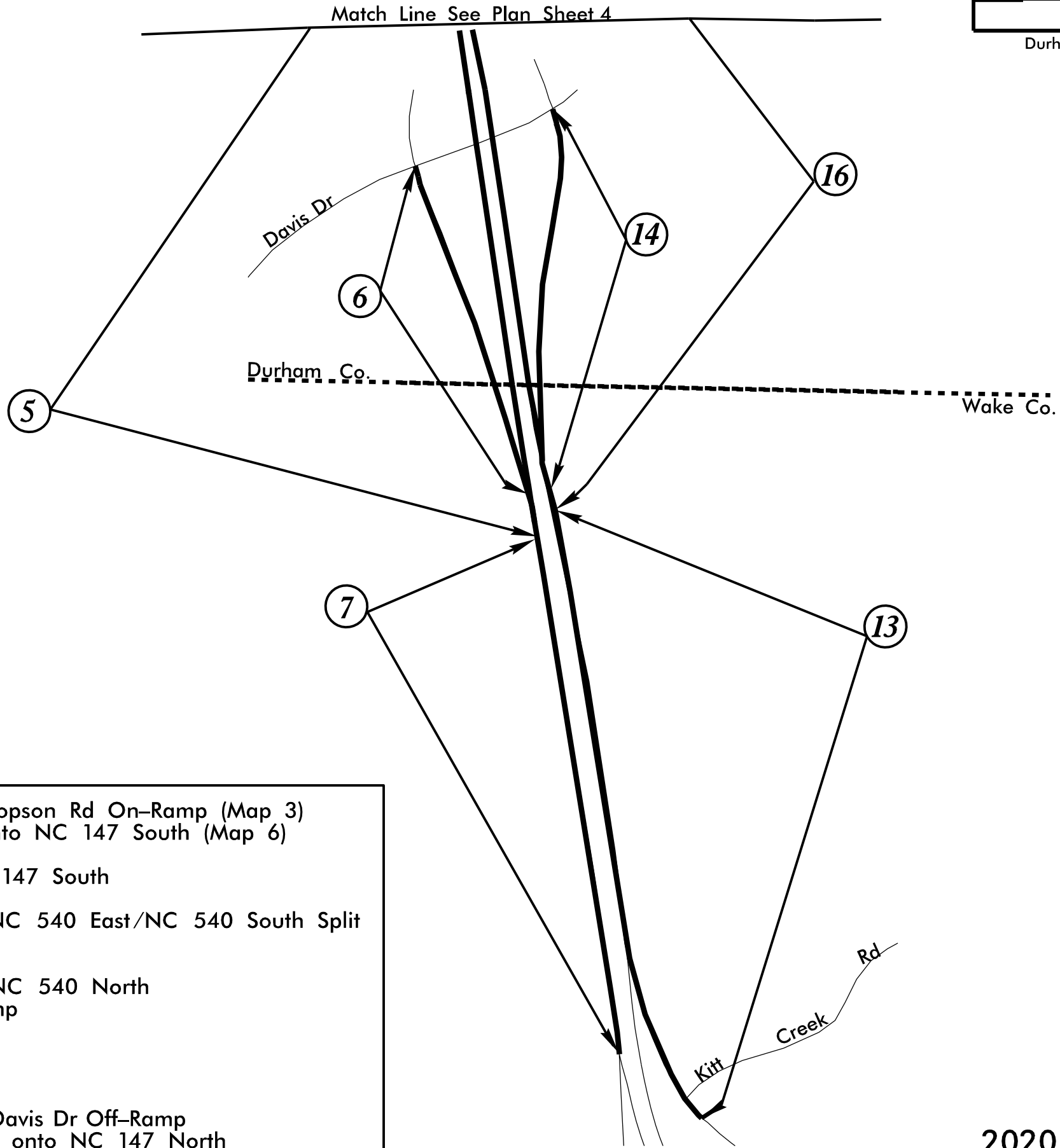


12/27/2019
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PROJECT REFERENCE NO.	SHEET NO.
40.1.4	5

Durham & Wake Counties



- 5. NC 147 South Between Hopson Rd On-Ramp (Map 3) and Davis Dr Off Ramp onto NC 147 South (Map 6)
- 6. Davis Dr On-Ramp to NC 147 South
- 7. End of Davis Dr Ramp to NC 540 East/NC 540 South Split
- 13. NC 147 North Between NC 540 North Split and Davis Dr. Off Ramp
- 14. NC 147 North Off Ramp to Davis Dr
- 16. NC 147 North Between Davis Dr Off-Ramp and Hopson Rd On-Ramp onto NC 147 North

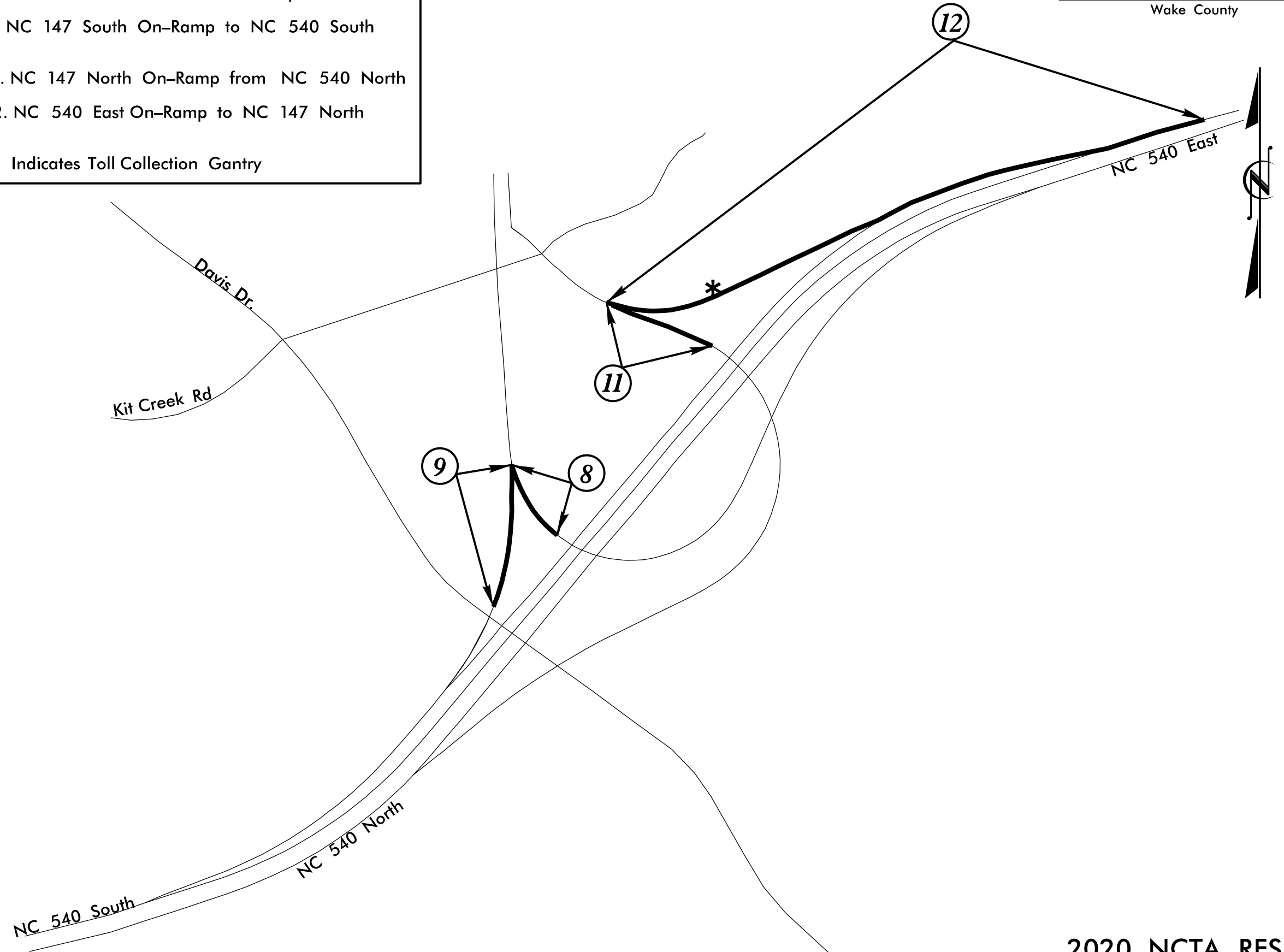
**2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY**

12/27/2019

PROJECT REFERENCE NO.	SHEET NO.
40.1.4	6

Wake County

- 8. NC 147 South to NC 540 East Split
 - 9. NC 147 South On-Ramp to NC 540 South
 - 11. NC 147 North On-Ramp from NC 540 North
 - 12. NC 540 East On-Ramp to NC 147 North
- * Indicates Toll Collection Gantry



*****SYTIME*****
*****CIVIL ENGINEERING*****
*****CONSULTANTS*****

**2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY**

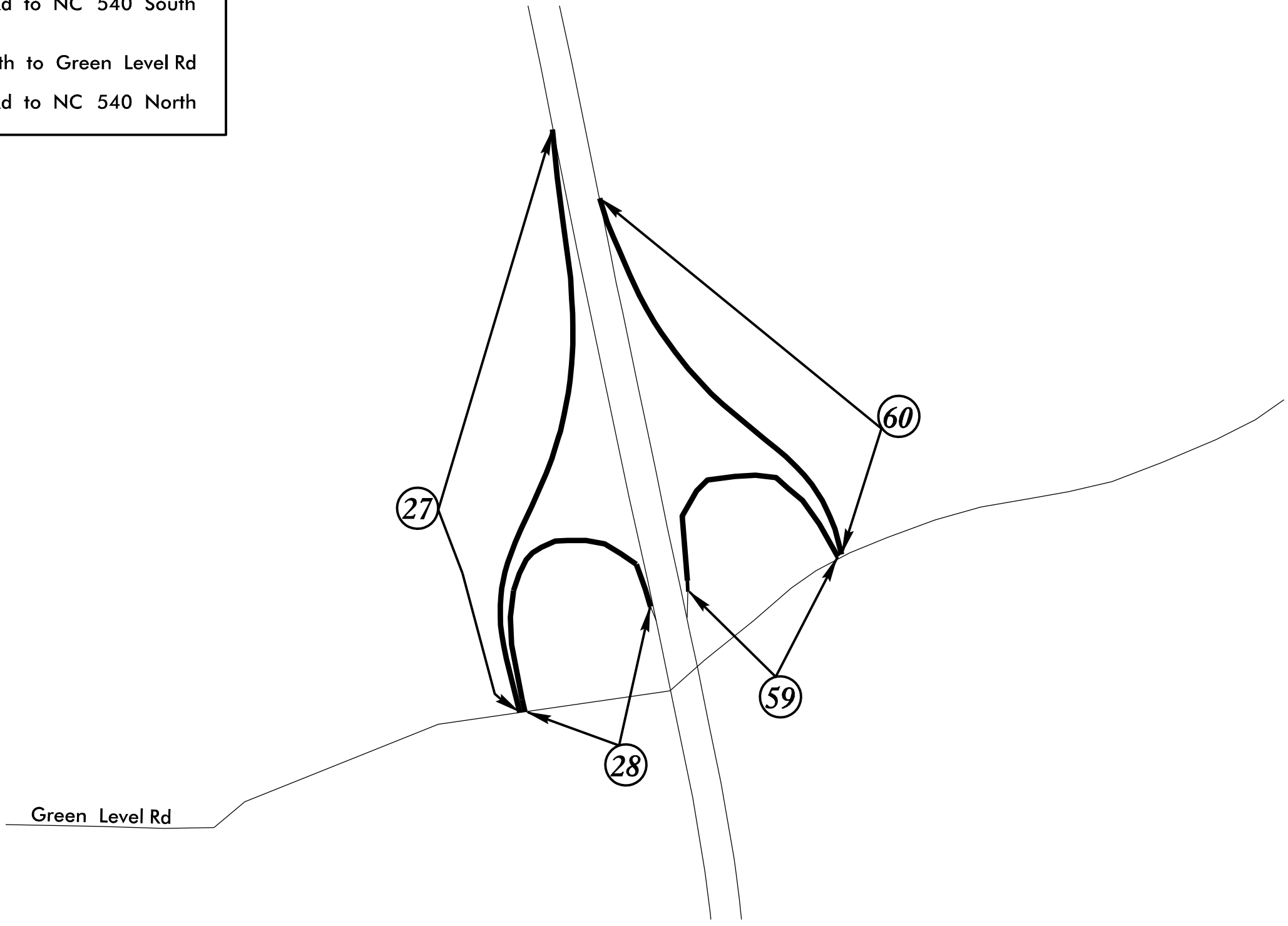
12/27/2019

PROJECT REFERENCE NO.
40.1.4

SHEET NO.
10

Wake County

- 27. NC 540 South to Green Level Rd
- 28. Green Level Rd to NC 540 South
- 59. NC 540 North to Green Level Rd
- 60. Green Level Rd to NC 540 North



Green Level Rd

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SCALE: 1"=100'
DRAWN BY: JAC
CHECKED BY: JAC
PROJECT: 40.1.4
SHEET: 10

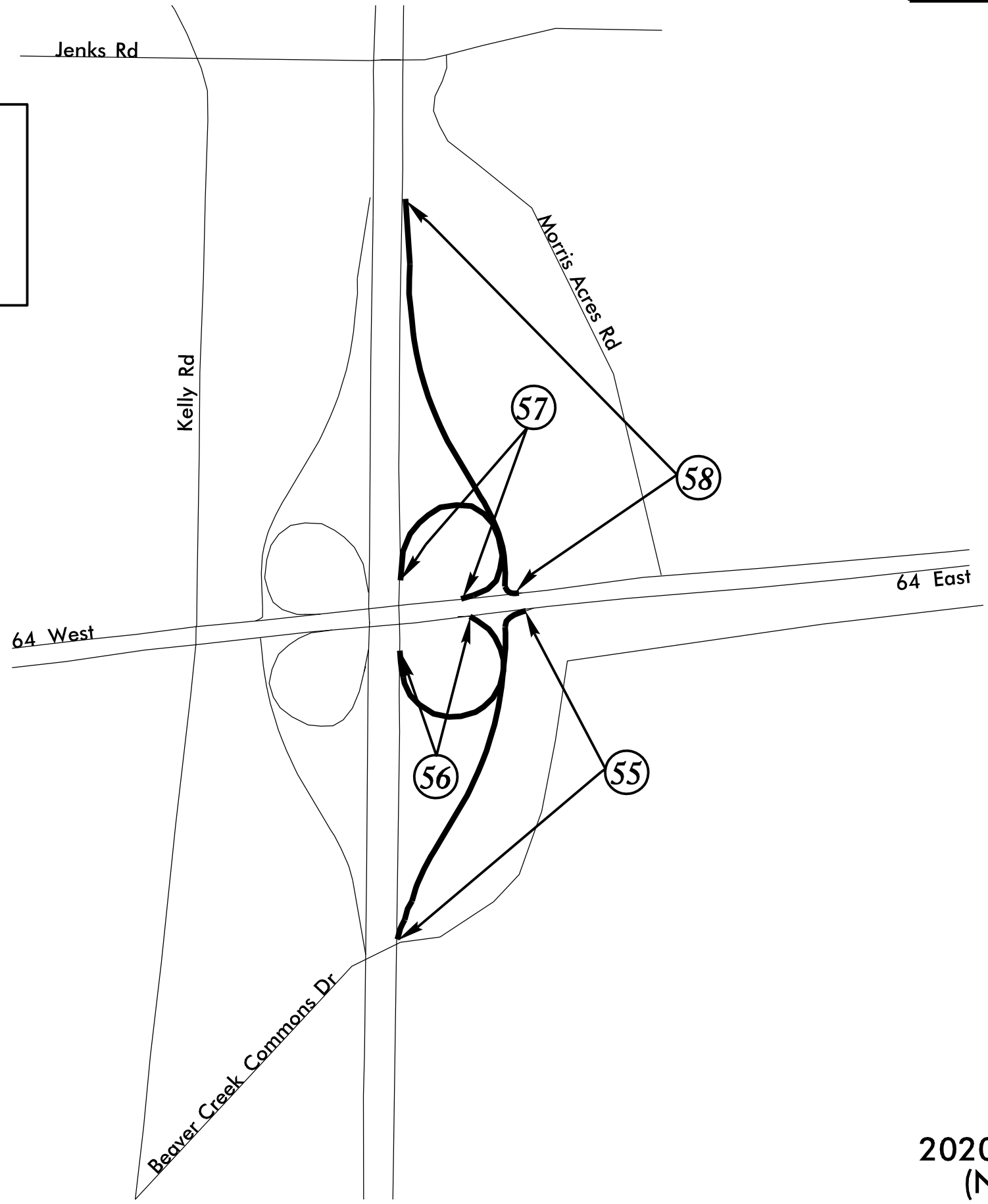
2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY

12/27/2019

PROJECT REFERENCE NO.	SHEET NO.
40.1.4	12

Wake County

- 55. NC 540 North to NC 64 East
- 56. NC 64 East to NC 540 North
- 57. NC 540 North to NC 64 West
- 58. NC 64 West to NC 540 North



**2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY**

SYSTEMS
 12/27/2019

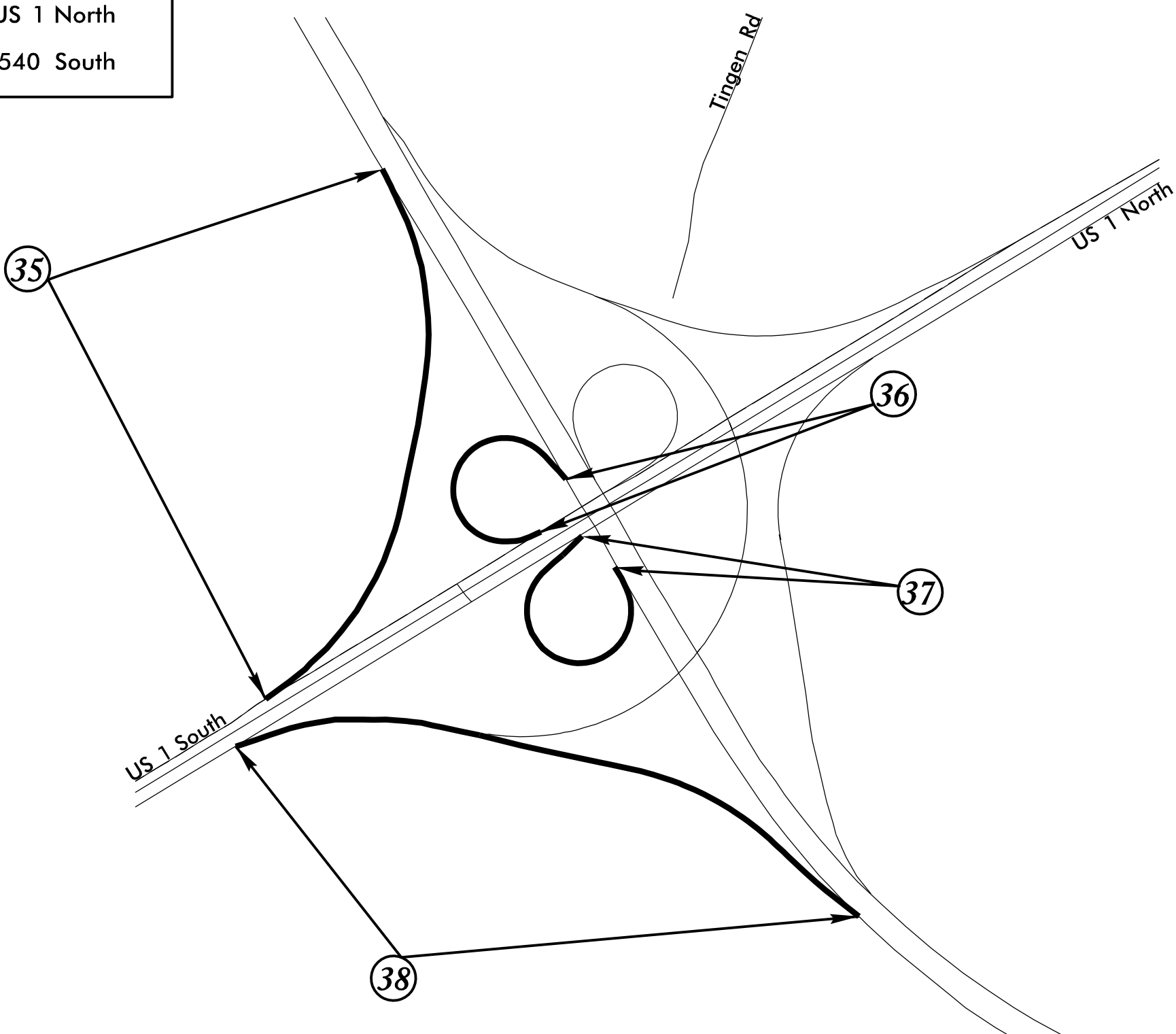
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PROJECT REFERENCE NO.
40.1.4

SHEET NO.
14

Wake County

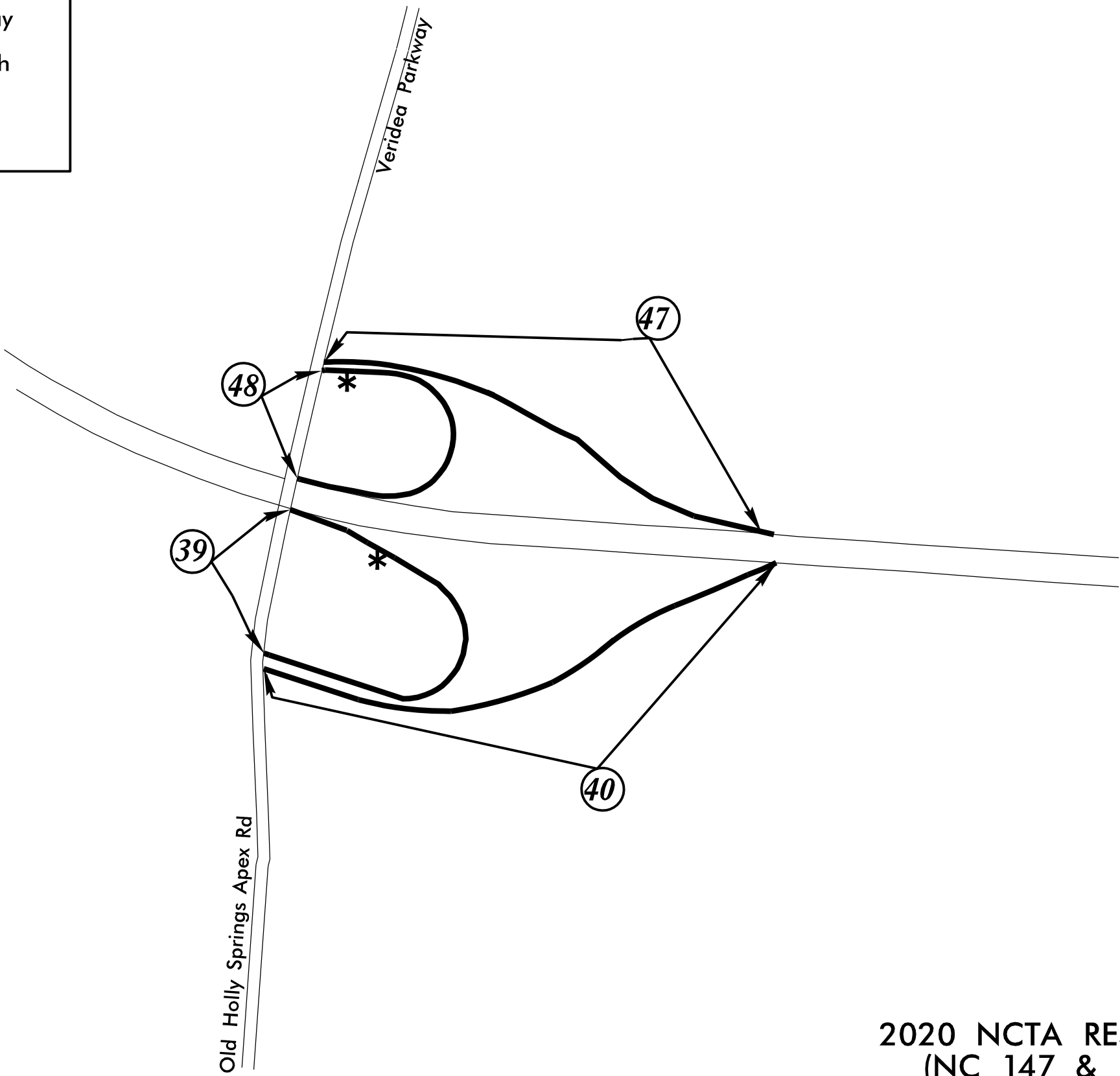
- 35. NC 540 South to US 1 South
- 36. US 1 South to NC 540 South
- 37. NC 540 South to US 1 North
- 38. US 1 North to NC 540 South



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PLOT SCALE: 1"=100'

**2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY**

- 39. NC 540 South to Veridea Parkway
- 40. Veridea Parkway to NC 540 South
- 47. NC 540 North to Veridea Parkway
- 48. Veridea Parkway to NC 540 North
- * Indicates Toll Collection Gantry



12/27/2019
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2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY

PAVEMENT SCHEDULE

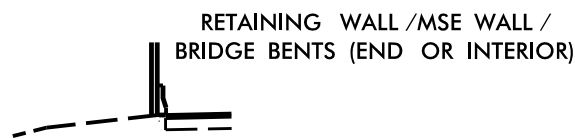
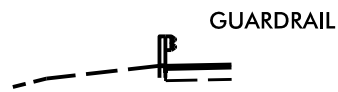
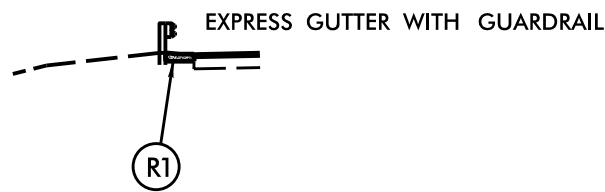
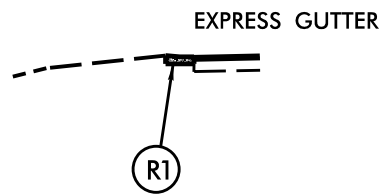
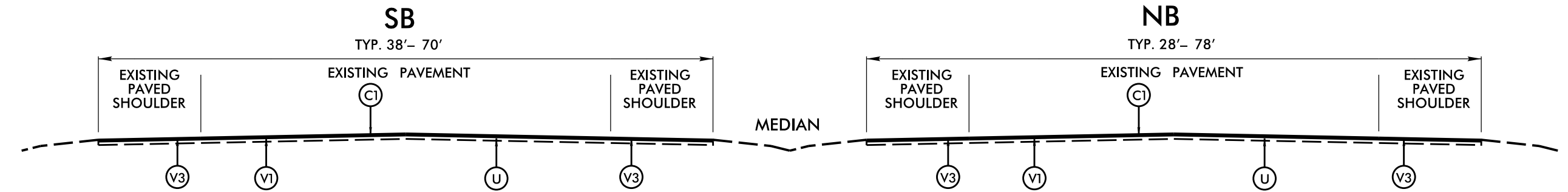
PROJECT REFERENCE NO.

SHEET NO.

40.1.4

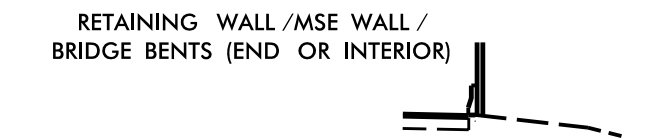
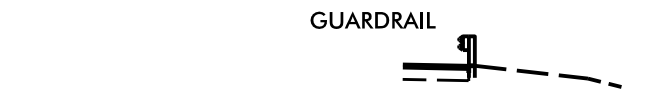
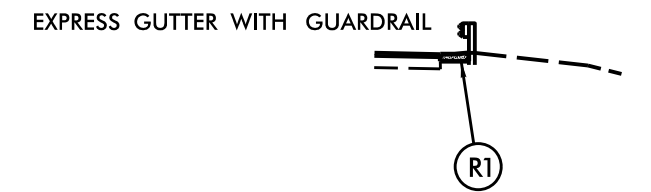
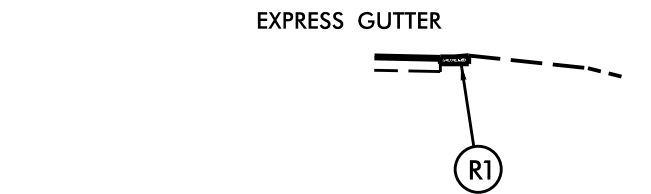
18

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	V3	PROP. CONTINUOUS MILLED RUMBLE STRIP (ASPHALT CONCRETE), AS DIRECTED BY THE ENGINEER
C2	2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD. (TOLL ZONE AREAS ONLY) SEE DETAIL SHEET 21	R1	EXISTING VALLEY CURB
V1	1½" MILLING	R2	EXISTING CURB & GUTTER
V2	2" MILLING (TOLL ZONE AREAS ONLY) SEE DETAIL SHEET 21	U	EXISTING PAVEMENT



TYPICAL SECTION NO. 1

MILL AND RESURFACE S9.5D
NC 147 SOUTHBOUND & NORTHBOUND
Map No. 5, 7, 10, 13, 16, 17, 18, 19, 20



**2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY**

PAVEMENT SCHEDULE

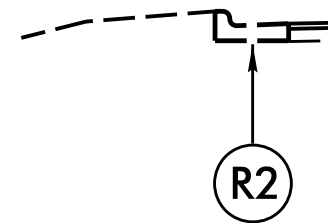
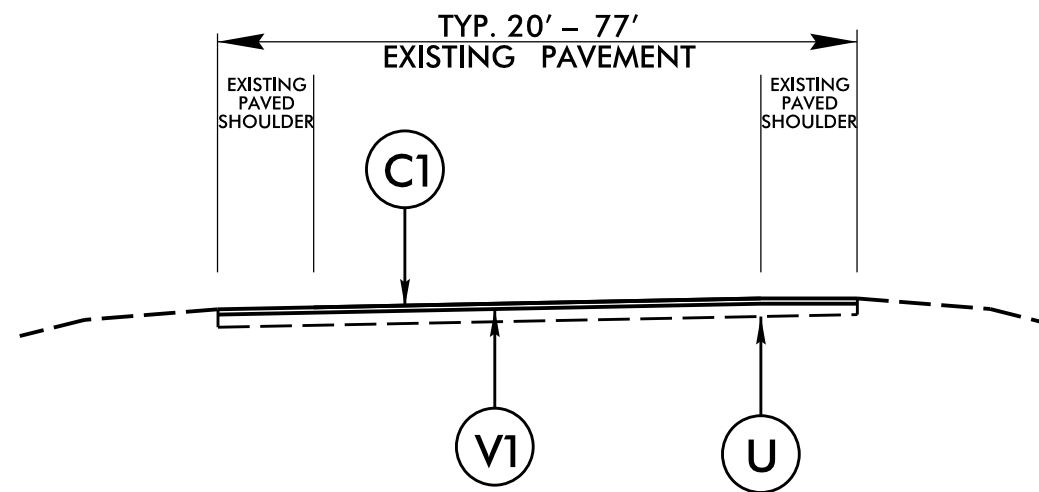
PROJECT REFERENCE NO.

SHEET NO.

40.1.4

19

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	V3	PROP. CONTINUOUS MILLED RUMBLE STRIP (ASPHALT CONCRETE), AS DIRECTED BY THE ENGINEER
C2	2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD. (TOLL ZONE AREAS ONLY) SEE DETAIL SHEET 21	R1	EXISTING VALLEY CURB
V1	1½" MILLING	R2	EXISTING CURB & GUTTER
V2	2" MILLING (TOLL ZONE AREAS ONLY) SEE DETAIL SHEET 21	U	EXISTING PAVEMENT

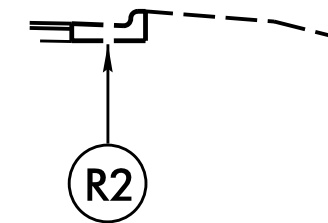


TYPICAL SECTION NO. 2

MILL AND RESURFACE S9.5D

NC 147 ON & OFF RAMPS

Map No. 1, 2, 3, 4, 6, 8, 9, 11, 12, 14, 15, 21



2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY

PAVEMENT SCHEDULE

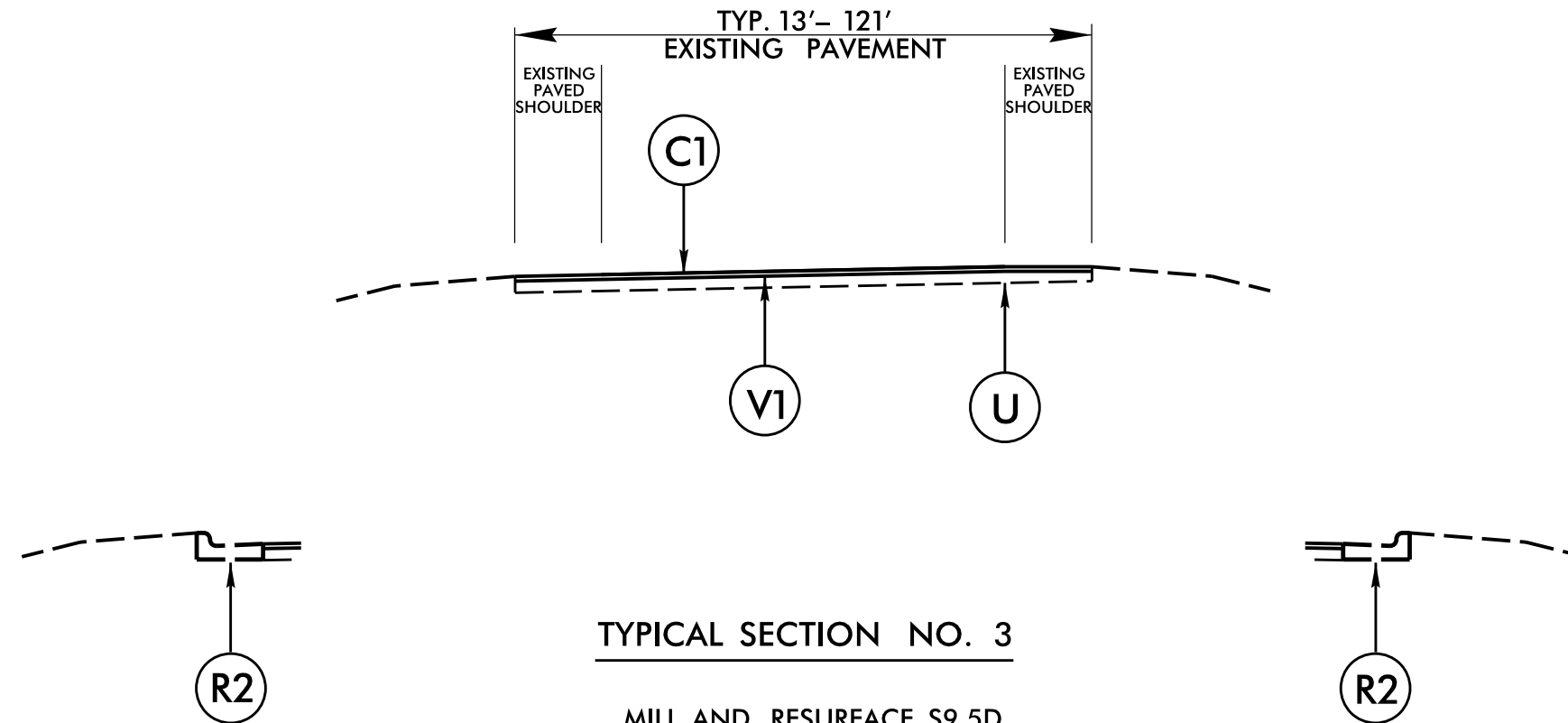
PROJECT REFERENCE NO.

SHEET NO.

40.1.4

20

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	V3	PROP. CONTINUOUS MILLED RUMBLE STRIP (ASPHALT CONCRETE), AS DIRECTED BY THE ENGINEER
C2	2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD. (TOLL ZONE AREAS ONLY) SEE DETAIL SHEET 21	R1	EXISTING VALLEY CURB
V1	1½" MILLING	R2	EXISTING CURB & GUTTER
V2	2" MILLING (TOLL ZONE AREAS ONLY) SEE DETAIL SHEET 21	U	EXISTING PAVEMENT



TYPICAL SECTION NO. 3

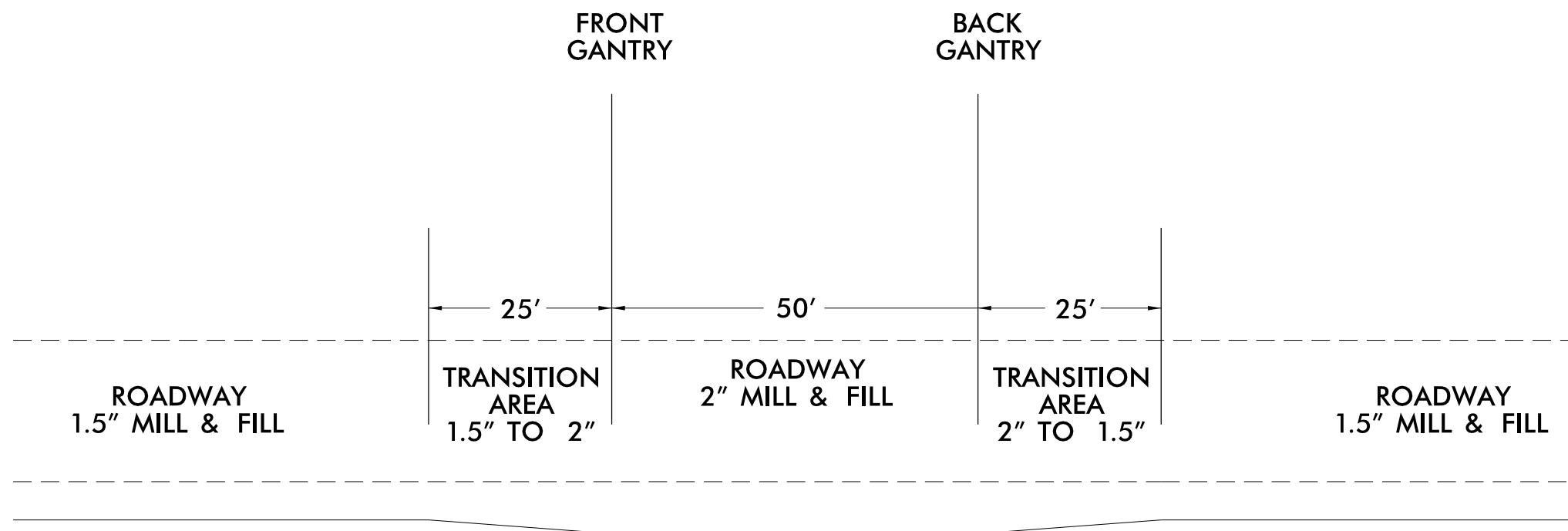
MILL AND RESURFACE S9.5D

NC 540 ON & OFF RAMPS

Map No. 22 - 66

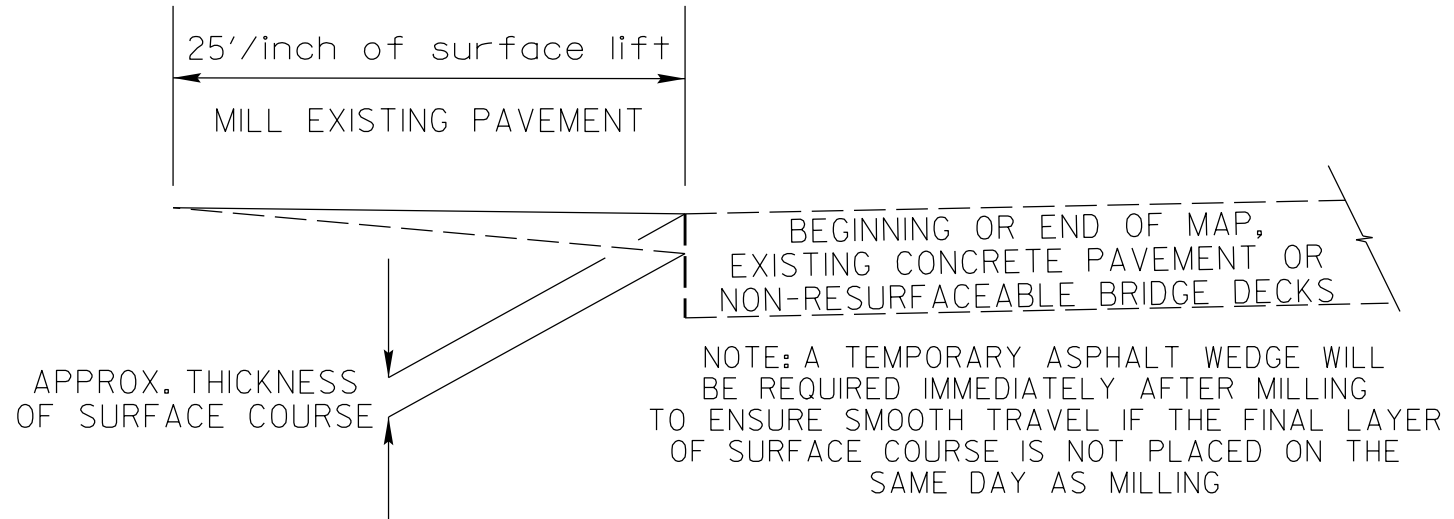
**2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY**

DETAIL FOR TOLL GANTRY AREAS

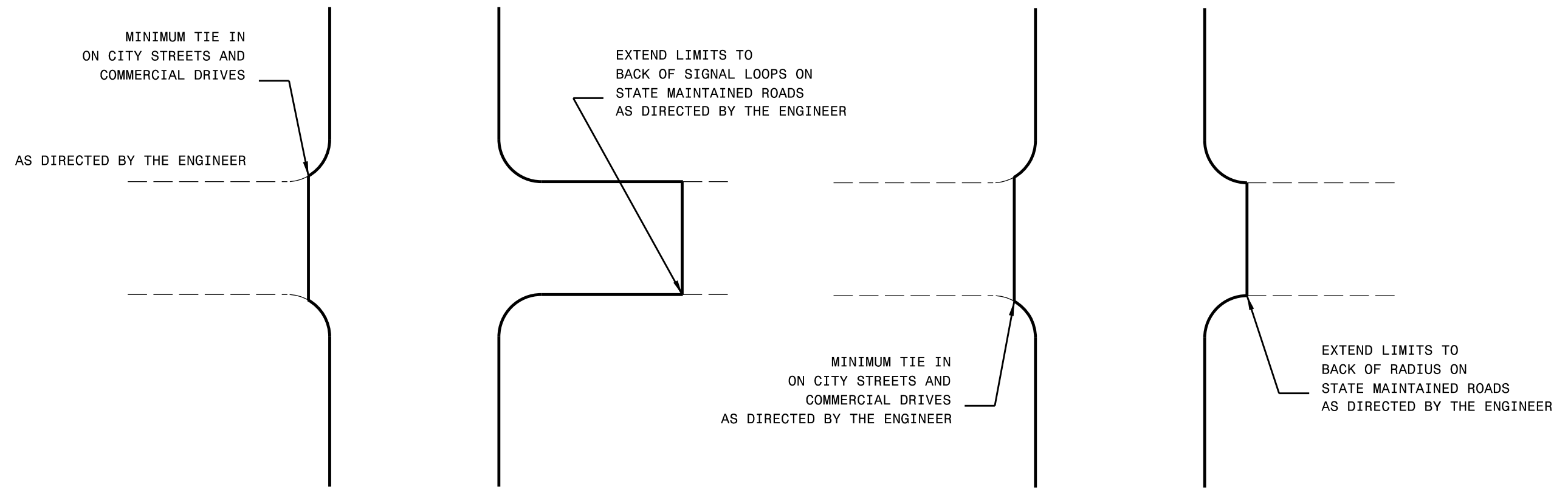


MILL AND RESURFACE S9.5D
GANTRY LOCATIONS ARE ON
Map No. 3, 12, 15, 22, 23, 34, 39, 48, 64

2020 NCTA RESURFACING
(NC 147 & NC 540)
TRIANGLE EXPRESSWAY



DETAIL OF INCIDENTAL MILLING



DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES

DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES

DEPARTMENT-FURNISHED PAVEMENT MARKING MATERIAL QUANTITIES

Exit	WHITE LANE LINE FT	YELLOW LANE LINE FT	WRONG-WAY ARROW EA	WRONG-WAY MESSAGE EA	STOP BAR EA
NC-54 NB Exit Loop	141	141		2	2
Green Level West SB Exit Ramp	402	162		2	2
Green Level West NB Exit Loop	390	165		2	2
S. Salem Street NB Exit Loop	312	156		2	2
Veridea Parkway NB Exit Ramp	558	279	1	2	2
Veridea Parkway SB Exit Loop	600	300	1	2	2
NC-55 Bypass SB Exit Ramp			1		

SHEET NO.	TOTAL NO.
40.1.4	24

SUMMARY OF QUANTITIES

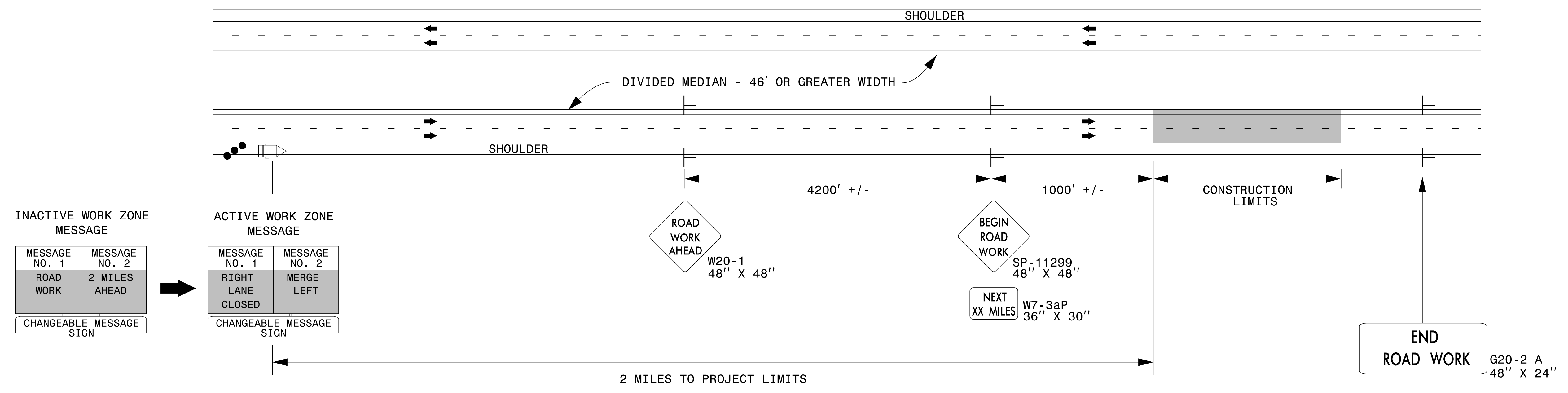
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANE S	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENG TH		1½"	2"	1.5"	INC. MILLING	S9.5D TON	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX TON	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE) std.dwg 665.01 LF	ADJ. OF MAN HOLE S EA	INSTALL DEPT. FURNISHED MARKING LS	PORT-ABLE LIGHT-ING LS	IND. LOOP SAWC UT LF		
									MI	FT	SY	SY	SY										
40.1.4	Durham	1	NC 147 S / I-40 E OFF RAMP	I-40 W ON RAMP TO I-40 E OFF RAMP	2	2	NO	NO	0.369	34	7,261			132	652	37	4,258						
		2	NC 147 S TOLL ON RAMP	I-40 E TO NC 147 S	2	2	NO	NO	0.322	30	5,016				117	502	29	382					
		3	NC 147 S. OFF RAMP	NC 147 S TO HOPSON DRIVE	2	3	NO	NO	0.333	42	7,586	211	213			732	42	559				606	
		4	HOPSON RD. TO DAVIS DR.	COLLECTOR LANE HOPSON RD TO DAVIS DR	2	2	NO	NO	0.421	47	11,588					1,027	59						341
		5	NC 147 S AT DAVIS DR. ON-RAMP	NC 147 S BETWEEN DAVIS DR ON-RAMP TO HOPSON RD OFF RAMP BACK ONTO NC 147 S	1	3	NO	NO	1.146	53	32,306					3,005	171	10,048					
		6	NC 147 S DAVIS DR ON-RAMP	DAVIS DR RAMP TO NC 147 S	2	2	NO	NO	0.281	39	6,361					569	32	414					
	Wake	7	NC 147 S TO NC 540 S & E SPLIT	END OF DAVIS ON-RAMP TO NC 540 E AND 540 S SPLIT	1	4	NO	NO	0.723	65	27,799					2,436	139	5,399					
		8	NC 147 S TO NC 540 E SPLIT	NC 147 S TO NC 540 E ON-RAMP	2	2	NO	NO	0.205	32	3,173					341	19						
		9	NC 540 S ON-RAMP	NC 147 S ON-RAMP ONTO NC 540 S	2	2	NO	NO	0.223	36	4,710					417	24						
	Durham	10	NC 147 S AT I-40 E ON-RAMP	END OF I-40 E OFF RAMP ONTO NC 147 S TO DAVIS DR. ON-RAMP	1	4	NO	NO	1.295	55	74,988					3,694	211	12,420					
		11	NC 147 N ON-RAMP	NC 147 N ON-RAMP FROM NC 540 N	2	2	NO	NO	0.55	31	9,584					886	51						
		12	NC 147 N ON-RAMP/ NC 540 E NC 147 N / NC 540 W AND E SPLIT	NC 540 E ON-RAMP ONTO NC 147 N	2	1	NO	NO	0.163	32	2,728	167	166			275	16						
	Durham	13	NC 540 W AND NC 540 N SPLIT TO NC 147 N	NC 540 W AND NC 540 N SPLIT TO NC 147 N	1	3	NO	NO	0.648	62	24,079					2,083	119	4,586					
		14	NC 147 N / DAVIS DR RAMP	NC 147 N RAMP ONTO DAVIS DR	2	6	NO	NO	0.342	54	9,821					958	55	528				1,218	
		15	DAVIS DR ON-RAMP	DAVIS DR TO NC 147 N	2	1	NO	NO	0.299	33	7,383	166	169			516	29	337					
		16	NC 147 N / DAVIS DR/ HOPSON RD	NC 147 N FROM DAVIS DR ON-RAMP TO HOPSON RD ON-RAMP TO NC 147 N	1	3	NO	NO	1.057	52	29,866					2,851	163	9,411					
		17	NC 147 N / I-40 E ON-RAMP	END OF DAVIS DR ON-RAMP TO I-40 E ON-RAMP	1	4	NO	NO	1.391	56	43,202					4,040	231	10,688					
		18	NC 147 N / I-40 E/ I-40 W	NC 147 N BETWEEN I-40 E OFF RAMP AND I-40 W ON RAMP	1	2	NO	NO	0.158	35	2,834					287	16	1,182					
		19	NC 147 N TO END OF TOLL	NC 147 N FROM I-40 E ON-RAMP TO END OF 147 N TOLL	1	2	NO	NO	0.165	29	2,535				113	249	14	1,522					
		20	NC 147 N / I-40 E ON-RAMP / I-40 E OFF RAMP	I-40 E ON-RAMP OFF OF NC 147 N TO I-40 E OFF RAMP ONTO NC 147 N	1	2	NO	NO	0.416	37	7,663					799	46	2,563					
	Wake	21	DAVIS DR. TO HOPSON RD.	COLLECTOR LANE; DAVIS DR. TO HOPSON RD.	2	2	NO	NO	0.359	39	8,220					727	41					291	
		22	NC 147 S / 540 E	RAMP ONTO NC 540 E FROM NC 147 S	3	2	NO	NO	0.509	37	10,693	178	178			982	56						
		23	NC 540 S ON-RAMP	NC 540 S RAMP OFF OF NC 147 S	3	2	NO	NO	0.359	41	8,220	178	209			769	44						
		24	NC 55 W RAMP	NC 540 S TO NC 55 W	3	2	NO	NO	0.211	36	5,491					394	22					85	
		25	NC 55 E RAMP	NC 540 S TO NC 55	3	1	NO	NO	0.206	25	3,051					268	15						
		26	NC 55 / NC 540 S	NC 55 RAMP ONTO NC 540 S	3	2	NO	YES	0.315	34	6,283					556	32						
		27	GREEN LEVEL RD RAMP	NC 540 S TO GREEN LEVEL RD	3	2	NO	NO	0.227	33	5,498					389	22						402
		28	GREEN LEVEL RD / NC 540 S	GREEN LEVEL RD TO NC 540 S	3	1	NO	NO	0.15	35	5,498					273	16			1			
		29	NC 64 W ON-RAMP	NC 540 S TO NC 64 W	3	1	NO	NO	0.31	27	4,768					435	25						
		30	NC 64 E ON-RAMP	NC 540 S TO NC 64 E	3	1	NO	NO	0.174	26	2,822					235	13						
		31	NC 64 E / NC 540 S	NC 64 E TO NC 540 S	3	1	NO	NO	0.286	26	4,164					387	22						
		32	NC 64 W / NC 640 S	NC 64 W TO NC 540 S	3	1	NO	NO	0.216	24	3,126					270	15					*	
		33	S SALEN ST ON-RAMP	NC 540 S TO S. SALEM ST	3	2	NO	NO	0.284	36	8,047					531	30						402

SHEET NO.	TOTAL NO.
40.1.4	25

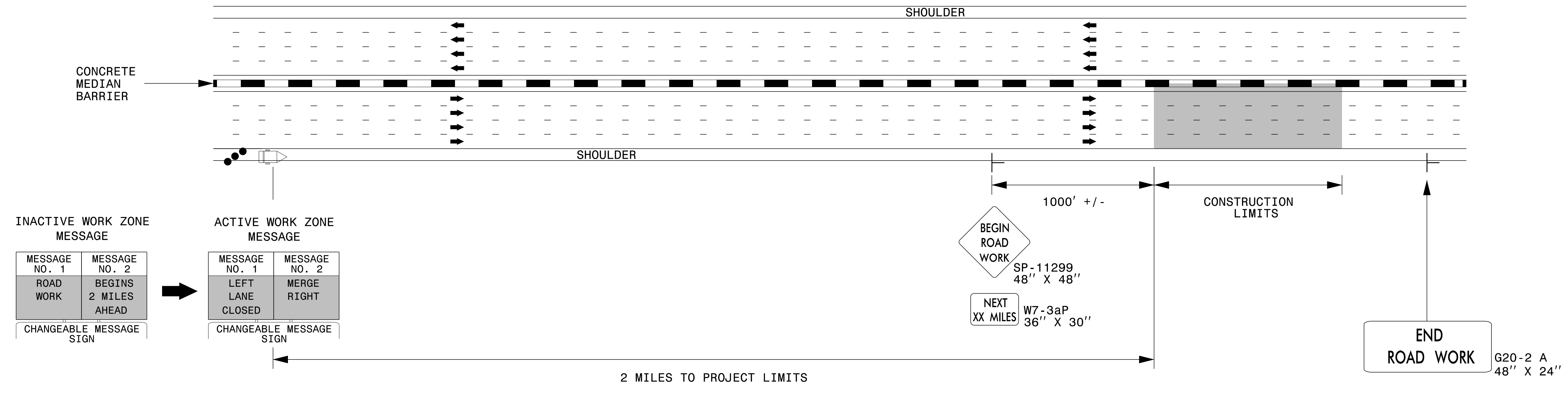
SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANS	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENG TH		1½"	2"	1.5"	INC.	S9.5D	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE)	ADJ. OF MAN HOLE S	INSTALL DEPT. FURNISHED MARKING	PORT-ABLE LIGHT-ING	IND. LOOP SAWCUT
									MI	FT	SY	SY	SY	SY	TON	TON	LF	EA	LS	LS	LF
		34	S SALEM ST / NC 540 S	S SALEM ST TO NC 540 S	3	1	NO	NO	0.214	38	4,380	194	197		427	24					
		35	US 1 SOUTH ON-RAMP	NC 540 S TO US 1 S	3	2	NO	NO	0.478	28	6,784				696	40					
		36	US 1 S / NC 540 S	US 1 S TO NC 540 S	3	1	NO	NO	0.218	21	2,575				238	14					
		37	US 1 N ON-RAMP	NC 540 S TO US 1 N	3	1	NO	NO	0.214	25	3,153				278	16					
		38	US 1 N / NC 540 S	US 1 N TO NC540 S	3	3	NO	NO	0.367	27	4,720				515	29					
		39	VERIDEA PARKWAY ON-RAMP	NC 540 S TO VERIDEA PARKWAY	3	2	NO	NO	0.32	44	7,855	189	216		735	42		1	1		
		40	VERIDEA PARKWAY / NC 540 S	VERIDEA PARWAY TO NC 540 S	3	1	NO	NO	0.314	30	2,182				489	28					
		41	NC 55 E ON-RAMP	NC 540 S TO NC 55 E BYPASS	3	1	NO	NO	0.206	25	3,007				268	15			1		
		42	NC 55 W RAMP	NC 540 S TO NC 55 W BYPASS	3	1	NO	NO	0.251	38	2,265				495	28					
		43	NC 540 W TO NC 54	OFF RAMP FROM NC 540 W TO NC 54	3	2	NO	NO	0.303	54	9,588				849	48					
		44	NC 54 TO NC 540 W	NC 54 ON-RAMP TO NC 540 W	3	2	NO	NO	0.181	26	2,761				245	14					
		45	NC 55 E / NC 540 N	NC 55 E TO NC 540 N	3	1	NO	NO	0.276	32	6,214				442	25					
		46	NC 55 W / 540 N	NC 55 W TO NC 540 N	3	1	NO	NO	0.194	22	2,401				222	13					
		47	VERIDEA PARKWAY ON-RAMP	NC 540 N TO VERIDEA PARKWAY	3	2	NO	NO	0.19	48	6,702				473	27			1		
		48	VERIDEA PARKWAY / NC 540 N	VERIDEA PARKWAY TO NC 540 N	3	1	NO	NO	0.173	38	3,427	211	219		348	20					
		49	US 1 N ON-RAMP	NC 540 N TO US 1 N	3	1	NO	NO	0.401	33	7,705				687	39					
		50	US 1 S / NC 540 N	US 1 S TO NC 540 N	3	1	NO	NO	0.472	21	4,595				516	29					
		51	US 1 N / NC 540 N	US 1 N TO NC 540 N	3	3	NO	NO	0.636	40	16,849				1,320	75					
		52	US 1 S ON-RAMP	NC 540 N TO US 1 S	3	1	NO	NO	0.157	26	2,624				212	12					
		53	S SOUTH SALEM ST ON-RAMP	NC 540 N TO S SALEM ST	3	2	NO	NO	0.178	36	5,005				333	19			1		402
		54	S SALEM ST / NC 540 N	S SALEM ST TO NC 540 N	3	1	NO	NO	0.268	38	7,179				529	30					
		55	NC 64 E ON-RAMP	NC 540 N TO NC 64 E	3	1	NO	NO	0.24	30	4,682				374	21					
		56	NC 64 E / NC 540 N	NC 64 E TO NC 540 N	3	1	NO	NO	0.199	26	3,020				269	15					
		57	NC 64 W RAMP	NC 540 N TO NC 64 W	3	1	NO	NO	0.174	25	2,699				226	13					
		58	NC 64 W / NC 540 N	NC 64 W TO NC 540 N	3	1	NO	NO	0.293	27	4,388				411	23					
		59	GREEN LEVEL RD ON-RAMP	NC 540 N TO GREEN LEVEL RD	3	2	NO	NO	0.101	36	2,872				189	11			1		402
		60	GREEN LEVEL RD / NC 540 N	GREEN LEVEL RD TO NC 540 N	3	1	NO	NO	0.205	35	4,846				373	21					
		61	NC 55 E ON-RAMP	NC 540 N TO NC 55 E	3	2	NO	NO	0.173	46	6,882				413	24					402
		62	NC 55 W / NC 540 N	NC 55 W TO NC 540 N	3	2	NO	NO	0.291	49	9,343				740	42					
		63	NC 55 W ON-RAMP	NC 540 N TO NC 55 W	3	1	NO	NO	0.238	21	2,501				260	15		1			
		64	NC 540 N / NC 147 N	NC 540 N RAMP ONTO NC 147 N	3	2	NO	NO	0.46	39	12,456	211	214		937	53					
		65	NC 540 E TO NC 54	OFF RAMP FROM NC 540 E TO NC 54	3	2	NO	NO	0.141	32	2,648				234	13					
		66	NC 54 TO NC 540 E	ON-RAMP FROM NC 54 TO NC 540 E	3	2	NO	NO	0.241	40	5,644				500	29			1		97
GRAND TOTAL FOR PROJ NO. 40.1.4									22.88		570,316	1,705	1,781	362	47,778	2,723	64,297	2	7	1	4,648

DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER

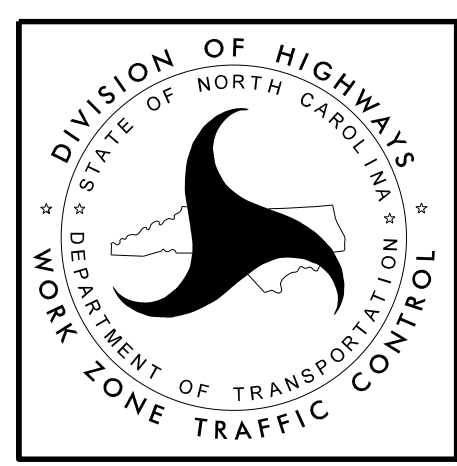


NOTES:

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 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) FOR MEDIAN WIDTHS LESS THAN 46' (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
- 4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 5) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMP 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMP WITHIN THE WORK ZONE.
- 6) 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 AND WITH DIVIDED MEDIANS OF 46' OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

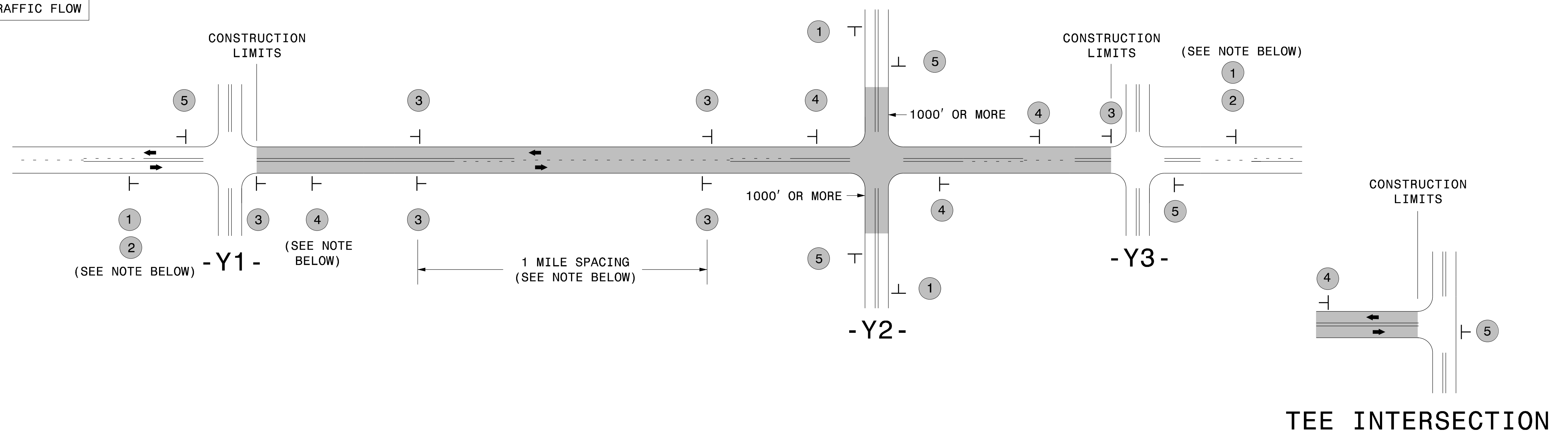
3/23/2015 C:\Users\rmgarrrett\Downloads\Resurfacing_AdvWarn_HSpd.dgn User:rmgarrrett

SIGNING FOR RESURFACING PROJECTS

LEGEND

┃ STATIONARY SIGN

← DIRECTION OF TRAFFIC FLOW

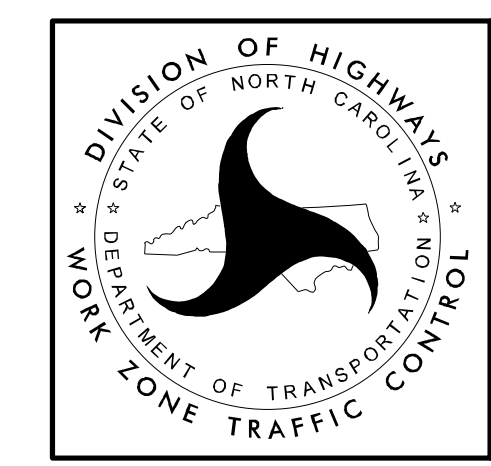


SIGNING NOTES AND PLACEMENT PER DIRECTION	1		PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> LESS THAN 1000'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

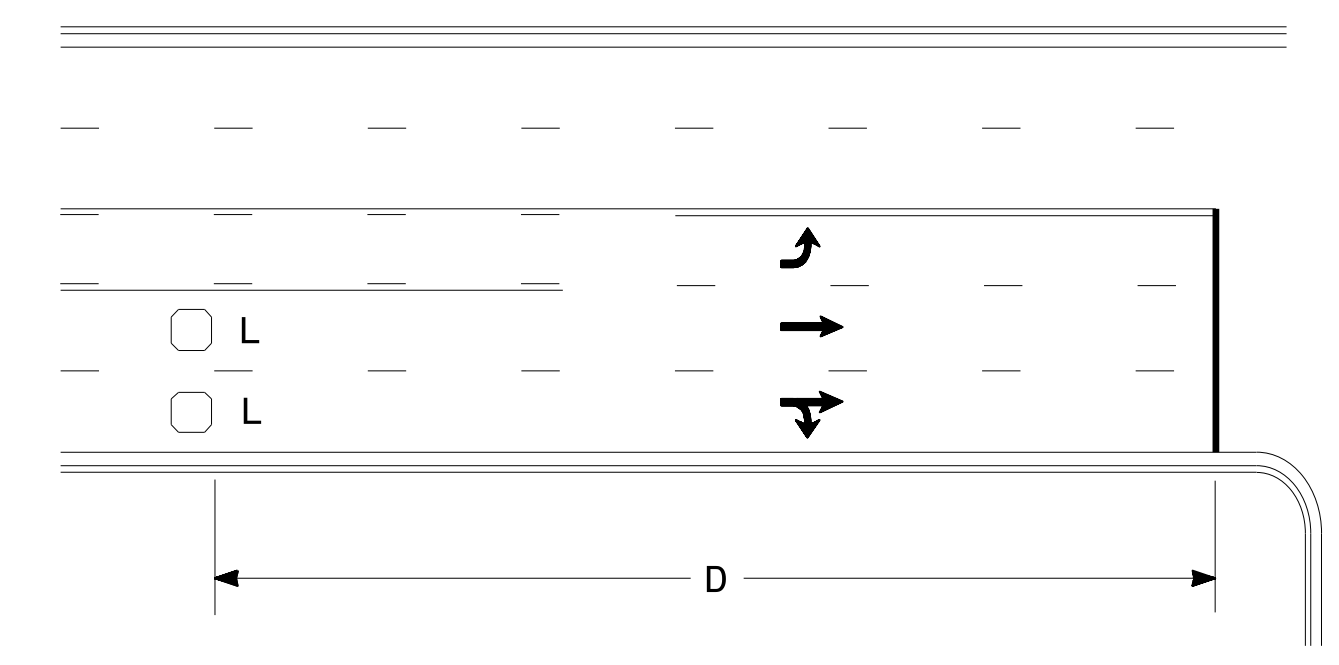
FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.



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

5/15/2017 S:\TMU\WZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing_AdvWarn_2Ln.dgn User:kadai

High Speed Detection (≥40 mph)

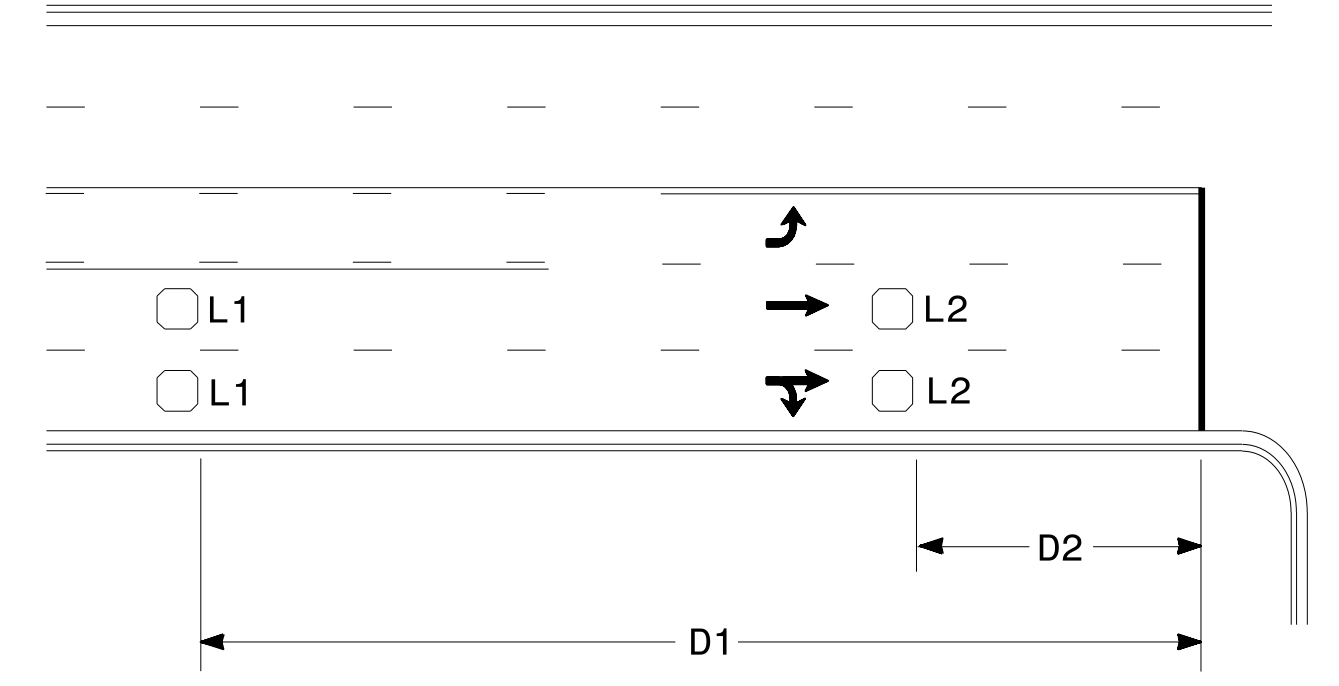


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

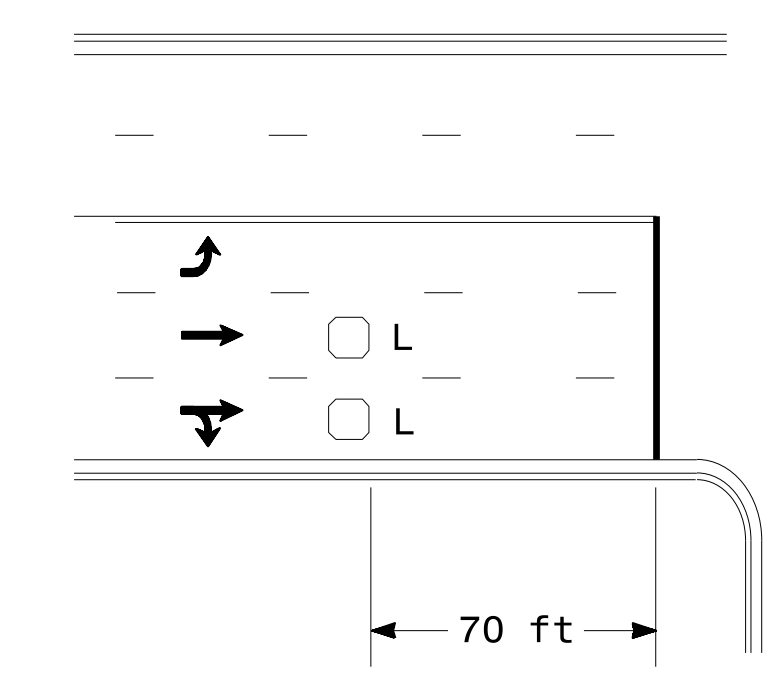


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

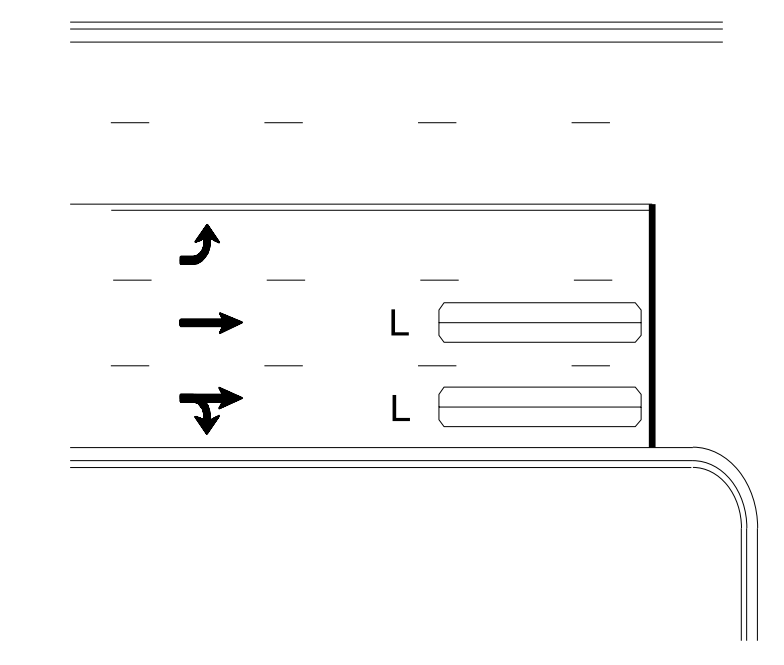
"Stretch" Operation

Low Speed Detection (≤35 mph)



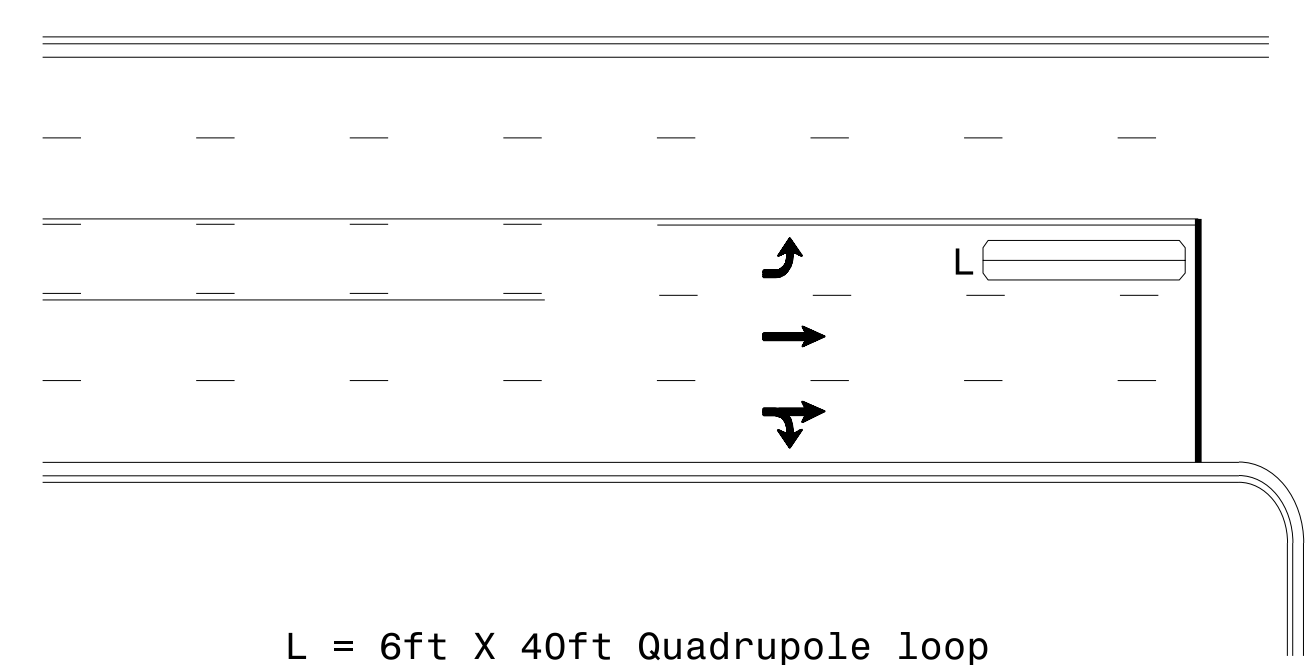
L = 6ft X 6ft
Wired in series

OR



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

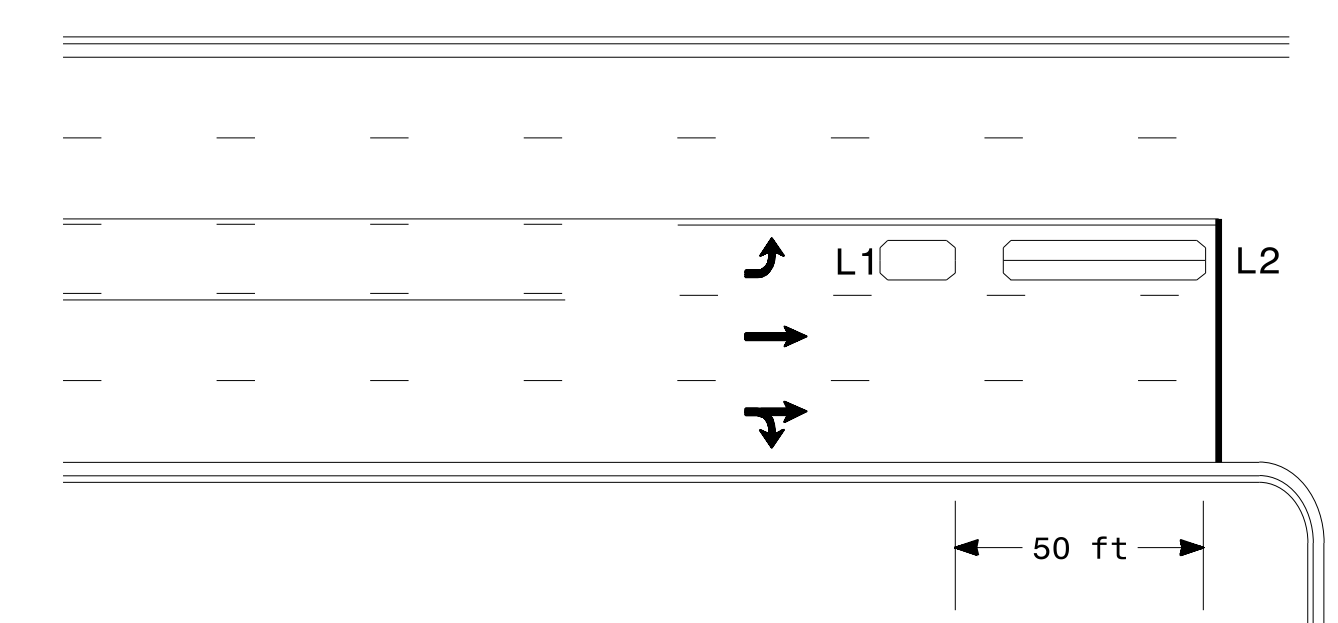
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

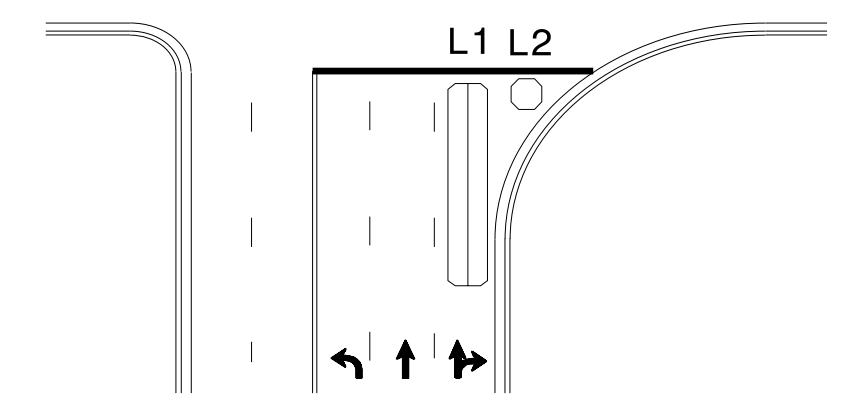
OR



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

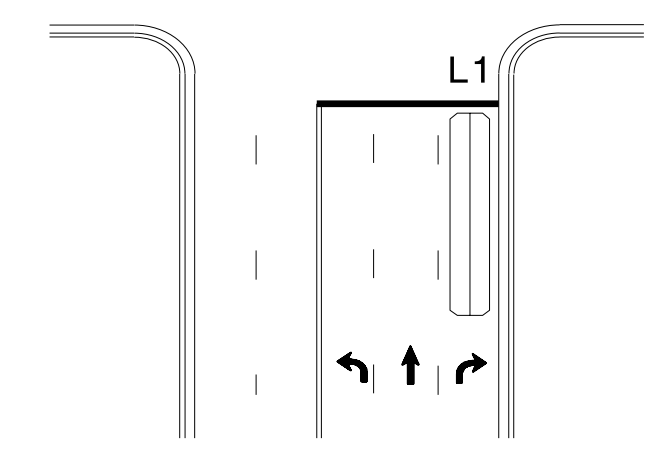
Queue Loop Detection

Right Turn Lane Detection

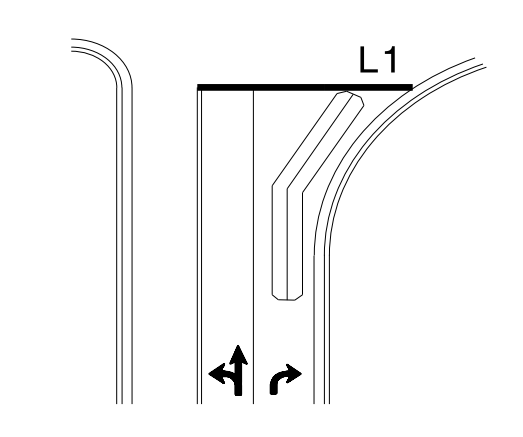


Shared Lane/
Wide Radius Turn

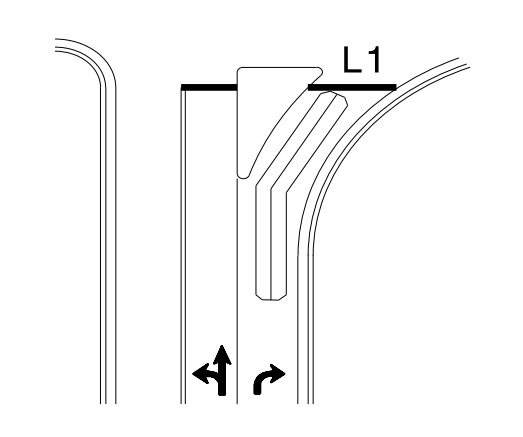
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

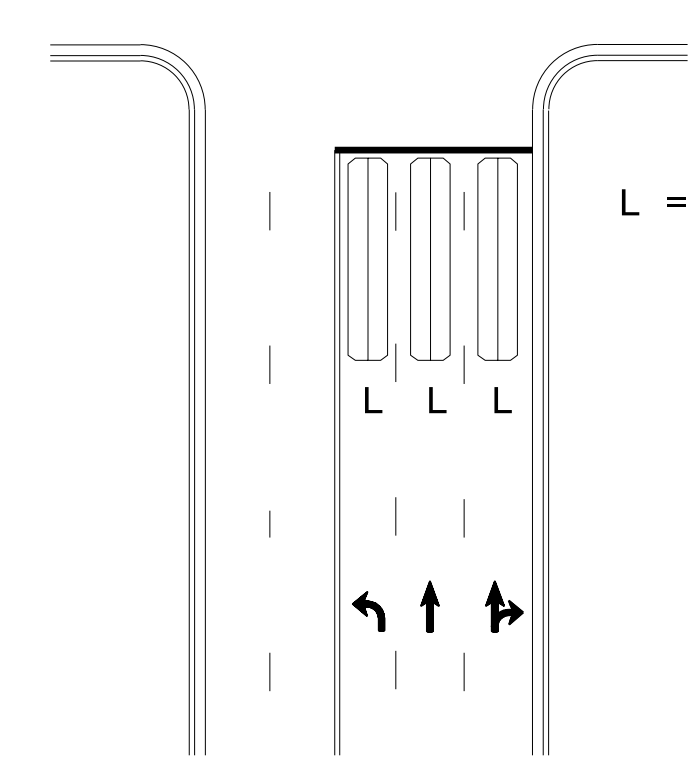


Wide Radius Turn



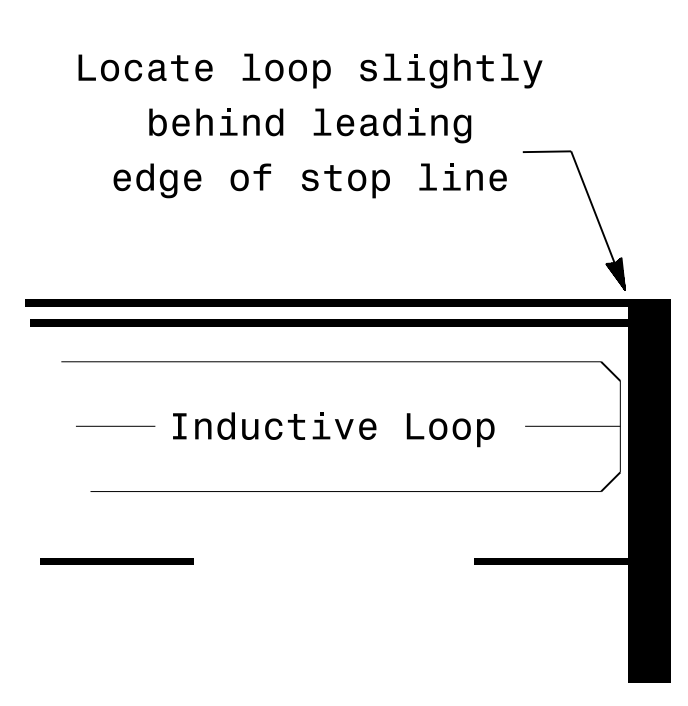
Channelized Turn

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

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

1/30/2015

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 paalexander