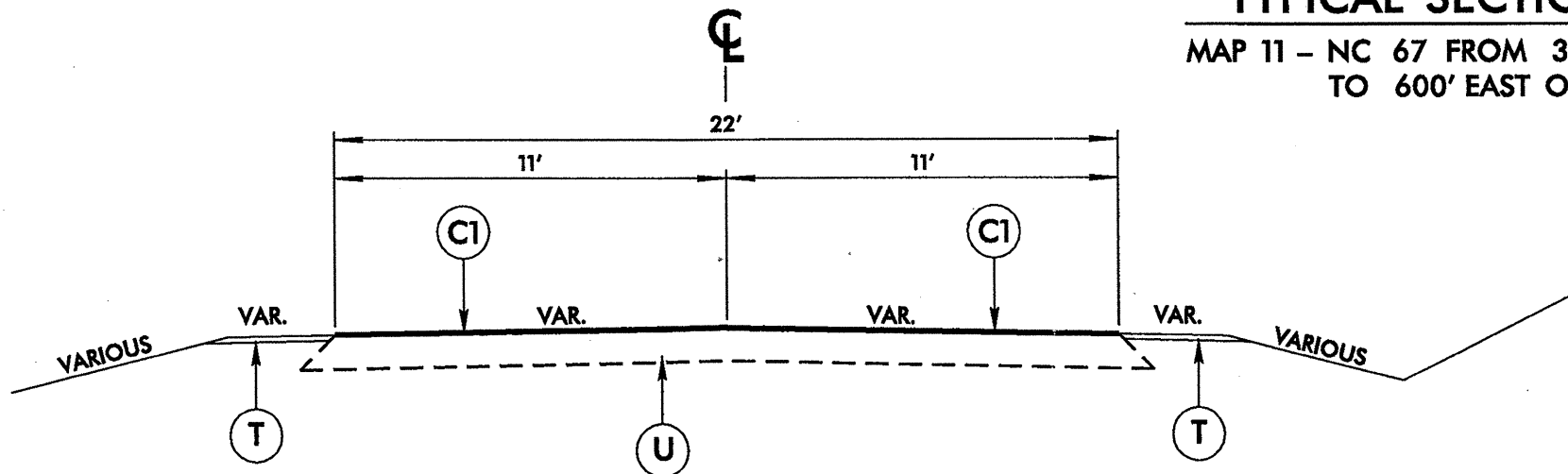
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
T	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT
V1	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0" - 1½"
V2	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0 - 3"

SURRY AND YADKIN COUNTIES PRIMARY AND SECONDARY RESURFACING		
DIVISION II		
REVISIONS	INT.	DATE
N.C. DEPARTMENT of TRANSPORTATION DIVISION of HIGHWAYS DIVISION ELEVEN		SCALE: N/A DATE: 12/2010 PREPARED BY: J. L. LAWS REVIEWED BY: REVIEWED BY:

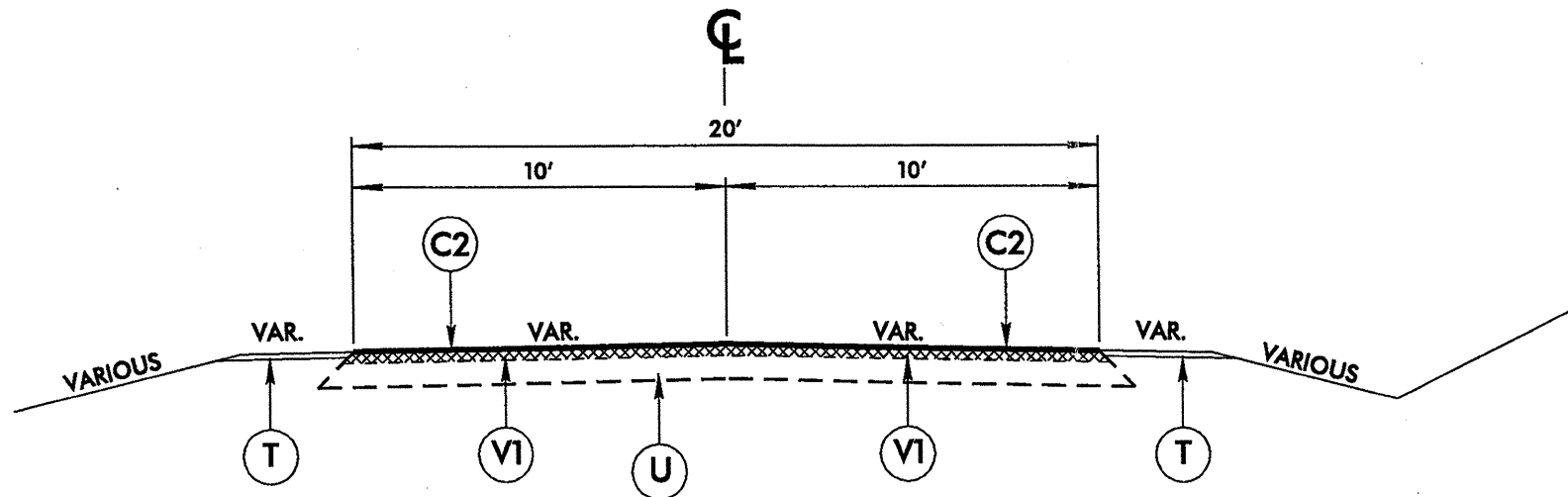
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TYPICAL SECTION NO. 9
 MAP 11 - NC 67 FROM 300' WEST OF SR 1548
 TO 600' EAST OF SR 1549



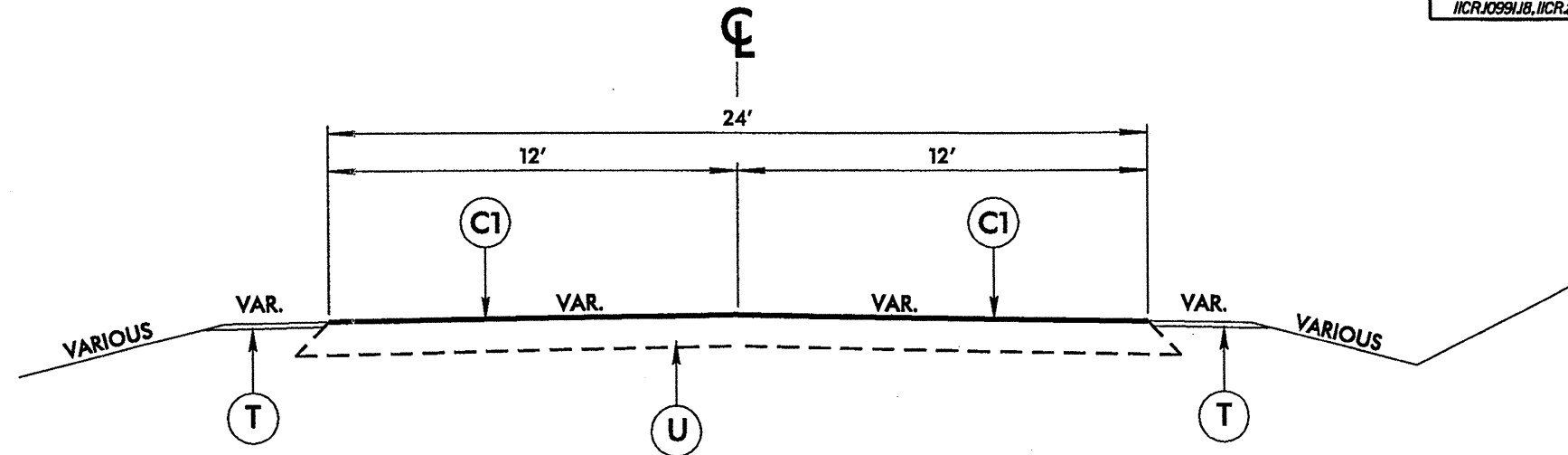
TYPICAL SECTION NO. 8
 MAP 14 - SR 1146 FROM END OF CURB & GUTTER WEST OF US 601 TO SR 1314
 MAP 15 - SR 1134 FROM SR 1146 TO SR 1142
 MAP 16 - SR 1134 FROM SR 1142 TO SR 1141



TYPICAL SECTION NO. 7
 MAP 13 - NC 67 FROM 600' EAST OF SR 1545 TO FORSYTH COUNTY LINE

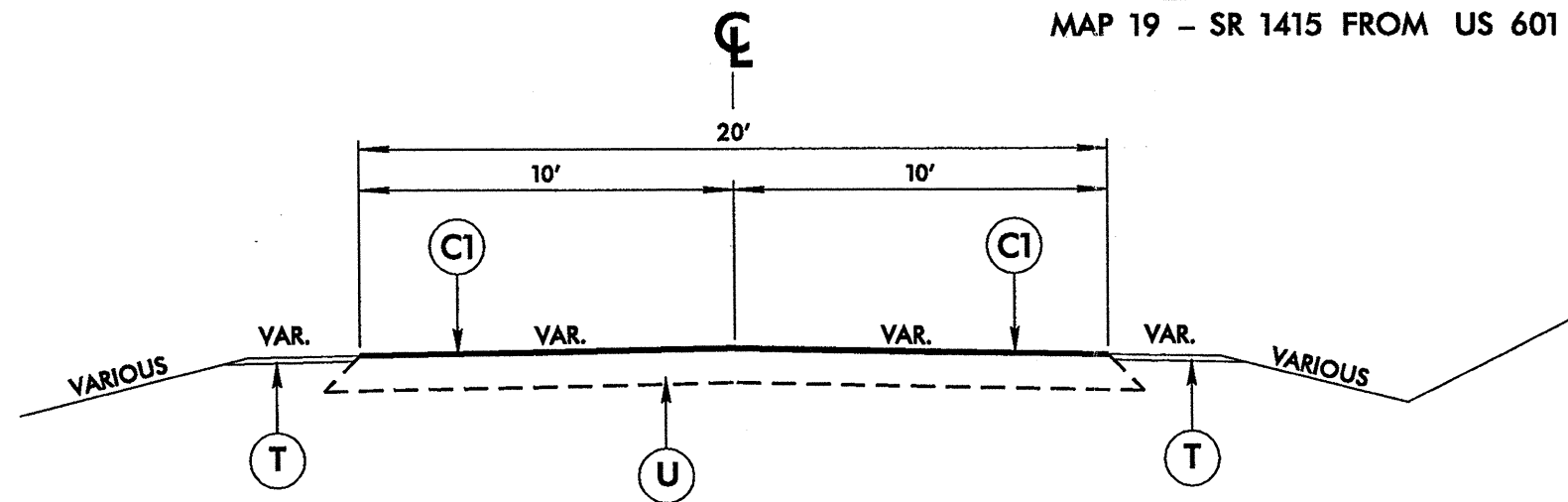
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
T	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT
V1	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0" - 1½"
V2	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0 - 3"

SURRY AND YADKIN COUNTIES PRIMARY AND SECONDARY RESURFACING			
DIVISION II			
REVISIONS	INT.	DATE	
N.C. DEPARTMENT of TRANSPORTATION DIVISION of HIGHWAYS DIVISION ELEVEN			SCALE: N/A DATE: 12/2010 PREPARED BY: J. L. LAWS REVIEWED BY: REVIEWED BY:



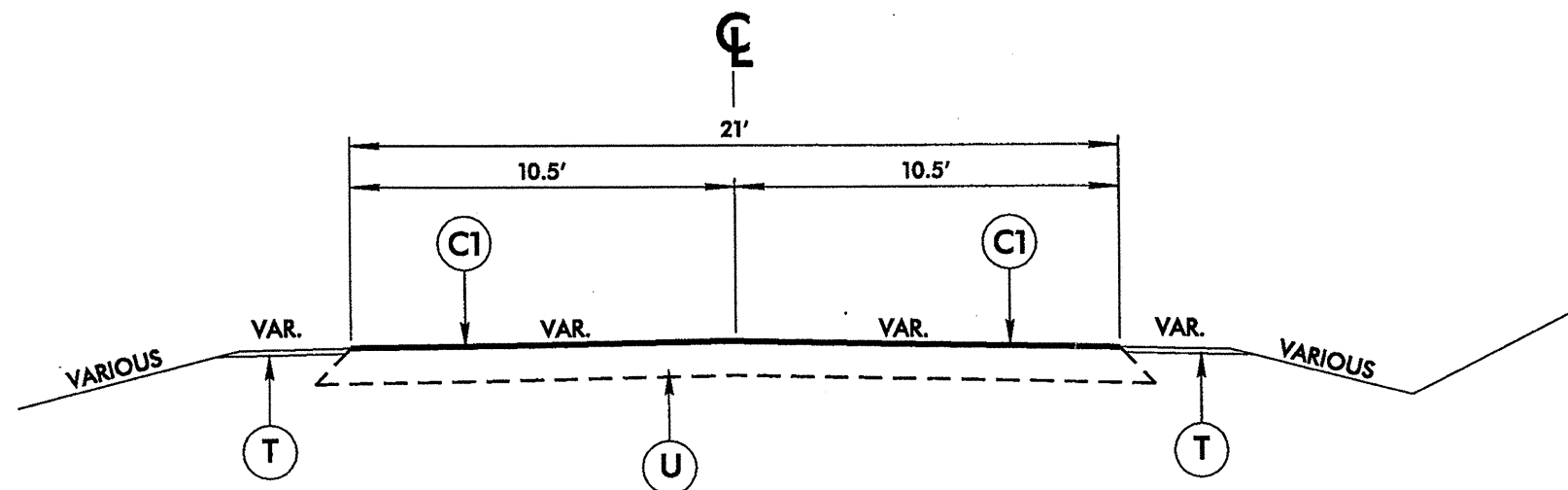
TYPICAL SECTION NO. 12

MAP 19 - SR 1415 FROM US 601 TO YADKINVILLE CITY LIMITS



TYPICAL SECTION NO. 11

MAP 18 - SR 1367 FROM 50' NORTH OF NC 67 TO 50' NORTH OF SR 1619



TYPICAL SECTION NO. 10

MAP 17 - SR 1134 FROM SR 1314 TO US 601

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 185 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.
T	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT
V1	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0" - 1½"
V2	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0 - 3"

SURRY AND YADKIN COUNTIES PRIMARY AND SECONDARY RESURFACING		
DIVISION II		
REVISIONS	INT.	DATE
N.C. DEPARTMENT of TRANSPORTATION DIVISION of HIGHWAYS DIVISION ELEVEN		SCALE: N/A DATE: 12/2010 PREPARED BY: J. L. LAWS REVIEWED BY:

PROJECT NO.	SHEET NO.	TOTAL NO.
11CR.10861.18, 11CR.20861.18 11CR.10991.18, ETC.	9	

SUMMARY OF QUANTITIES

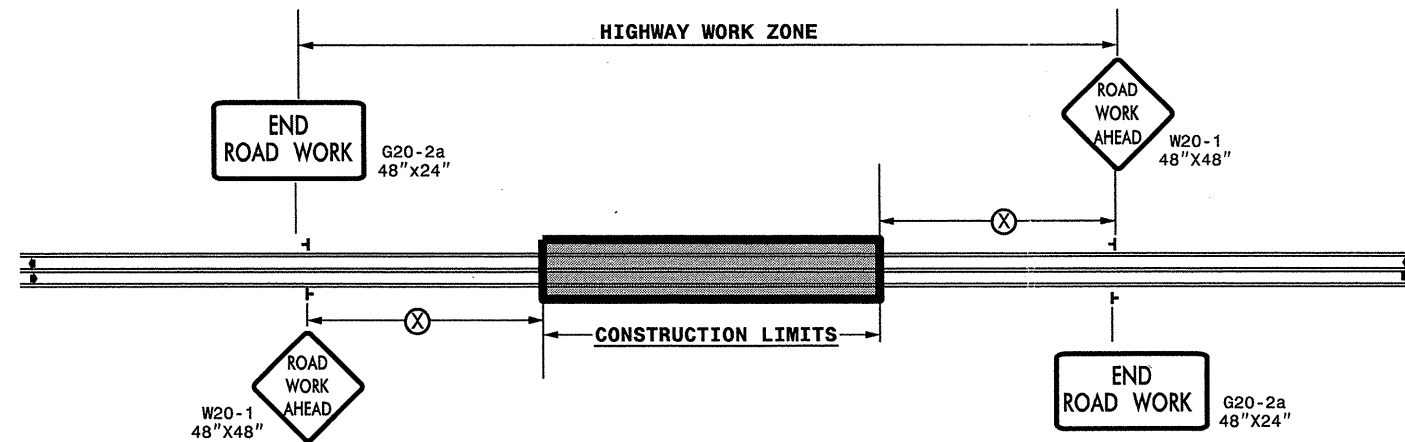
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	BORROW CY	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	0" TO 3.0" MILLING SY	0" TO 1.5" MILLING SY	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TONS	PG 64-22 PLANT MIX TONS	ADJ. OF CATCH BASIN EA	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	SEED & MULCHING AC	INDUCTIVE LOOP LF		
11CR.10861.18	Surry	1	US 52 BUSINESS	FROM NORTH INTERSECTION WITH US 52 TO 0.2 MI. SOUTH OF PAIGE STREET	1	NO	0.63	21	189	32	1.26			860		52		2		0.75			
TOTAL FOR MAP NO. 1							0.63		189	32	1.26			860		52		2		0.75			
		2	US 52 BUSINESS	FROM 0.2 MILES SOUTH OF PAIGE STREET TO BRIDGE AT VETERAN'S PARK	3	NO	0.63	34	189	16	1.26	2,500		1,100		66		2	3	0.75			
TOTAL FOR MAP NO. 2							0.63		189	16	1.26	2,500		1,100		66		2	3	0.75			
		3	US 52 BUSINESS	FROM BRIDGE AT VETERAN'S PARK TO SR 1708	4	NO	0.51	30				9,500		950		57	4	7	6		200		
TOTAL FOR MAP NO. 3							0.51					9,500		950		57	4	7	6		200		
		4	NC 89	FROM 0.94 MILES WEST SR 1607 TO 300' WEST SR 1345	1	NO	3.89	21	1,167	150	7.78			4,200		252				4.70			
TOTAL FOR MAP NO. 4							3.89		1,167	150	7.78			4,200		252					4.70		
TOTAL FOR PROJ NO. 11CR.10861.18							5.66		1,545	198	10.30		12,000		7,110		427	4	11	9	6.20	200	
11CR.20861.18	Surry	5	SR 2019	FROM SR 1003 TO SR 2031	5	NO	0.98	22	294	100	1.96			1,090		65				1.20			
TOTAL FOR MAP NO. 5							0.98		294	100	1.96			1,090		65					1.20		
		6	SR 1003	FROM SR 2258 TO SR 2029	2	NO	2.03	24	609	100	4.06			2,550		153				2.40			
TOTAL FOR MAP NO. 6							2.03		609	100	4.06			2,550		153					2.40		
		7	SR 2164	FROM SR 2000 TO SR 2116	2	NO	0.44	24	132		0.88			550		33				0.53			
TOTAL FOR MAP NO. 7							0.44		132		0.88			550		33					0.53		
		8	SR 2116	FROM SR 2164 TO US 52	6	NO	0.49	25	147		0.98	1,543		760		46				0.60	425		
TOTAL FOR MAP NO. 8							0.49		147		0.98	1,543		760		46					0.60	425	
		9	SR 2406	FROM US 52 TO SR 1394	2	NO	0.89	24	267	100	1.78			1,250		75			1	1.04			
TOTAL FOR MAP NO. 9							0.89		267	100	1.78			1,250		75				1	1.04		
TOTAL FOR PROJ NO. 11CR.20861.18							4.83		1,449	300	9.66		1,543		6,200		372				1	5.77	425
11CR.10991.18	Yadkin	10	NC 67	FROM 50' WEST OF SR 1545 TO 300' WEST OF SR 1548	5	NO	0.58	22	174	32	1.16			675		40				0.70			
TOTAL FOR MAP NO. 10							0.58		174	32	1.16			675		40					0.70		
		11	NC 67	FROM 300' WEST OF SR 1548 TO 600' EAST OF SR 1549	9	NO	0.4	36	120	50	0.80			780		47				0.45	400		
TOTAL FOR MAP NO. 11							0.4		120	50	0.80			780		47					0.45	400	
		12	NC 67	FROM 600' EAST OF SR 1549 TO 600' EAST OF SR 1545	5	NO	0.9	22	270	50	1.80			1,100		66				1.08			
TOTAL FOR MAP NO. 12							0.9		270	50	1.80			1,100		66					1.08		
		13	NC 67	FROM 600' EAST OF SR 1545 TO FORSYTH COUNTY LINE	7	NO	3.6	20	1,080	150	7.20	300		3,700		222				4.30			
TOTAL FOR MAP NO. 13							3.6		1,080	150	7.20	300		3,700		222					4.30		
TOTAL FOR PROJ NO. 11CR.10991.18							5.48		1,644	282	10.96		300		6,255		375					6.53	400
11CR.20991.18	Yadkin	14	SR 1146	FROM END OF CURB & GUTTER WEST OF US 601 TO SR 1314	8	NO	1.21	22	363		2.42				1,325	86		5		1.46			
TOTAL FOR MAP NO. 14							1.21		363		2.42				1,325	86		5		1.46			
		15	SR 1134	FROM SR 1146 TO SR 1142	8	NO	1.53	22	459	100	3.06			1,710	111		1		1.85				
TOTAL FOR MAP NO. 15							1.53		459	100	3.06			1,710	111		1			1.85			
		16	SR 1134	FROM SR 1142 TO SR 1141	8	NO	0.57	22	171	50	1.14			630	41				0.70				
TOTAL FOR MAP NO. 16							0.57		171	50	1.14			630	41					0.70			
		17	SR 1134	FROM SR 1314 TO US 601	10	NO	0.83	21	249	50	1.66			875	57		2	5	1.00				
TOTAL FOR MAP NO. 17							0.83		249	50	1.66			875	57		2	5		1.00			
		18	SR 1367	FROM 50' NORTH OF NC 67 TO 50' NORTH OF SR 1619	11	NO	0.51	20	153	50	1.02			540	35				0.62				
TOTAL FOR MAP NO. 18							0.51		153	50	1.02			540	35					0.62			
		19	SR 1415	FROM US 601 TO YADKINVILLE CITY LIMITS	12	NO	0.29	24	87	25	0.58			350	23		2	1	0.35				
TOTAL FOR MAP NO. 19							0.29		87	25	0.58			350	23		2	1		0.35			
TOTAL FOR PROJ NO. 11CR.20991.18							4.94		1,482	275	9.88			5,430	353		10	6		5.98			
GRAND TOTAL							20.91		6,120	1,055	40.80		12,000	1,843	19,565	5,430	1,527	4	21	16	24.48	1,025	

PROJECT NO.	SHEET NO.	TOTAL NO.
11CR.10861.18, 11CR.20861.18 11CR.10991.18, ETC.	10	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	481000000-E		483000000-E	483500000-E	484000000-N		484500000-N				490500000-N
					4" WHITE PAINT LF	4" YELLOW PAINT LF	16" WHITE PAINT LF	24" WHITE PAINT LF	PAINT MSG RXR EA	PAINT MSG SCHOOL EA	PAINT STR ARROW EA	PAINT LT ARROW EA	PAINT RT ARROW EA	PAINT STR & RT ARROW EA	SNOW PLOWABLE MARKERS EA
11CR.10861.18	Surry	1	US 52 BUSINESS	FROM NORTH INTERSECTION WITH US 52 TO 0.2 MI. SOUTH OF PAIGE STREET	13,308	13,308		24			4				42
TOTAL FOR MAP NO. 1					13,308	13,308		24			4				42
		2	US 52 BUSINESS	FROM 0.2 MILES SOUTH OF PAIGE STREET TO BRIDGE AT VETERAN'S PARK	13,308	13,308						9			42
TOTAL FOR MAP NO. 2					13,308	13,308						9			42
		3	US 52 BUSINESS	FROM BRIDGE AT VETERAN'S PARK TO SR 1708	10,840	10,840		24				5	1	1	34
TOTAL FOR MAP NO. 3					10,840	10,840		24				5	1	1	34
		4	NC 89	FROM 0.94 MILES WEST SR 1607 TO 300' WEST SR 1345	82,192	82,192									258
TOTAL FOR MAP NO. 4					82,192	82,192									258
TOTAL FOR PROJ NO. 11CR.10861.18					119,648	119,648		48			4	14	1	1	376
					239,296							20			
11CR.20861.18	Surry	5	SR 2019	FROM SR 1003 TO SR 2031	20,596	20,596									
TOTAL FOR MAP NO. 5					20,596	20,596									
		6	SR 1003	FROM SR 2258 TO SR 2029	42,572	42,572									135
TOTAL FOR MAP NO. 6					42,572	42,572									135
		7	SR 2164	FROM SR 2000 TO SR 2116	9,260	9,260	100	50	4						
TOTAL FOR MAP NO. 7					9,260	9,260	100	50	4						
		8	SR 2116	FROM SR 2164 TO US 52	11,000	11,000	100	80	4			2	2	1	
TOTAL FOR MAP NO. 8					11,000	11,000	100	80	4			2	2	1	
		9	SR 2406	FROM US 52 TO SR 1394	18,292	18,292						5	2	2	
TOTAL FOR MAP NO. 9					18,292	18,292						5	2	2	
TOTAL FOR PROJ NO. 11CR.20861.18					101,720	101,720	200	130	8	8		7	4	3	135
					203,440							14			
11CR.10991.18	Yadkin	10	NC 67	FROM 50' WEST OF SR 1545 TO 300' WEST OF SR 1548	12,250	12,250									40
TOTAL FOR MAP NO. 10					12,250	12,250									40
		11	NC 67	FROM 300' WEST OF SR 1548 TO 600' EAST OF SR 1549	8,448	14,672		122		6		17		3	54
TOTAL FOR MAP NO. 11					8,448	14,672		122		6		17		3	54
		12	NC 67	FROM 600' EAST OF SR 1549 TO 600' EAST OF SR 1545	19,008	19,008		50		6					60
TOTAL FOR MAP NO. 12					19,008	19,008		50		6					60
		13	NC 67	FROM 600' EAST OF SR 1545 TO FORSYTH COUNTY LINE	76,032	76,032									238
TOTAL FOR MAP NO. 13					76,032	76,032									238
TOTAL FOR PROJ NO. 11CR.10991.18					115,738	121,962		172	12			17		3	392
					237,700							20			
11CR.20991.18	Yadkin	14	SR 1146	FROM END OF CURB & GUTTER WEST OF US 601 TO SR 1314	25,556	25,556		24				3		3	
TOTAL FOR MAP NO. 14					25,556	25,556		24				3		3	
		15	SR 1134	FROM SR 1146 TO SR 1142	32,314	32,314									
TOTAL FOR MAP NO. 15					32,314	32,314									
		16	SR 1134	FROM SR 1142 TO SR 1141	12,039	12,039									
TOTAL FOR MAP NO. 16					12,039	12,039									
		17	SR 1134	FROM SR 1314 TO US 601	17,530	17,530		12							
TOTAL FOR MAP NO. 17					17,530	17,530		12							
		18	SR 1367	FROM 50' NORTH OF NC 67 TO 50' NORTH OF SR 1619	10,771	10,771									
TOTAL FOR MAP NO. 18					10,771	10,771									
		19	SR 1415	FROM US 601 TO YADKINVILLE CITY LIMITS	6,125	6,125									
TOTAL FOR MAP NO. 19					6,125	6,125									
TOTAL FOR PROJ NO. 11CR.20991.18					104,335	104,335		36				3		3	
					208,670							6			
GRAND TOTAL					441,441	447,665	200	386	8	12	4	41	5	10	903
					889,106				20			60			

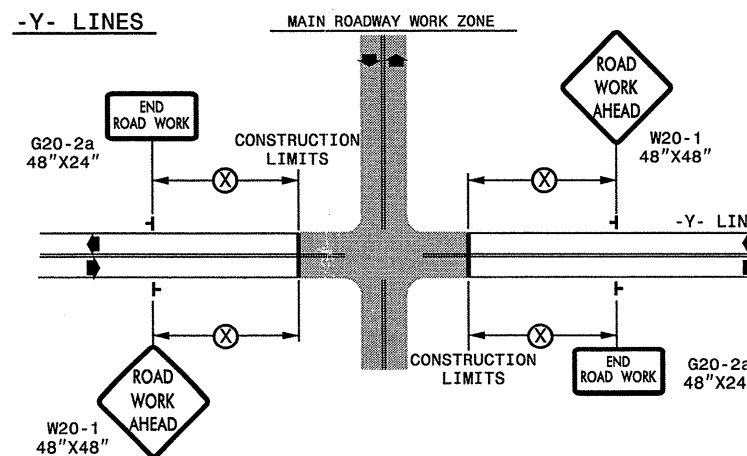
TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING
≤ 50	500'
≥ 55	1000'

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



DETAIL DRAWING FOR
 TWO-WAY UNDIVIDED
 WORK ZONE WARNING SIGNS

GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

┆ STATIONARY SIGN

◀ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

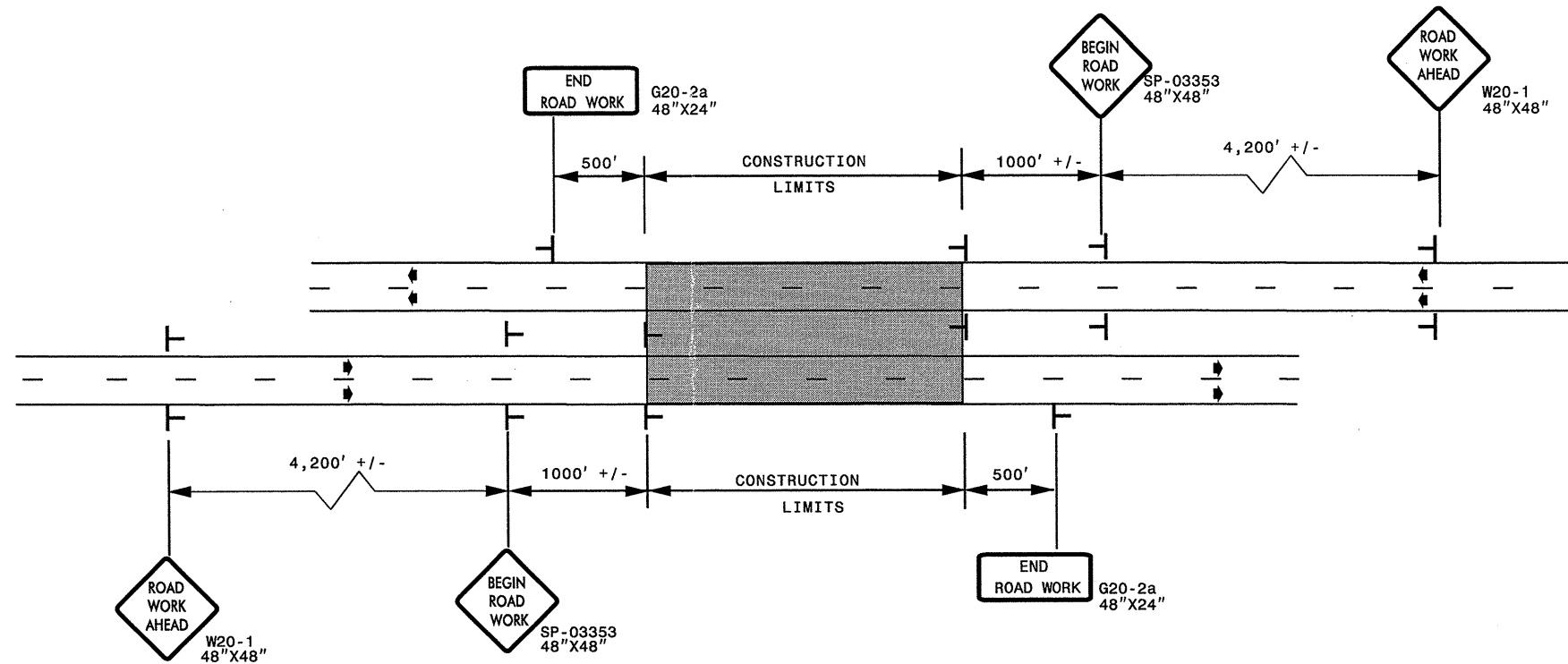
APPROVED: _____	DATE: _____	DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS	
SEAL	SCALE: NONE	REVISIONS	
	DATE: _____	7-98	10/01
	DWG. BY: _____	10-98	03/04
	DESIGN BY: _____	01/01	11/04
	REVIEWED BY: _____	CADD FILE	

23-DEC-2000 13:41
 \DOT\DOT\DOT\GROUPS\WZTCCC\M&S Division\Share\Resurfacing\2001\Western\2001\Div\2002\71A-D_11CR.10861.18x4-2way_Undiv.&_Urban_Frways_stationary.dgn
 shg/een AT 12:42:43

ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

PROJ. REFERENCE NO.	SHEET NO.
11CR.10861.18, 11CR.20861.18 11CR.10991.18, 11CR.20991.18	TCP-2

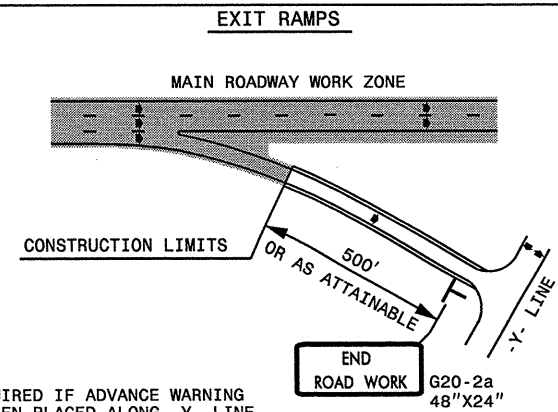
DETAIL A



LEGEND	
┆	STATIONARY SIGN
▶	DIRECTION OF TRAFFIC FLOW

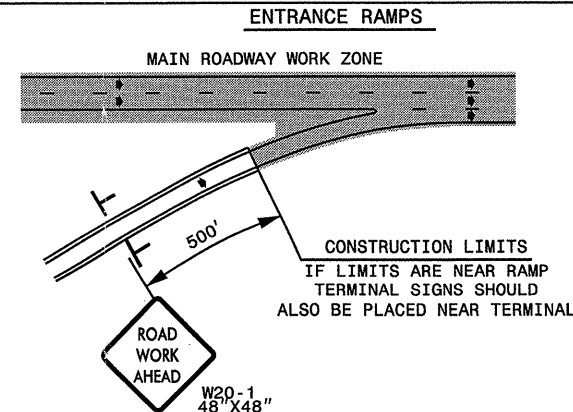
* USE THE "\$250 SPEEDING PENALTY" SIGN, SPEED LIMIT SIGN, AND ORANGE PANEL; ONLY WHEN A "\$250 SPEEDING PENALTY" ORDINANCE HAS BEEN ISSUED BY THE REGIONAL TRAFFIC ENGINEER.

DETAIL B

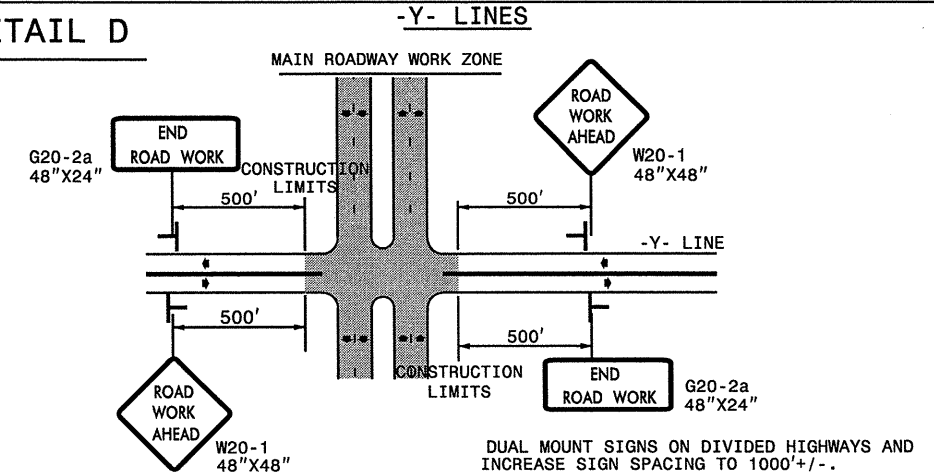


NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C



DETAIL D



GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B). MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.

APPROVED: _____ DATE: _____	ADVANCED WORK ZONE WARNING SIGNS FOR FREEWAYS (4 LANES OR GREATER)	
	SCALE: NONE	REVISIONS
	DATE: 8/03	03/04
	DWG. BY: JI	
	DESIGN BY: JI	
REVIEWED BY: _____		CADD FILE

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

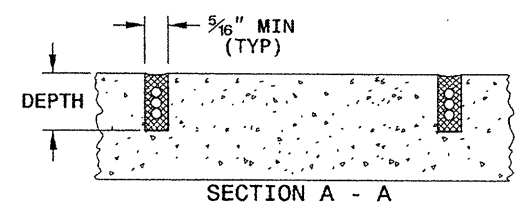
11-08

INDUCTIVE DETECTION LOOPS
ENGLISH DETAIL DRAWING FOR

SHEET 1 OF 3
1725D01

SAW SLOT DEPTH CHART

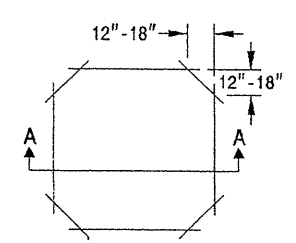
DEPTH (IN)	NO. OF WIRE TURNS					
	2	3	4	5	6	
CONCRETE	2.0	2.0	2.5	2.5	3.0	
ASPHALT	2.0	2.5	3.0	3.0	3.0	



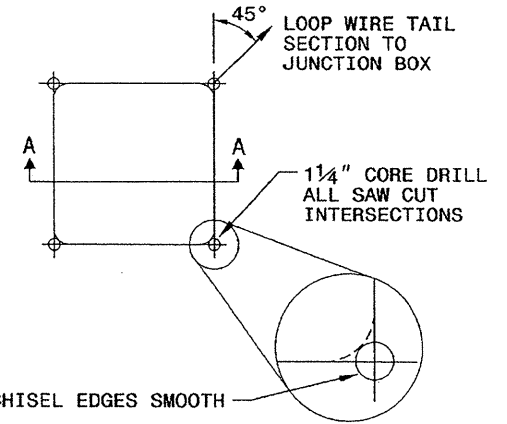
CONVENTIONAL 4-SIDED LOOP

SAW CUT OPTIONS

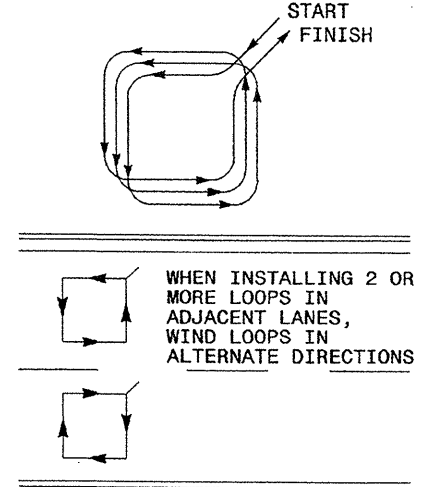
OPTION 1



OPTION 2 (POOR PAVEMENT)



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE



CORRECT WAY TO TWIST WIRE



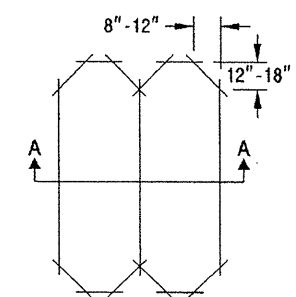
NOTES

1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

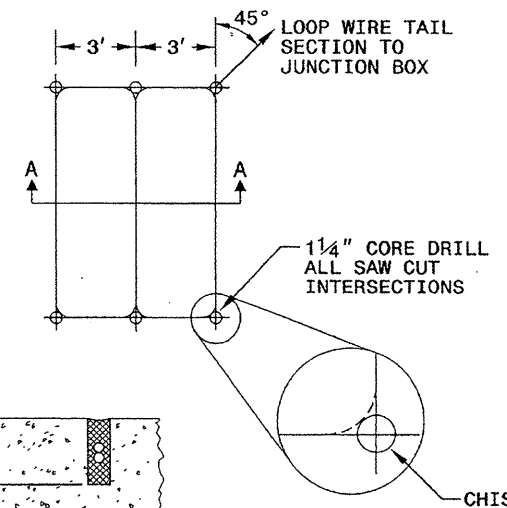
QUADRUPOLE LOOP

SAW CUT OPTIONS

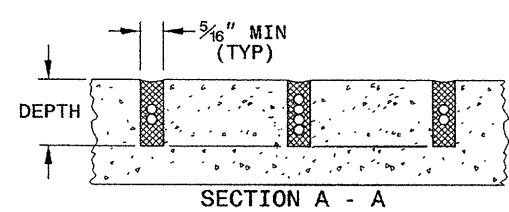
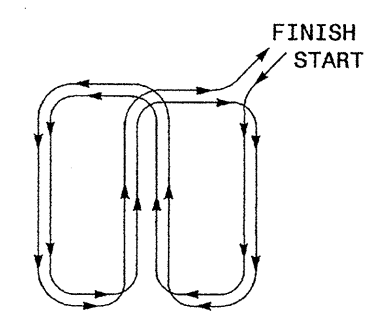
OPTION 1



OPTION 2 (POOR PAVEMENT)



LOOP WINDING METHOD



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

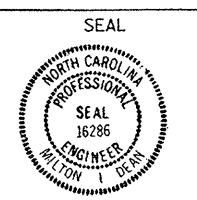
11-08

INDUCTIVE DETECTION LOOPS
ENGLISH DETAIL DRAWING FOR

SHEET 1 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:
Intelligent Transportation Systems & Signals Unit
750 N. Greenfield Parkway
Garner, NC 27529



Milton I. Dean 11/24/08
SIGNATURE DATE

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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

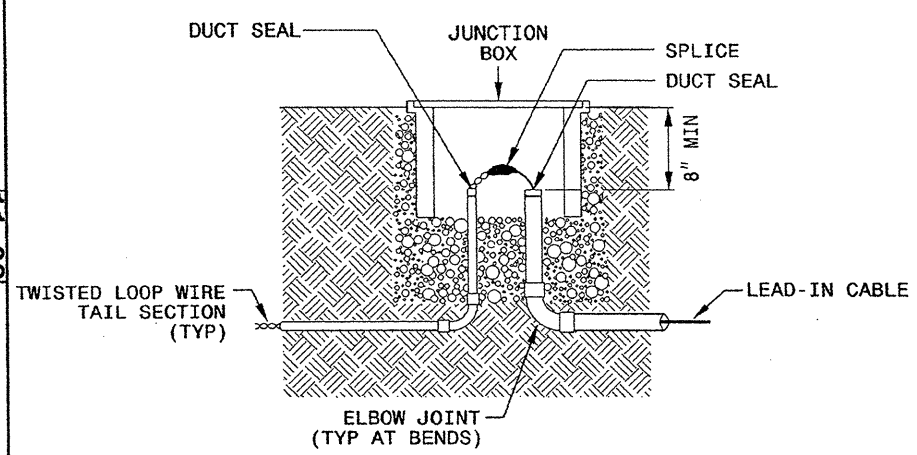
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

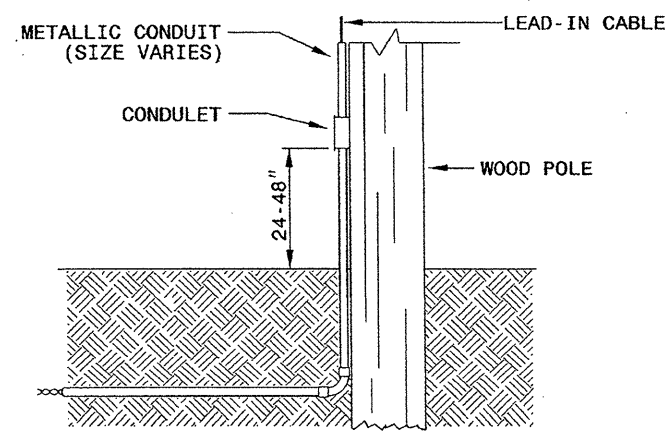
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

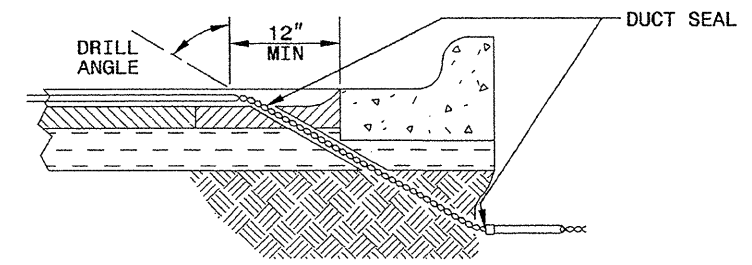


NOTE

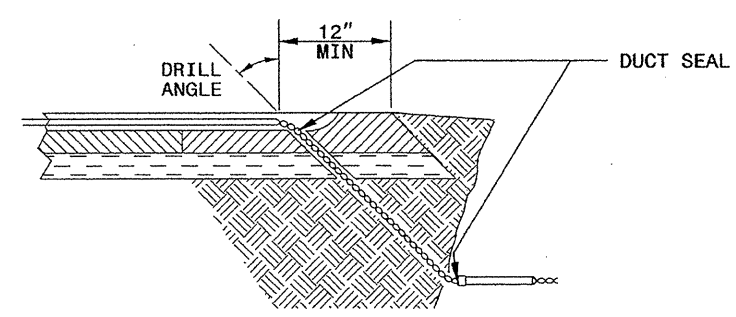
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

1. DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
2. TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
3. BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT AND AT ENTRANCE OF CONDUIT TO JUNCTION BOX.

STATE OF NORTH CAROLINA
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11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

Milton I. Dean 11/24/08
SIGNATURE DATE

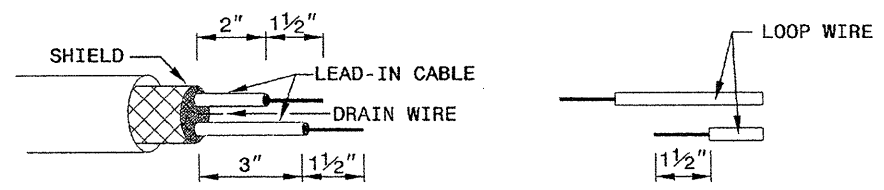
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

11-08

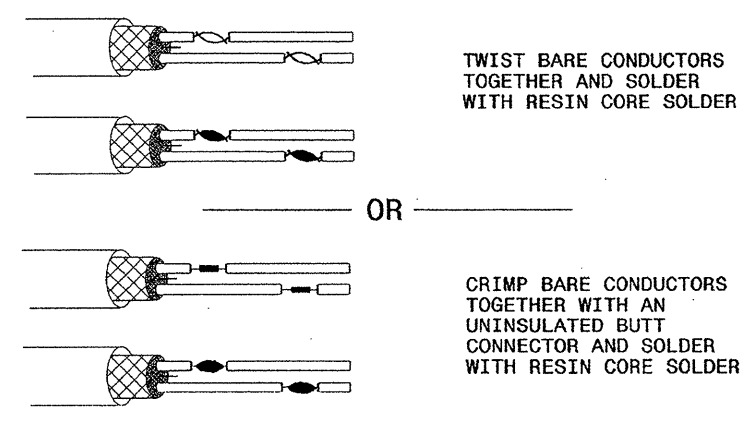
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

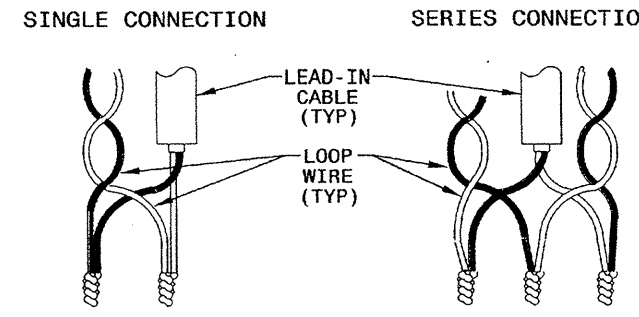


STEP 2. CONNECT AND SOLDER

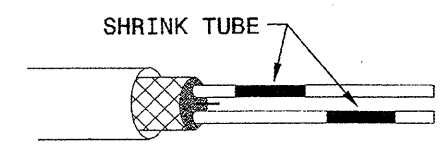


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

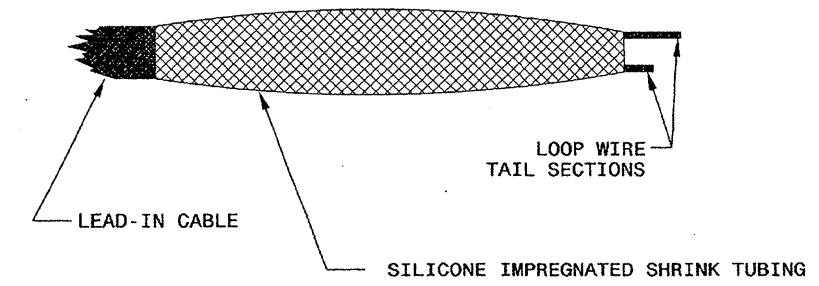
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

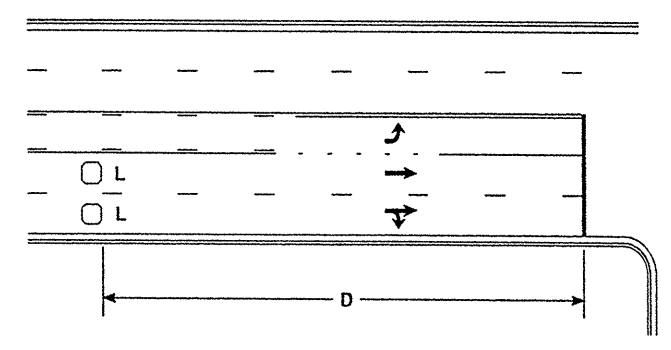
750 N. Greenfield Parkway
Garner, NC 27529

SEAL

Milton J. Dean 11/24/08
SIGNATURE DATE

24-NOV-2008 09:36
 d:\work\files\std-standard plate sheets\1725D01.mxd\207.dgn
 20111116

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

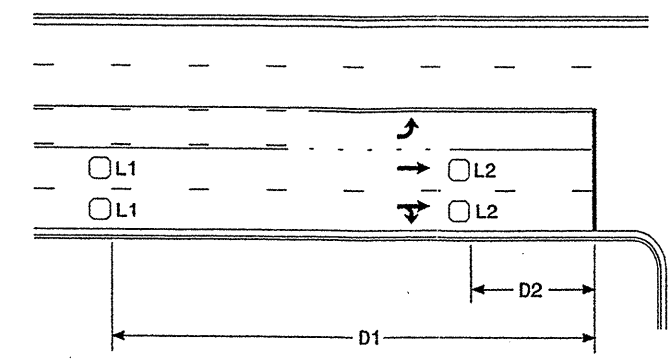


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

Volume Density Operation

OR

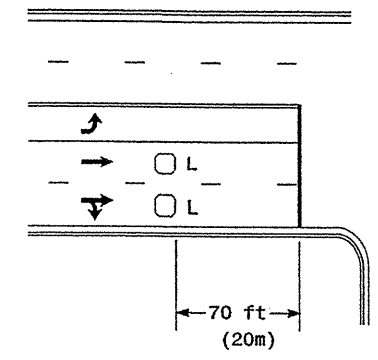


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

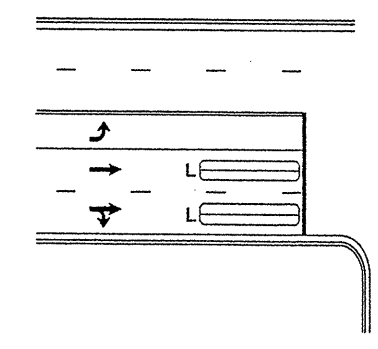
"Stretch" Operation

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



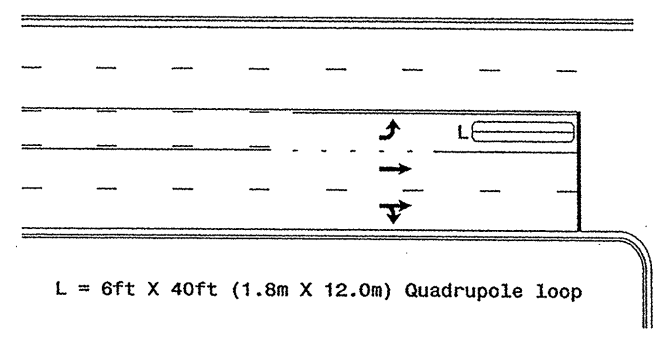
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

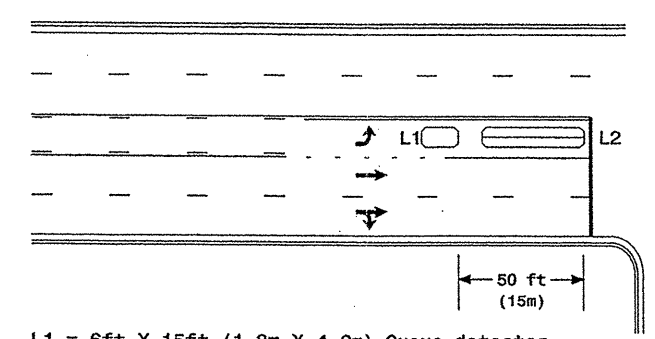
Left Turn Lane Detection



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

Presence Loop Detection

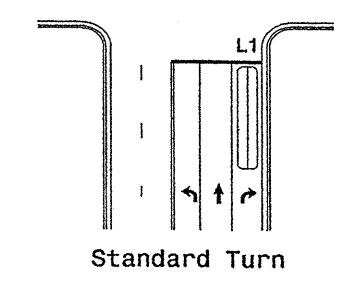
OR



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

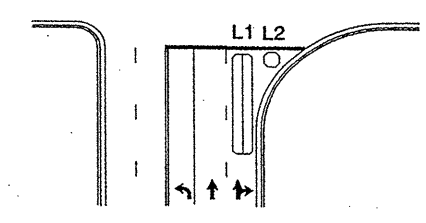
Queue Loop Detection

Right Turn Lane Detection

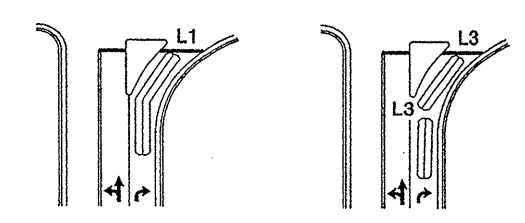


Standard Turn

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

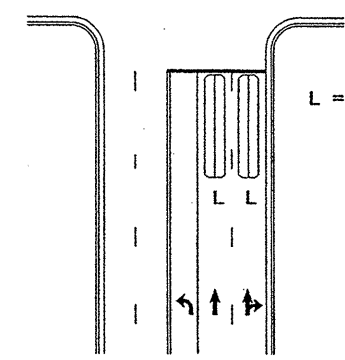


Wide Radius Turn



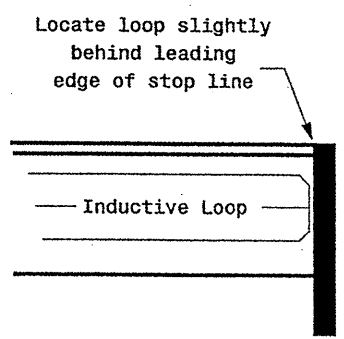
Channelized Turn

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



Locate loop slightly
behind leading
edge of stop line

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

	<p>Typical Loop Locations</p>		
	<p>PLAN DATE: June 2006</p> <p>REVIEWED BY:</p>	<p>PREPARED BY: P. L. Alexander</p> <p>REVIEWED BY:</p>	
<p>722 N. McDowell St., Raleigh, NC 27603</p>		<p>REVISIONS</p> <p>INIT. DATE</p>	<p>SIGNATURE: P. L. Alexander</p> <p>DATE: 12/1/06</p>