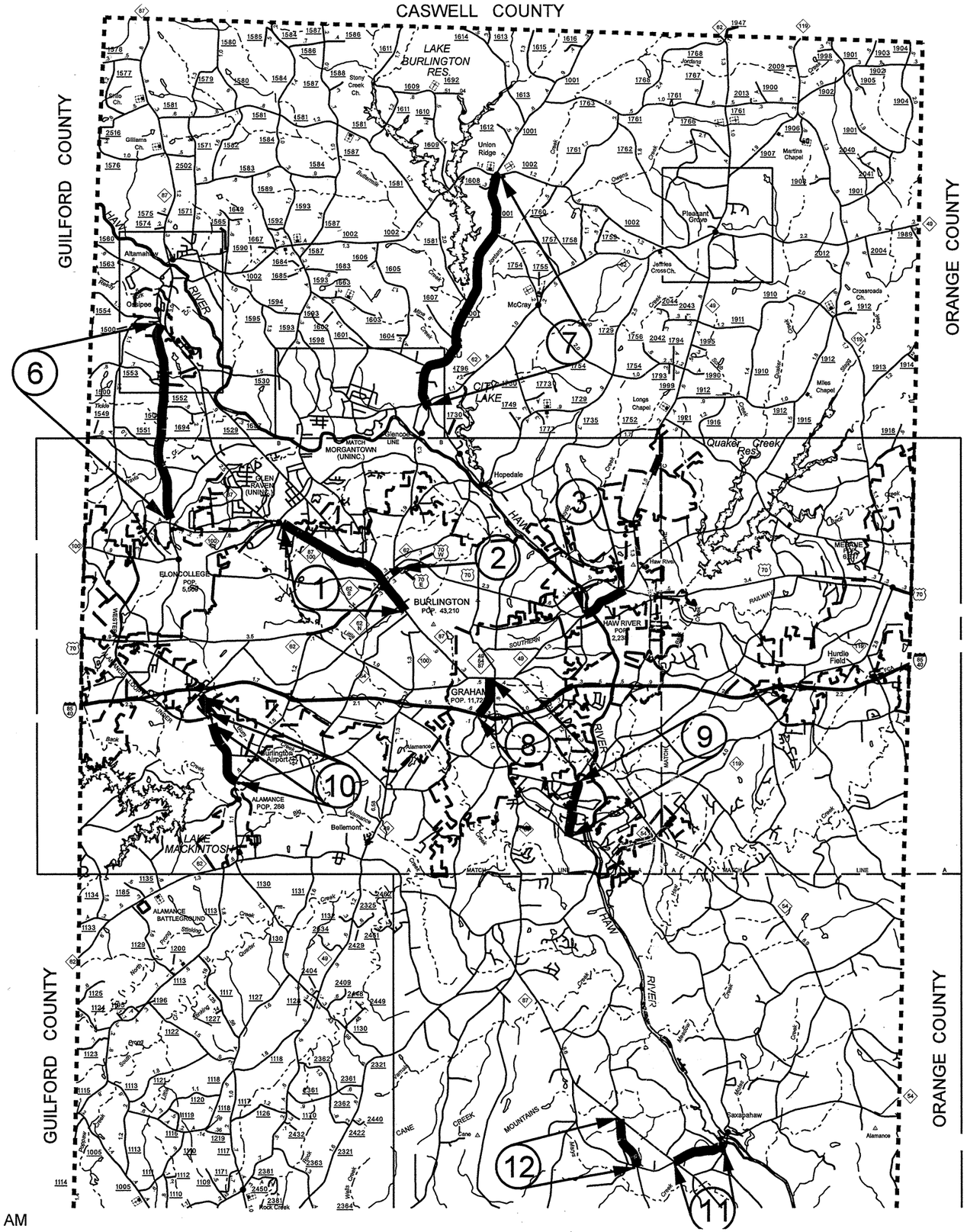
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18, ETC.	1	
F.A. PROJ. NO.			



NOTE:
MAP 4 & 5 - HAVE BEEN DELETED

ALAMANCE COUNTY

vicinity_sheet1.dgn 11/13/2009 10:26:06 AM

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18, ETC.	2	
F.A. PROJ. NO.			

NOTE:
MAP 4 & 5
HAVE
BEEN DELETED

ALAMANCE COUNTY

GUILFORD COUNTY

ELON COLLEGE POP. 5,060

BURLINGTON POP. 45,210

GLEN RAVEN (UNINC.)

MORGANTOWN (UNINC.)

Carolina CITY LAKE

Hopedale

HAW RIVER POP. 2,338

GRAHAM POP. 11,725

Swepsonville

ALAMANCE POP. 386

Burlington Airport

MAYS LAKE

LAKE MACKINTOSH

Brooks St

Gilmer St

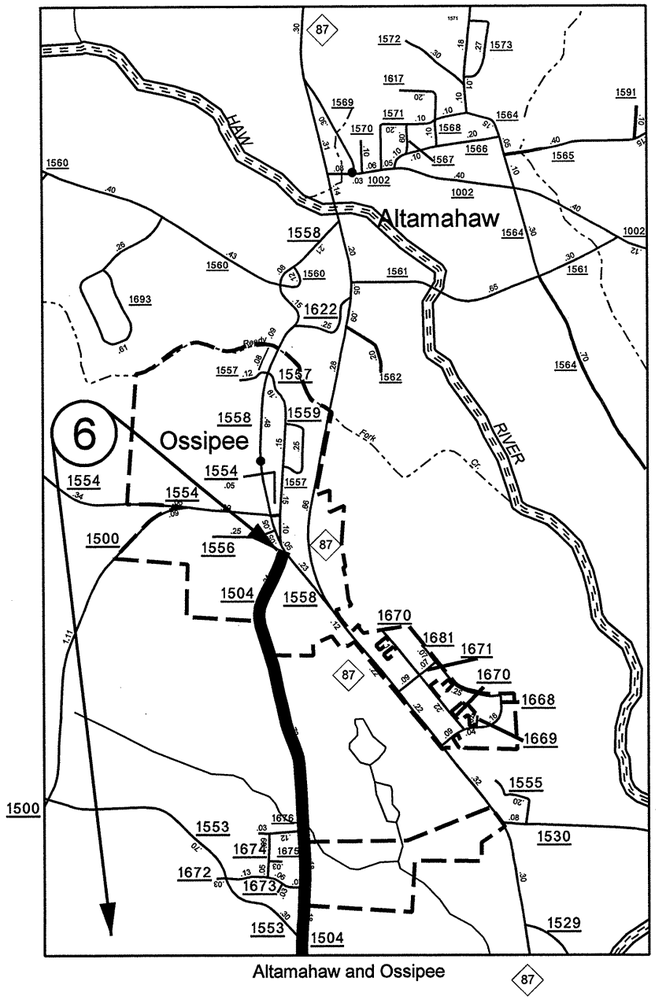
Cameron St

Forestdale Dr.

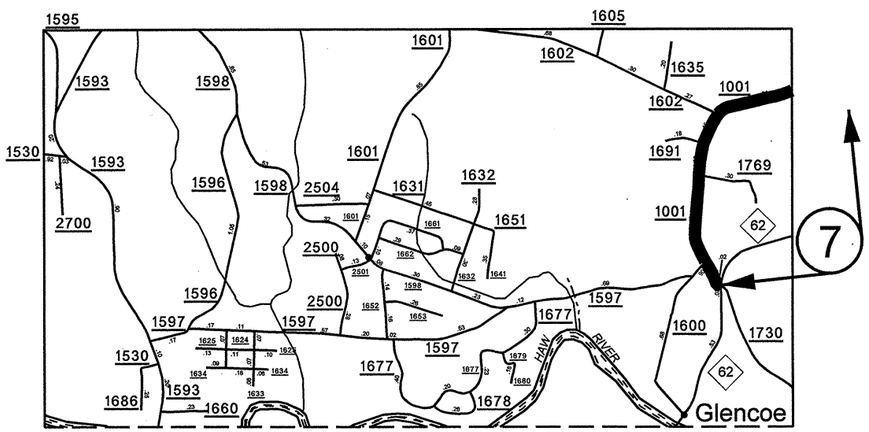
NEW PAVEMENT - DO NOT PAVE

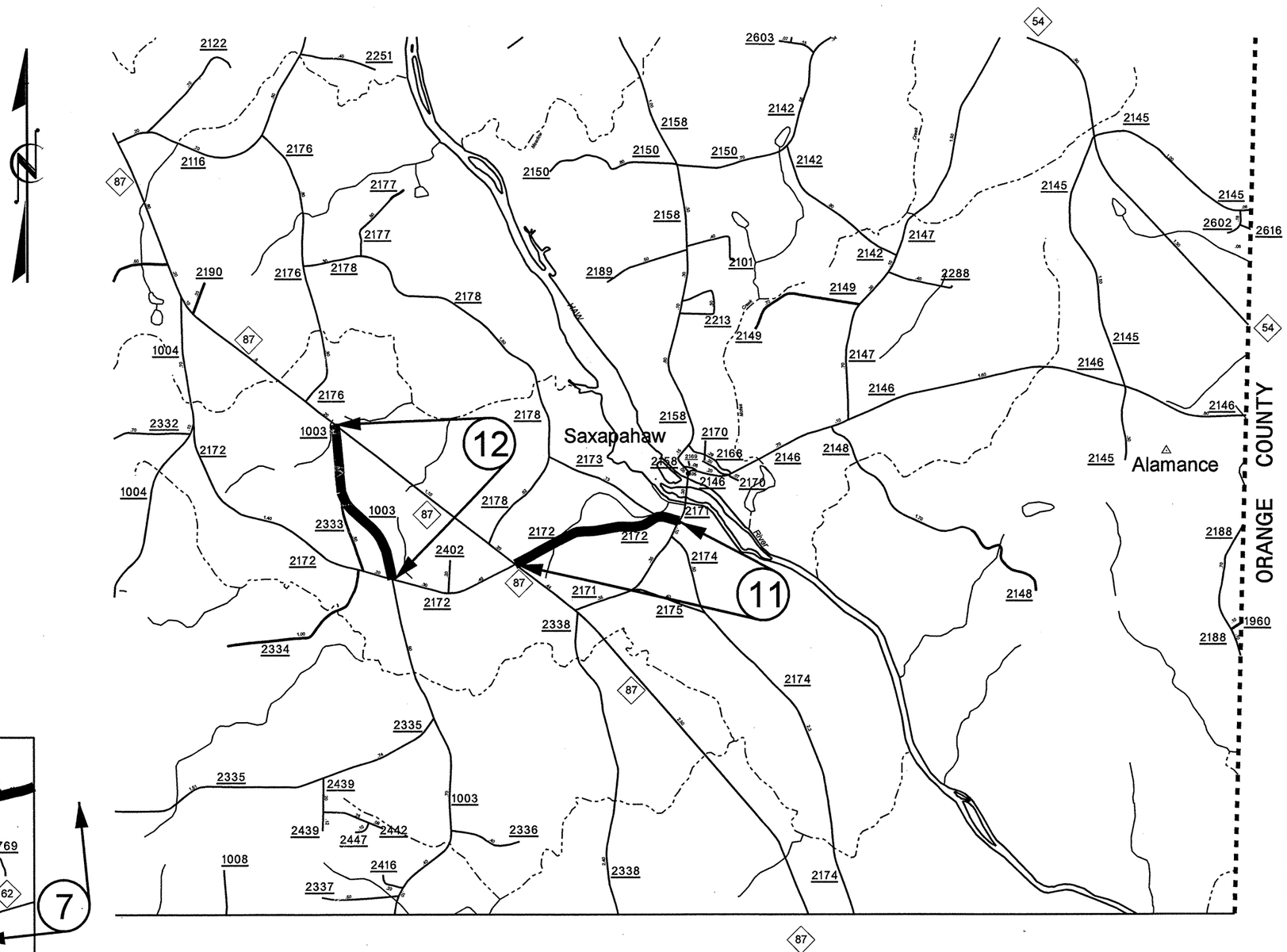
ALAMANCE COUNTY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18, ETC.	3	
F.A. PROJ. NO.			



Altamahaw and Ossipee



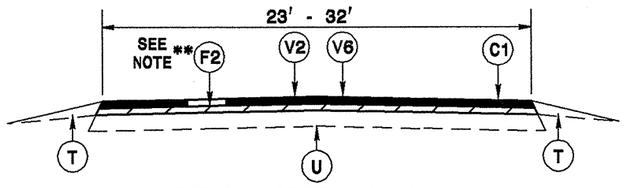


NOTE:
MAP 4 & 5 - HAVE BEEN DELETED

vicinity_sheet3.dgn 11/13/2009 10:36:28 AM

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18 & 7CR.20011.18	4	

NOTE: MAP 4 & 5 HAVE BEEN DELETED



TYPICAL SECTION NO. 1

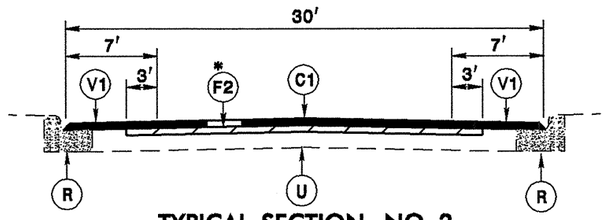
TO BE USED ON:

MAP 1 STA. 000+00 TO STA. 000+55
STA. 003+20 TO STA. 013+35
STA. 014+40 TO STA. 017+25
STA. 035+05 TO STA. 054+15
STA. 055+75 TO STA. 076+95
MAP 3 STA. 000+00 TO STA. 006+70
STA. 022+00 TO STA. 022+75
~~MAP 5 STA. 005+42 TO STA. 007+93~~

DO NOT PAVE - BRIDGES

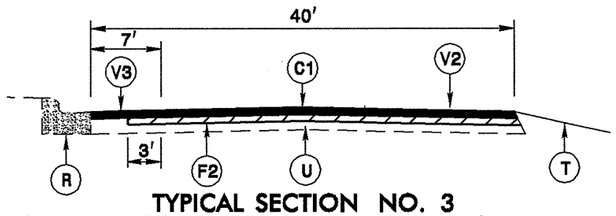
MAP 3 STA. 06+70 TO STA. 10+40
MAP 5 STA. 07+93 TO STA. 11+60

NOTE:
** DO NOT PLACE F2 ON INCIDENTAL MILLING



TYPICAL SECTION NO. 2

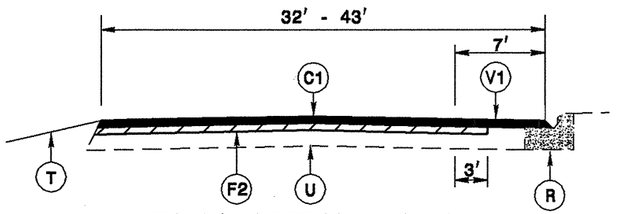
MAP 1 STA. 00+55 TO STA. 03+20
* NOTE: DO NOT PLACE F2 ON INCIDENTAL MILLING



TYPICAL SECTION NO. 3

MAP 1 STA. 13+35 TO STA. 14+40
MAP 3 STA. 10+40 TO STA. 11+05 *

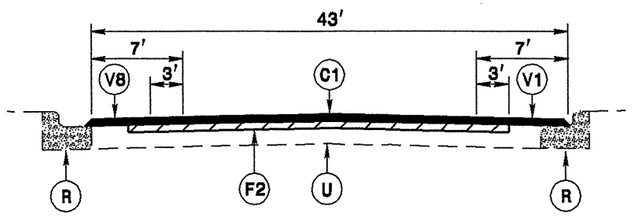
NOTE:
* DO NOT PLACE 78M ON THIS MAP



TYPICAL SECTION NO. 4

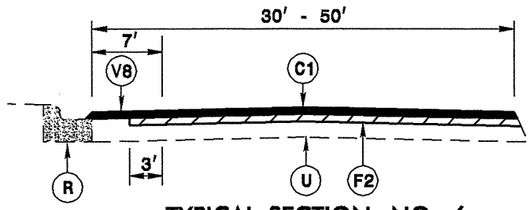
TO BE USED ON:

MAP 1 STA. 17+25 TO STA. 18+85
STA. 54+15 TO STA. 55+75
MAP 3 STA. 12+05 TO STA. 14+45



TYPICAL SECTION NO. 5

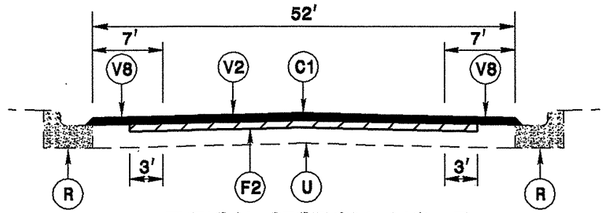
MAP 1 STA. 18+85 TO STA. 20+15



TYPICAL SECTION NO. 6

TO BE USED ON:

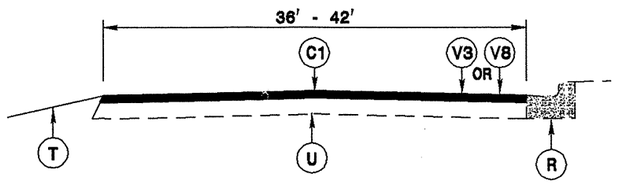
MAP 1 STA. 20+15 TO STA. 21+25
MAP 3 STA. 14+45 TO STA. 22+00



TYPICAL SECTION NO. 7

TO BE USED ON:

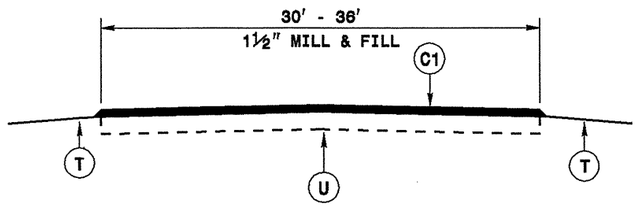
MAP 1 STA. 21+25 TO STA. 25+95



TYPICAL SECTION NO. 8

TO BE USED ON:

MAP 1 STA. 25+95 TO STA. 29+65 (USE WITH V8)
MAP 3 STA. 11+20 TO STA. 12+05 (USE WITH V3)



TYPICAL SECTION NO. 9

TO BE USED ON:

MAP 1 STA. 29+65 TO STA. 35+05

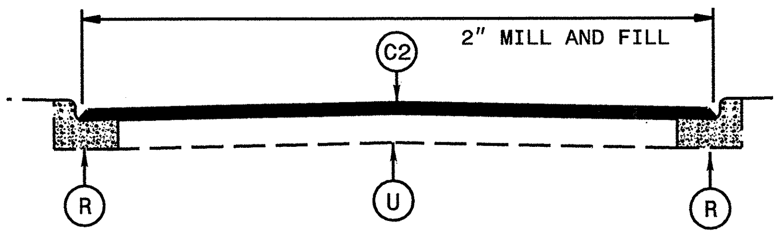
REFER TO SHEET 8
FOR MILLING DETAILS

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	DELETED
C4	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C5	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
D	PROP. APPROX. 3 " ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
F1	DELETED
F2	AST MAT COAT, 78M
R	EXISTING CONCRETE CURB & GUTTER OR EXISTING CONCRETE GUTTER
R1	EXISTING CONCRETE ISLAND
T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
U	EXISTING PAVEMENT.
V1	0 - 1½" MILLING FOR 7 FT FROM THE FACE OF CURB TO THE ROADWAY
V2	MILLING FROM 4FT TO 12 FT, 1½" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V3	0 - 1½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V4	0 - 2¼" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V5	0 - 2½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V6	MILLING FROM 4FT TO 12 FT, 2 " IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V7	0 - 1¼" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V8	0 - 1½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V9	MILLING 4FT, 3" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V10	MILLING 4FT, 8" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER

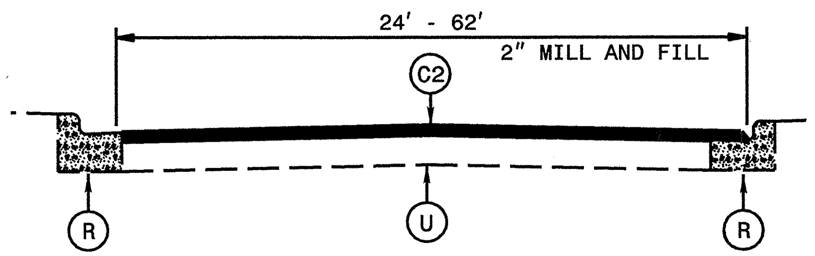
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18 & 7CR.20011.18	5	

NOTE: MAPS 4 & 5 HAVE BEEN DELETED



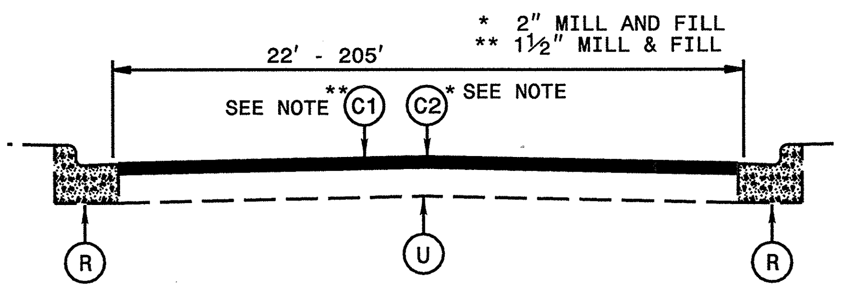
TYPICAL SECTION NO. 10

TO BE USED ON:
MAP 1 STA. 76+95 TO STA. 82+40



TYPICAL SECTION NO. 11

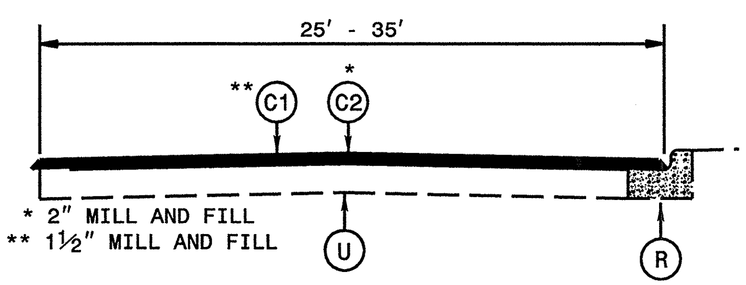
TO BE USED ON:
MAP 1 STA. 082+40 TO STA. 083+90



TYPICAL SECTION NO. 12

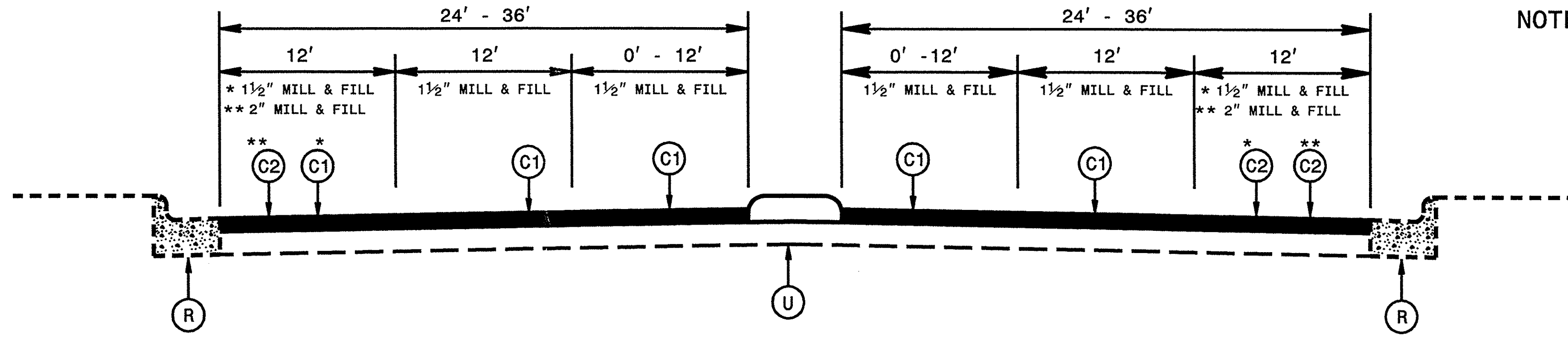
TO BE USED ON
MAP 1 STA. 083+90 TO STA. 085+70 *
STA. 105+66 TO STA. 110+35 *
MAP 3 STA. 011+05 TO STA. 011+20 **
STA. 022+75 TO STA. 047+80 **
~~MAP 5 STA. 018+35 TO STA. 019+40 *~~
~~STA. 020+80 TO STA. 068+20 *~~
~~MAP 5A STA. 000+00 TO STA. 004+30 *~~

NOTE:
* 2" MILL AND FILL
** 1½" MILL & FILL



TYPICAL SECTION NO. 13

TO BE USED ON:
MAP 1 STA. 85+70 TO STA. 091+35 *
STA. 91+35 TO STA. 105+66 **



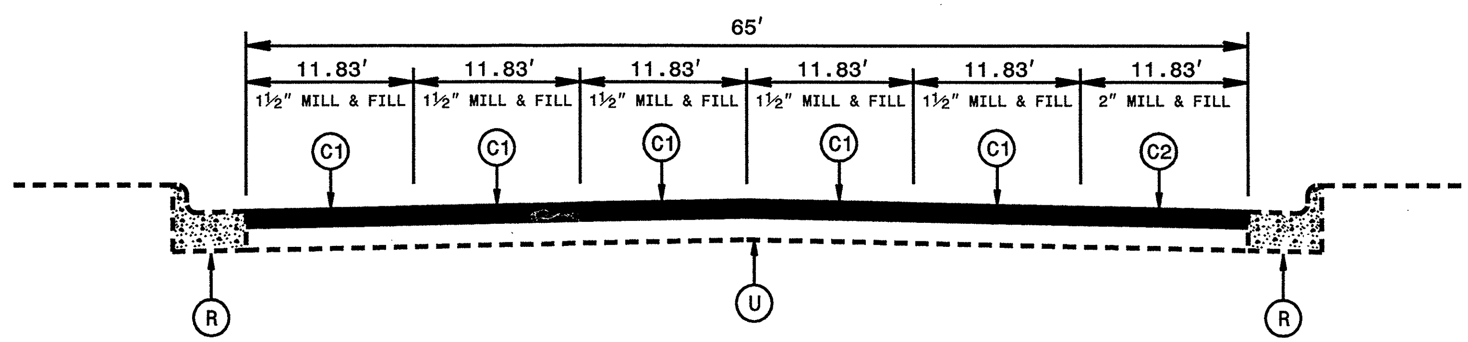
TYPICAL SECTION NO. 14

TO BE USED ON MAP 1
STA. 110+35 TO STA. 113+20
STA. 114+50 TO STA. 120+75
STA. 122+15 TO STA. 125+55
STA. 128+85 TO STA. 141+40

NOTE:
NEW PAVEMENT IN INTERSECTION -
DO NOT PAVE
MAP 1 STA. 113+20 TO STA. 114+50
MAP 1 STA. 120+75 TO STA. 122+75

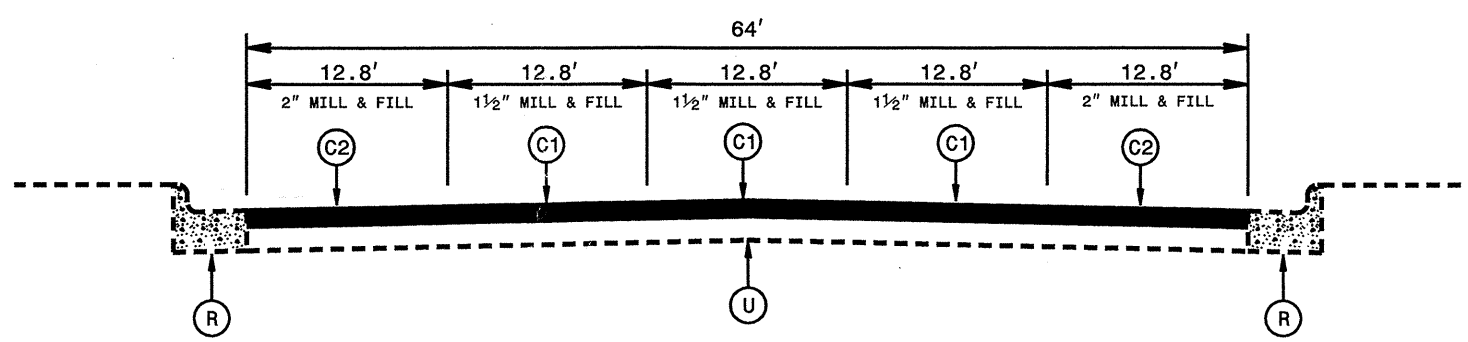
* NOTE 1½" MILLING:
STA. 110+35 TO STA. 113+20 LT. & RT.
STA. 122+15 TO STA. 125+55 LT.
STA. 128+85 TO STA. 141+40 LT.

** NOTE 2" MILLING:
STA. 114+50 TO STA. 120+75 LT. & RT.
STA. 122+15 TO STA. 125+55 RT.
STA. 128+85 TO STA. 141+40 RT.



TYPICAL SECTION NO. 15

TO BE USED ON:
MAP 1 STA. 125+55 TO STA. 128+85



TYPICAL SECTION NO. 16

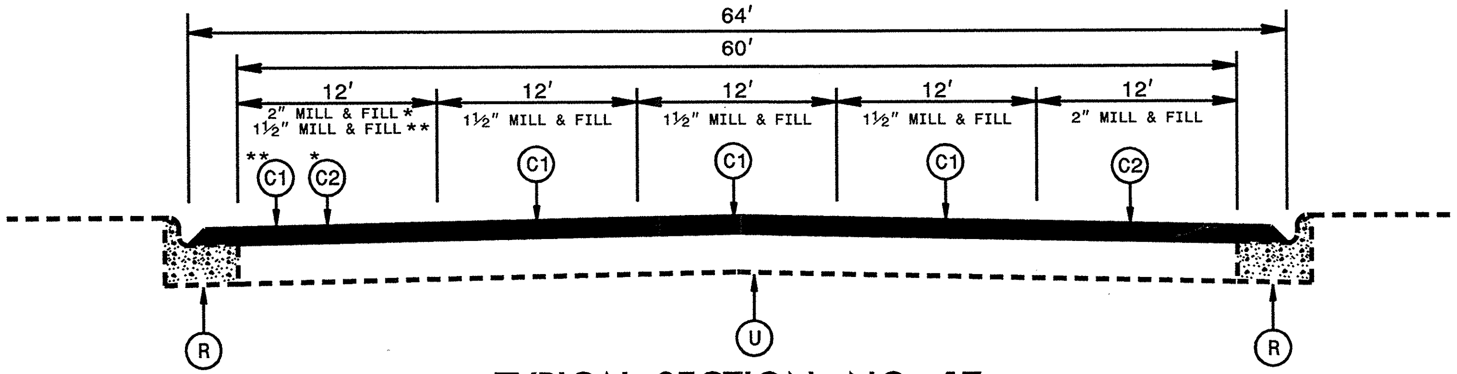
TO BE USED ON:
MAP 1 STA. 141+40 TO STA. 146+05

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	DELETED
C4	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C5	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
D	PROP. APPROX. 3 " ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
F1	DELETED
F2	AST MAT COAT, 78M
R	EXISTING CONCRETE CURB & GUTTER OR EXISTING CONCRETE GUTTER
R1	EXISTING CONCRETE ISLAND
T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
U	EXISTING PAVEMENT.
V1	0 - 1½" MILLING FOR 7 FT FROM THE FACE OF CURB TO THE ROADWAY
V2	MILLING FROM 4FT TO 12 FT, 1½" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V3	0 - 1½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V4	0 - 2¼" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V5	0 - 2½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V6	MILLING FROM 4FT TO 12 FT, 2 " IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V7	0 - 1¼" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V8	0 - 1½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V9	MILLING 4FT, 3" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V10	MILLING 4FT, 8" IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18 & 7CR.20011.18	6	

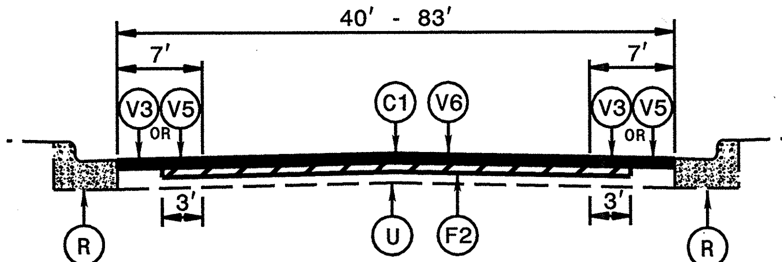
NOTE: MAPS 4 & 5 HAVE BEEN DELETED



TYPICAL SECTION NO. 17

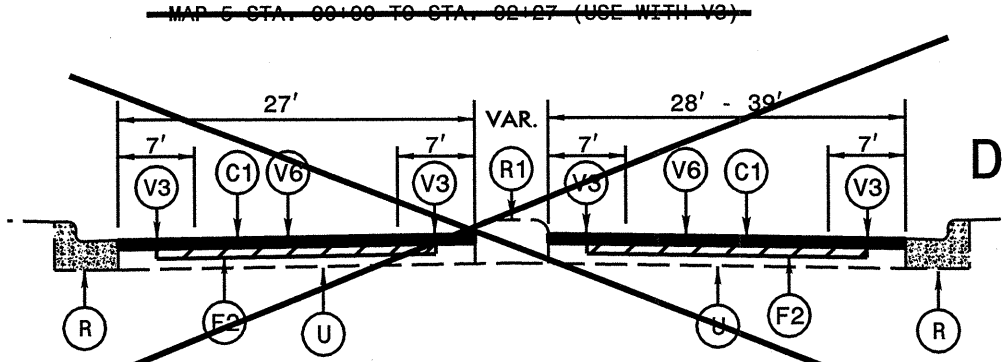
TO BE USED ON MAP 1
STA. 146+05 TO STA. 156+00

NOTE:
* 2″ MILL & FILL STA. 146+05 TO STA. 148+95 LT.
** 1½″ MILL & FILL STA. 148+95 TO STA. 156+00 LT.



TYPICAL SECTION NO. 18

TO BE USED ON:
MAP 2 STA. 00+00 TO STA. 05+78 (USE WITH V5)
MAP 3 STA. 11+05 TO STA. 11+20 (USE WITH V3)
~~MAP 5 STA. 00+00 TO STA. 02+27 (USE WITH V3)~~



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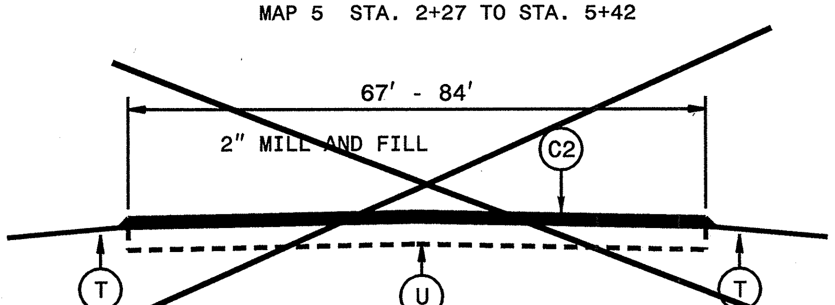
TYPICAL SECTION NO. 19

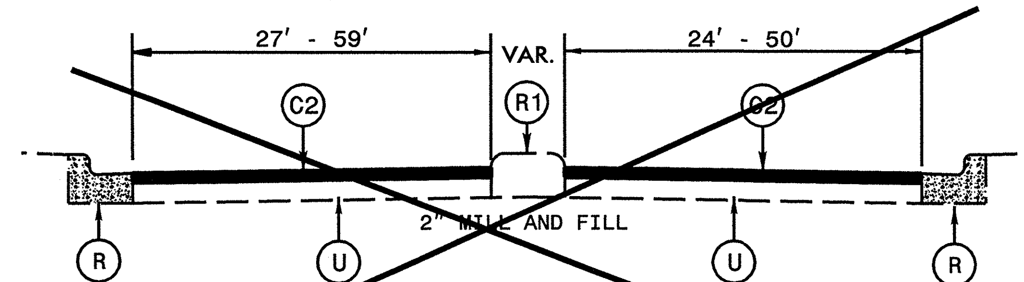
TO BE USED ON:
MAP 5 STA. 2+27 TO STA. 5+42



TYPICAL SECTION NO. 20

TO BE USED ON:
MAP 5 STA. 11+60 TO STA. 13+55
STA. 18+35 TO STA. 19+40

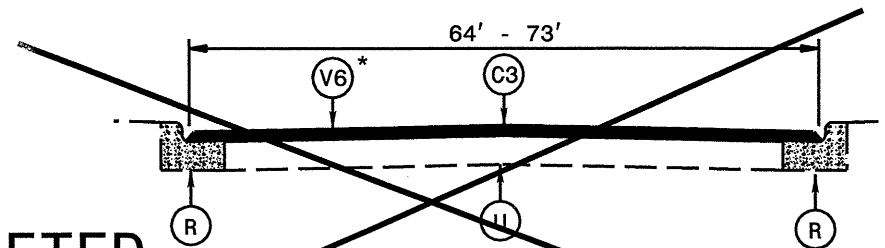
DELETED



DELETED

TYPICAL SECTION NO. 21

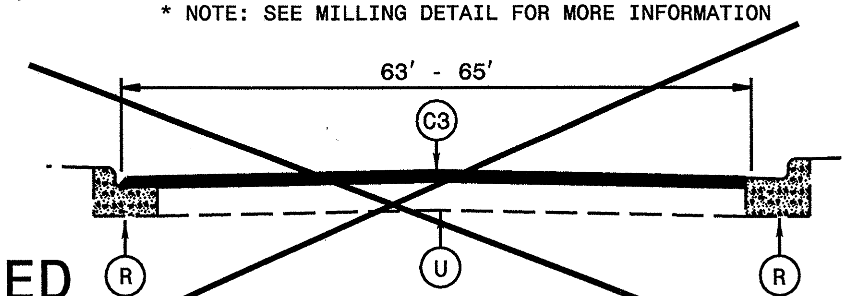
TO BE USED ON:
MAP 5 STA. 13+55 TO STA, 18+35
STA. 19+40 TO STA. 23+80



DELETED

TYPICAL SECTION NO 22

TO BE USED ON:
MAP 4 STA. 00+00 TO STA. 55+25
STA. 60+25 TO STA. 95+00
* NOTE: SEE MILLING DETAIL FOR MORE INFORMATION



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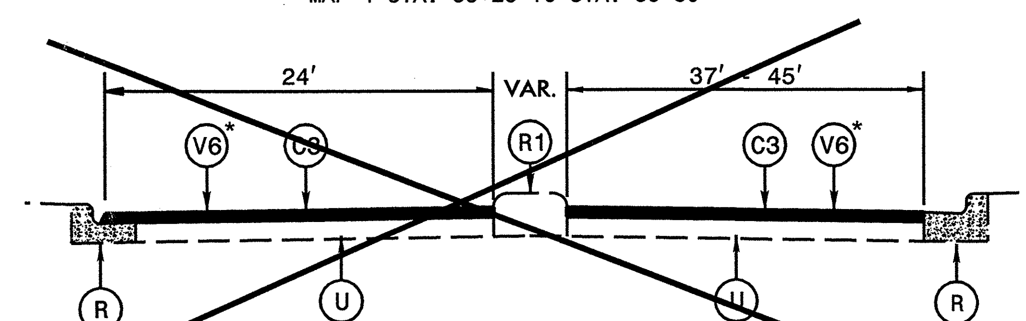
TYPICAL SECTION NO. 23

TO BE USED ON:
MAP 4 STA. 55+25 TO STA. 55+80



TYPICAL SECTION NO. 24

TO BE USED ON:
MAP 4 STA. 55+80 TO STA. 60+25
* NOTE: SEE MILLING DETAIL FOR MORE INFORMATION

DELETED

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	DELETED
C4	PROP. APPROX. 1¼″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C5	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
D	PROP. APPROX. 3 ″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
F1	DELETED
F2	AST MAT COAT, 78M
R	EXISTING CONCRETE CURB & GUTTER OR EXISTING CONCRETE GUTTER
R1	EXISTING CONCRETE ISLAND
T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
U	EXISTING PAVEMENT.
V1	0 - 1½″ MILLING FOR 7 FT FROM THE FACE OF CURB TO THE ROADWAY
V2	MILLING FROM 4FT TO 12 FT, 1½″ IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V3	0 - 1½″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V4	0 - 2¼″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V5	0 - 2½″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V6	MILLING FROM 4FT TO 12 FT, 2 ″ IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V7	0 - 1¼″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V8	0 - 1½″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V9	MILLING 4FT, 3″ IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V10	MILLING 4FT, 8″ IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER

$$$$$$$SYSTIME$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$DGN$$$$
$$$$$$USERNAME$$$$$

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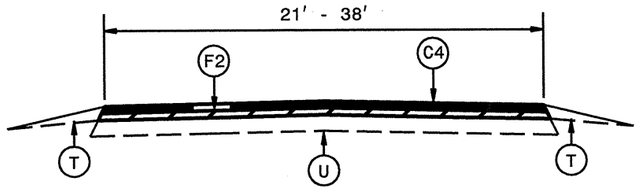
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18 & 7CR.20011.18	7	

NOTE: MAPS 4 & 5 HAVE BEEN DELETED



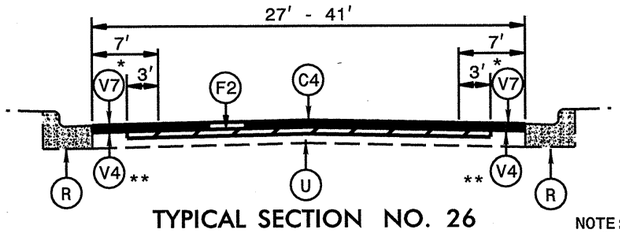
TYPICAL SECTION NO. 25

TO BE USED ON:

MAP 6 STA. 000+00 TO STA. 106+30
STA. 107+00 TO STA. 143+15
STA. 147+20 TO STA. 198+10
MAP 7 STA. 000+00 TO STA. 157+75
STA. 159+55 TO STA. 190+00
STA. 190+35 TO STA. 252+40
MAP 12 STA. 000+00 TO STA. 049+80

* NOTE: THE FOLLOWING STATIONS WILL NOT BE PAVED DUE TO BRIDGES:

MAP 6 STA. 106+30 TO STA. 107+00
MAP 7 STA. 157+75 TO STA. 159+55
MAP 7 STA. 190+00 TO STA. 190+35



TYPICAL SECTION NO. 26

TO BE USED ON:

MAP 6 STA. 143+15 TO STA. 144+50
MAP 8 STA. 000+00 TO STA. 038+45

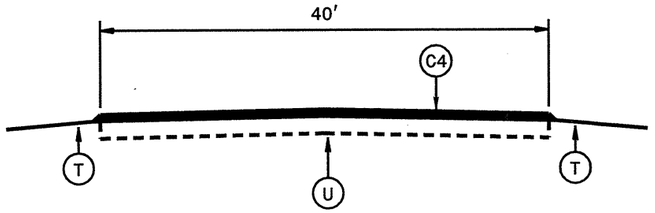
NOTE:

* 0 - 1¼″ MILLING

MAP 6 STA. 143+15 TO STA. 144+50 (USE WITH V7)
MAP 8 STA. 000+00 TO STA. 005+07 (USE WITH V7)

** 0 - 2¼″ MILLING

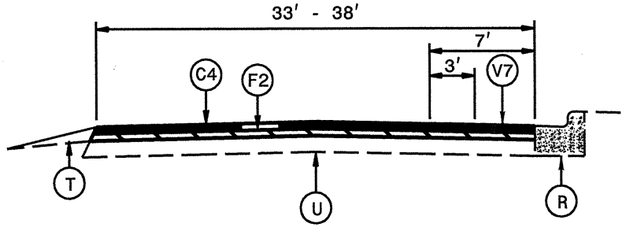
MAP 8 STA. 005+07 TO STA. 038+45 (USE WITH V4)



TYPICAL SECTION NO. 27

TO BE USED ON:

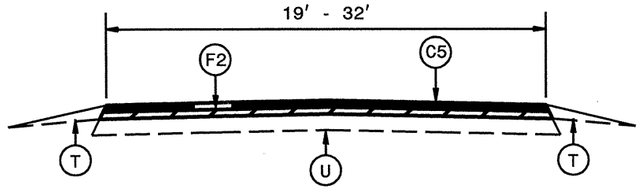
MAP 6 STA. 144+50 TO STA. 145+55



TYPICAL SECTION NO. 28

TO BE USED ON:

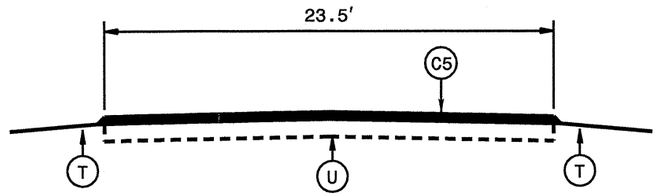
MAP 6 STA. 145+55 TO STA. 147+20



TYPICAL SECTION NO. 29

TO BE USED ON:

MAP 9 STA. 00+00 TO STA. 54+00
MAP 11 STA. 00+00 TO STA. 50+38



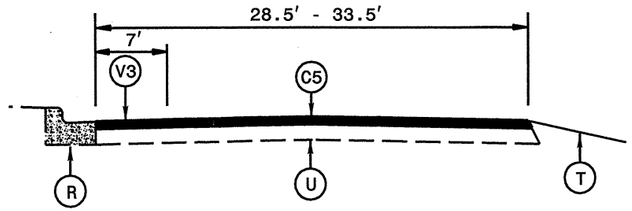
TYPICAL SECTION NO. 30

TO BE USED ON:

MAP 10 STA. 00+00 TO STA. 05+84
STA. 11+12 TO STA. 56+88
STA. 76+70 TO STA. 88+77

* NOTE:

STA. 56+88 TO STA. 76+70 DO NOT PAVE - NEW PAVEMENT



TYPICAL SECTION NO. 31

TO BE USED ON:

MAP 10 STA. 05+84 TO STA. 11+12

PAVEMENT SCHEDULE

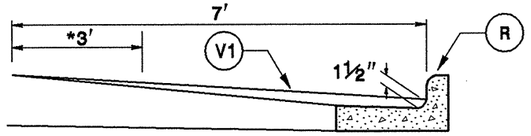
C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	DELETED
C4	PROP. APPROX. 1¼″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C5	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
D	PROP. APPROX. 3 ″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
F1	DELETED
F2	AST MAT COAT, 78M
R	EXISTING CONCRETE CURB & GUTTER OR EXISTING CONCRETE GUTTER
R1	EXISTING CONCRETE ISLAND
T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
U	EXISTING PAVEMENT.
V1	0 - 1½″ MILLING FOR 7 FT FROM THE FACE OF CURB TO THE ROADWAY
V2	MILLING FROM 4FT TO 12 FT, 1½″ IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V3	0 - 1½″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V4	0 - 2¼″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V5	0 - 2½″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V6	MILLING FROM 4FT TO 12 FT, 2 ″ IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V7	0 - 1¼″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V8	0 - 1½″ MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V9	MILLING 4FT, 3″ IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER
V10	MILLING 4FT, 8″ IN DEPTH AT LOCATIONS AS DIRECTED BY THE ENGINEER

$$$$USERNAME$$$$ $$$$DGN$$$$ $$$$TIME$$$$

5/28/99

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18 & 7CR.20011.18	8	

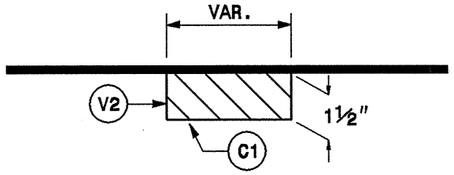
MILLING DETAIL 1



* IF 78M SEAL IS INVOLVED OVERLAP 3'
MILL EXISTING ASPHALT PAVEMENT 0-1½" AT
LOCATIONS AS DIRECTED BY THE ENGINNER

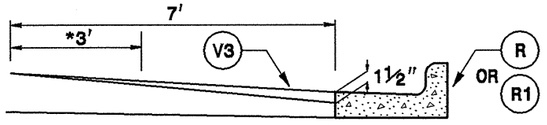
NOTE: TO BE USED IN CONJUCTION WITH
TS. NO. 2 ON MAP 1 STA. 00+55 TO STA. 03+20 LT./RT.
TS. NO. 4 & 5 ON MAP 1 STA. 17+25 TO STA. 20+15 RT.
TS. NO. 4 ON MAP 1 STA. 54+15 TO STA. 55+75

MILLING DETAIL 2



MILL EXISTING ASPHALT PAVEMENT 1½" IN DEPTH
AT LOCATIONS AS DIRECTED BY THE ENGINEER.
NOTE: TO BE USED IN CONJUNCTION WITH
T.S. NO. 1 & 3 ON MAP 1 STA. 008+35 TO STA. 016+60
T.S. NO. 7 ON MAP 1 STA. 021+25 TO STA. 022+75

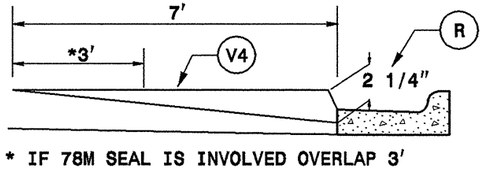
MILLING DETAIL 3



* IF 78M SEAL IS INVOLVED OVERLAP 3'
MILL EXISTING ASPHALT PAVEMENT 0-1½" AT
LOCATIONS AS DIRECTED BY THE ENGINNER

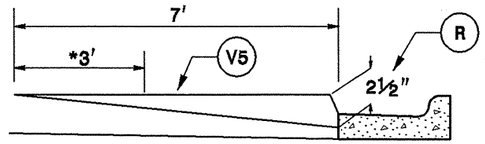
NOTE: TO BE USED IN CONJUCTION WITH
TS. NO. 3 ON MAP 1 STA. 013+35 TO STA. 014+40 LT.
TS. NO. 8 ON MAP 3 STA. 011+20 TO STA. 014+45 RT.
~~TS. NO. 18 & 19 ON MAP 5 STA. 000+00 TO STA. 005+42~~
TS. NO. 31 ON MAP 10 STA. 005+84 TO STA. 011+12

MILLING DETAIL 4



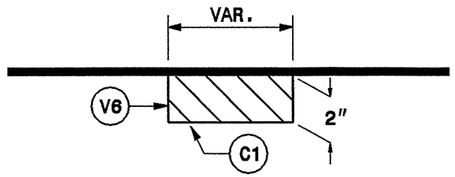
* IF 78M SEAL IS INVOLVED OVERLAP 3'
MILL EXISTING ASPHALT PAVEMENT 0" - 2 1/4" AT
LOCATIONS AS DIRECTED BY THE ENGINNER
NOTE: TO BE USED IN CONJUCTION WITH
TS. NO. 26 ON MAP 8 STA. 005+07 TO STA. 038+45

MILLING DETAIL 5



* IF 78M SEAL IS INVOLVED OVERLAP 3'
MILL EXISTING ASPHALT PAVEMENT 0" - 2½" AT
LOCATIONS AS DIRECTED BY THE ENGINNER
NOTE: TO BE USED IN CONJUCTION WITH
TS. NO. 18 ON MAP 2 STA. 00+00 TO STA. 05+78

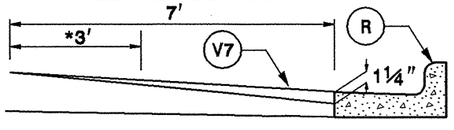
MILLING DETAIL 6



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

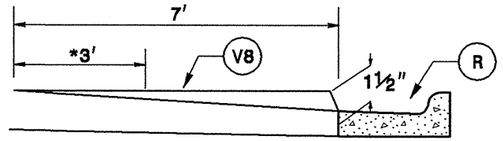
NOTE: TO BE USED IN CONJUNCTION WITH
T.S. NO. 18 ON MAP 2 STA. 004+53 TO STA. 005+78
T.S. NO. 1 ON MAP 3 STA. 001+15 TO STA. 004+25
~~T.S. NO. 19 ON MAP 5 STA. 004+17 TO STA. 005+42~~

MILLING DETAIL 7



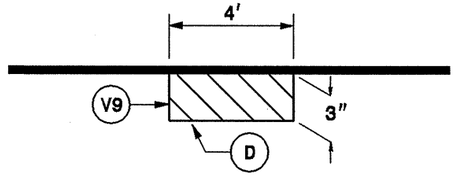
* IF 78M SEAL IS INVOLVED OVERLAP 3'
MILL EXISTING ASPHALT PAVEMENT 0-1¼" AT
LOCATIONS AS DIRECTED BY THE ENGINNER
NOTE: TO BE USED IN CONJUCTION WITH
TS. NO. 26 ON MAP 6 STA. 143+15 TO STA. 144+50
TS. NO. 28 ON MAP 6 STA. 145+55 TO STA. 147+20
TS. NO. 26 ON MAP 8 STA. 000+00 TO STA. 005+07

MILLING DETAIL 8



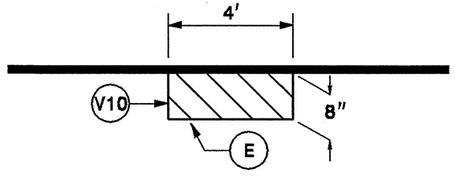
* IF 78M SEAL IS INVOLVED OVERLAP 3'
MILL EXISTING ASPHALT PAVEMENT 0" - 1½" AT
LOCATIONS AS DIRECTED BY THE ENGINNER
NOTE: TO BE USED IN CONJUCTION WITH
TS. NO. 5, 6 & 7 ON MAP 1 STA. 18+85 TO STA. 23+70 LT.
TS. NO. 7 & 8 ON MAP 1 STA. 21+25 TO STA. 29+65 RT.
TS. NO. 6 ON MAP 3 STA. 14+45 TO STA. 22+00

MILLING DETAIL 9



MILL EXISTING ASPHALT PAVEMENT 3" IN DEPTH
AT LOCATIONS AS DIRECTED BY THE ENGINEER.
NOTE: THIS ITEM IS CONTIGENT FOR MAPS 1 AND 8

MILLING DETAIL 10



MILL EXISTING ASPHALT PAVEMENT 8" IN DEPTH, FOR
PATCHING, AT LOCATIONS AS DIRECTED BY THE ENGINEER.
NOTE: THIS ITEM IS CONTIGENT FOR MAP 1

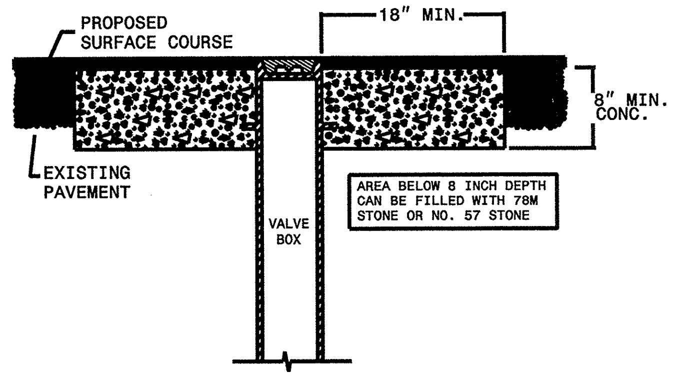
NOTE: MAPS 4 & 5 HAVE BEEN DELETED

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.18 & 7CR.20011.18	9	

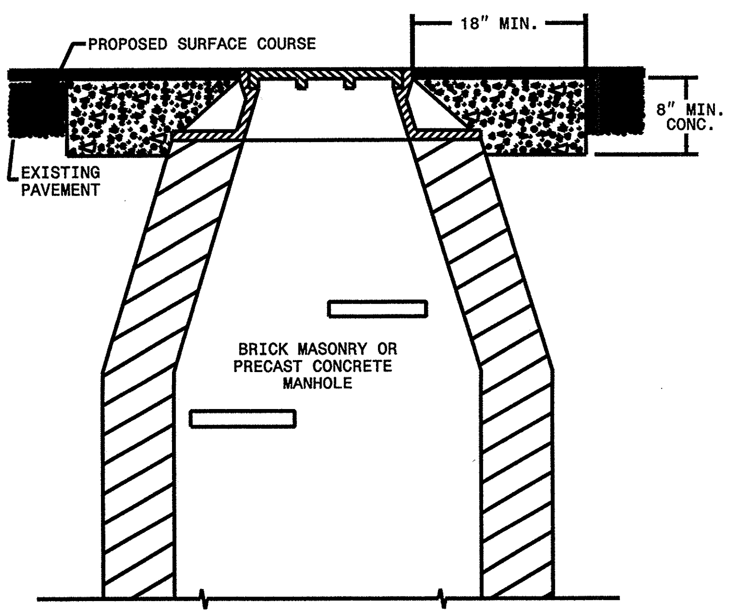
NOTE: MAPS 4 & 5 HAVE BEEN DELETED

STANDARD CONCRETE ENCASEMENT FOR MANHOLE & VALVE CASTINGS IN PAVEMENT

DETAIL DRAWING NO. 858.01

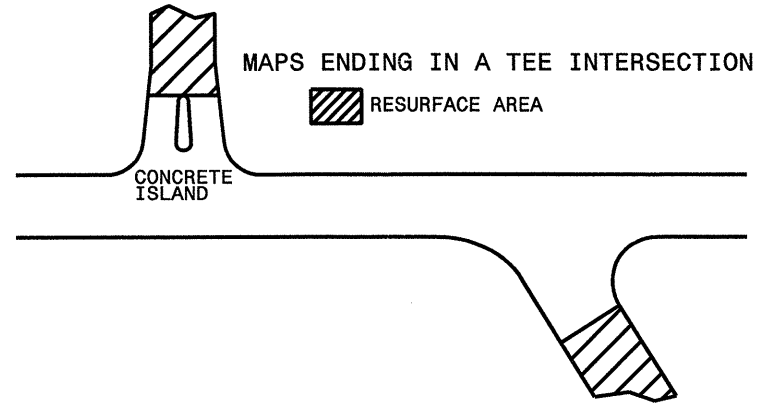


USE RAPID SET GROUT, MORTAR, OR CONCRETE
CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS ARE NOT IN THE TRAVEL LANE.



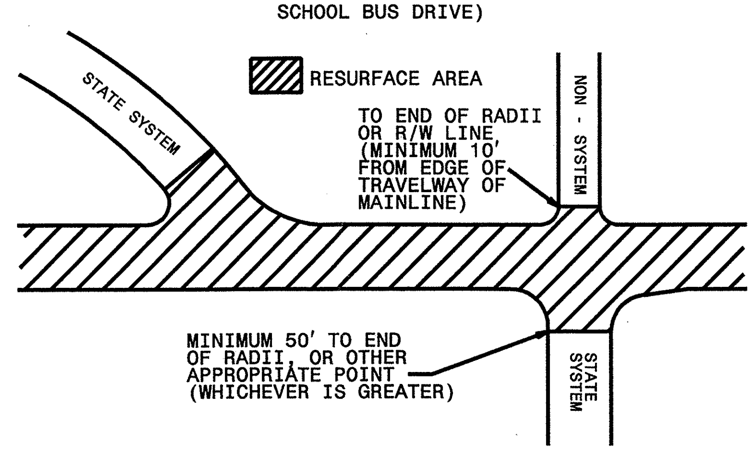
NOTES:
1. MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
2. ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
3. EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
4. RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED

PAVING DETAIL 1
MAIN LINE IS NOT BEING RESURFACED



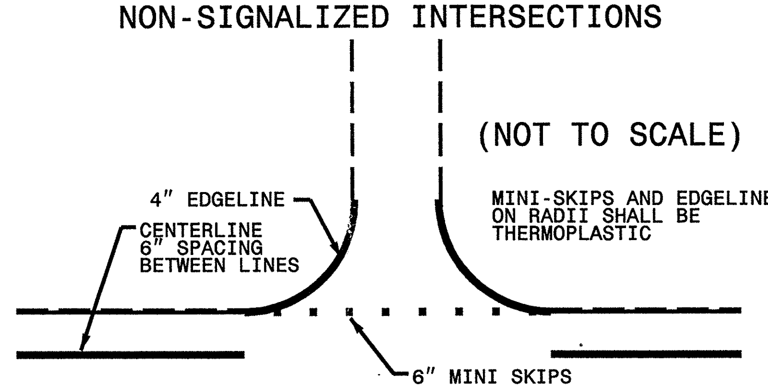
PAVING DETAIL 2
MAIN LINE IS BEING RESURFACED

NOTE: NON-SYSTEM (CITY STREET, PRIVATE DRIVE, SCHOOL BUS DRIVE)

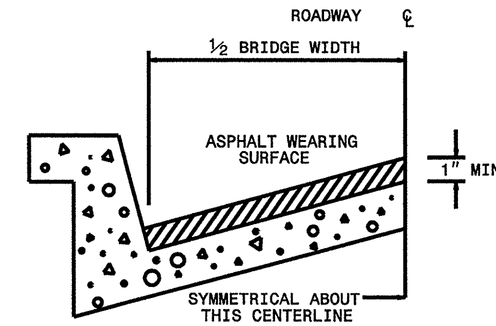


TO BE USED AT ALL NON-SIGNALIZED INTERSECTIONS

(NOT TO SCALE)



NOTE: MINI SKIPS SHALL BE PLACED ON A 10' CYCLE, CONTAINING AN 8' AND 2' SKIP, THE WIDTH OF THE SKIP SHALL BE 6".



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 1" 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 RADII, 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.

NOTE: MAPS 4 & 5 HAVE BEEN DELETED

PROJECT NO.	SHEET NO.	TOTAL NO
7CR.10011.18, 7CR.20011.18	10	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SUR. TEST. REQ.	LENGTH MI	WIDTH FT	BORROW CY	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	MILL. 3" SY	MILLING 1½" SY	MILLING 2" SY	MILL. 0" TO 1½" SY	MILLING 0" TO 2½" SY	MILLING 0" TO 1 1/4" SY	MILLING 0" TO 2 1/4" SY	INCIDENTAL MILLING SY	I19.0B TONS	S9.5B TONS	SF9.5A TONS	PG 64-22 TONS	PATCHING TONS	AST MAT COAT 78M SY	RETROFIT. EXIST.WC RAMPS EA	CONC. WC RAMPS EA	ADJ. OF DROP INLET EA	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	PORT LIGHTING LS	SEED & MULCHING AC	RESIDENT. SEEDING AC	TRENCHING (UNPAVED) (1)(2") LF	PULL BOX (STANDARD) EA	2" RISER W/ WEATHER HEAD EA	INDUCTIVE LOOP SAW CUT LF	LEAD-IN CABLE (14-2) LF
7CR.10011.18	Alamance	1	NC 87 (WEBB AVE.)	FROM PAVEMENT JOINT SOUTH OF SR 1515 (FLORA AVE) TO GILMER ST. (NON-SYSTEM)	1	NO	0.010	26-30		225		470								80	14		5	27	164						1								
					1 & 2	NO	0.095	30							412				833		141		8		695														
					1	NO	0.080	25					193								115		7		1,173														
					1	NO	0.050	36					353								178		11		1,056				1									
					1 & 3	NO	0.037	40					260		101						134		8		868													
					1 & 4	NO	0.084	40-44					147		124						232		14		2,070					1				200	3	2	720	200
					5 & 6	NO	0.045	44							261						118		7		1,162					1								
					7	NO	0.046	52					200		381						135		8		1,403				1	1								
					7 &8	NO	0.101	40					1,596		78						251		15		653				2	2					4	4	1,270	
					8 & 9	NO	0.084	35					1,731								145		9							1								
					9	NO	0.071	23-34					551								100		6		660													
					1	NO	0.320	23													405		24		4,318					1								
					4 & 1	NO	0.165	30							124						265		16		2,904				3	2								
					1 & 10	NO	0.370	23						1,453							786		47		3,603	1				2								
					10 & 11	NO	0.028	23-62						1,334							147		9			1									1		200	
					12 & 13	NO	0.043	41						1,025							116		7							2								
					13	NO	0.070	32						1,495							168		10						2	3					5	3	1,600	100
					13	NO	0.101	30					1,283	500							244		15					1	7	2								
					13 & 12	NO	0.209	25					3,058								319		19			4			1	4								
					12	NO	0.078	28-51					1,617								152		9															
					14	NO	0.054	48					1,521								128		8			3												
						NO	0.025	48																														
					14	NO	0.118	60					2,500	1,666							396		24			1									2		80	200
						NO	0.018	60																														
					14	NO	0.073	56-60					1,968	513							222		13															
					15	NO	0.063	65					2,181	619							252		15			3			1									
					14	NO	0.238	60					6,123	2,031							740		44			7	1		3	1								
					16 & 17	NO	0.143	64					4,214	2,295							605		36			5			7	9				300	7	5	2,292	1,020
					17	NO	0.047	59-84					1,319	457							162		10			1			3									
					17	NO	0.063	54					2,192	569							248		15			3	2		4	4				25	1		150	30
TOTAL FOR MAP NO. 1							**2.929**			**225**		**470**	**33,207**	**13,957**	**1,481**				**833**	**80**	**6,918**		**419**	**27**	**20,729**	**29**	**3**	**1**	**35**	**36**	**1**			**525**	**23**	**14**	**6,312**	**1,550**
		2	NC 62 (W. HOLT STREET OR RAUHUT STREET)	FROM US 70W (FISHER ST) TO US 70E (CHURCH ST)	18	NO	0.005	40-52								44					15		1		119									20	3	2	332	60
					18	NO	0.080	40								656					158		9		1,500				3	2								
					18	NO	0.023	40-72								187					64		4		640													
					18	NO	0.002	72-83						320		12					44		3		62	1												
TOTAL FOR MAP NO. 2							**0.110**							**320**		**899**					**281**		**17**		**2,320**	**1**			**3**	**2**				**20**	**3**	**2**	**332**	**60**
"	"	3	NC 49	FROM INTERSECTION OF SR 1801 (MAIN ST.) TO US 70	1	NO	0.041	31-38	1.60		0.08			133							85		5		830								0.03	200	2	2	800	200
					1	NO	0.032	38-40	1.20		0.06			260							113		7		732					3			0.02					
					1	NO	0.017	33-40	0.60		0.03										31		2		364								0.01					
					1	NO	0.037	33-34	1.40		0.07								378		61		4		727								0.03					
						NO	0.070	34																														
					3 & 12	NO	0.015	34-40	0.60		0.03		329								27		2										0.01					
					8	NO	0.016	35-40							66				354		30		2															
					4	NO	0.026	35-40							105						48		3		502													
					4	NO	0.020	39-40							82						39		2		414													
					6	NO	0.017	39-50							70						57		3		405				1	3								
					6	NO	0.027	43-50							109						62		4		737													
					6	NO	0.018	43-44							74						39		2		459													
					6	NO	0.018	44							74						39		2		465													
					6	NO	0.034	40-44							140						71		4		760				1									
					6	NO	0.009	29-32							39						14		1		147													
					6	NO	0.015	29-30							62						22		1		260													
					6	NO	0.005	30-37							19						8		0		98													
					1	NO	0.014	36-45													68		4		333													
					12	NO	0.023	28-33					407								35		2															
					12	NO	0.020	26-28					315								27		2															
					12	NO	0.014	26					217								18		1															
					12	NO	0.016	23-26					351								39		2															
					12	NO	0.061	23					818								70		4															
					12	NO	0.012	22-23					283								33		2															
					12	NO	0.188	22					2,420								205		12															
					12	NO	0.036	22-31					559								47		3															
					12	NO	0.018	31-32					633								68		4			2				2				350	5	2	200	350
					12	NO	0.043	32					800								68		4															
					12	NO	0.020	32-38					408								55		3			2												
					12	NO	0.025	38-49					628								54		3											20	1	1	650	50
TOTAL FOR MAP NO. 3							**0.907**		**5.40**		**0.27**		**8,168**	**413**	**840**				**732**		**90**		**1,533**		**7,233**	**4**			**2**	**8**			**0.10**	**570**	**8**	**5**	**1,650**	**600**
TOTAL FOR PROJ NO. 7CR.10011.18							**3.946**		**6.00**	**225**	**0.27**	**470**	**41,375**	**14,690**	**2,321**	**899**			**1,565**	**80**	**8,732**		**526**	**27**	**30,282**	**34**	**3**	**1**	**40**	**46**	**1**		**0.10**	**1,115**	**34**	**21**	**8,294**	**2,210**
		6	SR 1504 (ELON OSSIPEE ROAD)	FROM SR 1558 (OLD NC 87) TO SR 1301 (SHALLOWFORD CHURCH ROAD)	25	NO	2.687	21	53.40	190	2.67								342				2,416	157		32,948							0.24	0.73					
					25 & 26	NO	0.050	21-37	0.40		0.02						210					119	8		851								0.01					
					27	NO	0.020	40														32	2															
					28	NO	0.031	33-38									128					105	7		573													
					25	NO	0.015	23-35	0.40		0.02											18	1		255							0.01					
					25	NO	0.949	22	19.00		0.95											847	55		12,261							0.09	0.26					
TOTAL FOR MAP NO. 6							**3.752**		**73.20**	**190**	**3.66**						**338**		**342**			**3,537**	**230**		**46,688**							**0.34**	**1.00**					
"	"	7	SR 1001 (UNION RIDGE ROAD)	FROM SR 1002 (ALTAMAHAW-UNION RIDGE ROAD) TO NC 62	25	NO	2.988	21	59.80	300	2.99								221			2,659	173		36,812							0.27	0.82					
						NO	0.034	29																														
					25	NO	0.093	24-29	1.80		0.09								221			100	6		1,446							0.01	0.02					
					25	NO	0.484	24	9.60		0.48								221			492	32		6,815							0.04	0.14					
						NO	0.007	29																														
					25	NO	1.175	24	23.60		1.18								221			1,224	80		16,544							0.11	0.32					
TOTAL FOR MAP NO. 7							**4.781**		**94.80**	**300**	**4.74**								**884**			**4,475**	**291**		**61,617**							**0.43**	**1.30**					
"	"	8	SR 2424 (MAPLE STREET)	FROM NC 87/NC 54 (HARDEN STREET) TO BEGIN CONCRETE BRIDGE SOUTH OF SR 2389 (AUTO PARK DRIVE)	26	NO	0.233	41				89	533				789	1,128		15		510	34		4,517	11			8	6				112	6	3	2,630	130
					26	NO	0.012	40-41										100				40	3		231	2												
					26	NO	0.068	40										558				110	7		1,276				1									
					26	NO	0.050	40-41										412				102	7		957	1			1	2								
					26	NO	0.350	40										2,878				666	43		6,578				8	12								
					26	NO	0.014	27-40										117	279			19	1		213													
TOTAL FOR MAP NO. 8							**0.727**					**89**	**533**				**789**	**5,193**	**279**	**15**		**1,447**	**95**		**13,772**	**14**			**18**	**20**				**112**	**6**	**3**	**2,630**	**130**
"	"	9	SR 2100 (COOPER ROAD)	FROM SR 2100 (GILBREATH STREET) / SR 2109 (COOPER ROAD) / SR 2111 (CHEEKS LANE) TO SR 2116 (SWEPSONVILLE SAXAPAHAW ROAD)	29	NO	0.431	21	17.20	33	0.86										550	36		5,310					3			0.31					
					29	NO	0.592	20	23.60		1.18										703	46		6,946								0.43					
TOTAL FOR MAP NO. 9							**1.023**		**40.80**	**33**	**2.04**										**1,253**	**82**		**12,256**					**3**			**0.74**					
"	"	10	SR 1146 (KIRKPATICK ROAD)	FROM JOINT N. OF NC 62 TO JOINT S. OF GRAND OAKS BLVD (NON-SYSTEM) & FROM JOINT N. OF GRAND OAKS BLVD TO S. OF SR 1167 (LONG PINE RD)	30	NO	0.111	23.5		70											127	8			2													
					31	NO	0.100	28.5-33.5							410						171	11																
					30	NO	0.867	23.5													1,051	68						8	12								
						NO	0.375	23.5																														
					30	NO	0.229	23.5													282	18																
TOTAL FOR MAP NO. 10							**1.682**			**70**					**410**						**1,631**	**105**			**2**			**8**	**12**								
"	"	11	SR 2172 (MOORES CHAPEL CEMETARY ROAD)	FROM NC 87 TO SR 2171 (CHURCH ROAD)	29	NO	0.941	19	37.60	58	1.88										891	58		10,489							0.41	0.28					
					29	NO	0.013	19-32	0.60		0.03										16	1		195							0.01							
TOTAL FOR MAP NO. 11							**0.954**		**38.20**	**58**	**1.91**										**907**	**59**		**10,684**							**0.42**	**0.28**					
"	"	12	SR 1003 (LINDLEY MILL ROAD)	FROM NC 87 TO SR 2172 (MOORES CHAPEL CEMETARY ROAD)	25	NO	0.943	21	18.80	60	0.94										843	55		11,618							0.17	0.17					
TOTAL FOR MAP NO. 12							**0.943**		**18.80**	**60**	**0.94**										**843**	**55**		**11,618**							**0.17**	**0.17**					
TOTAL FOR PROJ NO. 7CR.20011.18							**13.862**		**266.00**	**711**	**13.29**	**89**	**533**		**410**		**1,127**	**5,193**	**1,505**	**15**		**14,093**	**917**		**156,835**	**16**			**26**	**35**			**1.36**	**3.49**	**112**	**6**	**3**	**2,630**	**130**
GRAND TOTAL							**17.808**		**272.00**	**936**	**13.56**	**559**	**41,908**	**14,690**	**2,731**	**899**	**1,127**	**5,193**	**3,070**	**95**	**8,732**	**14,093**	**1,443**	**27**	**187,117**	**50**	**3**	**1**	**66**	**81**	**1**	**1.36**	**3.59**	**1,227**	**40**	**24**	**10,924**	**2,340**

PROJECT NO.	SHEET NO.	TOTAL NO.
7CR.10011.18, 7CR.20011.18	11	

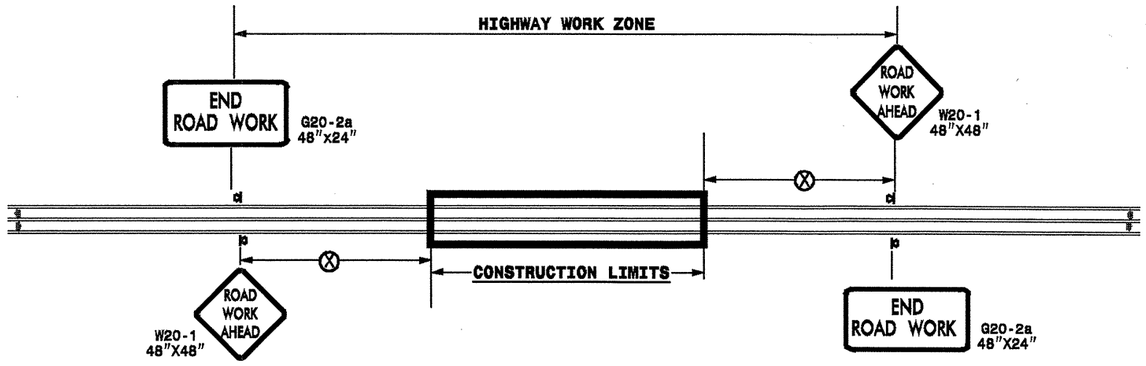
NOTE: MAPS 4 & 5 HAVE BEEN DELETED

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E		4686000000-E		4690000000-E	4695000000-E		4697000000-E	4700000000-E	4702000000-E	4705000000-E	4710000000-E	4721000000-E		4725000000-E						4810000000-E		4815000000-E	4820000000-E		4825000000-E	4835000000-E	4840000000-N		4845000000-N					
					4" X 90 M WHITE THERMO	4" X 90 M YELLOW THERMO	4" X 120 M YELLOW THERMO	4" X 120 M WHITE THERMO	6" X 120 M WHITE THERMO	8" X 90 M WHITE THERMO	8" X 90 M YELLOW THERMO	8" X 120 M WHITE THERMO	12" X 90 M WHITE THERMO	12" X 120 M YELLOW THERMO	16" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMO MSG ONLY 120 M	THERMO MSG SCHOOL 120 M	THERMO STR & RT ARROW 90 M	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR ARROW 90 M	THERMO MERGE RIGHT ARROW 90 M	THERMO HANDICAP SYMBOL	4" WHITE PAINT	4" YELLOW PAINT	6" WHITE PAINT	8" YELLOW PAINT	8" WHITE PAINT	12" YELLOW PAINT	24" WHITE PAINT	PAINT MSG ONLY	PAINT MSG SCHOOL	PAINT STR & RT ARROW	PAINT LT ARROW	PAINT RT ARROW	PAINT STR ARROW	PAINT MERGE RT
					LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA
7CR.10011.18	Alamance	1	NC 87 (WEBB AVE.)	FROM PAVEMENT ST SOUTH OF SR 1515 (FLORA AVE) TO GILMER ST. (NON-SYSTEM)	14,304	4,919	24,213	5,668	36	110	664	572		20		1,134	8		14	44	6	12	4		9,668	18,419	36	369	110	20	1,134	8		14	44	6	12	4
		2	NC 62 (W. HOLT STREET OR RAUHUT STREET)	FROM US 70W (FISHER ST) TO US 70E (CHURCH ST)			1,060	181				239				67				2		6			108						41					4	
		3	NC 49	FROM INTERSECTION OF SR 1801 (MAIN ST.) TO US 70	4,191		9,778	497	52		199	133	25		25	144		12		9					1,300	8,050			79		185		12		6			
TOTAL FOR PROJ NO. 7CR.10011.18					18,495	4,919	35,051	6,346	88	110	863	944	25	20	25	1,345	8	12	14	55	6	18	4		11,076	26,469	36	369	189	20	1,360	8	12	14	50	6	16	4
					23,414		41,397		88	973		944	25		25	1,345	20		97						37,545		36	558		20		90					
7CR.20011.18	Alamance	6	SR 1504 (ELON OSSIPEE ROAD)	FROM SR 1558 (OLD NC 87) TO SR 1301 (SHALLOWFORD CHURCH ROAD)	700				132																77,840	74,752											
"	"	7	SR 1001 (UNION RIDGE ROAD)	FROM SR 1002 (ALTAMAHAW-UNION RIDGE ROAD) TO NC 62	800				126							41									99,360	84,478											
"	"	8	SR 2424 (MAPLE STREET)	FROM SR 2100 (HARDEN ST.) TO BEGIN CONCRETE BRIDGE SOUTH OF SR 2389 (AUTO PARK DR.)	661		7,704	281			130	759				229			3	23		2		1													
"	"	9	SR 2100 (COOPER ROAD)	FROM SR 2108 (GILBREATH ST.) / SR 2109 (COOPER RD.) / SR 2111 (CHEEKS LN.) TO SR 2116 (SWEPSONVILLE	10,800		10,800		146																												
"	"	10	SR 1146 (KIRKPATICK ROAD)	FROM SWEPSONVILLE RD. NC 62 TO JOINT S. OF GRAND OAKS BLVD (NON-SYSTEM) & FROM JOINT N. OF GRAND OAKS BLVD TO S. OF SR 1167 (LONG PINE RD)	13,790		13,790		48																												
"	"	11	SR 2172 (MOORES CHAPEL CEMETARY ROAD)	FROM NC 87 TO SR 2171 (CHURCH ROAD)	175				18																19,802	19,692											
"	"	12	SR 1003 (LINDLEY MILL ROAD)	FROM NC 87 TO SR 2172 (MOORES CHAPEL CEMETARY ROAD)	100				26																19,720	15,960											
TOTAL FOR MAP NO. 12					100				26																19,720	15,960											
TOTAL FOR PROJ NO. 7CR.20011.18					27,026		32,294	281	496		130	759				270			3	23		2		1	216,722	194,882											
					27,026		32,575		496	130		759				270			29						411,604												
GRAND TOTAL					45,521	4,919	67,345	6,627	584	110	993	1,703	25	20	25	1,615	8	12	17	78	6	20	4	1	227,798	221,351	36	369	189	20	1,360	8	12	14	50	6	16	4
					50,440		73,972		584	1,103		1,703	25		25	1,615	20		126						449,149		36	558		20		90					

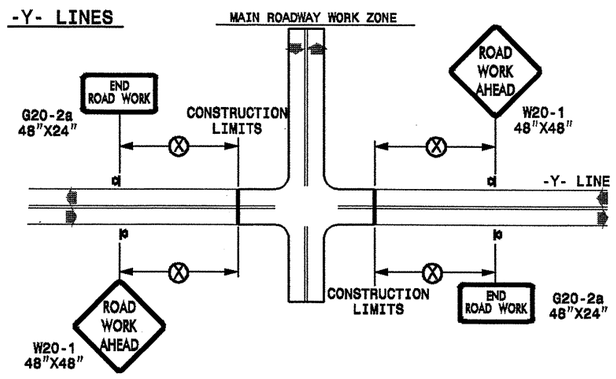
PROJ. REFERENCE NO.	SHEET NO.
7CR.10011.18 & 7CR.20011.18	TCP-1

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 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

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

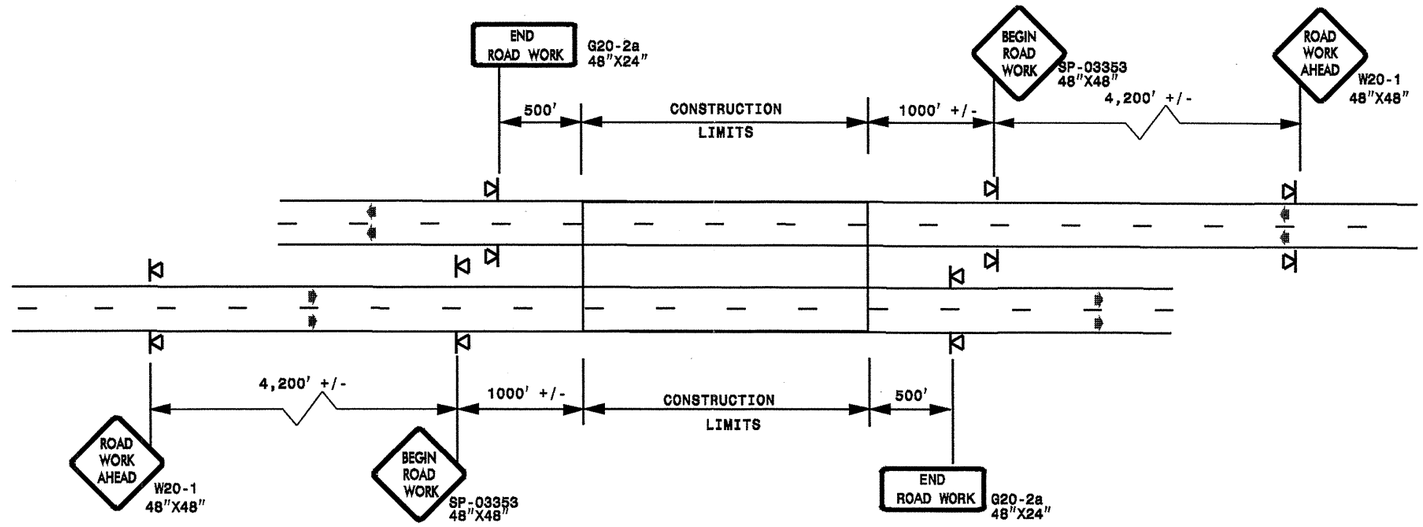
DETAIL DRAWING
FOR TWO-WAY UNDIVIDED
ADVANCED WORK ZONE WARNING SIGNS

SCALE: NONE	REVISIONS	
DATE:	7-98	10/01
DWG. BY:	10-98	03/04
DESIGN BY:	01/01	11/04
REVIEWED BY:	CADD FILE	

PROJ. REFERENCE NO.	SHEET NO.
7CR.10011.18 & 7CR.20011.18	TCP-2

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

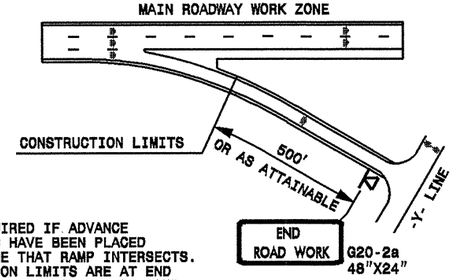
DETAIL A



ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B

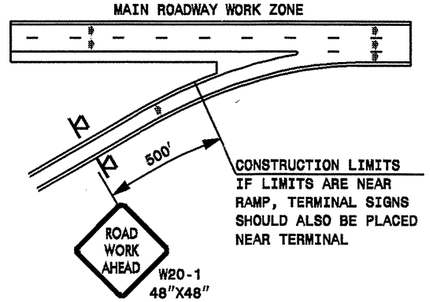
EXIT RAMPS



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.

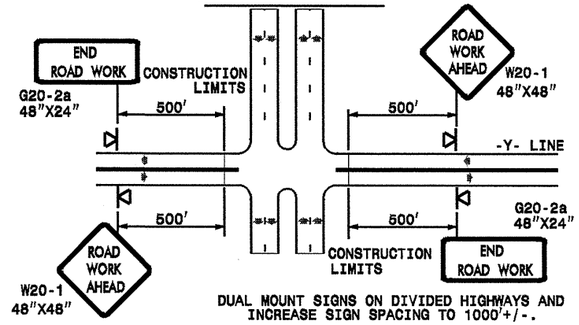
DETAIL C

ENTRANCE RAMPS



DETAIL D

-Y- LINES



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

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

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

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

SHEET 1 OF 1

APPROVED:_____ DATE:_____

SEAL

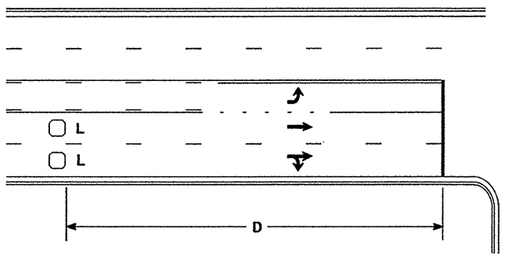
DETAIL DRAWING
FOR FREEWAYS
WORK ZONE WARNING SIGNS

SCALE: NONE	REVISIONS	
DATE:	7-98	10/01
DWG. BY:	10-98	03/04
DESIGN BY:	01/01	11/04
REVIEWED BY:	CADD FILE	

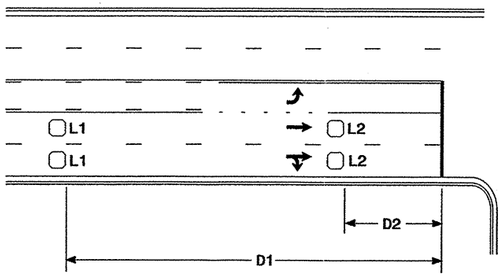
PROJECT REFERENCE NO.	SHEET NO.
	SIG 1

7CR.10011.18 & 7CR.20011.18

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



OR



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

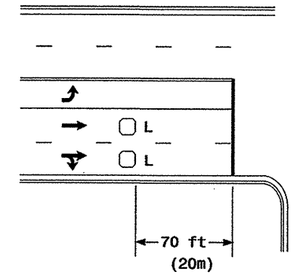
Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

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

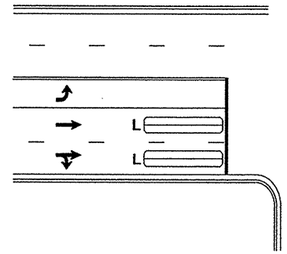
"Stretch" Operation

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



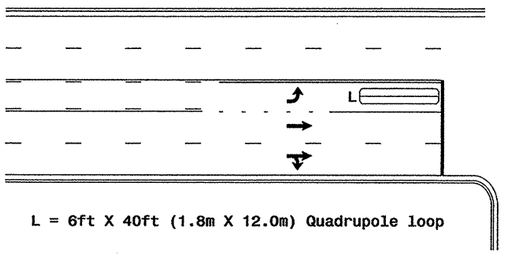
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

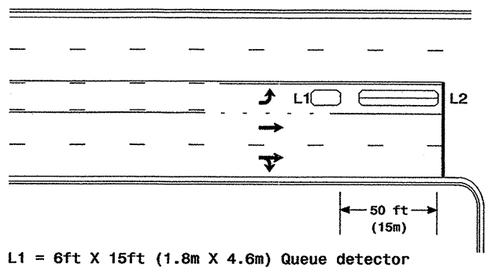
Left Turn Lane Detection



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

Presence Loop Detection

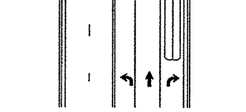
OR



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

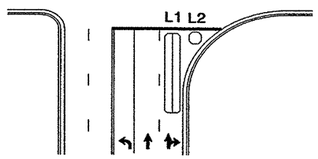
Queue Loop Detection

Right Turn Lane Detection

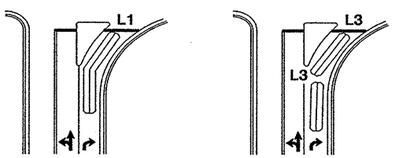


Standard Turn

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

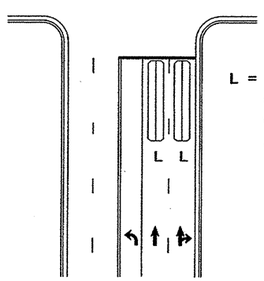


Wide Radius Turn



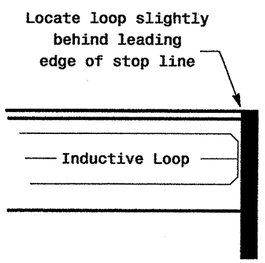
Channelized Turn

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



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
Traffic Signal and Geometrics Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
122 N. McDowell St., Raleigh, NC 27603

Typical Loop Locations

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

REVISIONS	INIT.	DATE
1) Revise pavement markings	pa	12/19/06

SCALE
N/A

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 23486 ENGINEER PAMELA LEWIS ALEXANDER
SIGNATURE
DATE 6/6/07
SIG. INVENTORY NO.

19-DEC-2006 14:29
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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
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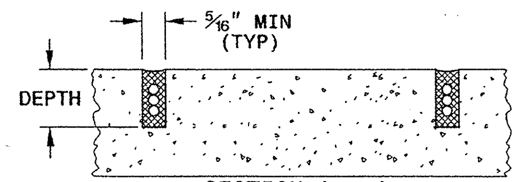
CONVENTIONAL 4-SIDED LOOP

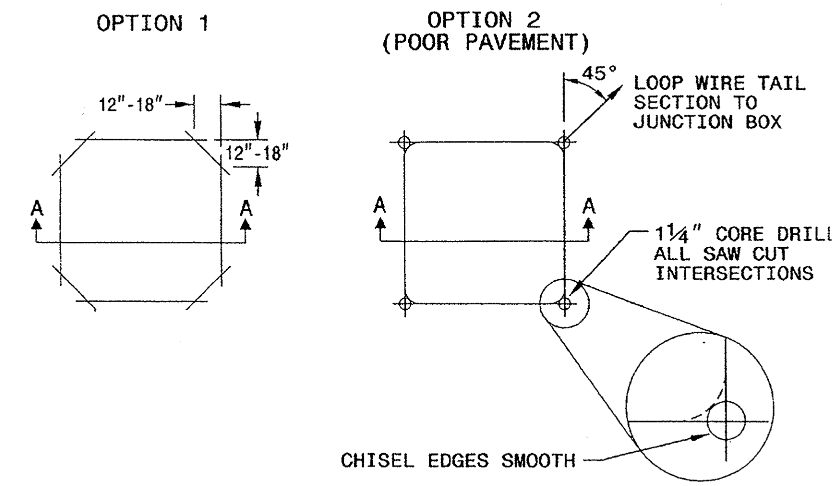
SAW SLOT DEPTH CHART

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

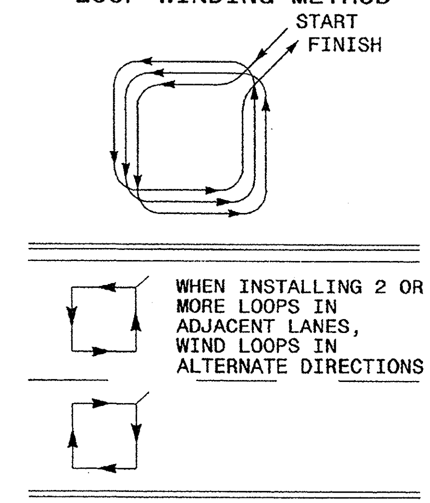


SECTION A - A

SAW CUT OPTIONS



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE

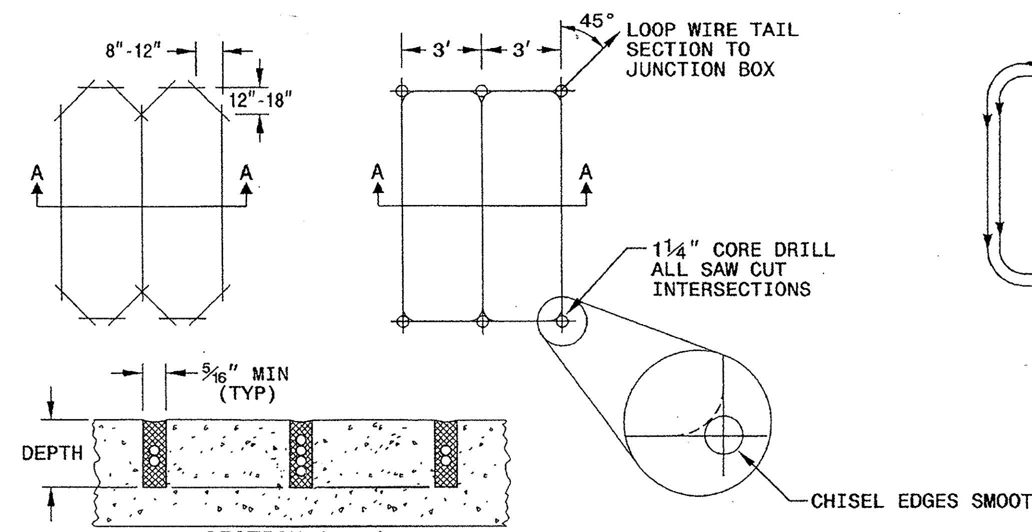
CORRECT WAY TO TWIST WIRE

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

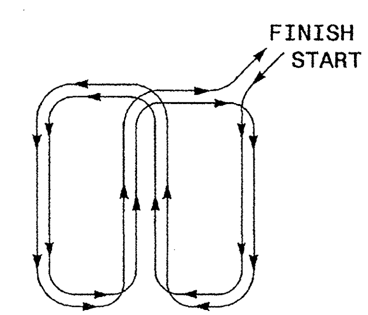
SAW CUT OPTIONS



SECTION A - A

DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

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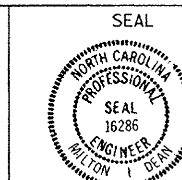
750 N. Greenfield Parkway
Garner, NC 27529

SEAL



SIGNATURE 11/24/08 DATE

PROJECT REFERENCE NO.	SHEET NO.
	Sig. 3

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RALEIGH, N.C.

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ENGLISH DETAIL DRAWING FOR

INDUCTIVE DETECTION LOOPS

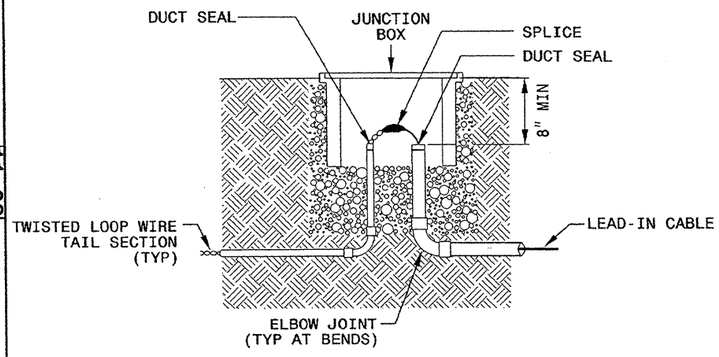
LOOP WIRE DETAILS

SHEET 2 OF 3

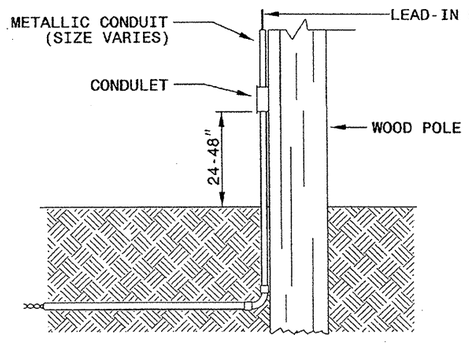
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

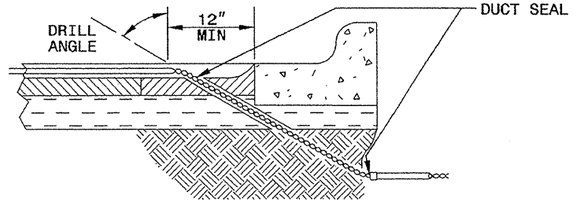


NOTE

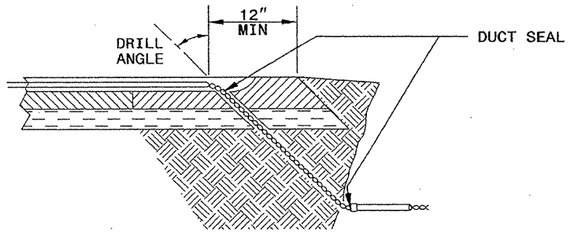
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

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.

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ENGLISH DETAIL DRAWING FOR

INDUCTIVE DETECTION LOOPS

LOOP WIRE DETAILS

SHEET 2 OF 3

1725D01

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Intelligent Transportation Systems & Signals Unit
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Parkway
Garner, NC 27529

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NORTH CAROLINA PROFESSIONAL SEAL 16286 ENGINEER MILTON L. DEAN

Milton L. Dean 11/24/08
SIGNATURE DATE

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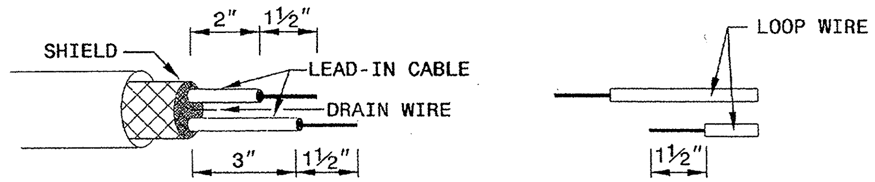
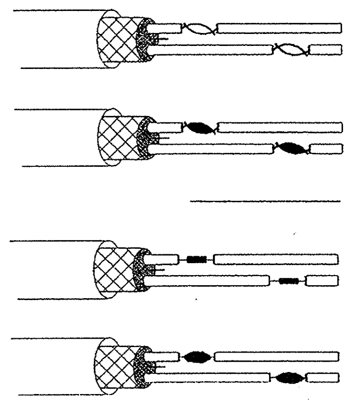
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE



STEP 2. CONNECT AND SOLDER



TWIST BARE CONDUCTORS TOGETHER AND SOLDER WITH RESIN CORE SOLDER

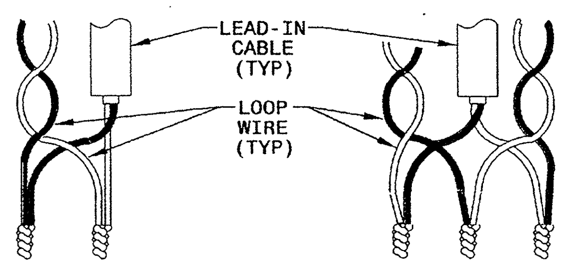
OR

CRIMP BARE CONDUCTORS TOGETHER WITH AN UNINSULATED BUTT CONNECTOR AND SOLDER WITH RESIN CORE SOLDER

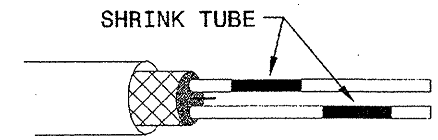
BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS

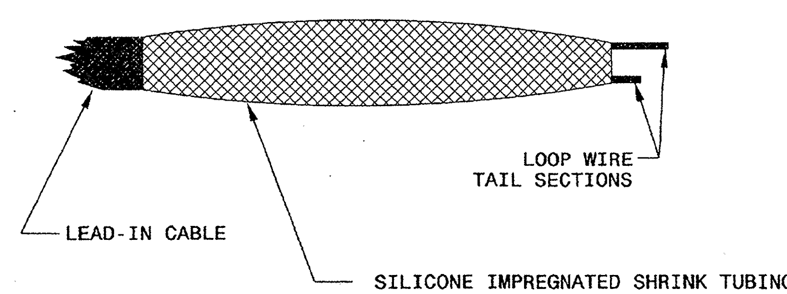
SINGLE CONNECTION　　SERIES CONNECTION



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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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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