

01-AUG-2018 11:37 S:\Contracts\Resurfacing Projects\Division 6\I-5850B Robeson Cumberland October 2018\revised I-5850B Cover.dgn
 09/08/99
 CONTRACT: C204148

TIP PROJECT: I-5850B

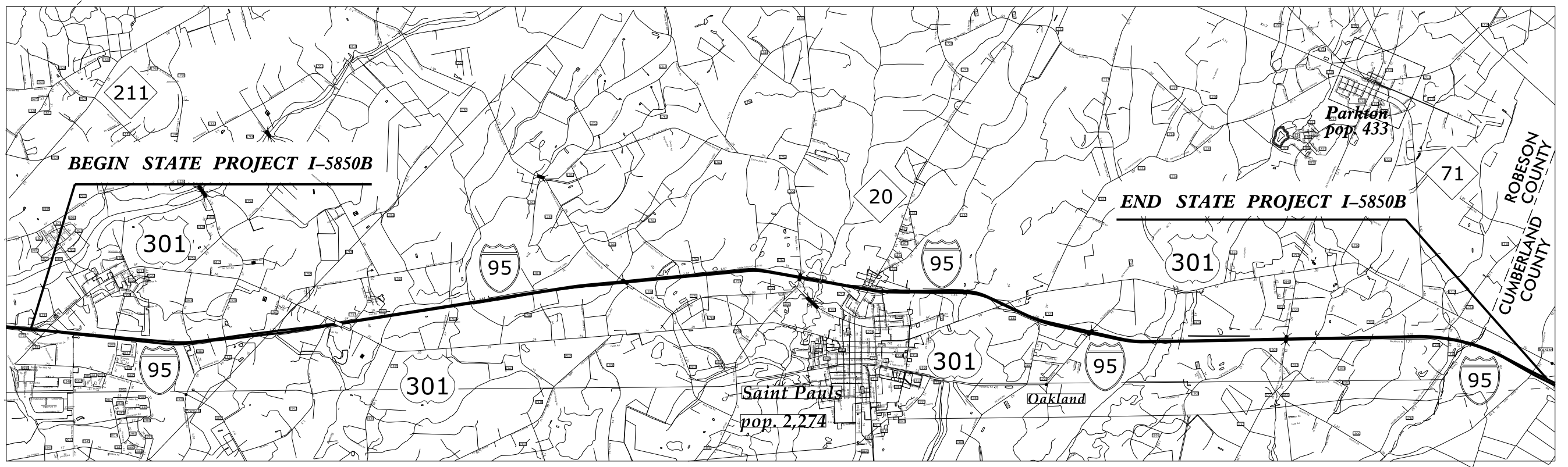
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

CUMBERLAND AND ROBESON COUNTIES

LOCATION: I-95 FROM US 301 (MILE MARKER 22.2) TO
 NORTH OF THE COUNTY LINE (MILE MARKER 40)

TYPE OF WORK: PAVEMENT REHABILITATION

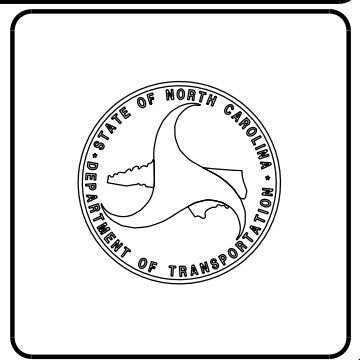
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5850B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
53055.1.1	NHPIM-0095(049)	P.E.	
53055.3.1	NHPIM-0095(049)	CONSTR	



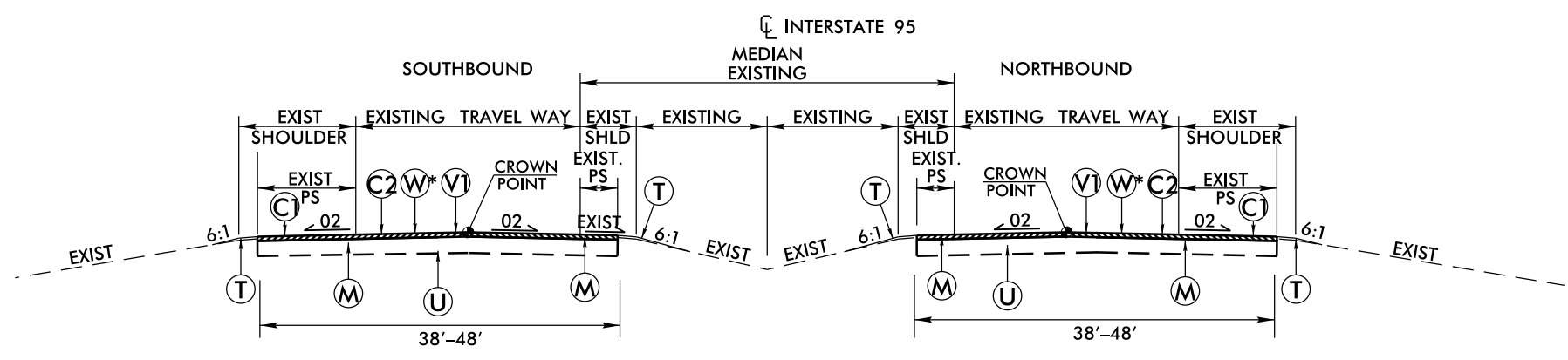
*EXCLUDING LIMITS OF U-2519AA PROJECT FROM MILE MARKER 36.8 TO 38.5

PROJECT LENGTH	
TOTAL PROJECT LENGTH	= 17.8 MILES

Prepared in the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610	
2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	NA
LETTING DATE:	OCTOBER 16, 2018



FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. VAR DEPTH ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" IN DEPTH.
M	PROPOSED MILLED RUMBLE STRIPS
R	EXISTING CURB AND GUTTER
T	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION) AS DIRECTED BY ENGINEER
U	EXISTING PAVEMENT
V1	2" MILLED ASPHALT PAVEMENT
W*	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)



TYPICAL SECTION NO. 1
 -L- MILE MARKER 22.2 TO MILE MARKER 36.8
 -L- MILE MARKER 38.5 TO MILE MARKER 40
 * SKIPPING OVER PROJECT LIMITS FOR U-2519AA

- NOTES:**
- * WEDGE CURVES AT MILE MARKERS 23, 24.4, 27.8, 29.8, 31.3, 32.4, 33.2, 34.4 AND 38 AS DIRECTED BY ENGINEER TO OBTAIN REQUIRED SUPERELEVATION
 - * SUPERELEVATIONS WILL BE PROVIDED BY ENGINEER AND SHALL BE STAKED EVERY 50 FEET THROUGHOUT EACH CURVE FOR EACH LIFT. ITEM SHALL BE PAID UNDER CONSTRUCTION SURVEYING.
 - * MILLED SECTIONS SHALL BE RESURFACED IN THE SAME NIGHT.
 - * CONTRACTOR SHALL COORDINATE WITH WEIGH STATIONS BEFORE CUTTING LOOPS.

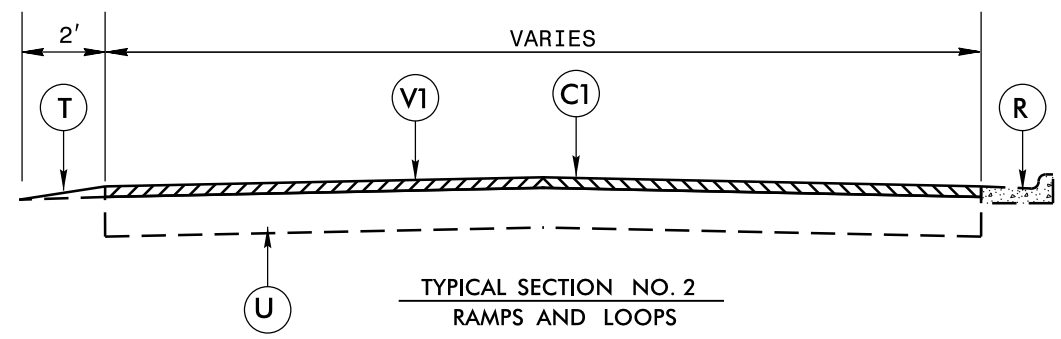
NOTES TO CONTRACTOR

FOR SURFACE MIXES OVER 1" IN THICKNESS, MILL THE EXISTING PAVEMENT IN ACCORDANCE WITH THE FOLLOWING SKETCH AS DIRECTED BY THE ENGINEER.

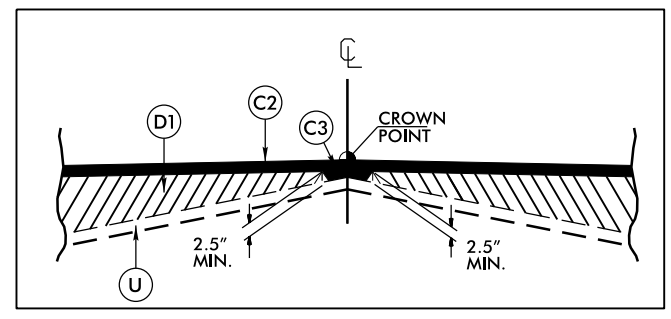
LOCATIONS SHALL INCLUDE TIES INTO EXISTING CONCRETE PAVEMENT, AT BRIDGE APPROACHES WHERE THE BRIDGE WILL NOT BE RESURFACED, AND AT THE BEGINNING AND ENDING POINT OF EACH RESURFACING MAP.

PERFORM THE WORK IN ACCORDANCE WITH SECTION 607 OF THE JANUARY 2018 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. RESURFACING WILL BE ACCOMPLISHED AT THE SAME TIME AS THE MILLING OPERATION.

INCIDENTAL MILLING AT PAVEMENT TIE-INS DETAIL



TYPICAL SECTION NO. 2
RAMPS AND LOOPS
 *INCLUDES ALL RAMPS AND LOOPS UP TO TIE INS AT THE -Y- LINES

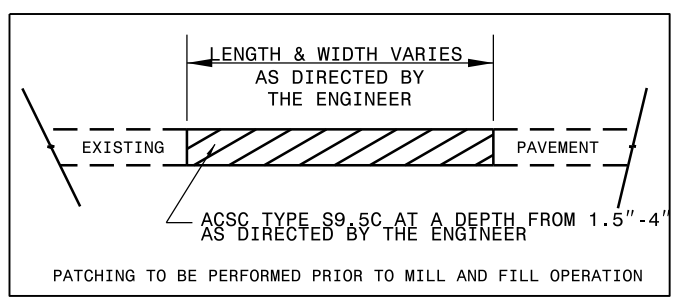


WEDGING DETAIL

MILL TO END OF C&G, NEAREST JOINT, OR AS DIRECTED BY THE ENGINEER

INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE-INS, CURB RADII AND STREET INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER

MILLING AT CURB AND GUTTER INTERSECTIONS



PATCHING EXISTING PAVEMENT

03-AUG-2018 10:30
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 6/2/09

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5850B 53055.3.1	3	

SUMMARY OF QUANTITIES

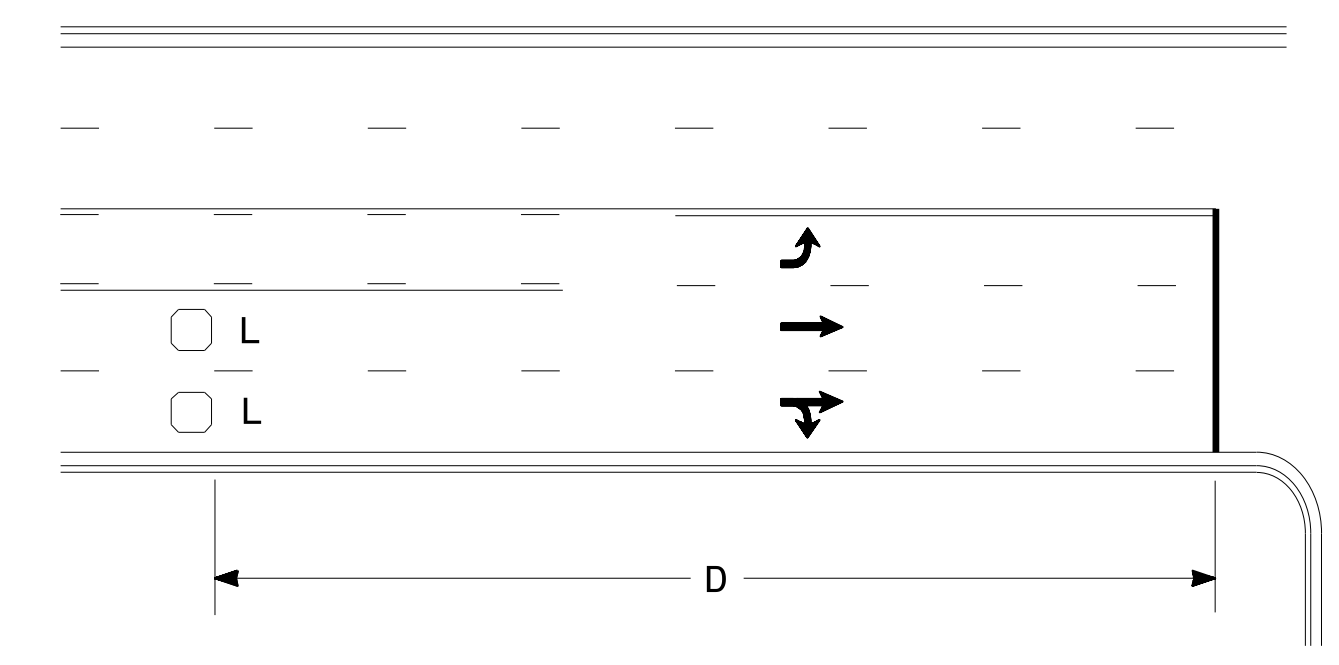
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	CONSTRUCTION SURVEYING	BORROW	SHOULDER RECONSTRUCTION	AGGREGATE SHOULDER BORROW	2" MILLING	INCIDENTAL MILLING	INTERMEDIATE COURSE, 119.0C	SURFACE COURSE, S9.5C	SURFACE COURSE, S9.5D	ASPHALT BINDER FOR PLANT MIX	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	MILLED RUMBLE STRIPS (ASPHALT CONCRETE)	SEED & MULCHING	TRENCHING (UNPAVED, 1 CONDUIT, 2")	JUNCTION BOX (STANDARD)	INDUCTIVE LOOP SAWCUT	LEAD-IN CABLE (14-2)
										MI	FT																		
53055.3.1	Robeson & Cumberland	1	I-95	MM 22.2 - MM 40	1, 2	2	MD	NO	NO	32.2	38	*	3,800	5	500	794,894	100	5,500	28,240	65,553	1,958	3,737	100	371,712	1	10	1	350	10
I-5850B GRAND TOTAL										32.2		1	3,800	5	500	794,894	100	5,500	28,240	65,553	1,958	3,737	100	371,712	1	10	1	350	10

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGT H	WIDTH	44000000	45100000	44230000	44240000	4434000000	4600000000-N	46000000	4688000000-E	4690..-E	4695000000-E	4700000000	4710000000-E	5255...-N		
										STATIONARY WORK ZONE SIGN	LAW ENFORCEMENT	WORK ZONE DIGITAL SPEED LIMIT SIGNS	WORK ZONE PRESENCE LIGHTING	SEQUENTIAL FLASHING WARNING LIGHTS	LANE CLOSURE	RAMP/ LOOP CLOSURE	6" X 90 M WHITE THERMO	6" X 90 M YELLOW THERMO	6" X 120 M WHITE THERMO	8" X 90 M YELLOW THERMO	8" X 90 M WHITE THERMO	12" X 90 M WHITE THERMO	24" X 120 M WHITE THERMO	PORTABLE LIGHTING
									MI	FT	SF	HR	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA		
53055.3.1	Robeson & Cumberland	1	I-95	MM 22.2 - MM 40	1, 2	2	MD	32.2	38	510	1,078	5	15	21	162	24	190,335	184,020	45,500	20	400	11,910	100	*
I-5850B GRAND TOTAL									32.2		510	1,078	5	15	21	162	24	374,355	45,500	420	11,910	100	1	

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGT H	WIDTH	4725000000-E				4810000000-E		4815000000-E		4820000000-E		4845000000-N				4905..-N	
										THERM O RT ARROW 90 M	THERMO STR & LT ARROW 90 M	RAMP ARROW 90 M	MERGE ARROW 90 M	4" WHITE PAINT	4" YELLOW PAINT	6" WHITE PAINT	6" YELLOW PAINT	8" WHITE PAINT	8" YELLOW PAINT	PAINT RAMP ARROW	PAINT MERGE ARROW	PAINT RT ARROW	PAINT STR & LT ARROW	SNOW PLOW-ABLE MARKERS	
									MI	FT	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA
53055.3.1	Robeson & Cumberland	1	I-95	MM 22.4 - MM 40	1, 2	2	MD	32.2	38	5	6	6	24	360,000	170,016	600	20	12,000	40	12	48	10	12	2,940	
GRAND TOTAL									32.2		41				530,016		620		12,040		82				2,940

High Speed Detection (≥40 mph)

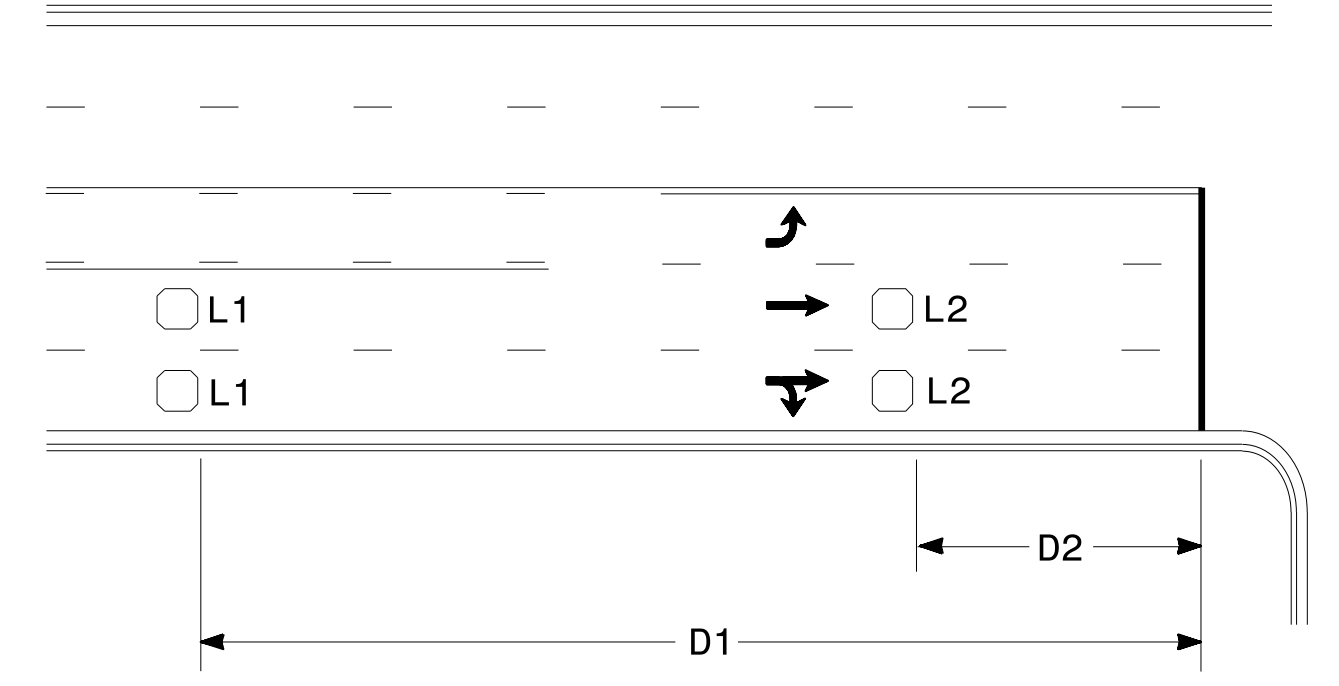


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

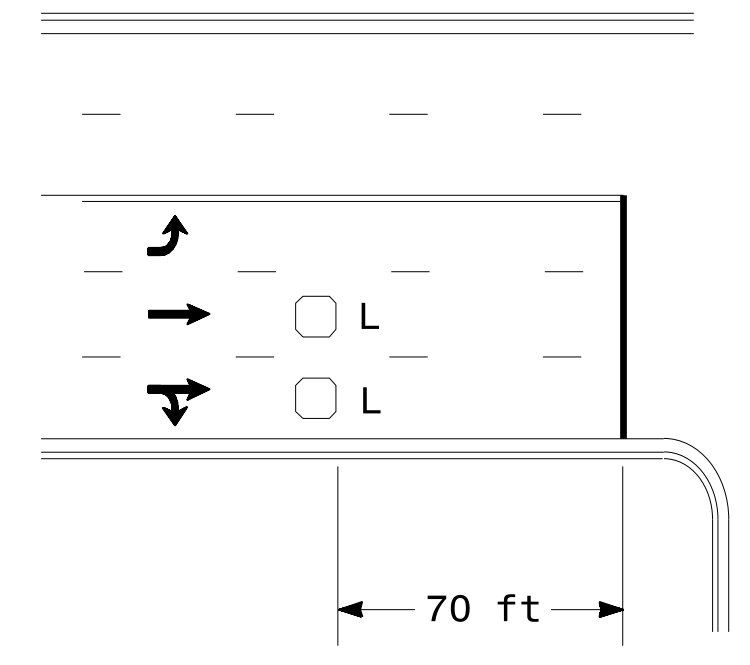


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

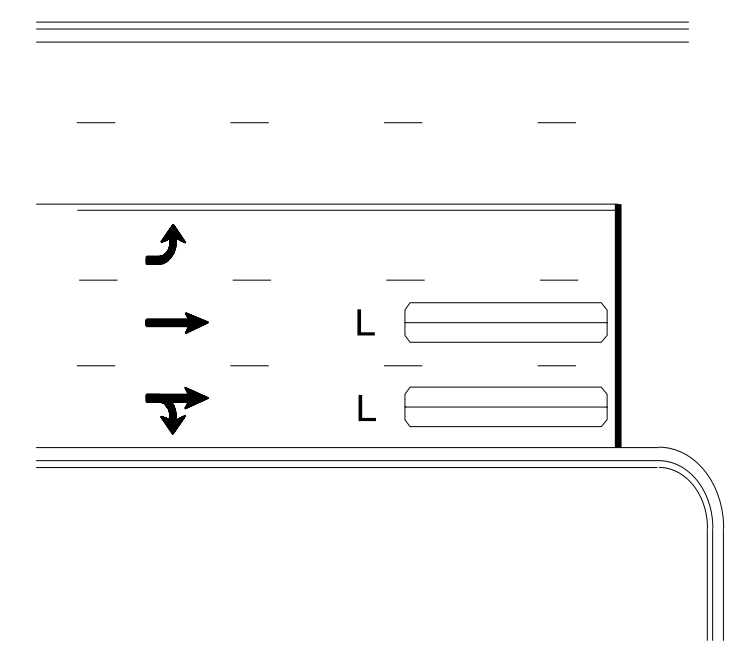
"Stretch" Operation

Low Speed Detection (≤35 mph)



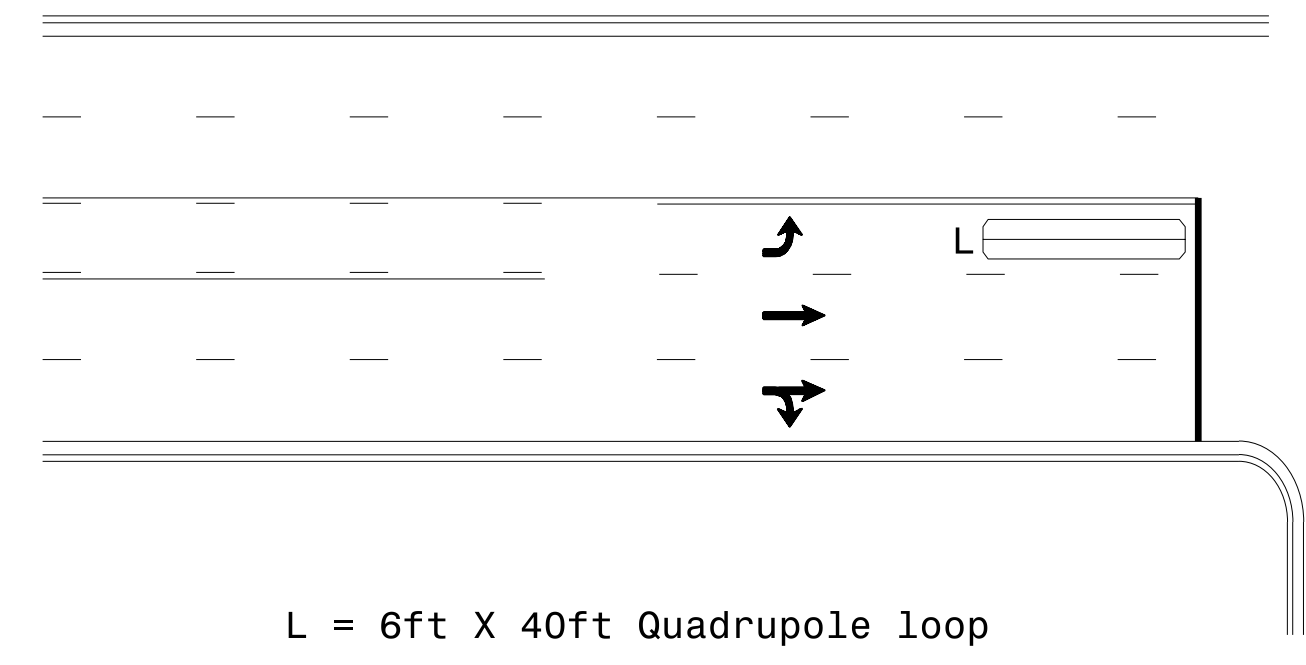
L = 6ft X 6ft
Wired in series

OR



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

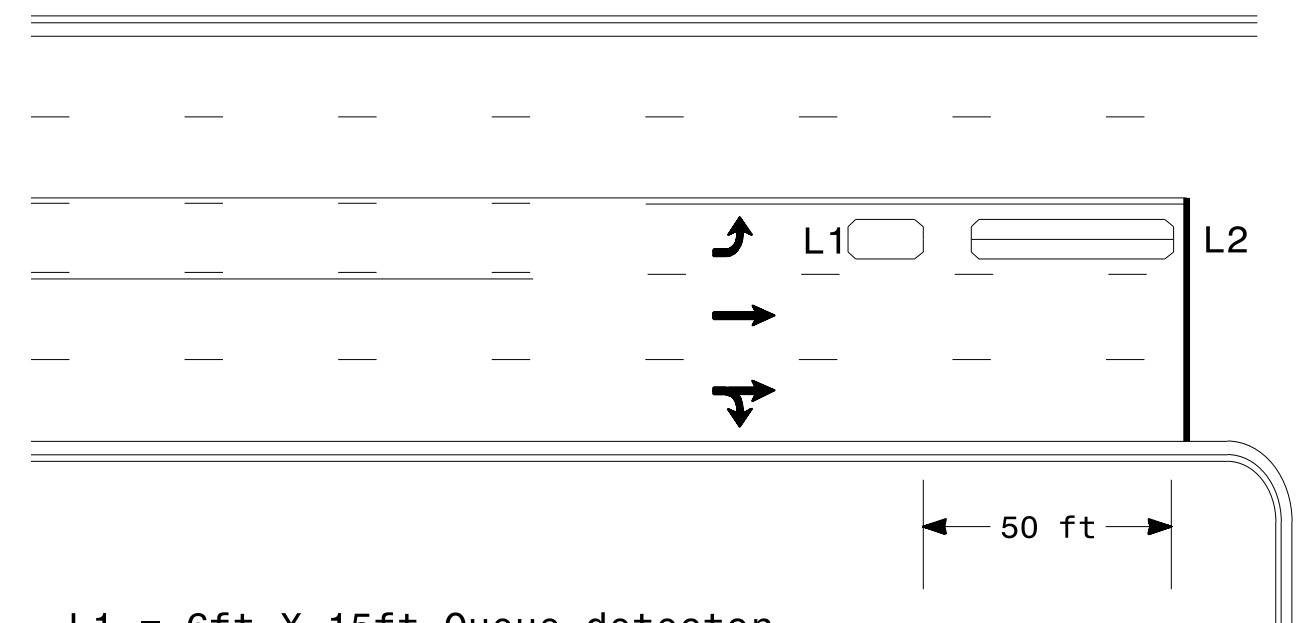
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

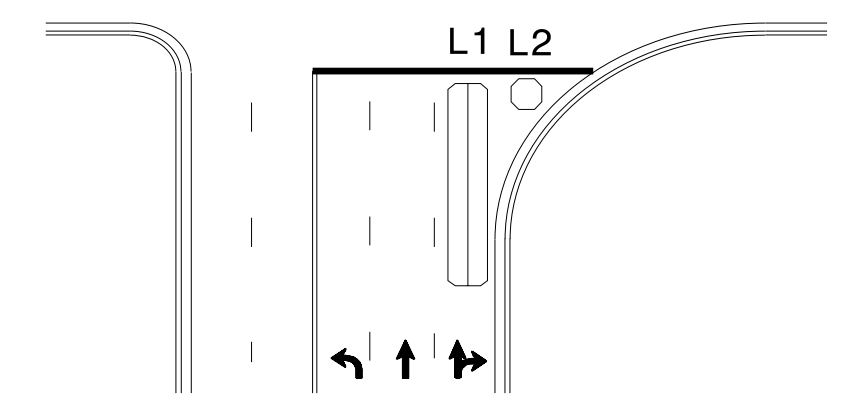
OR



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

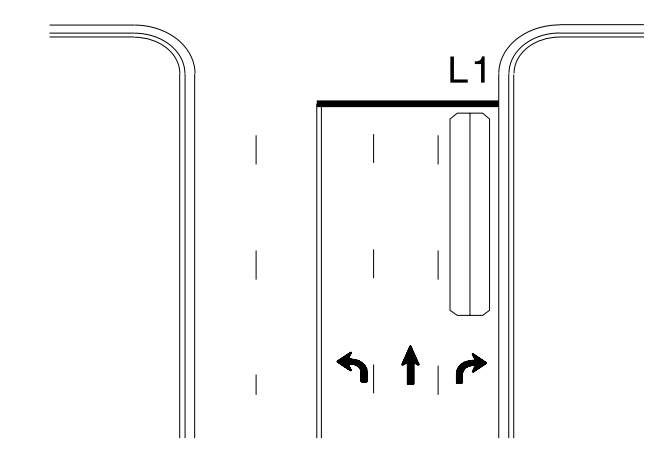
Queue Loop Detection

Right Turn Lane Detection

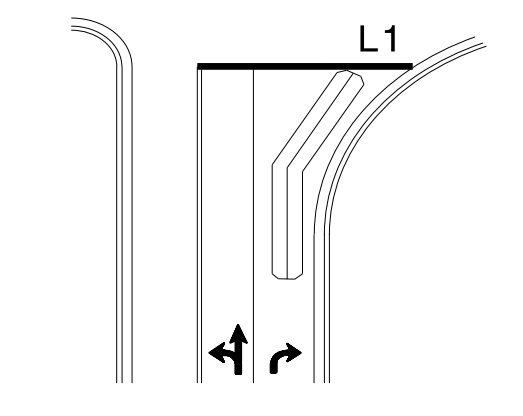


Shared Lane/
Wide Radius Turn

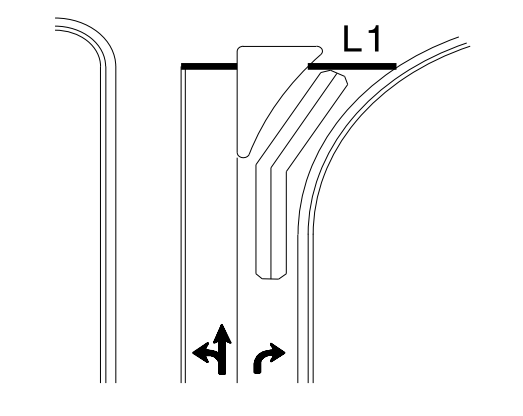
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

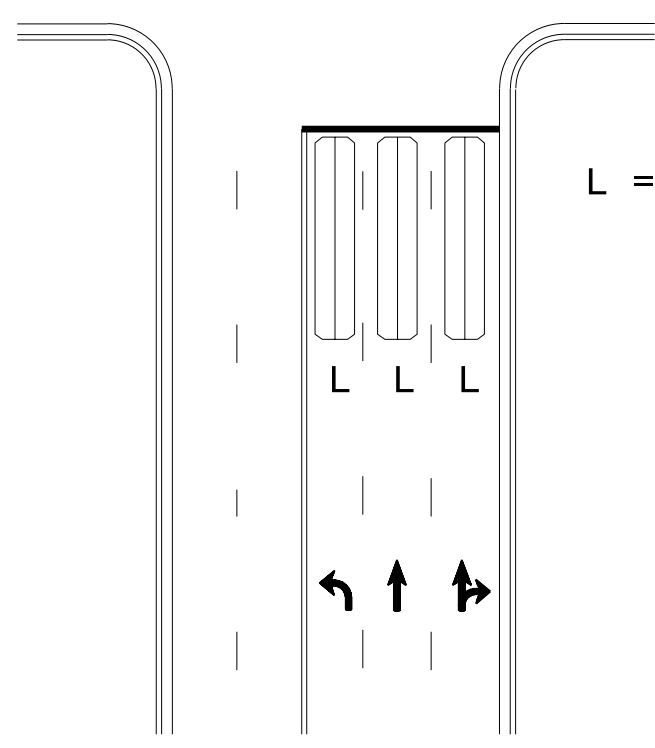


Wide Radius Turn



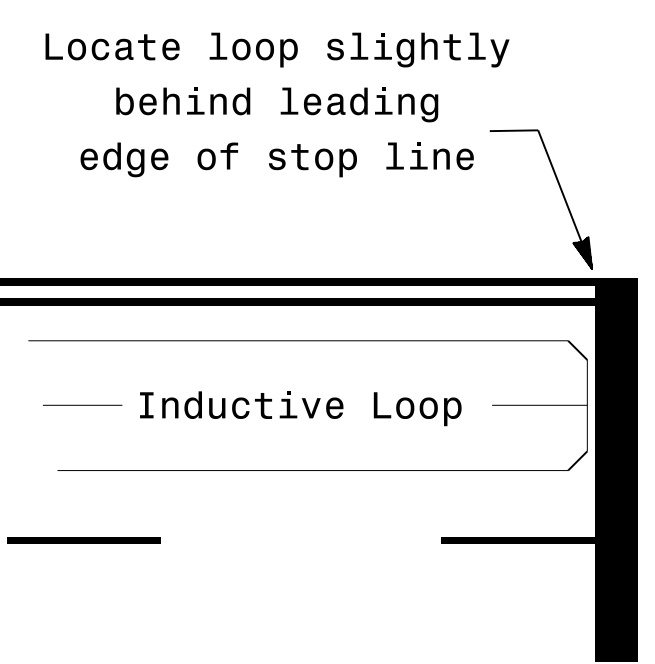
Channelized Turn

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:

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
PAMELA L. ALEXANDER
23489

1/30/2015

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