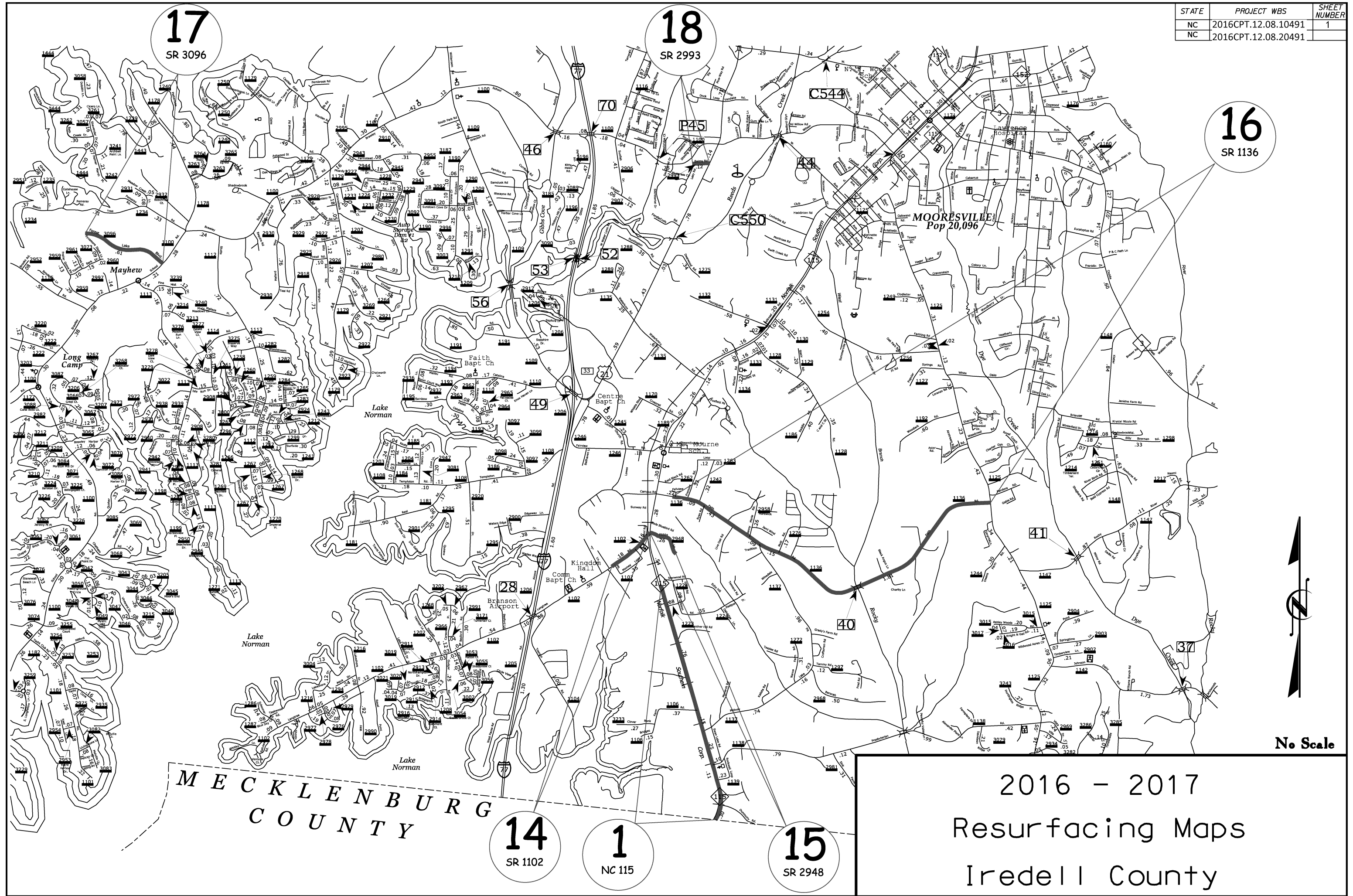


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STATE	PROJECT WBS	SHEET NUMBER
NC	2016CPT.12.08.10491	1
NC	2016CPT.12.08.20491	



**17**  
SR 3096

**18**  
SR 2993

**16**  
SR 1136

**14**  
SR 1102

**1**  
NC 115

**15**  
SR 2948

MECKLENBURG  
COUNTY

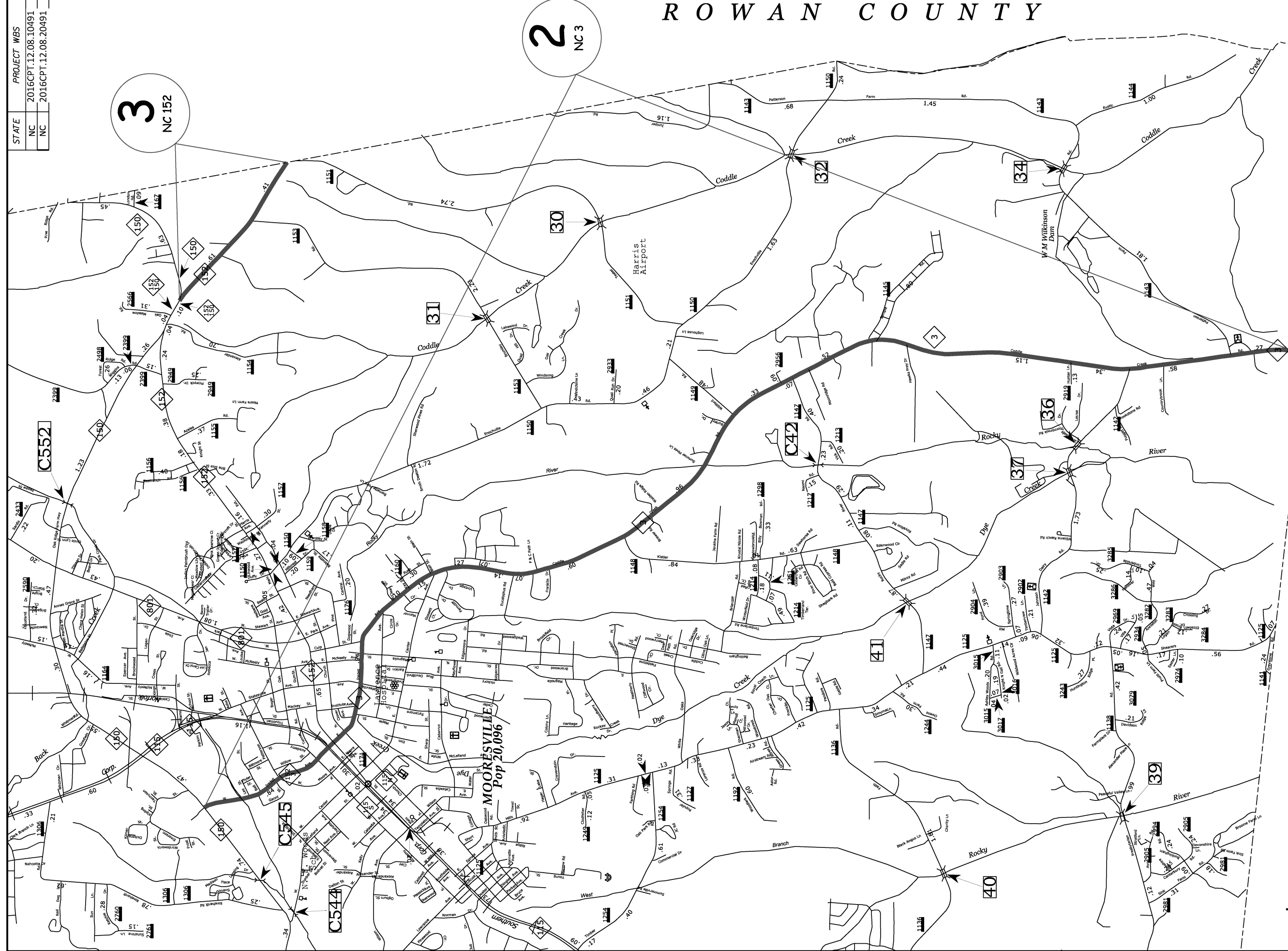
2016 - 2017  
Resurfacing Maps  
Iredell County



No Scale

STATE	PROJECT	WBS	SHEET
NC	2016CPT.12.08.10491		NUMBER
NC	2016CPT.12.08.20491		2

# ROWAN COUNTY



CABARRUS COUNTY

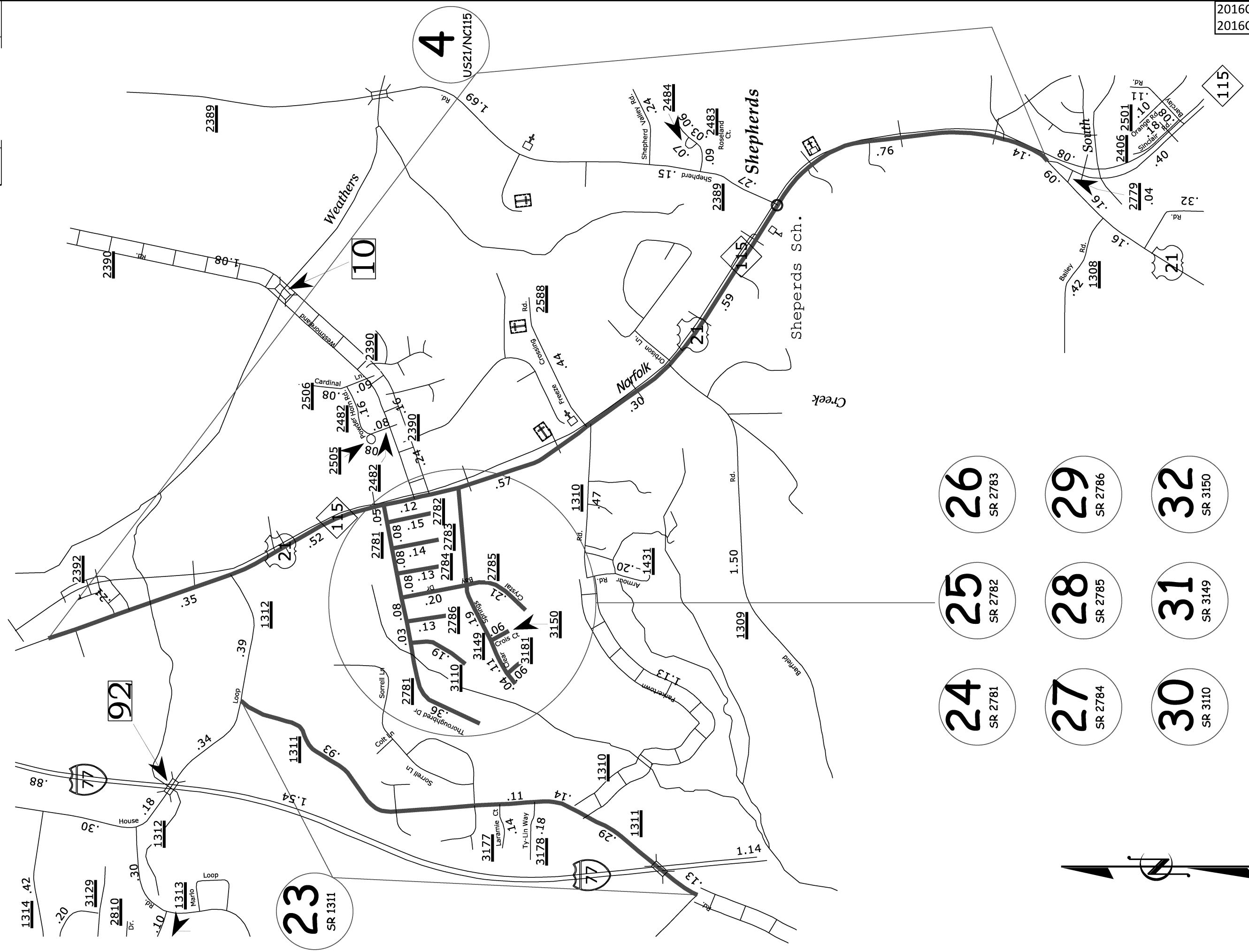
MECKLENBURG COUNTY



2016 - 2017  
Resurfacing Maps  
Iredell County

No Scale

STATE	PROJECT	WBS	SHEET NUMBER
NC	2016CPT.12.08.10491		3
NC	2016CPT.12.08.20491		



- 24  
SR 2781
- 25  
SR 2782
- 26  
SR 2783
- 27  
SR 2784
- 28  
SR 2785
- 29  
SR 2786
- 30  
SR 3110
- 31  
SR 3149
- 32  
SR 3150
- 33  
SR 3181

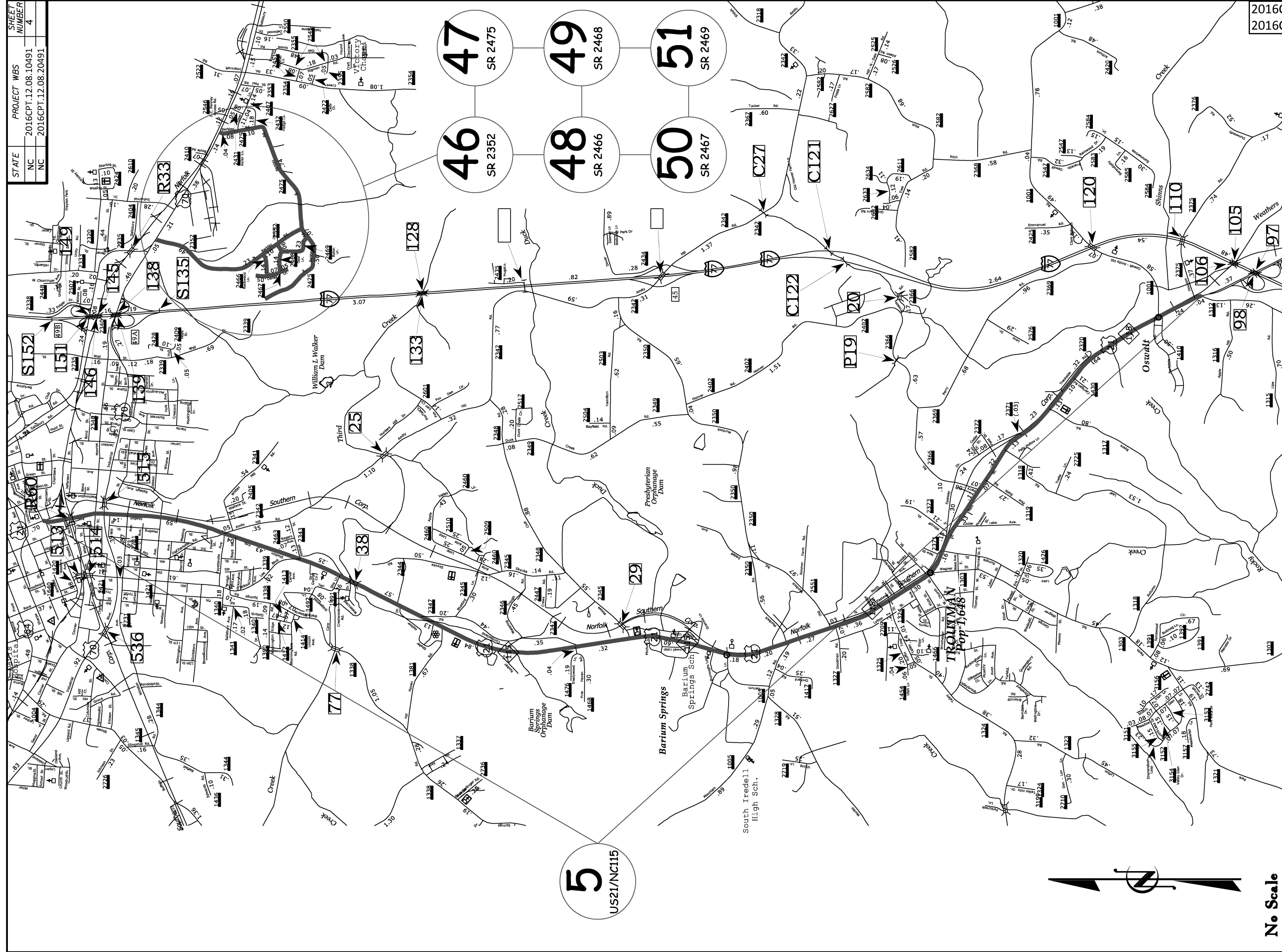
2016 - 2017  
Resurfacing Maps  
Iredell County

No Scale



STATE	PROJECT WBS	SHEET NUMBER
NC	2016CPT.12.08.10491	4
NC	2016CPT.12.08.20491	

2016CPT.12.08.10491 Sheet 4  
2016CPT.12.08.20491



**5**  
US21/NC115

**46**  
SR 2352

**47**  
SR 2475

**48**  
SR 2466

**49**  
SR 2468

**50**  
SR 2467

**51**  
SR 2469

No Scale

2016 - 2017  
Resurfacing Maps  
Iredell County



STATE	PROJECT WBS	SHEET NUMBER
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NC	2016CPT.12.08.20491	

**8**  
I-40 WB

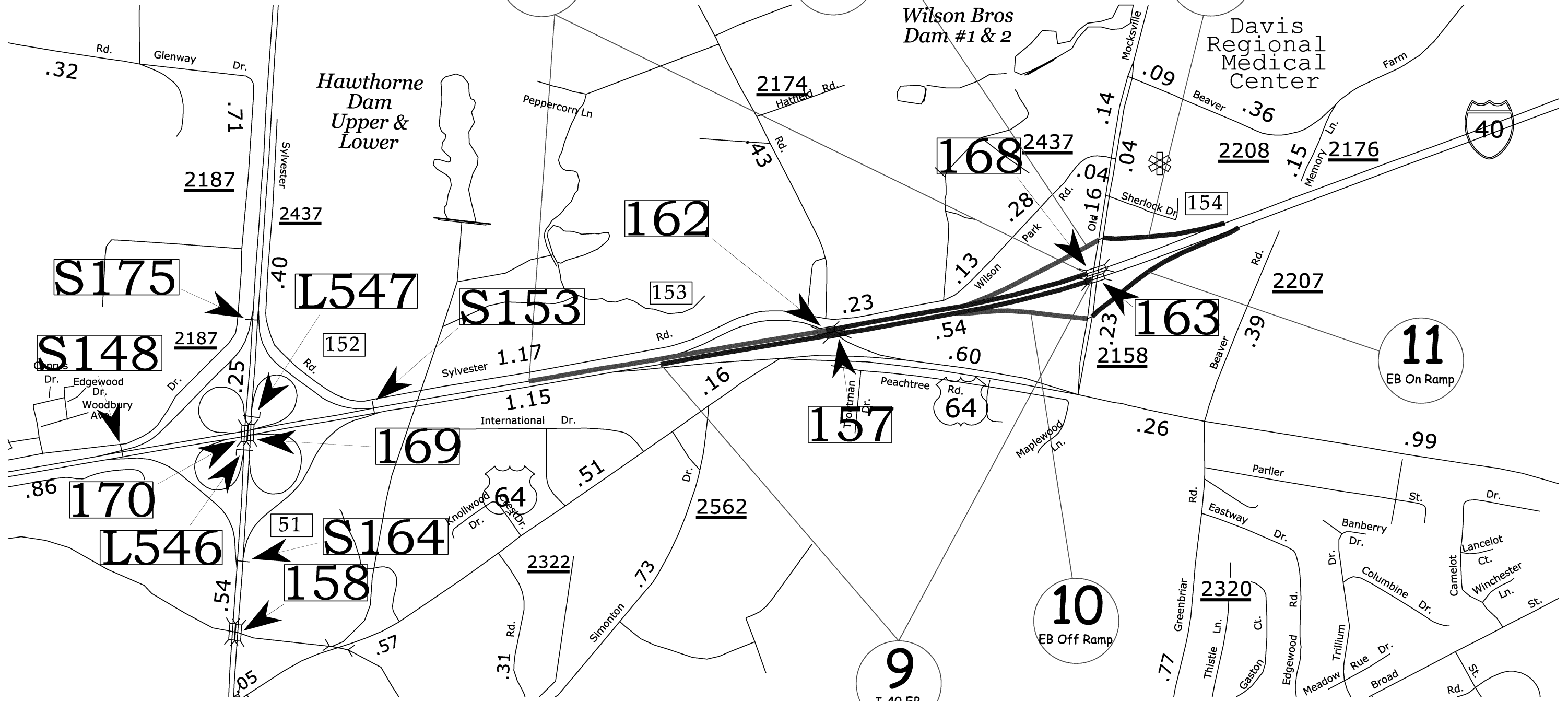
**13**  
WB On Ramp

**12**  
WB Off Ramp

**11**  
EB On Ramp

**10**  
EB Off Ramp

**9**  
I-40 EB

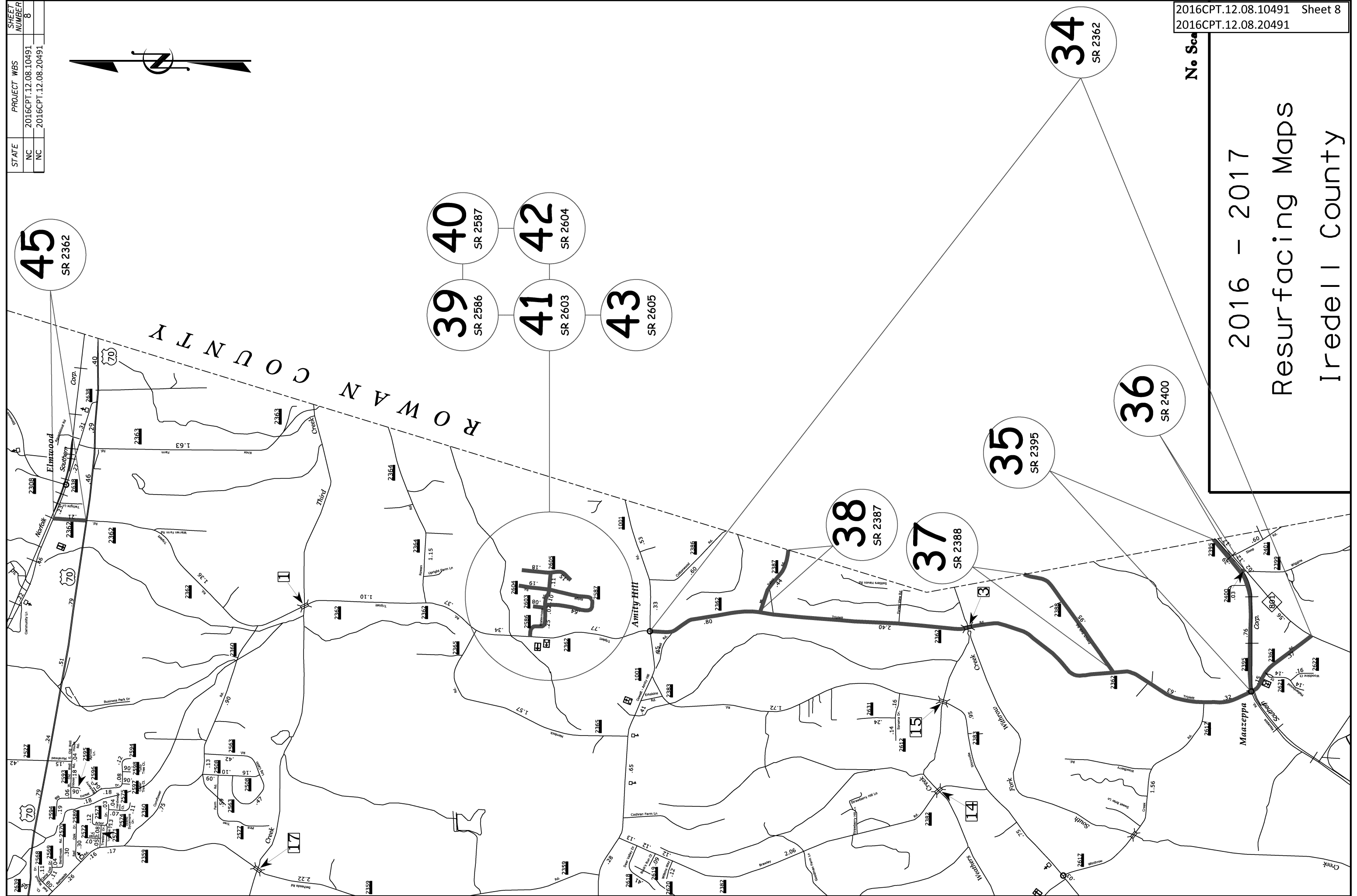


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2016 - 2017  
Resurfacing Maps  
Iredell County



STATE	PROJECT	WBS	SHEET NUMBER
NC	2016CPT.12.08.10491		8
NC	2016CPT.12.08.20491		



**45**  
SR 2362

**39**  
SR 2586

**40**  
SR 2587

**41**  
SR 2603

**42**  
SR 2604

**43**  
SR 2605

**38**  
SR 2387

**37**  
SR 2388

**35**  
SR 2395

**36**  
SR 2400

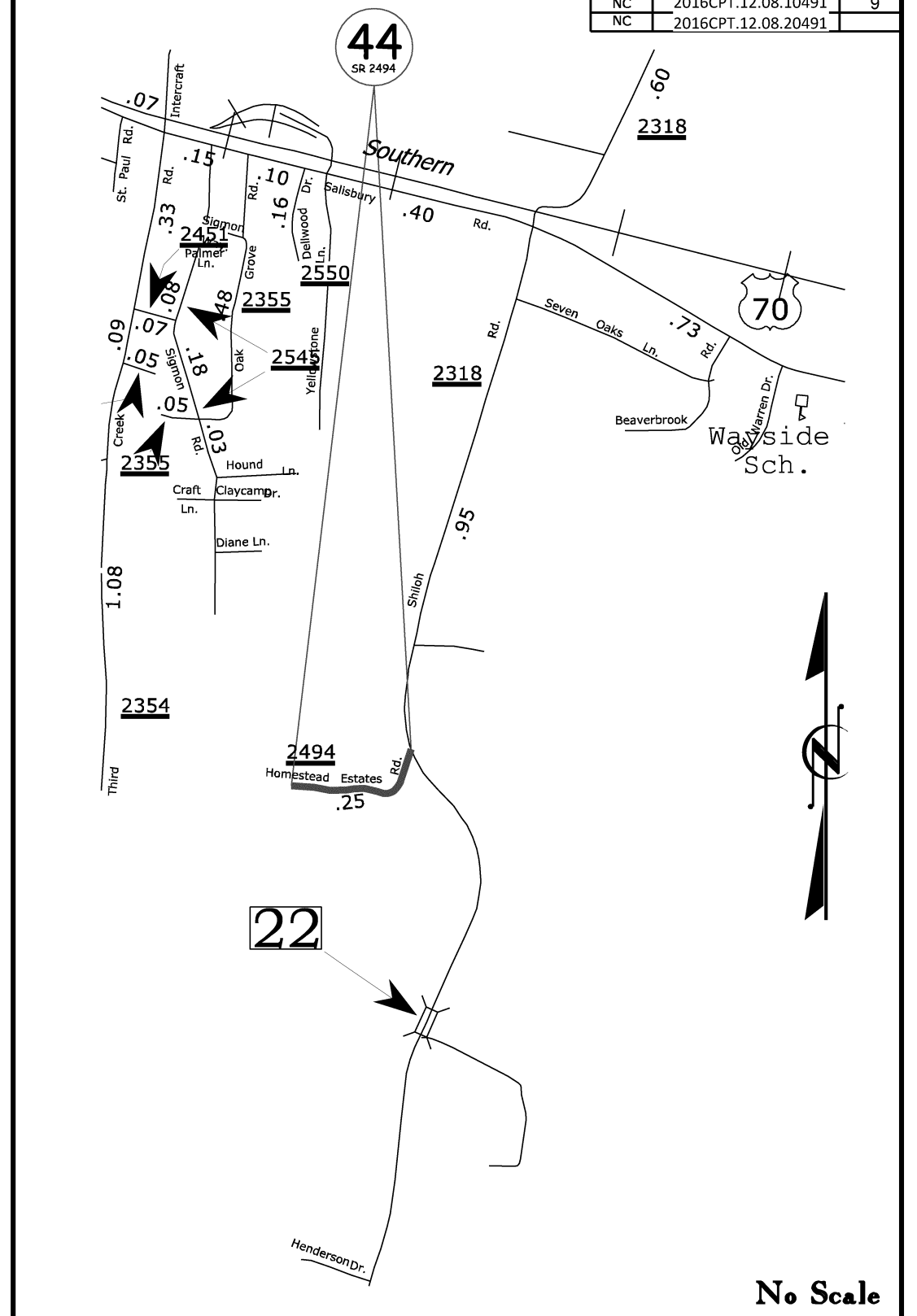
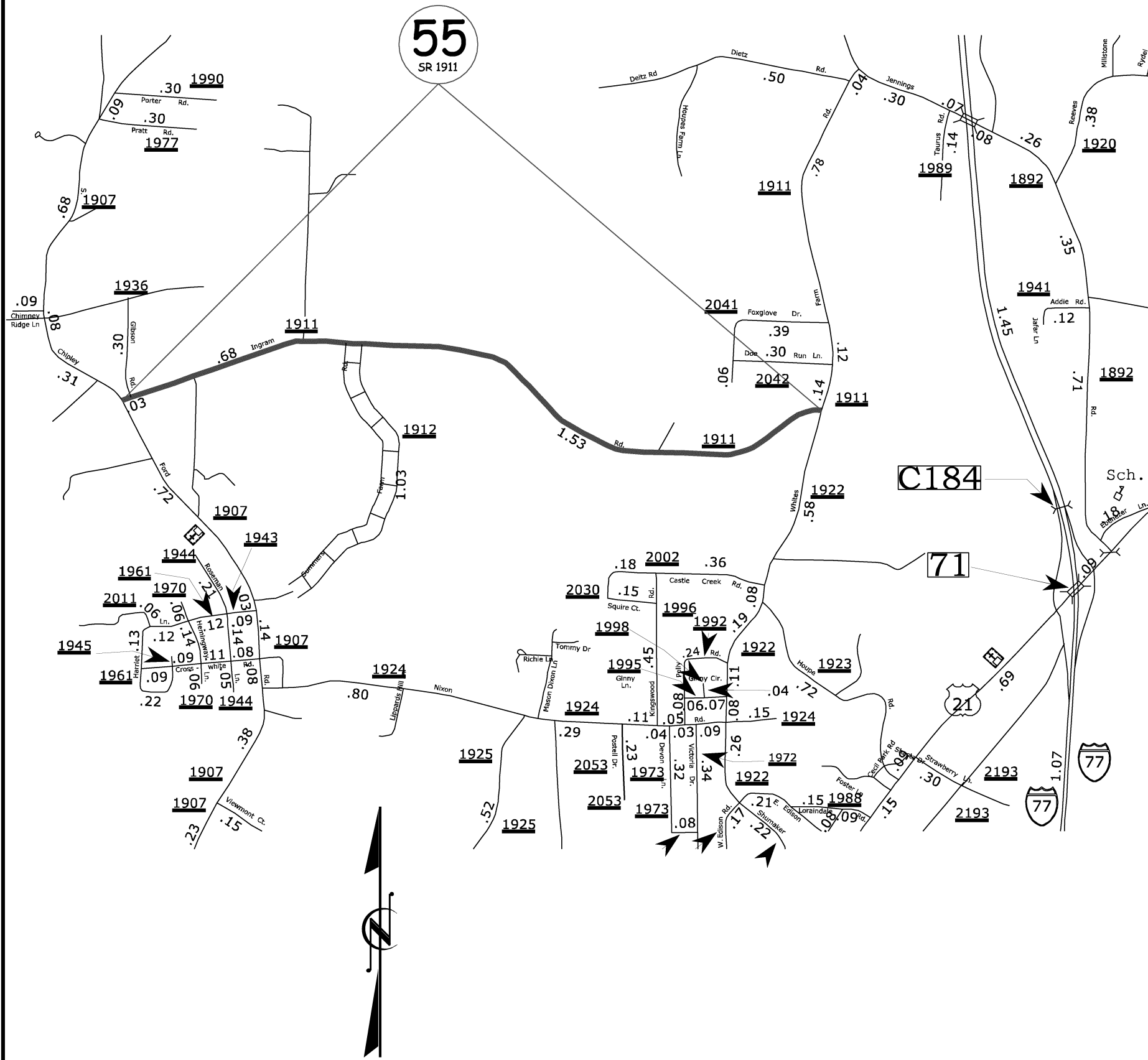
**34**  
SR 2362

ROWAN COUNTY

No. Sec.

2016 - 2017  
Resurfacing Maps  
Iredell County

STATE	PROJECT WBS	SHEET NUMBER
NC	2016CPT.12.08.10491	9
NC	2016CPT.12.08.20491	



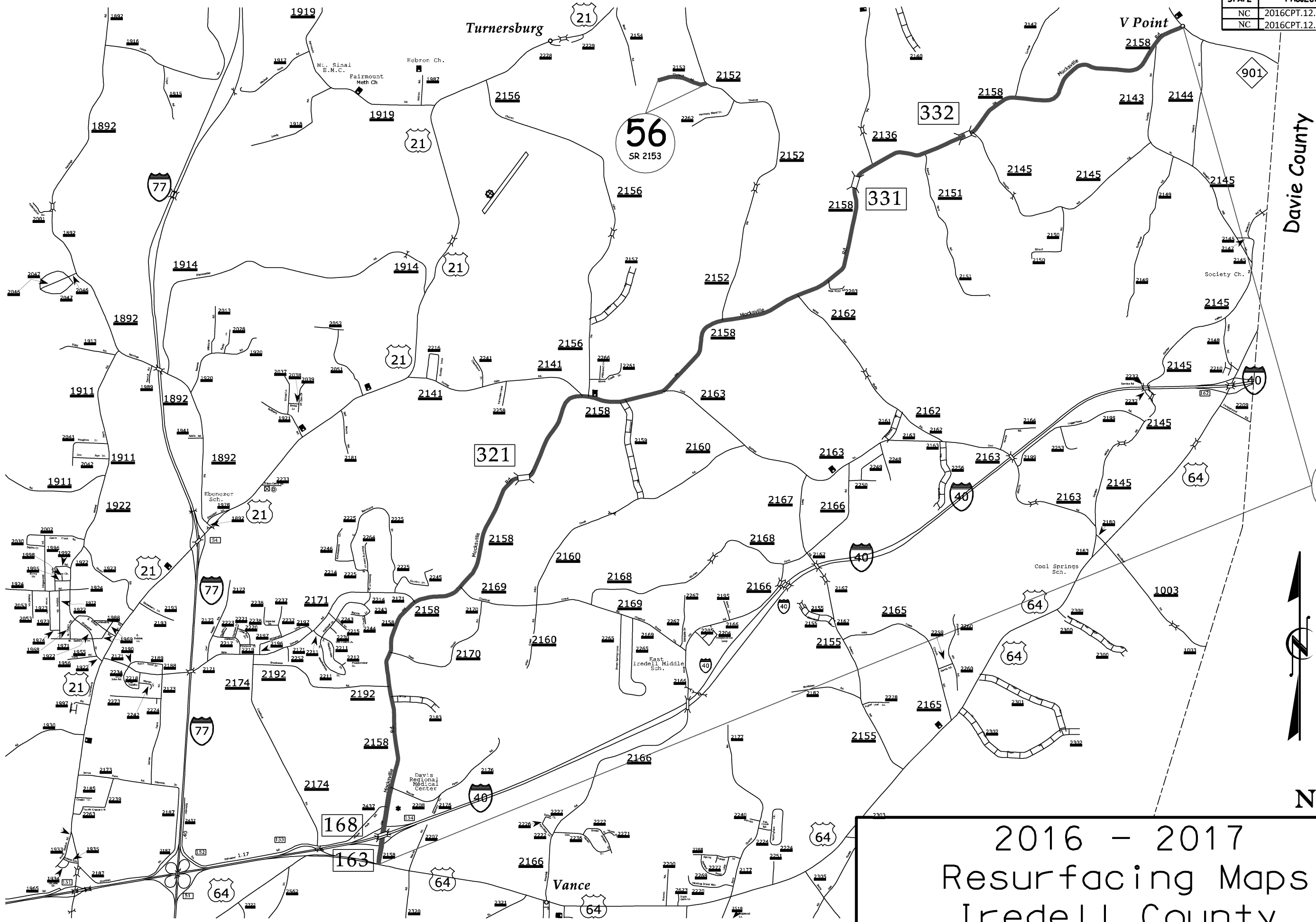
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No Scale

2016 - 2017  
Resurfacing Maps  
Iredell County



STATE	PROJECT WBS	SHEET NUMBER
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NC	2016CPT.12.08.20491	



Davie County

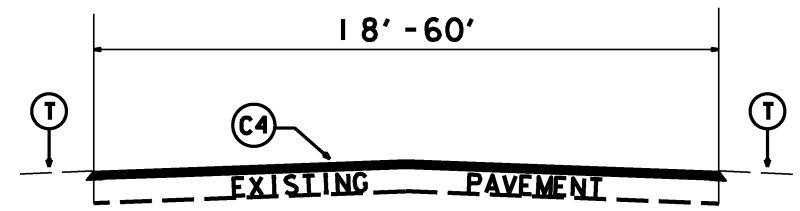
**54**  
SR 2158



**No Scale**

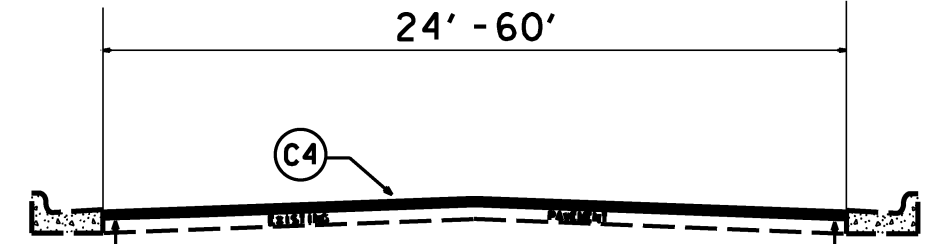
2016 - 2017  
Resurfacing Maps  
Iredell County

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
IREDELL COUNTY	11	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
2016CPT.12.08.10491		PRIMARY RESURFACING
2016CPT.12.08.20491		SECONDARY RESURFACING



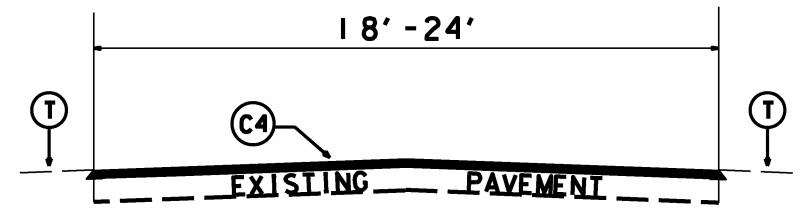
**TYPICAL SECTION NO.1**

Map 1  
 Map 2 Sta. 0+00 to Sta. 295+68  
 Map 5 Sta. 113+98 to Sta. 317+73  
 Map 6 Sta. 28+15 to Sta. 87+02  
 Map 6 Sta. 92+94 to Sta. 198+64  
 Map 54 Sta. 0+00 to Sta. 245+47



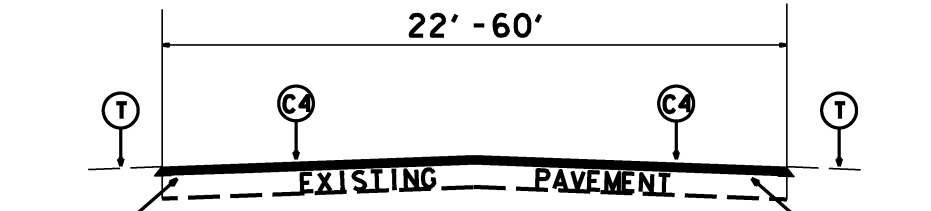
**TYPICAL SECTION NO.5**

Map 2 Sta. 350+43 to Sta. 388+25  
 Map 5 Sta. 104+68 to Sta. 113+98  
 Map 6 Sta. 198+64 to Sta. 210+24



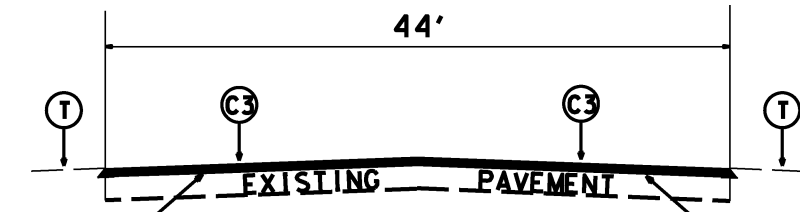
**TYPICAL SECTION NO.2**

Map 3, 4, 14, 19, 23, 34, 35, 36, 38, 45, 47, 55, 57, 58  
 Map 5 Sta. 0+00 to Sta. 104+68  
 Map 5 Sta. 321+03 to Sta. 359+20



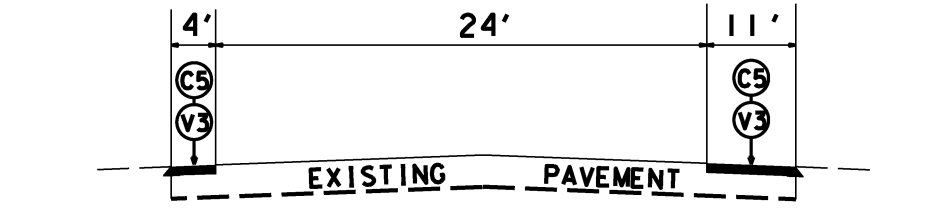
**TYPICAL SECTION NO.6**

Map 5 Sta. 317+73 to Sta. 321+03  
 Map 5 Sta. 359+20 to Sta. 399+93  
 Map 5 Sta. 399+93 to Sta. 404+50  
 Map 5 Sta. 404+50 to Sta. 421+00  
 Map 7 Sta. 73+40 to Sta. 118+80



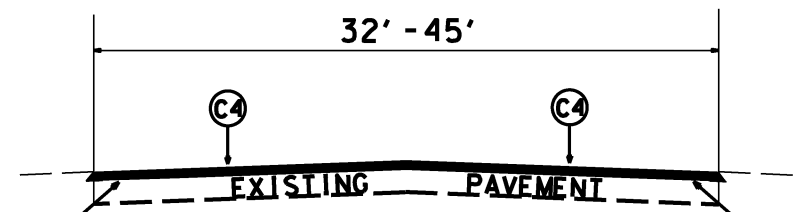
**TYPICAL SECTION NO.3**

Map 6 Sta. 0+00 to Sta. 28+15



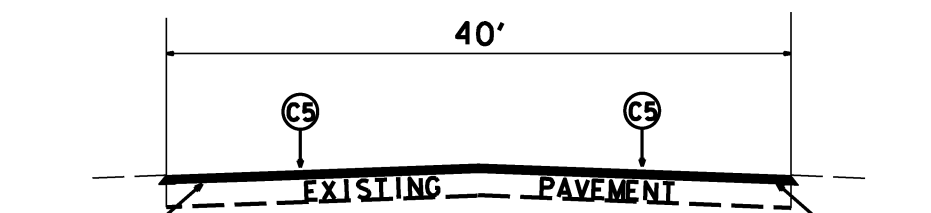
**TYPICAL SECTION NO.7**

Map 8 Sta. 0+00 to Sta. 27+30  
 Map 9  
 \*PAVED SHOULDERS ONLY\*



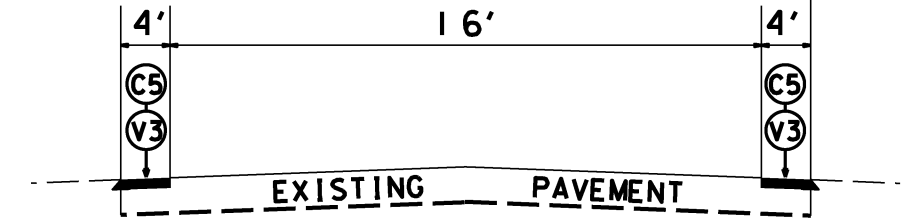
**TYPICAL SECTION NO.4**

Map 2 Sta. 295+68 to Sta. 350+43  
 Map 6 Sta. 87+02 to Sta. 92+94



**TYPICAL SECTION NO.8**

Map 8 Sta. 30+30 to Sta. 61+40  
 \*FULL WIDTH MILL/FILL\*



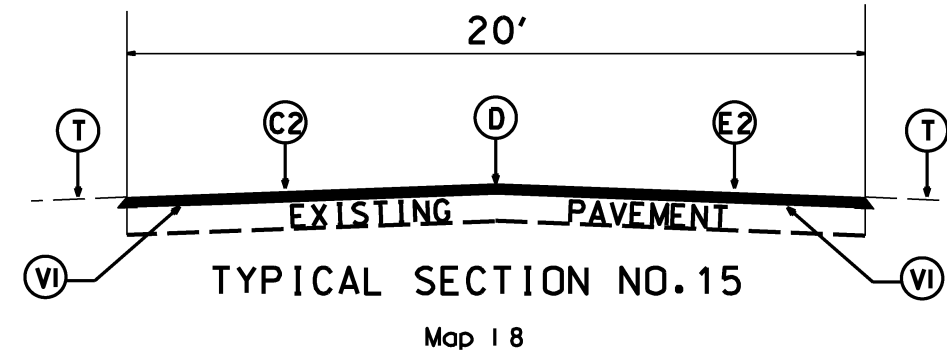
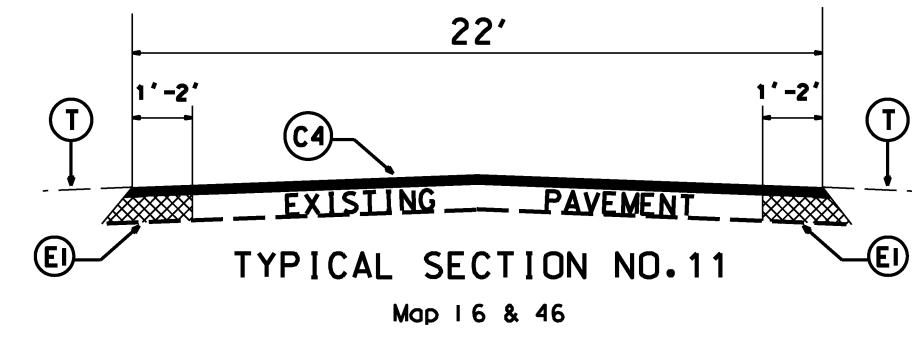
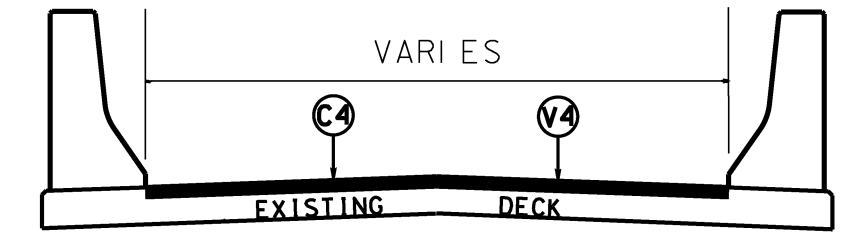
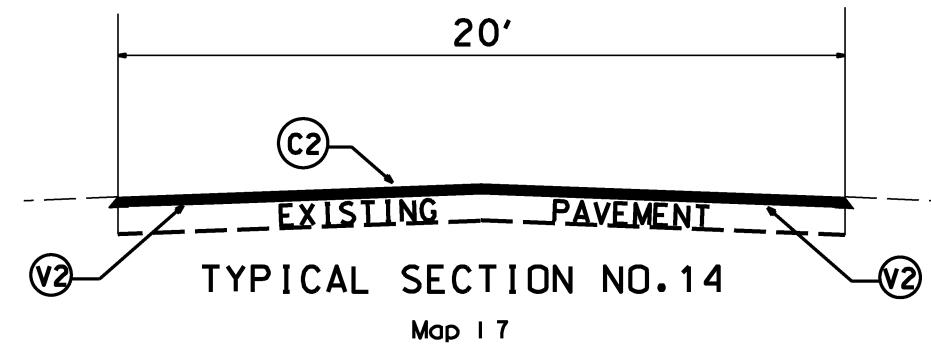
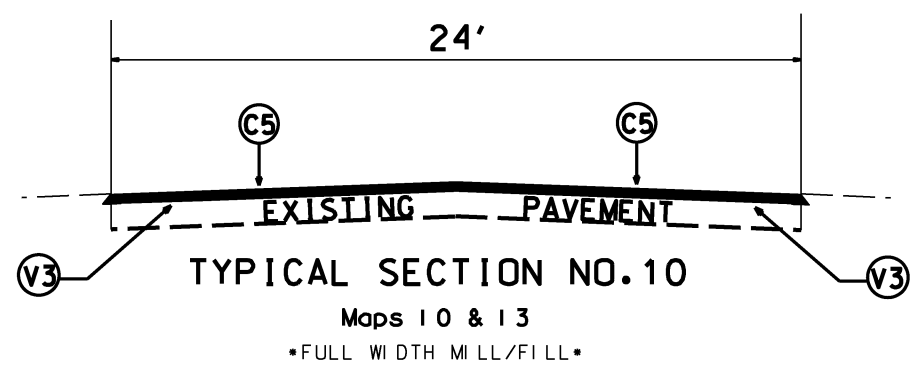
**TYPICAL SECTION NO.9**

Maps 11 & 12  
 \*PAVED SHOULDERS ONLY\*

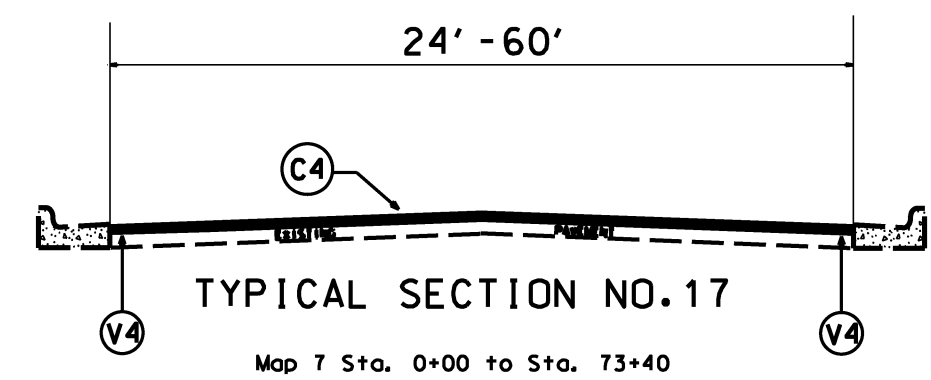
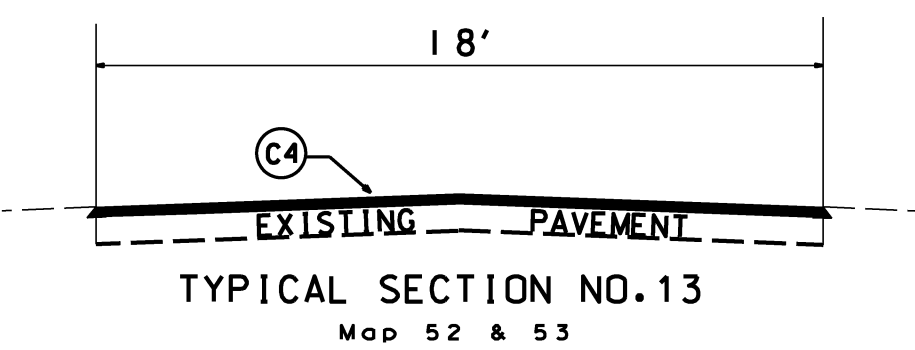
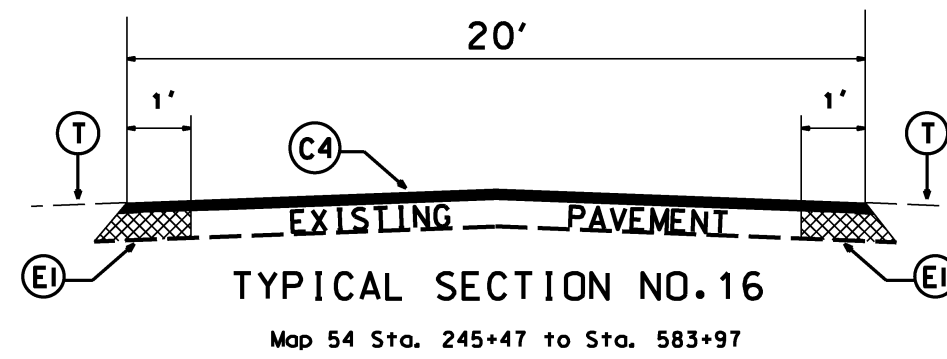
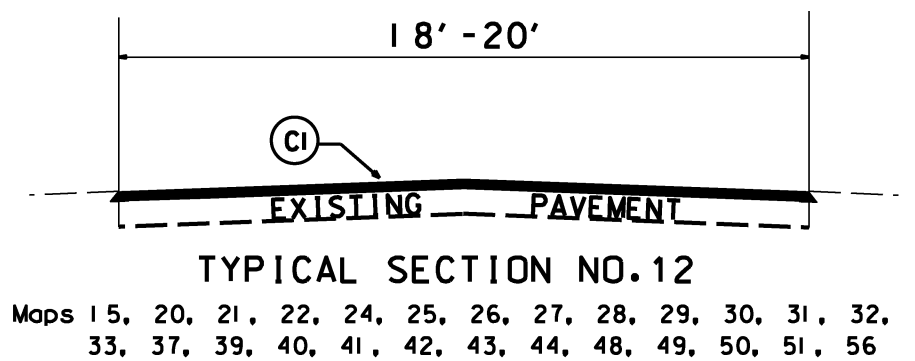
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.0" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
C2	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LIFTS
C3	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
D	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION)
V1	MILL EXISTING ASPHALT PAVEMENT APPROX. 4" IN DEPTH IN TWO PASSES FOR A TOTAL DEPTH OF 8"
V2	MILL EXISTING ASPHALT PAVEMENT APPROX. 3" IN DEPTH
V3	MILL EXISTING ASPHALT PAVEMENT APPROX. 2" IN DEPTH
V4	MILL EXISTING ASPHALT PAVEMENT APPROX. 1.5" IN DEPTH
V5	MILL EXISTING ASPHALT PAVEMENT APPROX. 0" TO 1.5" IN DEPTH BEGINNING 5' FROM EDGE OF CURB & GUTTER

2016 - 2017  
 Resurfacing Program  
 Typical Sections  
 Iredell County

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
IREDELL COUNTY	12	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
2016CPT.12.08.10491		PRIMARY RESURFACING
2016CPT.12.08.20491		SECONDARY RESURFACING



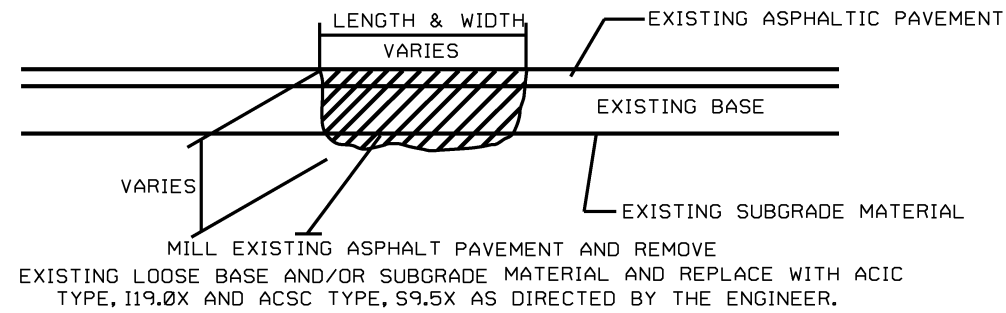
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.0" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
C2	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LIFTS
C3	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
D	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION)
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V2	MILL EXISTING ASPHALT PAVEMENT APPROX. 3" IN DEPTH
V3	MILL EXISTING ASPHALT PAVEMENT APPROX. 2" IN DEPTH
V4	MILL EXISTING ASPHALT PAVEMENT APPROX. 1.5" IN DEPTH
V5	MILL EXISTING ASPHALT PAVEMENT APPROX. 0" TO 1.5" IN DEPTH BEGINNING 5' FROM EDGE OF CURB & GUTTER



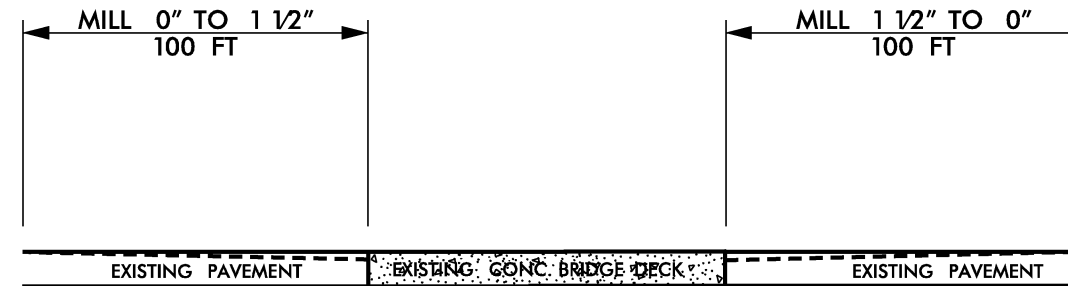
**2016 - 2017**  
**Resurfacing Program**  
**Typical Sections**  
**Iredell County**

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
IREDELL COUNTY	13	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
2016CPT.12.08.10491		PRIMARY RESURFACING
2016CPT.12.08.20491		SECONDARY RESURFACING

**DETAIL A  
PATCHING EXISTING PAVEMENT**

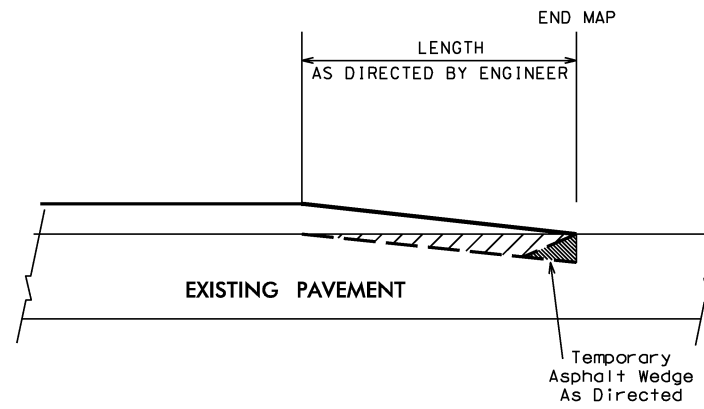
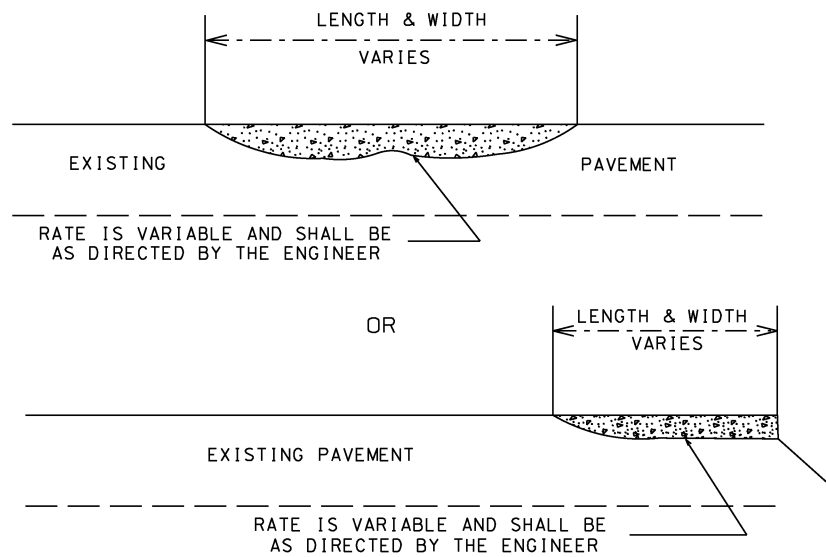


**DETAIL C  
MILLING BRIDGE APPROACHES**



**DETAIL B**

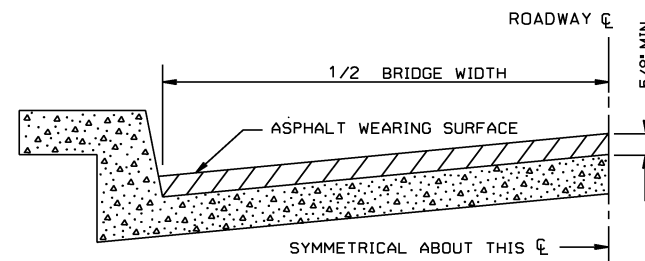
**ASPHALT CONCRETE SURFACE COURSE  
TYPE S9.5B (LEVELING COURSE)**



**TIE-IN (INCIDENTAL) MILLING DETAIL**

**DETAIL E**

**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.

**NOTES**

ALL UNPAVED S.R. ROADS TO BE SURFACED 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.  
SHOULDERS AND DITCHES ARE TO BE CONSTRUCTED BY OTHERS UNLESS OTHERWISE NOTED.  
BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

**PAVEMENT SCHEDULE**

C1	PROP. APPROX. 1.0" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
C2	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LIFTS
C3	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
D	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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V4	MILL EXISTING ASPHALT PAVEMENT APPROX. 1.5" IN DEPTH
V5	MILL EXISTING ASPHALT PAVEMENT APPROX. 0" TO 1.5" IN DEPTH BEGINNING 5' FROM EDGE OF CURB & GUTTER

2015 - 2016  
Resurfacing Program  
Typical Sections  
Iredell County







PROJECT NO.	SHEET NO.	TOTAL NO.
2016CPT.12.08.10491	16	
2016CPT.12.08.20491		

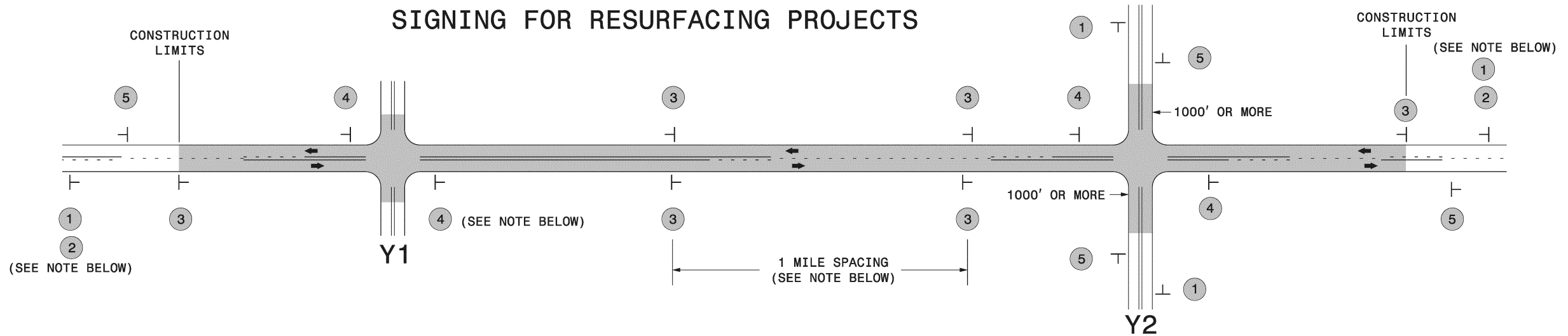
### SUMMARY OF QUANTITIES

PROJECT NO.	COUNTY	MAP	ROUTE	DESCRIPTION	TYP	LANES	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	AGGREGATE SHOULDER BORROW TON	AGGREGATE BASE COURSE TONS	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	1 1/2" MILLING SY	2" MILLING SY	3" MILLING SY	4" MILLING SY	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.08 TONS	INTERMEDIATE COURSE, I19.08 TONS	SURFACE COURSE, S9.5B TONS	LEVELING COURSE, S9.5B TONS	SURFACE COURSE, S9.5D TONS	SURFACE COURSE, SF9.5A TONS	LEVELING COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ADJ. OF CATCH BASIN EA	ADJ. OF DROP INLET EA	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	PORTABLE LIGHTING LS	INDUCTIVE LOOP LF	LEAD-IN CABLE LF							
2016CPT.12.08.20491	Iredell	29	SR 2786 (KEYSIDE LN.)	FROM SR 2781 (SAILWINDS RD.) TO DEAD END	12	2	NO	NO	0.13	20			25													130	15	10		80														
		30	SR 3110 (TRADEWINDS CT.)	FROM SR 2781 (SAILWINDS RD.) TO DEAD END	12	2	NO	NO	0.19	18				25													160	20	12		140													
		31	SR 3149 (CLEAR SPRINGS RD.)	FROM US21/NC115 TO DEAD END	12	2	NO	NO	0.64	20				25													505	50	37		325													
		32	SR 3150 (CROIS CT.)	FROM SR 3149 (CLEAR SPRINGS RD.) TO DEAD END	12	2	NO	NO	0.06	18				10														80	10	6		100												
		33	SR 3181 (ST. THOMAS LN.)	FROM SR 3149 (CLEAR SPRINGS RD.) TO DEAD END	12	2	NO	NO	0.06	18				10														80	10	6		10												
		34	SR 2362 (TRIPLETT RD.)	FROM NC 801 TO SR 1001 (OSWALT AMITY RD.)	2	2	NO	NO	4.54	20	1,150			585	9.10							850			4,755	480				317		645												
		35	SR 2395 (MAZEPPA RD.)	FROM SR 2362 (Triplet Rd.) TO DEAD END/ROWAN COUNTY LINE	2	2	NO	NO	1.04	20	135			175	2.08													1,140	114		76		440											
		36	SR 2400 (WIGGINS RD.)	FROM NC 801 TO SR 2395 (MAZEPPA RD.)	2	2	NO	NO	0.03	20	10				0.10															5		20												
		37	SR 2388 (FRENCH BELK RD.)	FROM SR 2362 (TRIPLETT RD.) TO COUNTY LINE	12	2	NO	NO	0.86	18					210													580	60	42		160												
		38	SR 2387 (MT. TABOR RD.)	FROM SR 2362 (TRIPLETT RD.) TO COUNTY LINE	2	2	NO	NO	0.44	20	110			35	0.90							25								30		275												
		39	SR 2586 (WATERMOSS DR.)	FROM SR 2362 (TRIPLETT RD.) TO SR 2605 (GONEAWAY LN.)	12	2	NO	NO	0.48	18					80														320	90	27		660											
		40	SR 2587 (WINDING ARBOR CIRCLE)	FROM SR 2586 (WATERMOSS DR.) TO SR 2586 (WATERMOSS DR.)	12	2	NO	NO	0.64	18					200														450	50	33		260											
		41	SR 2603 (CARMELWOOD CT.)	FROM SR 2586 (WATERMOSS DR.) TO DEAD END	12	2	NO	NO	0.08	18					35														75	10	6		30											
		42	SR 2604 (MORCROFT LN.)	FROM SR 2586 (WATERMOSS DR.) TO DEAD END	12	2	NO	NO	0.19	18					75														180	40	14		160											
		43	SR 2605 (GONEAWAY LN.)	FROM CUL-DE-SAC TO CUL-DE-SAC	12	2	NO	NO	0.15	18					150															175	40	14		225										
		44	SR 2494 (HOMESTEAD ESTATES DR.)	FROM SR 2318 (SHILOH RD.) TO DEAD END	12	2	NO	NO	0.27	20					50														230	25	17		455											
		45	SR 2362 (TRIPLETT RD.)	FROM US 70 TO SR 2638 (SALISBURY HWY.)	2	2	NO	NO	0.19	20	50			5	0.40																16		70											
		46	SR 2352 (N. BARKLEY RD.)	FROM US 70 TO SR 2475 (E. BARKLEY RD.)	11	2	NO	NO	1.00	18	240				65	2.00							980	560							75		350		1		13		1					
		47	SR 2475 (E. BARKLEY RD.)	FROM US 70 TO DEAD END	2	2	NO	NO	1.52	18	380				155	3.10							50								109		955											
		48	SR 2466 (ROCKWOOD LN.)	FROM SR 2352 (N. BARKLEY RD.) TO SR 2467 (DALLAS LN.)	12	2	NO	NO	0.13	18					10															105	15	8		85										
		49	SR 2468 (DEAL LN.)	FROM SR 2352 (N. BARKLEY RD.) TO SR 2467 (DALLAS LN.)	12	2	NO	NO	0.18	18					10															135	15	10		130										
		50	SR 2467 (DALLAS LN.)	FROM CUL-DE-SAC TO CUL-DE-SAC	12	2	NO	NO	0.19	18					20															200	20	15		125										
		51	SR 2469 (ROBIN LN.)	FROM SR 2475 (E. BARKLEY RD.) TO SR 2468 (DEAL LN.)	12	2	NO	NO	0.22	18					10															160	20	12		150										
		52	SR 1671 (WHISPER PINE RD.)	FROM SR 1543 (MONTICELLO RD.) TO SR 1672 (PINE AVE.)	13	2	NO	NO	0.16	18					50																		45											
		53	SR 1672 (PINE AVE.)	FROM SR 1671 (WHISPER PINE RD.) TO DEAD END	13	2	NO	NO	0.11	18					50																		35											
		54	SR 2158 (OLD MOCKSVILLE RD.)	FROM US 64 TO NC 901	1	16	2	NO	NO	11.06	20	2,800			1,000	22.12	700						1,000	2,600								931		3,300										
		55	SR 1911 (INGRAM RD.)	FROM SR 1907 (S. CHIPPLEY FORD RD.) TO SR 1911 (WHITES FARM RD.)	2	2	NO	NO	2.25	18	575				100	4.50																												
		56	SR 2153 (CHADWICK RD.)	FROM SR 2152 (CHIEF THOMAS RD.) TO DEAD END	12	2	NO	NO	0.4	18					75																													
57	SR 2139 (RIMROCK RD.)	FROM SR 2136 (MT. BETHEL RD.) TO NC 901	2	2	NO	NO	2.55	19	650				275	5.10	350																													
58	SR 1840 (LITTLE WILKESBORO RD.)	FROM US 21 TO NC 901	2	2	NO	NO	1.18	19.5	300				125	2.36																														
TOTAL FOR PROJ NO. 2016CPT.12.08.20491									41.41		8,280	10	5,054	66.70	1,500		8,000	3,000		4,305	4,985	325	37,875	2,823		5,865	750	3,133		15,698		1		13		1								
GRAND TOTAL									72.803		14,230	10	7,604	112.24	111,500	58,750	8,000	3,000		4,150	8,205	4,985	325	84,375	3,223		5,250	5,865	750	5,949	299	16,823	1	21		125		110	1.00	5,725	900			





# SIGNING FOR RESURFACING PROJECTS



**LEGEND**  
 | STATIONARY SIGN  
 ← DIRECTION OF TRAFFIC FLOW

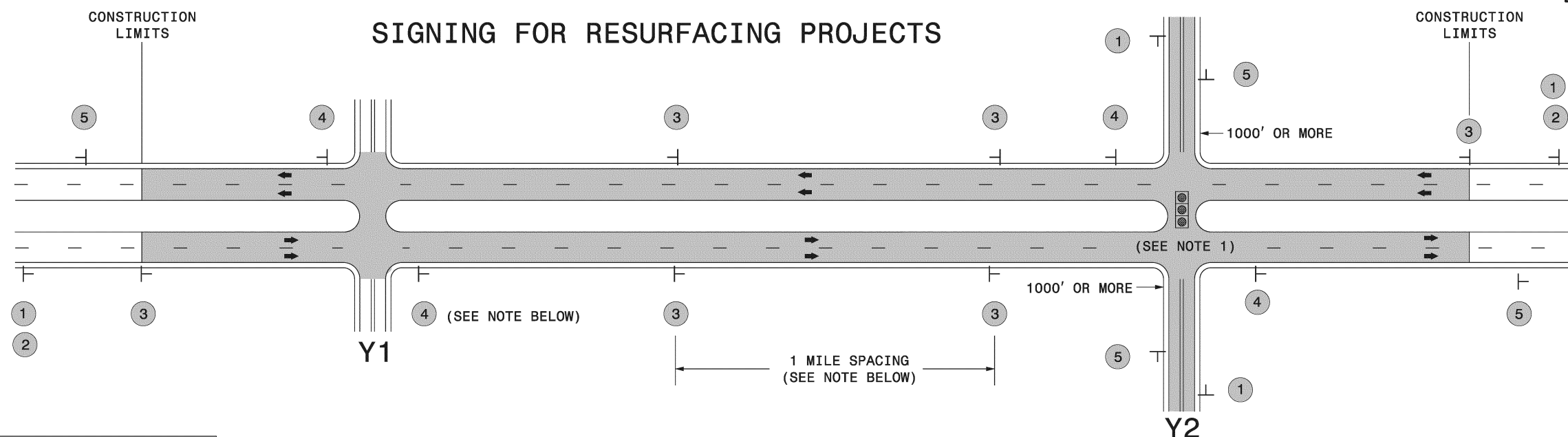
## MAINLINE (-L-) SIGNING

## -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION		<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p> <p>ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)</p>	<p><b>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</b></p> <ol style="list-style-type: none"> <li>LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>SUBDIVISION ROADS</li> <li>DEAD END ROADS</li> </ol> <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>W20-1 48" X 48"</p> </div> <div style="text-align: center;"> <p>W20-7 A 48" X 48"</p> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
		<p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p>	
		<p>THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.</p>	
		<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>	

3/19/2015 C:\Users\rmgarrrett\Downloads\Resurfacing\_AdvWarn\_2Ln (2).dgn User:rmgarrrett

**RESURFACING  
ADVANCE WARNING SIGNS  
FOR  
RURAL AND SUBURBAN  
2 LANE ROADWAYS**



**LEGEND**  
 | STATIONARY SIGN  
 ← DIRECTION OF TRAFFIC FLOW

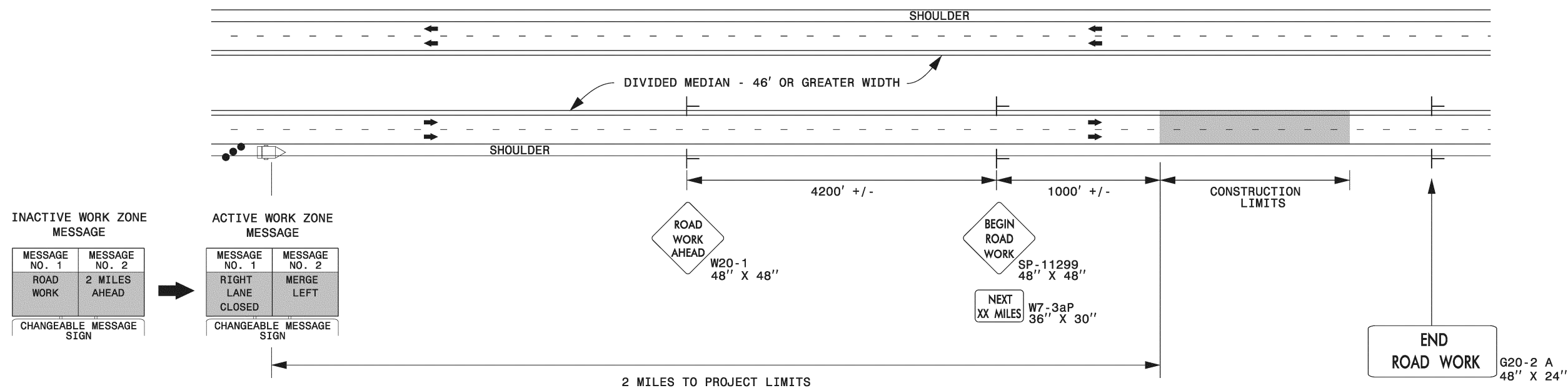
**MAINLINE (-L-) SIGNING**

**-Y- LINE SIGNING**

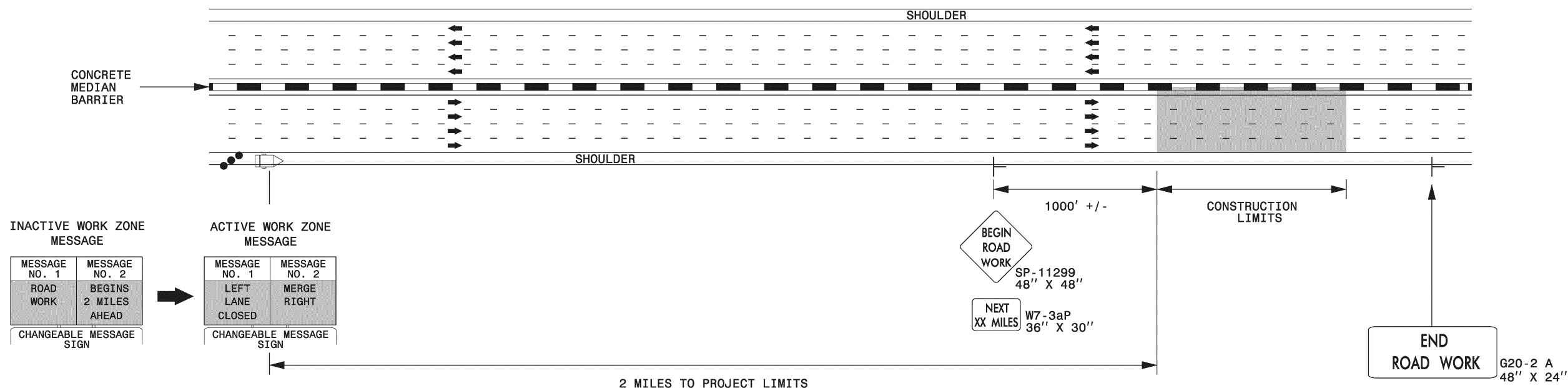
SIGNING NOTES AND PLACEMENT PER DIRECTION		<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p> <p>2) SUBDIVISION ROADS          3) DEAD END ROADS</p>	<p><b>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</b></p> <p>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE          2) SUBDIVISION ROADS          3) DEAD END ROADS</p> <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>W20-1 48" X 48"</p> </div> <div style="text-align: center;"> <p>W20-7 A 48" X 48"</p> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p> <p><b>NOTES:</b></p> <p>1) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.</p>
		<p>#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)</p>	
		<p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p>	
		<p>THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.</p>	
	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>		

**RESURFACING  
 ADVANCE WARNING SIGNS  
 FOR RURAL AND SUBURBAN  
 MULTI-LANE ROADWAYS  
 W/ SHOULDER SECTIONS**

## DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



## DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER

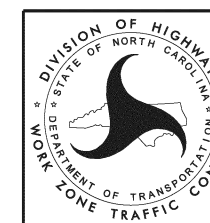


### NOTES:

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) FOR MEDIAN WIDTHS LESS THAN 46' (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
- 4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 5) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMP 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMP WITHIN THE WORK ZONE.
- 6) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER AND WITH DIVIDED MEDIANS OF 46' OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

### LEGEND

- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



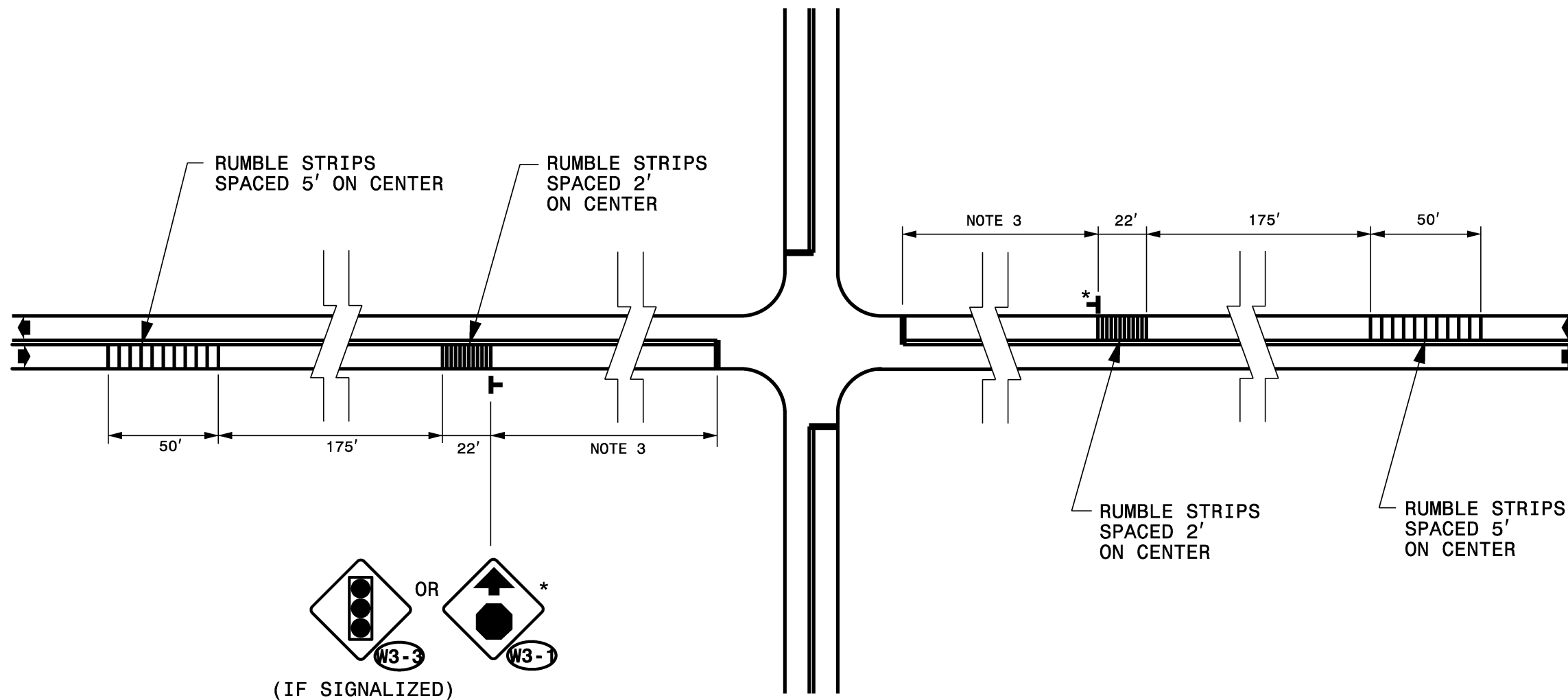
**RESURFACING ADVANCE  
 WARNING SIGNS FOR  
 HIGH SPEED FACILITIES  
 ≥ 60 MPH**



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

11-13

ENGLISH STANDARD DRAWING FOR  
**TWO-LANE, TWO-WAY THERMOPLASTIC  
RUMBLE STRIPS**



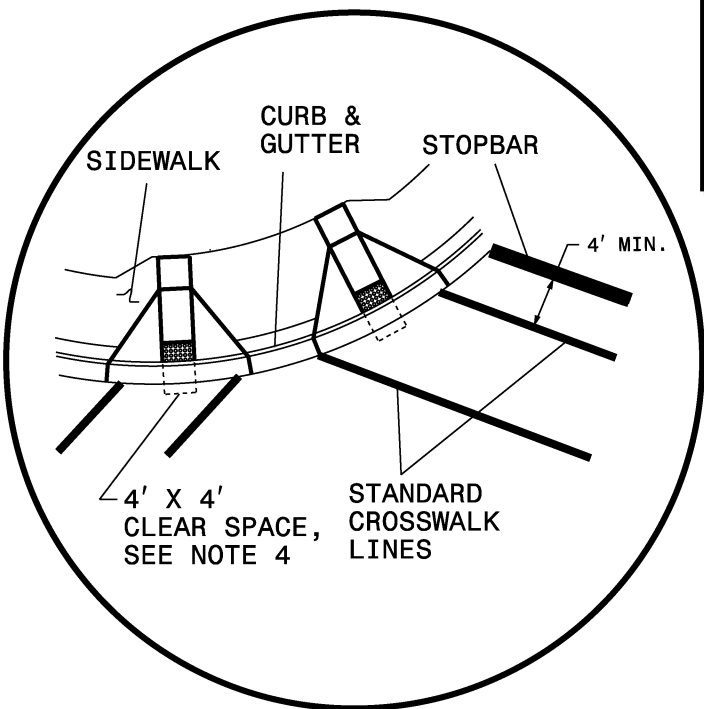
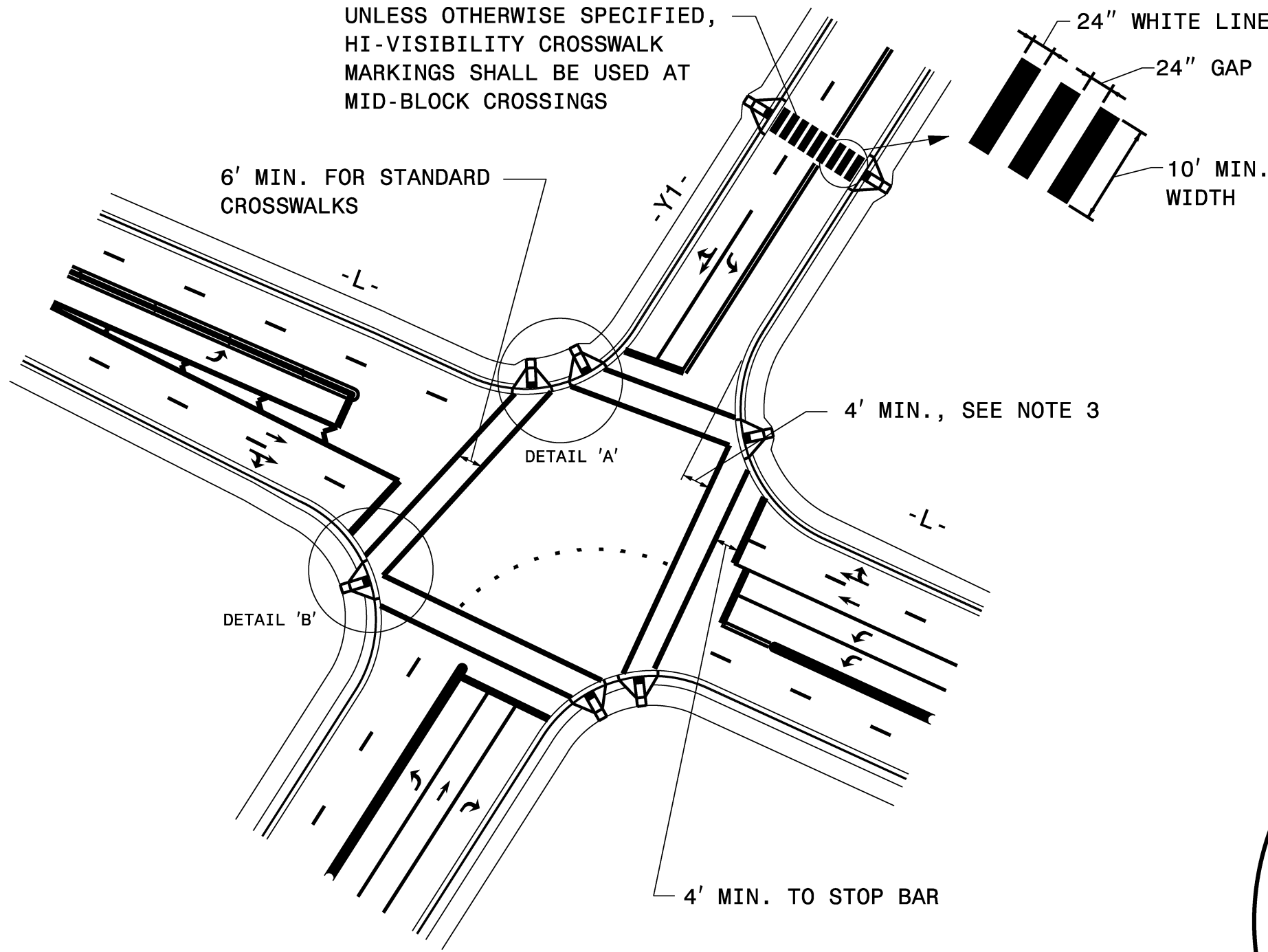
GENERAL NOTES:

1. ALL RUMBLE STRIPS SHALL BE CENTERED IN THE LANE AND SHALL BE 2 FEET LESS THAN THE WIDTH OF THE TRAVEL LANE
2. RUMBLE STRIPS SHALL BE PLACED USING 4" x 240 MIL WHITE THERMOPLASTIC PAVEMENT MARKING MATERIAL.
3. PLACEMENT OF STOP-AHEAD (W3-1) OR SIGNAL-AHEAD (W3-3) SIGNS SHALL COMPLY WITH THE 2009 MUTCD SECTION 5C.04.

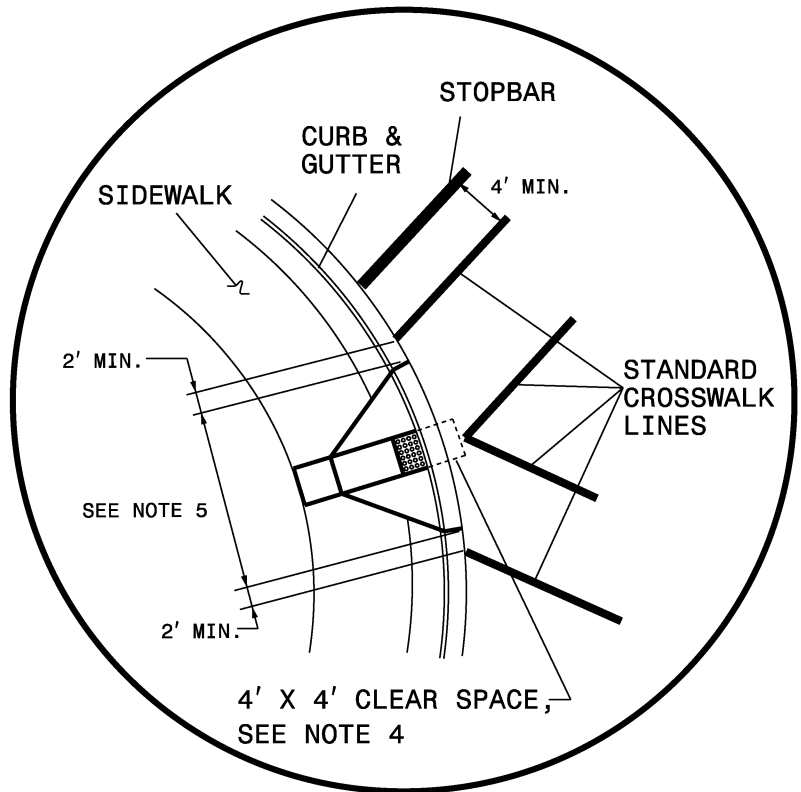
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

11-13

ENGLISH STANDARD DRAWING FOR  
**TWO-LANE, TWO-WAY THERMOPLASTIC  
RUMBLE STRIPS**



DETAIL 'A'- DUAL CURB RAMPS



DETAIL 'B'- SINGLE DIAGONAL CURB RAMP

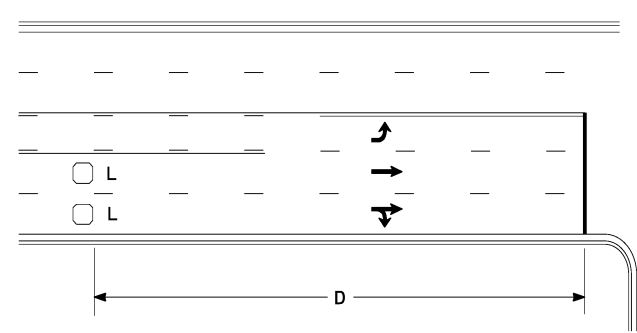
**GUIDANCE DETAIL FOR CROSSWALK MARKINGS**

**NOTES:**

1. USE THE DETAILS ABOVE AND THE FOLLOWING NOTES FOR GUIDANCE IN PLACING CROSSWALK MARKINGS NOT STATIONED ON THE DETAIL SHEETS OR WHEN FIELD ADJUSTMENTS REQUIRED MOVING STATIONED MARKINGS AS DIRECTED BY THE ENGINEER. REFER TO NCDOT ROADWAY STANDARD DRAWINGS, MUTCD AND ADA STANDARDS FOR ADDITIONAL GUIDANCE.
2. THE CROSSWALK MARKINGS SHOWN ON THE ABOVE DETAILS ARE FOR REFERENCE ONLY. ONLY INSTALL CROSSWALK MARKINGS WHERE SHOWN ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER. THE CROSSWALK MARKING TYPE, STANDARD OR HI-VISIBILITY, SHALL BE INSTALL AS SPECIFIED ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER.
3. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.
4. BEYOND THE BOTTOM GRADE BRAKE, A CLEAR SPACE OF 4' X 4' MINIMUM SHALL BE PROVIDED WITHIN THE MARKINGS.
5. SINGLE DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE A SEGMENT OF CURB 2 FEET LONG MINIMUM LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING, SEE DETAIL 'B'.
6. CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS.

\$\$\$\$\$SYTIME\$\$\$\$\$  
 \$\$\$DCON\$\$\$\$\$  
 \$\$\$USERNAME\$\$\$\$\$

### High Speed Detection (≥40 mph)

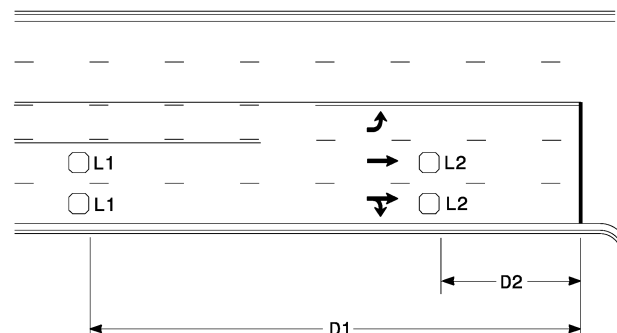


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

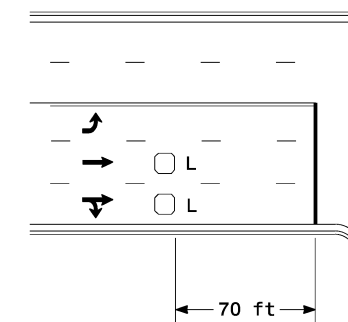


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft  
Wired in series  
L2 = 6ft X 6ft  
Wired in series

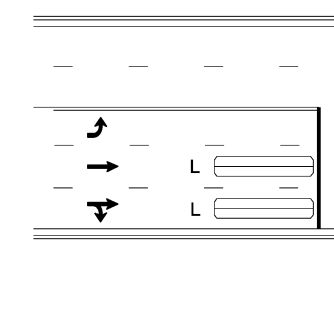
"Stretch" Operation

### Low Speed Detection (≤35 mph)



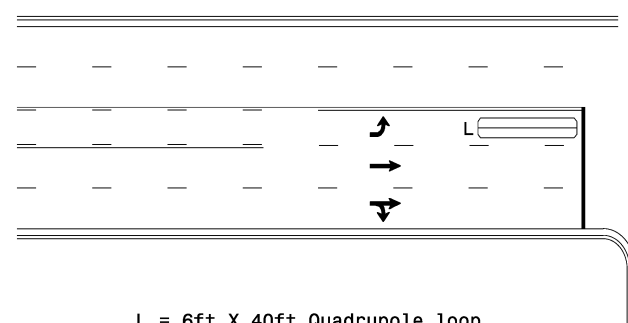
L = 6ft X 6ft  
Wired in series

OR



L = 6ft X 40ft  
Quadrupole loop, wired separately

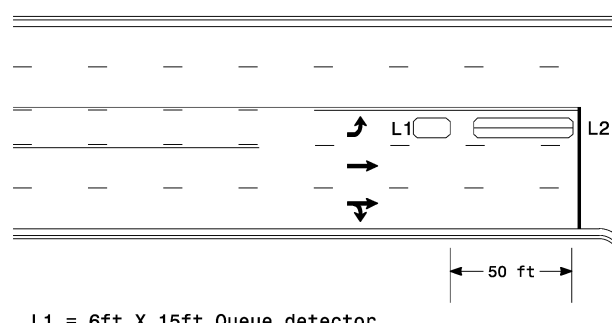
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

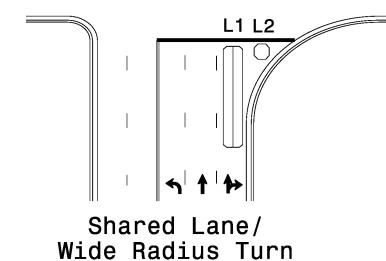
OR



L1 = 6ft X 15ft Queue detector  
L2 = 6ft X 40ft Quadrupole loop

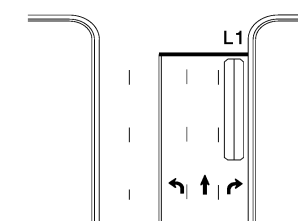
Queue Loop Detection

### Right Turn Lane Detection

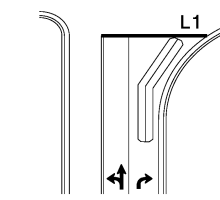


Shared Lane/  
Wide Radius Turn

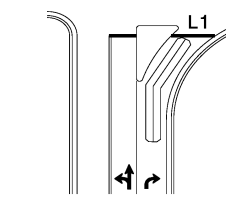
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

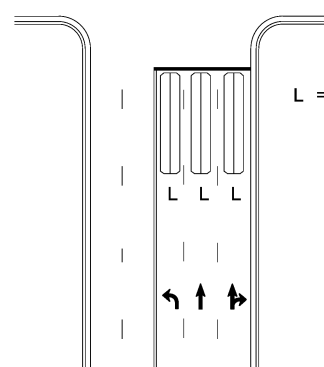


Wide Radius Turn



Channelized Turn

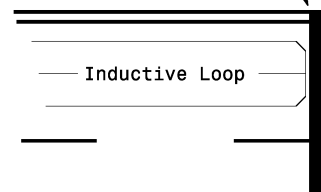
### Side Street Detection



L = 6ft X 40ft  
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 under any of the  
following conditions:  
1) stop line is greater than 15'  
from edge of intersecting  
roadway  
2) loop detects a permissive or  
protected/permissive left turn  
3) for an exclusive right turn  
lane

### Recommended Number of Turns

Single 6' X 6' loop  
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' Loops:  
Lead-in < 150', use 2 turns  
Lead-in > 150', use 3 turns

Prepared in the Office of:  
TRANSPORTATION MOBILITY AND SAFETY DIVISION  
UNIVERSITY OF NORTH CAROLINA  
STATE OF TRANSPORTATION  
Signal Design Section  
750 N. Greenfield Pkwy, Garner, NC 27529

#### Typical Signal Loop Locations

PLAN DATE: January 2015 REVIEWED BY: JPG  
PREPARED BY: PLA REVIEWED BY:

SCALE: N/A

REVISIONS: INIT. DATE

SEAL  
NORTH CAROLINA  
REGISTERED PROFESSIONAL ENGINEER  
BAMELA L. ALEXANDER  
23489  
1/30/2015  
SIG. INVENTORY NO.