

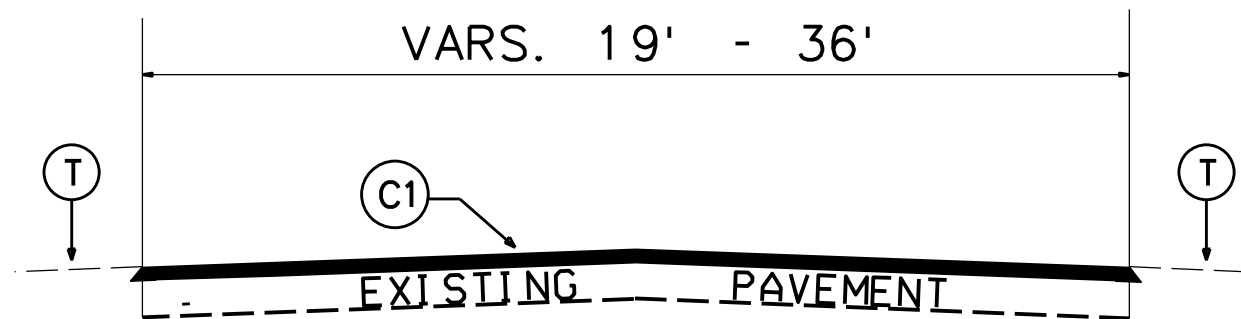
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PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
ALEXANDER COUNTY	3	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
2026CPT.12.01.10021		PRIMARY RESURFACING
2026CPT.12.01.20021		SECONDARY RESURFACING

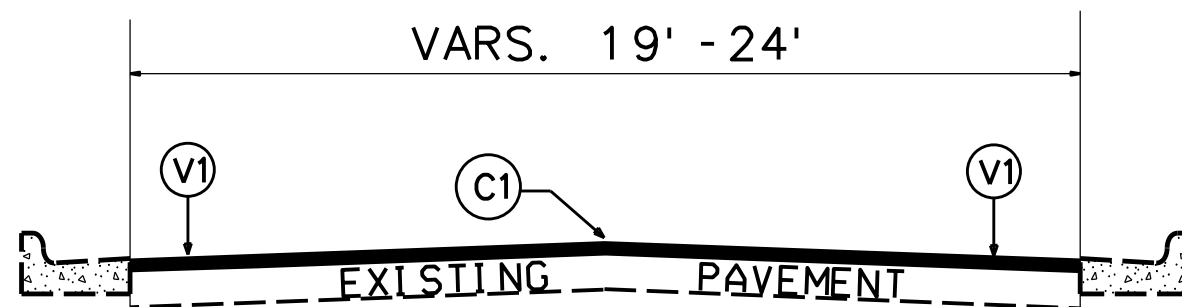


TYPICAL SECTION NO. 1

Map 1: ( ALL )

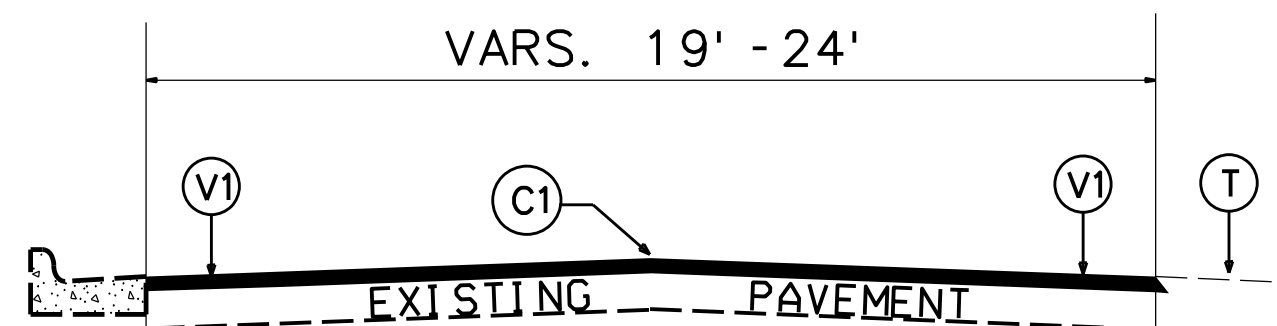
Map 2: 3+07 - 9+68  
12+16 - 308+88

Map 3: ( ALL )



TYPICAL SECTION NO. 2

Map 2: 0+00 - 3+07



TYPICAL SECTION NO. 3

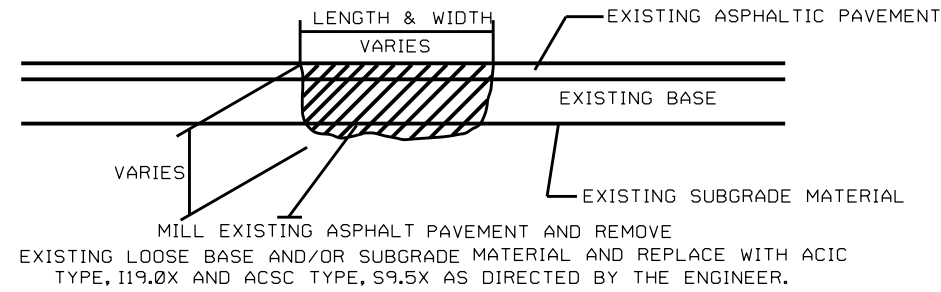
Map 2: 9+68 - 12+16

2026  
Resurfacing Program  
Typical Sections  
Alexander County

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
T	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION)
V1	MILL EXISTING ASPHALT PAVEMENT APPROX. 1.5" IN DEPTH

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
ALEXANDER COUNTY	4	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
2026CPT. 12. 01. 10021		PRIMARY RESURFACING
2026CPT. 12. 01. 20021		SECONDARY RESURFACING

**DETAIL A**  
**PATCHING EXISTING PAVEMENT**

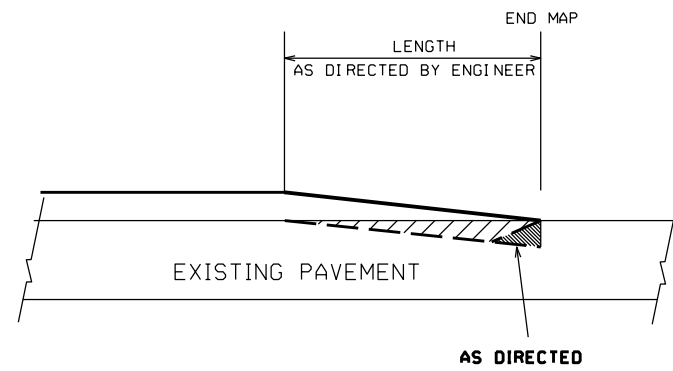
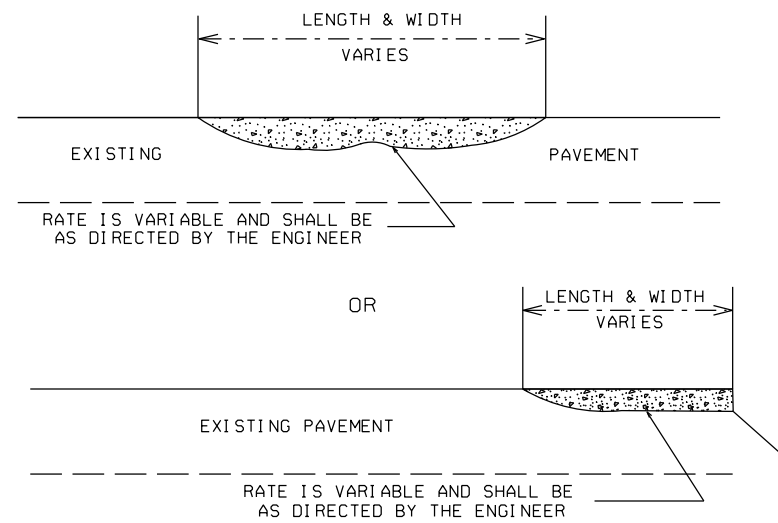


**DETAIL C**  
**MILLING BRIDGE APPROACHES**

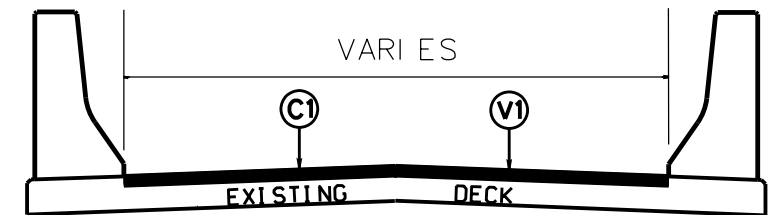


(Map 2)

**DETAIL B**  
**ASPHALT CONCRETE SURFACE COURSE**  
**TYPE S9.5X (LEVELING COURSE)**



**TIE-IN (INCIDENTAL) MILLING DETAIL**

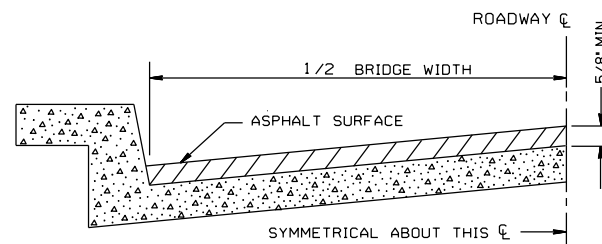


**ASPHALT BRIDGE SECTION**

Map 2

\*\* Tie to new bridge on SR 1348 (Map3)

**DETAIL E**  
**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 ASPHALT SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN 1" 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.

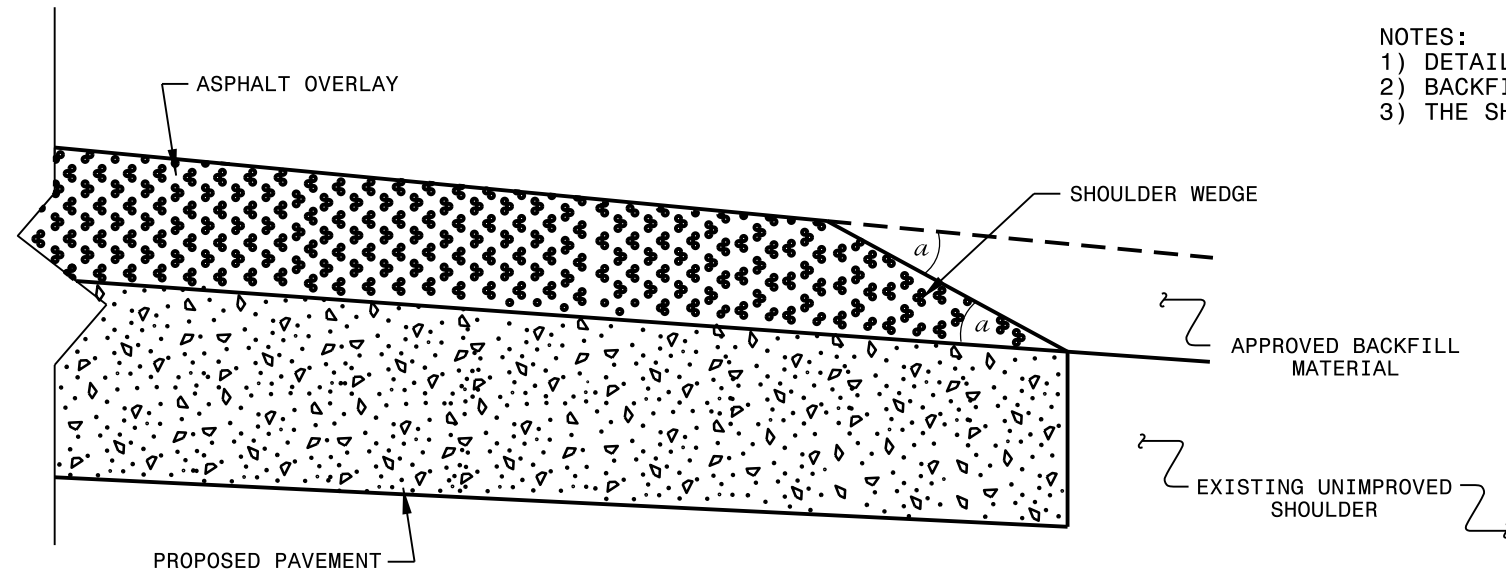
BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

**PAVEMENT SCHEDULE**

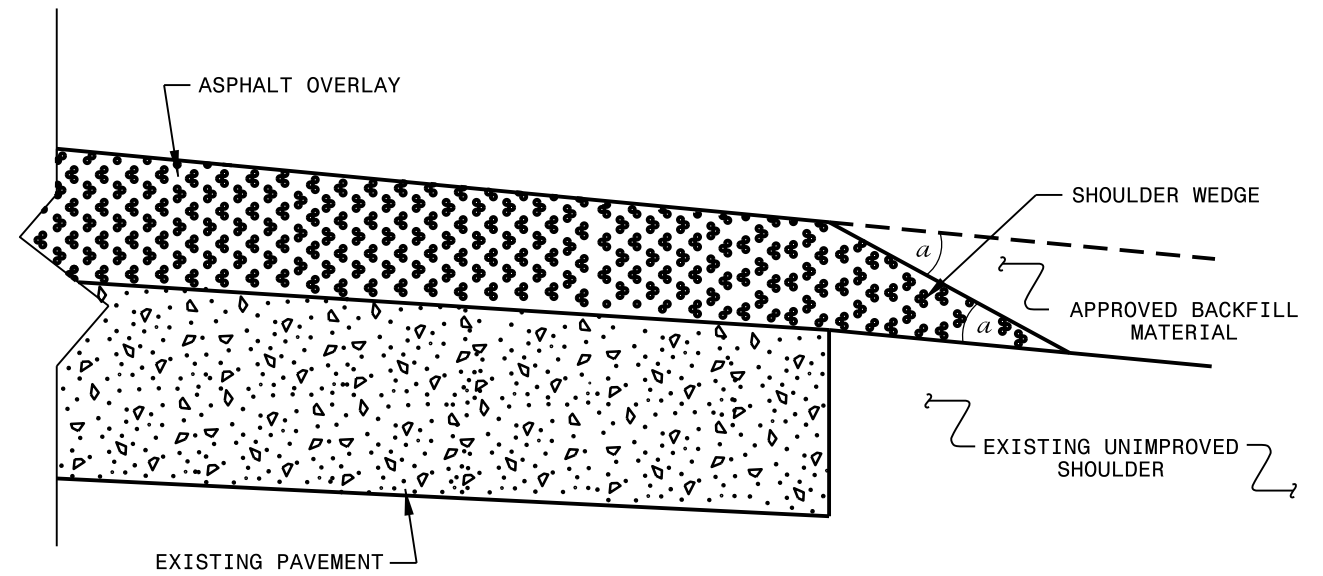
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C. AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
T	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION)
V1	MILL EXISTING ASPHALT PAVEMENT APPROX. 1.5" IN DEPTH

**2026**  
**Resurfacing Program**  
**Detail Sheet**  
**Alexander County**

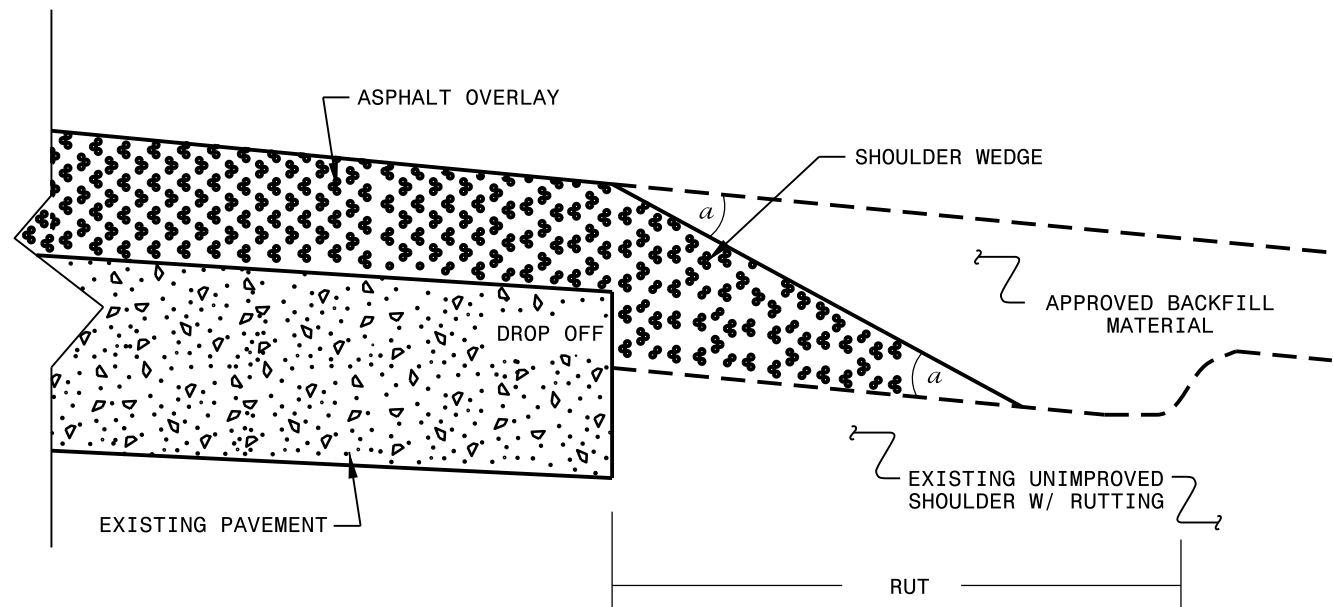
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFc AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



**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.: susr/details/stand/shoulderwedgedetail.dgn

SYSTEMS DESIGN  
 USER NAME



PROJECT NO.	SHEET NO.	TOTAL NO.
2026CPT.12.01.10021		
2026CPT.12.01.20021		

### SUMMARY OF QUANTITIES

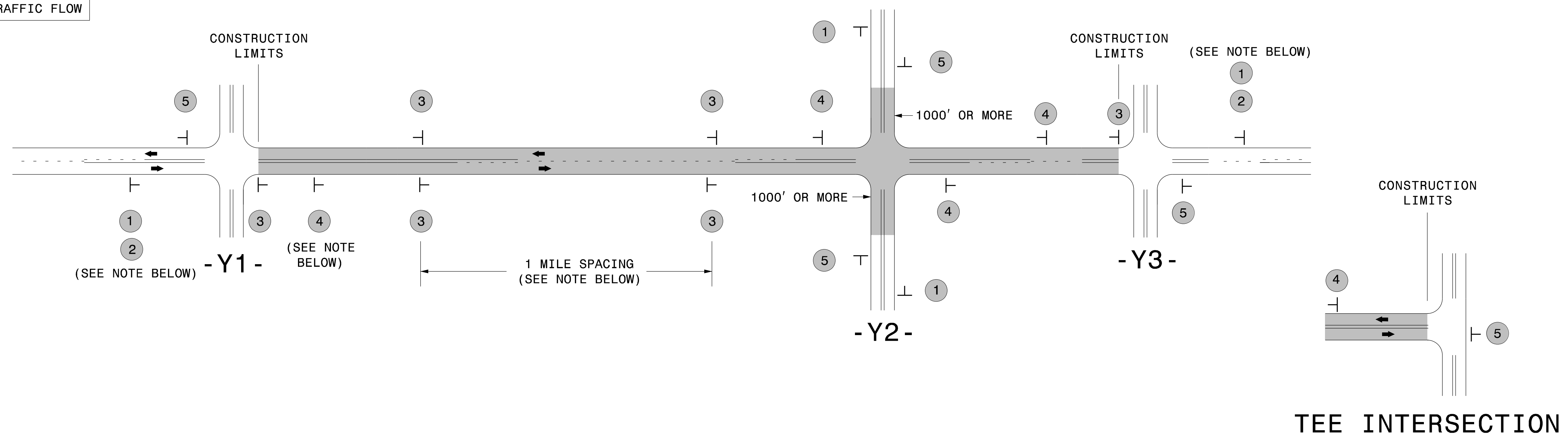
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	BEGIN MP	END MP	0255000000-E	1220000000-E	1245000000-E	1297000000-E	1330000000-E	1523000000-E	1524000000-E	1575000000-E	1704000000-E	7324000000-N	7444000000-E	7456100000-E
												AGGREGATE SHOULDER BORROW	INCIDENTAL STONE BASE	SHOULDER RECONSTRUCTION	1½" MILLING	INCIDENTAL MILLING	SURFACE COURSE, S9.5C	LEVELING COURSE, S9.5C	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	JUNCTION BOX (STANDARD SIZE)	INDUCTIVE LOOP	LEAD-IN CABLE (14-2)
								MI	FT			TON	TONS	SMI	SY	SY	TONS	TONS	TONS	TONS	EA	LF	LF
2026CPT.12.01.10021	Alexander	1	NC-127	FROM SR 1163 (BLUE RIDGE LN) TO US 64	1	2		4.38	22	0	4.38	1,445	195	8.76			5,223	300	331	100			
<b>TOTAL FOR MAP NO. 1</b>								<b>4.38</b>				<b>1,445</b>	<b>195</b>	<b>8.76</b>			<b>5,223</b>	<b>300</b>	<b>331</b>	<b>100</b>			
2026CPT.12.01.10021	Alexander	2	NC-16	FROM NC 90 TO SR 1400 (MT HEBRON CHURCH CT)	1,2,3	2		5.85	24	0	5.85	1,931	195	11.55	2,667	100	7,610	300	473	125	1	312	50
<b>TOTAL FOR MAP NO. 2</b>								<b>5.85</b>				<b>1,931</b>	<b>195</b>	<b>11.55</b>	<b>2,667</b>	<b>100</b>	<b>7,610</b>	<b>300</b>	<b>473</b>	<b>125</b>	<b>1</b>	<b>312</b>	<b>50</b>
<b>TOTAL FOR PROJ NO. 2026CPT.12.01.10021</b>								<b>10.23</b>				<b>3,376</b>	<b>390</b>	<b>20.31</b>	<b>2,667</b>	<b>100</b>	<b>12,833</b>	<b>600</b>	<b>804</b>	<b>225</b>	<b>1</b>	<b>312</b>	<b>50</b>
2026CPT.12.01.20021	Alexander	3	SR-1348 / OLD NC 90	FROM US 64 TO US 64	1	2		2.96	19	0	2.96	980	50	5.92		423	2,994	450	229	100			
<b>TOTAL FOR MAP NO. 3</b>								<b>2.96</b>				<b>980</b>	<b>50</b>	<b>5.92</b>		<b>423</b>	<b>2,994</b>	<b>450</b>	<b>229</b>	<b>100</b>			
<b>TOTAL FOR PROJ NO. 2026CPT.12.01.20021</b>								<b>2.96</b>				<b>980</b>	<b>50</b>	<b>5.92</b>		<b>423</b>	<b>2,994</b>	<b>450</b>	<b>229</b>	<b>100</b>			
<b>GRAND TOTAL</b>								<b>13.19</b>				<b>4,356</b>	<b>440</b>	<b>26.23</b>	<b>2,667</b>	<b>523</b>	<b>15,827</b>	<b>1,050</b>	<b>1,033</b>	<b>325</b>	<b>1</b>	<b>312</b>	<b>50</b>

### THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	BEGIN MP	END MP	4413000000-E	4457000000-N	4685000000-E		4695000000-E	4700000000-E	4709000000-E	4720000000-E	4725000000-E		4810000000-E		4895000000-N		
												WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	THERMO PAVEMENT MARKING LINES WHITE (4", 90 MILS)	THERMO PAVEMENT MARKING LINES YELLOW (4", 90 MILS)	THERMO PAVEMENT MARKING LINES YELLOW (8", 90 MILS)	THERMO PAVEMENT MARKING LINES YELLOW (12", 90 MILS)	THERMO PAVEMENT MARKING LINES WHITE (24", 90 MILS)	THERMO MSG SCHOOL 90 M	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	4" WHITE PAINT	4" YELLOW PAINT	POLYCARBONATE H-SHAPED PAVEMENT MARKER		
								MI	FT			SF	LS	LF	LF	LF	LF	LF	EA	EA	EA	LF	LF	EA		
2026CPT.12.01.10021	Alexander	1	NC-127	FROM SR 1163 (BLUE RIDGE LN) TO US 64	1	2		4.38	22	0	4.38	620	*	47,000	45,000										300	
<b>TOTAL FOR MAP NO. 1</b>								<b>4.38</b>				<b>620</b>			<b>47,000</b>	<b>45,000</b>										<b>300</b>
2026CPT.12.01.10021	Alexander	2	NC-16	FROM NC 90 TO SR 1400 (MT HEBRON CHURCH CT)	1,2,3	2		5.85	24	0	5.85	785	*	65,000	63,000	288	100	24	12	6	1				425	
<b>TOTAL FOR MAP NO. 2</b>								<b>5.85</b>				<b>785</b>			<b>65,000</b>	<b>63,000</b>	<b>288</b>	<b>100</b>	<b>24</b>	<b>12</b>	<b>6</b>	<b>1</b>				<b>425</b>
<b>TOTAL FOR PROJ NO. 2026CPT.12.01.10021</b>								<b>10.23</b>				<b>1,405</b>			<b>112,000</b>	<b>108,000</b>	<b>288</b>	<b>100</b>	<b>24</b>	<b>12</b>	<b>6</b>	<b>1</b>				<b>725</b>
												<b>220,000</b>						<b>7</b>								
2026CPT.12.01.20021	Alexander	3	SR-1348 / OLD NC 90	FROM US 64 TO US 64	1	2		2.96	19	0	2.96	460	*											62,515	62,515	
<b>TOTAL FOR MAP NO. 3</b>								<b>2.96</b>				<b>460</b>													<b>62,515</b>	<b>62,515</b>
<b>TOTAL FOR PROJ NO. 2026CPT.12.01.20021</b>								<b>2.96</b>				<b>460</b>													<b>62,515</b>	<b>62,515</b>
																								<b>125,030</b>		
<b>GRAND TOTAL</b>								<b>13.19</b>				<b>1,865</b>	<b>1</b>	<b>112,000</b>	<b>108,000</b>	<b>288</b>	<b>100</b>	<b>24</b>	<b>12</b>	<b>6</b>	<b>1</b>			<b>62,515</b>	<b>62,515</b>	<b>725</b>
												<b>220,000</b>						<b>7</b>						<b>125,030</b>		

# SIGNING FOR RESURFACING PROJECTS

**LEGEND**  
 ┆ STATIONARY SIGN  
 ← DIRECTION OF TRAFFIC FLOW



## MAINLINE (-L-) SIGNING

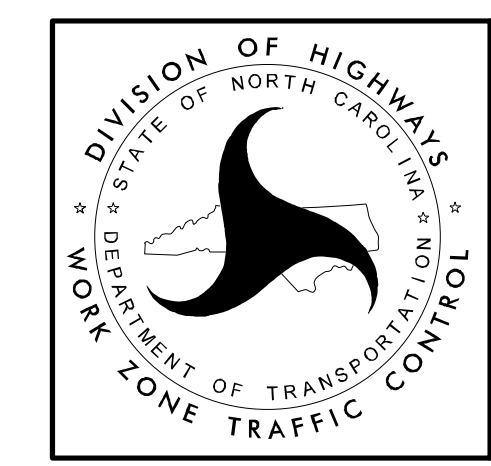
## -Y- LINE SIGNING

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"> <li>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>2) SUBDIVISION ROADS</li> <li>3) DEAD END ROADS</li> </ol> <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**

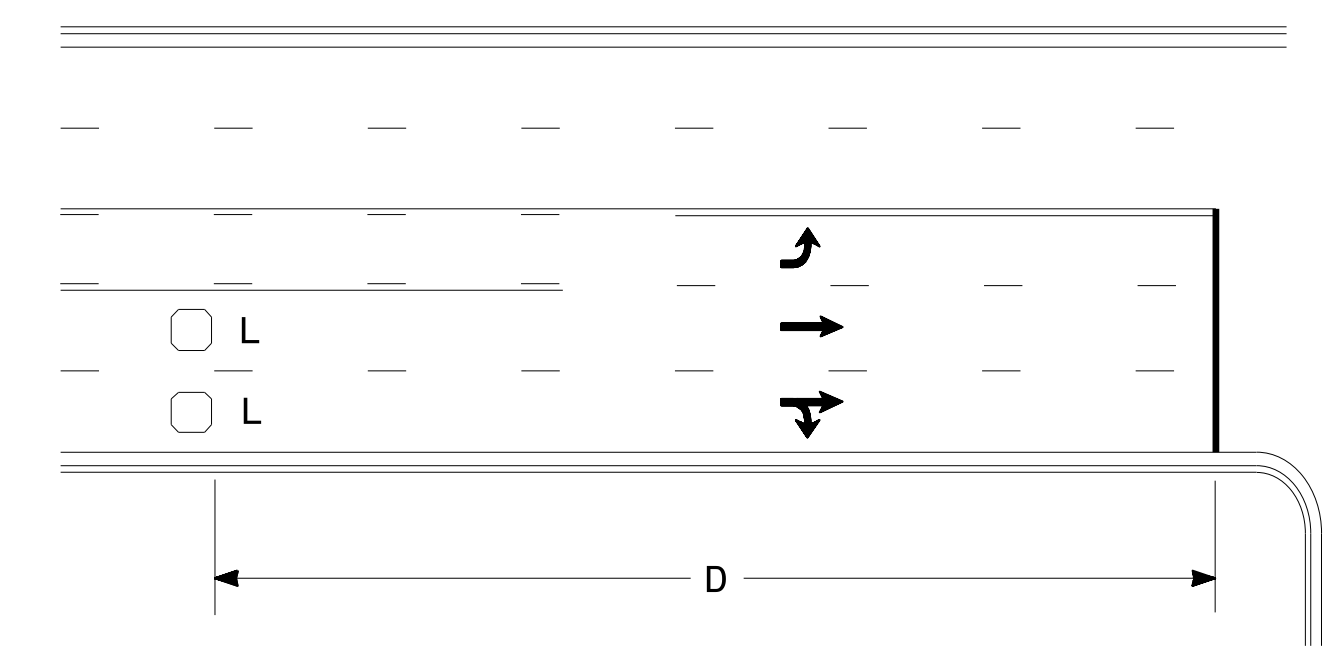
FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.



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

5/15/2017 S:\TUXWZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing\_AdvWarn\_2Ln.dgn User:kadai

### High Speed Detection (≥40 mph)

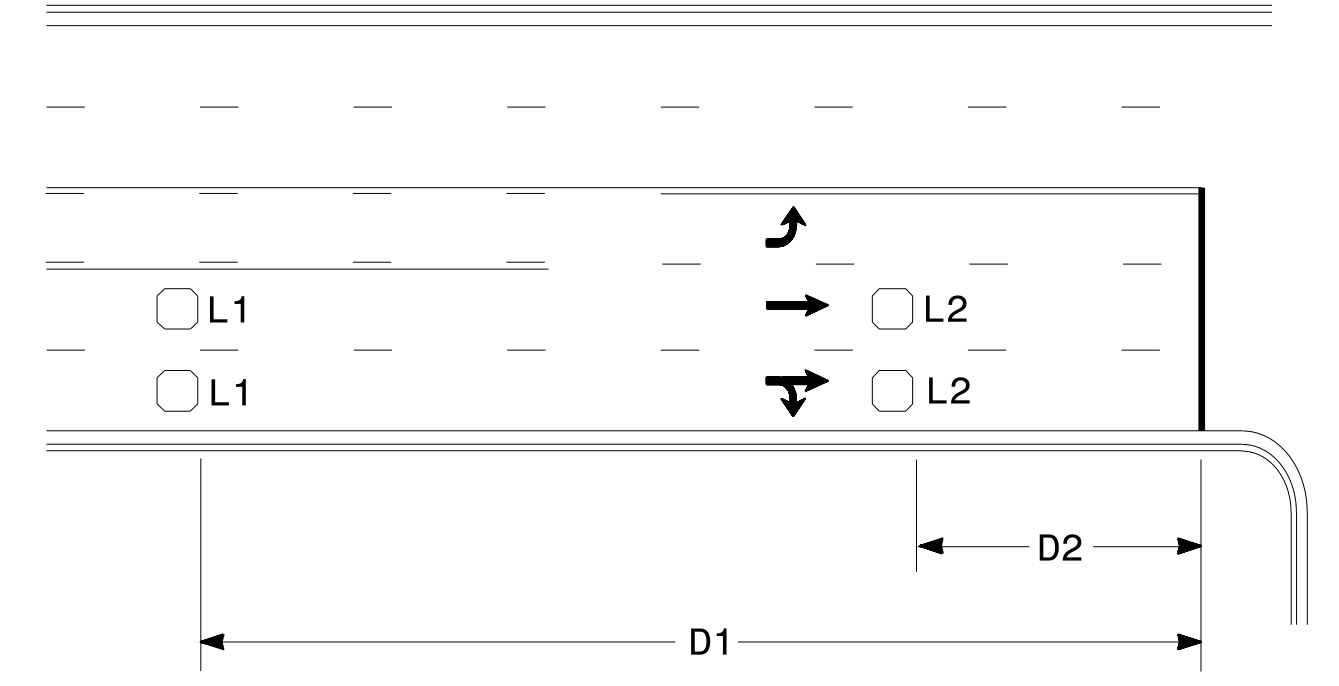


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

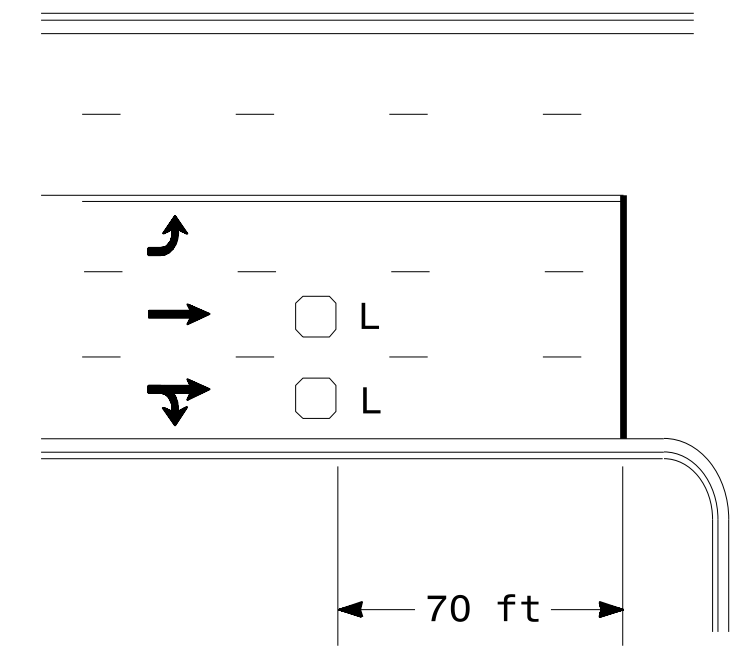


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

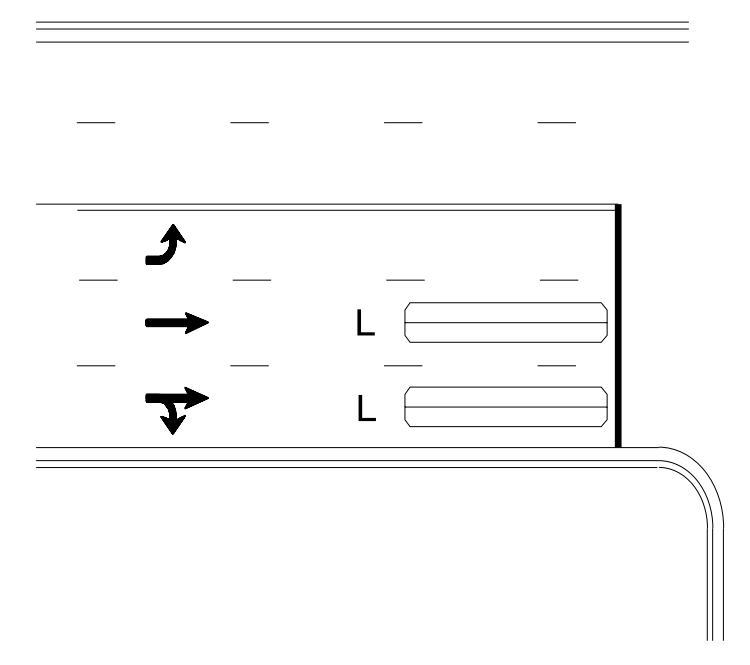
"Stretch" Operation

### Low Speed Detection (≤35 mph)



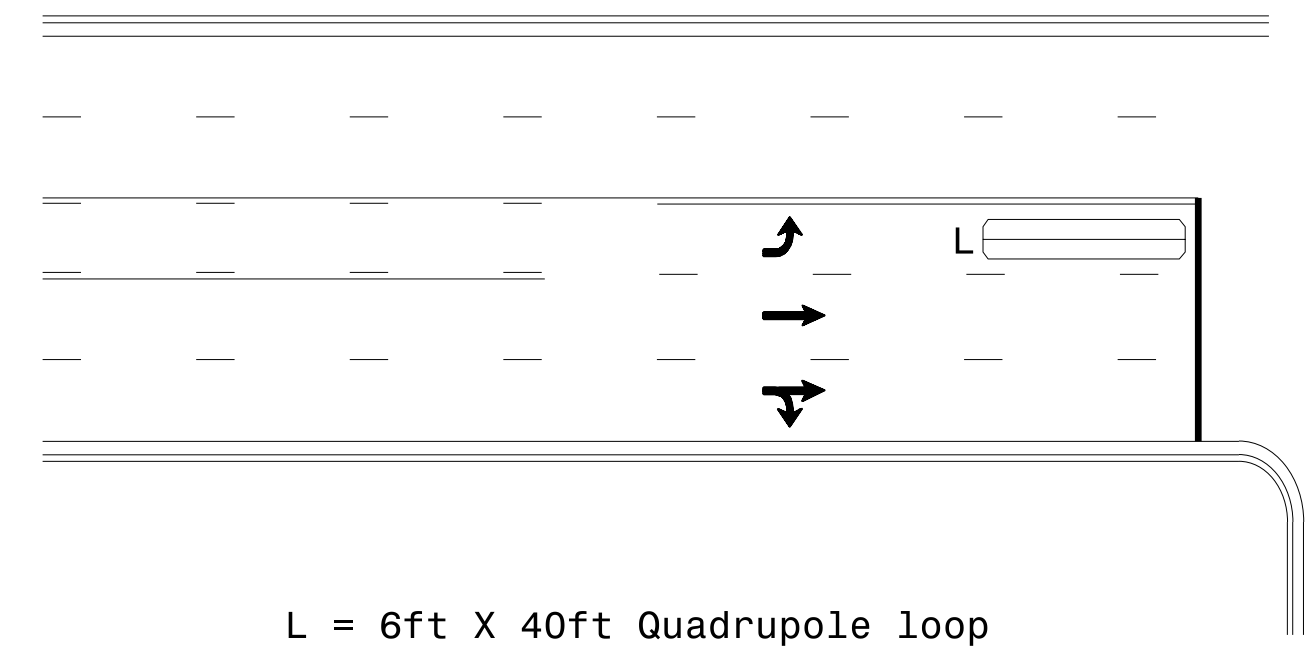
L = 6ft X 6ft  
Wired in series

OR



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

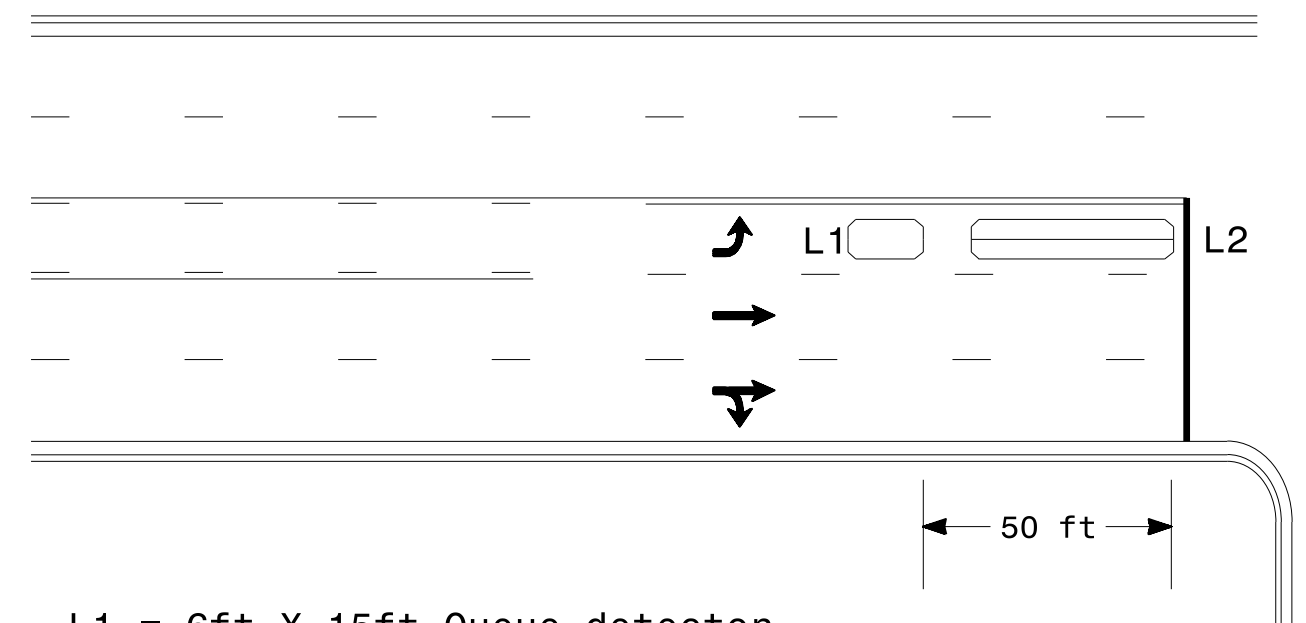
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

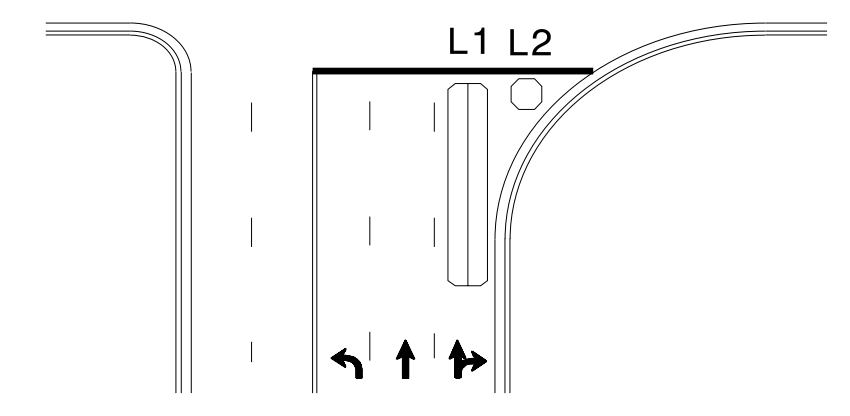
OR



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

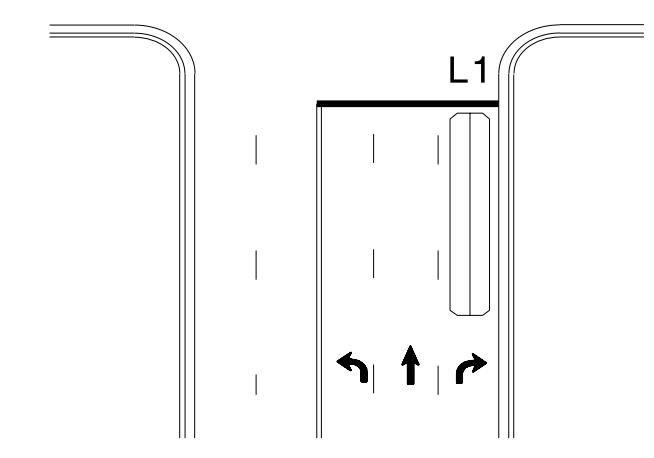
Queue Loop Detection

### Right Turn Lane Detection

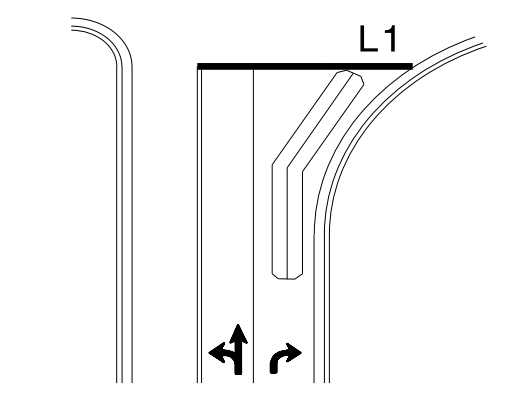


Shared Lane/  
Wide Radius Turn

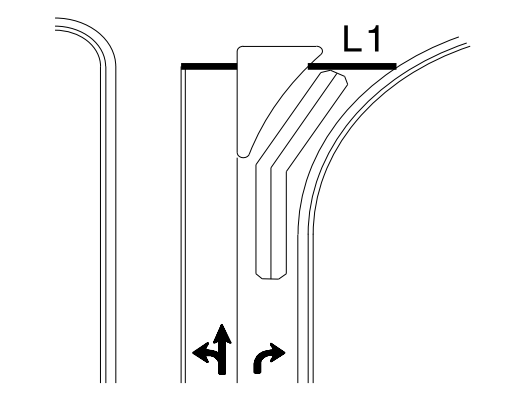
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

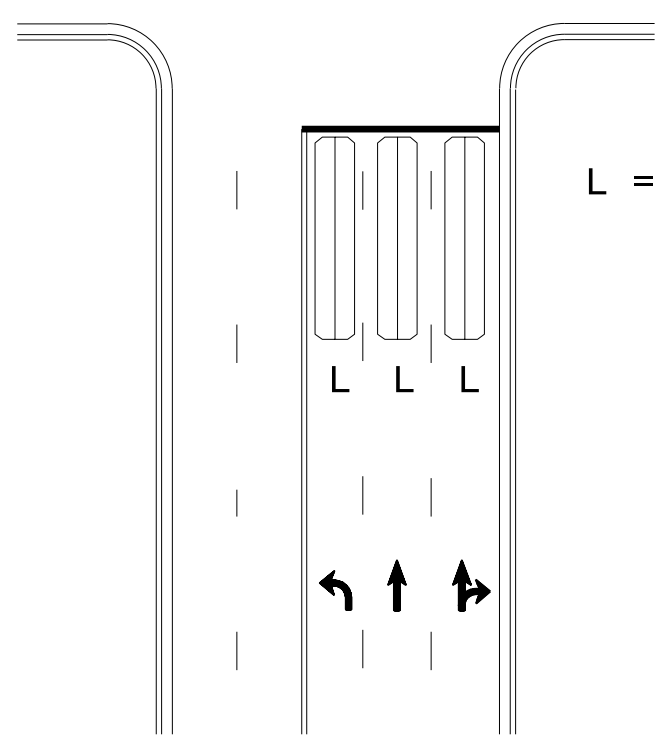


Wide Radius Turn



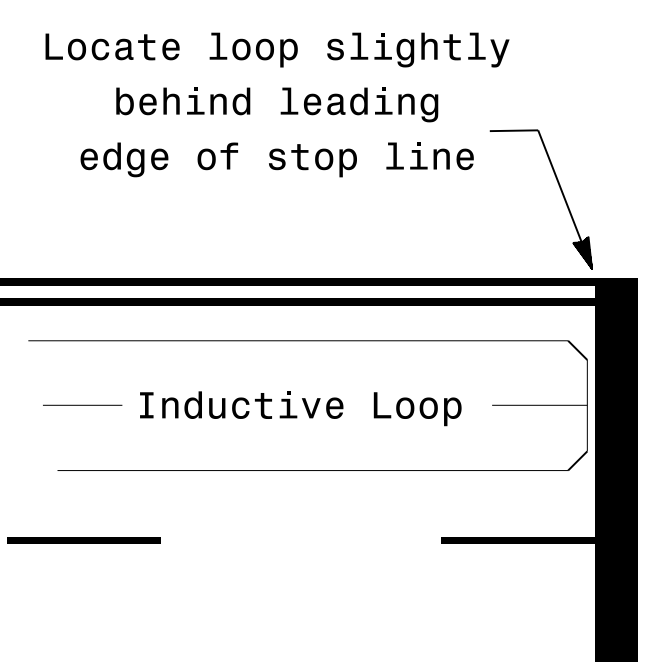
Channelized Turn

### 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

3D:\AH\2015\12\29  
 S:\ITS\AS\15\SIGNAL\Signal Design\Section\Eastern\Region\loop\yp\lca\2015.dgn  
 paalexander