

GUILFORD COUNTY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10411.26, 7CR.20411.26 7SP.10411.2	1	11
F.A. PROJ. NO.			

7-13
24-25

22

21

20

19

14

15

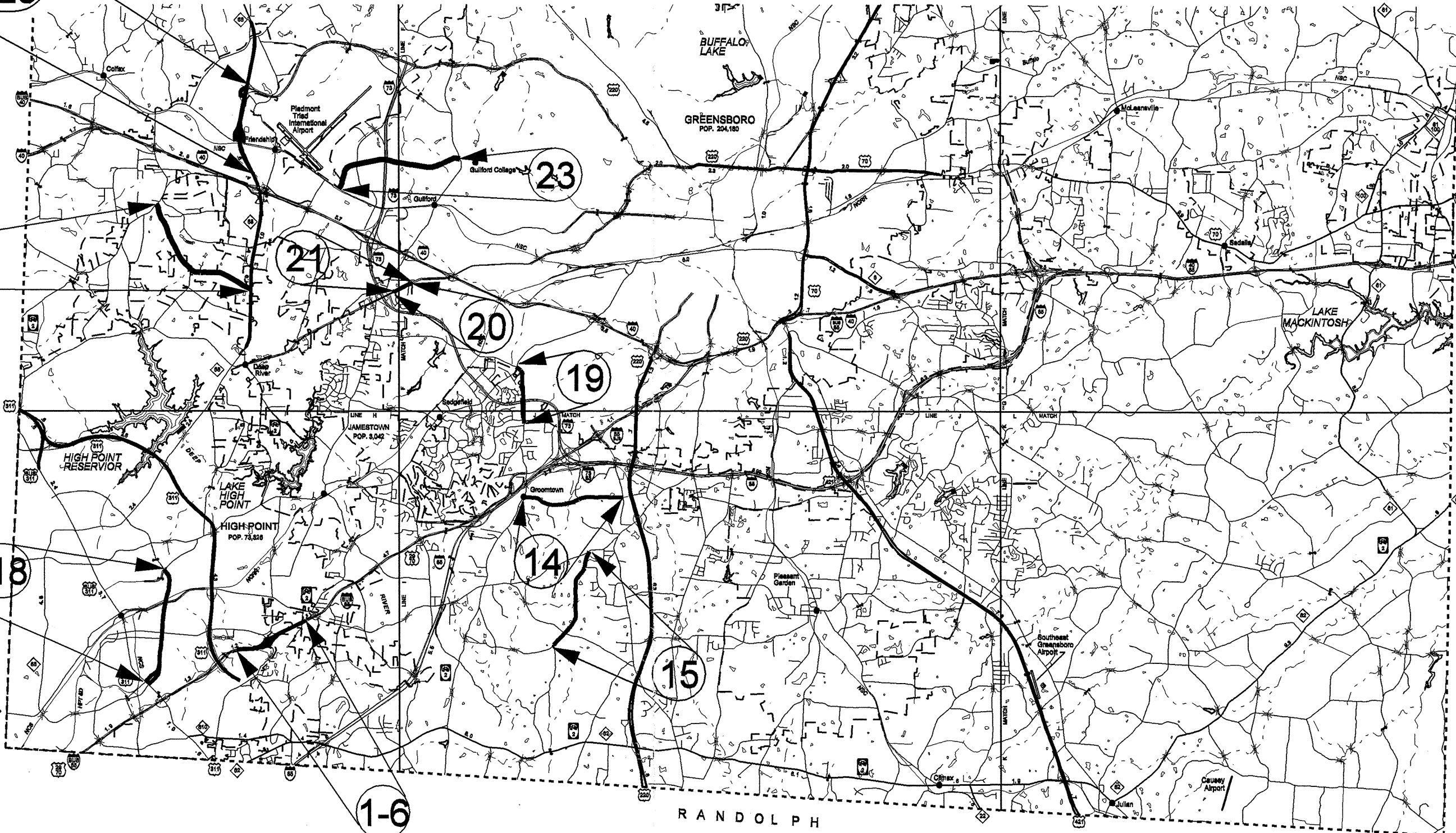
16-18

1-6

FORSYTH
COUNTY

COUNTY

DAVIDSON
COUNTY



GIBSONVILLE
POP. 4,343

ALAMANCE
COUNTY

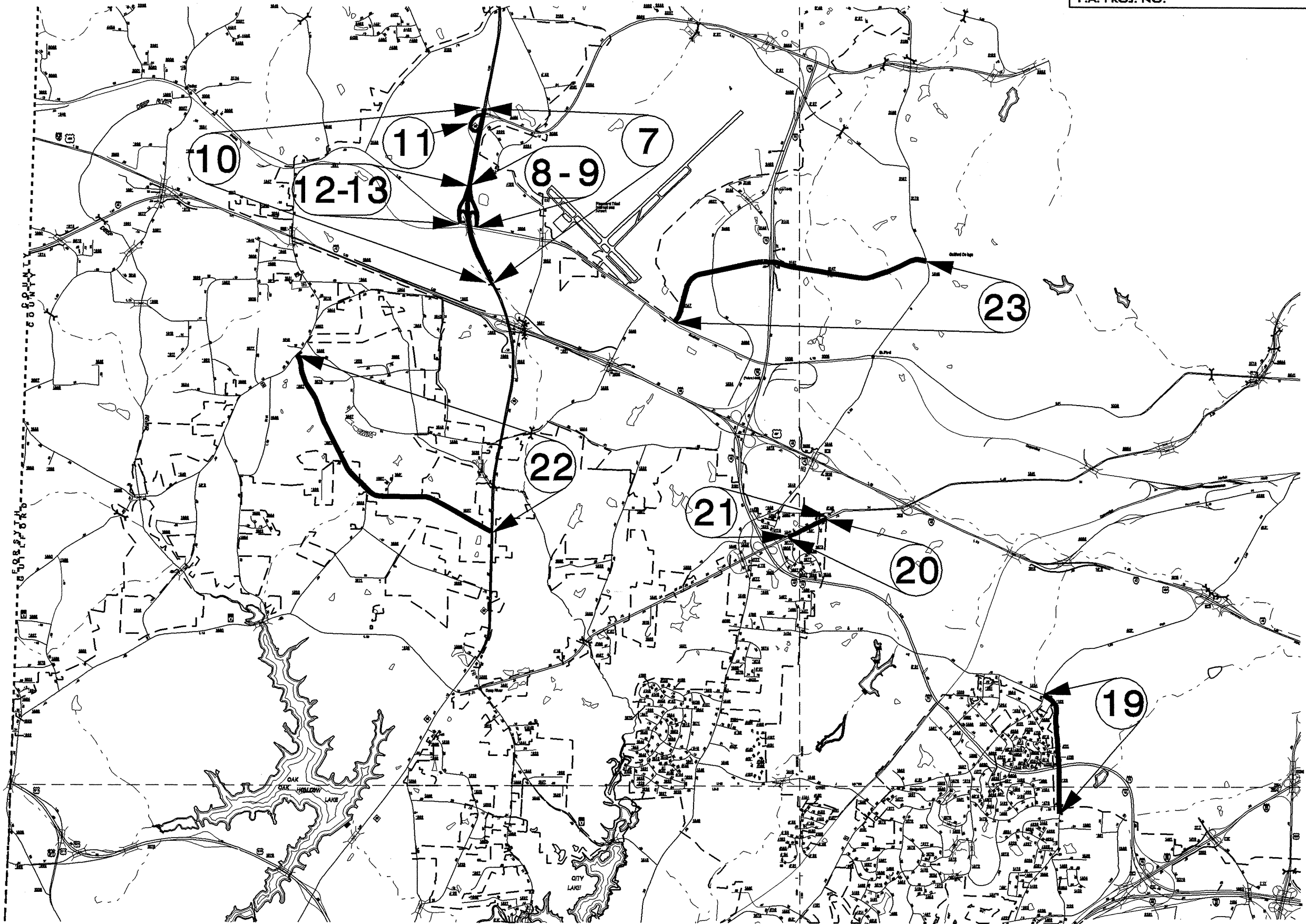
RANDOLPH

COUNTY



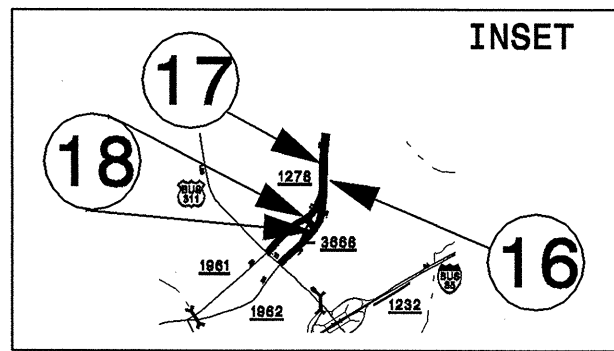
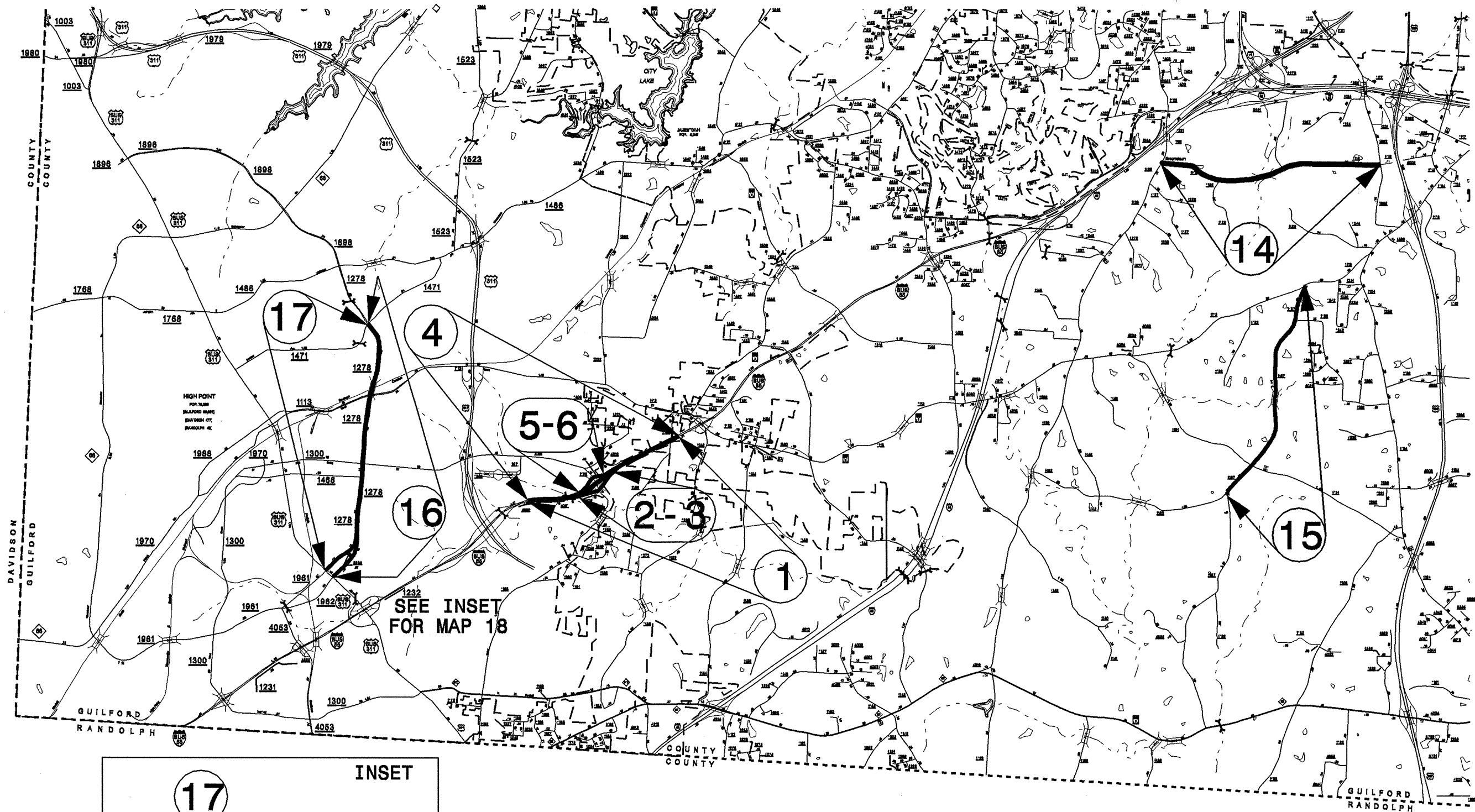
GUILFORD COUNTY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10411.26, 7CR.20411.26 7SP.10411.2	2	11
F.A. PROJ. NO.			

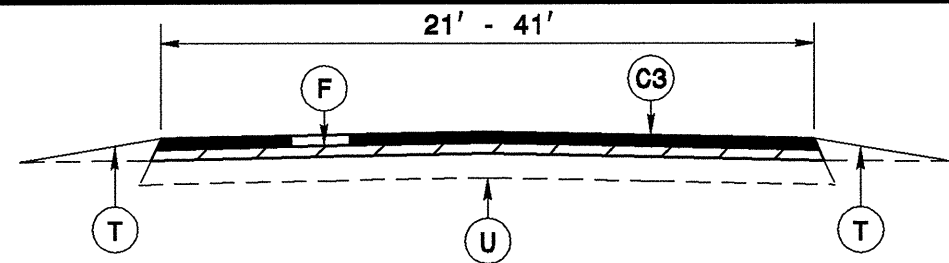


GUILFORD COUNTY

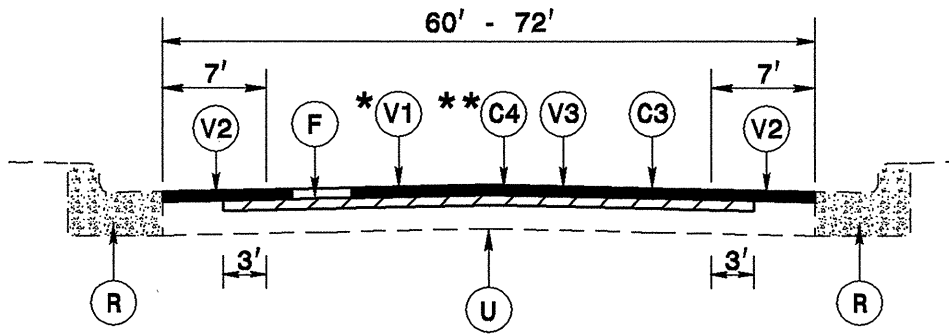
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10411.26, 7CR.20411.26 7SP.10411.2	3	11
F.A. PROJ. NO.			



5/28/99



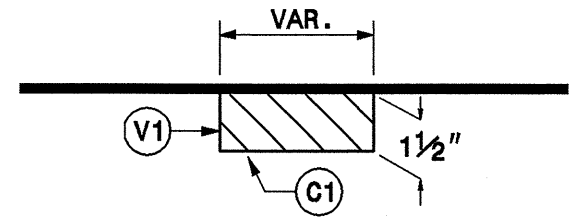
USED ON MAP 22
TYPICAL SECTION NO. 14



* SEE MILLING DETAIL 4 FOR LOCATIONS
** TO BE USED AS DIRECTED BY ENGINEER IF NEEDED ON THIS MAP

USED ON MAP 23
TYPICAL SECTION NO. 15

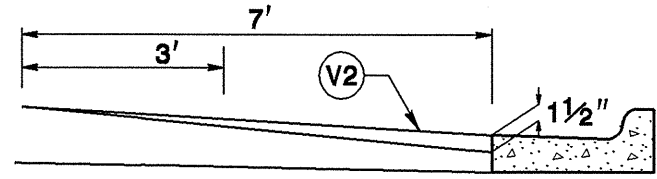
MILLING DETAIL 1



MILL EXISTING ASPHALT PAVEMENT 1 1/2" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER.

NOTE: TO BE USED IN CONJUNCTION WITH
TS. NO. 4 ON MAP 7 STA 31+30 TO STA 92+45

MILLING DETAIL 2

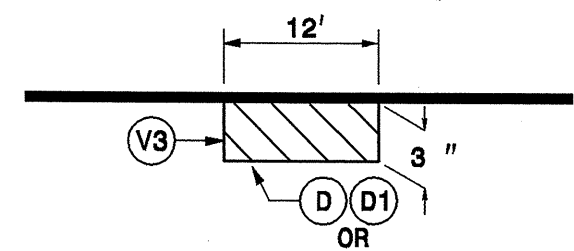


* IF 78M SEAL IS INVOLVED OVERLAP 3'
MILL EXISTING ASPHALT PAVEMENT 0-1 1/2" AT LOCATIONS AS DIRECTED BY THE ENGINEER

NOTE: TO BE USED IN CONJUNCTION WITH
TS. NO. 2 ON MAP 3 STA 7+60 TO STA 9+40 LT
TS. NO. 2 ON MAP 6 STA 7+80 TO STA 9+55 LT
TS. NO. 5 ON MAP 13 STA 0+00 TO STA 2+70 RT
TS. NO. 12 ON MAP 18 STA 0+00 TO STA 3+35

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10411.26, 7CR.20411.26 7SP.10411.2	6	11

MILLING DETAIL 3



MILL EXISTING ASPHALT PAVEMENT 3" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER.

NOTE: TO BE USED IN CONJUNCTION WITH
D1 - TS. NO. 6 ON MAP 10 STA 41+30 TO STA 45+40
D1 - TS. NO. 7 ON MAP 10 STA 45+40 TO STA 56+30
D1 - TS. NO. 6 ON MAP 10 STA 56+30 TO STA 60+75
D1 - TS. NO. 6 ON MAP 10 STA 63+45 TO STA 69+30
D1 - TS. NO. 7 ON MAP 10 STA 69+30 TO STA 86+20
D1 - TS. NO. 6 ON MAP 10 STA 86+20 TO STA 92+50
D - TS. NO. 15 ON MAP 23 STA 23+20 TO STA 26+80 LANES 3, 4*
D - TS. NO. 15 ON MAP 23 STA 140+23 TO STA 143+50 LANES 3, 4, 5*
D - TS. NO. 11 ON MAPS 20, 21 AT LOCATIONS AS DIRECTED BY THE ENGINEER IF NEEDED

D IS A CONTINGENT ITEM FOR THE FOLLOWING:
TS. NO. 1 MAP 1 & 4
TS. NO. 13 MAP 19
TS. NO. 11 MAP 20 & 21

* SEE MILLING DETAIL 4 FOR LANE ASSIGNMENT

PAVEMENT SCHEDULE

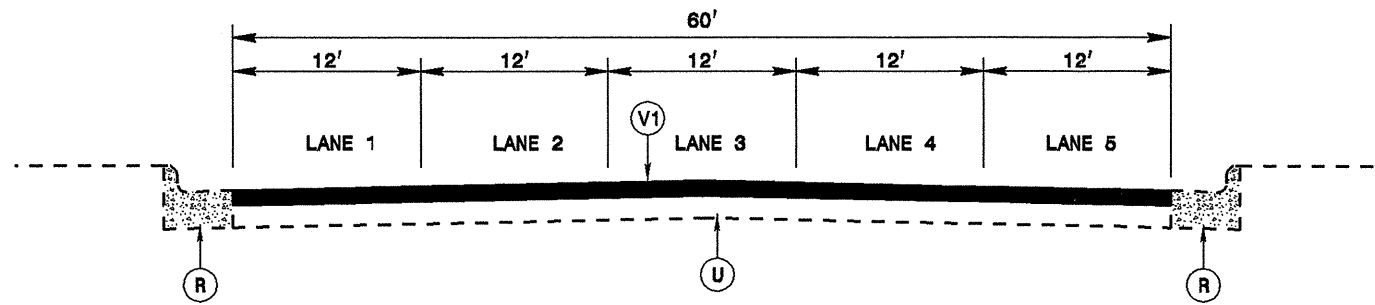
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R	CONCRETE CURB & GUTTER
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	T1	EXISTING EARTH SHOULDER
C4	PROP. APPROX. 1 1/2" ASPHALT CONCRETE LEVELING COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. TO BE USED AS DIRECTED BY THE ENGINEER	U	EXISTING PAVEMENT.
D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	U2	EXISTING PAVED SHOULDER
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	V1	1 1/2" MILLING OF ROADWAY AS DIRECTED BY THE ENGINEER
E	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	V2	0-1 1/2" MILLING FOR 7' FROM EDGE OF GUTTER TO ROADWAY AS DIRECTED BY THE ENGINEER
F	AST MAT COAT, 78M	V3	3" MILLING OF ROADWAY AS DIRECTED BY THE ENGINEER
		V5	MILLED RUMBLE STRIPS
		V6	8" MILLING OF ROADWAY AS DIRECTED BY THE ENGINEER

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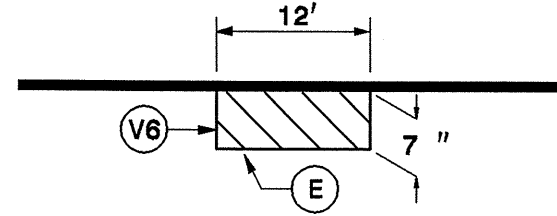
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STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10411.26, 7CR.20411.26 7SP.10411.2	7	11

MILLING DETAIL 4



MILLING DETAIL 6



MILL EXISTING ASPHALT PAVEMENT 7" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER.
NOTE: THIS ITEM IS CONTINGENT FOR MAPS 1, 2, 19, 20, 23

- NOTE: 1 1/2" MILLING (V1) TO BE USED IN CONJUNCTION WITH
- TS. NO. 15 ON MAP 23 STA 0+00 TO STA 3+00 LANES 1, 2, 3, 4, 5
 - TS. NO. 15 ON MAP 23 STA 3+00 TO STA 4+92 LANES 1, 2
 - TS. NO. 15 ON MAP 23 STA 5+50 TO STA 6+10 LANES 5
 - TS. NO. 15 ON MAP 23 STA 7+50 TO STA 13+50 LANES 4, 5
 - TS. NO. 15 ON MAP 23 STA 14+50 TO STA 19+00 LANES 4
 - TS. NO. 15 ON MAP 23 STA 14+50 TO STA 15+50 LANES 3, 4
 - TS. NO. 15 ON MAP 23 STA 19+90 TO STA 21+00 LANES 2
 - TS. NO. 15 ON MAP 23 STA 22+20 TO STA 23+20 LANES 1, 2, 3, 4, 5
 - TS. NO. 15 ON MAP 23 STA 23+20 TO STA 24+20 LANES 1
 - TS. NO. 15 ON MAP 23 STA 29+50 TO STA 36+00 LANES 4, 5
 - TS. NO. 15 ON MAP 23 STA 31+00 TO STA 33+15 LANES 3
 - TS. NO. 15 ON MAP 23 STA 31+50 TO STA 49+92 LANES 5
 - TS. NO. 15 ON MAP 23 STA 34+88 TO STA 40+67 LANES 1, 2
 - TS. NO. 15 ON MAP 23 STA 43+62 TO STA 45+62 LANES 1
 - TS. NO. 15 ON MAP 23 STA 45+62 TO STA 48+02 LANES 1, 2
 - TS. NO. 15 ON MAP 23 STA 80+53 TO STA 84+65 LANES 4, 5
 - TS. NO. 15 ON MAP 23 STA 81+10 TO STA 82+00 LANES 1, 2
 - TS. NO. 15 ON MAP 23 STA 84+63 TO STA 87+23 LANES 5
 - TS. NO. 15 ON MAP 23 STA 83+80 TO STA 85+70 LANES 1
 - TS. NO. 15 ON MAP 23 STA 84+55 TO STA 86+25 LANES 2
 - TS. NO. 15 ON MAP 23 STA 95+35 TO STA 95+80 LANES 2
 - TS. NO. 15 ON MAP 23 STA 103+25 TO STA 108+25 LANES 2
 - TS. NO. 15 ON MAP 23 STA 106+00 TO STA 106+57 LANES 1
 - TS. NO. 15 ON MAP 23 STA 109+07 TO STA 112+57 LANES 1,2
 - TS. NO. 15 ON MAP 23 STA 110+00 TO STA 111+00 LANES 3
 - TS. NO. 15 ON MAP 23 STA 120+50 TO STA 121+25 LANES 2
 - TS. NO. 15 ON MAP 23 STA 124+25 TO STA 129+25 LANES 2
 - TS. NO. 15 ON MAP 23 STA 125+25 TO STA 128+25 LANES 4
 - TS. NO. 15 ON MAP 23 STA 131+53 TO STA 137+25 LANES 5
 - TS. NO. 15 ON MAP 23 STA 138+00 TO STA 139+80 LANES 1
 - TS. NO. 15 ON MAP 23 STA 142+70 TO STA 145+57 LANES 1, 2
 - TS. NO. 15 ON MAP 23 STA 143+50 TO STA 145+57 LANES 1, 2, 3, 4, 5

* NOTE: TURNLANES WILL NOT BE MILLED

EFF. 07-18-06

REV. 01-02-07
2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
665.01	Milled Rumble Strips - Asphalt Pavements
DIVISION 8 - INCIDENTALS	
848.05	wheelchair Ramp - Curb Cut
848.06	wheelchair Ramp - Retrofitting of Existing Curb

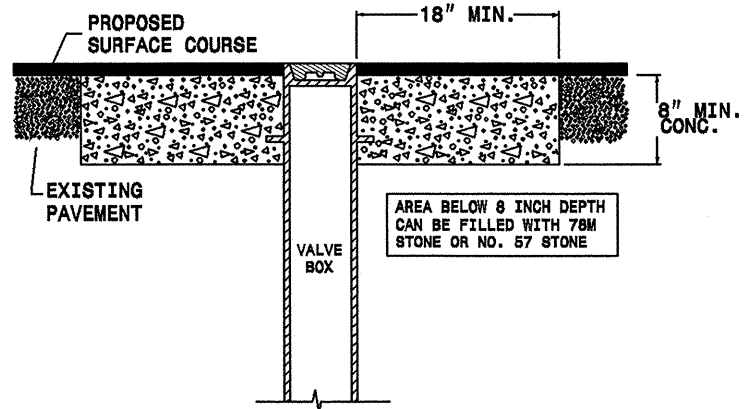
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R	CONCRETE CURB & GUTTER
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	T1	EXISTING EARTH SHOULDER
C4	PROP. APPROX. 1 1/2" ASPHALT CONCRETE LEVELING COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. TO BE USED AS DIRECTED BY THE ENGINEER	U	EXISTING PAVEMENT.
D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	U2	EXISTING PAVED SHOULDER
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	V1	1 1/2" MILLING OF ROADWAY AS DIRECTED BY THE ENGINEER
E	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	V2	0-1 1/2" MILLING FOR 7' FROM EDGE OF GUTTER TO ROADWAY AS DIRECTED BY THE ENGINEER
F	AST MAT COAT, 78M	V3	3" MILLING OF ROADWAY AS DIRECTED BY THE ENGINEER
		V5	MILLED RUMBLE STRIPS
		V6	8" MILLING OF ROADWAY AS DIRECTED BY THE ENGINEER

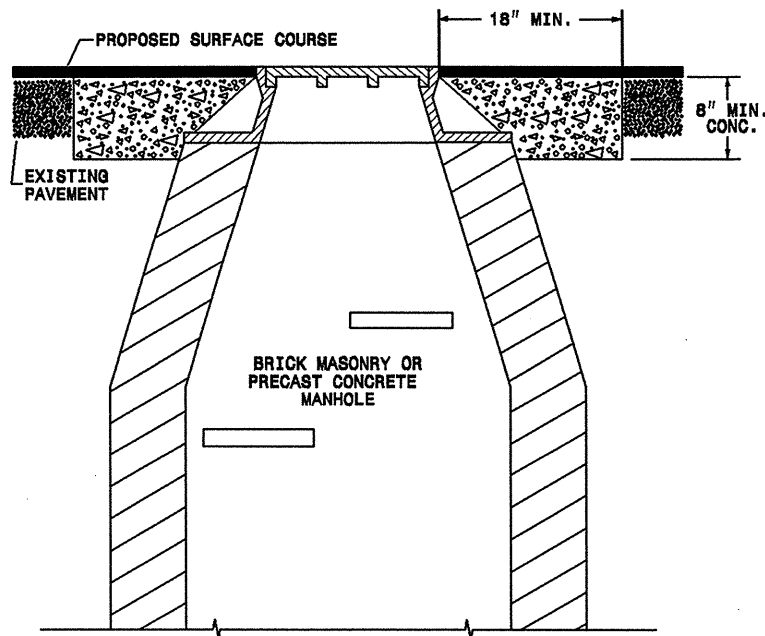
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STANDARD CONCRETE ENCASEMENT FOR MANHOLE & VALVE CASTINGS IN PAVEMENT
DETAIL DRAWING NO. 858.01

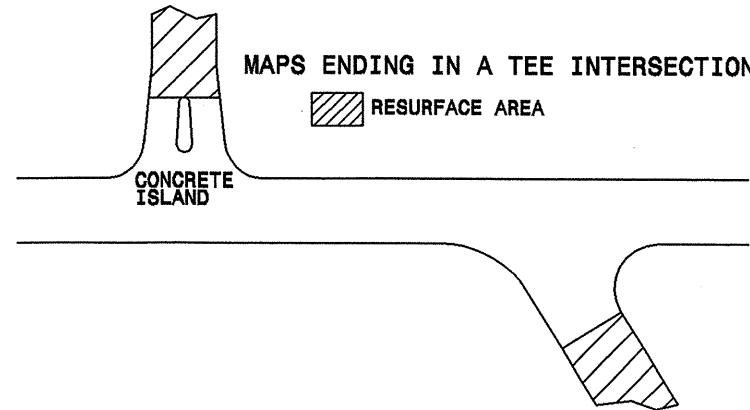


USE RAPID SET GROUT, MORTAR, OR CONCRETE CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS ARE NOT IN THE TRAVEL LANE.

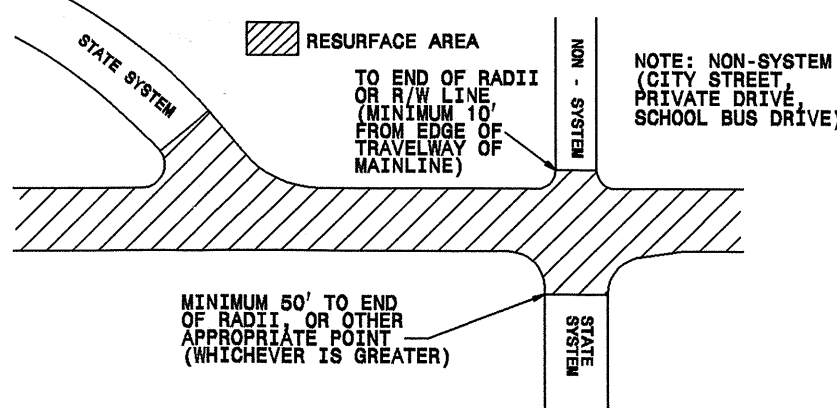


- NOTES:**
- MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
 - ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
 - EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
 - RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED

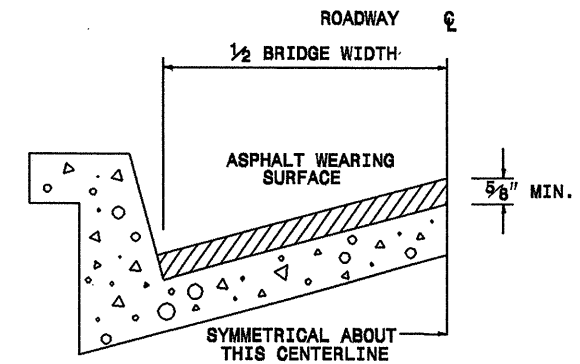
PAVING DETAIL 1
MAIN LINE IS NOT BEING RESURFACED



PAVING DETAIL 2
MAIN LINE IS BEING RESURFACED



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N.C.	7CR.10411.26, 7CR.20411.26 7SP.10411.2	8	11



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.

NOTES

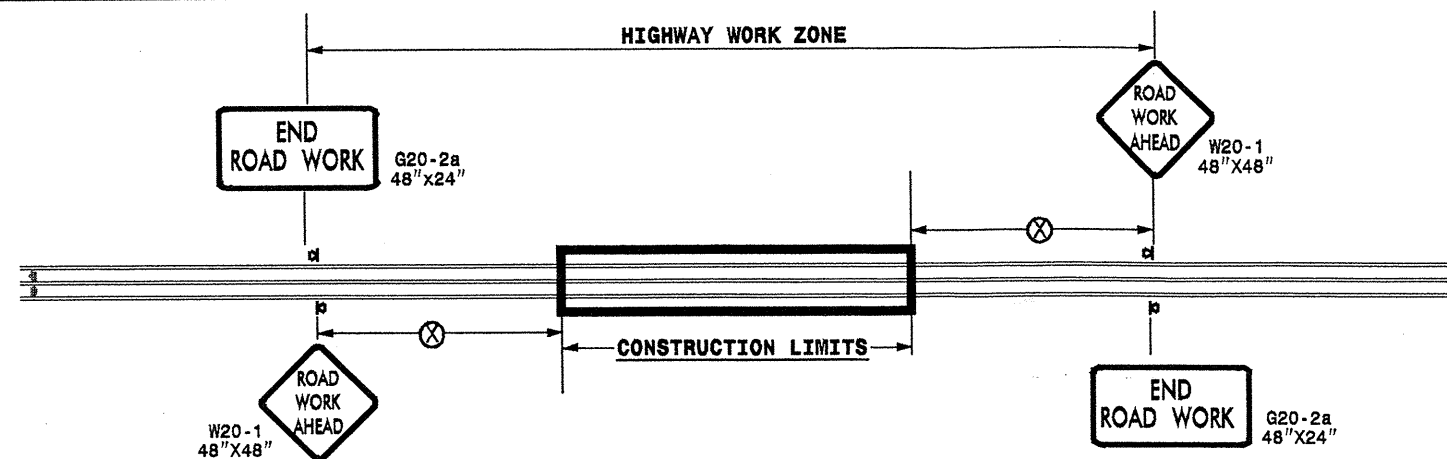
ALL UNPAVED S.R. ROUTES TO BE SURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT.
 ALL PAVED S.R. ROUTES TO BE RESURFACED TO END OF RADDII, OR AS DIRECTED BY THE ENGINEER. EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE SUMMARY OF QUANTITIES. BRIDGES TO BE RESURFACED AT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

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R	CONCRETE CURB & GUTTER
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
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D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	U2	EXISTING PAVED SHOULDER
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F	AST MAT COAT, 78M	V3	3" MILLING OF ROADWAY AS DIRECTED BY THE ENGINEER
		V5	MILLED RUMBLE STRIPS
		V6	8" MILLING OF ROADWAY AS DIRECTED BY THE ENGINEER

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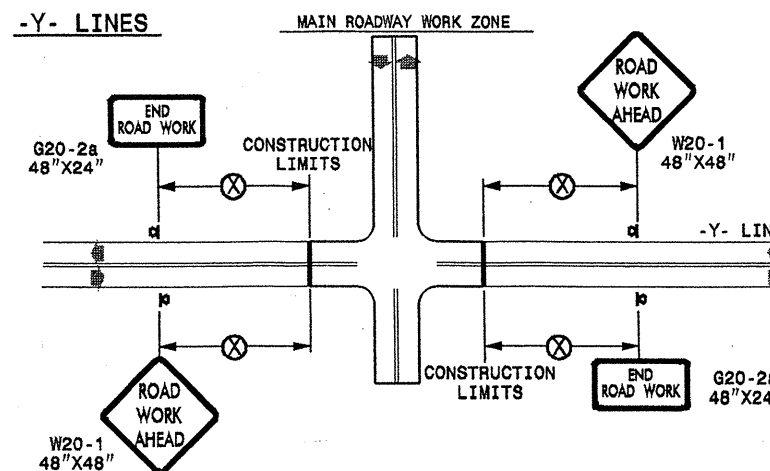
TWO-WAY UNDIVIDED ** (L-LINES)



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)



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

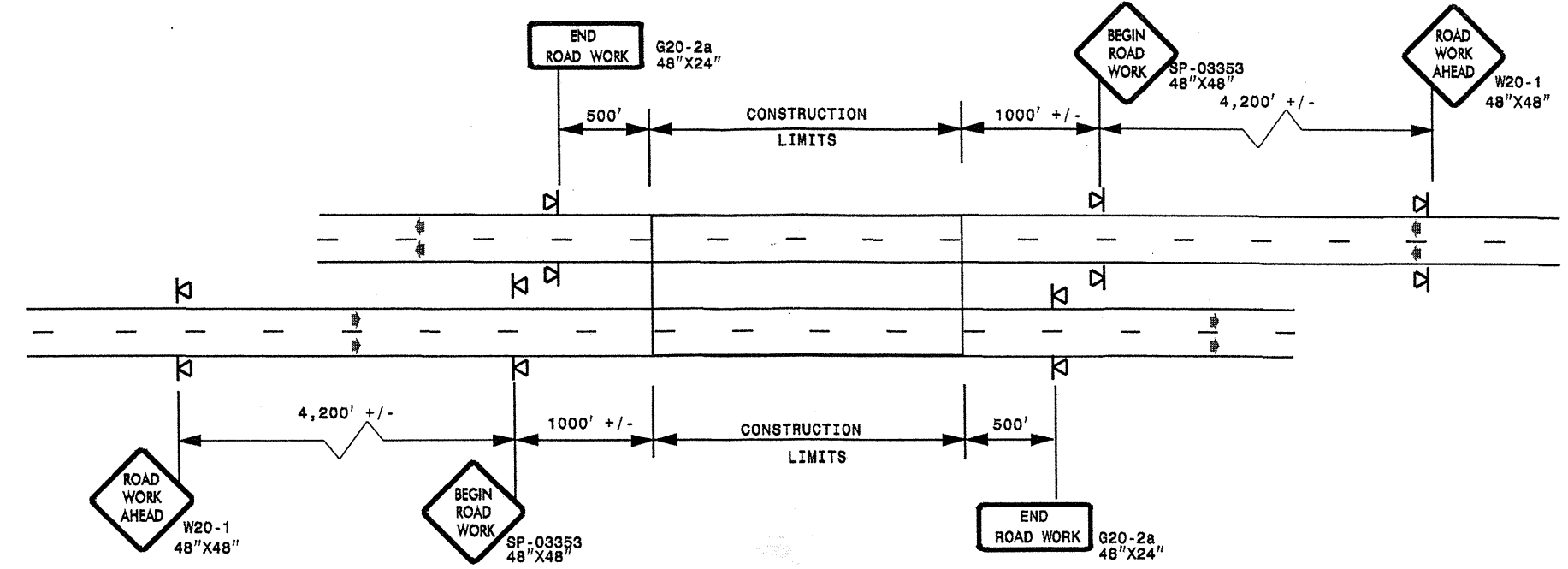
DETAIL DRAWING
FOR TWO-WAY UNDIVIDED
WORK ZONE WARNING SIGNS

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

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

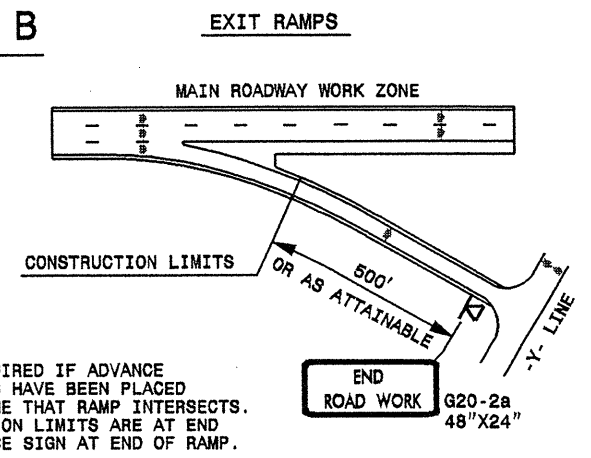
DETAIL A



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

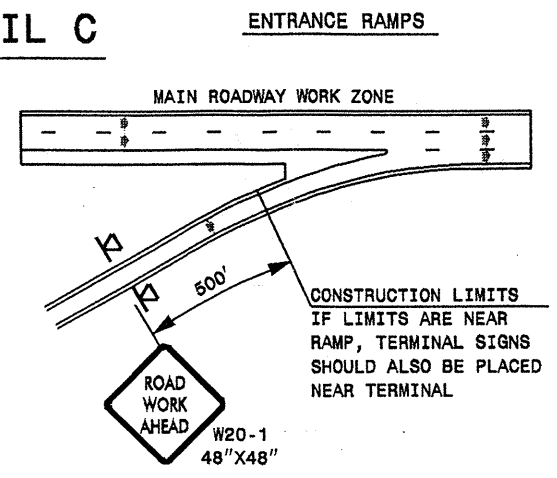
ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B



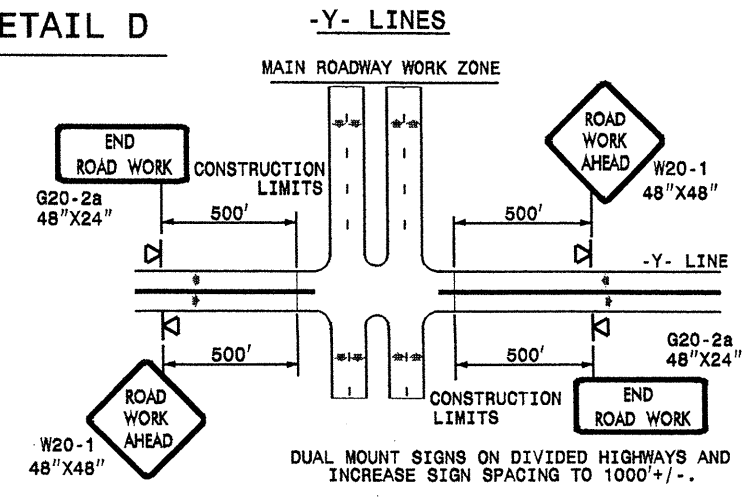
NOTE:
SIGN NOT REQUIRED IF ADVANCE
WARNING SIGNS HAVE BEEN PLACED
ALONG -Y- LINE THAT RAMP INTERSECTS.
IF CONSTRUCTION LIMITS ARE AT END
OF RAMP, PLACE SIGN AT END OF RAMP.

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)

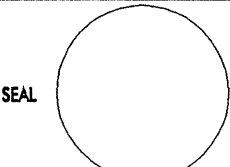
GENERAL NOTES

- 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

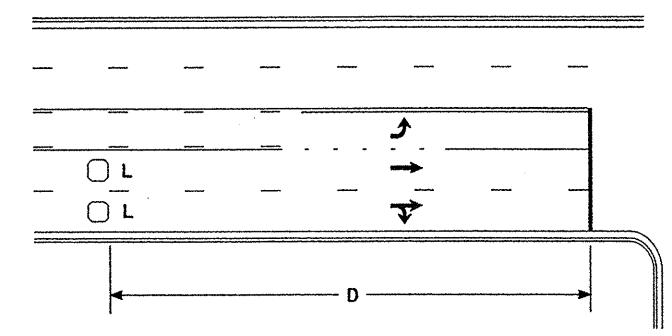
- ▣ PORTABLE SIGN
- ➔ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

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

P:\JAN-2010 19104
 S:\Signing\resurfacing_030509\Resurfacing2010\01v07\C202568A-C-7CR1041126x3-C-7CR1041126x3-freewaylanesgreetJuly2006.por table.dgn
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 pseymore AT WZTC237602

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

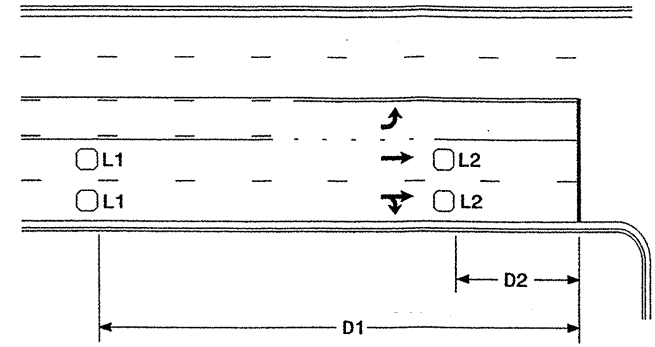


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

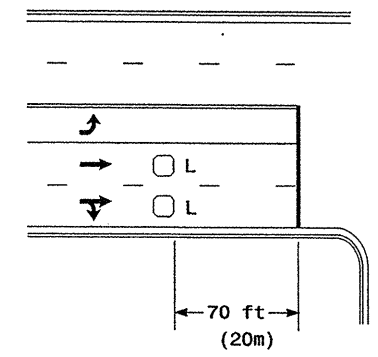


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

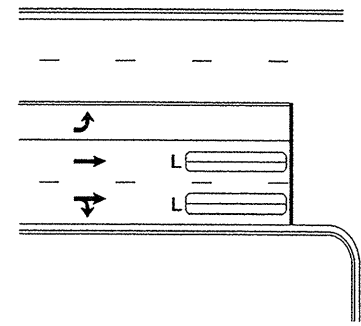
"Stretch" Operation

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



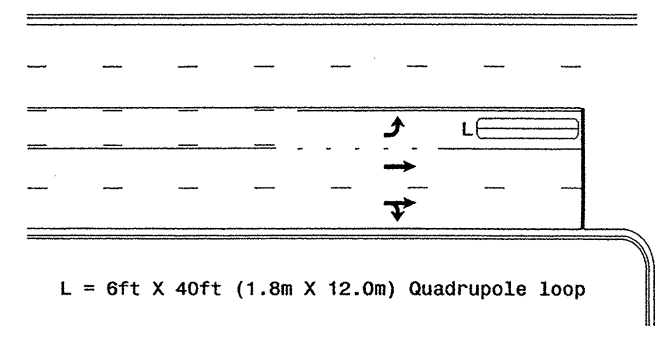
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

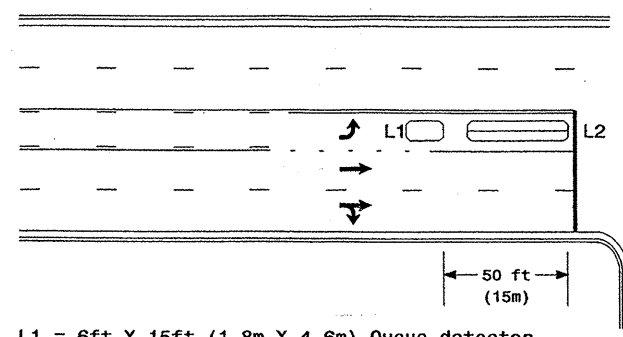
Left Turn Lane Detection



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

Presence Loop Detection

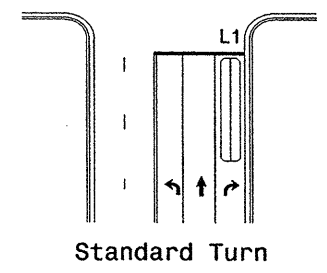
OR



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

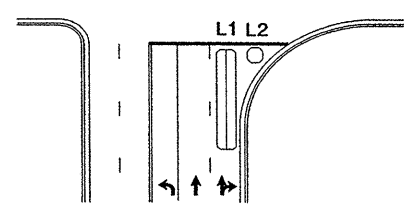
Queue Loop Detection

Right Turn Lane Detection

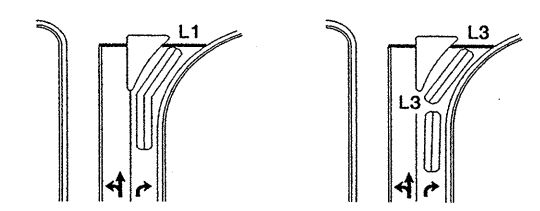


Standard Turn

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

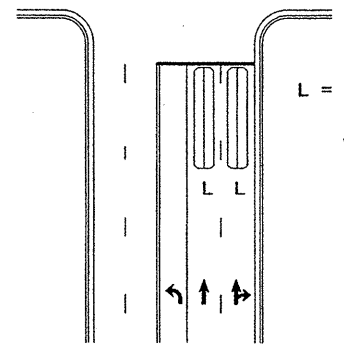


Wide Radius Turn



Channelized Turn

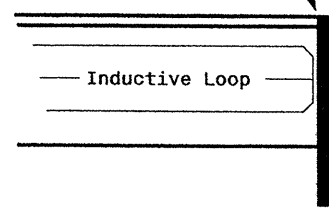
Side Street Detection



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

Typical Loop Locations

PLAN DATE: June 2006	REVIEWED BY:
PREPARED BY: P. L. Alexander	REVIEWED BY:
SCALE: N/A	REVISIONS:
	INIT. DATE
	2006 12/19/06
SIGNATURE: P. L. Alexander DATE: 12/19/06	

SIC. INVENTORY NO.

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

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

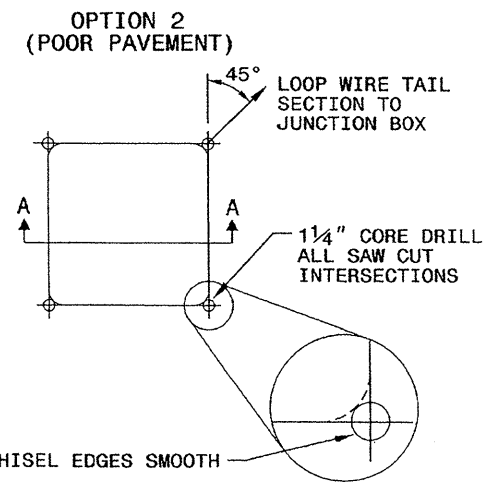
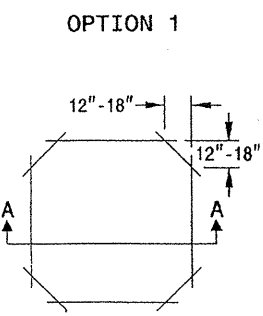
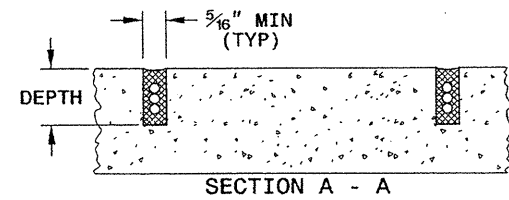
SHEET 1 OF 3
1725D01

CONVENTIONAL 4-SIDED LOOP

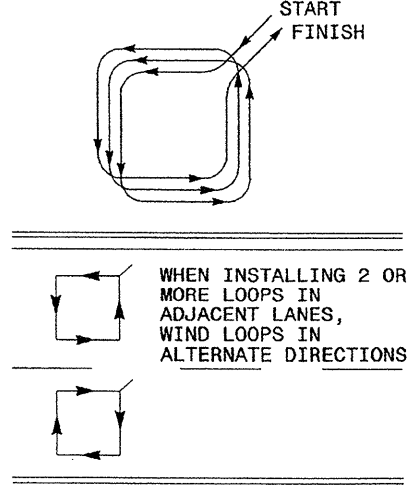
SAW CUT OPTIONS

SAW SLOT DEPTH CHART

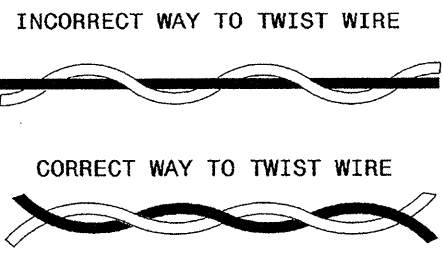
DEPTH (IN)	NO. OF WIRE TURNS				
	2	3	4	5	6
CONCRETE	2.0	2.0	2.5	2.5	3.0
ASPHALT	2.0	2.5	3.0	3.0	3.0



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

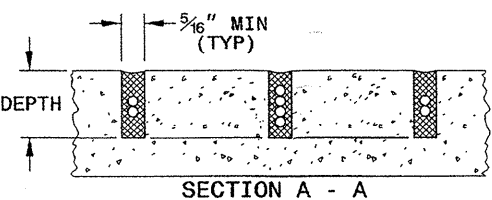
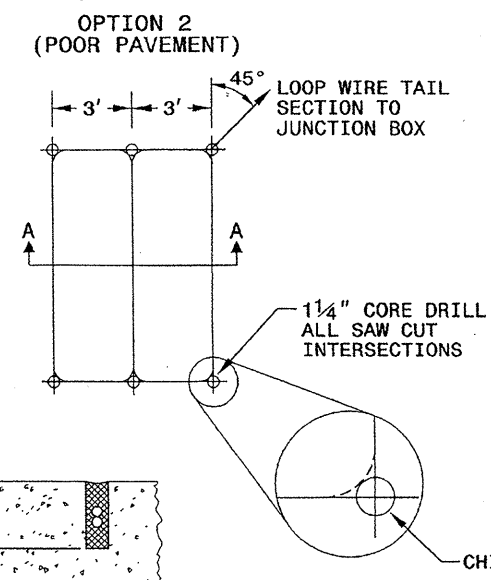
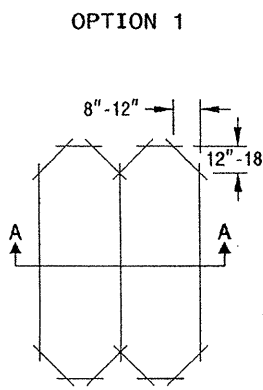


NOTES

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.

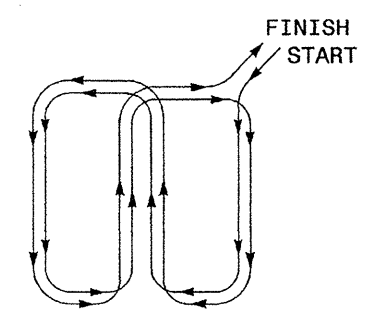
QUADRUPOLE LOOP

SAW CUT OPTIONS



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

Michael J. Dea 4/24/08
SIGNATURE DATE

24-nov-2008 09:28
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zml111tc

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 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

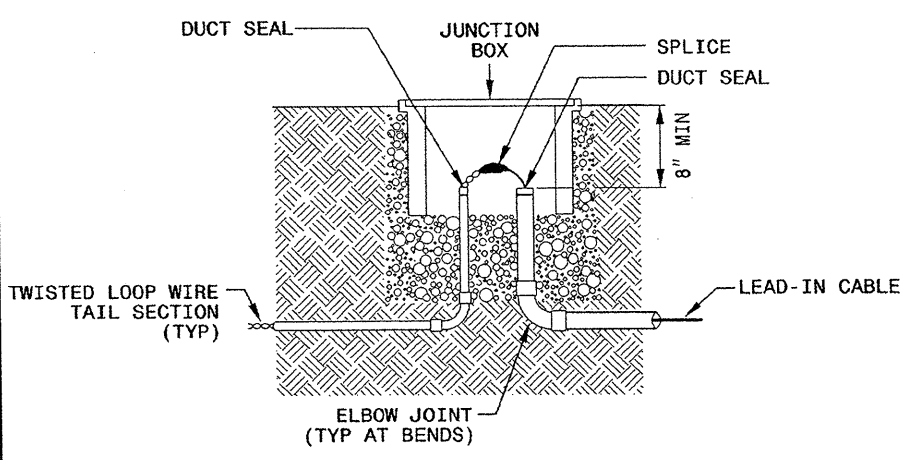
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

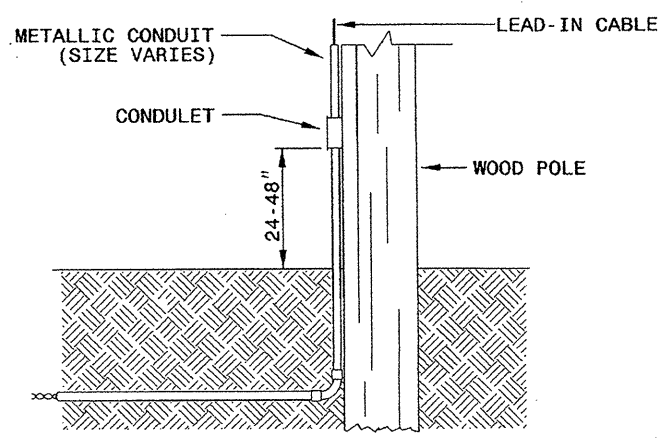
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

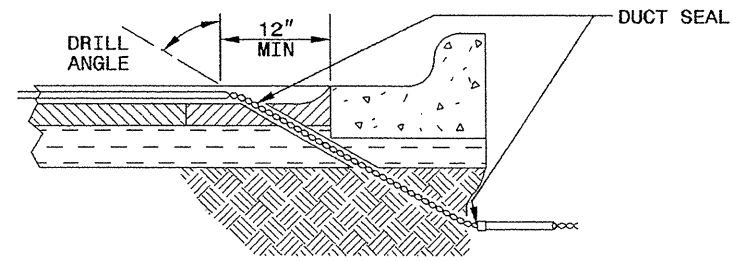


NOTE

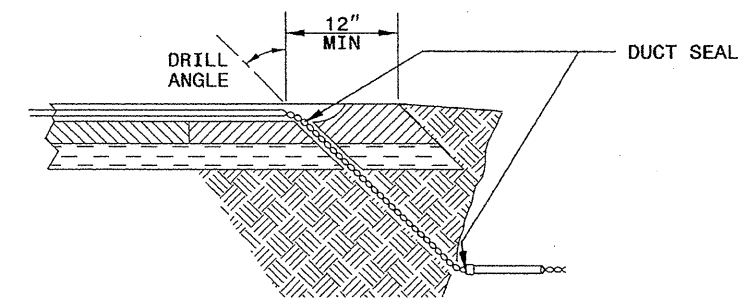
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

- 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

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Garner, NC 27529

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Milton Dean 11/24/08
SIGNATURE DATE

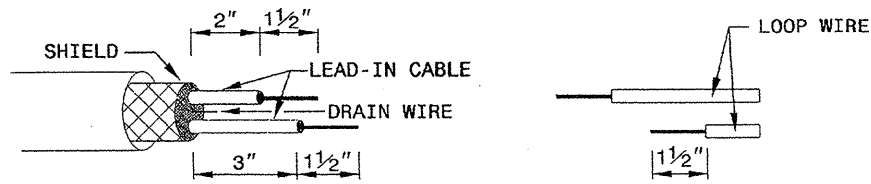
STATE OF
NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

11-08

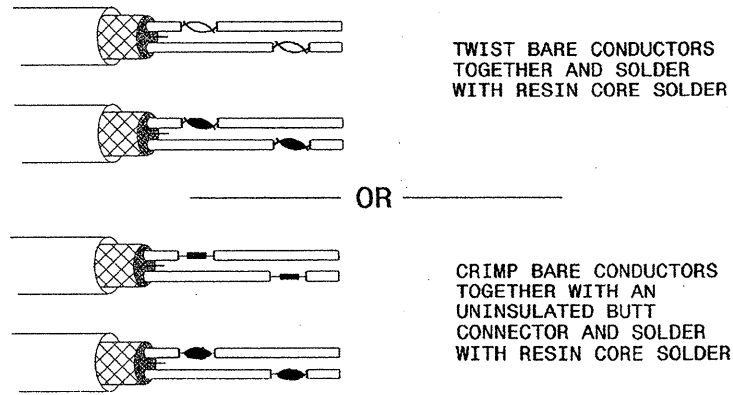
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

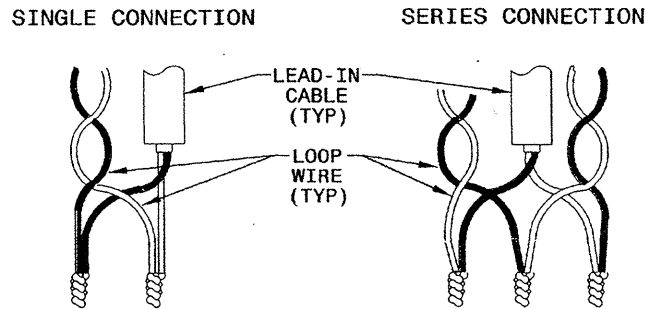


STEP 2. CONNECT AND SOLDER

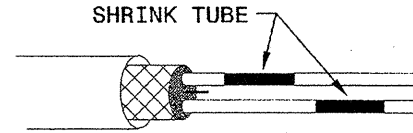


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

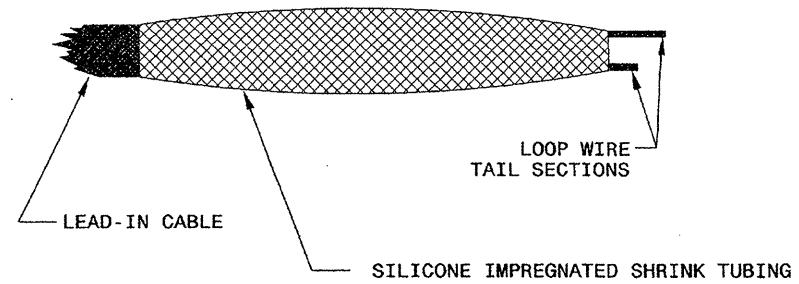
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



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
1725D01

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Michael J. Dean 11/24/08
SIGNATURE DATE