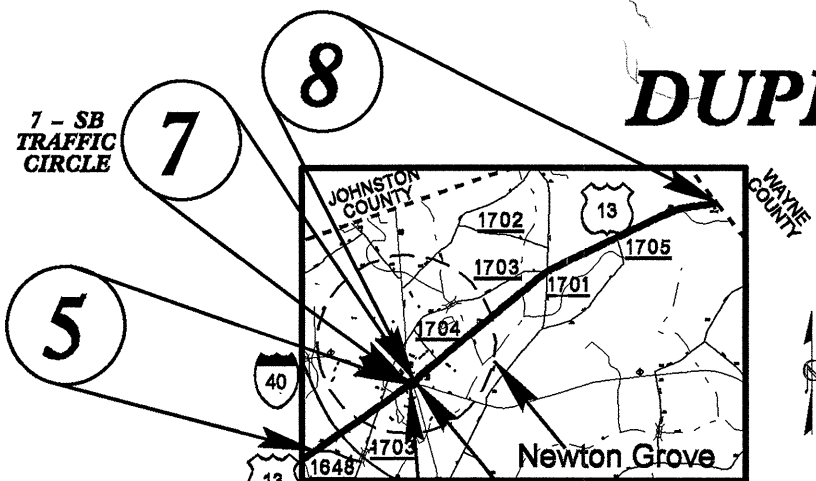


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

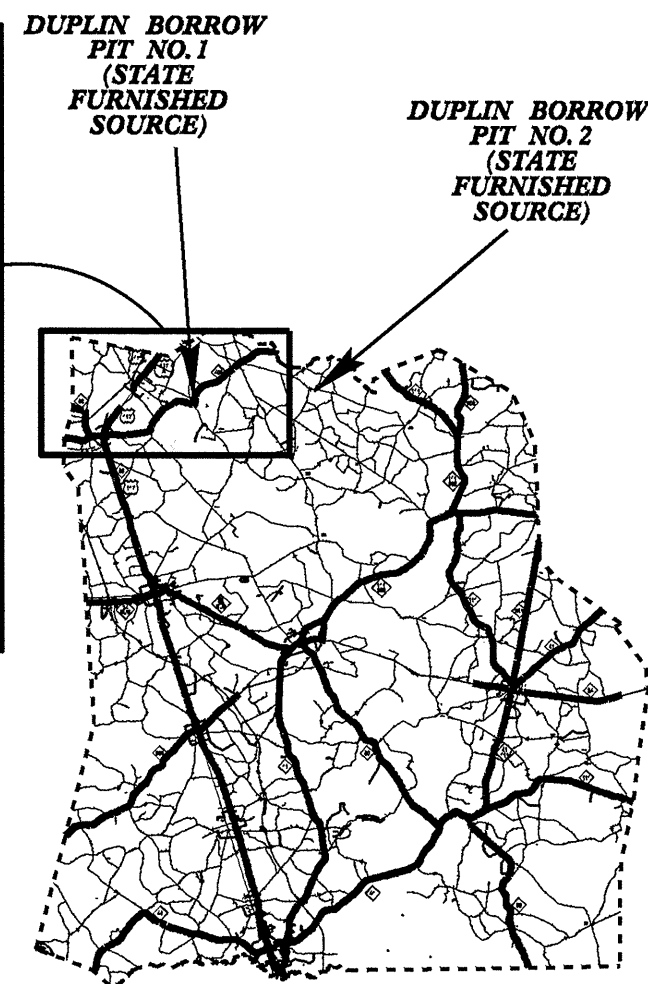
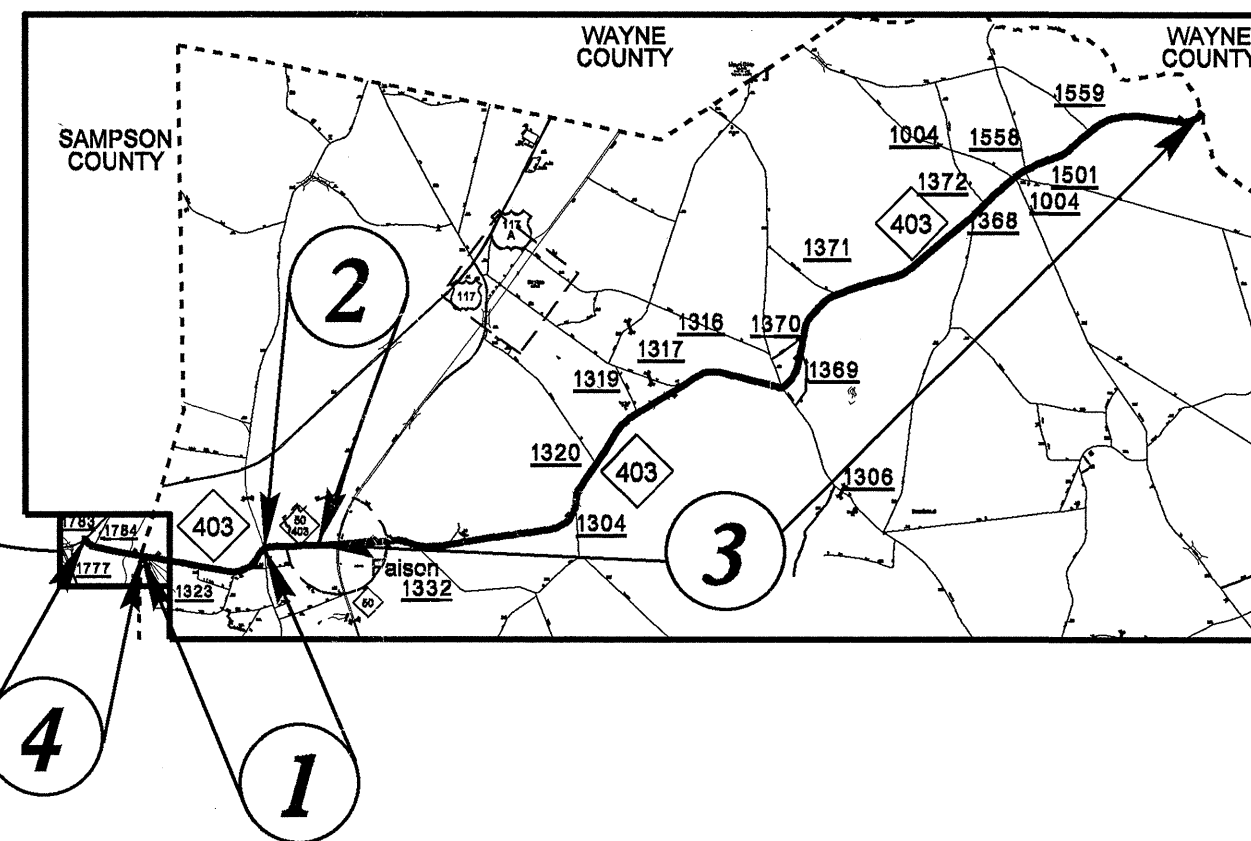
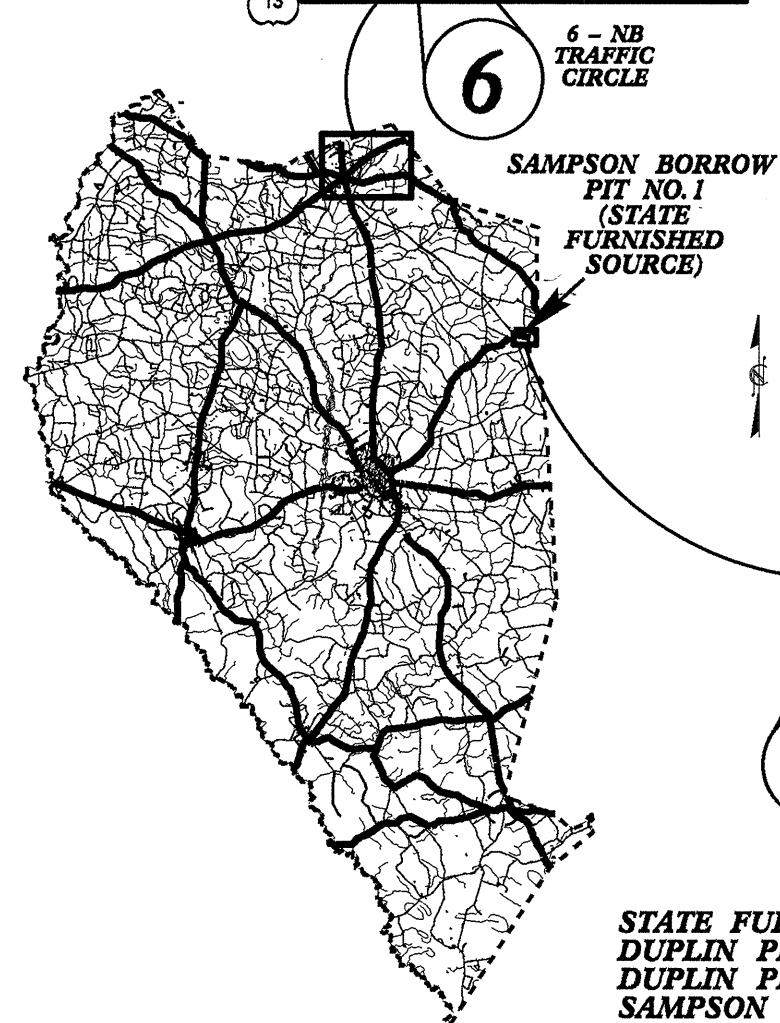
DUPLIN & SAMPSON COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	3CR.10311.94, ETC.	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
3CR.10311.94			
3CR.10821.93			

CONTRACT: C202625 WBS NO.(S): 3CR.10311.94, 3CR.10821.93



LOCATION:
 NC 403 / NC 50 FROM SAMPSON COUNTY LINE TO 0.04 MI. WEST OF WAYNE COUNTY LINE IN DUPLIN COUNTY.
 US 13 FROM SR 1648 TO WAYNE COUNTY LINE IN SAMPSON COUNTY.
TYPE OF WORK:
 WIDENING, DRAINAGE, MILLING, RESURFACING, ETC.



STATE FURNISHED BORROW SOURCES:
 DUPLIN PIT NO. 1 - NC 403 AT SR 1370
 DUPLIN PIT NO. 2 - SR 1501 0.1 MI. EAST OF SR 1505
 SAMPSON PIT NO. 3 - NC 403 AT US 117 BY-PASS

PROJECT LENGTH
 MAP NO. 1 = 1.36 MI.
 MAP NO. 2 = 0.76 MI.
 MAP NO. 3 = 10.77 MI.
 SUB-TOTAL = 12.89 MI.

MAP NO. 4 = 0.70 MI.
 MAP NO. 5 = 1.33 MI.
 MAP NO. 6 = 0.09 MI.
 MAP NO. 7 = 0.09 MI.
 MAP NO. 8 = 4.01 MI.
 SUB-TOTAL = 6.22 MI.
 TOTAL = 19.11 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
 124 Division Dr., Wilmington, NC 28401

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:
 NOVEMBER 16, 2010

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN
 TECHNICIAN
 DNL

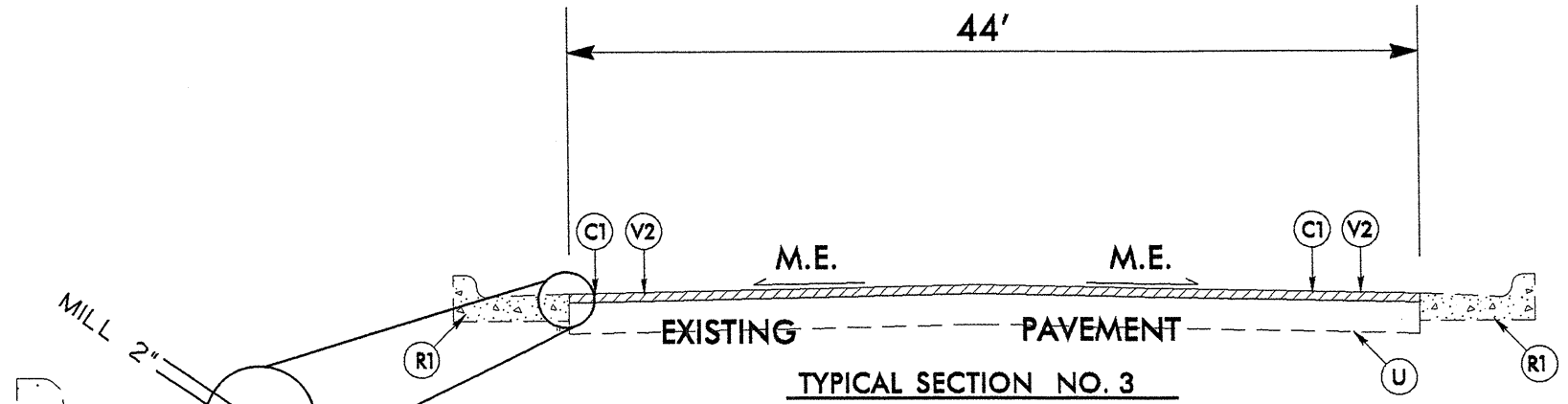
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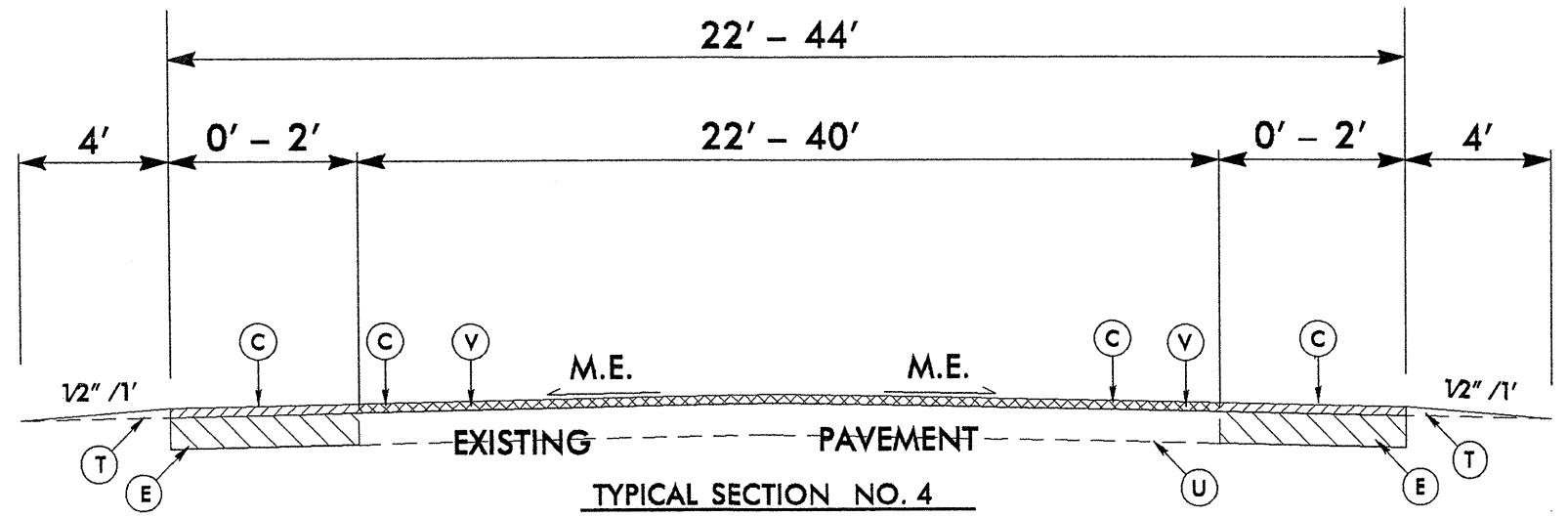
DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

8/17/99
 REVISIONS
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 \$\$\$\$JUSTIFIED\$\$\$\$

PROJECT REFERENCE NO. 3CR.10311.94, ETC.	SHEET NO. 3 OF 16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



MAP NO. 2
 NC 50 /NC 403
 MP 1.61 TO MP 2.12



MAP NO. 3
 NC 403
 MP 2.17 TO MP 2.21
 MP 6.08 TO MP 6.11
 (NO WORK MP 6.11 TO MP 6.17)
 MP 6.17 TO MP 6.21

- SEQUENCE OF WORK:
1. MILL AS SHOWN.
 2. PLACE WIDENING FLUSH.
 3. RESURFACE ENTIRE ROADWAY.

PAVEMENT SCHEDULE			
C	PROP. APPROX. 1 1/2" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R2	EXISTING CONC. CURB
C1	PROP. APPROX. 2" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	T	EARTH MATERIAL (SHOULDER RECONSTRUCTION)
D	PROP. APPROX. 2 1/2" DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E	PROP. APPROX. 5 1/2" DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 827 LBS. PER SQ. YD.	V	MILLING BITUMINOUS PAVEMENT. 1 1/2" DEPTH.
R	EXISTING CONC. ISLAND	V1	MILLING BITUMINOUS PAVEMENT. 2 1/2" DEPTH.
R1	EXISTING CURB & GUTTER	V2	MILLING BITUMINOUS PAVEMENT. 2" DEPTH.

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
 SEE STD. DRAWING 1205.01, SHEET 2 OF 2, TABLE 1 FOR EDGE LINE OFFSETS.
 M.E. = MATCH EXISTING

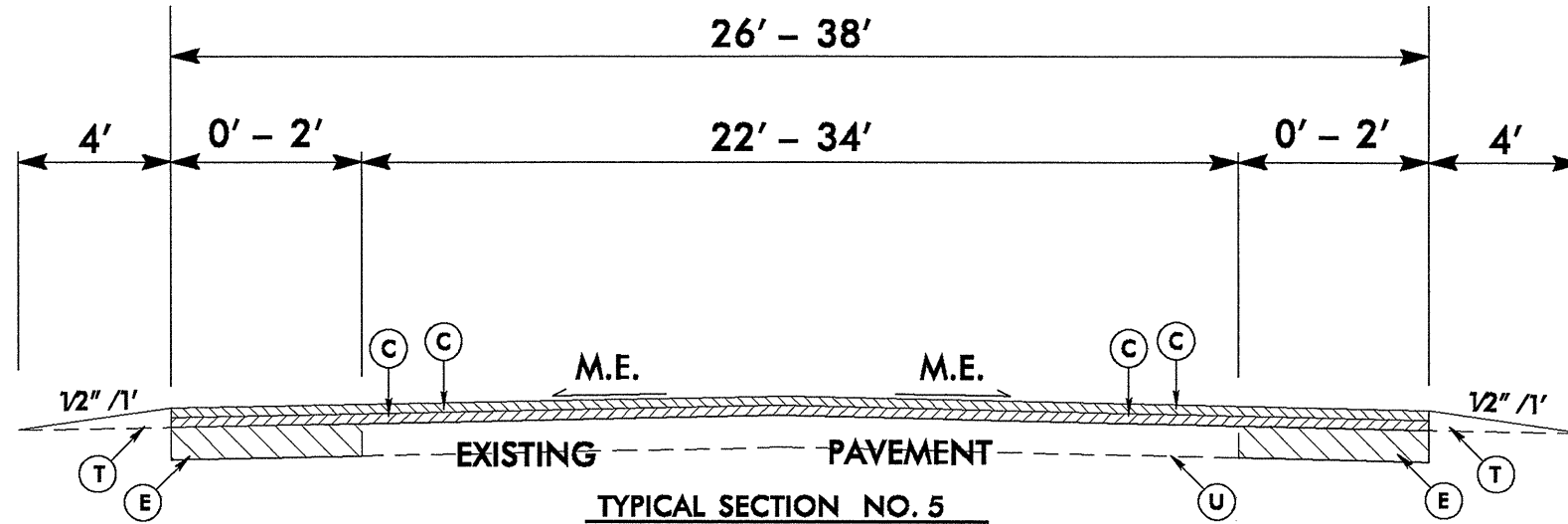
2006 ROADWAY ENGLISH STANDARD DRAWINGS

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 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.04	Street Turnout

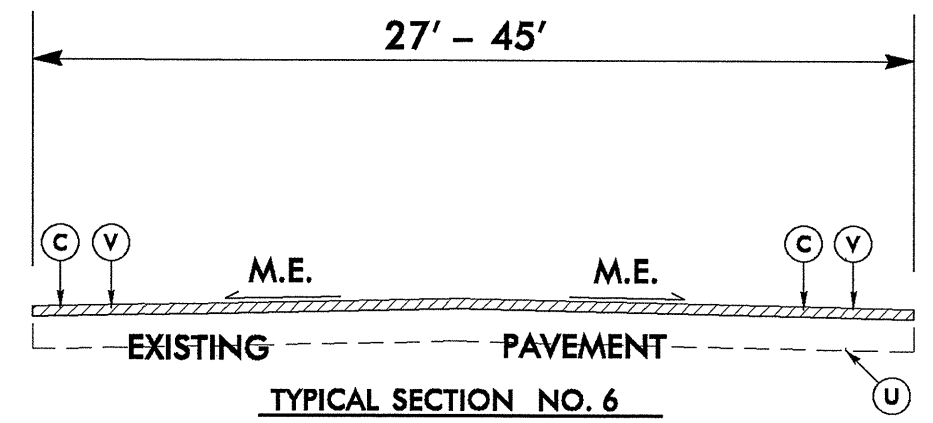
EFF. 07-18-06
 REV. 01-02-07

PROJECT REFERENCE NO. 3CR10811.94, ETC.	SHEET NO. 4 OF 16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



TYPICAL SECTION NO. 5

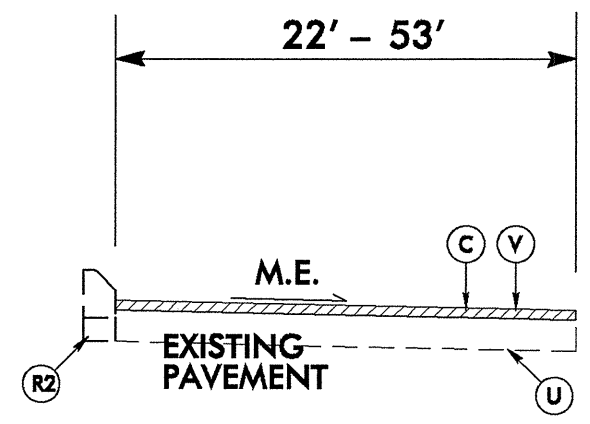
MAP NO. 3
NC 403
MP 5.05 TO MP 6.08
MP 6.21 TO MP 6.47



TYPICAL SECTION NO. 6

MAP NO. 3
NC 403
MP 4.69 TO MP 5.05

MAP NO. 5
US 13
MP 1.29 TO MP 1.33



TYPICAL SECTION NO. 7

MAP NO. 6
US 13
MP 0.00 TO MP 0.09

MAP NO. 7
US 13
MP 0.00 TO MP 0.09

PAVEMENT SCHEDULE			
C	PROP. APPROX. 1 1/2" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 89.08, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.	R2	EXISTING CONC. CURB
C1	PROP. APPROX. 2" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 89.08, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	T	EARTH MATERIAL (SHOULDER RECONSTRUCTION)
D	PROP. APPROX. 2 1/2" DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.08, AT AN AVERAGE RATE OF 288 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E	PROP. APPROX. 5 1/2" DEPTH ASPHALT CONCRETE BASE COURSE, TYPE 828.08, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	V	MILLING BITUMINOUS PAVEMENT. 1 1/2" DEPTH.
R	EXISTING CONC. ISLAND	V1	MILLING BITUMINOUS PAVEMENT. 2 1/2" DEPTH.
R1	EXISTING CURB & GUTTER	V2	MILLING BITUMINOUS PAVEMENT. 2" DEPTH.

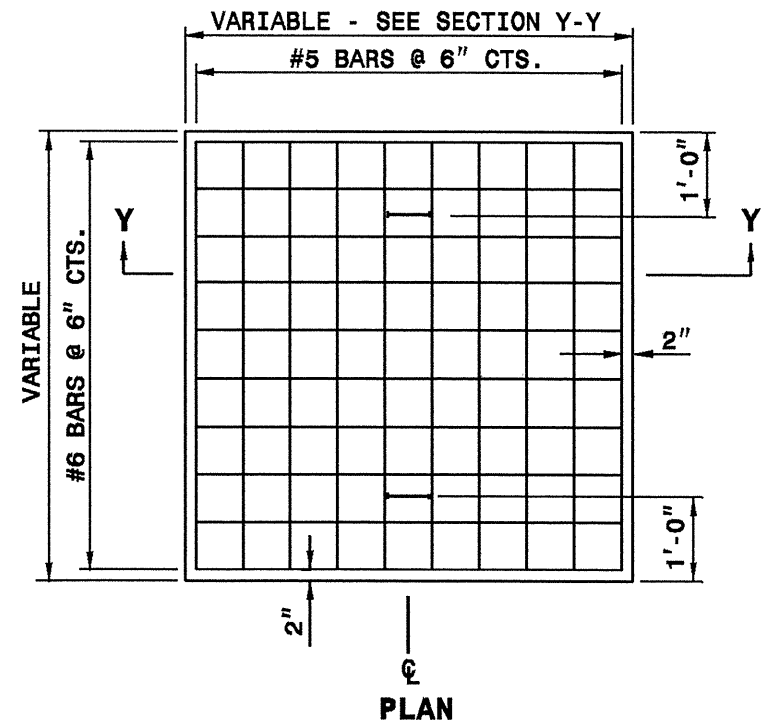
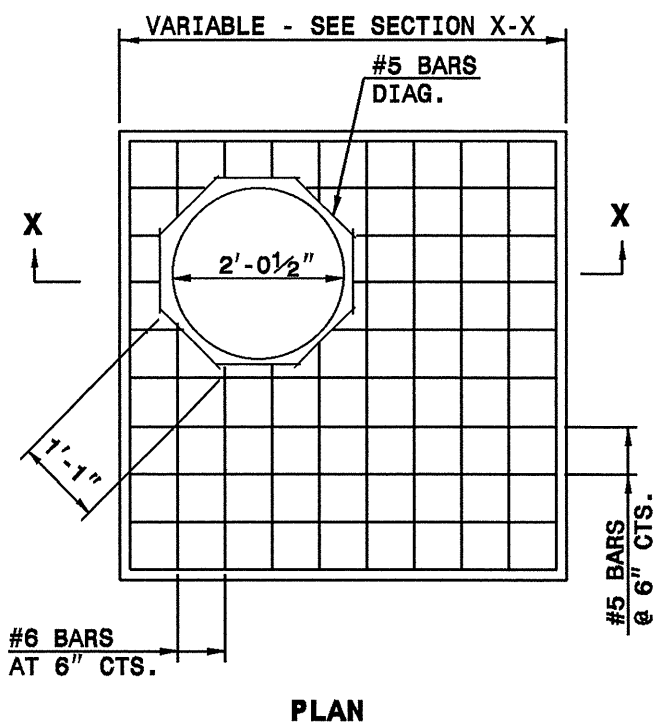
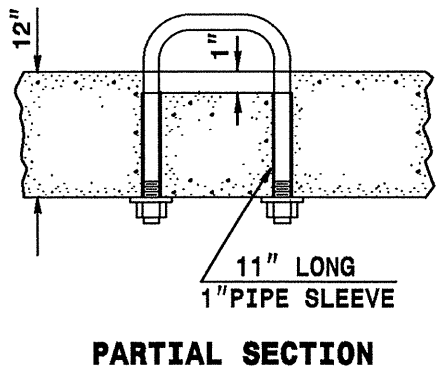
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
SEE STD. DRAWING 1205.01, SHEET 2 OF 2, TABLE 1 FOR EDGE LINE OFFSETS.
M.E. = MATCH EXISTING

REVISIONS

8/17/99

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5/14/99



GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

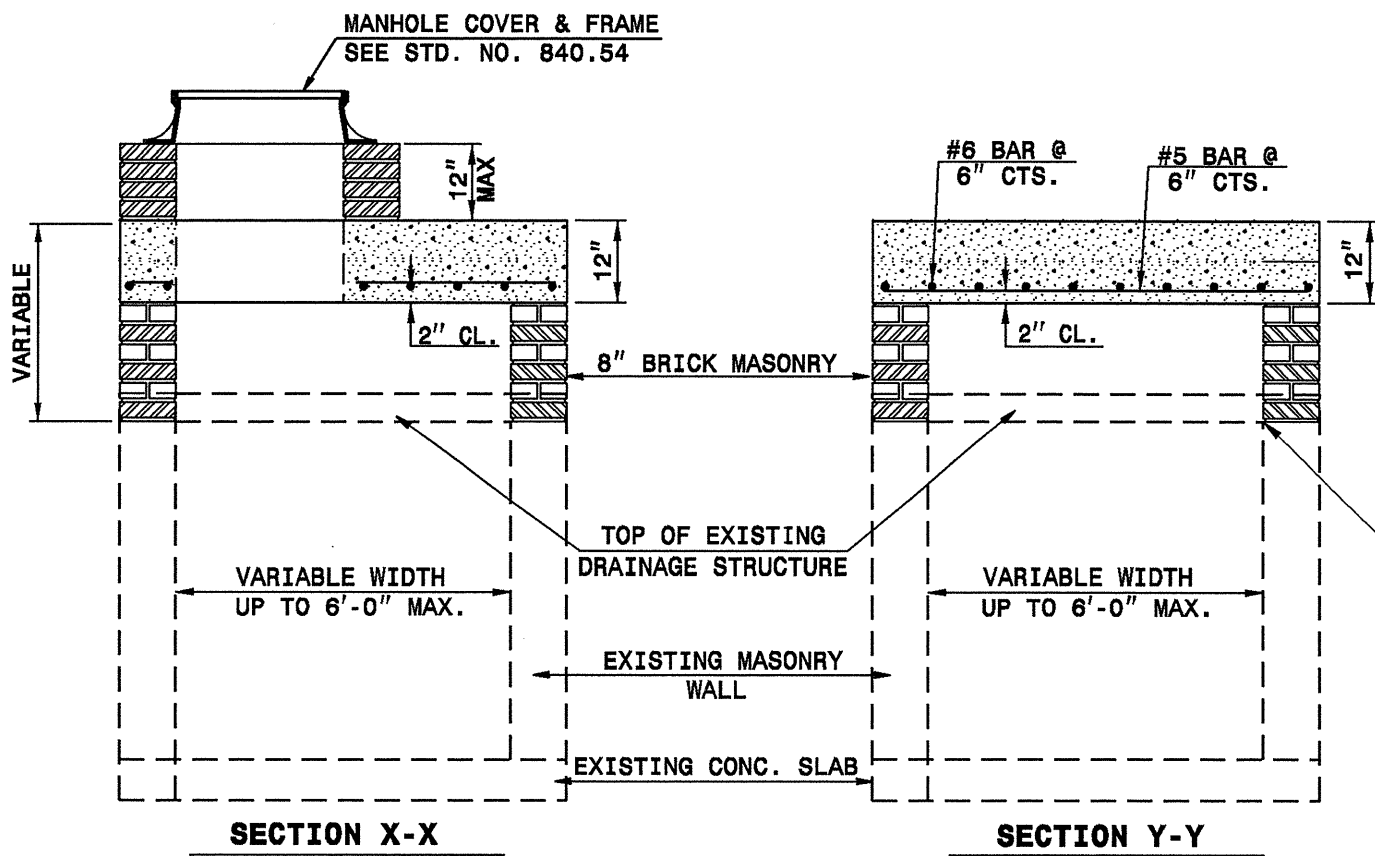
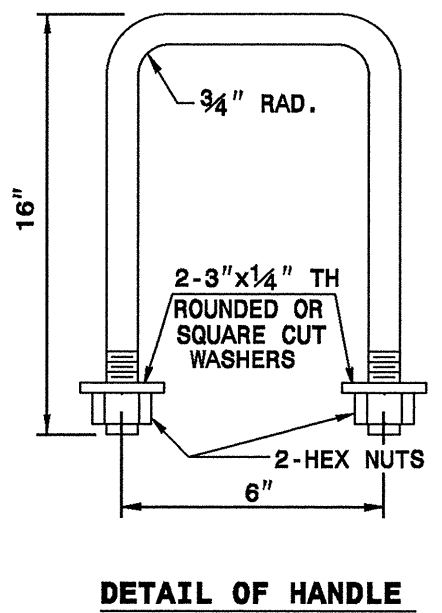
FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

BILL OF MATERIALS			
MASONRY			
TOP SLAB CONCRETE CLASS "A"	.037YDS ³ PER FT ²		
BRICK MASONRY	.025YDS ³ PER FT ²		
REINFORCING STEEL	7.64LBS PER FT ²		
MANHOLE OPTION QUANTITIES			
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04

NOTE:

CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.

BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.



ALIGN PROPOSED BRICK VERTICAL ADJUSTMENT TO INNER FACE OF WALL

**PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

**DETAIL TO CONVERT EXISTING
DROP INLET OR CATCH BASIN
TO TRAFFIC BEARING JUNCTION BOX
(MANHOLE OPTIONAL)**

ORIGINAL BY: T.S.B. DATE: FEB. 2000
 MODIFIED BY: E.E.W. DATE: NOV. 2001
 CHECKED BY: DATE:
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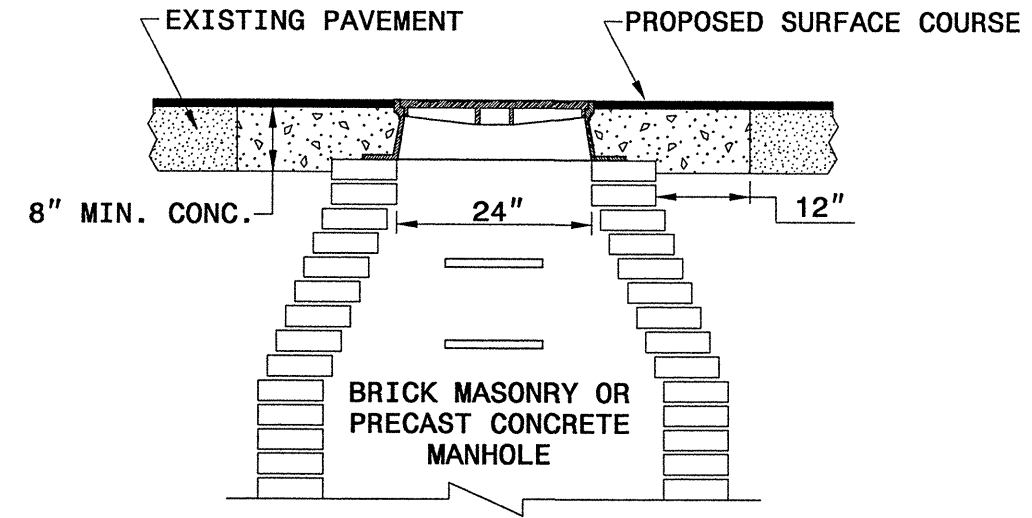
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MANHOLE AND VALVE BOX ADJUSTMENTS

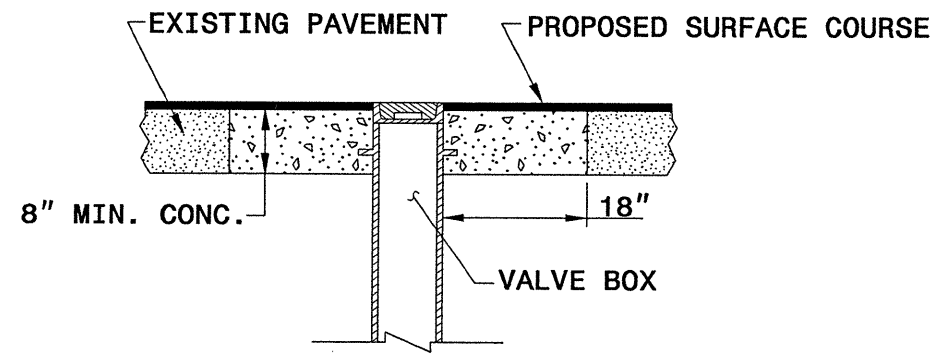
SHEET 1 OF 1
840D55

GENERAL NOTES:

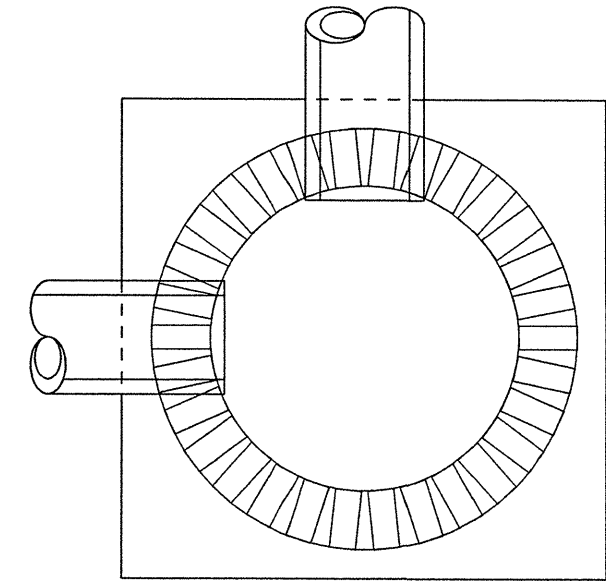
1. USE RAPID SET GROUT, MORTAR, OR CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
2. REMOVE ALL FAULTY EXISTING BRICKWORK AND REPLACE WITH NEW BRICK MASONRY.
3. SHEER CUT EXCAVATION FOR THE ADJUSTMENT ON ALL SIDES.
4. FILL AREA BELOW 8" DEPTH WITH 78M OR NO. 57 CLEAN STONE.
5. MIX MORTAR TO NCDOT SPECIFICATIONS.
6. MORTAR JOINTS 1/2" +/- 1/8"



MANHOLE CONCRETE ENCASEMENT



VALVE BOX CONCRETE ENCASEMENT



ELEVATION VIEW

PLACE BRICK ACCORDING TO ELEVATION VIEW

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

ENGLISH DETAIL DRAWING FOR
MANHOLE AND VALVE BOX ADJUSTMENTS

SHEET 1 OF 1
840D55

**PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

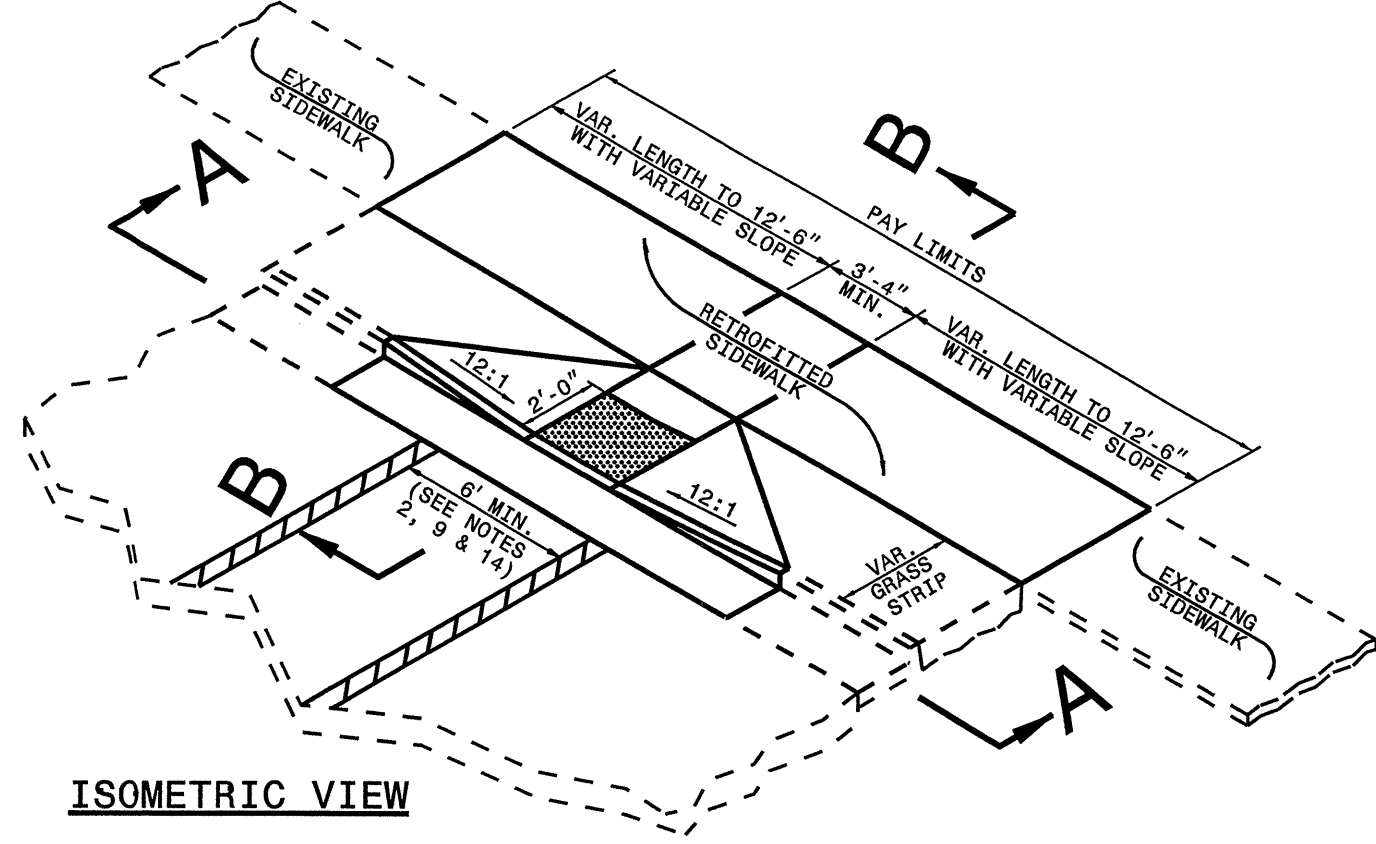
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MODIFIED BY: E.E. WARD DATE: _____
CHECKED BY: _____ DATE: _____
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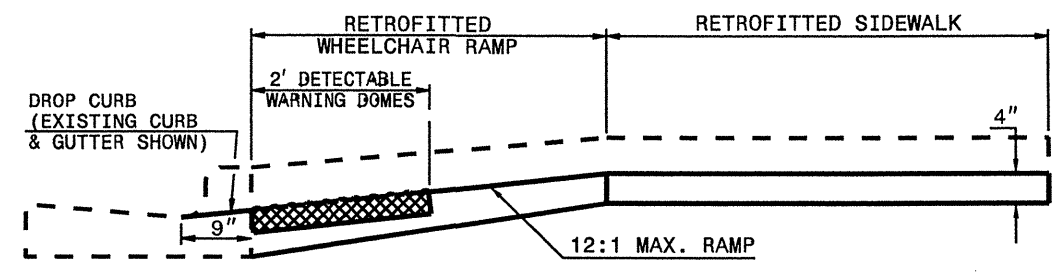
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

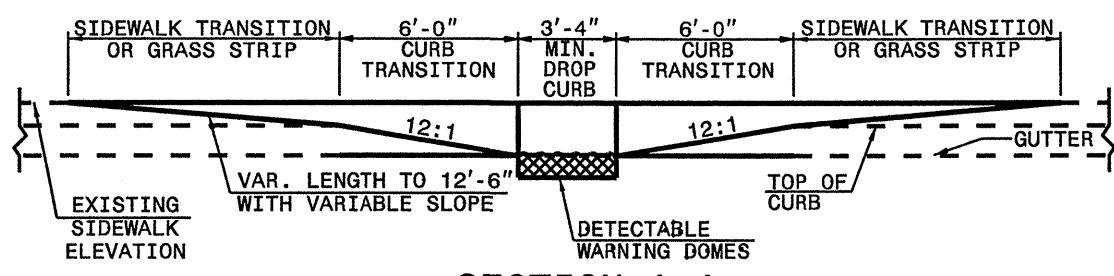
WHEELCHAIR RAMP AND EXISTING SIDEWALK WITH GRASS STRIP



ISOMETRIC VIEW

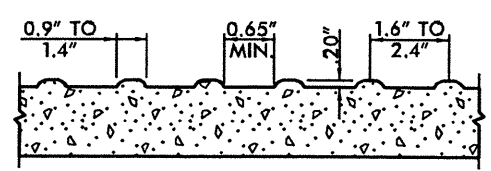
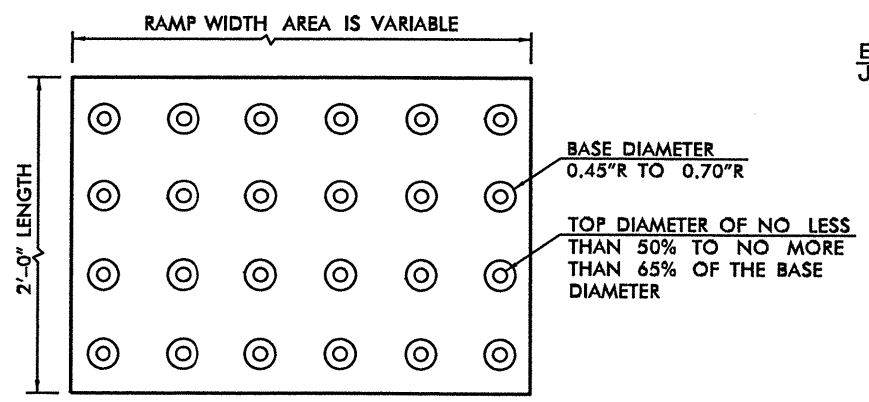


SECTION B-B

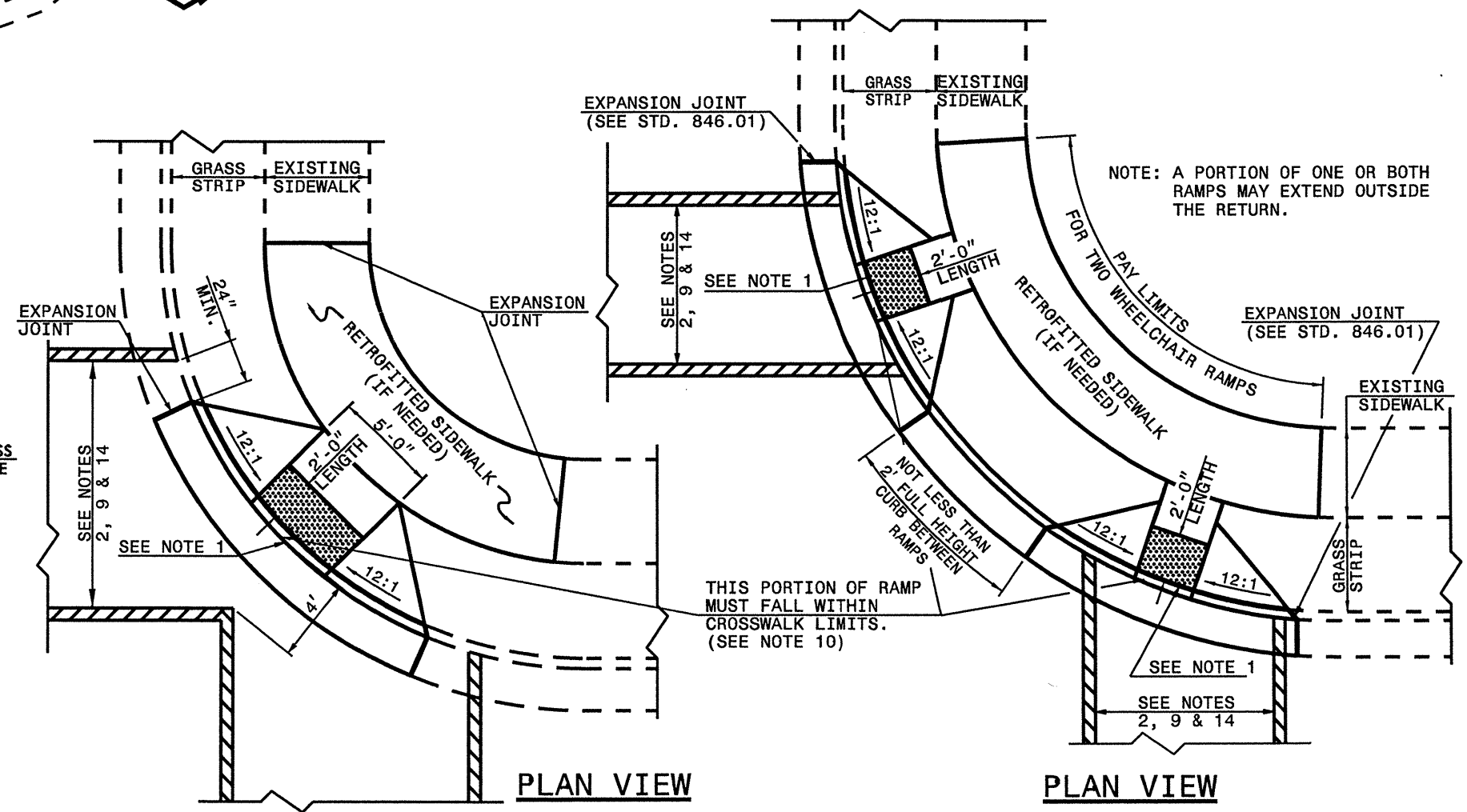


SECTION A-A

- NOTES:
1. DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
 2. OBTAIN 70% CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING DOMES



PLAN VIEW

PLAN VIEW

DIAGONAL RAMP
MAX. 25' RADII
(60" MIN. FLOOR WIDTH)

DUAL RAMPS
ANY RADII
(40" MIN. FLOOR WIDTH)

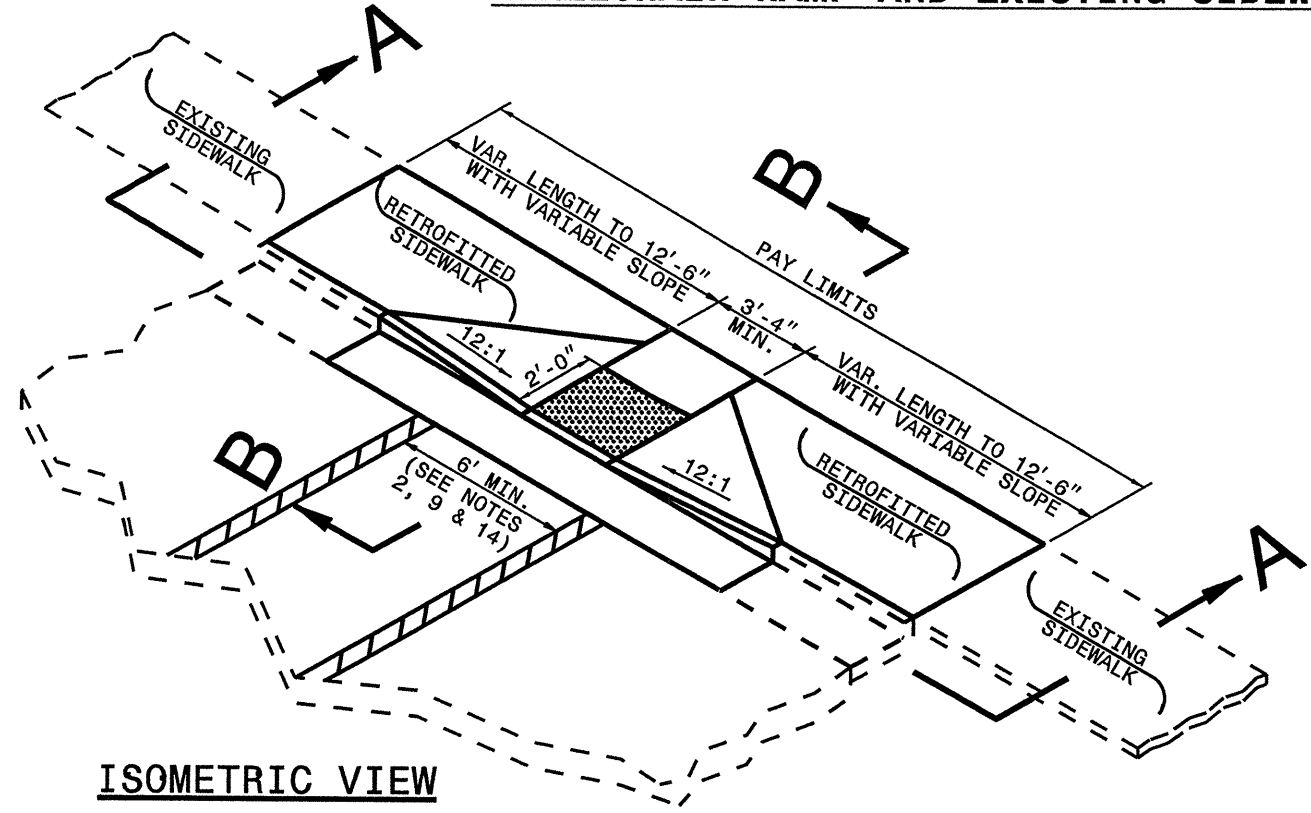
ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

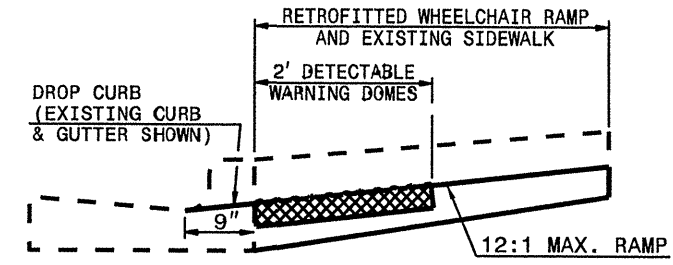
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

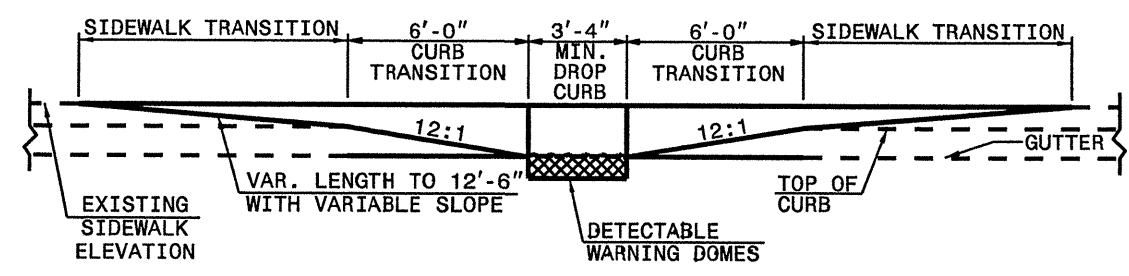
WHEELCHAIR RAMP AND EXISTING SIDEWALK ADJACENT TO CURB



ISOMETRIC VIEW

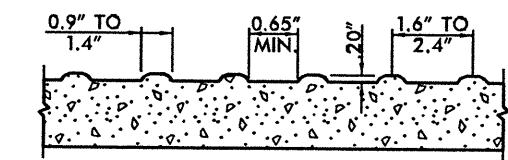
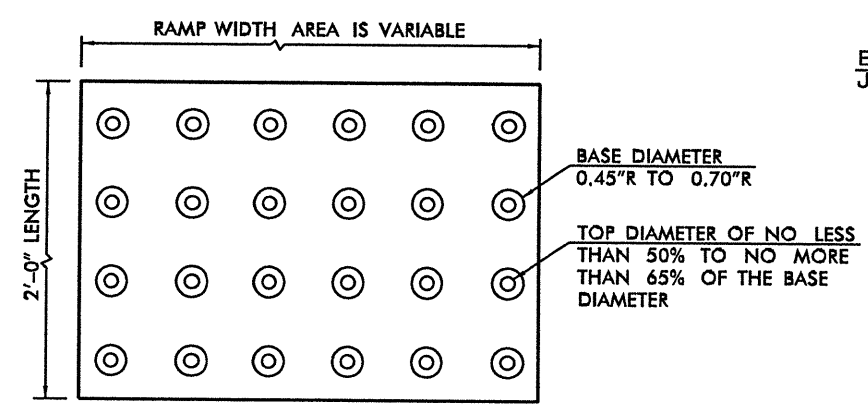


SECTION B-B

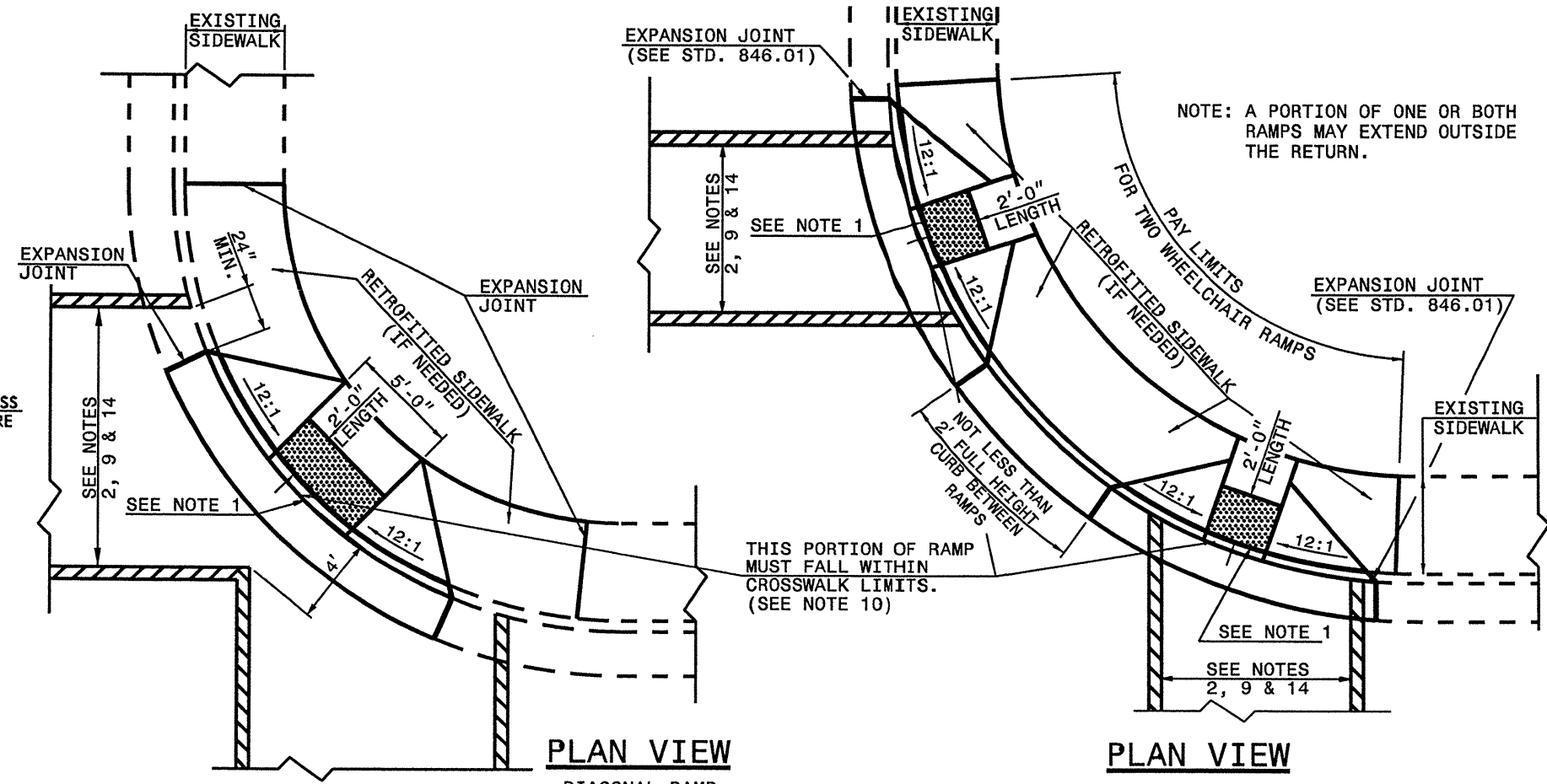


SECTION A-A

- NOTES:
1. DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
 2. OBTAIN 70% CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING DOMES



PLAN VIEW

DIAGONAL RAMP
MAX. 25' RADII
(60" MIN. FLOOR WIDTH)

PLAN VIEW

DUAL RAMPS
ANY RADII
(40" MIN. FLOOR WIDTH)

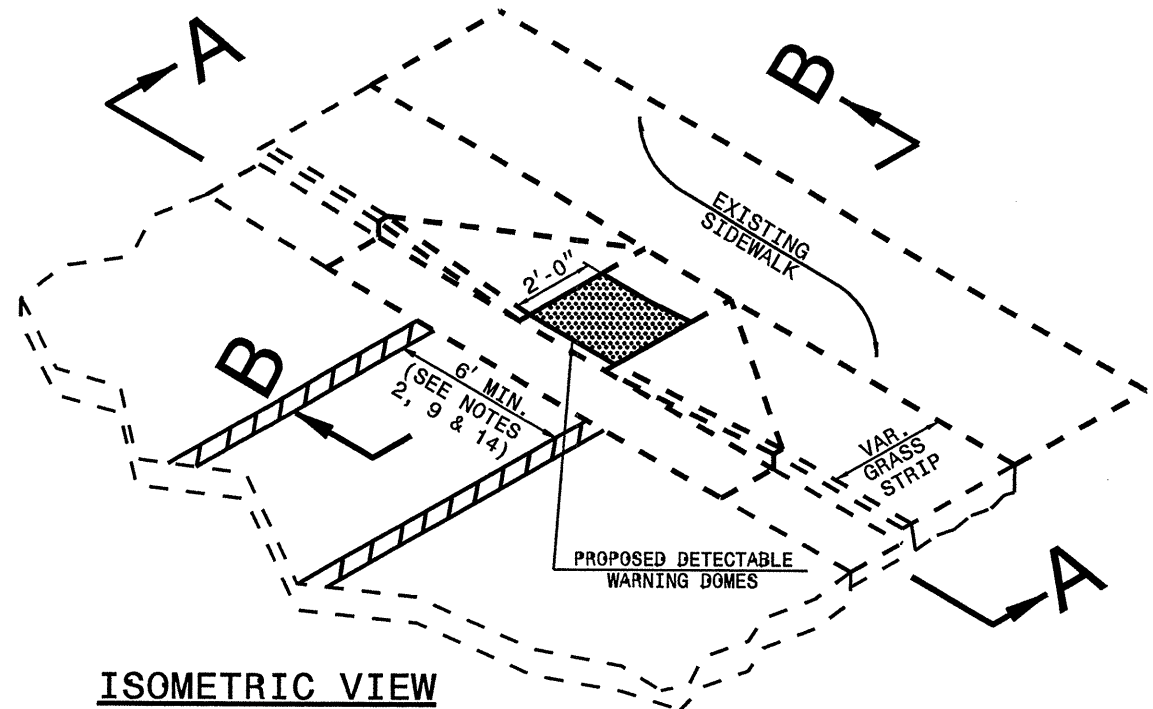
ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

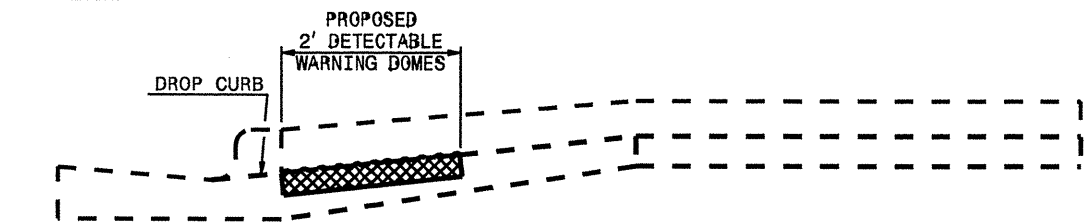
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

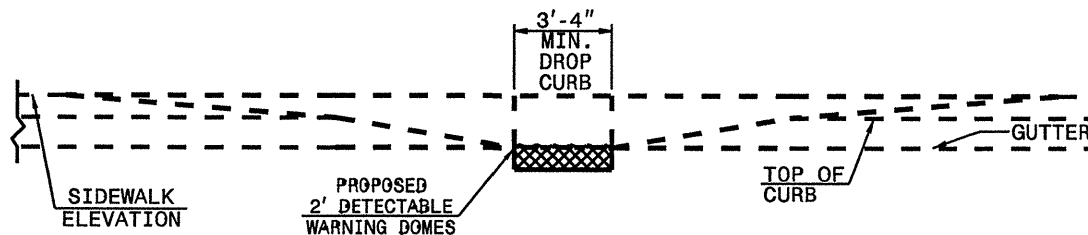
RETROFITTING DETECTABLE WARNING DOMES ONTO EXISTING WHEELCHAIR RAMP



ISOMETRIC VIEW

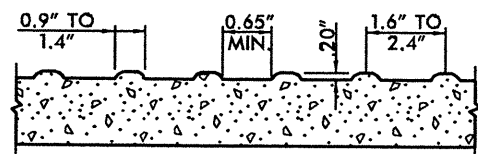
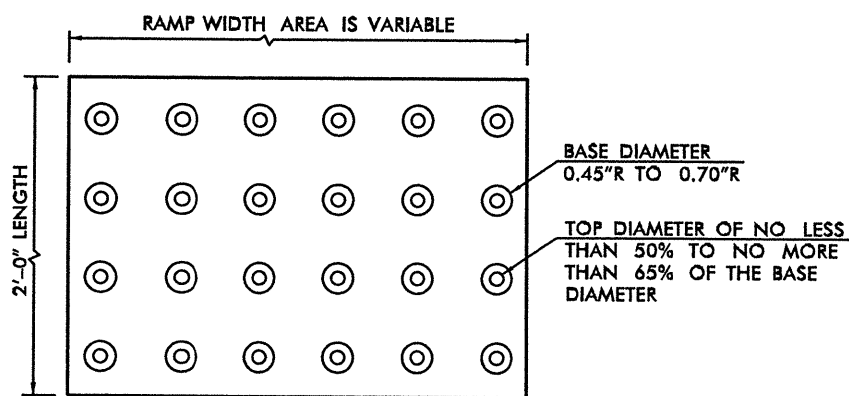


SECTION B-B

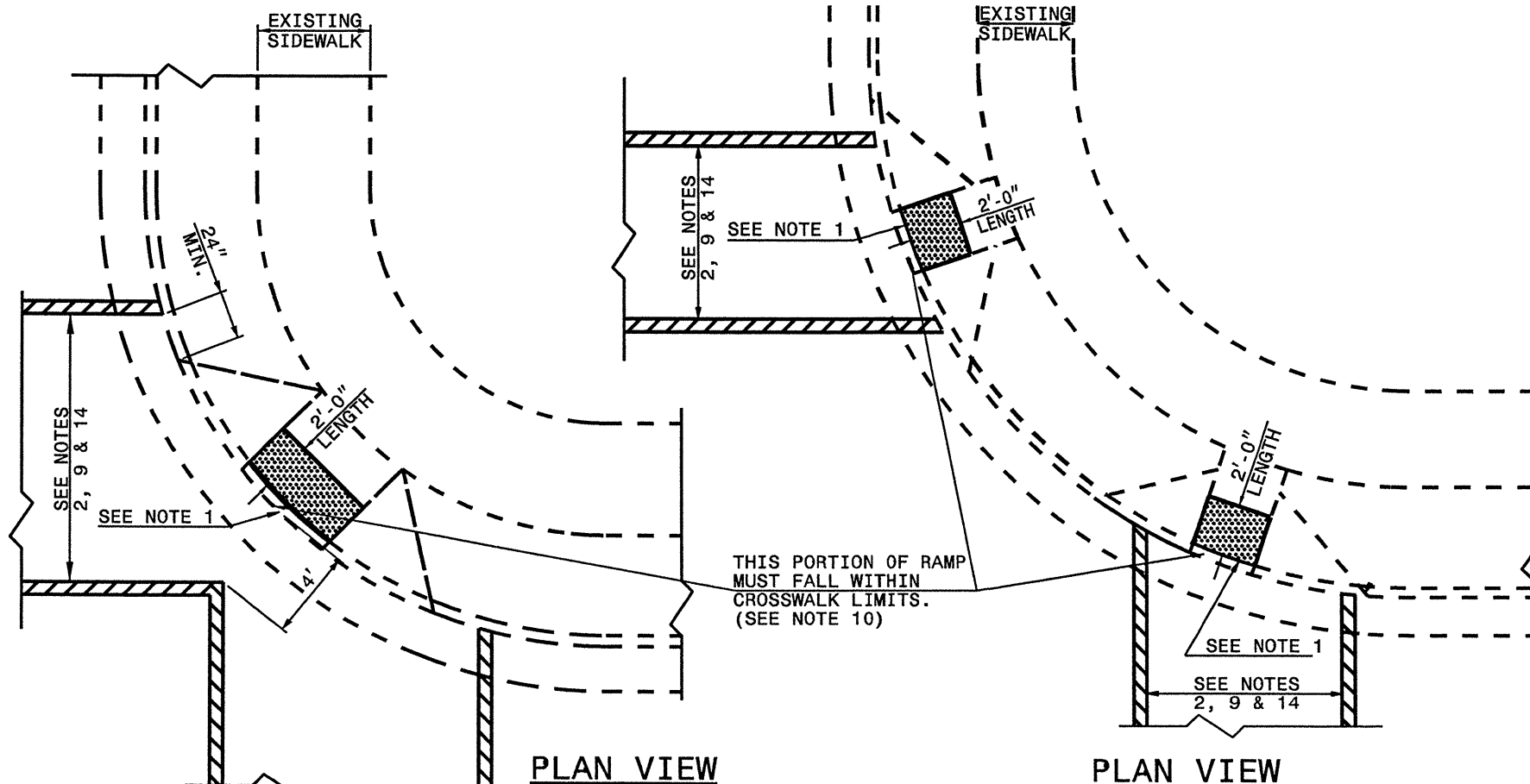


SECTION A-A

- NOTES:
1. DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
 2. OBTAIN 70% CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING DOMES



PLAN VIEW

DIAGONAL RAMP
MAX. 25' RADII
(60" MIN. FLOOR WIDTH)

PLAN VIEW

DUAL RAMPS
ANY RADII
(40" MIN. FLOOR WIDTH)

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

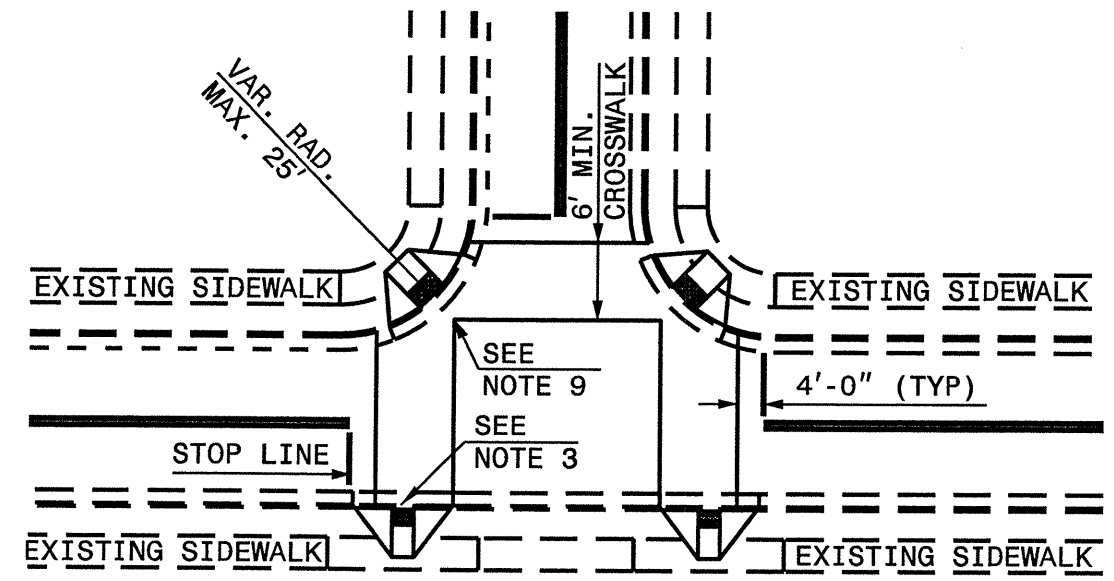
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

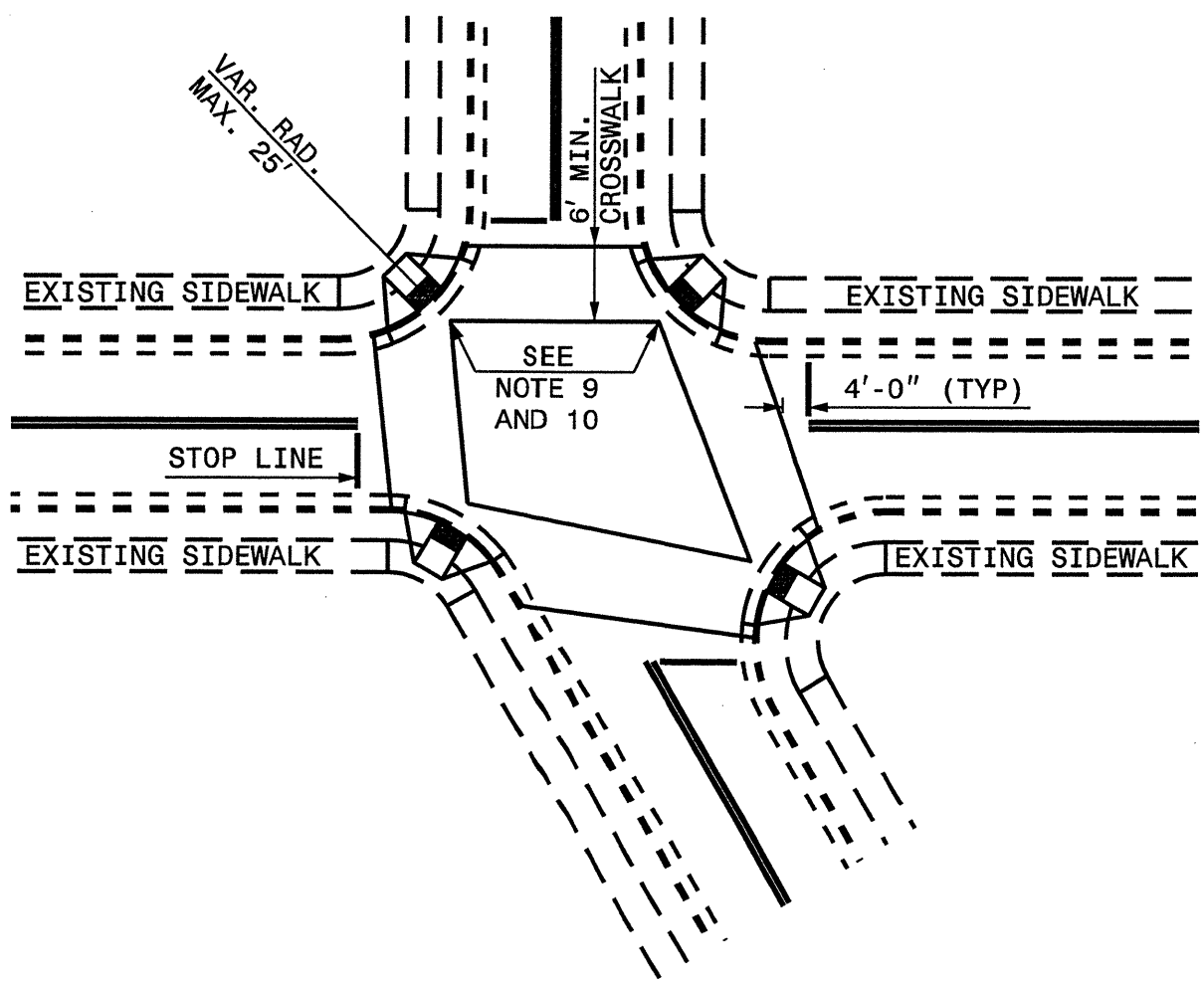
ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

WHEELCHAIR RAMP AND EXISTING SIDEWALK

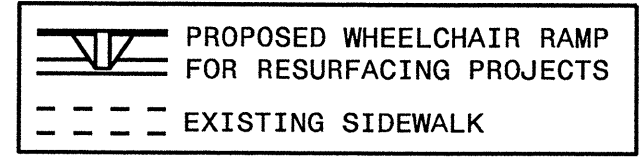


DETAIL SHOWING TYPICAL LOCATION OF WHEELCHAIR RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS



DETAIL SHOWING TYPICAL LOCATION OF WHEELCHAIR RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES

RESURFACING PROJECTS



ALLOWABLE LOCATIONS
DIAGONAL RAMP RADII...MAX. 25'

WHEELCHAIR RAMP AND EXISTING SIDEWALK

NOTES:

1. CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK.
2. CROSSWALK WIDTHS AND CONFIGURATION VARY, BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS.
3. NORTH CAROLINA GENERAL STATUTE 136-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW.

IN ADDITION, SECTION 228 OF THE 1973 FEDERAL AID HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1, 1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.

THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES, COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILIAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.
4. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED PLACE NOT LESS THAN 2 FEET OF FULL HEIGHT CURB BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
5. DO NOT EXCEED 0.08 (12:1) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET.
6. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS AND 60" (5'-0") OR GREATER FOR DIAGONAL RAMPS.
7. USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
8. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848.01.
9. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADII, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 14)
10. COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES.
11. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIRABLE.
12. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY.
13. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
14. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

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

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RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

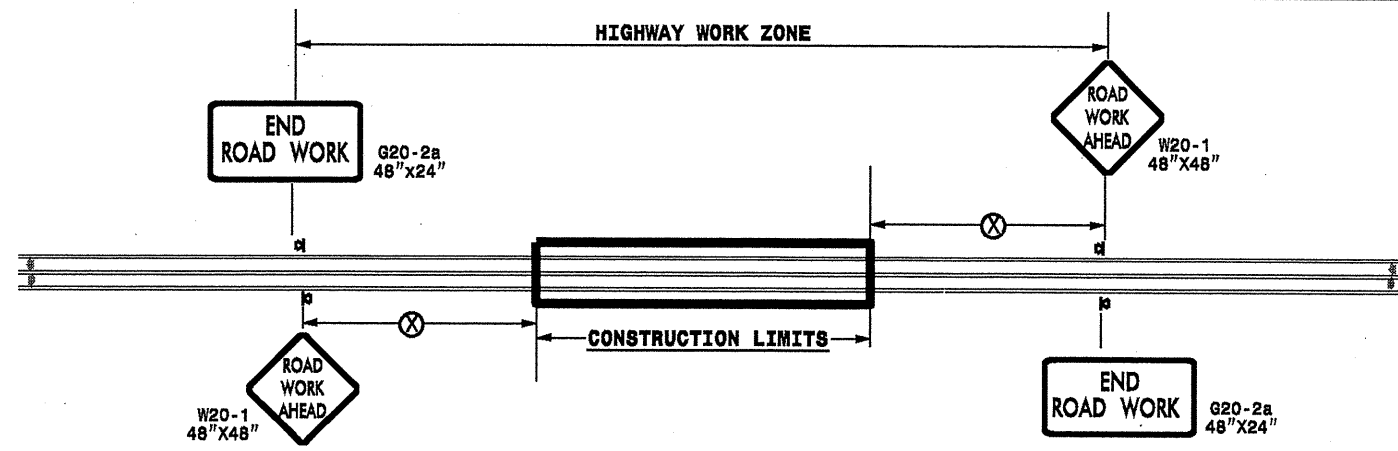
SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	BORROW EXC. CY	BORROW EXC. (STATE FURNISHED SOURCES) CY	2'-6" CURB & GUTTER, REMOVE AND REPLACE LF	FOUND. COND. MAT., MINOR STRS TON	FOUND. COND. FABRIC SY	18" DRAINAGE PIPE LF	24" DRAINAGE PIPE LF	INC. STONE BASE TONS	SHOULDER RECONST. SMI	2 1/2" MILLING SY	2" MILLING SY	1 1/2" MILLING SY	INC. MILLING SY	BASE COURSE, B25.0B TONS	INT. COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	LEVELING COURSE, S9.5B TONS	PG 64-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT (MILL), S9.5B TON	PATCHING EXISTING PAVEMENT (FULL DEPTH) TON	MASONRY DRAINAGE STRUCT EA	MASONRY DRAINAGE STRUCT (LF) LF			
3CR.10311.94	Duplin	1	NC 403	SAMPSON COUNTY LINE TO NC 50 / NC 403, PROJECT WIDE (MAPS NO. 1-3)	2	NO	0	24								190											250	25					
TOTAL FOR MAP NO. 1				WIDEN 28' (MP 0.00-1.36)	2	NO	1.36	28		87		9	28	42	40	190	2.72	19,947				1,171	3,153	2,168		329	250	25	1	3			
		2	NC 50 / NC 403	NC 403 TO 0.2 MI WEST OF US 117, WIDEN TO 28' (MP 1.36-1.61)	2	NO	0.25	28		16	50					80	0.50	3,667			1,235	215	580	503		67	50	5					
TOTAL FOR MAP NO. 2				FULL WIDTH (MP 1.61-2.12)	3	NO	0.51	44								80	0.50	3,667	13,165			1,235	215	580	1,702		102	50	5				
		3	NC 403	0.02 MI. EAST OF US 117 TO 0.04 MI. WEST OF WAYNE COUNTY LINE, WIDEN TO 44' (MP 2.17-2.21)	4	NO	0.04	44								1,150	0.08			939		34		146		10	500	100					
		"	"	WIDEN TO 27' (MP 2.21-4.69, 6.47-10.73, 11.16-12.76)	2	NO	8.34	27		534							16.68	117,427				7,181	18,566	12,820		1,951							
		"	"	WIDEN TO 27' (MP 5.05-5.46, 5.96-6.08, 6.21-6.47)	5	NO	0.79	27		519							1.58					680		2,440		176							
		"	"	MILL & FILL IN TAPER 37'-32' (MP 4.69-4.70)	6	NO	0.01	34.5												202				20		1							
		"	"	WIDEN TO 38' (MP 5.55-5.88)	5	NO	0.33	38		217		3	7	20			0.66					284		1,431		98			3				
		"	"	MILL & FILL (MP 4.70-4.88)	6	NO	0.18	32																328	100	26							
		"	"	WIDEN IN TAPER TO 27'-43' (MP 10.73-10.80, 11.07-11.16)	2	NO	0.16	35		10							0.32	3,004				138	474	318		47							
		"	"	MILL & FILL (MP 4.88-4.91)	6	NO	0.03	45																77		5							
		"	"	MILL & FILL IN TAPER TO 45'-28' (MP 4.91-4.93)	6	NO	0.02	36.5																42		2							
		"	"	MILL & FILL (MP 4.93-5.05)	6	NO	0.12	28																191		11							
		"	"	WIDEN IN TAPER TO 26'-38' (MP 5.46-5.55, 5.88-5.96)	5	NO	0.17	32		112							0.34					146		621		44							
		"	"	WIDEN IN TAPER TO 22'-26' (MP 6.08-6.11, 6.17-6.21)	4	NO	0.07	24	45								0.14					60		112		9							
		"	"	NO WORK (MP 6.11-6.17)		NO	0.06	24																									
		"	"	WIDEN IN TAPER TO 27'-30' (MP 12.76-12.94)	2	NO	0.18	28.5		118							0.36	2,693					155	426	292		44						
TOTAL FOR MAP NO. 3				WIDEN TO 43' (MP 10.80-11.07)	2	NO	0.27	43		177		3	7	20			0.54	6,336					232	998	660		97						
TOTAL FOR PROJ NO. 3CR.10311.94							10.77		45	1,687		12	35	62	40	1,420	23.92	153,074	13,165		8,697	1,235	10,296	24,197	23,871	100	2,521	500	100	3	3		
3CR.10821.93	Sampson	4	NC 403	US 117 CONNECTOR TO DUPLIN COUNTY LINE, TAPER 130'-45' (MP 0.00-0.02)	1	NO	0.02	87.5								80				1,027	800		99		6	125	10						
		"	"	WIDEN IN TAPER 49'-32' (MP 0.02-0.13)	2	NO	0.11	40.5		7							0.22	2,420				95	381	253		37							
		"	"	WIDEN IN TAPER TO 32'-28' (MP 0.13-0.22)	2	NO	0.09	30		6							0.18	1,426				77	225	154		23							
TOTAL FOR MAP NO. 4				WIDEN TO 28' (MP 0.22-0.70)	2	NO	0.48	28		31						80	1.36	10,886		1,027	800	585	1,719	1,271		182	125	10					
		5	US 13	SR 1648 TO WAYNE COUNTY LINE, PROJECT WIDE (MAP NO.(S) 5-8)		NO	0	24								700					900		72		4								
		"	"	WIDEN TO 28' (MP 0.00-0.13, 0.67-0.77)	2	NO	0.23	28	15								0.46	3,373				198	533	367		56							
		"	"	WIDEN IN TAPER TO 28'-33' (MP 0.13-0.15) & FULL WIDTH (MP 0.56-0.67)	2	NO	0.13	30	8								0.26	2,059				112	325	222		33							
		"	"	MILL & FILL (MP 0.15-0.35, 0.39-0.56, 1.23-1.29)	2	NO	0.43	28	182								0.86	7,064					1,115	685		94							
		"	"	NO WORK - BRIDGE DECK (MP 0.35-0.39)		NO	0.04	28																									
		"	"	MILL & FILL (MP 0.77-1.04)	2	NO	0.27	30	114								0.54	4,752					750	461		63							
		"	"	MILL & FILL IN TAPER 29'-36' (MP 1.04-1.10, 1.17-1.23)	2	NO	0.12	32.5	51								0.24	2,288					361	222		30							
		"	"	MILL & FILL (MP 1.10-1.17)	2	NO	0.07	36	30								0.14	1,478					233	143		20							
TOTAL FOR MAP NO. 5				TAPER 27'-43' (MP 1.29-1.33)	6	NO	0.04	35									700	2.50	21,014		821	900	310	3,317	2,252		305						
		6	US 13	NB TRAFFIC CIRCLE, FULL WIDTH (MP 0.00-0.01)	7	NO	0.01	22																13		1	5	5					
		"	"	NB TRAFFIC CIRCLE, TAPER 53'-31' (MP 0.01-0.02)	7	NO	0.01	42																24		1							
		"	"	NB TRAFFIC CIRCLE, FULL WIDTH (MP 0.02-0.08)	7	NO	0.06	31																106		6							
TOTAL FOR MAP NO. 6				NB TRAFFIC CIRCLE, FULL WITDH (MP 0.08-0.09)	7	NO	0.01	25																	14		1	5	5				
		"	"				0.09																157		9	5	5						
		7	US 13	SB TRAFFIC CIRCLE, FULL WIDTH (MP 0.00-0.01)	7	NO	0.01	22																13		1	5	5					
		"	"	SB TRAFFIC CIRCLE, TAPER 53'-31' (MP 0.01-0.02)	7	NO	0.01	42																24		1							
		"	"	SB TRAFFIC CIRCLE, FULL WIDTH (MP 0.02-0.08)	7	NO	0.06	31																106		6							
TOTAL FOR MAP NO. 7				SB TRAFFIC CIRCLE, FULL WITDH (MP 0.08-0.09)	7	NO	0.01	25																	14		1	5	5				
		"	"				0.09																157		9	5	5						
		8	US 13	MILL & FILL IN TAPER 52'-36' (MP 1.41-1.42)	2	NO	0.01	44	4								0.02	258					41	25		3							
		"	"	MILL & FILL (MP 1.42-1.46)	2	NO	0.04	36	17								0.08	845					133	82		11							
		"	"	MILL & FILL (MP 1.46-1.76)	2	NO	0.3	29	127								0.60	5,104					806	495		68							
TOTAL FOR MAP NO. 8				WIDEN TO 26' (MP 1.76-5.42)	2	NO	3.66	26	1,552									7.32	49,385				3,151	7,811	5,419		828						
TOTAL FOR PROJ NO. 3CR.10821.93							4.01		1,700									8.02	55,592				4,046	8,791	6,021		910						
GRAND TOTAL							19.11		2,145	1,834	50	12	35	62	40	2,200	35.80	240,566	13,165	13,771	2,935	14,342	38,024	33,729	100	4,434	935	150	4	3			

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	FRAME WITH TWO GRATES, STD 840.16	RETROFIT EXISTING WC RAMPS	INCIDENTAL CONCRETE	ADJ. OF CATCH BASIN	ADJ. OF DROP INLET	ADJ. OF MANHOLES	ADJ. OF METER OR VALVE BOX	CONVERT EXISTING DI TO TBJ	TEMP. SILT FENCE	STONE FOR EC CLASS B	SEDIMENT CONTROL STONE	TEMP. MULCHING	SEED FOR TEMP. SEEDING	FERTILIZER FOR TEMP. SEEDING	MATting (EROSION CONTROL)	1/4" HARDWARE CLOTH	SEED & MULCHING	INDUCTIVE LOOP	LEAD-IN CABLE (14-2)	
NO		NO			NO	EA	EA	SY	EA	EA	EA	EA	EA	LF	TON	TON	ACR	LBS	TON	SY	LF	AC	LF	LF	
3CR.10311.94	Duplin	1	NC 403	SAMPSON COUNTY LINE TO NC 50 / NC 403, PROJECT WIDE (MAPS NO. 1-3)	2	1								1,297	648		12.97	649	3.24	100	649				
TOTAL FOR MAP NO. 1						1								1,297	648		12.97	649	3.24	100	649	2.04			
		2	NC 50 / NC 403	NC 403 TO 0.2 MI WEST OF US 117, WIDEN TO 28' (MP 1.36-1.61)	2		12		1		9	4										0.38			
				FULL WIDTH (MP 1.61-2.12)	3																		700	100	
TOTAL FOR MAP NO. 2							12		1		9	4										0.38	700	100	
		3	NC 403	0.02 MI. EAST OF US 117 TO 0.04 MI. WEST OF WAYNE COUNTY LINE, WIDEN TO 44' (MP 2.17-2.21)	4			500		5	8	6		1,077	269	269	10.77	539	2.69	100	539				
				WIDEN TO 27' (MP 2.21-4.69, 6.47-10.73, 11.16-12.76)	2																	12.51			
				WIDEN TO 27' (MP 5.05-5.46, 5.96-6.08, 6.21-6.47)	5																	1.19			
				MII & FILL IN TAPER 37'-32' (MP 4.69-4.70)	6																				
				WIDEN TO 38' (MP 5.55-5.88)	5	3							3									0.50			
				MILL & FILL (MP 4.70-4.88)	6																				
				WIDEN IN TAPER TO 27'-43' (MP 10.73-10.80, 11.07-11.16)	2																	0.24			
				MILL & FILL (MP 4.88-4.91)	6																				
				MILL & FILL IN TAPER TO 45'-28' (MP 4.91-4.93)	6																				
				MILL & FILL (MP 4.93-5.05)	6																				
				WIDEN IN TAPER TO 26'-38' (MP 5.46-5.55, 5.88-5.96)	5																	0.26			
				WIDEN IN TAPER TO 22'-26' (MP 6.08-6.11, 6.17-6.21)	4																				
				NO WORK (MP 6.11-6.17)																					
				WIDEN IN TAPER TO 27'-30' (MP 12.76-12.94)	2																	0.27			
				WIDEN TO 43' (MP 10.80-11.07)	2																	0.41			
TOTAL FOR MAP NO. 3						3		500		5	8	6	3	1,077	269	269	10.77	539	2.69	100	539	15.37			
TOTAL FOR PROJ NO. 3CR.10311.94						4	12	500	1	5	17	10	3	2,374	917	269	23.74	1,188	5.93	200	1,188	17.78	700	100	
3CR.10821.93	Sampson	4	NC 403	US 117 CONNECTOR TO DUPLIN COUNTY LINE, TAPER 130'-45' (MP 0.00-0.02)	1			90						70	18	18	0.70	35	0.18	30	35				
				WIDEN IN TAPER 49'-32' (MP 0.02-0.13)	2																	0.17			
				WIDEN IN TAPER TO 32'-28' (MP 0.13-0.22)	2																	0.14			
				WIDEN TO 28' (MP 0.22-0.70)	2																	0.72			
TOTAL FOR MAP NO. 4							90							70	18	18	0.70	35	0.18	30	35	1.02			
		5	US 13	SR 1648 TO WAYNE COUNTY LINE, PROJECT WIDE (MAP NO.(S) 5-8)				85			2	4		133	33	33	1.33	67	0.33	40	67				
				WIDEN TO 28' (MP 0.00-0.13, 0.67-0.77)	2																	0.35			
				WIDEN IN TAPER TO 28'-33' (MP 0.13-0.15) & FULL WIDTH (MP 0.56-0.67)	2																	0.20			
				MILL & FILL (MP 0.15-0.35, 0.39-0.56, 1.23-1.29)	2																	0.65			
				NO WORK - BRIDGE DECK (MP 0.35-0.39)																					
				MILL & FILL (MP 0.77-1.04)	2																	0.41			
				MILL & FILL IN TAPER 29'-36' (MP 1.04-1.10, 1.17-1.23)	2																	0.18			
				MILL & FILL (MP 1.10-1.17)	2																	0.11			
				TAPER 27'-43' (MP 1.29-1.33)	6																				
TOTAL FOR MAP NO. 5							85				2	4		133	33	33	1.33	67	0.33	40	67	1.88			
		6	US 13	NB TRAFFIC CIRCLE, FULL WIDTH (MP 0.00-0.01)	7																				
				NB TRAFFIC CIRCLE, TAPER 53'-31' (MP 0.01-0.02)	7																				
				NB TRAFFIC CIRCLE, FULL WIDTH (MP 0.02-0.08)	7																				
				NB TRAFFIC CIRCLE, FULL WITDH (MP 0.08-0.09)	7																				
TOTAL FOR MAP NO. 6																									
		7	US 13	SB TRAFFIC CIRCLE, FULL WIDTH (MP 0.00-0.01)	7																				
				SB TRAFFIC CIRCLE, TAPER 53'-31' (MP 0.01-0.02)	7																				
				SB TRAFFIC CIRCLE, FULL WIDTH (MP 0.02-0.08)	7																				
				SB TRAFFIC CIRCLE, FULL WITDH (MP 0.08-0.09)	7																				
TOTAL FOR MAP NO. 7																									
		8	US 13	MILL & FILL IN TAPER 52'-36' (MP 1.41-1.42)	2									401	100	100	4.01	201	1.00	50	201	0.02			
				MILL & FILL (MP 1.42-1.46)	2																	0.06			
				MILL & FILL (MP 1.46-1.76)	2																	0.45			
				WIDEN TO 26' (MP 1.76-5.42)	2																	5.49			
TOTAL FOR MAP NO. 8														401	100	100	4.01	201	1.00	50	201	6.02			
TOTAL FOR PROJ NO. 3CR.10821.93							175				2	4		604	151	151	6.04	303	1.51	120	303	8.91			
GRAND TOTAL						4	12	675	1	5	19	14	3	2,978	1,068	420	29.78	1,491	7.44	320	1,491	26.89	700	100	

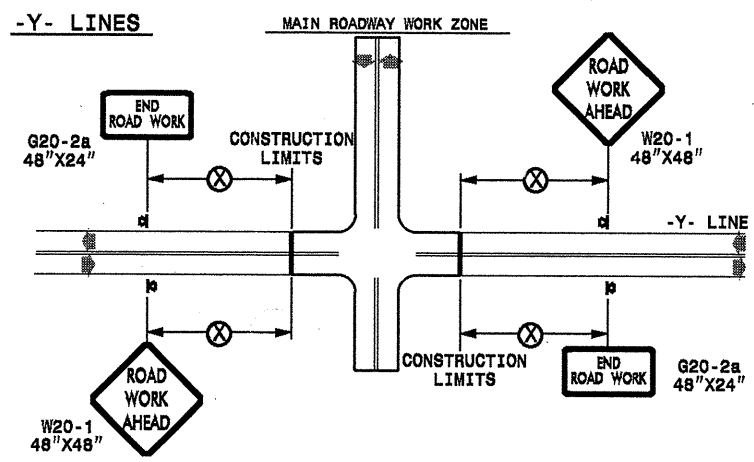
TWO-WAY UNDIVIDED ** (L-LINES)



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

DETAIL DRAWING
FOR TWO-WAY UNDIVIDED
WORK ZONE WARNING SIGNS

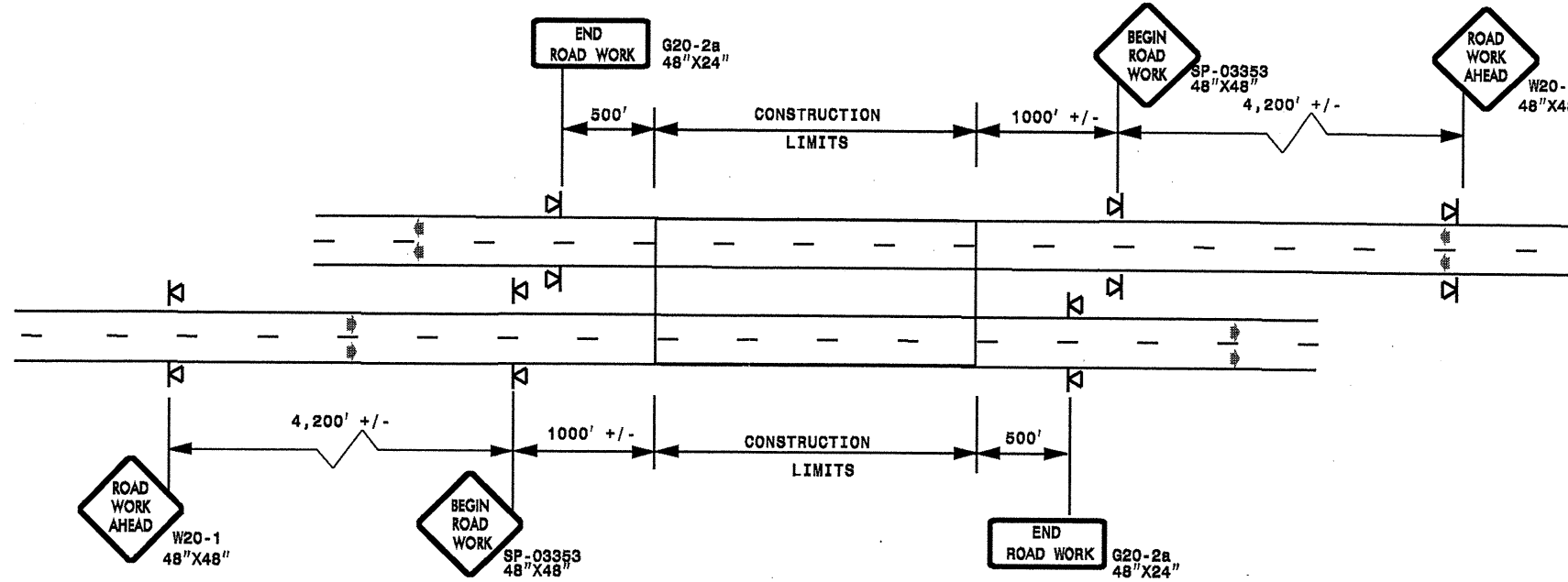
SHEET 1 OF 1

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

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

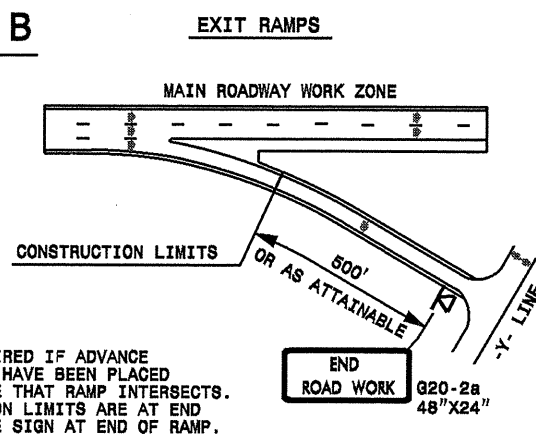
DETAIL A



STATE OF NORTH CAROLINA
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RALEIGH, N.C.

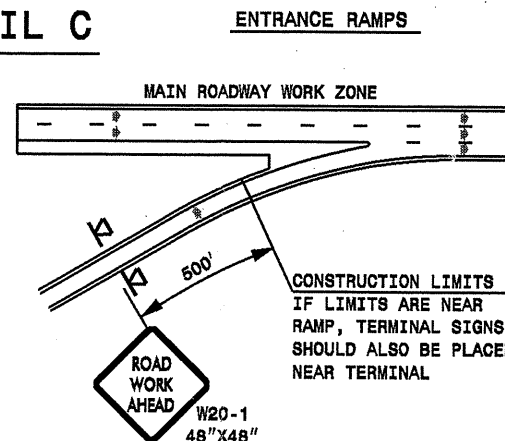
ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B



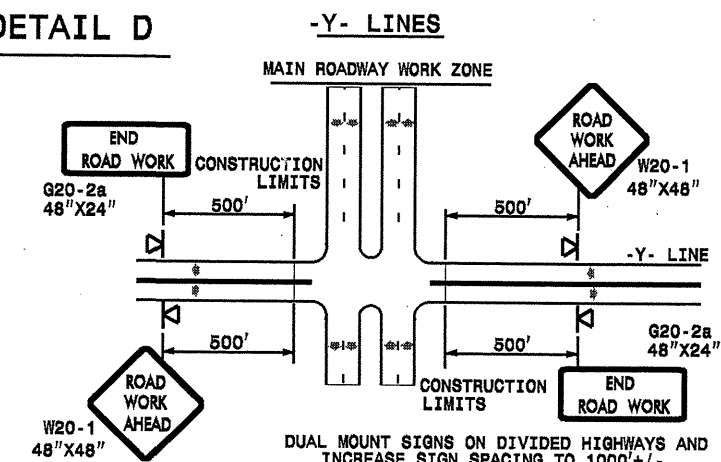
NOTE:
SIGN NOT REQUIRED IF ADVANCE
WARNING SIGNS HAVE BEEN PLACED
ALONG -Y- LINE THAT RAMP INTERSECTS.
IF CONSTRUCTION LIMITS ARE AT END
OF RAMP, PLACE SIGN AT END OF RAMP.

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'+/-.

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

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

SHEET 1 OF 1

23-AUG-2010 09:49 ac:\031194x2\Duplin\compton_usj3\nc403m8\c202625a-b_3cr\031194x2_freelanesgreatJuly2006.por\table.dgn
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Peymore AT WZ\CSJ5502

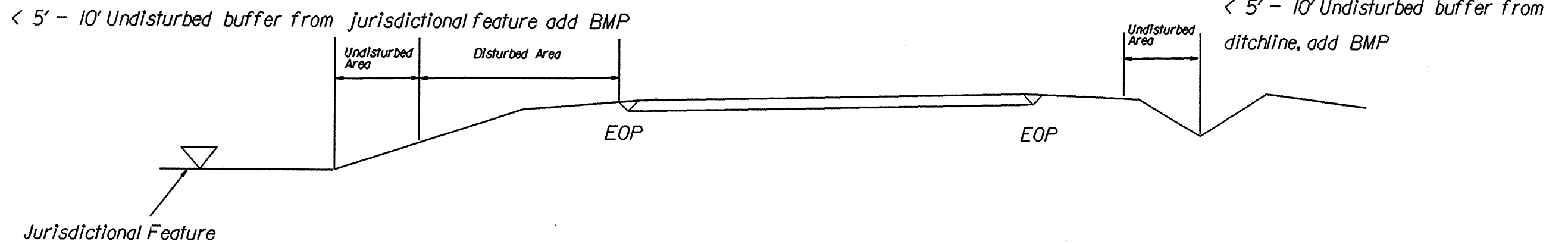
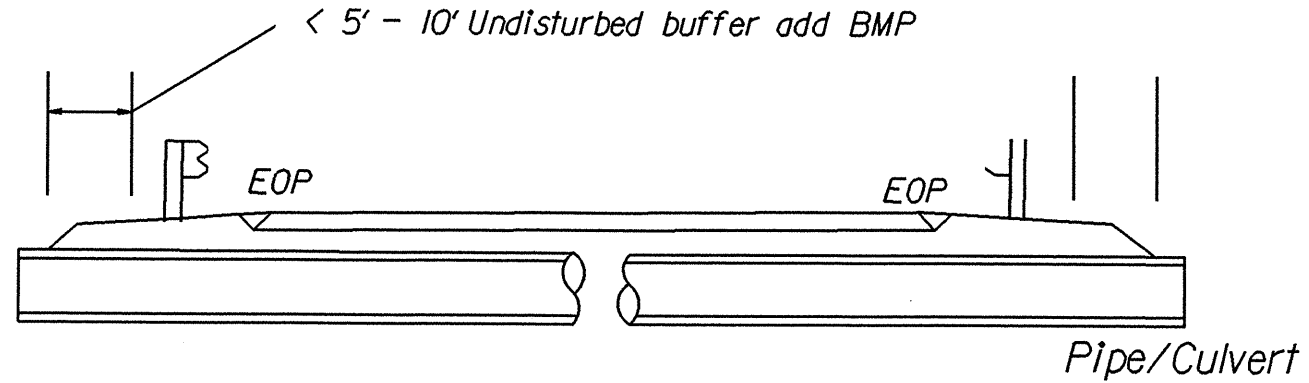
APPROVED:	DATE:	DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS	
SEAL	SCALE:	NONE	REVISIONS
	DATE:		7-98 10/01
	DWG. BY:		10-98 03/04
	DESIGN BY:		01/01 11/04
REVIEWED BY:			

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

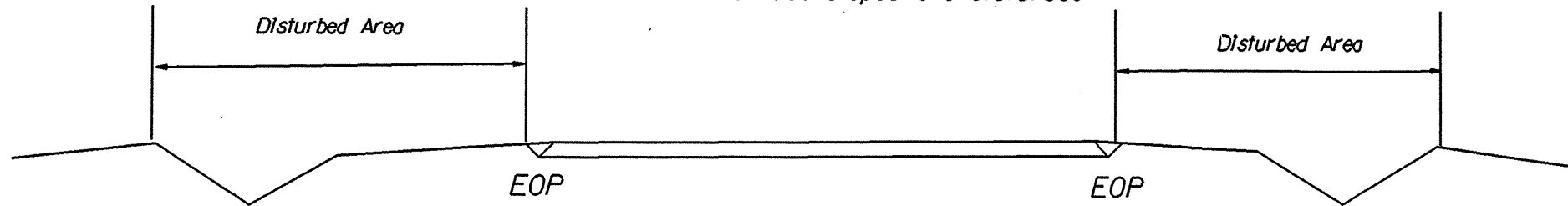
BMP Options: Wattle or Silt Fence

EROSION CONTROL DETAIL

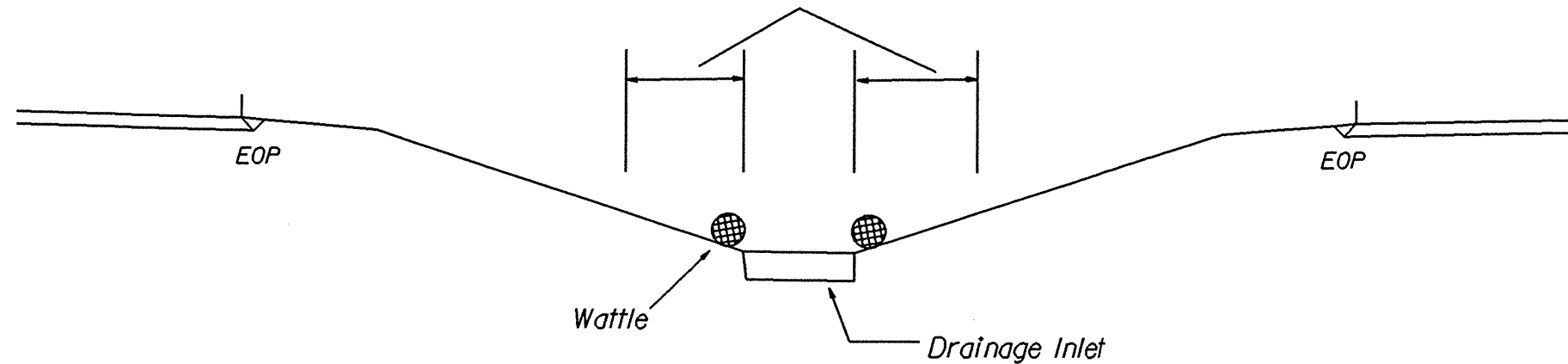
PROJECT REFERENCE NO. 3CR.10311.94, ETC.	SHEET NO. Ec-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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



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

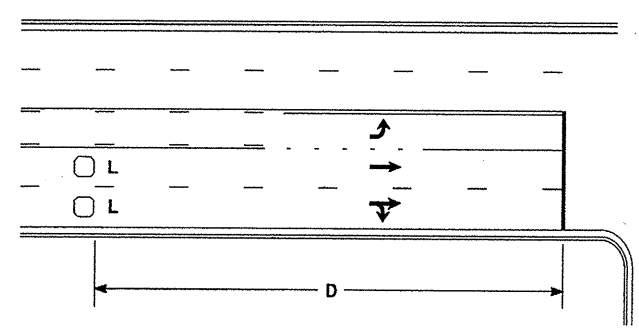


NOT TO SCALE

REVISIONS

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03-AUG-2010 15:34
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High Speed Detection [≥40 mph (64 km/hr)]

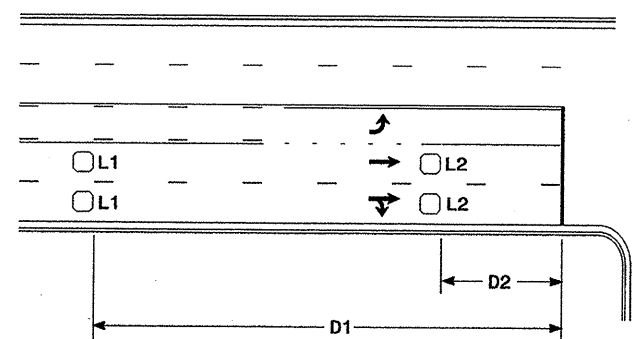


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

Volume Density Operation

OR

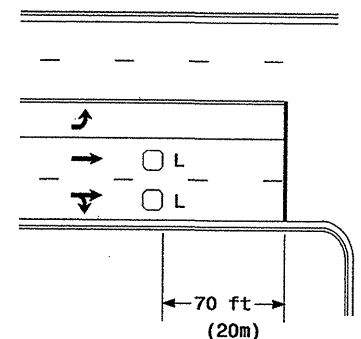


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

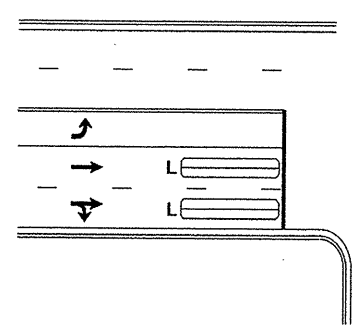
"Stretch" Operation

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



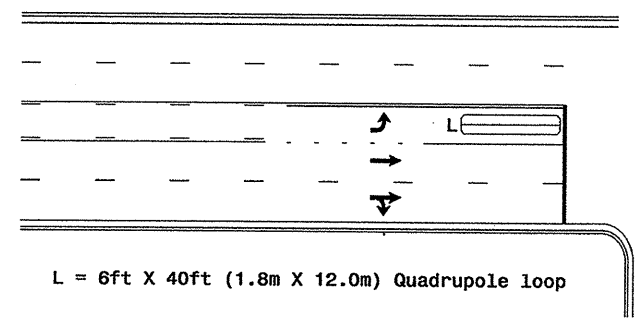
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

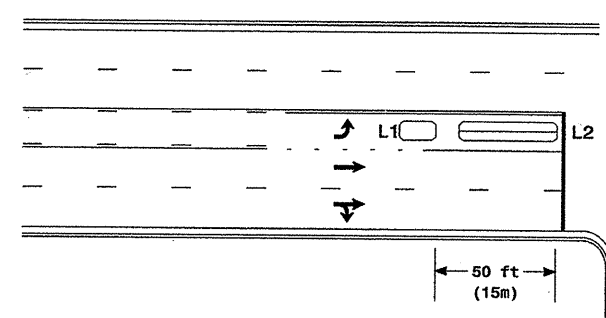
Left Turn Lane Detection



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

Presence Loop Detection

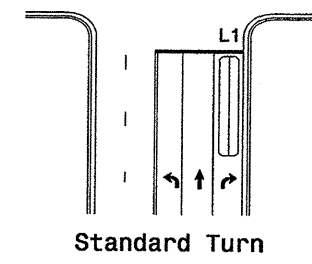
OR



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

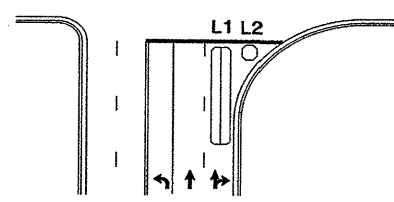
Queue Loop Detection

Right Turn Lane Detection

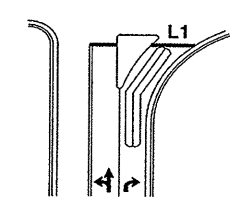


Standard Turn

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

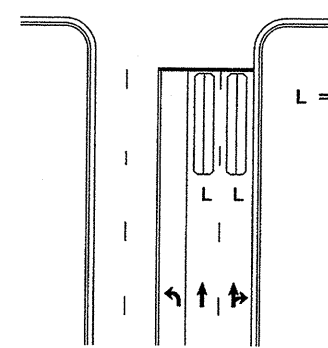


Wide Radius Turn



Channelized Turn

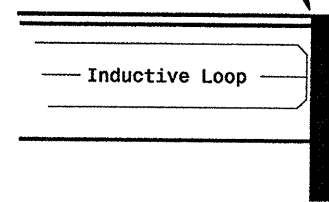
Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines

Locate loop slightly
behind leading
edge of stop line



Note:
Loop may be located in advance
of stop line when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permissive or
protected/permissive left turn.

Recommended Number of Turns

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

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

Quadrupole loops: Use 2-4-2 turns
6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns

Prepared in the Offices of:
The Engineering and Surveying Division
DEPARTMENT OF TRANSPORTATION
NORTH CAROLINA
Traffic and Geometric Section
122 N. McDowell St., Raleigh, NC 27603

Typical Loop Locations

PLAN DATE: June 2006 REVIEWED BY:
PREPARED BY: P L Alexander REVIEWED BY:
REVISIONS
1. Permise pavement markings
SCALE: N/A
DATE: 12/1/06

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL 23488
P L ALEXANDER
SIGNATURE
DATE
SIG. INVENTORY NO.

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

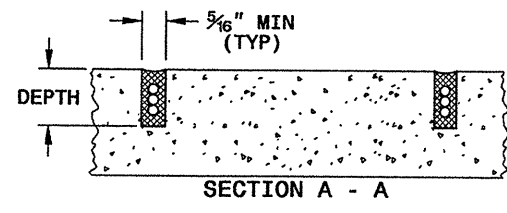
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

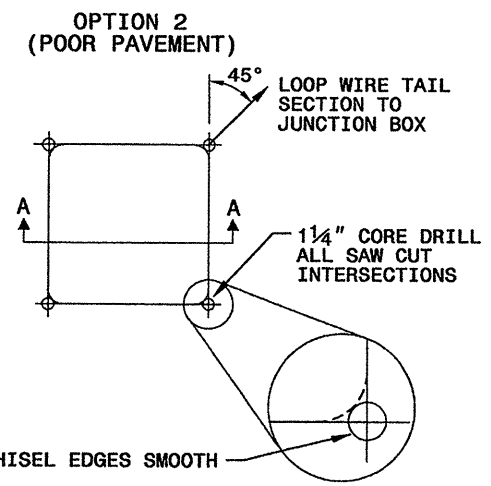
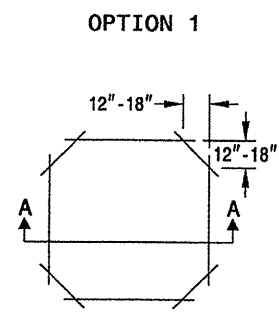
SAW SLOT DEPTH CHART

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

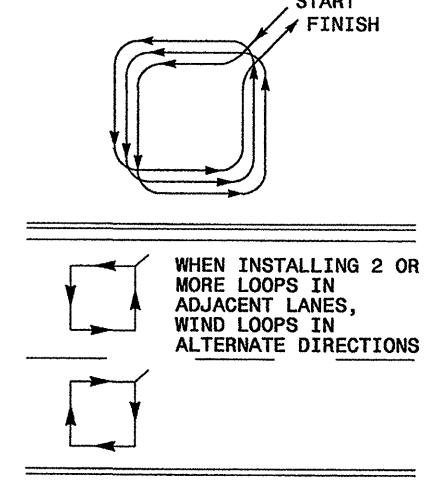


CONVENTIONAL 4-SIDED LOOP

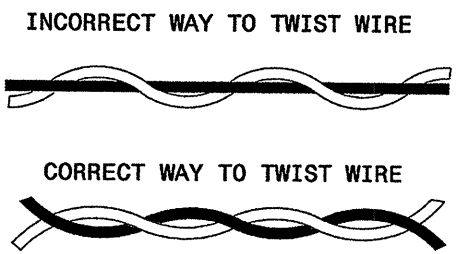
SAW CUT OPTIONS



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

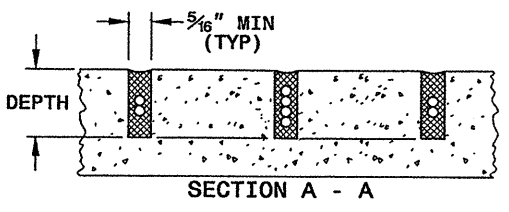
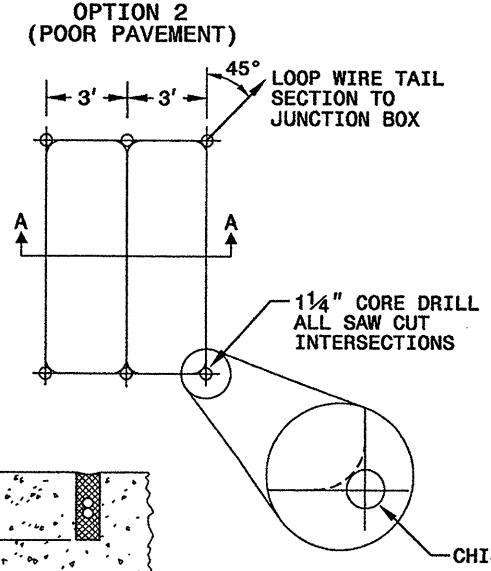
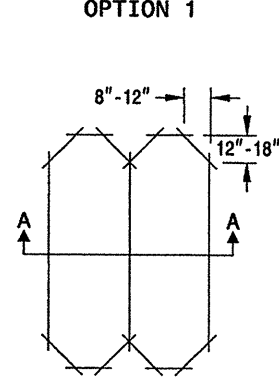


NOTES

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.

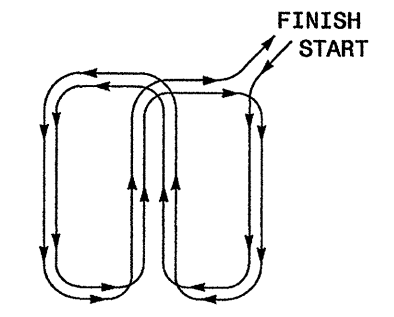
QUADRUPOLE LOOP

SAW CUT OPTIONS



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



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

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
 Garner, NC 27529

SEAL

Melton Dean 11/24/08
 SIGNATURE DATE

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 11/11/08

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

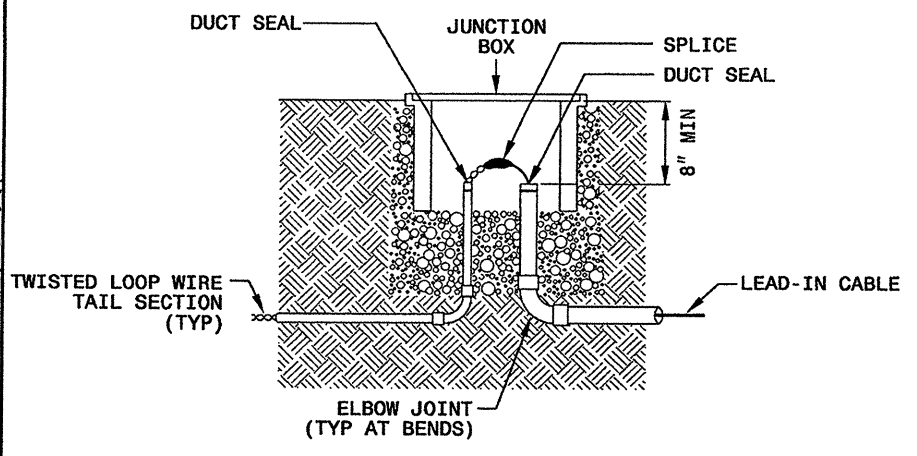
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

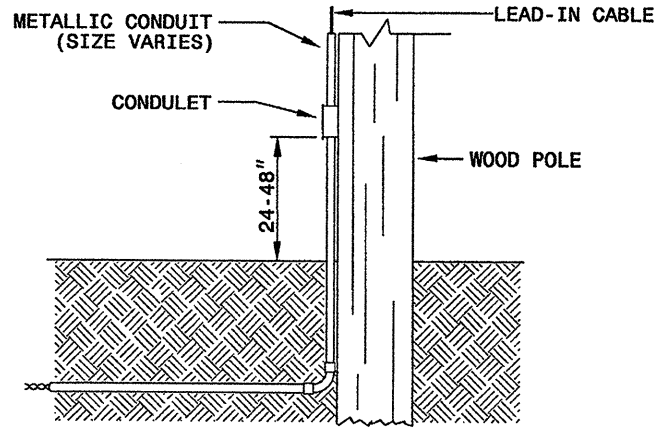
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

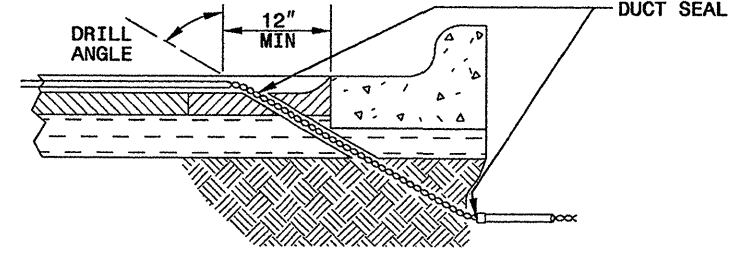


NOTE

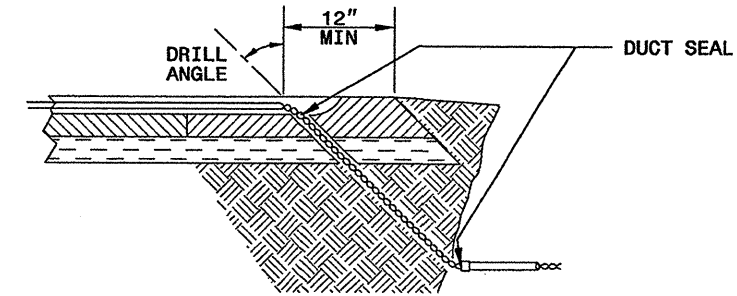
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

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

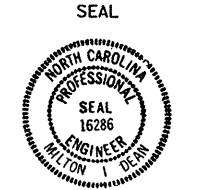
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title



Milton L. Dear 11/24/08
 SIGNATURE DATE

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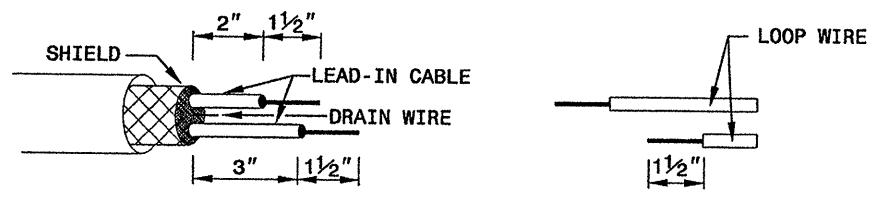
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

11-08

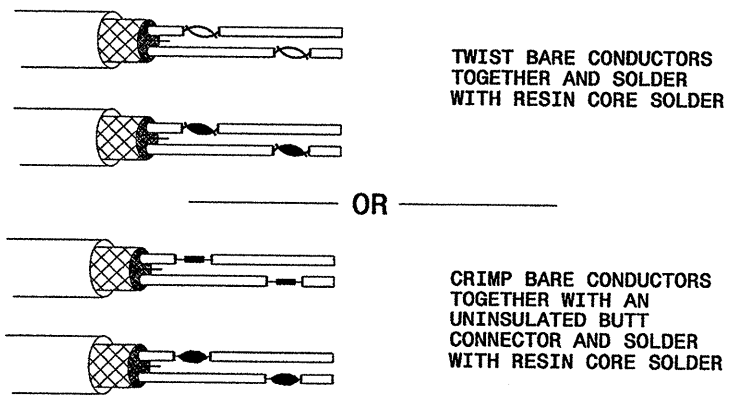
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

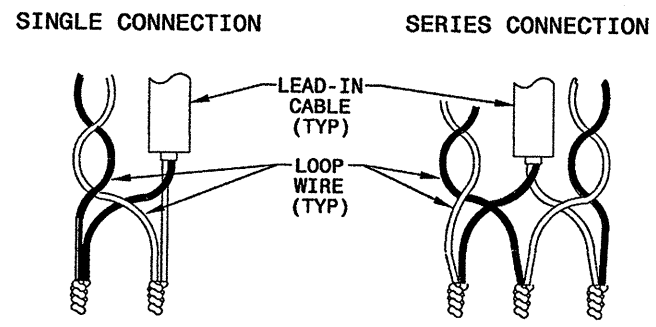


STEP 2. CONNECT AND SOLDER

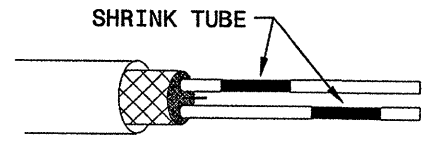


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

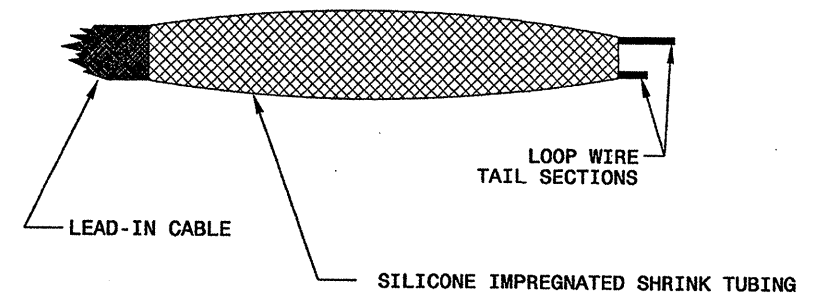
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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

11-08

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

SHEET 3 OF 3
1725D01

See Plate for Title

Prepared in the Office of:

750 N. Greenfield Parkway
 Garner, NC 27529

SEAL

Milton I. Dean 1/24/08
 SIGNATURE DATE

24-MPI-2008 09136
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 2/11/11