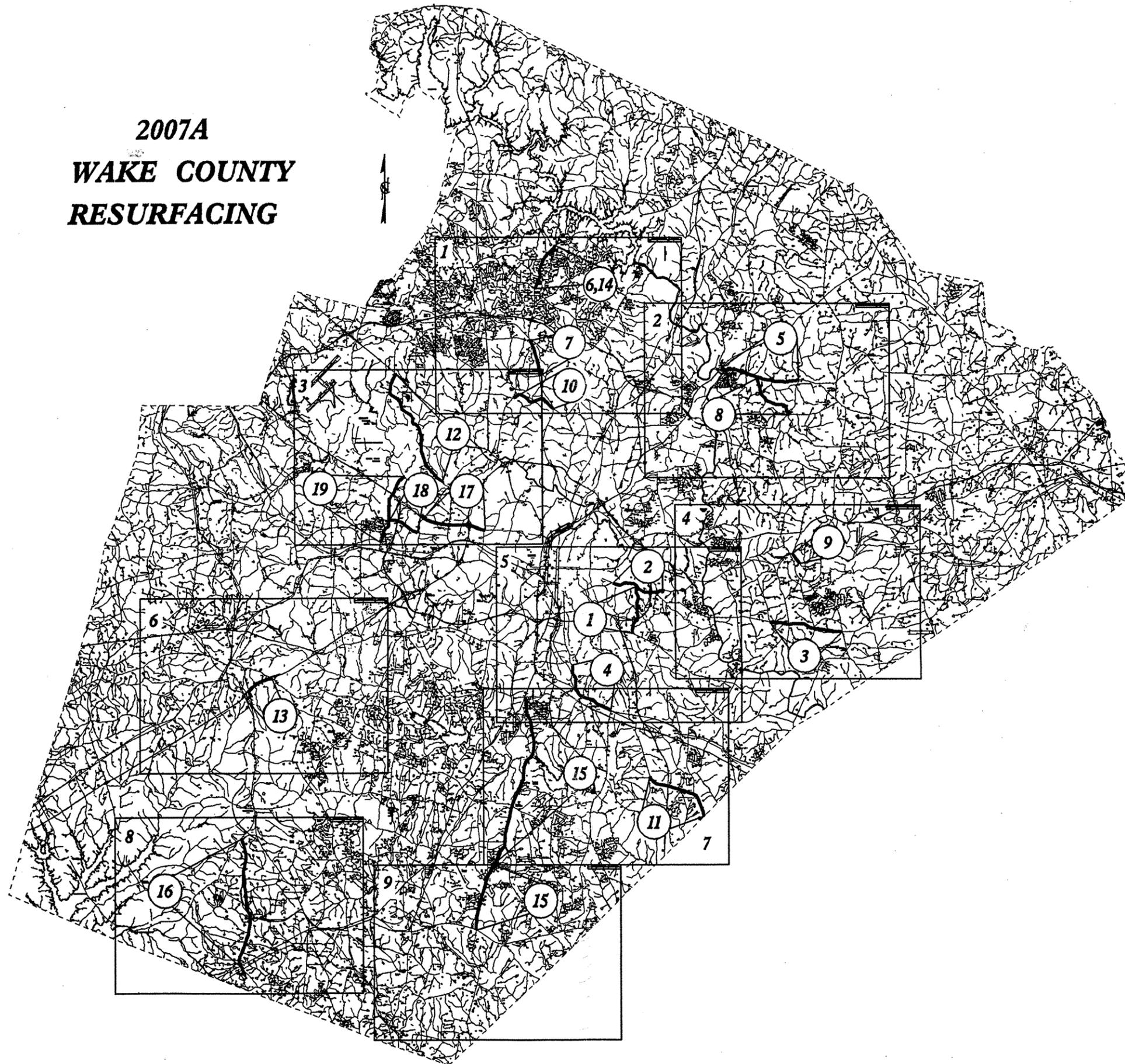


2007A
WAKE COUNTY
RESURFACING

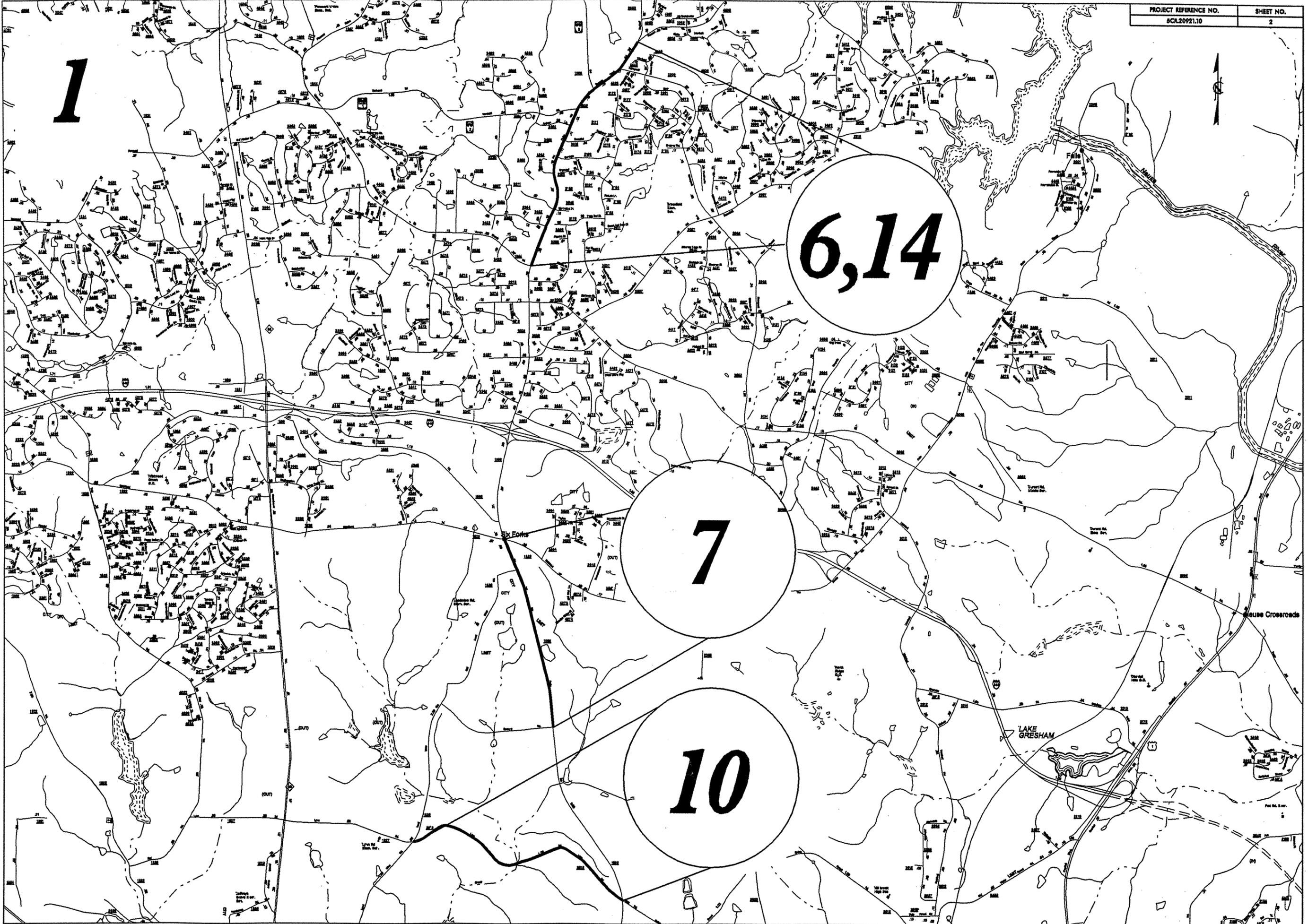


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6,14

7

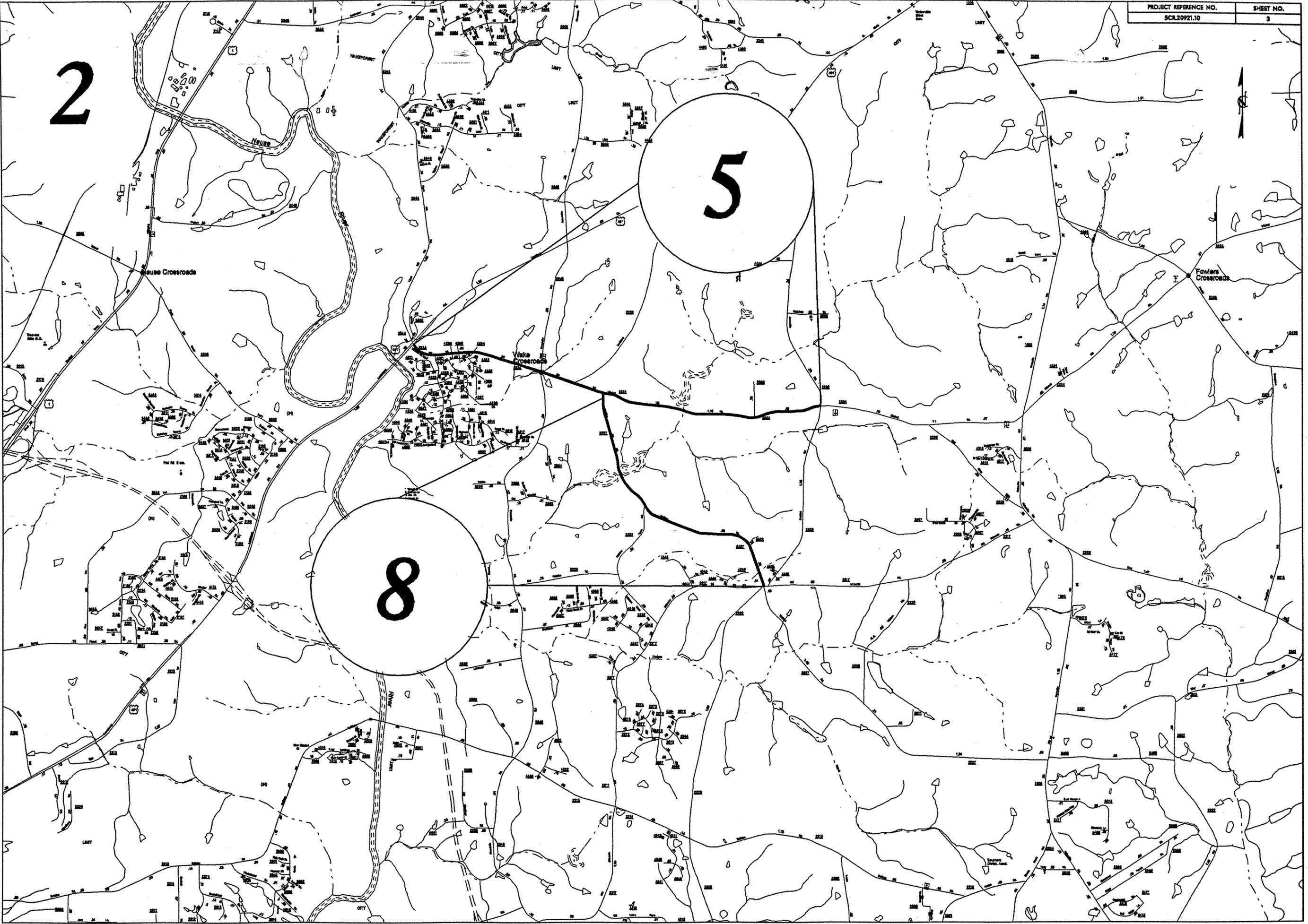
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2

5

8



3

WILLIAM B.
UMSTEAD
STATE PARK

WILLIAM B. UMSTEAD STATE PARK

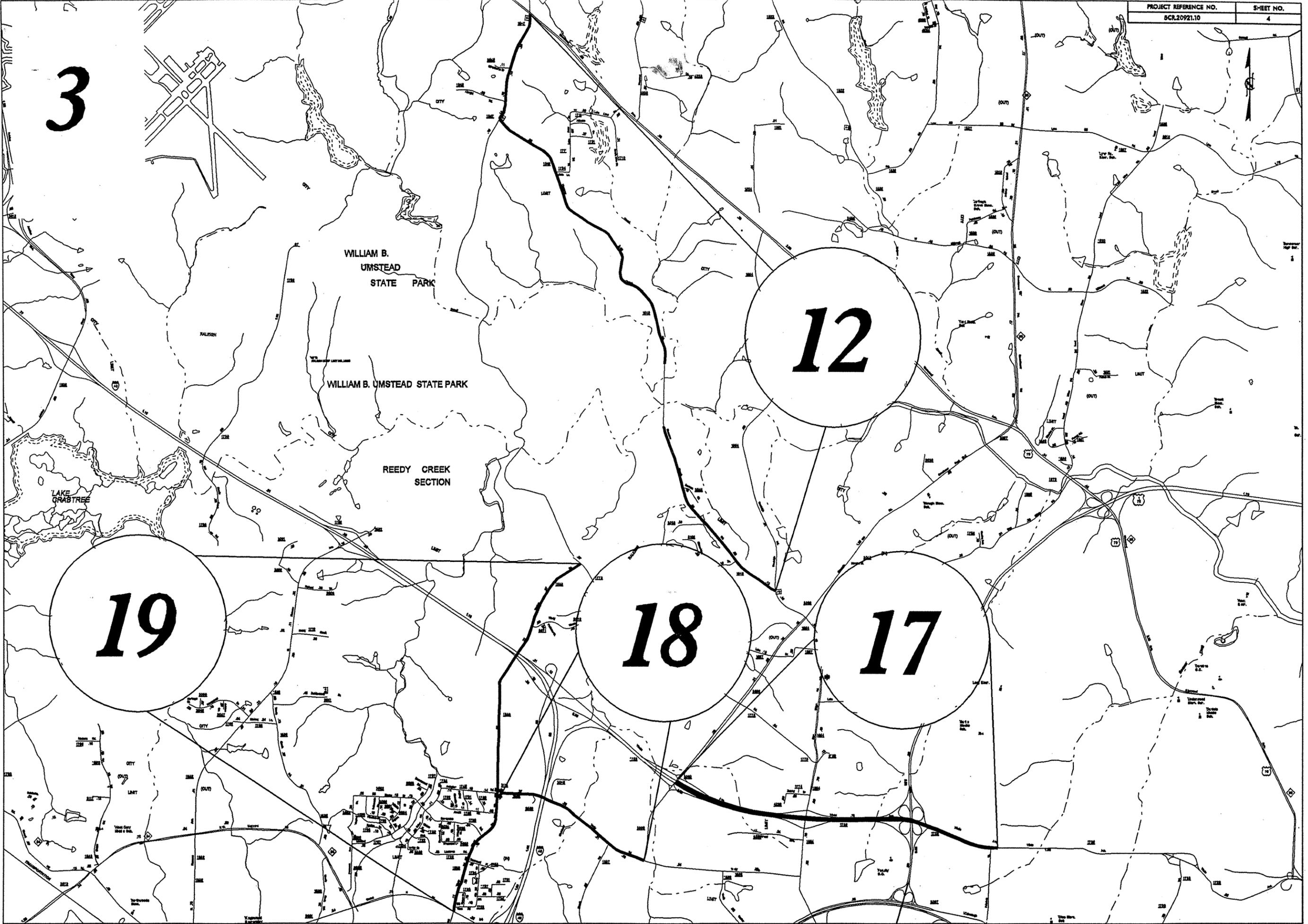
REEDY CREEK
SECTION

19

12

18

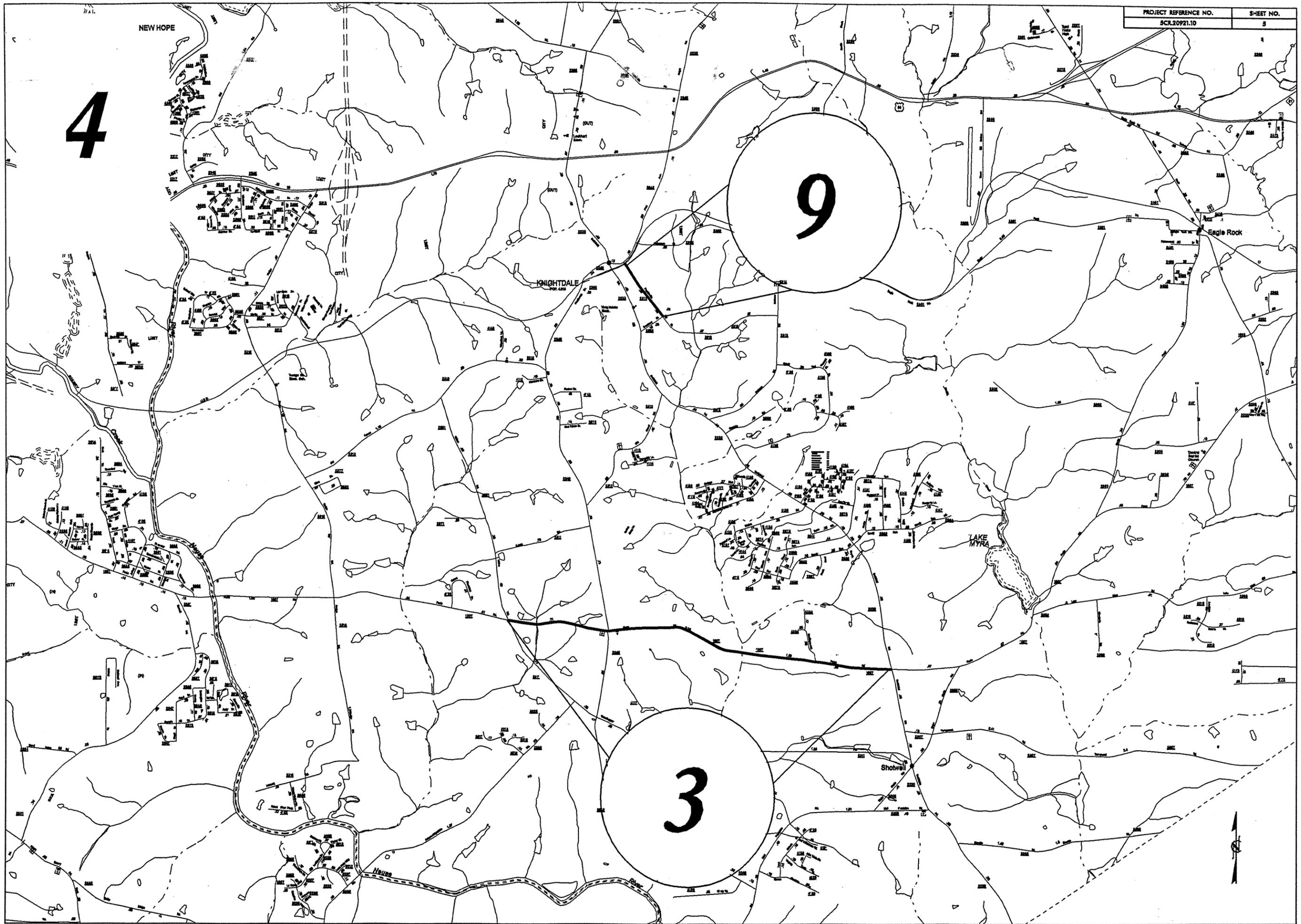
17



4

9

3



5

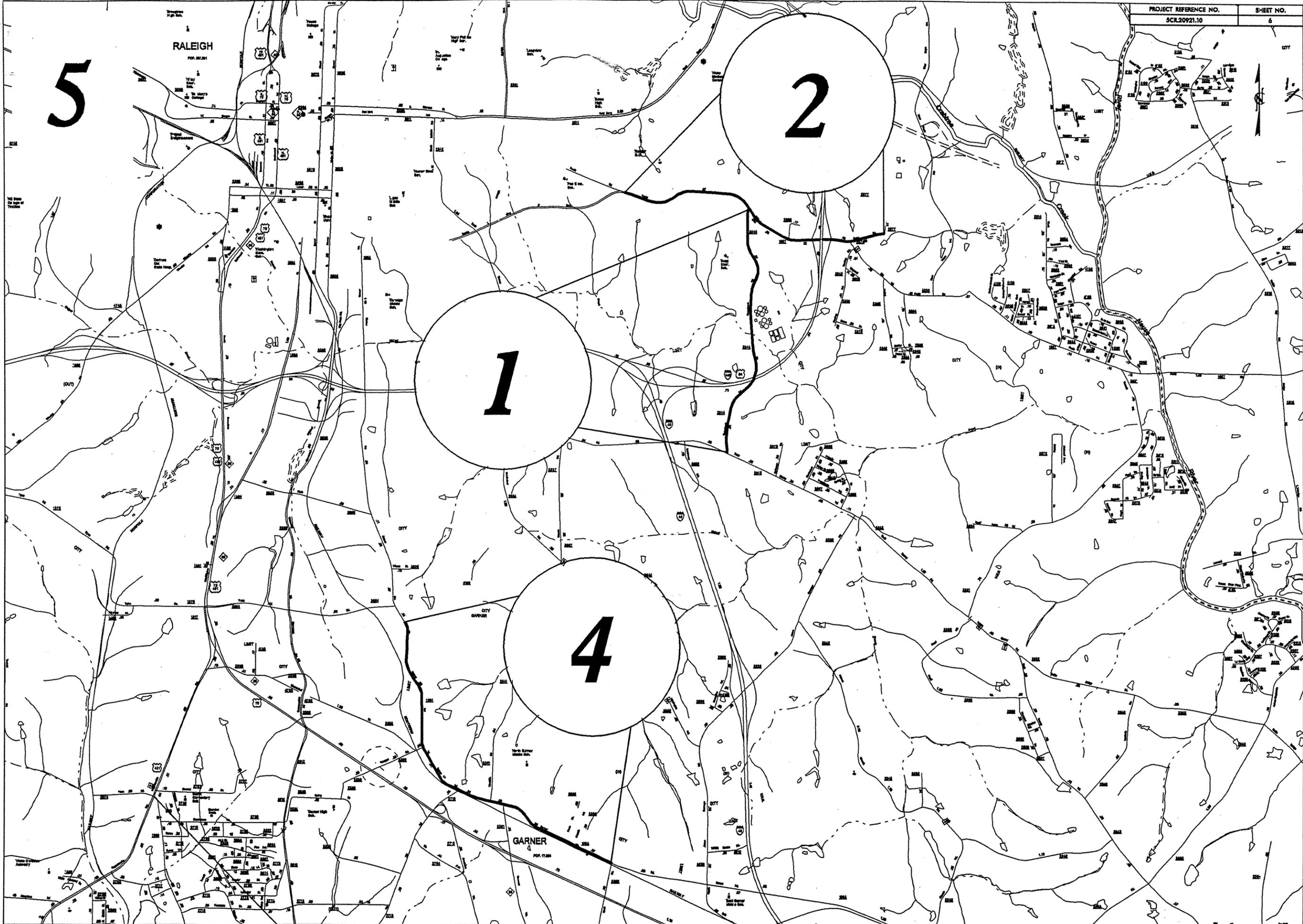
RALEIGH

2

1

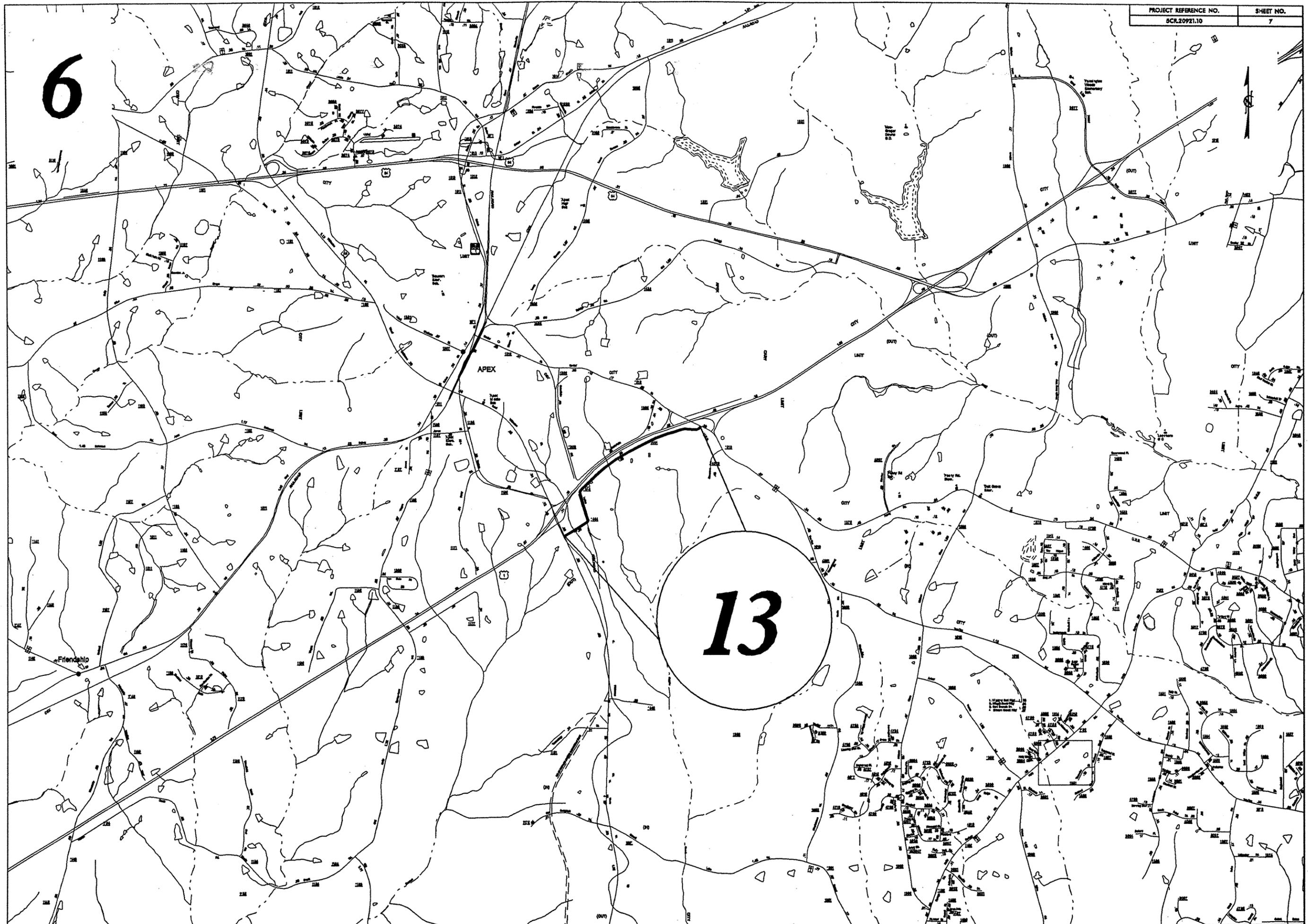
4

GARNER



6

13



7

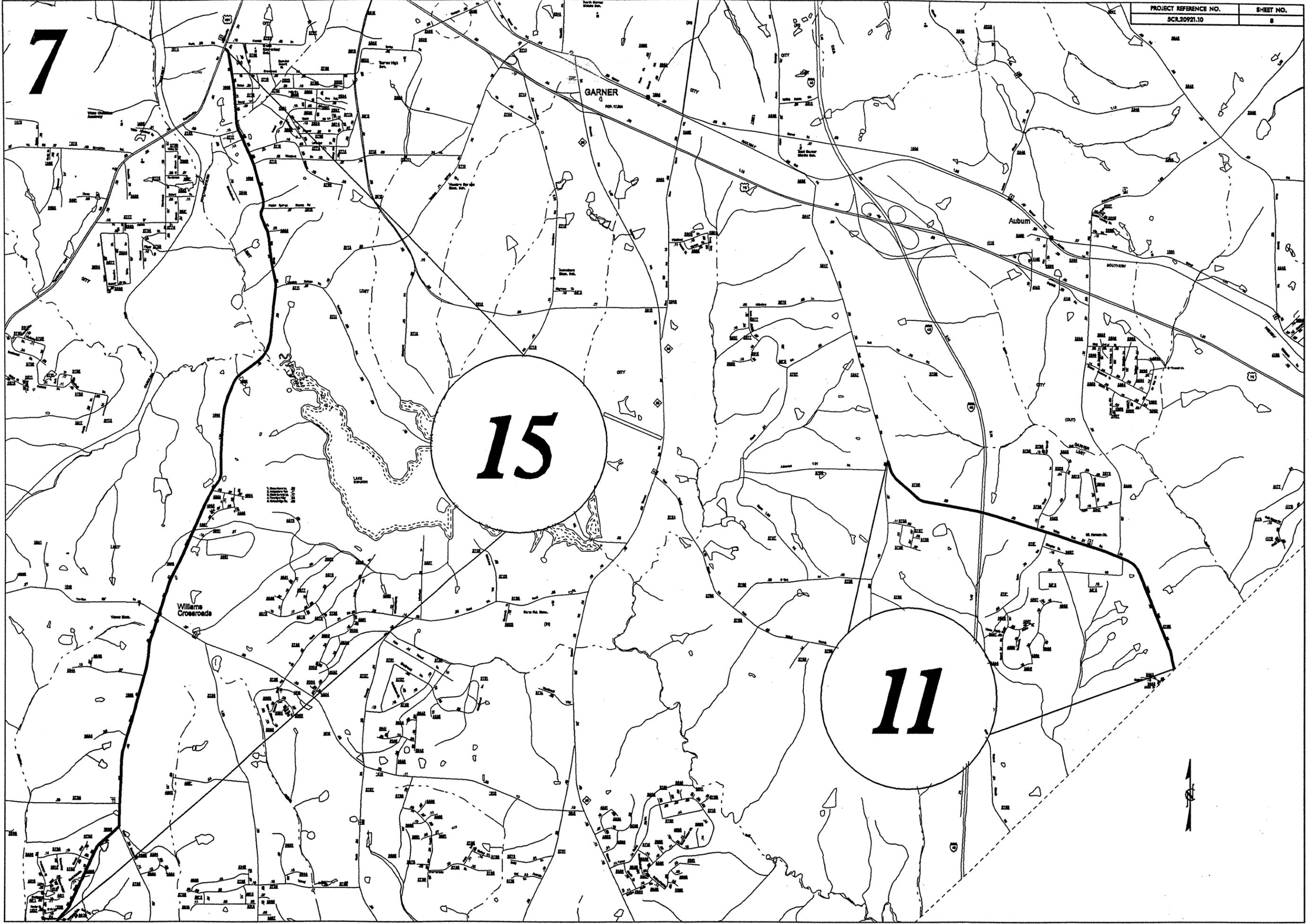
GARNER

Auburn

15

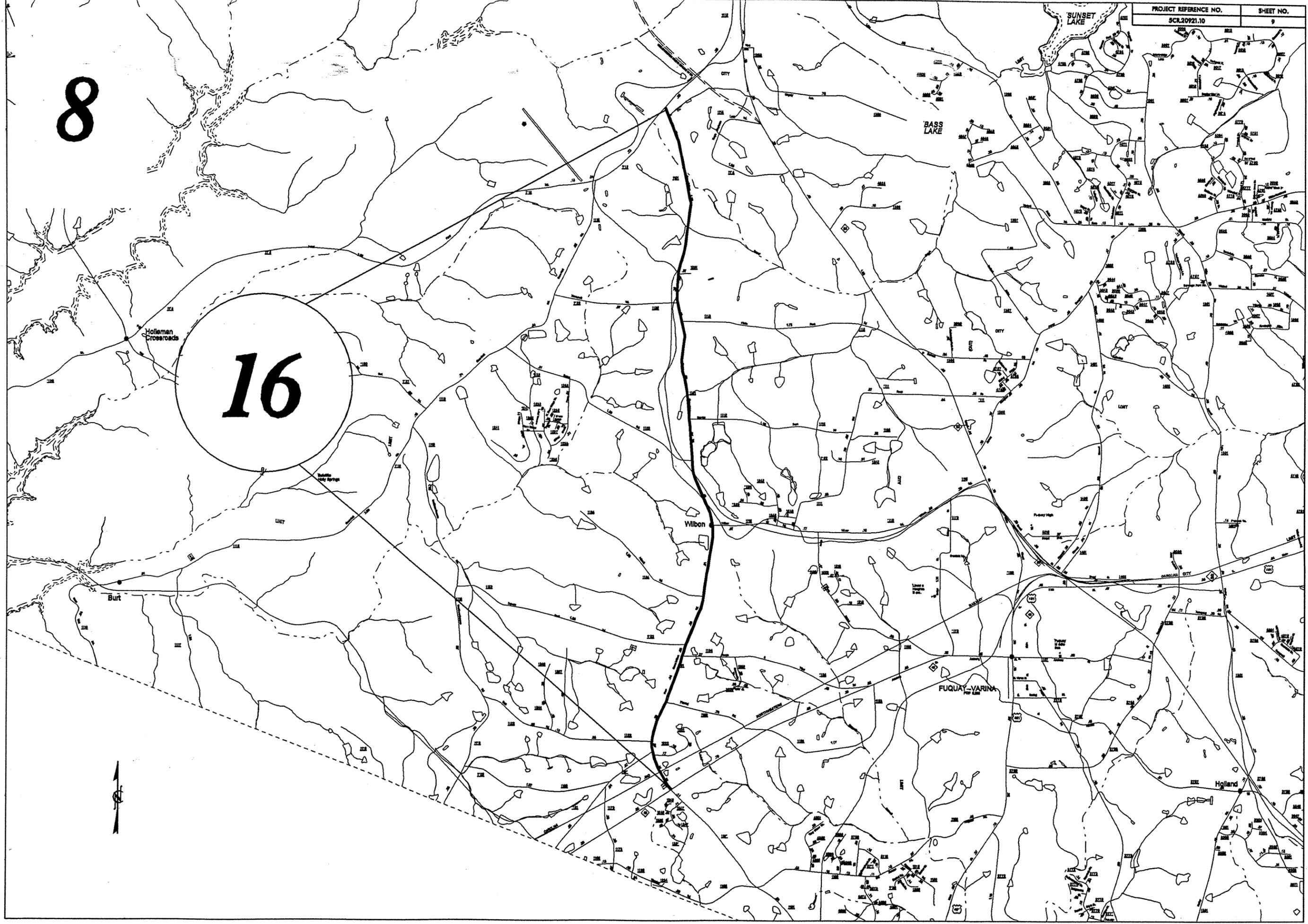
11

Williams
Crossroads



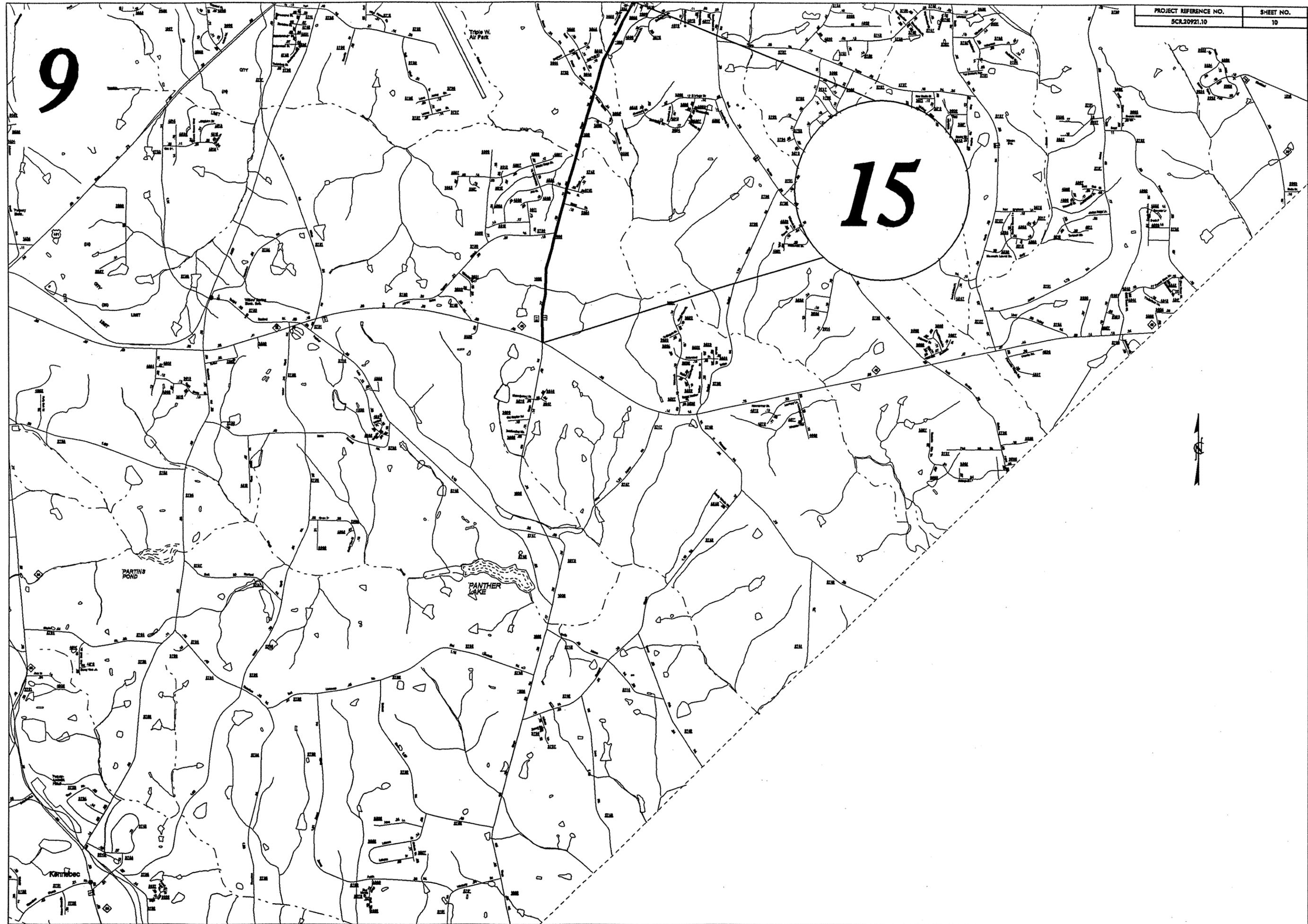
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16



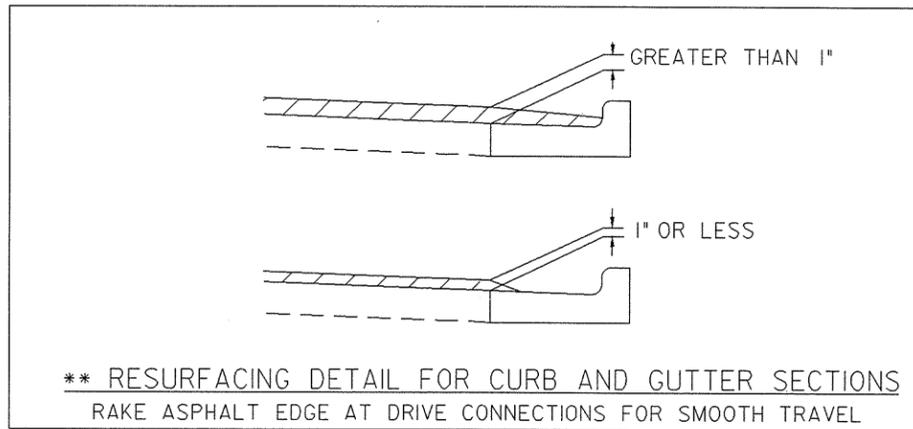
9

15



PAVEMENT SCHEDULE

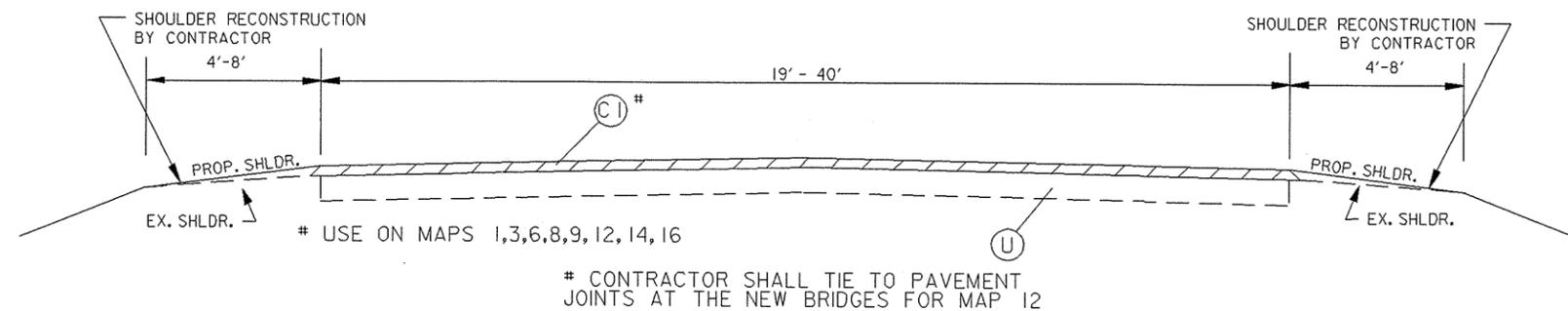
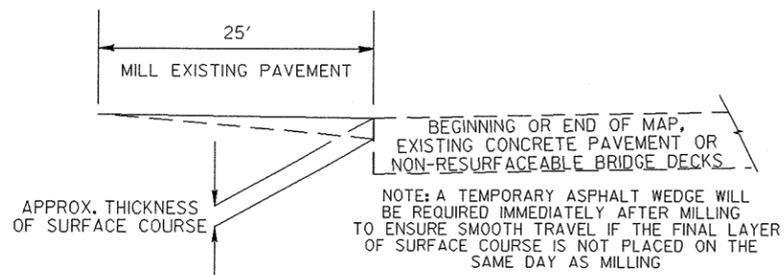
(C1)	PROP. APPROX. 1-1/2" ASPH. CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 2" ASPH. CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
(E)	PROP. APPROX. 6" ASPH. CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 684 LBS. PER SQ. YD.
(V1)	MILL 1.5" IN DEPTH
(V2)	MILLED RUMBLE STRIPS
(U)	EXISTING PAVEMENT



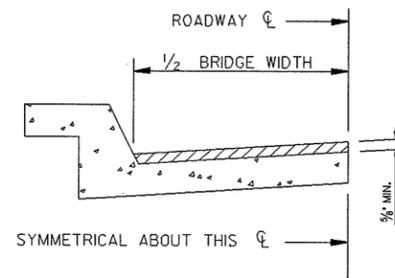
PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
5CR.2092 I.10	11	16
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

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 RADII, 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.



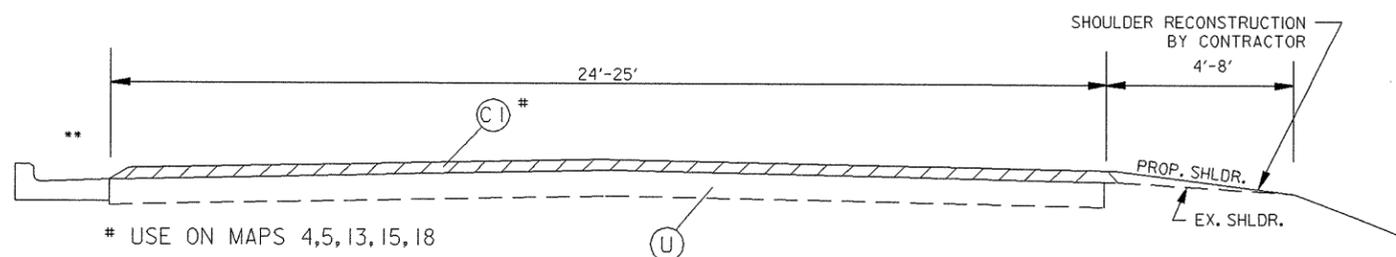
TYPICAL SECTION NO. 1



BRIDGE HALF TYPICAL SECTION

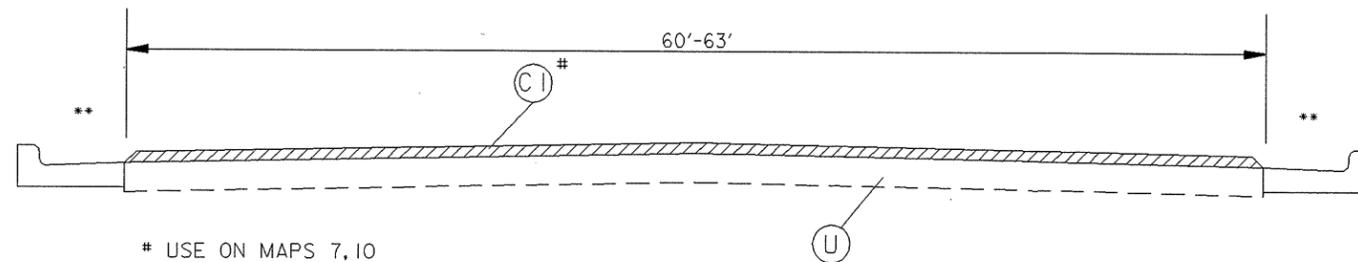
FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN.

THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN 5/8" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1 1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.



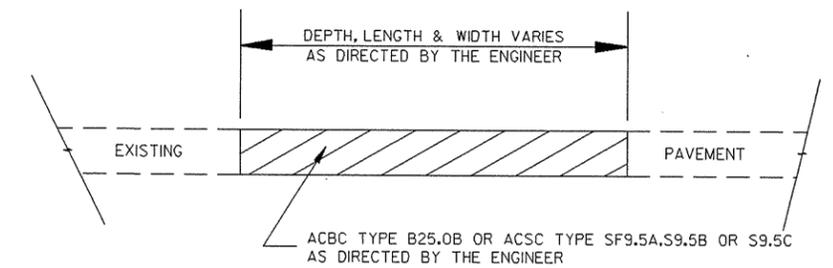
TYPICAL SECTION NO. 2

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
5CR.2092 I. 10	12	16
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

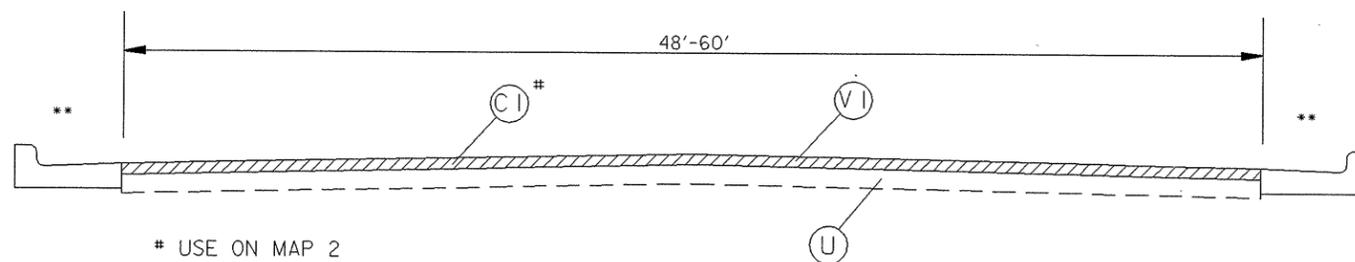


USE ON MAPS 7, 10

TYPICAL SECTION NO. 3



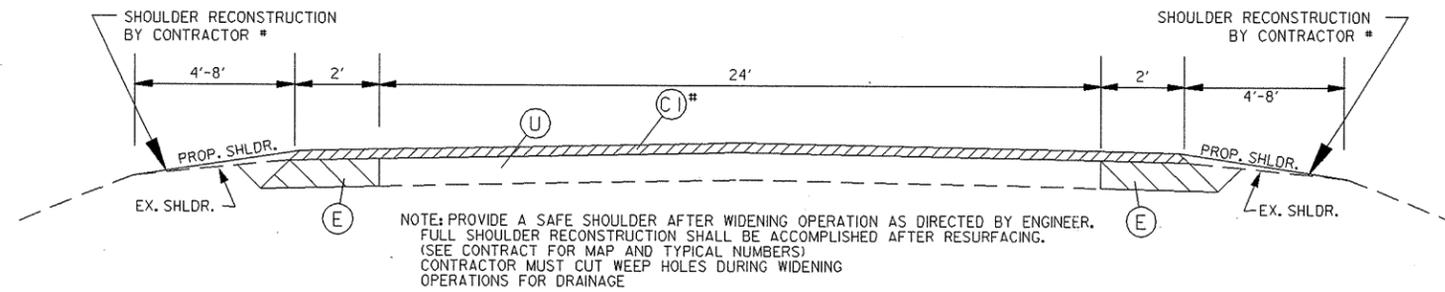
PATCHING EXISTING PAVEMENT



USE ON MAP 2

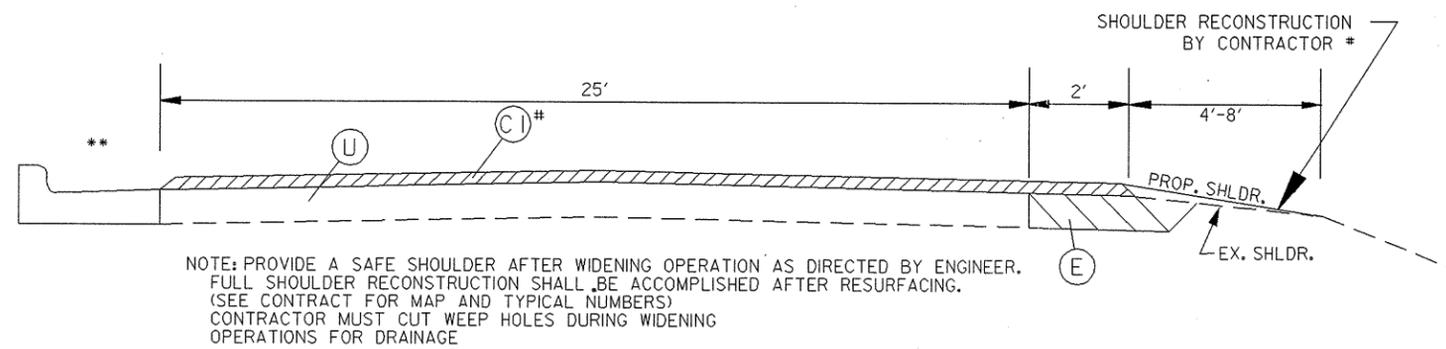
TYPICAL SECTION NO. 4

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
SCR.2092 I.10	13	16
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION



USE ON MAPS 11, 19

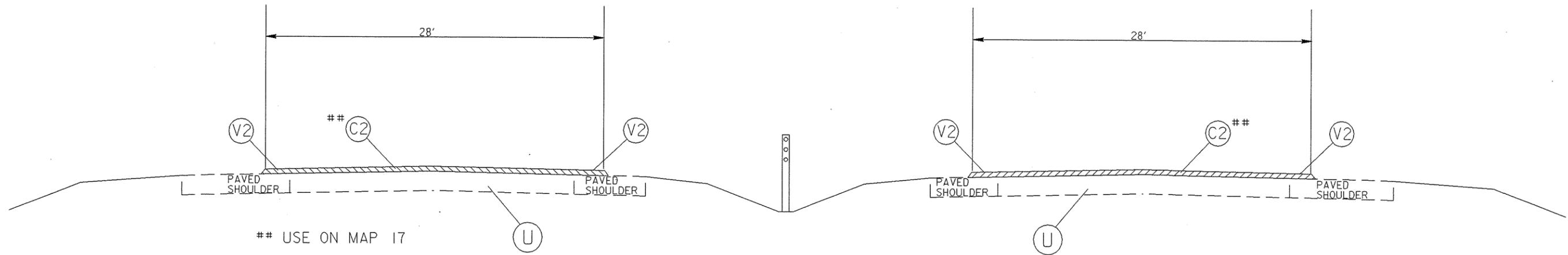
TYPICAL SECTION NO. 5



USE ON MAP 13

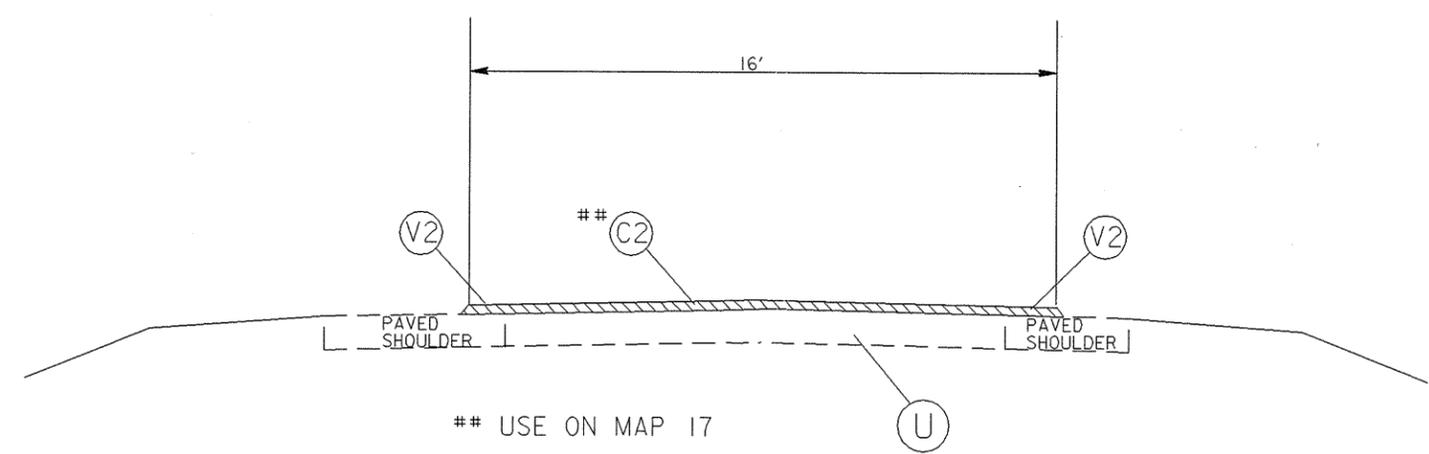
TYPICAL SECTION NO. 6

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
5CR.2092 I. 10	14	16
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION



TYPICAL SECTION NO. 7

*CONTRACTOR SHALL PAVE 2' BEYOND EDGE LINE ON WADE AVE AND RAMPS, AS DIRECTED BY THE ENGINEER



TYPICAL SECTION NO. 8

*CONTRACTOR SHALL USE THIS TYPICAL FOR THE RAMPS AT WADE, BLUE RIDGE AND EDWARDS MILL

PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.20921.10	15	16

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	1½" MILLING SY	MILLED RUMBLE STRIPS LF	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	SURFACE COURSE, S9.5B TONS	PG 64-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	SEED & MULCHING AC	INDUCTIVE LOOP LF
5CR.20921.10	Wake	1	SR2544 - SUNNYBROOK RD	FROM SR1007 - POOLE RD. TO SR2542 - ROCK QUARRY RD.	1	1.78	40	89	3.56					4,100	246	440			2.60	
		2	SR1007 - POOLE RD	FROM MARTIN LUTHER KING BLVD. TO AJINOMOTO	4	2.05	54			66,809				6,996	420		26	30		1,500.00
		3	SR1007 - POOLE RD	FROM SR2511 - GRASSHOPPER RD. TO SR2233 - SMITHFIELD RD.	1	2.8	24	140	5.6					3,887	233	693			4.09	
		4	SR1004 - OLD GARNER RD	FROM PAVEMENT JOINT AT SR2684 - TRYON RD. TO SR2562 - NEW RAND RD.	2	2.6	24	130	4.56			70		4,263	256	644	14	12	3.32	
		5	SR2224 - MITCHELL MILL RD.	FROM US401 TO SR2929 - PEEBLES RD.	2	2.96	25	148	5.92					4,741	284	734			4.32	
		6	SR1005 - SIX FORKS RD	FROM SR1844 - MOUNT VERNON TO SR2002 - POSSUM TRACK RD.	1	1.32	24	66	2.64					1,801	108	330			1.93	
		7	SR1005 - SIX FORKS RD.	FROM SR1829 - STRICKLAND RD. TO SAWMILL RD.	3	1.35	60							4,789	287	332	21	31		
		8	SR2227 - WATKINS RD	FROM SR2224 - MITCHELL MILL RD. TO SR2217 - OLD MILBURNIE RD.	1	2	20	100	4					2,182	131	495			2.92	
		9	SR 2513 - FAYETTVILLE RD	FROM SR2049 - FIRST ST. TO SR2513 - BROADWAY ST.	1	0.47	19	24	0.94					487	29	117		5	0.69	
		10	SR1819 - LYNN RD	FROM SR1005 - SIX FORKS RD. TO SR1820 - LEADMINE RD.	3	1.72	63					350		5,886	353	426	2	26		
		11	SR2700 - WHITE OAK RD.	FROM PAVEMENT JOINT AT MT. HEBRON CHURCH RD. TO JOHNSTON CO. LINE	5	2.75	24	138	5.5			205	2,731	3,000	297	681			4.01	
		12	SR1649 - EBENEZER CHURCH RD.	FROM SR1664 - DURALEIGH RD. TO SR1647 - GRAYLYN RD.	1	3.43	24	172	6.86			135		4,661	280	849		2	5.01	
		13	SR1444 - LUFKIN RD.	FROM NC55 TO SR1010 - TEN-TEN RD.	6	1.36	25	68	2.72				1,529	1,896	180	308			1.99	
		14	SR2002 - POSSUM TRACK RD.	FROM SR1005 - SIX FORKS RD. TO SR2003 - BAYLEAF CHURCH RD.	1	0.5	20	25	1					545	33	124			0.73	
		15	SR1006 - OLD STAGE RD.	FROM US401 TO NC42	2	8.73	24	437	17.46					11,878	713	2,160	9		12.75	
		16	SR1101 - PINEY GROVE WILBON RD.	FROM NC42 TO SR1115 - AVENT FERRY RD.	1	4.92	22	246	9.84					6,089	365	1,218			7.18	
		17	SR1795 - WADE AVENUE	FROM FAIRCLOTH ST. TO SR3009 - EDWARDS MILL RD.	7,8	2.25	56				73,920			12,724	764	557				
		18	SR1655 - TRINITY RD.	FROM SR3009 - EDWARDS MILL RD. TO PAVEMENT JOINT	2	1.68	24	84	3.36			205		2,783	167	416		8	2.45	
		19	SR1655 - TRENTON RD.	FROM SR1656 - TRINITY RD. TO PAVEMENT JOINT	5	1.59	24	80	3.18			205	1,579	2,079	193	394			2.32	
TOTAL FOR PROJ NO. 5CR.20921.10						46.26		1,947	77.14	66,809	73,920	1,170	5,839	84,787	5,339	10,918	72	114	56.31	1,500
GRAND TOTAL						46.26		1,947	77.14	66,809	73,920	1,170	5,839	84,787	5,339	10,918	72	114	56.31	1,500

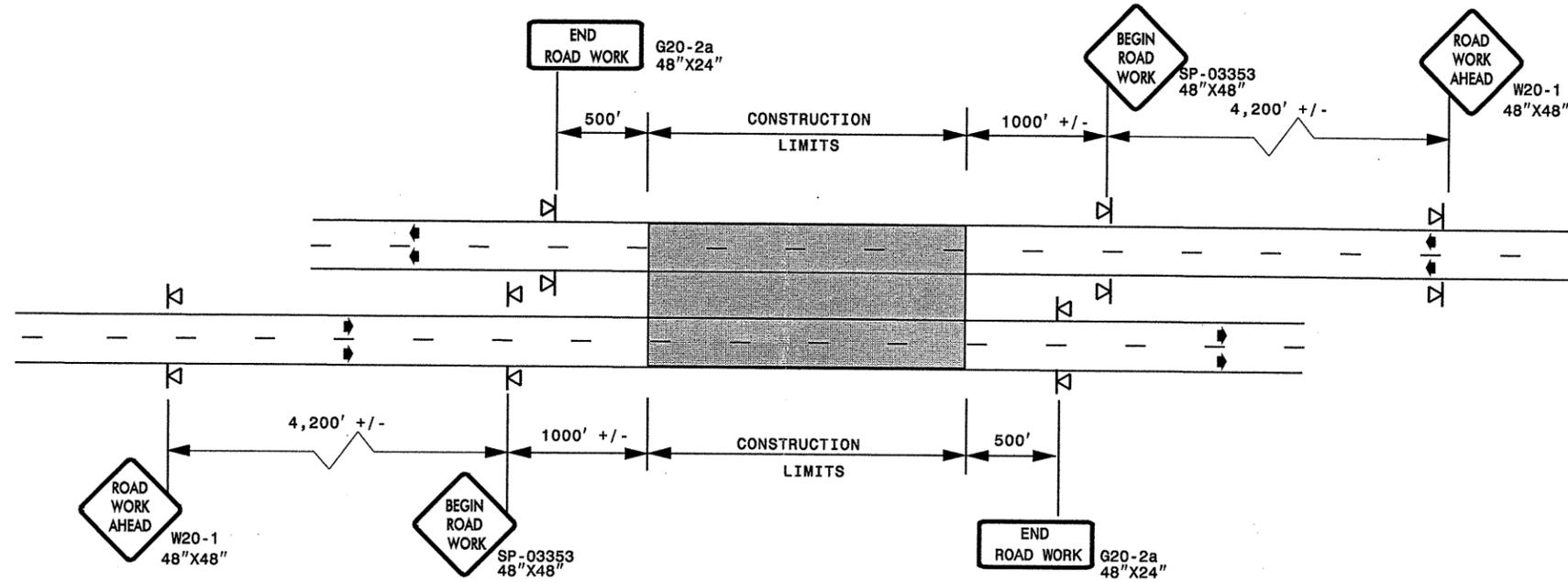
PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.20921.10	16	16

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E	4686000000-E		4695000000-E		4697000000-E	4705000000-E	4710000000-E	4721000000-E			4725000000-E				4900000000-N			
					4" X 90 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	4" X 120 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	16" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO MSG ONLY 120 M EA	THERMO MSG SCHOOL 120 M EA	THERMO RXR 120 M EA	THERMO LT ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO STR ARROW 90 M EA	THERMO STR & LT ARROW 90 M EA	THERMO STR & RT ARROW 90 M EA	THERMO LT STR RT ARROW 90 M EA	YELLOW & YELLOW MARKERS EA	CRYSTAL & RED MARKERS EA
5CR.20921.10	Wake	1	SR2544 - SUNNYBROOK RD	FROM SR1007 - POOLE RD. TO SR2542 - ROCK QUARRY RD.	19,153	23,496						65				34	7	5	4	2		235	
		2	SR1007 - POOLE RD	FROM MARTIN LUTHER KING BLVD. TO AJINOMOTO	650	25,054	2,276	200		336		400				40	8	28		8		220	272
		3	SR1007 - POOLE RD	FROM SR2511 - GRASSHOPPER RD. TO SR2233 - SMITHFIELD RD.	30,128	18,480		150				50				4						185	
		4	SR1004 - OLD GARNER RD	FROM PAVEMENT JOINT AT SR2684 - TRYON RD. TO SR2562 - NEW RAND RD.	24,725	21,386						150	4			21	4	7		3		215	
		5	SR2224 - MITCHELL MILL RD.	FROM US401 TO SR2929 - PEEBLES RD.	31,850	19,536						75		12		9		3			3	195	
		6	SR1005 - SIX FORKS RD	FROM SR1844 - MOUNT VERNON TO SR2002 - POSSUM TRACK RD.	14,203	8,712		200								4						87	
		7	SR1005 - SIX FORKS RD.	FROM SR1829 - STRICKLAND RD. TO SAWMILL RD.	540	17,820	3,564					110				34	10	8		7		178	178
		8	SR2227 - WATKINS RD	FROM SR2224 - MITCHELL MILL RD. TO SR2217 - OLD MILBURNIE RD.	21,520	13,200																132	
		9	SR 2513 - FAYETTVILLE RD	FROM SR2049 - FIRST ST. TO SR2513 - BROADWAY ST.	5,057	3,102					50	118		12	2							31	
		10	SR1819 - LYNN RD	FROM SR1005 - SIX FORKS RD. TO SR1820 - LEADMINE RD.	688	22,704	4,541			360		138	20			63	5	20		6		227	227
		11	SR2700 - WHITE OAK RD.	FROM PAVEMENT JOINT AT MT. HEBRON CHURCH RD. TO JOHNSTON CO. LINE	29,590	18,150																182	
		12	SR1649 - EBENEZER CHURCH RD.	FROM SR1664 - DURALEIGH RD. TO SR1647 - GRAYLYN RD.	36,907	22,638		200	500	84		20				3	4					226	
		13	SR1444 - LUFKIN RD.	FROM NC55 TO SR1010 - TEN-TEN RD.	14,634	8,976								12								90	
		14	SR2002 - POSSUM TRACK RD.	FROM SR1005 - SIX FORKS RD. TO SR2003 - BAYLEAF CHURCH RD.	5,380	3,300																33	
		15	SR1006 - OLD STAGE RD.	FROM US401 TO PAVEMENT JOINT THEN PAVEMENT JOINT TO NC42	93,935	57,618						100		12		13	2	2		4		576	
		16	SR1101 - PINEY GROVE WILBON RD.	FROM NC42 TO SR1115 - AVENT FERRY RD.	52,939	32,472				44		10				6						325	
		17	SR1795 - WADE AVENUE	FROM FAIRCLOTH ST. TO SR3009 - EDWARDS MILL RD.	24,660	23,985	7,740			96		200				6	23	24		2	4	100	425
		18	SR1655 - TRINITY RD.	FROM SR3009 - EDWARDS MILL RD. TO PAVEMENT JOINT	18,077	11,088		200	200			80	4			16	10	3		2		111	
		19	SR1655 - TRENTON RD.	FROM SR1656 - TRINITY RD. TO PAVEMENT JOINT	17,108	10,494																105	
TOTAL FOR PROJ NO. 5CR.20921.10					441,744	362,211	18,121	950	700	920	50	1,516	28	48	2	253	73	100	4	34	7	3,453	1,102
						380,332		1,650						78				471					
GRAND TOTAL					441,744	362,211	18,121	950	700	920	50	1,516	28	48	2	253	73	100	4	34	7	3,453	1,102
						380,332		1,650						78				471					4,555

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

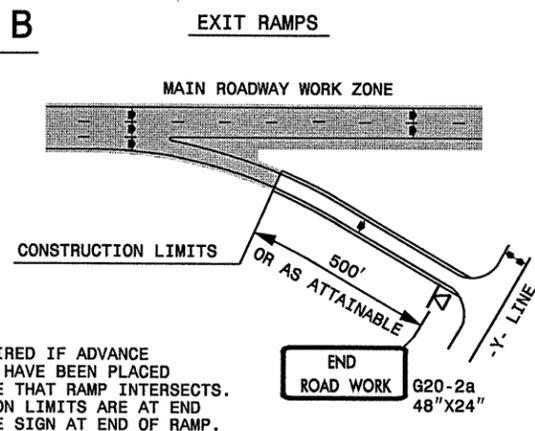
DETAIL A



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

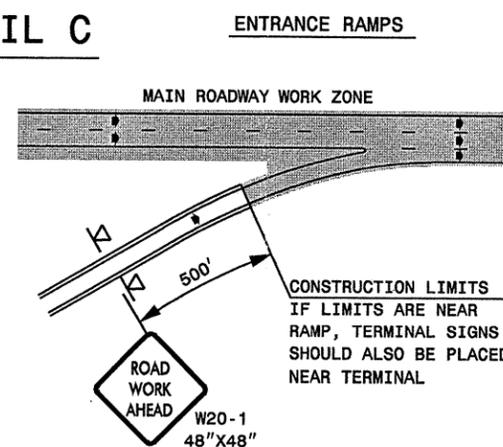
ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B



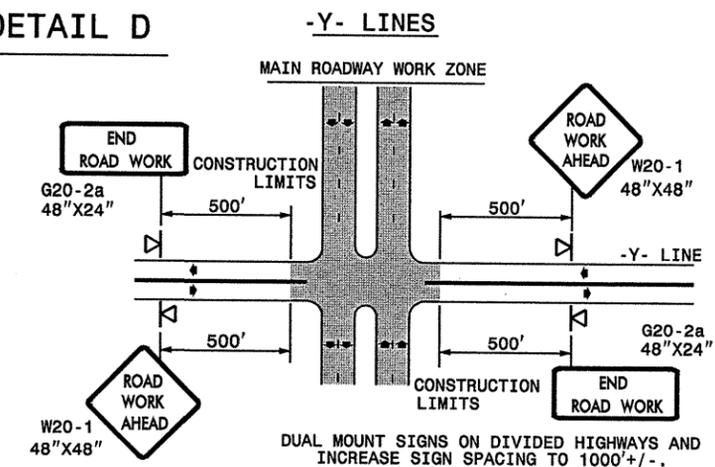
NOTE:
SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C



CONSTRUCTION LIMITS IF LIMITS ARE NEAR RAMP, TERMINAL SIGNS SHOULD ALSO BE PLACED NEAR TERMINAL

DETAIL D



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000' +/-.

DETAIL DRAWING
FOR FREEWAYS
WORK ZONE WARNING SIGNS
(SHORT-DURATION LANE CLOSURES)

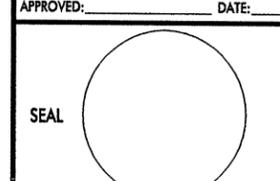
GENERAL NOTES

- 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.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

- ◁ PORTABLE SIGN
- ➔ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: _____	DATE: _____	DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS	
			
SCALE: NONE		REVISIONS	
DATE: _____		7-98	10/01
DESIGN BY: _____		10-98	03/04
REVIEWED BY: _____		01/01	11/04

30-OCT-2006 11:00
 \\DDOT\OFFSR00101\GROUPS-WZTCCC\design\group4\resur\facimg\5cr\209210\work\5cr209210\free4lanes\creat\July2006.dgn
 psey@more AT WZTCCC206427

SP 03353

SIGN NUMBER: SP-03353 TYPE: A QUANTITY: 1 SIGN WIDTH: 4'-0" HEIGHT: 4'-0" TOTAL AREA: 16.0 Sq.Ft. BORDER TYPE: FLUSH RECESS: 0.59" WIDTH: 0.75" RADII: 1.38" NO. Z BARS: N/A LENGTH: N/A	BACKG COLOR: Fluorescent Orange COPY COLOR: Black	DESIGN BY: CL DOWNEY PROJECT ID: ALL PROJECTS	CHECKED BY: CHECKED DIV: DIV	STD #: W20-1 DATE: Aug 20, 2003
---	--	--	---------------------------------	------------------------------------

BORDER
R=1.38"
TH=0.75"
IN=0.59"

LETTER POSITIONS

Letter spacings are to start of next letter

Letter	B	E	G	I	N	Series/Size	Text Length
BEGIN ROAD WORK	22.4	5.3	4.6	5.4	2.5	3.8	22.4
ROAD WORK	23.4	5	5.2	5.8	3.8	23.4	19.6
WORK	22.6	6.4	5.6	5.2	4	22.6	21.2

Spacing Factor is 1 unless specified otherwise

FILENAME: SP03353.DWG

GENERAL NOTES FOR SIGN SP-03353 "BEGIN ROAD WORK"

- SIGN SP-03353 "BEGIN ROAD WORK" ONLY APPLIES TO FULL CONTROL AND PARTIAL CONTROL OF ACCESS ROADWAYS
- WHEN USED, INSTALL SIGN SP-03353 "BEGIN ROAD WORK" ACCORDING TO DETAIL FOR FREEWAY WORK ZONE SIGNS

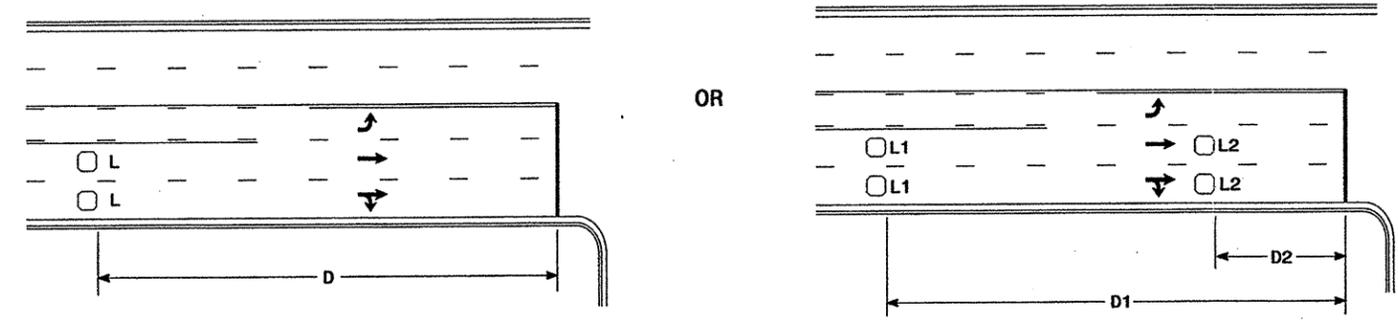
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

DETAIL DRAWING FOR
WORK ZONE SIGNS
BEGIN ROAD WORK

APPROVED: _____ DATE: _____	DETAIL DRAWING FOR ADVANCED WORK ZONE WARNING SIGN DESIGNS	
SEAL	SCALE: NONE	REVISIONS
	DATE: 08/03	04/04
	DWG. BY:	11/04
	DESIGN BY:	
REVIEWED BY:		CADD FILE

30-OCT-2006 10:01 AM \\D:\DOT\OFFSR001\GROUPS-WZT\CCC\design\group4\resurfacing\resurfacing\5cr20921\010\SignDesigns\July2006.dgn

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

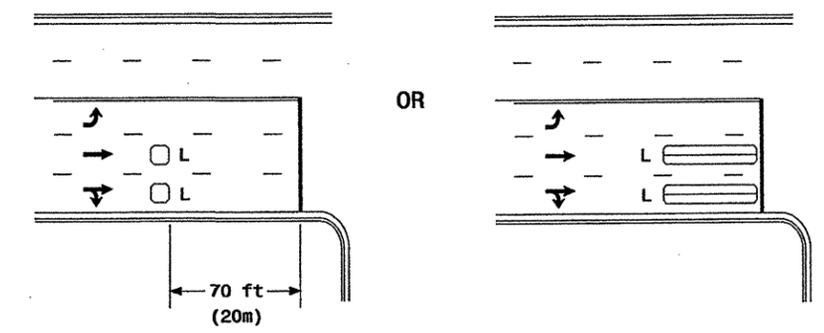
Volume Density Operation

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

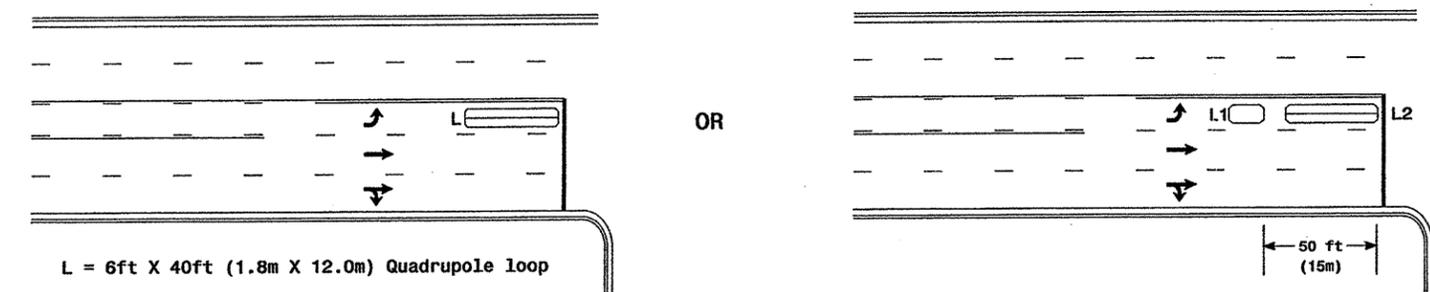
Low Speed Detection [≤35 mph (56 km/hr)]



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

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

Left Turn Lane Detection



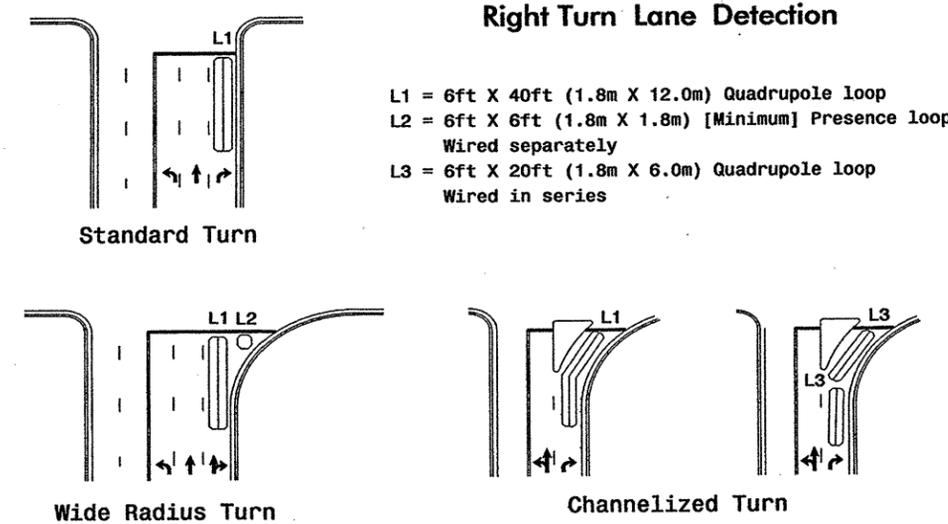
L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

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

Presence Loop Detection

Queue Loop Detection

Right Turn Lane Detection



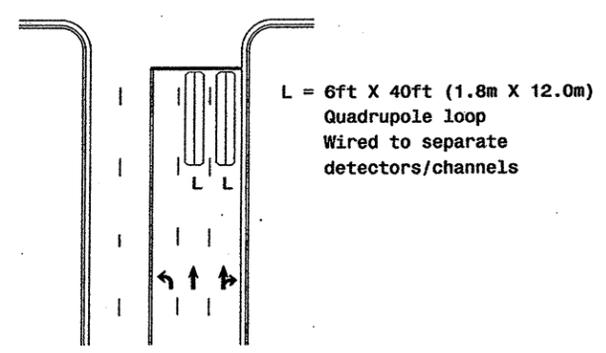
L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

Standard Turn

Wide Radius Turn

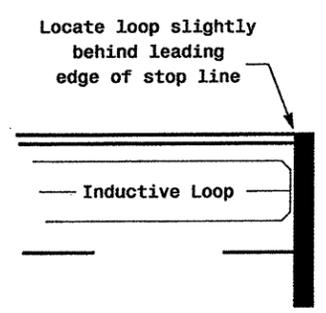
Channelized Turn

Side Street Detection



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

Presence Loop Placement at Stop Lines



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

