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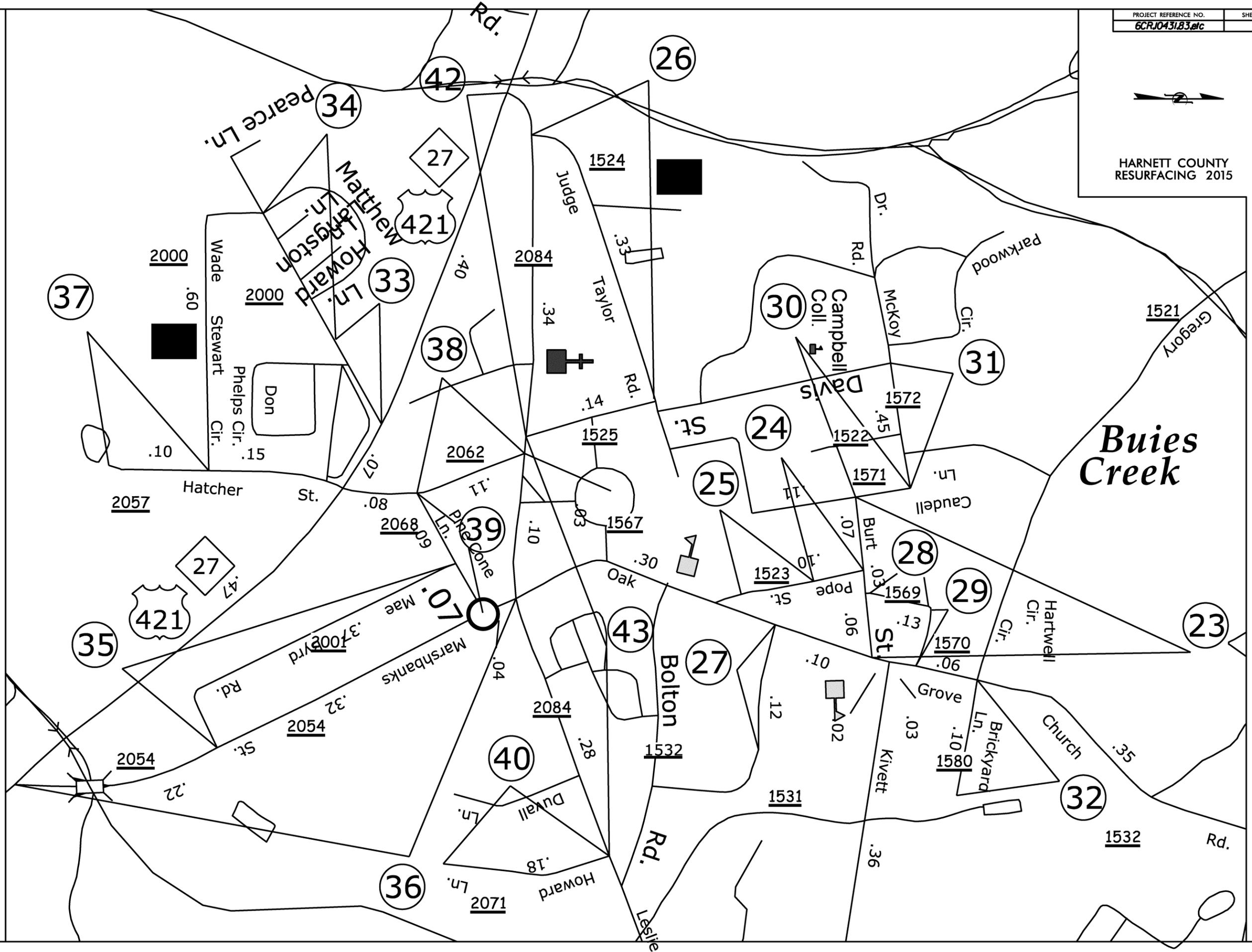








HARNETT COUNTY  
RESURFACING 2015



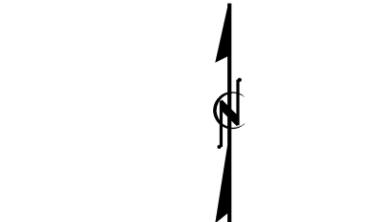
8/17/99

REVISIONS

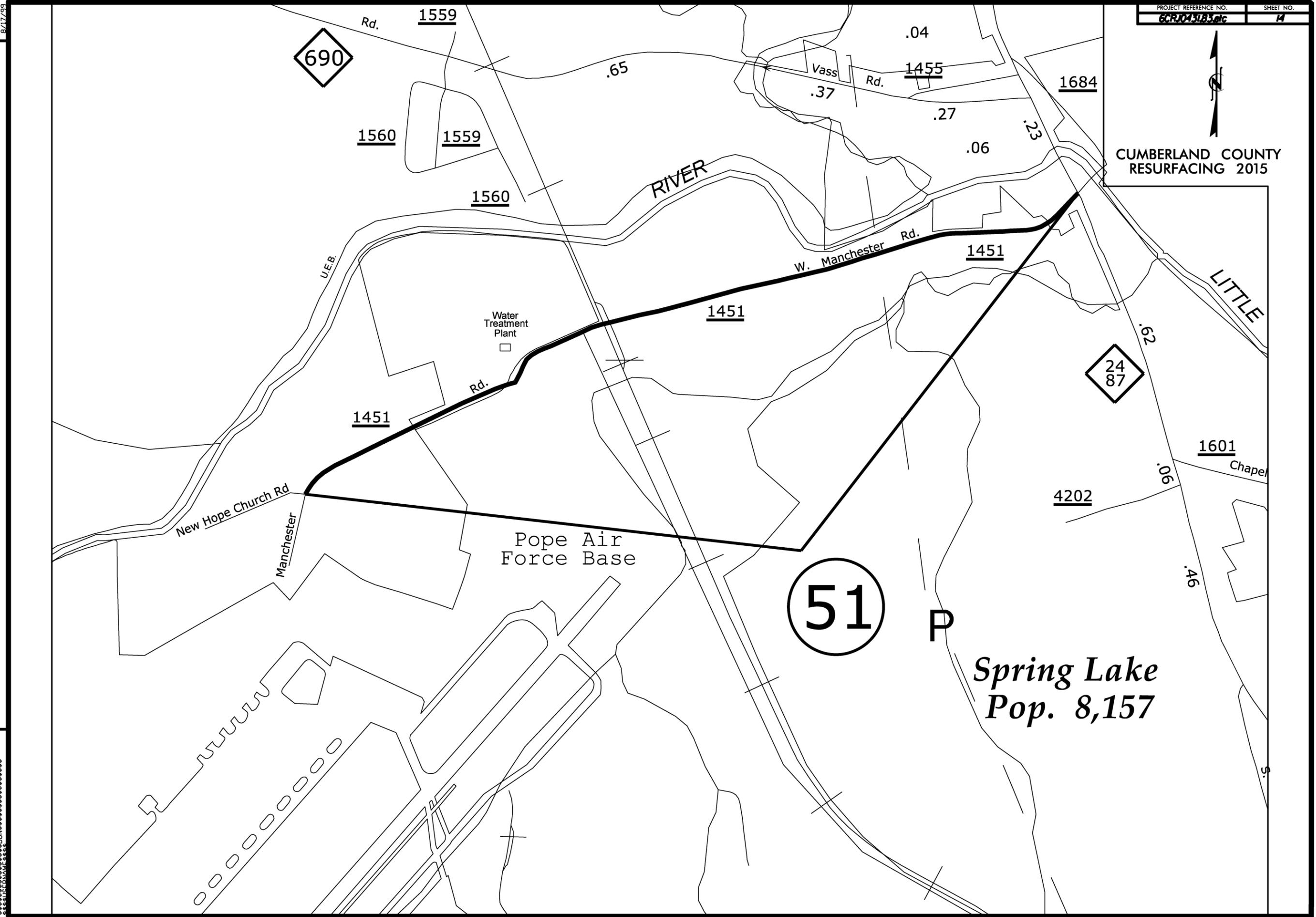
DATE: 8/17/99  
BY: J. S. SHERMAN  
CHECKED: J. S. SHERMAN  
APPROVED: J. S. SHERMAN







CUMBERLAND COUNTY RESURFACING 2015



690

Rd. 1559

1560

1559

1560

.65

.37

Rd. 1455

.04

.27

.06

.23

1684

RIVER

W. Manchester Rd.

1451

1451

Water Treatment Plant

Rd.

1451

24  
87

.62

1601

Chapel

4202

.06

New Hope Church Rd

Manchester

Pope Air Force Base

51

P

Spring Lake  
Pop. 8,157

.46

S.

8/17/99

REVISIONS

\*\*\*\*\*SYTIME\*\*\*\*\*  
\*\*\*\*\*CUMBERLAND COUNTY\*\*\*\*\*









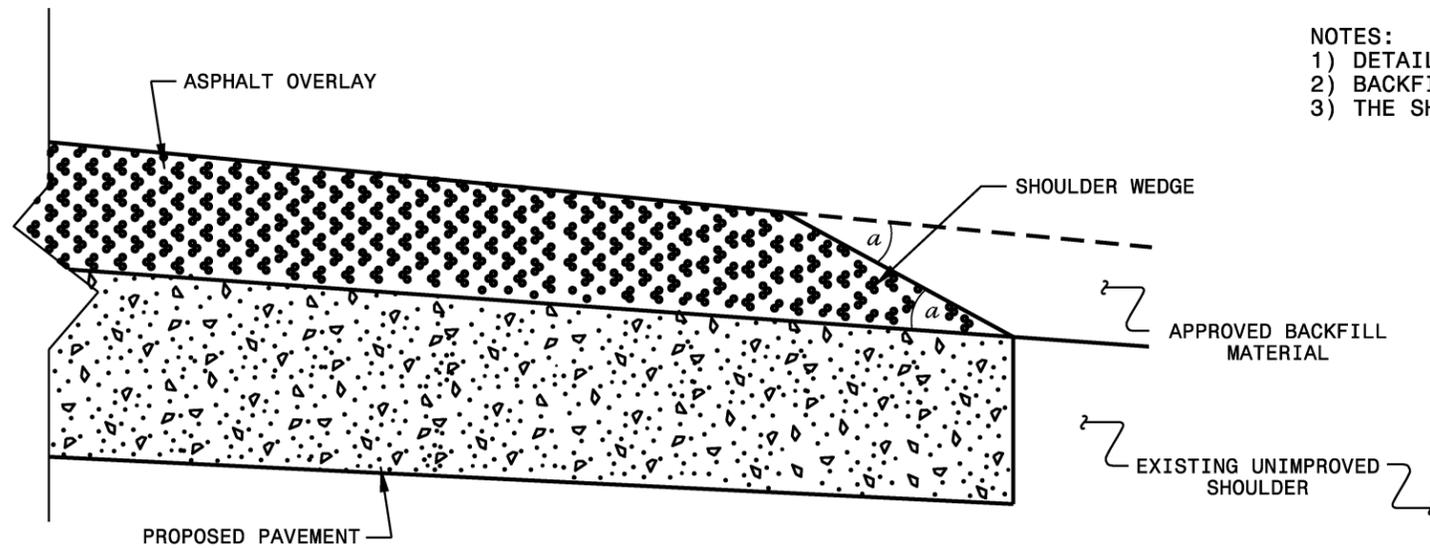




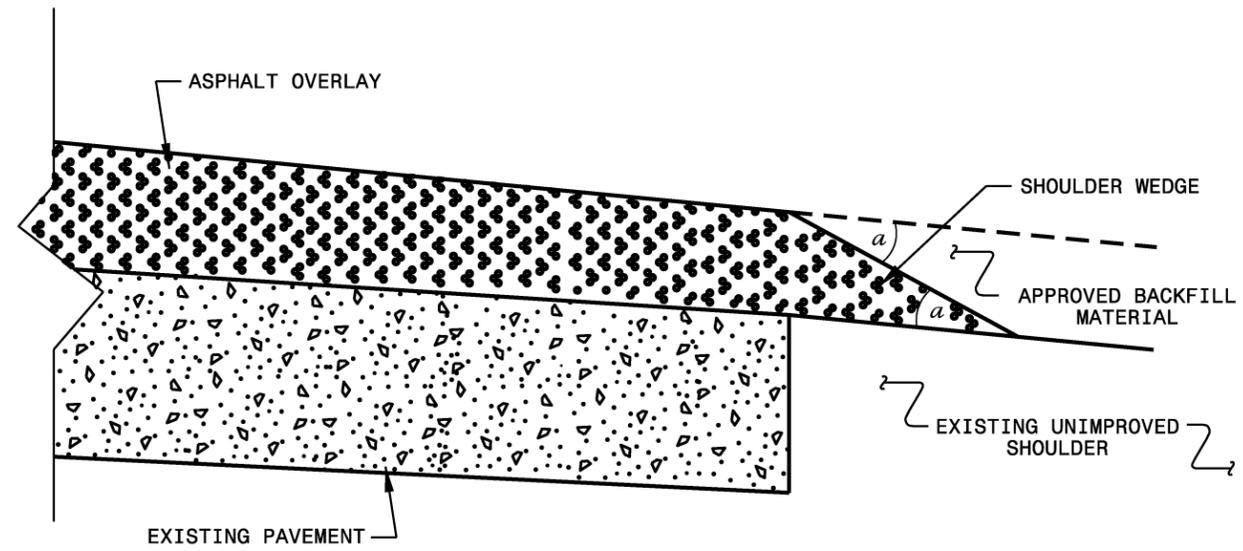




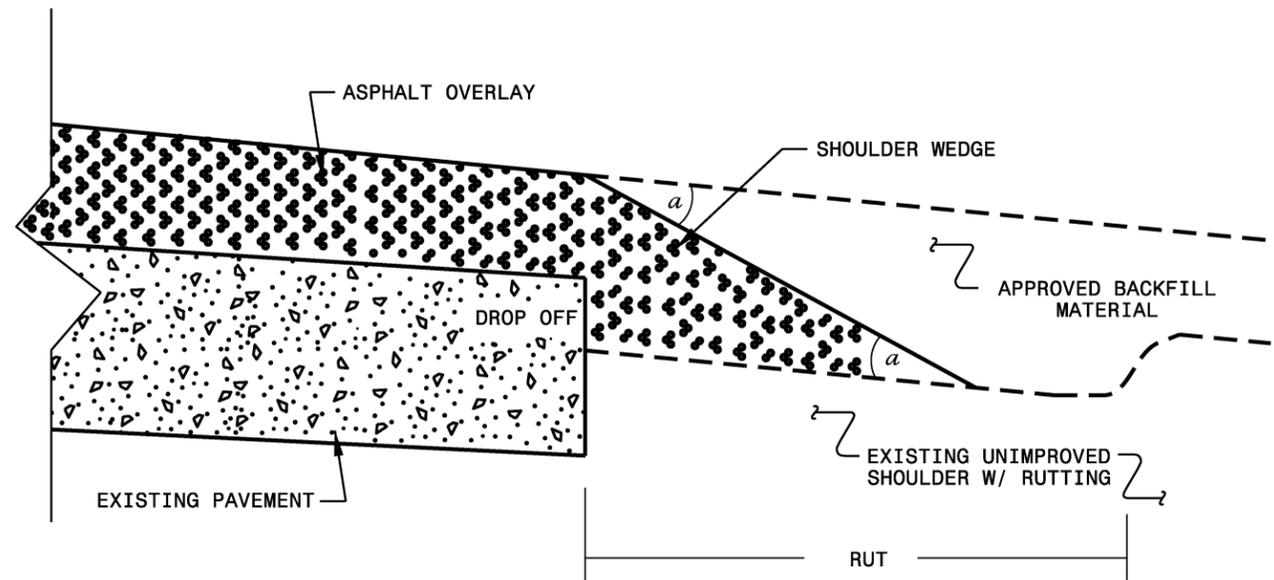
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



**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.: susr/details/stand/shoulderwedgedetail.dgn			

SYSTEMS DESIGN  
 USER NAME  
 10/18/12

PROJECT NO.	SHEET NO.	TOTAL NO.
6CR.10431.83, 6CR.20431.83, 6CR.20261.83,	24	

### SUMMARY OF QUANTITIES

PROJECT NO.	COUNTY	MAP NO.	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	ASB TON	SHOULDER RECONSTRUCTION SMI	1 1/4" MILLING SY	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.08 TONS	SURFACE COURSE, S9.5A TONS	SURFACE COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	AST MAT COAT #6M SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	PAVED TRENCHING (1 CONDUIT, 2") LF	UNPAVED TRENCHING (1 CONDUIT, 2") LF	JUNCTION BOX (STANDARD) EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY) EA	2" RISER WITH WEATHERHEAD EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2) LF				
6CR.10431.83	Harnett	1	NC HWY 27 A	FROM: PAVEMENT JOINT W. OF NC HWY 87 MP 9.87 TO: NEW PAVEMENT JOINT MP 11.02	2	2	2WU	NO	NO	1.15	28	259	3.98			2,670		2,975		193	89															
TOTAL FOR MAP NO. 1										1.15		259	3.98			2,670		2,975		193	89															
6CR.10431.83	Harnett	2	NC HWY 27 B	FROM: EASTERN PAVEMENT JOINT MP 11.43 TO: SR 1117 MP 18.49	2	2	2WU	NO	NO	7.06	27	918	14.12			1,111		10,281		669	308			1	3											
TOTAL FOR MAP NO. 2										7.06		918	14.12			1,111		10,281		669	308			1	3											
6CR.10431.83	Harnett	3	NC HWY 87 A	FROM: LEE COUNTY MP 14.01 TO: BEGIN DIVIDED HWY MP 11.23	2	2	MU	NO	NO	2.78	68	361	5.56			4,500		9,799		637	294			1	1	20.00	200.00	2.00	2.00	2.00	2,500	200.00				
TOTAL FOR MAP NO. 3										2.78		361	5.56			4,500		9,799		637	294			1	1	20.00	200.00	2.00	2.00	2.00	2,500	200.00				
6CR.10431.83	Harnett	4	NC HWY 87 B	FROM: BEGIN DIVIDED HIGHWAY MP 11.23 TO: EASTERN END OF HWY 27 RAMP MP 8.06	11	2	MD	NO	NO	6.34	30	824	12.68			13,000		10,500		683	315			1	1											
TOTAL FOR MAP NO. 4										6.34		824	12.68			13,000		10,500		683	315			1	1											
6CR.10431.83	Harnett	5	NC HWY 210 A	FROM: SR 2045 MP 7.41 TO: BEGIN C&G MP 0.42	2	2	2WU	NO	NO	6.99	25	909	13.98			1,111		11,196		728	336			1	1											
TOTAL FOR MAP NO. 5										6.99		909	13.98			1,111		11,196		728	336			1	1											
6CR.10431.83	Harnett	6	NC HWY 210 B	FROM: BEGIN C&G MP 0.42 TO: CUMBERLAND COUNTY MP 0.0	5	2	MU	NO	NO	0.42	60					4,928		1,398		91	42			1	1	20.00	100.00	1.00	1.00	1.00	1,400	100.00				
TOTAL FOR MAP NO. 6										0.42						4,928		1,398		91	42			1	1	20.00	100.00	1.00	1.00	1.00	1,400	100.00				
TOTAL FOR PROJ NO. 6CR.10431.83										24.74		3,271	50.32			4,928		46,149		3,001	1,384			5	10	40.00	300.00	3.00	3.00	3.00	3,900	300.00				
6CR.20431.83	Harnett	7	SR 1006	FROM: SR 2084 MP 0.0 TO: NC HWY 55 MP 3.36	1	2	2WU	NO	NO	3.36	22	437	6.72			278		3,627			109															
TOTAL FOR MAP NO. 7										3.36		437	6.72			278		3,627			109															
6CR.20431.83	Harnett	8	SR 1156 A	FROM: END MAINTENANCE MP 0.59 TO: SR 2174 MP 0.49	9	2	2WU	NO	NO	0.1	24	13	0.20					116		8	3															
TOTAL FOR MAP NO. 8										0.1		13	0.20					116		8	3															
6CR.20431.83	Harnett	9	SR 1156 B	FROM: SR 2174 MP 0.49 TO: SR 1120 MP 0.0	1	2	2WU	NO	NO	0.49	20	64	0.98			69		487		32	15															
TOTAL FOR MAP NO. 9										0.49		64	0.98			69		487		32	15															
6CR.20431.83	Harnett	10	SR 1184 A	FROM: SR 2172 MP 0.0 TO: PAVEMENT CHANGE MP 0.24	1	2	2WU	NO	NO	0.24	20	31	0.48			69		245		16	7															
TOTAL FOR MAP NO. 10										0.24		31	0.48			69		245		16	7															
6CR.20431.83	Harnett	11	SR 1184 B	FROM: PAVEMENT CHANGE MP 0.24 TO: DEAD END MP 0.41	1	2	2WU	NO	NO	0.17	18	25	0.34					148		10	4															
TOTAL FOR MAP NO. 11										0.17		25	0.34					148		10	4															
6CR.20431.83	Harnett	12	SR 1225	FROM: SR 1229 MP 0.0 TO: SR 1222 MP 1.53	1	2	2WU	NO	NO	1.53	18	199	3.06			278		1,382		90	41															
TOTAL FOR MAP NO. 12										1.53		199	3.06			278		1,382		90	41															
6CR.20431.83	Harnett	13	SR 1234	FROM: SR 1229 MP 1.01 TO: NC HWY 27 MP 4.37	1	2	2WU	NO	NO	3.36	18	437	6.72			347		2,989		194	90															
TOTAL FOR MAP NO. 13										3.36		437	6.72			347		2,989		194	90															
6CR.20431.83	Harnett	14	SR 1253	FROM: NC HWY 27 MP 0.0 TO: SR 1251 MP 1.62	1	2	2WU	NO	NO	1.62	20	211	3.24			139		1,593		104	48															
TOTAL FOR MAP NO. 14										1.62		211	3.24			139		1,593		104	48															
6CR.20431.83	Harnett	15	SR 1278	FROM: SR 1279 MP 0.0 TO: LEE COUNTY MP 0.75	1	2	2WU	NO	NO	0.75	20	98	1.50			69		738		48	22															
TOTAL FOR MAP NO. 15										0.75		98	1.50			69		738		48	22															
6CR.20431.83	Harnett	16	SR 1297	FROM: US HWY 421 MP 0.0 TO: DEAD END MP 0.28	10	2	2WU	NO	NO	0.28	20	36	0.56			208		308		20	9															
TOTAL FOR MAP NO. 16										0.28		36	0.56			208		308		20	9															
6CR.20431.83	Harnett	17	SR 1298	FROM: SR 1297 MP 0.0 TO: SR 1297 MP 0.15	10	2	2WU	NO	NO	0.15	20	20	0.30					145		9	4															
TOTAL FOR MAP NO. 17										0.15		20	0.30					145		9	4															
6CR.20431.83	Harnett	18	SR 1300	FROM: SR 1301 MP 1.21 TO: SR 1257 MP 0.0	1	2	2WU	NO	NO	1.21	20	157	2.42			347		1,233		80	37															
TOTAL FOR MAP NO. 18										1.21		157	2.42			347		1,233		80	37															
6CR.20431.83	Harnett	19	SR 1301	FROM: US HWY 421 MP 0.0 TO: DEAD END MP 0.36	10	2	2WU	NO	NO	0.36	20	47	0.72			139		373		24	11															
TOTAL FOR MAP NO. 19										0.36		47	0.72			139		373		24	11															
6CR.20431.83	Harnett	20	SR 1303	FROM: SR 1300 MP 0.0 TO: DEAD END MP 0.17	10	2	2WU	NO	NO	0.17	20	22	0.34					165		11	5															
TOTAL FOR MAP NO. 20										0.17		22	0.34					165		11	5															
6CR.20431.83	Harnett	21	SR 1317	FROM: DEAD END MP 0.0 TO: DEAD END MP 0.47	10	2	2WU	NO	NO	0.47	20	61	0.94					455		30	14															
TOTAL FOR MAP NO. 21										0.47		61	0.94					455		30	14															
6CR.20431.83	Harnett	22	SR 1318	FROM: SR 1300 MP 0.0 TO: SR 1317 MP 0.15	10	2	2WU	NO	NO	0.15	20	20	0.30			69		158		10	5															
TOTAL FOR MAP NO. 22										0.15		20	0.30			69		158		10	5															
6CR.20431.83	Harnett	23	SR 1522	FROM: SR 1532 MP 0.0 TO: SR 1571 MP 0.15	1	2	2WU	NO	NO	0.15	20	20	0.30			139		170		11	5															
TOTAL FOR MAP NO. 23										0.15		20	0.30			139		170		11	5															
6CR.20431.83	Harnett	24	SR 1523 A	FROM: SR 1522 MP 0.10 TO: BEGIN C&G MP 0.05	1	2	2WU	NO	NO	0.05	18	7	0.10			69		56		4																

PROJECT NO.	SHEET NO.	TOTAL NO.
6CR.10431.83, 6CR.20431.83 6CR.20261.83,	25	

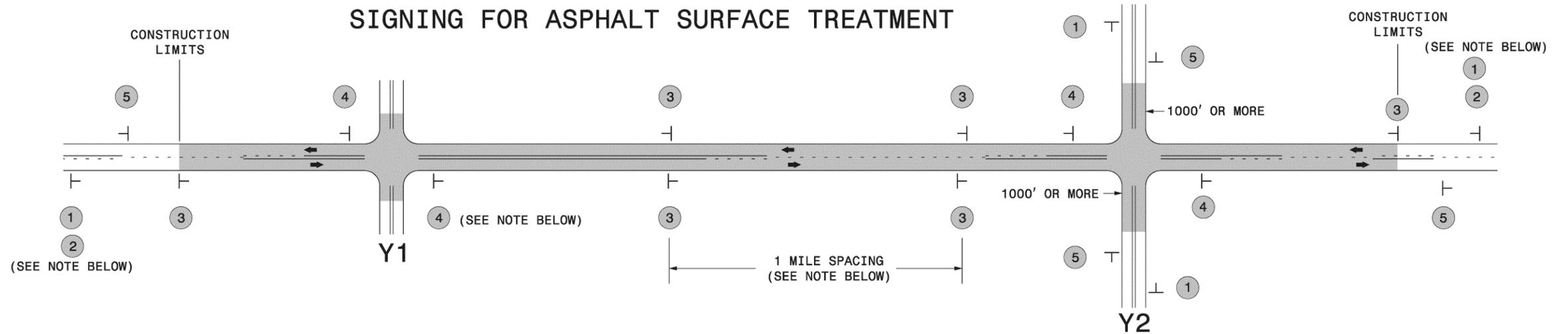
### SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	ASB TON	SHOULDER RECONSTRUCTION SMI	1 1/4" MILLING SY	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, S9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	AST MAT COAT #6M SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	ADI. OF MANHOLES EA	ADI. OF METER OR VALVE BOX EA	PAVED TRENCHING (1 CONDUIT, 2") LF	UNPAVED TRENCHING (1 CONDUIT, 2") LF	JUNCTION BOX (STANDARD)	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)	2" RISER WITH WEATHERHEAD EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2) LF						
6CR.20431.83	Harnett	29	SR 1570	FROM: SR 1532 MP 0.0 TO SR 1569 MP 0.06		1	2	2WU	NO	0.06	18	8	0.12			139			77	5	2				1	2												
TOTAL FOR MAP NO. 29										0.06	18	8	0.12			139			77	5	2				1	2												
6CR.20431.83	Harnett	30	SR 1571	FROM: SR 1522 MP 0.0 TO: SR 1572 MP 0.05		1	2	2WU	NO	0.05	19	7	0.10			69			58	4	2				1	1												
TOTAL FOR MAP NO. 30										0.05	19	7	0.10			69			58	4	2				1	1												
6CR.20431.83	Harnett	31	SR1572	FROM: SR 1571 MP 0.0 TO: END MAINTENANCE MP 0.14		1	2	2WU	NO	0.14	18	18	0.28						122	8	4				1													
TOTAL FOR MAP NO. 31										0.14	18	18	0.28						122	8	4				1													
6CR.20431.83	Harnett	32	SR 1580	FROM: SR 1532 MP 0.0 TO: DEAD END MP 0.11		1	2	2WU	NO	0.11	18	14	0.22			69			108	7	3				3	2												
TOTAL FOR MAP NO. 32										0.11	14	14	0.22			69			108	7	3				3	2												
6CR.20431.83	Harnett	33	SR 2000 A	FROM: US HWY 421 MP 0.0 TO: END 4-LANE MP 0.08		6	2	MU	NO	0.08	46				939	139			203	13	6																	
TOTAL FOR MAP NO. 33										0.08	46				939	139			203	13	6																	
6CR.20431.83	Harnett	34	SR 2000 B	FROM: END 4-LANE MP 0.08 TO: END C&G MP 0.26		8	2	2WU	NO	0.18	24								209	14	6																	
TOTAL FOR MAP NO. 34										0.18	24								209	14	6																	
6CR.20431.83	Harnett	35	SR 2001	FROM: SR 2068 MP 0.0 TO: SR 2054 MP 0.35		1	2	2WU	NO	0.35	18	46	0.70			69			317	21	10				4	7												
TOTAL FOR MAP NO. 35										0.35	46	46	0.70			69			317	21	10				4	7												
6CR.20431.83	Harnett	36	SR 2054	FROM: SR 2084 MP 0.0 TO: US HWY 421 MP 0.56		1	2	2WU	NO	0.56	20	73	1.12			69			554	36	17				1	1												
TOTAL FOR MAP NO. 36										0.56	73	73	1.12			69			554	36	17				1	1												
6CR.20431.83	Harnett	37	SR 2057	FROM: SR 2000 MP 0.0 TO: DEAD END MP 0.08		1	2	2WU	NO	0.08	18	10	0.16			69			82	5	2				1													
TOTAL FOR MAP NO. 37										0.08	10	10	0.16			69			82	5	2				1													
6CR.20431.83	Harnett	38	SR 2062	FROM: SR 2084 MP 0.0 TO: SR 2068 MP 0.11		8	2	2WU	NO	0.11	30				1,936	69			172	11	5				2	1												
TOTAL FOR MAP NO. 38										0.11	30				1,936	69			172	11	5				2	1												
6CR.20431.83	Harnett	39	SR 2068	FROM: SR 2062 MP 0.08 TO: SR 2054 MP 0.22		1	2	2WU	NO	0.14	20	18	0.28			139			160	10	5				2	3												
TOTAL FOR MAP NO. 39										0.14	18	18	0.28			139			160	10	5				2	3												
6CR.20431.83	Harnett	40	SR 2071	FROM: SR 2084 MP 0.0 TO: DEAD END MP 0.17		1	2	2WU	NO	0.17	30	22	0.34			69			259	17	8				1													
TOTAL FOR MAP NO. 40										0.17	22	22	0.34			69			259	17	8				1													
6CR.20431.83	Harnett	41	SR 2081	FROM: NC HWY 210 MP 0.0 TO: DEAD END MP 0.32		10	2	2WU	NO	0.32	20	42	0.64			69			322	21	10																	
TOTAL FOR MAP NO. 41										0.32	42	42	0.64			69			322	21	10																	
6CR.20431.83	Harnett	42	SR 2084 A	FROM: US HWY 421 MP 0.0 TO: BEGIN C&G (BOTH SIDES) MP 0.25		7	2	MU	NO	0.25	36	16	0.25		1,467	69			448	29	13				2													
TOTAL FOR MAP NO. 42										0.25	16	16	0.25		1,467	69			448	29	13				2													
6CR.20431.83	Harnett	43	SR 2084 B	FROM: BEGIN C&G (BOTH SIDES) MP 0.25 TO: END 3-LANE MP 0.78		8	2	MU	NO	0.53	40				12,437	278			1,134	74	34				10	3												
TOTAL FOR MAP NO. 43										0.53	40				12,437	278			1,134	74	34				10	3												
6CR.20431.83	Harnett	44	SR 2086	FROM: SR 2081 MP 0.0 TO: DEAD END MP 0.16		9	2	2WU	NO	0.16	30					69			245	16	7				1													
TOTAL FOR MAP NO. 44										0.16	30					69			245	16	7				1													
6CR.20431.83	Harnett	45	SR 2172	FROM: SR 1184 MP 0.0 TO: END MAINTENANCE MP 0.20		1	2	2WU	NO	0.2	20	26	0.40			69			206	13	6																	
TOTAL FOR MAP NO. 45										0.2	26	26	0.40			69			206	13	6																	
6CR.20431.83	Harnett	46	SR 2173	FROM: SR 1156 MP 0.0 TO: END MAINTENANCE MP 0.40		1	2	2WU	NO	0.4	20	52	0.80			69			400	26	12																	
TOTAL FOR MAP NO. 46										0.4	52	52	0.80			69			400	26	12																	
6CR.20431.83	Harnett	47	SR 2174	FROM: SR 1156 MP 0.0 TO: END MAINTENANCE MP 0.31		1	2	2WU	NO	0.31	20	40	0.62			69			312	20	9					1												
TOTAL FOR MAP NO. 47										0.31	40	40	0.62			69			312	20	9					1												
6CR.20431.83	Harnett	48	SR 2175	FROM: SR 1156 MP 0.0 TO: END MAINTENANCE MP 0.29		9	2	2WU	NO	0.29	24					69			349	23	10																	
TOTAL FOR MAP NO. 48										0.29	24					69			349	23	10																	
TOTAL FOR PROJ NO. 6CR.20431.83										19.63	2,367	36.31	14,373	2,406	4,227				20,688	1,111	619				37	25												
6CR.20261.83	Cumberland	49	SR 1006	FROM: US HWY 301 MP 0.0 TO: CAPE FEAR RIVER BRIDGE MP 0.32		5	2	MU	NO	0.32	40				7,509	139			686	45	5				4	4												
TOTAL FOR MAP NO. 49										0.32	40					7,509	139			686	45	5				4	4											
6CR.20261.83	Cumberland	50	SR 1403	FROM: PAVEMENT JOINT @ SR 3569 MP 0.20 TO: BEGIN C&G AT SR 1400 MP 2.2		4	2	2WU	NO	2	27	260	4.00			139	1,338		2,679	232	5																	
TOTAL FOR MAP NO. 50										2	260	4.00			139	1,338			2,679	232	5																	
6CR.20261.83	Cumberland	51	SR 1451	FROM: NC HWY 87 MP 2.36 TO: PVMT. JNT. @ HARLEY POPE STREET MP 3.71		2	2	2WU	NO	1.35	23	176	2.70			139			1,673	108	5																	
TOTAL FOR MAP NO. 51										1.35	176	2.70			139																							





## SIGNING FOR ASPHALT SURFACE TREATMENT



**LEGEND**

┆ STATIONARY SIGN

← DIRECTION OF TRAFFIC FLOW

### MAINLINE (-L-) SIGNING

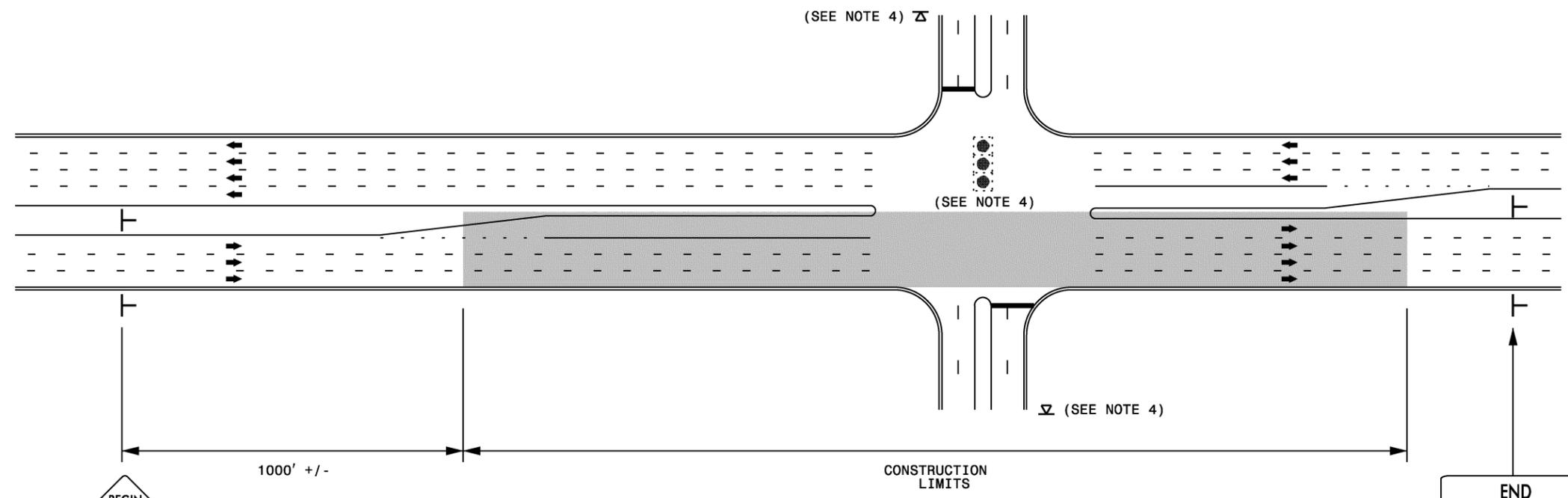
### -Y- LINE SIGNING

<b>SIGNING NOTES AND PLACEMENT PER DIRECTION</b>	1	 <small>W20-1 48" X 48"</small>	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p style="text-align: center;"><b>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</b></p> <ol style="list-style-type: none"> <li>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>2) SUBDIVISION ROADS</li> <li>3) DEAD END ROADS</li> </ol> <p style="text-align: center;">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;">   <small>W20-1 48" X 48"</small> </div> <div style="text-align: center;">   <small>W20-7 A 48" X 48"</small> </div> </div> <p style="text-align: center;">PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	2	 <small>W7-3aP 24" X 18"</small>	#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)	
	3	 <small>W8-7 48" X 48"</small>   <small>SP 48" X 48"</small>	ALTERNATE THE FOLLOWING TWO SIGNS:  STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT".  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.	
	4	 <small>SP 13106 48" X 48"</small>	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.	
	5	 <small>G20-2 A 48" X 24"</small>	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.	

**ADVANCE WARNING SIGNS  
FOR  
ASPHALT SURFACE TREATMENTS  
2 LANE ROADWAYS**

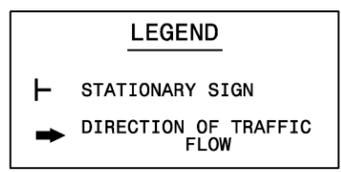
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## URBAN / SUBURBAN WORKZONES



**NOTES:**

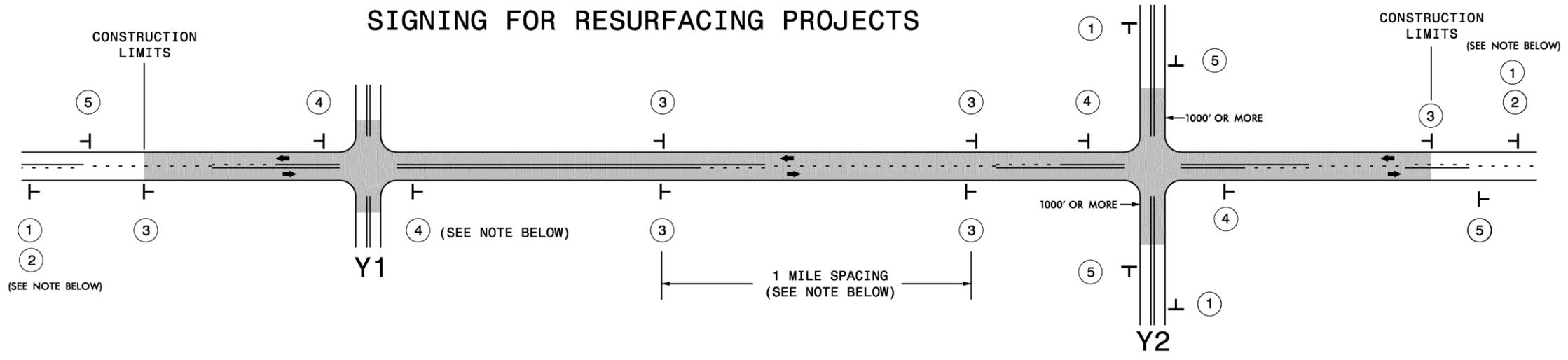
- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
- 4) 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.
- 5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
- 6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
- 7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 8) 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 WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.



**RESURFACING ADVANCE  
WARNING SIGNS FOR  
URBAN / SUBURBAN  
FACILITIES**

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# SIGNING FOR RESURFACING PROJECTS



LEGEND	
⊥	STATIONARY SIGN
→	DIRECTION OF TRAFFIC FLOW

## MAINLINE (-L-) SIGNING

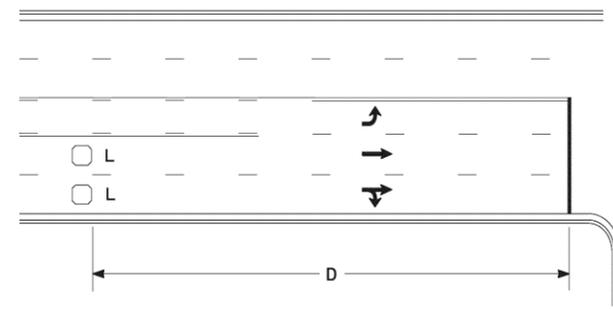
## -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	MAINLINE (-L-) SIGNING		-Y- LINE SIGNING	
	①	 W20-1 48" X 48"	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p>	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> <li>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>2) SUBDIVISION ROADS</li> <li>3) 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;"> <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>
	②	 W7-3aP 24" X 18"	<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>	
	③	 SP 13107 48" X 48"	<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>	
	④	 SP 13106 48" X 48"	<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>	
⑤	 G20-2 A 48" X 24"	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>		

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

### High Speed Detection (≥40 mph)

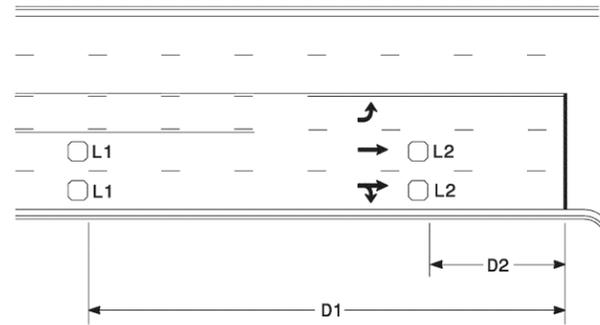


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

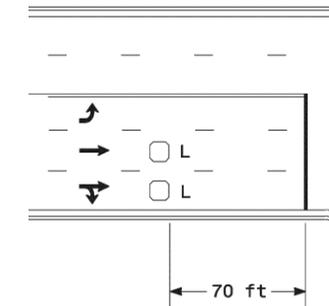


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

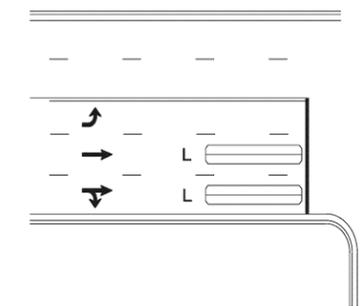
"Stretch" Operation

### Low Speed Detection (≤35 mph)



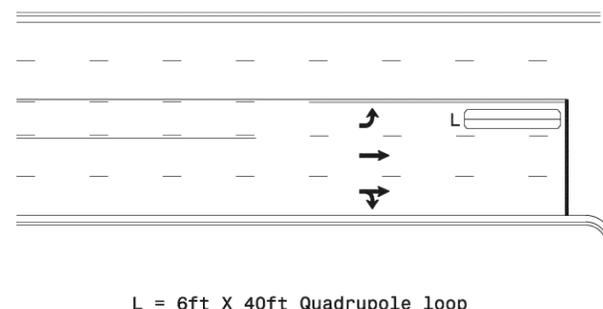
L = 6ft X 6ft  
Wired in series

OR



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

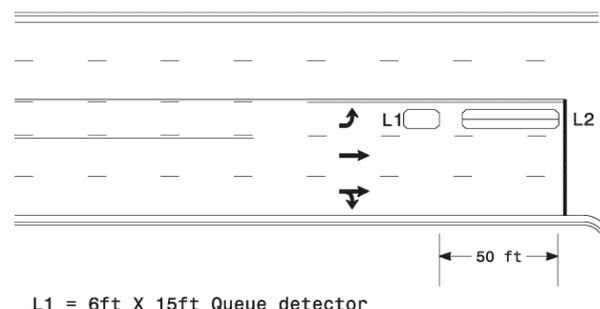
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

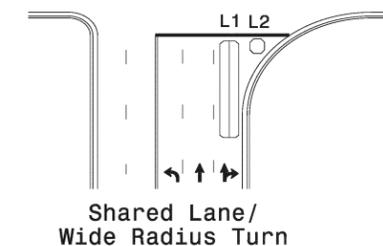
OR



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

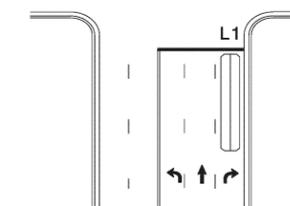
Queue Loop Detection

### Right Turn Lane Detection

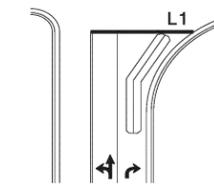


Shared Lane/  
Wide Radius Turn

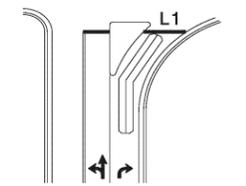
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

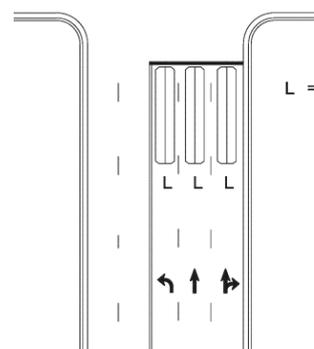


Wide Radius Turn



Channelized Turn

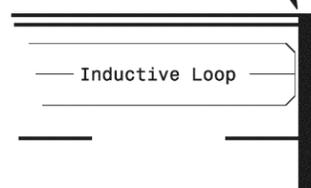
### Side Street Detection



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

	<b>Typical Signal Loop Locations</b>	
	PLAN DATE: January 2015 PREPARED BY: PLA	REVIEWED BY: JPG REVIEWED BY:
SCALE N/A	REVISIONS	INIT. DATE
750 N. Greenfield Pkwy, Garner, NC 27529		1/30/2015 DATE