

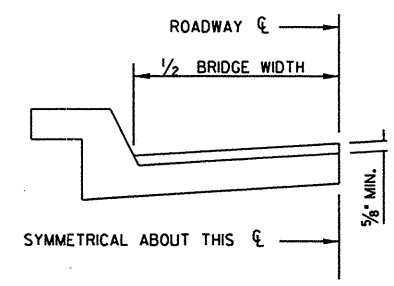
**R-5164C  
DURHAM  
RESURFACING**

BEGIN PROJECT R-5164C

END PROJECT R-5164C

# PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 1.5" ASPH. CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(V1)	MILL 1.5" IN DEPTH
(V2)	MILL 3" IN DEPTH
(U)	EXISTING PAVEMENT

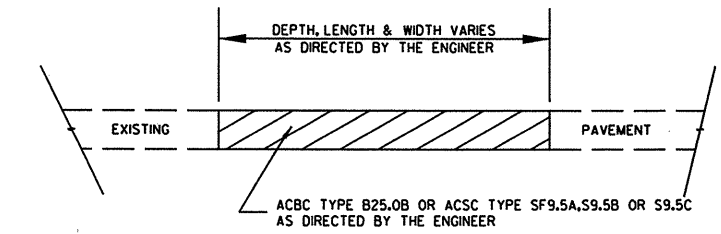


BRIDGE HALF TYPICAL SECTION

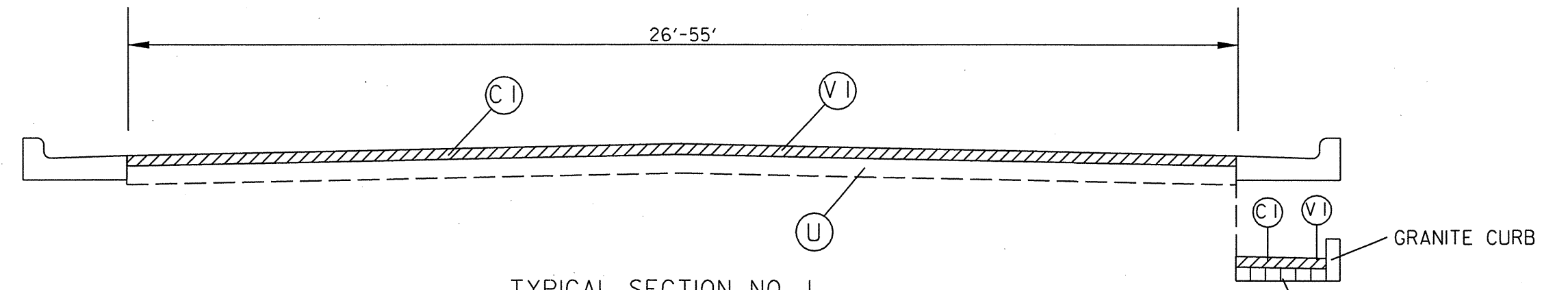
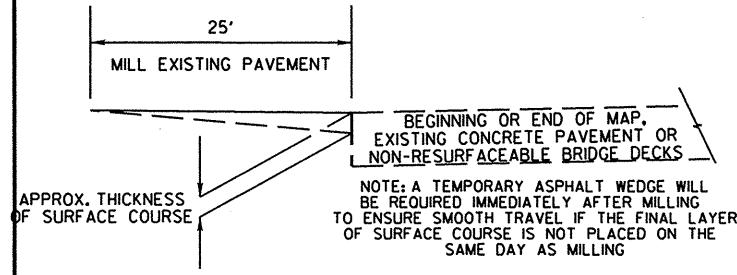
FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN.

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 1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.

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 ROAD, OR AS DIRECTED BY THE ENGINEER.  
NOTES  
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.

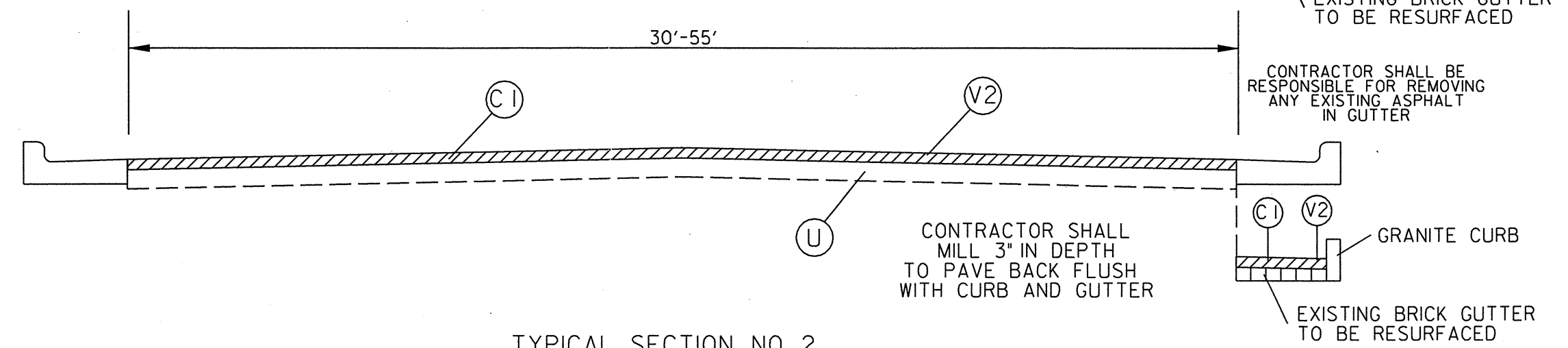


PATCHING EXISTING PAVEMENT



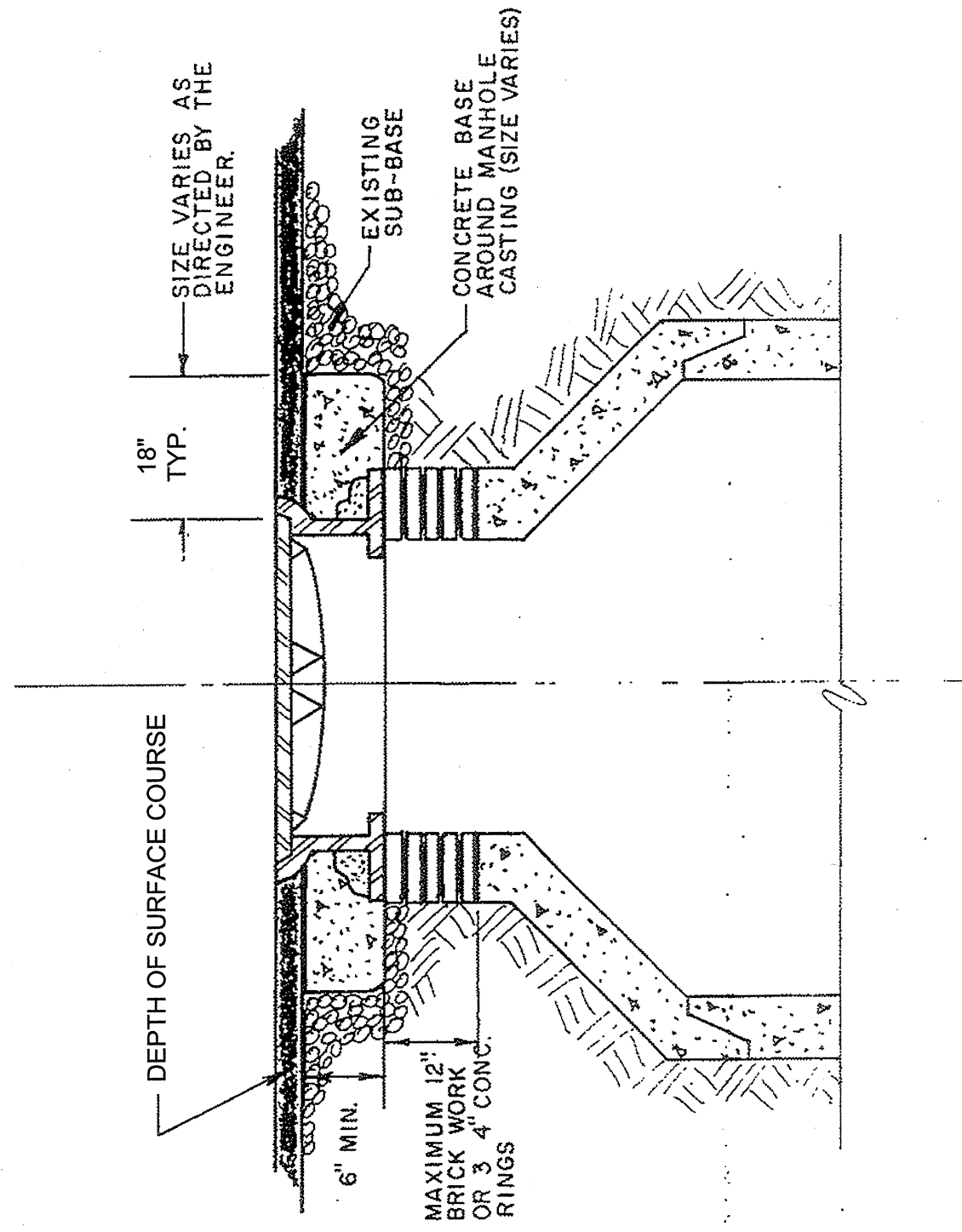
TYPICAL SECTION NO. 1

CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY EXISTING ASPHALT IN GUTTER



TYPICAL SECTION NO. 2

CONTRACTOR SHALL MILL 3" IN DEPTH TO PAVE BACK FLUSH WITH CURB AND GUTTER

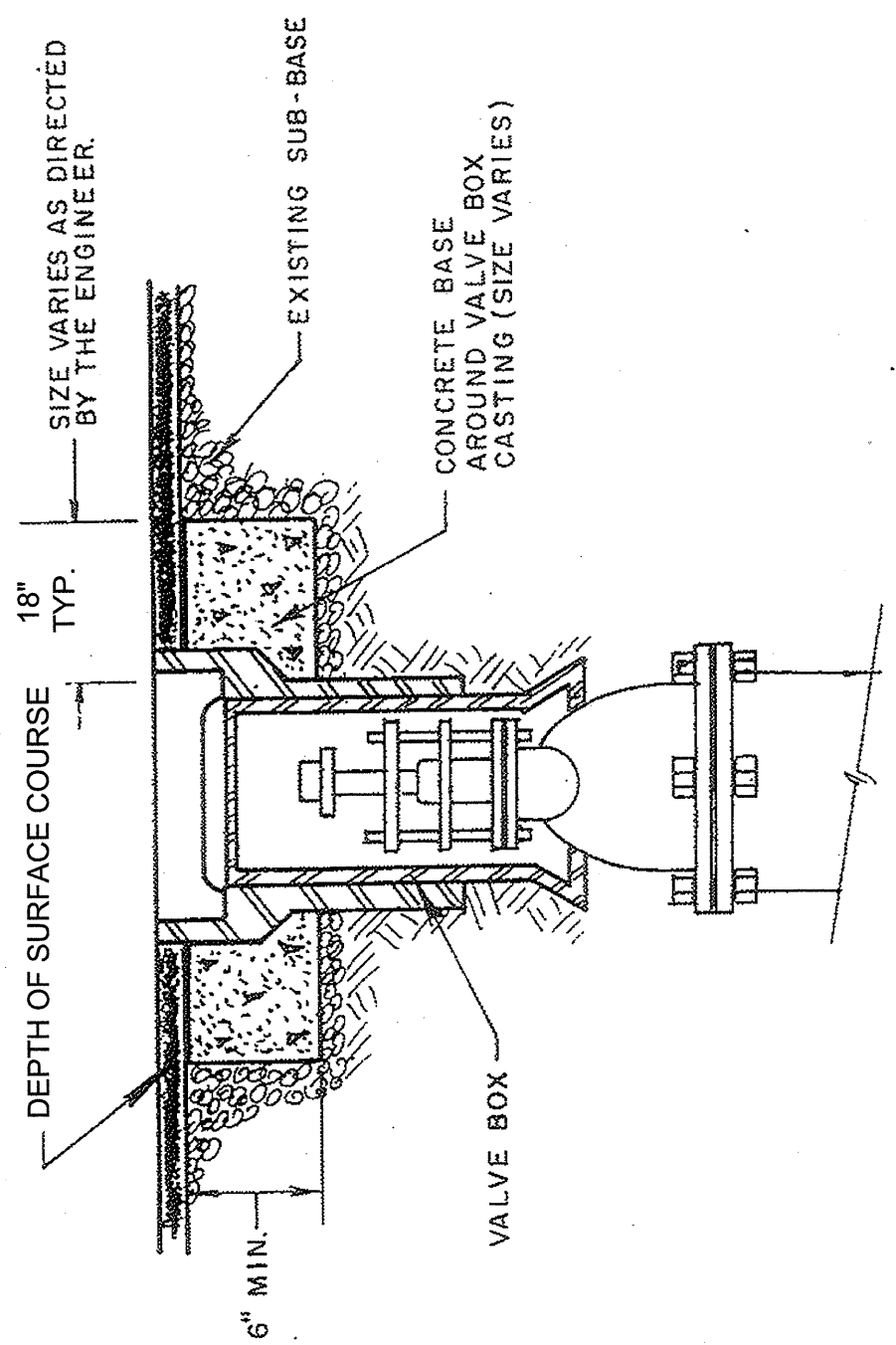


MANHOLE ADJUSTMENTS IN PAVED STREETS




Engineering Department  
 Water and Sewer Engineering Division, Durham, N.C.  
 A - 1

Scale NONE  
 Date OCT., 1990



VALVE BOX ADJUSTMENTS IN PAVED STREETS

	<p>Engineering Department Water and Sewer Engineering Division, Durham, N.C.</p>	<p>Scale NONE Date OCT., 1990</p>
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B - 2

PROJECT NO.	SHEET NO.	TOTAL NO.
45158.3.ST3 R-5164C	5	

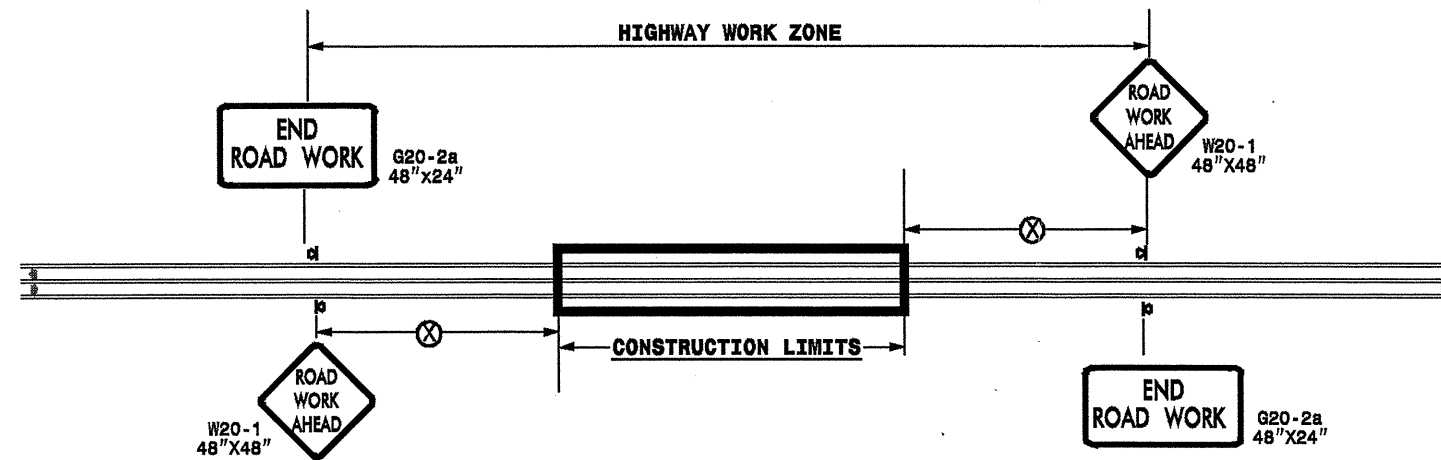
### SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	1 1/2" MILLING SY	3" MILLING SY	SURFACE COURSE, 99.5B TONS	PG 64-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	INDUCTIVE LOOP LF
45158.3.ST3	Durham	1	US 15-501 BUS SOUTH (MANGUM ST)	FROM NC 98 (HOLLOWAY ST) TO RAILROAD CROSSING	1	NO	0.25	35	5,821		515	31	250			
		*	"	FROM RAILROAD CROSSING TO US 15-501 BUS (LAKEWOOD AVE)	1	NO	0.43	45	11,350		1,071	64	250			
<b>TOTAL FOR MAP NO. 1</b>							<b>0.68</b>		<b>17,171</b>		<b>1,586</b>	<b>95</b>	<b>500</b>			
		2	US 15-501 BUS (LAKEWOOD AVE AND UNIVERSITY DR)	FROM US 15-501 BUS N (ROXBORO ST) TO SR 1361 (VICKERS AVE)	1	NO	0.5	48	14,304		1,267	76	100			1,000
<b>TOTAL FOR MAP NO. 2</b>							<b>0.5</b>		<b>14,304</b>		<b>1,267</b>	<b>76</b>	<b>100</b>			<b>1,000</b>
		3	US 15-501 BUS NORTH (ROXBORO ST)	FROM US 15-501 BUS (LAKEWOOD AVE) TO MAIN ST	2	NO	0.45	44		11913	1,050	63	250	29	2	192
		*	"	FROM MAIN STREET TO NC 98 (HOLLOWAY ST)	1	NO	0.16	48	4,786		425	25	50			1,000
<b>TOTAL FOR MAP NO. 3</b>							<b>0.61</b>		<b>4,786</b>	<b>11,913</b>	<b>1,475</b>	<b>88</b>	<b>300</b>	<b>29</b>	<b>2</b>	<b>1,192</b>
		4	SR 1127 (CHAPEL HILL STREET)	FROM GREAT JONES ST TO SOUTH GREGSON STREET	1	NO	0.28	47	7,747		723	43	150			1,000
		*	"	STREET TO NC-147 OVERPASS	1	NO	0.1	55	3,227		299	18	100			
		*	"	FROM NC-147 OVERPASS TO KENT ST.	1	NO	0.28	40	6,899		609	37	250			4,500
		*	SR 1127 (KENT STREET)	FROM WEST CHAPEL HILL ST TO MOREHEAD AVE	1	NO	0.35	35	6,160		572	34	330			
<b>TOTAL FOR MAP NO. 4</b>							<b>1.01</b>		<b>24,033</b>	<b>0</b>	<b>2,203</b>	<b>132</b>	<b>830</b>			<b>5,500</b>
<b>TOTAL FOR PROJ NO. 45158.3.ST3 R-5164C</b>							<b>2.8</b>		<b>60,294</b>	<b>11,913</b>	<b>6,531</b>	<b>391</b>	<b>1,730</b>	<b>29</b>	<b>2</b>	<b>7,692</b>
5CR.20321.15	Durham	5	SR 1367 (MANGUM ROXBORO CONNECTOR)	FROM MANGUM ST TO ROXBORO ST	1	NO	0.1	30	1,760		153	9	50			192
<b>TOTAL FOR MAP NO. 5</b>							<b>0.1</b>		<b>1,760</b>	<b>0</b>	<b>153</b>	<b>9</b>	<b>50</b>			<b>192</b>
<b>TOTAL FOR PROJ NO. 5CR.20321.14</b>							<b>0.1</b>		<b>1,760</b>	<b>0</b>	<b>153</b>	<b>9</b>	<b>50</b>			<b>192</b>
<b>GRAND TOTAL</b>							<b>2.9</b>		<b>62,054</b>	<b>11,913</b>	<b>6,684</b>	<b>400</b>	<b>1,780</b>	<b>29</b>	<b>2</b>	<b>7,884</b>

### THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4589000000-N	4688000000-E	4697000000-E	4705000000-E	4710000000-E	4721000000-E				4770000000-E				4810000000-E		4820000000-E		4830000000-E	4840000000-N			4845000000-N			4850000000-E	4900000000-N								
					TRAFFIC CONTROL	4" X 120 M WHITE THERMO	4" X 120 M YELLOW THERMO	8" X 120 M WHITE THERMO	8" X 120 M YELLOW THERMO	16" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMO RRR 120 M	THERMO MSG ONLY 120 M	THERMO MSG SCHOOL 120 M	THERMO STR ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR & LT ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO LT ARROW 90 M	4" WHITE COLD APPLIED PLASTIC, TYPE III	4" YELLOW COLD APPLIED PLASTIC, TYPE III	4" WHITE PAINT	4" YELLOW PAINT	8" WHITE PAINT	8" YELLOW PAINT	16" WHITE PAINT	24" WHITE PAINT	PAINT MSG RRR	PAINT MSG ONLY	PAINT MSG SCHOOL	PAINT STR ARROW	PAINT RT ARROW	PAINT STR & LT ARROW	PAINT STR & RT ARROW	PAINT LT ARROW	4" LINE REMOVAL	CRYSTAL & RED MARKERS	YELLOW & YELLOW MARKERS
45158.3.ST3	Durham	1	US 15-501 BUS SOUTH (MANGUM ST)	FROM NC 98 (HOLLOWAY ST) TO RAILROAD CROSSING	*	1,560	715	150	328	4			12	6	8	1		1,560		715		150.00	328	4			12	6	8	1			75					
		*	"	FROM RAILROAD CROSSING TO US 15-501 BUS (LAKEWOOD AVE)	*	1,818	1,210		204		8		3		3	150		1,818		1,210		204		8			3			3	150	360						
<b>TOTAL FOR MAP NO. 1</b>					<b>1</b>	<b>3,378</b>	<b>1,925</b>	<b>150</b>	<b>532</b>	<b>4</b>	<b>8</b>		<b>12</b>	<b>9</b>	<b>8</b>	<b>1</b>	<b>3</b>	<b>1,560</b>		<b>1,925</b>		<b>150</b>	<b>532</b>	<b>4</b>	<b>8</b>		<b>12</b>	<b>9</b>	<b>8</b>	<b>1</b>	<b>3</b>	<b>150</b>	<b>435</b>					
		2	US 15-501 BUS (LAKEWOOD AVE AND UNIVERSITY DR)	FROM US 15-501 BUS N (ROXBORO ST) TO SR 1361 (VICKERS AVE)	*	1,670	8,152	150	150						3	3	15		1,670	8,152	150		150						3	3	15		50	47				
<b>TOTAL FOR MAP NO. 2</b>					<b>1</b>	<b>1,670</b>	<b>8,152</b>	<b>150</b>	<b>150</b>						<b>3</b>	<b>3</b>	<b>15</b>		<b>1,670</b>	<b>8,152</b>	<b>150</b>		<b>150</b>					<b>3</b>	<b>3</b>	<b>15</b>		<b>50</b>	<b>47</b>					
		3	US 15-501 BUS NORTH (ROXBORO ST)	FROM US 15-501 BUS (LAKEWOOD AVE) TO MAIN ST	*	2,072		2,065	230		4		16	6	6	4	3		2,072		2,065		230		4		16	6	6	4	3		82					
		*	"	FROM MAIN STREET TO NC 98 (HOLLOWAY ST)	*	787		584	114				12		2	3			787		584		114				12		2	3		58						
<b>TOTAL FOR MAP NO. 3</b>					<b>1</b>	<b>2,859</b>		<b>2,649</b>	<b>344</b>		<b>4</b>		<b>28</b>	<b>6</b>	<b>8</b>	<b>7</b>	<b>3</b>		<b>2,859</b>		<b>2,649</b>		<b>344</b>		<b>4</b>		<b>28</b>	<b>6</b>	<b>8</b>	<b>7</b>	<b>3</b>		<b>140</b>					
		4	SR 1127 (CHAPEL HILL STREET)	FROM GREAT JONES ST TO SOUTH GREGSON STREET	*	739	2,936	855	250				14	2		8			739	2,936	855		250				14	2			8	37	18					
		*	"	FROM SOUTH GREGSON STREET TO NC-147 OVERPASS	*	264	1,320	416	165		6			3			80	400	264	1,320	416		165		6			3			480	13	13					
		*	"	FROM NC-147 OVERPASS TO KENT ST.	*	739	3,696	604	150	260		6	4		8	14			739	3,696	604	150	260		6	4			8	14	37	18						
		*	SR 1127 (KENT STREET)	FROM WEST CHAPEL HILL ST TO MOREHEAD AVE	*	350	3,696	1,800	40				3		1			350	3,696	1,800		40				3			1	10	23							
<b>TOTAL FOR MAP NO. 4</b>					<b>1</b>	<b>2,092</b>	<b>11,648</b>	<b>3,675</b>	<b>150</b>	<b>715</b>		<b>12</b>	<b>18</b>	<b>8</b>	<b>8</b>	<b>23</b>	<b>80</b>	<b>400</b>	<b>2,092</b>	<b>11,648</b>	<b>3,675</b>	<b>150</b>	<b>715</b>		<b>12</b>	<b>18</b>	<b>8</b>	<b>8</b>	<b>23</b>	<b>480</b>	<b>97</b>	<b>73</b>						
<b>TOTAL FOR PROJ NO. 45158.3.ST3 R-5164C</b>					<b>1</b>	<b>9,999</b>	<b>19,800</b>	<b>8,399</b>	<b>150</b>	<b>1,741</b>		<b>4</b>	<b>12</b>	<b>12</b>	<b>58</b>	<b>23</b>	<b>19</b>	<b>19</b>	<b>44</b>	<b>230</b>	<b>400</b>	<b>9,999</b>	<b>19,800</b>	<b>8,399</b>	<b>150</b>	<b>150</b>	<b>1,741</b>	<b>4</b>	<b>12</b>	<b>12</b>	<b>58</b>	<b>23</b>	<b>19</b>	<b>19</b>	<b>44</b>	<b>630</b>	<b>722</b>	<b>120</b>
						<b>29,799</b>	<b>8,549</b>				<b>28</b>			<b>163</b>			<b>630</b>	<b>29,799</b>	<b>8,549</b>				<b>28</b>			<b>163</b>						<b>842</b>						
5CR.20321.15	Durham	5	SR 1367 (MANGUM ROXBORO CONNECTOR)	FROM MANGUM ST TO ROXBORO ST	*	200			40						4	2		200				40						4	2			15						
<b>TOTAL FOR MAP NO. 5</b>					<b>1</b>	<b>200</b>			<b>40</b>						<b>4</b>	<b>2</b>		<b>200</b>				<b>40</b>						<b>4</b>	<b>2</b>			<b>15</b>						
<b>TOTAL FOR PROJ NO. 5CR.20321.14</b>					<b>1</b>	<b>200</b>			<b>40</b>						<b>4</b>	<b>2</b>		<b>200</b>				<b>40</b>						<b>4</b>	<b>2</b>			<b>15</b>						
<b>GRAND TOTAL</b>					<b>1</b>	<b>10,199</b>	<b>19,800</b>	<b>8,399</b>	<b>150</b>	<b>1,781</b>		<b>4</b>	<b>12</b>	<b>12</b>	<b>58</b>	<b>23</b>	<b>23</b>	<b>21</b>	<b>44</b>	<b>230</b>	<b>400</b>	<b>10,199</b>	<b>19,800</b>	<b>8,399</b>	<b>150</b>	<b>150</b>	<b>1,781</b>	<b>4</b>	<b>12</b>	<b>12</b>	<b>58</b>	<b>23</b>	<b>23</b>	<b>21</b>	<b>44</b>	<b>630</b>	<b>737</b>	<b>120</b>
						<b>29,999</b>	<b>8,549</b>				<b>28</b>			<b>169</b>			<b>630</b>	<b>29,999</b>	<b>8,549</b>				<b>28</b>			<b>169</b>							<b>857</b>					

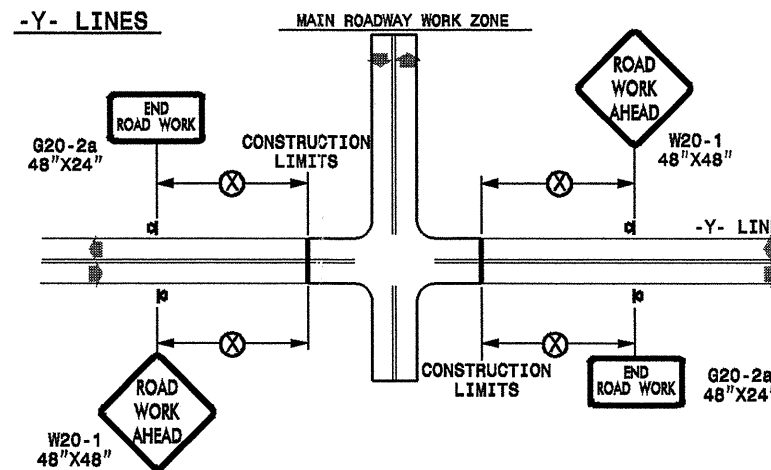
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



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

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

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



DETAIL DRAWING  
FOR TWO-WAY UNDIVIDED  
WORK ZONE WARNING SIGNS

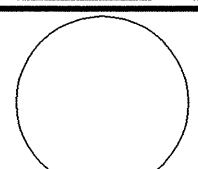
**GENERAL NOTES**

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCE WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- \*\* 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**

- ⊞ PORTABLE SIGN
- ➔ DIRECTION OF TRAFFIC FLOW

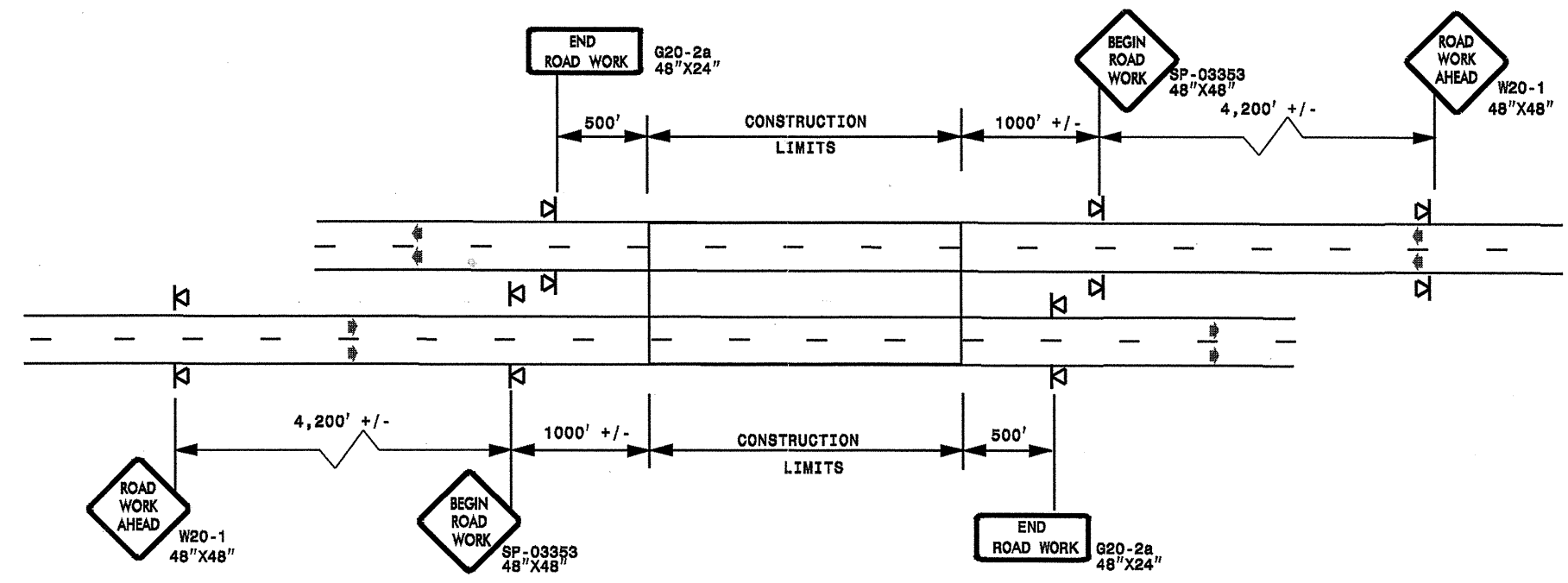
SHEET 1 OF 1

APPROVED: _____	DATE: _____
SEAL 	DETAIL DRAWING FOR TWO-WAY UNDIVIDED ADVANCED WORK ZONE WARNING SIGNS
	SCALE: NONE
	REVISIONS
	DATE: 7-98 10/01 DWG. BY: 10-98 03/04 DESIGN BY: 01/01 11/04 REVIEWED BY: _____

02-NOV-2009 19:50  
sa:\signing\resurfacing\030509\resurfacing\dwg\05\c202496a-b-5164c-durham.us15-50\ms\c202496a-b-451583st2x2.r-5164c-2wayundivurbtrwys\july2006-portable.dgn  
AT WZTC37502

**ADVANCE WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)**

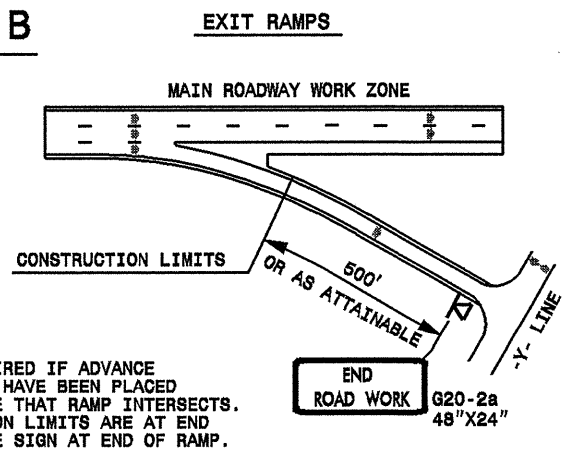
**DETAIL A**



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

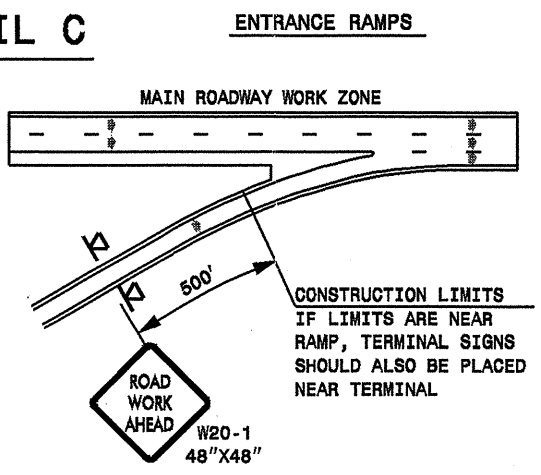
**ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)**

**DETAIL B**



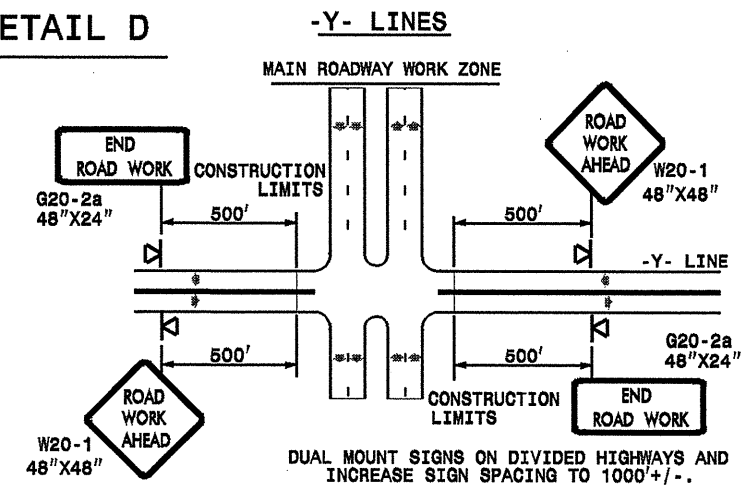
NOTE:  
SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

**DETAIL C**



CONSTRUCTION LIMITS IF LIMITS ARE NEAR RAMP, TERMINAL SIGNS SHOULD ALSO BE PLACED NEAR TERMINAL

**DETAIL D**



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000'+/-.

**DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS (SHORT-DURATION LANE CLOSURES)**

**GENERAL NOTES**

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCE WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- \*\* TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

**LEGEND**

◀ PORTABLE SIGN

➡ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

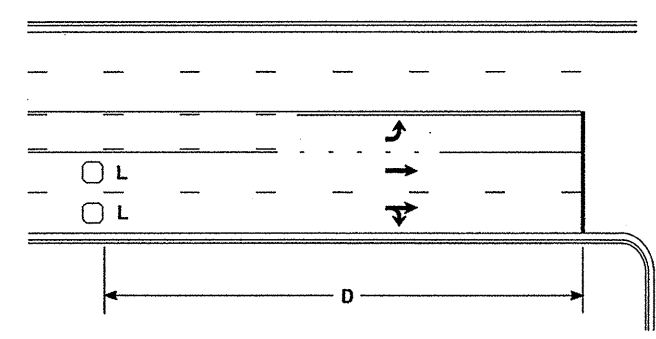
APPROVED: _____ DATE: _____	DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS		SCALE: NONE	
SEAL			DATE: 7-98 DWG. BY: DESIGN BY: REVIEWED BY:	REVISIONS 7-98 10/01 10-98 03/04 01/01 11/04

02-NOV-2009 10:52  
 sa.silvino\resurfacing\_030509\resurfacing200\dvt05\c202496a-b\_451583st2x2\_r-5164c\_freewayworkzone.dgn  
 AT W21C237502



WBS Elements: 5CR.20321.15  
& 45158.3.ST3 (R-5164C)

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

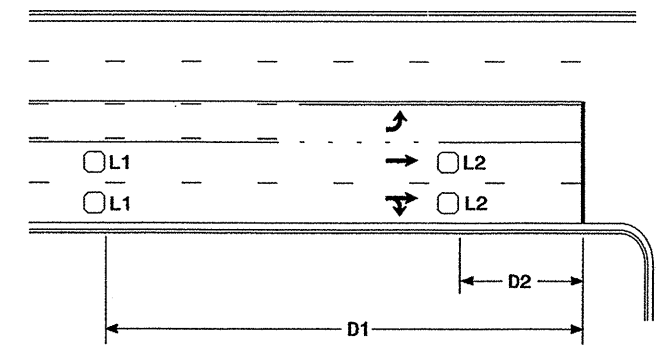


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

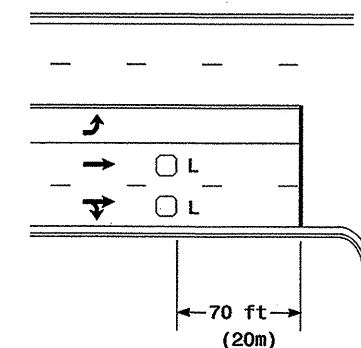


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

L1 = 6ft X 6ft  
(1.8m X 1.8m)  
Wired in series  
L2 = 6ft X 6ft  
(1.8m X 1.8m)  
Wired in series

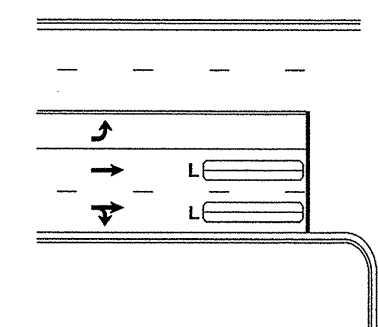
"Stretch" Operation

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



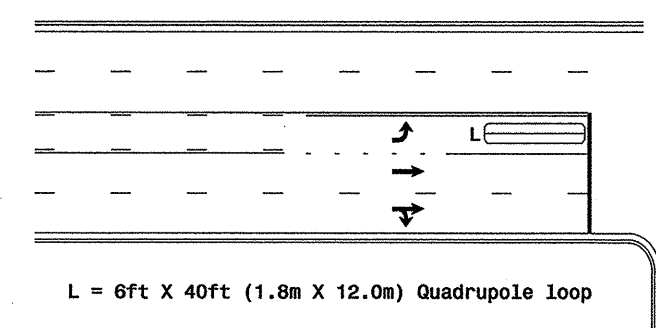
L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

OR



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

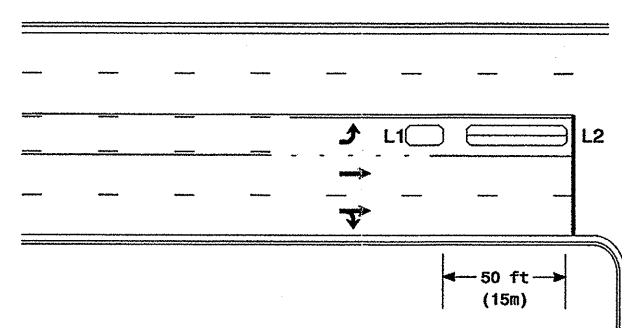
### Left Turn Lane Detection



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

Presence Loop Detection

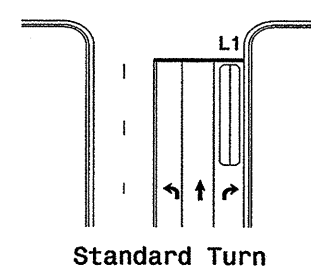
OR



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

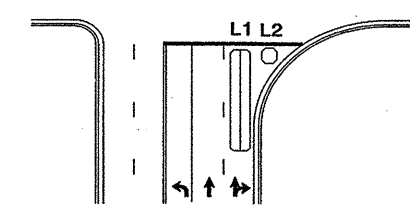
Queue Loop Detection

### Right Turn Lane Detection

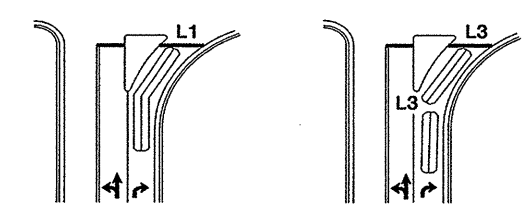


Standard Turn

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

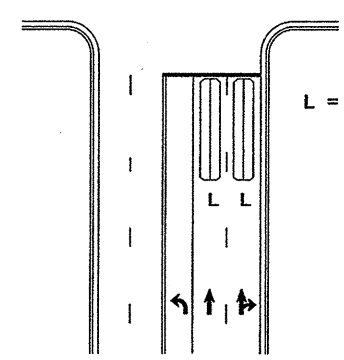


Wide Radius Turn



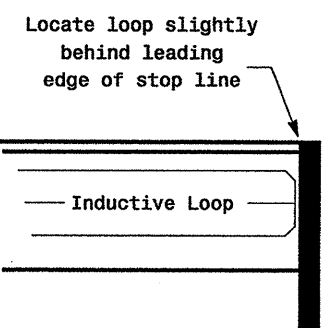
Channelized Turn

### 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

	<b>Typical Loop Locations</b>		
	PLAN DATE: June 2006 PREPARED BY: P. L. Alexander	REVIEWED BY: REVIEWED BY:	
SCALE N/A	INT. DATE 12/1/06	DATE 12/1/06	SIGNATURE DATE



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ENGLISH DETAIL DRAWING FOR  
INDUCTIVE DETECTION LOOPS

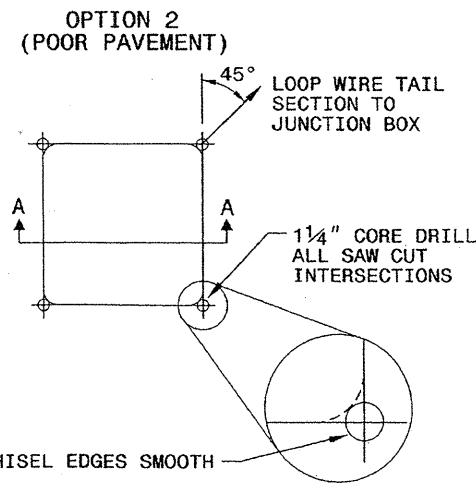
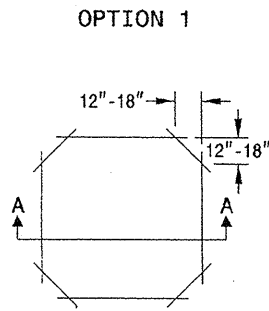
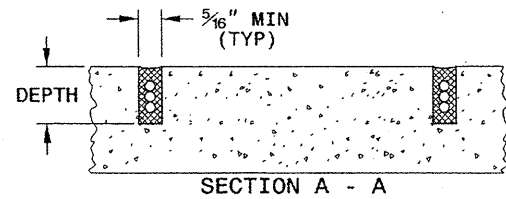
SHEET 1 OF 3  
1725D01

**CONVENTIONAL 4-SIDED LOOP**

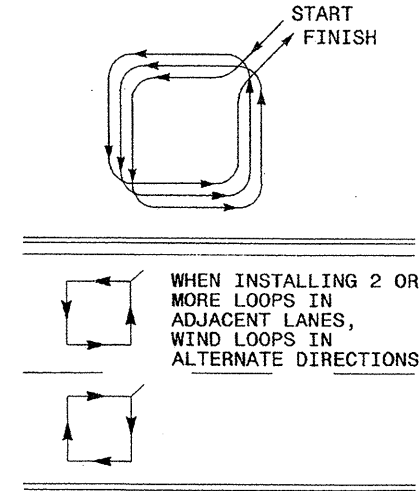
**SAW CUT OPTIONS**

**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



**LOOP WINDING METHOD**



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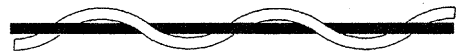
11-08

ENGLISH DETAIL DRAWING FOR  
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3  
1725D01

**LOOP WIRE TWISTING METHOD**

INCORRECT WAY TO TWIST WIRE



CORRECT WAY TO TWIST WIRE

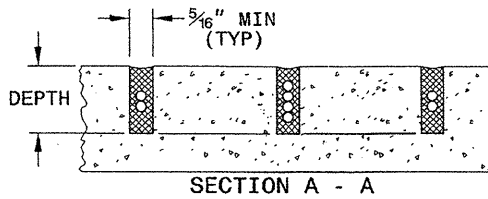
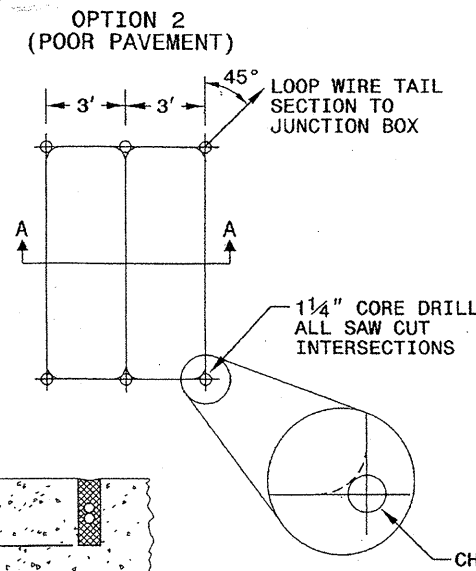
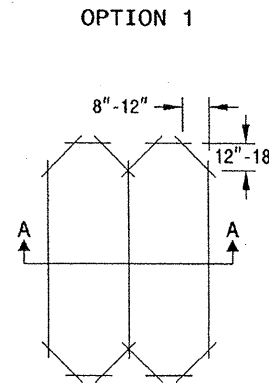


**NOTES**

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

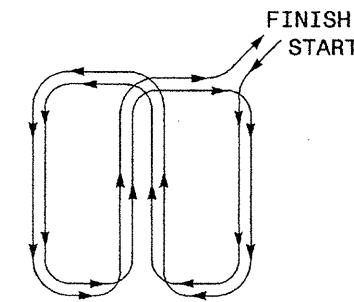
**QUADRUPOLE LOOP**

**SAW CUT OPTIONS**



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

**LOOP WINDING METHOD**



See Plate for Title

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750 N. Greenfield Parkway  
Gartner, NC 27529

SEAL

SIGNATURE DATE  
Milton Dean 4/24/08

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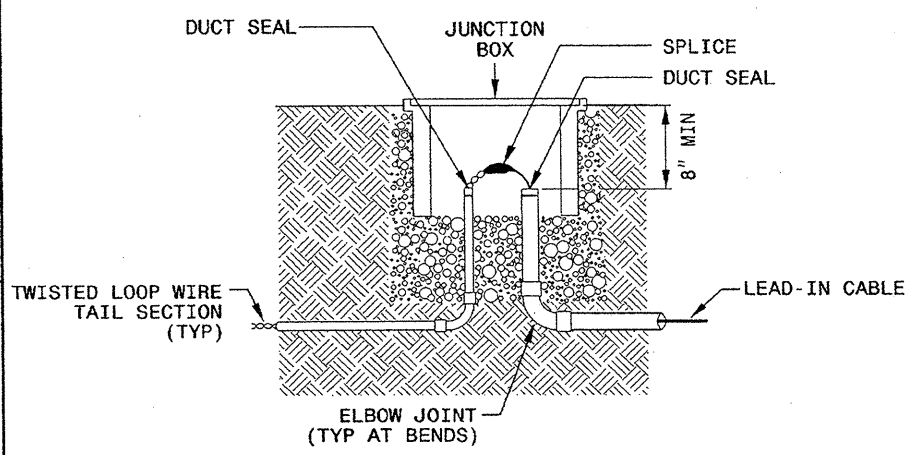
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ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
 LOOP WIRE DETAILS

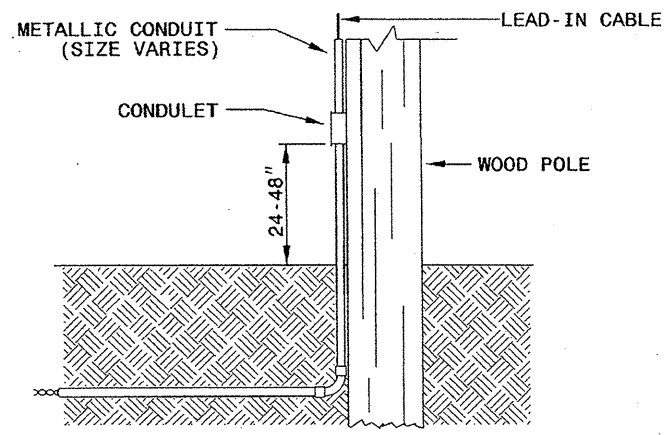
SHEET 2 OF 3  
**1725D01**

**LOOP WIRE SPLICE POINT DETAILS**

**LOOP WIRE AT JUNCTION BOX**



**LOOP WIRE AT POLE**

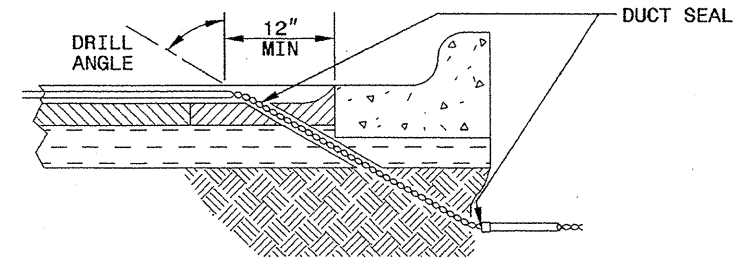


**NOTE**

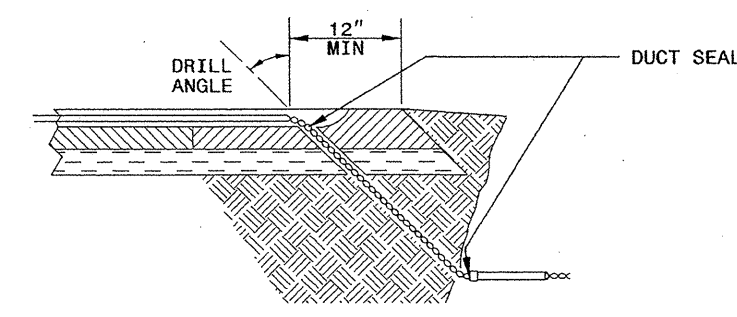
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

**LOOP WIRE PAVEMENT EDGE DETAILS**

**LOOP WIRE AT CURB & GUTTER SECTION**



**LOOP WIRE AT PAVEMENT SECTION**



**NOTES**

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

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ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
 LOOP WIRE DETAILS

SHEET 2 OF 3  
**1725D01**

See Plate for Title

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750 N. Greenfield Parkway  
 Garner, NC 27529

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Milton I. Dean 11/24/08  
 SIGNATURE DATE

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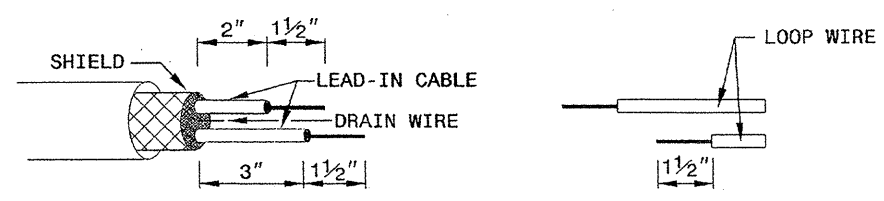
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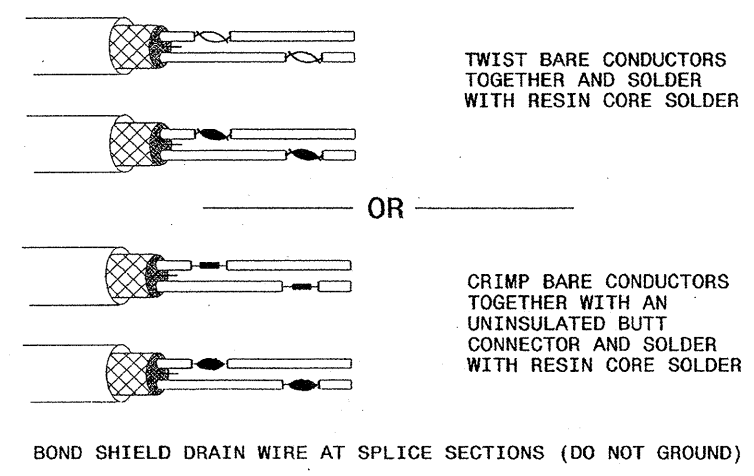
ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
**1725D01**

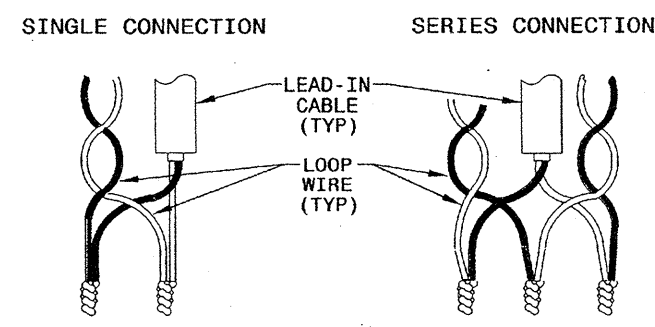
**STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE**



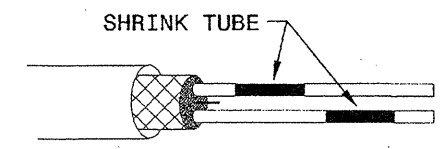
**STEP 2. CONNECT AND SOLDER**



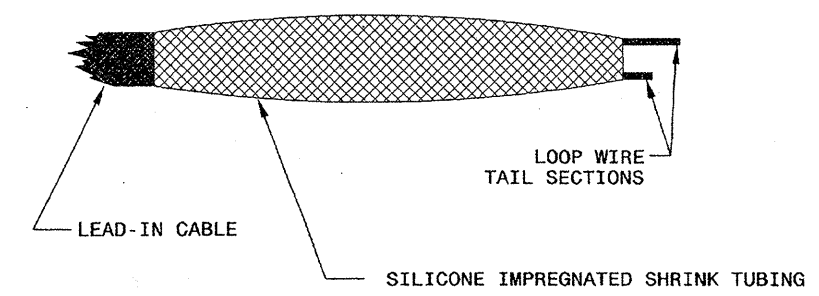
**LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS**



**STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY**



**STEP 4. ENVIRONMENTALLY PROTECT SPLICE**



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ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
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**Intelligent Transportation Systems & Signals Unit**  
750 N. Greenfield Parkway  
Garner, NC 27529

SEAL  
NORTH CAROLINA PROFESSIONAL ENGINEER  
SEAL 16286  
MILTON I. DEAN  
Signature: *Milton I. Dean* 11/24/08  
DATE

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