Sheet No. 1

Catawba County
2026CPT.12.02.10181
2026CPT.12.02.20181

Map # 1
US 321 Bus

Map # 2
US 321 Bus

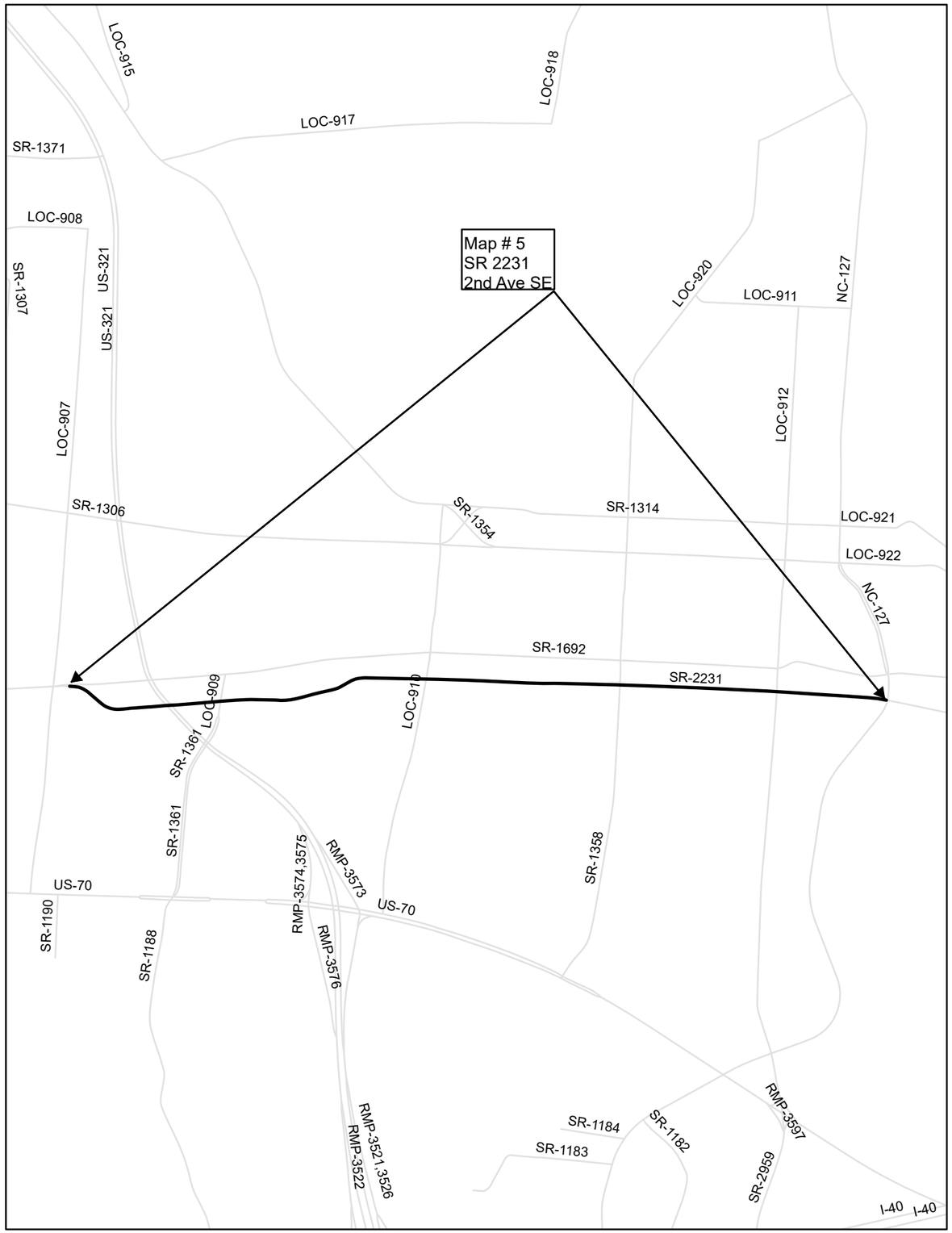
Map # 3
US 321 Bus

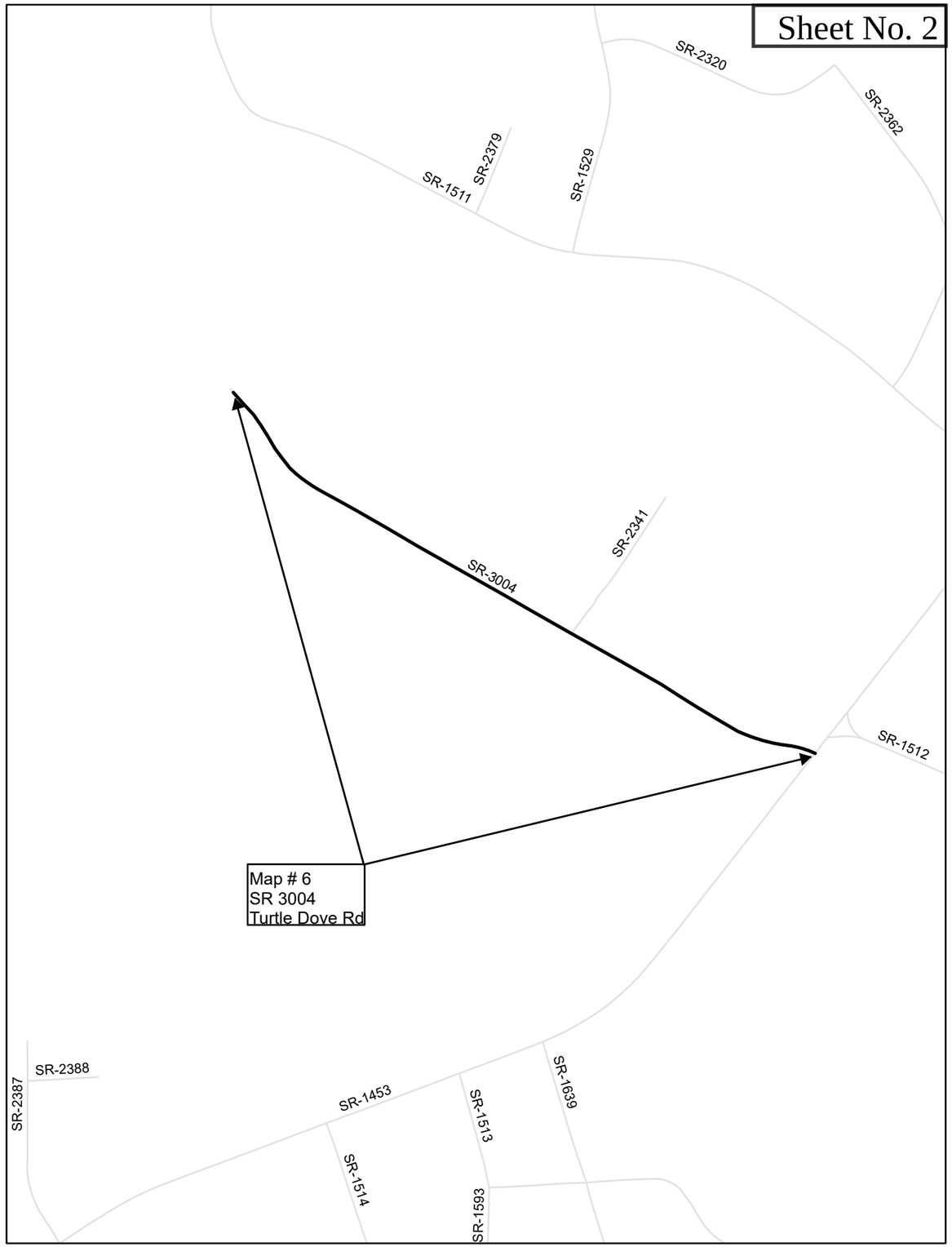
Map # 4
SR 1007/1692
1st St W

N

Sheet No. 2

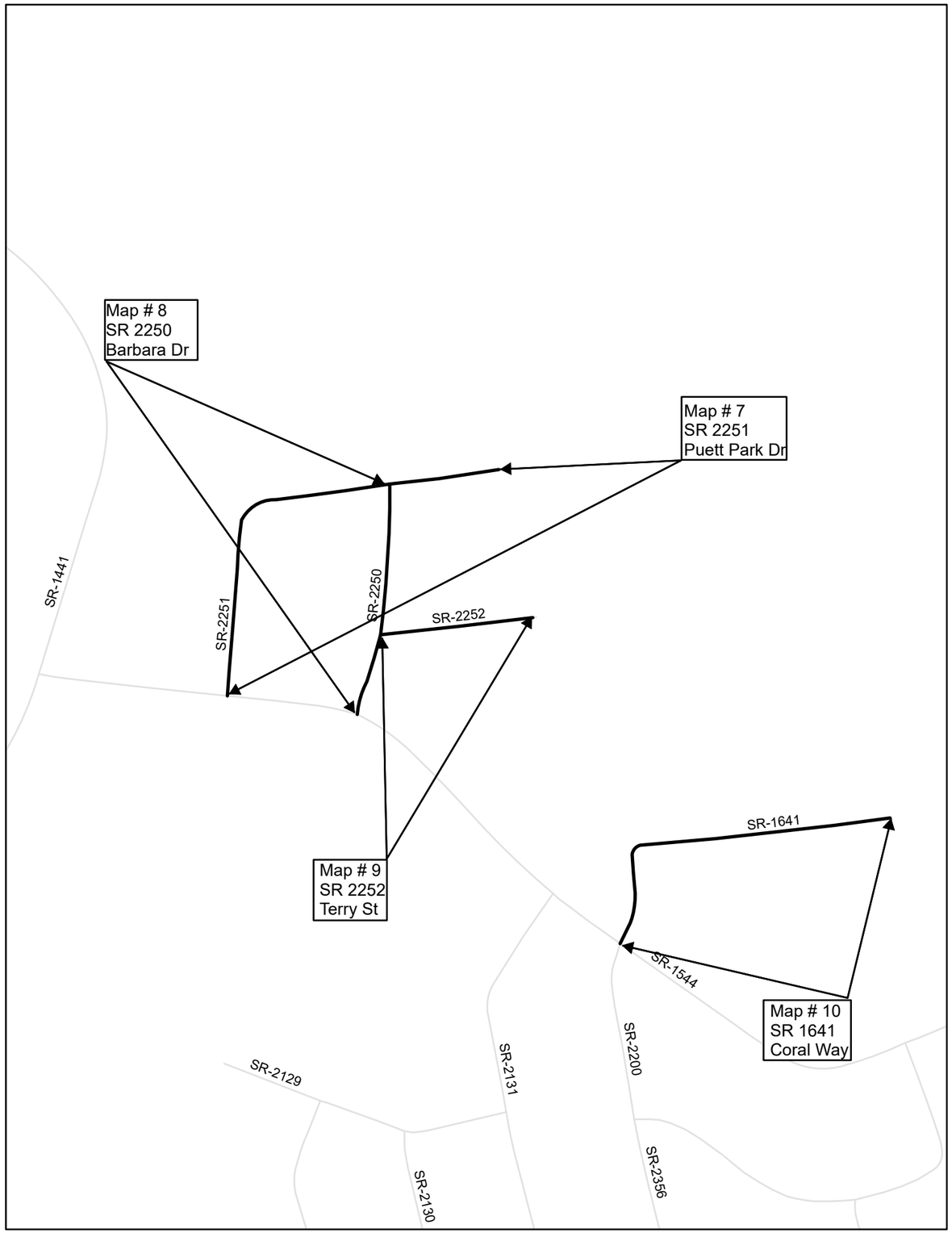
Catawba County
2026CPT.12.02.10181
2026CPT.12.02.20181





Sheet No. 3

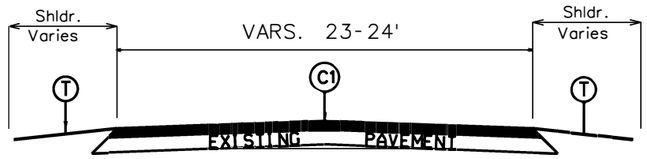
Catawba County
2026CPT.12.02.10181
2026CPT.12.02.20181



STATE	PROJECT WBS	SHEET NUMBER
NC	2026CPT.12.02.10181	4
	2026CPT.12.02.20181	

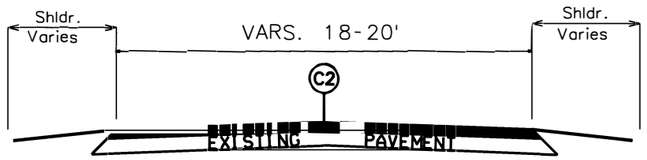
Checked by:

Drawn by: G. Brittain



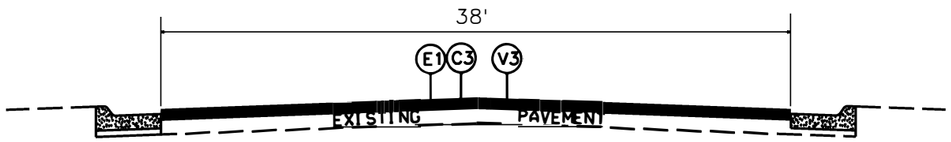
TYPICAL SECTION NO. 1

MAP 1 - 0+00 to 38+50
MAP 3 - 28+00 to 317+58



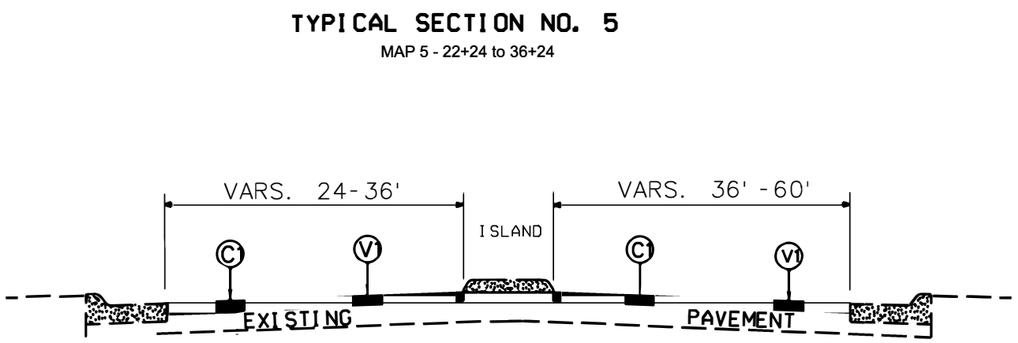
TYPICAL SECTION NO. 3

MAP 6 - ENTIRE MAP
MAP 7 - ENTIRE MAP
MAP 8 - ENTIRE MAP
MAP 9 - ENTIRE MAP
MAP 10 - ENTIRE MAP



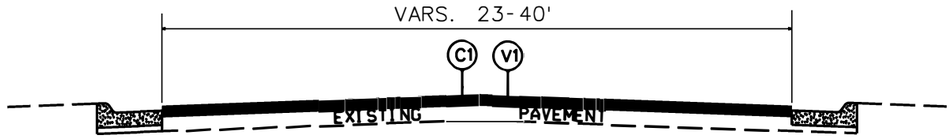
TYPICAL SECTION NO. 5

MAP 5 - 22+24 to 36+24



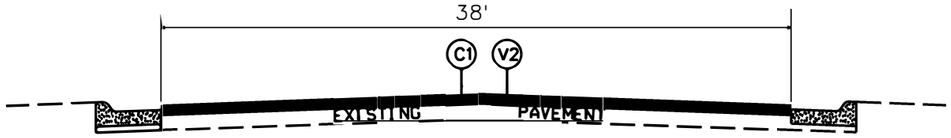
TYPICAL SECTION NO. 7

MAP 4 - 0+00 to 9+00



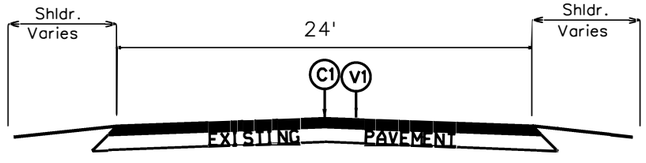
TYPICAL SECTION NO. 2

MAP 1 - 38+50 to 58+08
MAP 3 - 0+00 to 28+00
MAP 3 - 317+58 to 322+08
MAP 4 - 9+00 to 131+97
MAP 4 - 150+68 to 160+51
MAP 5 - 0+00 to 22+24
MAP 5 - 36+24 to 104+02



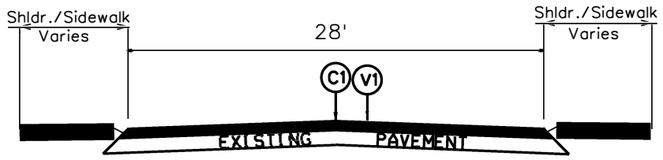
TYPICAL SECTION NO. 4

MAP 2 - 28+80 to 60+72



TYPICAL SECTION NO. 6

MAP 4 - 131+97 to 150+68



TYPICAL SECTION NO. 8

MAP 2 - 0+00 to 28+80

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
V1	MILL EXST. ASPHALT PAVMENT APPROX. 1 1/2" IN DEPTH
V2	MILL EXST. ASPHALT PAVMENT APPROX. 3" IN DEPTH
V3	MILL EXST. ASPHALT PAVMENT APPROX. 6" IN DEPTH
V4	INCIDENTAL MILLING
T	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION, WIDTH VARIES 2'-6')

2026-2027
Catawba County Resurfacing

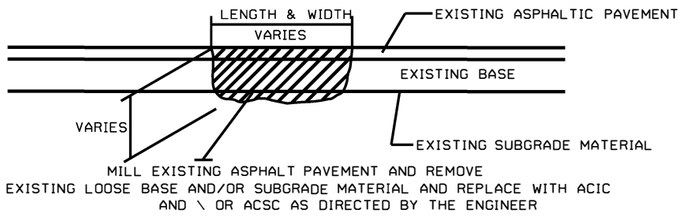
STATE	PROJECT WBS	SHEET NUMBER
NC	2026CPT.12.02.10181	5
	2026CPT.12.02.20181	

Checked by:

Drawn by: G. Brittain

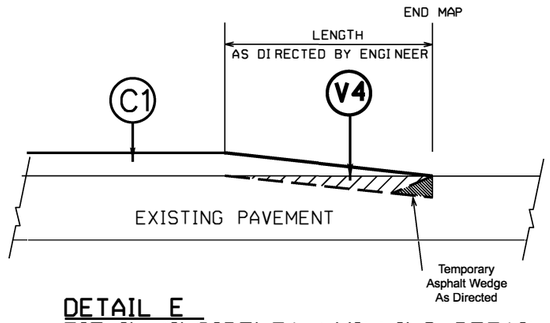
DETAIL A

PATCHING EXISTING PAVEMENT



MILL EXISTING ASPHALT PAVEMENT AND REMOVE
EXISTING LOOSE BASE AND/OR SUBGRADE MATERIAL AND REPLACE WITH ACIC
AND \ OR ACSC AS DIRECTED BY THE ENGINEER

DETAIL C
MILLING BRIDGE APPROACHES

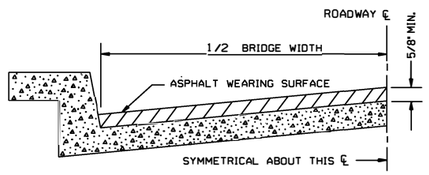


DETAIL E
TIE-IN (INCIDENTAL) MILLING DETAIL

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD.
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
V1	MILL EXST. ASPHALT PAVMENT APPROX. 1 1/2" IN DEPTH
V2	MILL EXST. ASPHALT PAVMENT APPROX. 3" IN DEPTH
V3	MILL EXST. ASPHALT PAVMENT APPROX. 6" IN DEPTH
V4	INCIDENTAL MILLING
T	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION, WIDTH VARIES 2'-6')

DETAIL B

BRIDGE HALF TYPICAL SECTION

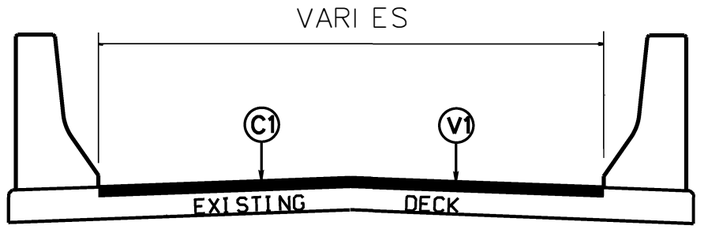


FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN.

THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN 5/8" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1-1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.

NOTES

ALL UNPAVED S.R. ROADS TO BE SURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT.
ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADII, OR AS DIRECTED BY THE ENGINEER.
EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
SHOULDERS AND DITCHES ARE TO BE CONSTRUCTED BY OTHERS UNLESS OTHERWISE NOTED.
BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.



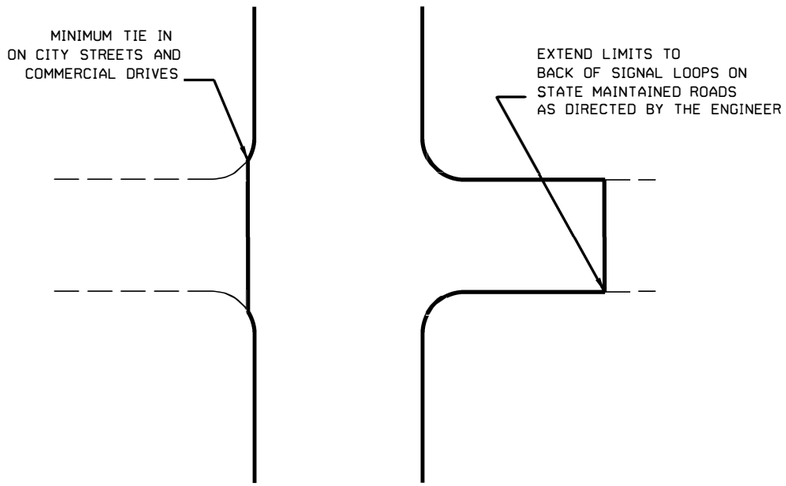
ASPHALT BRIDGE SECTION

Use for all asphalt bridges

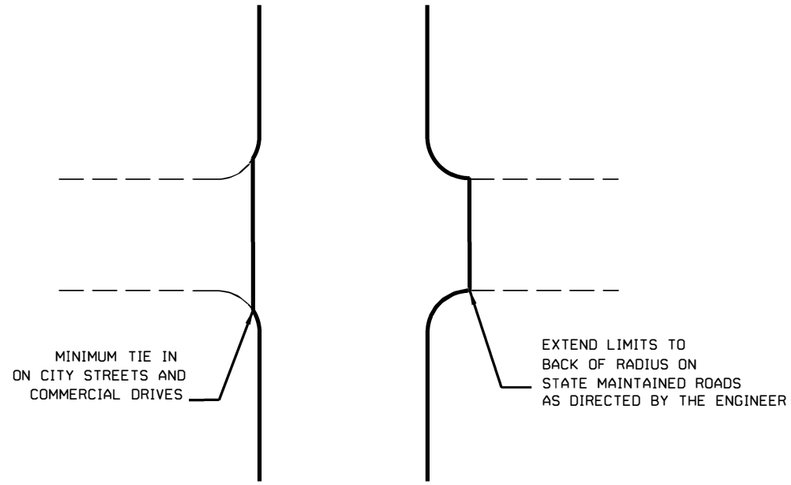
2026-2027

Catawba County Resurfacing

PROJECT REFERENCE NO.	SHEET NO.
2026CPT.12.02.10181.1, etc	6



TYPICAL DETAIL OF PROJECT LIMITS AT
SIGNALIZED Y LINES

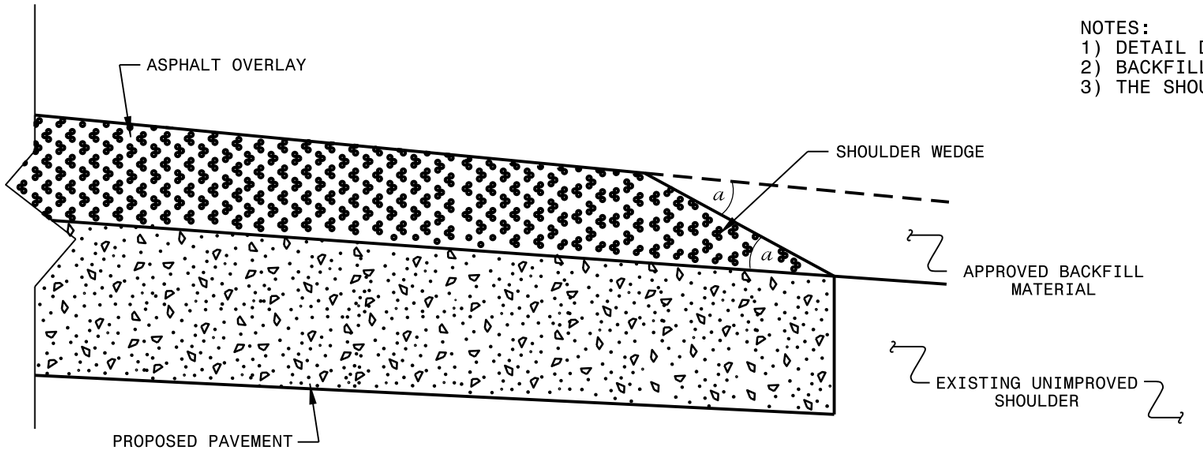


TYPICAL DETAIL OF PROJECT LIMITS AT
UNSIGNALIZED Y LINES

ADDITIONAL INTERSECTIONS (NON-TYPICAL)		
Extend paving limits to back of radius or loop on the following intersections:		
MAP#	STREET NAME	COMMENTS

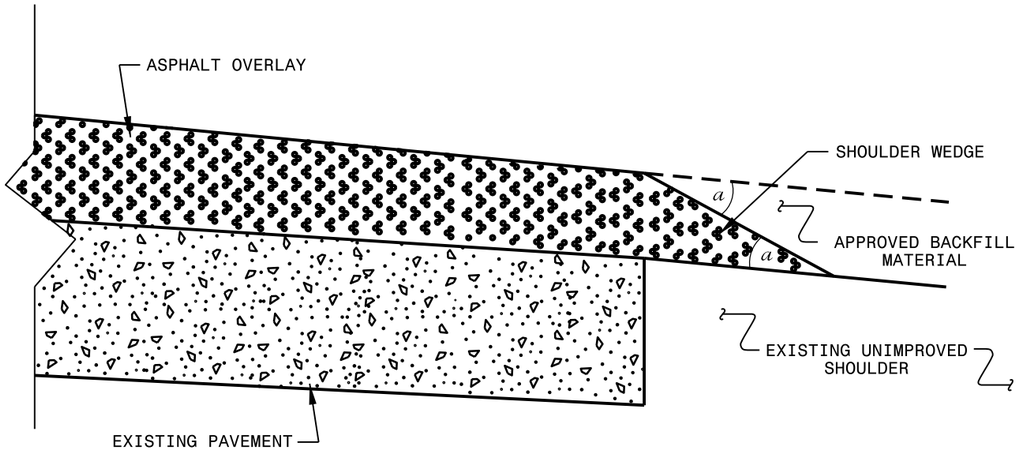
PROJECT REFERENCE NO.	SHEET NO.
2026CPT.12.02.10181	7

NOTES:
1) DETAIL DOES NOT APPLY TO OGAFC 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.



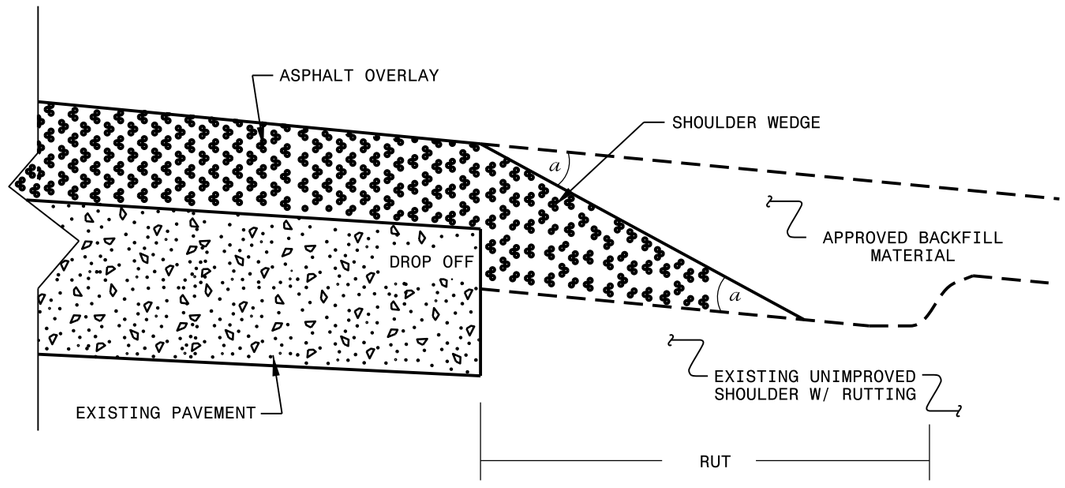
SHOULDER WEDGE DETAIL

(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°

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

$$$$$$SYSTIME$$$$$
$$$$$$USERNAME$$$$$

PROJECT NO.	SHEET NO.	TOTAL NO.
2026CPT.12.02.10181, 2026CPT.12.02.20181	8	

SUMMARY OF QUANTITIES

												1220000000-E	1245000000-E	1260000000-E	1297000000-E			1330000000-E	1491000000-E	1519000000-E	1523000000-E	1575000000-E	1704000000-E	2830000000-N	2845000000-N	2846000000-N	5255000000-N	7324000000-N	7444000000-E	7456100000-E
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	BEGIN MP	END MP	INCIDENTAL STONE BASE	SHOULDER RECONSTRUCTION	AGGREGATE SHOULDER BORROW	1½" MILLING	3" MILLING	6" MILLING	INCIDENTAL MILLING	ASPHALT CONC BASE COURSE, TYPE B25.0C	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	ADJUSTMENT OF MANHOLES	ADJUSMENT OF METER BOXES OR VALVE BOXES	ADJUSMENT OF OVERSIZED MANHOLES	PORTABLE LIGHTING	JUNCTION BOX (STANDARD SIZE)	INDUCTIVE LOOP	LEAD-IN CABLE (14-2)
								MI	FT			TON	SMI	TON	SY	SY	SY	SY	TON	TON	TON	TONS	TONS	EA	EA	EA	LS	EA	LF	LF
2026CPT.12.02.10181	Catawba	1	US-321 BUS	FROM LINCOLN CO TO SR 1855 (E MAIDEN RD)	1, 2	2	2WU	1.100	24-40	0.000	1.100	25	1.45	150	8,578			355			1,683	102	60	10	8			1.00	30	310
2026CPT.12.02.10181	Catawba	2	US-321 BUS	FROM SR 1855 (E MAIDEN RD) TO SR 2007 (W MAIDEN RD)	4, 8	2	2WU	1.100	28-38	1.100	2.200				12,160	10,205					1,972	120	80	34	10		*			
2026CPT.12.02.10181	Catawba	3	US-321 BUS	FROM SR 2007 (W MAIDEN RD) TO NC 10	1, 2	2	2WU	6.100	23	2.200	8.300	100	10.97	1,097	16,025			1,025			7,899	476	200	20	32					
TOTAL FOR PROJ NO. 2026CPT.12.02.10181								**8.300**				**125**	**12.42**	**1,247**	**36,763**	**10,205**		**1,380**			**11,554**	**698**	**340**	**64**	**50**		**1.00**	**1.00**	**30**	**310**
															46,968															
2026CPT.12.02.20181	Catawba	4	SR-1007/1692 1ST ST W	FROM SR 1476 (FAIRGROVE CH RD) TO NC 16 BUS	2. 6, 7	2	2WU	3.040	24-60	0.000	3.040				90,900						8,022	478	100	32	32				2,750	100
2026CPT.12.02.20181	Catawba	5	SR-2231 OI / 2ND AV SE	FROM SR 1692 (1ST AVE SW) TO NC 127	2, 5	2	2WU	1.970	30	0.000	1.970				30,005		4,667		1,117		3,207	240		90	54	8			48	50
2026CPT.12.02.20181	Catawba	6	SR-3004 / TURTLE DOVE RD	FROM SR 1453 (SPRINGS RD) TO DEAD END	3	2	2WU	0.600	20	0.000	0.600									408		29	60							
2026CPT.12.02.20181	Catawba	7	SR-2251 / PUETT PARK DR	FROM SR 1544 (ADAMS ST) TO DEAD END	3	2	2WU	0.250	18	0.000	0.250									192		16	80							
2026CPT.12.02.20181	Catawba	8	SR-2250 / BARBARA DR	FROM SR 1544 (ADAMS ST) TO SR 2251 (PUETT PARK DR)	3	2	2WU	0.110	18	0.000	0.110									84		6	20							
2026CPT.12.02.20181	Catawba	9	SR-2252 / TERRY ST	FROM SR 2250 (BARBARA DR) TO CUL-DE-SAC	3	2	2WU	0.200	18	0.000	0.200									161		11	20							
2026CPT.12.02.20181	Catawba	10	SR-1641 / CORAL WAY	FROM SR 1544 (ADAMS ST) TO DEAD END	3	2	2WU	0.150	20	0.000	0.150									128		10	40							
TOTAL FOR PROJ NO. 2026CPT.12.02.20181								**6.320**							**120,905**		**4,667**		**1,117**	**973**	**11,229**	**790**	**320**	**122**	**86**	**8**			**2,798**	**150**
															125,572															
GRAND TOTAL								**14.620**				**125**	**12.42**	**1,247**	**157,668**	**10,205**	**4,667**	**1,380**	**1,117**	**973**	**22,783**	**1,488**	**660**	**186**	**136**	**8**	**1.00**	**1.00**	**2,828**	**460**
															172,540															

PROJECT NO.	SHEET NO.	TOTAL NO.
2026CPT.12.02.10181, 2026CPT.12.02.20181	9	

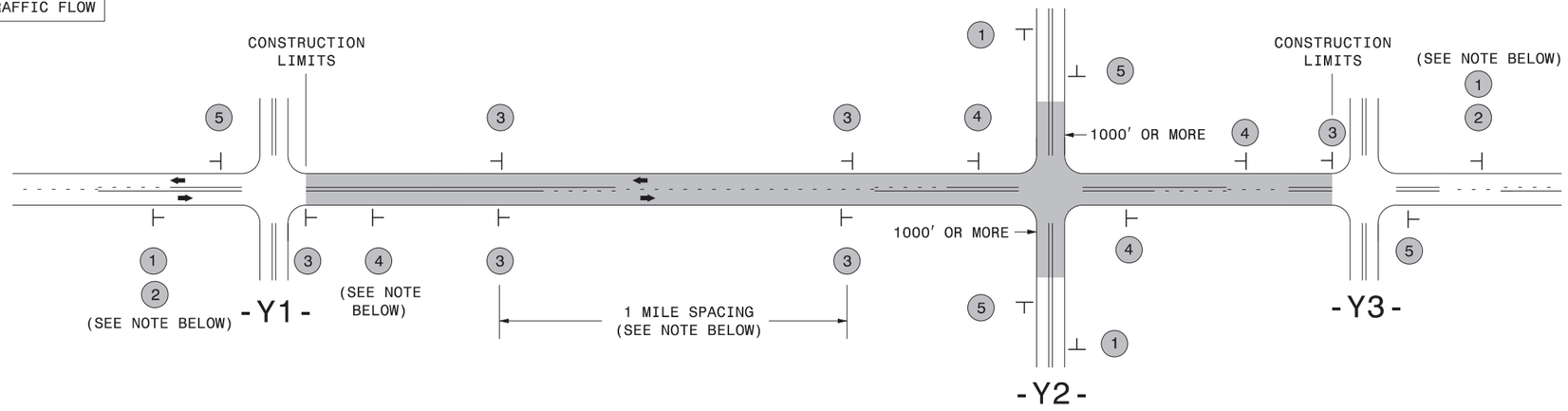
THERMOPLASTIC AND PAINT QUANTITIES

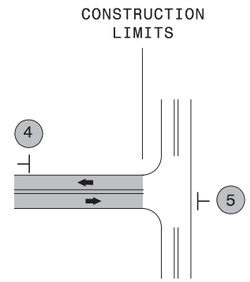
														4413000000-E	4457000000-N	4510000000-N	4685000000-E		4700000000-E		4709000000-E	4720000000-E		4725000000-E						4770000000-E		4895000000-N
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	BEGIN MP	END MP	WORK ZONE ADVANCE GENERAL WARNING	TEMP TRAFFIC CONTROL	LAW ENFORCEMENT	4" X 90 M YELLOW THERMO	4" X 90 M WHITE THERMO	12" X 90 M YELLOW THERMO	12" X 90 M WHITE THERMO	24" X 90 MILS WHITE THERMO	THERMO MSG SCHOOL 120 M	THERMO MSG ONLY 120 M	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR ARROW 90 M	THERMO STR & LT ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO MERGE ARROW (90 MILS)	COLD APPLIED PLASTIC PAVEMENT MARKING LINES TYPE I, WHITE (4")	COLD APPLIED PLASTIC PAVEMENT MARKING LINES TYPE I, YELLOW (4")	POLYCARBONATE H-SHAPED MARKERS
								MI	FT			SF	LS	HR	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	EA
2026CPT.12.02.10181	Catawba	1	US-321 BUS	FROM LINCOLN CO TO SR 1855 (E MAIDEN RD)	1, 2	2	2WU	1.1	24-40	0	1.1	128			12,000	8,400						9								275
2026CPT.12.02.10181	Catawba	2	US-321 BUS	FROM SR 1855 (E MAIDEN RD) TO SR 2007 (W MAIDEN RD)	4, 8	2	2WU	1.1	28-38	1.1	2.2	80	*		12,220	3,000			110			6	1	3	1	2				80
2026CPT.12.02.10181	Catawba	3	US-321 BUS	FROM SR 2007 (W MAIDEN RD) TO NC 10	1, 2	2	2WU	6.1	23	2.2	8.3	240			64,500	64,500	570		184	12	4	22	4	3		3	3			450
TOTAL FOR PROJ NO. 2026CPT.12.02.10181								**8.3**				**448**	**1.000**		**88,720**	**75,900**	**570**		**294**	**12**	**4**	**37**	**5**	**6**	**1**	**5**	**3**			**805**
															164,620		**570**			**16**		**57**								
2026CPT.12.02.20181	Catawba	4	SR-1007/1692 1ST ST W	FROM SR 1476 (FAIRGROVE CH RD) TO NC 16 BUS	2. 6, 7	2	2WU	3.04	24-60	0	3.04	384		200	48,200	24,100	387	240	815			73	19	52		11	2	1,586	2,079	800
2026CPT.12.02.20181	Catawba	5	SR-2231 OI / 2ND AV SE	FROM SR 1692 (1ST AVE SW) TO NC 127	2, 5	2	2WU	1.97	30	0	1.97	160		60	1,850	10,400			270			4	2	4	19	19		168	112	130
2026CPT.12.02.20181	Catawba	6	SR-3004 / TURTLE DOVE RD	FROM SR 1453 (SPRINGS RD) TO DEAD END	3	2	2WU	0.6	20	0	0.6	48																	
2026CPT.12.02.20181	Catawba	7	SR-2251 / PUETT PARK DR	FROM SR 1544 (ADAMS ST) TO DEAD END	3	2	2WU	0.25	18	0	0.25	24																	
2026CPT.12.02.20181	Catawba	8	SR-2250 / BARBARA DR	FROM SR 1544 (ADAMS ST) TO SR 2251 (PUETT PARK DR)	3	2	2WU	0.11	18	0	0.11	24																	
2026CPT.12.02.20181	Catawba	9	SR-2252 / TERRY ST	FROM SR 2250 (BARBARA DR) TO CUL-DE-SAC	3	2	2WU	0.2	18	0	0.2																		
2026CPT.12.02.20181	Catawba	10	SR-1641 / CORAL WAY	FROM SR 1544 (ADAMS ST) TO DEAD END	3	2	2WU	0.15	20	0	0.15	24																	
TOTAL FOR PROJ NO. 2026CPT.12.02.20181								**6.32**				**664**		**260**	**50,050**	**34,500**	**387**	**240**	**1,085**			**77**	**21**	**56**	**19**	**30**	**2**	**1,754**	**2,191**	**930**
															84,550		**627**					**205**						**3,945**		
GRAND TOTAL								**14.62**				**1,112**	**1.000**	**260**	**138,770**	**110,400**	**957**	**240**	**1,379**	**12**	**4**	**114**	**26**	**62**	**20**	**35**	**5**	**1,754**	**2,191**	**1,735**
															249,170		**1,197**			**16**		**262**						**3,945**		

PROJ. REFERENCE NO.	SHEET NO.
2026CPT.12.02.10181.1,etc	TMP-1

SIGNING FOR RESURFACING PROJECTS

LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW





TEE INTERSECTION

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1 — ROAD WORK AHEAD, W20-1, 48″ X 48″
2 — NEXT XX MILES, W7-3aP, 24″ X 18″

PLACE 1000′ PRIOR TO BEGINNING OF CONSTRUCTION LIMITS.
ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000′ ALONG -Y- LINE.

#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 — LOW/SOFT SHOULDER, SP 13107, 48″ X 48″

- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER.
- AT TEE INTERSECTIONS INSTALL INITIALLY ½ MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.

4 — ROAD UNDER CONST, 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.
- FOR TEE INTERSECTIONS, INSTALL WITHIN 500′ +/- OF THE INTERSECTION ALONG -L- LINE.

5 — END ROAD WORK, G20-2 A, 48″ X 24″

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.

-Y- LINE SIGNING

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000′ OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

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.

ROAD WORK AHEAD, W20-1, 48″ X 48″
PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A, 48″ X 48″
PLACED 250′ IN ADVANCE OF FLAGGER.

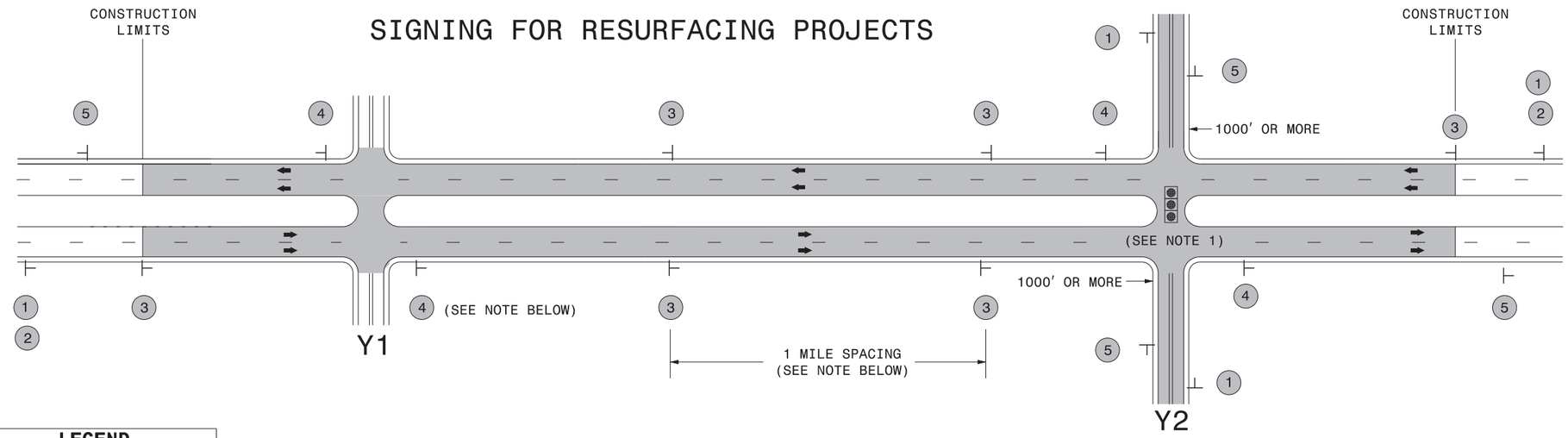
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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

5/15/2017
SATMU\WZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing_AdvWarn_2Ln.dgn
User:kedgis

PROJ. REFERENCE NO.	SHEET NO.
2026CPT.12.02.10181.1, etc	TMP-2

SIGNING FOR RESURFACING PROJECTS



LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1 — ROAD WORK AHEAD (W20-1, 48″ X 48″)
2 — NEXT XX MILES (W7-3aP, 24″ X 18″)

PLACE 1000′ PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000′ ALONG -Y- LINE.

#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 — LOW/SOFT SHOULDER (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 ½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.

4 — ROAD UNDER CONST (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 — END ROAD WORK (G20-2 A, 48″ X 24″)

PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS.

-Y- LINE SIGNING

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000′ OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

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.

ROAD WORK AHEAD (W20-1, 48″ X 48″) — PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A (48″ X 48″) — PLACED 250′ IN ADVANCE OF FLAGGER.

NOTES:

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.

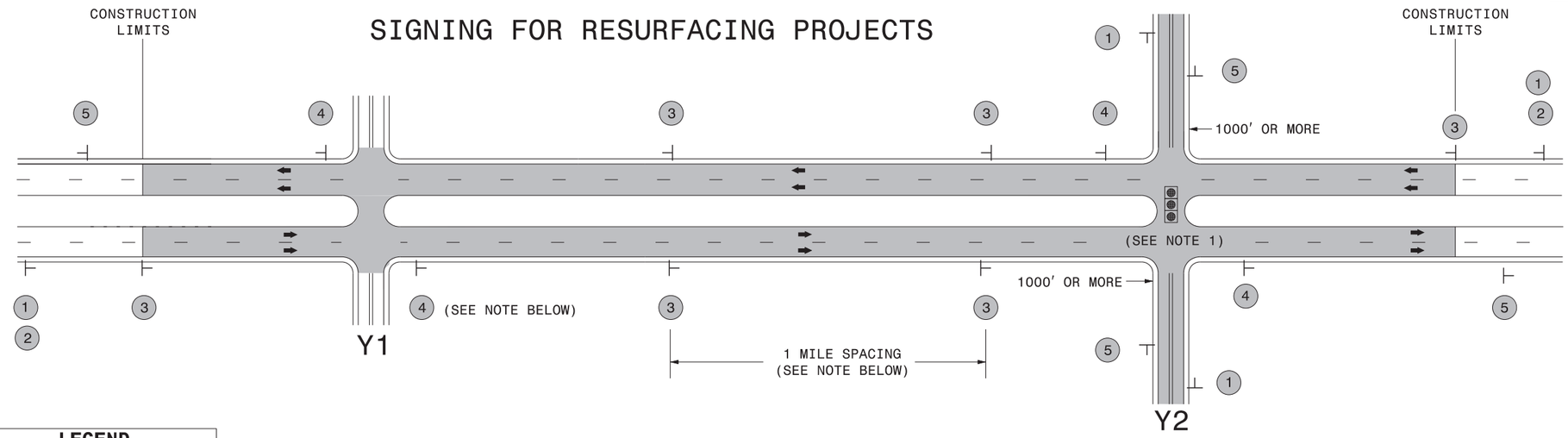
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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

3/23/2015
C:\Users\rmgarrett\Downloads\Resurfacing_AdvWarn_UrSu_Shldr.dgn
User:rmgarrett

PROJ. REFERENCE NO.	SHEET NO.
2026CPT.12.02.10181.1, etc.	TMP-3

SIGNING FOR RESURFACING PROJECTS



LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1	ROAD WORK AHEAD 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.
2	NEXT XX MILES 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	LOW/SOFT SHOULDER 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 ½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.
4	ROAD UNDER CONST 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	END ROAD WORK G20-2 A 48″ X 24″	PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS.

-Y- LINE SIGNING

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000′ OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

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.

ROAD WORK AHEAD
W20-1
48″ X 48″

PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A
48″ X 48″

PLACED 250′ IN ADVANCE OF FLAGGER.

NOTES:

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.

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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

3/23/2015
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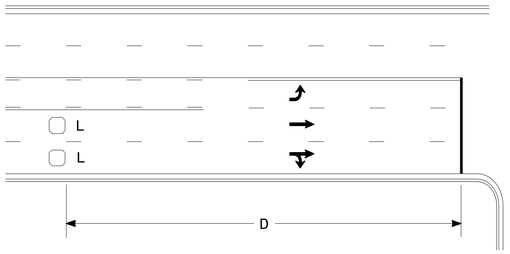
User:rmgarrett

PROJECT REFERENCE NO.	SHEET NO.
2026CPT.12.02.10181.1,ETC	SIG-1

High Speed Detection
(≥35 mph)

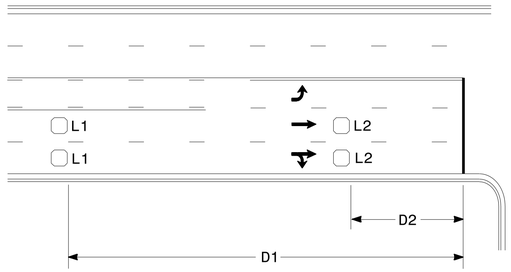


Speed Limit mph	D ft
35	200
40	250
45	300
50	355
55	420
60	475
65	550

L = 6ft X 6ft
Wired separately

Volume Density Operation

OR



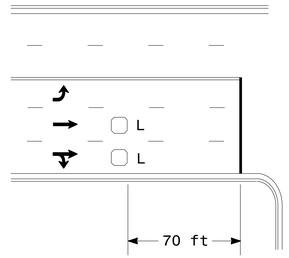
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110
60	475	120
65	550	130

L1 = 6ft X 6ft
Wired in series

L2 = 6ft X 6ft
Wired in series

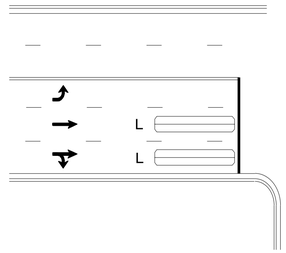
"Stretch" Operation

Low Speed Detection
(≤35 mph)



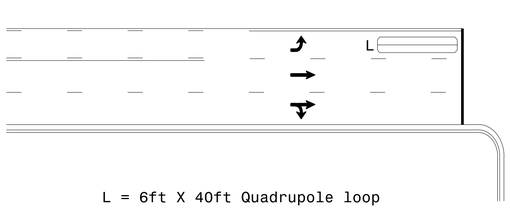
L = 6ft X 6ft
Wired in series

OR



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

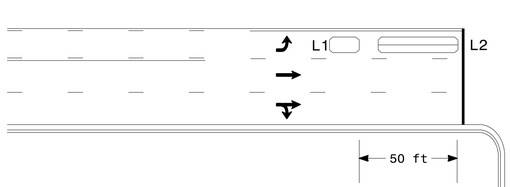
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

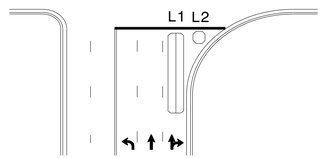
OR



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

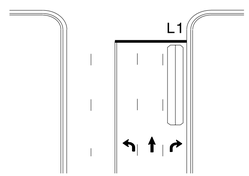
Queue Loop Detection

Right Turn Lane Detection

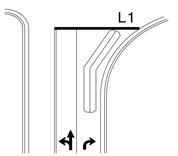


Shared Lane/
Wide Radius Turn

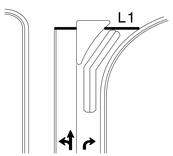
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

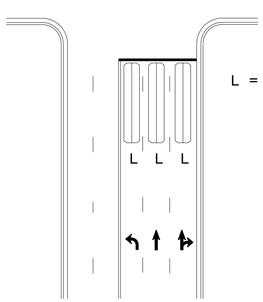


Wide Radius Turn



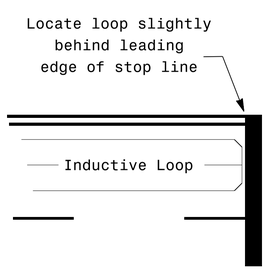
Channelized Turn

Side Street Detection



L = 6ft X 40ft
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines



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

Prepared In the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

Typical Signal Loop Locations

PLAN DATE: September 2025 | REVIEWED BY:
PREPARED BY: J.A. Lohr | REVIEWED BY:

SCALE
N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL 026486
ENGINEER
ROBERT J. ZIEMBA
DocuSigned by:
11/25/2025
DATE

SIG. INVENTORY NO.

17-NOV-2025 07:35
S:\TSG\Traffic Signals\Signal Design Section\Eastern Region\Loop Typical\Loop_Typical_2025.dgn
jalohr