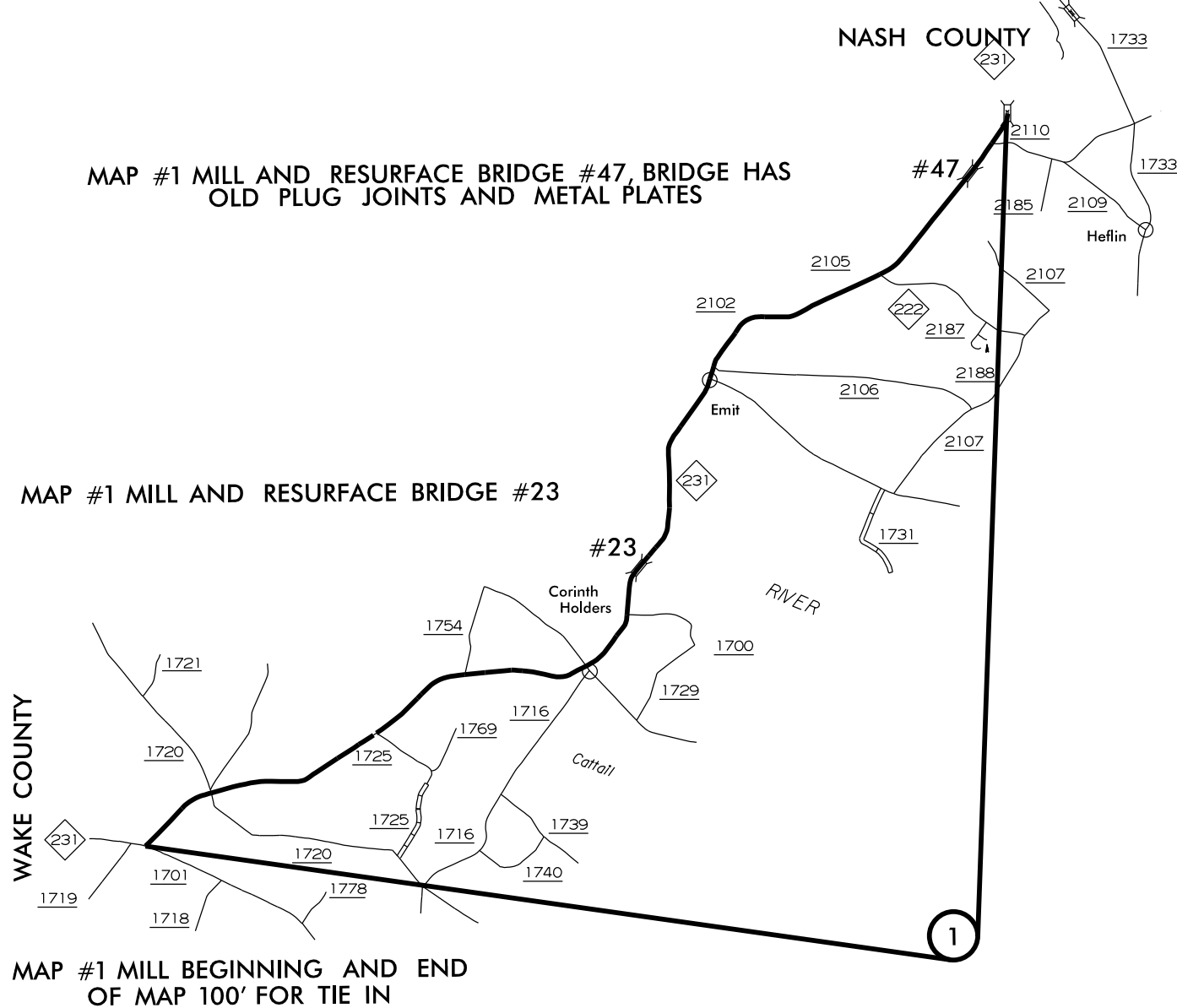


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numbers appear on each page, on the dates appearing  
with their signature on that page.**

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shall not be considered a certified document.**

MAP #1 MILL BEGINNING AND END  
OF MAP 100' FOR TIE IN



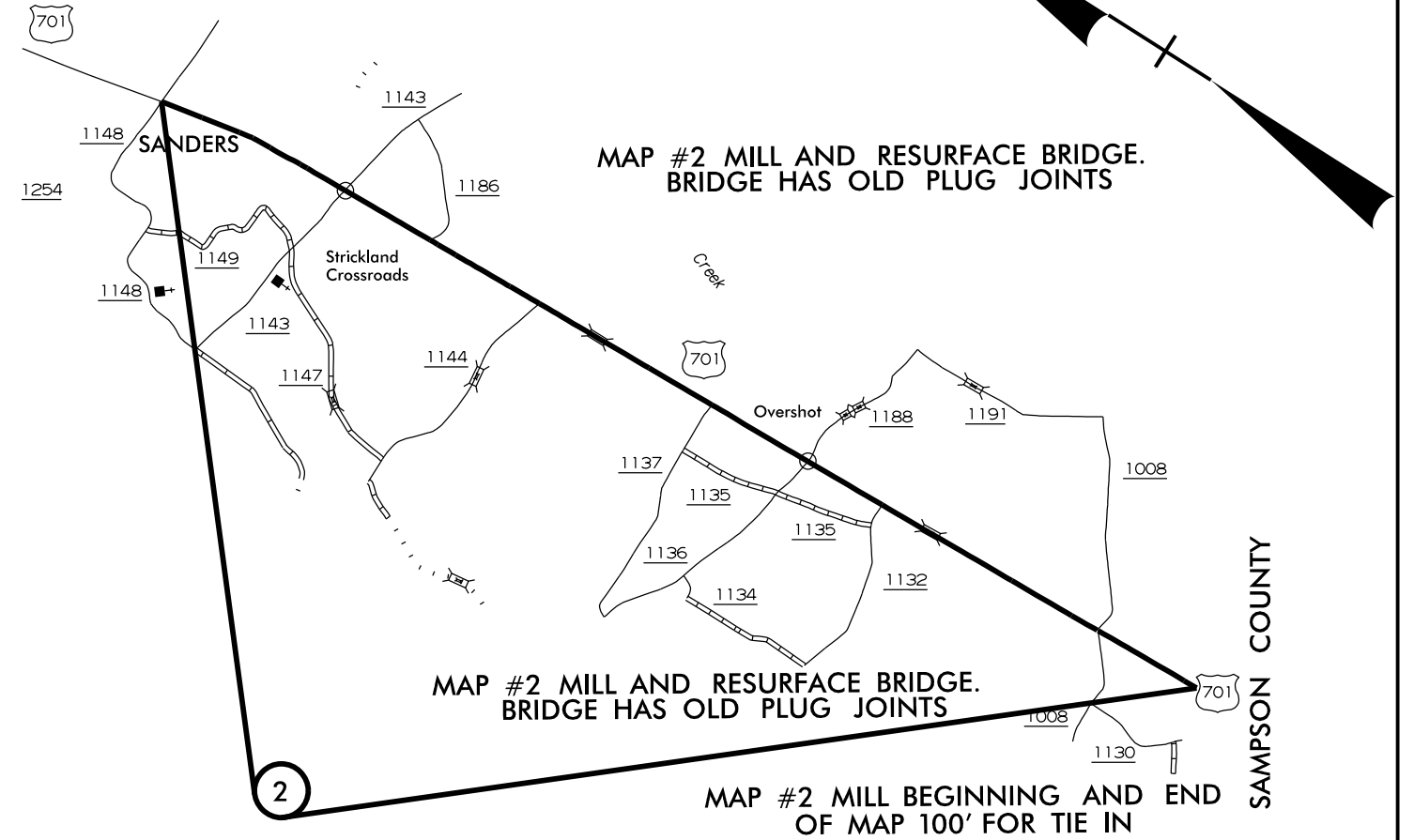
MAP #1 MILL AND RESURFACE BRIDGE #47, BRIDGE HAS  
OLD PLUG JOINTS AND METAL PLATES

MAP #1 MILL AND RESURFACE BRIDGE #23

MAP #1 MILL BEGINNING AND END  
OF MAP 100' FOR TIE IN

WBS ELEMENT	SHEET NO.	TOTAL SHEETS
2016CPT.04.05.10511.1, ETC.	1	
DESCRIPTION		

MAP #2 MILL BEGINNING AND END  
OF MAP 100' FOR TIE IN

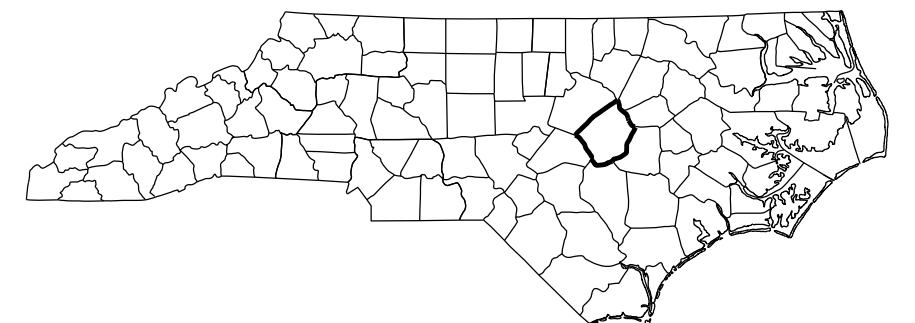


MAP #2 MILL AND RESURFACE BRIDGE.  
BRIDGE HAS OLD PLUG JOINTS

MAP #2 MILL AND RESURFACE BRIDGE.  
BRIDGE HAS OLD PLUG JOINTS

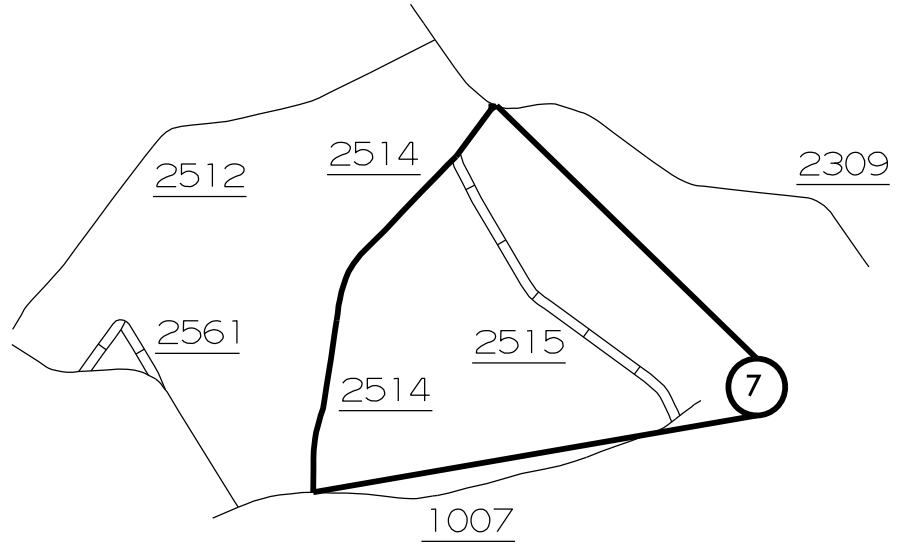
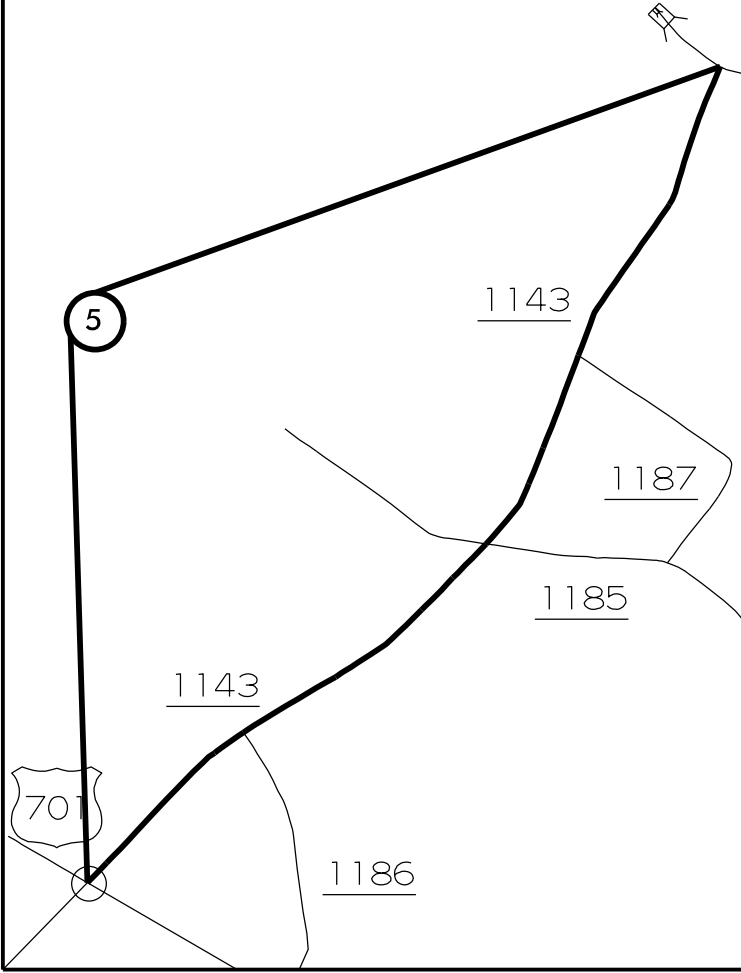
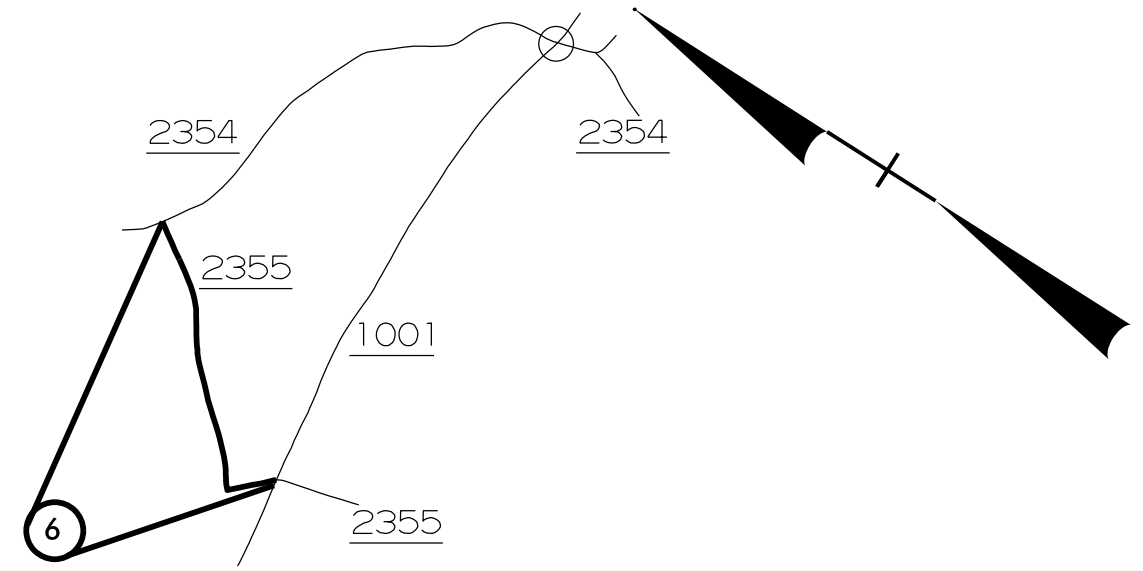
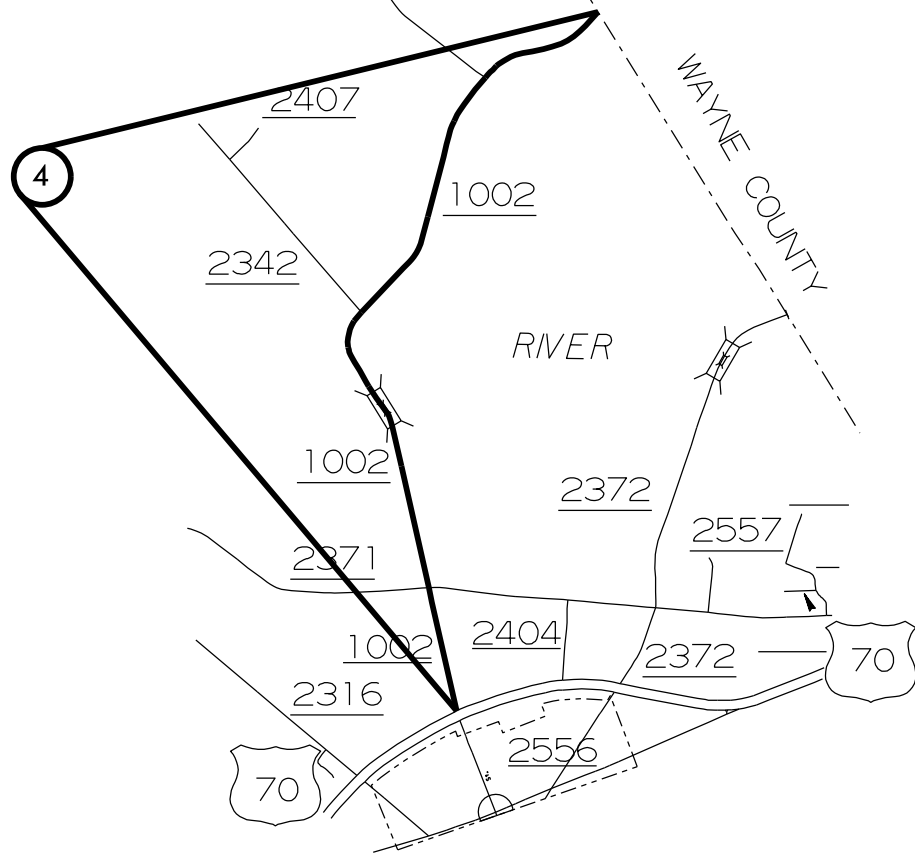
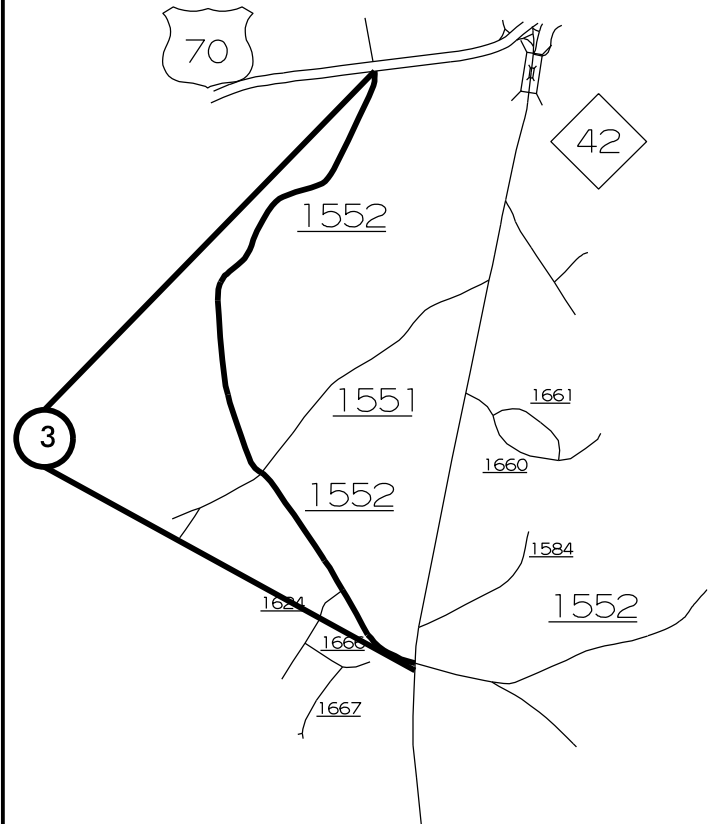
MAP #2 MILL BEGINNING AND END  
OF MAP 100' FOR TIE IN

**JOHNSTON COUNTY**  
**NORTH CAROLINA**  
**SHEET 1 OF 5**

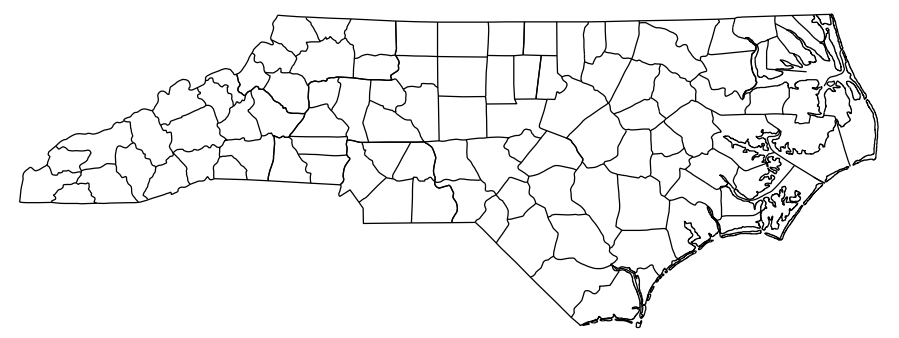


MAP #3 DO NOT PAVE INTO THE CURB AND GUTTER AREA IN FRONT OF SCHOOL.  
 MAP #4 MILL APPROACHES FOR BRIDGE  
 100' FOR SMOOTH TIE IN

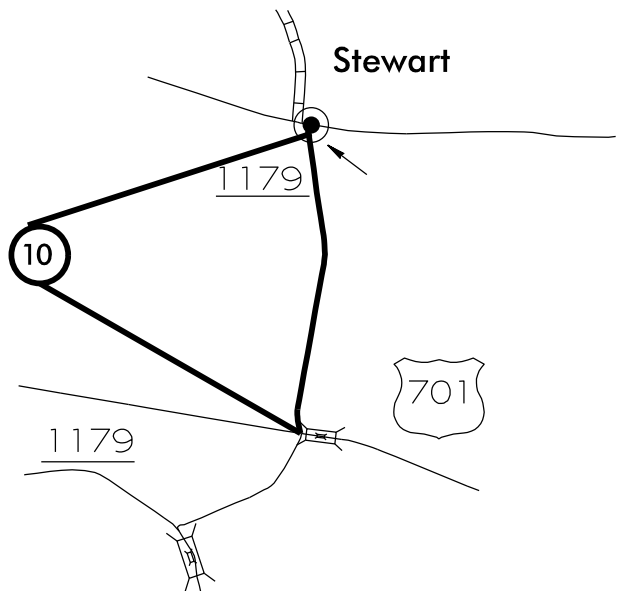
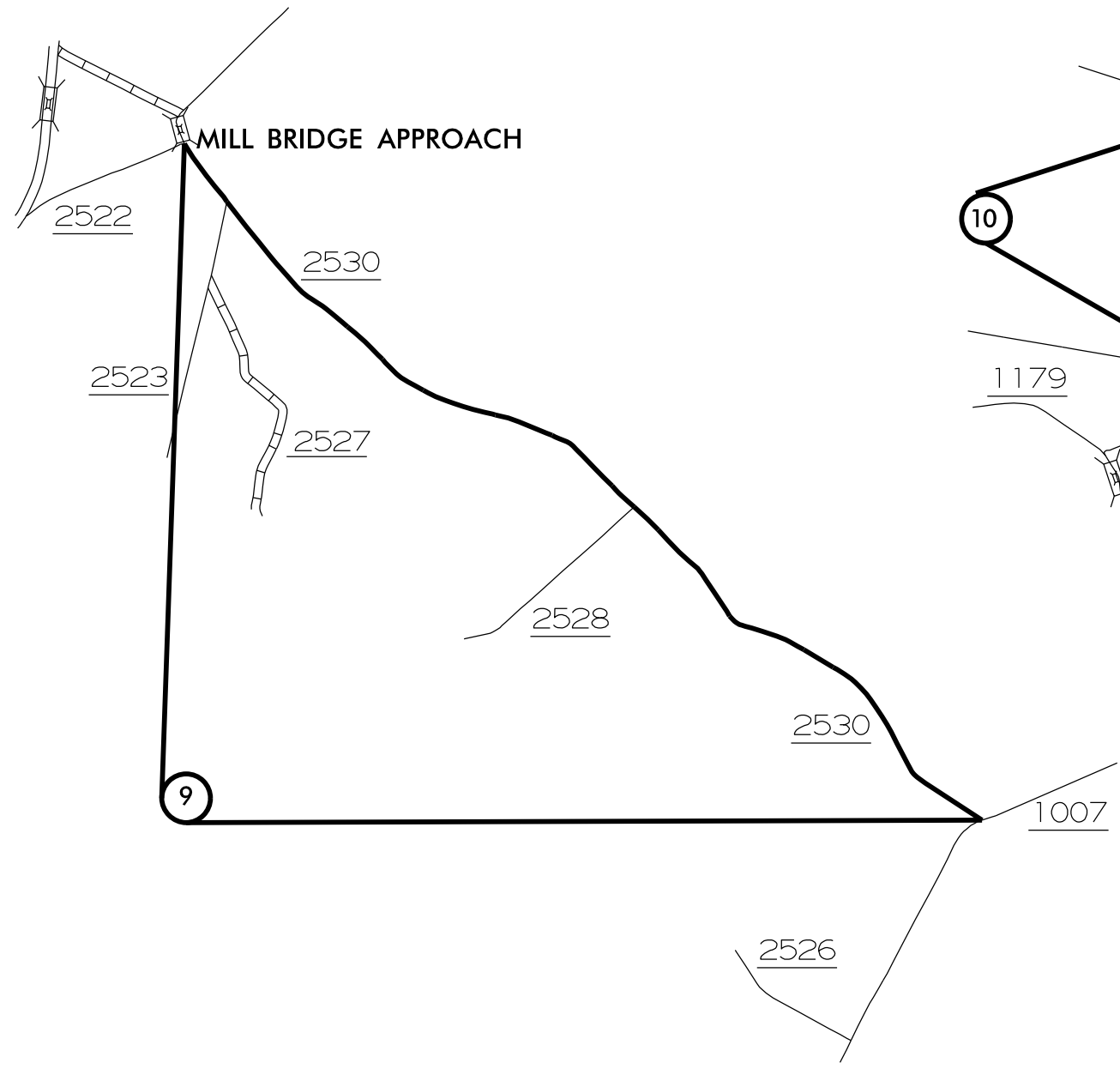
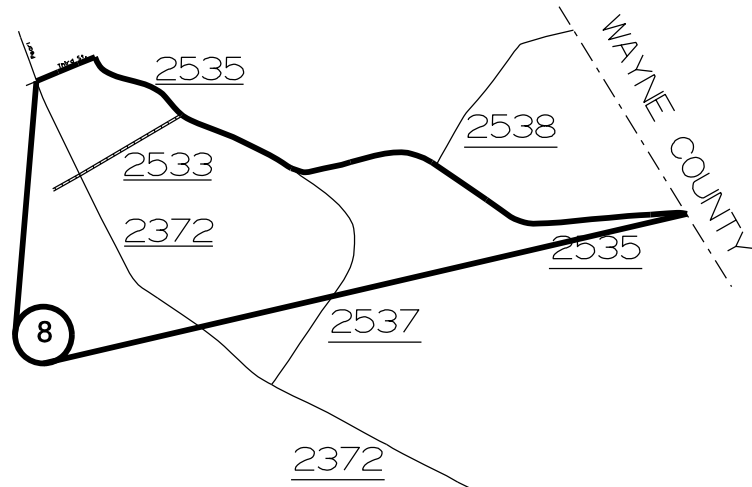
WBS ELEMENT	SHEET NO.	TOTAL SHEETS
2016CPT.04.05.10511.1, ETC.	2	
DESCRIPTION		



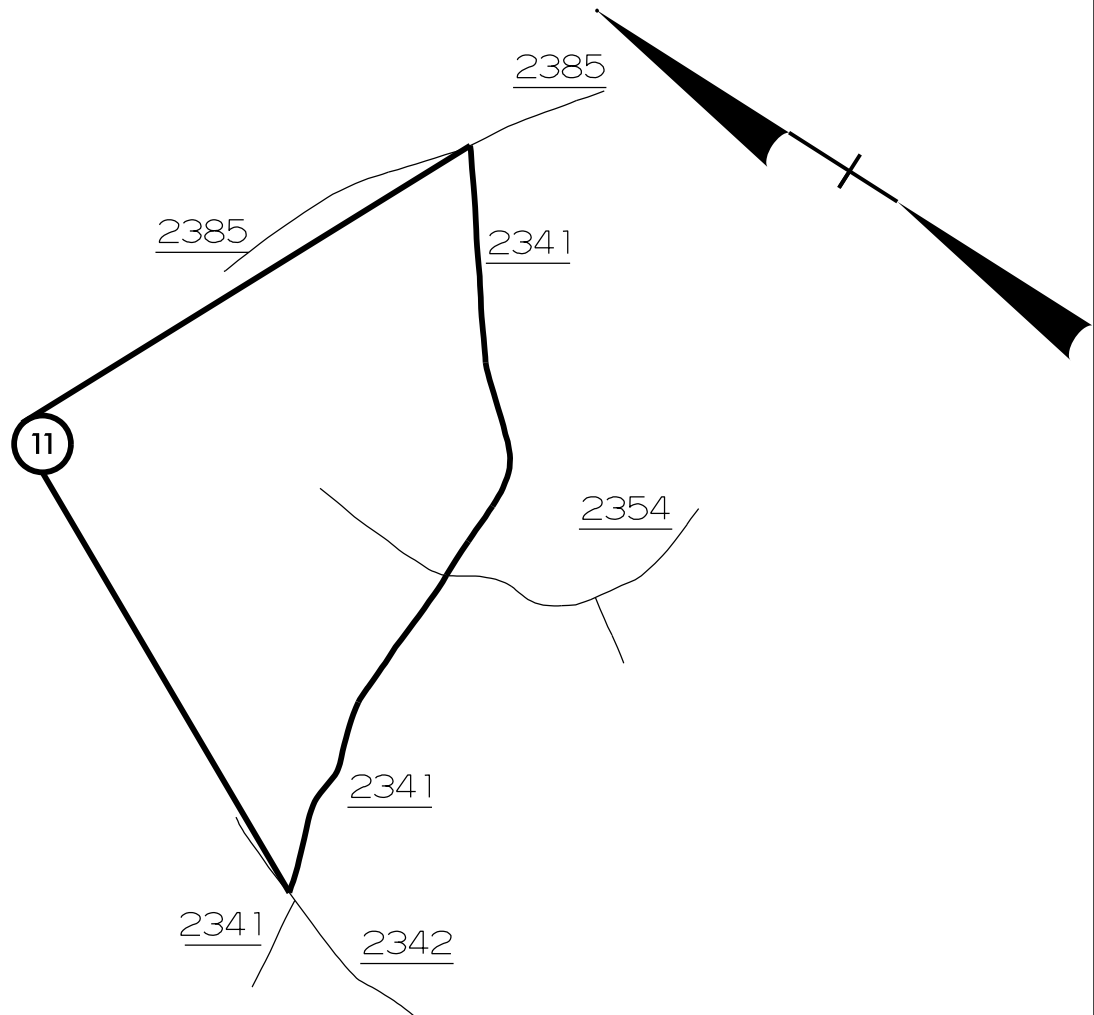
**JOHNSTON COUNTY**  
**NORTH CAROLINA**  
**SHEET 2 OF 5**



PRINCETON



WBS ELEMENT	SHEET NO.	TOTAL SHEETS
2016CPT.04.05.10511.1, ETC.	3	
DESCRIPTION		

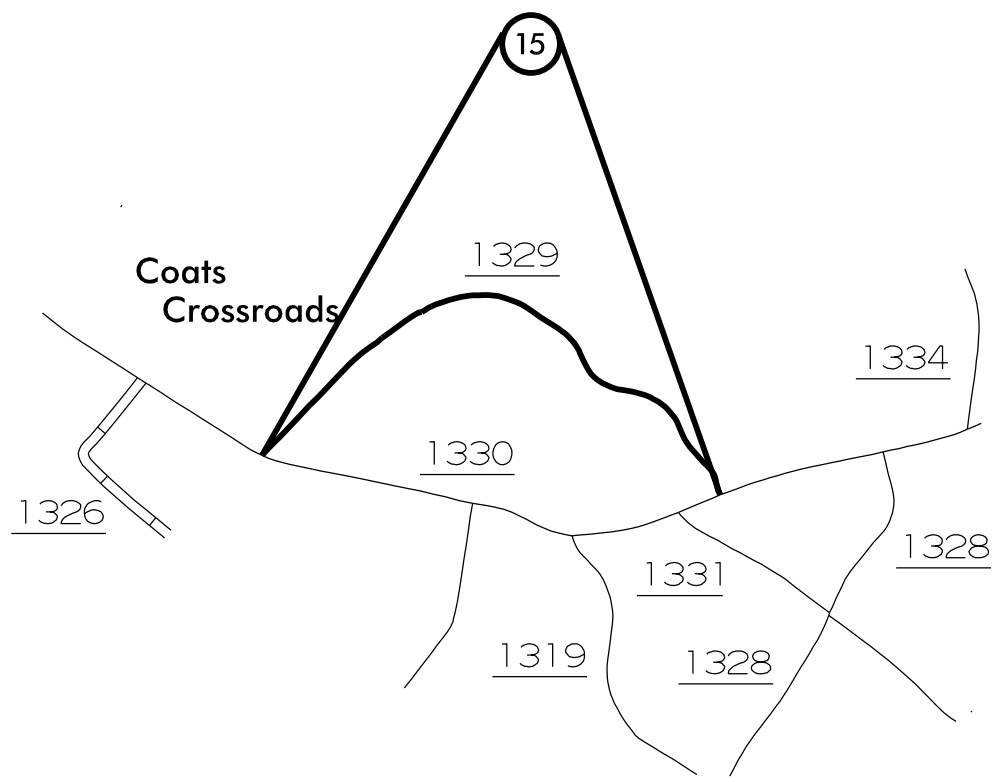
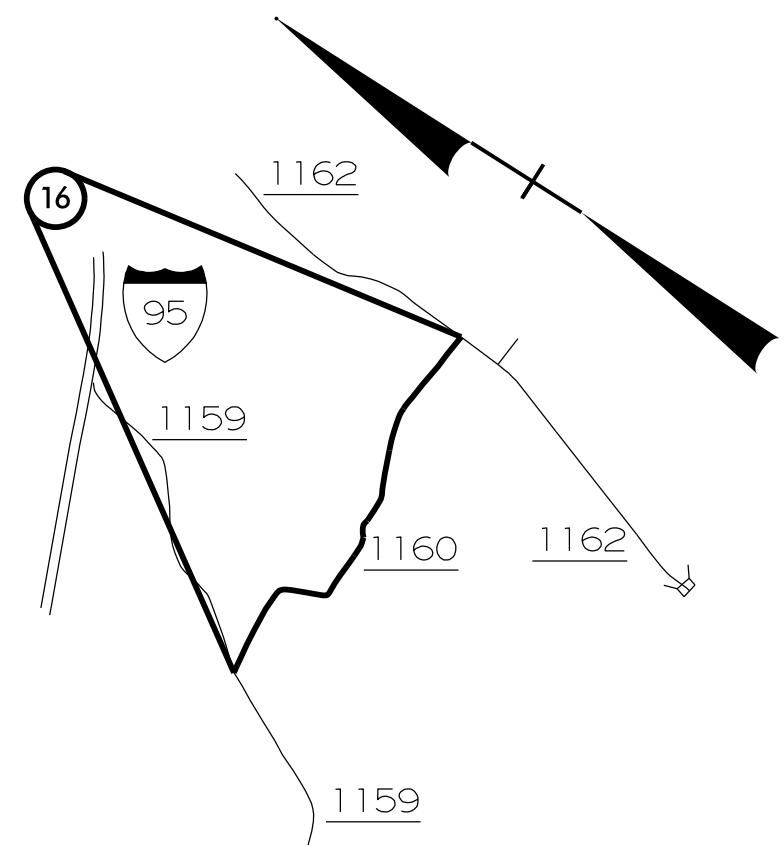
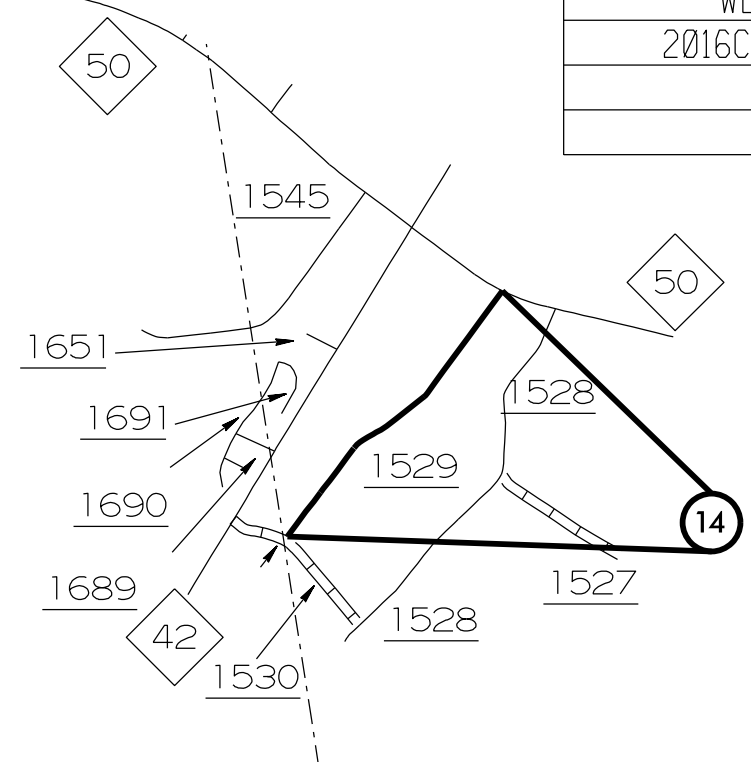
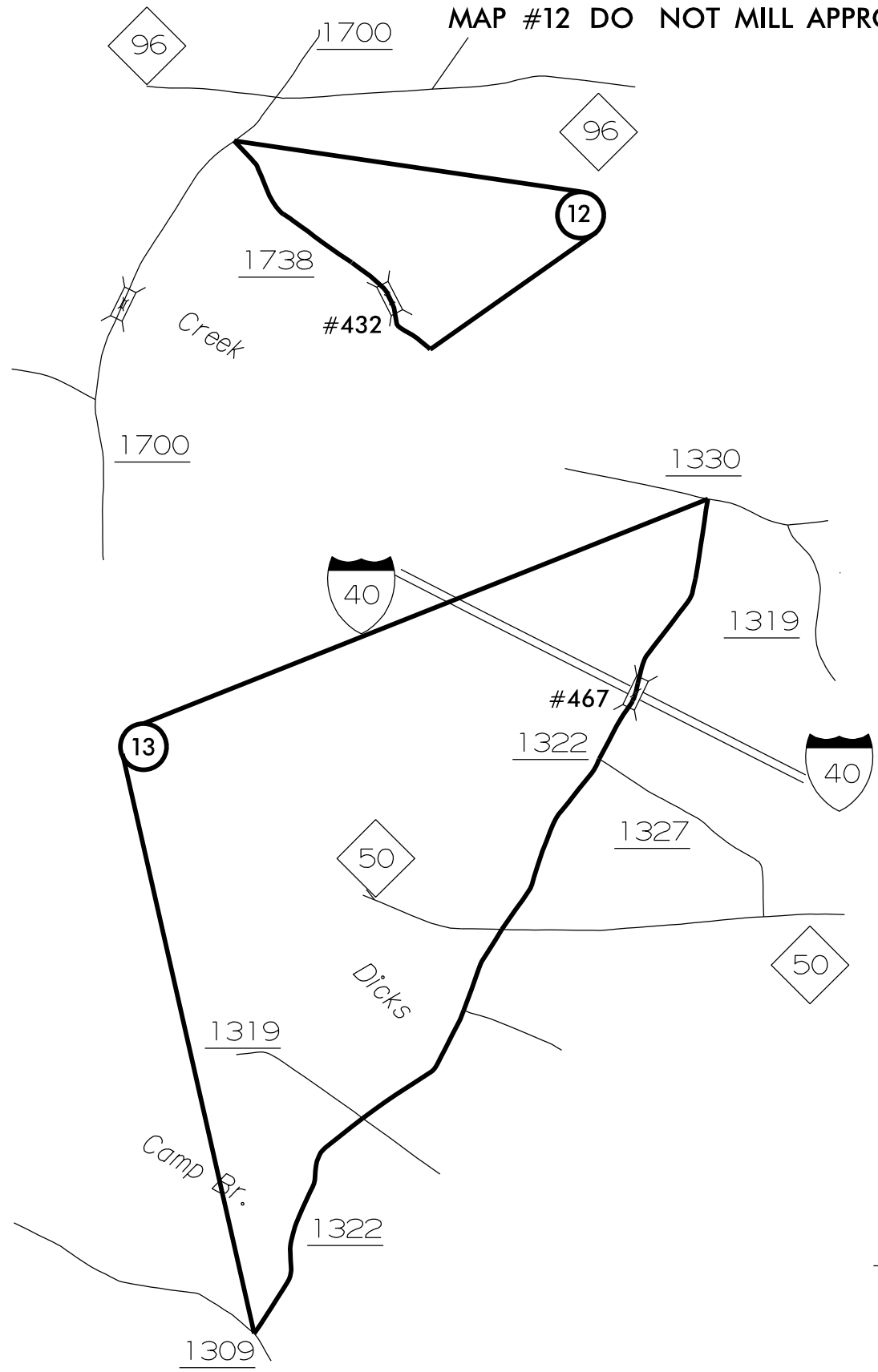


**JOHNSTON COUNTY**  
**NORTH CAROLINA**  
**SHEET 3 OF 5**



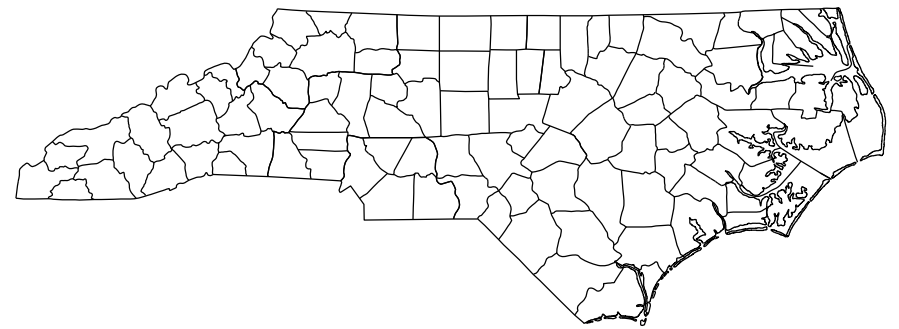
MAP #12 DO NOT MILL APPROACHES OR BRIDGE DECK. PAVE ACROSS BRIDGE

WBS ELEMENT	SHEET NO.	TOTAL SHEETS
2016CPT.04.05.10511.1, ETC.	4	
DESCRIPTION		

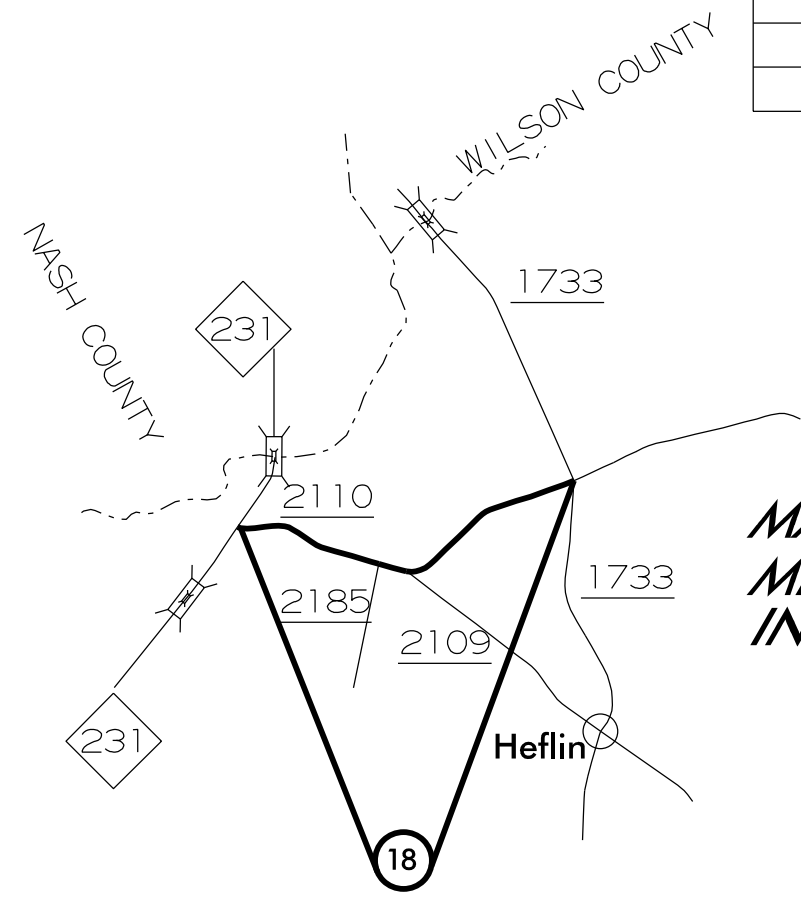
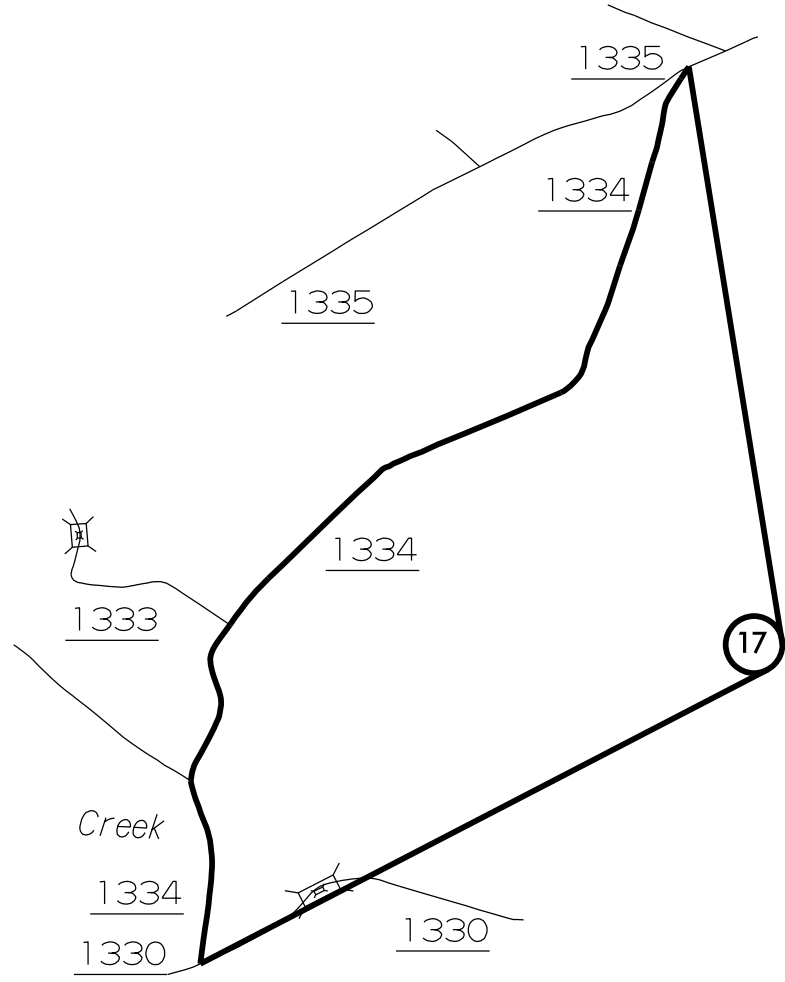


MAP #13 MILL APPROACHES 100' FOR SMOOTH TIE IN

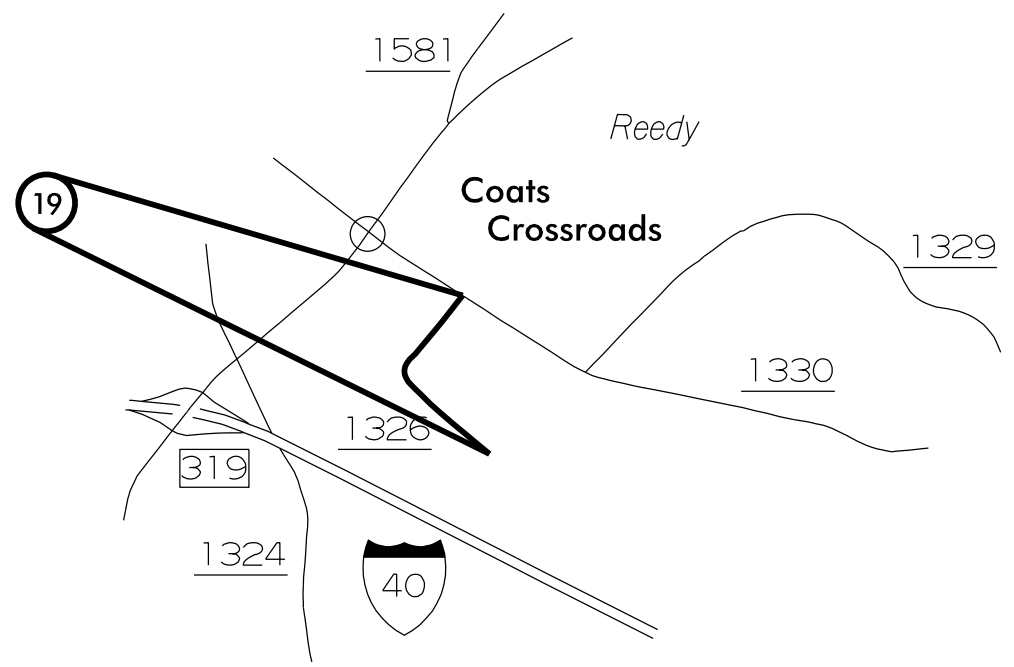
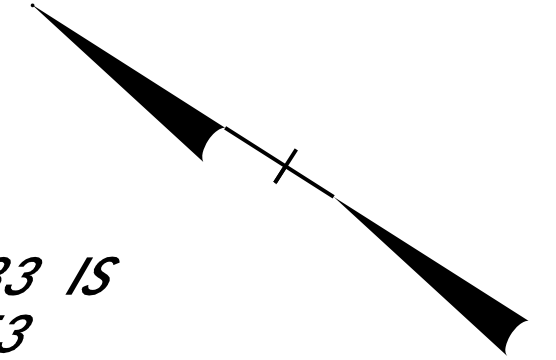
**JOHNSTON COUNTY**  
**NORTH CAROLINA**  
**SHEET 4 OF 5**



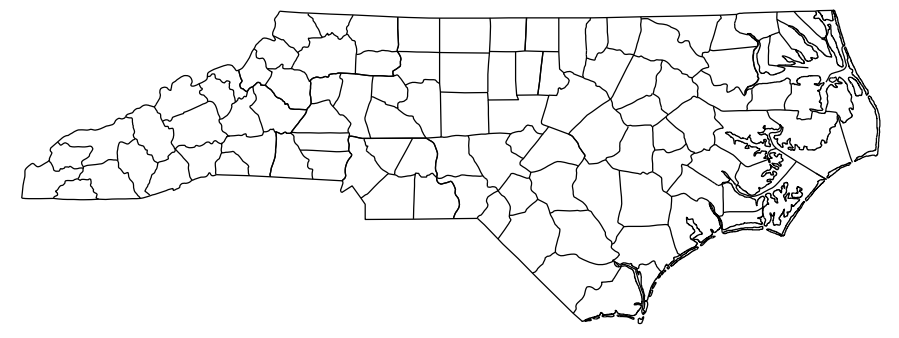
WBS ELEMENT	SHEET NO.	TOTAL SHEETS
2016CPT.04.05.10511.1, ETC.	5	
DESCRIPTION		



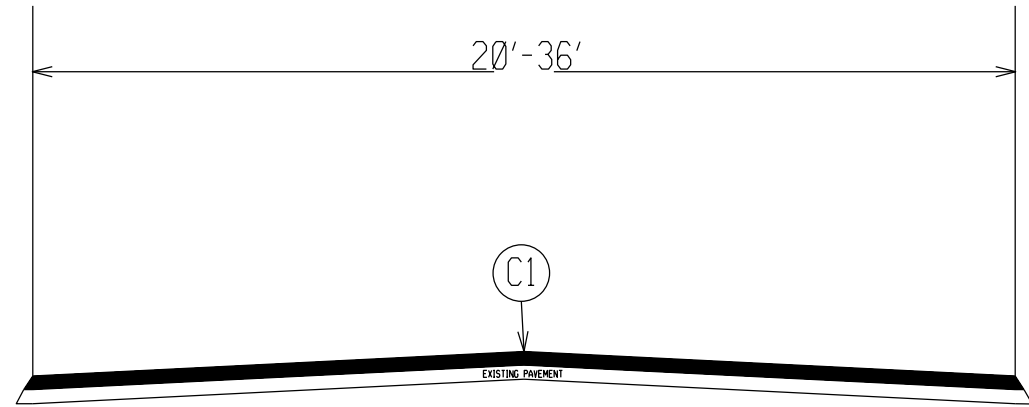
**MAP #18 NOTE: SR 1733 IS MISLABELED AS SR 1753 IN THE FIELD**



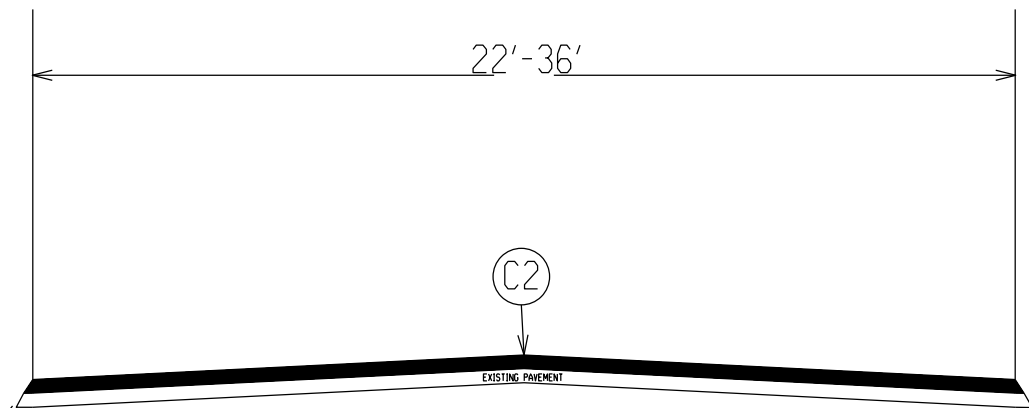
**JOHNSTON COUNTY  
NORTH CAROLINA  
SHEET 5 OF 5**



WBS ELEMENT	SHEET NO.	TOTAL SHEETS
2016CPT.04.05.10511.1, ETC.	6	



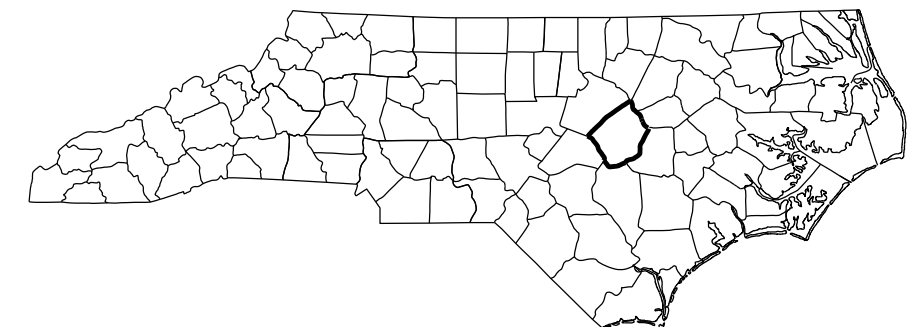
**TYPICAL SECTION 1**



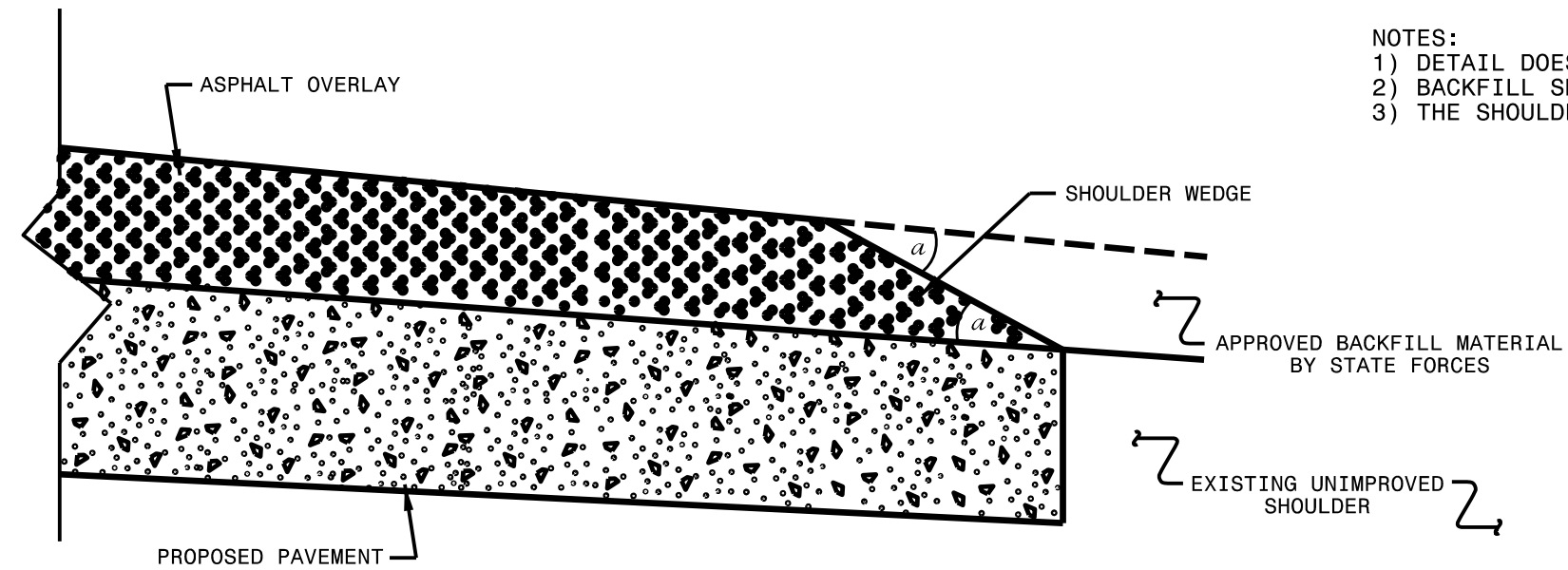
**TYPICAL SECTION 2**

- ⓐ APPROX 1.5" OF SF9.5A AT AN AVERAGE RATE OF 165 LB/SY
- ⓑ APPROX 1.5" OF S9.5B AT AN AVERAGE RATE OF 168 LB/SY

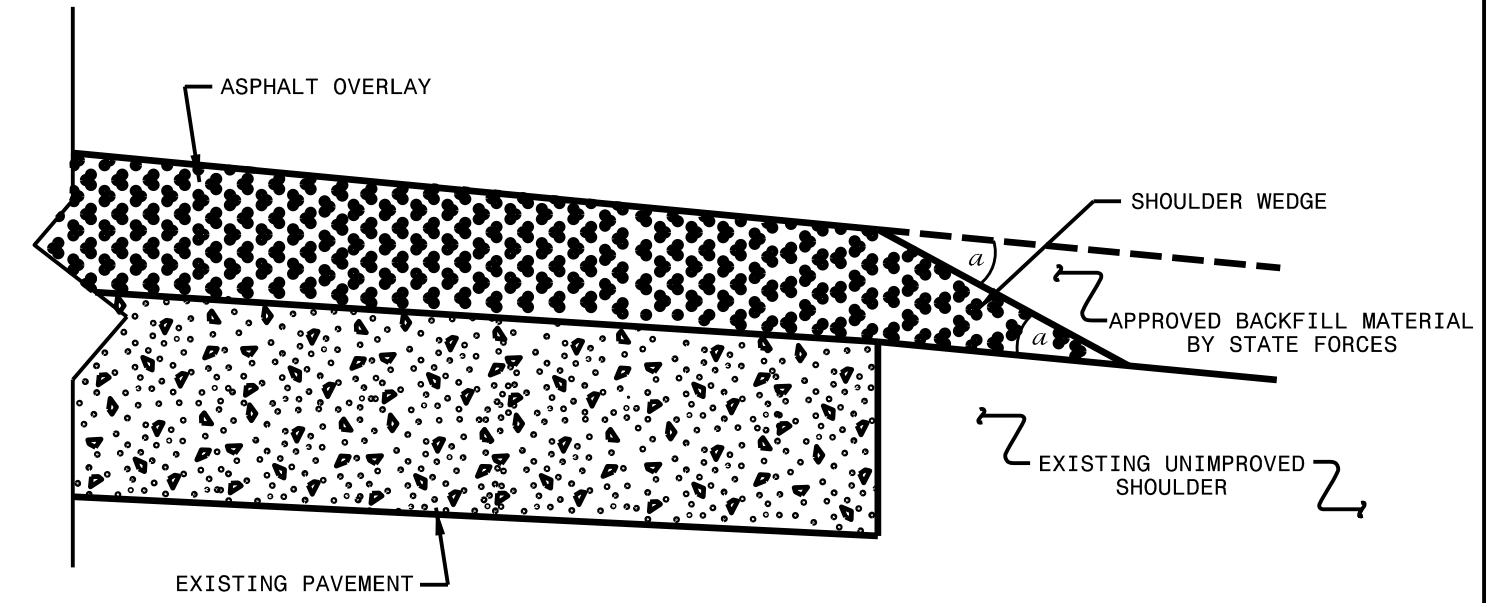
**JOHNSTON COUNTY**  
**NORTH CAROLINA**



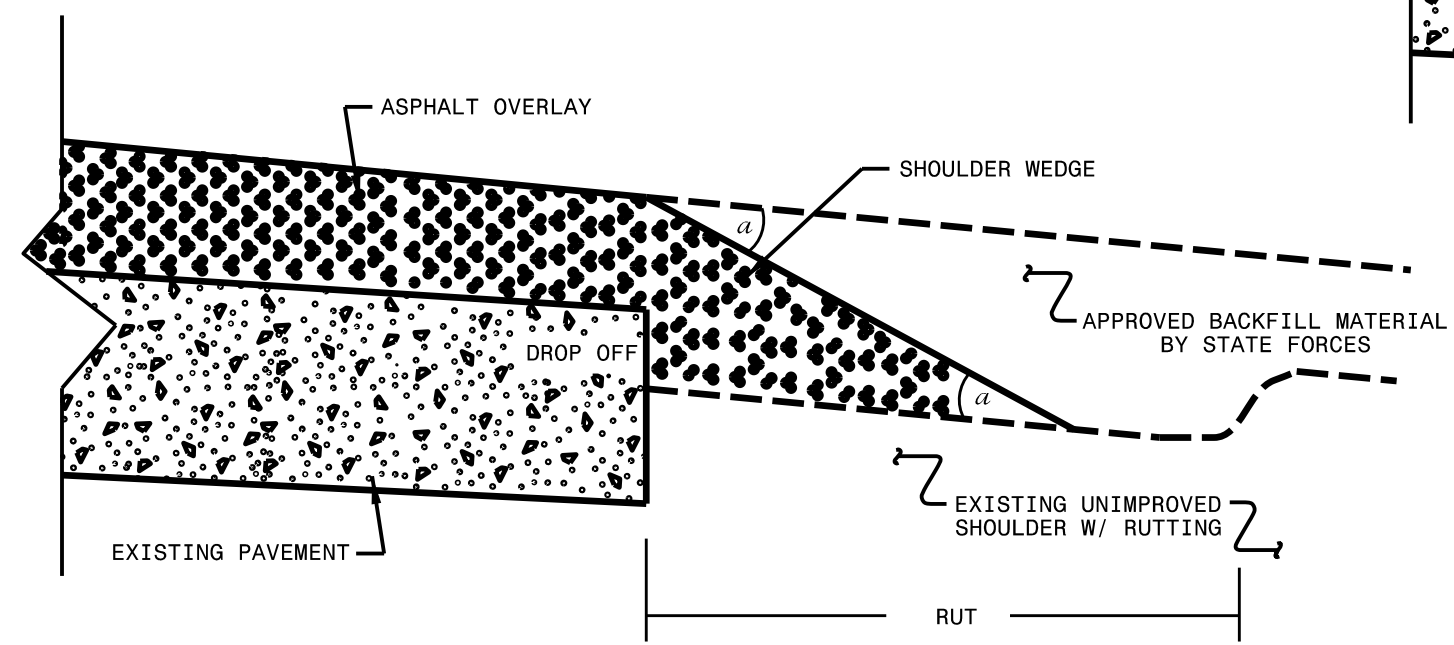
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFD AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



**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:	10/16/12
CHECKED BY:		DATE:	
FILE SPEC.:	s:\usr\details\stand\shoulderwedgedetail.dgn		

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



PROJECT NO.	SHEET NO.	TOTAL NO.
2016CPT.04.05.10511.1, ETC	8	

## SUMMARY OF QUANTITIES

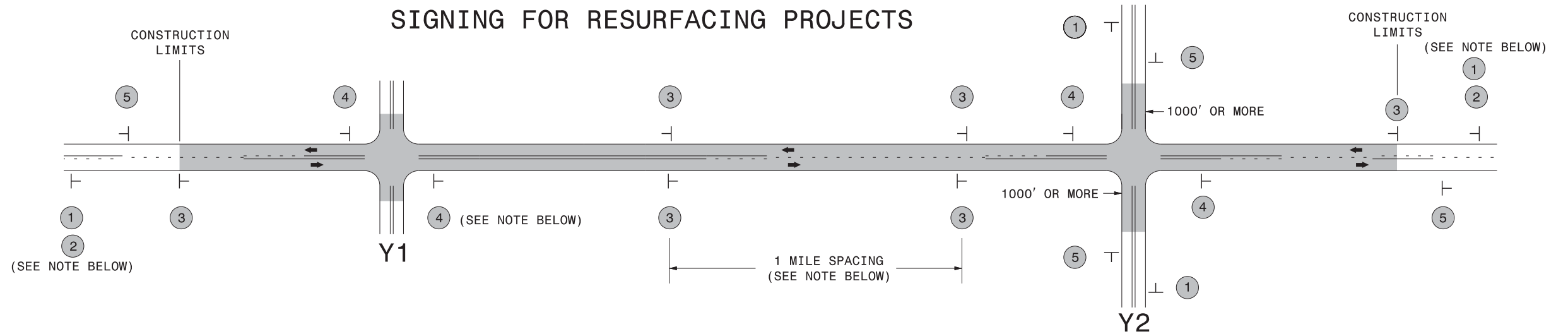
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	1.5" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	ADJ. OF METER OR VALVE BOXES EA	INDUCTIVE LOOP LF
2016CPT.04.05.10511.1	Johnston	1	NC 231	SR 1701 TO NASH COUNTY LINE	2	2	2WU	NO	NO	9.25	26	826	1,066	12,349		741	4	
2016CPT.04.05.10511.1	Johnston	2	US 701	SAMPSON COUNTY LINE TO SR 1148	2	2	2WU	NO	NO	7.8	27	1,000	1,100	10,866		652		
<b>TOTAL FOR PROJ NO. 2016CPT.04.05.10511.1</b>										<b>17.05</b>		<b>1,826</b>	<b>2,166</b>	<b>23,215</b>		<b>1,393</b>	<b>4</b>	
2016CPT.04.05.20511.1	Johnston	3	SR 1552 AMELIA CHURCH RD	US HWY 70 TO NC HWY 42	1	2	2WU	NO	NO	2.36	26				3,827	256	12	472
2016CPT.04.05.20511.1	Johnston	4	SR 1002 RAINS MILL RD	US HWY 70 TO WAYNE COUNTY LINE	2	2	2WU	NO	NO	2.5	22		500	2,886		173		
2016CPT.04.05.20511.1	Johnston	5	SR 1143 STRICKLANDS CROSSROADS RD	SR 1009 TO US HWY 701	1	2	2WU	NO	NO	3.3	26				4,333	290		
2016CPT.04.05.20511.1	Johnston	6	SR 2355 LITTLE RD	SR 1001 TO SR 2354	1	2	2WU	NO	NO	1.3	22				1,392	93		
2016CPT.04.05.20511.1	Johnston	7	SR 2514 DAUGHTRY RD	SR 1007 TO SR 2309	1	2	2WU	NO	NO	1.4	24				1,675	112		
2016CPT.04.05.20511.1	Johnston	8	SR 2535 OLD HINTON RD	SR 2372 TO WAYNE CO. LINE	1	2	2WU	NO	NO	2.2	20				2,263	152		
2016CPT.04.05.20511.1	Johnston	9	SR 2530 PROGRESSIVE CHURCH RD	SR 1007 TO SR 2522	1	2	2WU	NO	NO	4	24		270		4,831	324		
2016CPT.04.05.20511.1	Johnston	10	SR 1179 STEWART RD	SR 1009 TO US HWY 701	1	2	2WU	NO	NO	0.95	22				1,017	68		
2016CPT.04.05.20511.1	Johnston	11	SR 2341 RICHARDSON -BASS RD	SR 2342 TO SR 2385	1	2	2WU	NO	NO	2.5	20				2,435	163		
2016CPT.04.05.20511.1	Johnston	12	SR 1738 EATMON RD	SR 1700 TO DEAD END	1	2	2WU	NO	NO	1.2	22		450		1,285	86		
2016CPT.04.05.20511.1	Johnston	13	SR 1322 STEPHENSON RD	SR 1309 TO SR 1330	1	2	2WU	NO	NO	3.7	22		450		4,122	276		
2016CPT.04.05.20511.1	Johnston	14	SR 1529 ANGIE RD	NC 50 TO WAKE CO. LINE	1	2	2WU	NO	NO	1.1	24				1,284	86		
2016CPT.04.05.20511.1	Johnston	15	SR 1329 OLD BARBOUR RD	SR 1330 TO SR 1330	1	2	2WU	NO	NO	1.9	22				2,035	136		
2016CPT.04.05.20511.1	Johnston	16	SR 1160 TETTERSVILLE RD	SR 1159 TO SR 1162	1	2	2WU	NO	NO	1.3	22				1,392	93		
2016CPT.04.05.20511.1	Johnston	17	SR 1334 KINGS MILL RD	SR 1330 TO SR 1335	1	2	2WU	NO	NO	3.5	24				4,167	279		
2016CPT.04.05.20511.1	Johnston	18	SR 2110 FLOWER HILL RD	NC HWY 231 TO SR 1733	1	2	2WU	NO	NO	1.2	22				1,405	94		
2016CPT.04.05.20511.1	Johnston	19	SR 1326 SHERRILL RD	SR 1330 TO END STATE MAINT	1	2	2WU	NO	NO	0.56	24				654	44		
<b>TOTAL FOR PROJ NO. 2016CPT.04.05.20511.1</b>										<b>34.97</b>			<b>1,670</b>	<b>2,886</b>	<b>38,117</b>	<b>2,725</b>	<b>12</b>	<b>472</b>
<b>GRAND TOTAL</b>										<b>52.02</b>		<b>1,826</b>	<b>3,836</b>	<b>26,101</b>	<b>38,117</b>	<b>4,118</b>	<b>16</b>	<b>472</b>

PROJECT NO.	SHEET NO.	TOTAL NO.
2016CPT.04.05.10511.1, ETC	9	

## THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4413000000	44570000	4810000000-E		48200000	48350000	4840000000-N			4845000000-N								
										WORK ZONE ADVANCE/GENERAL WARNING SIGNING SF	TEMP. TRAFFIC CONTROL LS	4" WHITE PAINT LF	4" YELLOW PAINT LF	8" YELLOW PAINT LF	24" WHITE PAINT LF	PAINT MSG AHEAD EA	PAINT MSG ONLY EA	PAINT MSG SCHOOL EA	PAINT LT ARROW EA	PAINT LT STR RT ARROW EA	PAINT STR ARROW EA	PAINT RT ARROW EA	PAINT STR & RT ARROW EA				
2016CPT.04.05.10511.1	Johnston	1	NC 231	SR 1701 TO NASH COUNTY LINE	2	2	2WU	9.25	26	2,000	*	199,060	122,100		100	10	8	12	8	2							
2016CPT.04.05.10511.1	Johnston	2	US 701	SAMPSON COUNTY LINE TO SR 1148	2	2	2WU	7.8	27	2,000		166,920	85,800														
<b>TOTAL FOR PROJ NO. 2016CPT.04.05.10511.1</b>										<b>4,000</b>		<b>365,980</b>	<b>207,900</b>		<b>100</b>	<b>10</b>	<b>8</b>	<b>12</b>	<b>8</b>	<b>2</b>							
												<b>573,880</b>				<b>30</b>		<b>10</b>									
2016CPT.04.05.20511.1	Johnston	3	SR 1552 AMELIA CHURCH RD	US HWY 70 TO NC HWY 42	1	2	2WU	2.36	26	120	*	50,787	31,152	2,200	100			12	32		3	5	12				
2016CPT.04.05.20511.1	Johnston	4	SR 1002 RAINS MILL RD	US HWY 70 TO WAYNE COUNTY LINE	2	2	2WU	2.5	22	120		53,800	33,000														
2016CPT.04.05.20511.1	Johnston	5	SR 1143 STRICKLANDS CROSSROADS RD	SR 1009 TO US HWY 701	1	2	2WU	3.3	26	120																	
2016CPT.04.05.20511.1	Johnston	6	SR 2355 LITTLE RD	SR 1001 TO SR 2354	1	2	2WU	1.3	22	100																	
2016CPT.04.05.20511.1	Johnston	7	SR 2514 DAUGHTRY RD	SR 1007 TO SR 2309	1	2	2WU	1.4	24	100																	
2016CPT.04.05.20511.1	Johnston	8	SR 2535 OLD HINTON RD	SR 2372 TO WAYNE CO. LINE	1	2	2WU	2.2	20	120																	
2016CPT.04.05.20511.1	Johnston	9	SR 2530 PROGRESSIVE CHURCH RD	SR 1007 TO SR 2522	1	2	2WU	4	24	120																	
2016CPT.04.05.20511.1	Johnston	10	SR 1179 STEWART RD	SR 1009 TO US HWY 701	1	2	2WU	0.95	22	100																	
2016CPT.04.05.20511.1	Johnston	11	SR 2341 RICHARDSON -BASS RD	SR 2342 TO SR 2385	1	2	2WU	2.5	20	120																	
2016CPT.04.05.20511.1	Johnston	12	SR 1738 EATMON RD	SR 1700 TO DEAD END	1	2	2WU	1.2	22	100																	
2016CPT.04.05.20511.1	Johnston	13	SR 1322 STEPHENSON RD	SR 1309 TO SR 1330	1	2	2WU	3.7	22	120		79,624	48,840														
2016CPT.04.05.20511.1	Johnston	14	SR 1529 ANGIE RD	NC 50 TO WAKE CO. LINE	1	2	2WU	1.1	24	100		23,672	14,520														
2016CPT.04.05.20511.1	Johnston	15	SR 1329 OLD BARBOUR RD	SR 1330 TO SR 1330	1	2	2WU	1.9	22	100		40,888	25,080														
2016CPT.04.05.20511.1	Johnston	16	SR 1160 TETTERSVILLE RD	SR 1159 TO SR 1162	1	2	2WU	1.3	22	100		27,976	17,160														
2016CPT.04.05.20511.1	Johnston	17	SR 1334 KINGS MILL RD	SR 1330 TO SR 1335	1	2	2WU	3.5	24	120		75,320	46,200														
2016CPT.04.05.20511.1	Johnston	18	SR 2110 FLOWER HILL RD	NC HWY 231 TO SR 1733	1	2	2WU	1.2	22	100																	
2016CPT.04.05.20511.1	Johnston	19	SR 1326 SHERRILL RD	SR 1330 TO END STATE MAINT	1	2	2WU	0.56	24	66		12,051	7,392														
<b>TOTAL FOR PROJ NO. 2016CPT.04.05.20511.1</b>										<b>1,826</b>		<b>364,118</b>	<b>223,344</b>	<b>2,200</b>	<b>100</b>			<b>12</b>	<b>32</b>		<b>3</b>	<b>5</b>	<b>12</b>				
												<b>587,462</b>				<b>12</b>		<b>52</b>									
<b>GRAND TOTAL</b>												<b>52.02</b>		<b>5,826</b>	<b>1</b>	<b>730,098</b>	<b>431,244</b>	<b>2,200</b>	<b>200</b>	<b>10</b>	<b>8</b>	<b>24</b>	<b>40</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>12</b>
												<b>1,161,342</b>				<b>42</b>		<b>62</b>									

# SIGNING FOR RESURFACING PROJECTS



LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

## MAINLINE (-L-) SIGNING

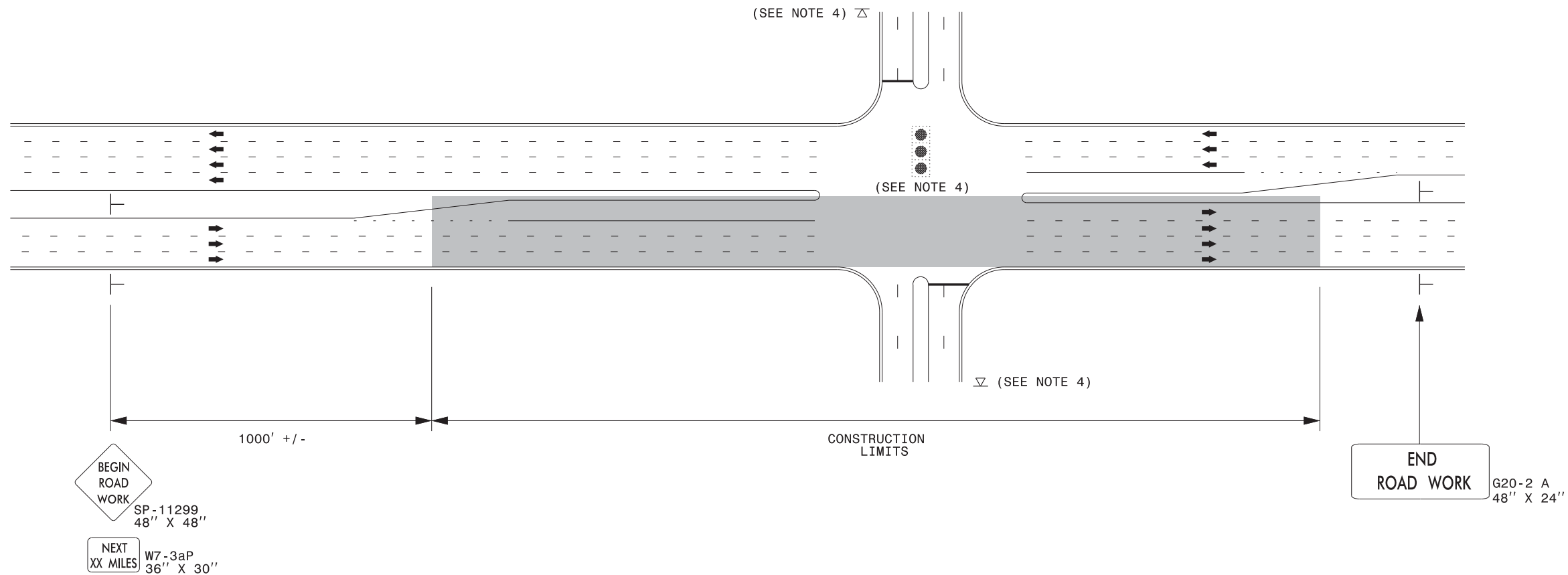
## -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	2	3	4	5	
						<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;">   <small>W20-1 48" X 48"</small> </div> <div style="text-align: center;">   <small>W20-7 A 48" X 48"</small> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	<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 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>						

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

## URBAN / SUBURBAN WORKZONES

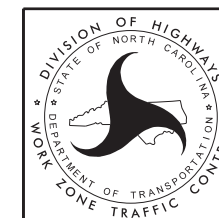


### NOTES:

- 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.

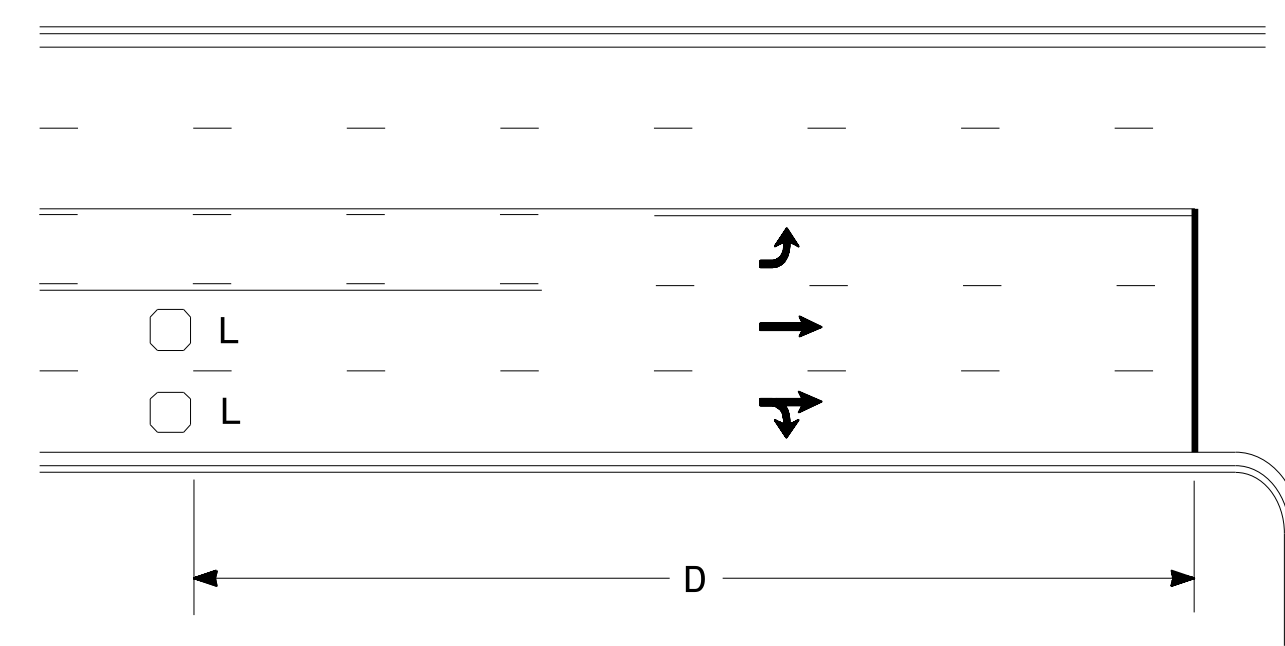
### LEGEND

- ┆ STATIONARY SIGN
- ➔ DIRECTION OF TRAFFIC FLOW



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

### High Speed Detection (≥40 mph)

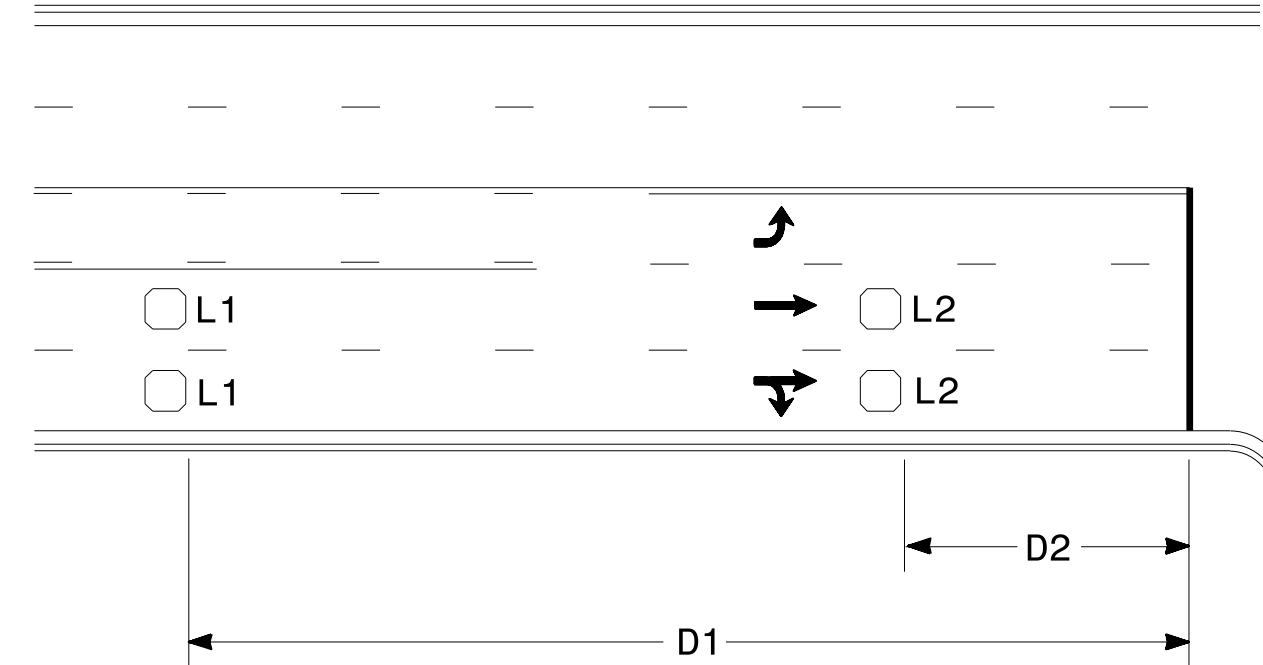


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

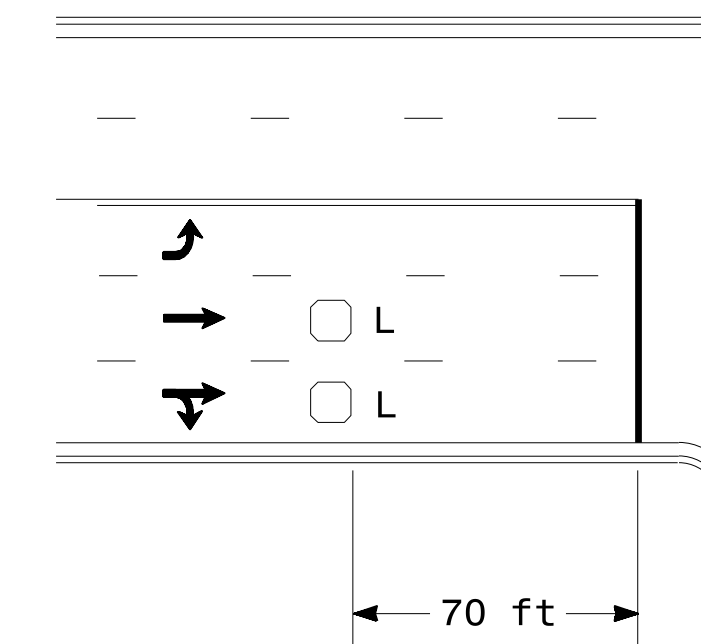


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

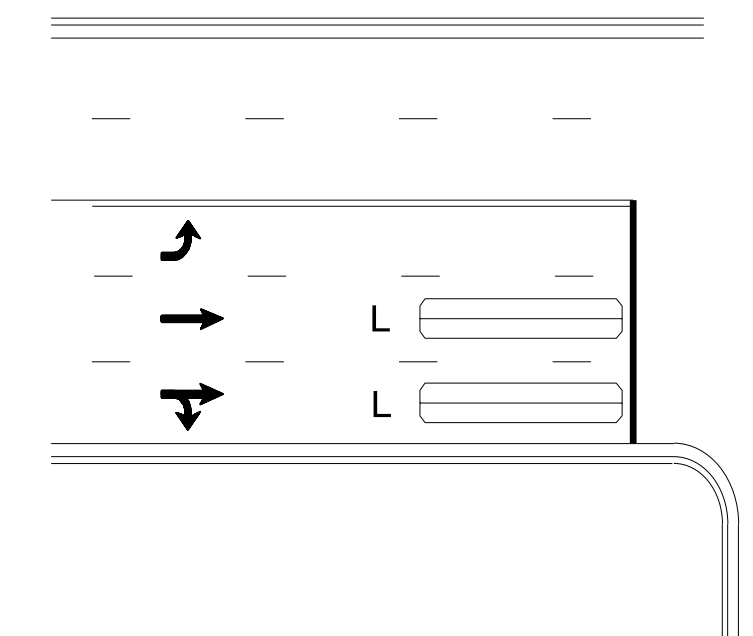
"Stretch" Operation

### Low Speed Detection (≤35 mph)



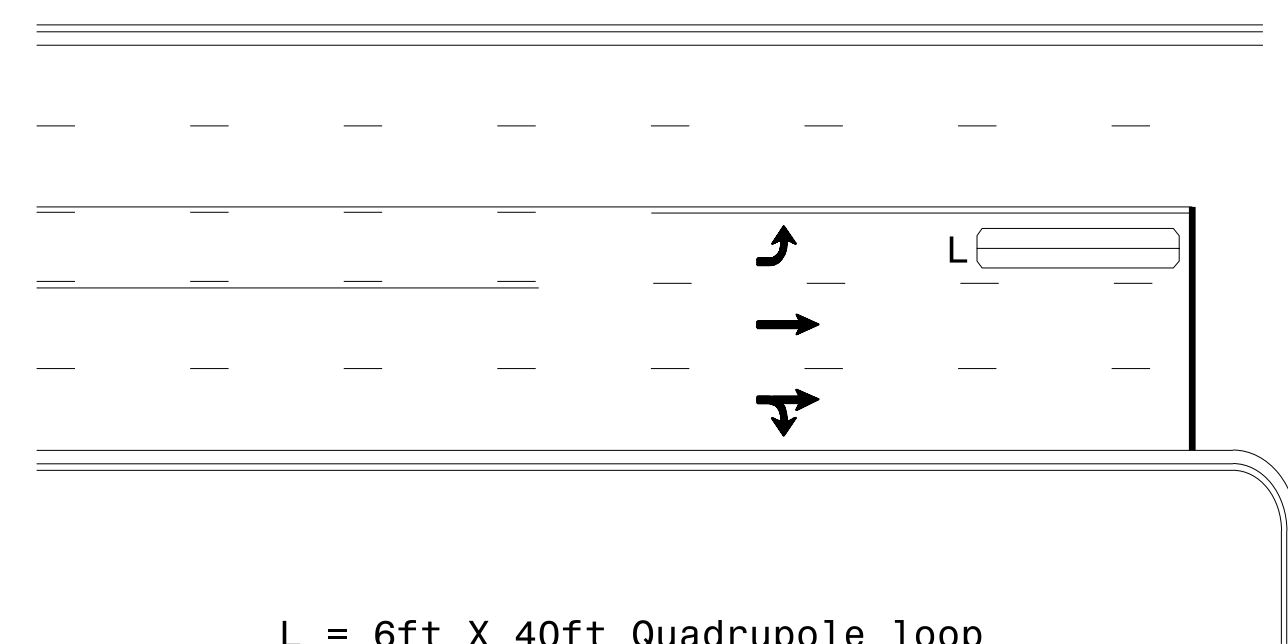
L = 6ft X 6ft  
Wired in series

OR



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

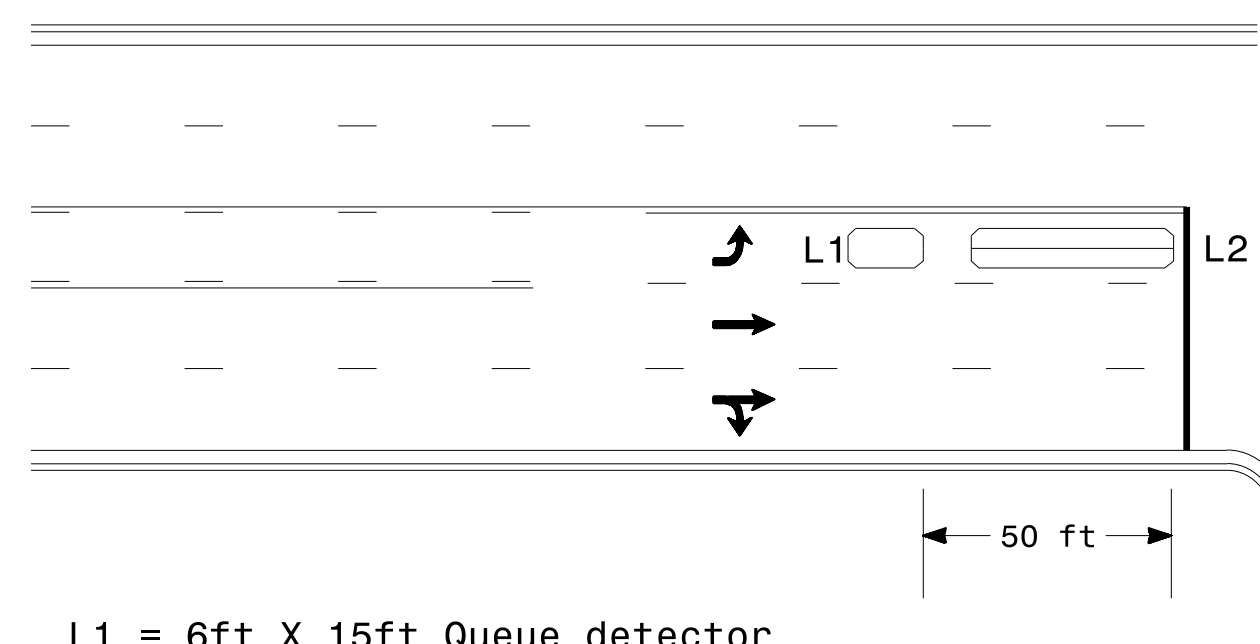
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

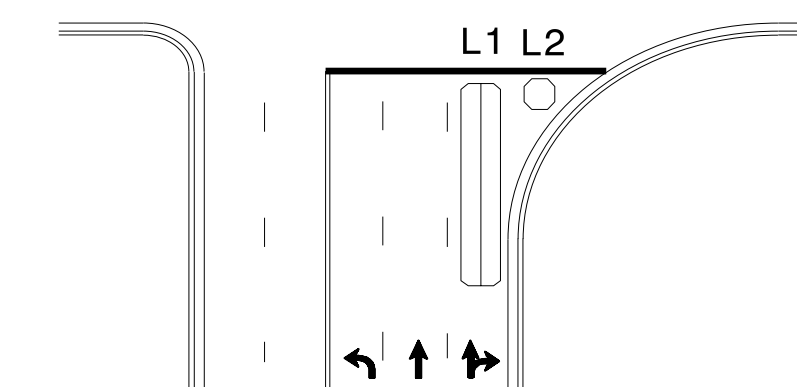
OR



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

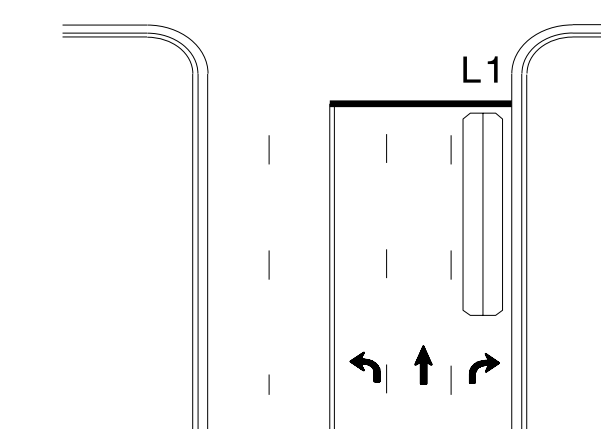
Queue Loop Detection

### Right Turn Lane Detection

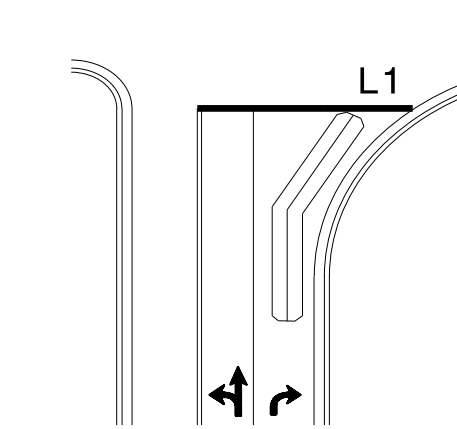


Shared Lane/  
Wide Radius Turn

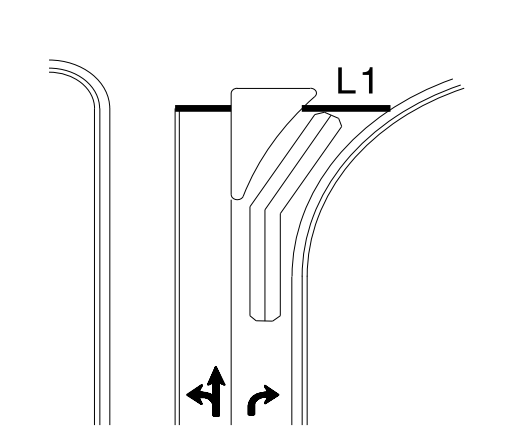
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

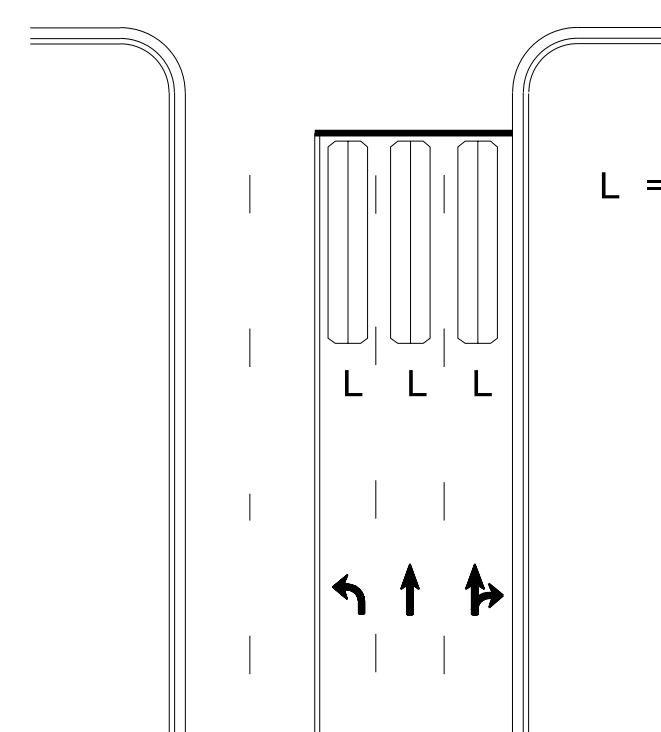


Wide Radius Turn



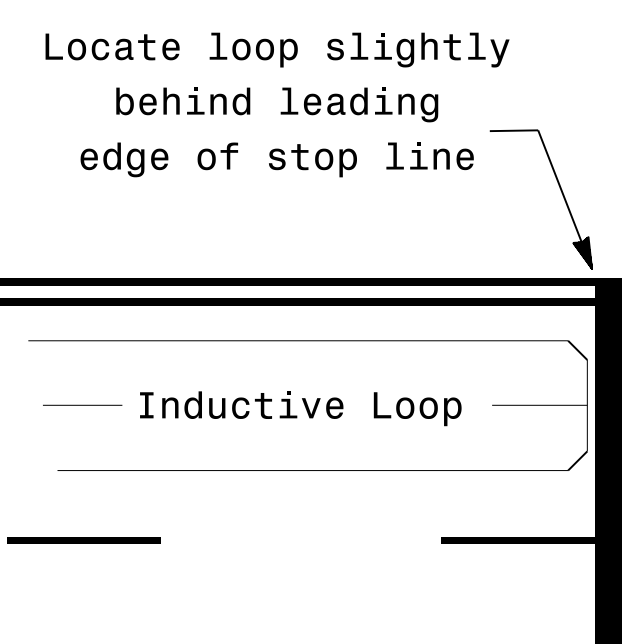
Channelized Turn

### 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 SOLUTIONS, INC. 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>SCALE N/A</p>	
<p>PREPARED BY: PLA</p>		<p>REVIEWED BY:</p>		<p>1/30/2015</p>
<p>REVISIONS</p>		<p>INIT. DATE</p>		<p>SIG. INVENTORY NO.</p>