# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

# PLAN FOR PROPOSED TRAFFIC CONTROL

# ORANGE COUNTY

# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-PROJECT SERVICES UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW PANELS
1130.01	DRUM
1135.01	CONES
1150.01	FLAGGING DEVICES
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1180.01	SKINNY DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS

# INDEX OF SHEETS

## SHEET NO.

### TITLE

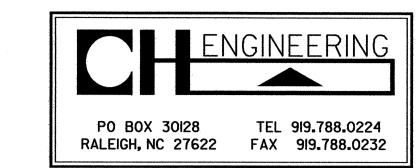
LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, TCP-1 LEGEND AND INDEX OF SHEETS TEMPORARY PAVEMENT MARKING SCHEDULE TCP-1A

TCP-2 PROJECT NOTES AND PHASING

TCP-3 THRU 4 PHASE I TCP-5 DETAIL DRAWING FOR TWO-WAY UNDIVIDED &

URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS

STATE PROJECT REFERENCE NO. SHEET NO. U-3100B TCP-1



# **LEGEND**

### **GENERAL**

**→** DIRECTION OF TRAFFIC FLOW

NORTH ARROW

--- PROPOSED PVMT. ----- EXIST. PVMT.

**WORK AREA** 

REMOVAL OF EXISTING PAVEMENT

### TRAFFIC CONTROL DEVICES

T TYPE I BARRICADE

T TYPE II BARRICADE

TYPE III BARRICADE

CONE

SKINNY DRUM

FLASHING ARROW PANEL (TYPE C)

— STATIONARY SIGN

PORTABLE SIGN

STATIONARY OR PORTABLE SIGN

- CRASH CUSHION

CHANGEABLE MESSAGE SIGN

TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)

POLICE

**FLAGGER** 

# PAVEMENT MARKINGS

CRYSTAL/CRYSTAL PAVEMENT MARKER

YELLOW/YELLOW PAVEMENT MARKER

CRYSTAL/RED PAVEMENT MARKER

PAVEMENT MARKING SYMBOLS

PLAN REVIEWED BY: N.C.D.O.T. WORK ZONE TRAFFIC CONTROL UNIT	APPROVED: Khenda & Carly DATE: July 10, 2009	PLAN PREPARED ENGINEERING FOR NCDOT BY:
J. S. Bourne, PE TRAFFIC CONTROL ENGINEER  J. Ishak, PE TRAFFIC CONTROL PROJECT ENGINEER  J. P. Portanova, PE TRAFFIC CONTROL PROJ. DESIGN ENGINEER  TRAFFIC CONTROL DESIGN ENGINEER	SEAL  O2352 I  ON OF ESSION AREA  ON	T. R. Hepler, PE QC ENGINEER  R. B. Early, PE PROJECT ENGINEER  J. A. Phillips PROJECT DESIGNER

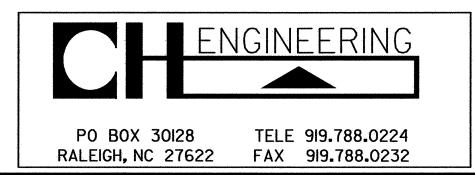
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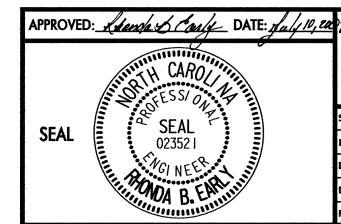
# TEMPORARY PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM/ QUANTITY BREAKDOWN	TOTAL QUANTITY
		PAVEMENT MARKING LINES PAINT (4")	
PA PB PC PD PE PI	WHITE EDGELINE (2X) YELLOW EDGELINE (1X) 10 FT WHITE SKIP (2X) 2 FT WHITE MINISKIP (2X) WHITE SOLID LANE LINE (2X) YELLOW DOUBLE CENTER LINE (2X)	12366 LF 722 LF 681 LF 326 LF 1934 LF 12436 LF	28465 LF
		PAINT (8")	
PR PS PV	WHITE GORE LINE (2X) WHITE DIAGONAL (2X) YELLOW DIAGONAL (2X)	1168 LF 200 LF 120 LF	1488 LF
		PAINT (24")	
P4 P5	WHITE STOPBAR (2X) WHITE CROSSWALK BAR (2X)	384 LF 656 LF	1040 LF
		PAINT MARKING SYMBOLS	
QA QB QC QE QJ	LEFT TURN ARROW (2X) RIGHT TURN ARROW (2X) STRAIGHT ARROW (2X) STRAIGHT / RIGHT COMBO (2X) BICYCLE LANE (2X)	36 EA 4 EA 68 EA 20 EA 22 EA	
<b></b>	2201022 27112 (271)		150 EA
		PAINT MARKING CHARACTERS	
Q1	ALPHANUMERIC CHAR. (2X)	12 EA	12 EA

NOTES: AS DIRECTED BY THE ENGINEER, TEMPORARY PAVEMENT MARKING (PAINT) MAY BE USED TO STRIPE FINAL TRAFFIC PATTERN ON (-L-, -Y1- AND -Y2-). TEMPORARY PAVEMENT MARKING SCHEDULE INCLUDES QUANTITIES FOR PLACING TWO APPLICATIONS ON FINAL SURFACE OF NEW ASPHALT IN PERMANENT TRAFFIC PATTERN WHICH WILL REMAIN IN PLACE UNTIL THE FINAL PAVEMENT MARKINGS ARE APPLIED.

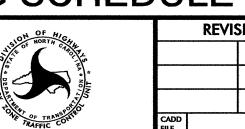
FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION, 2X IMPLIES TWO APPLICATIONS, AND 3X IMPLIES THREE APPLICATIONS.





TEMPORARY PAVEMENT MARKING SCHEDULE

DATE: 6/29/09
DWG. BY: JAP
DESIGN BY: JAP
REVIEWED BY: RBE



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/2009 CDOT/U3100b/Traffic/TrafficControl/T :bn/MF

# PROJECT NOTES

# GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS. STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS. OR RESULT IN DUPLICATE. OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING. COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

#### TIME RESTRICTIONS

DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS: DAY AND TIME RESTRICTIONS ROAD NAME

-L- (OLD FAYETTEVILLE RD)

7:00 AM - 9:00 AM MONDAY-FRIDAY

-Y1- (NC 54) -Y2- (OLD FÁYETTEVILLE RD)

DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

#### LANE AND SHOULDER CLOSURE REQUIREMENTS

- REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY DEPARTMENT.

### PAVEMENT EDGE DROP OFF REQUIREMENTS

BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER. AT NO EXPENSE TO THE DEPARTMENT.

#### TRAFFIC PATTERN ALTERATIONS

J) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

#### SIGNING

- K) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- PROVIDE PERMANENT SIGNS.
- ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 200' IN ADVANCE OF THE UNEVEN AREA. OR AS DIRECTED BY THE ENGINEER.

### TRAFFIC CONTROL DEVICES

- SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED. REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.
- PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

#### PAVEMENT MARKINGS AND MARKERS

Q) INSTALL TEMPORARY PAVEMENT MARKINGS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKERS	
-L- (OLD FAYETTEVILLE RD)	PAINT	NONE	
-Y1- (NC 54)	PAINT	NONE	
-Y2- (OLD FAYETTEVILLE RD)	PAINT	NONE	

- R) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- S) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- U) TRACE THE EXISTING AND PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO REMOVAL AND INSTALLATION. PLACE DRUMS TO DELINEATE ANY EXISTING AND PROPOSED MONOLITHIC ISLANDS AFTER REMOVAL AND BEFORE INSTALLATION.

### TEMPORARY / FINAL SIGNALS

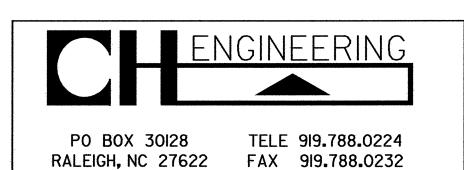
V) SHIFT AND REVISE ALL SIGNAL HEADS AS SHOWN ON THE SIGNAL PLAN.

### **MISCELLANEOUS**

W) POLICE MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.

### LOCAL NOTE

AS DIRECTED BY THE ENGINEER, TEMPORARY PAVEMENT MARKING (PAINT) MAY BE USED TO STRIPE FINAL TRAFFIC PATTERN ON -L-, -Y1-, AND -Y2-. TEMPORARY PAVEMENT MARKING SCHEDULE INCLUDES QUANTITIES FOR PLACING TWO APPLICATIONS OF PAINT ON FINAL SURFACE OF NEW ASPHALT WITH PERMANENT TRAFFIC PATTERN WHICH WILL REMAIN IN PLACE UNTIL THE FINAL PAVEMENT MARKINGS ARE APPLIED.



# **PHASING**

USE INCIDENTAL STONE AS NECESSARY. MAINTAIN VEHICULAR ACCESS TO ALL DRIVEWAYS DURING THE LIFE OF THE CONTRACT UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

PROJ. REFERENCE NO.

U-3100B

SHEET NO.

TCP-2

RETURN TRAFFIC TO THE EXISTING PATTERN AT THE END OF EACH WORK DAY UNLESS OTHERWISE STATED IN THE PHASING OR DIRECTED BY THE ENGINEER.

COMPLETE ANY PROPOSED OR TEMPORARY WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE.

### PHASE I

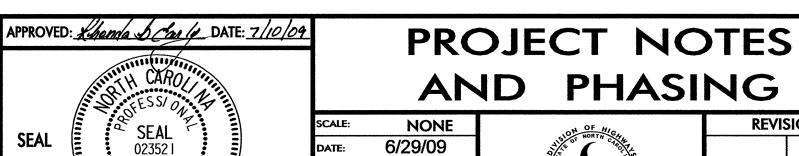
- STEP 1: PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE WORK ZONE ADVANCED WARNING SIGNS ON -L- (OLD FAYETTEVILLE ROAD) AND -Y- LINES IN ACCORDANCE WITH NCDOT DETAIL DRAWING FOR WORK ZONE SIGNS. SEE SHEET TCP-5.
- STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02 (SHEETS 1 AND 3 OF 9). CONSTRUCT PROPOSED DRAINAGE ACCORDING TO ROADWAY PLANS AND INSTALL AND COVER PROPOSED SIGNAL HEADS.
- STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02 (SHEETS 1 AND 3 OF 9) AND POLICE, PERFORM THE FOLLOWING:
  - REMOVE EXISTING CONCRETE ISLANDS ON -L-, -Y1- AND -Y2-. PAVE AND REPAIR WHERE ISLANDS WERE REMOVED AND PROVIDE SUITABLE DRIVING SURFACE. SEE SHEET TCP-3
  - MILL AND WIDEN THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE:

-L- FROM -Y1-(WBL) TO STA 33+25.98 -Y2-FROM -Y1 (EBL) TO STA 14+57.59

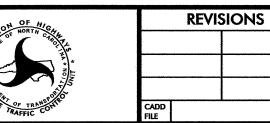
USING ROADWAY STANDARD DRAWING NO. 1101.02 (SHEET 3 OF 9) AND FLAGGERS, REMOVE EXISTING PAINTED ISLAND AND PLACE TEMPORARY PAVEMENT MARKINGS (PAINT) ON -Y1-, AS SHOWN ON SHEET TCP-3. SHIFT LEFT TURN LANE INTO NEW PATTERN AND ACTIVATE PROPOSED SIGNAL. CONSTRUCT RAISED GRASS MEDIAN AND OUTSIDE CURB AND GUTTER ON -Y1-(NC 54).

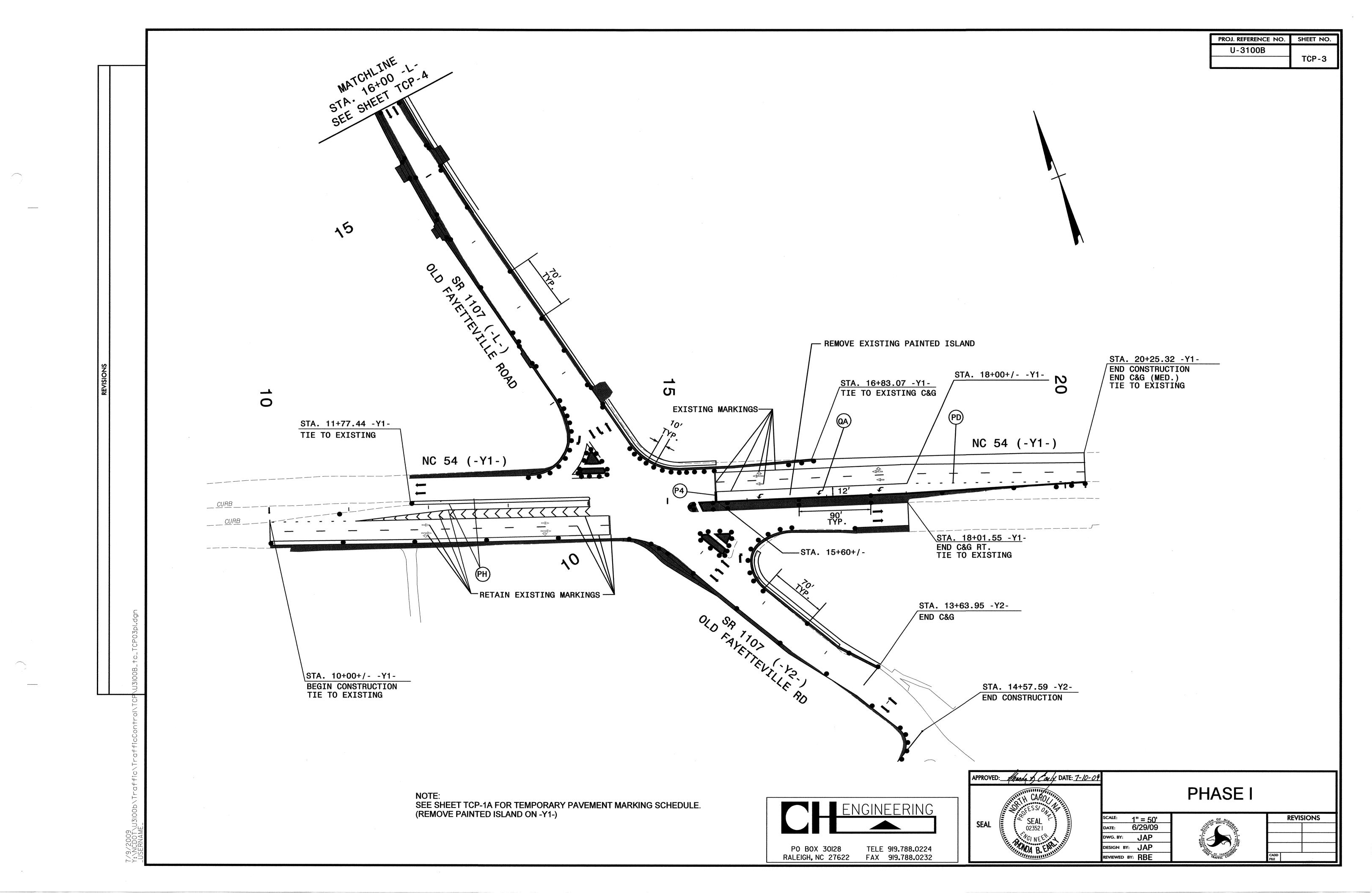
### PHASE II

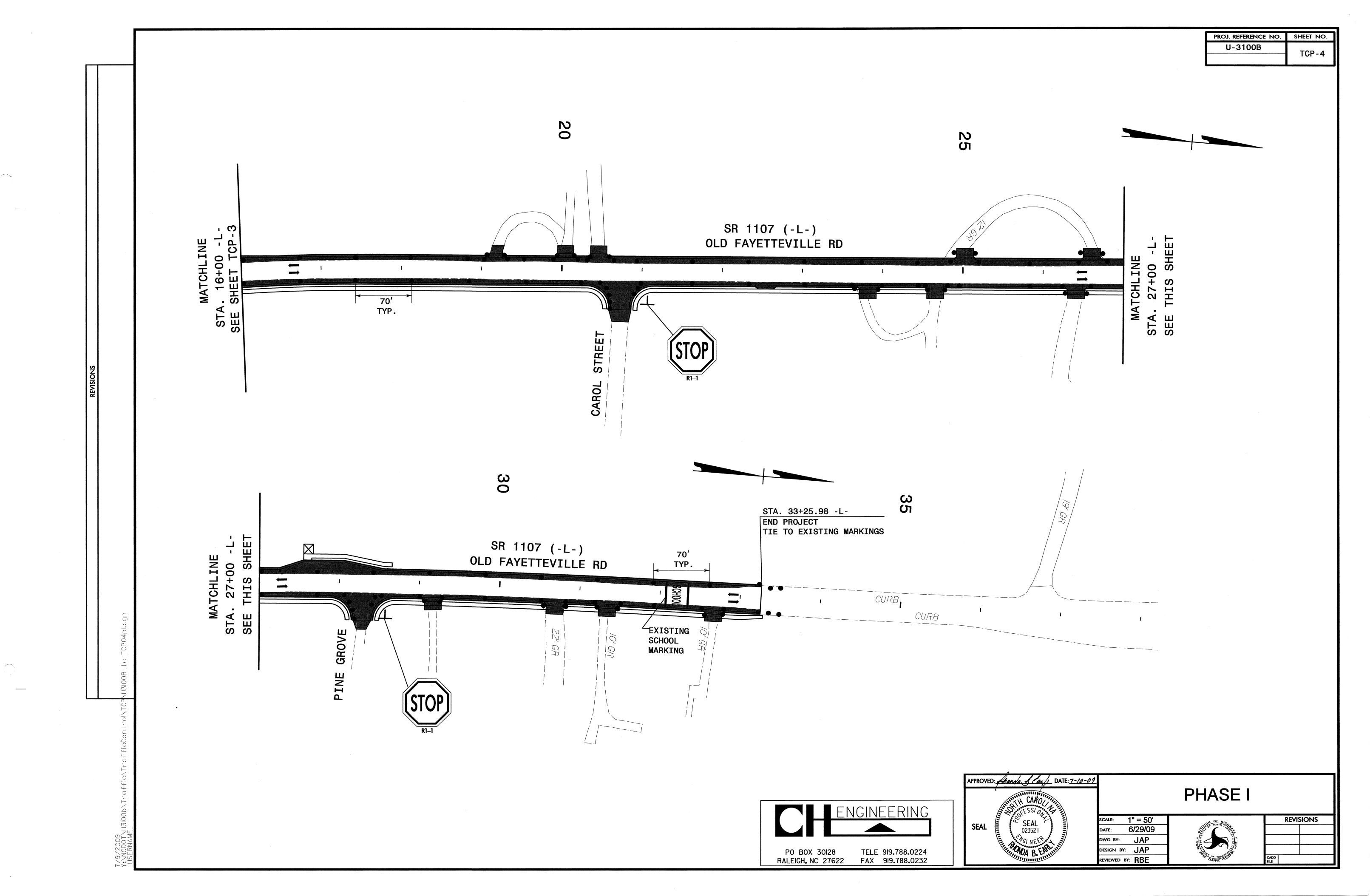
- STEP 1: USING ROADWAY STANDARD DRAWING NO 1101.02 (SHEETS 1 AND 3 OF 9). PLACE FINAL SURFACE COURSE ON -L- AND -Y- LINES. SEE PAVEMENT MARKING PLAN FOR FINAL PAVEMENT MARKINGS. SEE LN-1
- STEP 2: REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN ALL ROADS TO THE FINAL TRAFFIC PATTERN.



6/29/09 DWG. BY: JAP DESIGN BY: JAP REVIEWED BY: RBE







PROJ. REFERENCE NO. SHEET NO.

U-3100B

TCP-5

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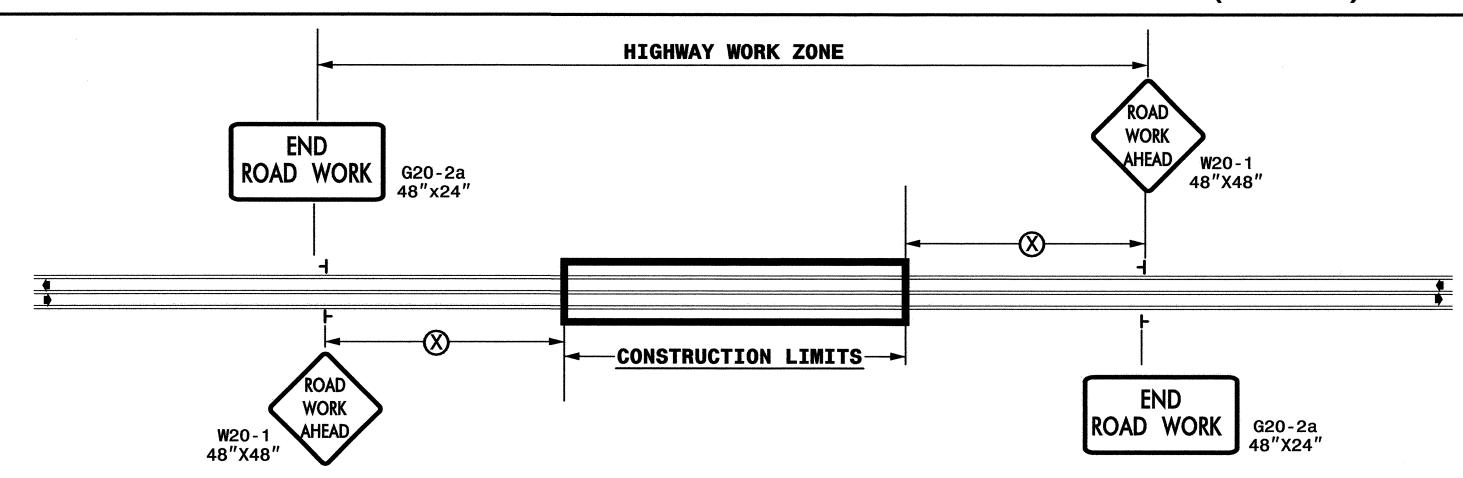
CAROLINA

NORTH

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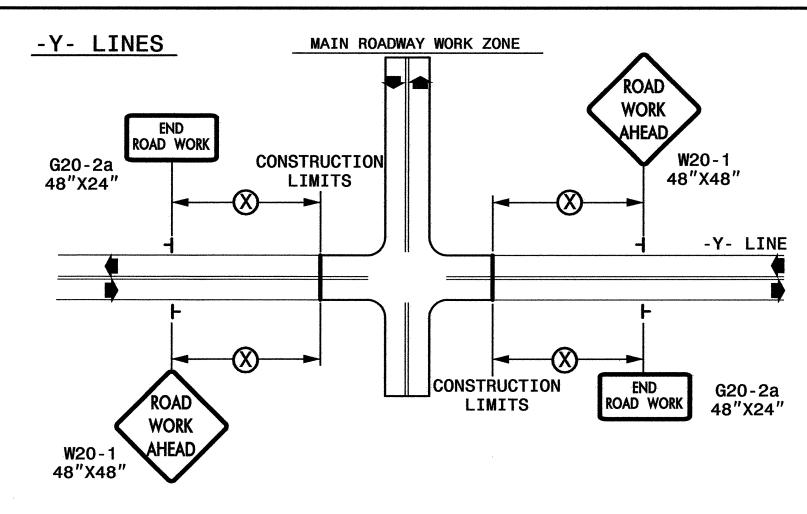
STATE

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



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

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



# **GENERAL NOTES**

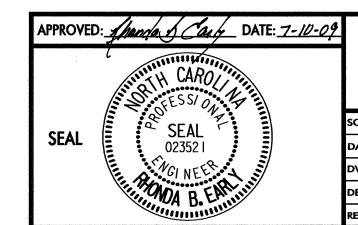
- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.
- \*\* 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**

├ STATIONARY SIGN

d DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1



DETAIL	_ DRA	WING	FOR	TWO-V	VAY
UNDIVID	ED A	ND U	IRBAN	FREE	WAYS
ADVANCED	WORK	ZON	E WAR	RNING	SIGNS

NONE	ONGINEER	REV	ISIONS
	NORTH CAROL 4	7–98	10/01
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