

TIP PROJECT: B-4258

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**PLAN FOR PROPOSED
TRAFFIC CONTROL, MARKING & DELINEATION
RUTHERFORD COUNTY**

STATE PROJECT REFERENCE NO.		SHEET NO.
B-4258		TCP-1
STATE WBS NO.	F.A.PROJ.NO.	DESCRIPTION
33600.1.1	BRSTP-0064(61)	PE

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
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - NON-SIGNALIZED INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS (TEMPORARY & PERMANENT)
1253.01	SNOWPLOWABLE RAISED PAVEMENT MARKERS
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

INDEX OF SHEETS

SHEET NO.	TITLE
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND INDEX OF SHEETS
TCP-2	PROJECT NOTES
TCP-2A	PROJECT NOTES, TEMP. PAVEMENT MARKING SCHEDULE
TCP-2B	TEMPORARY SHORING DATA
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TCP-10	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
PM-1	FINAL PAVEMENT MARKING SCHEDULE
PM-2	FINAL PAVEMENT MARKING PLAN

LEGEND

- GENERAL**
- DIRECTION OF TRAFFIC FLOW
 - NORTH ARROW
 - PROPOSED PVMT. EXIST. PVMT.
 - WORK AREA
 - REMOVAL OF EXISTING PAVEMENT
- TRAFFIC CONTROL DEVICES**
- TYPE I BARRICADE
 - TYPE II BARRICADE
 - TYPE III BARRICADE
 - CONE
 - DRUM
 - FLASHING ARROW PANEL (TYPE C)
 - TYPE 'B' WARNING LIGHT
 - STATIONARY SIGN
 - PORTABLE SIGN
 - STATIONARY OR PORTABLE SIGN
 - WARNING FLAGS
 - CRASH CUSHION
 - CHANGEABLE MESSAGE SIGN
 - TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
 - POLICE
 - FLAGGER
 - PORTABLE CONCRETE BARRIER
- PAVEMENT MARKINGS**
- CRYSTAL/CRYSTAL PAVEMENT MARKER
 - YELLOW/YELLOW PAVEMENT MARKER
 - CRYSTAL/RED PAVEMENT MARKER
 - PAVEMENT MARKING SYMBOLS

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DCN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

<p>PLAN REVIEWED BY: N.C.D.O.T. WORK ZONE TRAFFIC CONTROL UNIT</p> <p>J. STUART BOURNE, PE <u> </u> TRAFFIC CONTROL ENGINEER</p> <p>J. S. KITE, PE <u> </u> TRAFFIC CONTROL PROJECT ENGINEER</p> <p>J. D. KUSE, PE <u> </u> TRAFFIC CONTROL PROJECT DESIGN ENGINEER</p> <p>D. W. BISSETTE, PE <u> </u> TRAFFIC CONTROL DESIGN ENGINEER</p>	<p>APPROVED: </p> <p>DATE: 5/16/08</p>	<p>PLAN PREPARED FOR N.C.D.O.T. BY: SEPI ENGINEERING GROUP</p> <p>1025 Wade Avenue Raleigh, NC 27605 Tel: 919-789-9977 Fax: 919-789-9591</p> <p>S. L. SCOTT, PE <u> </u> PROJECT ENGINEER</p> <p>R. L. WEBBER <u> </u> DESIGN ENGINEER</p>

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

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 64 (-L-)	MONDAY THRU SUNDAY 7:00 AM TO 9:00 AM MONDAY THRU SUNDAY 4:00 PM TO 6:00 PM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

US 64 (-L-)

HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 PM DECEMBER 31st AND JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 AM THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 6:00 PM THURSDAY AND 7:00 AM MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 PM FRIDAY AND 7:00 AM TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 PM THE DAY BEFORE INDEPENDENCE DAY AND 7:00 AM THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 AM THE TUESDAY AFTER INDEPENDENCE DAY.
- FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 PM FRIDAY AND 7:00 AM TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 PM TUESDAY TO 7:00AM MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 PM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 AM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 64 (-L-)	MONDAY THRU SUNDAY 7:00AM TO 9:00AM MONDAY THRU SUNDAY 4:00PM TO 6:00PM

D) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 64 (-L-)	MONDAY THRU SUNDAY 7:00 AM TO 9:00 AM MONDAY THRU SUNDAY 4:00 PM TO 6:00 PM	15 MINUTES FOR SHIFTING TRAFFIC

E) 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

- F) 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.
- G) 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.
- H) 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.
- I) 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.
- J) 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.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- K) 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.
- L) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

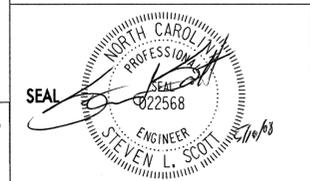
TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- N) 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.
- O) PROVIDE PERMANENT SIGNING.
- P) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- Q) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

APPROVED: _____ DATE: _____



PROJECT NOTES

SCALE: NONE		REVISIONS
DATE: 5/16/2008		
DWG. BY: RCD		
DESIGN BY: RLW		
REVIEWED BY: SLS		

TRAFFIC BARRIER

Q) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

R) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

TRAFFIC CONTROL DEVICES

S) 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.

T) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

U) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	THERMOPLASTIC	SNOWPLOWABLE
BRIDGE DECK (US 64)	COLD APPLIED (TYPE 3)	PERMANENT RAISED

V) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	TEMPORARY RAISED
BRIDGE DECK (US 64)	COLD APPLIED (TYPE 4)	TEMPORARY RAISED

W) 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.

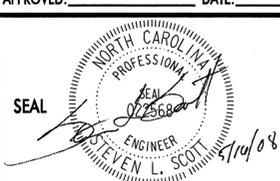
X) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

Y) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

TEMP. PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY BREAKDOWN	TOTAL QUANTITY
<u>PAVEMENT MARKING LINES</u>			
PA	WHITE EDGE LINE (2X) PAINT(4")	8390 LF	
PI	YELLOW DOUBLE CENTER (2X) PAINT(4")	6464 LF	
			TOTAL 14854 LF
P4	WHITE STOP BAR (2X) PAINT(24")	210 LF	
			TOTAL 210 LF
<u>COLD APPLIED PLASTIC (4") TYPE 4-REMOVABLE TAPE</u>			
CA	WHITE EDGE LINE TAPE(4")	605 LF	
CI	YELLOW DOUBLE CENTER TAPE(4")	572 LF	
			TOTAL 1177 LF
<u>MARKERS</u>			
<u>TEMPORARY RAISED PAVEMENT MARKERS</u>			
MH	YELLOW & YELLOW	51 EA	
			TOTAL 51 EA

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

APPROVED: _____ DATE: _____	PROJECT NOTES	
	SCALE: NONE	
	DATE: 5/16/2008	
	DWG. BY: RCD	
	DESIGN BY: RLW	
	REVIEWED BY: SLS	REVISIONS

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PROJ. REFERENCE NO.	SHEET NO.
B-4258	TCP-2B

TEMPORARY SHORING DATA

TEMPORARY SHORING NO. 1

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

FOR CONTRACTOR DESIGNED SHORING, SURVEY THE SHORING LOCATION TO DETERMINE EXISTING ELEVATIONS AND ACTUAL DESIGN HEIGHTS BEFORE BEGINNING DESIGN.

WHEN USING CONTRACTOR DESIGNED SHORING, USE THE FOLLOWING SOIL PARAMETERS:
 UNIT WEIGHT OF SOIL ABOVE WATER TABLE, $\gamma = 120$ PCF
 UNIT WEIGHT OF SOIL BELOW WATER TABLE, $\gamma = 60$ PCF
 FRICTION ANGLE, $\phi = 30$ DEGREES
 COHESION, $c = 0$ PSF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

FOR PORTABLE CONCRETE BARRIERS ABOVE AND BEHIND TEMPORARY SHORING, USE AN NCDOT PORTABLE CONCRETE BARRIER (UNANCHORED OR ANCHORED) OR AN OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS.

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REVIEWED BY: JDK							

PHASING

PHASE I

- STEP 1. INSTALL ADVANCE WARNING SIGNS ON -L- LINE AND -Y- LINES AS SHOWN ON SHEET TCP-9.
- STEP 2. WITH TRAFFIC IN THE EXISTING PATTERN AND USING RDWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED AND BEGIN CONSTRUCTION OF THE FOLLOWING AS SHOWN ON TCP-4:
- TEMPORARY WIDENING ALONG LEFT SIDE OF EXISTING -L- FROM STA. 21+35+/- TO STA. 25+10+/-.
 - TEMPORARY WIDENING ALONG RIGHT SIDE OF EXISTING -Y2- FROM STA. 9+50+/- TO STA. 12+50+/-.
 - PROPOSED -L- STRUCTURE FROM STA. 17+54+/- TO STA. 19+30+/- (END BENT NO. 2 CAN NOT BE CONSTRUCTED UNTIL RETAINING WALL AND WIDENING LEFT OF -Y2- IS COMPLETED AND TRAFFIC ON -Y2- HAS BEEN SHIFTED IN STEP 4).
 - PROPOSED ROADWAY SECTION -L- FROM STA. 12+40+/- TO STA. 17+30+/- UP TO THE EXISTING EDGE AND ELEVATION OR UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS APPROPRIATE.
 - PROPOSED ROADWAY SECTION -Y1- FROM STA. 13+20+/- TO STA. 13+80+/- UP TO THE EXISTING EDGE AND ELEVATION OR UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS APPROPRIATE.
- STEP 3. WITH TRAFFIC IN THE EXISTING PATTERN AND USING ROADWAY STANDARD 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED AND WORK IN A CONTINUOUS MANNER TO COMPLETE THE FOLLOWING AS SHOWN ON TCP-5:
- COMPLETE TEMPORARY WIDENING LEFT OF EXISTING -L- FROM STA. 21+35+/- TO STA. 25+10+/-, INSTALL TEMPORARY PAVEMENT MARKINGS AND SWITCH -L- TRAFFIC TO TEMPORARY PATTERN.
 - COMPLETE TEMPORARY WIDENING ALONG RIGHT SIDE OF EXISTING -Y2- FROM STA. 9+50+/- TO STA. 12+50+/-.
 - INSTALL PCB (ANCHORED) RIGHT OF -Y2- FROM STA. 9+50+/- TO STA. 12+25+/-, ATTACH PCB TO THE EXISTING GUARDRAIL AS SHOWN IN ROADWAY DETAIL.
 - INSTALL TEMPORARY PAVEMENT MARKINGS AND SWITCH -Y2- TRAFFIC TO TEMPORARY ONE-LANE TWO-WAY PATTERN.
- STEP 4. WITH TRAFFIC IN THE TEMPORARY PATTERN AND USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED AND COMPLETE THE FOLLOWING AS SHOWN ON TCP-5:
- CONSTRUCT THE RETAINING WALL FROM -Y2- STA. 11+60+/- TO -L- STA. 25+00+/-.
 - CONSTRUCT THE RIGHT SIDE OF -L- UP TO THE EXISTING EDGE AND ELEVATION OR UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS APPROPRIATE FROM STA. 21+00+/- TO STA. 25+10+/-.
 - INSTALL PCB LEFT OF -Y2- FROM STA. 9+50+/- TO STA. 11+75+/- (PCB INSTALLATION MAY HAVE TO BE DELAYED DUE TO CONSTRUCTION OF RETAINING WALL).
 - CONSTRUCT THE LEFT SIDE OF -Y2- UP TO THE EXISTING EDGE AND ELEVATION OR UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE AS APPROPRIATE FROM STA. 10+00+/- TO STA. 11+60+/- (TEMPORARY SHORING ON -Y2- FROM STA. 10+25+/- TO STA. 11+50+/- WILL BE INSTALLED PRIOR TO OR DURING THIS OPERATION DEPENDING ON THE TYPE OF SHORING USED).
- STEP 5. WITH TRAFFIC IN THE TEMPORARY PATTERN AND USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED AND WORK IN A CONTINUOUS MANNER TO COMPLETE THE FOLLOWING AS SHOWN ON TCP-6:
- REMOVE PCB LEFT OF -Y2- STA. 9+50+/- TO STA. 11+75+/- AND RESET PCB NEXT TO RETAINING WALL FROM STA. 10+00 TO STA. 11+30+/-
 - REMOVE EXISTING TEMPORARY PAVEMENT MARKINGS ON -Y2- AND INSTALL PROPOSED TEMPORARY PAVEMENT MARKINGS. RELOCATE STOP SIGN.
 - PLACE INCIDENTAL STONE AS REQUIRED TO MAINTAIN -Y2- TRAFFIC IN TEMPORARY PATTERN SHOWN IN SECTION B-B.
 - SWITCH -Y2- TRAFFIC TO TEMPORARY ONE-LANE TWO-WAY PATTERN SHOWN IN CUT SECTION B-B.
 - REMOVE EXISTING GUARDRAIL ATTACHED TO THE RIGHT SIDE OF EXISTING STRUCTURE LOCATED LEFT OF -L- STA. 20+65+/-, ATTACH TEMPORARY GUARD RAIL AT THIS LOCATION AND EXTEND UP -Y2- TO STA. 10+00+/-, REMOVE PCB RIGHT OF -Y2- FROM STA. 9+50+/- TO STA. 12+25+/- AND RESET RIGHT OF -Y2- FROM STA. 10+00+/- TO STA. 12+00+/-, ATTACH TEMPORARY GUARD RAIL TO PCB AT STA. 10+00+/-.
- STEP 6. AWAY FROM TRAFFIC AND BEHIND PCB CONSTRUCT THE FOLLOWING AS SHOWN ON TCP-6:
- COMPLETE CONSTRUCTION OF PROPOSED -L- STRUCTURE FROM STA. 17+30+/- TO STA. 20+73+/-.
 - CONSTRUCT THE RIGHT SIDE OF -Y2- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM STA. 10+00+/- TO STA. 12+25+/- (END BENT NO. 2 WILL HAVE TO BE COMPLETED BEFORE THIS WORK CAN BE COMPLETED).

PHASE II

- STEP 1. WITH TRAFFIC IN THE CURRENT PATTERN AND USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED, AND WORK IN A CONTINUOUS MANNER TO REMOVE PCB AND TEMPORARY GUARD RAIL ALONG -Y2- AND REPLACE WITH DRUMS.
- STEP 2. WITH TRAFFIC IN THE CURRENT PATTERN AND USING RDWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED, AND WORK IN A CONTINUOUS MANNER TO COMPLETE THE FOLLOWING AS SHOWN ON TCP-7 AND SWITCH TRAFFIC INTO A TWO-WAY TWO-LANE PATTERN ON THE NEW ALIGNMENT AT END OF WORK DAY:
- INSTALL PROPOSED GUARD RAIL AS FOLLOWS:
 - L- RIGHT STA. 15+65+/- TO STA. 17+50+/- AND STA. 21+10+/- TO STA. 25+10+/-.
 - Y1- LEFT STA. 13+10+/- TO -L- STA. 17+65+/-.
 - Y2- RIGHT STA. 10+40+/- TO STA. 11+70+/- AND LEFT STA. 9+70+/- TO STA. 10+50+/-.
 - SWITCH -L- TRAFFIC TO TEMPORARY ONE-LANE TWO-WAY PATTERN ALONG LEFT SIDE OF EXISTING -L- AND COMPLETE CONSTRUCTION OF RIGHT HALF OF -L- UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE FROM STA. 12+40+/- TO STA. 17+54.50 AND FROM STA. 20+49.50 TO STA. 25+10+/-.
 - INSTALL TEMPORARY PAVEMENT MARKINGS (PAINT FOR ASPHALT SURFACES AND REMOVABLE TAPE FOR CONCRETE SURFACES) ALONG RIGHT SIDE AND CENTER OF -L-. SEE TCP-8.
 - INSTALL PAVEMENT MARKINGS ON -Y2- FROM STA. 10+00+/- TO STA. 11+00+/- AND PROPOSED STOP SIGN (R1-1). SEE TCP-7 AND TCP-8.
 - SWITCH -L- TRAFFIC ONTO RIGHT SIDE OF PROPOSED -L- AND CLOSE EXISTING -L- TO TRAFFIC.
 - UNDER TRAFFIC CONSTRUCT TIE-IN OF -Y1- WITH -L- UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE FROM STA. 10+90+/- TO STA. 13+20+/- AND INSTALL PAVEMENT MARKINGS AND PROPOSED STOP SIGN (R1-1). SEE TCP-7 AND TCP-8.
 - CONSTRUCT LEFT HALF OF -L- UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE FROM STA. 12+40+/- TO STA. 17+54.50 AND FROM STA. 20+49.50 TO STA. 25+10+/-.
 - INSTALL REMAINING PAVEMENT MARKINGS (PAINT FOR ASPHALT SURFACES AND REMOVABLE TAPE FOR CONCRETE SURFACES) AND OPEN -L- TO TWO-LANE TWO-WAY TRAFFIC AS SHOWN ON TCP-8.
- STEP 3. WITH TRAFFIC IN FINAL PATTERN AND USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED AND WORKING IN A CONTINUOUS MANNER REMOVE EXISTING PAVEMENT ALONG -L- AS SHOWN ON TCP-7 AND ROADWAY PLANS.
- STEP 4. WITH TRAFFIC IN FINAL PATTERN AND USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED AND WORKING IN A CONTINUOUS MANNER COMPLETE THE FOLLOWING AS SHOWN ON TCP-8:
- CONSTRUCT REMAINING WIDENING OF -L- UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE, GUARD RAIL AND SHOULDER BERM GUTTER ALONG LEFT SIDE FROM STA. 21+10+/- TO STA. 25+10+00+/-.

PHASE III

- STEP 1. WITH TRAFFIC IN FINAL PATTERN AND USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 9, INSTALL LANE CLOSURES AS NEEDED AND WORKING IN A CONTINUOUS MANNER COMPLETE THE FOLLOWING:
- CONSTRUCT THE FINAL SURFACE COURSE ON -L- LINE AND ALL -Y- LINES WITHIN THE PROJECT LIMITS.
 - INSTALL FINAL PAVEMENT MARKINGS AND MARKERS AND OPEN ALL LANES TO TRAFFIC. SEE PM-2.



APPROVED:	DATE:

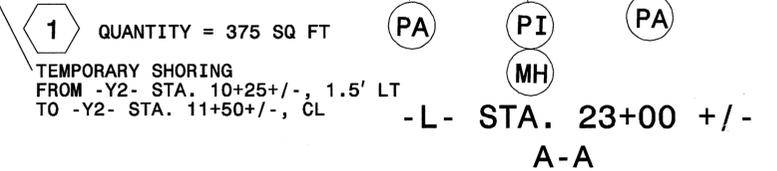
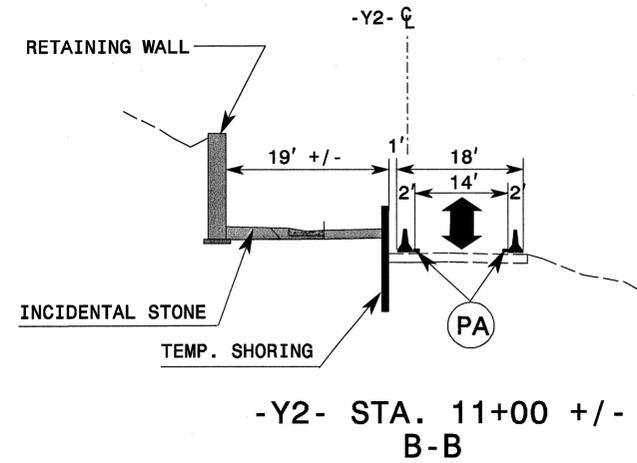
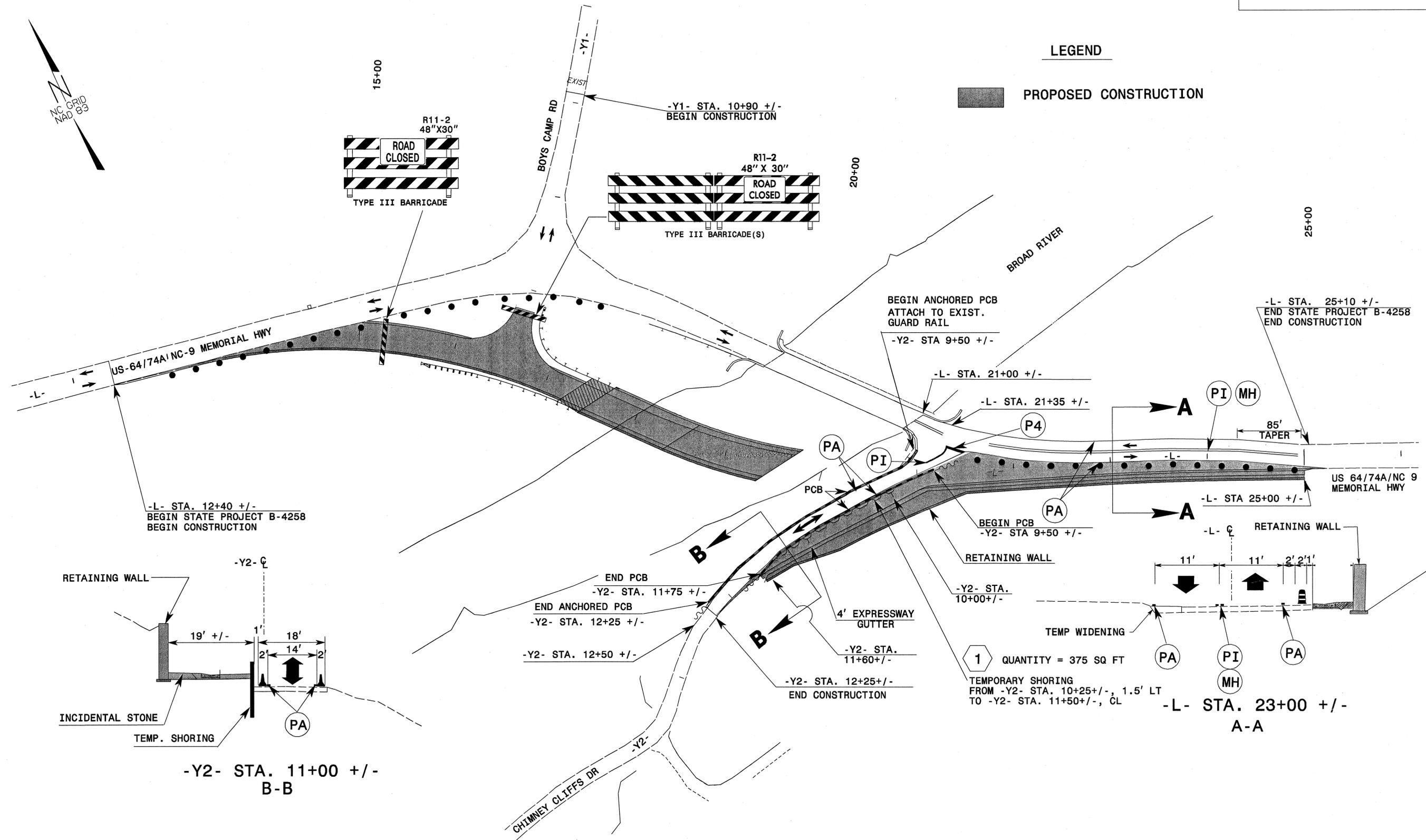
PHASING

SCALE:	NONE		REVISIONS
DATE:	5/16/2008		
DWG. BY:	RCD		
DESIGN BY:	RLW		
REVIEWED BY:	SLS		



LEGEND

PROPOSED CONSTRUCTION



1 QUANTITY = 375 SQ FT
TEMPORARY SHORING
FROM -Y2- STA. 10+25 +/-, 1.5' LT
TO -Y2- STA. 11+50 +/-, CL

APPROVED: _____ DATE: _____

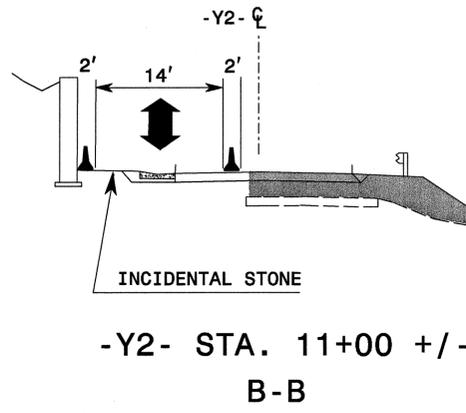
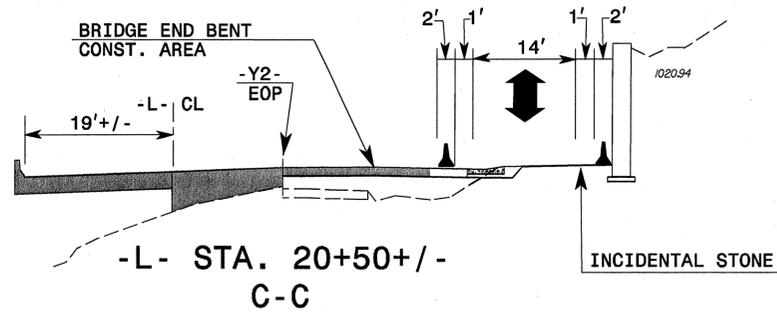
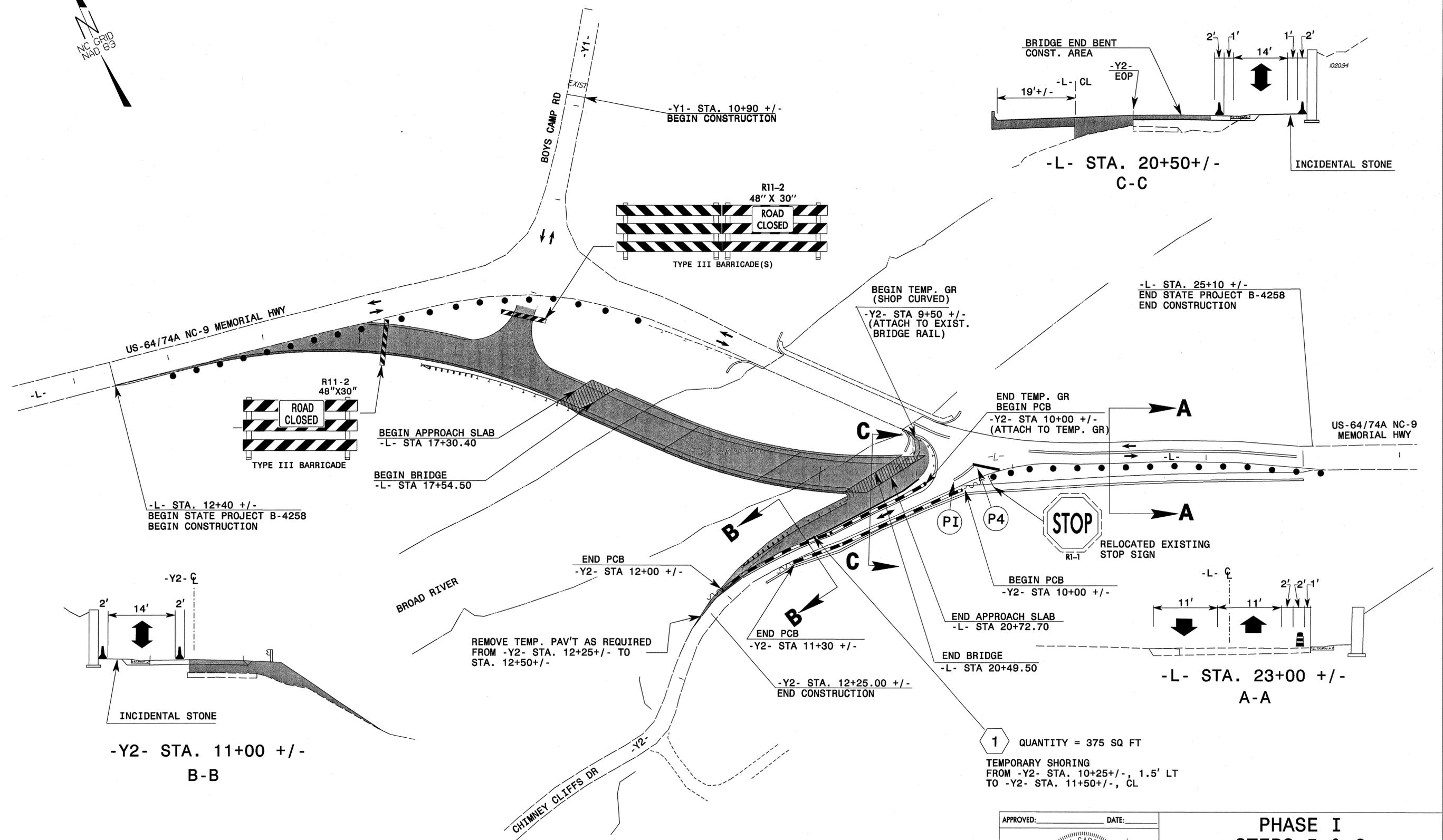
 ENGINEER
 STEVEN L. SCOTT

PHASE I STEPS 3 & 4			REVISIONS
SCALE: NONE	DATE: 5/16/2008		
DWG. BY: RCD	DESIGN BY: RCD		
REVIEWED BY: BLW			

SEPI
ENGINEERING GROUP
 1025 Wade Avenue
 Raleigh, NC 27605
 Tel: 919-789-8977
 Fax: 919-789-9591

LEGEND

■ PROPOSED CONSTRUCTION



1 QUANTITY = 375 SQ FT
TEMPORARY SHORING
FROM -Y2- STA. 10+25 +/-, 1.5' LT
TO -Y2- STA. 11+50 +/-, CL

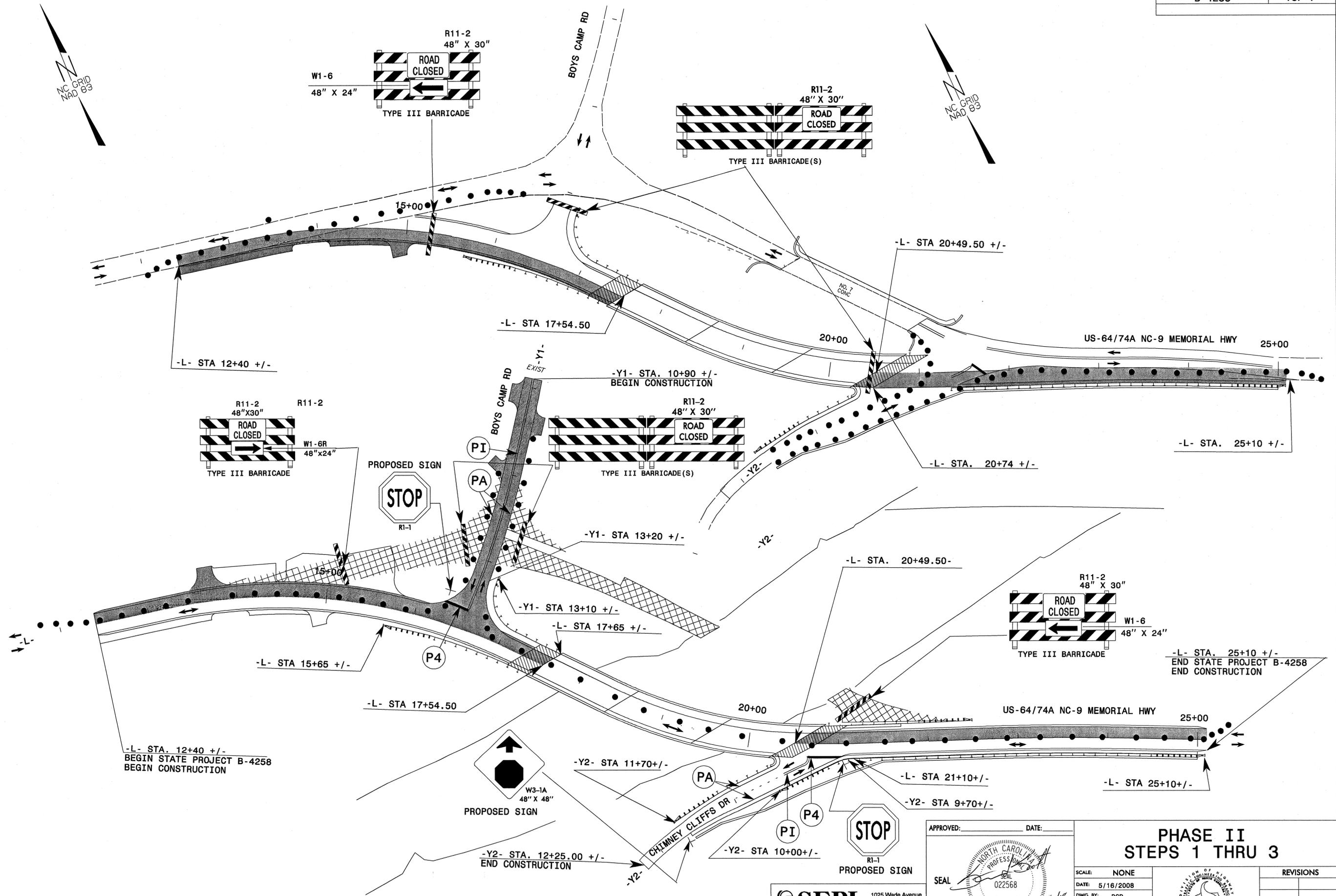
APPROVED: _____ DATE: _____

 SEAL
 ENGINEER
 STEVEN L. SCOTT 5/16/08

**PHASE I
STEPS 5 & 6**

SCALE: NONE		REVISIONS
DATE: 5/16/2008		
DWG. BY: RCD		
DESIGN BY: RLW		
REVIEWED BY: SLS		CADD FILE

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ENGINEERING GROUP
 1025 Wade Avenue
 Raleigh, NC 27605
 Tel: 919-789-9877
 Fax: 919-789-9591



APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER

022568

ENGINEER

STEVEN L. SCOTT

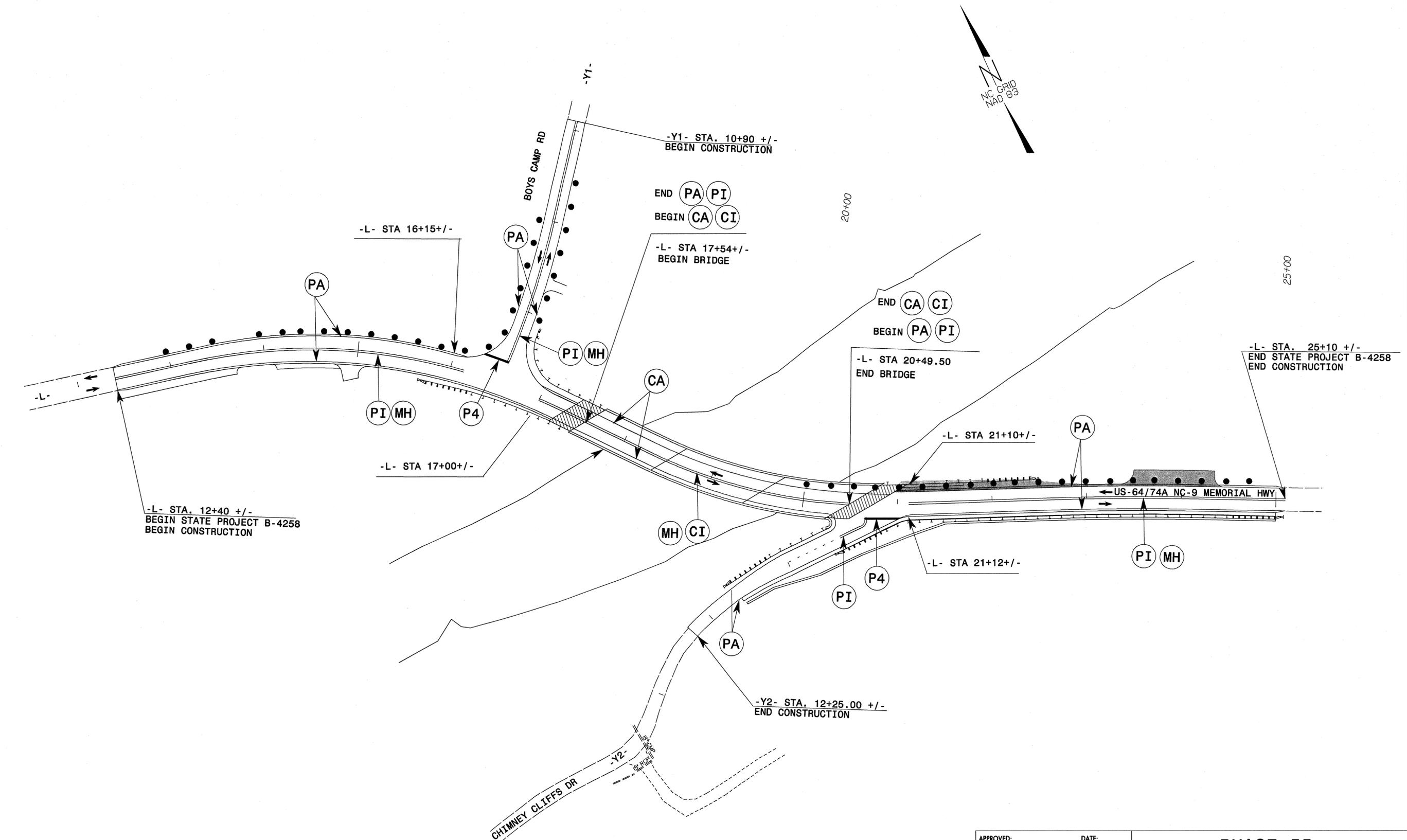
SEPI ENGINEERING GROUP

1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9591

**PHASE II
STEPS 1 THRU 3**

SCALE: NONE	REVISIONS
DATE: 5/16/2008	
DWG. BY: RCD	
DESIGN BY: RLW	
REVIEWED BY: SLS	

QUAD FILE



APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA
 PROFESSIONAL ENGINEER
 022568
 STEVEN L. SCOTT
 5/16/08

SEPI
 ENGINEERING GROUP
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 Tel: 919-789-9977
 Fax: 919-789-9591

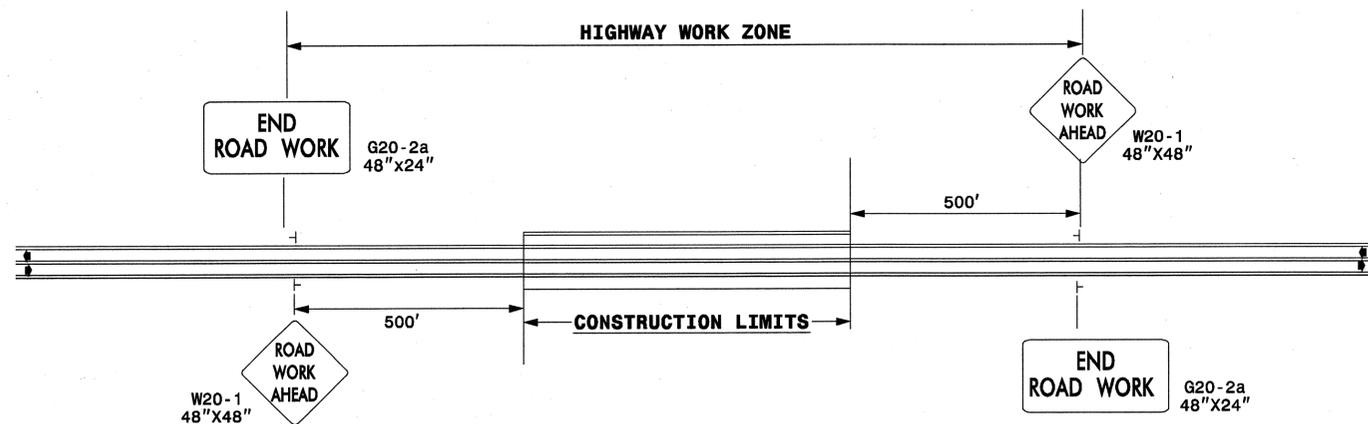
PHASE II STEP 4

SCALE: NONE
 DATE: 5/16/2008
 DWG. BY: RCD
 DESIGN BY: RLW
 REVIEWED BY: SLS



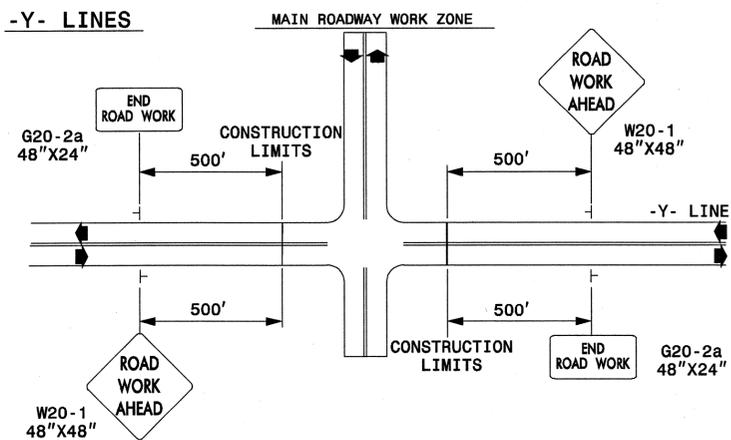
REVISIONS	

TWO-WAY UNDIVIDED ** (L-LINES)



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

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



DETAIL DRAWING FOR
 TWO-WAY UNDIVIDED
 WORK ZONE WARNING SIGNS

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

◀ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: <i>[Signature]</i> DATE: <i>5/16/2008</i>	DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS	
	SCALE: NONE	REVISIONS
	DATE: 5/16/2008	7-98 10/01
	DWG. BY: RLW	10-98 03/04
	DESIGN BY:	01/01 11/04
REVIEWED BY: SLS		CADD FILE

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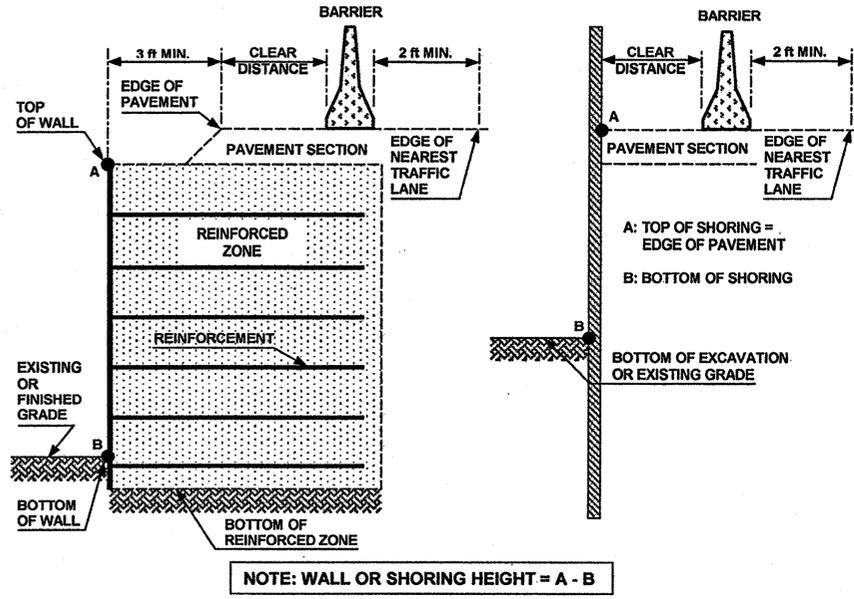


FIGURE A

NOTES

- REFER TO THE TRAFFIC CONTROL PLANS FOR SHORING LOCATIONS AND SOIL PARAMETERS.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR MORE INFORMATION ABOUT TEMPORARY SHORING, MEASUREMENT AND PAYMENT.
- PROVIDE PORTABLE CONCRETE BARRIER TO PROTECT TEMPORARY SHORING IF SHORING IS LOCATED WITHIN THE CLEAR ZONE AS DEFINED IN THE AASHTO ROADSIDE DESIGN GUIDE.
- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED PCB, ANCHORED PCB OR AN OREGON BARRIER FROM THE TABLE SHOWN IN FIGURE B. FOR TRAFFIC LANES AND PORTABLE CONCRETE BARRIER LOCATED ABOVE AND BEHIND TEMPORARY SHORING, THE FOLLOWING ARE DEFINED AS:

CLEAR DISTANCE - HORIZONTAL DISTANCE FROM THE BACK FACE OF THE BARRIER TO THE EDGE OF PAVEMENT FOR TEMPORARY MSE WALL OR TO THE FACE OF NON-ANCHORED TEMPORARY SHORING AS SHOWN IN FIGURE A.

OFFSET - HORIZONTAL DISTANCE FROM THE FRONT FACE OF THE BARRIER TO CENTERLINE OF THE FURTHEST TRAFFIC LANE AS SHOWN IN FIGURE B FOR 3 TRAFFIC LANES.
- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET AN UNANCHORED PCB AGAINST THE TRAFFIC SIDE OF THE SHORING AND DESIGN SHORING FOR TRAFFIC IMPACT OR USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT" FOR THE STANDARD TEMPORARY SHORING.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- USE OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH DETAIL DRAWING AND SPECIAL PROVISION OBTAINED FROM: [HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/WZTC/DESRES/ENGLISH/DESRESENG.HTML](http://www.ncdot.org/doh/preconstruct/wztc/desres/english/desreseeng.html)
- UNLESS NOTED OTHERWISE ON THE PLANS, SET PORTABLE CONCRETE BARRIER WITH A MINIMUM DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A.
- FOR PORTABLE CONCRETE BARRIER ABOVE AND BEHIND TEMPORARY MSE WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200' IN LENGTH AND WET OR DRY PAVEMENT.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
	>56	32	36	42	45	47	51	
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
50-56		26	26	28	32	35	38	
>56	26	27	29	32	36	38		
Anchored PCB or Oregon Barrier	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB or Oregon Barrier	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

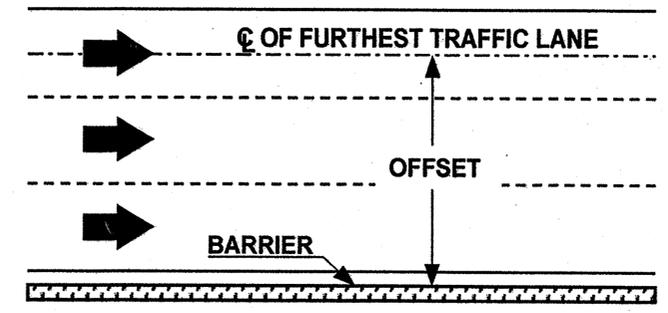


FIGURE B

APPROVED: _____ DATE: _____	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS	
	NONE	
	DATE: 3/07	
	DESIGN BY: JI	
	REVIEWED BY: JI	
	REVISIONS	

22-MAR-2007 10:44
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