

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION 6

**PLANS**  
**November 1, 2017**

**CONTRACT ID: DF00185**

**WBS ELEMENT NO.: 2018CPT.06.03.20781.1**

**FEDERAL AID NO.: STATE FUNDED**

**COUNTY: ROBESON**

**TIP NO.: -----**

**LENGTH OF PROJECT: 21.03 MILES**

**ROUTE NO.: VARIOUS ROUTES**

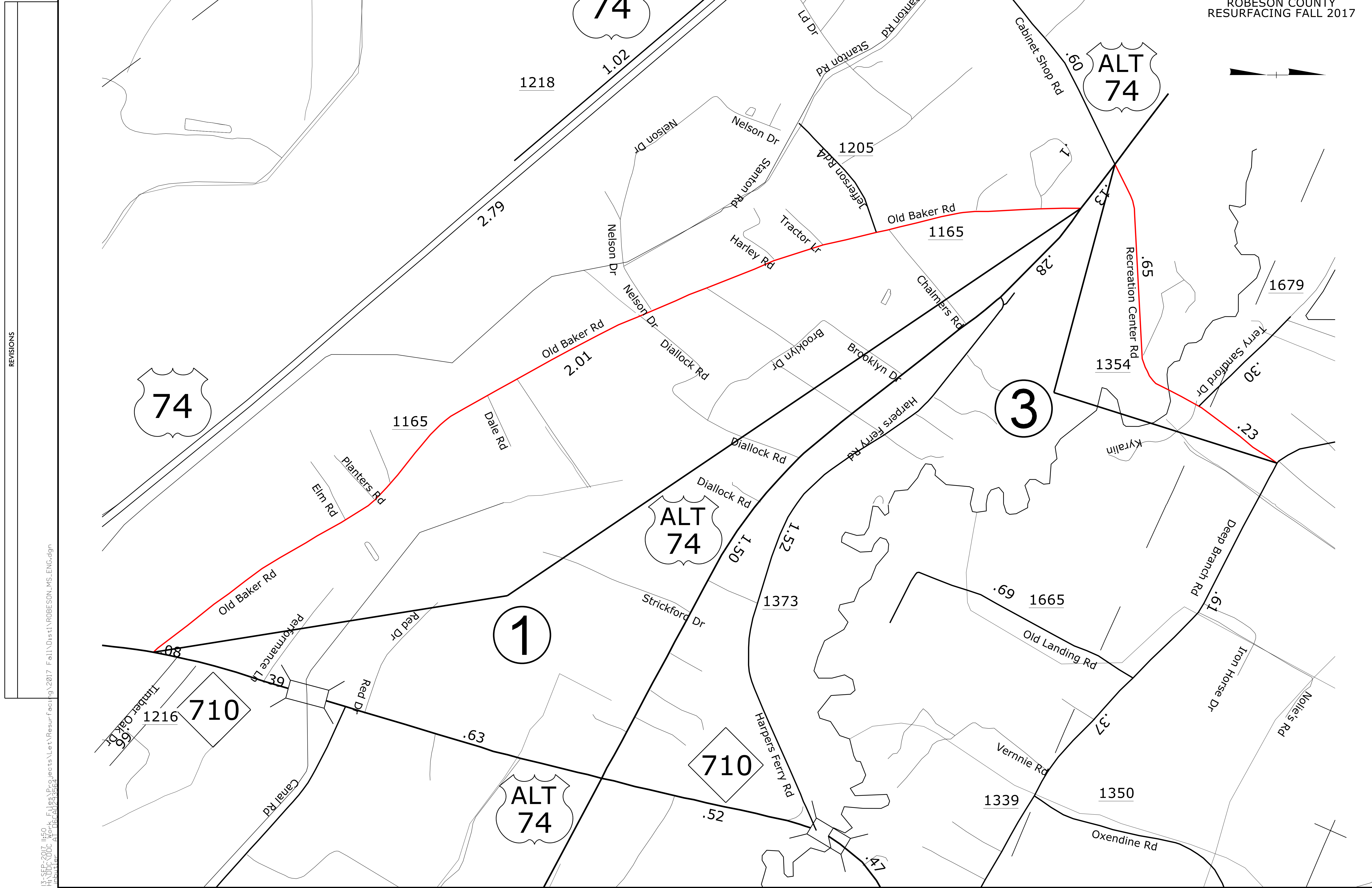
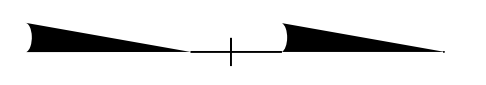
**TYPE OF WORK: RESURFACING , MILLING & PVT. MKGS.**

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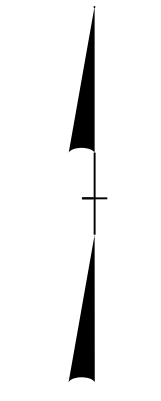
ROBESON COUNTY  
RESURFACING FALL 2017



REVISIONS

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 8/17/99





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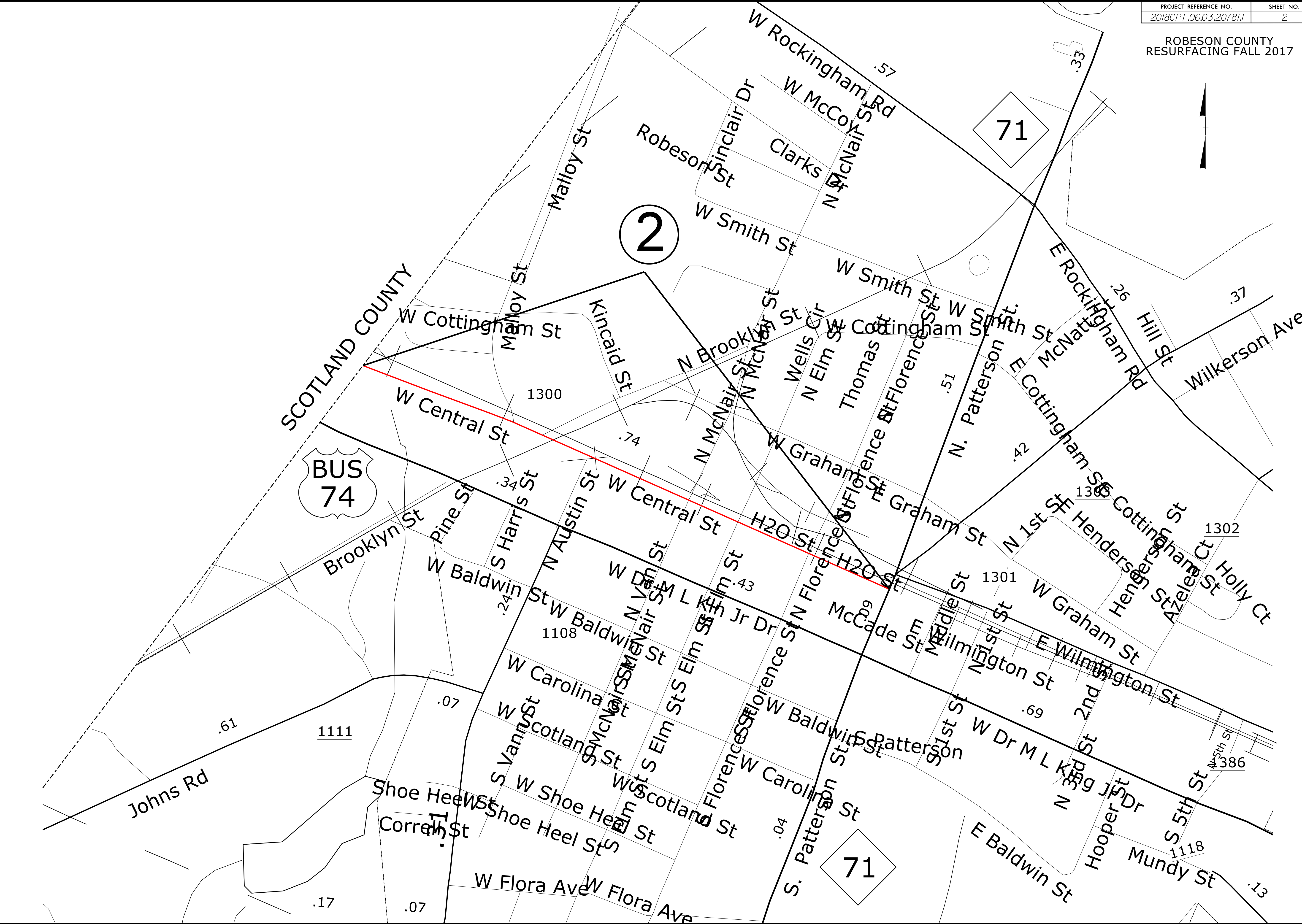
71

71

SCOTLAND COUNTY

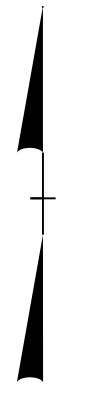
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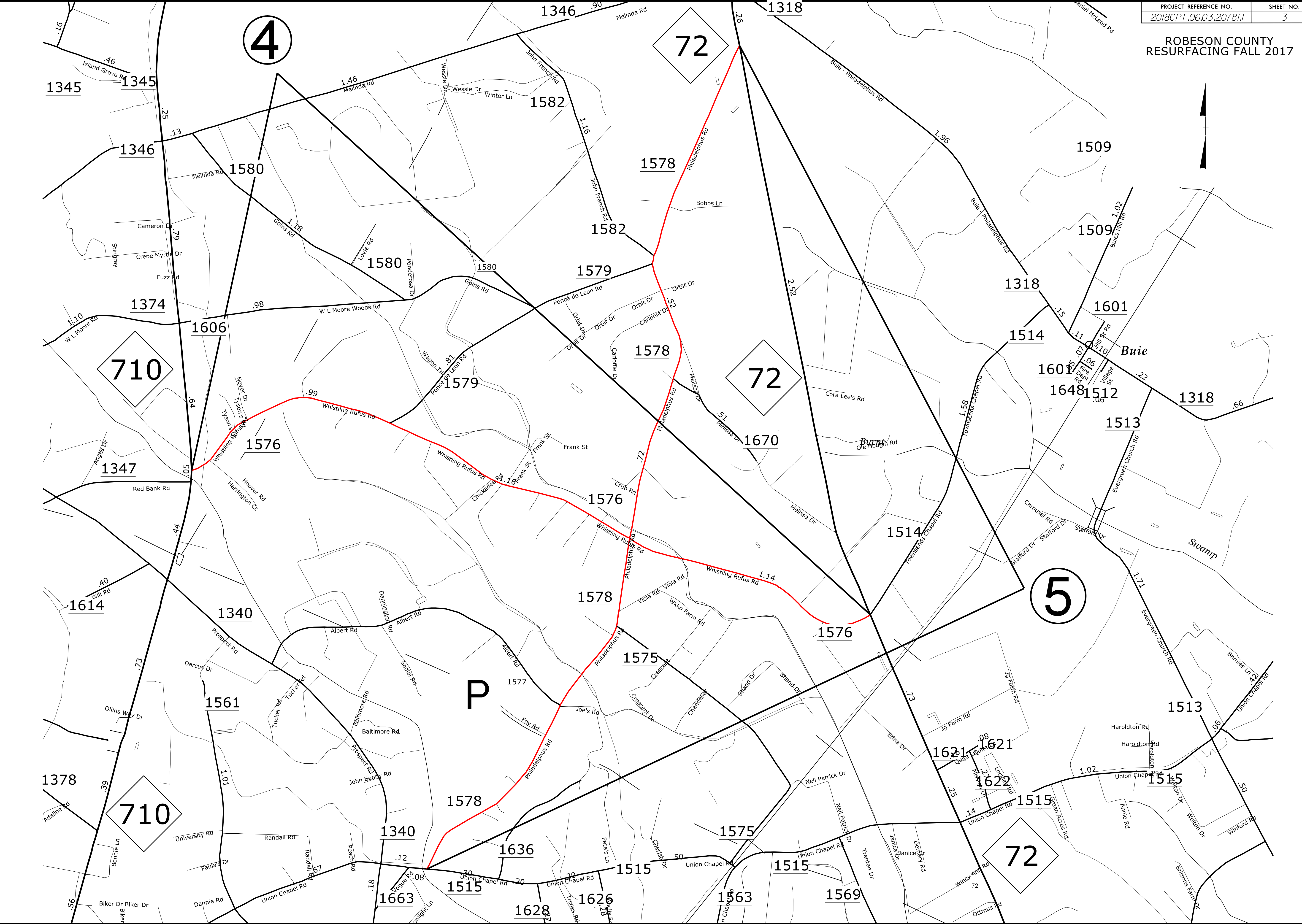


ROBESON COUNTY  
RESURFACING FALL 2017



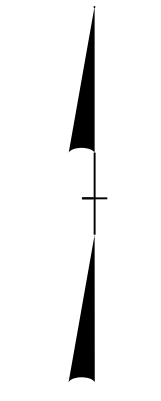
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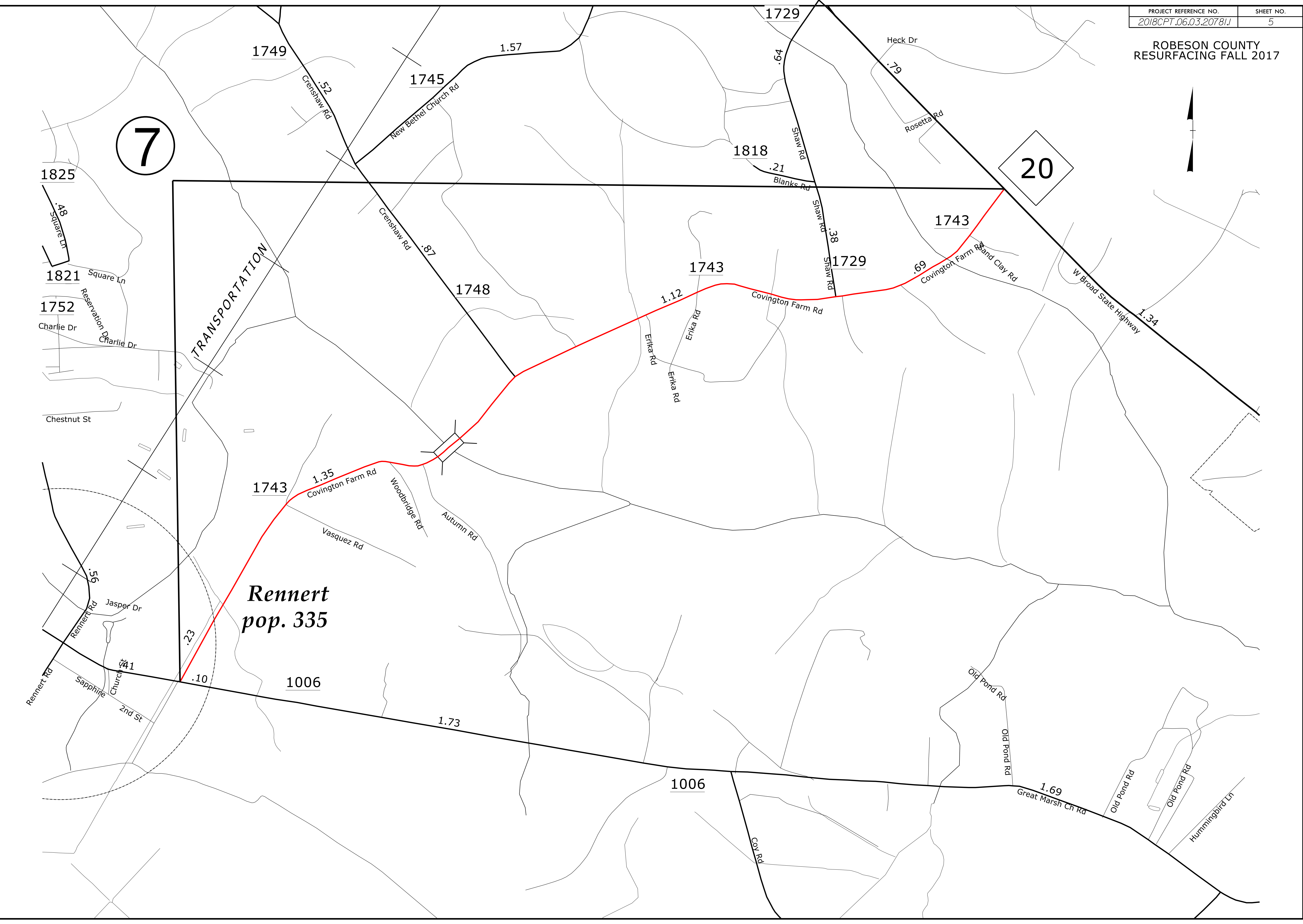




REVISIONS

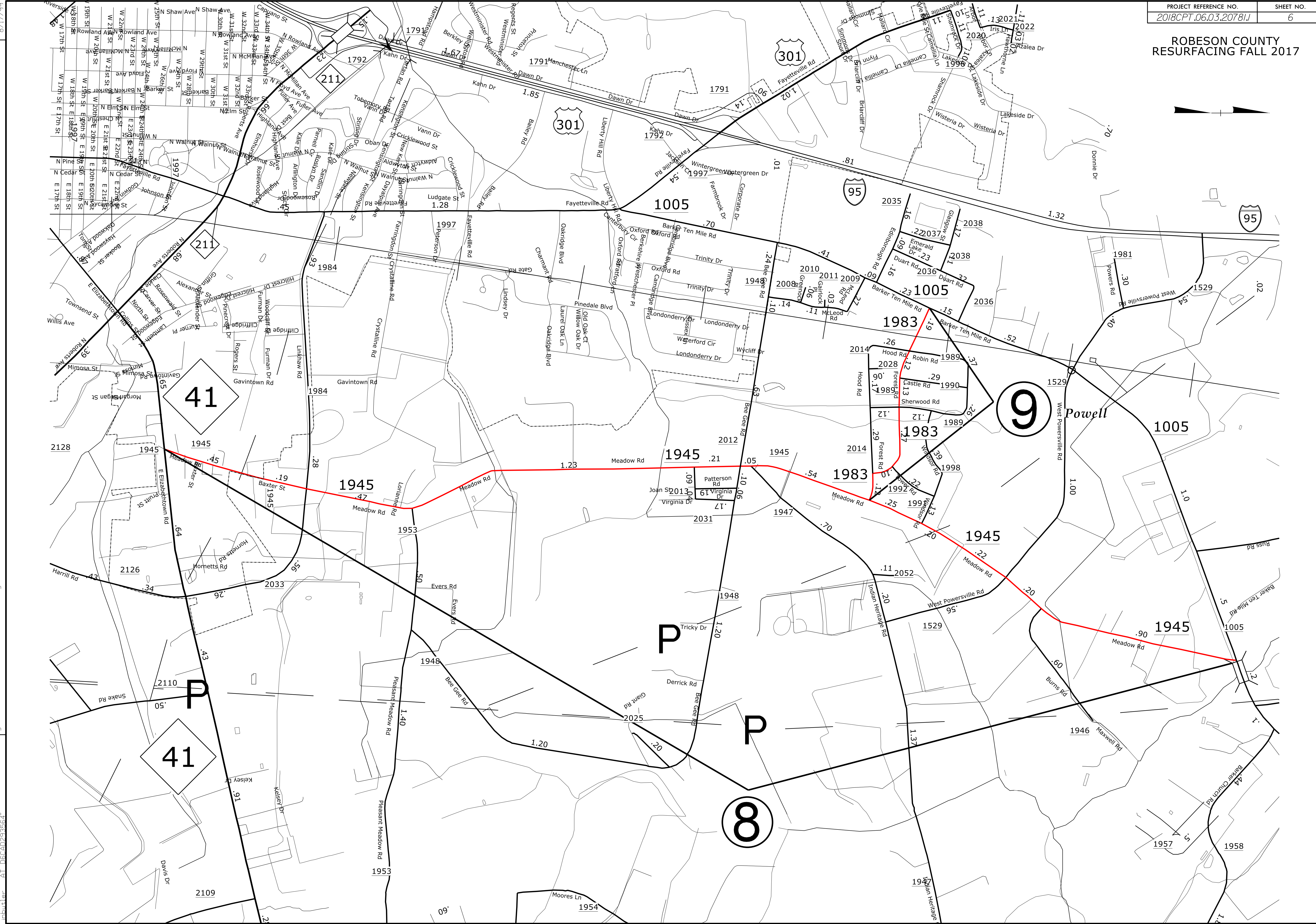
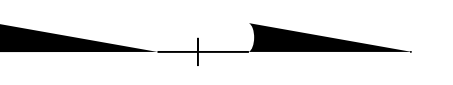
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ROBESON COUNTY  
RESURFACING FALL 2017



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REVISIONS

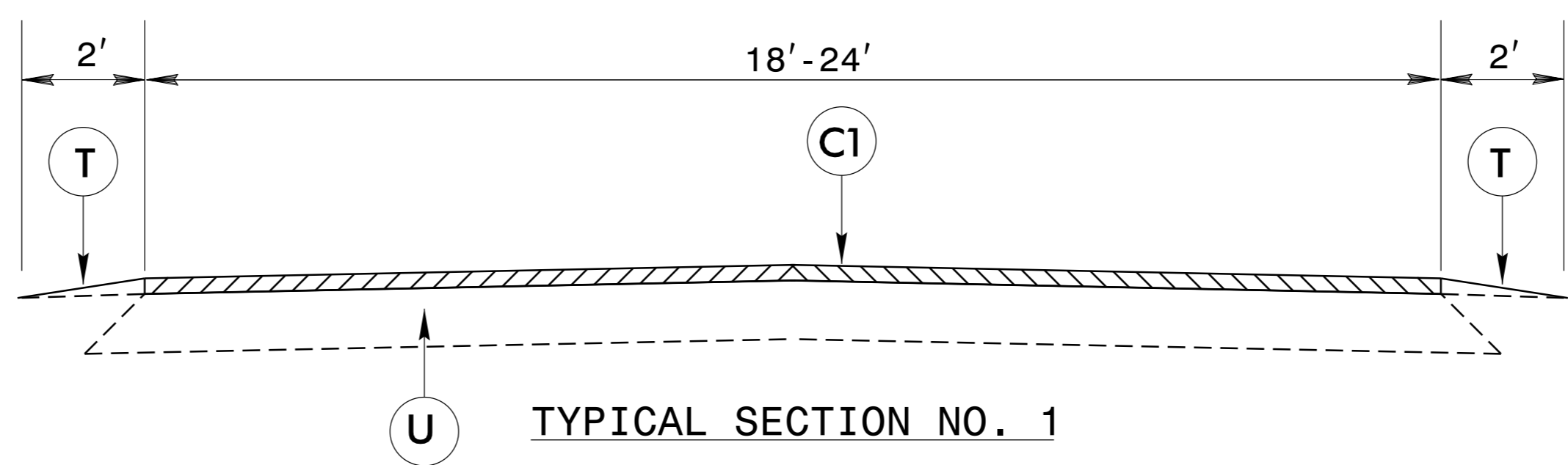
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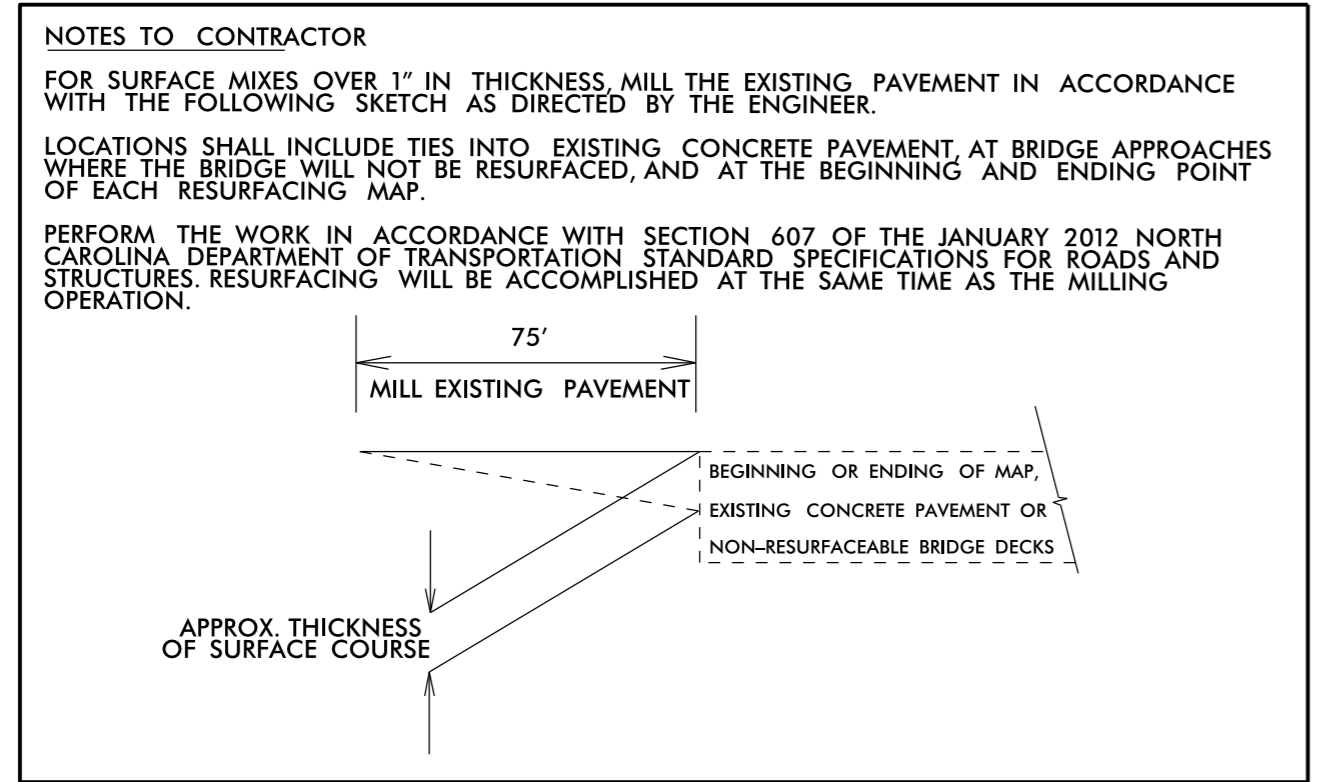
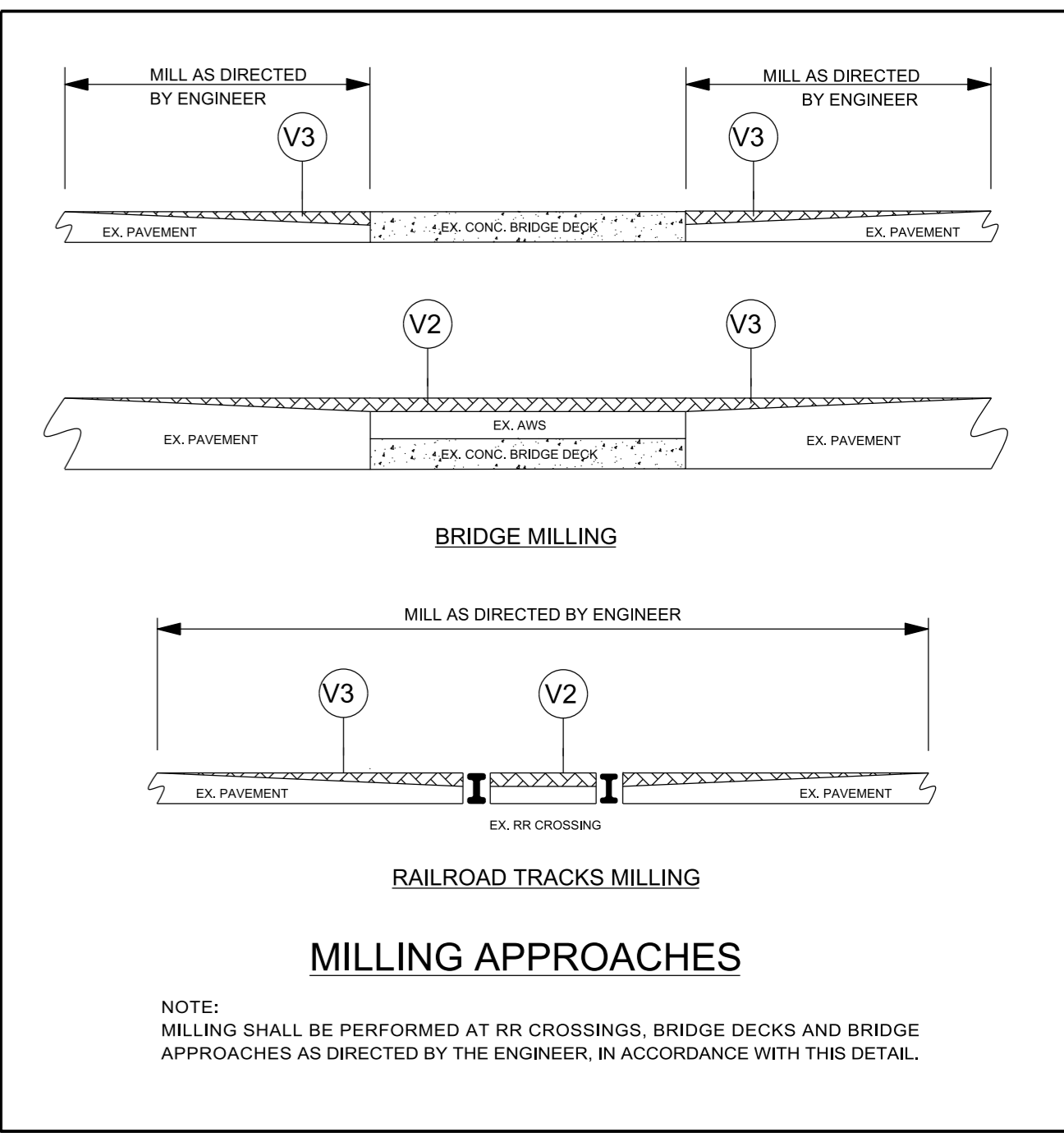


# PAVEMENT SCHEDULE

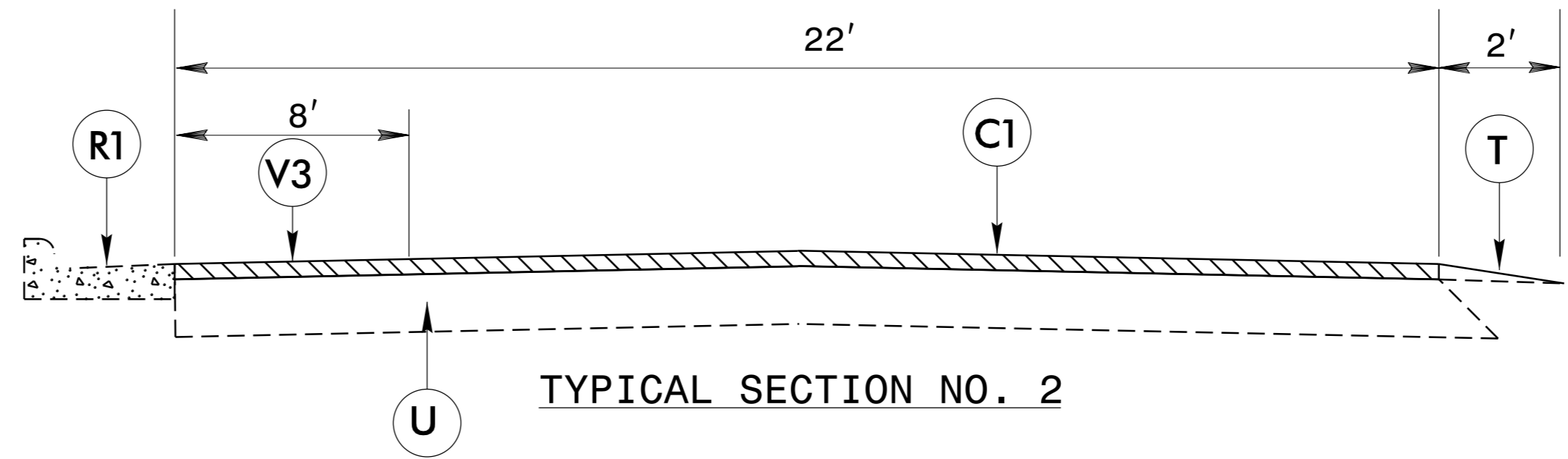
C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
R1	EXISTING CURB AND GUTTER
T	SHOULDER RECONSTRUCTION WITH AGGREGATE SHOULDER BORROW
U	EXISTING ASPHALT
V1	1" MILLING
V2	1½" MILLING
V3	0"-1½" MILLING



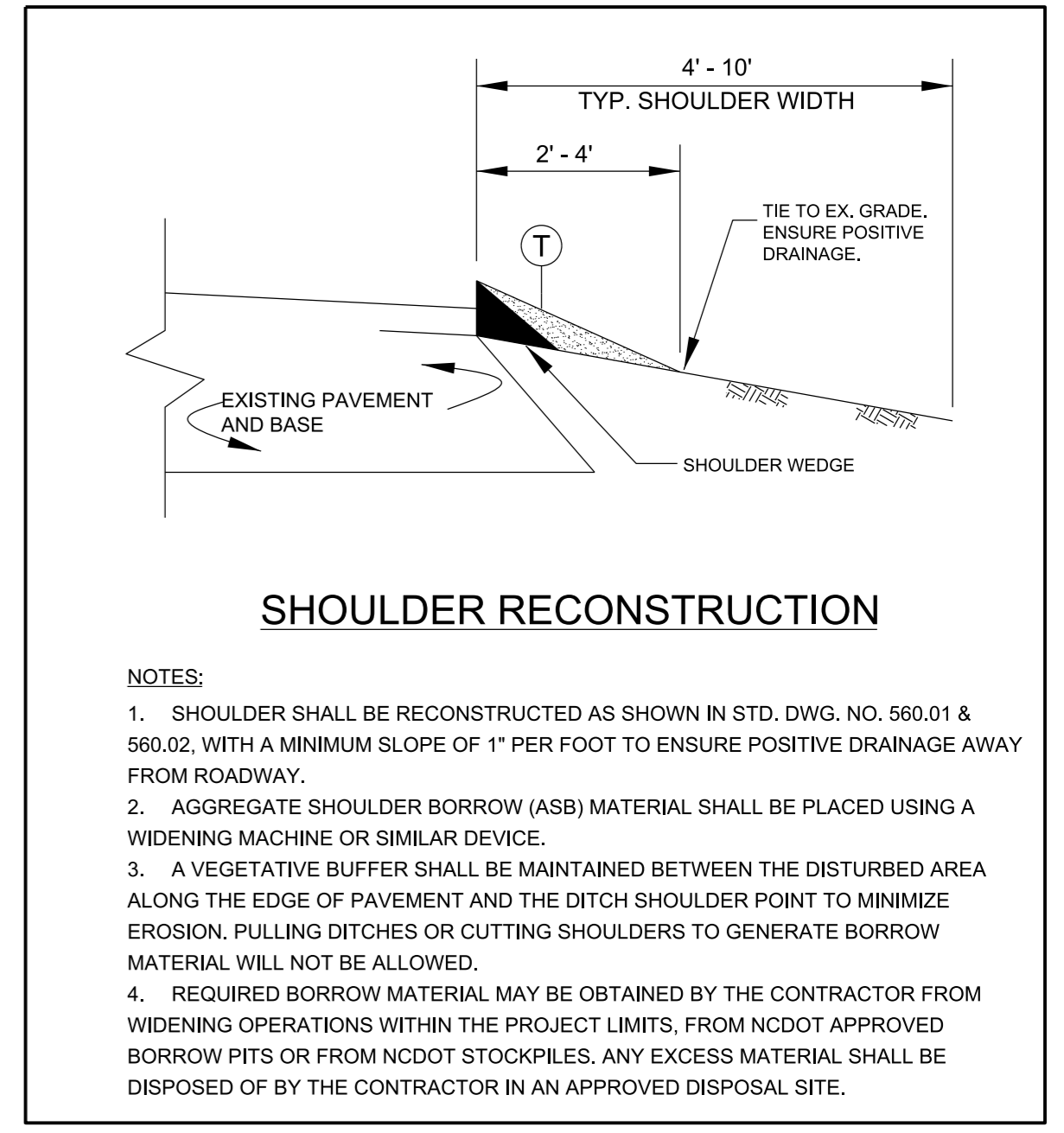
TYPICAL SECTION NO. 1



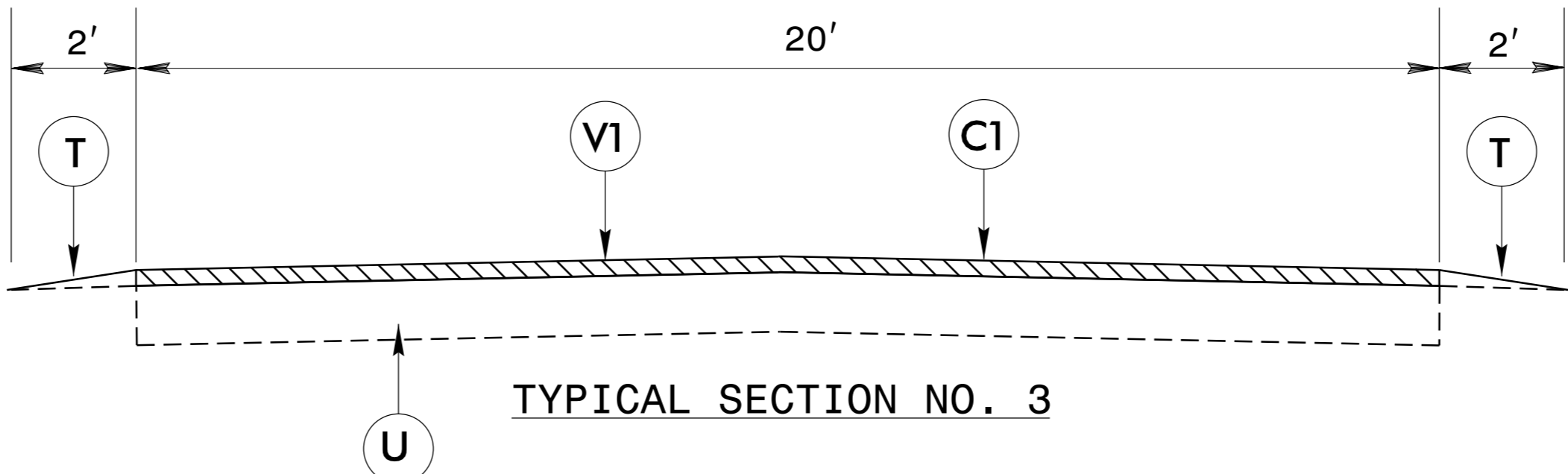
MILLING AT PAVEMENT TIE-INS DETAIL



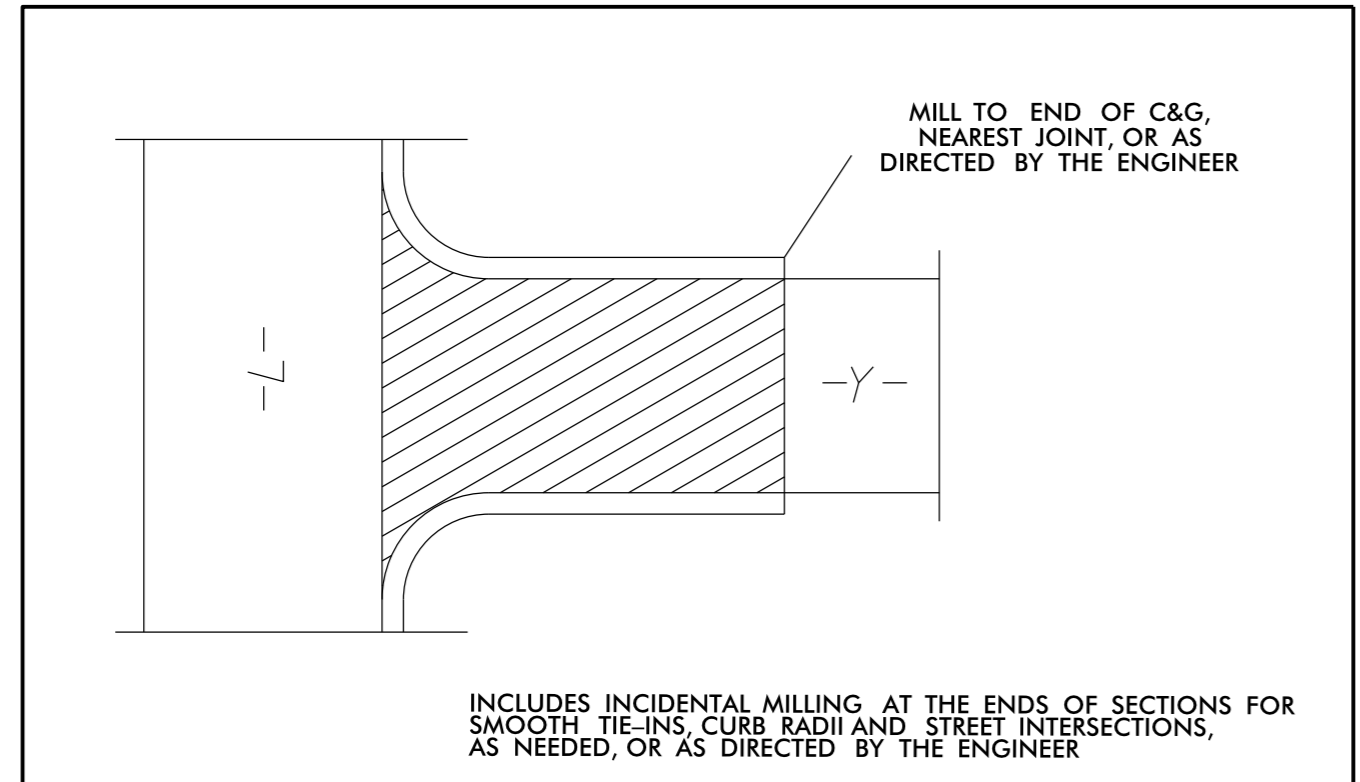
TYPICAL SECTION NO. 2



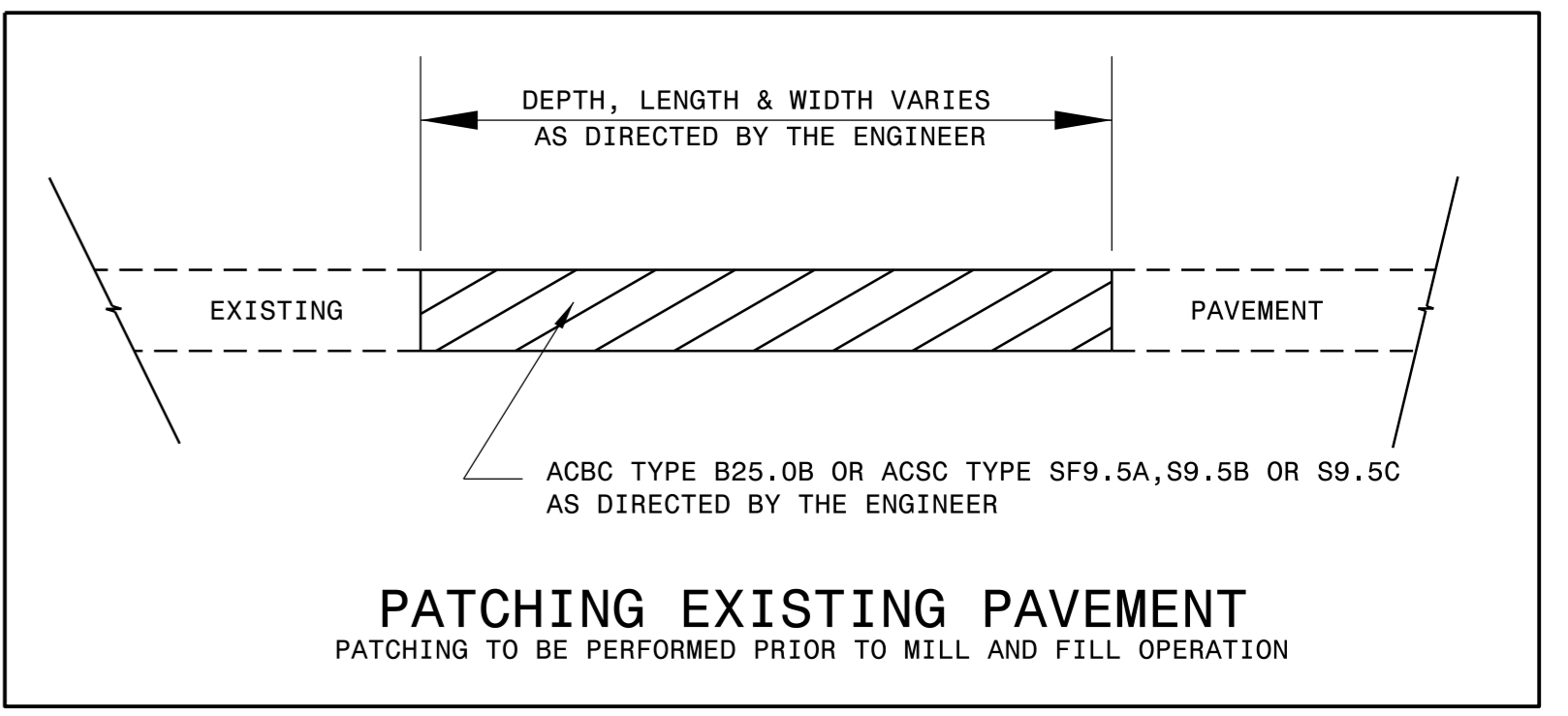
SHOULDER RECONSTRUCTION



TYPICAL SECTION NO. 3



MILLING AT CURB AND GUTTER INTERSECTIONS

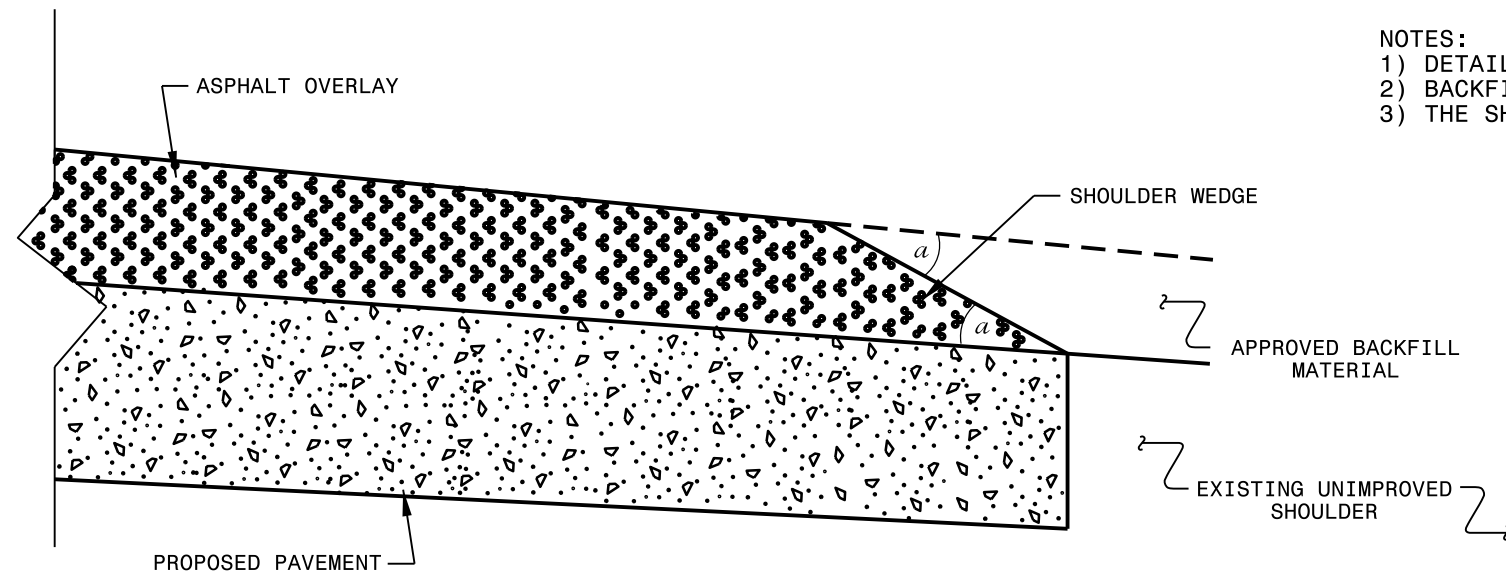


PATCHING EXISTING PAVEMENT

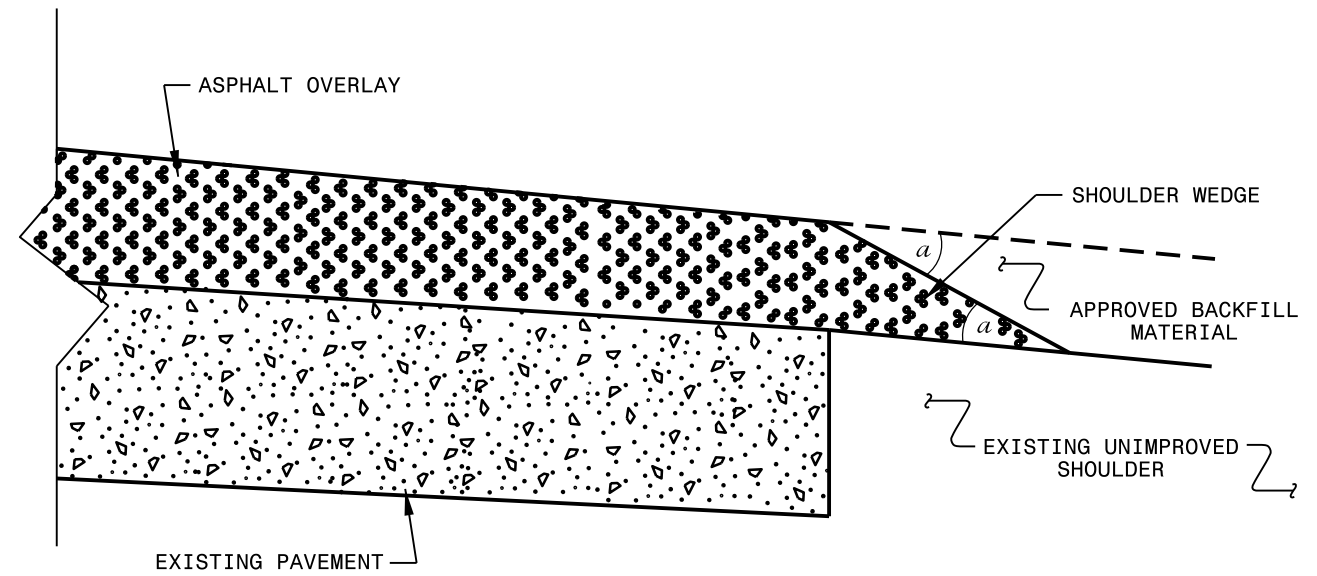
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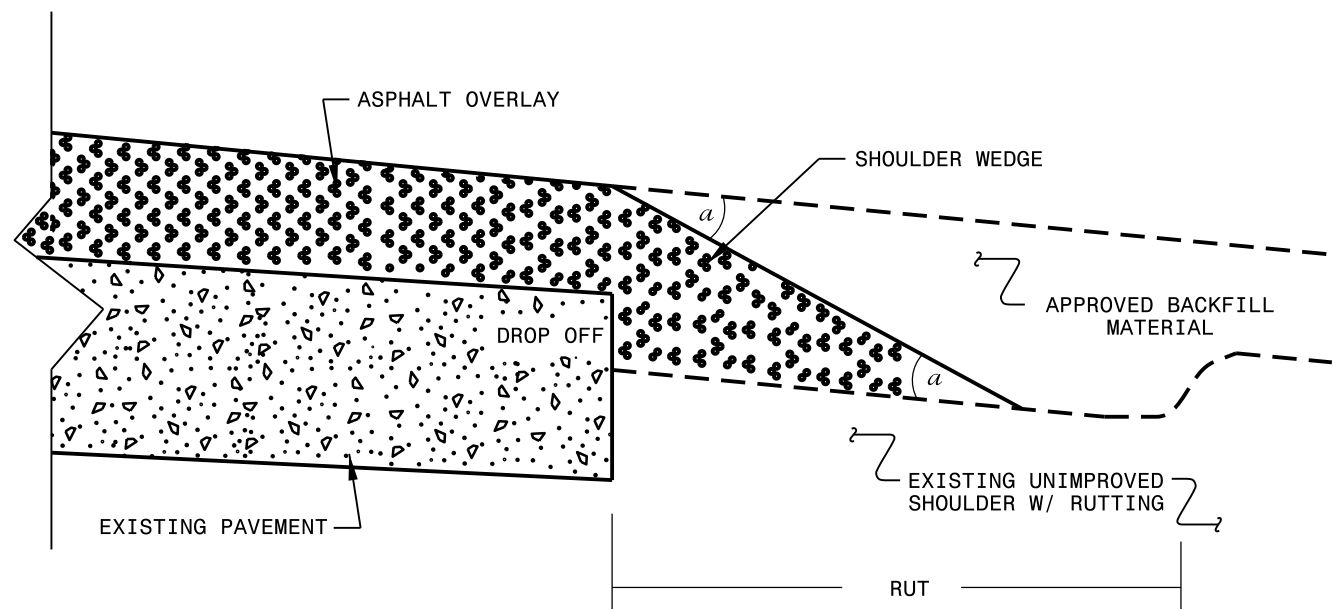
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



**SHOULDER WEDGE DETAIL**  
(Resurfacing Projects w/ Widening or  
with Existing Paved Shoulder having no dropoffs)



**SHOULDER WEDGE DETAIL**  
(Resurfacing Projects w/ NO Widening)



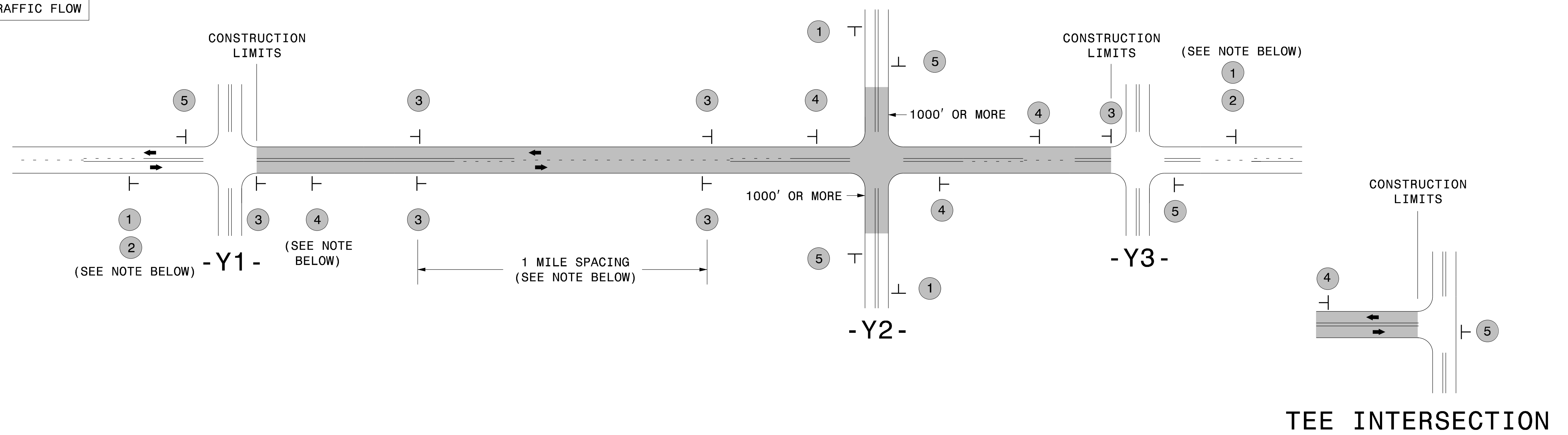
**SHOULDER WEDGE DETAIL**  
(Resurfacing Adjacent to  
Rutted Shoulder)

- 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: 10/16/12
CHECKED BY:	DATE:
FILE SPEC.: susr/details/stand/shoulderwedgedetail.dgn	

# SIGNING FOR RESURFACING PROJECTS

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



## MAINLINE (-L-) SIGNING

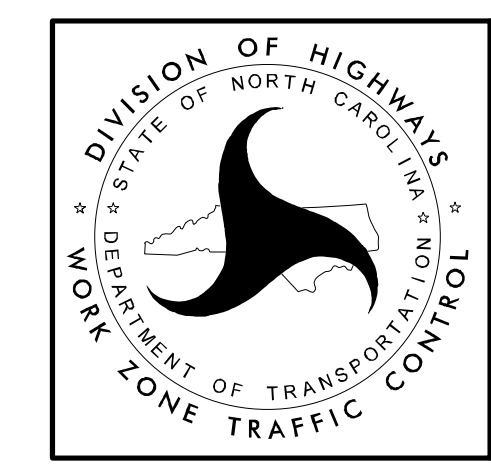
## -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1		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"> <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, PORTABLE ADVANCE WARNING 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;">             PLACED 500' IN ADVANCE OF FLAGGER.         </div> <div style="text-align: center;">             PLACED 250' IN ADVANCE OF FLAGGER.         </div> </div>
	2		#2 SIGN ONLY USED WHEN CONSTRUCTION LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	3		- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 1/2 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.	
	4		- 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. - FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE.	
	5		PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.	

THE ABOVE SIGNS ARE ALL THAT ARE REQUIRED FOR A CONTRACTOR TO BEGIN A RESURFACING CONTRACT. ANY ADDITIONAL SIGNS REQUESTED BY NCDOT DIVISIONS SHALL BE INSTALLED WITHIN 7 BUSINESS DAYS OF THE START OF CONTRACT WORK.

**MAPS LESS THAN 2 MILES**

FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.



**ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2-LANE ROADWAY RESURFACING**

5/15/2017 S:\TUXWZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing\_AdvWarn\_2Ln.dgn User:kadai



### 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)



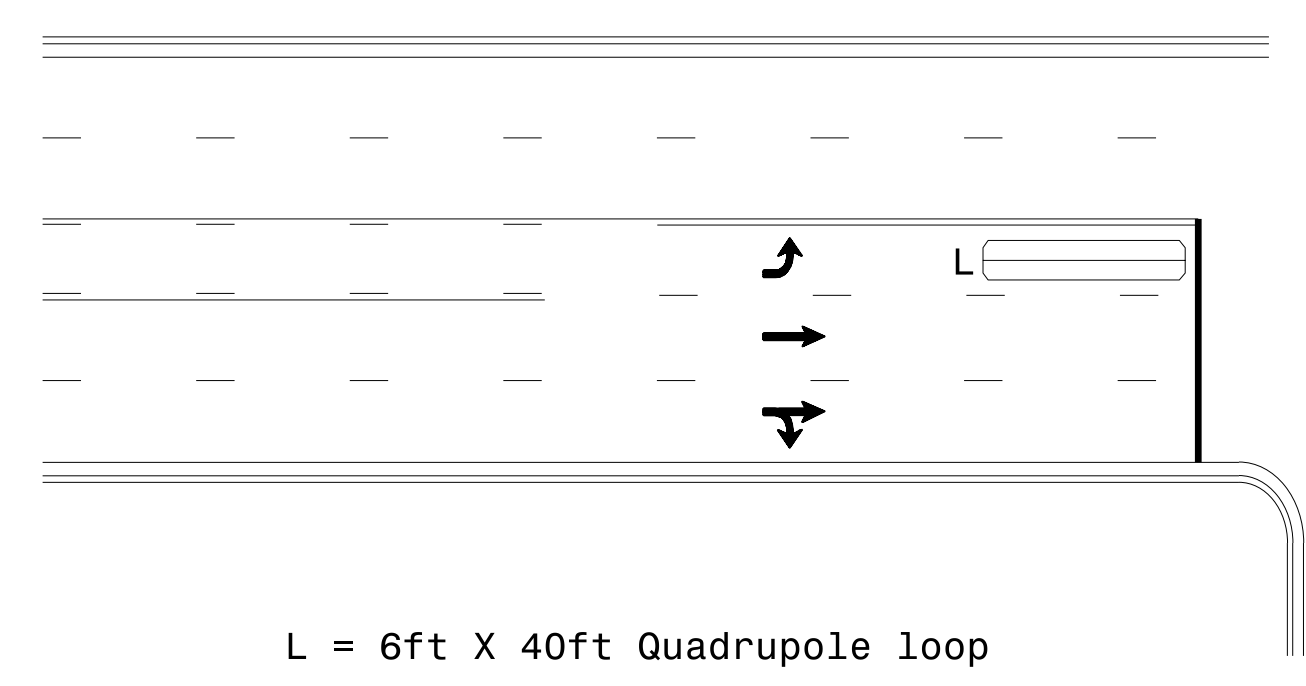
L = 6ft X 6ft  
Wired in series

OR



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

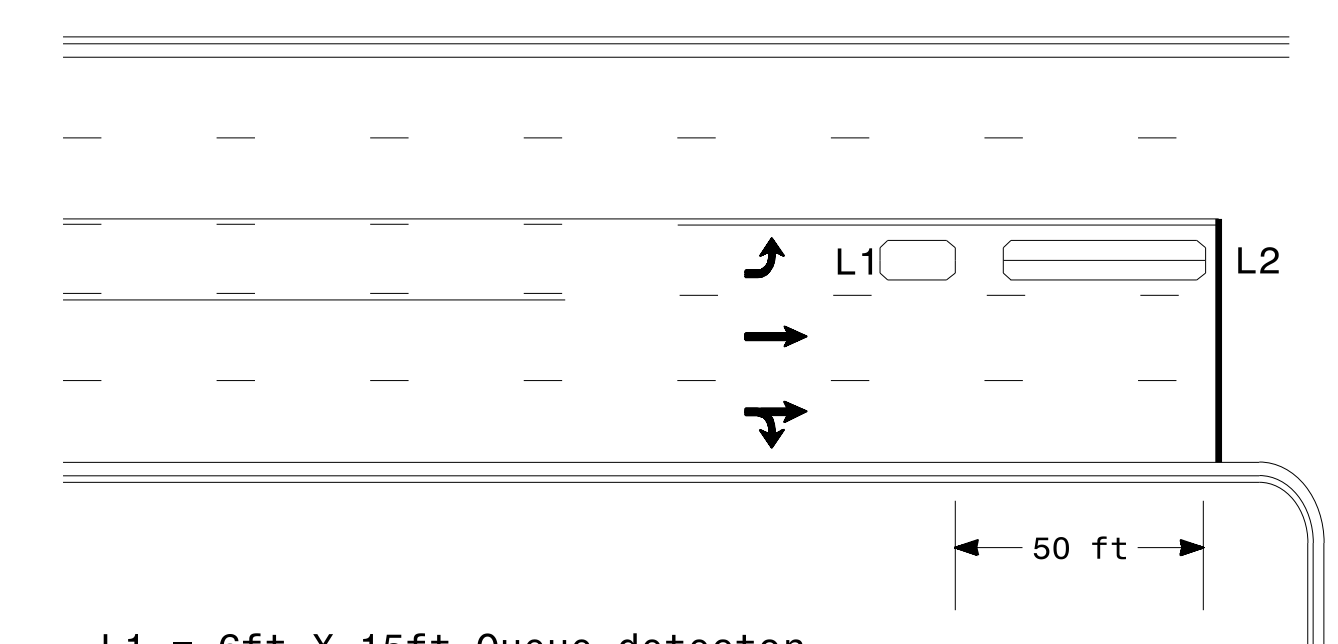
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

OR



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

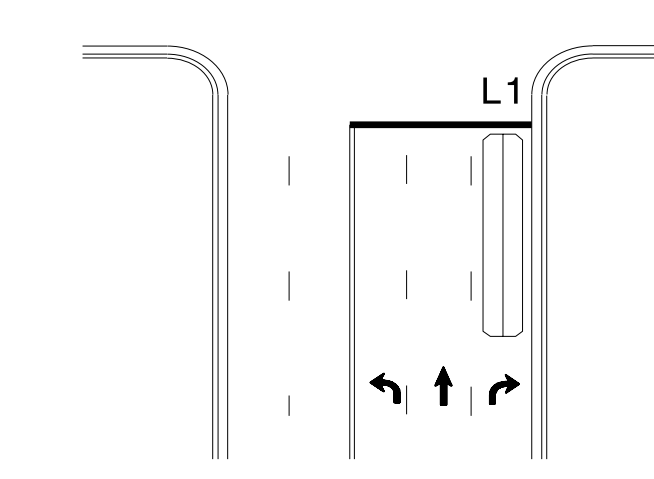
Queue Loop Detection

### Right Turn Lane Detection

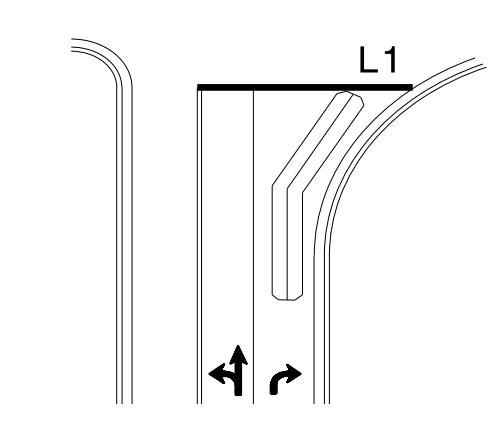


Shared Lane/  
Wide Radius Turn

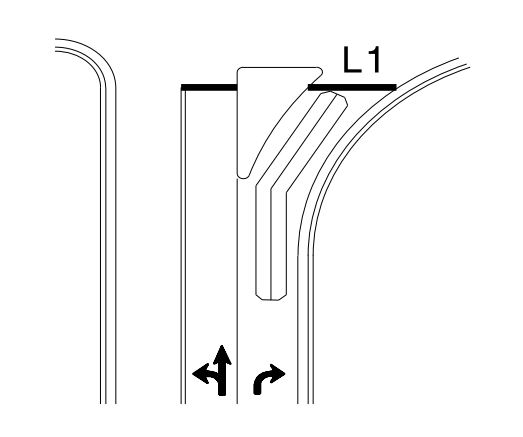
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



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

	<h4>Typical Signal Loop Locations</h4>		
	PLAN DATE: January 2015 PREPARED BY: PLA	REVIEWED BY: JPG REVIEWED BY:	

3D:\4146-2015\_12\319  
 S:\4146\4146-TS\SIGNAL Design Section\Eastern Region\loop\yp\lca\2015.dgn  
 pal alexander

### GUIDELINES FOR LANE WIDTHS ON RESURFACING PROJECTS

Contractor shall place the new pavement markings in accordance with this table and detail unless otherwise directed by the Engineer.

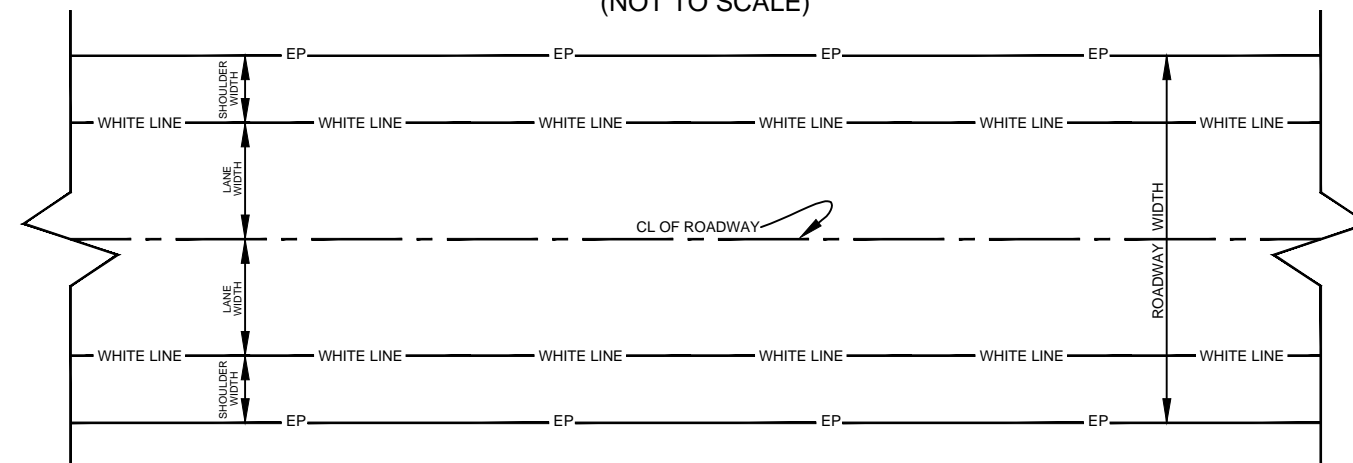
<b>TWO LANE - TWO WAY ROADWAY - 55 MPH</b>		
ROADWAY WIDTH	LANE WIDTH	SHOULDER WIDTH
18'	9' *	0'
20'	10' *	0'
22'	10'	1'
24'	10'	2'
26'	11'	2'
28'	12'	2'
32'	12'	4'

\* May vary due to pavement width

<b>TWO LANE - TWO WAY ROADWAY 50 MPH OR LESS</b>		
ROADWAY WIDTH	LANE WIDTH	SHOULDER WIDTH
18'	9' *	0'
20'	10' *	0'
22'	10'	1'
24'	10'	2'
26'	11'	2'
28'	11'	3'
32'	11'	5'

\* May vary due to pavement width

### SCHEMATIC OF ROADWAY (NOT TO SCALE)







PROJECT NO.	SHEET NO.	TOTAL NO.
2018CPT.06.03.20781.1	14	

**THERMOPLASTIC AND PAINT QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E	4457000000-N	4685000000-E	4686000000-E			4695000000-E	4705000000-E	4710000000-E	4721000000-E	4725000000-E			4810000000-E		4900000000-N		
										WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	4" X 90 M WHITE THERMO	4" X 120 M WHITE THERMO	4" X 120 M YELLOW THERMO	8" X 90 M YELLOW THERMO	16" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMO RXR 120 M	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	4" WHITE PAINT	4" YELLOW PAINT	YELLOW & YELLOW MARKERS	CRYSTAL & RED MARKERS			
										SF	LS	LF	LF	LF	LF	LF	LF	EA	EA	EA	LF	LF	EA	EA			
2018CPT.06.03.20781.1	Robeson	1	SR 1165	FROM NC 710 TO SR 1205	1	2	2WU	2.5	20	225	0.14						30					53,800	45,000				
<b>TOTAL FOR MAP NO. 1</b>								<b>2.5</b>		<b>225</b>	<b>0.14</b>						<b>30</b>					<b>53,800</b>	<b>45,000</b>				
2018CPT.06.03.20781.1	Robeson	2	SR 1300	FROM SCOTLND CO. LN.TO NC 71	1&2	2	2WU	0.74	22	83	0.14						12					10,374	14,748				
<b>TOTAL FOR MAP NO. 2</b>								<b>0.74</b>		<b>83</b>	<b>0.14</b>						<b>12</b>						<b>10,374</b>	<b>14,748</b>			
2018CPT.06.03.20781.1	Robeson	3	SR 1354	FROM SR 1339 TO US 74A	1	2	2WU	0.89	24	100	0.10											18,224	15,490				
<b>TOTAL FOR MAP NO. 3</b>								<b>0.89</b>		<b>100</b>	<b>0.10</b>													<b>18,224</b>	<b>15,490</b>		
2018CPT.06.03.20781.1	Robeson	4	SR 1576	FROM NC 72 TO NC 710	1	2	2WU	3.29	23	368	0.14											68,560	58,276	480			
<b>TOTAL FOR MAP NO. 4</b>								<b>3.29</b>		<b>368</b>	<b>0.14</b>													<b>68,560</b>	<b>58,276</b>	<b>480</b>	
2018CPT.06.03.20781.1	Robeson	5	SR 1578	FROM SR 1515 TO NC 72	1	2	2WU	4	22	448	0.10											83,908	71,322				
<b>TOTAL FOR MAP NO. 5</b>								<b>4</b>		<b>448</b>	<b>0.10</b>													<b>83,908</b>	<b>71,322</b>		
2018CPT.06.03.20781.1	Robeson	6	SR 1718	FROM SR 1118 CUMB.CO. TO US 301	1	2	2WU	1.34	18	150	0.14											21,728	18,470				
<b>TOTAL FOR MAP NO. 6</b>								<b>1.34</b>		<b>150</b>	<b>0.14</b>													<b>21,728</b>	<b>18,470</b>		
2018CPT.06.03.20781.1	Robeson	7	SR 1743	FROM SR 1006 TO NC 20	1	2	2WU	3.39	20	448	0.14											71,248	60,562				
<b>TOTAL FOR MAP NO. 7</b>								<b>3.39</b>		<b>448</b>	<b>0.14</b>													<b>71,248</b>	<b>60,562</b>		
2018CPT.06.03.20781.1	Robeson	8	SR 1945	FROM NC 41 TO SR 1948	1	2	2WU	2.6	20	291	0.14	1,000	205	1,000	120		50		3	2		101,236	86,050	17	20		
<b>TOTAL FOR MAP NO. 8</b>								<b>2.6</b>		<b>291</b>	<b>0.14</b>	<b>1,000</b>	<b>205</b>	<b>1,000</b>	<b>120</b>		<b>50</b>		<b>3</b>	<b>2</b>				<b>101,236</b>	<b>86,050</b>	<b>17</b>	<b>20</b>
2018CPT.06.03.20781.1	Robeson	9	SR 1983	FROM SR 1005 TO SR 1945	1	2	2WU	0.94	20	105	0.10					160	60	4				19,360	19,360				
<b>TOTAL FOR MAP NO. 9</b>								<b>0.94</b>		<b>105</b>	<b>0.10</b>					<b>160</b>	<b>60</b>	<b>4</b>						<b>19,360</b>	<b>19,360</b>		
2018CPT.06.03.20781.1	Robeson	10	SR 2222	FROM SR 2214 TO SR 2220	3	2	2WU	1.34	20	150	0.14											28,272	24,030				
<b>TOTAL FOR MAP NO. 10</b>								<b>1.34</b>		<b>150</b>	<b>0</b>													<b>28,272</b>	<b>24,030</b>		
<b>TOTAL FOR PROJ NO. 2018CPT.06.03.20781.1</b>								<b>21.03</b>		<b>2,368</b>	<b>1</b>	<b>1,000</b>	<b>205</b>	<b>1,000</b>	<b>120</b>	<b>160</b>	<b>152</b>	<b>4</b>	<b>3</b>	<b>2</b>				<b>476,710</b>	<b>413,308</b>	<b>497</b>	<b>20</b>
													<b>1,205</b>					<b>5</b>				<b>890,018</b>		<b>517</b>			
<b>GRAND TOTAL</b>								<b>21.03</b>		<b>2,368</b>	<b>1</b>	<b>1,000</b>	<b>205</b>	<b>1,000</b>	<b>120</b>	<b>160</b>	<b>152</b>	<b>4</b>	<b>3</b>	<b>2</b>			<b>476,710</b>	<b>413,308</b>	<b>497</b>	<b>20</b>	
													<b>1,205</b>					<b>5</b>			<b>890,018</b>		<b>517</b>				