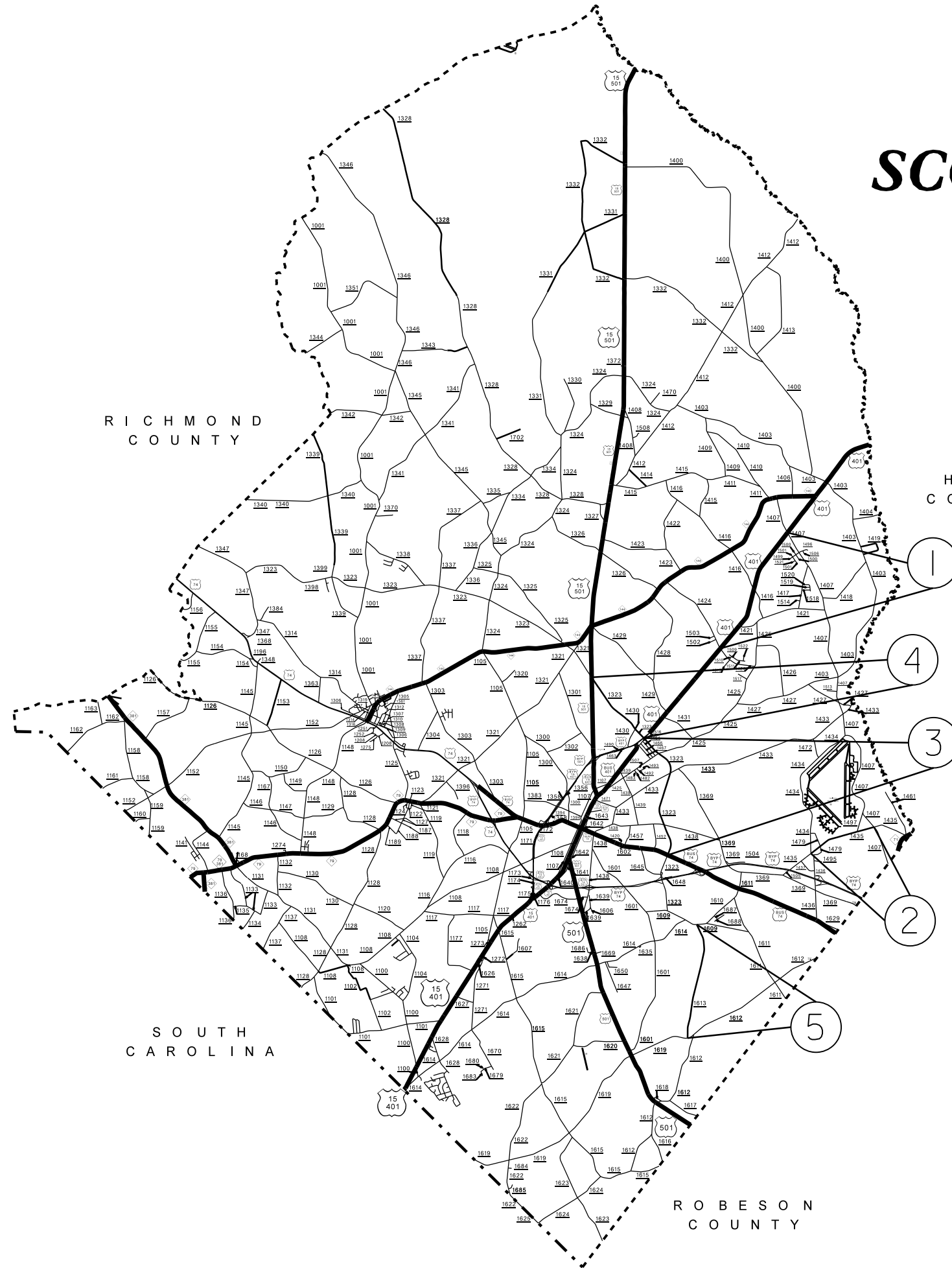


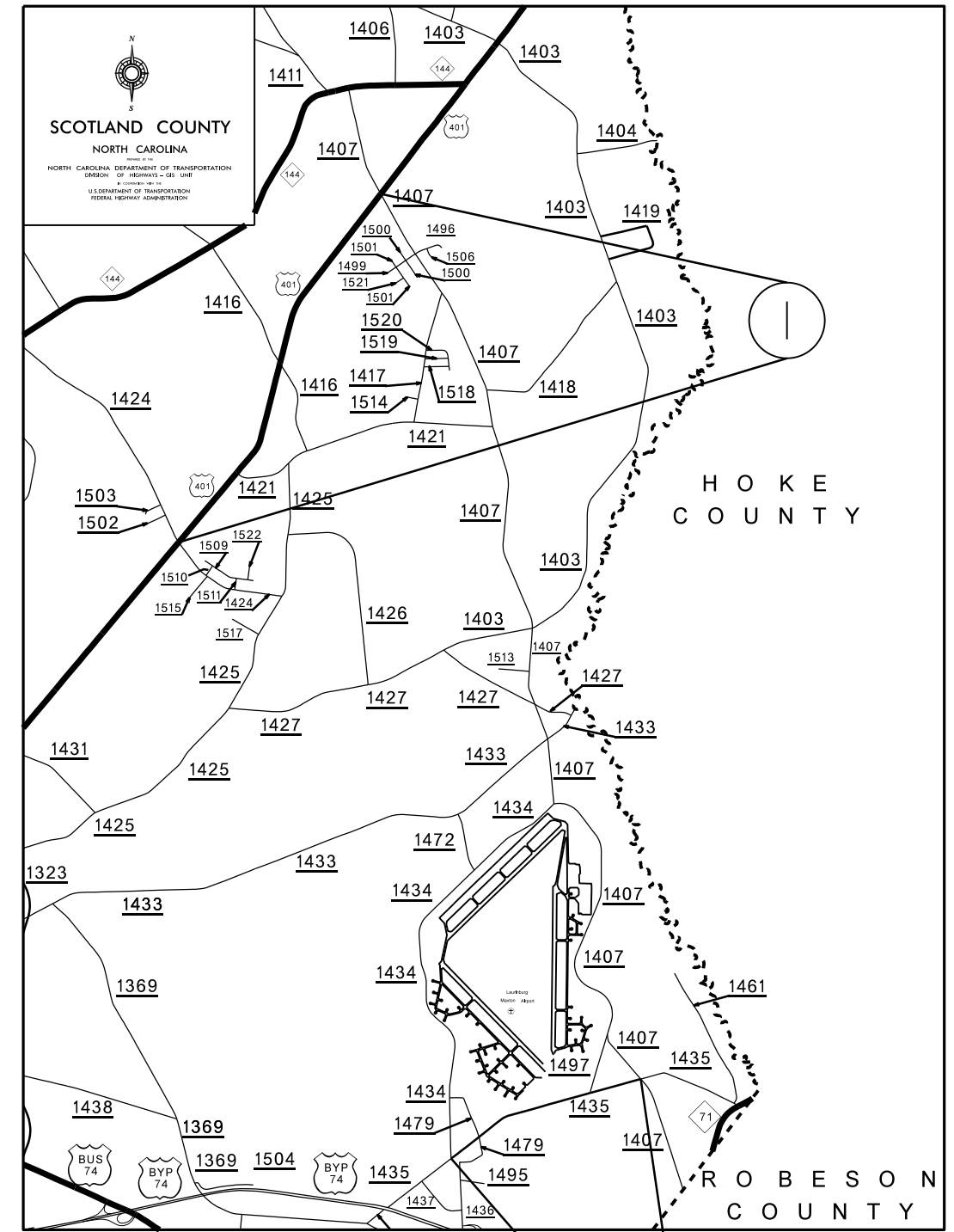
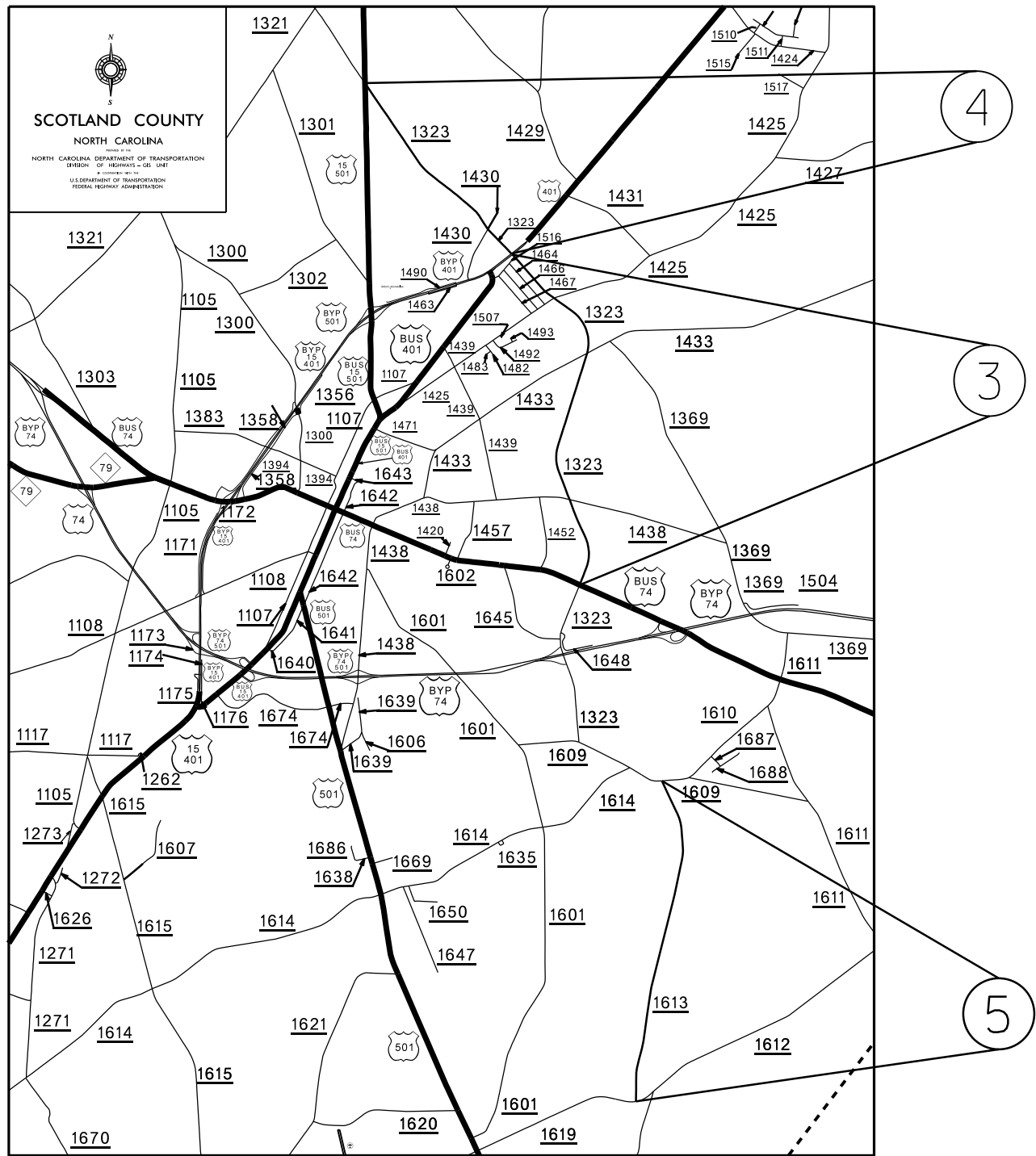
**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

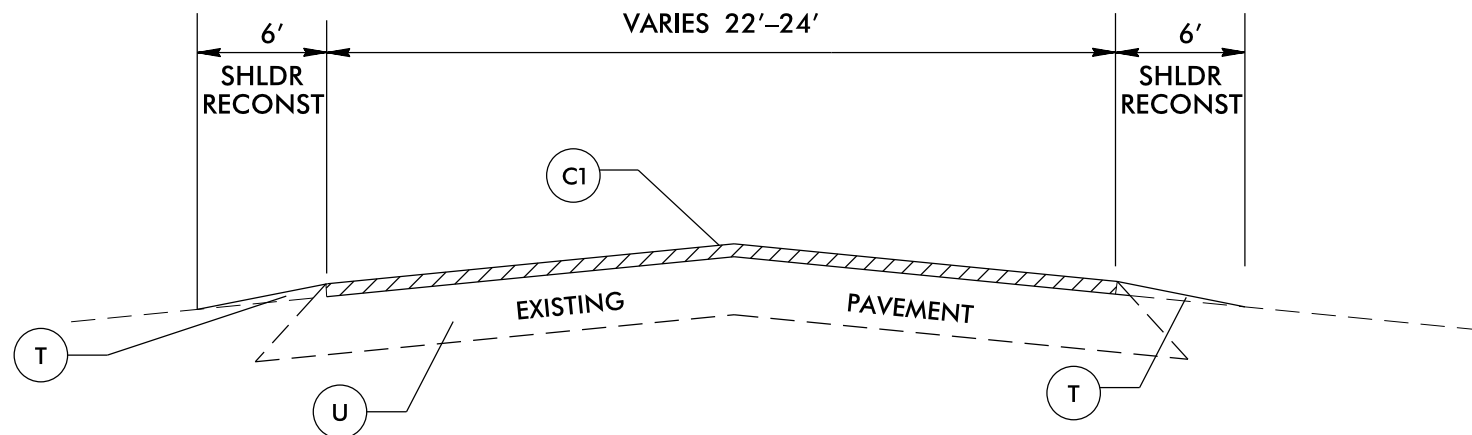
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and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
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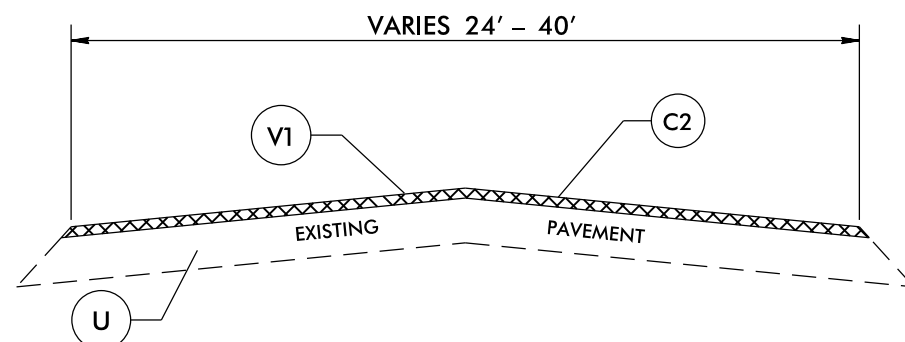
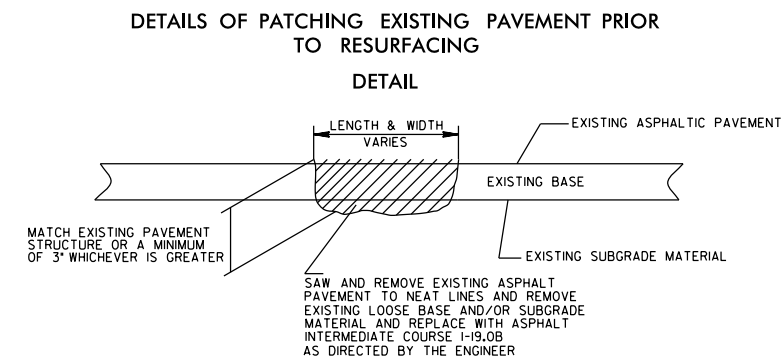
SCOTLAND COUNTY



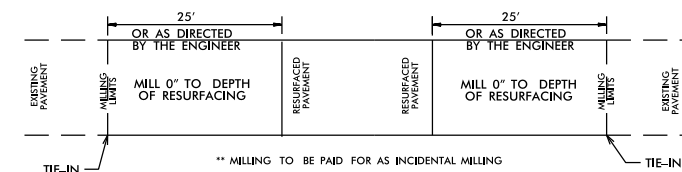




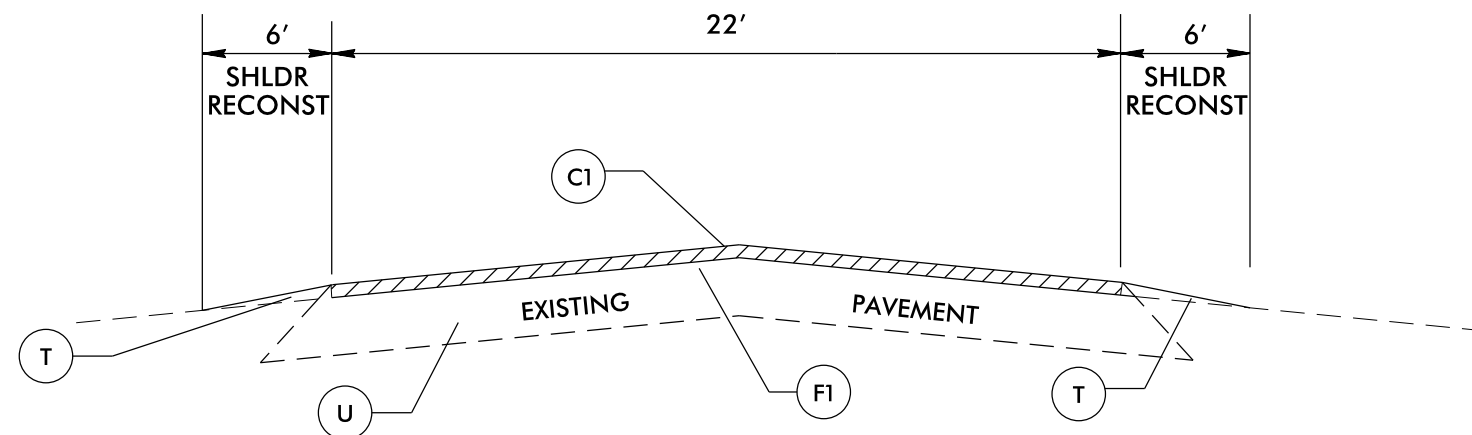
TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2



PAVEMENT TIE-IN DETAIL



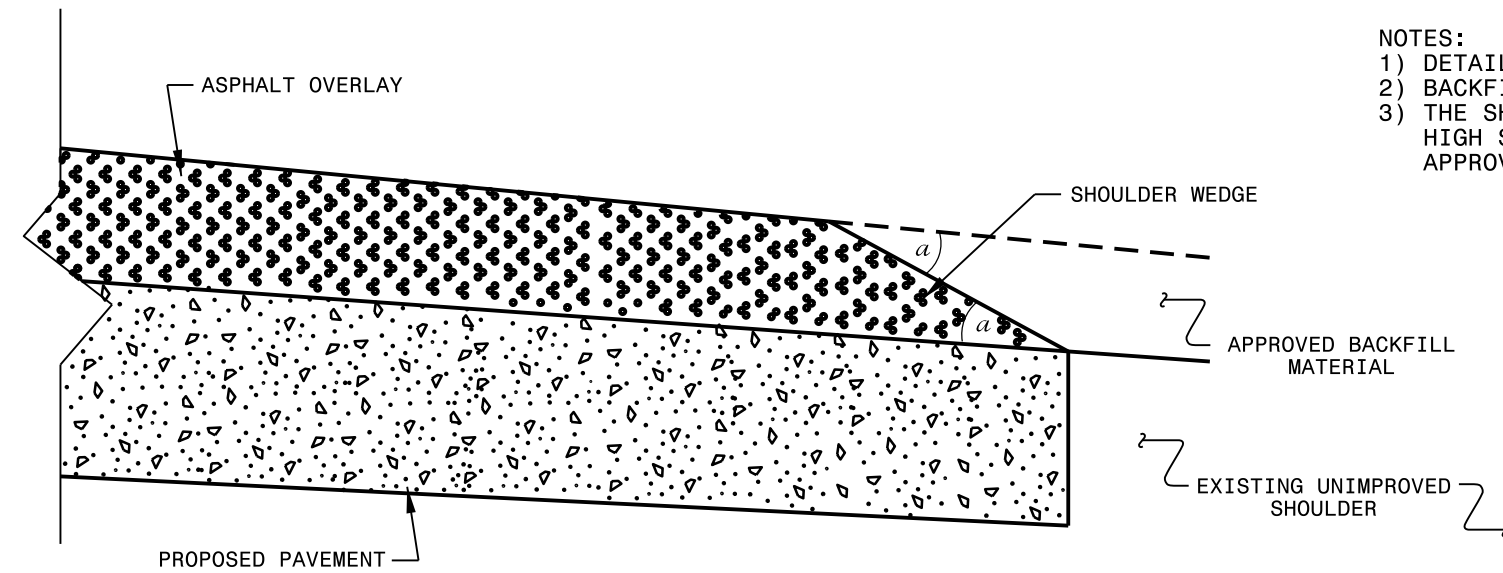
TYPICAL SECTION NO. 3

PAVEMENT SCHEDULE

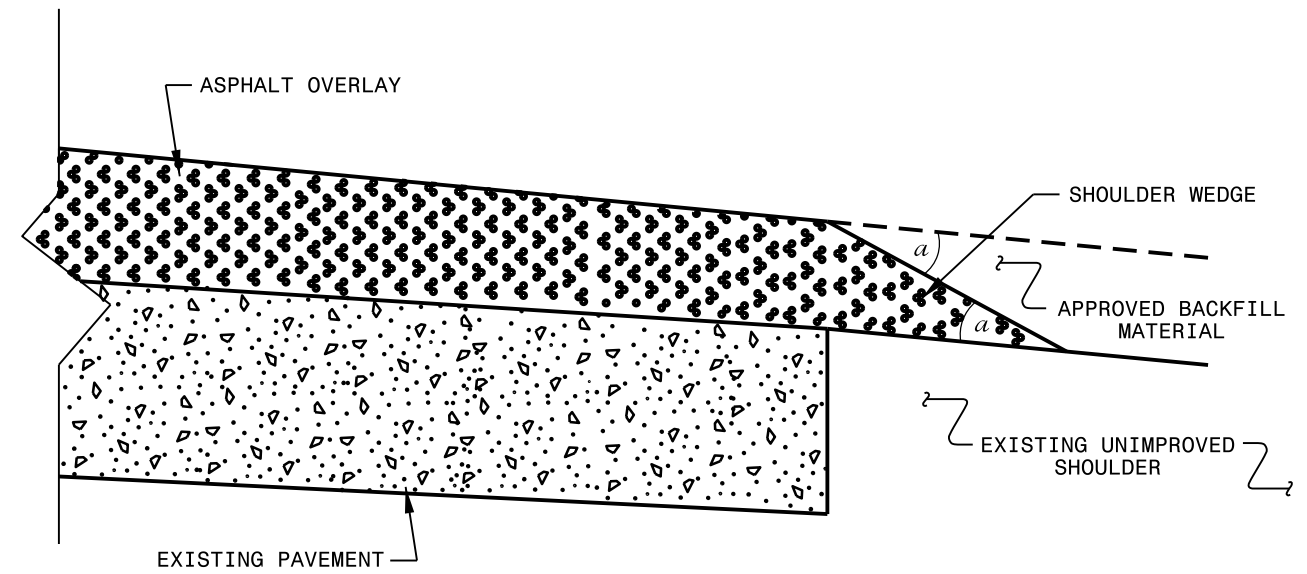
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
F1	ASPHALT SURFACE TREATMENT, SINGLE SEAL (#78M)
T	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION)
U	EXISTING PAVEMENT.
V1	MILLING 1½" IN DEPTH.

NOTES:

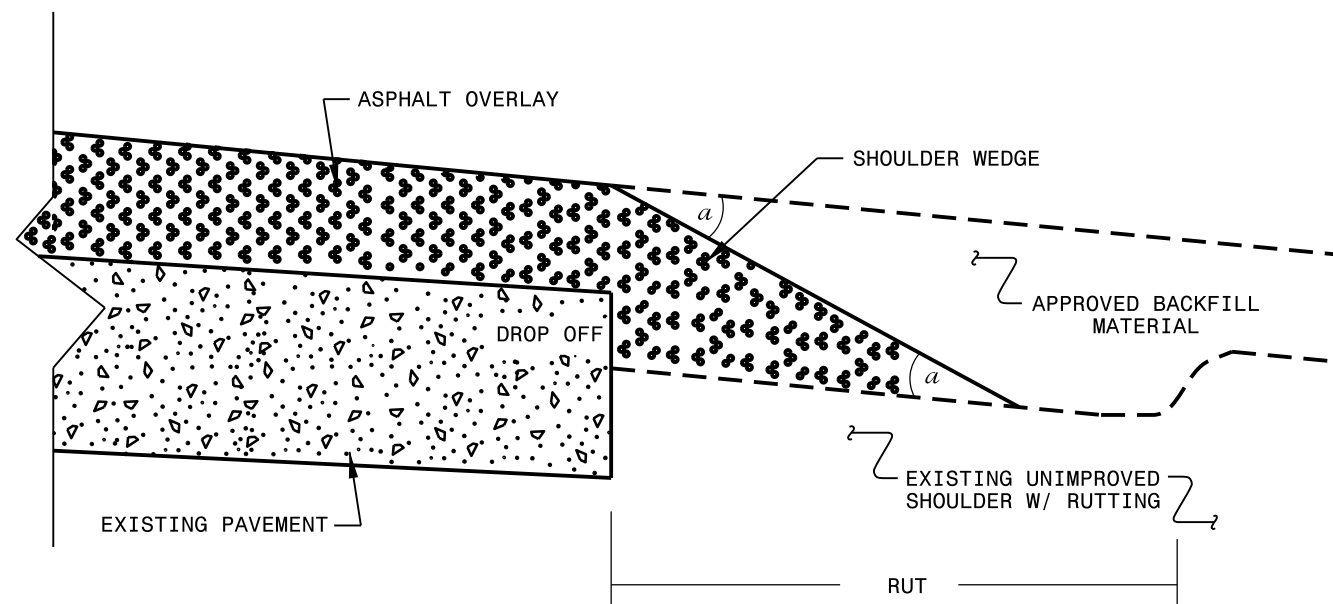
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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°

CONTRACT STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950		FAX 919-250-4119	
SHOULDER WEDGE DETAILS			
ORIGINAL BY: T.SPELL	DATE: 7-19-11		
MODIFIED BY:	DATE: 2/2/16		
CHECKED BY:	DATE:		
FILE SPEC.: szusr/details/stand/shoulderwedgedetail.dgn			

24-MAR-2016 11:45
 S:\Contracts\Resurfacing Projects\Shoulder Wedge Details\Revised Shoulder Wedge Detail.dgn
 \$\$\$USERNAME\$\$\$

PROJECT NO.	SHEET NO.	TOTAL NO.
2016CPT.08.19.10831	5	
2016CPT.08.19.20831		

SUMMARY OF QUANTITIES

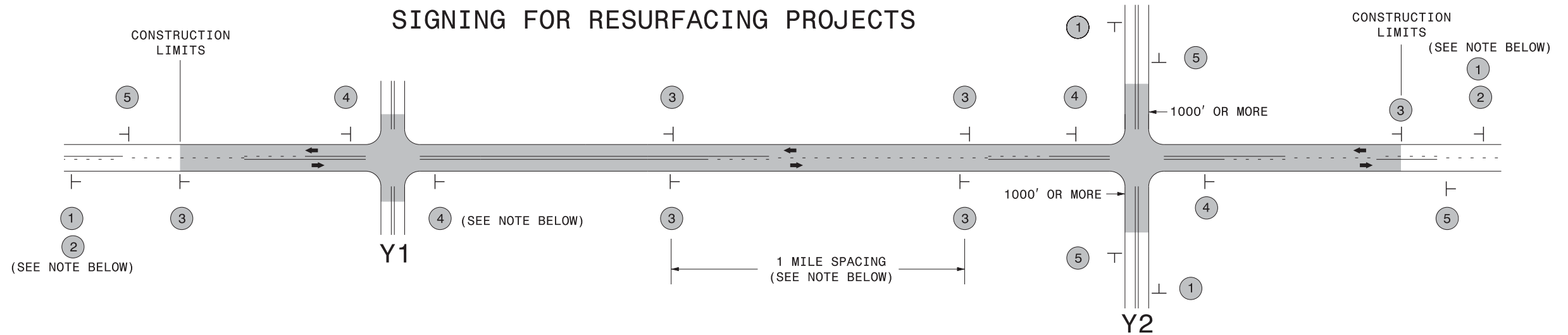
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	AGGREGATE SHOULDER BORROW TON	SHOULDER RECONSTRUCTION SMI	1.5" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TON	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ASPHALT SURFACE TREATMENT, SINGLE SEAL SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	INDUCTIVE LOOP SAWCUT LF
2016CPT.08.19.10831	Scotland	1	US 401	FROM BEG. WIDENING AT SR 1424 (SALLEY MCNAIR RD) TO END WIDENING AT SR 1407 (AIRBASE RD)	2	2	2WD	NO	NO	3.32	24-40			61,880		5,720		343	23			1,240
TOTAL FOR MAP NO. 1										3.32				61,880		5,720		343	23			1,240
TOTAL FOR PROJ NO. 2016CPT.08.19.10831										3.32				61880		5720		343	23			1,240
2016CPT.08.19.20831	Scotland	2	SR 1435	FROM SR 1407 (AIRBASE RD) TO SR 1434 (AIRPORT RD)	1	2	2WD	NO	NO	1.53	22	429.00	3.06		100		1,980	133	10			
TOTAL FOR MAP NO. 2										1.53		429.00	3.06		100		1,980	133	10			
2016CPT.08.19.20831	Scotland	3	SR 1323	FROM US 74 BUS TO US 401	1	2	2WD	NO	NO	2.92	24	826.00	5.84		100		3,580	240	10			
TOTAL FOR MAP NO. 3										2.92		826.00	5.84		100		3,580	240	10			
2016CPT.08.19.20831	Scotland	4	SR 1323	FROM US 401 TO US 15-501	1	2	2WD	NO	NO	1.73	22	508.00	3.46		100		1,950	131	10			
TOTAL FOR MAP NO. 4										1.73		508.00	3.46		100		1,950	131	10			
2016CPT.08.19.20831	Scotland	5	SR 1613	FROM SR 1619 (OLD MAXTON RD) TO SR 1609 (HARRY MALLOY RD)	3	2	2WD	NO	NO	2.61	22	731.00	5.22		100		3,060	205	10	37,055	12,970	
TOTAL FOR MAP NO. 5										2.61		731.00	5.22		100		3,060	205	10	37,055	12,970	
TOTAL FOR PROJ NO. 2016CPT.08.19.20831										8.79		2,494.00	17.58		400		10,570	709	40	37,055	12,970	
GRAND TOTAL										12.11		2,494.00	17.58		61,880		5,720	1,052	63	37,055	12,970	1,240

PROJECT NO.	SHEET NO.	TOTAL NO.
2016CPT.08.19.10831	6	
2016CPT.08.19.20831		

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E	4457000000-N	4510000000-N	4685000000-E	4686000000-E		4695000000-E	4700000000-E	4705000000-E	4710000000-E	4721000000-E	4725000000-E				4810000000-E	4900000000-N	4905000000-N	
										WORK ZONE ADVANCE / GENERAL WARNING SIGNING SF	TEMPORARY TRAFFIC CONTROL LS	LAW ENFORCEMENT HR	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 WHITE THERMO LF	12" X 90 M YELLOW THERMO LF	16" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO RXR 120 M EA	THERMO LT ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO STR & RT ARROW 90 M EA	4" YELLOW PAINT LF	YELLOW & YELLOW MARKERS EA	SNOW PLOWABLE MARKERS C & R MARKERS EA	SNOW PLOWABLE MARKERS Y & Y MARKERS EA	
2016CPT.08.19.10831	Scotland	1	US 401	FROM BEG. WIDENING AT SR 1424 (SALLEY MCNAIR RD) TO END WIDENING AT SR 1407 (AIRBASE RD)	2	2	2WD	3.32	24-40	350	*	40	36,476	29,969	200	765	306			100		14	1	1	29,969		45	350
TOTAL FOR MAP NO. 1								3.32		350		40	36,476	29,969	200	765	306			100		14	1	1	29,969		45	350
TOTAL FOR PROJ NO. 2016CPT.08.19.10831								3.32		350	1	40	36,476	29,969	200	765	306			100		14	1	1	29,969		45	350
										30,169										16				395				
2016CPT.08.19.20831	Scotland	2	SR 1435	FROM SR 1407 (AIRBASE RD) TO SR 1434 (AIRPORT RD)	1	2	2WD	1.53	22	172	*		16,262	9,717	20												109	
TOTAL FOR MAP NO. 2								1.53		172			16,262	9,717	20											109		
2016CPT.08.19.20831	Scotland	3	SR 1323	FROM US 74 BUS TO US 401	1	2	2WD	2.92	24	328	*		63,699	39,072	104				100	165	4						204	
TOTAL FOR MAP NO. 3								2.92		328			63,699	39,072	104				100	165	4					204		
2016CPT.08.19.20831	Scotland	4	SR 1323	FROM US 401 TO US 15-501	1	2	2WD	1.73	22	194	*		39,166	24,024	22				100	60	4						120	
TOTAL FOR MAP NO. 4								1.73		194			39,166	24,024	22				100	60	4					120		
2016CPT.08.19.20831	Scotland	5	SR 1613	FROM SR 1619 (OLD MAXTON RD) TO SR 1609 (HARRY MALLOY RD)	3	2	2WD	2.61	22	292	*		27,530	13,884													173	
TOTAL FOR MAP NO. 5								2.61		292			27,530	13,884												173		
TOTAL FOR PROJ NO. 2016CPT.08.19.20831								8.79		986	1		146,657	86,697	146				200	225	8					606		
										86,843																		
GRAND TOTAL								12.11		1,336	1	40	183,133	116,666	346	765	306	200	325	8	14	1	1	29,969	606	45	350	
										117,012										16				395				

SIGNING FOR RESURFACING PROJECTS

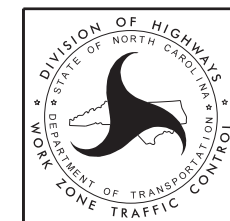


LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

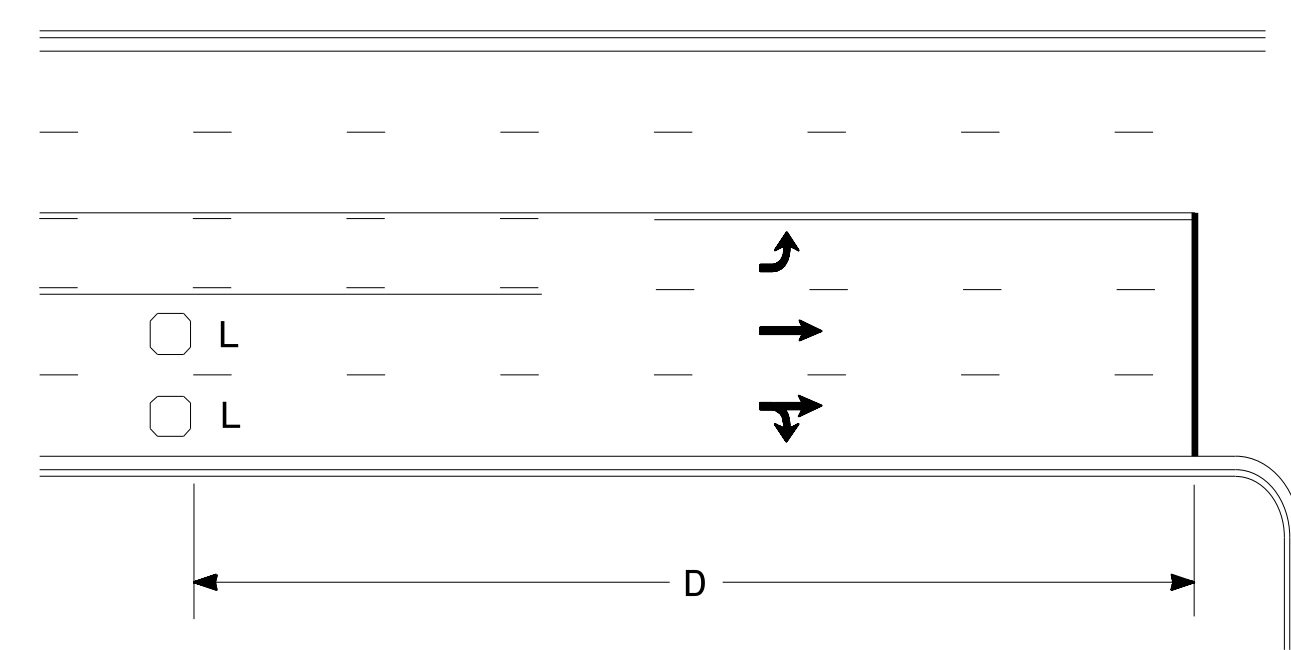
MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	MAINLINE (-L-) SIGNING		-Y- LINE SIGNING	
	1	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <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;"> W20-1 48" X 48" </div> <div style="text-align: center;"> W20-7 A 48" X 48" </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	2	 W7-3aP 24" X 18"	#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	 SP 13107 48" X 48"	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	 SP 13106 48" X 48"	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	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.		



High Speed Detection (≥40 mph)

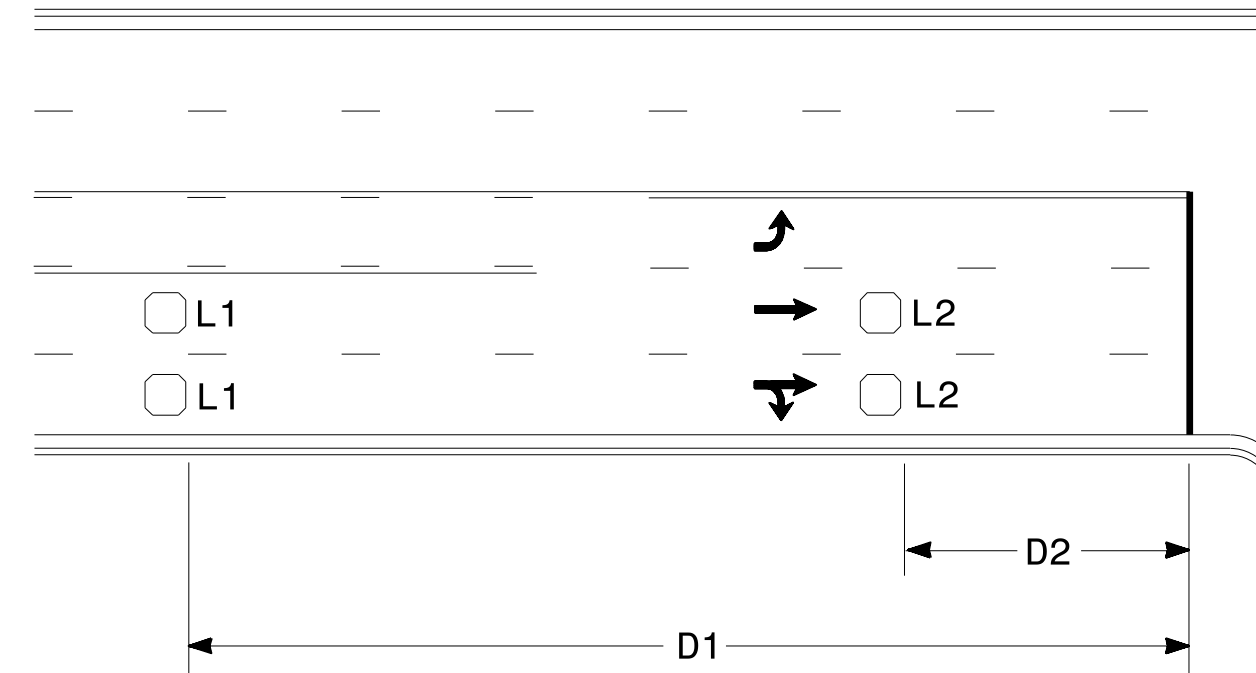


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

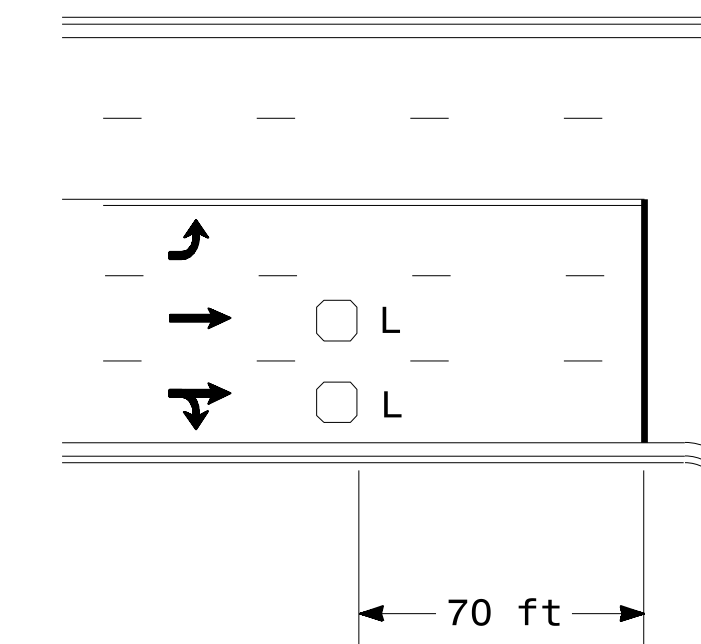


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

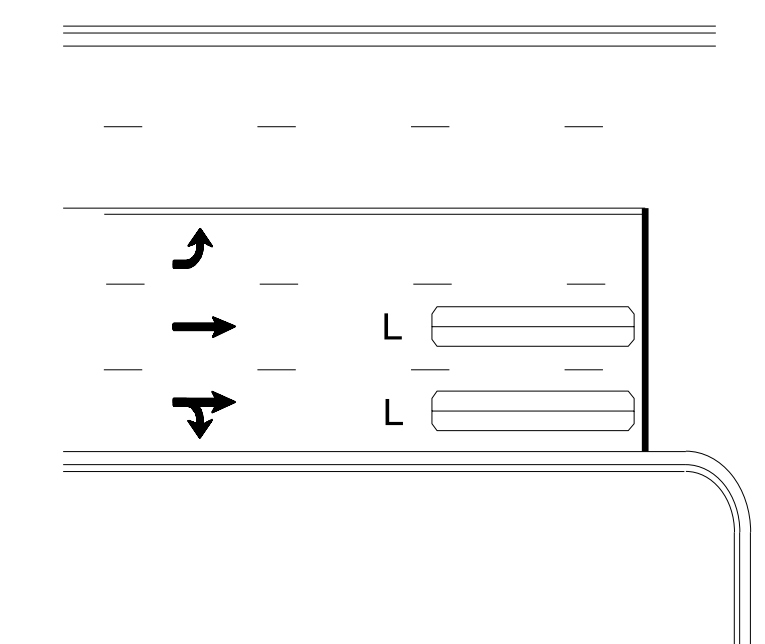
"Stretch" Operation

Low Speed Detection (≤35 mph)



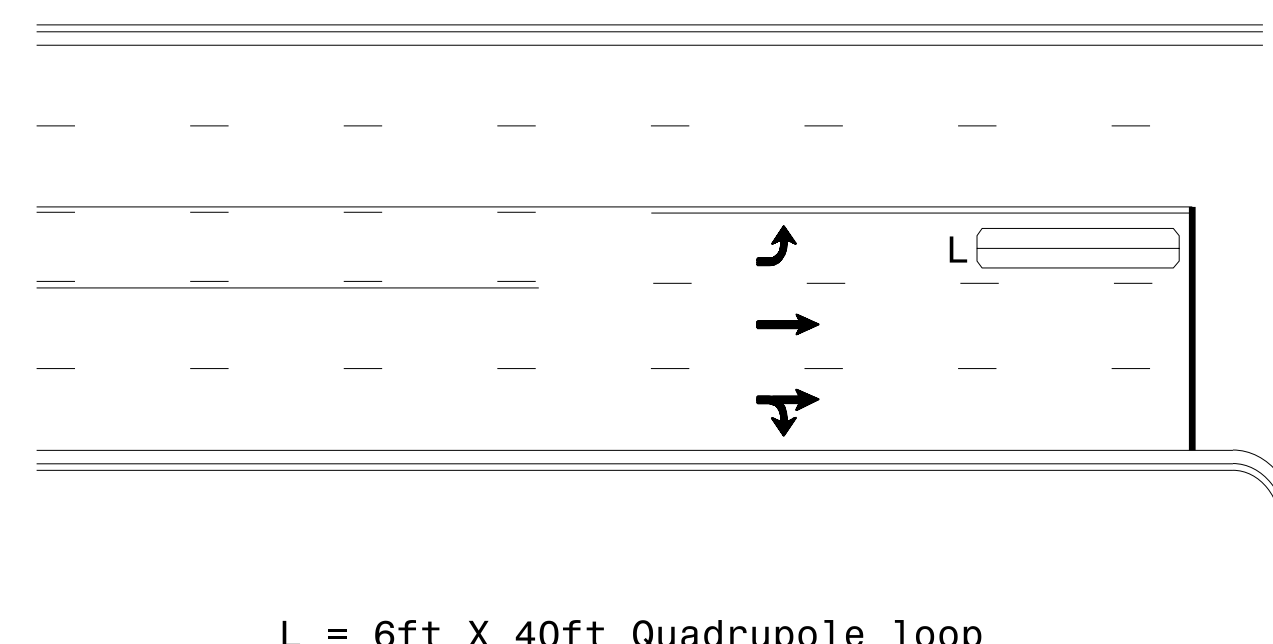
L = 6ft X 6ft
Wired in series

OR



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

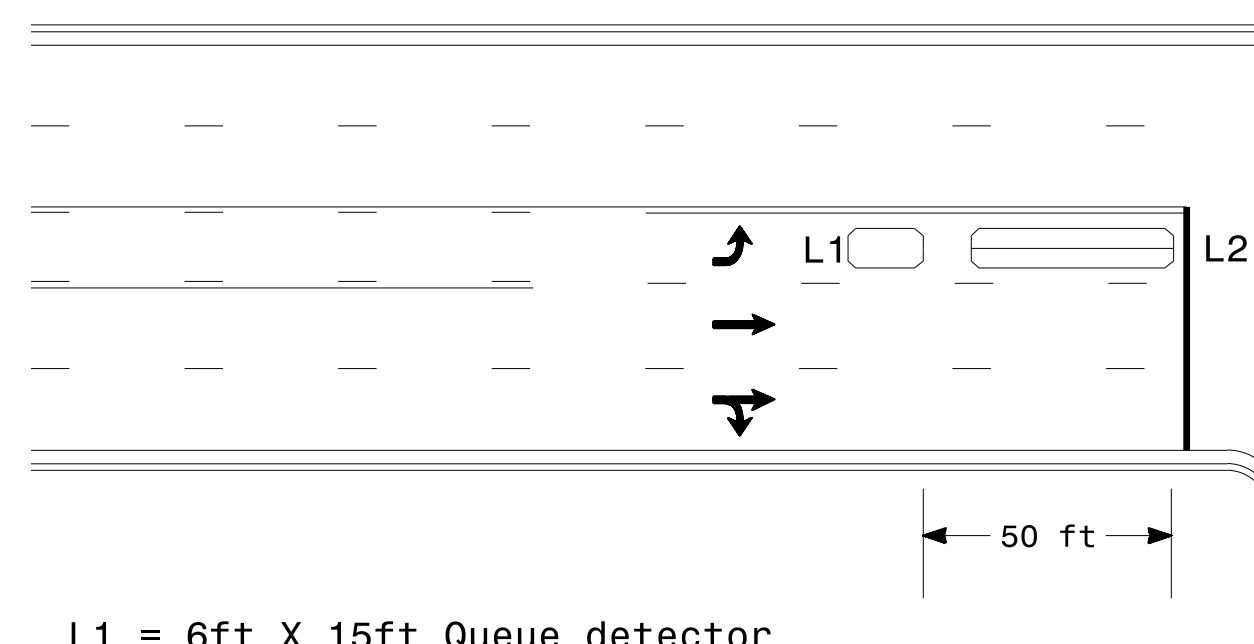
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

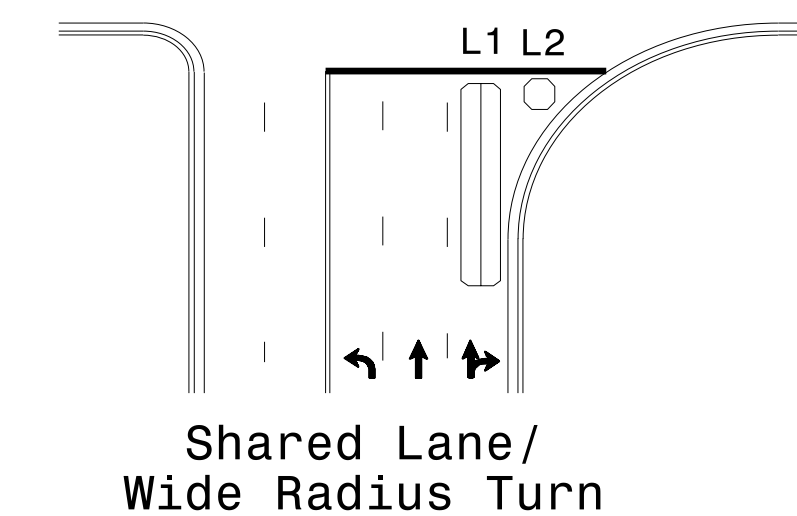
OR



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

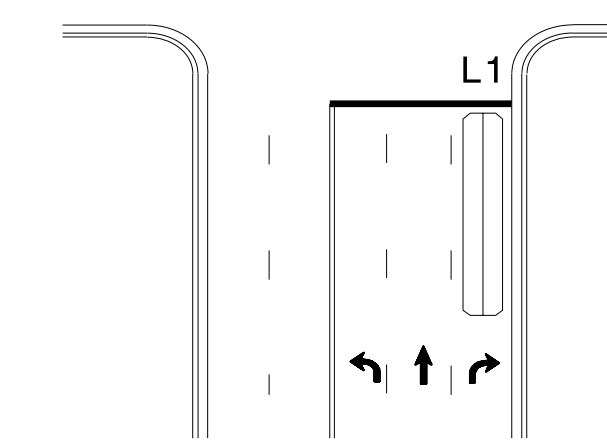
Queue Loop Detection

Right Turn Lane Detection

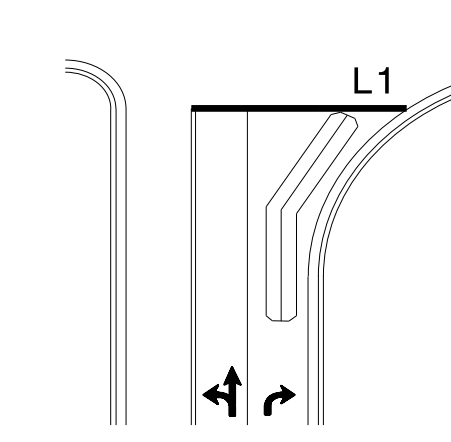


Shared Lane/
Wide Radius Turn

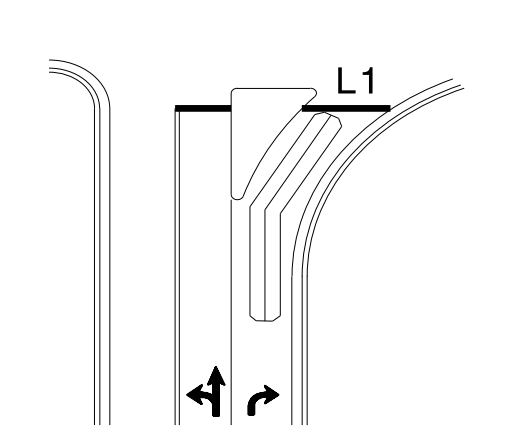
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

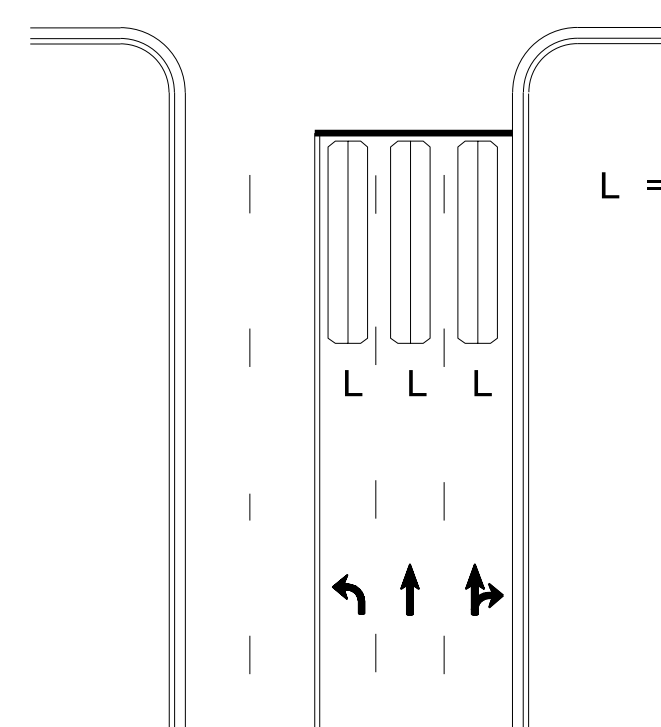


Wide Radius Turn



Channelized Turn

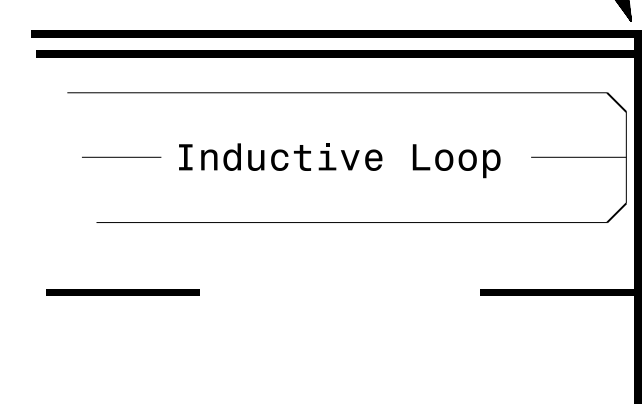
Side Street Detection



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

	<p>Prepared In the Offices of:</p> <p>TRANSPORTATION MOBILITY AND SAFETY DIVISION DEPARTMENT OF TRANSPORTATION SIGNAL DESIGN SECTION</p> <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>		<p>SEAL NORTH CAROLINA PROFESSIONAL ENGINEER PAMELA L. ALEXANDER 23489</p>	
	<p>PLAN DATE: January 2015</p> <p>REVIEWED BY: JPG</p>		<p>SEAL NORTH CAROLINA PROFESSIONAL ENGINEER PAMELA L. ALEXANDER 23489</p>	
<p>PREPARED BY: PLA</p> <p>REVIEWED BY:</p>		<p>REVISIONS</p> <p>INIT. DATE</p>		
<p>SCALE N/A</p>		<p>DocuSigned by: P. Alexander 1/30/2015 10:44:44 AM B4756E00CE4E4ED SIG. INVENTORY NO.</p>		