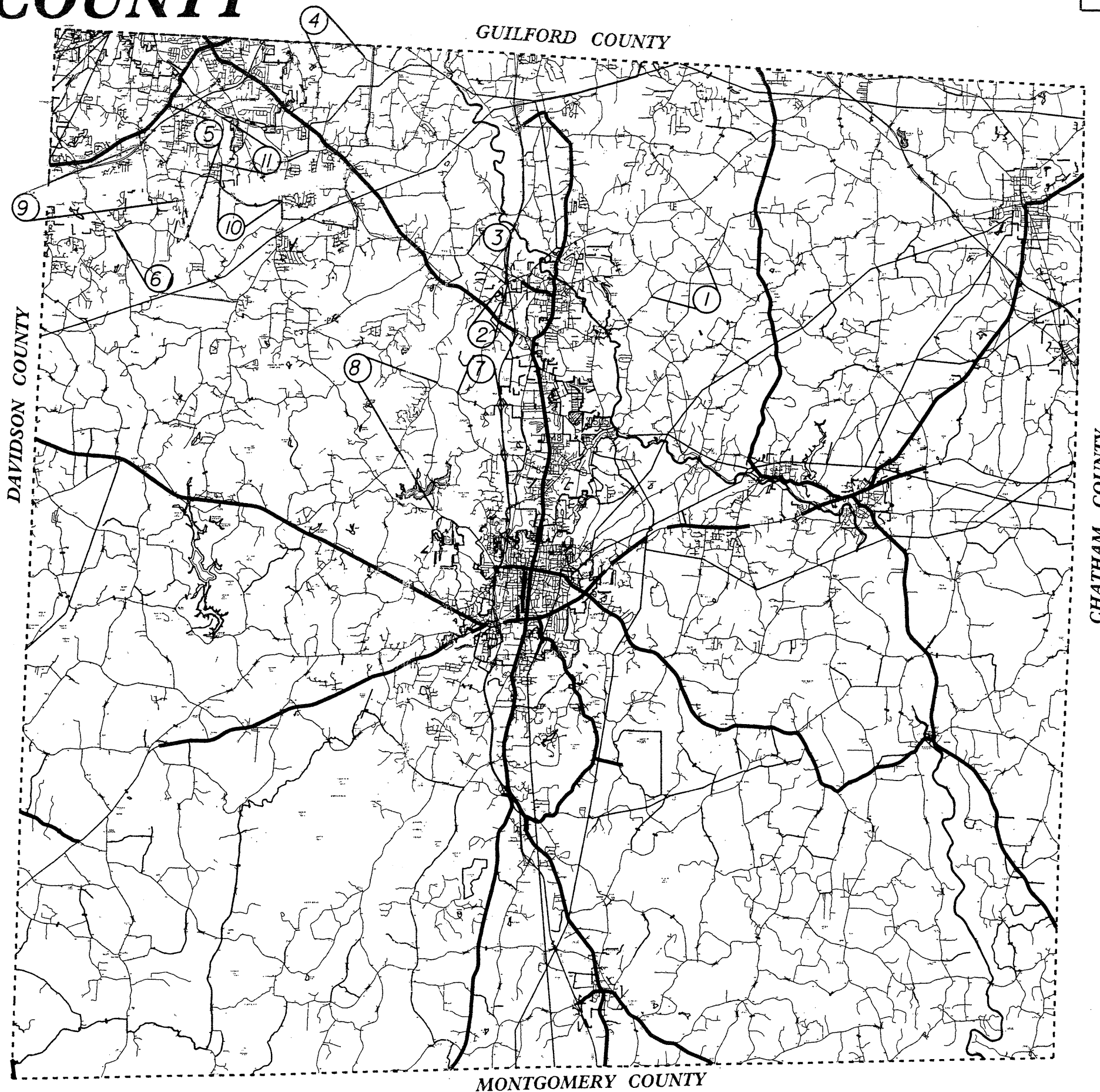


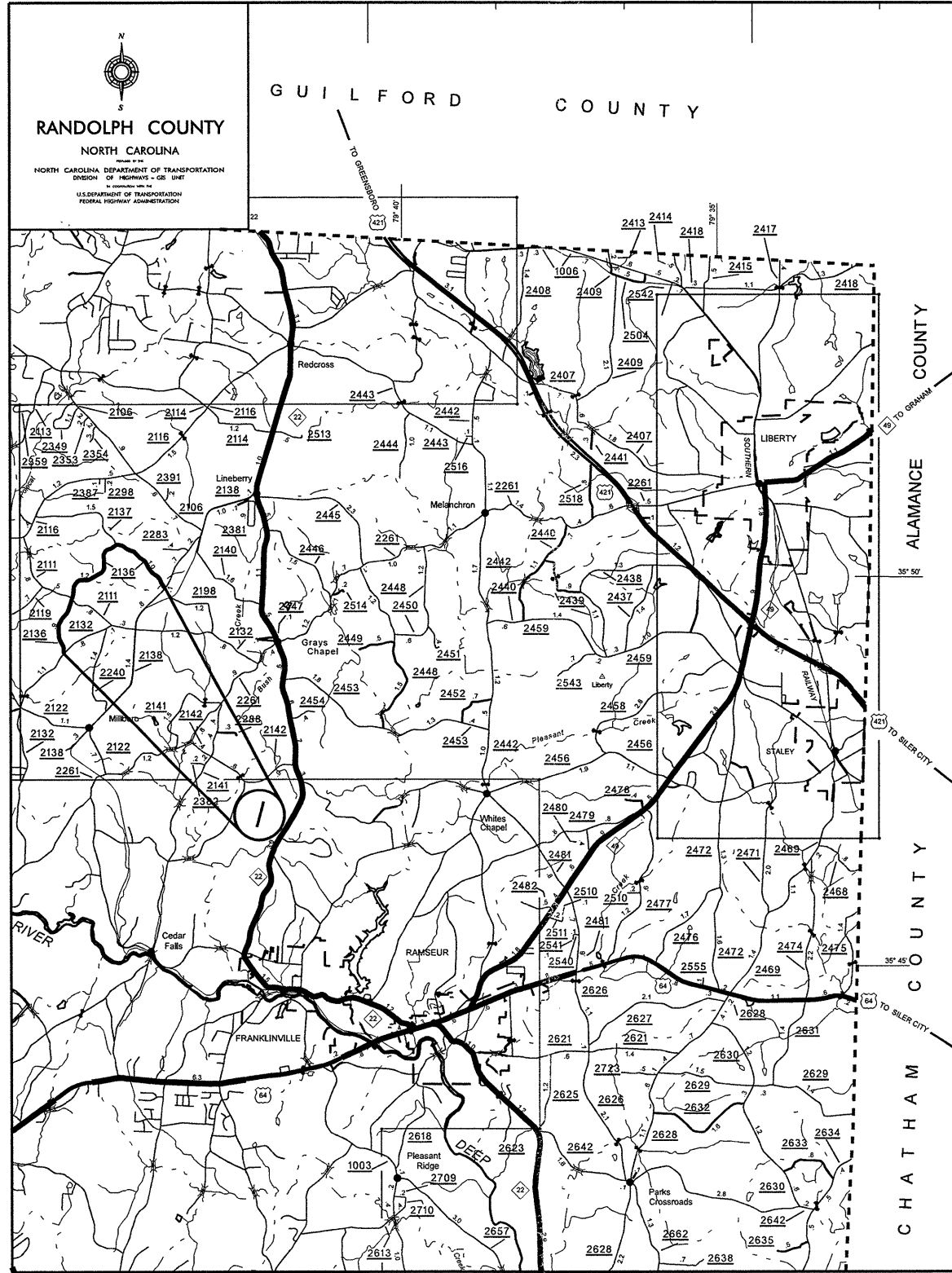
RANDOLPH COUNTY

WBS ELEMENT
8CR.20761.17

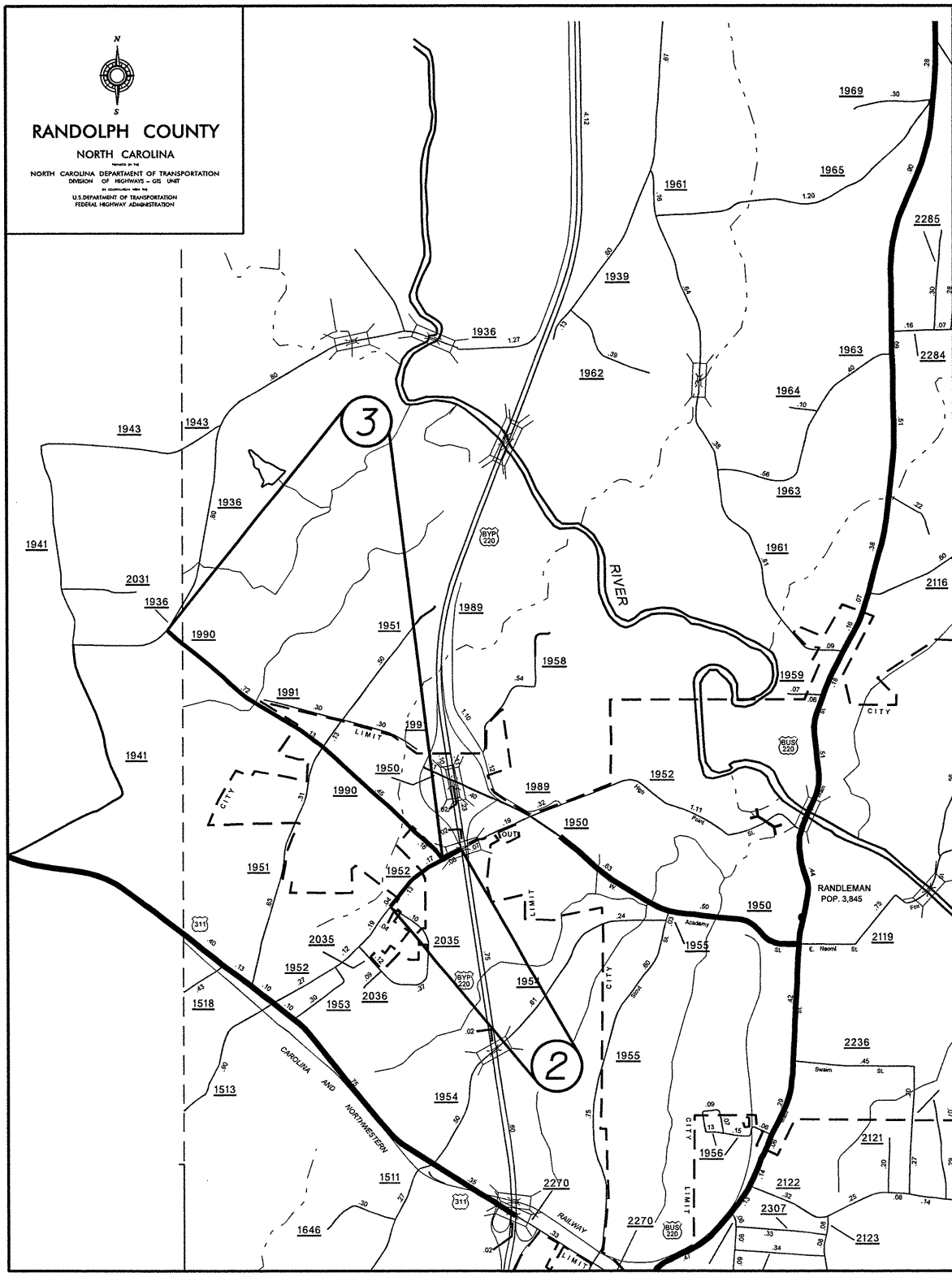
SHEET NO.
1



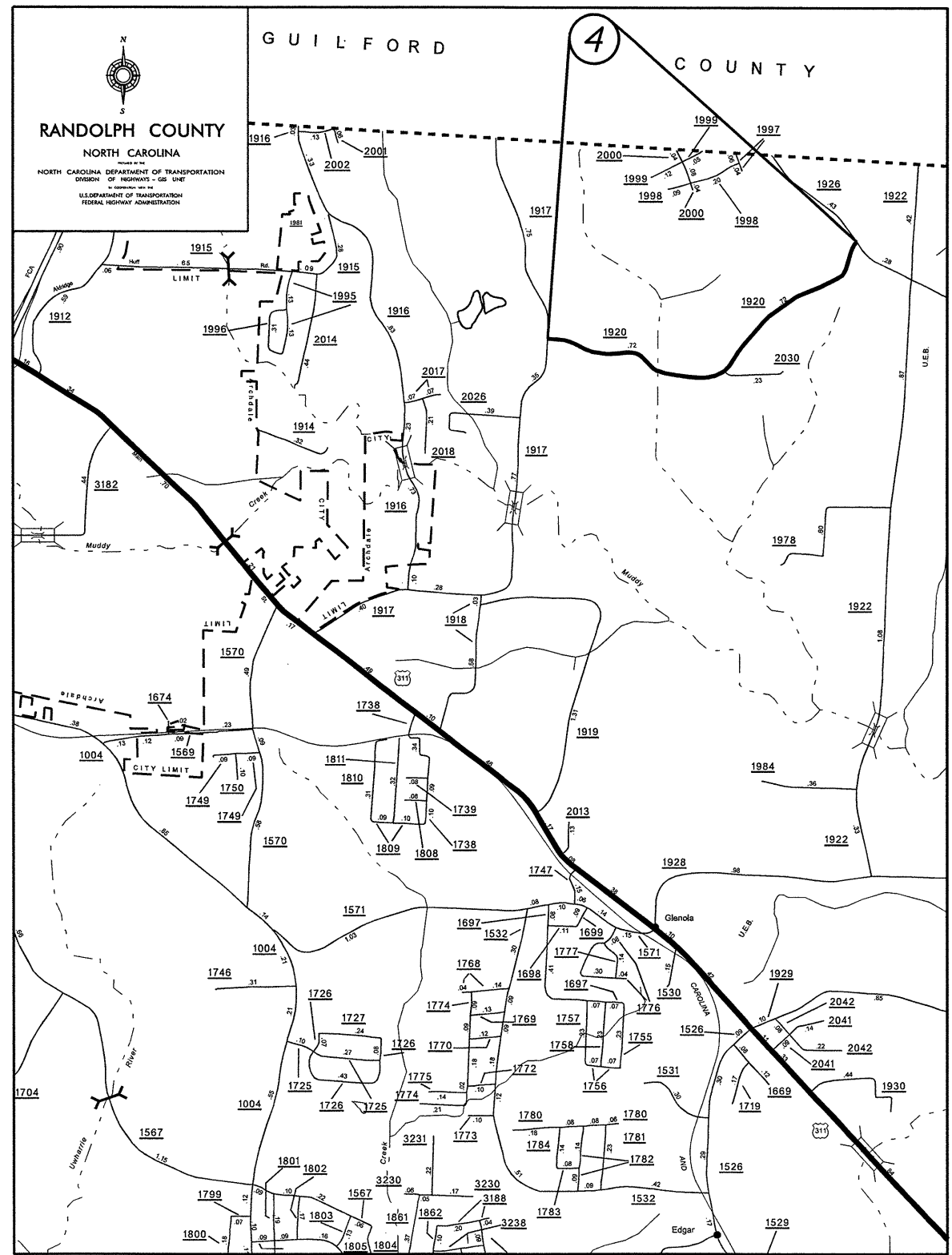
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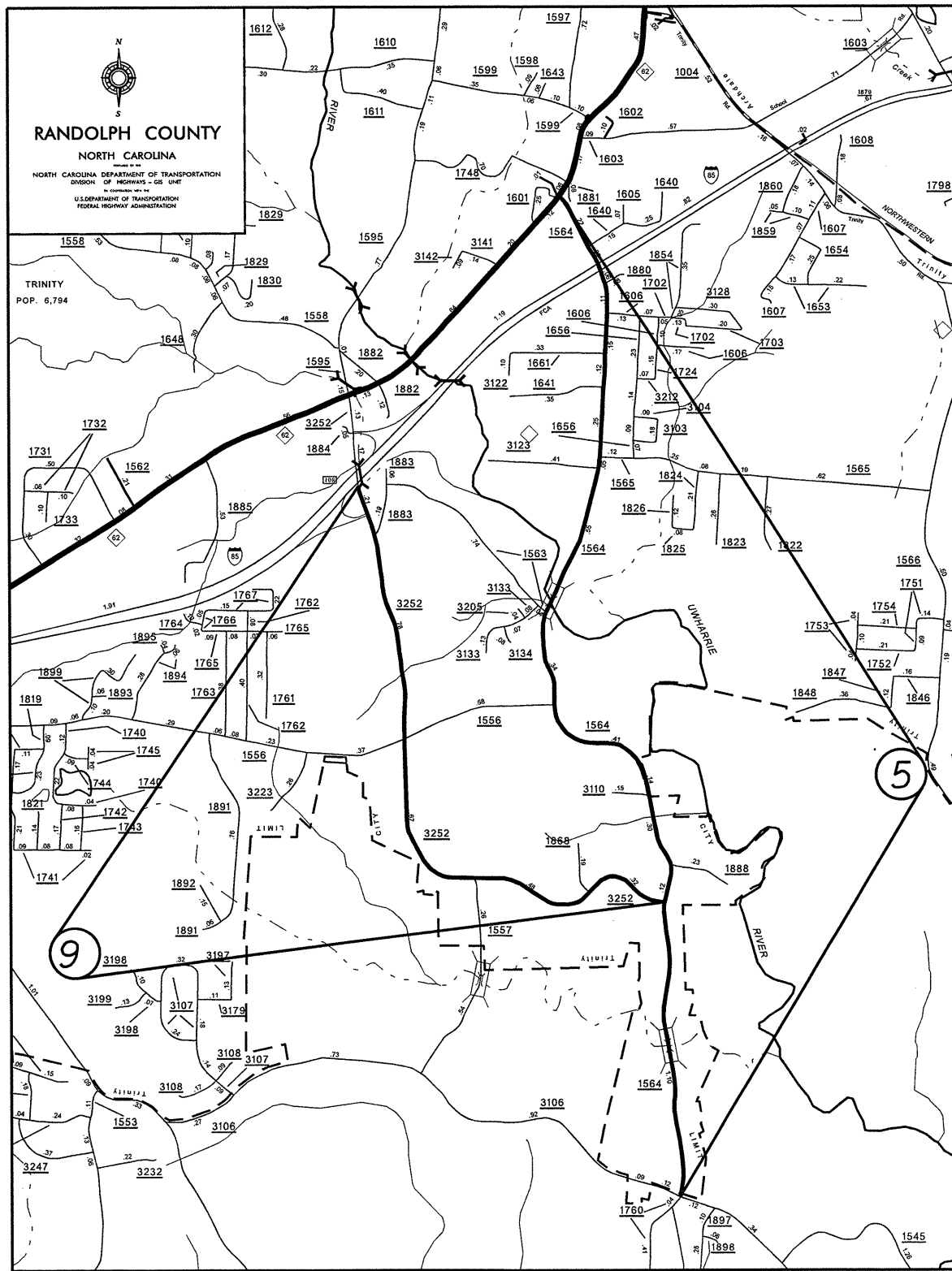
MAP# 2 & 3



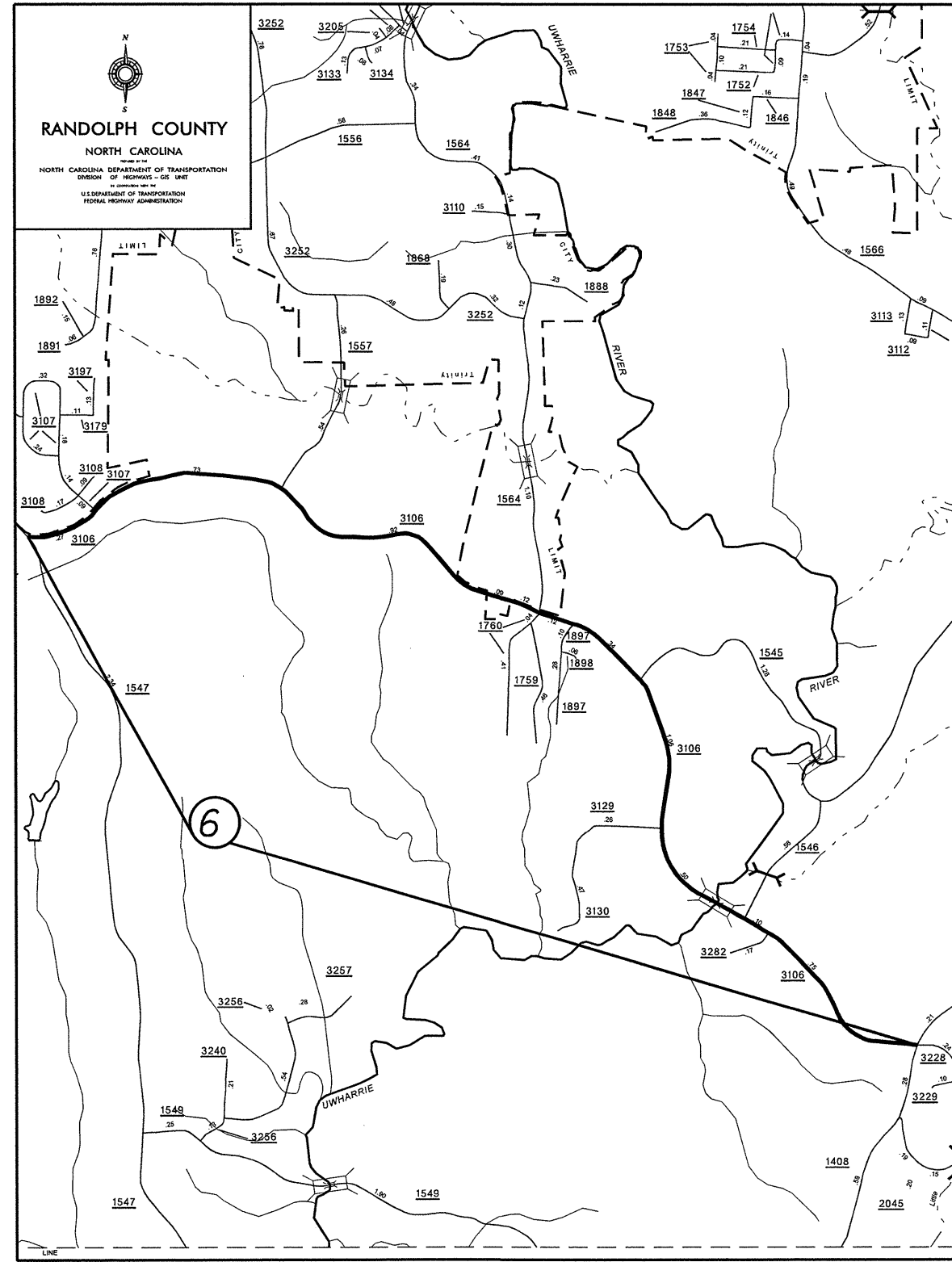
MAP# 4



MAP# 5 & 9



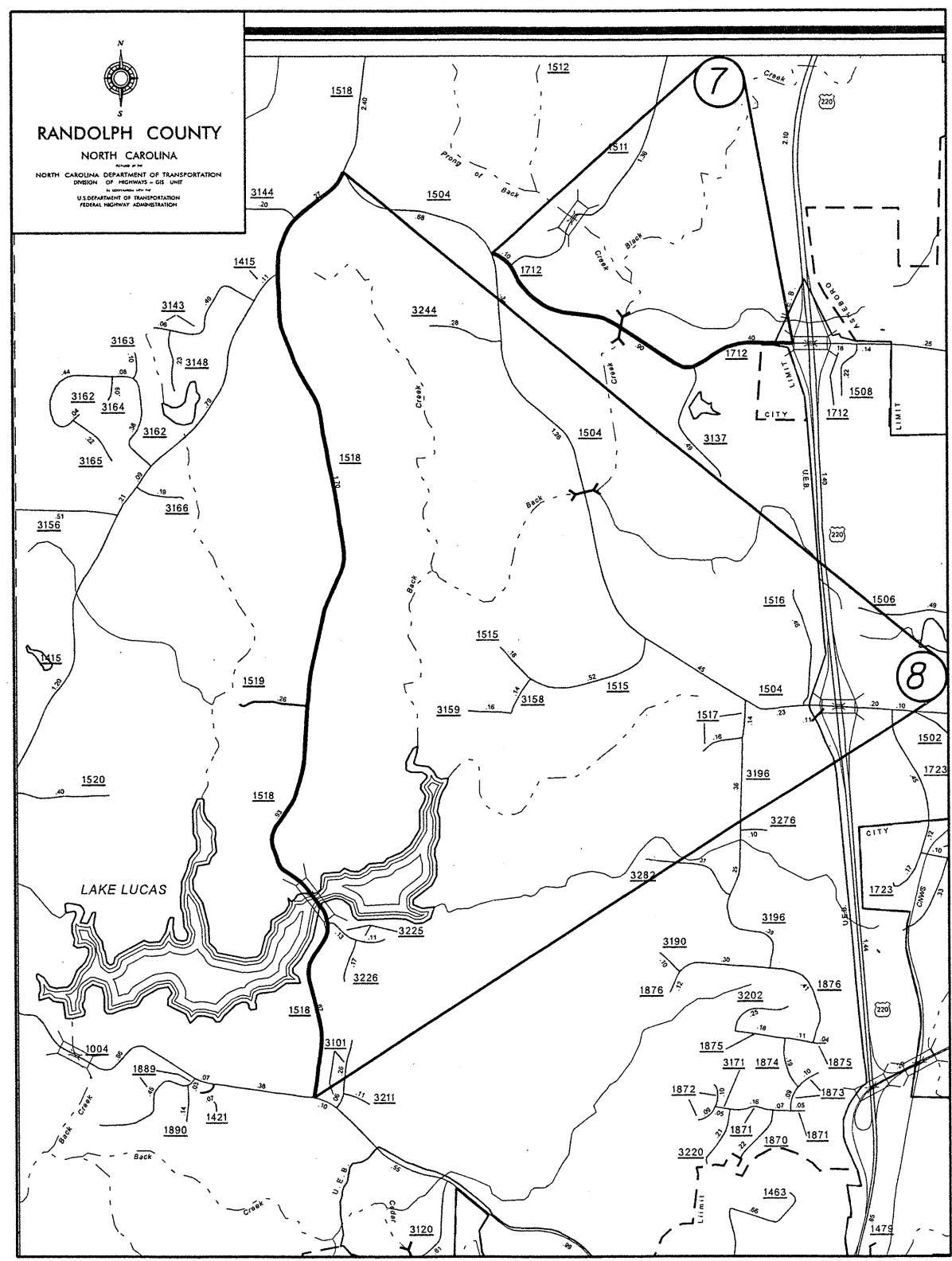
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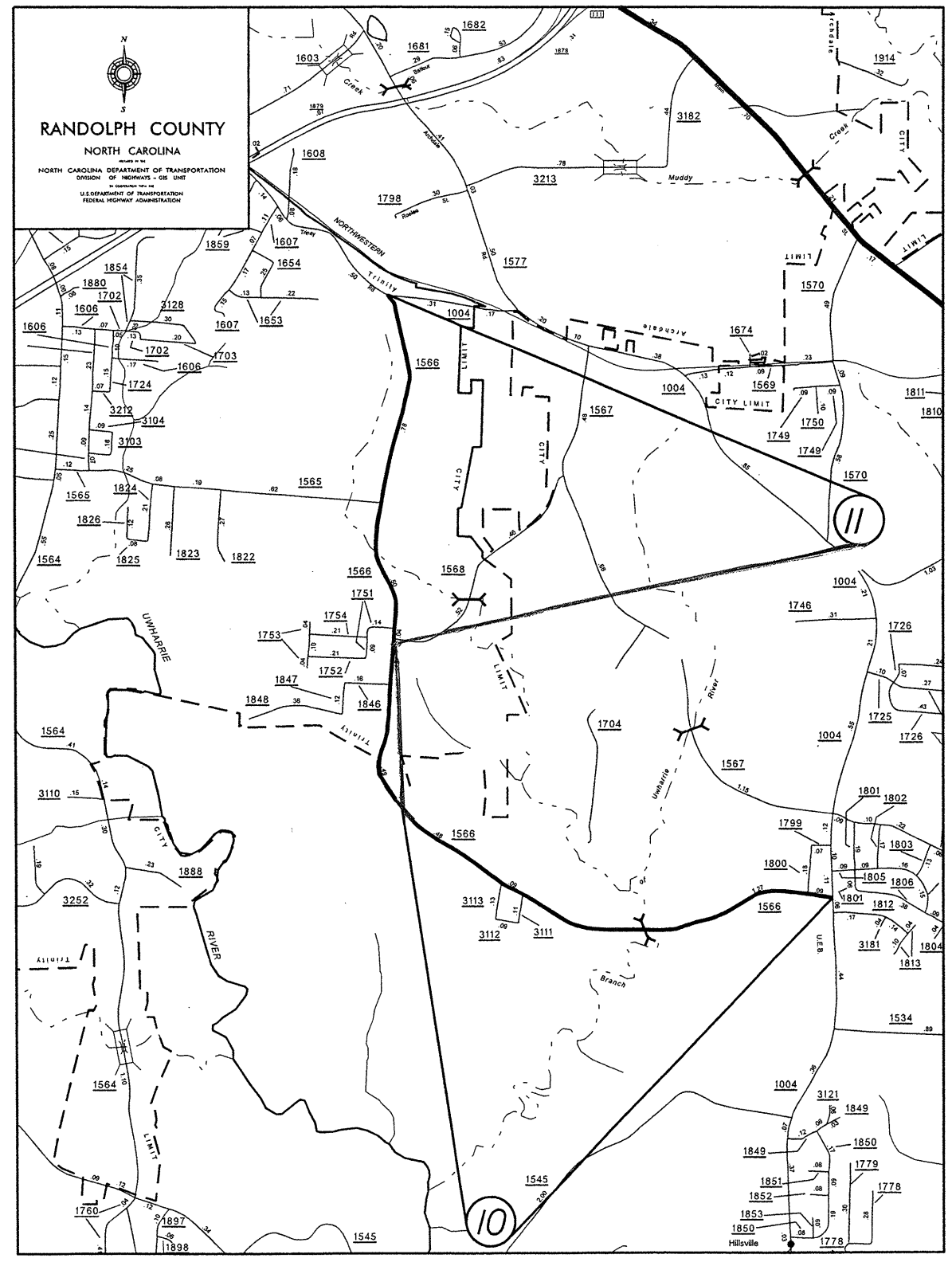
040397

WBS ELEMENT	SHEET NO.
8CR.20761.17	5

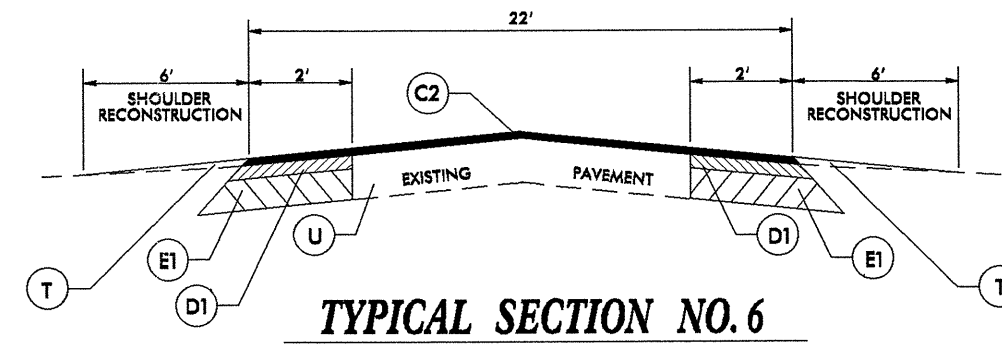
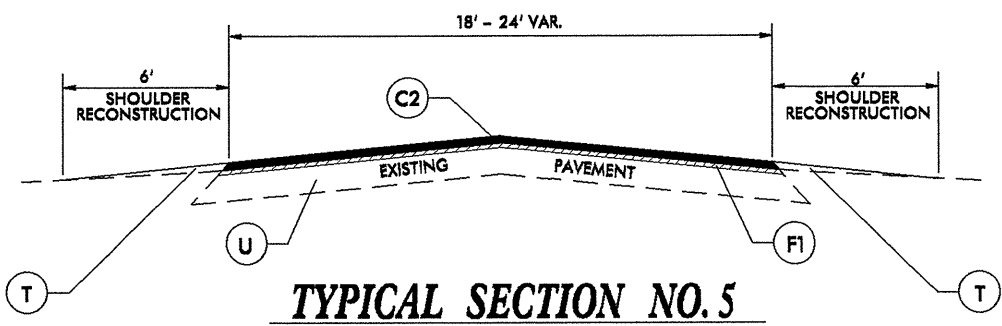
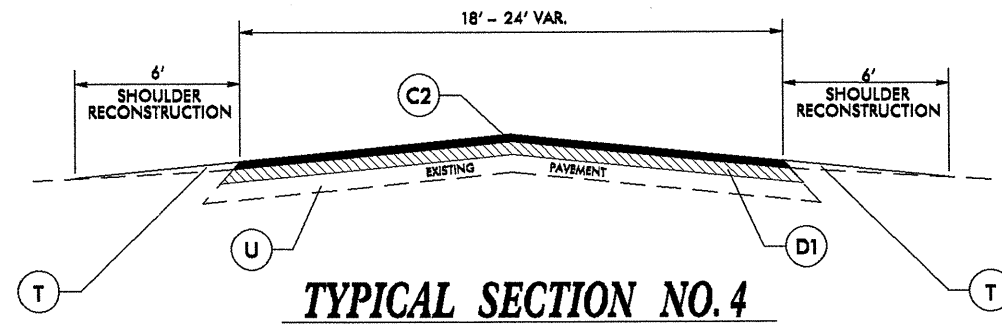
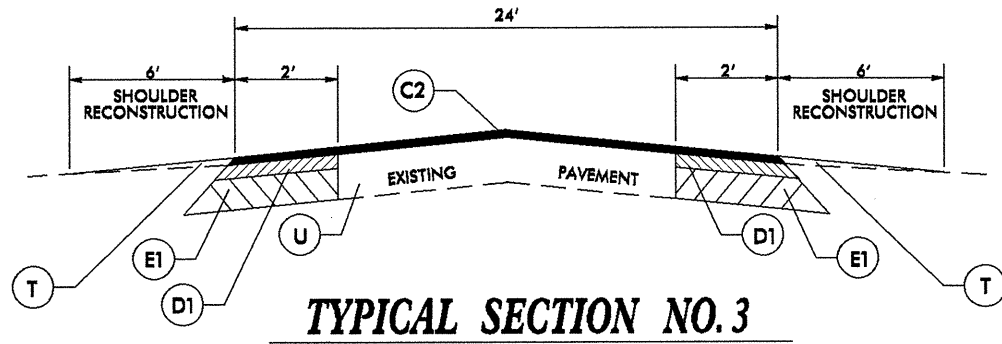
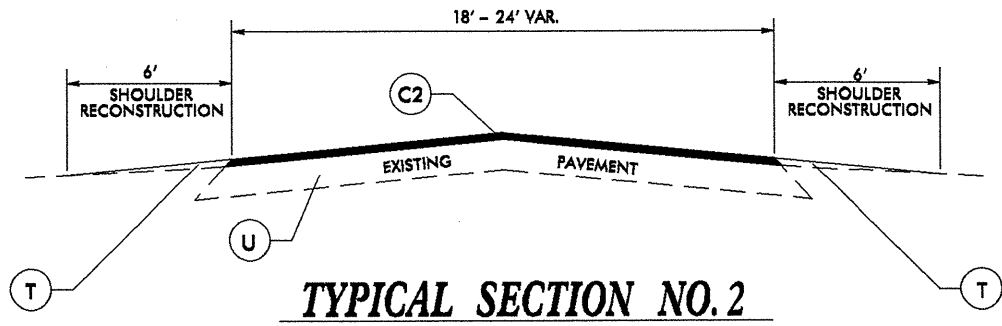
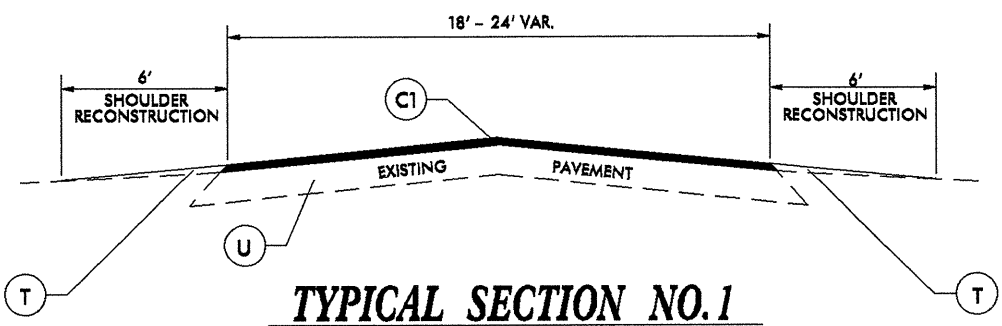
MAP# 7 & 8



MAP# 10 & 11



\\fs-011-2011-1228-1\user\facings\ Randolph\Secondary\2011_div8_dist1_res.maps_Rand_Foll.dgn

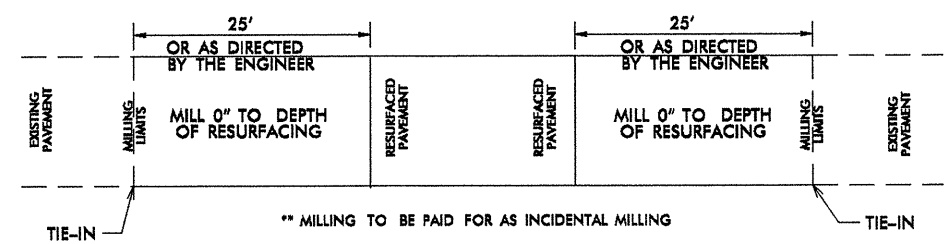
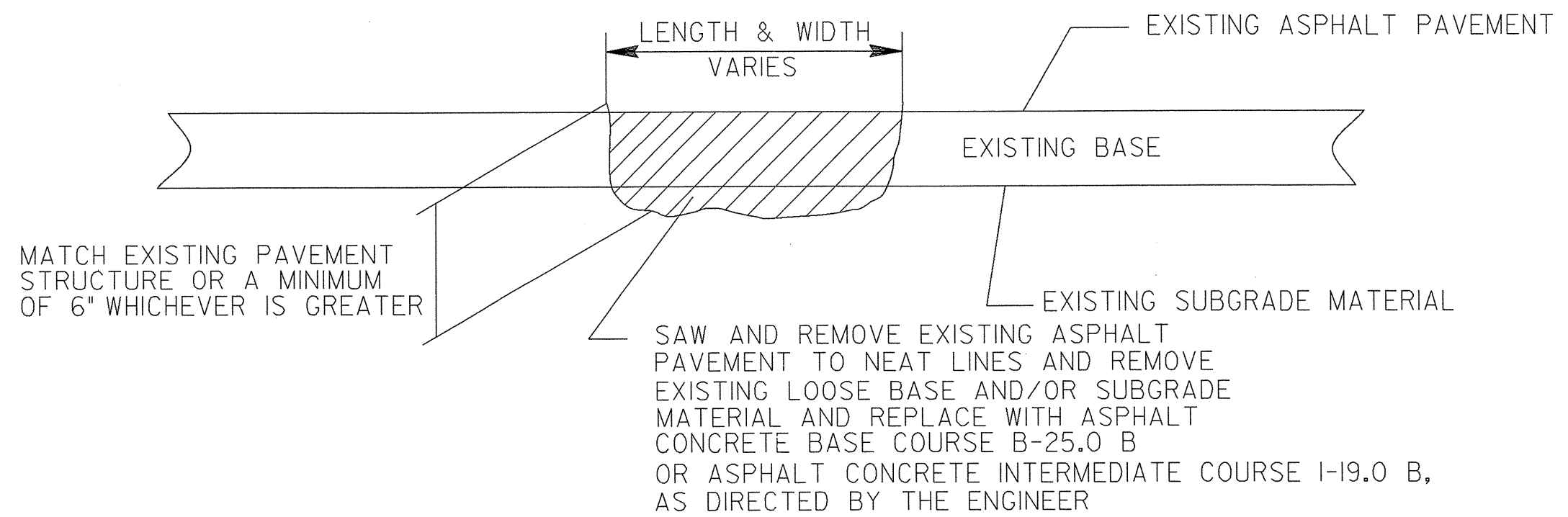


PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SP9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 3" ASPHALT CONCRETE BINDER COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
F1	PROPOSED ASPHALT SURFACE TREATMENT, MAT COAT w/#6 STONE
T	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT.

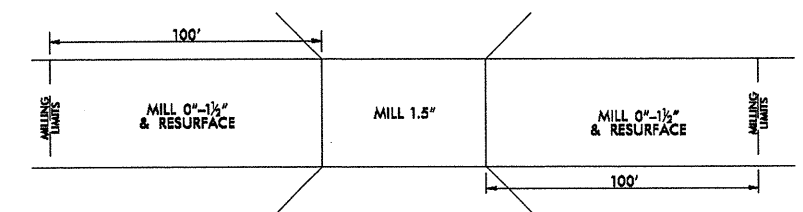
22-JUL-2011 15:11:17 andolph.submittal\2011_div8_dist1_res_type_rend_fall1.DGN
 Division 8 - Pavement
 8/17/2011 1:52:33 PM

DETAILS OF PATCHING EXISTING PAVEMENT PRIOR TO RESURFACING

DETAIL



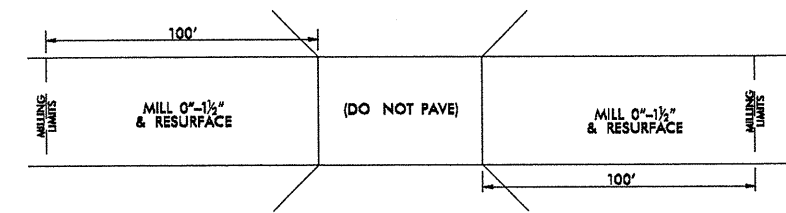
PAVEMENT TIE-IN DETAIL



** - MILLING TO BE PAID AS INCIDENTAL MILLING

BRIDGE MILLING

MAP NO. 5 (BRIDGE #69)



** - MILLING AT APPROACHES TO BE PAID AS INCIDENTAL MILLING

BRIDGE MILLING

MAP NO. 5 (BRIDGE #68) & NO. 6 (BRIDGE #61)

21-JUL-2011 12:01
 Set: 2011-07-21 12:01
 Internet Files\Content\Outlook\KIF1451\1\patch-detail1.tup (3).dgn
 5/14/99

PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.20761.17	8	

SUMMARY OF QUANTITIES

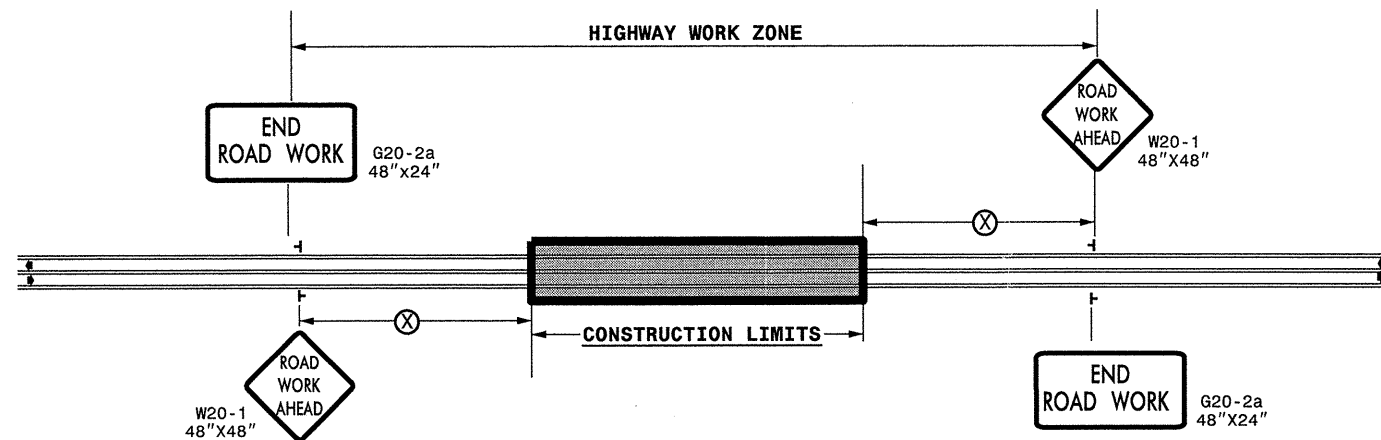
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	GENERIC GRADING ITEM - AGGREGATE SHOULDER BORROW TON	SHOULDER RECONSTRUCTION SMI	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	INTERMEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	LEVELING COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TON	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	AST MAT COAT #6 SY	ADJUSTMENT OF MANHOLES EA	ADJUSTMENT METER OR VALVE BOXES EA	INDUCTIVE SAW LOOP LF		
8CR.20761.17	Randolph	1	SR 2136	FROM SR 2132 TO SR 2138	1	NO	3.02	20	755	6.04	167					3,115	203	25						
TOTAL FOR MAP NO. 1							3.02		755	6.04	167					3,115	203	25						
8CR.20761.17	Randolph	2	SR 1952	FROM PAVEMENT JOINT TO BRIDGE 220	2	NO	0.18	24	45	0.36	200			280			17	50						
TOTAL FOR MAP NO. 2							0.18		45	0.36	200			280			17	50						
8CR.20761.17	Randolph	3	SR 1990	FROM SR 1936 TO SR 1952	5	NO	1.3	18-20	325	2.60	328			1,380			83	310	19,737					
TOTAL FOR MAP NO. 3							1.3		325	2.60	328			1,380			83	310	19,737					
8CR.20761.17	Randolph	4	SR 1920	FROM SR 1917 TO SR 1926 (EXCLUDE PAVEMENT AROUND NEW BRIDGE CONSTRUCTION)	1	NO	0.95	20	237.5	1.90	167				50	1,000	68	75						
TOTAL FOR MAP NO. 4							0.95		237.5	1.90	167				50	1,000	68	75						
8CR.20761.17	Randolph	5	SR 1564	FROM NC 62 TO SR 3106	5	NO	3.82	20-24	955	7.64	800			4,270			256	285	47,678	1	4	500		
TOTAL FOR MAP NO. 5							3.82		955	7.64	800			4,270			256	285	47,678	1	4	500		
8CR.20761.17	Randolph	6	SR 3106	FROM SR 1408 TO SR 1547	5	NO	4.46	20-22	1,115	8.92	811			5,080			305	250	54,806		2			
TOTAL FOR MAP NO. 6							4.46		1,115	8.92	811			5,080			305	250	54,806		2			
8CR.20761.17	Randolph	7	SR 1712	FROM SR 1504 TO BRIDGE 222	3	NO	1.4	24	350	2.80	533	1,045	605	1,860			184	125						
TOTAL FOR MAP NO. 7							1.4		350	2.80	533	1,045	605	1,860			184	125						
8CR.20761.17	Randolph	8	SR 1518	FROM SR 1004 TO SR 1504	4	NO	3.51	20	877.5	7.02	333		7,130	3,735			559	125						
TOTAL FOR MAP NO. 8							3.51		877.5	7.02	333		7,130	3,735			559	125						
8CR.20761.17	Randolph	9	SR 3252	FROM SR 1564 TO PAVEMENT JOINT SOUTH OF I-85	1	NO	2.148	22	537	4.30	244					2,470	161	175			1			
TOTAL FOR MAP NO. 9							2.148		537	4.30	244					2,470	161	175			1			
8CR.20761.17	Randolph	10	SR 1566	FROM SR 1004 TO SR 1568	6	NO	2.5	22	625	5.00	428	1,850	1,070	2,995			310	100						
TOTAL FOR MAP NO. 10							2.5		625	5.00	428	1,850	1,070	2,995			310	100						
8CR.20761.17	Randolph	11	SR 1566	FROM SR 1568 TO SR 1004	2	NO	1.34	20	335	2.68	333			1,500			90	120						
TOTAL FOR MAP NO. 11							1.34		335	2.68	333			1,500			90	120						
TOTAL FOR PROJ NO. 8CR.20761.17							24.628		6,157	49.26	4,344	2,895	8,805	21,100	50	6,585	2,236	1,640	122,221	1	7	500		
GRAND TOTAL							24.628		6,157	49.26	4,344	2,895	8,805	21,100	50	6,585	2,236	1,640	122,221	1	7	500		

PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.20761.17	9	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4589000000-N	4685000000-E	4686000000-E		4710000000-E	4725000000-E			4770000000-E	4810000000-E		4900000000-N		
							GENERIC TRAFFIC CONTROL ITEM - TRAFFIC CONTROL LS	4" X 90 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	4" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO RT ARROW 90 M EA	THERMO LT ARROW 90 M EA	THERMO STR ARROW 90 M EA	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE III (4") LF	4" WHITE PAINT LF	4" YELLOW PAINT LF	YELLOW & YELLOW MARKERS EA	CRYSTAL & RED MARKERS EA	
8CR.20761.17	Randolph	1	SR 2136	FROM SR 2132 TO SR 2138	3.02	20	*									64,990	64,990			
TOTAL FOR MAP NO. 1					3.02											64,990	64,990			
8CR.20761.17	Randolph	2	SR 1952	FROM PAVEMENT JOINT TO BRIDGE 220	0.18	24	*	1,937	1,937									24		
TOTAL FOR MAP NO. 2					0.18			1,937	1,937									24		
8CR.20761.17	Randolph	3	SR 1990	FROM SR 1936 TO SR 1952	1.3	18-20	*					1				27,976	27,976			
TOTAL FOR MAP NO. 3					1.3							1				27,976	27,976			
8CR.20761.17	Randolph	4	SR 1920	FROM SR 1917 TO SR 1926 (EXCLUDE PAVEMENT AROUND NEW BRIDGE CONSTRUCTION)	0.95	20	*									20,444	20,444			
TOTAL FOR MAP NO. 4					0.95											20,444	20,444			
8CR.20761.17	Randolph	5	SR 1564	FROM NC 62 to SR 3106	3.82	20-24	*	41,103	41,103						200			269		
TOTAL FOR MAP NO. 5					3.82			41,103	41,103						200			269		
8CR.20761.17	Randolph	6	SR 3106	FROM SR 1408 TO SR 1547	4.46	20-22	*	47,990	38,214						200			294		
TOTAL FOR MAP NO. 6					4.46			47,990	38,214						200			294		
8CR.20761.17	Randolph	7	SR 1712	FROM SR 1504 TO BRIDGE 222	1.4	24	*	15,064	15,064	300		1	2	3		14,700		92	15	
TOTAL FOR MAP NO. 7					1.4			15,064	15,064	300		1	2	3		14,700		92	15	
8CR.20761.17	Randolph	8	SR 1518	FROM SR 1004 TO SR 1504	3.51	20	*									94,100	94,100			
TOTAL FOR MAP NO. 8					3.51											94,100	94,100			
8CR.20761.17	Randolph	9	SR 3252	FROM SR 1564 TO PAVEMENT JOINT SOUTH OF I-85	2.148	22	*				60					46,225	46,225	142		
TOTAL FOR MAP NO. 9					2.148						60					46,225	46,225	142		
8CR.20761.17	Randolph	10	SR 1566	FROM SR 1004 TO SR 1568	2.5	22	*	26,900	26,900							26,400		165		
TOTAL FOR MAP NO. 10					2.5			26,900	26,900							26,400		165		
8CR.20761.17	Randolph	11	SR 1566	FROM SR 1568 TO SR 1004	1.34	20	*	14,418	14,418									177		
TOTAL FOR MAP NO. 11					1.34			14,418	14,418									177		
TOTAL FOR PROJ NO. 8CR.20761.17					24.628			1	147,412	137,636	300	60	2	2	3	400	294,835	253,735	1,163	15
									137,936				7			548,570		1,178		
GRAND TOTAL					24.628			1	147,412	137,636	300	60	2	2	3	400	294,835	253,735	1,163	15
									137,936				7			548,570		1,178		

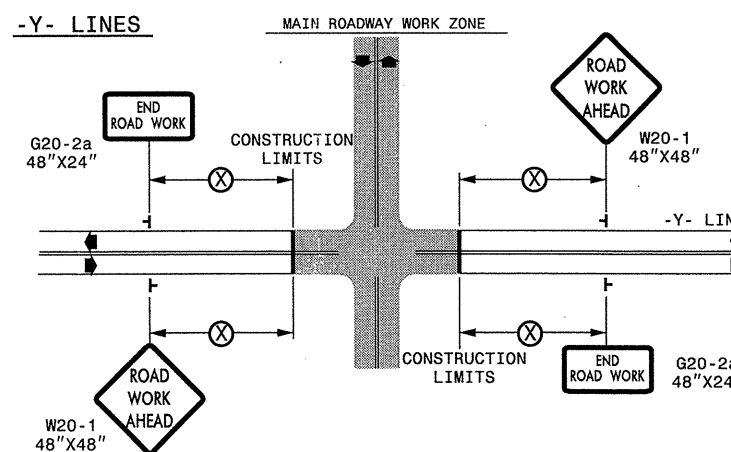
TWO-WAY UNDIVIDED ** (L-LINES)



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)



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

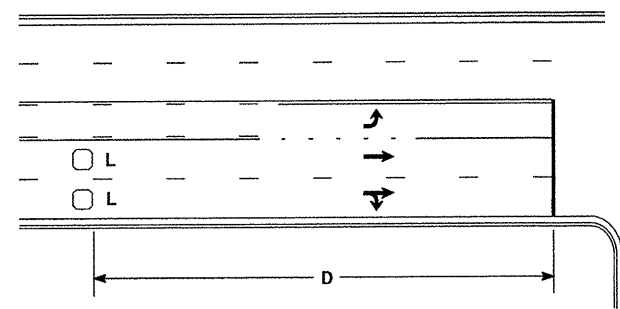
SHEET 1 OF 1

DETAIL DRAWING FOR
TWO-WAY UNDIVIDED
WORK ZONE WARNING SIGNS

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

21-JUL-2010 09:02 ON GROUPS-WZTCCC-TMUN-WZTC-Resur-facing\2010\Centra\2010\Div08\C202835RW_8CR.20761.17_Randolph-US220_SRs-jww\ixit-C202835RW_8CR.20761.17_2way_Undiv.&_Urban_Fr.wys_stationary.dgn
 11/11/05 AT 12:47:33

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

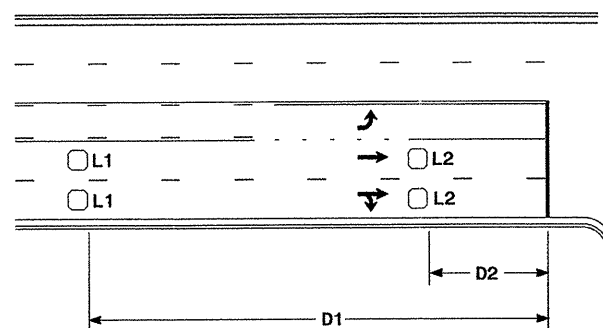


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

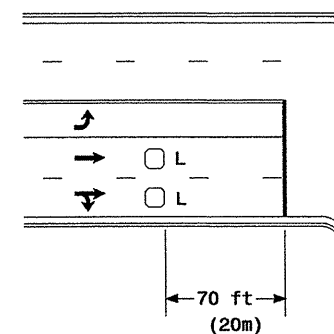


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

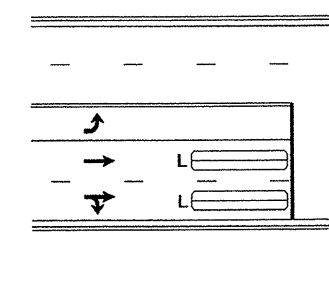
"Stretch" Operation

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



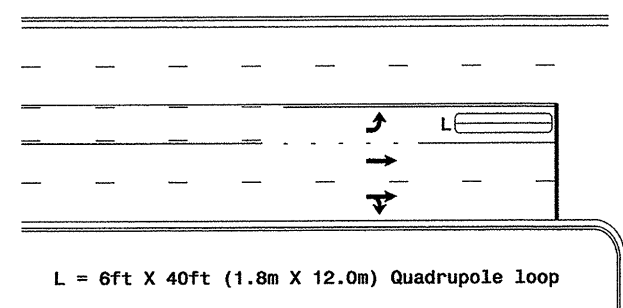
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

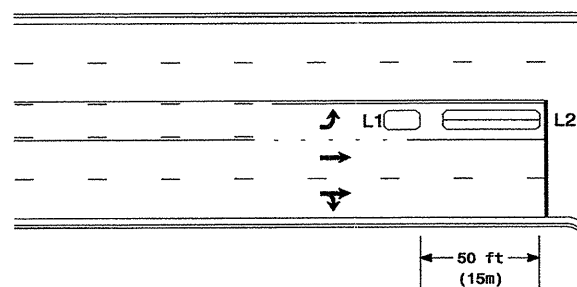
Left Turn Lane Detection



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

Presence Loop Detection

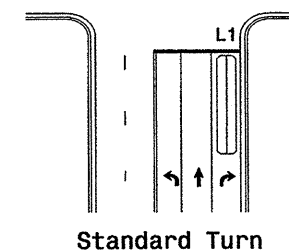
OR



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

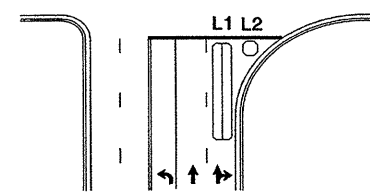
Queue Loop Detection

Right Turn Lane Detection

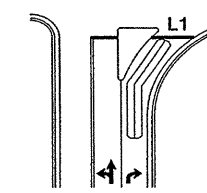


Standard Turn

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

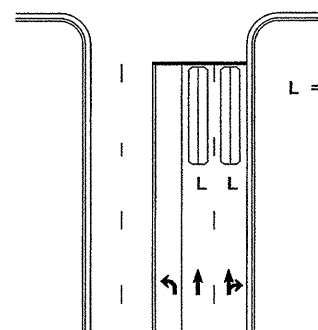


Wide Radius Turn



Channelized Turn

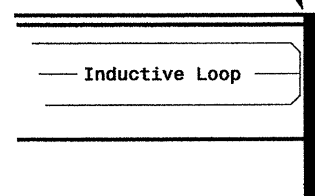
Side Street Detection



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

	Typical Loop Locations		
	PLAN DATE: June 2006 PREPARED BY: P. L. Alexander	REVIEWED BY: REVIEWED BY:	
222 N. McDowell St., Raleigh, NC 27603		REVISIONS:	SIGNATURE:

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

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

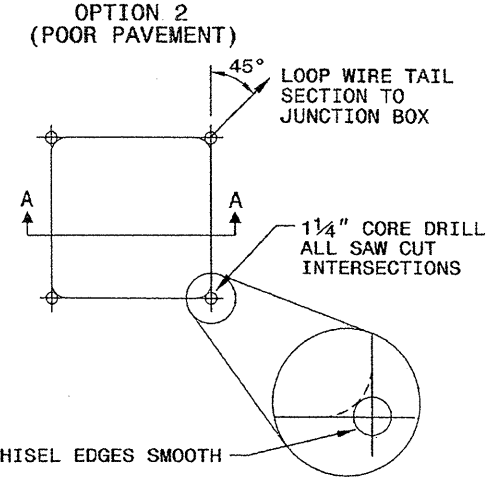
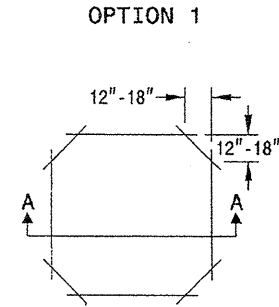
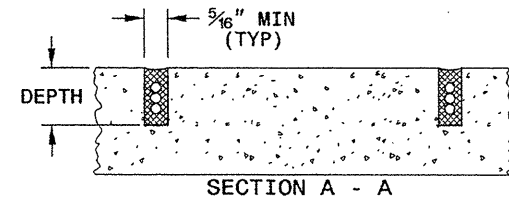
SHEET 1 OF 3
1725D01

CONVENTIONAL 4-SIDED LOOP

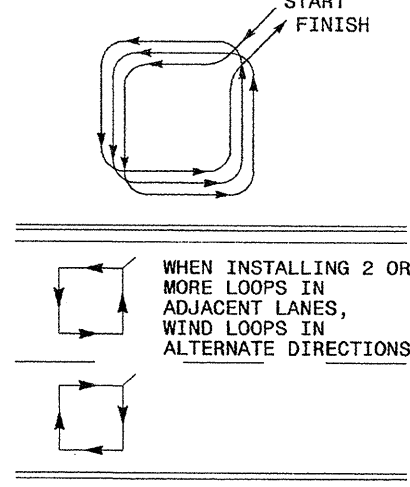
SAW CUT OPTIONS

SAW SLOT DEPTH CHART

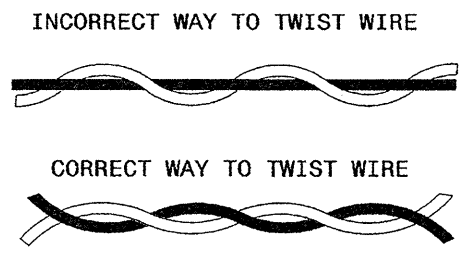
DEPTH (IN)	NO. OF WIRE TURNS				
	2	3	4	5	6
CONCRETE	2.0	2.0	2.5	2.5	3.0
ASPHALT	2.0	2.5	3.0	3.0	3.0



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

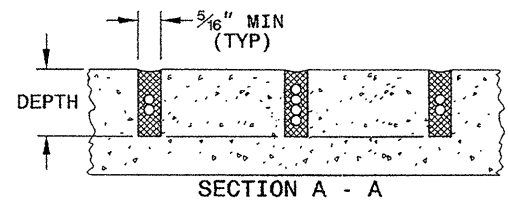
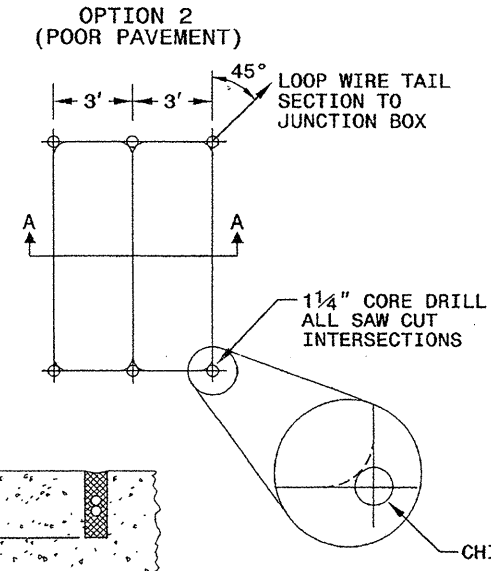
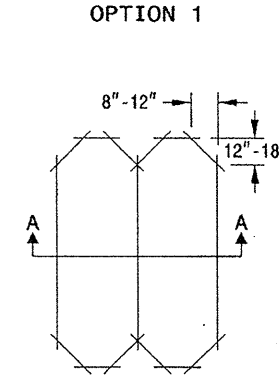


NOTES

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.

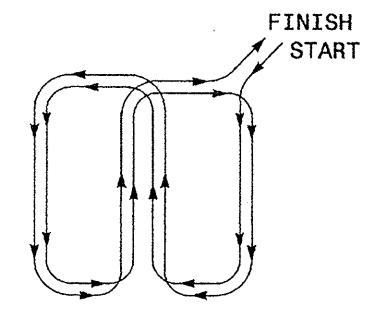
QUADRUPOLE LOOP

SAW CUT OPTIONS



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



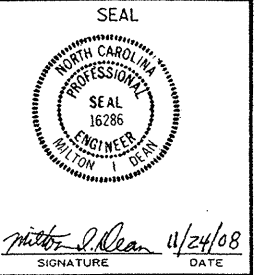
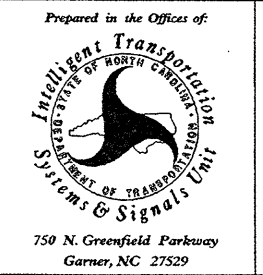
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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

See Plate for Title



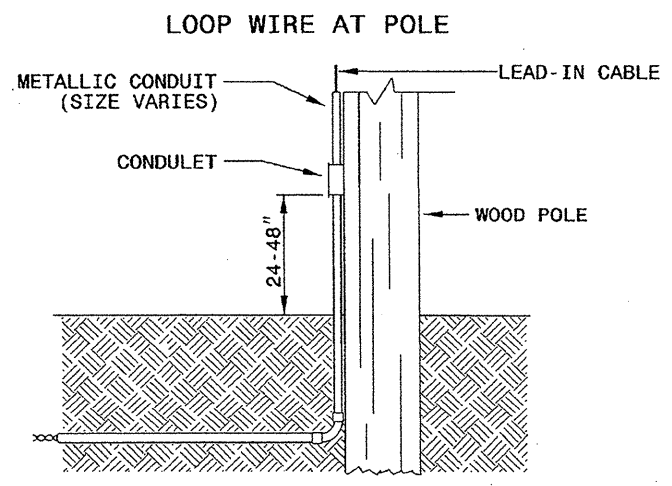
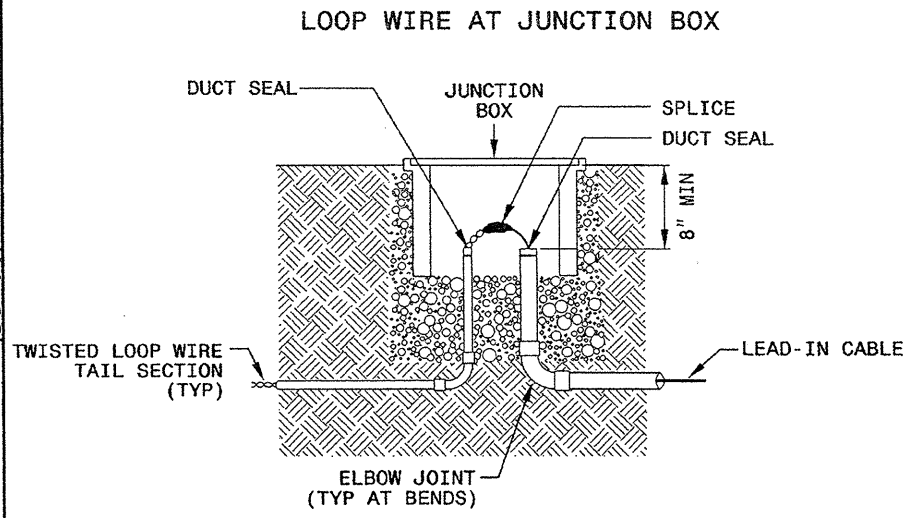
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 ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

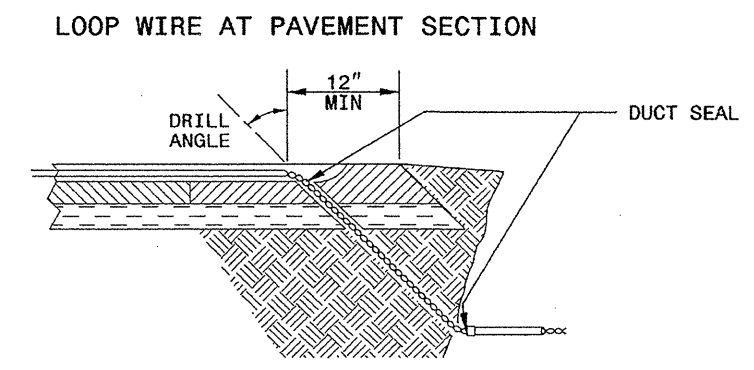
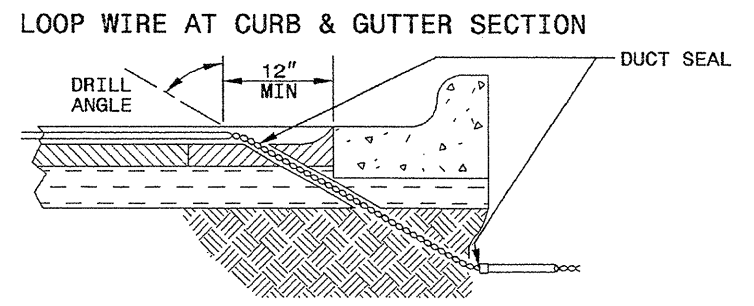
SHEET 2 OF 3
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LOOP WIRE SPLICE POINT DETAILS



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

LOOP WIRE PAVEMENT EDGE DETAILS



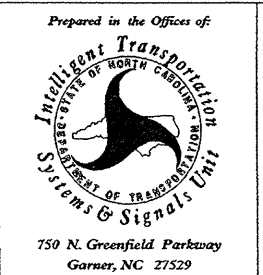
- NOTES**
1. DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
 2. TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
 3. BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT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

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 ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

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SEAL

Milton J. Dean 11/24/08
 SIGNATURE DATE

750 N. Greenfield Parkway
 Garner, NC 27529

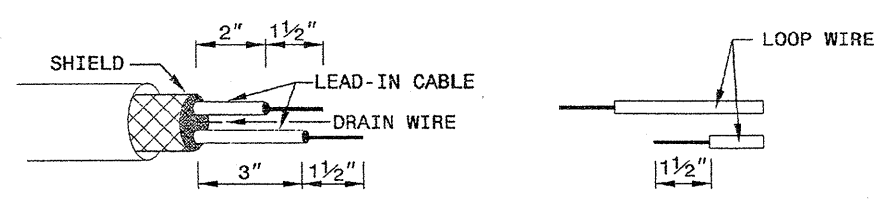
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RALEIGH, N.C.

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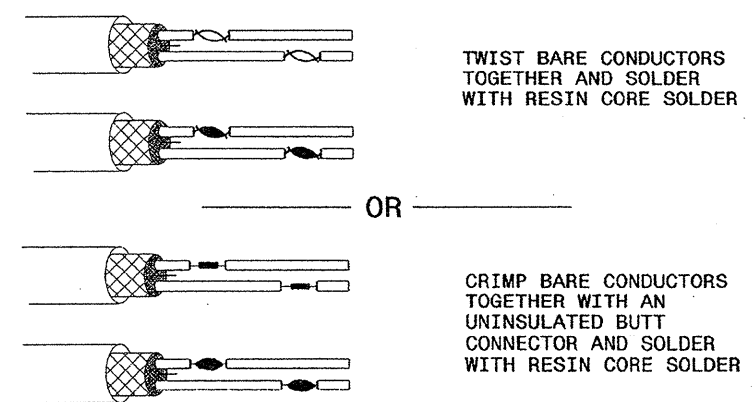
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

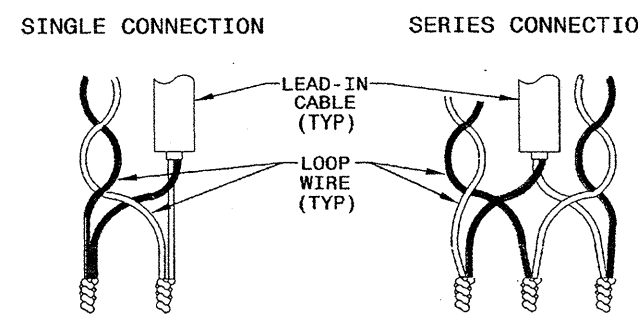


STEP 2. CONNECT AND SOLDER

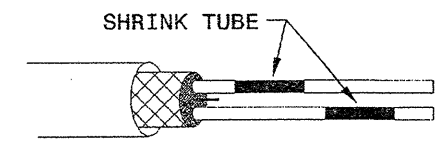


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

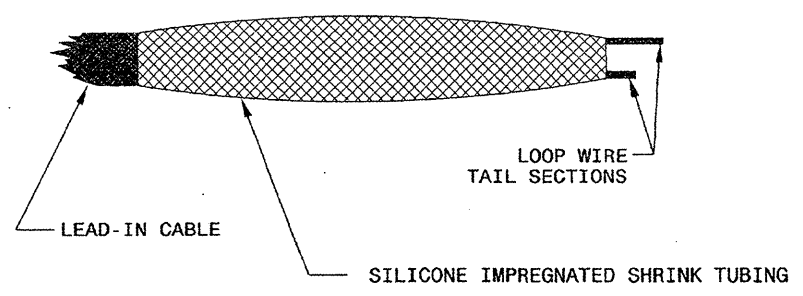
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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

SHEET 3 OF 3
1725D01

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Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

Milton I. Dean 11/24/08
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