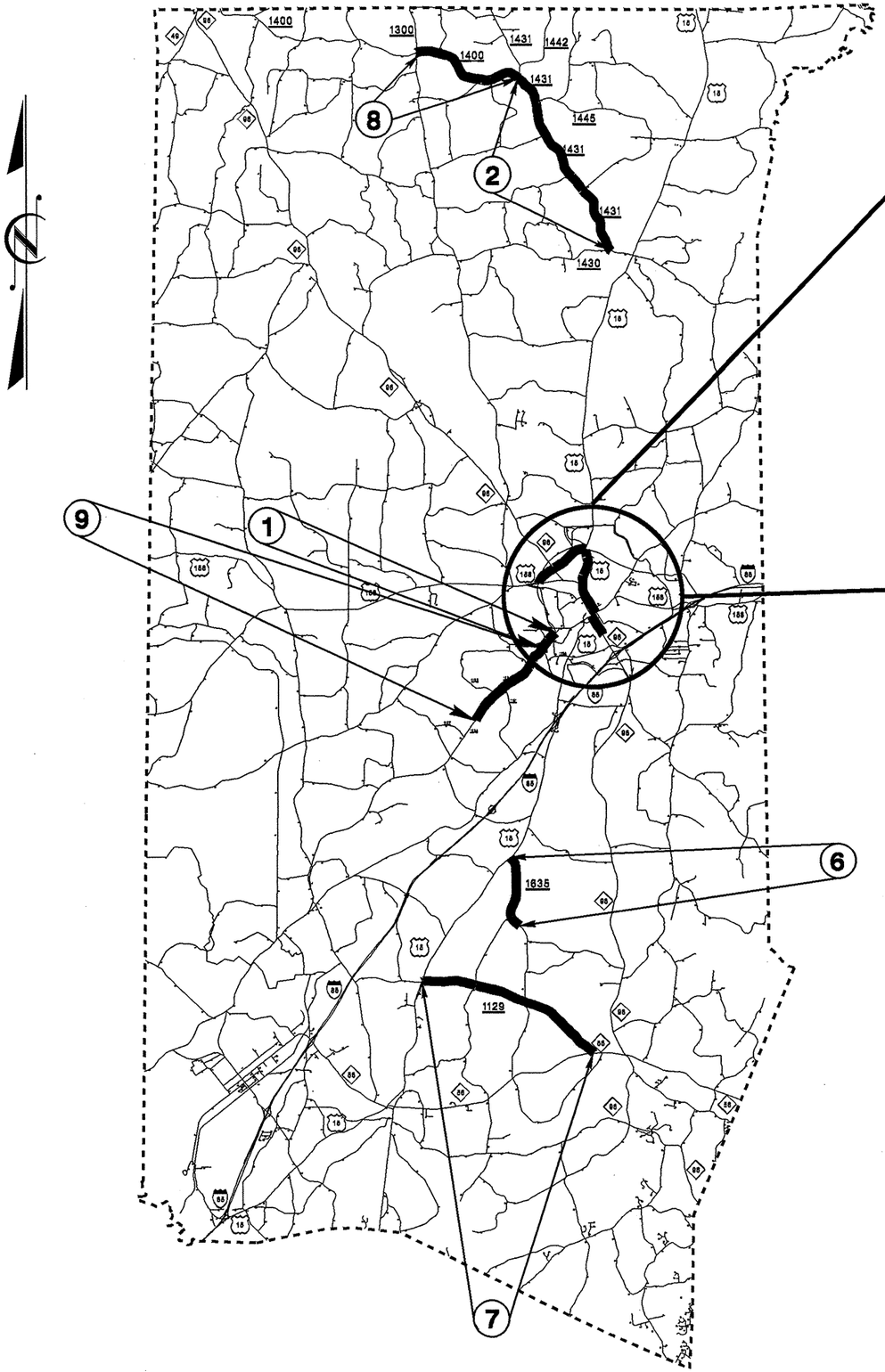
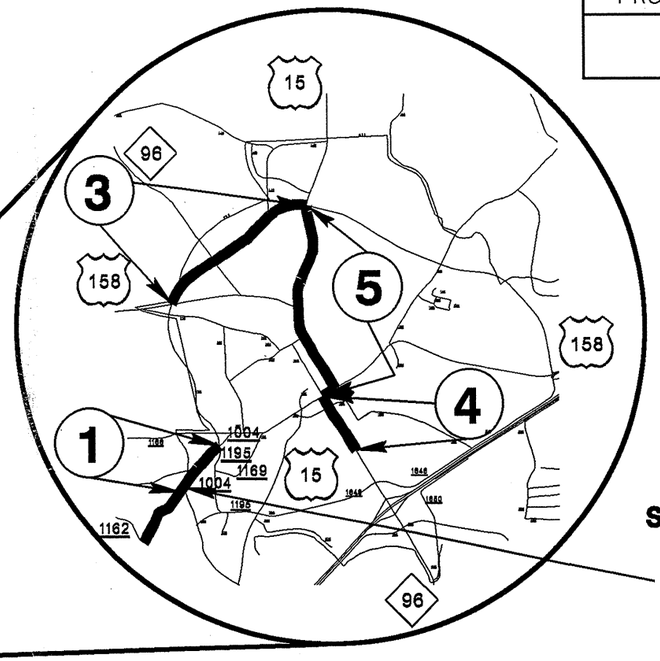
PROJECT REFERENCE NO.	SHEET NO.
39878, 5C.039047, 5CRJ0391J0, 5CR.2039IJ0	1





SHOULDER RECONSTRUCTION AT THIS LOCATION MAY REQUIRE NPDES INSPECTION AND MONITORING

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 2011 GRANVILLE COUNTY RESURFACING

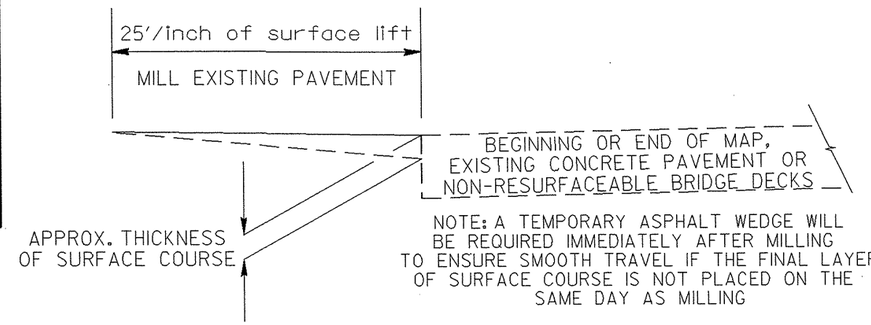
PROJECT REFERENCE NO.	SHEET NO.
39878,5C0.39047, 5CR.10.39110, 5CR.20.39110	2

PAVEMENT SCHEDULE

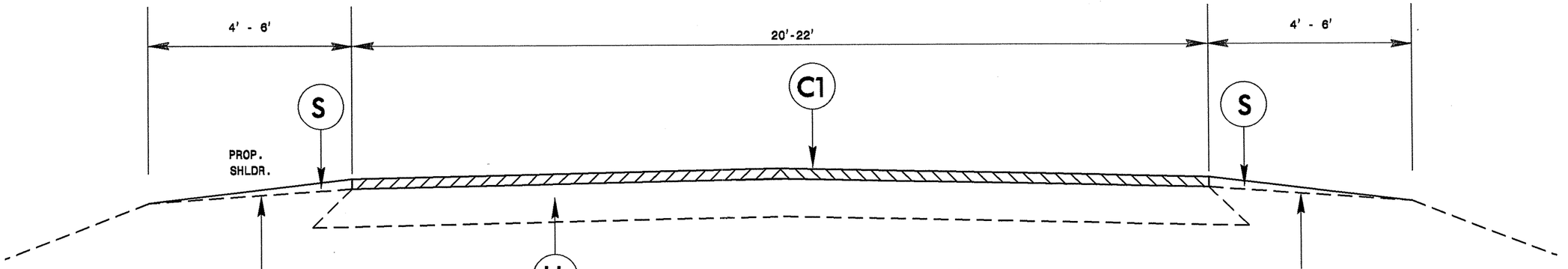
C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	S	SHOULDER RECONSTRUCTION
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D1	3" ASPHALT CONCRETE INTEMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	V1	PROP 7" MILLING
D2	2 1/2" ASPHALT CONCRETE INTEMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	V2	PROP 0" - 1½" MILLING, AS DIRECTED BY THE ENGINEER
E	5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	V3	PROP 2 ½" MILLING, AS DIRECTED BY THE ENGINEER
J	PROPOSED 6" AGGREGATE BASE COURSE		

NOTES

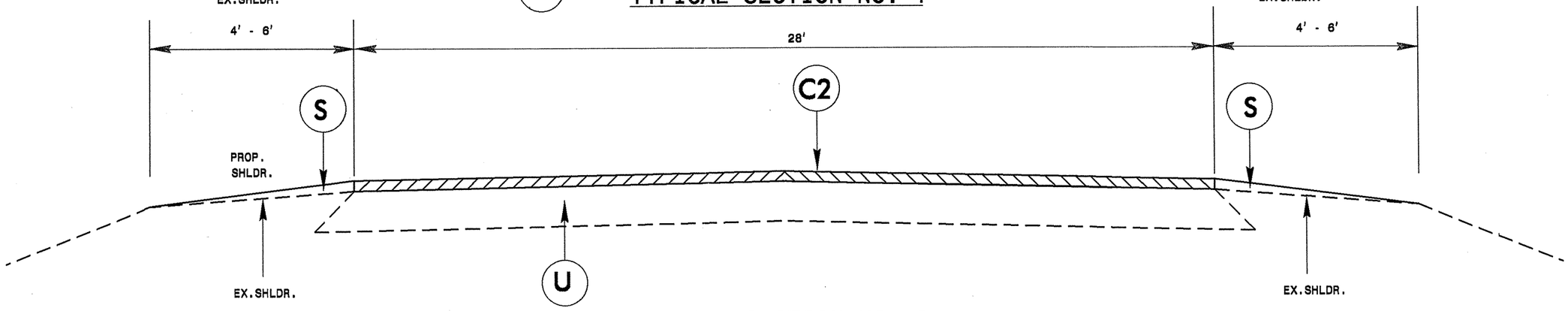
ALL UNPAVED S.R. ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT
ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADII, OR AS DIRECTED BY THE ENGINEER.
EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.



DETAIL FOR INCIDENTAL MILLING



TYPICAL SECTION NO. 1

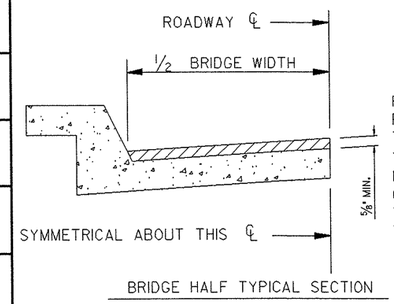


TYPICAL SECTION NO. 2

PROJECT REFERENCE NO.	SHEET NO.
39878, 5C039047, 5CRJ039IJ0, 5CR2039IJ0	3

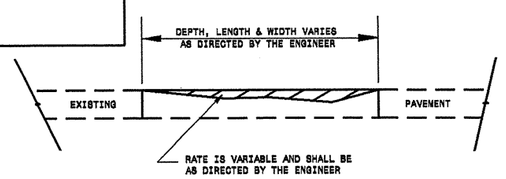
PAVEMENT SCHEDULE

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	S	SHOULDER RECONSTRUCTION
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D1	3" ASPHALT CONCRETE INTEMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	V1	PROP 7" MILLING
D2	2 1/2" ASPHALT CONCRETE INTEMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	V2	PROP 0" - 1½" MILLING, AS DIRECTED BY THE ENGINEER
E	5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	V3	PROP 2 ½" MILLING, AS DIRECTED BY THE ENGINEER
J	PROPOSED 5" AGGREGATE BASE COURSE		

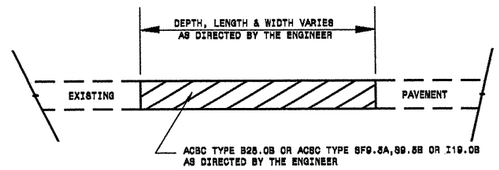


BRIDGE HALF TYPICAL SECTION

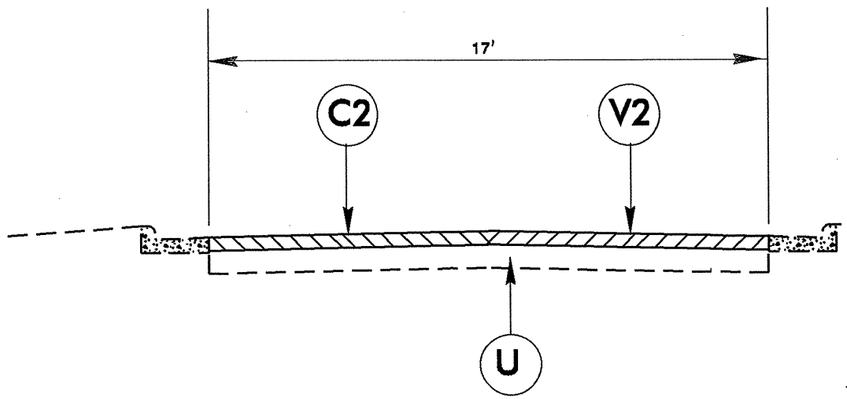
FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN. THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN 5/8" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1 ½" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.



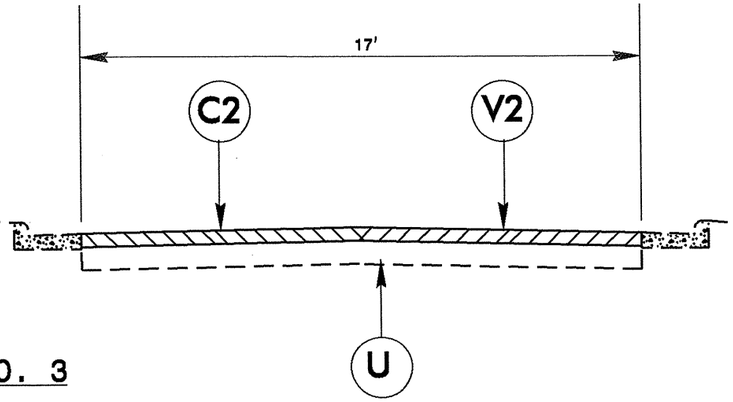
ASPHALT CONCRETE SURFACE COURSE (LEVELING COURSE)

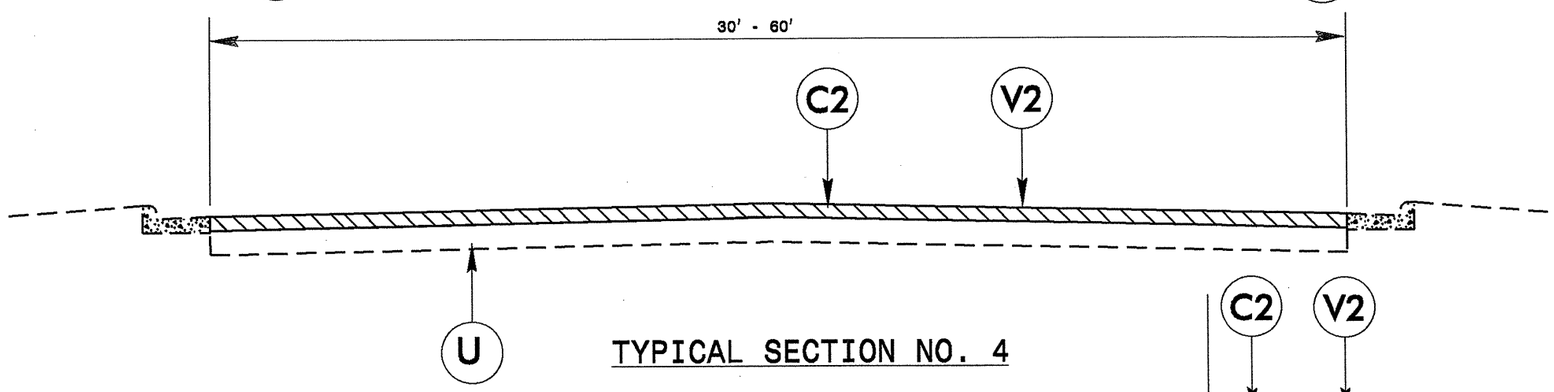


PATCHING EXISTING PAVEMENT



TYPICAL SECTION NO. 3



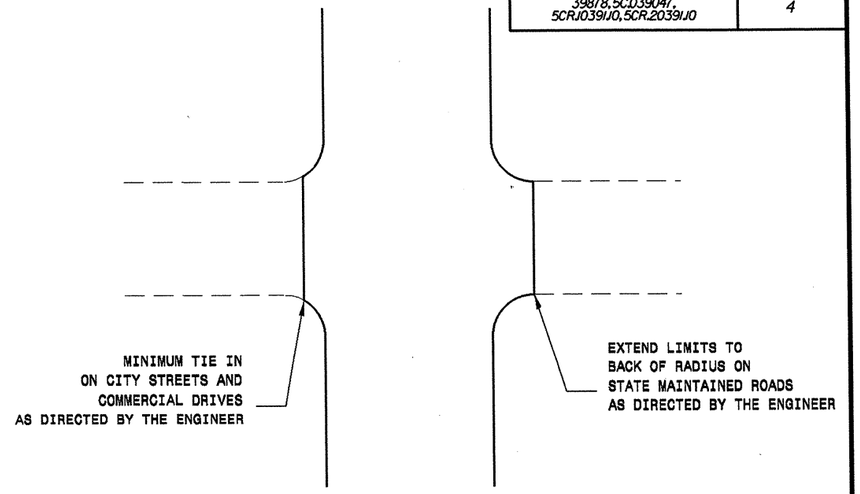


TYPICAL SECTION NO. 4

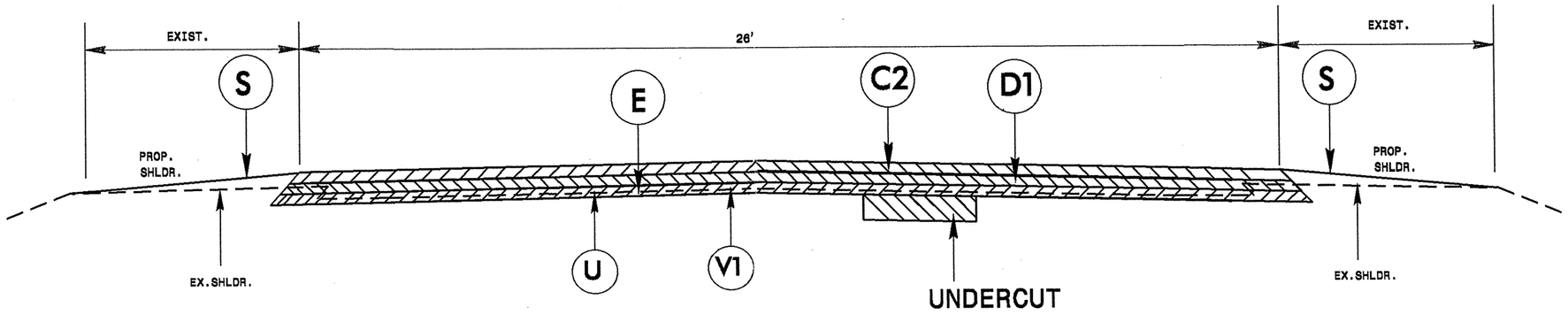
PROJECT REFERENCE NO.	SHEET NO.
39878,5C039047, 5CRJ039J0,5CR.2039J0	4

PAVEMENT SCHEDULE

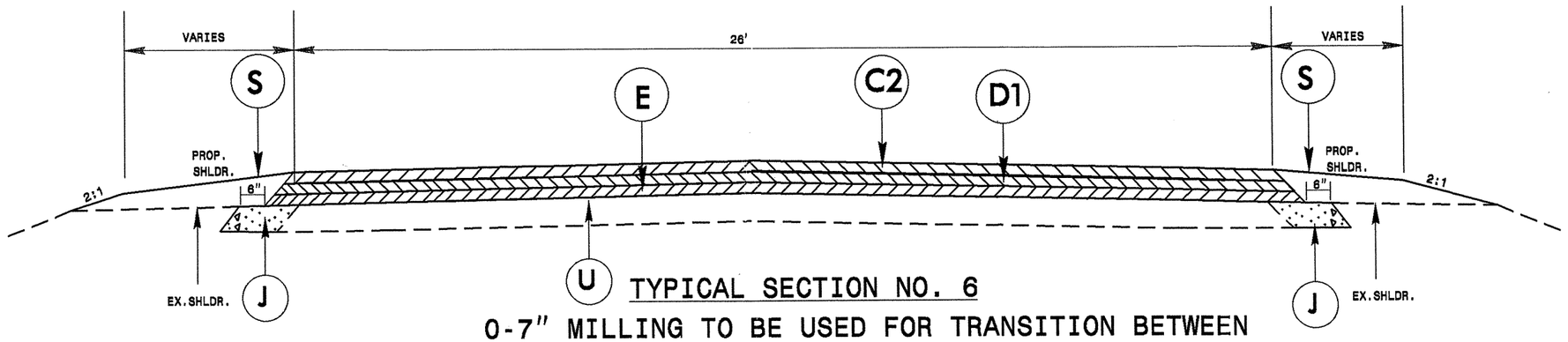
C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	S	SHOULDER RECONSTRUCTION
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D1	3" ASPHALT CONCRETE INTEMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	V1	PROP 7" MILLING
D2	2 1/2" ASPHALT CONCRETE INTEMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	V2	PROP 0" - 1½" MILLING, AS DIRECTED BY THE ENGINEER
E	5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	V3	PROP 2 ½" MILLING, AS DIRECTED BY THE ENGINEER
J	PROPOSED 5" AGGREGATE BASE COURSE		



DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES



TYPICAL SECTION NO. 5
UNDERCUT AND B25.0B AS DIRECTED BY THE ENGINEER

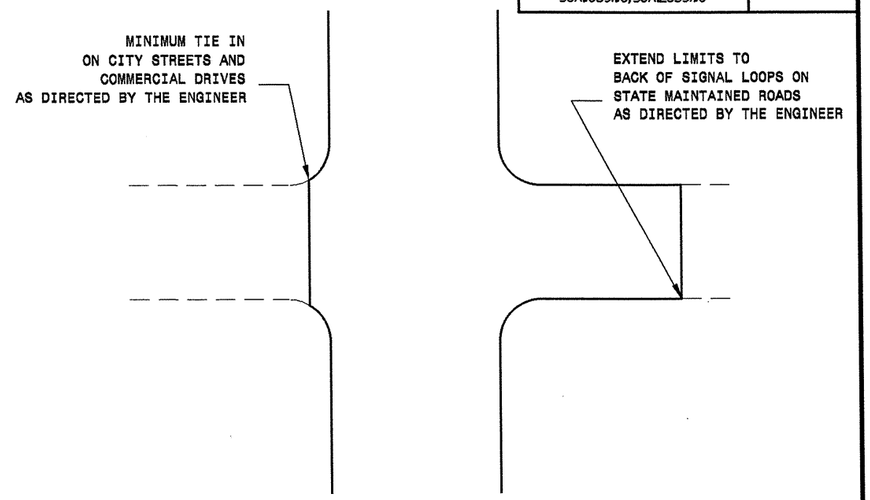


TYPICAL SECTION NO. 6
0-7" MILLING TO BE USED FOR TRANSITION BETWEEN TYPICAL 5 AND 6 AND BETWEEN TYPICAL 6 AND TYPICAL 7

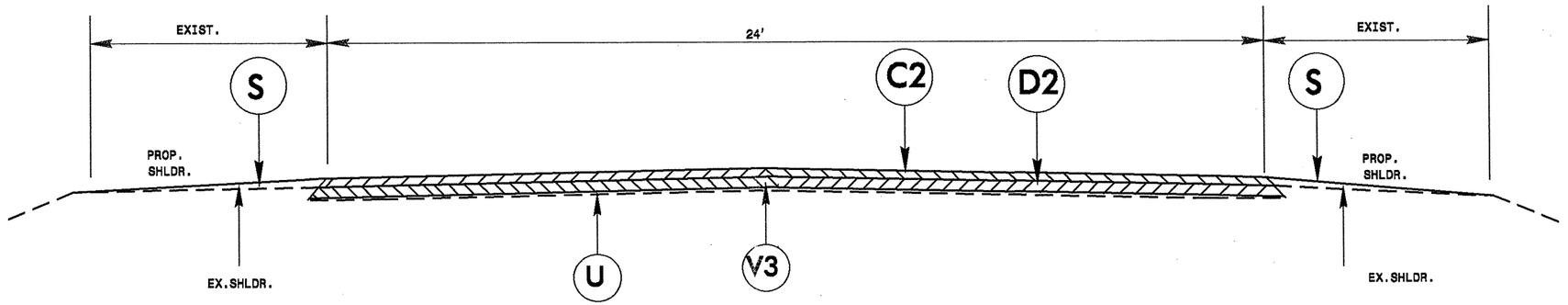
PROJECT REFERENCE NO.	SHEET NO.
39878,5C.039047, 5CRJ039110,5CR.20391.10	5

PAVEMENT SCHEDULE

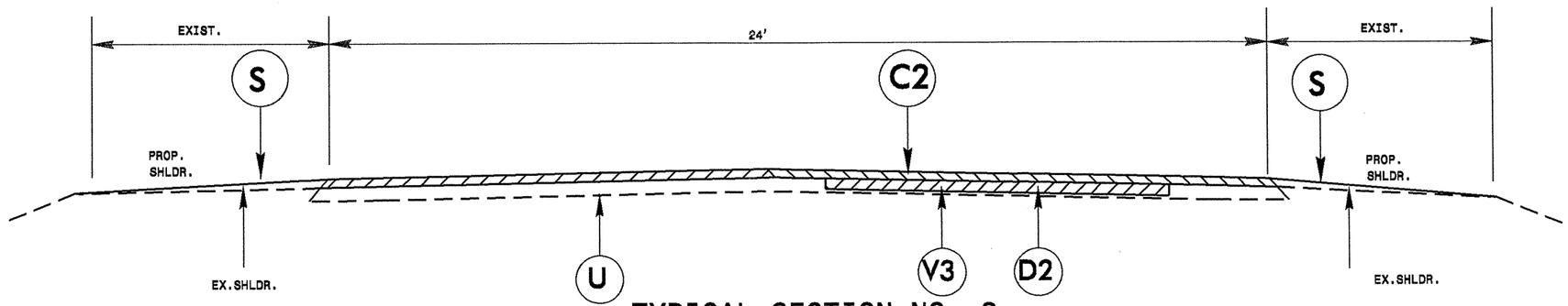
C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	S	SHOULDER RECONSTRUCTION
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D1	3" ASPHALT CONCRETE INTEMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	V1	PROP 7" MILLING
D2	2 1/2" ASPHALT CONCRETE INTEMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	V2	PROP 0" - 1½" MILLING, AS DIRECTED BY THE ENGINEER
E	5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	V3	PROP 2 ½" MILLING, AS DIRECTED BY THE ENGINEER
J	PROPOSED 5" AGGREGATE BASE COURSE		



DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES



TYPICAL SECTION NO. 7



TYPICAL SECTION NO. 8

1½" MILLING TO BE USED AT BRIDGE AS DIRECTED BY THE ENGINEER

PROJECT NO.	SHEET NO.	TOTAL NO.
39878, 5C.039047 5CR.10391.10, ETC.	6	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT ALLOWED	LENGTH MI	WIDTH FT	AGGREGATE SHOULDER BORROW TON	UNDERCUT EXCAVATION CY	BORROW CY	AGGREGATE BASE COURSE TONS	INCIDENTAL STONE BASE TONS	SHOULDER RECON-STRUCTION SMI	7" MILLING SY	2 1/2" MILLING SY	1½" MILLING SY	0" TO 7" MILLING SY	0" TO 1 1/2" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	INTER-MEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	LEVELING COURSE, TYPE S9.5B TON	SURFACE COURSE, SF9.5A TON	LEVELING COURSE, TYPE SF9.5A TONS	PG 64-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	TEMP SILT FENCE LF	SEED & MULCHING AC	INDUCTIVE LOOP LF	LEAD-IN CABLE (14-2) LF
39878	Granville	1	SR 1004 (OLD OXFORD ROAD)	FROM JOINT JUST WEST OF SR 1195 TO APPROX 300' EAST OF EXISTING CROSSLINE AT FISHING CREEK	5	NO	YES	0.5	26	80	118	150		40	1.00	7,627						2,676	1,356	657					218				400	0.95	216	
		"	"	FROM APPROX 300' NORTH OF EXISTING CROSSLINE AT FISHING CREEK TO APPROX 300' WEST OF CROSSLINE	6	NO	YES	0.1	26	100		100	76	40	0.20					867			492	271	131					42				600	0.15		
TOTAL FOR MAP NO. 1								0.6		180	118	250	76	80	1.20	7,627				867		3,168	1,627	788					260				1,000	1.10	216	
TOTAL FOR PROJ NO. 39878								0.6		180	118	250	76	80	1.20	7,627				867		3,168	1,627	788					260				1,000	1.10	216	
5C.039047	Granville	2	SR 1431 (GRASSY CREEK ROAD)	FROM SR 1430 TO SR 1400	1	NO	YES	5.3	22	200		1,000		318	10.60						420					6,243	620	443	500			800	7.69		
TOTAL FOR MAP NO. 2								5.3		200		1,000		318	10.60						420					6,243	620	443	500			800	7.69		
TOTAL FOR PROJ NO. 5C.039047								5.3		200		1,000		318	10.60						420					6,243	620	443	500			800	7.69		
5CR.10391.10	Granville	3	US 158 BYP (OXFORD LOOP)	FROM US 15 (COLLEGE ST) TO US 158 BUS (ROXBORO RD) (EXCLUDE DEVELOPER WIDENED SECTIONS)	2	NO	YES	1.4	28			625		168	3.20						600			2,155	425				157	680				3.22		
TOTAL FOR MAP NO. 3								1.4				625		168	3.20						600			2,155	425				157	680				3.22		
		4	NC 96 (LINDEN AVE)	FROM 3RD STREET TO W FRONT ST	3	NO	YES	0.2	34											4,800				432					26	50	1	1				
		"	"	FROM W FRONT STREET TO US 15 (HILLSBORO ST)	4	NO	YES	0.4	36											9,648				853					51	350	4	3			1,585	
TOTAL FOR MAP NO. 4								0.6												14,648				1,285					77	400	5	4			1,585	
		5	US 15 (HILLSBORO AND COLLEGE STREET)	FROM NC 96 (LINDEN AVE) TO US158 BYP (OXFORD LOOP ROAD)	4	NO	YES	1.95	50			120			0.30					57,200				5,058					303	380	10	5			2,880	100
TOTAL FOR MAP NO. 5								1.95				120			0.30					57,200				5,058					303	380	10	5			2,880	100
TOTAL FOR PROJ NO. 5CR.10391.10								3.95				745		168	3.50					71,848	600			8,498	425				537	1,460	15	9		3.22	4,465	100
5CR.20391.10	Granville	6	SR 1635 (TAR RIVER ROAD)	FROM US 15 TO PAVEMENT JOINT 0.3 MI PAST SR 1638 (MOSS ROAD)	1	NO	YES	2	20	200				120	4.00						200					2,046		133	150			600	2.90		
TOTAL FOR MAP NO. 6								2		200				120	4.00						200					2,046		133	150			600	2.90		
		7	SR 1129 (STEM ROAD)	FROM US 15 TO NC 56	1	NO	YES	5.1	20	80		1,000		306	10.20						320					5,464		355	350				7.40		
TOTAL FOR MAP NO. 7								5.1		80		1,000		306	10.20						320					5,464		355	350				7.40		
		8	SR 1400 (GRASSY CREEK ROAD)	FROM 1300 (CORNWALL ROAD) TO SR 1431 (GRASSY CREEK ROAD)	1	NO	YES	3.2	22	200		625		192	6.40						350					3,427	425	248	450			800	4.64		
TOTAL FOR MAP NO. 8								3.2		200		625		192	6.40						350					3,427	425	248	450			800	4.64		
		9	SR 1004 (OLD OXFORD ROAD)	FROM END OF MAP 1 TO JOINT AT BRIDGE 72 OVER HACHERS RUN	7	NO	YES	0.4	24			78		24	0.80		5,632						810	490					67					0.58		
		"	"	FROM JOINT AT BRIDGE 72 TO OLIVE GROVE BAPTIST CHURCH	8	NO	YES	2.2	24	200		430		132	4.40		9,293	1,400			267		1,324	2,694	200				237	175			800	3.19		
TOTAL FOR MAP NO. 9								2.6		200		508		156	5.20		14,925	1,400			267		2,134	3,184	200				304	175			800	3.77		
TOTAL FOR PROJ NO. 5CR.20391.10								12.9		680		2,133		774	25.80		14,925	1,400			1,137		2,134	3,184	200	10,937	425	1,040	1,125				2,200	18.71		
GRAND TOTAL								22.75		1,060	118	4,128	76	1,340	41.10	7,627	14,925	1,400	867	71,848	2,157	3,168	3,761	12,470	625	17,180	1,045	2,280	3,085	15	9	4,000	30.72	4,681	100

THERMOPLASTIC AND PAINT QUANTITIES

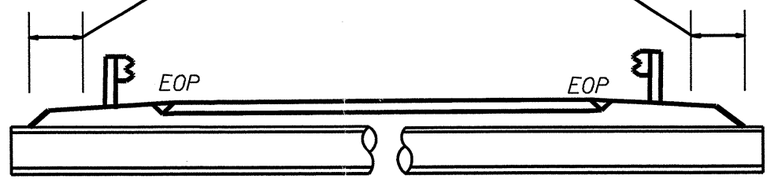
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E 4" X 90 M WHITE THERMO LF	4688000000-E 4" X 120 M YELLOW THERMO LF	4688000000-E 4" X 120 M WHITE THERMO LF	4697000000-E 8" X 120 M WHITE THERMO LF	4702000000-E 12" X 120 M WHITE THERMO LF	4705000000-E 16" X 120 M WHITE THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4721000000-E THERMO MSG ONLY 120 M EA	4721000000-E THERMO MSG SCHOOL 120 M EA	4721000000-E THERMO RXR 120 M EA	4725000000-E THERMO STR & RT ARROW 90 M EA	4725000000-E THERMO LT ARROW 90 M EA	4725000000-E THERMO RT ARROW 90 M EA	4725000000-E THERMO STR ARROW 90 M EA	4725000000-E THERMO STR & LT ARROW 90 M EA	4725000000-E THERMO YIELD TRIANGLE 90M EA	4810000000-E 4" WHITE PAINT LF	4810000000-E 4" YELLOW PAINT LF	4820000000-E 8" WHITE PAINT LF	4830000000-E 16" WHITE PAINT LF	4835000000-E 24" WHITE PAINT LF	4840000000-N PAINT MSG SCHOOL EA	4840000000-N PAINT MSG RXR EA	4840000000-N PAINT MSG ONLY EA	4845000000-N PAINT LT ARROW EA	4845000000-N PAINT STR & RT ARROW EA	4845000000-N PAINT STR ARROW EA	4845000000-N PAINT RT ARROW EA	4845000000-N PAINT STR & LT ARROW EA	4845000000-N PAINT YIELD TRIANGLE EA	4900000000-N CRYSTAL & RED MARKERS EA	4900000000-N YELLOW & YELLOW MARKERS EA	4905000000-N SNOW PLOWABLE MARKERS EA
39878	Granville	1	SR 1004 (OLD OXFORD ROAD)	FROM JOINT JUST WEST OF SR 1195 TO APPROX 300' EAST OF EXISTING CROSSLINE AT FISHING CREEK	5,380	5,280	50								1	1					10,860	10,560							2	2				5	35	
		"	"	FROM APPROX 300' NORTH OF EXISTING CROSSLINE AT FISHING CREEK TO APPROX 300' WEST OF CROSSLINE	1,056	1,056															2,112	2,112													10	
TOTAL FOR MAP NO. 1					6,436	6,336	50								1	1					12,972	12,672							2	2				5	45	
TOTAL FOR PROJ NO. 39878					6,436	6,336	50								1	1					12,972	12,672							2	2				5	45	
						6,386										2						25,644								4				50	
5C.039047	Granville	2	SR 1431 (GRASSY CREEK ROAD)	FROM SR 1430 TO SR 1400	57,028	34,980																													
TOTAL FOR MAP NO. 2					57,028	34,980																													
TOTAL FOR PROJ NO. 5C.039047					57,028	34,980																													
						34,980																													
5CR.10391.10	Granville	3	US 158 BYP (OXFORD LOOP)	FROM US 15 (COLLEGE ST) TO US 158 BUS (ROXBORO RD) (EXCLUDE DEVELOPER WIDENED SECTIONS)	15,064	11,088	500				360				10	15																			125	
TOTAL FOR MAP NO. 3					15,064	11,088	500				360				10	15																			125	
		4	NC 96 (LINDEN AVE)	FROM 3RD STREET TO W FRONT ST																																	
		"	"	FROM W FRONT STREET TO US 15 (HILLSBORO ST)		4,225	525	1,160				250				9	8	1	1			525	4,225	1,160		250				8	9	1	1			25	30	
TOTAL FOR MAP NO. 4						4,225	525	1,160			250				9	8	1	1			525	4,225	1,160		250				8	9	1	1			25	30	
		5	US 15 (HILLSBORO AND COLLEGE STREET)	FROM NC 96 (LINDEN AVE) TO US158 BYP (OXFORD LOOP ROAD)	8,880	21,693	1,000	1,370	400	300	725	4	30	8	19	53	11	10	5	5	9,880	21,693	1,370	200	725	30	8	4	53	19	10	11	5	5	60	215	
TOTAL FOR MAP NO. 5					8,880	21,693	1,000	1,370	400	300	725	4	30	8	19	53	11	10	5	5	9,880	21,693	1,370	200	725	30	8	4	53	19	10	11	5	5	60	215	
TOTAL FOR PROJ NO. 5CR.10391.10					23,944	37,006	2,025	2,530	400	300	1,335	4	30	8	38	76	12	11	5	5	10,405	25,918	2,530	200	975	30	8	4	61	28	11	12	5	5	85	245	125
						39,031							42			147						36,323					42			122				330		
5CR.20391.10	Granville	6	SR 1635 (TAR RIVER ROAD)	FROM US 15 TO PAVEMENT JOINT 0.3 MI PAST SR 1638 (MOSS ROAD)	21,520	21,120																													
TOTAL FOR MAP NO. 6					21,520	21,120																													
		7	SR 1129 (STEM ROAD)	FROM US 15 TO NC 56	54,876	53,856																													
TOTAL FOR MAP NO. 7					54,876	53,856																													
		8	SR 1400 (GRASSY CREEK ROAD)	FROM 1300 (CORNWALL ROAD) TO SR 1431 (GRASSY CREEK ROAD)	34,432	33,792																													
TOTAL FOR MAP NO. 8					34,432	33,792																													
		9	SR 1004 (OLD OXFORD ROAD)	FROM END OF MAP 1 TO JOINT AT BRIDGE 72 OVER HACHERS RUN	4,304	3,168															4,304	3,168															
		"	"	FROM JOINT AT BRIDGE 72 TO OLIVE GROVE BAPTIST CHURCH	23,672	17,424				50	25			2																							
TOTAL FOR MAP NO. 9					27,976	20,592				50	25			2							4,304	3,168														
TOTAL FOR PROJ NO. 5CR.20391.10					139,804	129,360				50	25			2							4,304	3,168														
						129,360							2									7,472														
GRAND TOTAL					226,212	207,682	2,075	2,530	400	350	1,360	4	30	10	39	77	12	11	5	5	27,681	41,758	2,530	200	975	30	8	4	63	30	11	12	5	5	90	290	125
						209,757							44			149						69,439					42			126				380		

NOTES: Less than 5' – 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle, Silt Fence, or Hardened Aggregate.

EROSION CONTROL DETAIL

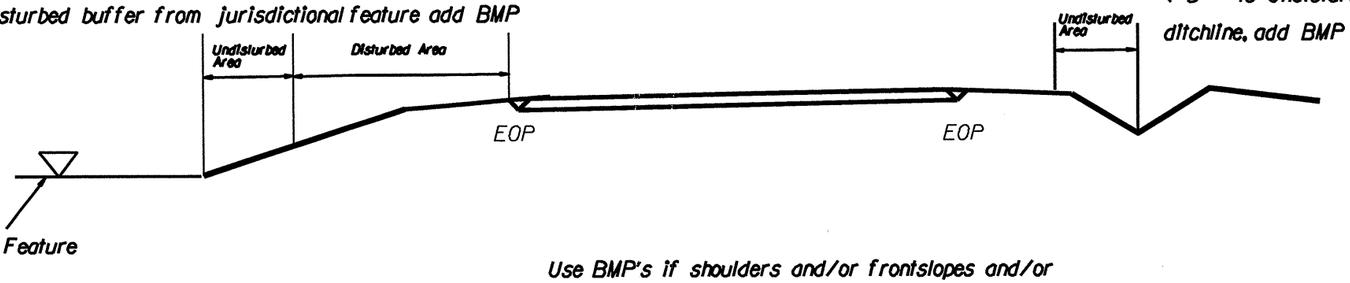
< 5' – 10' Undisturbed buffer add BMP



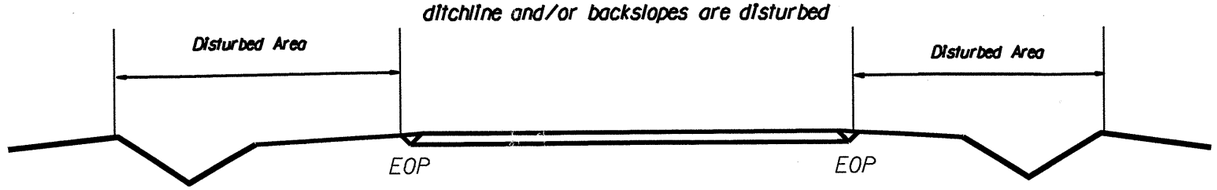
Pipe/Culvert

< 5' – 10' Undisturbed buffer from jurisdictional feature add BMP

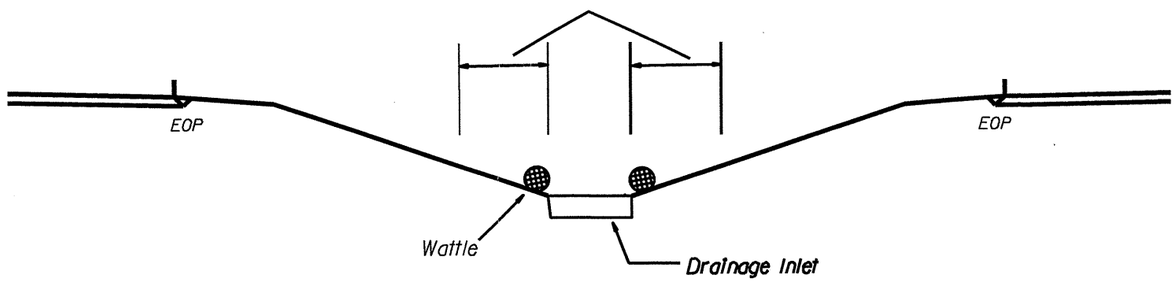
< 5' – 10' Undisturbed buffer from ditchline, add BMP



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed



< 5' – 10' Undisturbed buffer from inlet, add wattle

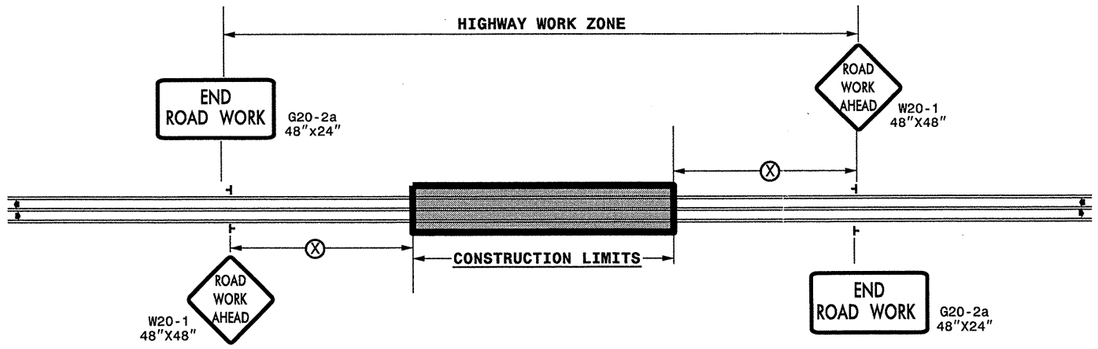


NOT TO SCALE

WBS ELEMENTS: 39878, 5C.039047,
5CR.10391.10, AND 5CR.20391.10

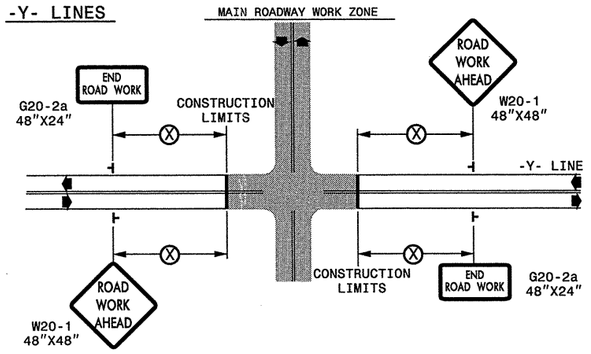
PROJ. REFERENCE NO.	SHEET NO.
SEE TO THE LEFT	TCP-1

TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING (X)
≤ 50	500'
≥ 55	1000'

ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

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

DETAIL DRAWING FOR TWO-WAY UNDIVIDED WORK ZONE WARNING SIGNS

SHEET 1 OF 1

APPROVED:_____ DATE:_____

SEAL

DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS

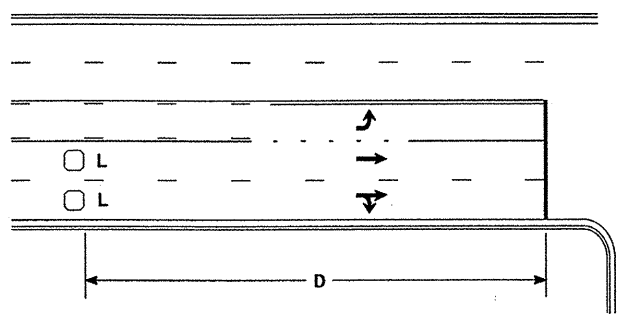
SCALE:	NONE
DATE:	
DWG. BY:	
DESIGN BY:	
REVIEWED BY:	

REVISIONS	
7-98	10/01
10-98	03/04
01/01	11/04
CADD FILE	

PROJECT REFERENCE NO.	SHEET NO.
SEE BELOW	SIG 1

39878, 5C.039047, 5CR.10391.10, AND 5CR.20391.10

High Speed Detection
[≥40 mph (64 km/hr)]

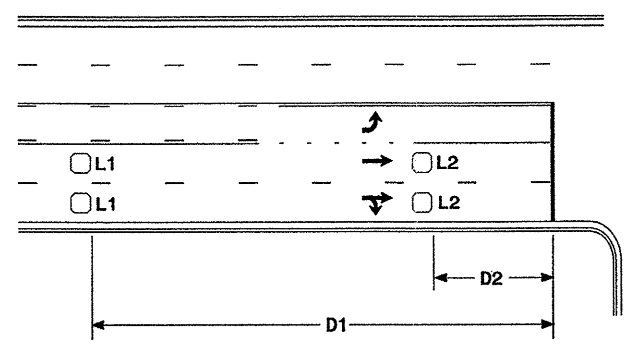


Speed Limit mph (km/hr)	D ft	(m)
40 (64)	250	(75)
45 (72)	300	(90)
50 (80)	355	(110)
55 (88)	420	(130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1 Controllers
Wired separately for TS2, 170, and 2070L Controllers

Volume Density Operation

OR



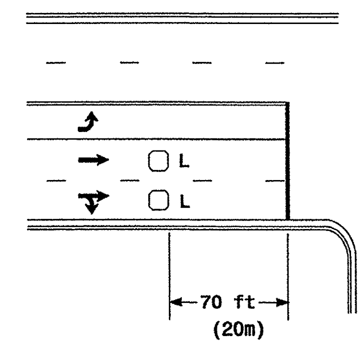
Speed Limit mph (km/hr)	D1 ft	(m)	D2 ft	(m)
40 (64)	250	(75)	80	(25)
45 (72)	300	(90)	90	(27)
50 (80)	355	(110)	100	(30)
55 (88)	420	(130)	110	(35)

L1 = 6ft X 6ft (1.8m X 1.8m) Wired in series

L2 = 6ft X 6ft (1.8m X 1.8m) Wired in series

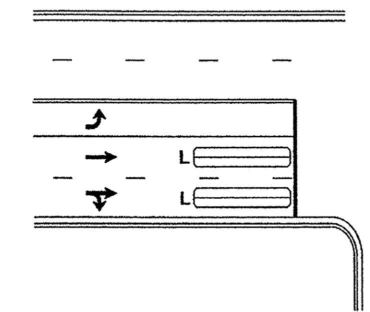
"Stretch" Operation

Low Speed Detection
[≤35 mph (56 km/hr)]



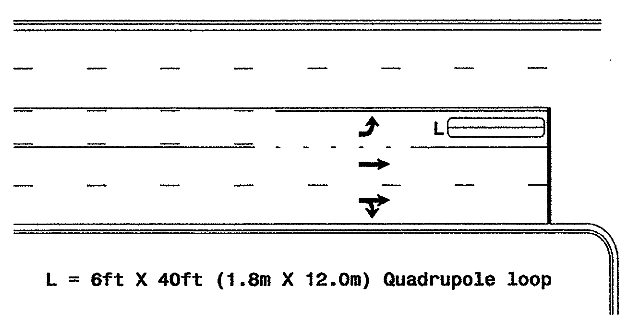
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

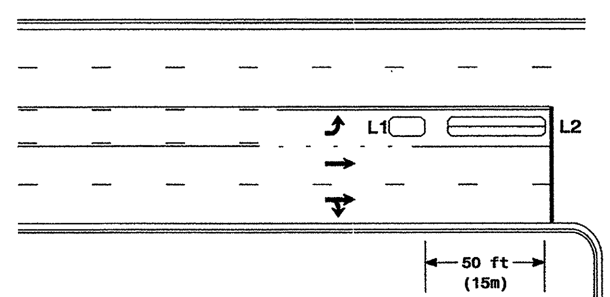
Left Turn Lane Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

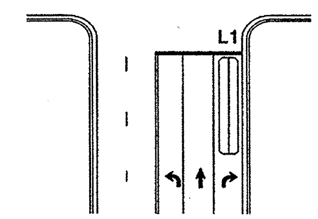
OR



L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

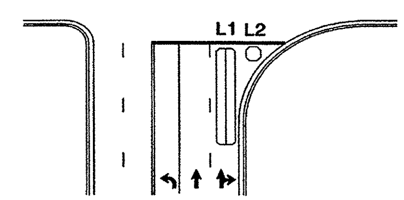
Queue Loop Detection

Right Turn Lane Detection

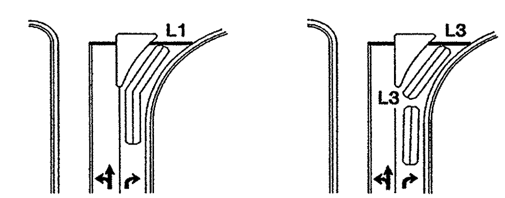


Standard Turn

L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

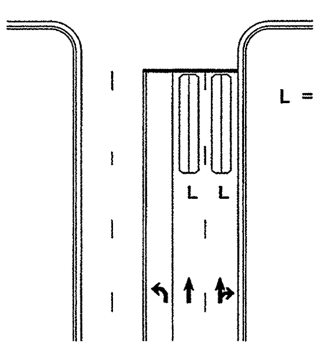


Wide Radius Turn



Channelized Turn

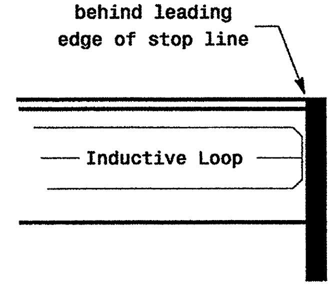
Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
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 when stop line is greater than 15' (4.5m) from edge of intersecting roadway; or, when loop detects a permissive or protected/permissive left turn.

Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m) loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns

Prepared in the Offices of: Traffic Engineering and Safety Systems Branch, State of North Carolina Department of Transportation, Signals and Geometrics Section
122 N. McDowell St., Raleigh, NC 27603

Typical Loop Locations

PLAN DATE: June 2006	REVIEWED BY:
PREPARED BY: P L Alexander	REVIEWED BY:

SCALE N/A

REVISIONS	INIT.	DATE
Revise pavement markings	aa	12/19/06

SEAL
North Carolina Professional Seal 23480 Engineer Pamela A. Alexander
SIGNATURE DATE 6/6/06
SIG. INVENTORY NO.

19-DEC-2006 14:29
s:*its signals*lib turn in*misc*looptypical2006.dgn
palexander

PROJECT REFERENCE NO.	SHEET NO.
	Sig. 2

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

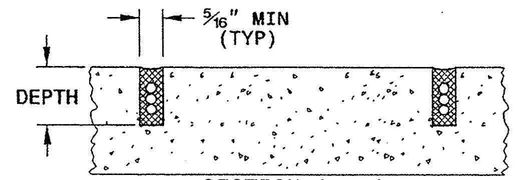
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

CONVENTIONAL 4-SIDED LOOP

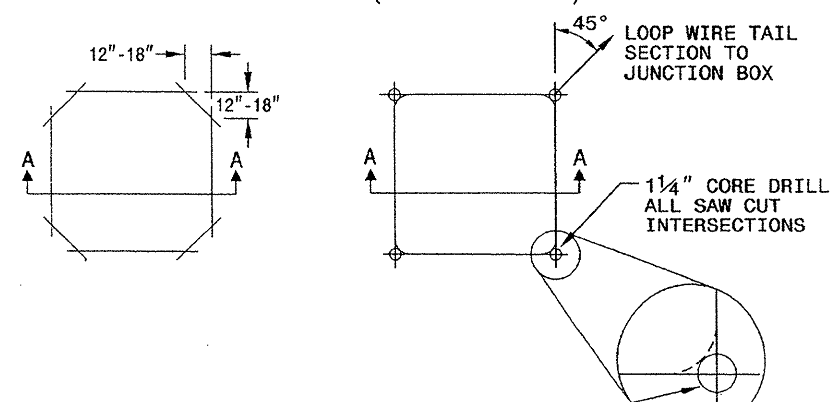
SAW SLOT DEPTH CHART

DEPTH (IN)	NO. OF WIRE TURNS				
	2	3	4	5	6
CONCRETE	2.0	2.0	2.5	2.5	3.0
ASPHALT	2.0	2.5	3.0	3.0	3.0

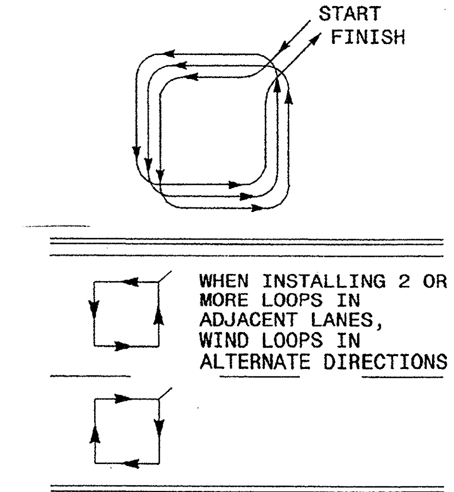


SECTION A - A

SAW CUT OPTIONS



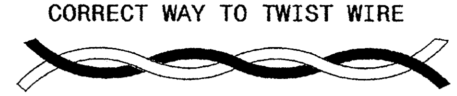
LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE

CORRECT WAY TO TWIST WIRE

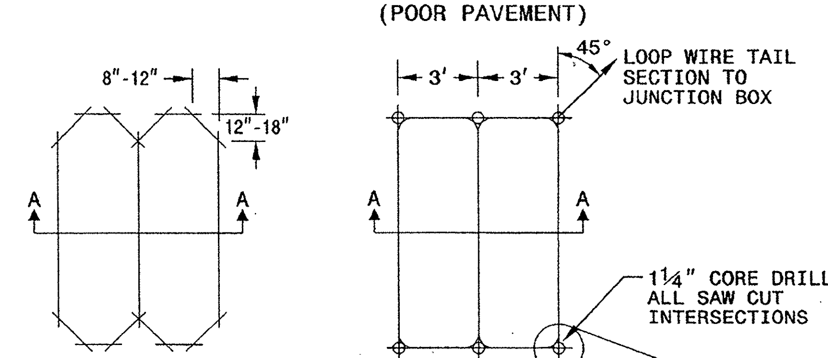


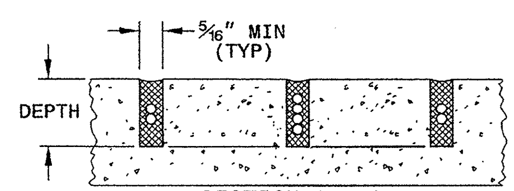
NOTES

1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

QUADRUPOLE LOOP

SAW CUT OPTIONS

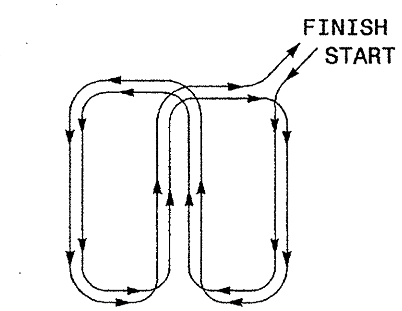




SECTION A - A

DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



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

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

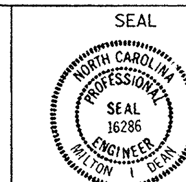
SHEET 1 OF 3
1725D01

SHEET 1 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:
Intelligent Transportation Systems & Signals Unit
750 N. Greenfield Parkway
Garner, NC 27529

SEAL



SIGNATURE 11/24/08 DATE

PROJECT REFERENCE NO.	SHEET NO.
	Sig.3

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

11-08

ENGLISH DETAIL DRAWING FOR

INDUCTIVE DETECTION LOOPS

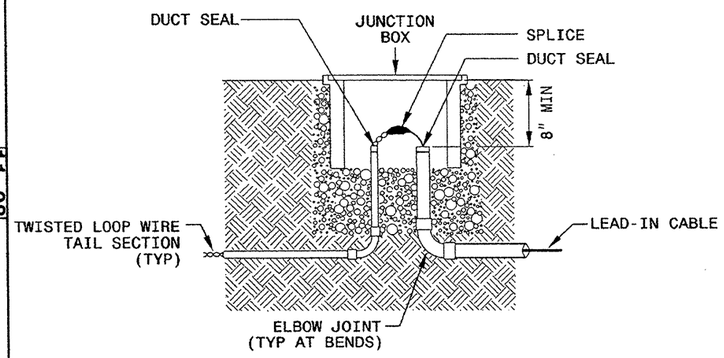
LOOP WIRE DETAILS

SHEET 2 OF 3

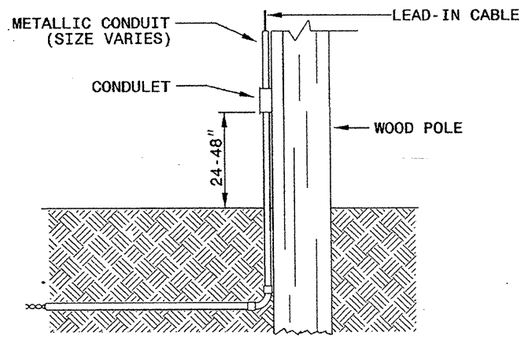
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

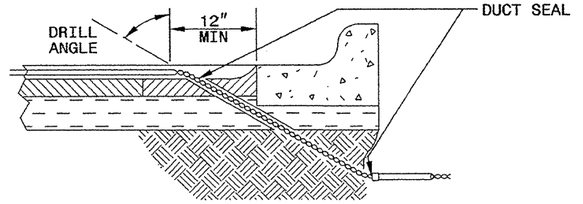


NOTE

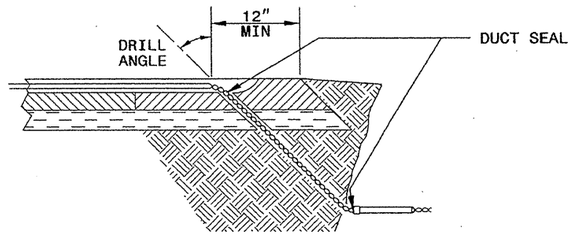
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

1. DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
2. TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
3. BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT AND AT ENTRANCE OF CONDUIT TO JUNCTION BOX.

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

11-08

ENGLISH DETAIL DRAWING FOR

INDUCTIVE DETECTION LOOPS

LOOP WIRE DETAILS

SHEET 2 OF 3

1725D01

24-NOV-2008 09:29
d:\work files\0-standard plate sheets\1725d02_nov2307.dgn
zmiller

See Plate for Title

Prepared in the Offices of:

Intelligent Transportation Systems & Signals Unit
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16286 ENGINEER MILTON I. DEAN

11/24/08
SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
	Sig.4

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

11-08

ENGLISH DETAIL DRAWING FOR

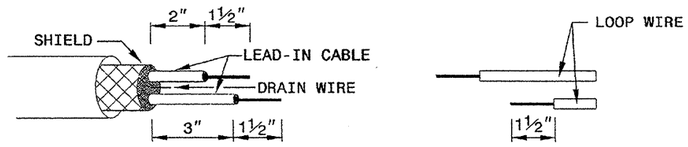
INDUCTIVE DETECTION LOOPS

SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

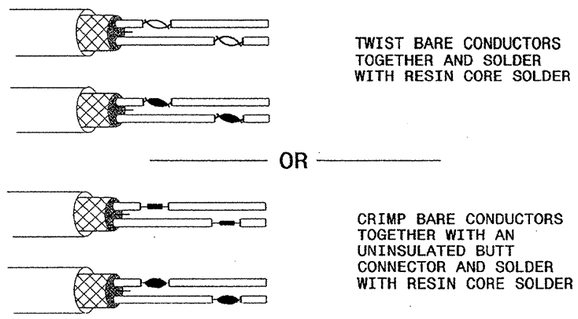
SHEET 3 OF 3

1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE



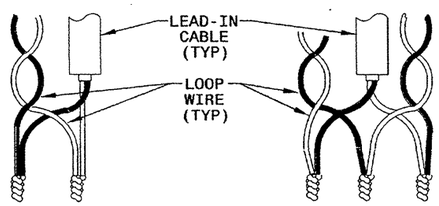
STEP 2. CONNECT AND SOLDER



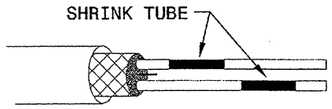
BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS

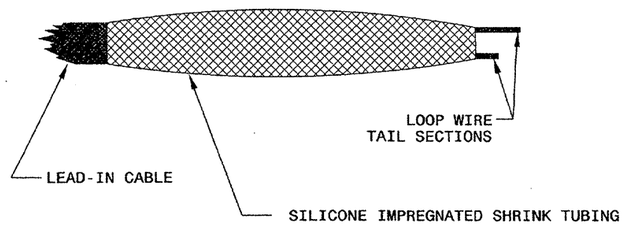
SINGLE CONNECTION SERIES CONNECTION



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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

11-08

ENGLISH DETAIL DRAWING FOR

INDUCTIVE DETECTION LOOPS

SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3

1725D01

See Plate for Title

Prepared in the Offices of:

Intelligent Transportation Systems & Signals Unit
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16286 ENGINEER MILTON L. DEAN

Milton L. Dean 11/24/08
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