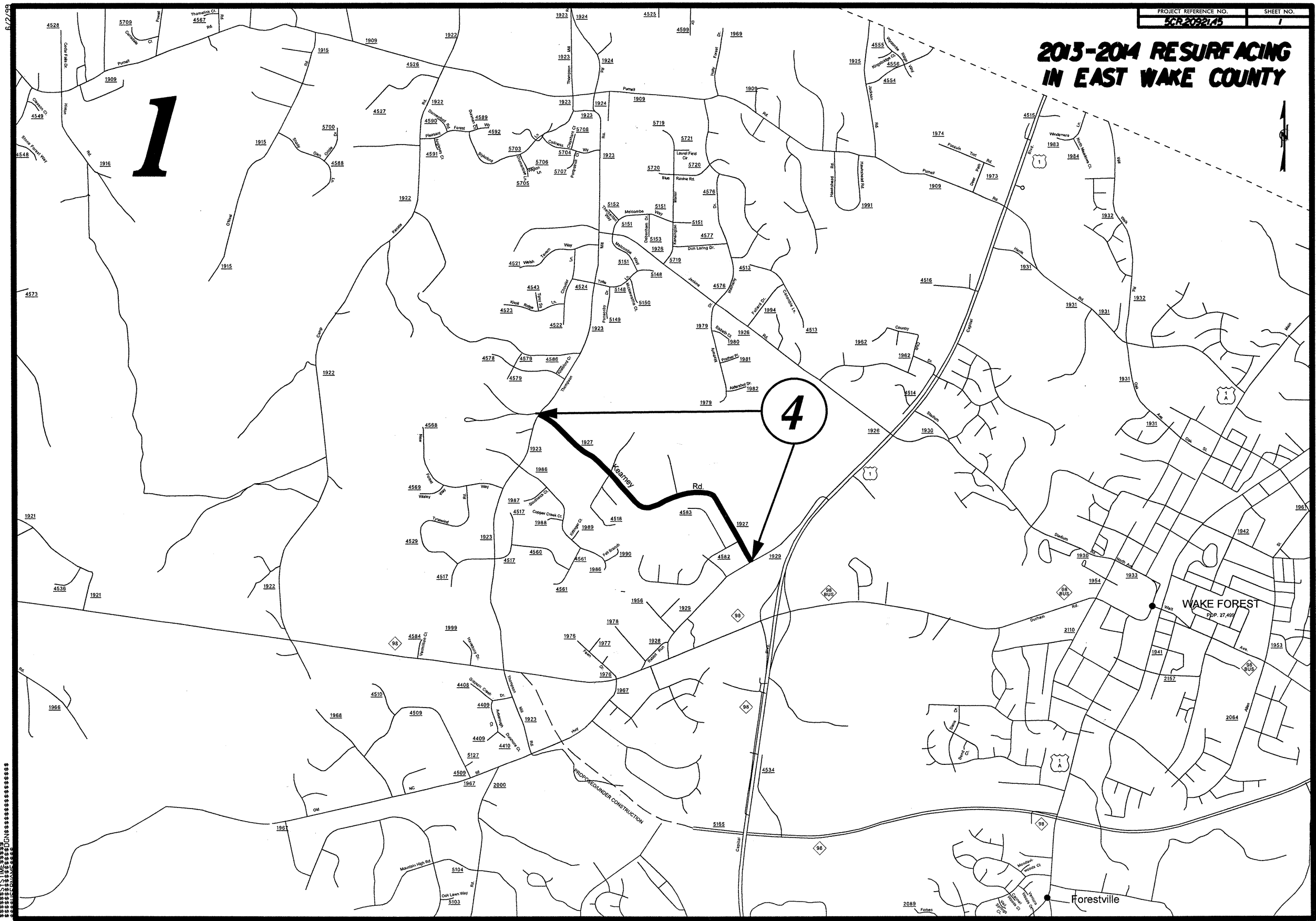
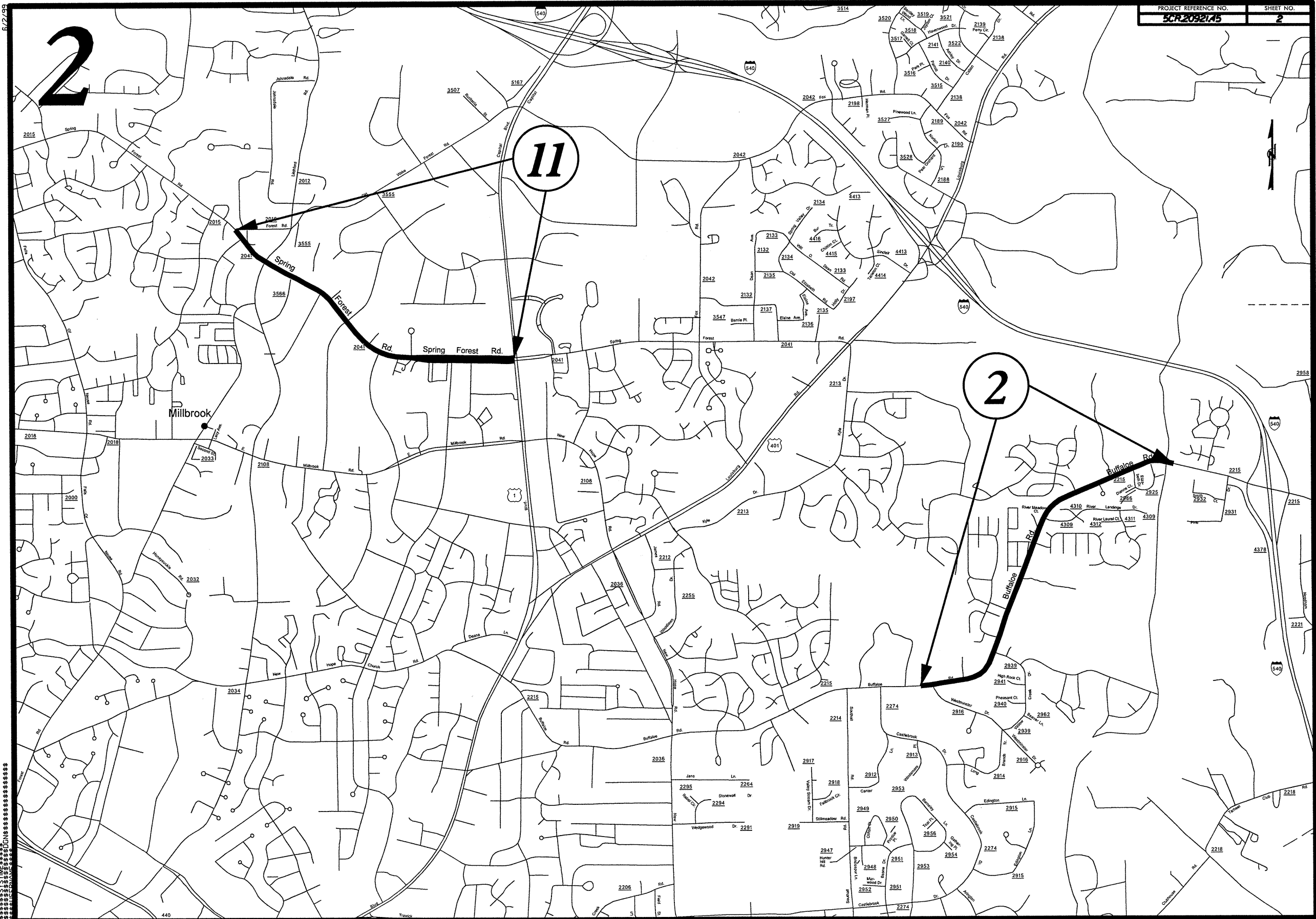


# 2013-2014 RESURFACING IN EAST WAKE COUNTY

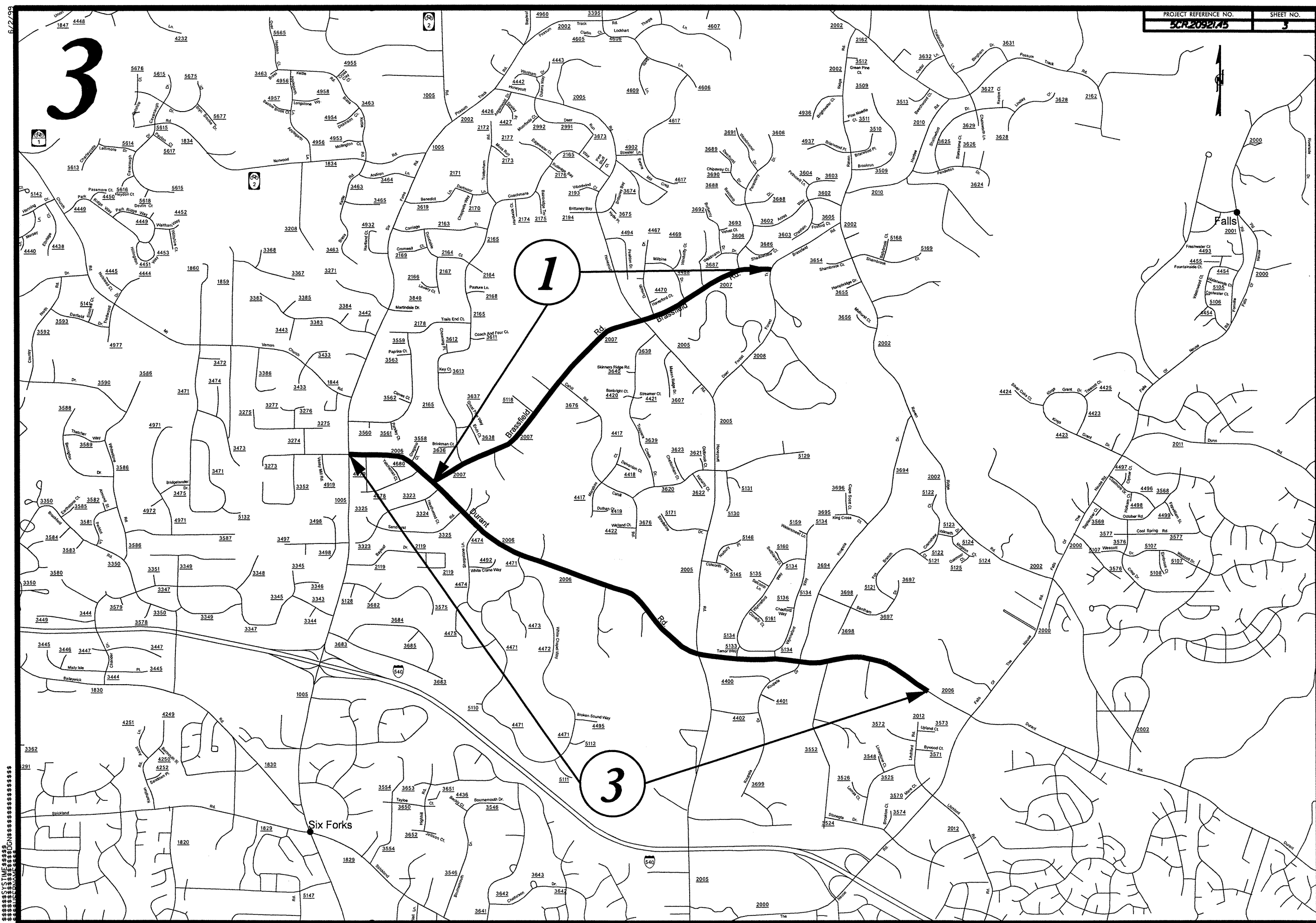


R12/15

\*\*\*\*\*SYSTEMS\*\*\*\*\*  
\*\*\*\*\*CONSTRUCTION\*\*\*\*\*  
\*\*\*\*\*DATE\*\*\*\*\*

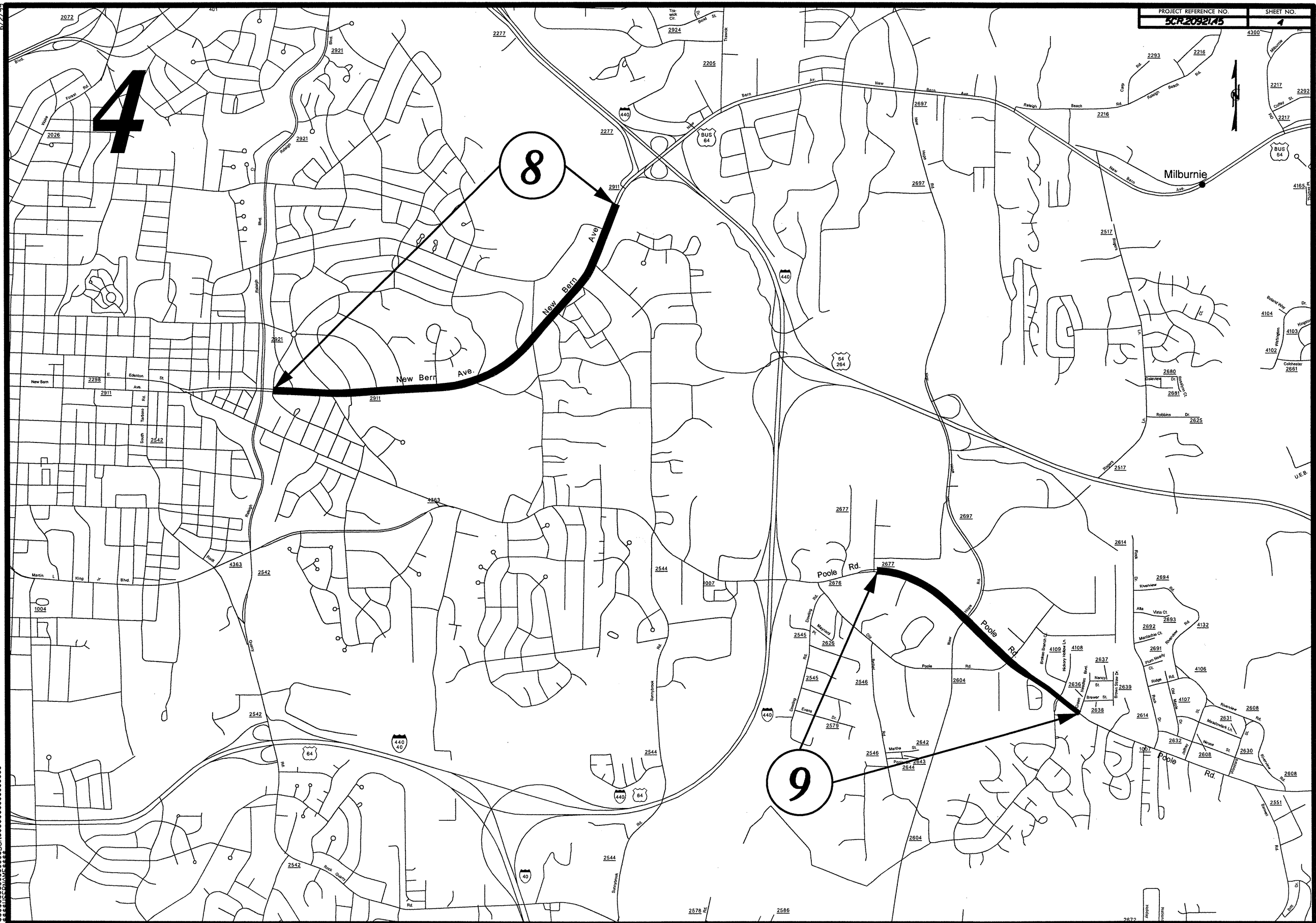


6/27/99  
440



\*\*\*\*\*SYSTEMS\*\*\*\*\*  
\*\*\*\*\*L&L\*\*\*\*\*  
\*\*\*\*\*S&S\*\*\*\*\*  
\*\*\*\*\*D&D\*\*\*\*\*  
\*\*\*\*\*S&S\*\*\*\*\*  
\*\*\*\*\*L&L\*\*\*\*\*  
\*\*\*\*\*SYSTEMS\*\*\*\*\*

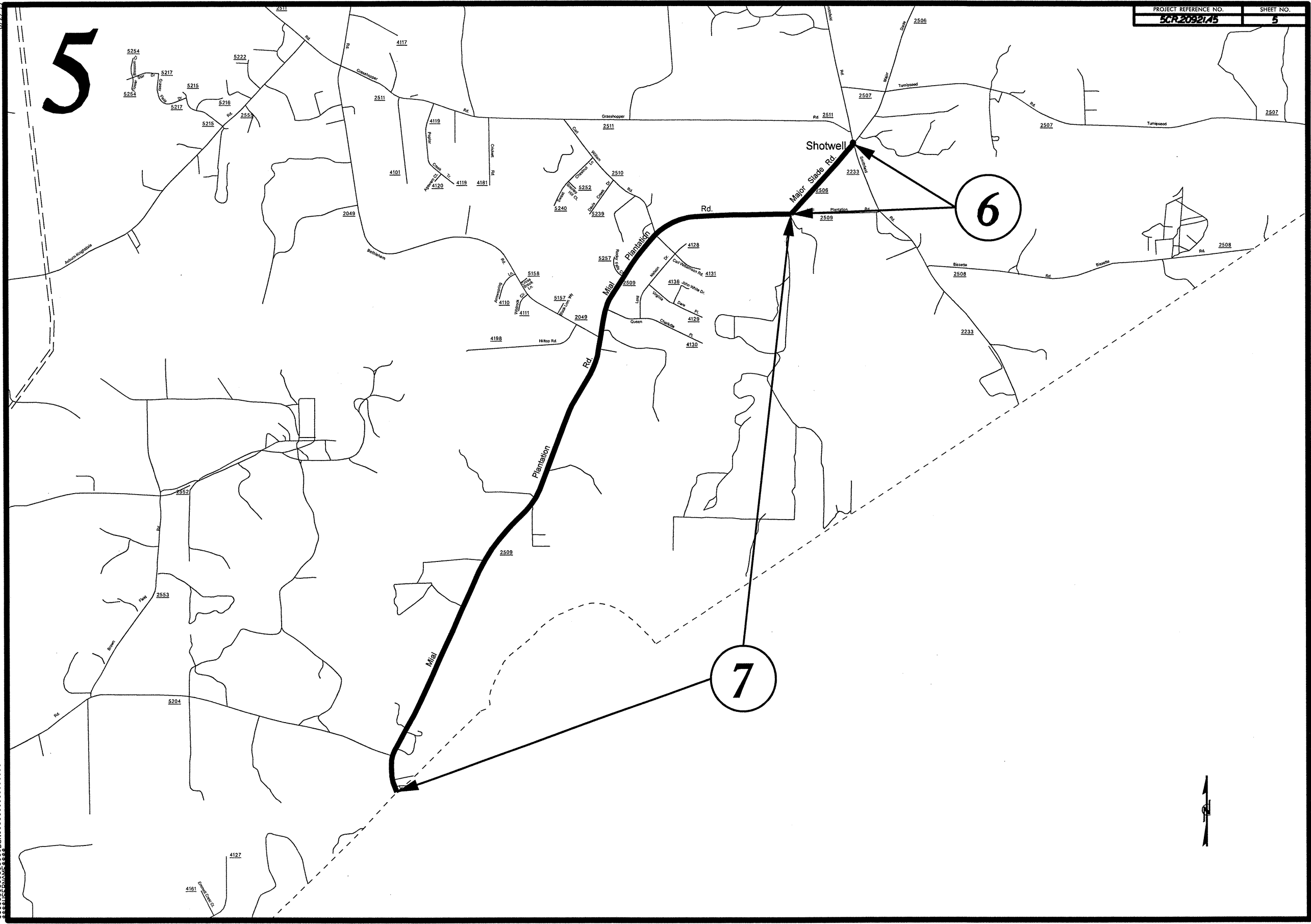
8/2/99



\*\*\*\*\*SYSTEMS DIVISION\*\*\*\*\*

6/2/99

# 5



\*\*\*\*\*  
 SYSTEM  
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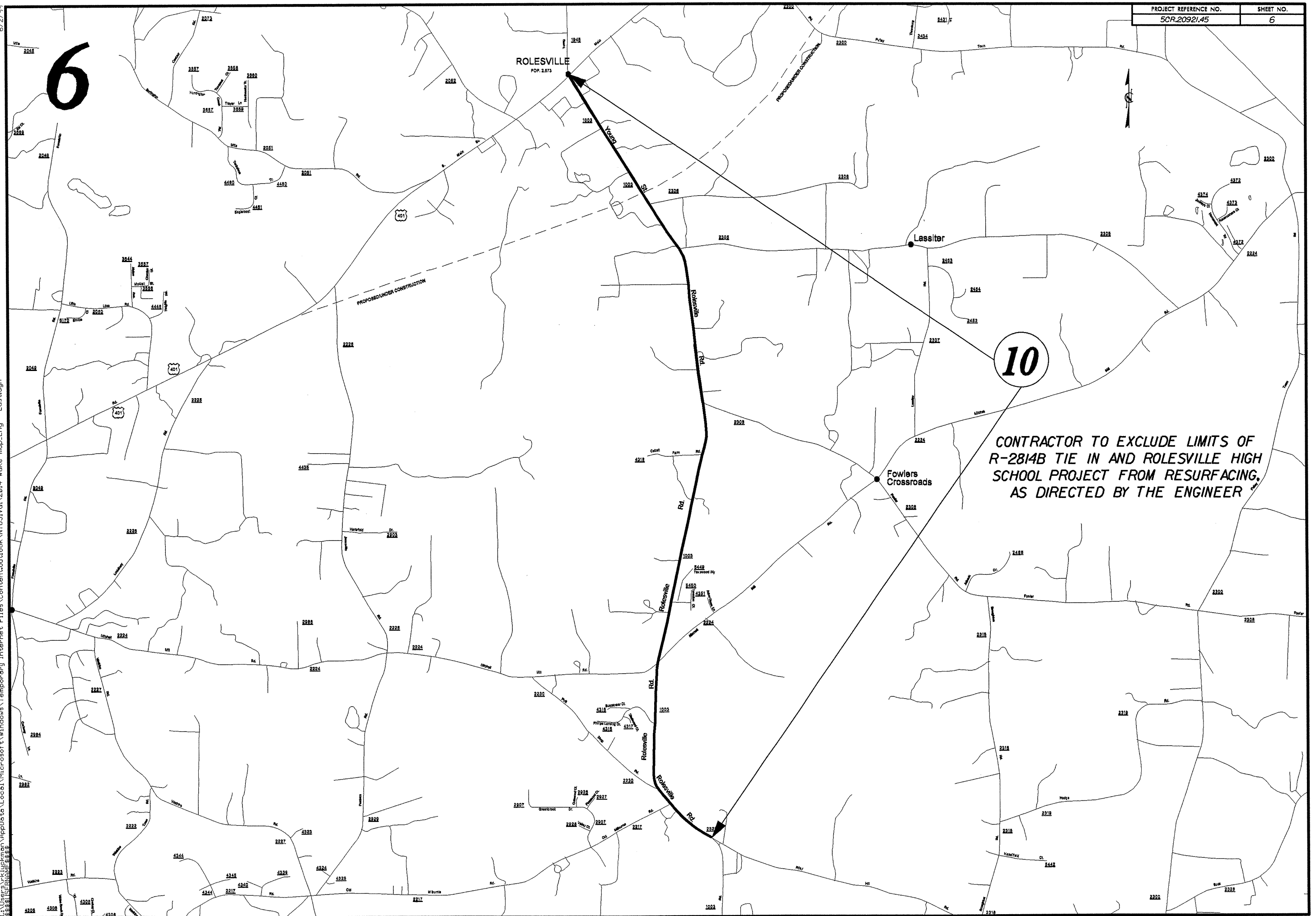
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6

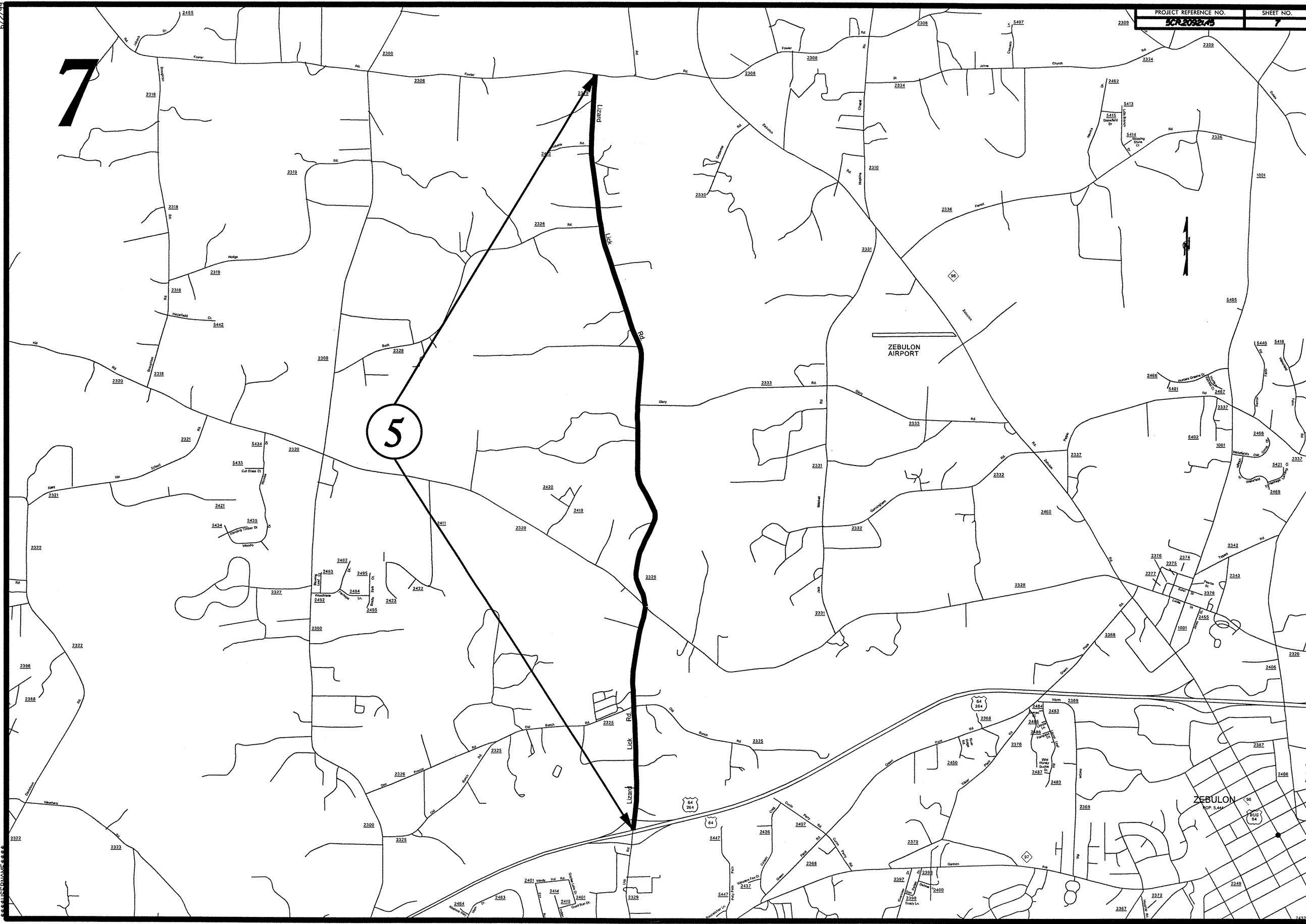
ROLESVILLE  
POP. 2,873

10

CONTRACTOR TO EXCLUDE LIMITS OF  
R-2814B TIE IN AND ROLESVILLE HIGH  
SCHOOL PROJECT FROM RESURFACING,  
AS DIRECTED BY THE ENGINEER



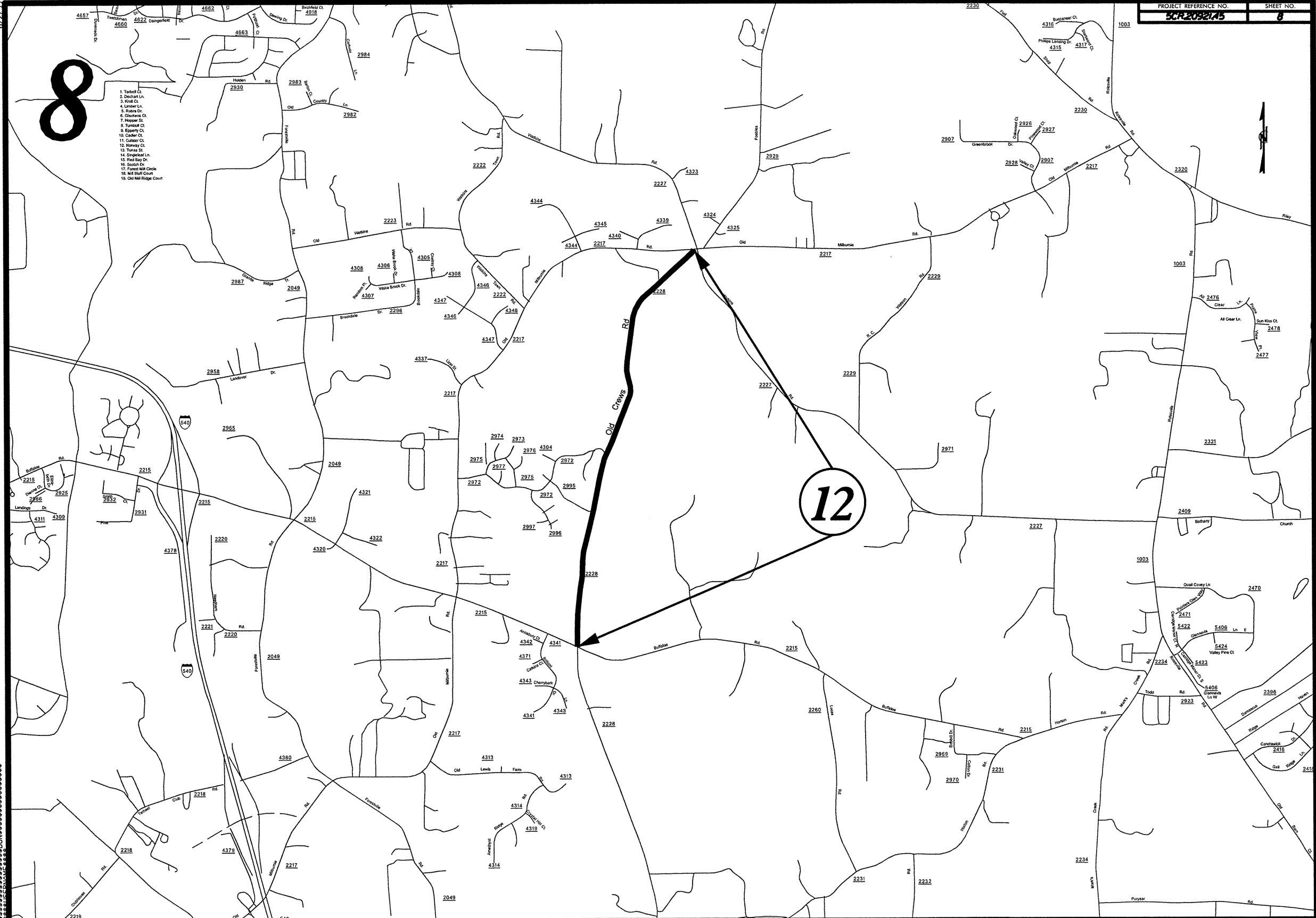
6/2/99  
SHEET NO. 7



5/2/99

8

1. Tardiff Ct.
2. Dechart Ln.
3. Korf Ct.
4. Landon Ln.
5. Ruess Dr.
6. Clonane Ct.
7. Hopper St.
8. Turnell Ct.
9. Eppahy Ct.
10. Cader Ct.
11. Collier Ct.
12. Noway Ct.
13. Turner St.
14. Singleton Ln.
15. Red Sky Dr.
16. Scotch Dr.
17. Forest Hill Circle
18. Mt Hill Court
19. Old Hill Ridge Court



5/2/99

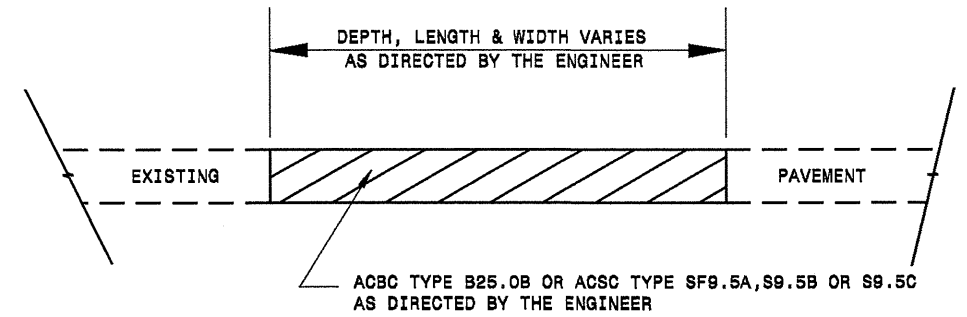
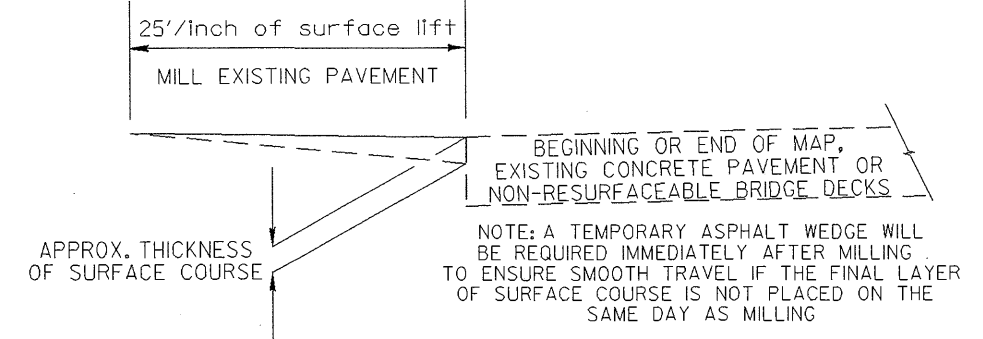


# PAVEMENT SCHEDULE

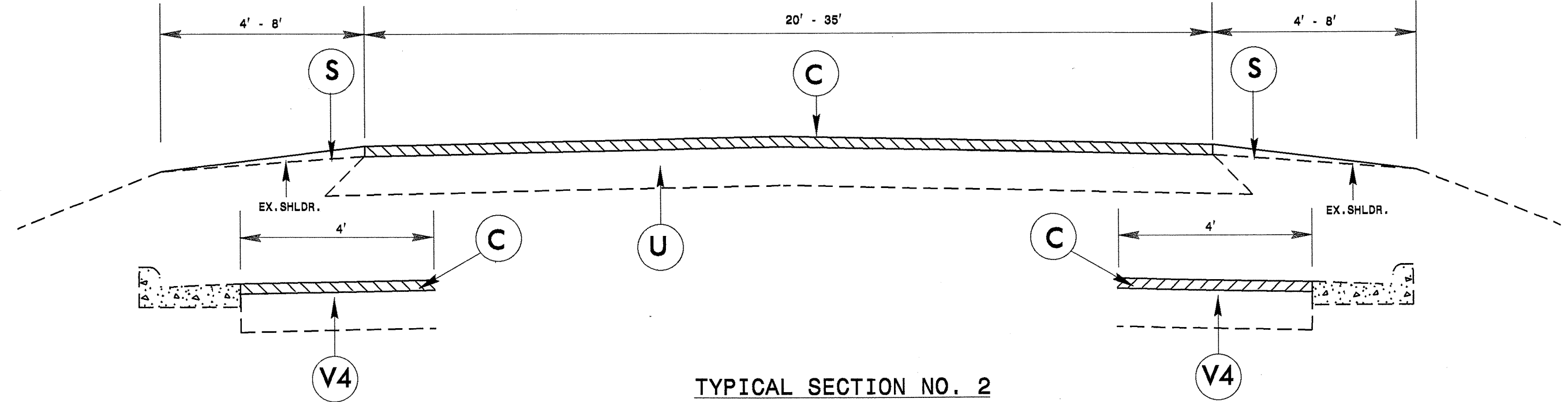
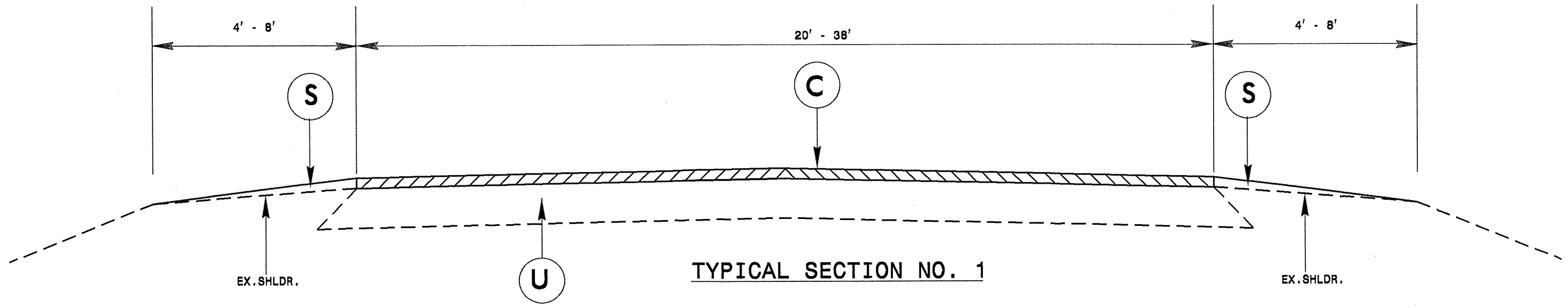
C	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D	2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E	5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
S	PROP. SHOULDER GRADING
U	EXISTING PAVEMENT
V1	1½" MILLING
V2	2½" MILLING
V3	2½" - 4" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH
V4	0" - 1½" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH

## NOTES

ALL UNPAVED S.R. 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 RADI, OR AS DIRECTED BY THE ENGINEER.  
 EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.  
 BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

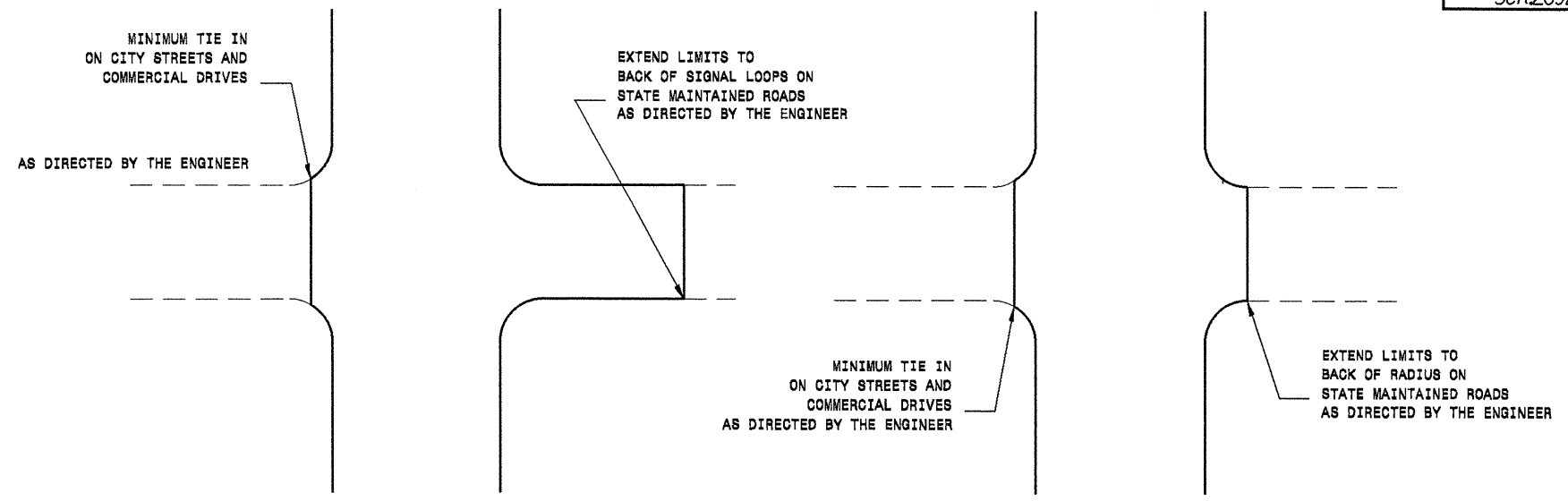


**PATCHING EXISTING PAVEMENT**  
 PATCHING TO BE PERFORMED PRIOR TO MILL AND FILL OPERATION



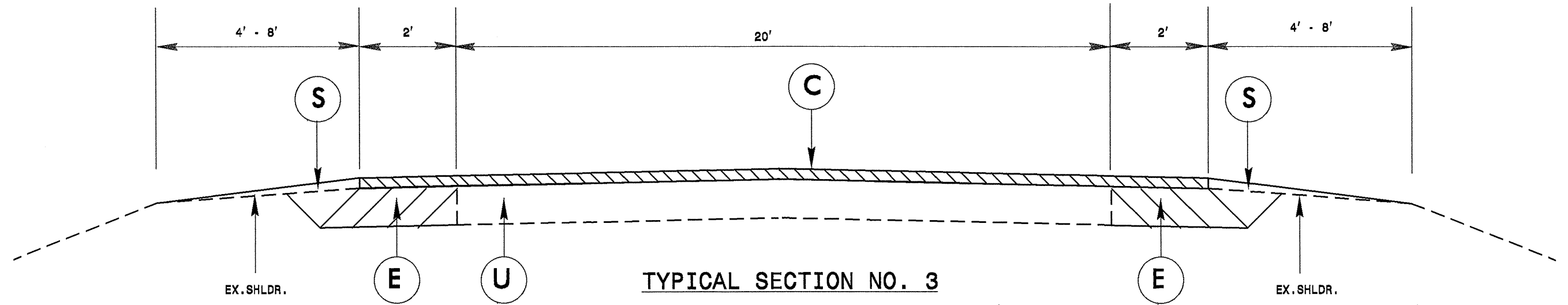
# PAVEMENT SCHEDULE

C	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D	2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I10.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E	5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
S	PROP. SHOULDER GRADING
U	EXISTING PAVEMENT
V1	1½" MILLING
V2	2½" MILLING
V3	2½" - 4" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH
V4	0" - 1½" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH

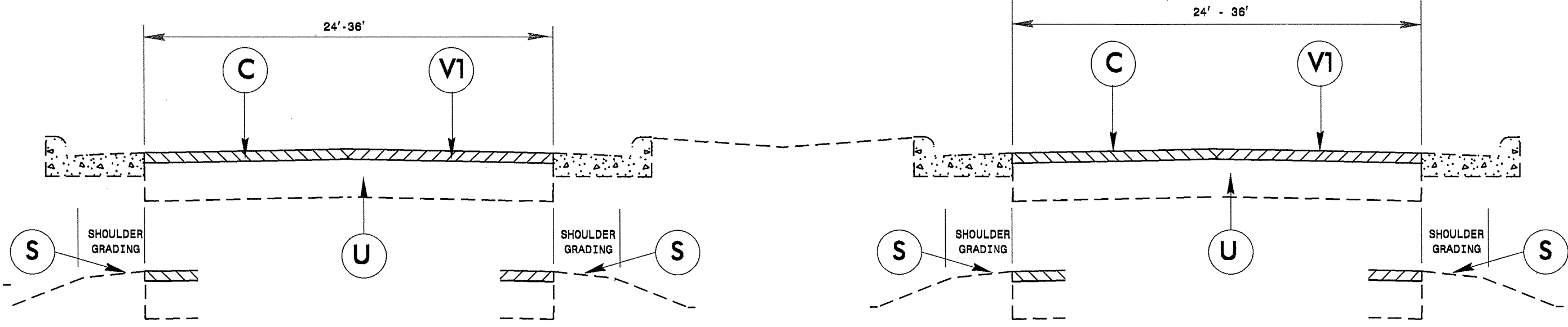


DETAIL OF PROJECT LIMITS AT  
SIGNALIZED Y LINES

DETAIL OF PROJECT LIMITS AT  
UNSIGNALIZED Y LINES



TYPICAL SECTION NO. 3

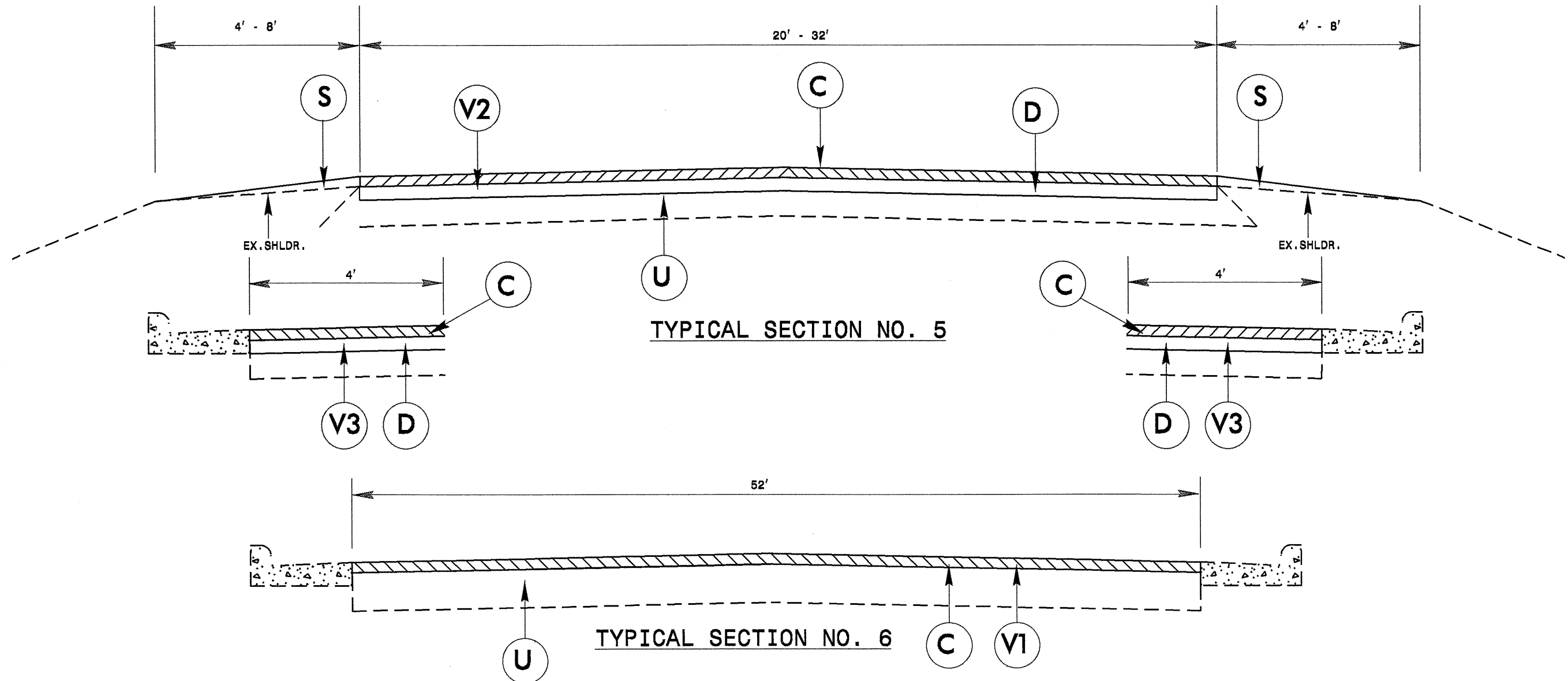


TYPICAL SECTION NO. 4

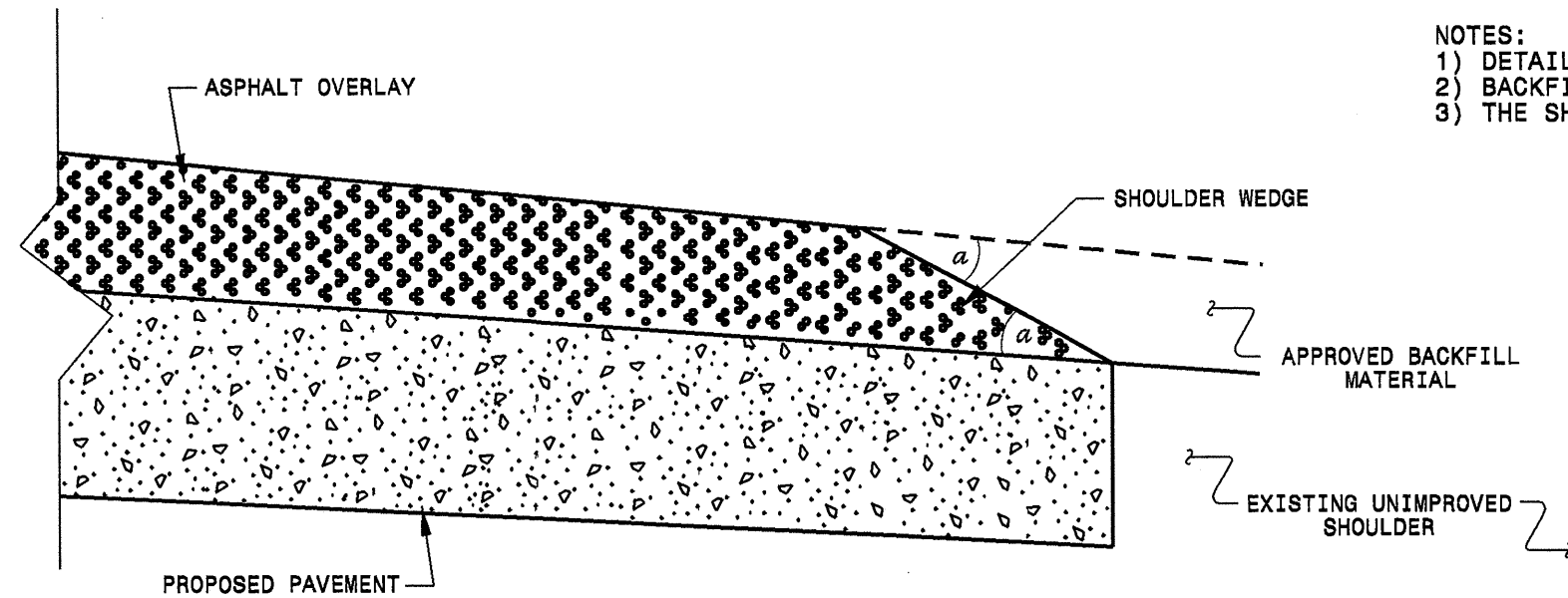
NOTE: CRACK SEAL MAP 8 AFTER MILLING OPERATION

# PAVEMENT SCHEDULE

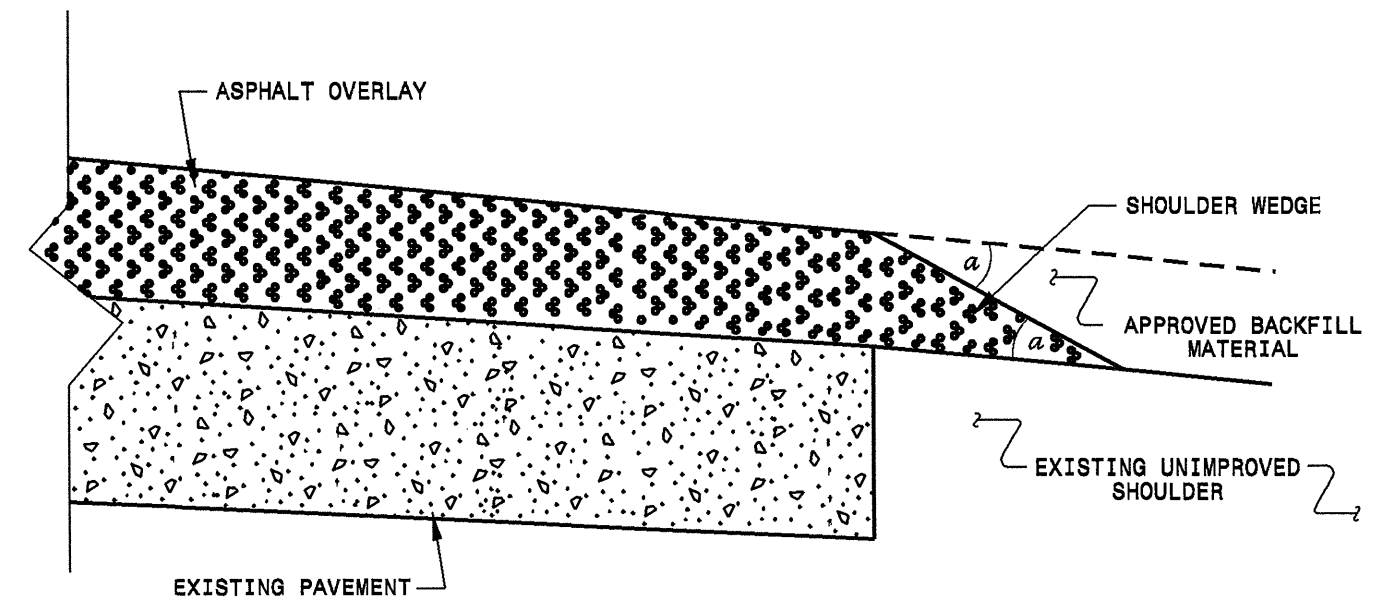
C	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D	2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E	5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
S	PROP. SHOULDER GRADING
U	EXISTING PAVEMENT
V1	1½" MILLING
V2	2½" MILLING
V3	2½" - 4" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH
V4	0" - 1½" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH



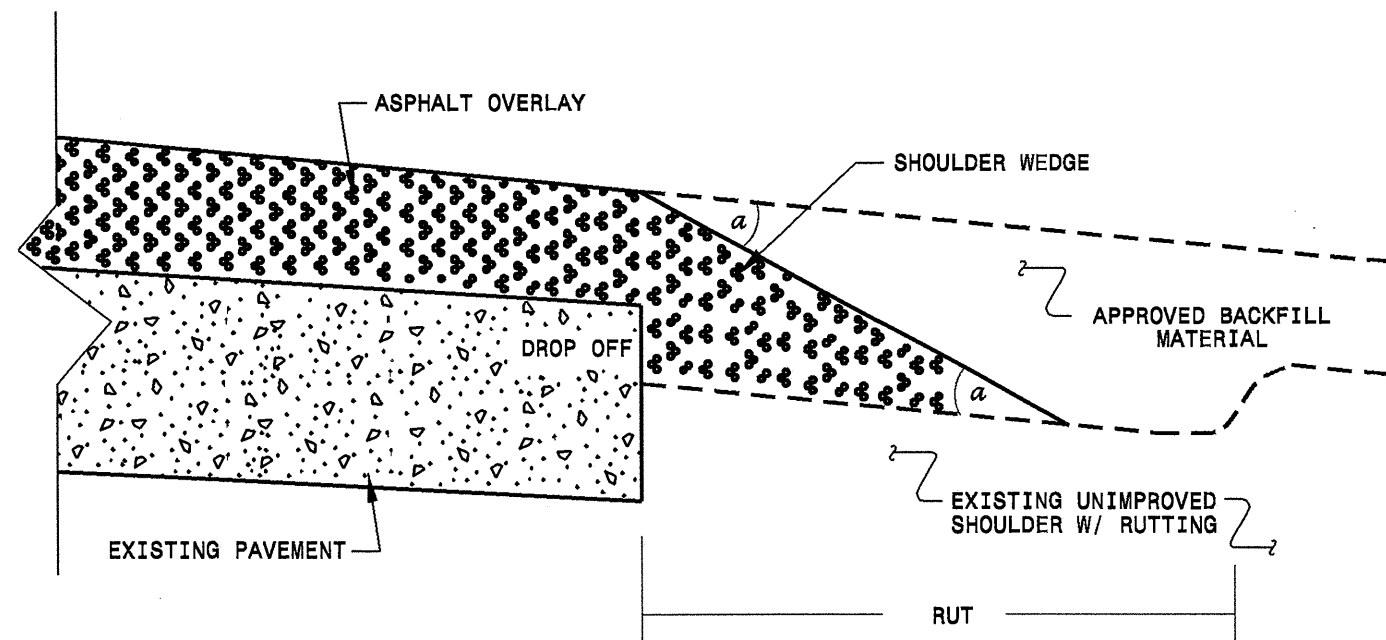
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



**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°

<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>		
Office 919-707-6950	FAX 919-250-4119	
<b>SHOULDER WEDGE DETAILS</b>		
ORIGINAL BY: T.SPELL	DATE: 7-19-11	
MODIFIED BY:	DATE: 10/18/12	
CHECKED BY:	DATE:	
FILE SPEC.:	szunr/details/stand/shoulderwedgestdt.dgn	

29-APR-2013 08:42  
 S:\Users\TSpell\My Documents\Projects\Revised Shoulder Wedge Detail.dgn  
 T.SPELL

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

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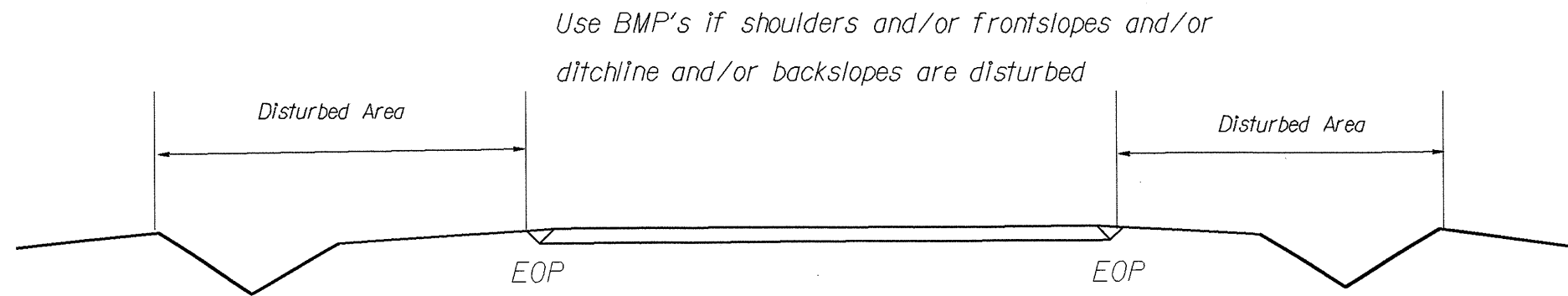
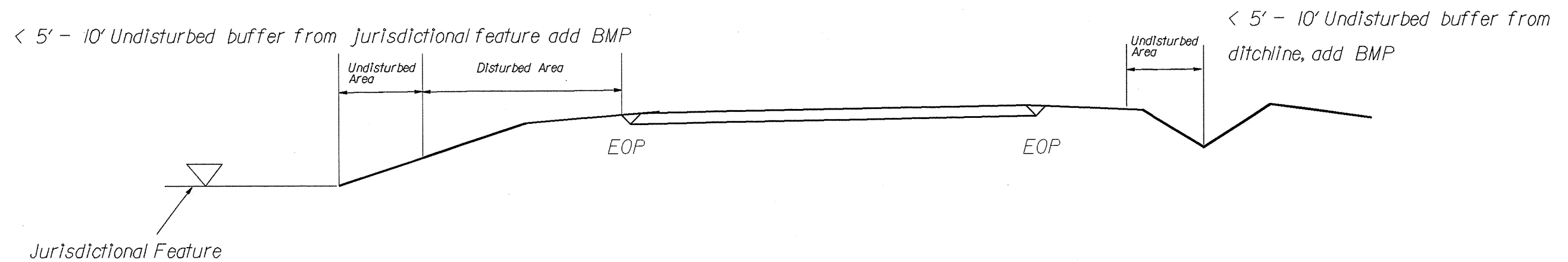
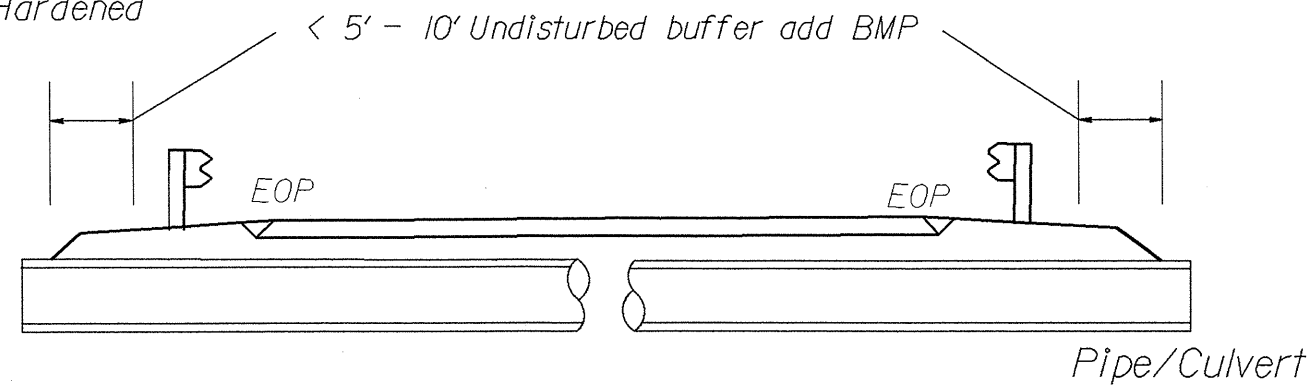
## ***SOIL STABILIZATION TIMEFRAMES***

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
<b>PERIMETER DIKES, SWALES, DITCHES AND SLOPES</b>	<b>7 DAYS</b>	<b>NONE</b>
<b>HIGH QUALITY WATER (HOW) ZONES</b>	<b>7 DAYS</b>	<b>NONE</b>
<b>SLOPES STEEPER THAN 3:1</b>	<b>7 DAYS</b>	<b>IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.</b>
<b>SLOPES 3:1 OR FLATTER</b>	<b>14 DAYS</b>	<b>7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.</b>
<b>ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1</b>	<b>14 DAYS</b>	<b>NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.</b>

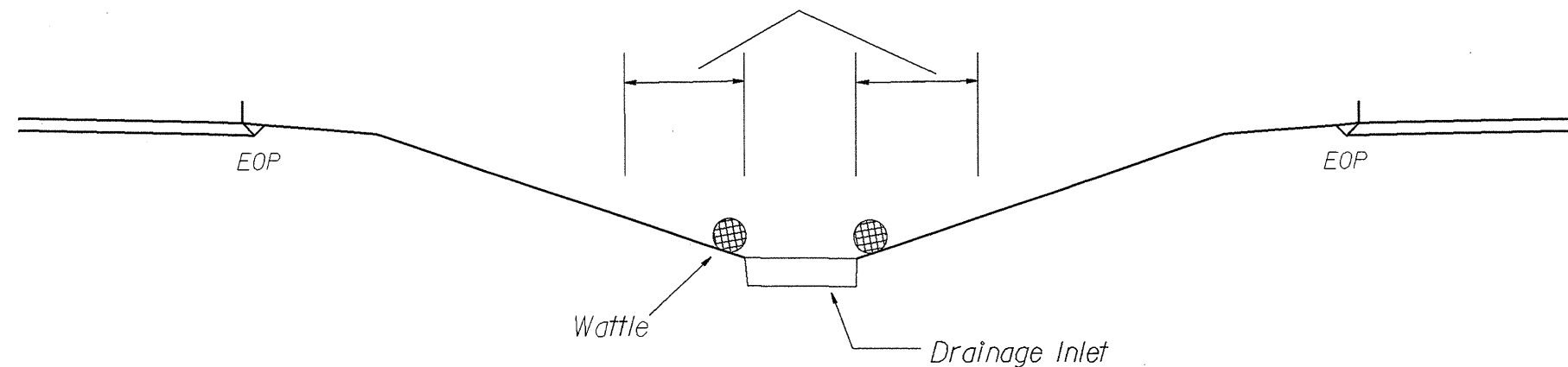
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

# EROSION CONTROL DETAIL

BMP Options: Wattle, Silt Fence or Hardened Aggregate.

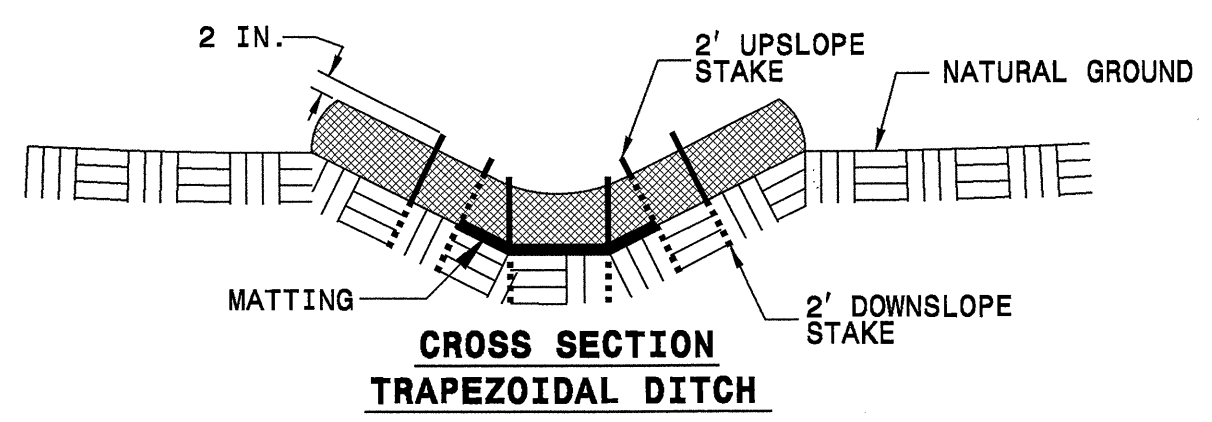
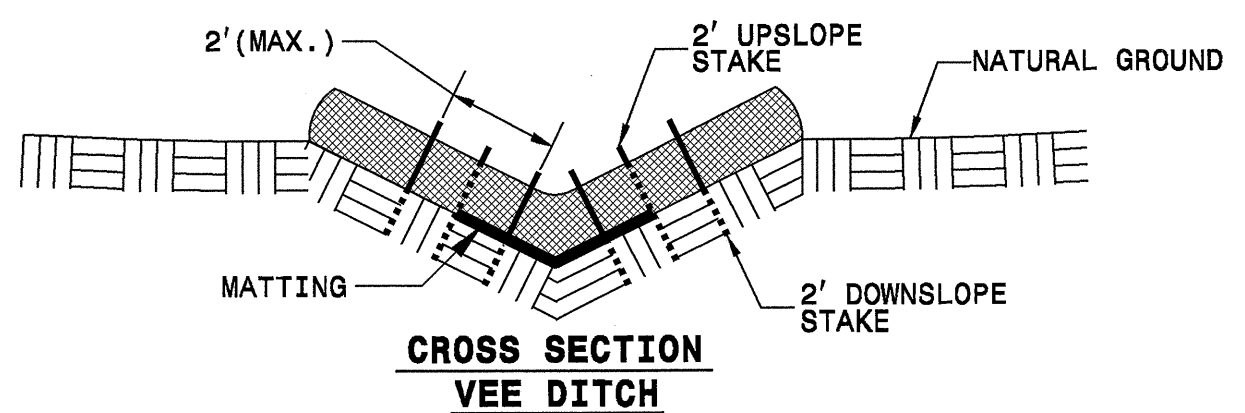
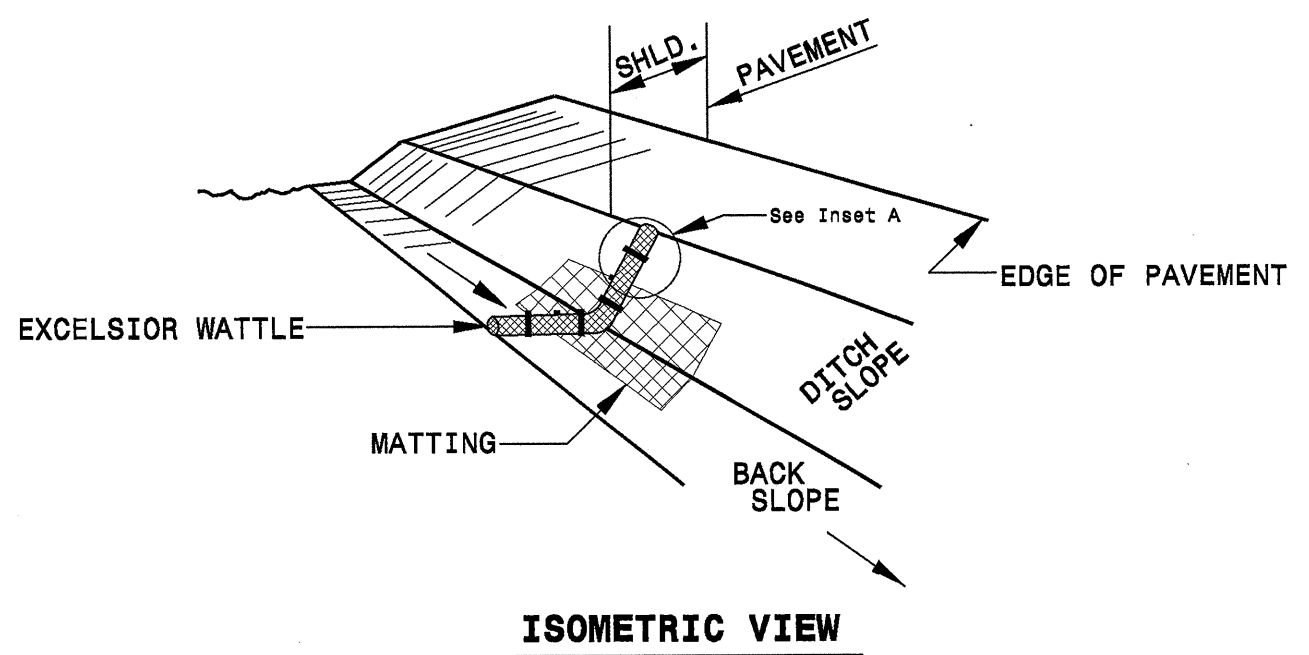


< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

# WATTLE DETAIL



**NOTES:**

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

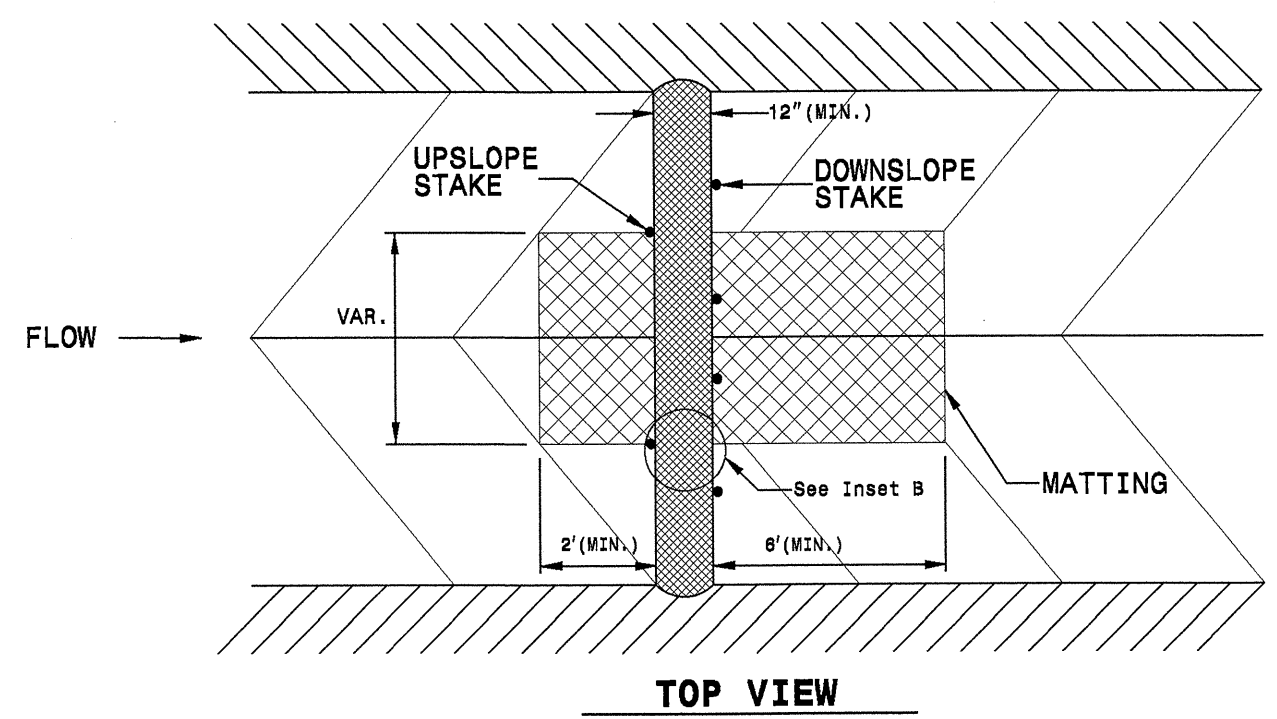
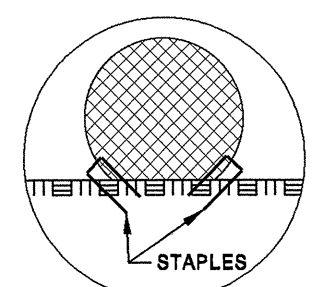
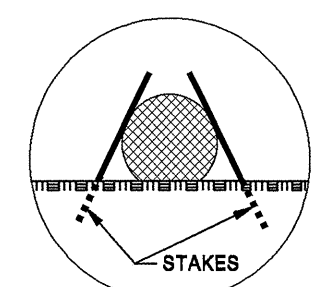
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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.



PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.20921.45	16	17

## SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	BORROW CY	SHOULDER GRADING SMI	INCIDENTAL STONE BASE TONS	2 1/2" MILLING SY	1 1/2" MILLING SY	2 1/2" TO 4" MILLING SY	0" TO 1 1/2" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	INTER-MEDIATE COURSE, I19.0B TONS
5CR.20921.45	Wake	1	SR 2007 - BRASSFIELD RD	SR 2006 - DURANT RD TO SR 2008 - DEER FOREST RD	1	NO	NO	1.8	20-32	360	3.60	180					1,695		
		2	SR 2215 - BUFFALO RD	JT WEST OF SR-2916 WESTMINSTER DR TO NEUSE RV BRG	5	NO	NO	1.62	26-38	280	2.80	140	31,198		1,125		1,160		4,866
		3	SR 2006 - DURANT RD	SR 1005 - SIX FORKS RD TO SR 2000 - FALLS OF NEUSE RD	1	NO	NO	2.88	26-38	576	5.76	288					4,180		
		4	SR 1927 - KEARNEY RD	SR 1923 - THOMPSON MILL RD TO SR 1929 - WAKE UNION CH RD	1	NO	NO	1.28	20	256	2.56	128					330		
		5	SR 2329 - LIZARD LICK RD	64 BYP TO SR 2308 - FOWLER RD	1	NO	NO	4.01	20	802	8.02	401					3,410		
		6	SR 2506 - MAJOR SLADE RD	SR 2509 - MIAL PLANTATION RD TO SR 2233 SMITHFIELD RD	3	NO	NO	0.41	24	79	0.79	80					55	342	
		7	SR 2509 - MIAL PLANTATION RD	SR 2506 - MAJOR SLADE RD TO JONHSTON CO	3	NO	NO	3.23	24	646	6.46	323					320	2,495	
		8	SR 2911 - NEW BERN AVE.	E OF RALEIGH BLVD TO BRG PAST WAKE MED	4	NO	YES	1.82	48-96	614	6.14			73,161					
		9	SR 1007 - POOLE RD	SR 4108 - HICKORY HOLLOW LN TO JT AT AJINOMOTO DR	4,6	NO	NO	0.99	48-72					38,694					
		10	SR 1003 - ROLESVILLE RD/YOUNG ST	SR 2320 - RILEY HLL RD TO US 401	2	NO	NO	3.47	20-35	815	8.15	407				1,178	1,820		
		11	SR 2041 - SPRING FOREST RD	US1 - CAPITAL BLVD TO SR 2016 - DIXIE FOREST RD	4,6	NO	NO	1.4	48-52	25	0.25	13		52,497					
		12	SR 2228 - OLD CREWS	SR 2217 - OLD MILBURNIE TO SR 2215 - BUFFALO RD	1	NO	NO	1.85	20	370	3.70	185					330		
<b>TOTAL FOR PROJ NO. 5CR.20921.45</b>								<b>24.76</b>		<b>4,823</b>	<b>48.23</b>	<b>2,145</b>	<b>31,198</b>	<b>164,352</b>	<b>1,125</b>	<b>1,178</b>	<b>13,300</b>	<b>2,837</b>	<b>4,866</b>
<b>GRAND TOTAL</b>								<b>24.76</b>		<b>4,823</b>	<b>48.23</b>	<b>2,145</b>	<b>31,198</b>	<b>164,352</b>	<b>1,125</b>	<b>1,178</b>	<b>13,300</b>	<b>2,837</b>	<b>4,866</b>

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	SURFACE COURSE, \$9.5B TONS	ASPHALT BINDER FOR PLANT MIX TON	SEALING EXISTING PAVEMENT CRACKS & JOINTS LB	PATCHING EXISTING PAVEMENT TONS	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	PORTABLE LIGHTING LS	TEMPORARY SILT FENCE LF	WATTLE LF	SEED & MULCHING AC	INDUCTIVE LOOP LF
5CR.20921.45	Wake	1	SR 2007 - BRASSFIELD RD	SR 2006 - DURANT RD TO SR 2008 - DEER FOREST RD	1	NO	NO	1.8	20-32	2,120	127		540		2		261	660	2.61	
		2	SR 2215 - BUFFALO RD	JT WEST OF SR-2916 WESTMINSTER DR TO NEUSE RV BRG	5	NO	NO	1.62	26-38	2,998	413		195				203	510	2.03	
		3	SR 2006 - DURANT RD	SR 1005 - SIX FORKS RD TO SR 2000 - FALLS OF NEUSE RD	1	NO	NO	2.88	26-38	4,952	297		864				418	1,050	4.18	
		4	SR 1927 - KEARNEY RD	SR 1923 - THOMPSON MILL RD TO SR 1929 - WAKE UNION CH RD	1	NO	NO	1.28	20	1,425	86		256				186	470	1.86	
		5	SR 2329 - LIZARD LICK RD	64 BYP TO SR 2308 - FOWLER RD	1	NO	NO	4.01	20	4,723	283		2,005				581	1,460	5.81	
		6	SR 2506 - MAJOR SLADE RD	SR 2509 - MIAL PLANTATION RD TO SR 2233 SMITHFIELD RD	3	NO	NO	0.41	24	447	42		79				58	150	0.58	
		7	SR 2509 - MIAL PLANTATION RD	SR 2506 - MAJOR SLADE RD TO JONHSTON CO	3	NO	NO	3.23	24	4,328	369		323				468	1,170	4.68	
		8	SR 2911 - NEW BERN AVE.	E OF RALEIGH BLVD TO BRG PAST WAKE MED	4	NO	YES	1.82	48-96	6,772	406	3,844.00	365	5	9	1	447	1,120	4.47	3,774
		9	SR 1007 - POOLE RD	SR 4108 - HICKORY HOLLOW LN TO JT AT AJINOMOTO DR	4,6	NO	NO	0.99	48-72	3,419	205		200	3	7					2,244
		10	SR 1003 - ROLESVILLE RD/YOUNG ST	SR 2320 - RILEY HLL RD TO US 401	2	NO	NO	3.47	20-35	5,288	317		1,295		2		593	1,490	5.93	210
		11	SR 2041 - SPRING FOREST RD	US1 - CAPITAL BLVD TO SR 2016 - DIXIE FOREST RD	4,6	NO	NO	1.4	48-52	4,639	278		350	4	10		18	50	0.18	2,585
		12	SR 2228 - OLD CREWS	SR 2217 - OLD MILBURNIE TO SR 2215 - BUFFALO RD	1	NO	NO	1.85	20	2,018	121		185				268	670	2.68	
<b>TOTAL FOR PROJ NO. 5CR.20921.45</b>								<b>24.76</b>		<b>43,129</b>	<b>2,944</b>	<b>3,844.00</b>	<b>6,657</b>	<b>12</b>	<b>30</b>	<b>1</b>	<b>3,501</b>	<b>8,800</b>	<b>35.01</b>	<b>8,813</b>



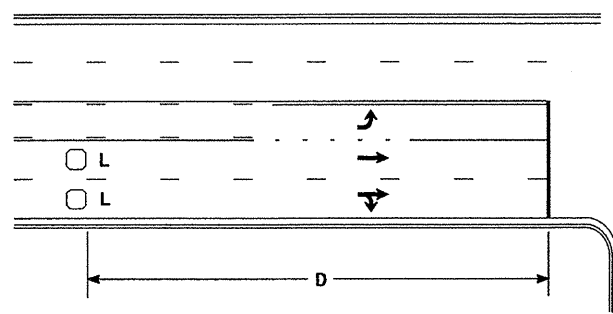
PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.20921.45	17	17

### THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH	WIDTH	4685000000-E		4686000000-E		4687000000-E		4695000000-E		4697000000-E		4710000000-E		4721000000-E				4725000000-E								
								4" X 90 M WHITE THERMO LF	4" X 90 M YELLOW THERMO LF	4" X 120 M YELLOW THERMO LF	4" X 120 M WHITE THERMO LF	4" X 240 M WHITE THERMO LF	8" X 90 M YELLOW THERMO LF	8" X 90 M WHITE THERMO LF	8" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO MSG SCHOOL 120 M EA	THERMO MSG STOP 120 M EA	THERMO MSG AHEAD 120 M EA	THERMO MSG ONLY 120 M EA	THERMO LT ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO STR & RT ARROW 90 M EA	THERMO LT STR RT ARROW 90 M EA	THERMO STR & LT ARROW 90 M EA	THERMO STR ARROW 90 M EA	THERMO MERGE ARROW 90 MILS EA					
5CR.20921.45	Wake	1	SR 2007 - BRASSFIELD RD	SR 2006 - DURANT RD TO SR 2008 - DEER FOREST RD	1	1.8	20-32	19,368		19,008	50					167	12	4	5													
5CR.20921.45	Wake	2	SR 2215 - BUFFALO RD	JT WEST OF SR-2916 WESTMINSTER DR TO NEUSE RV BRG	5	1.62	26-38	17,000		23,455	2,045		658			30								18	4							
5CR.20921.45	Wake	3	SR 2006 - DURANT RD	SR 1005 - SIX FORKS RD TO SR 2000 - FALLS OF NEUSE RD	1	2.88	26-38	30,989		36,460	875		650			115								12		2	3					
5CR.20921.45	Wake	4	SR 1927 - KEARNEY RD	SR 1923 - THOMPSON MILL RD TO SR 1929 - WAKE UNION CH RD	1	1.28	20	13,428		13,428	50																					
5CR.20921.45	Wake	5	SR 2329 - LIZARD LICK RD	64 BYP TO SR 2308 - FOWLER RD	1	4.01	20	43,148		36,065	100			140											1				1			
5CR.20921.45	Wake	6	SR 2506 - MAJOR SLADE RD	SR 2509 - MIAL PLANTATION RD TO SR 2233 SMITHFIELD RD	3	0.41	24	4,192		4,192	150					12		4	5													
5CR.20921.45	Wake	7	SR 2509 - MIAL PLANTATION RD	SR 2506 - MAJOR SLADE RD TO JONHSTON CO	3	3.23	24	34,108		31,033	150																					
5CR.20921.45	Wake	8	SR 2911 - NEW BERN AVE.	E OF RALEIGH BLVD TO BRG PAST WAKE MED	4	1.82	48-96	15,445	15,725		9,136				375	1,056								61	14	12				53	1	
5CR.20921.45	Wake	9	SR 1007 - POOLE RD	SR 4108 - HICKORY HOLLOW LN TO JT AT AJINOMOTO DR	4,6	0.99	48-52		490	2,325	5,910				796	333			12					20	7					2		
5CR.20921.45	Wake	10	SR 1003 - ROLESVILLE RD/YOUNG ST	SR 2320 - RILEY HLL RD TO US 401	2	3.47	20-35	43,735		40,955	965	460	265	48		26		24	10					6		1						
5CR.20921.45	Wake	11	SR 2041 - SPRING FOREST RD	US1 - CAPITAL BLVD TO SR 2016 - DIXIE FOREST RD	4,6	1.4	48-52		3,145	13,163	4,897		160		800	285								42	2	12		2	14			
5CR.20921.45	Wake	12	SR 2228 - OLD CREWS	SR 2217 - OLD MILBURNIE TO SR 2215 - BUFFALO RD	1	1.85	20	19,536		19,536	50					15																
<b>TOTAL FOR PROJ NO. 5CR.20921.45</b>										240,949	19,360	239,620	24,378	460	1,733	188	1,971	2,039	12	32	20	12	159	28	27	3	3	69	1			
								260,309			263,998			1,921					76								290					
<b>GRAND TOTAL</b>										240,949	19,360	239,620	24,378	460	1,733	188	1,971	2,039	12	32	20	12	159	28	27	3	3	69	1			
								260,309			263,998			1,921						76								290				

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH	WIDTH	4770000000-E		4810000000-E		4820000000-E		4835000000-E		4840000000-N		4845000000-N					4850000000-E		4900000000-N				
								4" WHITE COLD APPLIED PLASTIC, TYPE III LF	4" YELLOW COLD APPLIED PLASTIC, TYPE III LF	4" WHITE PAINT LF	4" YELLOW PAINT LF	8" YELLOW PAINT LF	8" WHITE PAINT LF	24" WHITE PAINT LF	PAINT MSG ONLY EA	PAINT LT ARROW EA	PAINT RT ARROW EA	PAINT STR ARROW EA	PAINT STR & RT ARROW EA	PAINT MERGE ARROW EA	PAINT STR & LT ARROW EA	4" LINE REMOVAL LF	YELLOW & YELLOW MARKERS EA	CRYSTAL & RED MARKERS EA					
5CR.20921.45	Wake	1	SR 2007 - BRASSFIELD RD	SR 2006 - DURANT RD TO SR 2008 - DEER FOREST RD	1	1.8	20-32																		120				
5CR.20921.45	Wake	2	SR 2215 - BUFFALO RD	JT WEST OF SR-2916 WESTMINSTER DR TO NEUSE RV BRG	5	1.62	26-38	700	700	19,045	23,455	658		30											1,400	245	150		
5CR.20921.45	Wake	3	SR 2006 - DURANT RD	SR 1005 - SIX FORKS RD TO SR 2000 - FALLS OF NEUSE RD	1	2.88	26-38																		320	72			
5CR.20921.45	Wake	4	SR 1927 - KEARNEY RD	SR 1923 - THOMPSON MILL RD TO SR 1929 - WAKE UNION CH RD	1	1.28	20																		84				
5CR.20921.45	Wake	5	SR 2329 - LIZARD LICK RD	64 BYP TO SR 2308 - FOWLER RD	1	4.01	20																		270	10			
5CR.20921.45	Wake	6	SR 2506 - MAJOR SLADE RD	SR 2509 - MIAL PLANTATION RD TO SR 2233 SMITHFIELD RD	3	0.41	24																		27				
5CR.20921.45	Wake	7	SR 2509 - MIAL PLANTATION RD	SR 2506 - MAJOR SLADE RD TO JONHSTON CO	3	3.23	24	670	670																1,340	213			
5CR.20921.45	Wake	8	SR 2911 - NEW BERN AVE.	E OF RALEIGH BLVD TO BRG PAST WAKE MED	4	1.82	48-96	1,430	880	24,581	15,725		375	1,056											2,310	10	590		
5CR.20921.45	Wake	9	SR 1007 - POOLE RD	SR 4108 - HICKORY HOLLOW LN TO JT AT AJINOMOTO DR	4,6	0.99	48-52			5,910	2,815		796	333	12										45	357			
5CR.20921.45	Wake	10	SR 1003 - ROLESVILLE RD/YOUNG ST	SR 2320 - RILEY HLL RD TO US 401	2	3.47	20-35																		375	40			
5CR.20921.45	Wake	11	SR 2041 - SPRING FOREST RD	US1 - CAPITAL BLVD TO SR 2016 - DIXIE FOREST RD	4,6	1.4	48-52			4,897	16,308	160	800	285		42	2	14	12						391	230			
5CR.20921.45	Wake	12	SR 2228 - OLD CREWS	SR 2217 - OLD MILBURNIE TO SR 2215 - BUFFALO RD	1	1.85	20																		122				
<b>TOTAL FOR PROJ NO. 5CR.20921.45</b>										2,800	2,250	54,433	58,303	818	1,971	1,704	12	141	27	69	24	1	2	5,050	2,222	1,449			
								5,050			112,736			2,789														3,671	
<b>GRAND TOTAL</b>										2,800	2,250	54,433	58,303	818	1,971	1,704	12	141	27	69	24	1	2	5,050	2,222	1,449			
								5,050			112,736			2,789														3,671	

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

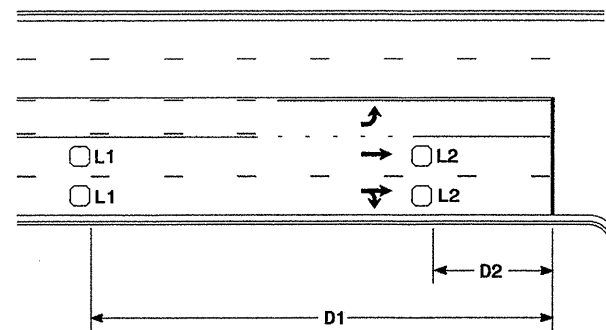


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

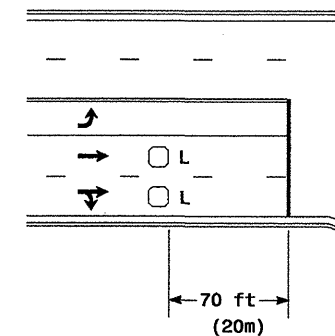


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

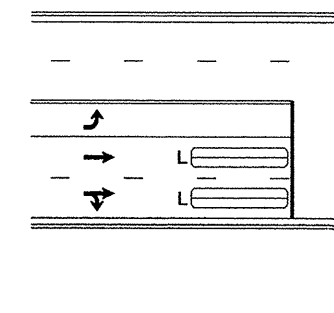
"Stretch" Operation

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



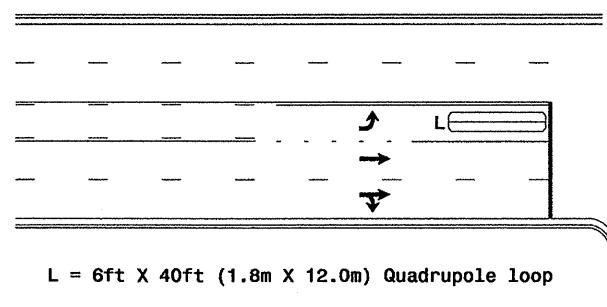
L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

OR



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

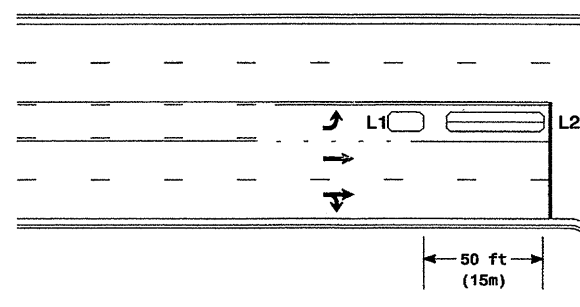
### Left Turn Lane Detection



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

Presence Loop Detection

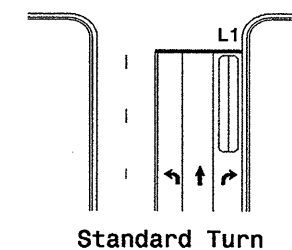
OR



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

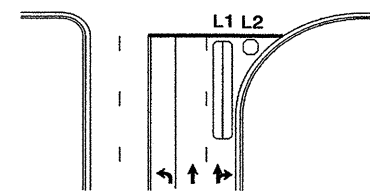
Queue Loop Detection

### Right Turn Lane Detection

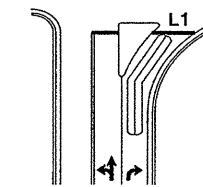


Standard Turn

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

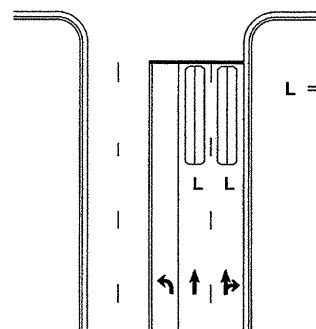


Wide Radius Turn



Channelized Turn

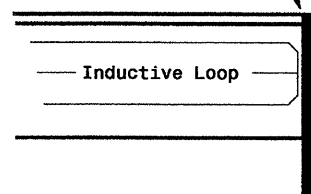
### Side Street Detection



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:

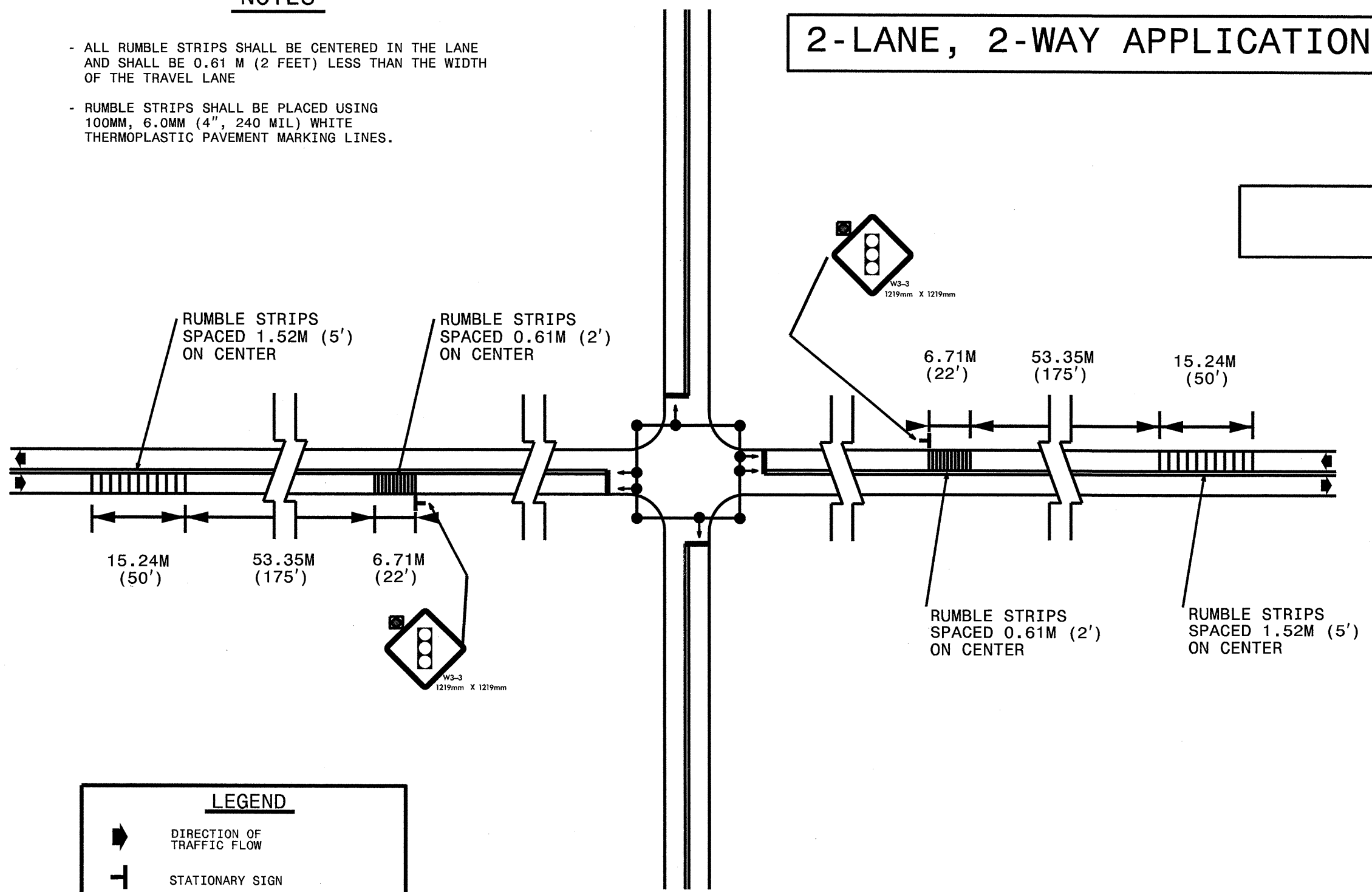
Lead-in < 150' (45 m), use 2 turns  
Lead-in > 150' (45 m), use 3 turns

	<b>Typical Loop Locations</b>	
	PLAN DATE: June 2006 PREPARED BY: P L Alexander	REVIEWED BY: REVIEWED BY:
SCALE N/A	REVISIONS Revise pavement markings	INT. DATE DATE
SIGNATURE 		DATE DATE
SIG. INVENTORY NO.		

**NOTES**

- ALL RUMBLE STRIPS SHALL BE CENTERED IN THE LANE AND SHALL BE 0.61 M (2 FEET) LESS THAN THE WIDTH OF THE TRAVEL LANE
- RUMBLE STRIPS SHALL BE PLACED USING 100MM, 6.0MM (4", 240 MIL) WHITE THERMOPLASTIC PAVEMENT MARKING LINES.

**2-LANE, 2-WAY APPLICATION**



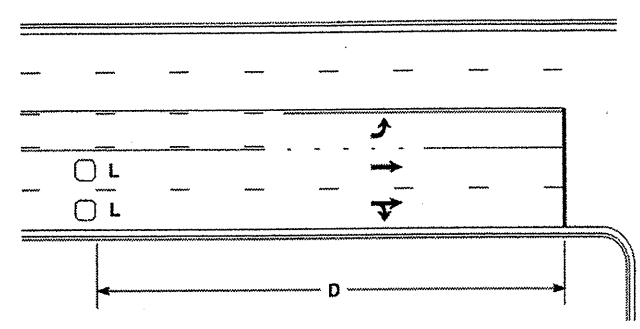
**LEGEND**

- DIRECTION OF TRAFFIC FLOW
- STATIONARY SIGN
- WHITE RUMBLE STRIPS 100MM, 6.0MM (4" WIDE, 240 MILS) THERMOPLASTIC
- SIGNAL POLE
- SIGNAL HEAD

SHEET OF

SEAL	APPROVED: _____ DATE: _____		<b>THERMOPLASTIC RUMBLE STRIP PLACEMENT</b>	
	SCALE: NONE	DATE: 04-23-98		REVISIONS
DWG. BY: MMM	DESIGN BY: MMM			
REVIEWED BY: GLG				

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

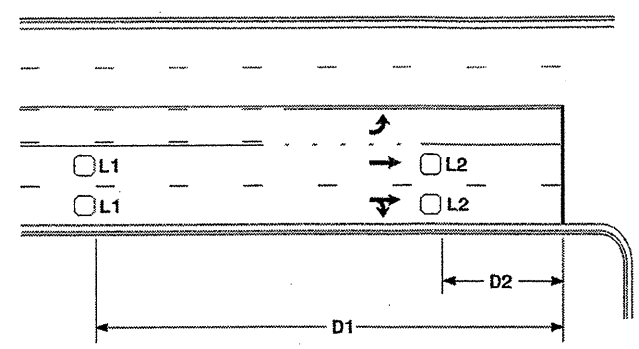


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45 (72)	300 (90)
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55 (88)	420 (130)

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

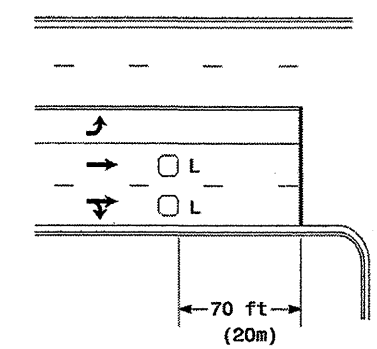


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
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L1 = 6ft X 6ft  
(1.8m X 1.8m)  
Wired in series  
L2 = 6ft X 6ft  
(1.8m X 1.8m)  
Wired in series

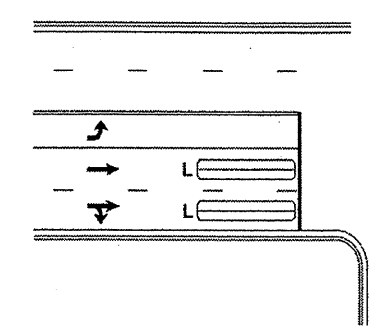
"Stretch" Operation

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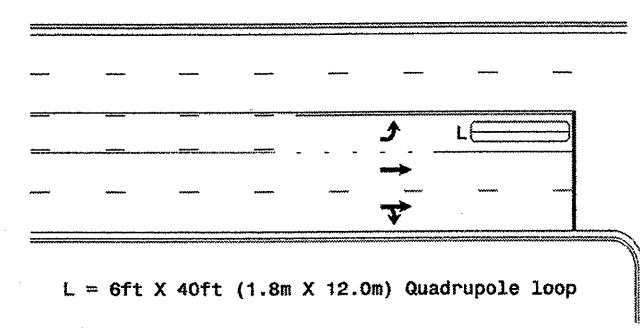
L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

OR



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

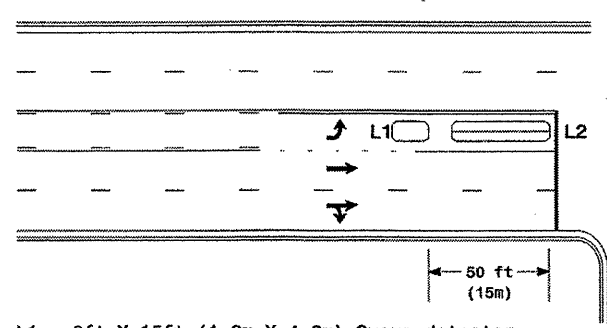
### Left Turn Lane Detection



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

Presence Loop Detection

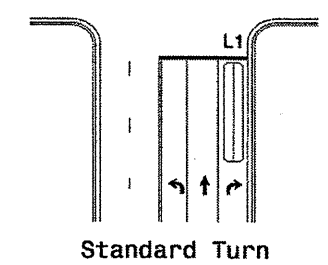
OR



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

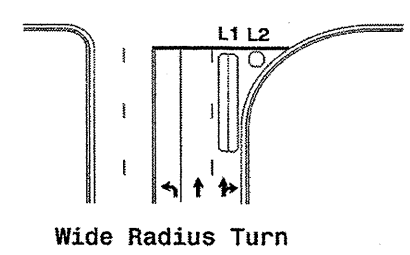
Queue Loop Detection

### Right Turn Lane Detection

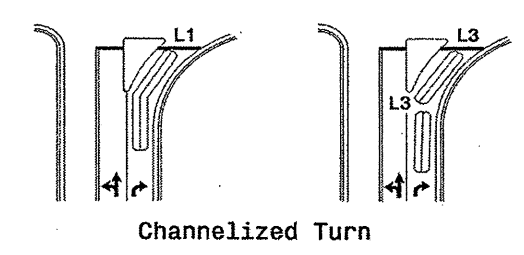


Standard Turn

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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

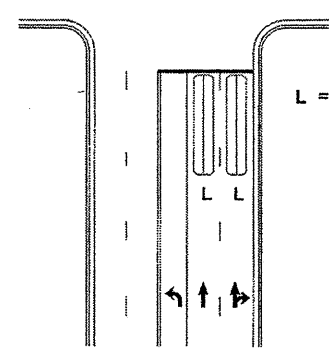


Wide Radius Turn



Channelized Turn

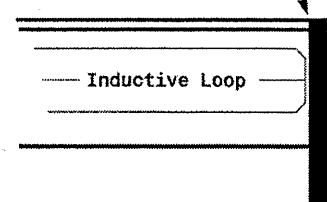
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6' X 15' (1.8m X 4.6m) Loops:  
Lead-in < 150' (45 m), use 2 turns  
Lead-in > 150' (45 m), use 3 turns

Prepared in the Office of:  
The State of North Carolina  
Department of Transportation  
122 N. McDowell St., Raleigh, NC 27603

SCALE: N/A

Typical Loop Locations

PLAN DATE: June 2006  
PREPARED BY: P L Alexander  
REVIEWED BY: [Signature]

REVISIONS: [Table with columns for revision number, description, and date]

INIT. DATE: [Signature] [Date]

SIGNATURE: [Signature]  
DATE: [Date]

SEAL: [Seal of the State of North Carolina]

SIG. INVENTORY NO.: