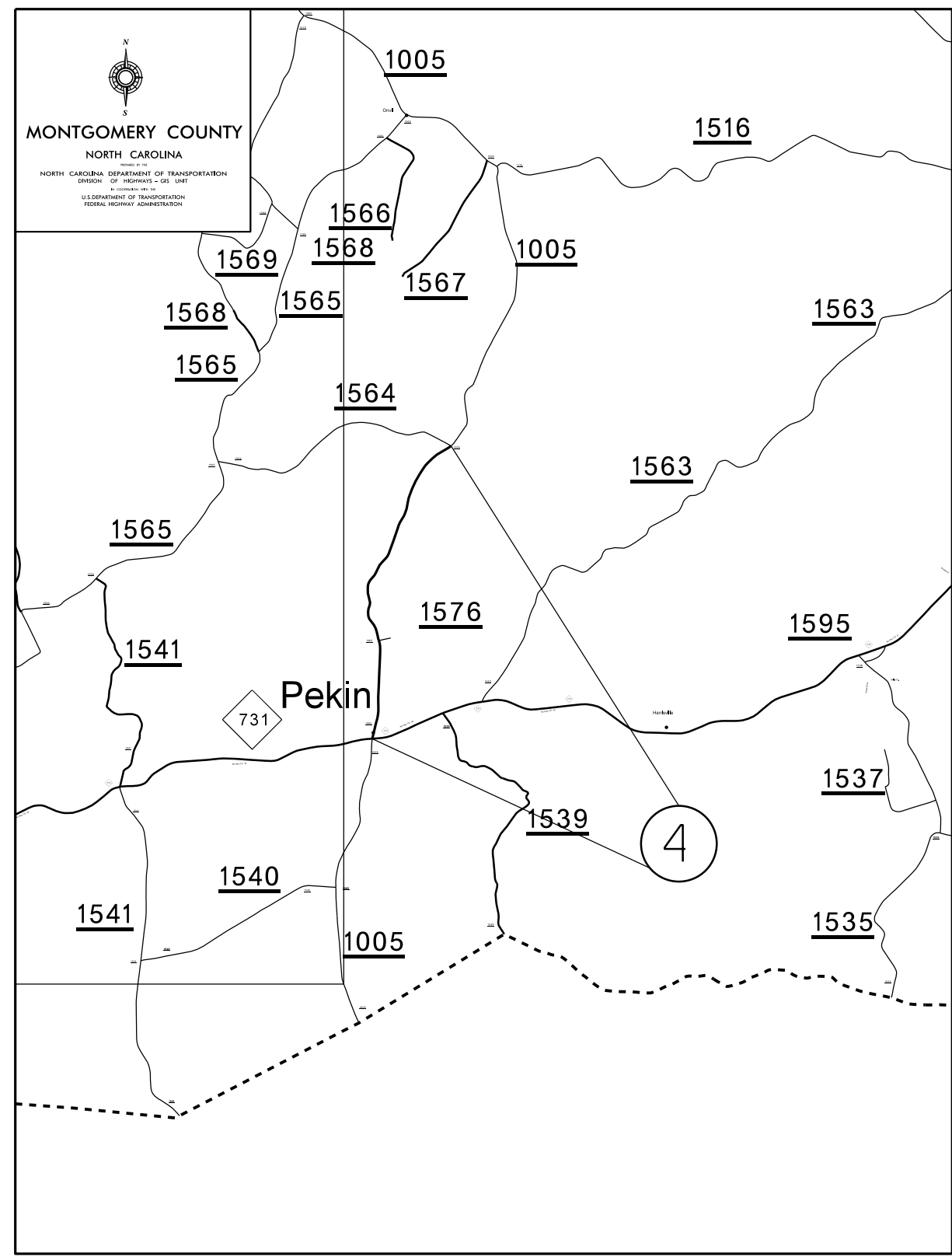


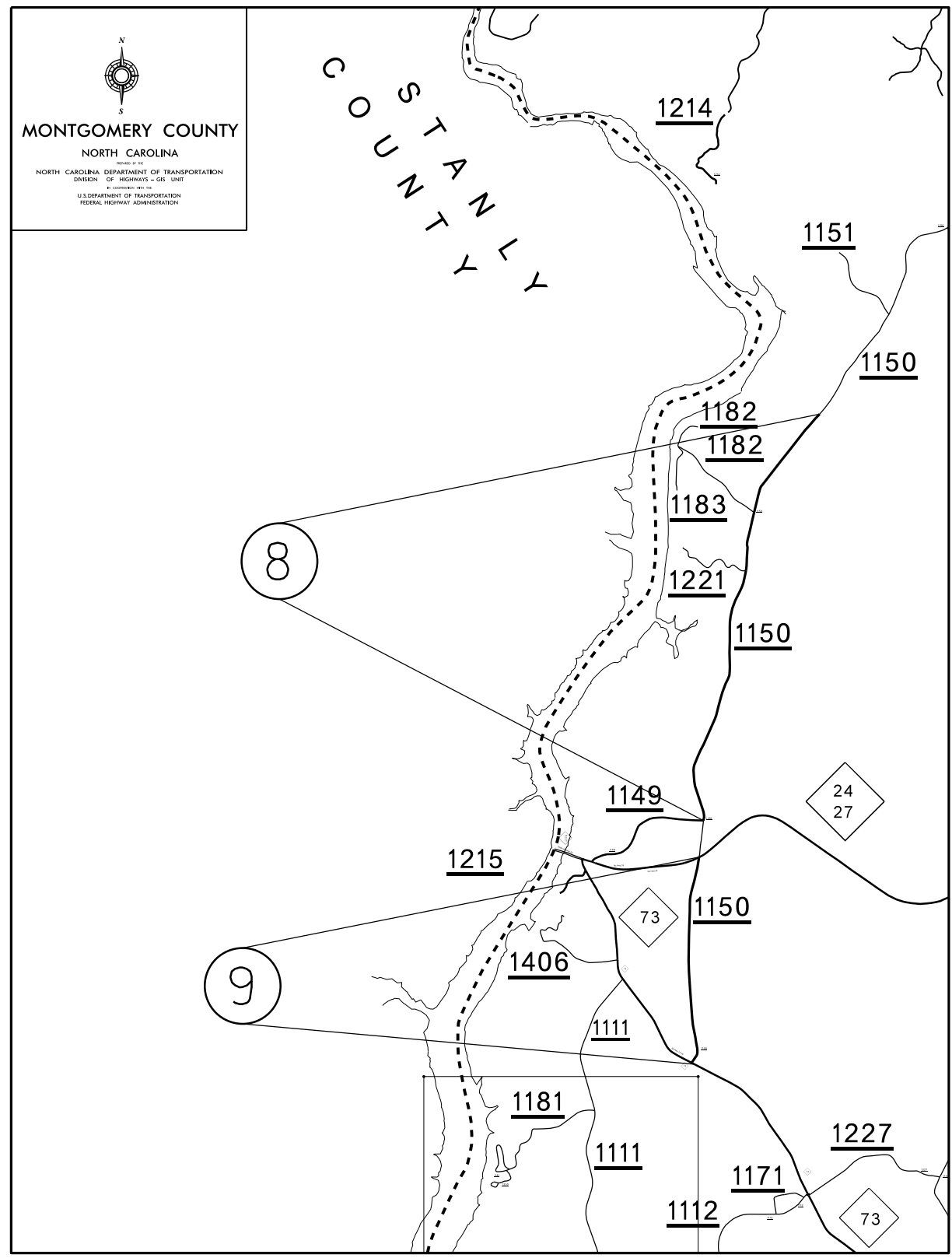
MONTGOMERY COUNTY
OVERALL RESURFACING
REQUEST MAP

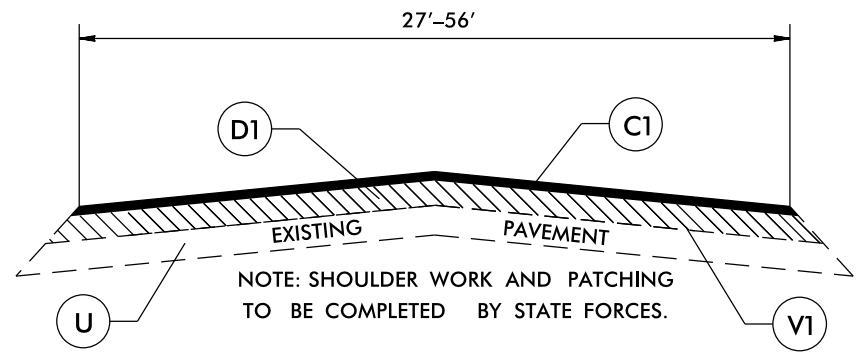
040397
 DATE PLOTTED: 08/28/2017 10:00 AM
 PLOTTER: HP DesignJet T1100e
 PLOT SCALE: 1" = 1 MILE
 PLOT SHEET: 1 OF 1
 PLOT BY: J. W. HARRIS
 PLOT FOR: MONTGOMERY COUNTY

MAP #4

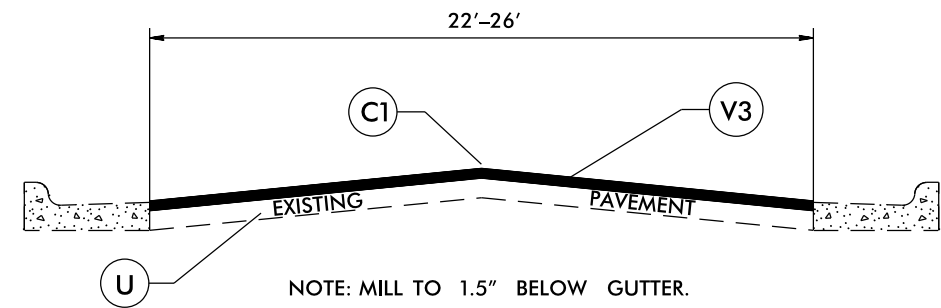
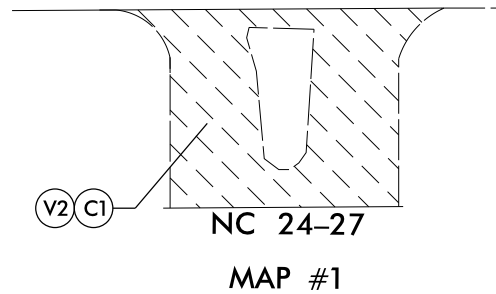


MAPS #8 & #9

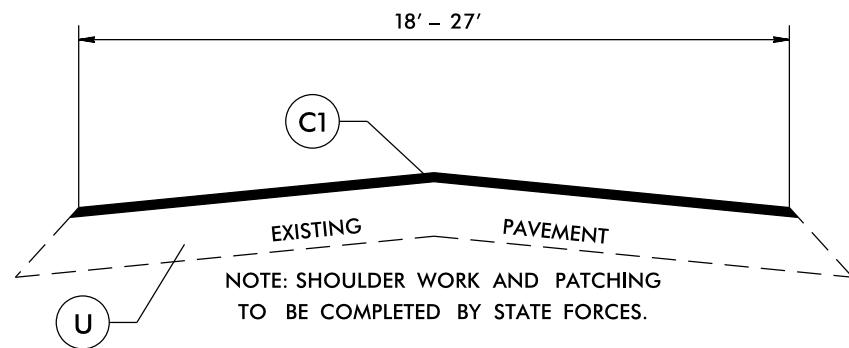




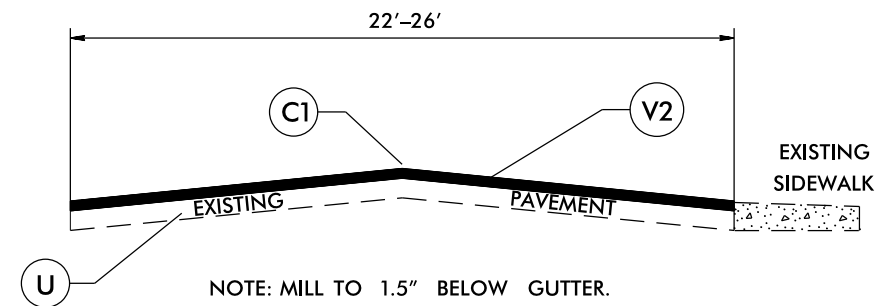
TYPICAL SECTION NO. 1



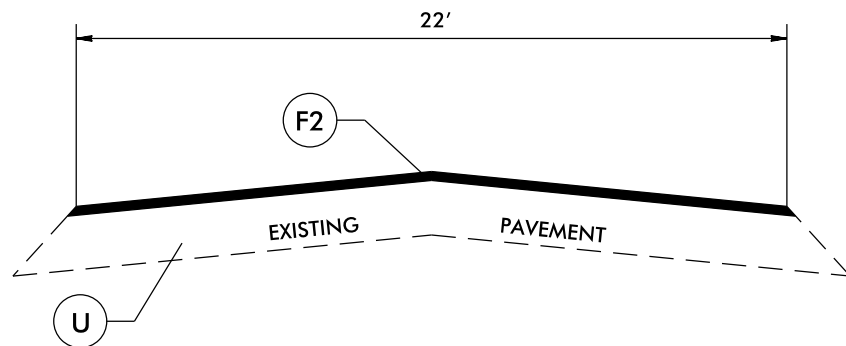
TYPICAL SECTION NO. 5



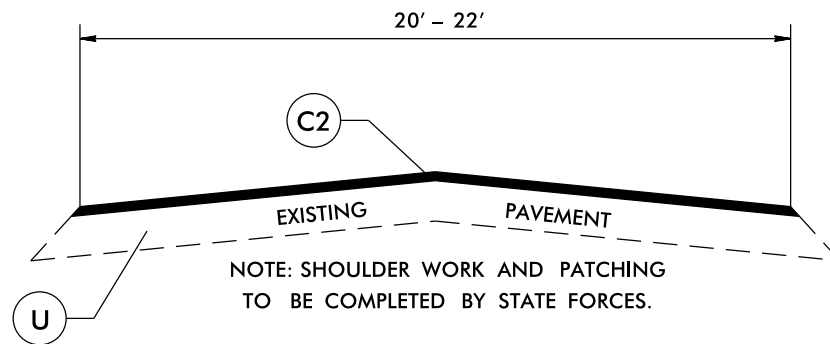
TYPICAL SECTION NO. 2



TYPICAL SECTION NO. 6

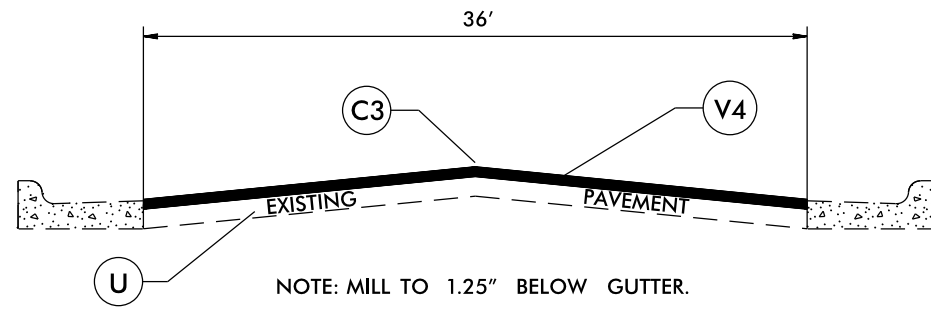


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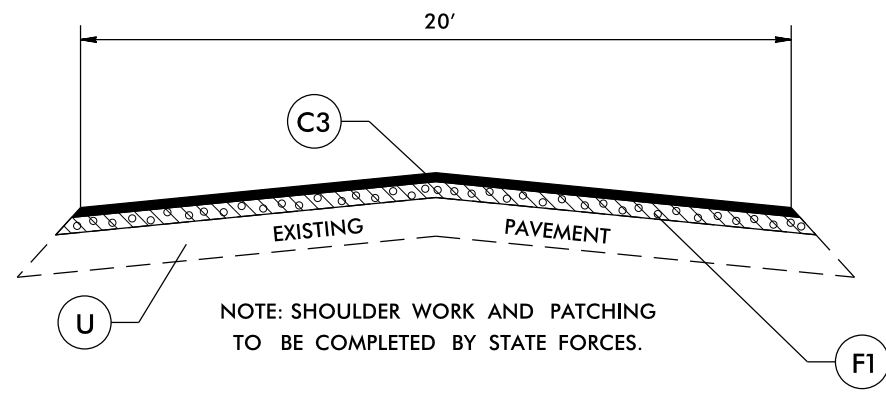


TYPICAL SECTION NO. 4

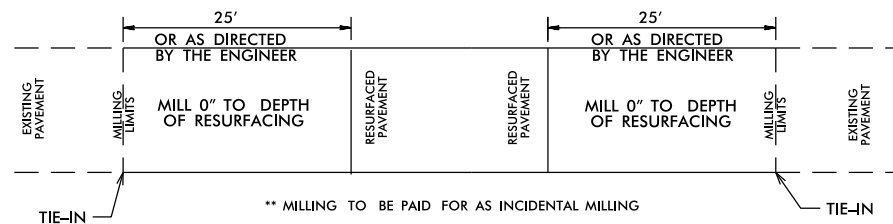
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C3	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
F1	PROPOSED ASPHALT SURFACE TREATMENT, MATCOAT #78M STONE
F2	PROPOSED LATEX MODIFIED MICROSURFACING, TYPE II
U	EXISTING PAVEMENT.
V1	2.5" MILLING
V2	1.5" MILLING
V3	3" MILLING
V4	1.25" MILLING



TYPICAL SECTION NO. 7

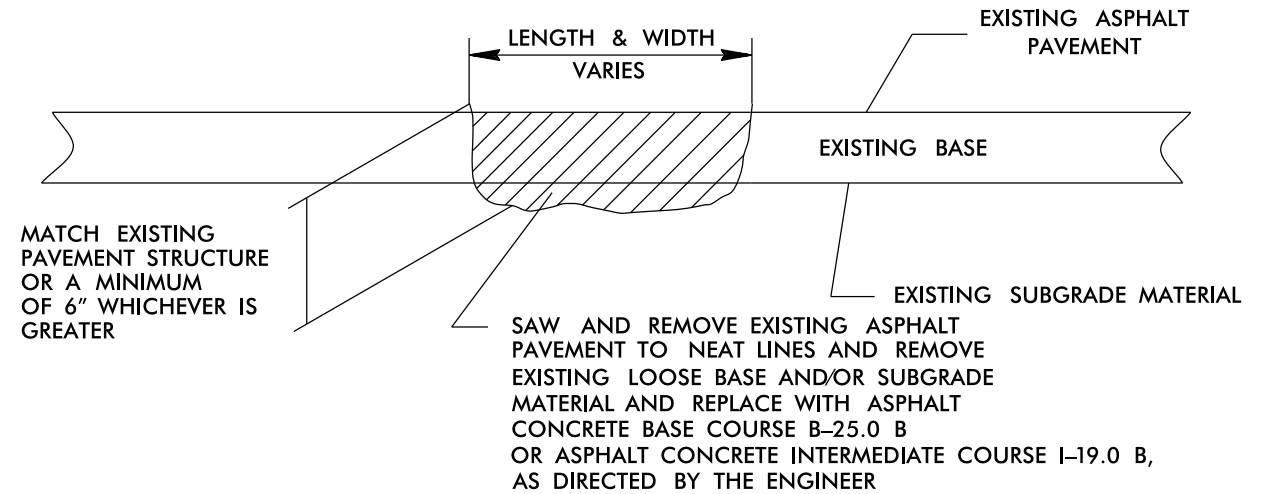


TYPICAL SECTION NO. 8



PAVEMENT TIE-IN DETAIL

DETAILS OF PATCHING EXISTING PAVEMENT PRIOR TO RESURFACING
DETAIL



PAVEMENT SCHEDULE

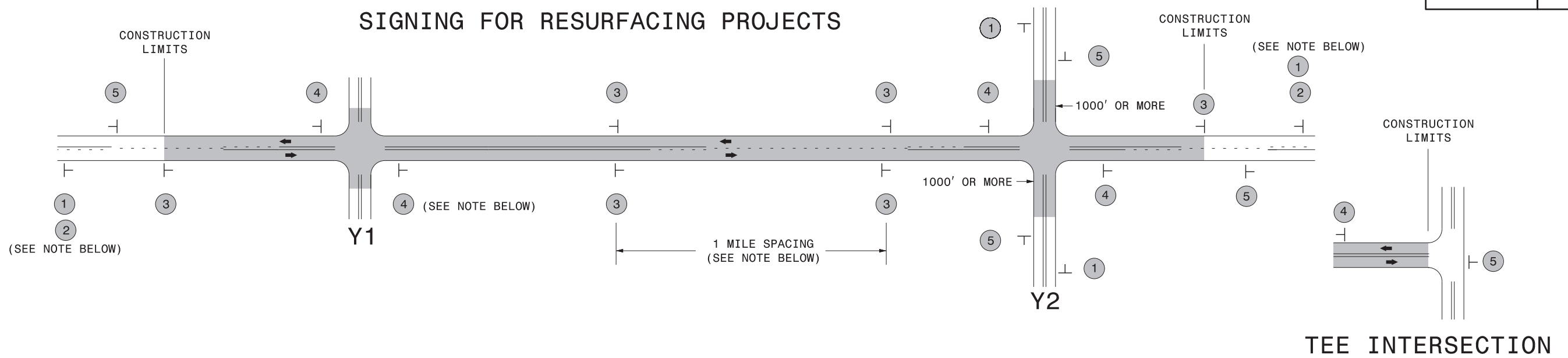
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C3	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
F1	PROPOSED ASPHALT SURFACE TREATMENT, MATCOAT #78M STONE
U	EXISTING PAVEMENT.
V1	2.5" MILLING
V2	1.5" MILLING
V3	3" MILLING
V4	1.25" MILLING

PROJECT NO.	SHEET NO.	TOTAL NO.
2017CPT.08.28.10621	7	
2017CPT.08.28.20621		

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	2.5" MILLING SY	1.5" MILLING SY	3" MILLING SY	1.25" MILLING SY	INCIDENTAL MILLING SY	INTERMEDIATE COURSE, I19.08 TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TON	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ASPHALT SURFACE TREATMENT, MATCOAT, #78M STONE SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	LATEX MODIFIED MICROSURFACING, TYPE II SY	CONCRETE CURB RAMP (STD 848.06) EA	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	LEAD-IN CABLE (14-2 PAIR) LF	INDUCTIVE LOOP SAWCUT LF	VACUUM TRUCK WK		
2017CPT.08.28.10621	Montgomery	1	NC 24/27	FROM E.JT. BRIDGE# 35 TO PVT WIDTH CHANGE 1,090FT W OF SR 1502 (MARTIN RD)	1	2	2WU	NO	NO	0.431	27-56	14,311	2,000			1,089	2,228	1,315	186													
TOTAL FOR MAP NO. 1										0.431		14,311	2,000			1,089	2,228	1,315	186													
2017CPT.08.28.10621	Montgomery	2	NC 24/27	PVT WIDTH CHANGE 1,090FT W OF SR 1502 (MARTIN RD) TO MOORE CO LINE	2	2	2WU	NO	NO	1.8	27					225		2,650	159													
TOTAL FOR MAP NO. 2										1.8						225		2,650	159													
2017CPT.08.28.10621	Montgomery	3	NC 109	FROM NC 24 TO NC 109 BUS (ELDORADO ST)	3	2	2WU	NO	NO	0.791	22					367				300				10,209				500	500			
TOTAL FOR MAP NO. 3										0.791						367				300				10,209				500	500			
TOTAL FOR PROJ NO. 2017CPT.08.28.10621										3.022		14,311	2,000			1,681	2,228	3,965		345	300			10,209				500	500			
2017CPT.08.28.20621	Montgomery	4	SR 1005 (PEKIN RD)	FROM SR 1564 (HOLLY MT CH RD) TO NC 731	4	2	2WU	NO	NO	2.655	22					183		3,130	210													
TOTAL FOR MAP NO. 4										2.655						183		3,130	210													
2017CPT.08.28.20621	Montgomery	5	SR 1310 (OPHIR AVE)	FROM PVT. JT. N OF NC 134 TO END SIDEWALK AT TREMONT ST (PVT)	5,6	2	2WU	NO	NO	0.123	22-26		391	1,467		183		170	10									400	400			
TOTAL FOR MAP NO. 5										0.123			391	1,467		183		170	10									400	400			
2017CPT.08.28.20621	Montgomery	6	SR 1310 (OPHIR AVE./LOVEJOY RD)	FROM END SIDEWALK AT TREMONT (PVT) TO PVT. JT. AT TROY CITY LIMIT (0.35MI NO F HAITHCOCK ST - PVT.)	2	2	2WU	NO	NO	0.442	18					200		480	29							3	1					
TOTAL FOR MAP NO. 6										0.442						200		480	29							3	1					
2017CPT.08.28.20621	Montgomery	7	SR 1383 (WOOD ST)	FROM SR 1333 (BRUTON ST) TO SR 1332 (PAGE ST)	7	2	2WU	NO	NO	0.308	36				5,850	100		450	30						2	5	7					
TOTAL FOR MAP NO. 7										0.308					5,850	100		450	30						2	5	7					
2017CPT.08.28.20621	Montgomery	8	SR 1150 (RIVER RD)	FROM PINE LAKE DR (NON-SYSTEM) TO SR 1149 (LEMON DR)	4	2	2WU	NO	NO	3.896	20					278		4,175	280													
TOTAL FOR MAP NO. 8										3.896						278		4,175	280													
2017CPT.08.28.20621	Montgomery	9	SR 1150 (RIVER RD)	FROM NC 24/27 TO NC 73	8	2	2WU	NO	NO	1.663	20							1,485	99			19,515.00	6,831							1		
TOTAL FOR MAP NO. 9										1.663								1,485	99			19,515.00	6,831									
TOTAL FOR PROJ NO. 2017CPT.08.28.20621										9.087			391	1,467	5,850	944		650	9,240	658			19,515.00	6,831		2	8	8	400	400	1	
GRAND TOTAL										12.109		14,311	2,391	1,467	5,850	2,625	2,228	4,615	9,240	1,003	300		19,515.00	6,831		10,209	2	8	8	900	900	1

SIGNING FOR RESURFACING PROJECTS



LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

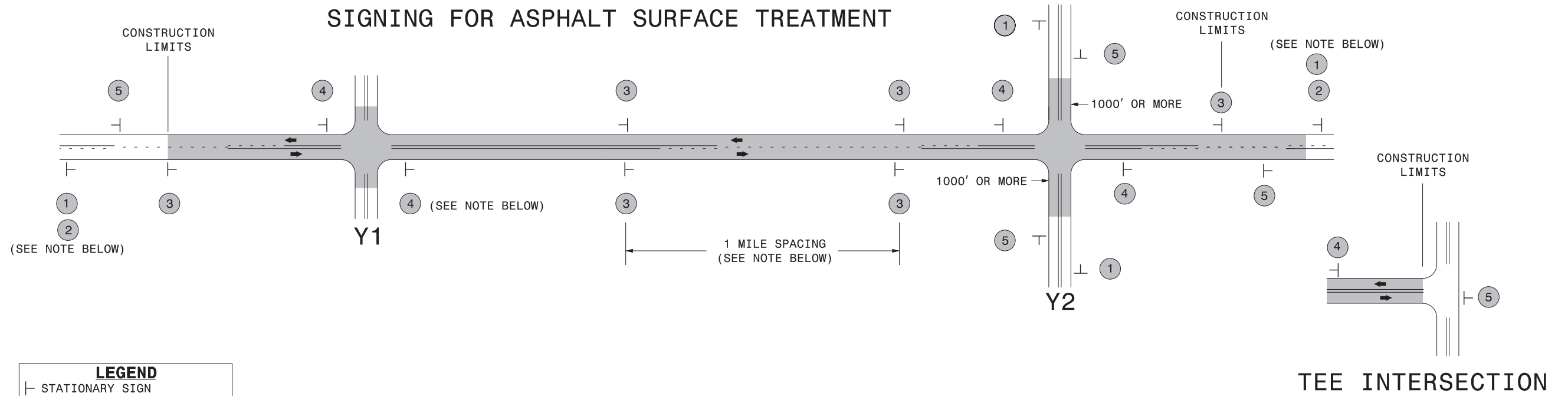
MAINLINE (-L-) SIGNING

-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></p> <p></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**

SIGNING FOR ASPHALT SURFACE TREATMENT



LEGEND

T STATIONARY SIGN

← DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	 <small>W20-1 48" X 48"</small>	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	
	2	 <small>W7-3aP 24" X 18"</small>	#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	 <small>W8-7 48" X 48"</small>	- ALTERNATE THE FOLLOWING TWO SIGNS: - STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT". - PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.	
		 <small>SP 48" X 48"</small>		
	4	 <small>SP 13106 48" X 48"</small>	- 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	 <small>G20-2 A 48" X 24"</small>	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.

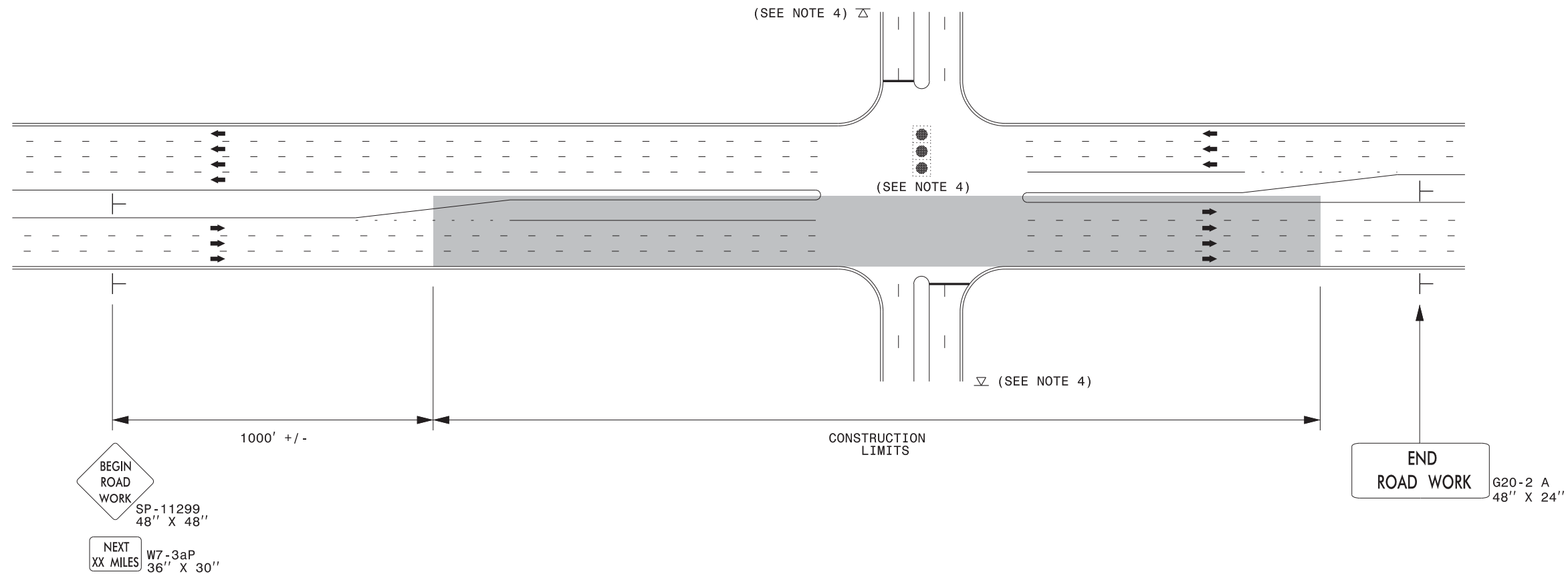


PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.



**ADVANCE WARNING SIGNS
FOR
ASPHALT SURFACE TREATMENTS
2 LANE ROADWAYS**

URBAN / SUBURBAN WORKZONES

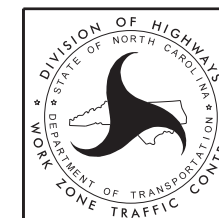


NOTES:

- 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.

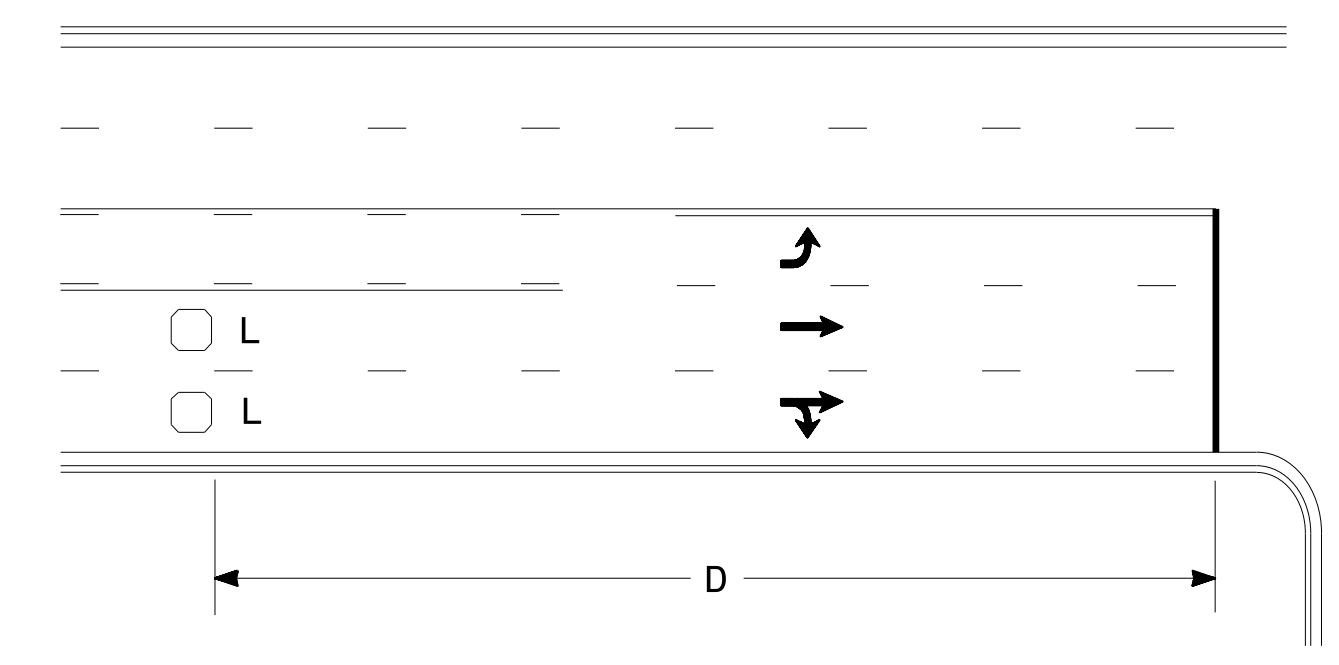
LEGEND

- ┆ STATIONARY SIGN
- ➔ DIRECTION OF TRAFFIC FLOW



**RESURFACING ADVANCE
WARNING SIGNS FOR
URBAN / SUBURBAN
FACILITIES**

High Speed Detection (≥40 mph)

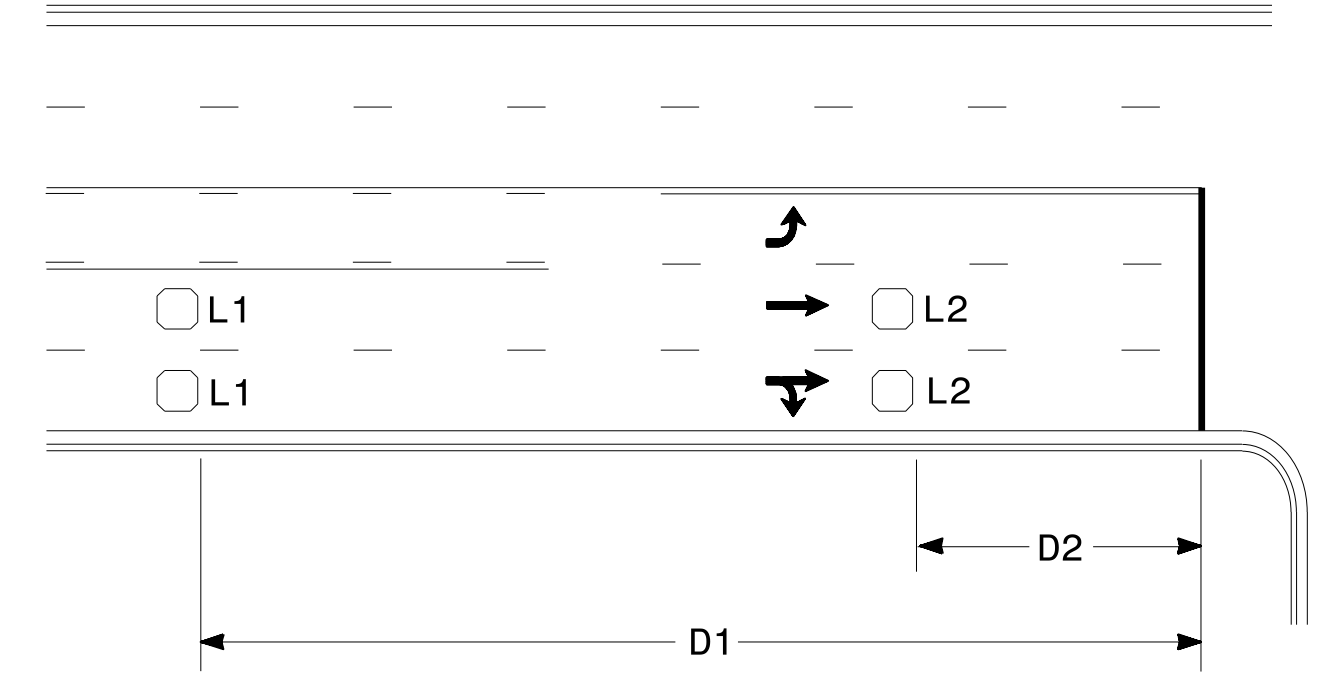


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

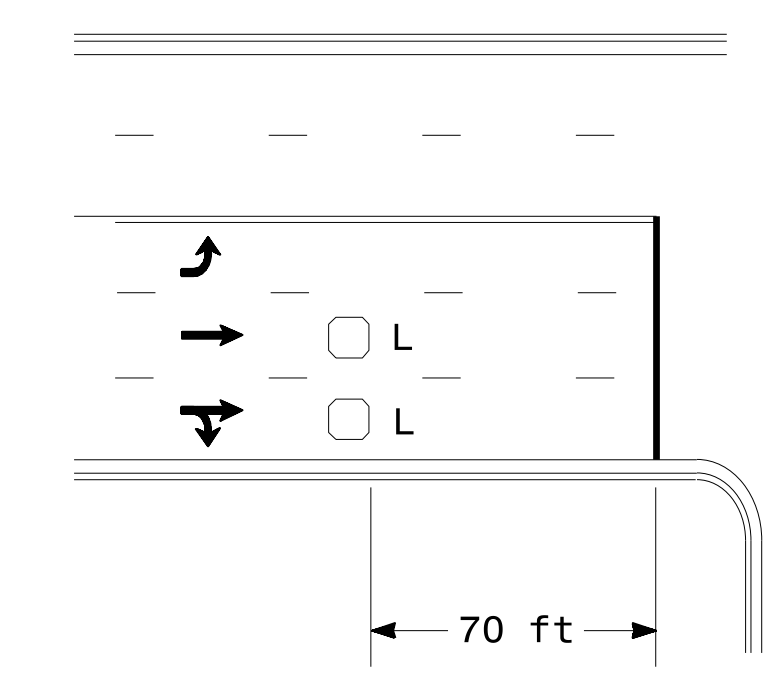


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

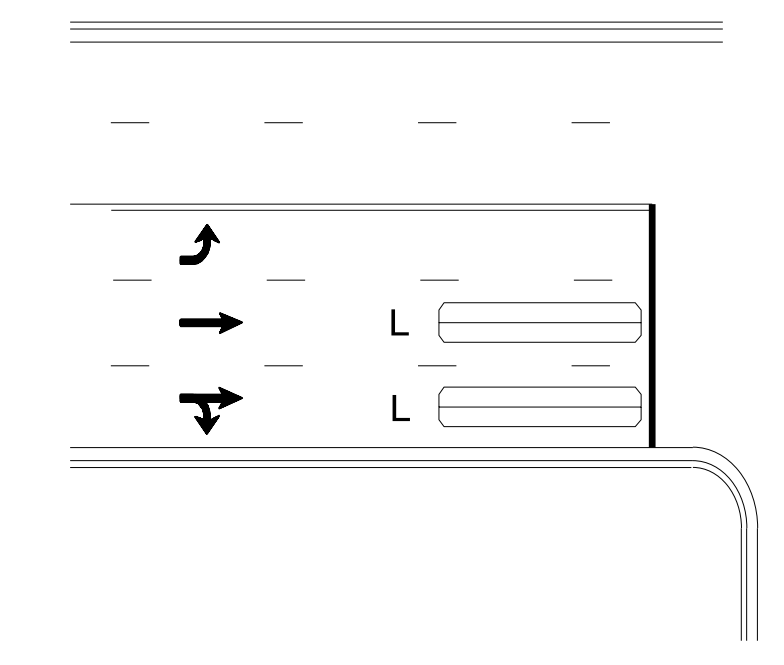
"Stretch" Operation

Low Speed Detection (≤35 mph)



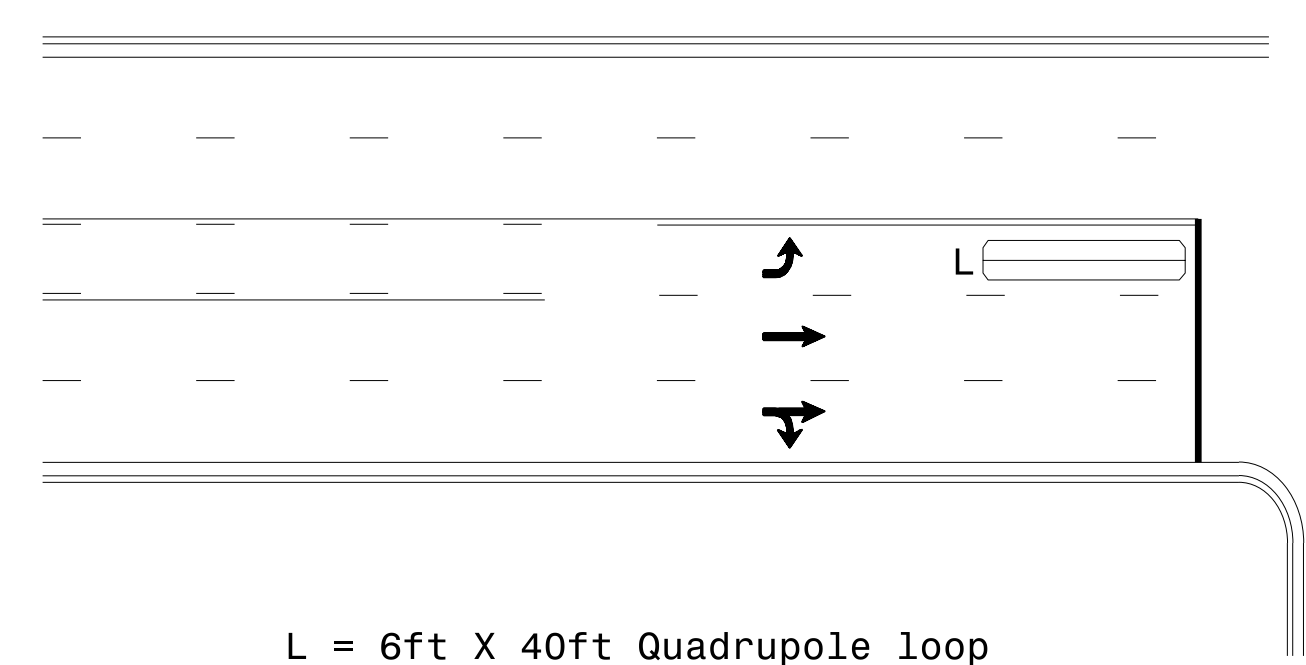
L = 6ft X 6ft
Wired in series

OR



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

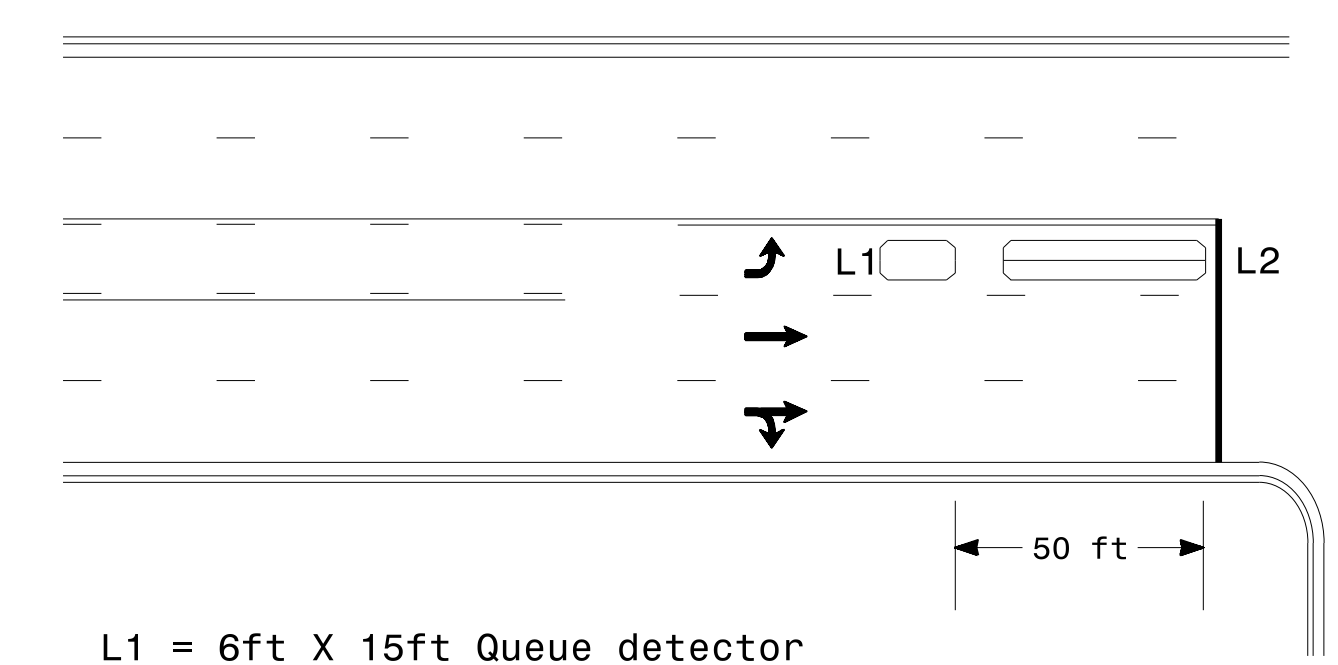
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

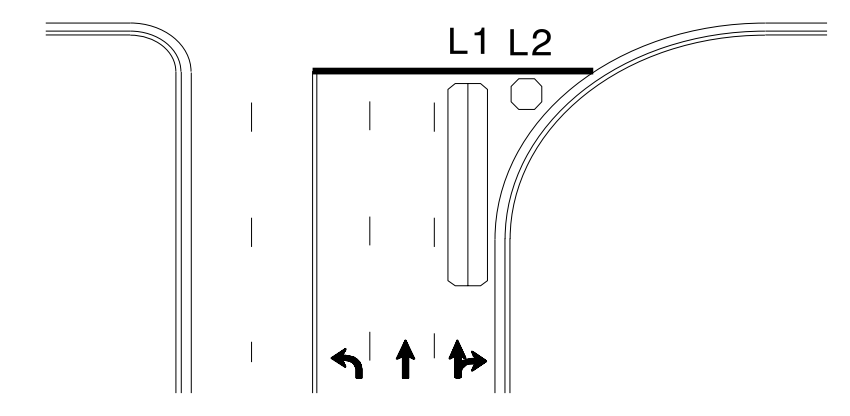
OR



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

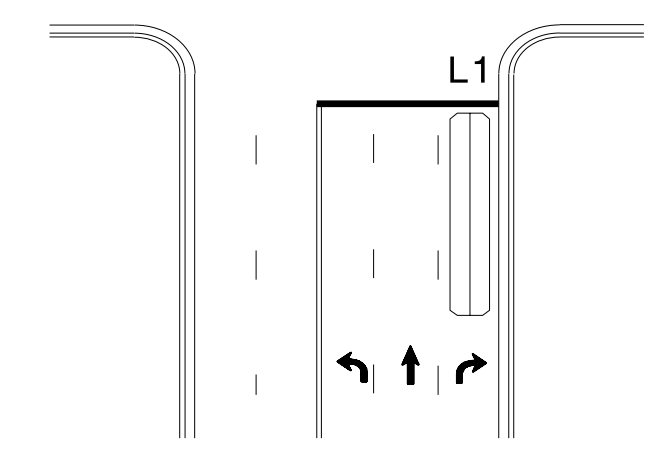
Queue Loop Detection

Right Turn Lane Detection

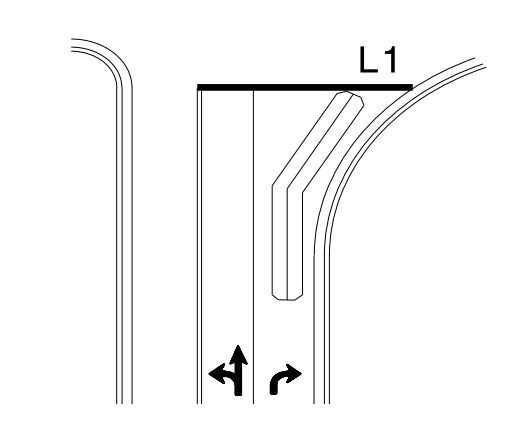


Shared Lane/
Wide Radius Turn

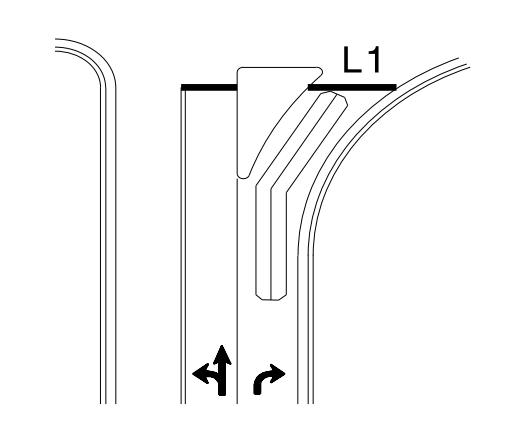
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

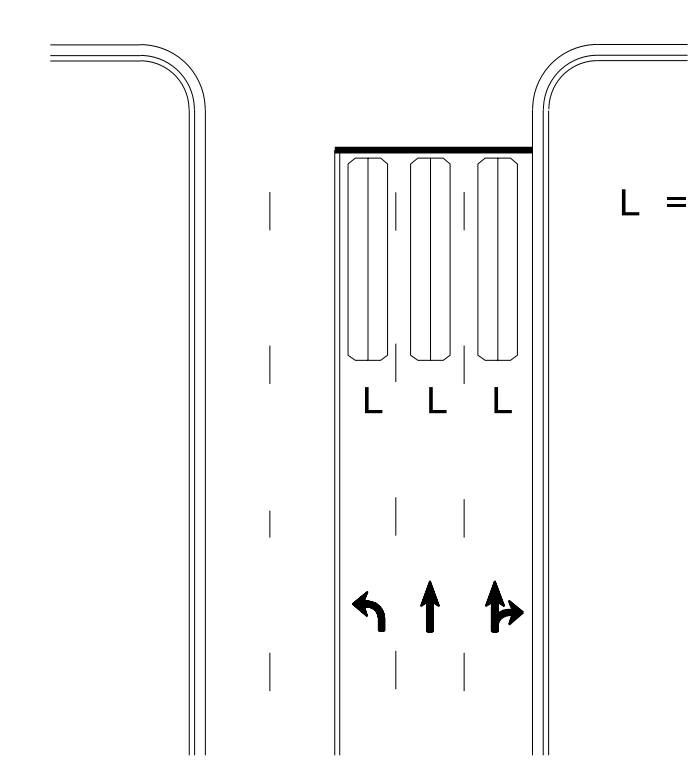


Wide Radius Turn



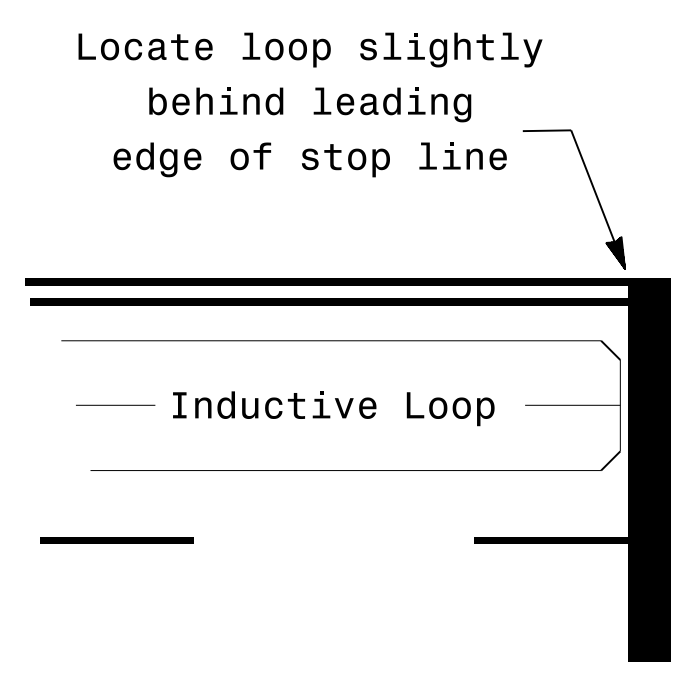
Channelized Turn

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

SCALE: N/A

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
PAMELA L. ALEXANDER
23489

1/30/2015

3D:\146-2015-12-29-SIGNAL\15-SIGNAL\Signal Design Section\Eastern Region\loop\loop\ypj\ca\2015.dgn
 paalexander