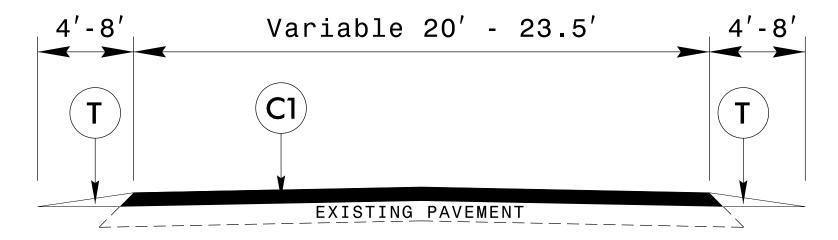
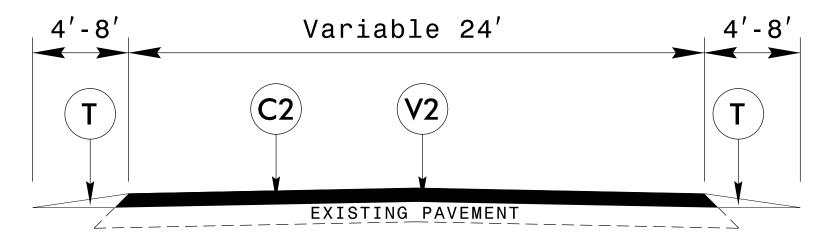


PROJECT NO.	SHEET NO.	TOTAL SHEETS
2022CPT.13.04.10591	2	11



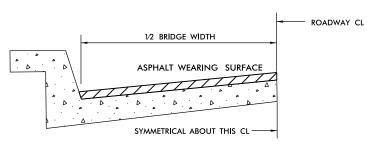
TYPICAL SECTION #1



TYPICAL SECTION #2

NOTES: MILL ASPHALT PAVEMENT 2" ON MAP 1 STARTING AT SR 1747 TO SR 1760 +680LF.

	PAVEMENT SCHEDULE
C1	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD
C2	PROP, APPROX, 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YARD
Т	SHOULDER RECONSTRUCTION
V1	INCIDENTAL MILLING
V2	MILLING ASPHALT PAVEMENT, 2" DEPTH



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. THE MINIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: \$4.75A 1/2", \$9.5B 1", \$9.5C,D 1.5" – 2". ULTRA-THIN HOT MIX ASPHALT – TYPE A 34". ULTRA-THIN HOT MIX ASPHALT – TYPE B 58". ULTRA-THIN HOT MIX ASPHALT – TYPE C 1/2". THE MAXIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: \$4.75A 1/", \$9.5B 1.5", \$9.5C,D 2". ULTRA-THIN HOT MIX ASPHALT – TYPE A 34", ULTRA-THIN HOT MIX ASPHALT – TYPE B 58", ULTRA-THIN HOT MIX ASPHALT – TYPE B 58".

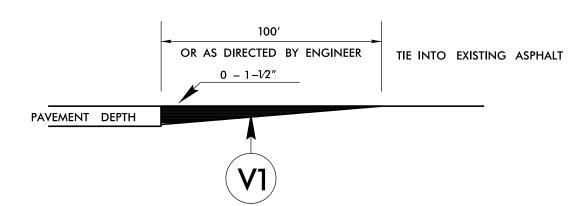
NOTES

ALL UNPAVED ROADS TO BE RESURFACED 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

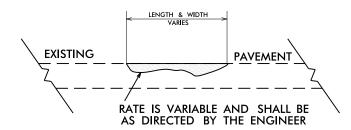
SHOULDERS AND DITCHES ARE TO BE CONSTRUCTED BY OTHERS UNLESS OTHERWISE INDICATED.

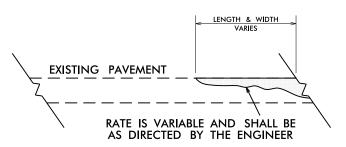
BRIDGES ARE TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY



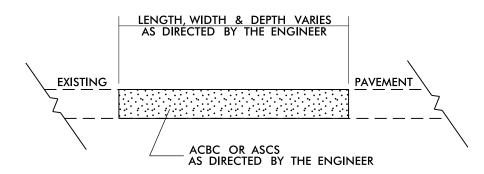
DETAIL TO TIE INTO EXIST PAVEMENT

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 TO BE RESURFACED WITH
ASPHALT CONC SURFACE COURSE, TYPE \$9.5C.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.

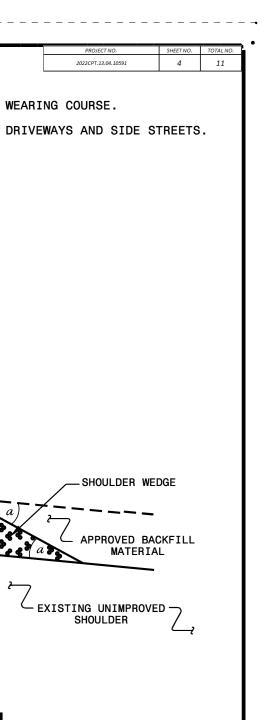




DETAIL SHOWING METHOD OF WEDGING

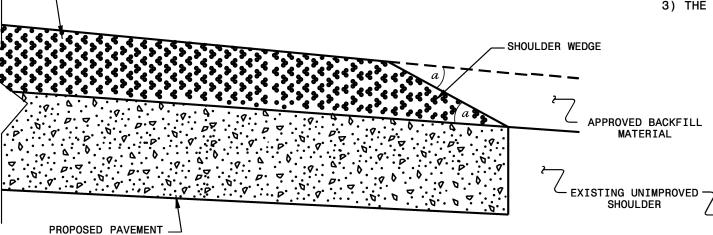


PATCHING EXISTING PAVEMENT



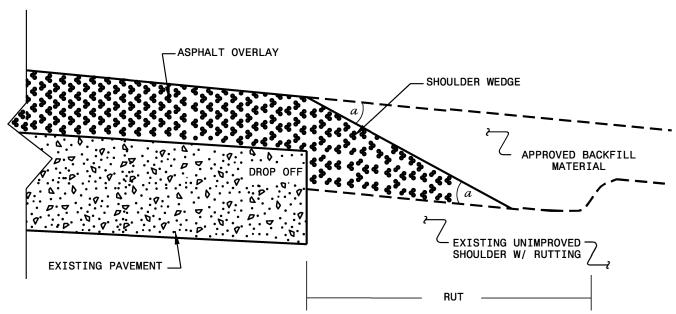


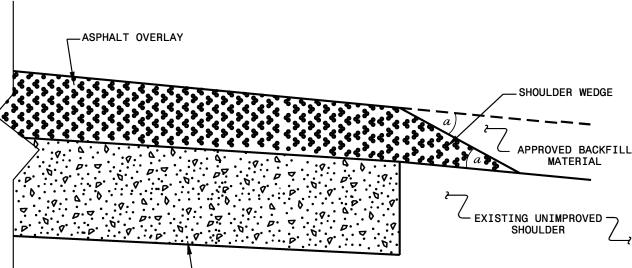
- 1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)





SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ NO Widening)

EXISTING PAVEMENT _

- SHOULDER WEDGE ANGLE = 30°

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SHOULDER WEDGE DETAILS

DRIGINAL BY:	T.SPELL	DATE:	7-19-11
ODIFIED BY:		DATE:	10/16/12
CHECKED BY:		DATE: _	
ILE SPEC .: _s:u:	sr/det_ails/star	nd/shoulderwed	edetail.d.n

SHOULDER WEDGE DETAIL

(Resurfacing Adjacent to Rutted Shoulder)

-ASPHALT OVERLAY

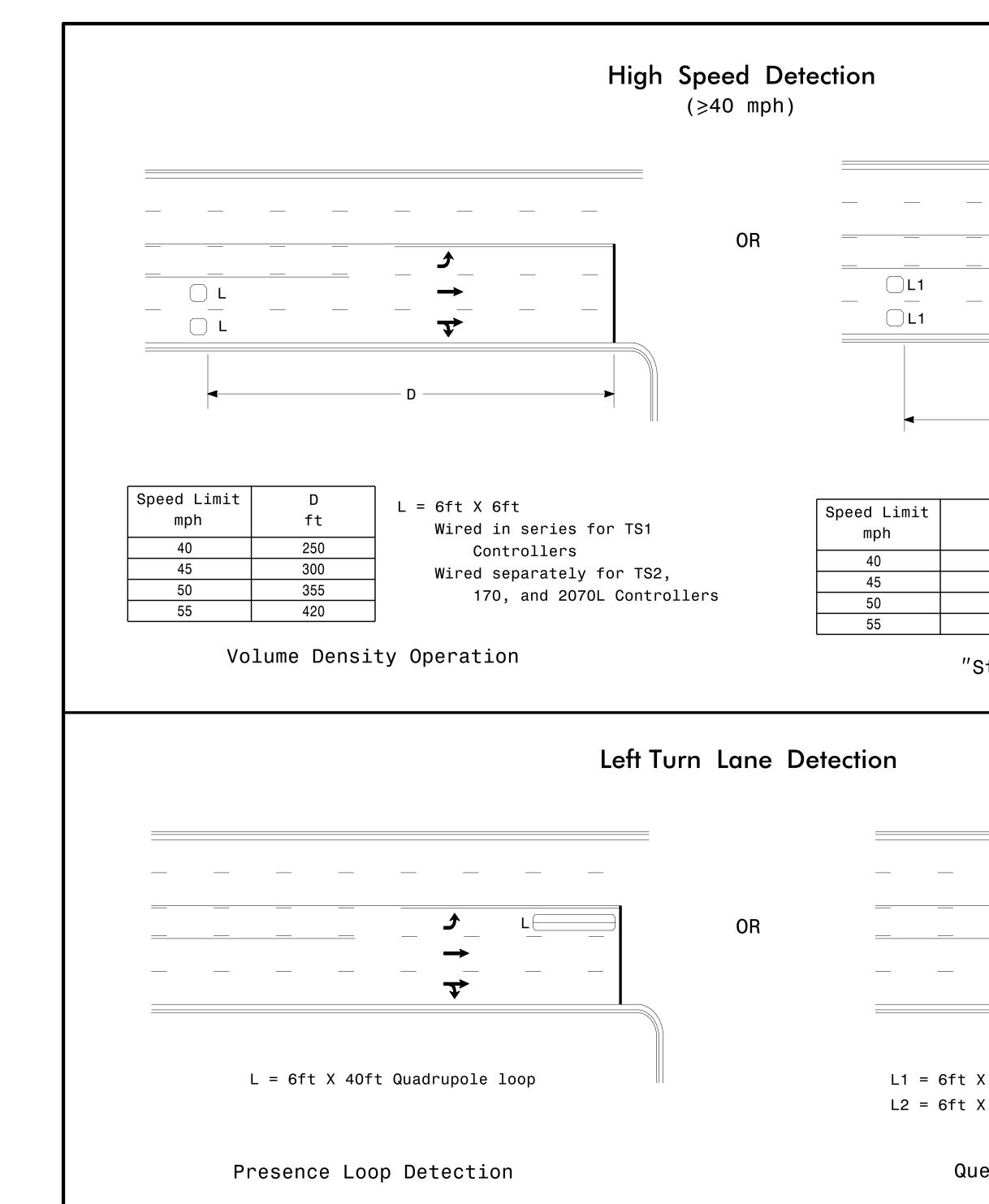
PROJECT NO.	SHEET NO.	TOTAL NO.
2022CPT.13.04.10591	5	11

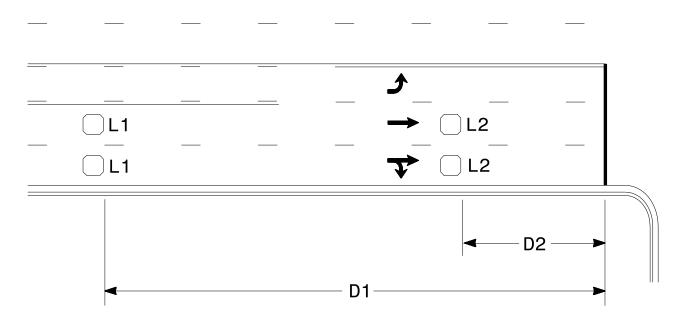
SUMMARY OF QUANTITIES

												1220000000-E	1245000000-E	1260000000-E	1297000000-E	133000000-Е	1523000000-E	1575000000-E	1704000000-E	2815000000-N	7444000000-E	7456000000-E
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE	FINAL	WARM MIX	LENGTH	WIDTH	INCIDENTAL STONE	SHOULDER	AGGREGATE	MILLING ASPHALT	INCIDENTAL	ASPHALT CONC	ASPHALT	PATCHING	ADJUSTMENT	INDUCTIVE	LEAD-IN CABLE
							TYPE	SURFACE	ASPHALT			BASE	RECONSTRUCTION	SHOULDER	PAVEMENT,	MILLING	SURFACE	BINDER FOR	EXISTING	OF DROP INLET	LOOP SAWCUT	Í
								TESTING	REQUIRED					BORROW	2" DEPTH		COURSE,	PLANT MIX	PAVEMENT			Í
								REQUIRED									TYPE S9.5C					i
											FT	TON	CNAL	TON	CV	CV	TON	TON	TON	F.A.	15	
										MI	FI	TON	SMI	TON	SY	SY	TON	TON	TON	EA	LF	, LF
				FROM SR1747 TO SR1762 + 0.575																		ĺ
2022CPT.13.04.10591	McDowell	1	US-70 E	MILES (MP 22.78 - MP 26.57)	1,2	2	2WU	NO	NO	3.82	23.5	191	7.60	988	15,288	3,900	5,729	344	2,657	2	701	65
				FROM SUGAR COVE RD TO YANCEY																		1
2022CPT.13.04.10591	McDowell	2	NC-80	CO. LINE (MP 7.82 - MP 12.16)	1	2	2WU	NO	NO	4.34	20	217	8.68	1,128		228	4,506	270	1,051			İ
TOTAL FOR PROJ I	NO. 2022CP	T.13.04.105	91							8.16		408	16.28	2,116	15,288	4,128	10,235	614	3,708	2	701	65
•	•		•		•					•		•			•		•		•	•		
GR/	AND TOTAL		_							8.16		408	16.28	2,116	15,288	4,128	10,235	614	3,708	2	701	65

THERMOPLASTIC AND PAINT QUANTITIES

												4413000000-E	4457000000-N	48100	000000-E	4890000000-E	489000	4895000000-N	
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE	FINAL	WARM MIX	LENGTH	WIDTH	WORK ZONE	TEMPORARY	PAINT	PAINT PAVEMENT	THERMOPLASTIC	POLYUREA	POLYUREA	NON-CAST IRON
							TYPE	SURFACE	ASPHALT			ADVANCE/GENERAL	TRAFFIC	PAVEMENT	MARKING LINES	PAVEMENT	PAVEMENT	PAVMENT	SNOWPLOWABLE
								TESTING	REQUIRED			WARNING SIGNING	CONTROL	MARKING LINES	(4")	MARKING LINES	MARKING LINES	MARKING LINES	PAVEMENT
								REQUIRED						(4")	YELLOW	(24", 90 MILS)	(4", 20 MILS)	(4", 20 MILS)	MARKERS
														WHITE		WHITE	WHITE	YELLOW	
																	(STANDARD	(STANDARD	
																	GLASS BEADS)	GLASS BEADS)	
										MI	FT	SF	LS	LF	LF	LF	LF	LF	EA
				FROM SR1747 TO SR1762 + 0.575															
2022CPT.13.04.10591	McDowell	1	US-70 E	MILES (MP 22.78 - MP 26.57)	1,2	2	2WU	NO	NO	3.82	23.5	428	*	10,960	10,960	63	40,951	40,549	347
				FROM SUGAR COVE RD TO YANCEY									*						
2022CPT.13.04.10591	McDowell	2	NC-80	CO. LINE (MP 7.82 - MP 12.16)	1	2	2WU	NO	NO	4.34	20	486					45,830	45,830	568
TOTAL FOR PROJ	NO 3033CD	F 12 04 10	F01							8.16		914	*	10,960	10,960	63	86,781	86,379	915
TOTAL FOR PROJ	NO. ZUZZCP	1.13.04.10	291											21,920			173		
					•	•		•		•	•								
CD.	AND TOTAL									8.16		914	1	10,960	10,960	63	86,781	86,379	915
GK	AND IOIAL													2:	173	,160			





 $L1 = 6ft \times 6ft$

 $L2 = 6ft \times 6ft$

Wired in series

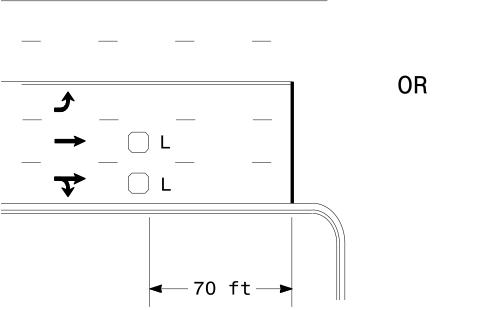
Wired in series

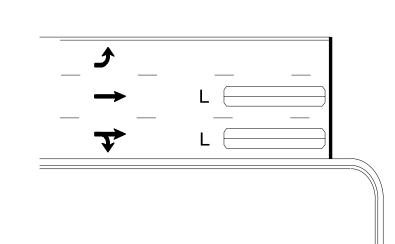
Speed Limit	D1	D2
mph	ft	ft
40	250	80
45	300	90
50	355	100
55	420	110

"Stretch" Operation

Low Speed Detection (<35 mph)

PROJECT NO.	SHEET NO.	TOTAL NO.
2022CPT.13.04.10591	6	11





Right Turn Lane Detection

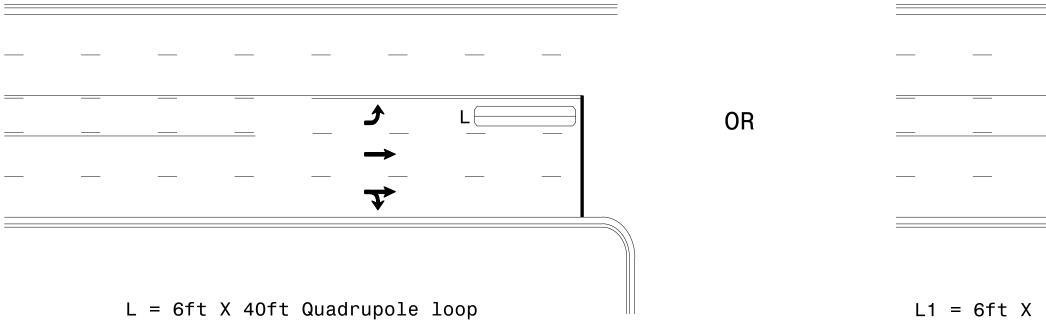
L2 = 6ft X 6ft [Minimum] Presence loop

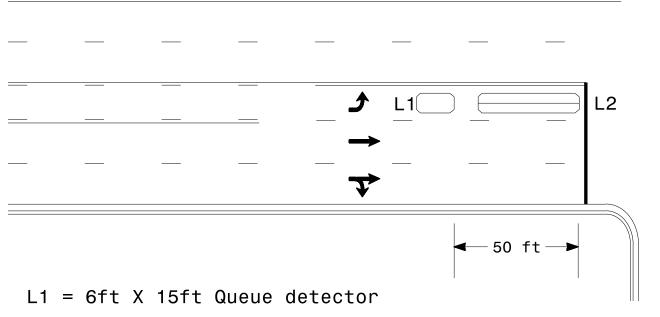
L1 = 6ft X 40ft Quadrupole loop

Wired separately

L = 6ft X 6ftWired in series

L = 6ft X 40ftQuadrupole loop, wired separately



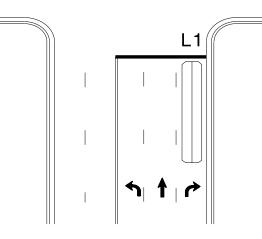


L2 = 6ft X 40ft Quadrupole loop

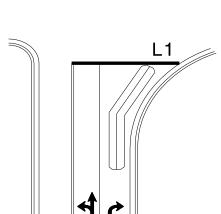
Queue Loop Detection

↑ ↑ **→**

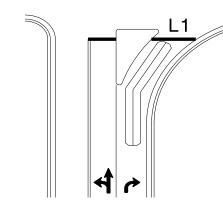
Shared Lane/ Wide Radius Turn



Standard Turn

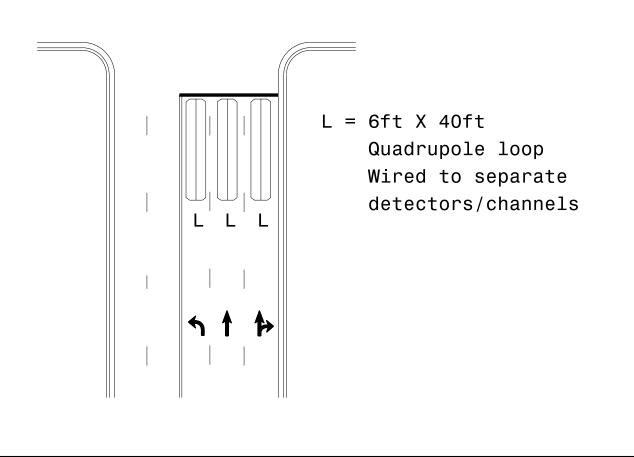


Wide Radius Turn

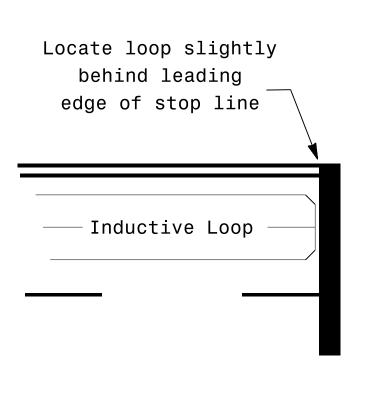


Channelized Turn

Side Street Detection



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



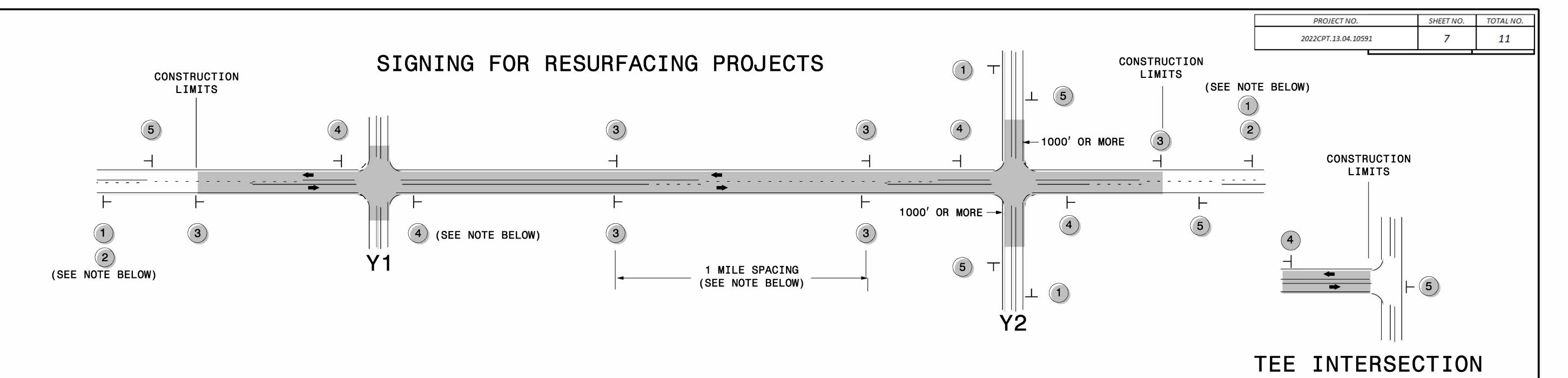
SCALE

N/A

Typical Signal Loop Locations

PLAN DATE: January 2015 REVIEWED BY: 750 N.Greenfield Pkwy.Garner.NC 27529 PREPARED BY: REVIEWED BY: PLA

REVISIONS INIT. DATE PL Alexander



<u>LEGEND</u>

├ STATIONARY SIGN

SH

NO ER

IGNING

S

← DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

NEXT 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)

SP 13107 48" X 48"

ROAD

UNDER

- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER.
- AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.
- 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.

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.

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

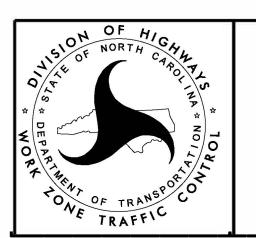
WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE

-Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.





PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.



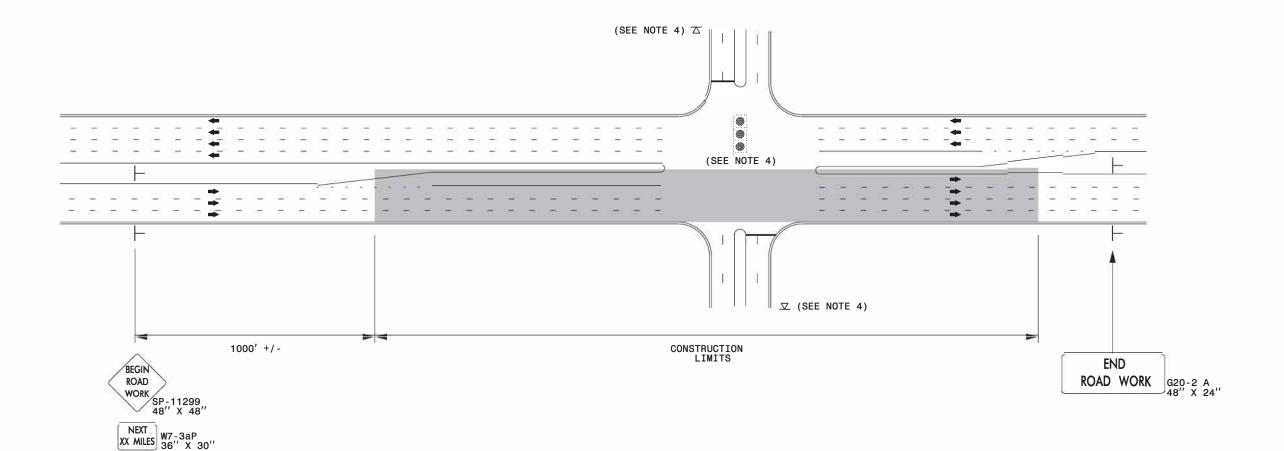
RESURFACING
ADVANCE WARNING SIGNS
FOR
RURAL AND SUBURBAN
2 LANE ROADWAYS

~ett\Desktod\Kesurtag ng_Aavwarn_∠Ln agn

C:\Users\rmgarrett\Deskto User:rmgarrett

PROJECT NO.	SHEET NO.	TOTAL NO.
2022CPT.13.04.10591	8	11

URBAN / SUBURBAN WORKZONES



NOTES:

- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
- 4) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
- 5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
- 6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
- 7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 8) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS.THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

⊢ STATIONARY SIGN → DIRECTION OF TRAFFIC FLOW



RESURFACING ADVANCE WARNING SIGNS FOR URBAN / SUBURBAN FACILITIES

76++

SIGN NUMBER: 11299
TYPE: B

BACKG COLOR: Fluorescent Orange

COPY COLOR: Black

DESIGN BY:
PROJECT ID:

CHECKED BY: DIV: ALL

DATE: Jun 22, 2011

QUANTITY: SEE PLANS

SIGN WIDTH: 5'-6" HEIGHT: 5'-6"

TOTAL AREA: 30.5 Sq.Ft.

BORDER TYPE: INSET RECESS: 0.59"

WIDTH: 0.75" RADII: 1.38"

NO. Z BARS: N/A LENGTH: N/A

SYMBOL	X	Y	WID	нт

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES: 1,2

- 1. Legend and border shall be direct applied black non-reflective sheeting.
- 2. Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflective sheeting.

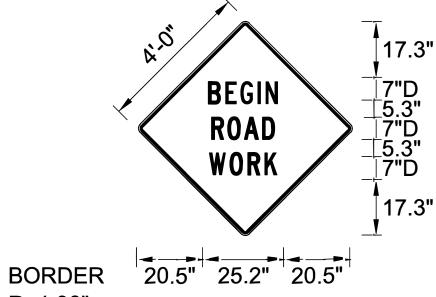
SP 11299

WJ

ALL

 PROJECT NO.
 SHEET NO.
 TOTAL NO.

 2022CPT.13.04.10591
 9
 11



R=1.38" TH=0.75" IN=0.59"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

							Lett	er	spac	ings	ar	e to	star	t of	next	let	ter				Series/Size Text Length
	В	E	G	I	N																D 2000
20.5	6	5.4	6.3	2.8	4.8	20.5															25.2
	R	0	A	D																	D 2000
21.4	5.8	5.9	7	4.8	21.4																23.5
	w	0	R	К																	D 2000
20.9	7.1	6.5	5.9	4.9	20.9																24.5

FILENAME: SP11299.PDF

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SP13106 BACKG COLOR: Fluorescent Orange COPY COLOR: **Black** TYPE: STATIONARY QUANTITY: SEE PLANS SYMBOL X Υ WID HT SIGN WIDTH: 4'-0" HEIGHT: 4'-0" TOTAL AREA: 16.00 Sq.Ft. **BORDER TYPE: INSET RECESS: 0.75**" WIDTH: 1.25" RADII: 3" MAT'L: 0.080" (2.0 mm) ALUMINUM NO. Z BARS: LENGTH:

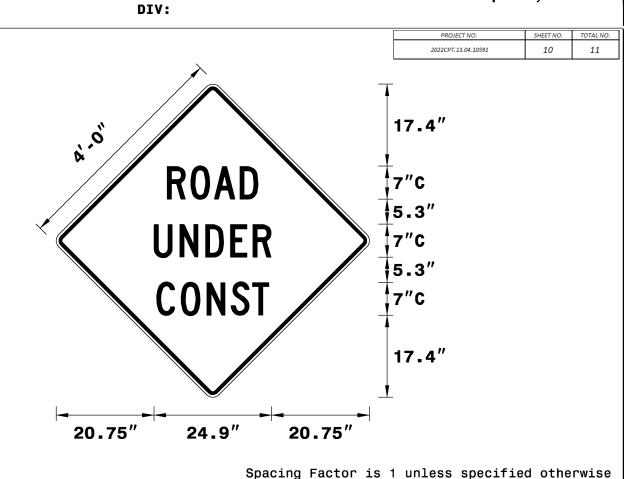
USE NOTES: 1,2

- 1. Legend and border shall be direct applied black non-reflective sheeting.
- 2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

DESIGN BY: B. RASHID PROJECT ID:

CHECKED BY: AIA

DATE: Apr 26, 2013



NORTH CAROLINA D.O.T. SIGN DETAIL

LETTER POSITIONS

FILENAME: SP130XX_Sgn_SGN_special

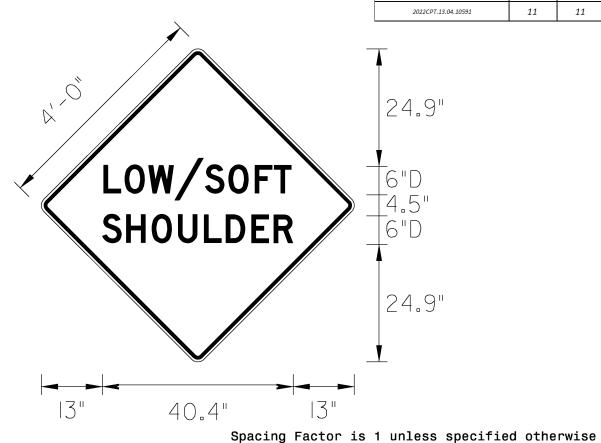
							Lette	er sp	acings	are	to	star	t o	of next	let	ter				Series/ Text Le
	R	0	Α	D																C 20
23.5	5	5	5.5	3.9	23.5															19.
	U	N	D	E	R															C 20
20.7	5.5	5.5	5.3	4.8	3.9	20.7														24.
	С	0	N	S	Т															C 20
21.2	5.2	5.5	5.1	4.6	3.6	21.2														23.
																	ĺ			

SIGN NUMBER: SP13107 BACKG COLOR: Fluorescent Orange **COPY COLOR:** Black TYPE: STATIONARY QUANTITY: SEE PLANS SYMBOL X Υ WID HT SIGN WIDTH: 4'-0" HEIGHT: 4'-0" TOTAL AREA: 16.00 Sq.Ft. **BORDER TYPE: INSET RECESS: 0.75**" WIDTH: 1.25" RADII: 3" MAT'L: 0.080" (2.0 mm) ALUMINUM NO. Z BARS: LENGTH:

USE NOTES: 1,2

- 1. Legend and border shall be direct applied black non-reflective sheeting.
- 2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

DESIGN BY: B. RASHID PROJECT ID:	CHECKED BY: AIA DIV:	DATE: Apr 26, 2013
		PROJECT NO. SHEET NO. TOTAL NO
		2022CPT.13.04.10591 11 11



LETTER POSITIONS

								Let	ter	spacings	ar	e to	sta	rt (of n	ext	lette	r		Series/Siz Text Lengt
	L	0	W	1	S	0	F	Т												D 2000
13.2	4.5	5	5.5	6.5	5	5.6	4.1	3.7	13.2											39.9
	S	Н	0	U	L	D	E	R								-				D 2000
13	5.1	5.4	5.6	5.5	4.6	5.4	4.7	4.1	13											40.4
															İ	-				

FILENAME: SP130XX_Sgn_SGN_special NORTH CAROLINA D.O.T. SIGN DETAIL