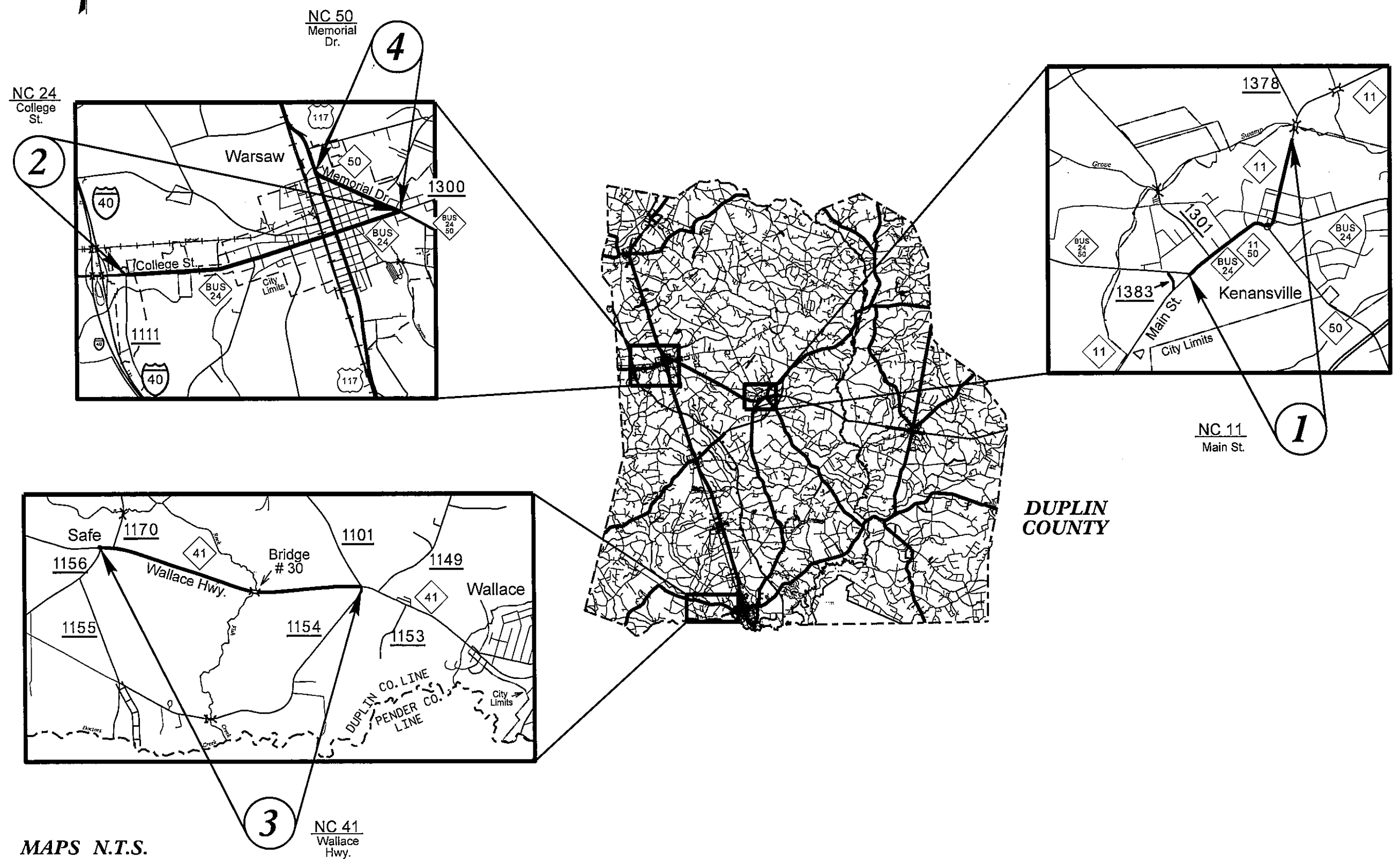


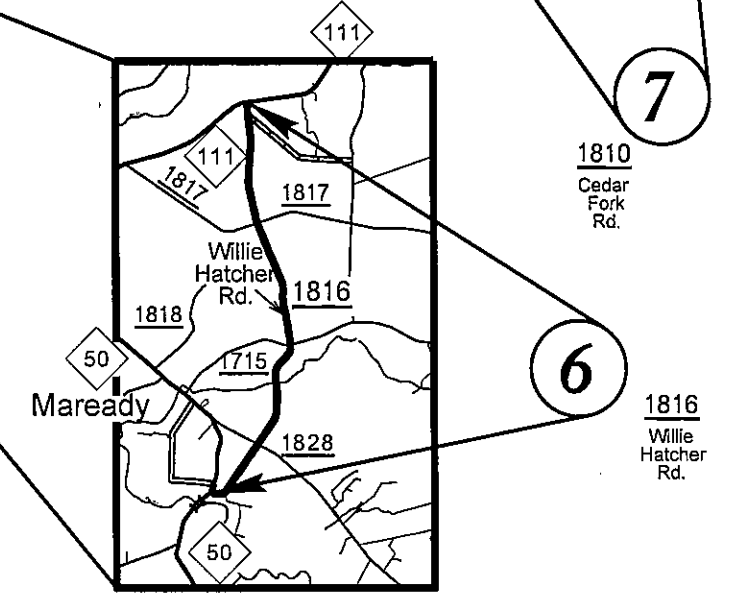
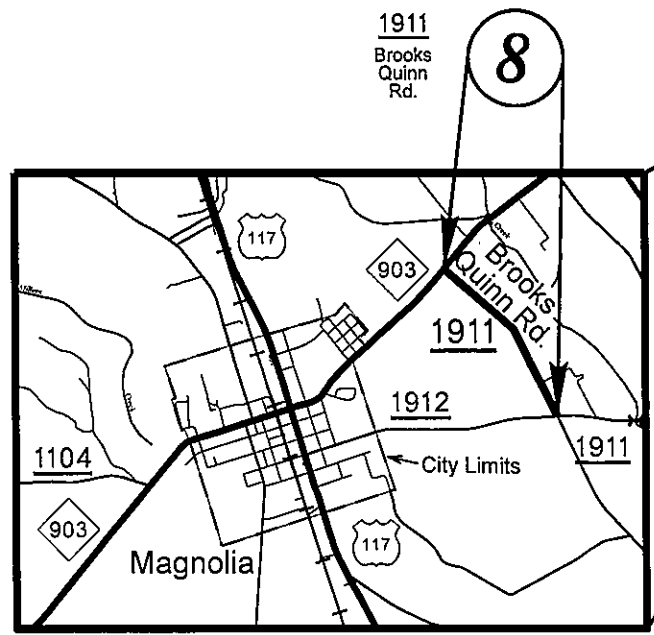
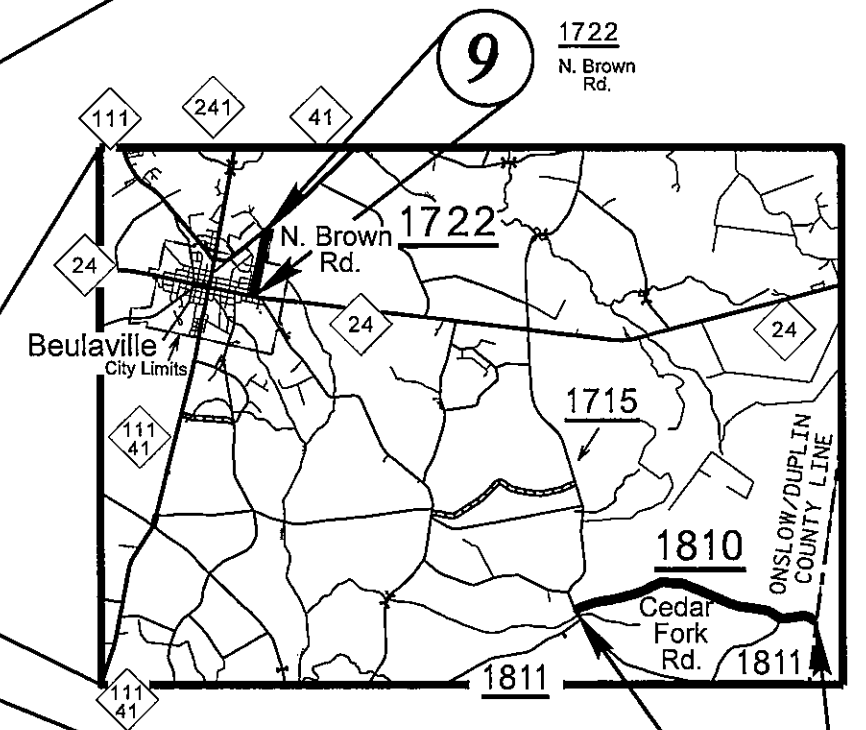
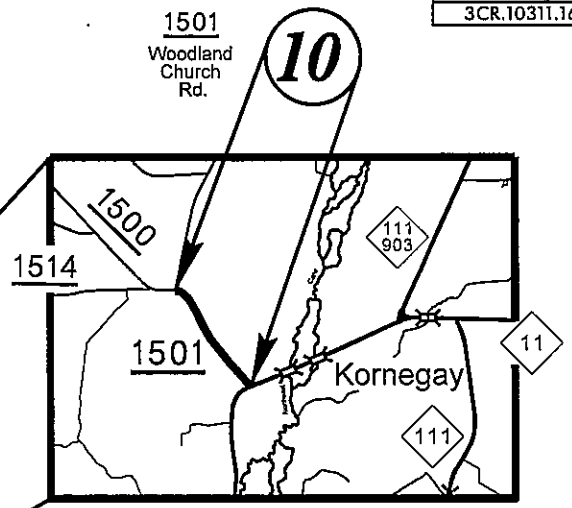
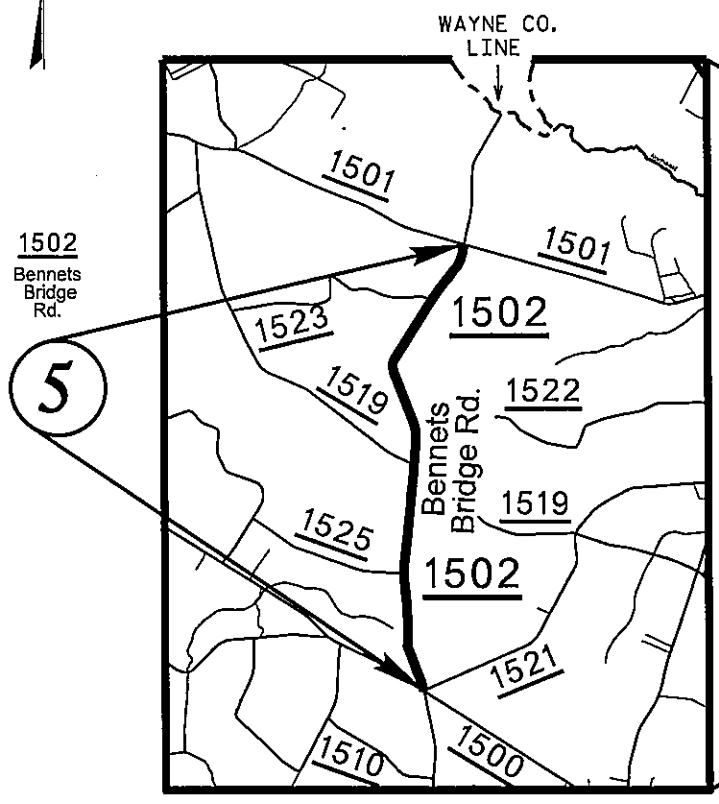
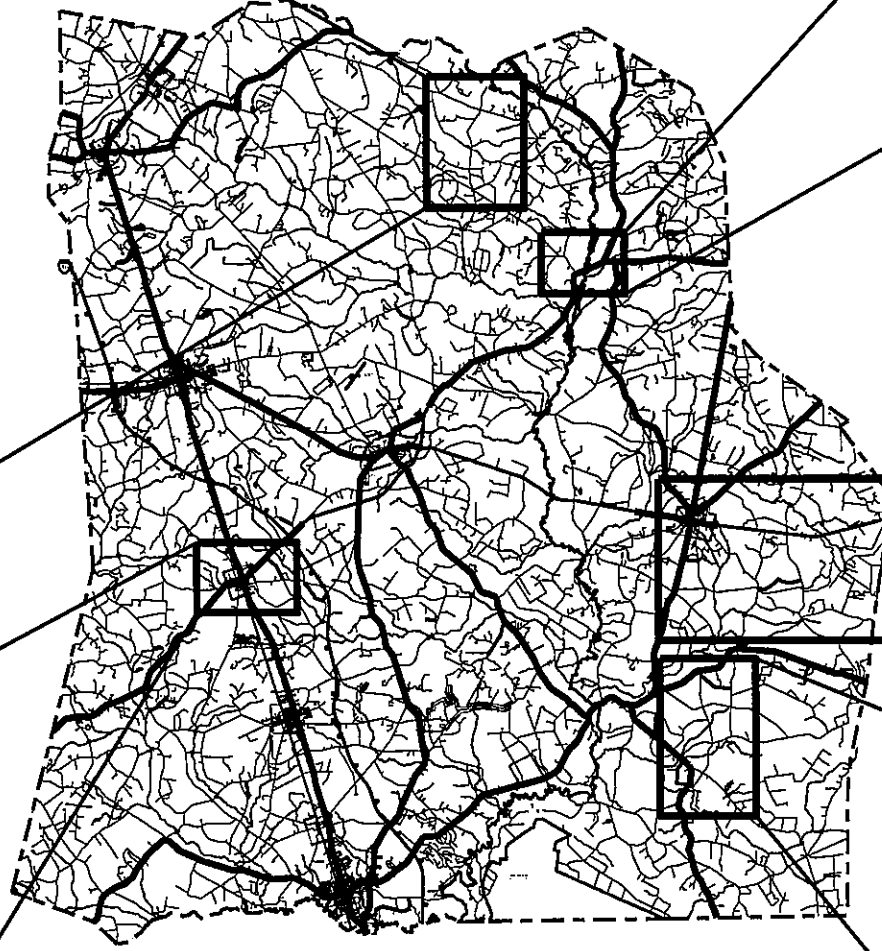
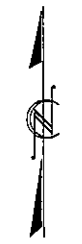
DUPLIN COUNTY



MAPS N.T.S.

8/17/99
 REVISIONS
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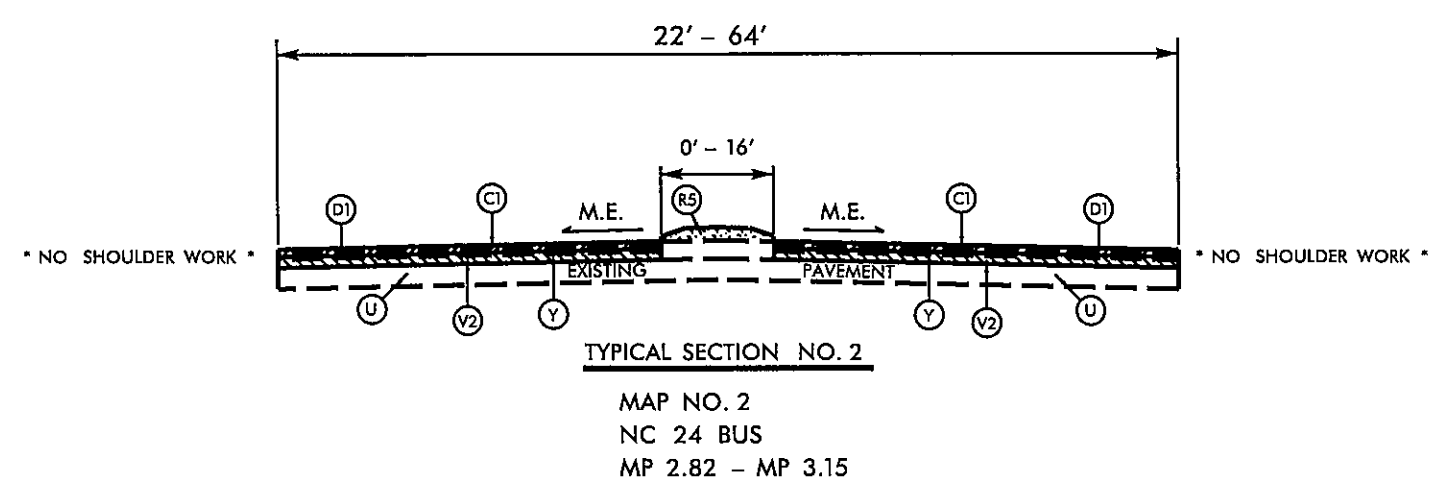
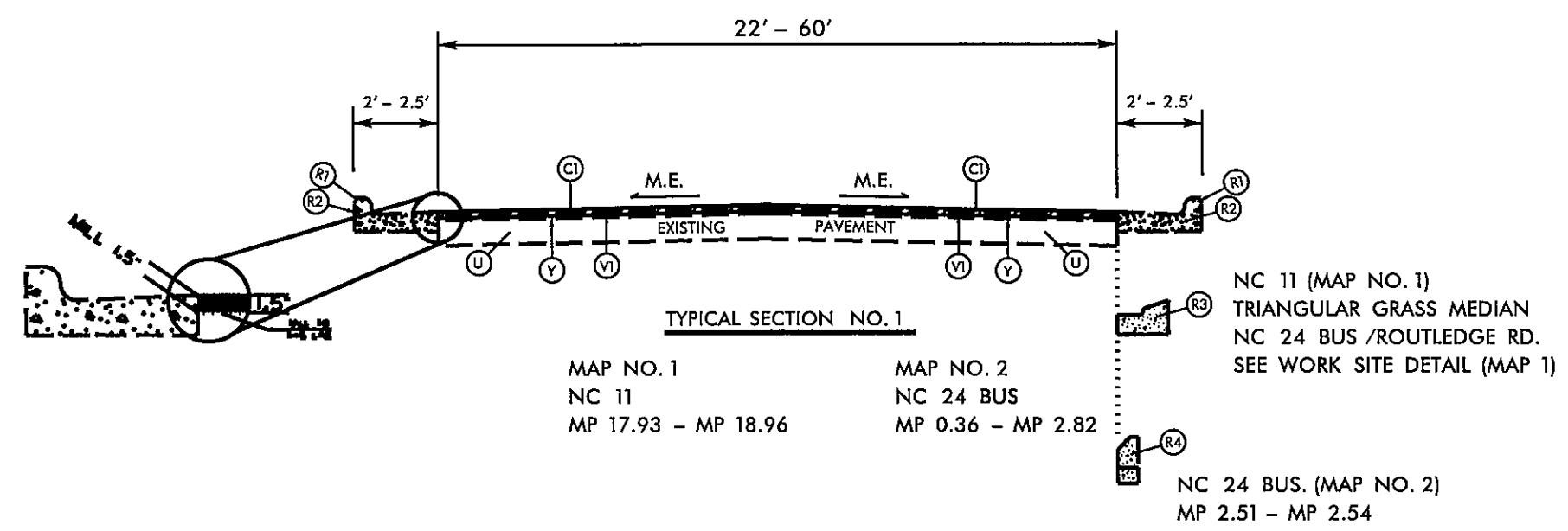
DUPLIN COUNTY



MAPS N.T.S.

REVISIONS

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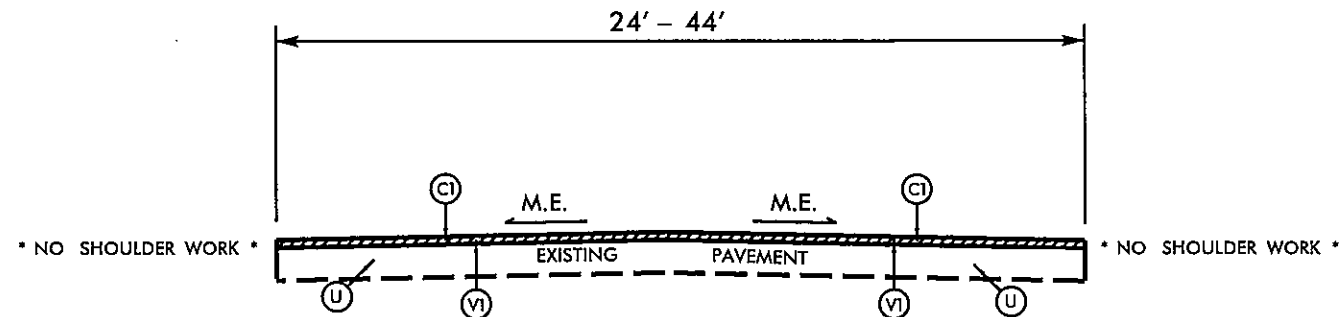


PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
C2	PROP. APPROX. 1½" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ.YD.
D1	PROP. APPROX. 2½" DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ.YD.
R1	REMOVE AND REPLACE EXISTING CONCRETE 2'-6" CURB & GUTTER AS DIRECTED BY THE ENGINEER
R2	REMOVE AND REPLACE EXISTING CONCRETE 2'-0" CURB & GUTTER AS DIRECTED BY THE ENGINEER.
R3	REMOVE AND REPLACE EXISTING CONCRETE 1'-6" CURB & GUTTER
R4	EXISTING ASPHALT CURB
R5	EXISTING CONCRETE MONOLITHIC ISLAND
U	EXISTING PAVEMENT
V1	MILLING BITUMINOUS PAVEMENT 1 1/2" DEPTH
V2	MILLING BITUMINOUS PAVEMENT 4" DEPTH
Y	PAVEMENT INTERLAYER

NOTE: PLACE PAVEMENT INTERLAYER PRIOR TO RESURFACING. SEE PROJECT SPECIAL PROVISIONS.

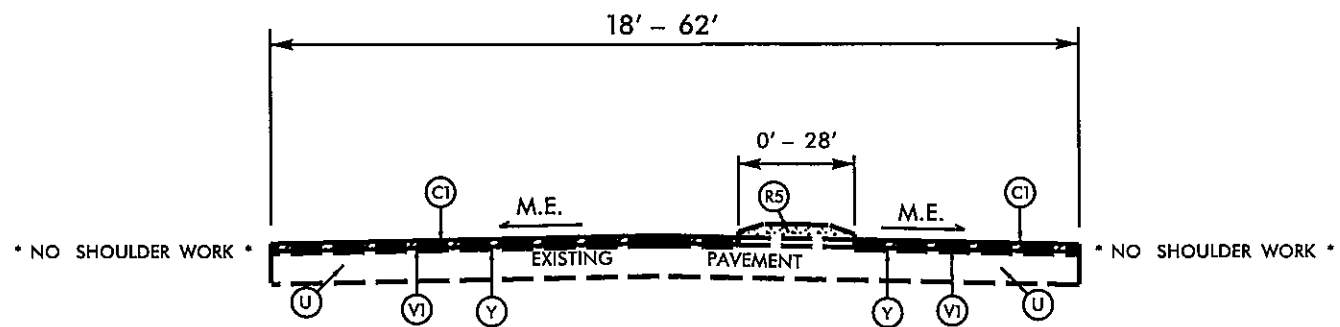
REVISIONS

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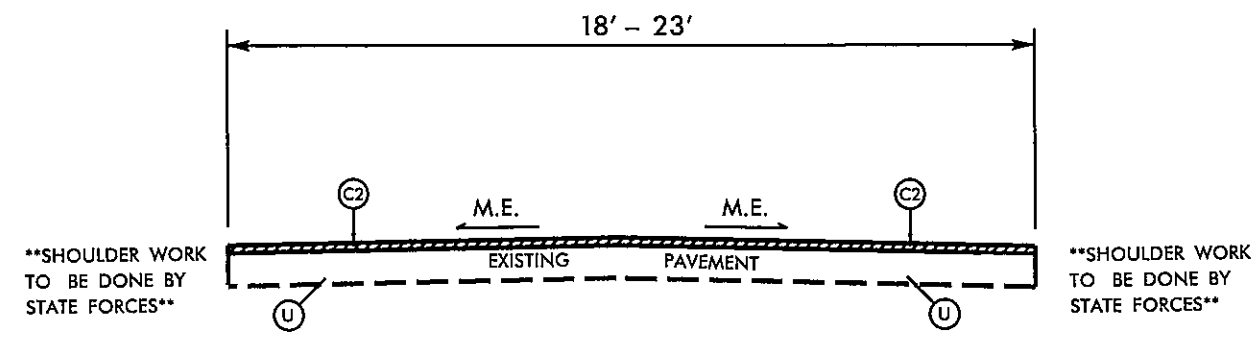
TYPICAL SECTION NO. 3

MAP NO. 3
NC 41
MP 5.38 - MP 8.94
(NO WORK BRIDGE #30
MP 8.08 - MP 8.11)



TYPICAL SECTION NO. 4

MAP NO. 4
NC 50
MP 30.68 - MP 31.60



TYPICAL SECTION NO. 5

MAP NO. 5 SR 1502 MP 0.85 - MP 3.75	MAP NO. 7 SR 1810 MP 0.02 - MP 2.70	MAP NO. 9 SR 1722 MP 0.02 - MP 0.70
MAP NO. 6 SR 1816 MP 0.02 - MP 4.51	MAP NO. 8 SR 1911 MP 0.01 - MP 1.02	MAP NO. 10 SR 1501 MP 14.10 - MP 14.88

PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	1½" SF9.5A
D1	2½" I19.0B
R1	REMOVE & REPLACE EXIST. 2'-6" C&G AS DIRECTED BY ENGINEER
R2	REMOVE & REPLACE EXIST. 2'-0" C&G AS DIRECTED BY ENGINEER
R3	REMOVE AND REPLACE 1'-6" C&G
R4	EXIST. ASPHALT CURB
R5	EXIST. CONC. MONOLITHIC IS.
U	EXISTING PAVEMENT
V1	MILLING 1½" DEPTH
V2	MILLING 4" DEPTH
Y	PAVEMENT INTERLAYER

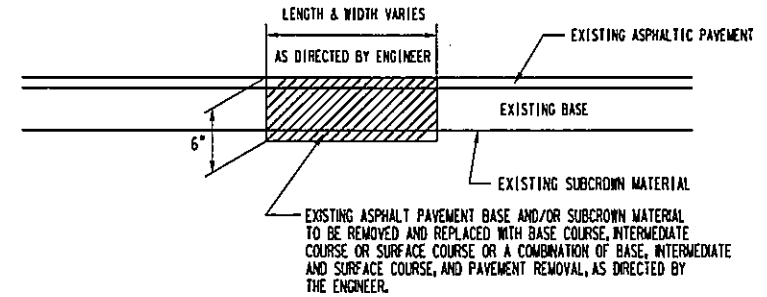
NOTE: PLACE PAVEMENT INTERLAYER PRIOR TO RESURFACING. SEE PROJECT SPECIAL PROVISIONS.

REVISIONS

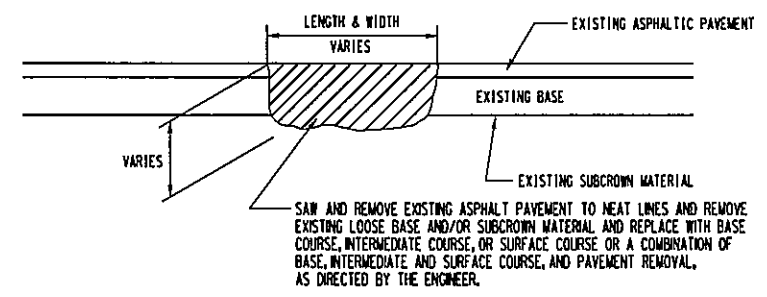
8/17/99

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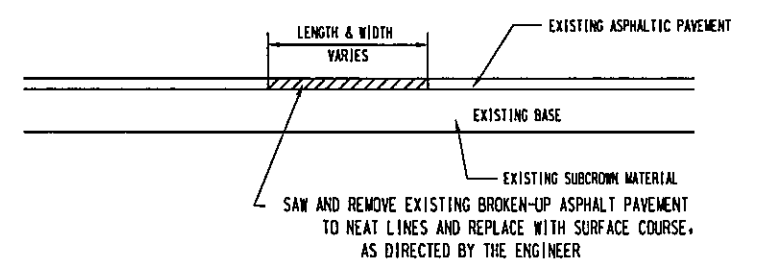
DETAILS OF REPAIRING EXISTING PAVEMENT PRIOR TO RESURFACING FOR FULL DEPTH AND MILLING



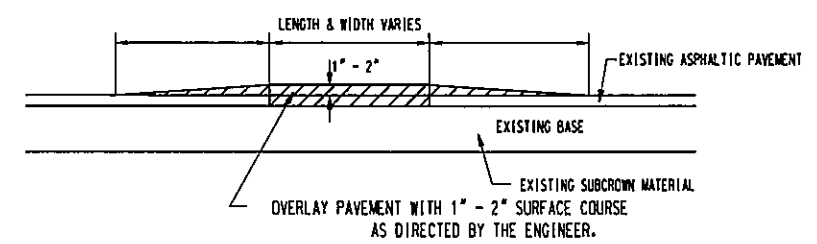
DETAIL NO. 1



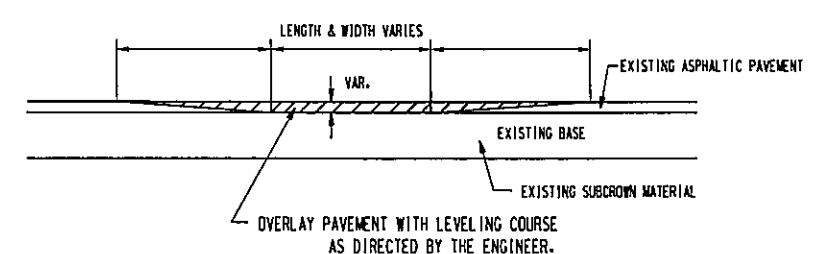
DETAIL NO. 2



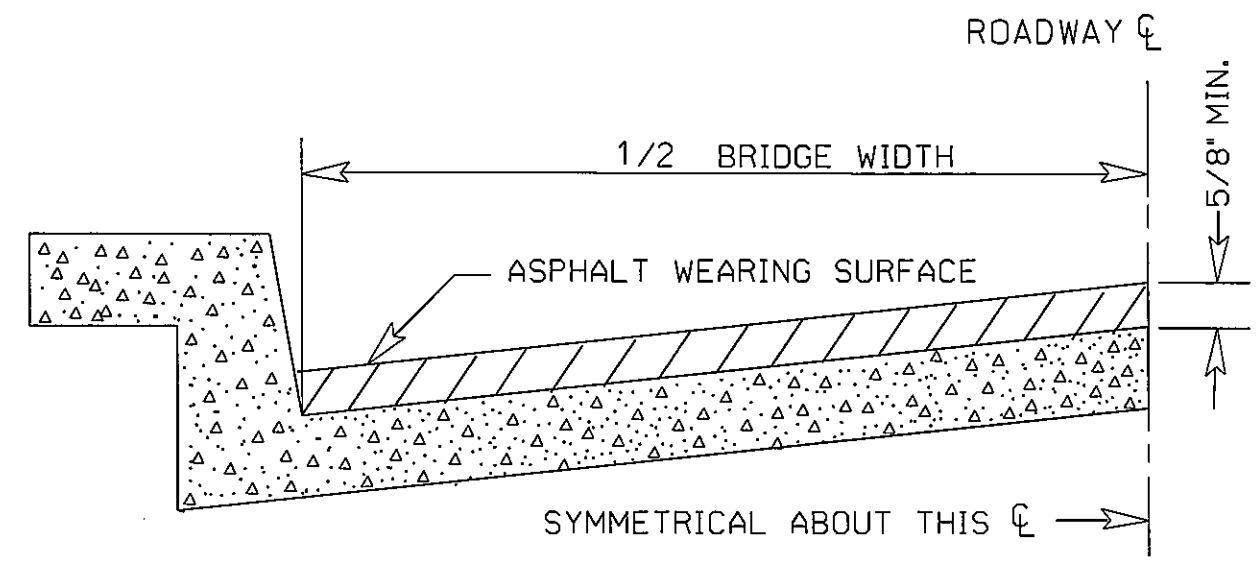
DETAIL NO. 3



DETAIL NO. 4



DETAIL NO. 5



BRIDGE HALF TYPICAL SECTION

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

THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN 5/8" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1-1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.

REVISIONS

04-NOV-2014 09:52 D:\Resurfacing\Duplin County\DETAILS\3CR.10311.167, ETC...petchdgn
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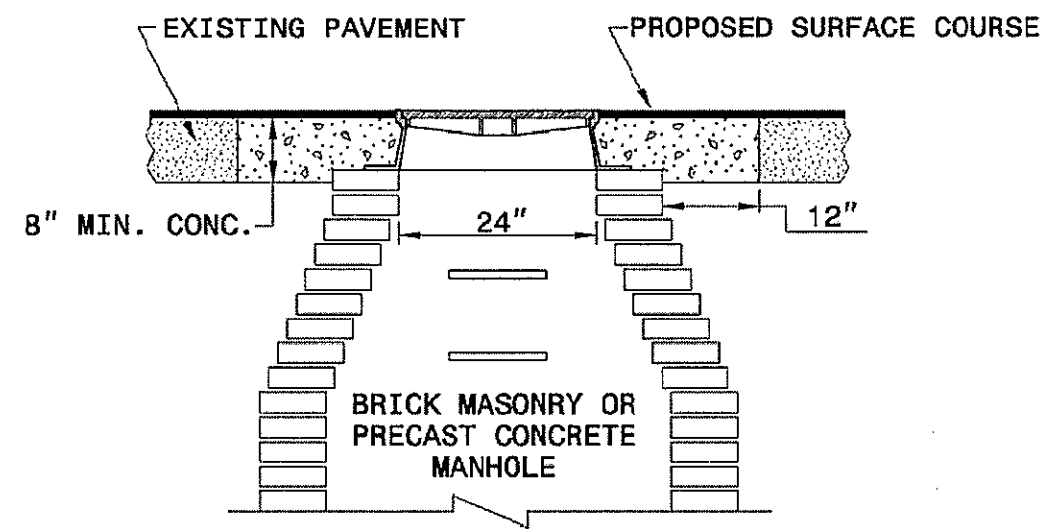
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MANHOLE AND VALVE BOX ADJUSTMENTS

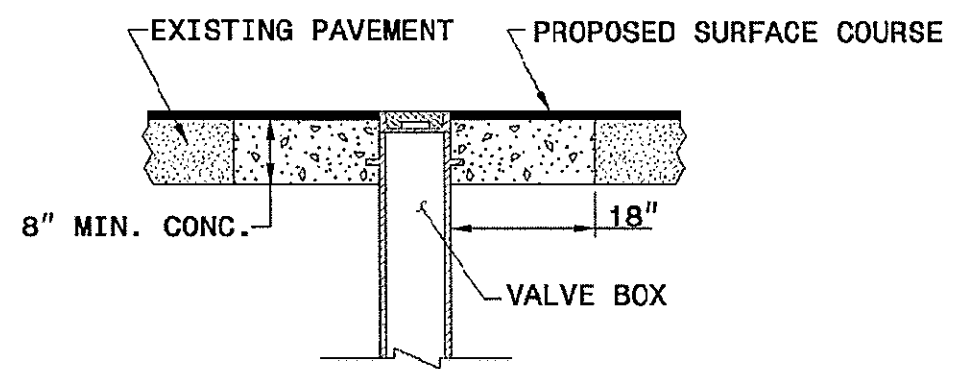
SHEET 1 OF 1
840D55

GENERAL NOTES:

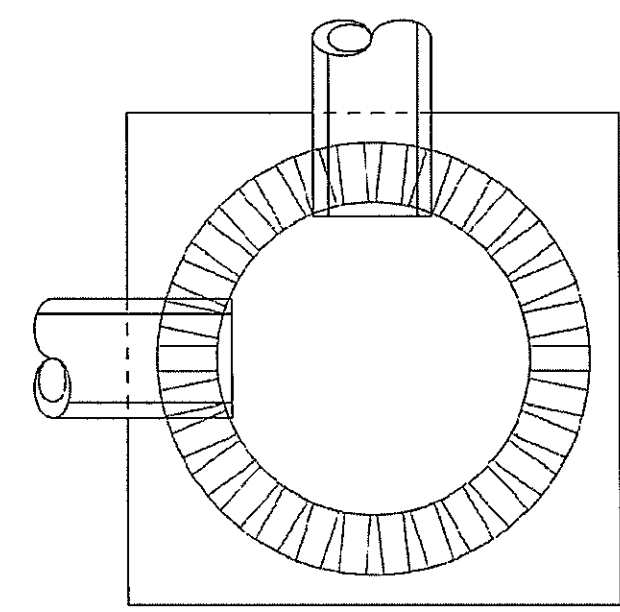
1. USE RAPID SET GROUT, MORTAR, OR CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
2. REMOVE ALL FAULTY EXISTING BRICKWORK AND REPLACE WITH NEW BRICK MASONRY.
3. SHEER CUT EXCAVATION FOR THE ADJUSTMENT ON ALL SIDES.
4. FILL AREA BELOW 8" DEPTH WITH 78M OR NO. 57 CLEAN STONE.
5. MIX MORTAR TO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



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

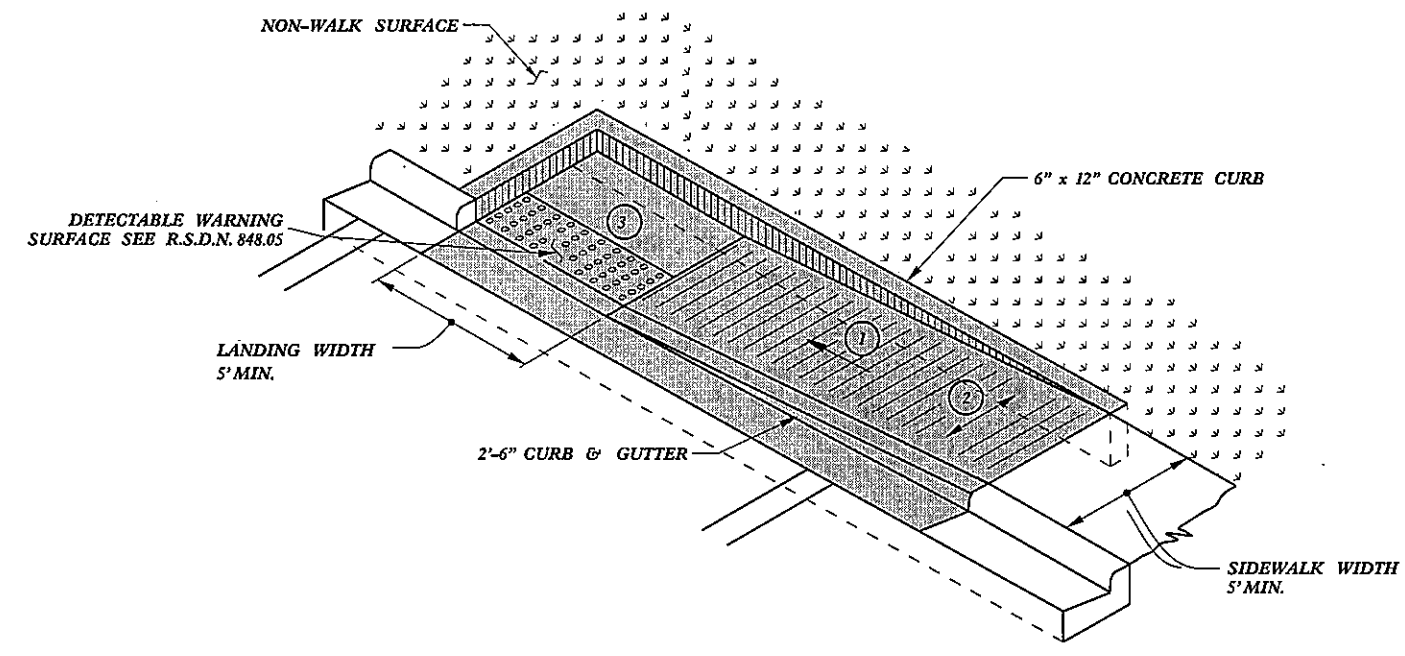
SHEET 1 OF 1
840D55

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

SEE PLATE FOR TITLE

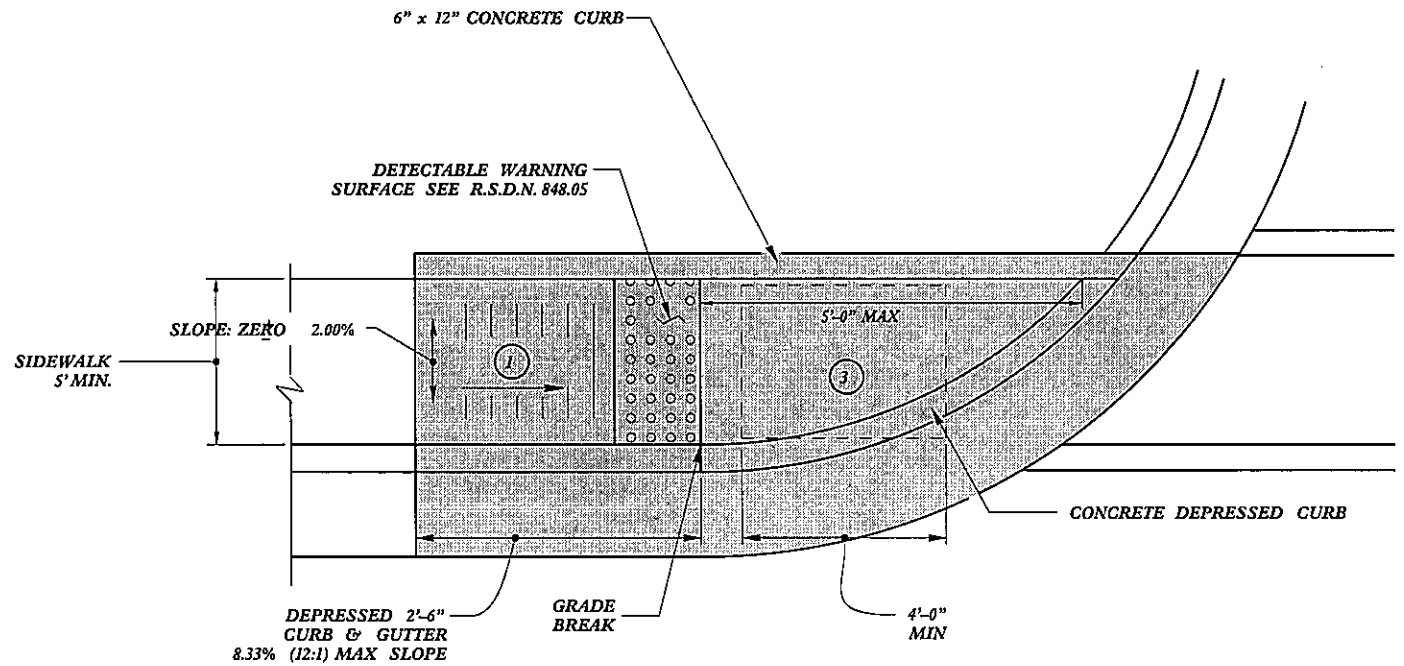
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 MODIFIED BY: E.E. WARD DATE: _____
 CHECKED BY: _____ DATE: _____
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07-DEC-2005 14:25 S:\convoets\City\egis\Special Details\erloward\stand\840d55.dgn erloward At 8:22:43



TYPE 1A

PAY LIMITS FOR CURB RAMP



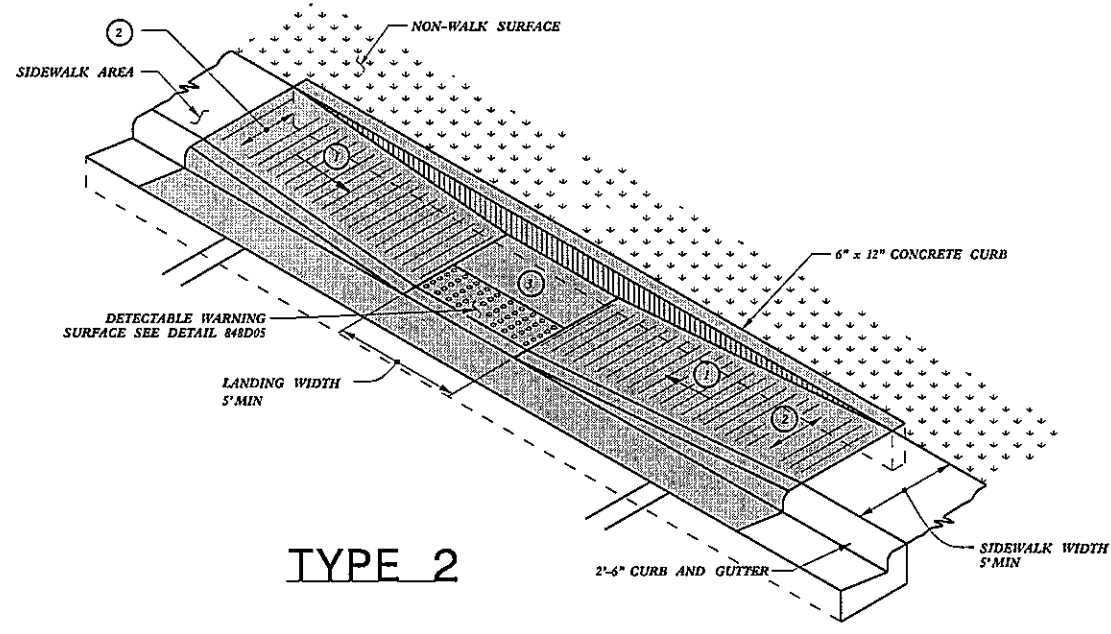
TYPE 1

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
CURB RAMPS Directional Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn	

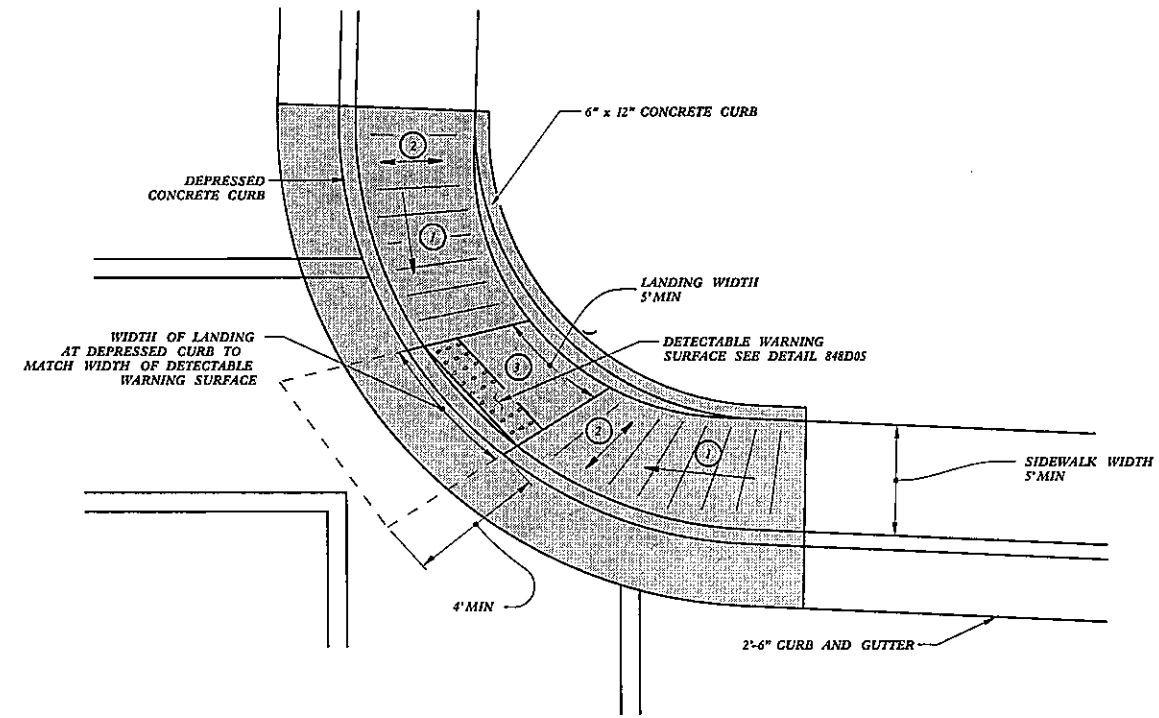
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 J.Howerton



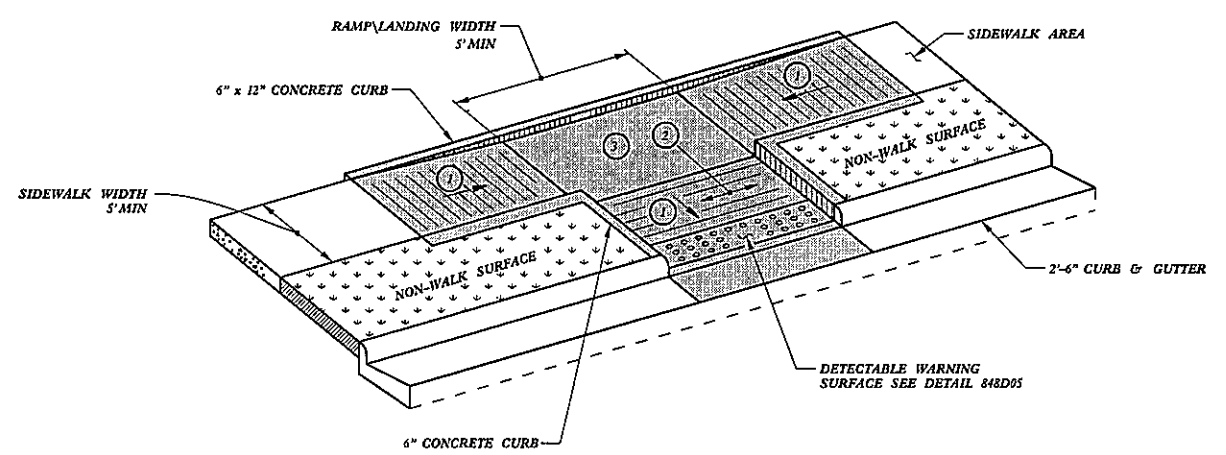
TYPE 2

PAY LIMITS FOR CURB RAMP

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



TYPE 2A

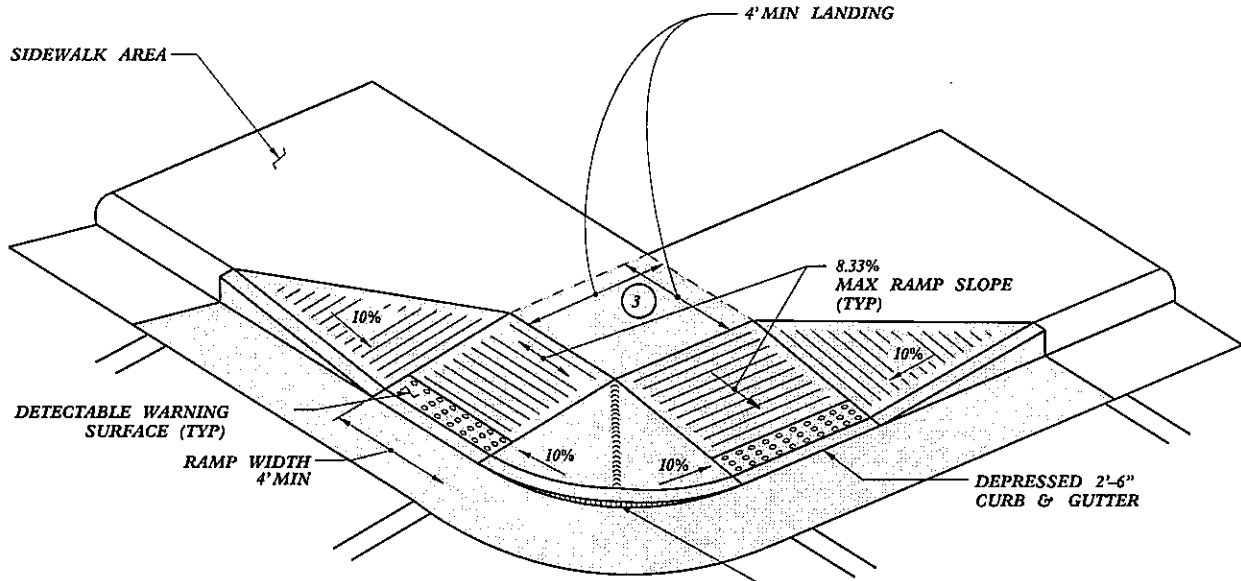


TYPE 3

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

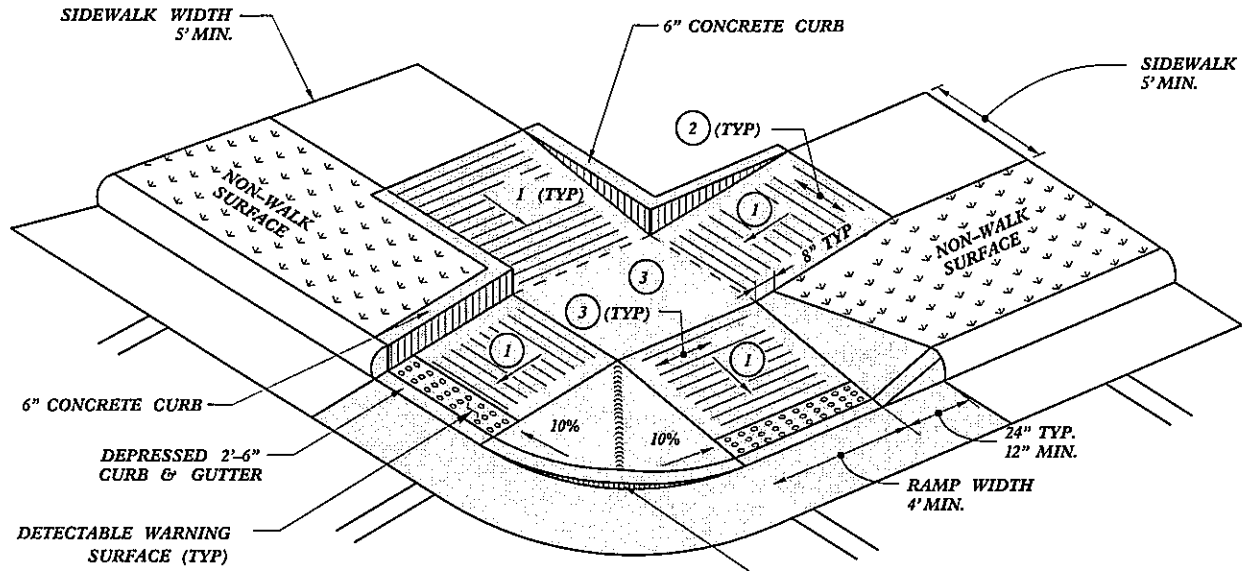
CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
CURB RAMPS Parallel Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dwg	

5/14/99
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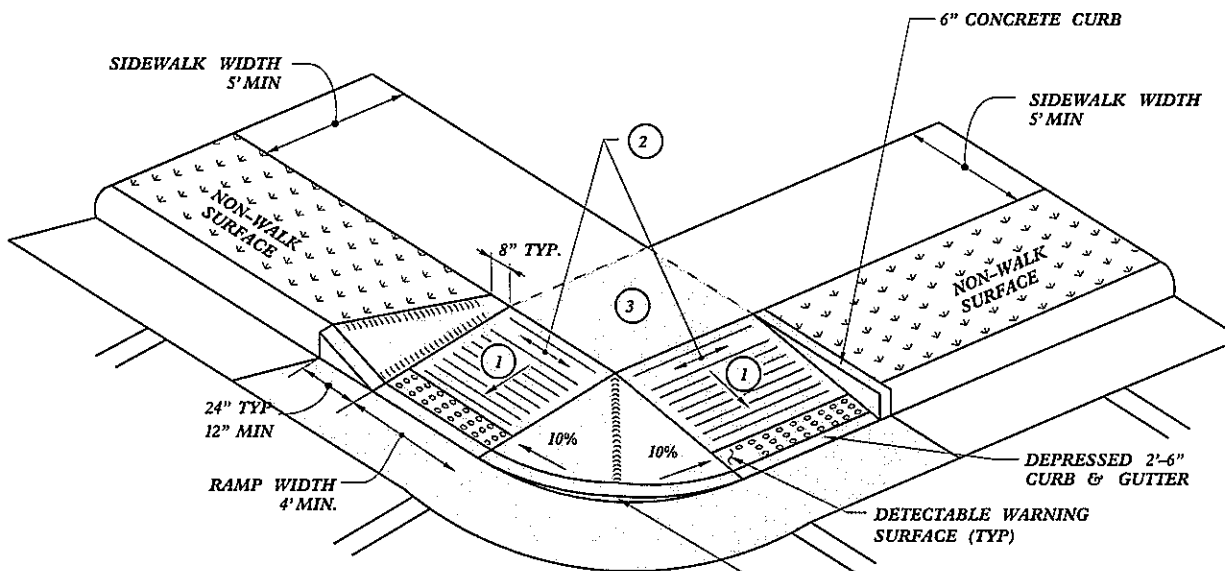


TYPE 4

PAY LIMITS FOR CURB RAMP



TYPE 5



TYPE 4A

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-8950 FAX 919-250-4119	
CURB RAMPS Shared Landing	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
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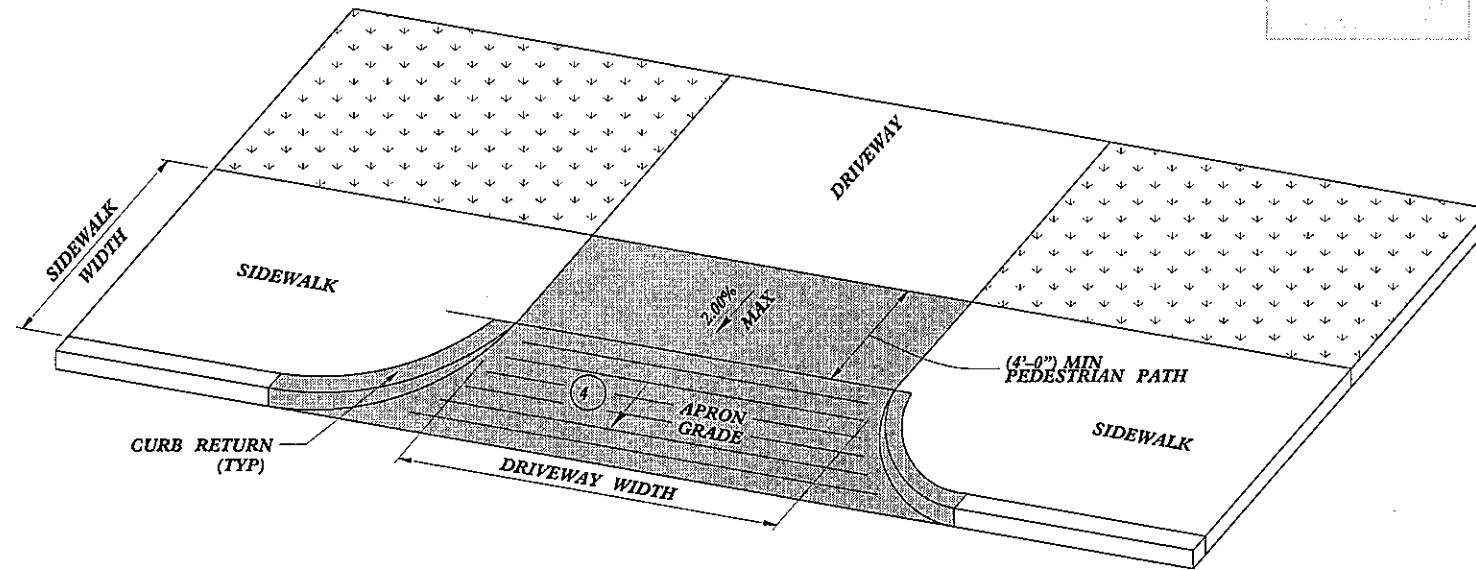
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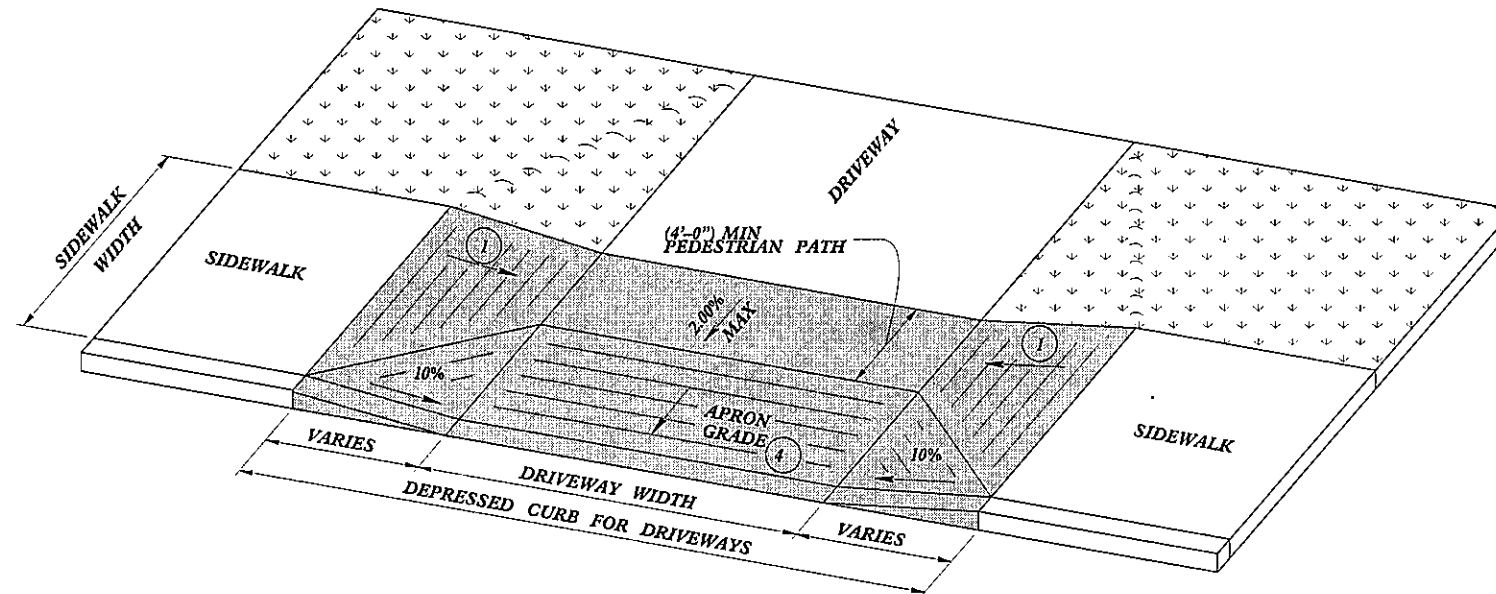
5/14/99

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 4 8.00% MAX CHANGE IN GRADE BETWEEN ROAD SURFACE AND DRIVEWAY

PAY LIMITS FOR 1 CURB RAMP



DRIVEWAY APRON
OPTION 1



DRIVEWAY APRON
OPTION 2

-SEE ROADWAY DETAIL DRAWING 848.05 FOR DETECTABLE WARNING SURFACE AND FOR RAMP NOTES.

-SEE ROADWAY STANDARD DRAWING 848.02 FOR CONCRETE DRIVEWAYS.



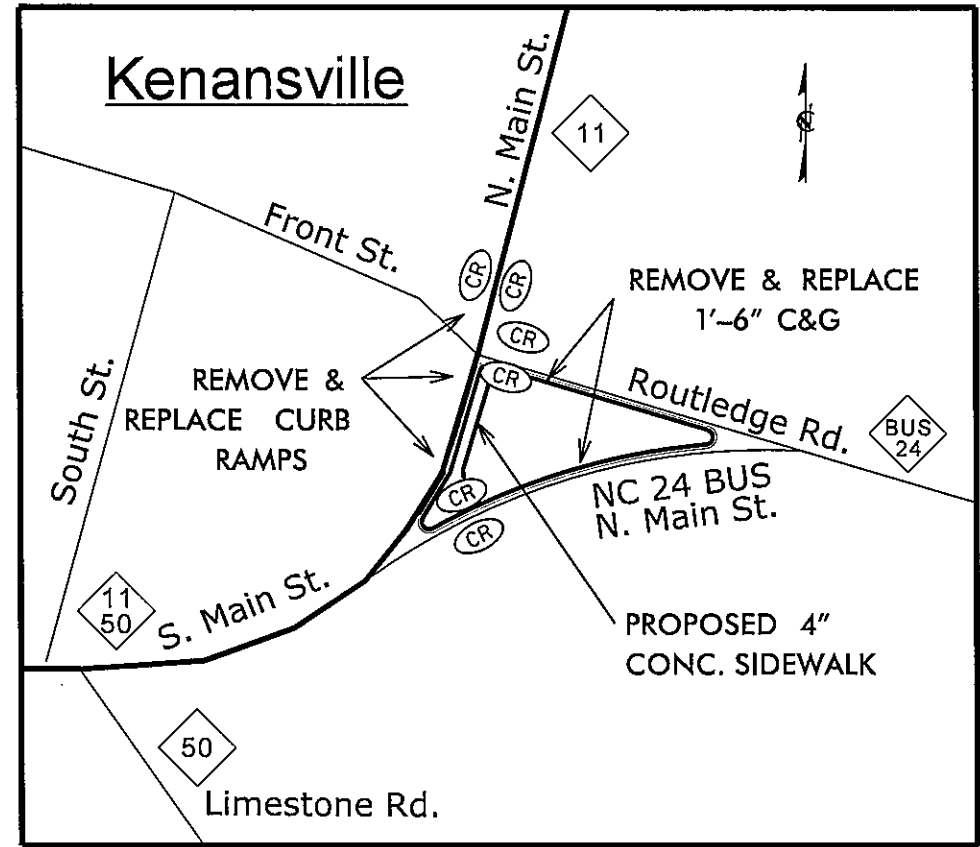
CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS
@ DRIVEWAY OPENINGS

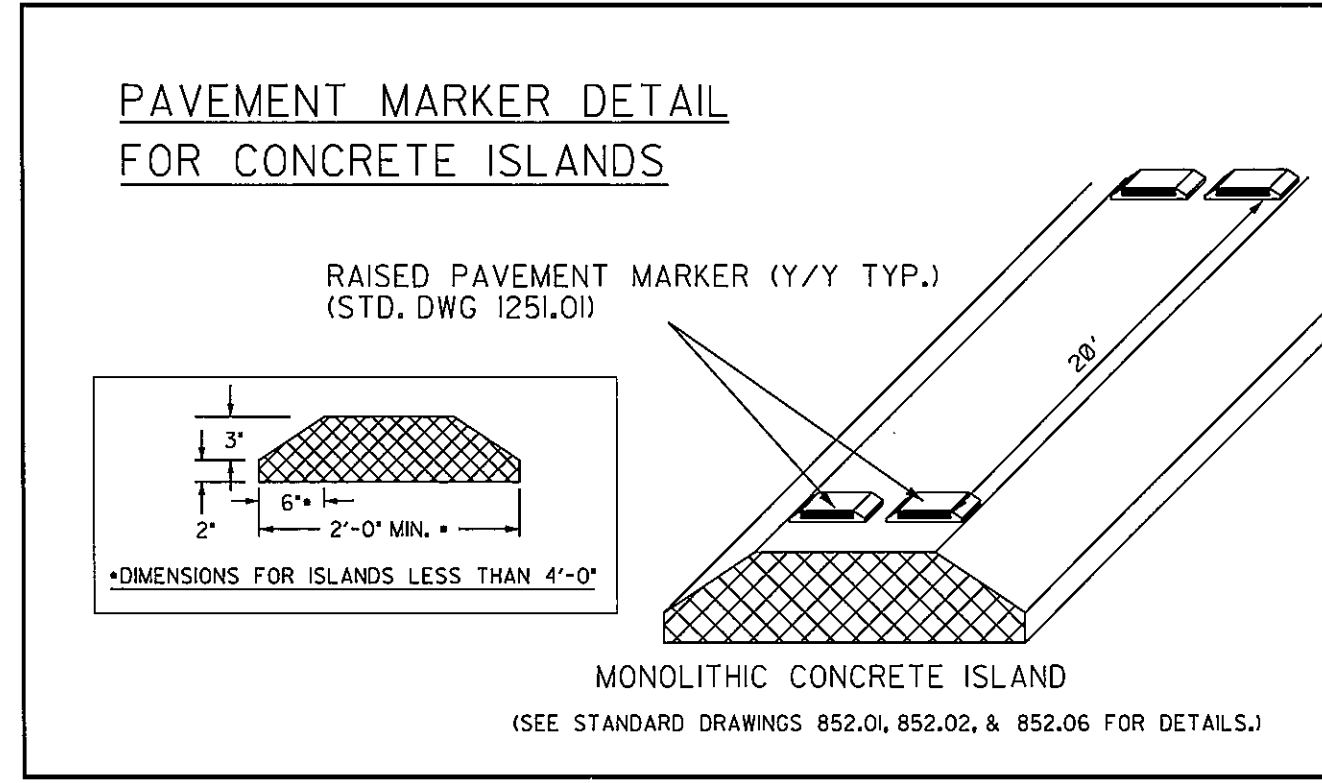
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
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 FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn

PLT: J.S. HOWERTON
 DATE: 7/7/11
 FILE: stds/2012CurbRamp/CurbRampDetails.dgn

SITE & PAVEMENT MARKER DETAILS



Work Site Detail
Map No. 1
NC 11 (S. Main St.)



REVISIONS

8/17/99
10-NOV-2014 15:03
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PROJECT NO.	SHEET NO.	TOTAL NO.
3CR.10311.167, ETC.	12	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	INC. STONE BASE TONS	1 1/2" MILLING SY	4" MILLING SY	INT. COURSE, 119.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TONS	LEVELING COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT (FULL DEPTH) TON	PATCHING EXISTING PAVEMENT (MILL) TON	PAVEMENT INTERLAYER SY
3CR.10311.167	Duplin	1	NC 11	FROM NC 24 BUS. TO END OF CURB & GUTTER	1	2-3	MU	NO	NO	1.03	40-53		24,527			2,154			129	50	100	24,046
3CR.10311.167	Duplin	2	NC 24 BUSINESS	FROM SR 1111 (PETE QUINN RD.) TO NC 50	1-2	2-5	MU	NO	NO	2.79	22-64		68,458	818	674	6,296			410	50	150	70,859
3CR.10311.167	Duplin	3	NC 41	FROM SR 1156 (KENON LOOP RD - WEST END) TO SR 1154 HC POWERS RD.	3	2-3	2WU	NO	NO	3.56	24-44		51,637			4,139			248	50	100	
3CR.10311.167	Duplin	4	NC 50	FROM NC 24 BUS TO US 117	4	2-3	2WU	NO	NO	0.92	18-62	60	12,337			1,085			65	50	150	12,095
TOTAL FOR PROJ NO. 3CR.10311.167										8.30		60	156,959	3,818	674	13,674			852	200	500	107,000
3CR.20311.167	Duplin	5	SR 1502	FROM SR 1500 (TRAM RD.) TO SR 1501 (GARNER CHAPEL RD.)	5	2	2WU	NO	NO	2.90	22	80					3,576	20	241	40		
3CR.20311.167	Duplin	6	SR 1816	FROM NC 111 TO NC 50	5	2	2WU	NO	NO	4.49	20	140					4,592	20	309	60		
3CR.20311.167	Duplin	7	SR 1810	FROM SR 1715 (FOUNTAIN TOWN RD.) TO ONSLOW COUNTY LINE	5	2	2WU	NO	NO	2.68	18	80					2,469	100	171	20		
3CR.20311.167	Duplin	8	SR 1911	FROM NC 903 (CONCORD CHURCH RD.) TO SR 1912 (BLIND BRIDGE RD.)	5	2	2WU	NO	NO	1.01	20	20					1,033	20	70	20		
3CR.20311.167	Duplin	9	SR 1722	FROM NC 41 TO NC 24 (E. MAIN ST.)	5	2	2WU	NO	NO	0.68	19	20					661	20	46	40		
3CR.20311.167	Duplin	10	SR 1501	FROM SR 1500 (TRAM RD.) TO NC 117	5	2	2WU	NO	NO	0.78	23	20					917	20	63	140		
TOTAL FOR PROJ NO. 3CR.20311.167										12.54		360					13,248	200	900	320		
GRAND TOTAL										20.84		420	156,959	3,818	674	13,674	13,248	200	1,752	520	500	107,000

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	4" CONCRETE SIDEWALK SY	CONCRETE CURB RAMP EA	1'-6" CURB & GUTTER, REMOVE & REPLACE LF	2'-6" CURB & GUTTER, REMOVE & REPLACE LF	2'-0" CURB & GUTTER, REMOVE AND REPLACE LF	REMOVE & REPLACE CURB RAMPS EA	ADJ. OF CATCH BASIN EA	ADJ. OF MANHOLE S EA	ADJ. OF METER OR VALVE BOX EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2) LF
3CR.10311.167	Duplin	1	NC 11	FROM NC BUS. TO END OF CURB & GUTTER	1	2-3	MU	NO	NO	1.03	40	288	3	263			38		3	5	2,450	350
3CR.10311.167	Duplin	2	NC 24 BUSINESS	FROM SR 1111 (PETE QUINN RD.) TO NC 50	1-2	2-5	MU	NO	NO	2.79	60				300	50	44	1	28	2	1,225	175
3CR.10311.167	Duplin	3	NC 41	FROM SR 1156 (KENON LOOP RD - WEST END) TO SR 1154 HC POWERS RD.	3	2-3	2WU	NO	NO	3.56	24											
3CR.10311.167	Duplin	4	NC 50	FROM NC 24 BUS TO US 117	4	2-3	2WU	NO	NO	0.92	22								1	1	7	3,675
TOTAL FOR PROJ NO. 3CR.10311.167										8.30		288	3	263	300	50	82	1	32	7	3,675	525
3CR.20311.167	Duplin	5	SR 1502	FROM SR 1500 (TRAM RD.) TO SR 1501 (GARNER CHAPEL RD.)	5	2	2WU	NO	NO	2.90	22											
3CR.20311.167	Duplin	6	SR 1816	FROM NC 111 TO NC 50	5	2	2WU	NO	NO	4.49	20											
3CR.20311.167	Duplin	7	SR 1810	FROM SR 1715 (FOUNTAIN TOWN RD.) TO ONSLOW COUNTY LINE	5	2	2WU	NO	NO	2.68	18											
3CR.20311.167	Duplin	8	SR 1911	FROM NC 903 (CONCORD CHURCH RD.) TO SR 1912 (BLIND BRIDGE RD.)	5	2	2WU	NO	NO	1.01	20											
3CR.20311.167	Duplin	9	SR 1722	FROM NC 41 TO NC 24 (E. MAIN ST.)	5	2	2WU	NO	NO	0.68	19									2		
3CR.20311.167	Duplin	10	SR 1501	FROM SR 1500 (TRAM RD.) TO NC 117	5	2	2WU	NO	NO	0.78	23											
TOTAL FOR PROJ NO. 3CR.20311.167										12.54											2	
GRAND TOTAL										20.84		288	3	263	300	50	82	1	32	9	3,675	525

PROJECT NO.	SHEET NO.	TOTAL NO.
3CR.10311.167, ETC.	14	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E	4457000000-N	4510000000-N	4685000000-E		4686000000-E		4695000000-E		4700000000-E	4705000000-E	4710000000-E	4721000000-E			4725000000-E				
										WORK ZONE ADV./GEN. WARNING SIGNING SF	TEMPORARY TRAFFIC CONTROL LS	LAW ENFORCEMENT HR	4" X 90 M WHITE THERMO LF	4" X 90 M YELLOW THERMO LF	4" X 120 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	8" X 90 M WHITE THERMO LF	8" X 90 M YELLOW THERMO LF	12" X 90 M YELLOW THERMO LF	16" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO MSG ONLY 120 M EA	THERMO MSG SCHOOL 120 M EA	THERMO RXR 120 M EA	THERMO LT ARROW 90 M EA	THERMO STR ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO STR & LT ARROW 90 M EA	THERMO STR & RT ARROW 90 M EA
3CR.10311.167	Duplin	1	NC 11	FROM NC BUS. TO END OF CURB & GUTTER	1	2-3	MU	1.03	40	128	0.05	40.00	308	105	1,070	12,068	148				176	4	EA	EA	EA	EA	EA	EA	EA
3CR.10311.167	Duplin	2	NC 24 BUSINESS	FROM SR 1111 (PETE QUINN RD.) TO NC 50	1-2	2-5	MU	2.79	60	208	0.15	40.00	3,200		6,000	31,500		100		200	384	4	12	8	22	3		4	
3CR.10311.167	Duplin	3	NC 41	FROM SR 1156 (KENON LOOP RD - WEST END) TO SR 1154 HC POWERS RD.	3	2-3	2WU	3.56	24	400	0.17		37,594			30,596			225						2				
3CR.10311.167	Duplin	4	NC 50	FROM NC 24 BUS TO US 117	4	2-3	2WU	0.917	22	112	0.04	40.00	9,600		300	10,106		35			66			4					
TOTAL FOR PROJ NO. 3CR.10311.167										848	0.41	120	50,702	105	7,370	84,270	148	135	225	200	626	8	12	8	60	6	4	3	10
												50,807		91,640		283				28				83					
3CR.20311.167	Duplin	5	SR 1502	FROM SR 1500 (TRAM RD.) TO SR 1501 (GARNER CHAPEL RD.)	5	2	2WU	2.9	22	336	0.14		30,624			22,968					68								
3CR.20311.167	Duplin	6	SR 1816	FROM NC 111 TO NC 50	5	2	2WU	4.49	20	512	0.20		47,414			35,560													
3CR.20311.167	Duplin	7	SR 1810	FROM SR 1715 (FOUNTAIN TOWN RD.) TO ONSLOW COUNTY LINE	5	2	2WU	2.68	18	304	0.13		28,837			21,225													
3CR.20311.167	Duplin	8	SR 1911	FROM NC 903 (CONCORD CHURCH RD.) TO SR 1912 (BLIND BRIDGE RD.)	5	2	2WU	1.01	20	128	0.05		10,667			8,010													
3CR.20311.167	Duplin	9	SR 1722	FROM NC 41 TO NC 24 (E. MAIN ST.)	5	2	2WU	0.68	19	80	0.03		7,180			5,385													
3CR.20311.167	Duplin	10	SR 1501	SR 1500 (TRAM RD.) TO NC 11	5	2	2WU	0.78	23	96	0.04		8,236			6,177													
TOTAL FOR PROJ NO. 3CR.20311.167										12.54	1,456	1	132,958		99,325	68													
												132,958		99,325		283				28				83					
GRAND TOTAL										20.837	2,304	1	183,660	105	7,370	183,595	148	135	225	200	694	8	12	8	60	6	4	3	10
												183,765		190,965		283				28				83					

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4810000000-E		4820000000-E		4825000000-E	4830000000-E		4840000000-N			4845000000-N			4890000000-N	4905000000-N				
										4" WHITE PAINT LF	4" YELLOW PAINT LF	8" WHITE PAINT LF	8" YELLOW PAINT LF	12" YELLOW PAINT LF	16" WHITE PAINT LF	24" WHITE PAINT LF	PAINT MSG ONLY EA	PAINT MSG SCHOOL EA	PAINT MSG RXR EA	PAINT LT ARROW EA	PAINT STR ARROW EA	PAINT STR & LT ARROW EA	PAINT STR & RT ARROW EA	PAINT STR & RT ARROW EA	YELLOW & YELLOW MARKERS EA	SNOW PLOWABLE MARKERS (C/R) EA	SNOW PLOWABLE MARKERS (Y/V) EA	
3CR.10311.167	Duplin	1	NC 11	FROM NC BUS. TO END OF CURB & GUTTER	1	2-3	MU	1.03	40	1,378	12,173	148			176	4	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA		
3CR.10311.167	Duplin	2	NC 24 BUSINESS	FROM SR 1111 (PETE QUINN RD.) TO NC 50	1-2	2-5	MU	2.79	60	9,200	31,500			100	200	384	4	12	8	22	3			4	30	278	252	
3CR.10311.167	Duplin	3	NC 41	FROM SR 1156 (KENON LOOP RD - WEST END) TO SR 1154 HC POWERS RD.	3	2-3	2WU	3.56	24	37,594	30,596			225							2						245	
3CR.10311.167	Duplin	4	NC 50	FROM NC 24 BUS TO US 117	4	2-3	2WU	0.917	22	9,900	10,106			35		66				4				9	13	126		
TOTAL FOR PROJ NO. 3CR.10311.167										8.297	58,072	84,375	148	135	225	200	626	8	12	8	60	6	4	3	10	39	354	731
												142,447		283		28		83				83		1,085				
3CR.20311.167	Duplin	5	SR 1502	FROM SR 1500 (TRAM RD.) TO SR 1501 (GARNER CHAPEL RD.)	5	2	2WU	2.9	22															192				
3CR.20311.167	Duplin	6	SR 1816	FROM NC 111 TO NC 50	5	2	2WU	4.49	20															297				
3CR.20311.167	Duplin	7	SR 1810	FROM SR 1715 (FOUNTAIN TOWN RD.) TO ONSLOW COUNTY LINE	5	2	2WU	2.68	18															177				
3CR.20311.167	Duplin	8	SR 1911	FROM NC 903 (CONCORD CHURCH RD.) TO SR 1912 (BLIND BRIDGE RD.)	5	2	2WU	1.01	20															67				
3CR.20311.167	Duplin	9	SR 1722	FROM NC 41 TO NC 24 (E. MAIN ST.)	5	2	2WU	0.68	19															45				
3CR.20311.167	Duplin	10	SR 1501	SR 1500 (TRAM RD.) TO NC 11	5	2	2WU	0.78	23															52				
TOTAL FOR PROJ NO. 3CR.20311.167										12.54																830		
												142,447		283		28		83				83		1,085				
GRAND TOTAL										20.837	58,072	84,375	148	135	225	200	626	8	12	8	60	6	4	3	10	869	354	731
												142,447		283		28		83				83		1,085				

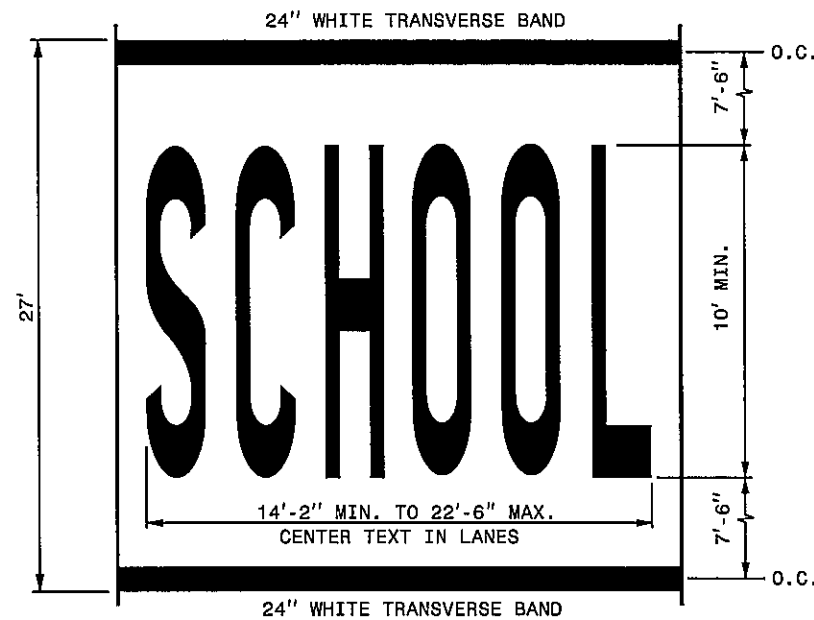
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
SYMBOLS AND WORD MESSAGES

REVISED
9/14/11
SHEET 3 OF 8
1205D08

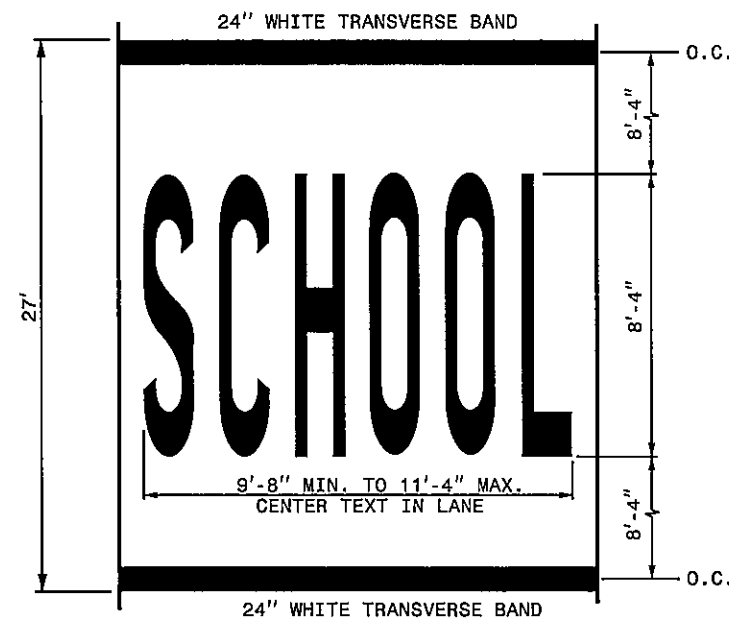
MULTI-LANE WIDTH "SCHOOL"



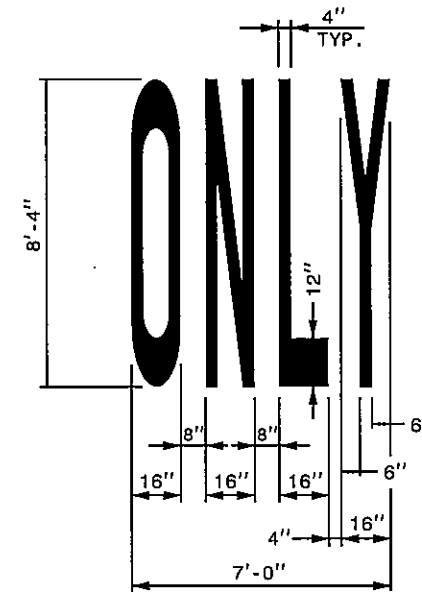
LETTER HEIGHT = 10' MIN.
LETTER WIDTH = 20"
SPACING = 10" MIN./30" MAX. (USE EQUAL SPACING BETWEEN LETTERS)

NOTE: THE TWO-LANE PAVEMENT MARKING DIMENSIONS OF "SCHOOL" SHOWN IN PART 7 OF THE MUTCD MAY ALSO BE USED.

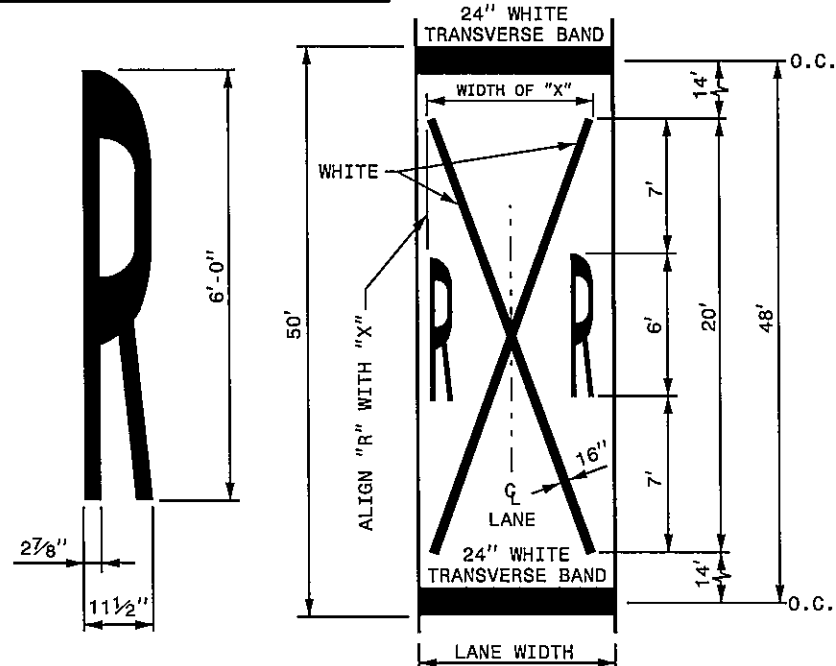
SINGLE LANE WIDTH "SCHOOL"



LETTER HEIGHT = 8'-4"
LETTER WIDTH = 16"
SPACING = 4" MIN./8" MAX. (USE EQUAL SPACING BETWEEN LETTERS)



RAILROAD RXR SYMBOL



LANE WIDTH (FEET)	WIDTH OF "X" (FEET)
8' ≤ W ≤ 9'	7'
9' < W ≤ 12'	8'
W > 12'	10'

GENERAL NOTES:

- 1- THE SCHOOL PAVEMENT MARKING CONSISTS OF SIX (6) CHARACTERS. THE TWO (2) 24" TRANSVERSE BANDS WILL BE PAID FOR UNDER A SEPARATE PAY ITEM. REFER TO ROADWAY STANDARD DRAWING 1205.10 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.
- 2- PAVEMENT MARKING ADVANCE OF A HIGHWAY-RAIL CROSSING SHALL CONSIST OF TWO (2) CHARACTERS AND TWO (2) 16" LINES (FORMING AN X) WHICH ARE PAID FOR UNDER TWO SEPARATE PAY ITEMS. THE TWO (2) 24" TRANSVERSE BANDS WILL BE PAID FOR UNDER A SEPARATE PAY ITEM. REFER TO ROADWAY STANDARD DRAWING 1205.11 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

REVISED
9/14/11
SHEET 3 OF 8
1205D08

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
SYMBOLS AND WORD MESSAGES

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

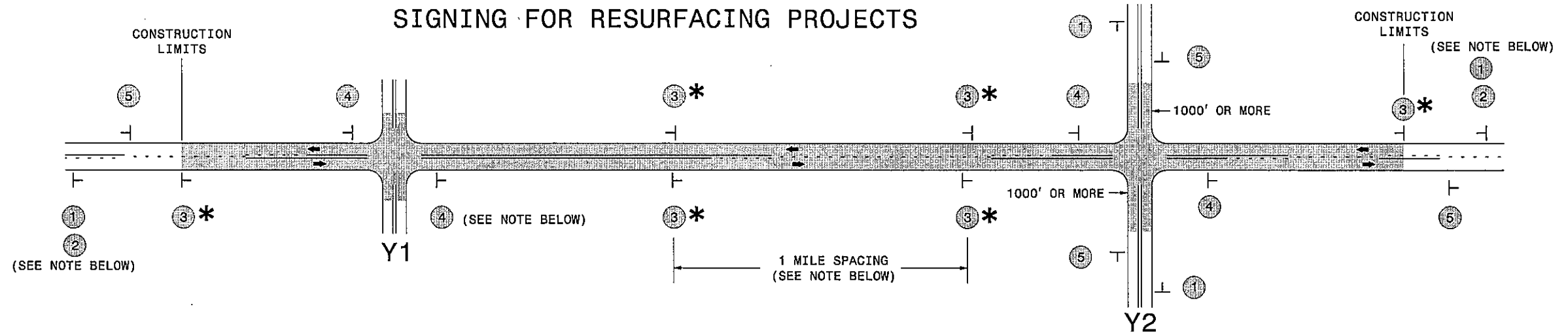
1-12

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 10/5/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: s:\proj\12 Stds to Special Details\560d01

SIGNING FOR RESURFACING PROJECTS



LEGEND
 T STATIONARY SIGN
 ← DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	① ②	 <small>W20-1 48" X 48"</small> <small>W7-3aP 24" X 18"</small>	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE. #2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)		
	③*	 <small>SP 13107 48" X 48"</small>	PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.		
	④	 <small>SP 13106 48" X 48"</small>	THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.		
	⑤	 <small>G20-2 A 48" X 24"</small>	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.		

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

- 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE
- 2) SUBDIVISION ROADS
- 3) DEAD END ROADS

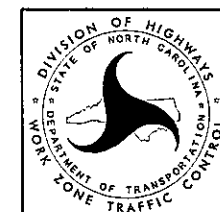
WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.



PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.

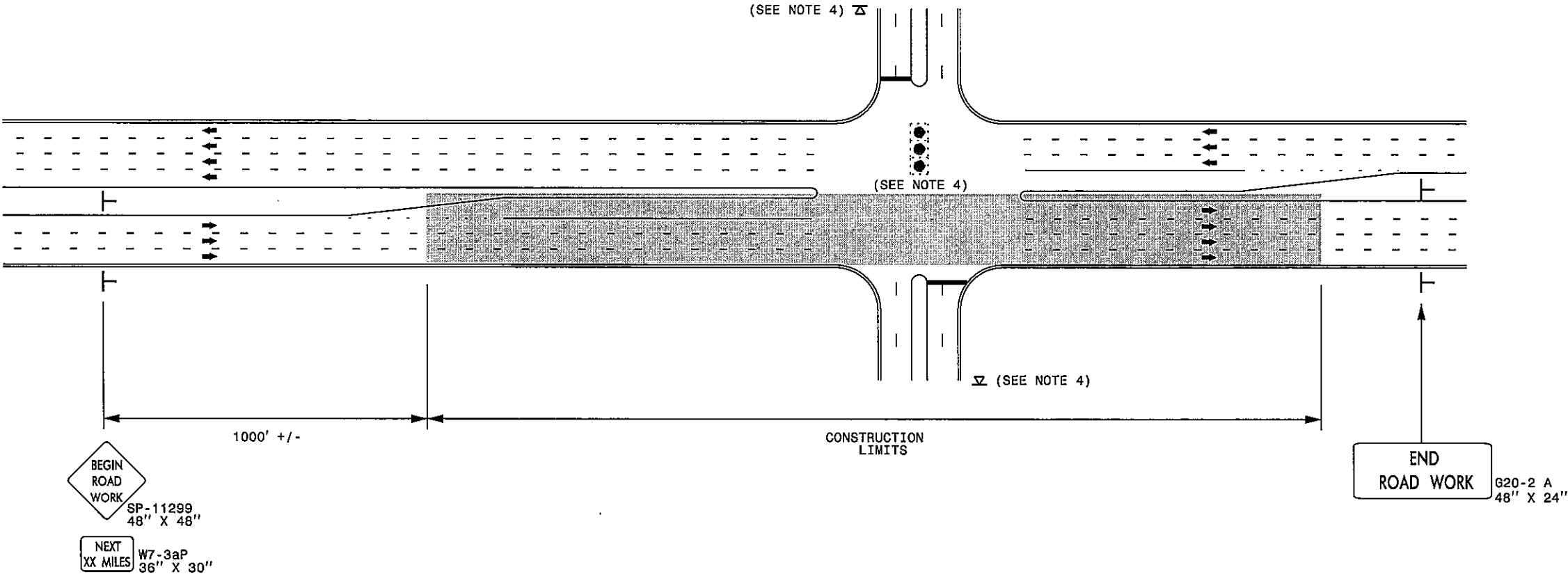
* SIGNING FOR ASPHALT SURFACE TREATMENTS (ONLY)

SUBSTITUTE LOW/SOFT SHOULDER SIGNS BY ALTERNATING THE FOLLOWING TWO SIGNS: STARTING WITH "UNMARKED PAVEMENT AHEAD" (SP 06026) FOLLOWED BY "LOOSE GRAVEL" (W8-7).



**RESURFACING
 ADVANCE WARNING SIGNS
 FOR
 RURAL AND SUBURBAN
 2 LANE ROADWAYS**

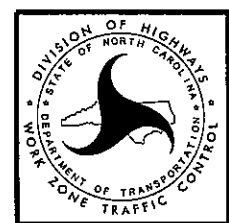
URBAN / SUBURBAN WORKZONES



NOTES:

- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
- 4) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
- 5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
- 6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
- 7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 8) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

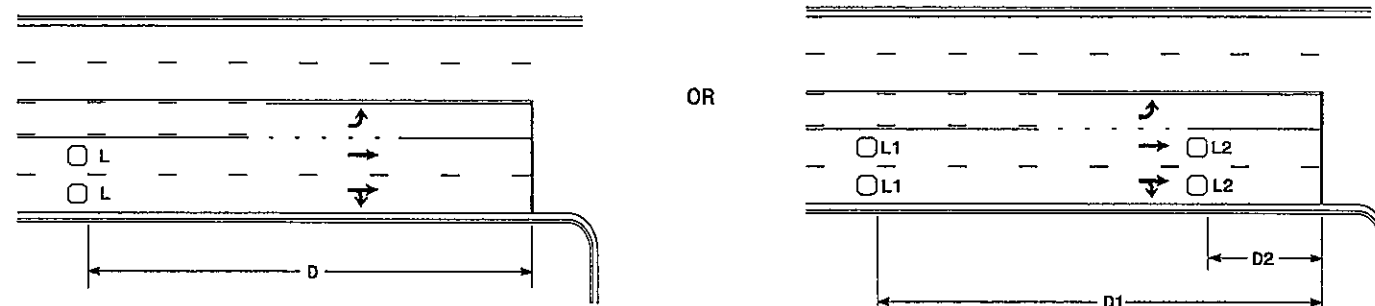
LEGEND	
T	STATIONARY SIGN
➔	DIRECTION OF TRAFFIC FLOW



**RESURFACING ADVANCE
WARNING SIGNS FOR
URBAN / SUBURBAN
FACILITIES**

2/24/2014 S:\1\MD\WZTC\Resurfacing\2013\Documents\New_Procedures.es_05_09_2013\Resurfacing_AdvWarn_Ur_Sub.dgn

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

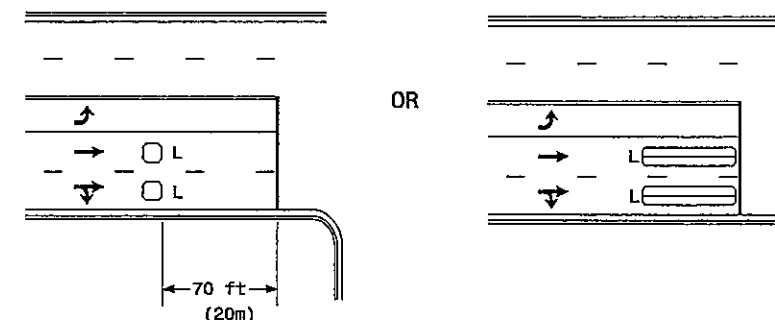
Volume Density Operation

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

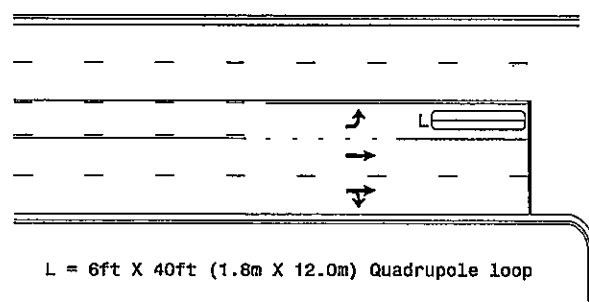
Low Speed Detection [≤35 mph (56 km/hr)]



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

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

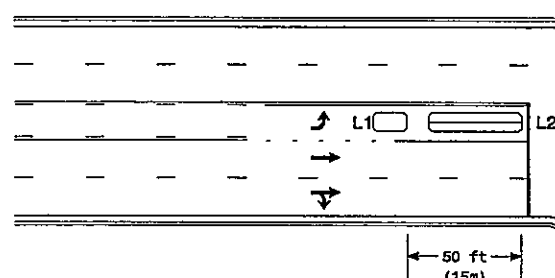
Left Turn Lane Detection



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

Presence Loop Detection

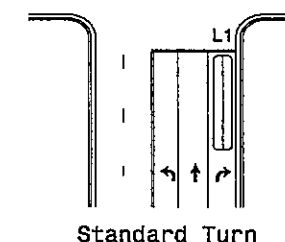
OR



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

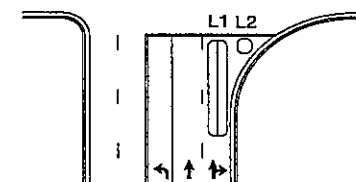
Queue Loop Detection

Right Turn Lane Detection

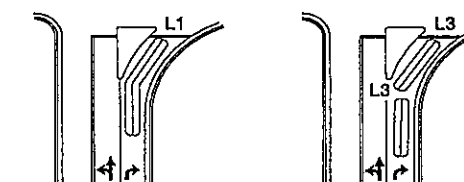


Standard Turn

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

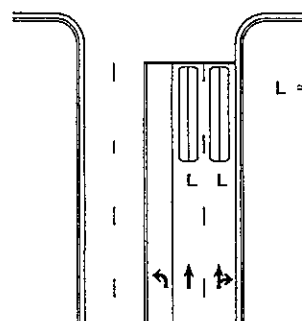


Wide Radius Turn



Channelized Turn

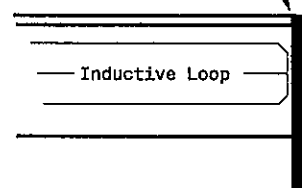
Side Street Detection



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

	<p>Typical Loop Locations</p>	
	<p>PLAN DATE: June 2006</p>	<p>REVIEWED BY:</p>
<p>SCALE: N/A</p>	<p>REVISIONS</p>	<p>SIGNATURE: <i>P. L. Alexander</i></p>
<p>PREPARED BY: P. L. Alexander</p>	<p>REVIEWED BY:</p>	<p>DATE: 6/6/06</p>
<p>722 N. McDowell St., Raleigh, NC 27603</p>	<p>UNIT: AC</p>	<p>SIG. INVENTORY NO.</p>

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

ENGLISH STANDARD DRAWING FOR
DEEP-CUT INDUCTIVE DETECTION LOOPS
(FOR INSTALLATION PRIOR TO MILLING)

NOTES

- OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
- MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
- WIRE LOOPS CONNECTED TO THE SAME DETECTOR IN SERIES.
- LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS.
- USE A SERIES OF ONE INCH PIECES OF BACKER ROD SPACED ONE FOOT APART ALONG THE ENTIRE LENGTH OF THE FEEDER SLOT AND LOOP SAW SLOT.
- CONSULT LOOP SEALANT MANUFACTURER TO DETERMINE CURING TIME REQUIRED PRIOR TO MILLING.

SAW SLOT DEPTH CHART
ASSUMING 2" MILLING DEPTH

DEPTH (IN)	NO. OF WIRE LAYERS				
	2	3	4	5	6
SAW SLOT DEPTH	4.0	4.5	5.0	5.0	5.0
MINIMUM TOTAL ASPHALT DEPTH REQUIRED	5.0	5.5	6.0	6.0	6.0

LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE

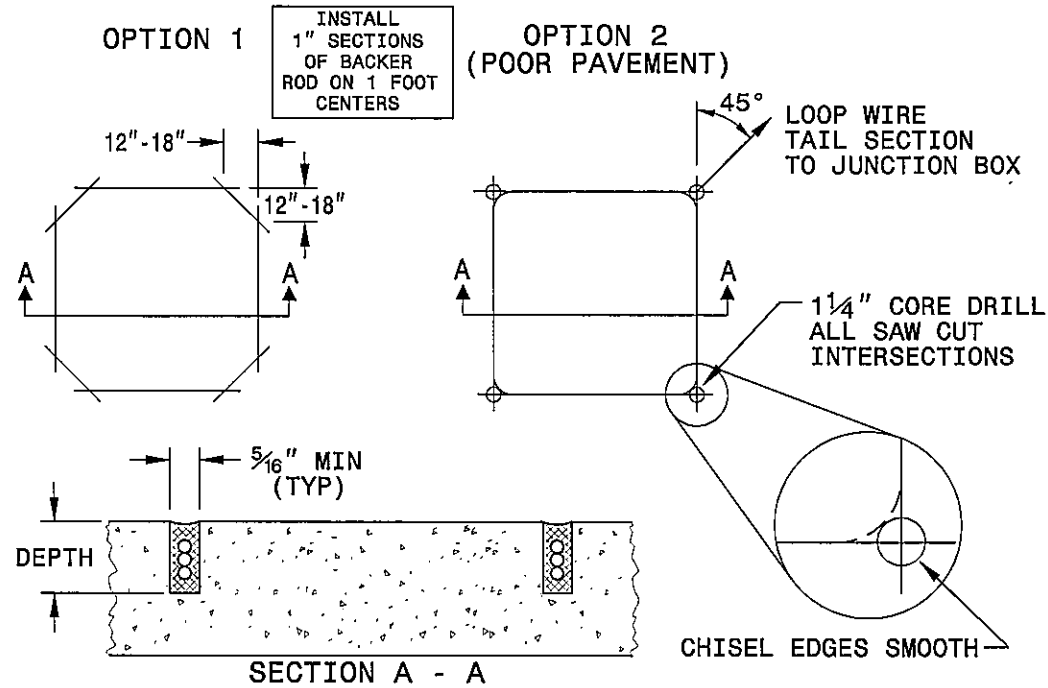


CORRECT WAY TO TWIST WIRE

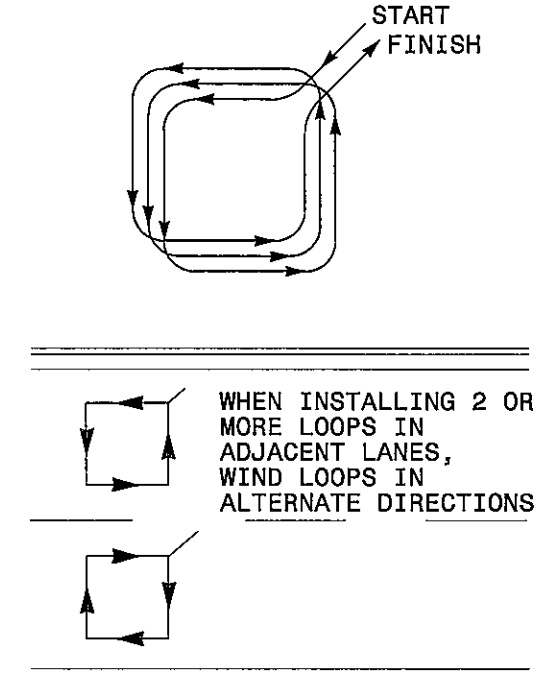


CONVENTIONAL 4-SIDED LOOP

SAW CUT OPTIONS

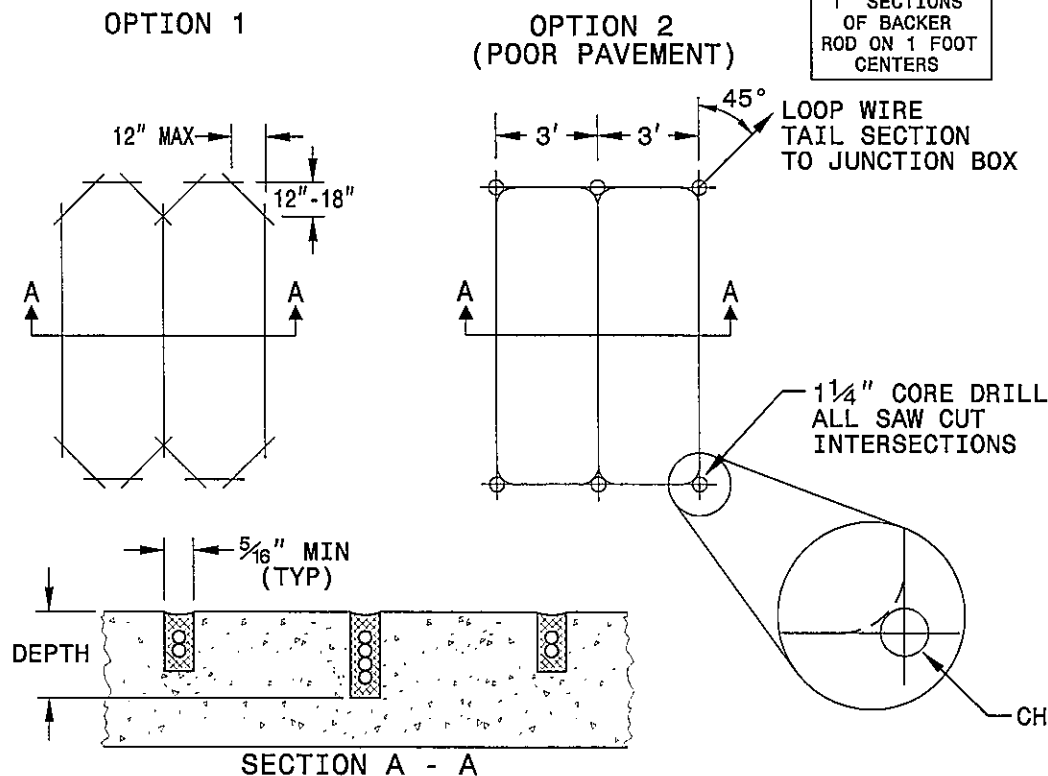


LOOP WINDING METHOD

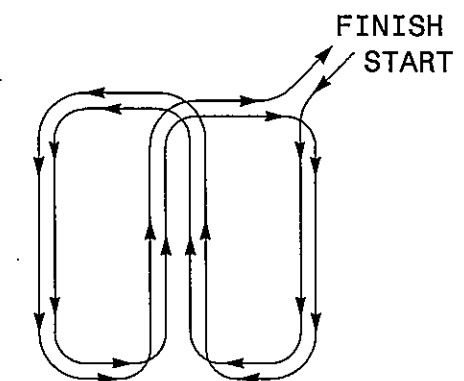


QUADRUPOLE LOOP

SAW CUT OPTIONS



LOOP WINDING METHOD



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

ENGLISH STANDARD DRAWING FOR
DEEP-CUT INDUCTIVE DETECTION LOOPS
(FOR INSTALLATION PRIOR TO MILLING)