

WBS NO: 2024CPT.01.15.10581

CONTRACT: DA00601

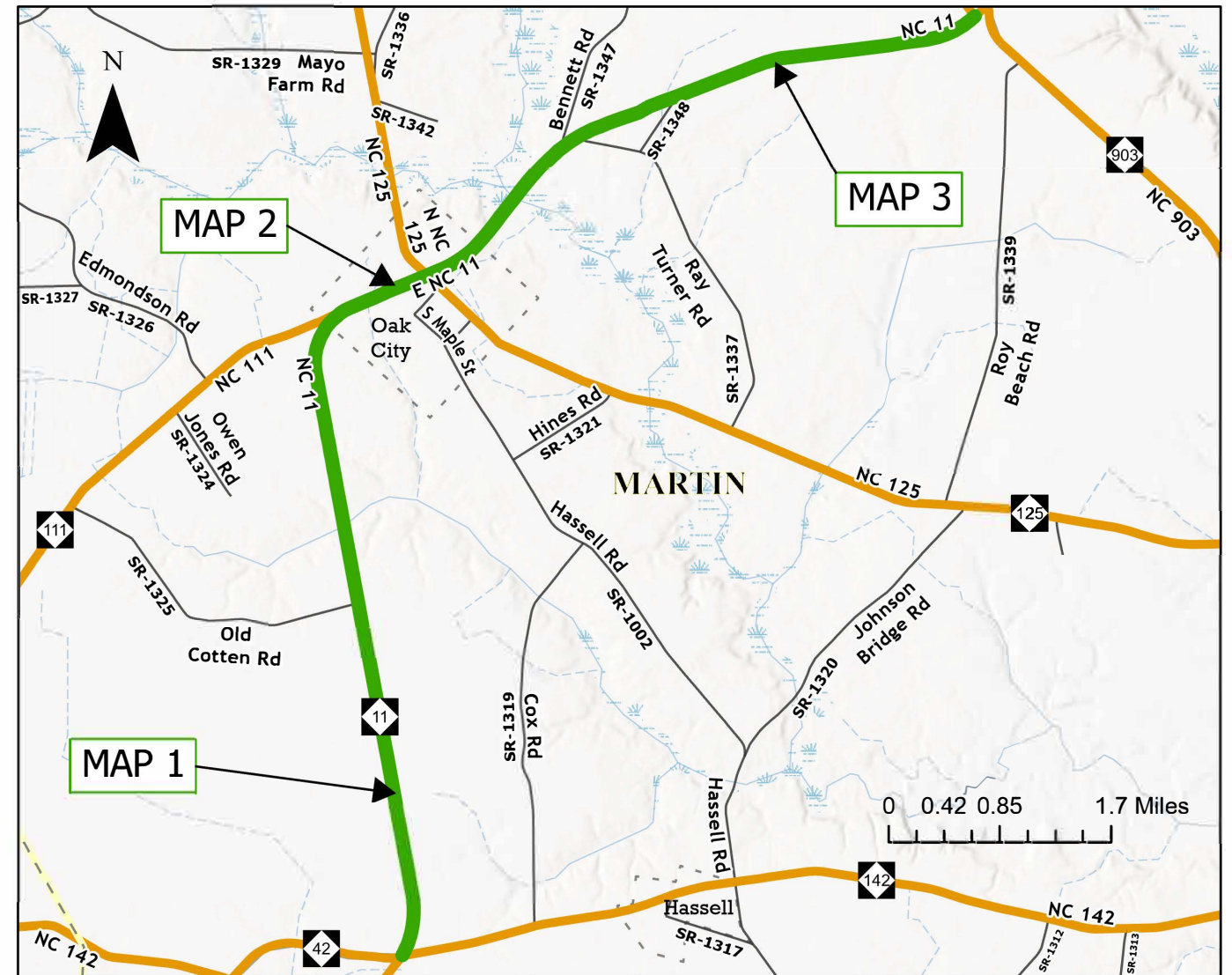
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MARTIN

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	2024CPT.01.15.10581	1
STATE PROJECT NUMBER		DESCRIPTION
2024CPT.01.15.10581		CONST. , P.E.

TYPE OF WORK: GUARDRAIL, MILLING, RESURFACING, SIGNAL LOOPS, & PAVEMENT MARKINGS

MAP	ROUTE	FROM	TO
01	NC 11	NC 42	Begin C&G
02	NC 11	Begin C& G	End C&G
03	NC 11	End C&G	NC 903



PROJECT LENGTH

MAP	LENGTH
01	4.01
02	0.73
03	3.77

Prepared in the Office of:
DIVISION OF HIGHWAYS
113 AIRPORT DR., EDENTON, NC 27932

B. N. BRASWELL, PE
DIV. PROJ. DEVELOPMENT ENGINEER

M. S. WINSLOW
DIVISION CONTRACT ENGINEER

J. S. ABEL, JR.
DIVISION PROJECT TEAM LEAD

D. H. STALLINGS
DIVISION DESIGN ENGINEER



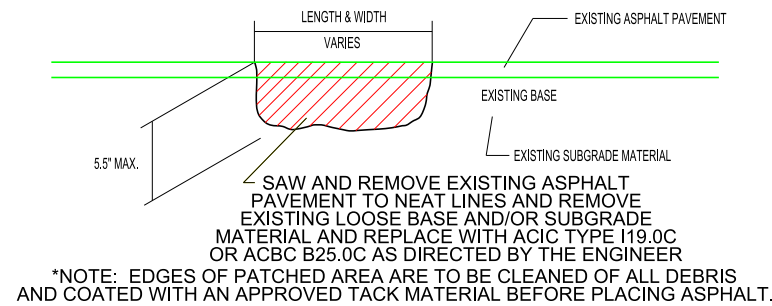
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
V1	INCIDENTAL MILLING
V2	MILLING ASPHALT PAVEMENT, 1.5" DEPTH
U	EXISTING PAVEMENT

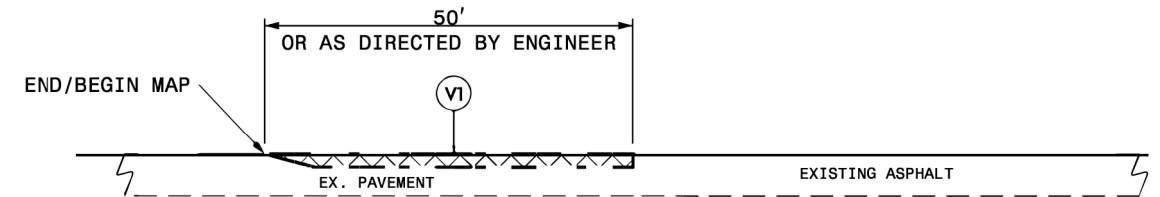
PROJECT REFERENCE NO.	SHEET NO.
2024CPT.01.15.10581	3

NOTES:

- * ALL INTERSECTING ROADS ARE TO BE RESURFACED TO THE ENDS OF THEIR RADII, THE MAIN LINE RIGHT OF WAY OR AS DIRECTED BY THE ENGINEER. THIS SHALL INCLUDE ANY TAPERS AND TURN LANES LOCATED BOTH ON THE MAIN LINE OR INTERSECTING PAVED ROADWAY.
- * EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE SUMMARY OF QUANTITIES.
- * 1.5" OF S9.5C TO BE APPLIED THE FULL WIDTH OF THE ROADWAY
- * CONTRACTOR SHALL PERFORM PATCHING EXISTING PAVEMENT, FULL DEPTH BEFORE APPLICATION OF 1.5" OF S9.5C



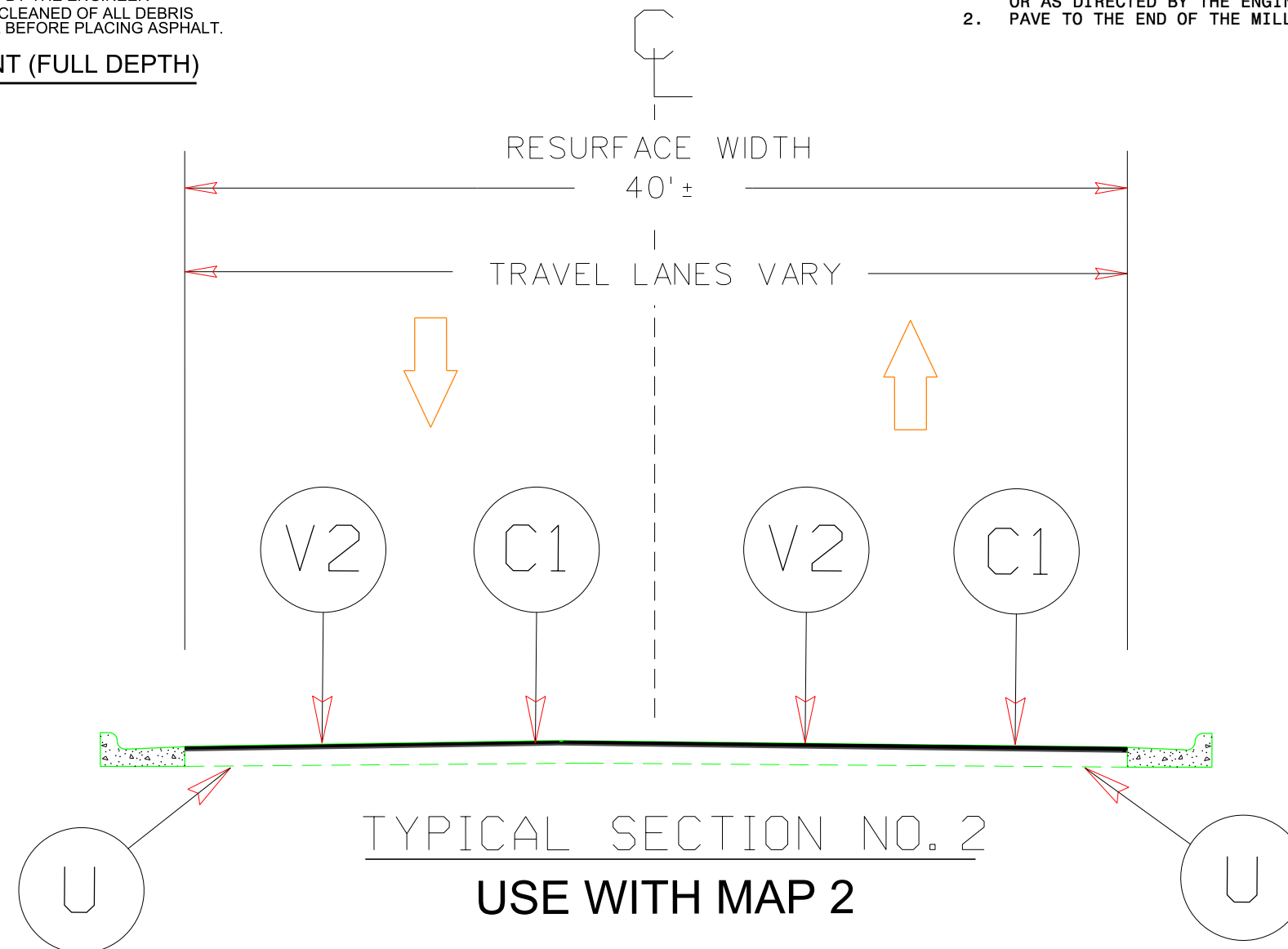
PATCHING EXISTING PAVEMENT (FULL DEPTH)



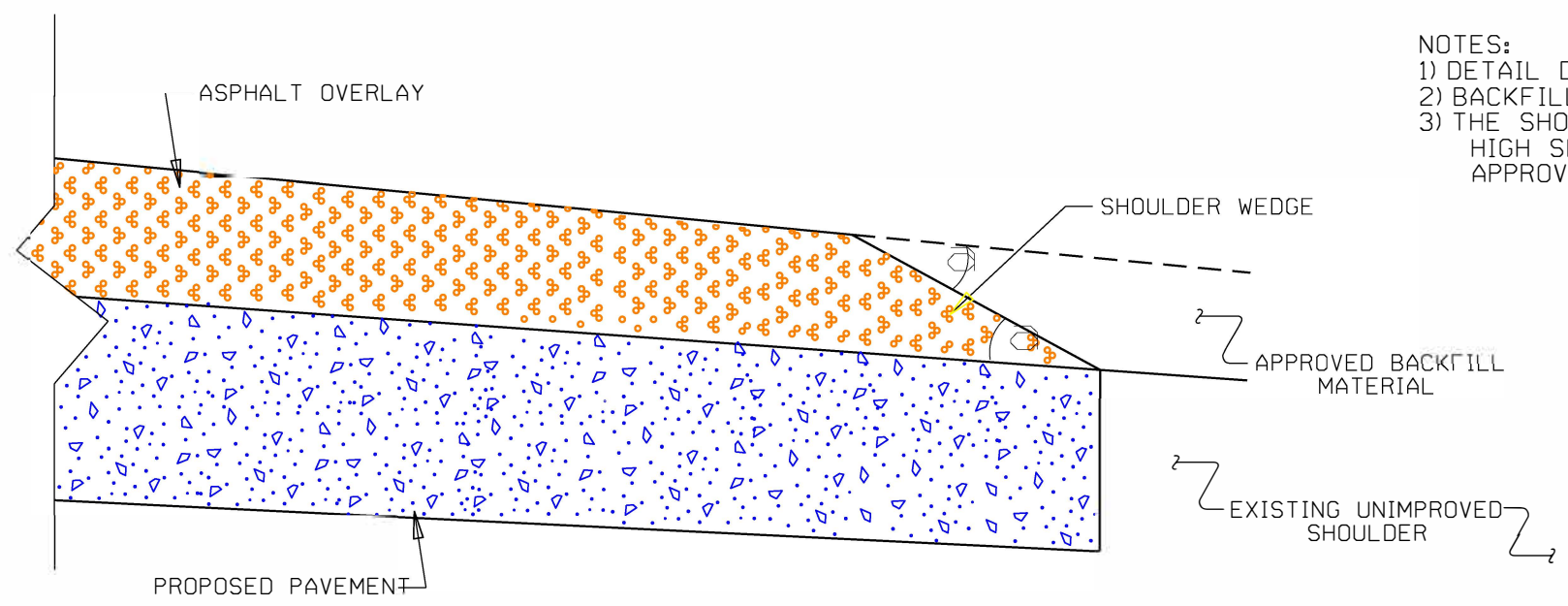
DETAIL 1

MAIN LINE MILLING

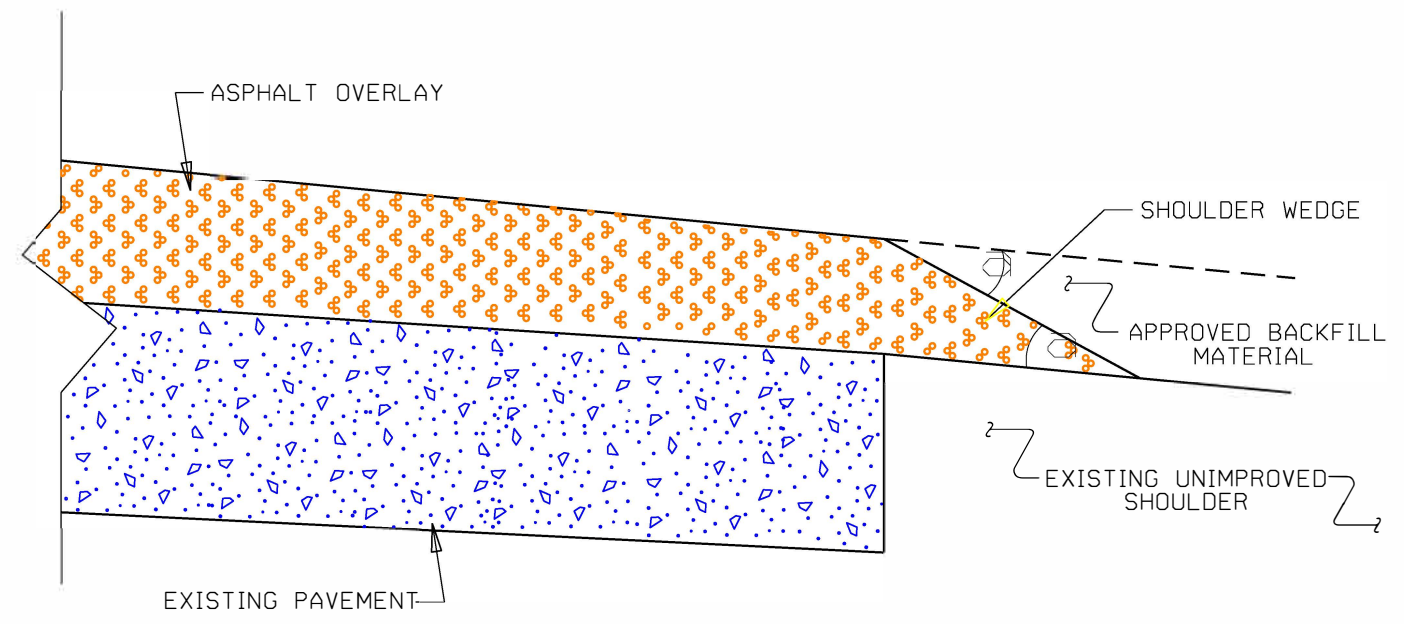
- NOTE:
1. INCLUDES INCIDENTAL MILLING AT THE ENDS OF MAIN LINE SECTIONS, OR AS DIRECTED BY THE ENGINEER.
 2. PAVE TO THE END OF THE MILLED SURFACE TO CREATE A SMOOTH TRANSITION.



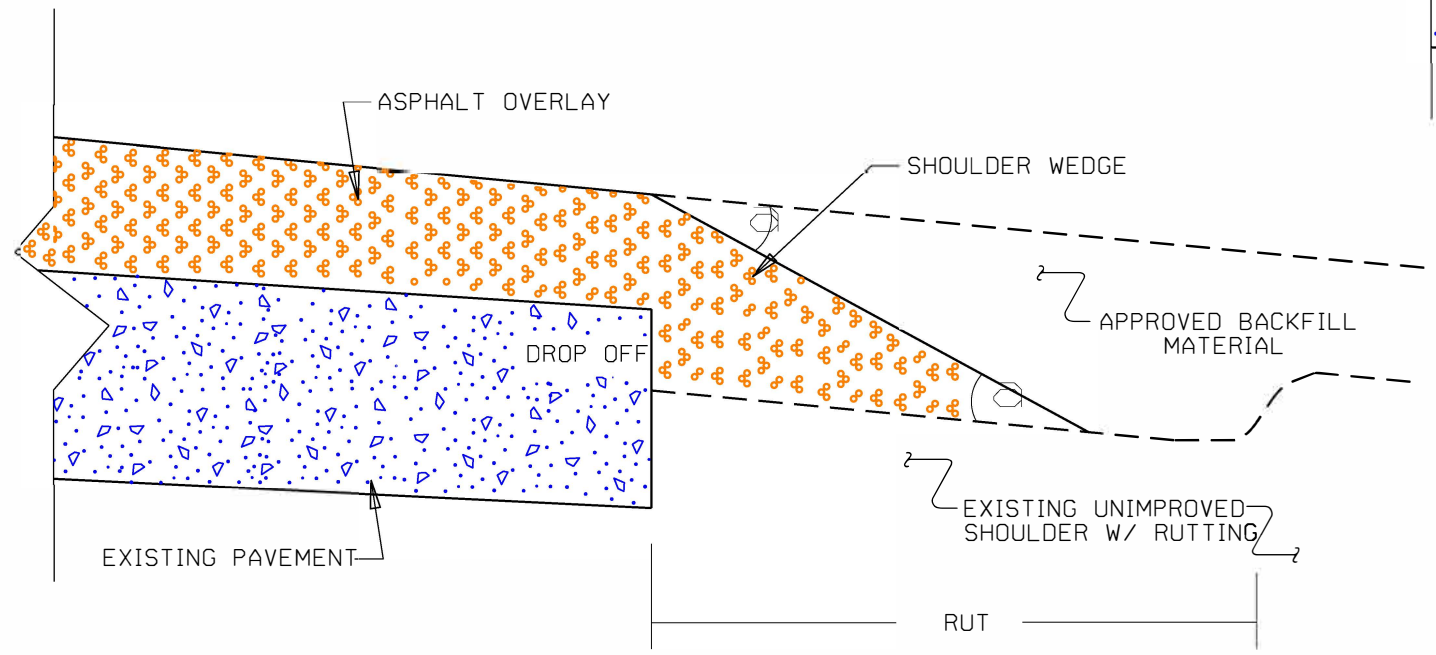
- NOTES:
 1) DETAIL DOES NOT APPLY TO OGAFS AND ULTRA-THIN BONDED WEARING COURSE.
 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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



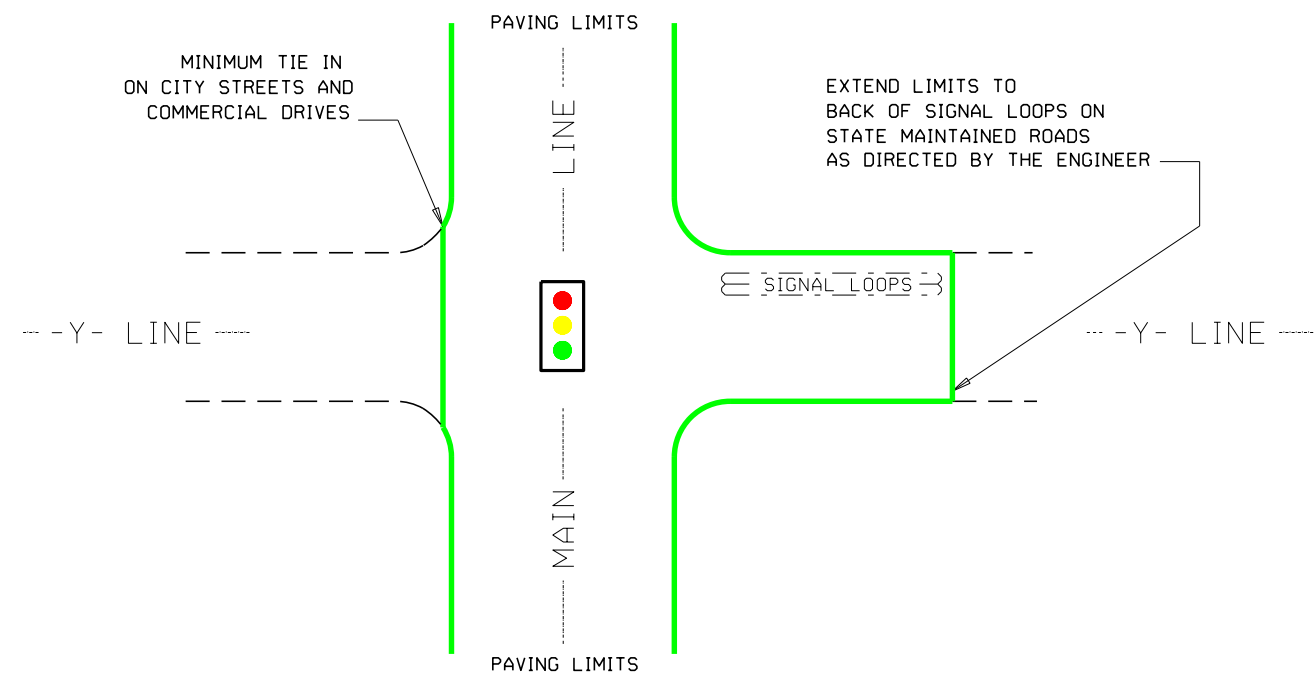
SHOULDER WEDGE DETAIL
 (Resurfacing Projects w/ NO Widening)



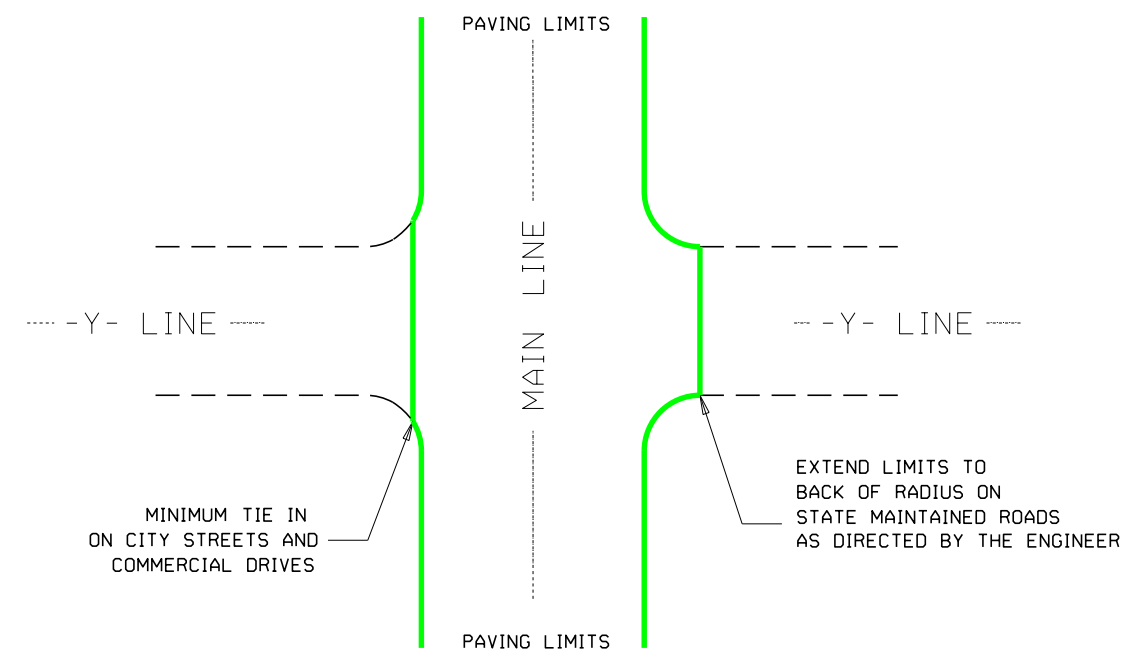
SHOULDER WEDGE DETAIL
 (Resurfacing Adjacent to Rutted Shoulder)

- 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: 2/2/16
CHECKED BY:	DATE:
FILE SPEC: stur/details/stand/shoulderwedgedetail.dgn	



TYPICAL DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES



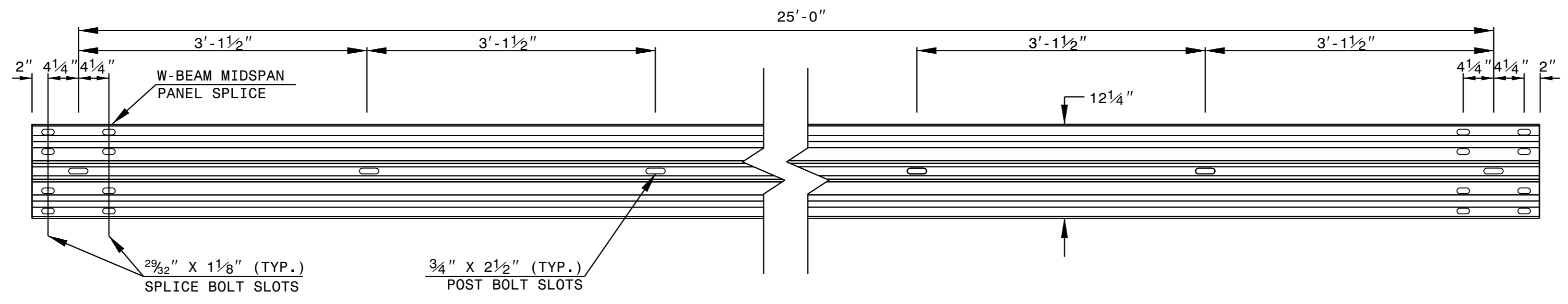
TYPICAL DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES

ADDITIONAL INTERSECTIONS (NON-TYPICAL)		
Extend paving limits to back of radius or loop on the following intersections:		
MAP#	STREET NAME	COMMENTS
2	NORTH WALNUT STREET	PAVE TO BACK OF RADIUS
2	NORTH MAPLE STREET	PAVE TO BACK OF RADIUS
2	WEST AVENUE	PAVE TO BACK OF RADIUS
2	EAST AVENUE	PAVE TO BACK OF RADIUS
2	NORTH CHESTNUT STREET	PAVE TO BACK OF RADIUS
2	EEAST COMMERCE STREET	PAVE TO BACK OF RADIUS

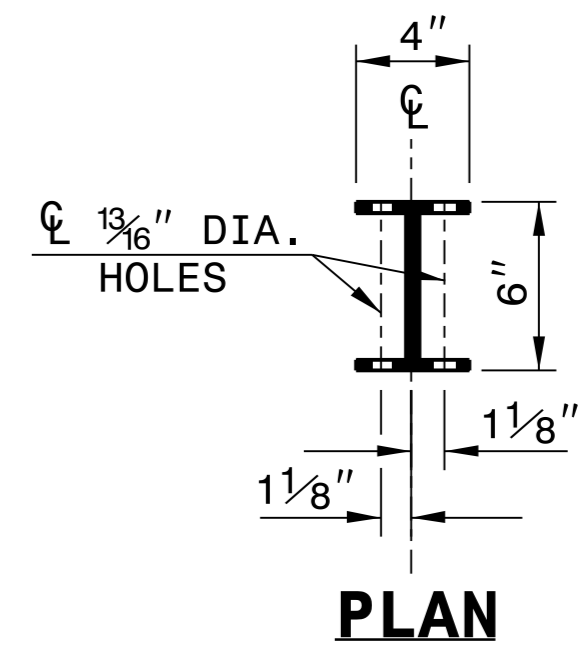
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

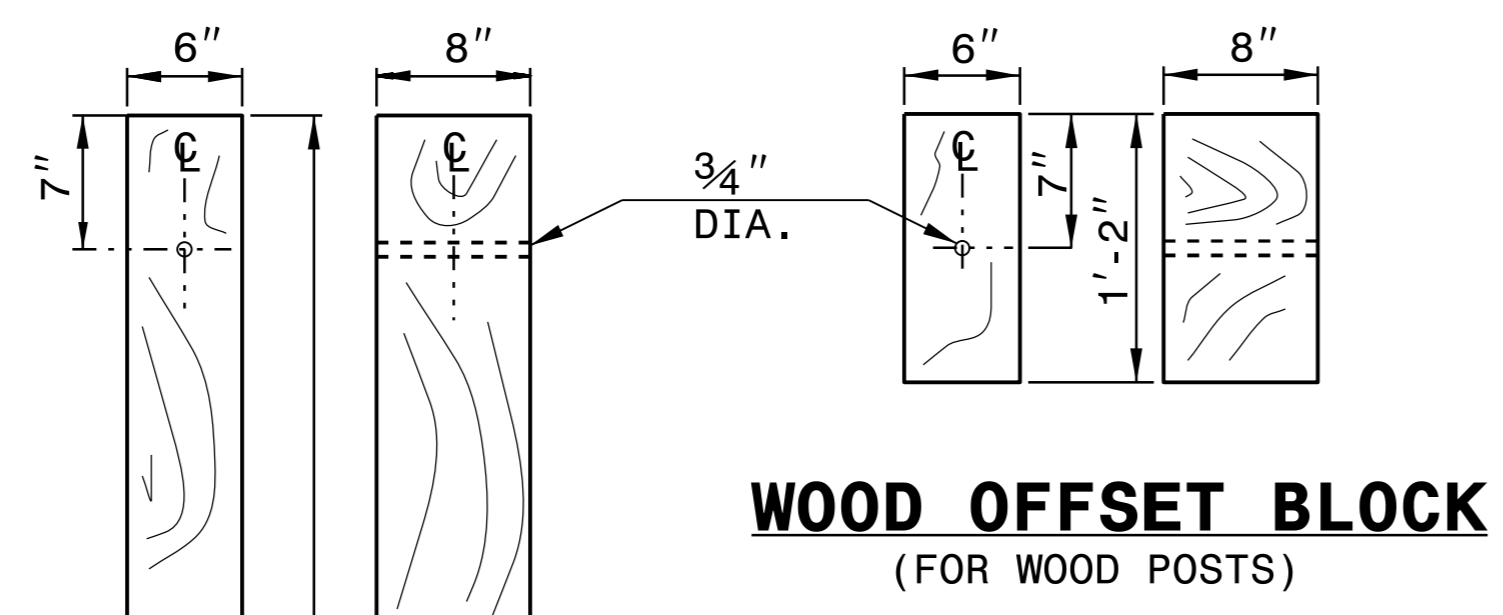
SHEET 6 OF 8
862D02



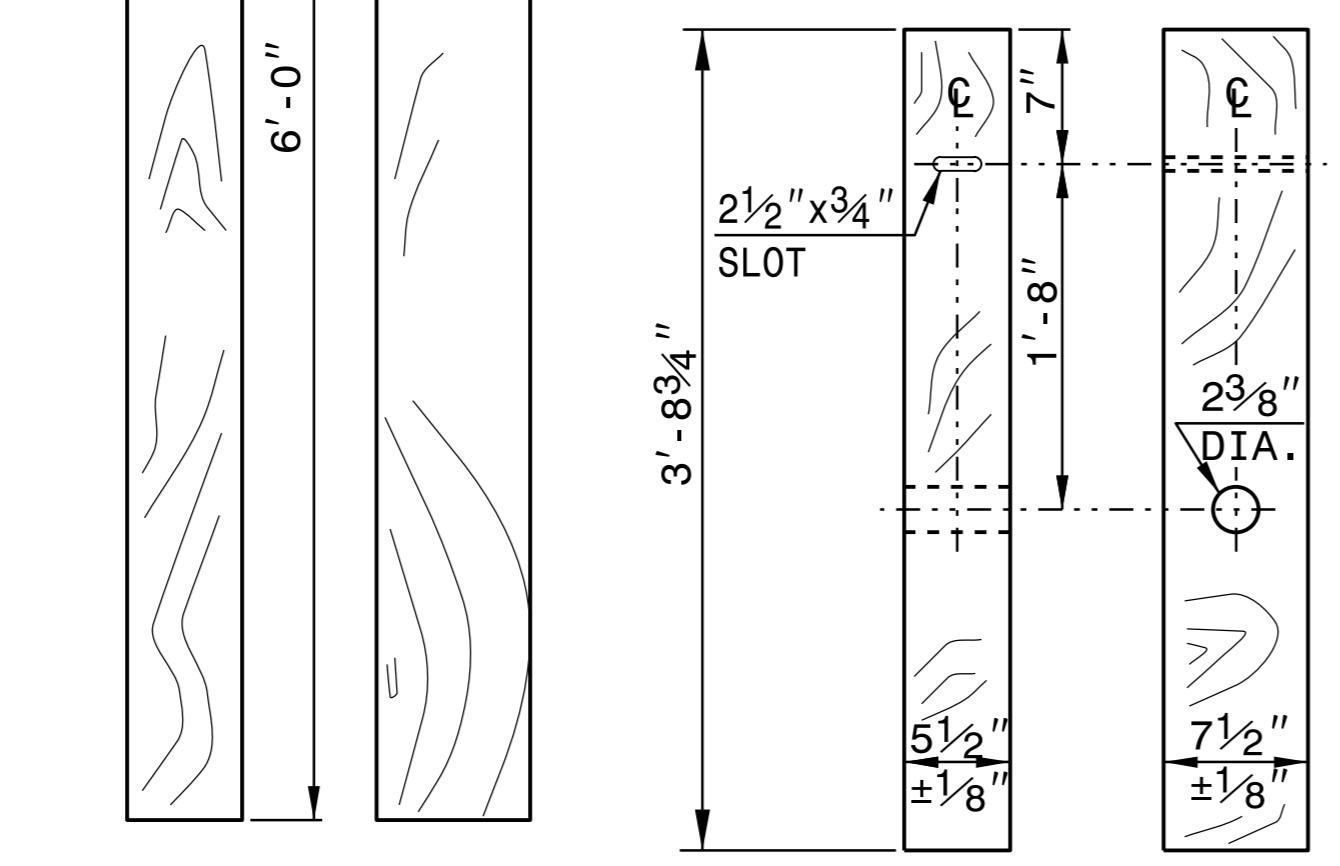
STANDARD W-BEAM GUARDRAIL



PLAN

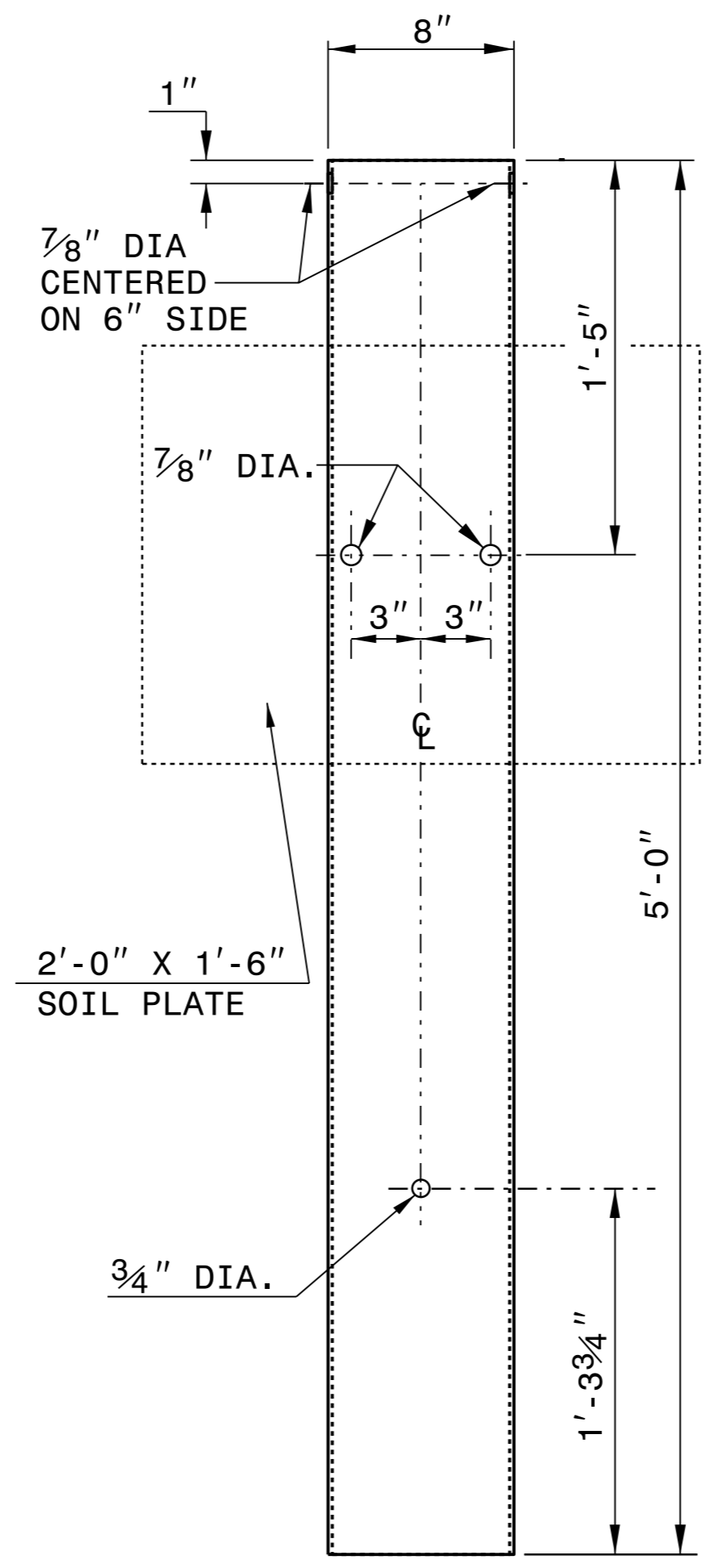


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

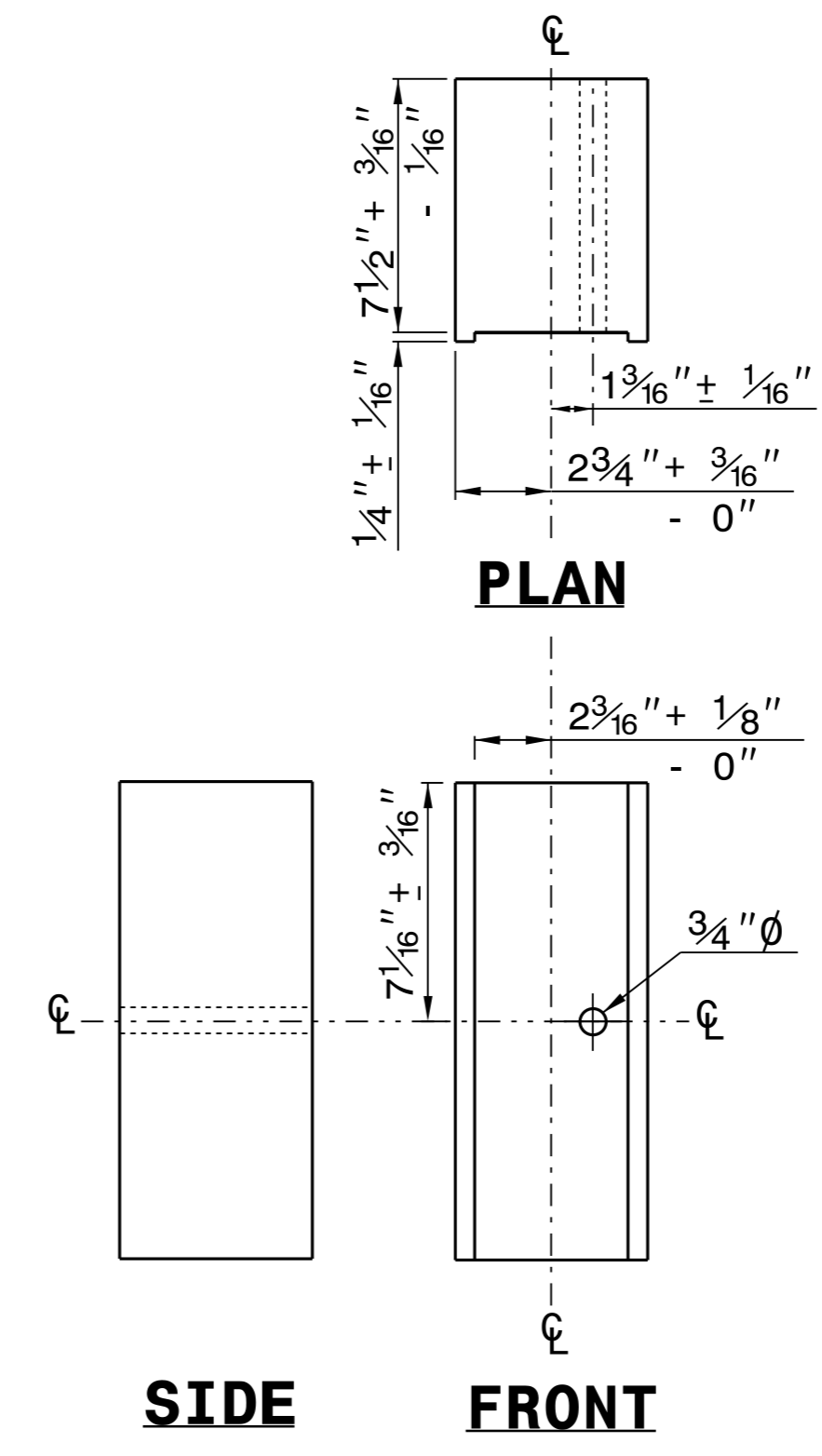


**STANDARD
LINE POST**

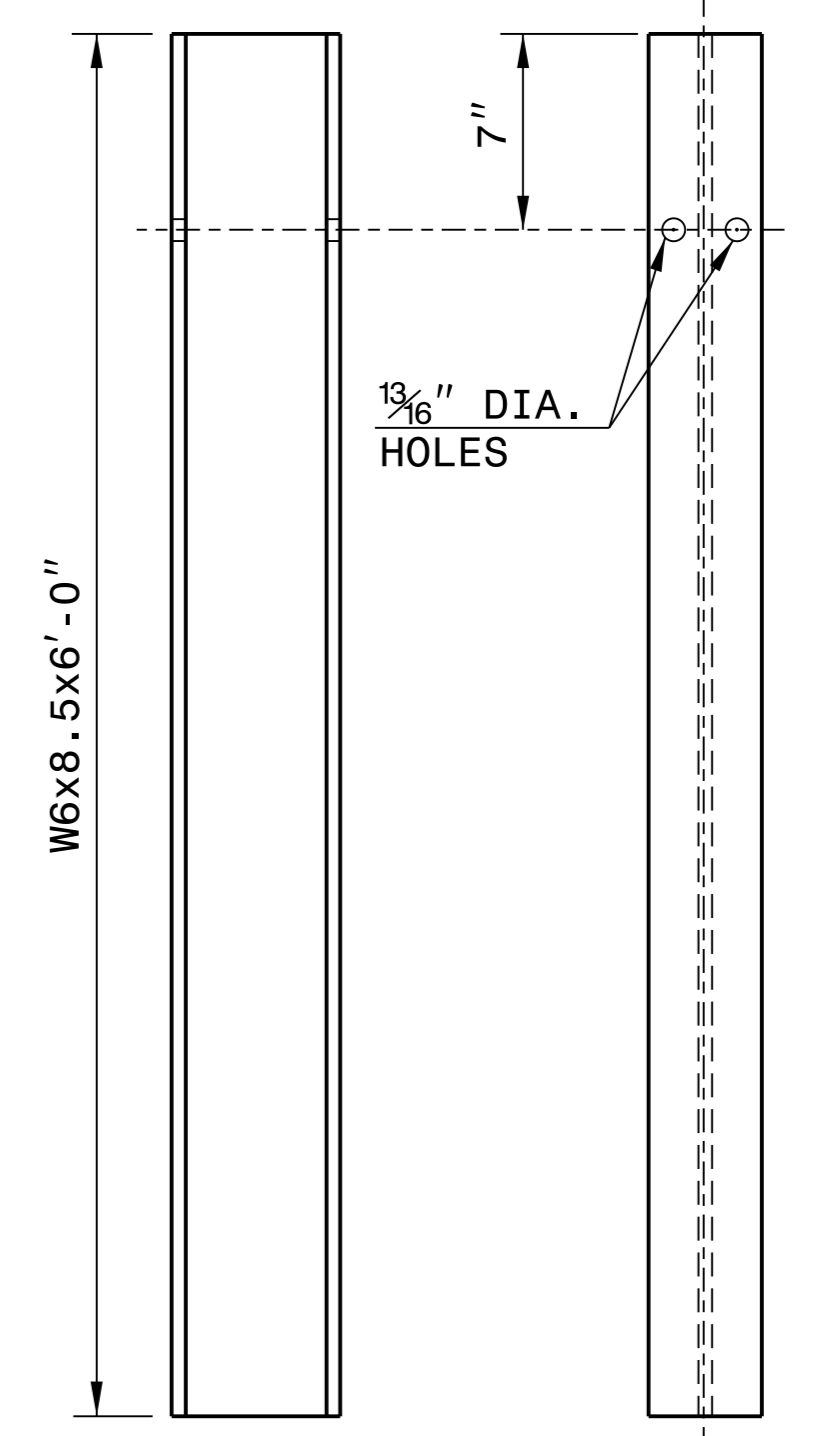
**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**



**SIDE
FRONT
ROUTED
OFFSET BLOCK**



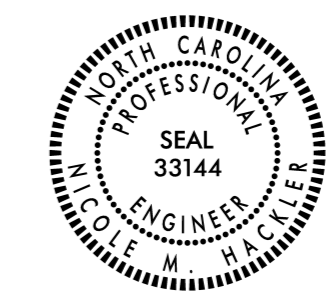
**SIDE
FRONT
"W6" STEEL POST**

SYSTEM PARTS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

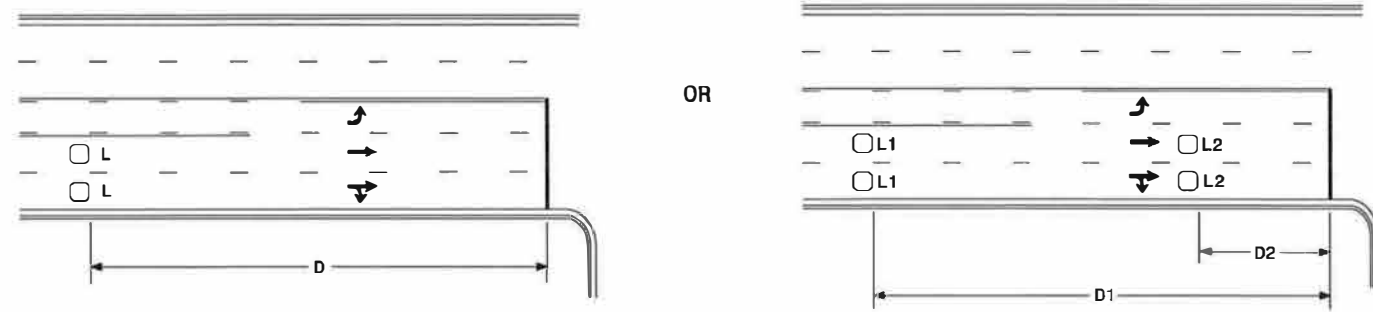


**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____

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

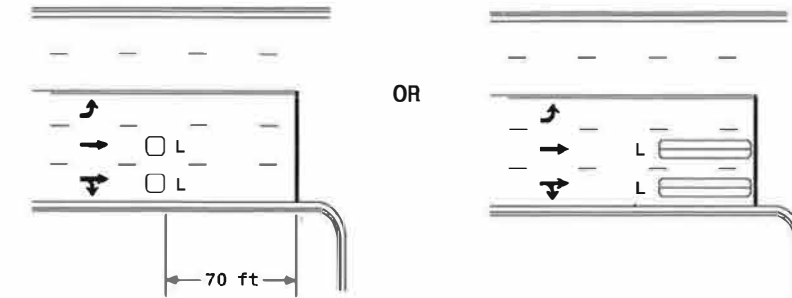
Volume Density Operation

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

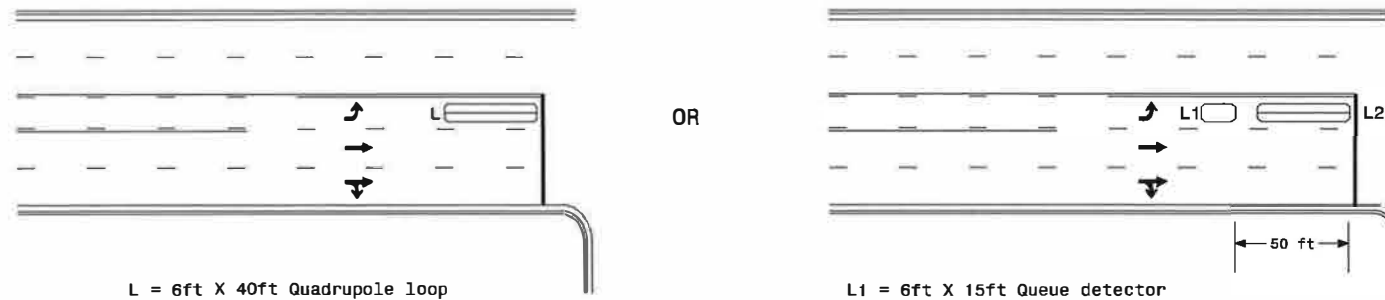
Low Speed Detection (≤35 mph)



L = 6ft X 6ft
Wired in series

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

Left Turn Lane Detection



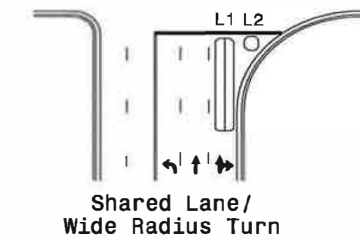
L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

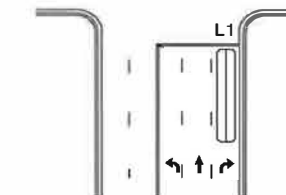
L1 = 6ft X 15ft Queue detector
L2 = 6ft X 40ft Quadrupole loop

Queue Loop Detection

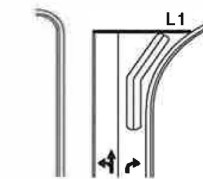
Right Turn Lane Detection



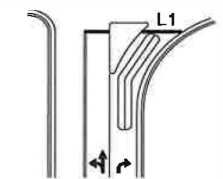
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft (Minimum) Presence loop
Wired separately



Standard Turn

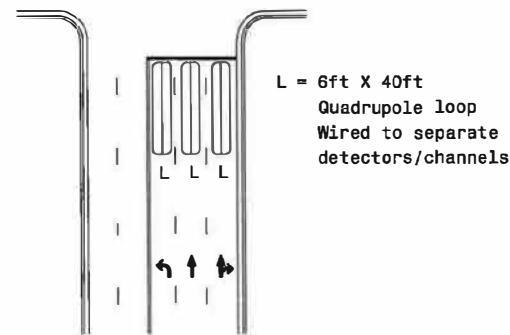


Wide Radius Turn



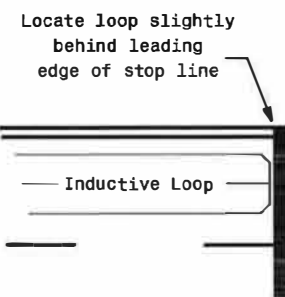
Channelized Turn

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 Office of:

750 N. Greenfield Pkwy., Charlotte, NC 27559

Typical Signal Loop Locations

PLAN DATE: January 2015 REVIEWED BY: JPG
PREPARED BY: PLA REVIEWED BY:

SCALE: N/A

REVISIONS: _____ DATE: _____
INITIALS: _____ DATE: _____

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL 23489
ANGELA L. ALEXANDER
1/30/2015

PROJECT NO.	SHEET NO.	TOTAL NO.
2024CPT.01.15.10581	9	

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	BEGIN MP	END MP	MATERIAL TRANSFER VEHICLE REQUIRED	0000100000-N	1220000000-E	1297000000-E	1330000000-E	1523000000-E	1575000000-E	1705000000-E	2830000000-N
															MOBILIZATION	INCIDENTAL STONE BASE	MILLING ASPHALT PAVEMENT (1½")	INCIDENTAL MILLING	ASPHALT CONC SURFACE COURSE, S9.5C	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT (FULL DEPTH)	ADJUSTMENT OF MANHOLES
											MI	FT										
											LS	TONS	SY	SY	TONS	TONS	TON	EA				
2024CPT.01.15.10581	Martin	1	NC-11 (SECTION 1)	FROM NC 42 (MP 4.25) TO BEGIN C&G (MP 8.26)	1	2	2WU	NO	NO	4.01	32	4.25	8.26	YES	1	84	75,281	521	7,032	416	20	
2024CPT.01.15.10581	Martin	2	NC-11 (SECTION 2)	FROM BEGIN C&G (MP 8.26) TO END C&G (MP 8.99)	2	2	2WU	NO	NO	0.73	40	8.26	8.99	YES	*		17,131	2,659	1,833	110	30	3
2024CPT.01.15.10581	Martin	3	NC-11 (SECTION 3)	FROM END C&G (MP) TO NC 903 (MP 12.76)	1	2	2WU	NO	NO	3.77	24	8.99	12.76	YES	*	105	53,082	2,290	5,141	304	17	
TOTAL FOR PROJ NO. 2024CPT.01.15.10581										8.51					*	189	145,494	5,470	14,006	830	67	3
GRAND TOTAL										8.51					1	189	145,494	5,470	14,006	830	67	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	BEGIN MP	END MP	MATERIAL TRANSFER VEHICLE REQUIRED	3030000000-E	3287000000-N	3345000000-E	3360000000-E	7324000000-N	7444000000-E	7456000000-E
															STEEL BEAM GUARDRAIL	GUARDRAIL END UNITS, TYPE TL-3	REMOVE & RESET EXIST GUARDRAIL	REMOVE EXISTING GUARDRAIL	JUNCT BOX (STD SIZE)	INDUCTIVE LOOP SAWCUT	LEAD-IN CABLE (14-2)
											MI	FT									
											LF	EA	LF	LF	EA	LF	LF				
2024CPT.01.15.10581	Martin	1	NC-11 (SECTION 1)	FROM NC 42 (MP 4.25) TO BEGIN C&G (MP 8.26)	1	2	2WU	NO	NO	4.01	32	4.25	8.26	YES							
2024CPT.01.15.10581	Martin	2	NC-11 (SECTION 2)	FROM BEGIN C&G (MP 8.26) TO END C&G (MP 8.99)	2	2	2WU	NO	NO	0.73	40	8.26	8.99	YES					4	1,104	252
2024CPT.01.15.10581	Martin	3	NC-11 (SECTION 3)	FROM END C&G (MP) TO NC 903 (MP 12.76)	1	2	2WU	NO	NO	3.77	24	8.99	12.76	YES	75	3	259	225			
TOTAL FOR PROJ NO. 2024CPT.01.15.10581										8.51					75	3	259	225	4	1,104	252
GRAND TOTAL										8.51					75	3	259	225	4	1,104	252

PROJECT NO.	SHEET NO.	TOTAL NO.
2024CPT.01.15.10581	10	

THERMOPLASTIC AND PAINT QUANTITIES

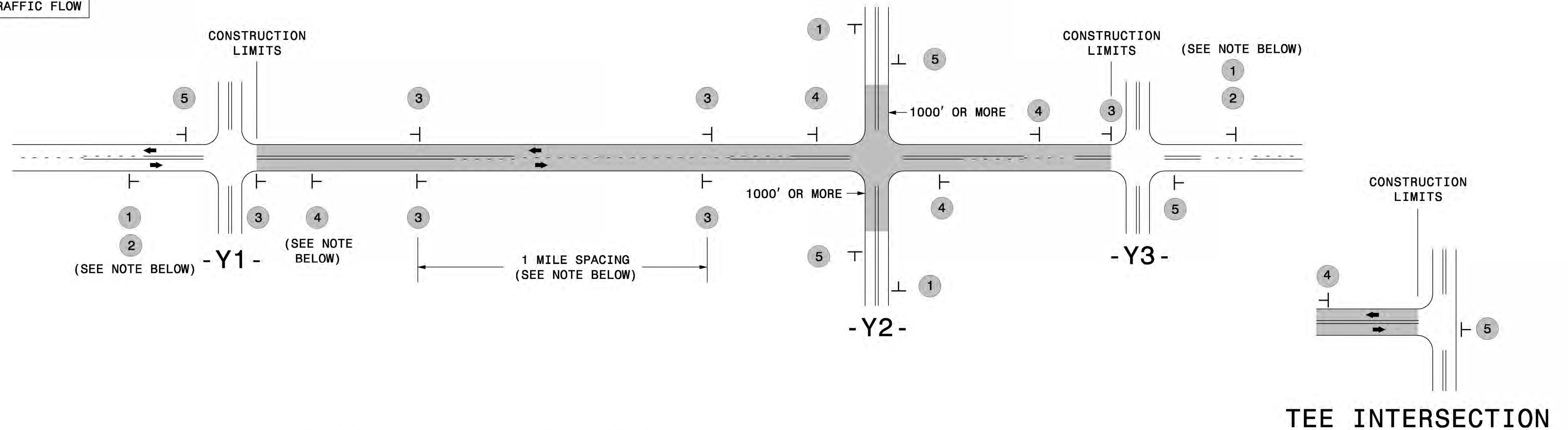
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	BEGIN MP	END MP	4413000000-E	4457000000-N	4709000000-E	4725000000-E			4810000000-E	
												WORK ZONE ADVANCE / GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL (SP)	THERMO PAVEMENT MARKING LINES (24" 90 MILS)	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS), LT ARROW	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS), STR ARROW	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS), STR & RT ARROW	PAINT PAVEMENT MARKING LINES (4") WHITE	PAINT PAVEMENT MARKING LINES (4") YELLOW
												SF	LS	LF	EA	EA	EA	LF	LF
2024CPT.01.15.10581	Martin	1	NC-11 (SECTION 1)	FROM NC 42 (MP 4.25) TO BEGIN C&G (MP 8.26)	1	2	2WU	4.01	32	4.25	8.26	246	1		1	1		42,506	26,504
2024CPT.01.15.10581	Martin	2	NC-11 (SECTION 2)	FROM BEGIN C&G (MP 8.26) TO END C&G (MP 8.99)	2	2	2WU	0.73	40	8.26	8.99	64	*	100	5		5	500	7,900
2024CPT.01.15.10581	Martin	3	NC-11 (SECTION 3)	FROM END C&G (MP) TO NC 903 (MP 12.76)	1	2	2WU	3.77	24	8.99	12.76	380	*	25	2	2		39,811	24,882
TOTAL FOR PROJ NO. 2024CPT.01.15.10581								8.51				690	*	125	8	3	5	82,817	59,286
															16			142,103	
GRAND TOTAL								8.51				690	1	125	8	3	5	82,817	59,286
															16			142,103	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	BEGIN MP	END MP	4835000000-E	4845000000-N			4890000000-E		4905100000-N
												PAINT PAVEMENT MARKING LINES (24")	PAINT PAVEMENT MARKING SYMBOL (LT ARROW)	PAINT PAVEMENT MARKING SYMBOL (STR ARROW)	PAINT PAVEMENT MARKING SYMBOL (STR & RT ARROW)	HOT SPRAY THERMOPLASTIC PAVEMENT MARKING LINES, (6", 55 MILS) WHITE	HOT SPRAY THERMOPLASTIC PAVEMENT MARKING LINES, (6", 55 MILS) YELLOW	NON-CAST IRON SNOWPLOWABLE PAVEMENT MARKERS
												LF	EA	EA	EA	LF	LF	EA
2024CPT.01.15.10581	Martin	1	NC-11 (SECTION 1)	FROM NC 42 (MP 4.25) TO BEGIN C&G (MP 8.26)	1	2	2WU	4.01	32	4.25	8.26		1	1		42,506	26,504	269
2024CPT.01.15.10581	Martin	2	NC-11 (SECTION 2)	FROM BEGIN C&G (MP 8.26) TO END C&G (MP 8.99)	2	2	2WU	0.73	40	8.26	8.99	100	5		5	500	7,900	
2024CPT.01.15.10581	Martin	3	NC-11 (SECTION 3)	FROM END C&G (MP) TO NC 903 (MP 12.76)	1	2	2WU	3.77	24	8.99	12.76	25	2	2		39,811	24,882	253
TOTAL FOR PROJ NO. 2024CPT.01.15.10581								8.51				125	8	3	5	82,817	59,286	522
														16		142,103		
GRAND TOTAL								8.51				125	8	3	5	82,817	59,286	522
														16		142,103		

SIGNING FOR RESURFACING PROJECTS

LEGEND
 ┆ STATIONARY SIGN
 ← DIRECTION OF TRAFFIC FLOW



MAINLINE (-L-) SIGNING

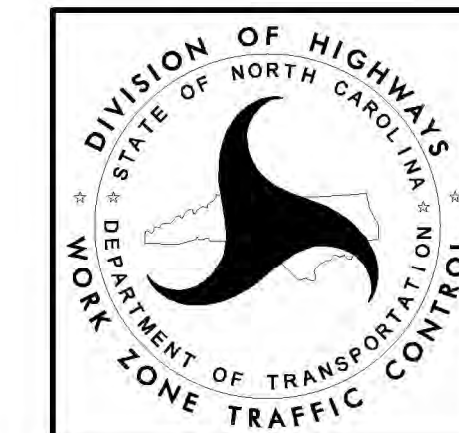
-Y- LINE SIGNING

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"> LESS THAN 1000' OF RESURFACING ALONG -Y- LINE SUBDIVISION ROADS DEAD END ROADS <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