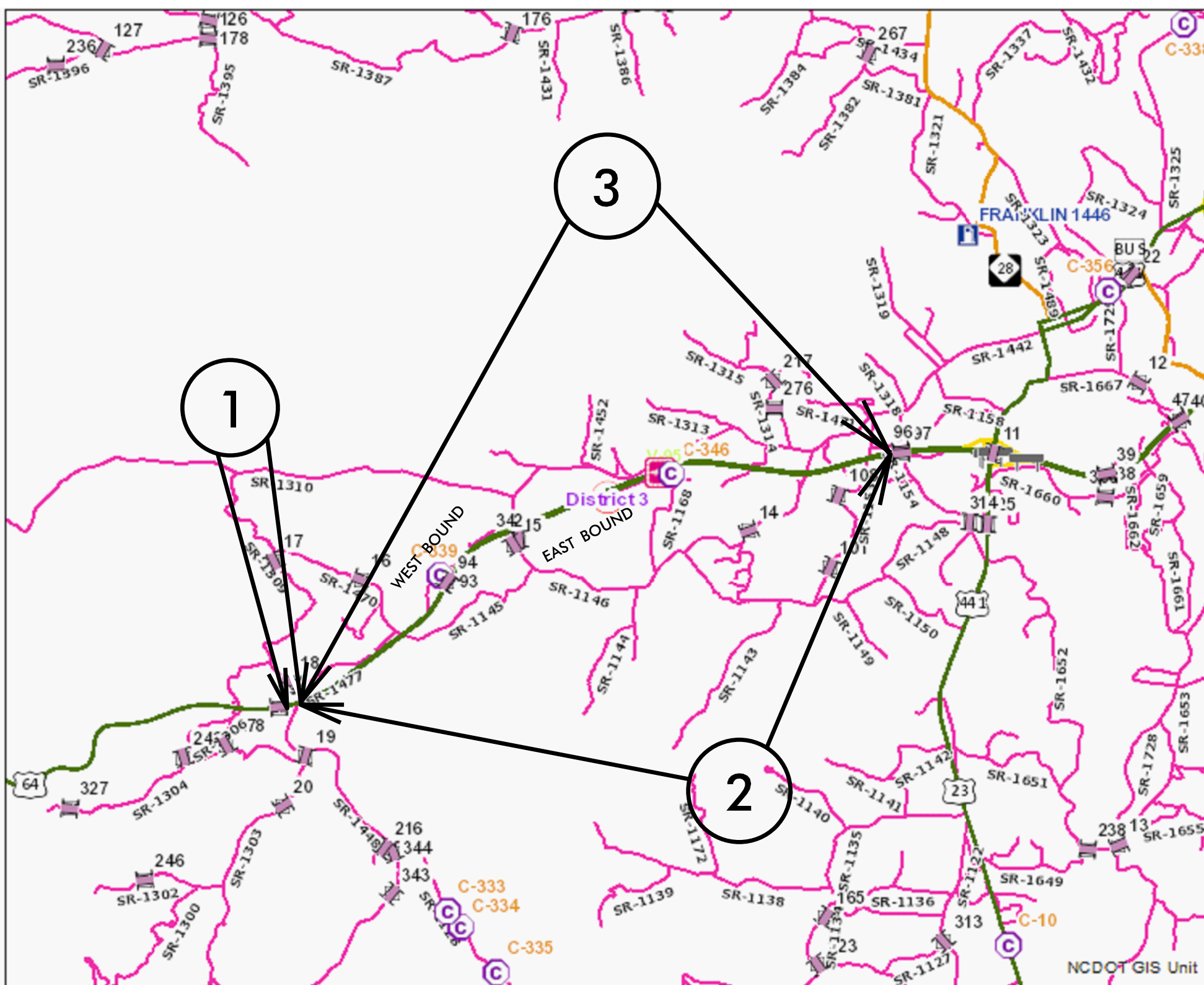


PROJECT REFERENCE NO.		SHEET NO.
2018CPT.14.03.10561.1		1
STATE PROJECT	F.A. PROJECT NO.	DESCRIPTION

MACON COUNTY



MAP 1



BEG



END

MAP 2



BEG



END

MAP 3



BEG



END

TIP PROJECT: N/A

CONTRACT:

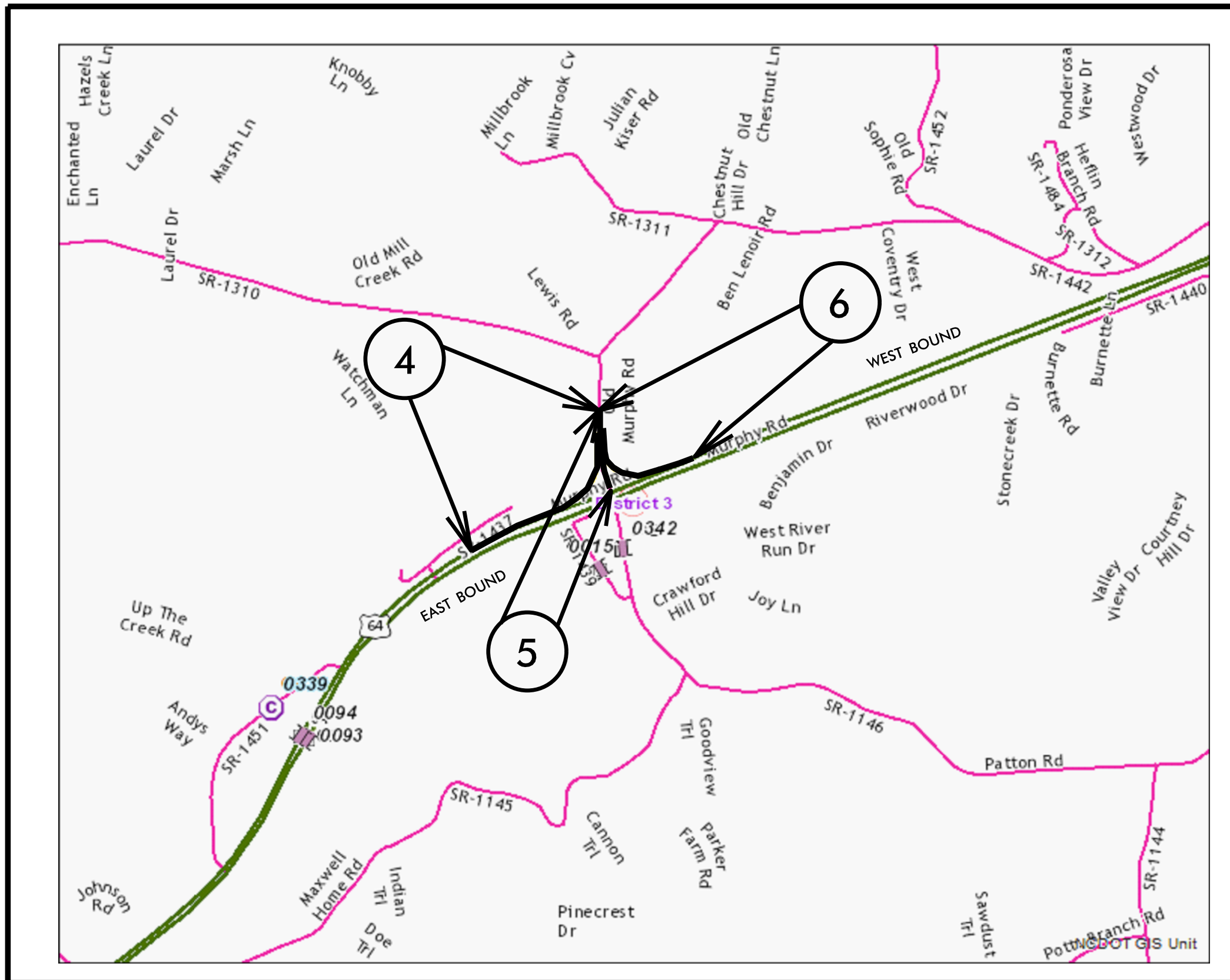
NCDOT GIS Unit

TIP PROJECT: N/A

CONTRACT:

MACON COUNTY

PROJECT REFERENCE NO.		SHEET NO.
2018CPT.14.03.10561.1		2
STATE PROJECT	F.A. PROJECT NO.	DESCRIPTION



MAP 4



BEG

END

MAP 5



BEG

END

MAP 6



BEG

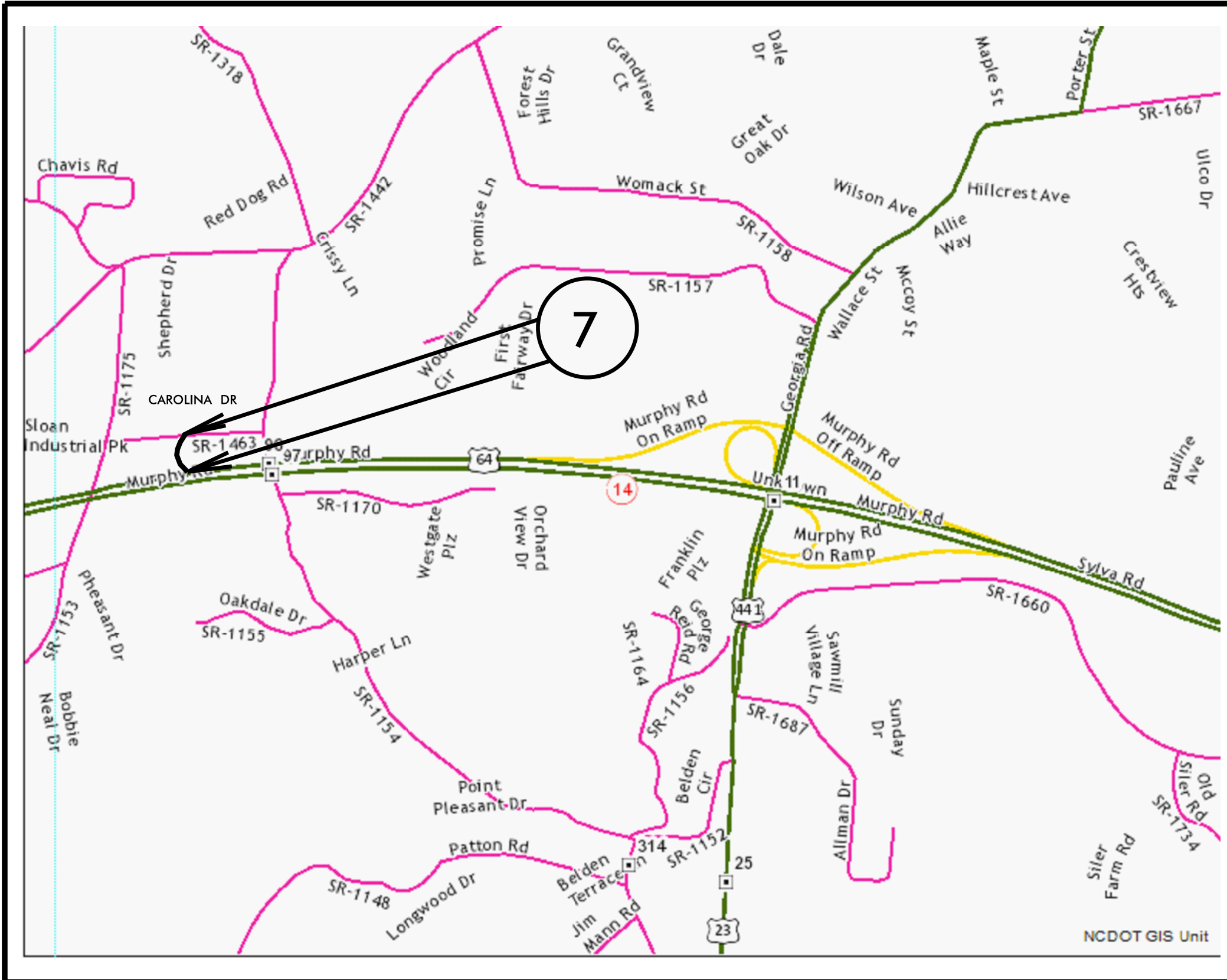
END

TIP PROJECT: N/A

CONTRACT:

MACON COUNTY

PROJECT REFERENCE NO.	SHEET NO.
2018CPT.14.03.10561	3
STATE PROJECT	F.A. PROJECT NO.
	DESCRIPTION



MAP 7



BEG

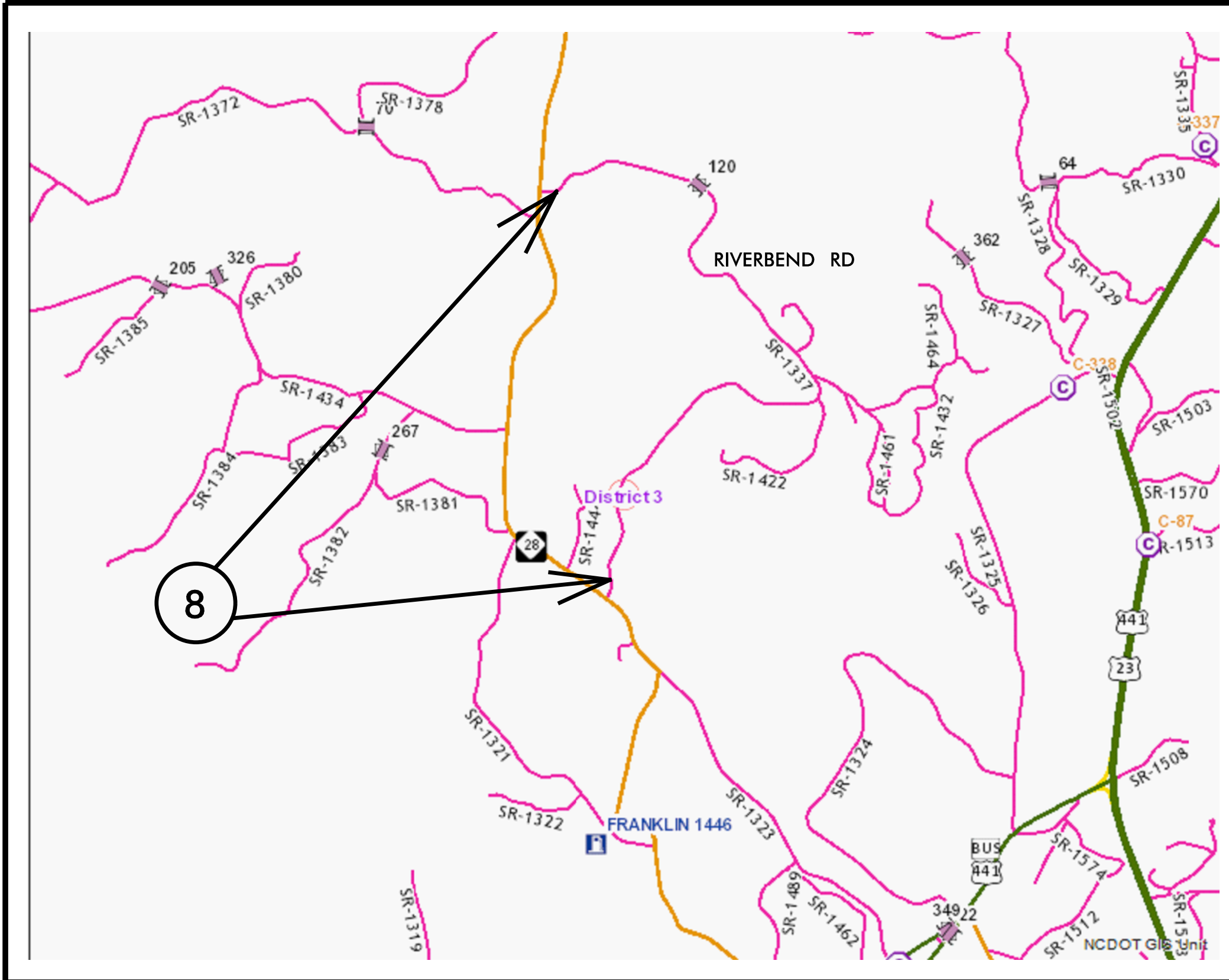
END

TIP PROJECT: N/A

CONTRACT:

MACON COUNTY

PROJECT REFERENCE NO.		SHEET NO.
2018CPT.14.03.20561.1		4
STATE PROJECT	F.A. PROJECT NO.	DESCRIPTION



MAP 8

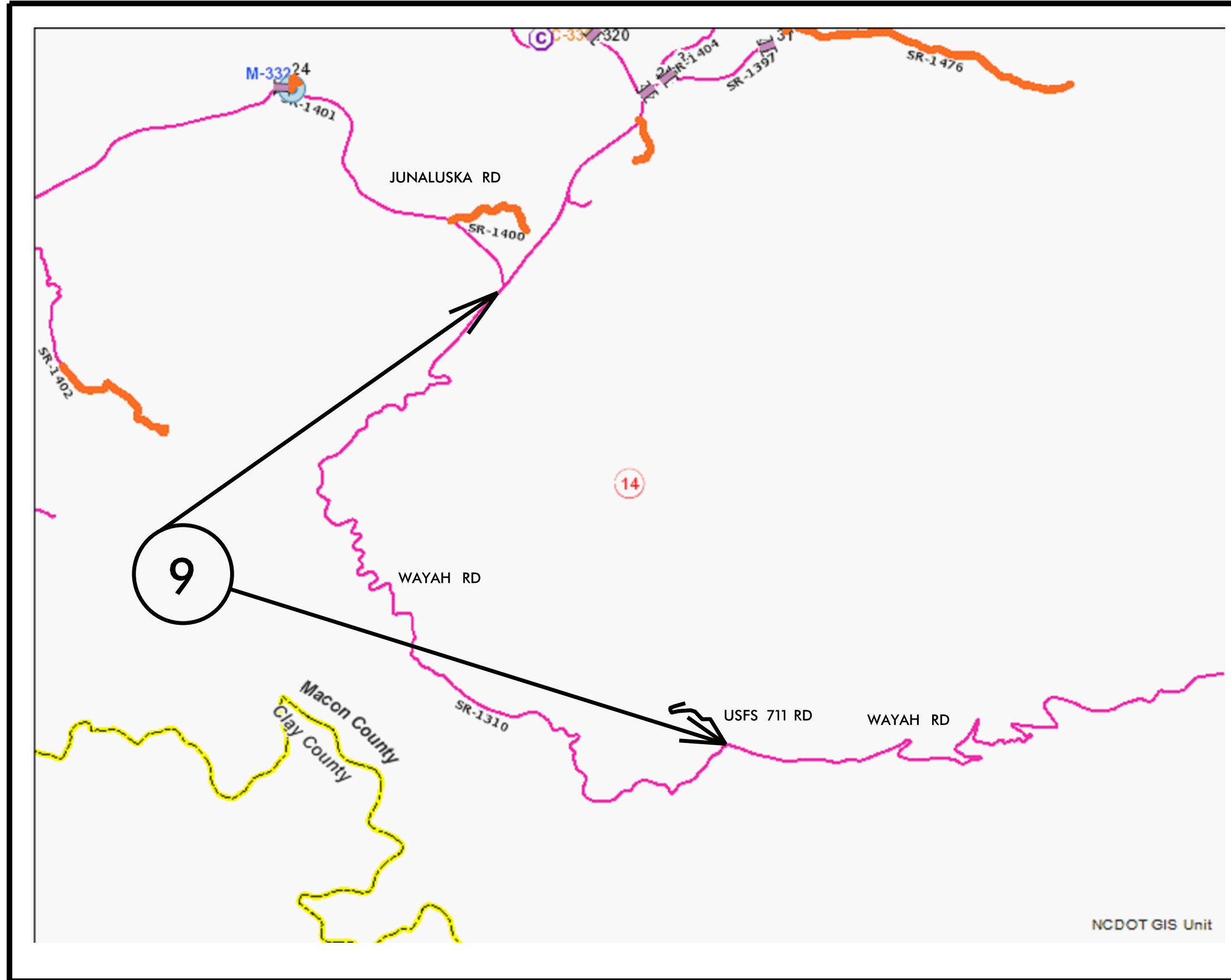


BEG

END

PROJECT REFERENCE NO.		SHEET NO.
2018CPT.14.03.20561.1		5
STATE PROJECT	F.A. PROJECT NO.	DESCRIPTION

MACON COUNTY



MAP 9



BEG

END

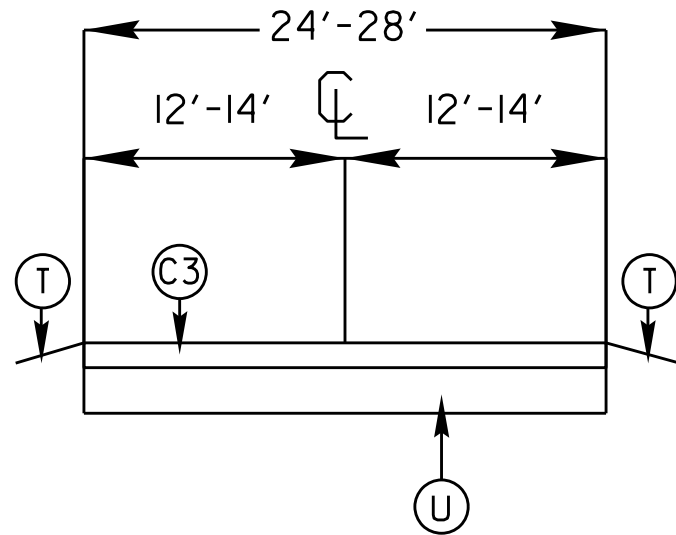
NCDOT GIS Unit

TIP PROJECT: N/A

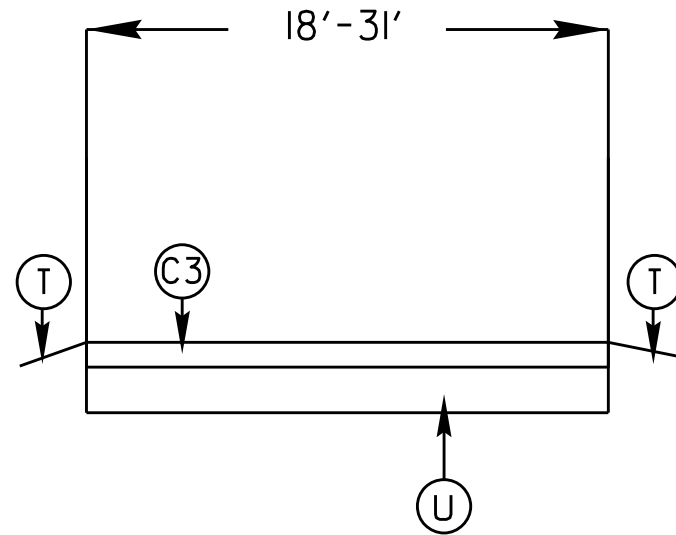
CONTRACT:

PROJECT REFERENCE NO.		SHEET NO.
2018CPT.14.03.10561.1		6
STATE PROJECT	F.A. PROJECT NO.	DESCRIPTION
2018CPT.14.03.20561.1		

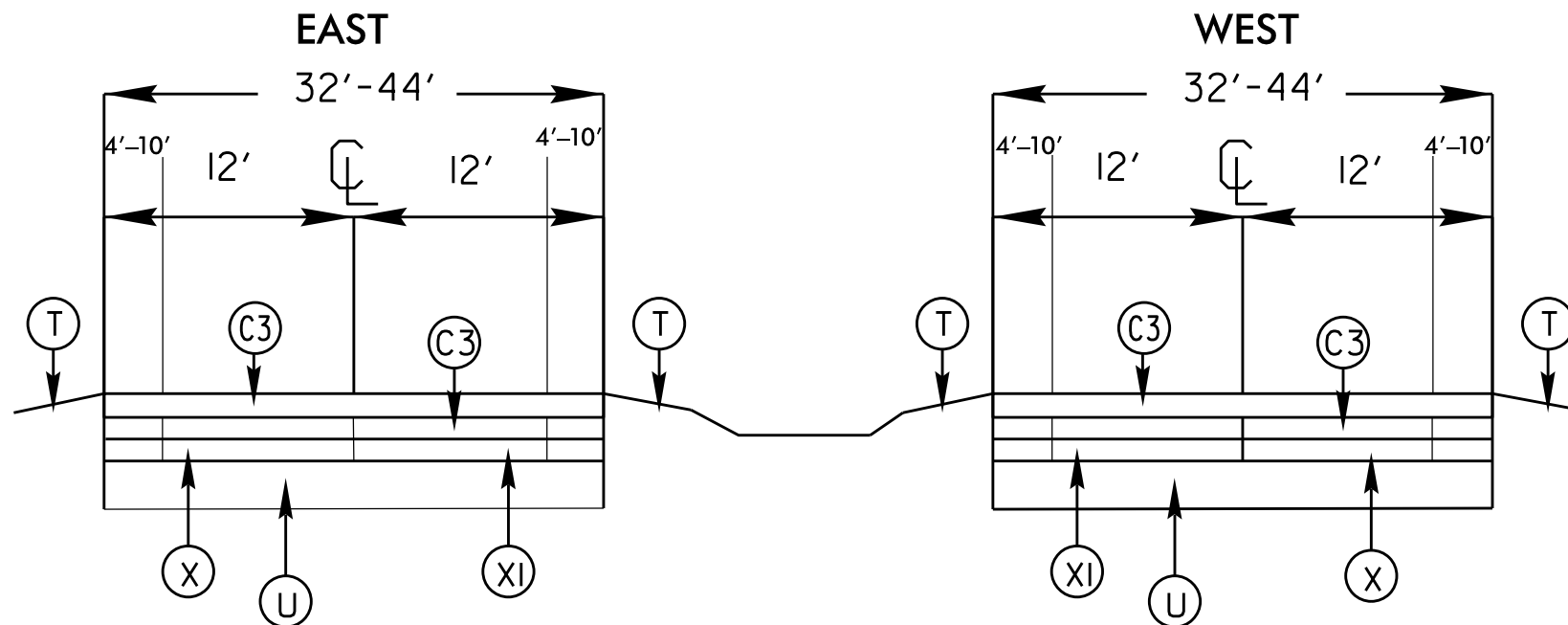
TYPICAL 1



TYPICAL 3



TYPICAL 2

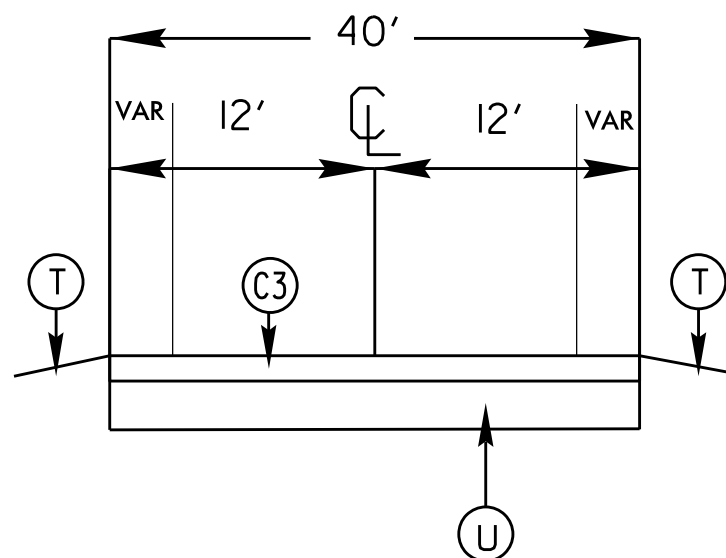


SURFACING SCHEDULE

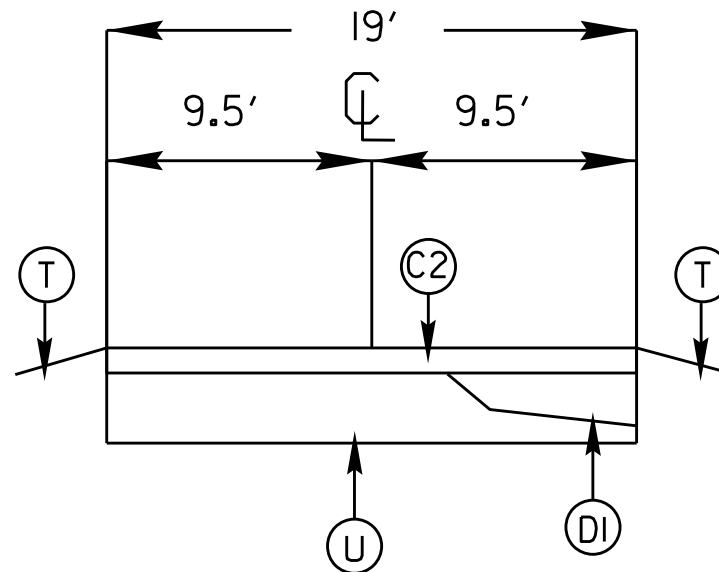
ITEM NO	DESCRIPTION
C1	PROP. APPROX. 3/4" ASPHALT CONCRETE SURFACE COURSE, (LEVELING) TYPE SF9.5A AT AN AVERAGE RATE OF 82.5 LBS.PER.SQ.YD
C2	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A AT AN AVERAGE RATE OF 137.5 LBS.PER.SQ.YD
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 168 LBS.PER.SQ.YD
D1	PROP. VAR DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, WEDGING TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS.PER.SQ.YD . AT LOCATIONS AS DIRECTED BY PROJECT ENGINEER
T	SHOULDER RECONSTRUCTION
V1	MILLED ASPHALT PAVEMENT 0"- 1 1/2" IN DEPTH IN LOCATIONS AS DIRECTED BY PROJECT ENGINEER
U	EXISTING ASPHALT
X	PAVEMENT INTERLAYER-SEE PROJECT SPECIAL PROVISIONS 100 MIL
X1	PAVEMENT INTERLAYER-SEE PROJECT SPECIAL PROVISIONS 50 MIL

PROJECT REFERENCE NO.		SHEET NO.
2018CPT.14.03.10561.1		7
STATE PROJECT	F.A. PROJECT NO.	DESCRIPTION
2018CPT.14.03.20561.1		

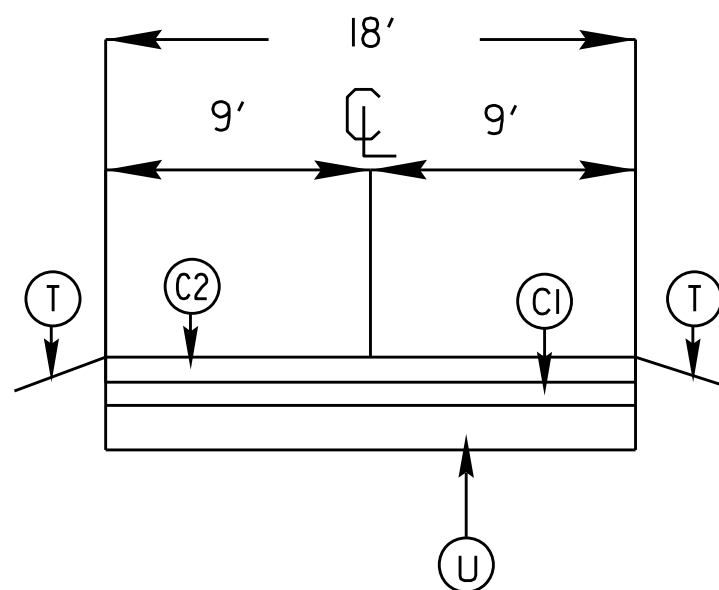
TYPICAL 4



TYPICAL 6



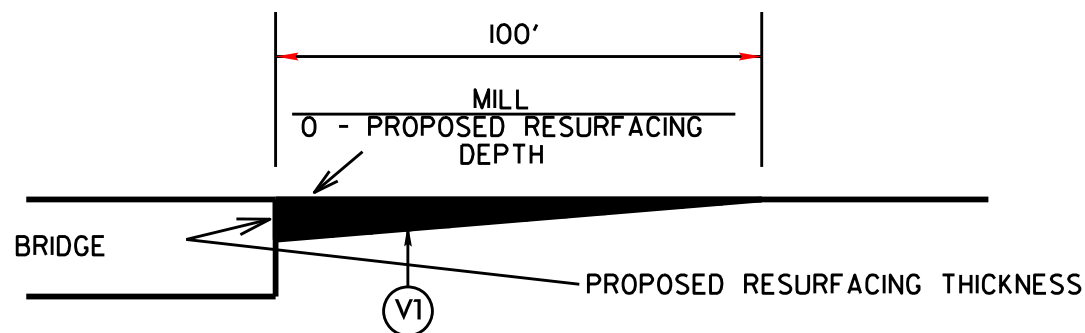
TYPICAL 5



SURFACING SCHEDULE

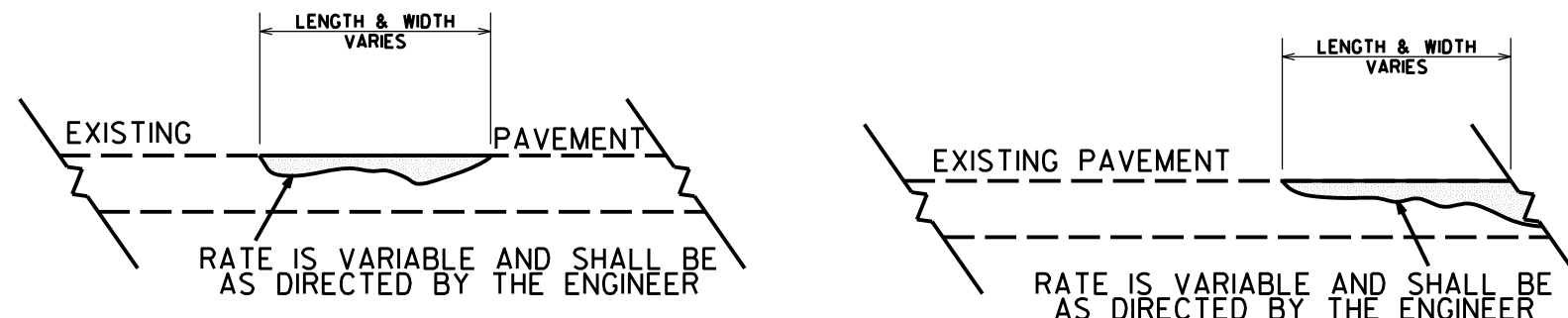
ITEM NO	DESCRIPTION
C1	PROP. APPROX. 3/4" ASPHALT CONCRETE SURFACE COURSE, (LEVELING) TYPE SF9.5A AT AN AVERAGE RATE OF 82.5 LBS.PER.SQ.YD
C2	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A AT AN AVERAGE RATE OF 137.5 LBS.PER.SQ.YD
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 168 LBS.PER.SQ.YD
D1	PROP. VAR DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, WEDGING TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS.PER.SQ.YD . AT LOCATIONS AS DIRECTED BY PROJECT ENGINEER
T	SHOULDER RECONSTRUCTION
V1	MILLED ASPHALT PAVEMENT 0"- 1 1/2" IN DEPTH IN LOCATIONS AS DIRECTED BY PROJECT ENGINEER
U	EXISTING ASPHALT
X	PAVEMENT INTERLAYER-SEE PROJECT SPECIAL PROVISIONS 100 MIL
X1	PAVEMENT INTERLAYER-SEE PROJECT SPECIAL PROVISIONS 50 MIL

PROJECT REFERENCE NO.		SHEET NO.
2018CPT.14.03.10561.1		8
STATE PROJECT	F.A. PROJECT NO.	DESCRIPTION
2018CPT.14.03.20561.1		



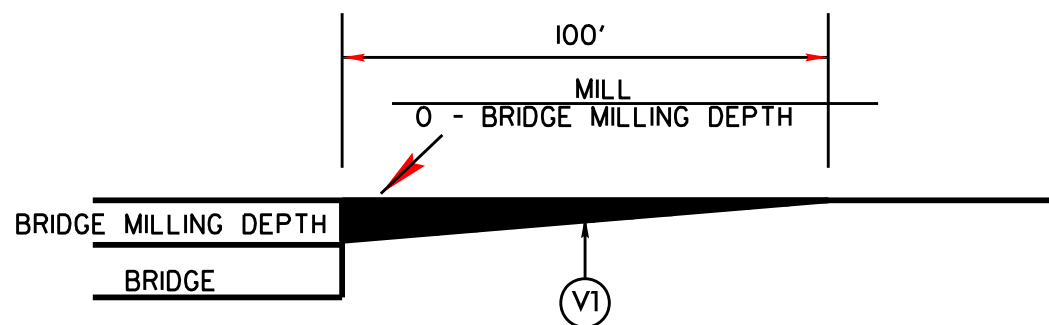
MILLING DETAIL AT BRIDGE APPROACHES

WHERE BRIDGES WILL NOT BE RESURFACED. THIS WILL BE PAID FOR AS 0"- 1 1/2" MILLING.



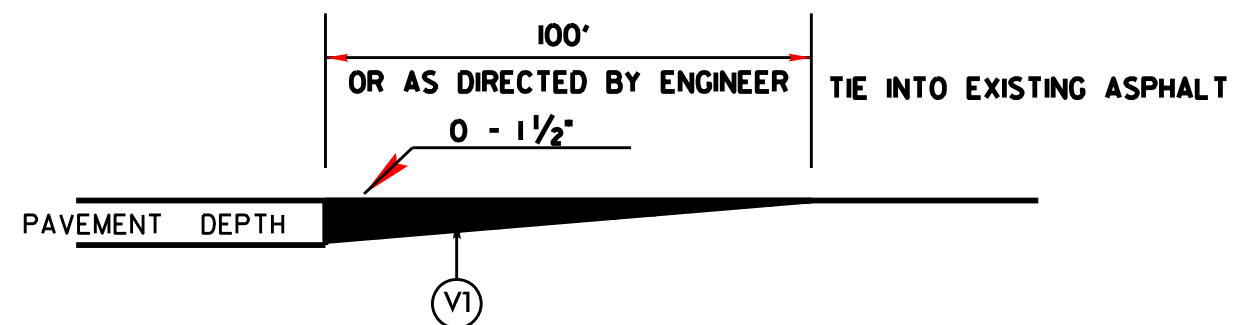
DETAIL SHOWING METHOD OF WEDGING

***PROPOSED WEDGE COURSE* (114 LBS PER SQ YARD PER 1" DEPTH)**



MILLING DETAIL AT BRIDGE APPROACHES

WHERE BRIDGES WILL BE MILLED THEN RESURFACED. THIS WILL BE PAID FOR AS 0"- 1 1/2" MILLING.

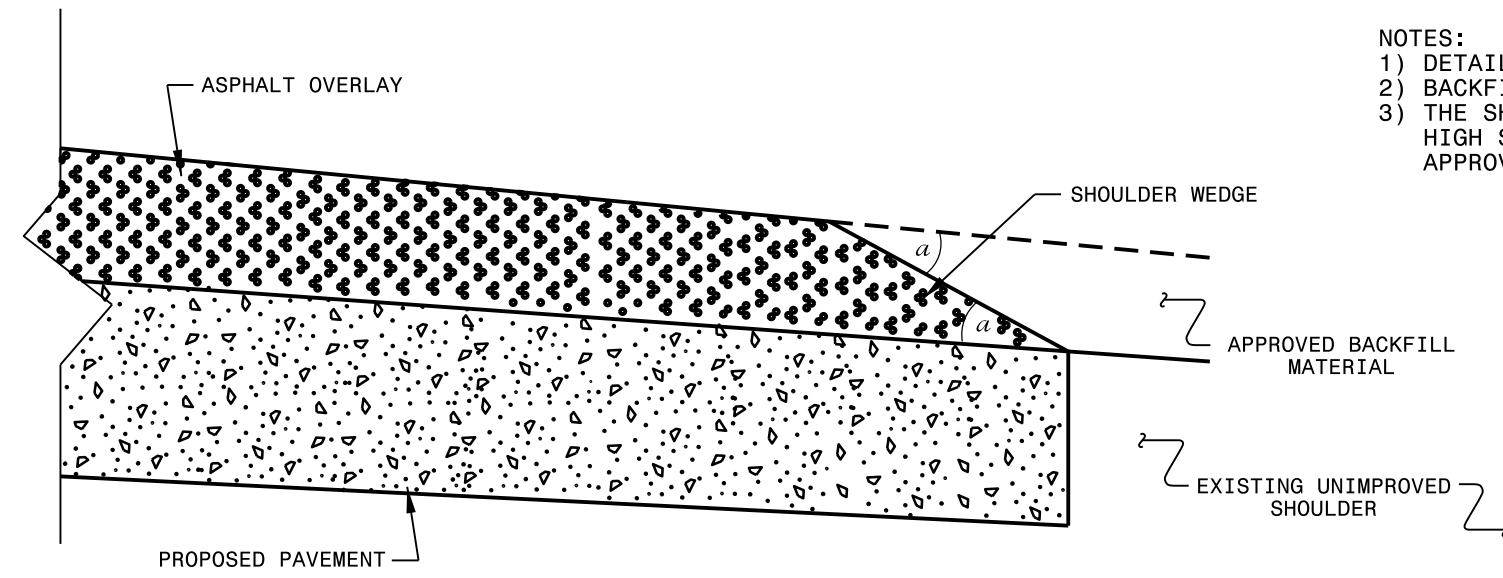


DETAIL TO TIE INTO EXIST PAVEMENT

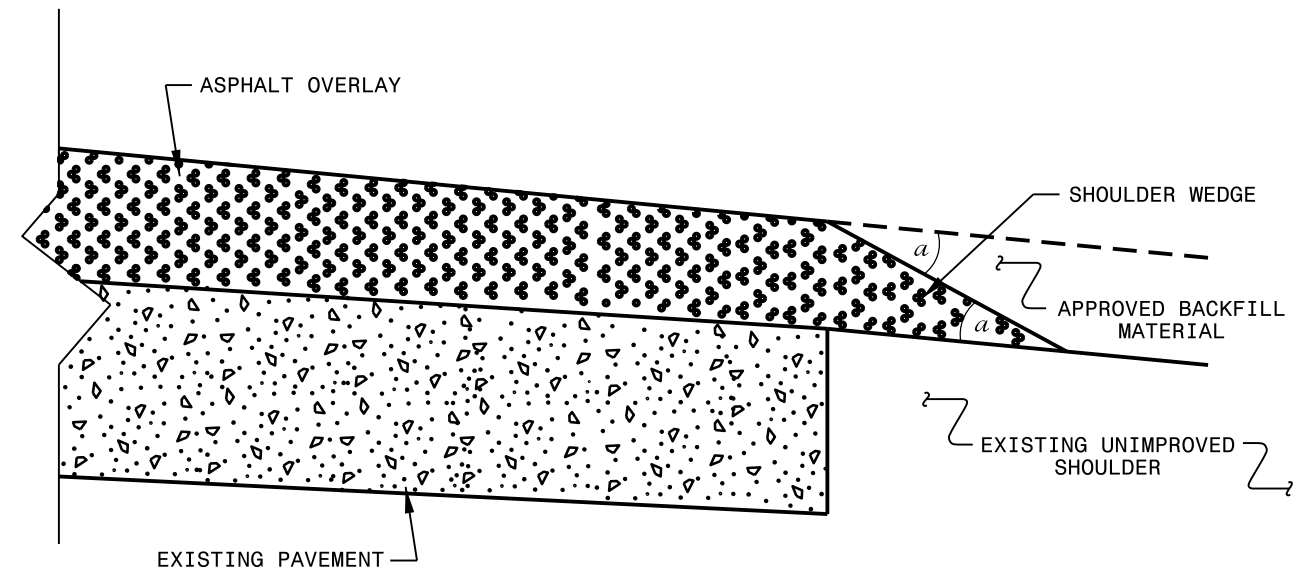
THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT HE WILL BE REQUIRED TO MILL THE EXISTING ASPHALT PAVEMENT TO ENSURE A PROPER TIE-IN WITH THE EXISTING SURFACE AT THE BEGINNING, END AND Y LINES OF EACH MAP. THIS WILL BE PAID FOR AS 0-1 1/2" MILLING.

NOTES:

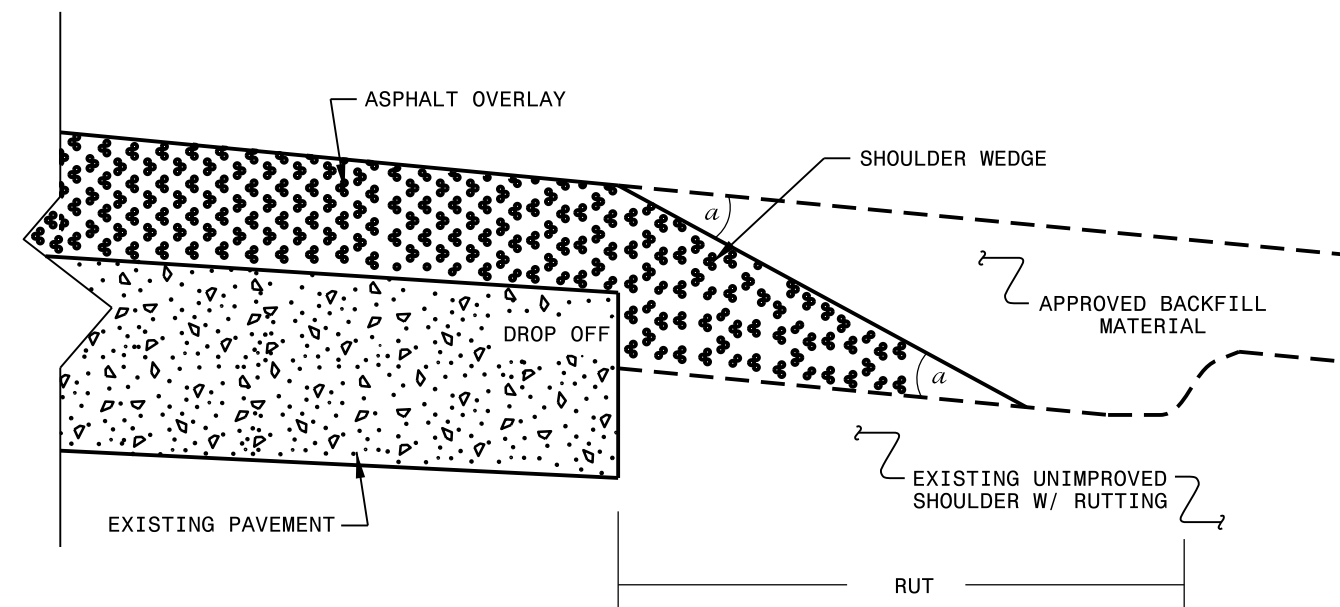
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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			

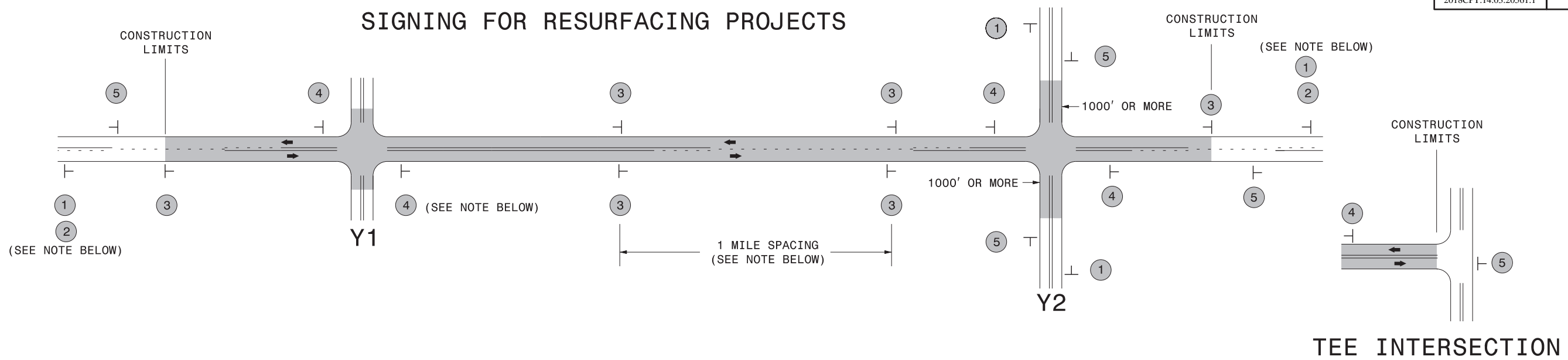
24-MAR-2016 11:45
 S:\Contracts\Resurfacing Projects\Shoulder Wedge Details\Revised Shoulder Wedge Detail.dgn
 *****USERNAME*****

PROJECT NO.	SHEET NO.	TOTAL NO.
2018CPT.14.03.10561.1, 2018CPT.14.03.20561.1	10	

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	SHOULDER RECONSTRUCTION SMI	0" TO 1.5" MILLING SY	INTERMEDIATE COURSE, I19.0B (WEDGING) TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TONS	LEVELING COURSE, SF9.5A TON	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ASPHALT FOR PAVEMENT INTERLAYER TON	PAVEMENT INTERLAYER 50 MIL FABRIC SY	PAVEMENT INTERLAYER 100 MIL FABRIC SY	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE, 14-2 LF
2018CPT.14.03.10561.1	Macon	1	US 64	FROM BRIDGE #9 TO BEG OF DIV HWY	1	2	2WU	NO	NO	0.18	24	0.36	423		274			16						
TOTAL FOR MAP NO. 1										0.18		0.36	423		274			16						
2018CPT.14.03.10561.1	Macon	2	US 64 WEST	FROM .03 MI EAST OF SR 1448 TO WEST END OF BRIDGE #96	2	2	MD	YES	NO	5.35	32	10.54	1,068		19,556			1,173		300	39,233.00	39,233.00	265	120
TOTAL FOR MAP NO. 2										5.35		10.54	1,068		19,556			1,173		300	39,233.00	39,233.00	265	120
2018CPT.14.03.10561.1	Macon	3	US 64 EAST	.02 MI EAST OF SR 1477 TO WEST END OF BRIDGE #97	2	2	MD	YES	NO	5.37	32	10.74	1,068		19,629			1,178		600	39,233.00	39,233.00	263	120
TOTAL FOR MAP NO. 3										5.37		10.74	1,068		19,629			1,178		600	39,233.00	39,233.00	263	120
2018CPT.14.03.10561.1	Macon	4	RAMP TO US 64 WEST	FROM SR 1442 TO US 64 WBL	3	1	2WU	NO	NO	0.4	20	0.80			436			26						
TOTAL FOR MAP NO. 4										0.4		0.80			436			26						
2018CPT.14.03.10561.1	Macon	5	EXIT & ENTRANCE TO SR-1442	FROM SR-1442 TO US 64	4	2	2WU	NO	NO	0.18	40	0.36			392			23						
TOTAL FOR MAP NO. 5										0.18		0.36			392			23						
2018CPT.14.03.10561.1	Macon	6	EXIT RAMP WBL TO SR-1442	FROM US 64 WBL TO SR 1442	3	1	2WU	NO	NO	0.26	18	0.52			251			15						
TOTAL FOR MAP NO. 6										0.26		0.52			251			15						
2018CPT.14.03.10561.1	Macon	7	EXIT RAMP WBL TO SR-1463	FROM US 64 WBL TO SR 1463	3	1	2WU	NO	NO	0.13	31	0.26			215			13						
TOTAL FOR MAP NO. 7										0.13		0.26			215			13						
TOTAL FOR PROJ NO. 2018CPT.14.03.10561.1										11.87		23.58	2,559		40,753			2,444		900	78,466.00	78,466.00	528	240
2018CPT.14.03.20561.1	Macon	8	SR 1337 (RIVERBEND ROAD)	FROM 0.09MI NORTH OF NC 28 TO 0.09MI EAST OF NC 28	5	2	2WU	NO	NO	2.99	18	5.98				2,041	200	149						
TOTAL FOR MAP NO. 8										2.99		5.98			2,041	200	149							
2018CPT.14.03.20561.1	Macon	9	SR 1310 (WAYAH ROAD)	FROM USFS RD 711 TO SR 1401(JUNALUSKA RD)	6	2	2WU	NO	NO	7.69	19	15.38		100		7,072		479	892					
TOTAL FOR MAP NO. 9										7.69		15.38		100		7,072		479	892					
TOTAL FOR PROJ NO. 2018CPT.14.03.20561.1										10.68		21.36		100		9,113	200	628	892					
GRAND TOTAL										22.55		44.94	2,559	100	40,753	9,113	200	3,072	892	900	78,466.00	78,466.00	528	240

SIGNING FOR RESURFACING PROJECTS



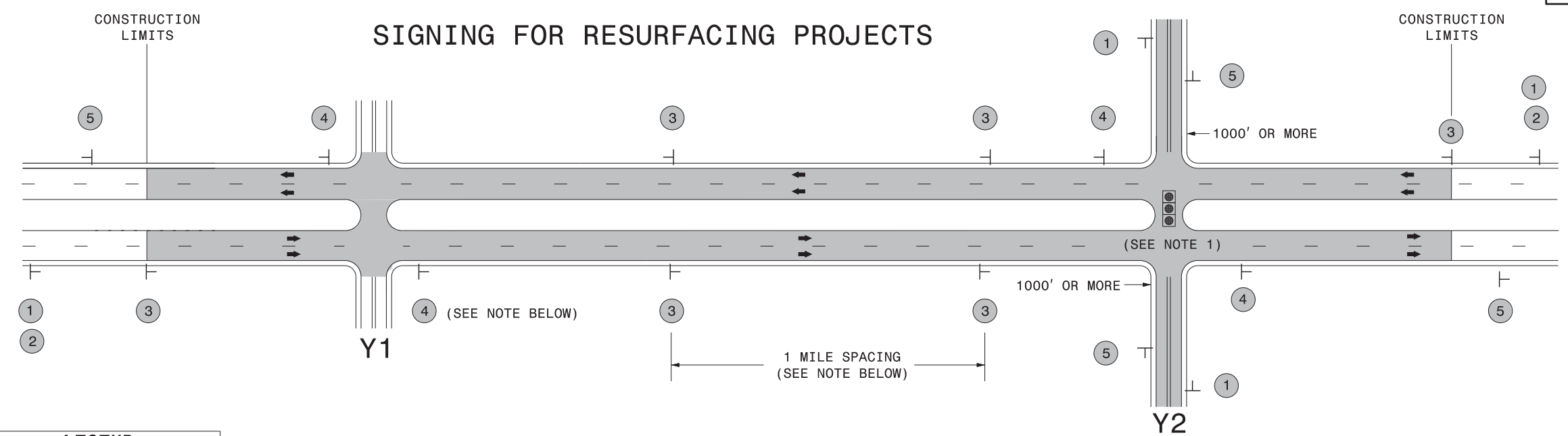
LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	2	3	4	5	
			<p>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>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>		
			<p>- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER.</p> <p>- AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.</p>			
			<p>- THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS.</p> <p>- INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE.</p> <p>- 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.</p> <p>- 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>- FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE.</p>	<p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>		
			<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.</p>			

**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	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> <p>NOTES:</p> <ol style="list-style-type: none"> 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.
	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.	

3/23/2015 C:\Users\rmgarrrett\Downloads\Resurfacing_AdvWarn_LrSu_Shldr.dgn User:rmgarrrett

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

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)



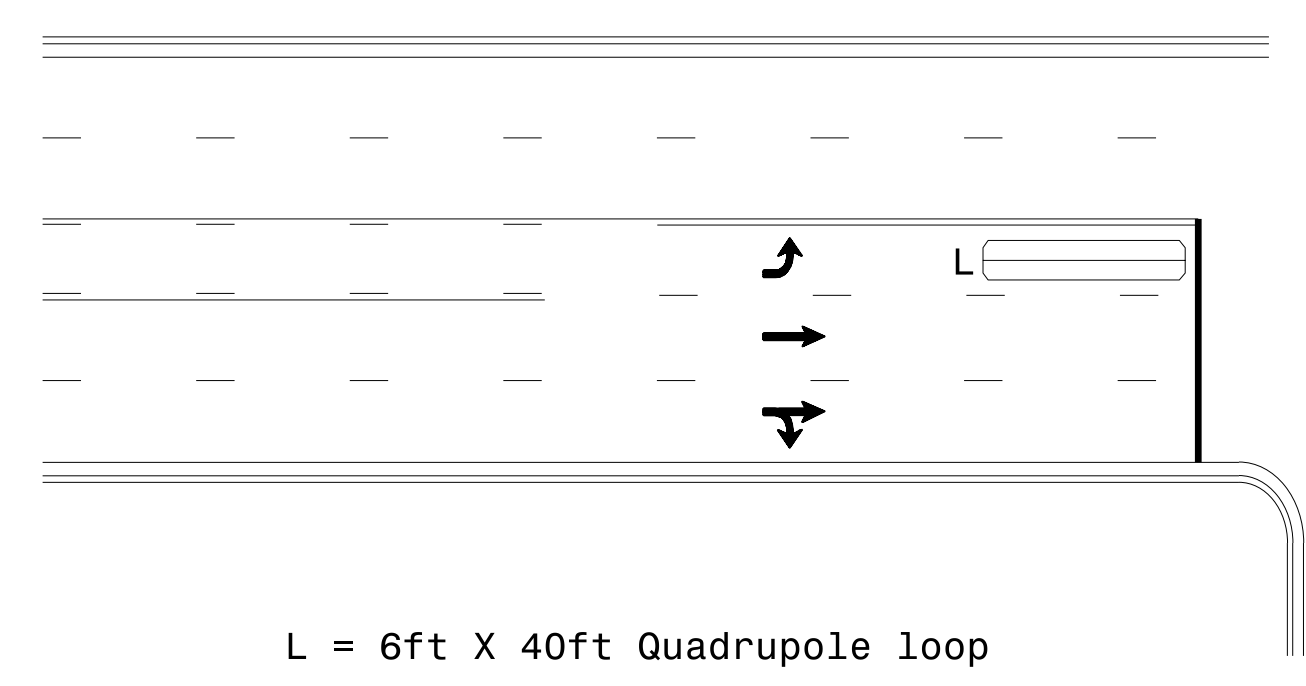
L = 6ft X 6ft
Wired in series

OR



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

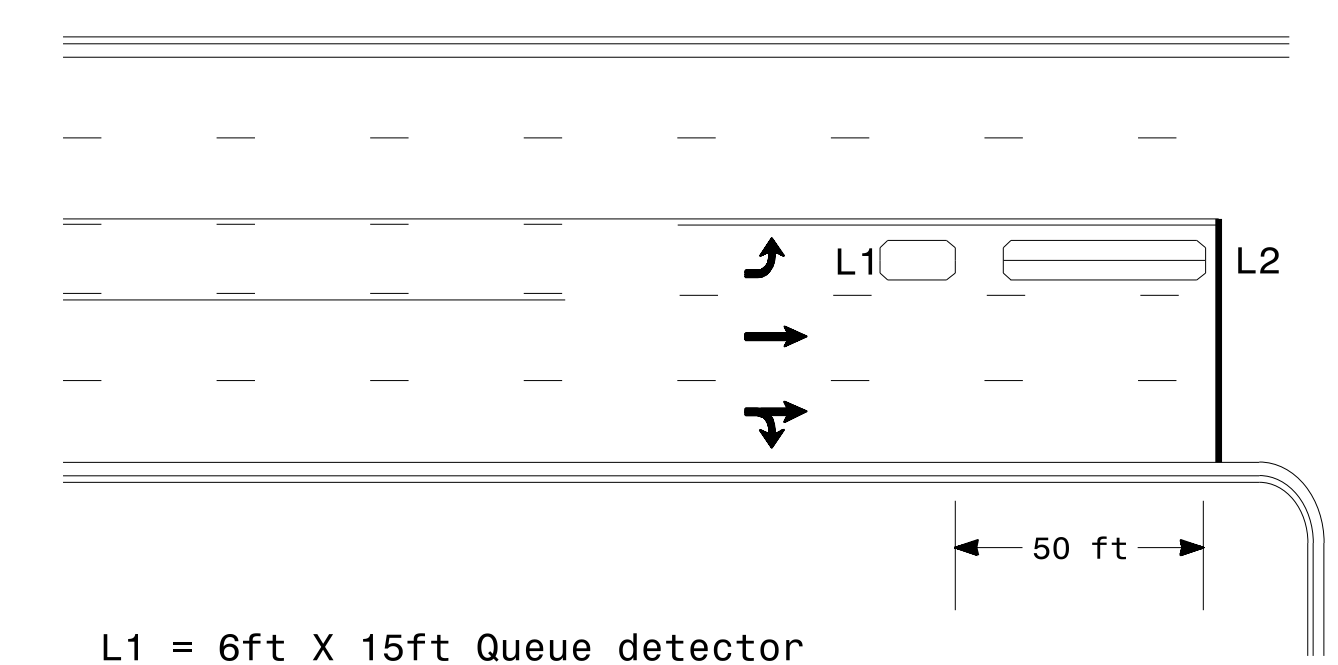
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

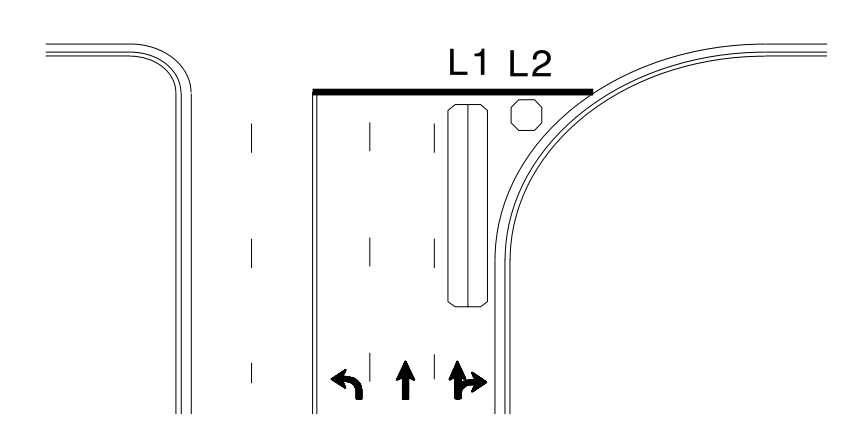
OR



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

Queue Loop Detection

Right Turn Lane Detection



Shared Lane/
Wide Radius Turn

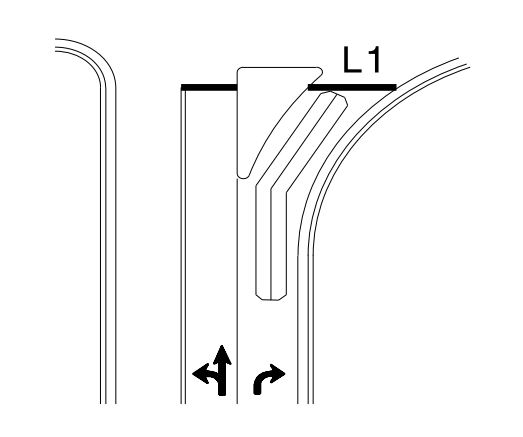
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



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

750 N. Greenfield Pkwy, Garner, NC 27529

Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
PAMELA L. ALEXANDER
23489

DocuSigned by:
P. Alexander
1/30/2015 10:44:44 AM
B4756E00CE4E4ED
SIG. INVENTORY NO.