

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
B - 3 9 1 7	TCP-1

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

B-3917

**ROADWAY STANDARD DRAWINGS**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - ROADWAY DESIGN 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
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
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-TYPE III
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION-REFLECTIVE END TREATMENT
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR- DELINEATION
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - DIVIDED AND UNDIVIDED ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - TEMPORARY & PERMANENT
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

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PM-1	PAVEMENT MARKING SCHEDULE

**LEGEND**

- GENERAL**
- DIRECTION OF TRAFFIC FLOW
  - NORTH ARROW
  - PROPOSED PVMT. EXIST. PVMT.
  - WORK AREA
  - REMOVAL OF EXISTING PAVEMENT
- TRAFFIC CONTROL DEVICES**
- TYPE III BARRICADE
  - CONE
  - 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

TIP PROJECT:

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J:\reference AT WZ122244

APPROVED:	PLAN PREPARED BY: N.C.D.O.T. TRAFFIC CONTROL, MARKING & DELINEATION UNIT
DATE: 18 Jan 07	
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# PROJECT NOTES

PROJ. REFERENCE NO. B-3917	SHEET NO. TCP-2
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## GENERAL NOTES

ADAPT THE TRAFFIC CONTROL PLANS, WHEN DIRECTED BY THE ENGINEER, TO MEET FIELD CONDITIONS TO PROVIDE SAFE AND EFFICIENT TRAFFIC MOVEMENT. CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE, OR RESULT IN DUPLICATE, OR UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES.

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
1. PENNY ROAD	MONDAY THRU FRIDAY 6:00 A.M. TO 9:00 A.M. 4:00 P.M. TO 7:00 P.M.

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

ROAD NAME
1. PENNY ROAD

### HOLIDAY

1. FOR ANY EVENT THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31ST TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A SATURDAY OR A SUNDAY, THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.  
  
IF INDEPENDENCE DAY IS ON A SATURDAY OR SUNDAY, THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING MONDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR OTHERWISE DIRECTED BY THE ENGINEER.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) 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.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 40 FT OF 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.
- F) 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.
- G) 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.
- H) DO NOT WORK SIMULTANEOUSLY, ON BOTH SIDES OF AN OPEN TRAVELWAY, WITHIN THE SAME LOCATION, ON A TWO-LANE, TWO-WAY ROAD.
- I) DO NOT PERFORM WORK INVOLVING HEAVY EQUIPMENT WITHIN 15 FT OF THE EDGE OF TRAVELWAY WHEN WORK IS BEING PERFORMED BEHIND A LANE CLOSURE ON THE OPPOSITE SIDE OF THE TRAVELWAY.
- J) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

### 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 A 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 1.5 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT (150M) IN ADVANCE AND A MINIMUM OF ONCE EVERY 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 100 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.  
  
WHEN NO WORK IS BEING CONDUCTED FOR A PERIOD LONGER THAN ONE WEEK, REMOVE OR COVER ALL ADVANCE WORK ZONE WARNING SIGNS, AS DIRECTED BY THE ENGINEER, AT NO COST TO THE DEPARTMENT.
- O) PROVIDE PERMANENT SIGNING.
- P) PROVIDE DETOUR SIGNING WITH IN AND OFF THE PROJECT LIMITS.
- Q) REMOVE ALL DETOUR SIGNS WITH IN AND OFF THE PROJECT LIMITS WHEN A DETOUR IS NOT IN OPERATION.
- R) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

### TRAFFIC BARRIER

- S) INSTALL MOVABLE/PORTABLE CONCRETE BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE MOVABLE/PORTABLE CONCRETE 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.  
  
ONCE MOVABLE/PORTABLE CONCRETE BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE MOVABLE/PORTABLE CONCRETE BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET MOVABLE/PORTABLE CONCRETE BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.
- T) 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.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS:

POSTED SPEED LIMIT	MINIMUM OFFSET
LESS THAN 50 MPH	20 FT
50 MPH OR HIGHER	30 FT

INSTALL MOVABLE/PORTABLE CONCRETE BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE MOVABLE/PORTABLE CONCRETE 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 CLOSED THE SECTION OF THE ROADWAY UNTIL THE BARRIER CAN BE PLACED OR AFTER BARRIER IS REMOVED.

### TRAFFIC CONTROL DEVICES

- U) 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.
- V) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY. STAGGER OR OVERLAP BARRICADES TO ALLOW FOR INGRESS OR EGRESS.
- W) PLACE SETS OF THREE DRUMS PERPENDICULAR TO THE EDGE OF THE TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC. THESE DRUMS SHALL BE IN ADDITION TO CHANNELIZING DEVICES.

### PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
1. PENNY ROAD	THERMOPLASTIC	PERMANENT RAISED
2. STRUCTURES	COLD APPLIED PLASTIC (TYPE II- PERMANENT HIGH PERFORMANCE TAPE)	PERMANENT RAISED

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

ROAD NAME	MARKING	MARKER
1. PENNY ROAD	PAINT	TEMPORARY RAISED
2. STRUCTURES	COLD APPLIED PLASTIC (TYPE IV-REMOVABLE TAPE)	TEMPORARY RAISED

- Z) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- AA) REPLACE ANY PAVEMENT MARKINGS THAT HAVE BEEN DAMAGED BY THE END OF EACH DAY'S OPERATION.
- BB) REMOVE ALL CONFLICTING PAVEMENT MARKINGS BY THE END OF EACH DAY'S OPERATION.
- CC) PLACE AT LEAST TWO APPLICATIONS OF PAINT ON NEW ASPHALT WITH TEMPORARY TRAFFIC PATTERNS WHICH WILL REMAIN IN PLACE OVER THREE (3) MONTHS. PLACE ADDITIONAL APPLICATIONS OF PAINT UPON SUFFICIENT DRYING TIME, AS DETERMINED BY THE ENGINEER.

## LOCAL NOTES

1. FOR TEMPORARY SHORING NO. 1, SEE TEMPORARY SHORING SPECIAL PROVISION. DO NOT USE A TEMPORARY MSE WALL FROM STATION 15+87+/- -L-, 14 FT LT., TO STATION 16+30+/- -L-, 14 FT LT.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 15+87+/- -L-, 14 FT LT. TO STATION 16+30 +/- -L-, 14 FT LT. MAY NOT PENETRATE BELOW ELEVATION 284 FT DUE TO THE PRESENCE OF AN OBSTRUCTION, VERY DENSE OR HARD SOIL, WEATHERED OR HARD ROCK.

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

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.

2. FOR TEMPORARY SHORING NO. 2, SEE TEMPORARY SHORING SPECIAL PROVISION. DO NOT USE A TEMPORARY MSE WALL FROM STATION 17+73+/- -L-, 14 FT LT., TO STATION 18+06+/- -L-, 14 FT LT.

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

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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# PHASING

PROJ. REFERENCE NO.	SHEET NO.
B-3917	TCP-3

## PHASE I

STEP 1: - PRIOR TO BEGINNING ANY WORK THE CONTRACTOR SHALL INSTALL ADVANCE WORK ZONE WARNING SIGNS ON PENNY ROAD, SR 1379 (-L-) ACCORDING TO SHEET TCP-9.

STEP 2: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 9, SEE CONSTRUCTION PLANS AND SHEET TCP-4:

- CONSTRUCT TEMPORARY PAVEMENT ON LEFT SIDE OF EXISTING PENNY ROAD, SR 1379 (-L-) FROM STA. 15+00+/- -L- TO STA. 16+34+/- -L- AND FROM STA. 17+73+/- -L- TO STA. 20+50+/- -L-, UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT.

NOTE: CONSTRUCT TEMPORARY PAVEMENT (WIDTH & LENGTH) TO ACCOMMODATE THE PORTABLE CONCRETE BARRIER (PCB) WITH TEMPORARY CRASH CUSHION (TCC) AND TO ALLOW A ONE (1) FOOT SHY DISTANCE BETWEEN THE PCB AND THE EXISTING EDGE LINE.

- INSTALL PCB BARRIER AND TEMPORARY CRASH CUSHIONS FROM STA. 15+00+/- -L- TO STA. 16+34+/- -L- AND FROM STA. 17+73+/- -L-, TO STA. 20+50+/- -L-. ATTACH PCB TO EXISTING STRUCTURE USING TEMPORARY ANCHOR UNIT, TYPE W-BEAM.

STEP 3: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1 OF 9:

- INSTALL TEMPORARY SHORING FROM STA. 15+87+/- -L- TO STA. 16+30+/- -L- AND FROM STA. 17+73+/- -L- TO STA. 18+06+/- -L- AND CONSTRUCT THE LEFT SIDE OF PROPOSED PENNY ROAD, SR 1379 (-L-) ROADWAY, INCLUDING THE PROPOSED STRUCTURE FROM STA. 13+50+/- -L- TO STA. 22+00+/- -L- UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. UTILIZE TEMPORARY 2:1 SLOPES FROM STA. 13+50+/- -L- TO STA. 16+00+/- -L-. SEE CONSTRUCTION PLANS, CROSS-SECTIONS AND SHEET TCP-4.
- CONSTRUCT PROPOSED PENNY ROAD, SR 1379 (-L-) BOTH SIDES FROM STA. 12+00+/- -L- TO STA. 13+50+/- -L- AND FROM STA. 22+00+/- -L- TO STA. 25+25+/- -L- UP TO THE EDGE AND ELEVATION OF THE EXISTING PAVEMENT. SEE CONSTRUCTION PLANS, CROSS-SECTIONS AND SHEET TCP-4.

NOTE: PLACE DRUMS AND TYPE III BARRICADES TO KEEP THE PROPOSED PENNY ROAD, SR 1379 (-L-) CLOSED TO TRAFFIC SEE SHEET TCP-4.

NOTE: CONTRACTOR MAY BEGIN INSTALLATION OF PCB, TEMPORARY PAVEMENT MARKINGS (PAINT ON ASPHALT & COLD APPLIED PLASTIC TYPE-IV REMOVABLE TAPE ON STRUCTURE) AND TEMPORARY RAISED PAVEMENT MARKERS ON PROPOSED PENNY ROAD, SR 1379 (-L-) FROM STA. 15+00+/- -L- TO STA. 20+50+/- -L- AS SHOWN ON SHEETS TCP-4, TCP-5 AND TCP-8.

NOTE: CONTRACTOR SHALL INSTALL OFF-SITE DETOUR SIGNING. SEE SHEET TCP-6.

## PHASE II

CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE FOLLOWING WORK IN PHASE II, STEPS 1-3 FROM FRIDAY 7:00 P.M. TO MONDAY 6:00 A.M. SEE INTERMEDIATE CONTRACT TIME AND SPECIAL PROVISIONS.

NOTE: CONTRACTOR SHALL PLACE THE CHANGEABLE MESSAGE SIGNS ON LAKE WHEELER ROAD, AS DIRECTED BY THE ENGINEER, ONE WEEK PRIOR TO PENNY ROAD BEING CLOSED, TO INFORM THE TRAVELLING PUBLIC OF THE IMPENDING CLOSURE.

STEP 1: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9, CLOSE PENNY ROAD, SR 1379 (-L-) AS SHOWN ON SHEETS TCP-5 & 6 AND PLACE TRAFFIC ONTO OFF-SITE DETOUR.

STEP 2: - CONTRACTOR SHALL, USING PAVING AND WEDGING OPERATIONS, CONSTRUCT TIE-INS OF PROPOSED PENNY ROAD, SR 1379 (-L-) FROM STA. 12+00+/- -L- TO STA. 14+50+/- -L- AND FROM STA. 21+50+/- -L- TO STA. 25+25+/- -L- UP TO, BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE, UTILIZING TEMPORARY 2:1 SLOPES FROM STA. 13+50+/- -L- TO STA. 14+00+/- -L-. SEE CONSTRUCTION PLANS, CROSS SECTIONS AND SHEET TCP-5.

-- COMPLETE INSTALLATION OF PCB AND TEMPORARY CRASH CUSHIONS ON THE RIGHT SIDE OF PROPOSED PENNY ROAD, SR 1379 (-L-), FROM STA. 13+50+/- -L- TO STA. 22+00+/- -L-. SEE SHEETS TCP-5 & 8.

-- PLACE REMAINDER OF TEMPORARY PAVEMENT MARKINGS (PAINT ON ASPHALT AND COLD APPLIED PLASTIC-TYPE IV REMOVABLE TAPE ON STRUCTURE), AND TEMPORARY RAISED PAVEMENT MARKERS ON PENNY PENNY ROAD, SR 1379 (-L-) FROM STA. 12+00+/- -L- TO STA. 25+25+/- -L-. SEE SHEET TCP-8.

-- PLACE DRUMS AND TYPE III BARRICADES TO CLOSE EXISTING PENNY ROAD TO TRAFFIC. SEE SHEET TCP-8.


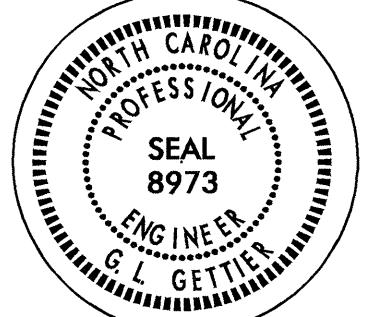
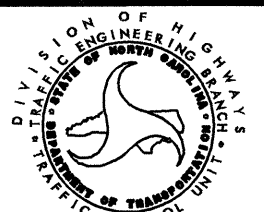
STEP 3: - CONTRACTOR SHALL, OPEN PROPOSED PENNY ROAD, SR 1379 (-L-) TO A TEMPORARY TWO LANE, TWO-WAY TRAFFIC PATTERN. SEE SHEET TCP-8.

## PHASE III

STEP 1: - CONTRACTOR SHALL, REMOVE THE EXISTING STRUCTURE AND PAVEMENT ACCORDING TO CONSTRUCTION PLANS AND COMPLETE CONSTRUCTION OF PROPOSED PENNY ROAD, SR 1379 (-L-) INCLUDING INSTALLATION OF GUARDRAIL ON RIGHT SIDE FROM STA. 12+00+/- -L- TO STA. 25+25+/- -L-. SEE SHEET TCP-8.

STEP-2: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 9, REMOVE PCB, PLACE THE FINAL LAYER OF SURFACE COURSE, FINAL PAVEMENT MARKINGS (THERMOPLASTIC ON ASPHALT AND COLD APPLIED PLASTIC-TYPE-II ON STRUCTURE) AND PERMANENT RAISED PAVEMENT MARKERS ON PROPOSED PENNY ROAD, SR 1379 (-L-) AND OPEN TO FINAL TRAFFIC PATTERN. SEE CONSTRUCTION PLANS AND SHEET PM-1.

STEP-3: - CONTRACTOR SHALL, REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

APPROVED:  DATE: 12/10/07	<b>PROJECT PHASING</b>	
		
SCALE: NONE	REVISIONS	
DATE: 01/07		
DESIGN BY: MW		
REVIEWED BY: JWG		

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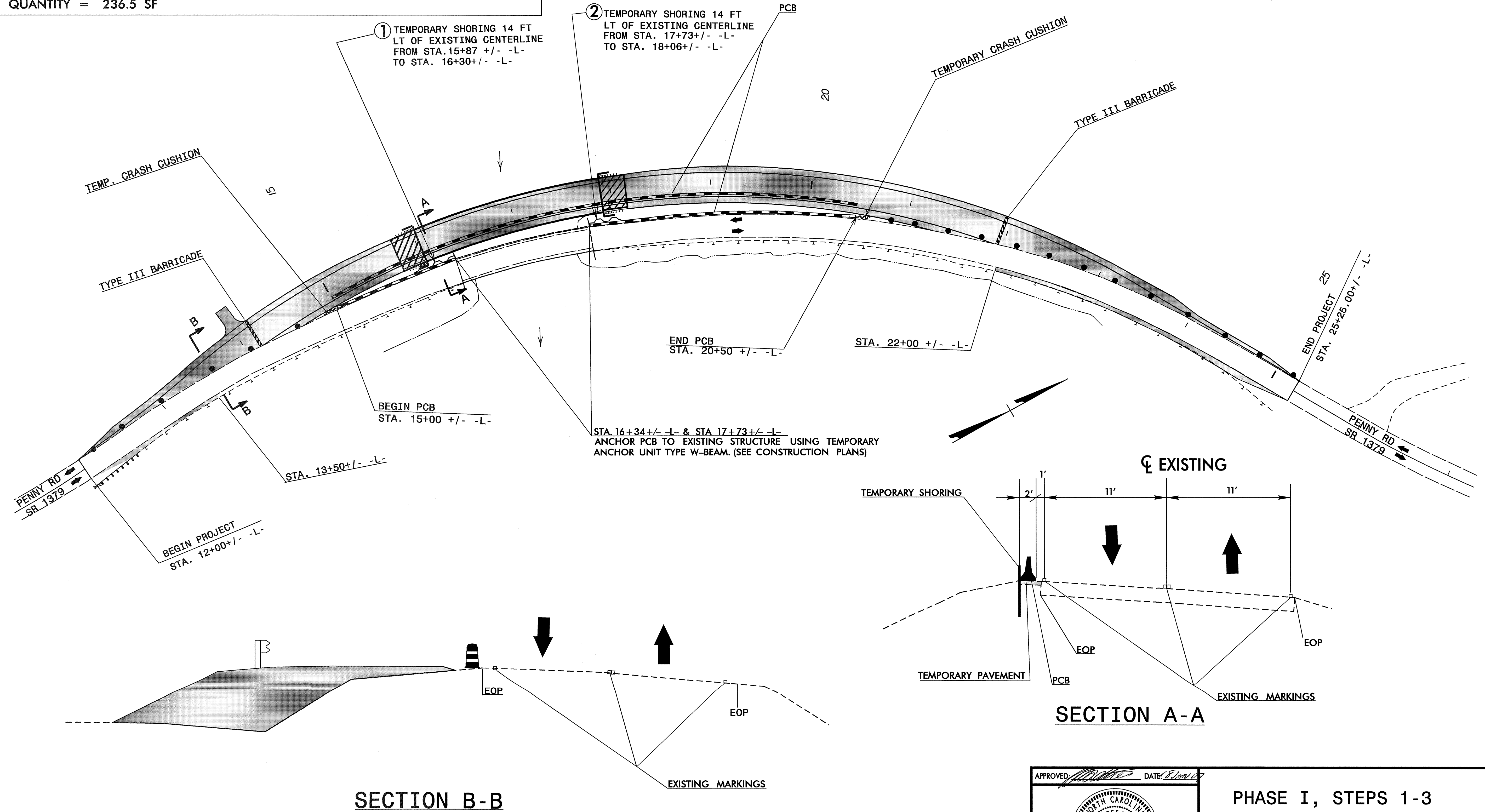
PROJ. REFERENCE NO.	SHEET NO.
B-3917	TCP-4

① WHEN USING CONTRACTOR DESIGNED SHORING FROM STA. 15+87 +/- -L-, 14 FT LT., TO STA. 16+30 +/- -L-, 14 FT LT., USE THE FOLLOWING SOIL PARAMETERS AND LOCAL NOTE NO. 1 ON SHEET TCP-2.

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 ABOVE ELEVATION 284 FT  
 FRICTION ANGLE,  $\phi = 42$  DEGREES BELOW ELEVATION 284 FT  
 COHESION,  $C = 0$  PSF.  
 QUANTITY = 236.5 SF

② WHEN USING CONTRACTOR DESIGNED SHORING FROM STA. 17+73 +/- -L-, 14 FT LT., TO STA. 18+06 +/- -L-, 14 FT LT., USE THE FOLLOWING SOIL PARAMETERS AND LOCAL NOTE NO. 2 ON SHEET TCP-2.

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.  
 QUANTITY = 181.5 SF



STA. 16+34 +/- -L. & STA. 17+73 +/- -L.  
 ANCHOR PCB TO EXISTING STRUCTURE USING TEMPORARY ANCHOR UNIT TYPE W-BEAM. (SEE CONSTRUCTION PLANS)

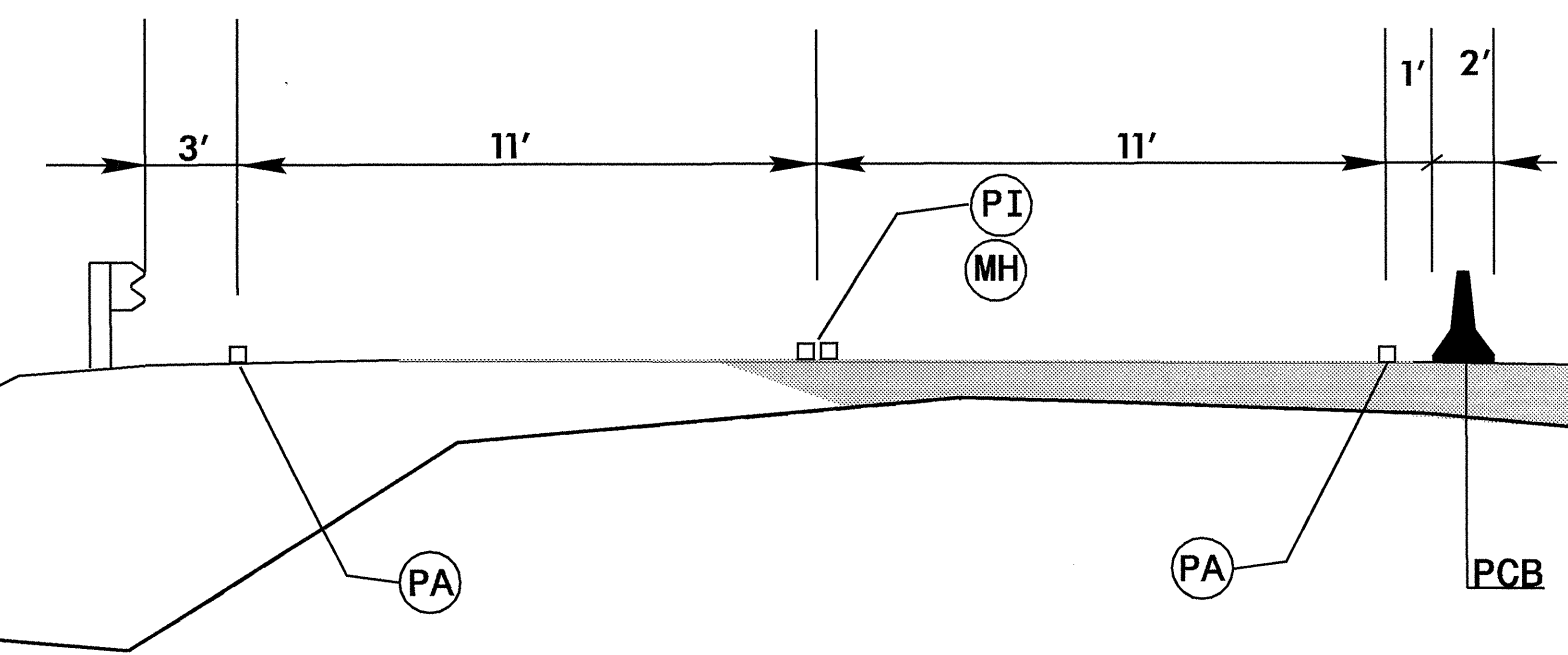
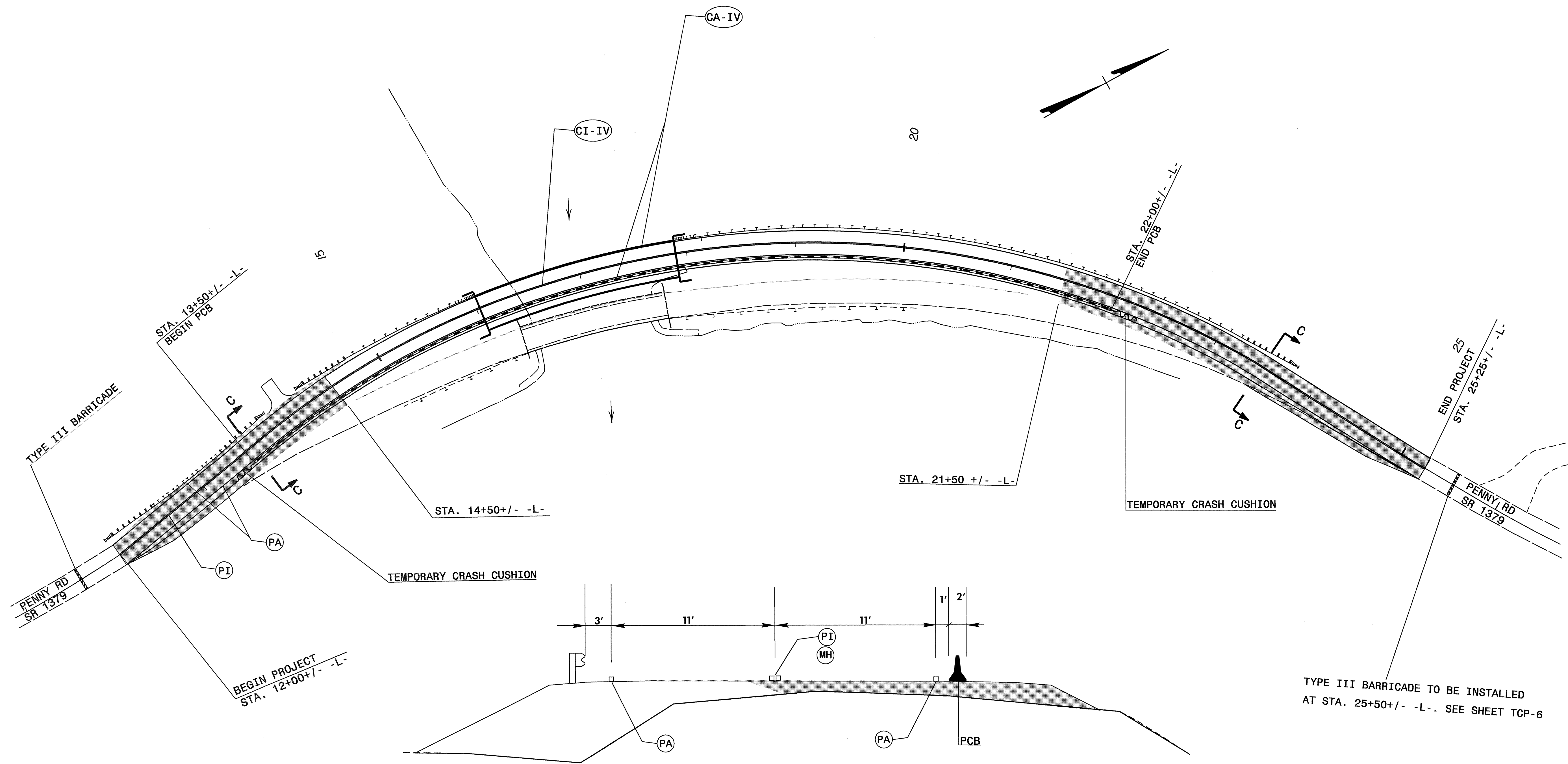
☉ EXISTING

SECTION A-A

SECTION B-B

APPROVED:	DATE: 8/20/07	PHASE I, STEPS 1-3		
	SCALE: NONE			
	DATE: 01/07	REVISIONS		
	DESIGN BY: MW			
	REVIEWED BY: JWG			

18-IN-2007 14-02  
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**SECTION C-C**

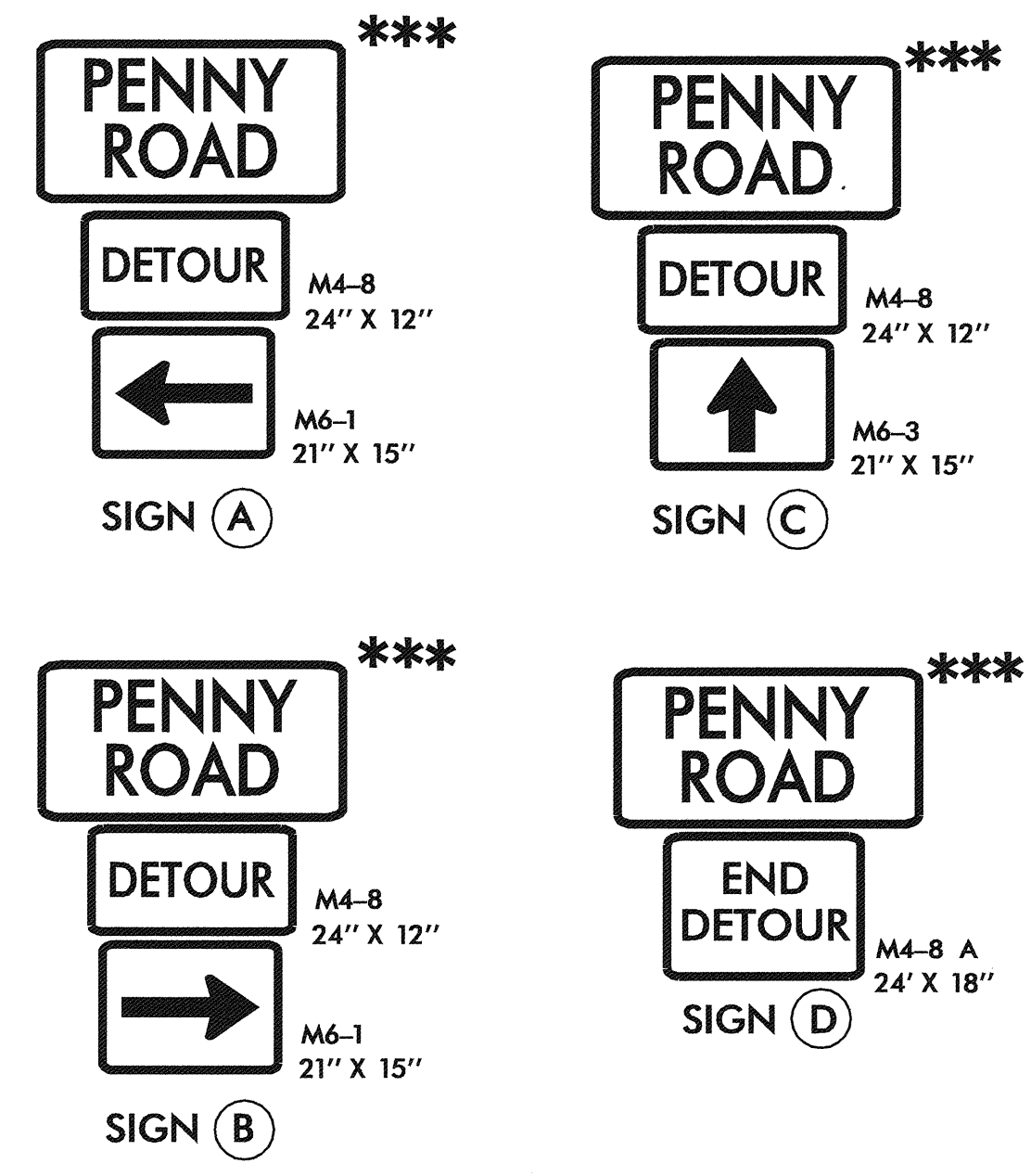
TYPE III BARRICADE TO BE INSTALLED AT STA. 25+50 +/- -L-. SEE SHEET TCP-6

SEE SHEET PM-1 FOR PAVEMENT MARKING SCHEDULE

SEE ROADWAY STANDARD DRAWING NO. 1250.01 AND 1251.01 FOR PAVEMENT MARKER SPACING AND RAISED PAVEMENT MARKERS.

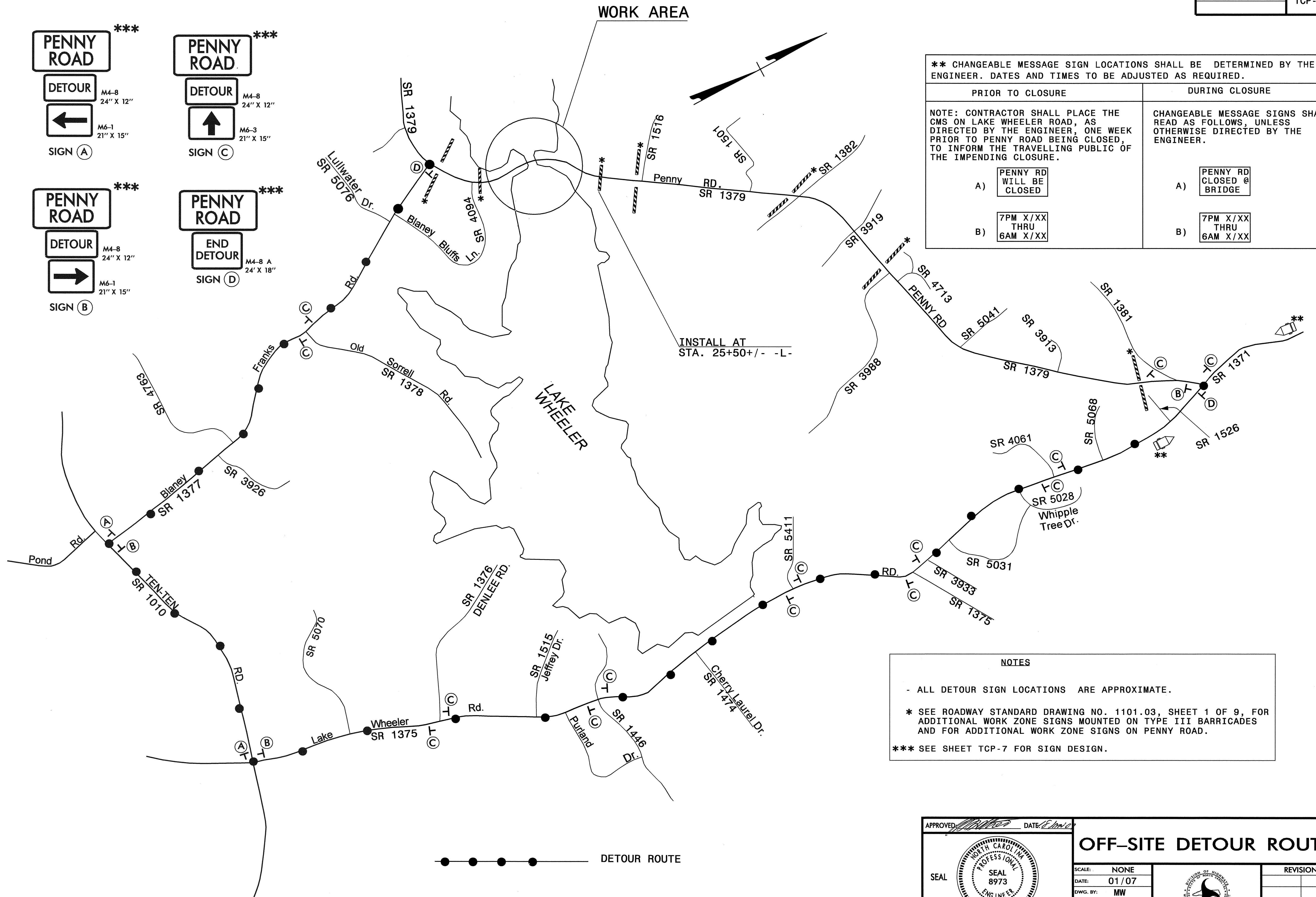
APPROVED: <i>[Signature]</i> DATE: 5/10/07	<b>PHASE II STEPS 1-3</b>							
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	DATE: 01/07							
	DWG. BY: MW							
	DESIGN BY: MW							
REVIEWED BY: JWG	REVISIONS	<table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>						

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 I:\JAN-2007\4402\CPA\CPA\Projects\B3917\TrafficControl\TCP-5.dgn



**\*\* CHANGEABLE MESSAGE SIGN LOCATIONS SHALL BE DETERMINED BY THE ENGINEER. DATES AND TIMES TO BE ADJUSTED AS REQUIRED.**

PRIOR TO CLOSURE	DURING CLOSURE
NOTE: CONTRACTOR SHALL PLACE THE CMS ON LAKE WHEELER ROAD, AS DIRECTED BY THE ENGINEER, ONE WEEK PRIOR TO PENNY ROAD BEING CLOSED, TO INFORM THE TRAVELLING PUBLIC OF THE IMPENDING CLOSURE.	CHANGEABLE MESSAGE SIGNS SHALL READ AS FOLLOWS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
A) PENNY RD WILL BE CLOSED	A) PENNY RD CLOSED @ BRIDGE
B) 7PM X/XX THRU 6AM X/XX	B) 7PM X/XX THRU 6AM X/XX



**NOTES**

- ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.

\* SEE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9, FOR ADDITIONAL WORK ZONE SIGNS MOUNTED ON TYPE III BARRICADES AND FOR ADDITIONAL WORK ZONE SIGNS ON PENNY ROAD.

\*\*\* SEE SHEET TCP-7 FOR SIGN DESIGN.

APPROVED: <i>[Signature]</i> DATE: 01/07	<b>OFF-SITE DETOUR ROUTE</b>	
SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8973 G. L. GETTNER	SCALE: NONE DATE: 01/07 DWG. BY: MW DESIGN BY: MW REVIEWED BY: JWG	REVISIONS CADD FILE

I:\JAN-2007 1403  
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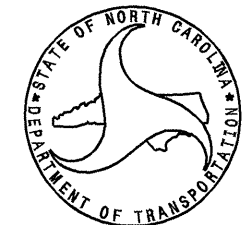
Sign Number:  
Type: D Ground  
Quantity: 1

Design By: J. SPENCE  
Project ID: B-3917

Check By:  
DIV: 5

STD #: N/A  
Date: Sep 18, 2006

N. C. DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
TRAFFIC ENGINEERING BRANCH  
SIGNING SECTION



Sign Width: 3'-0"  
Height: 2'-0"  
Total Area: 6.0 Sq.Ft.

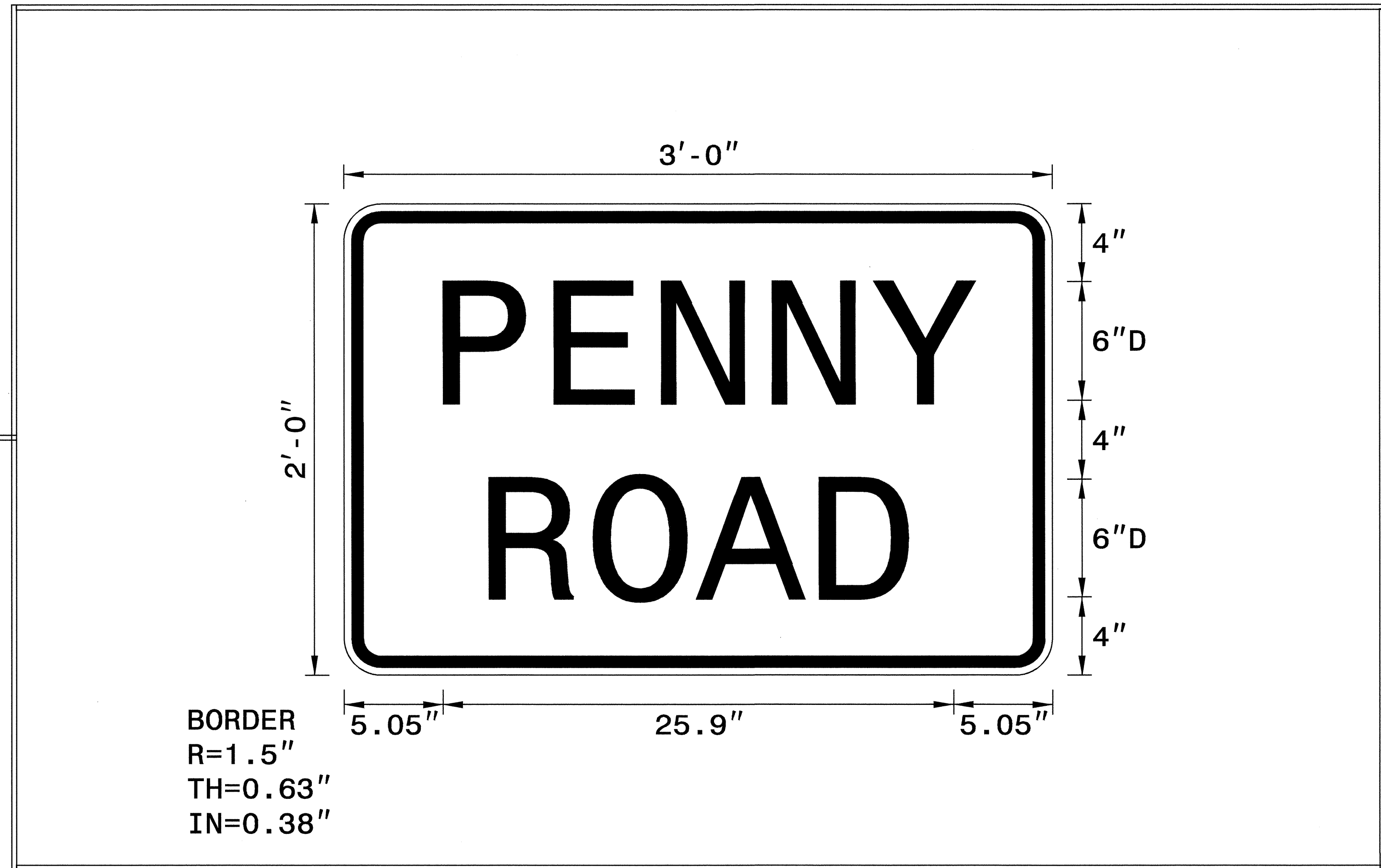
Background Color: Fluorescent Orange  
Legend & Border Color: Black

Border Type: Recessed  
Recess: 0.38"  
Width: 0.63"  
Radii: 1.5"

Backing Material: 0.125 in. Aluminum  
0.079 in. Composite

**NOTES:**

- Legend and border shall be direct applied non-reflective sheeting.
- Background shall be Type VII, VIII, or IX (prismatic) retroreflective sheeting.



Letter spacings are to start of next letter

															Series/Size	
															Text Length	
		P	E	N	N	Y										D
	5	5.5	4.8	5.5	5.2	5.1	5									25.9
		R	O	A	D											D
	7.7	5.2	5.3	6.1	4	7.7										20.7

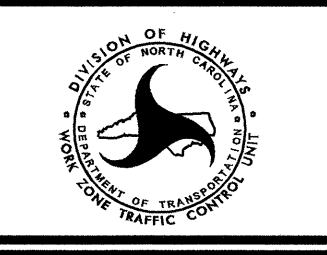
Spacing Factor is 1 unless specified otherwise

APPROVED: *[Signature]* DATE: *[Date]*

SEAL

**DETOUR SIGN DETAIL**

SCALE: NONE  
DATE: 01/07  
DWG. BY: MW  
DESIGN BY: MW  
REVIEWED BY: JWG

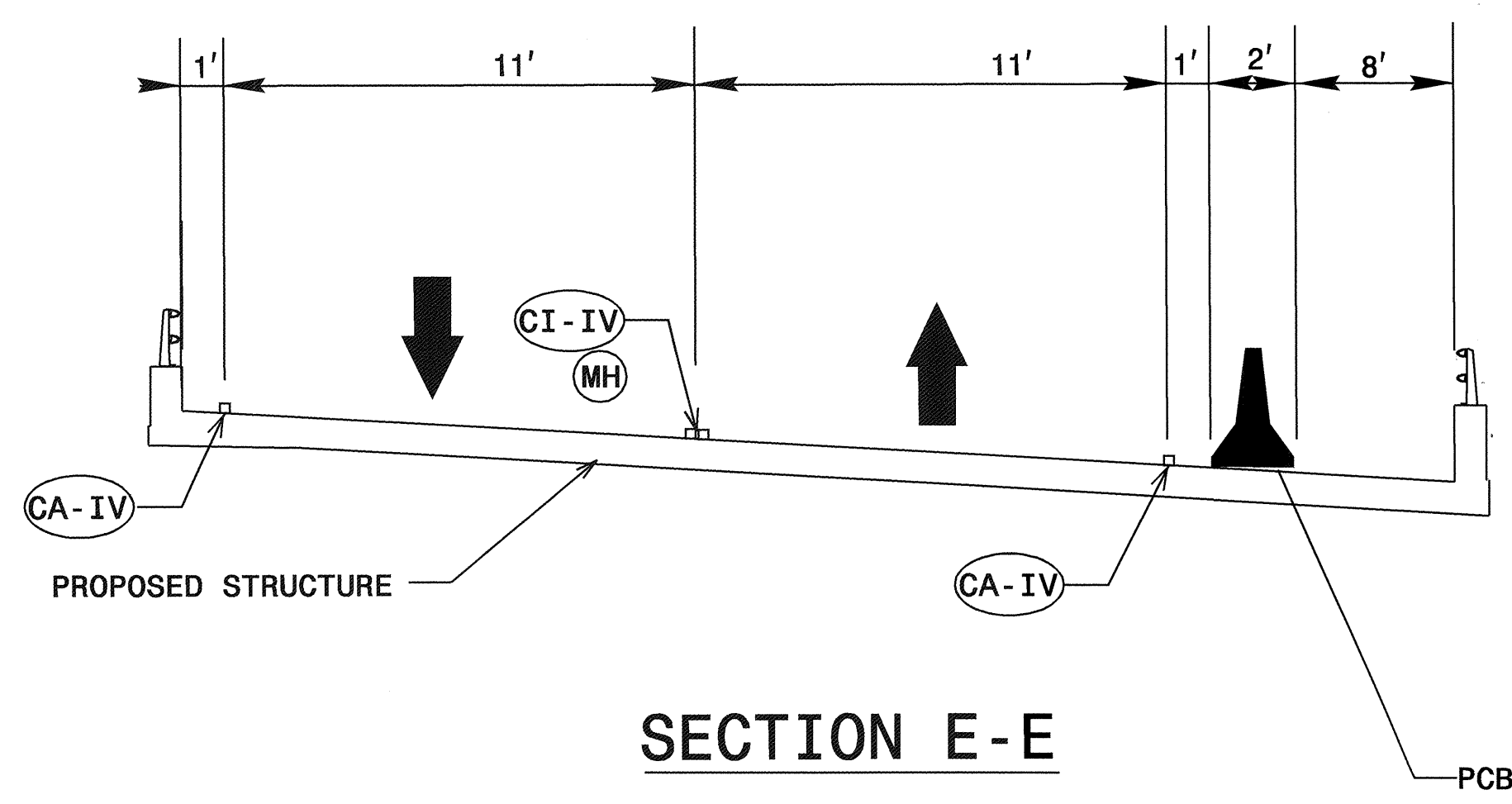
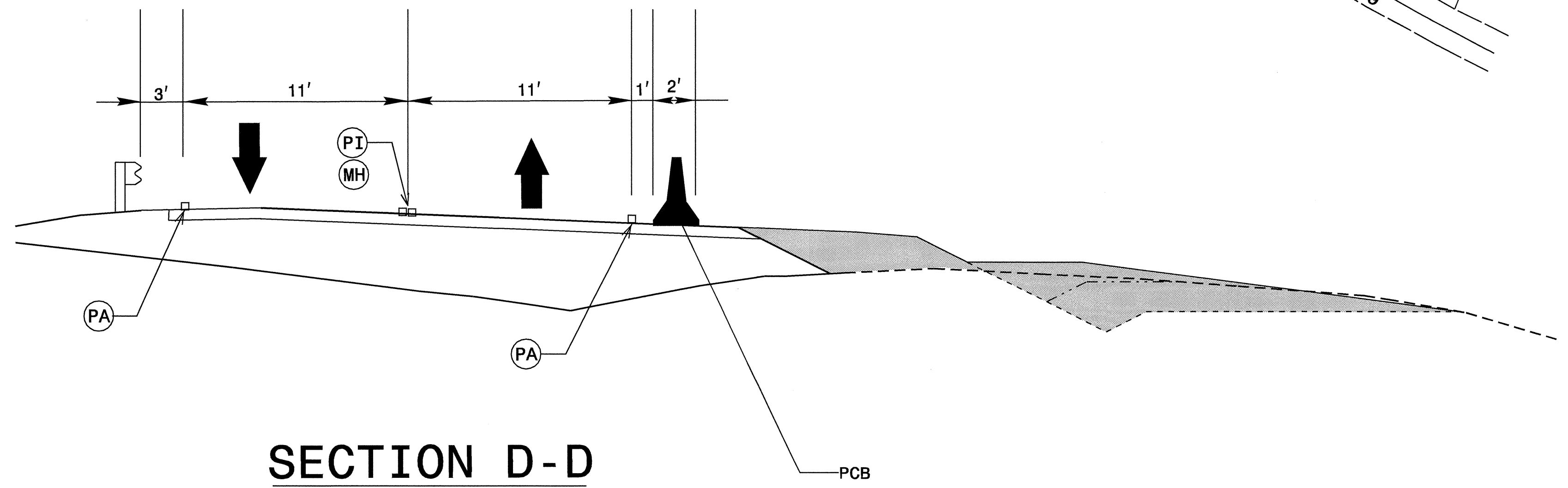
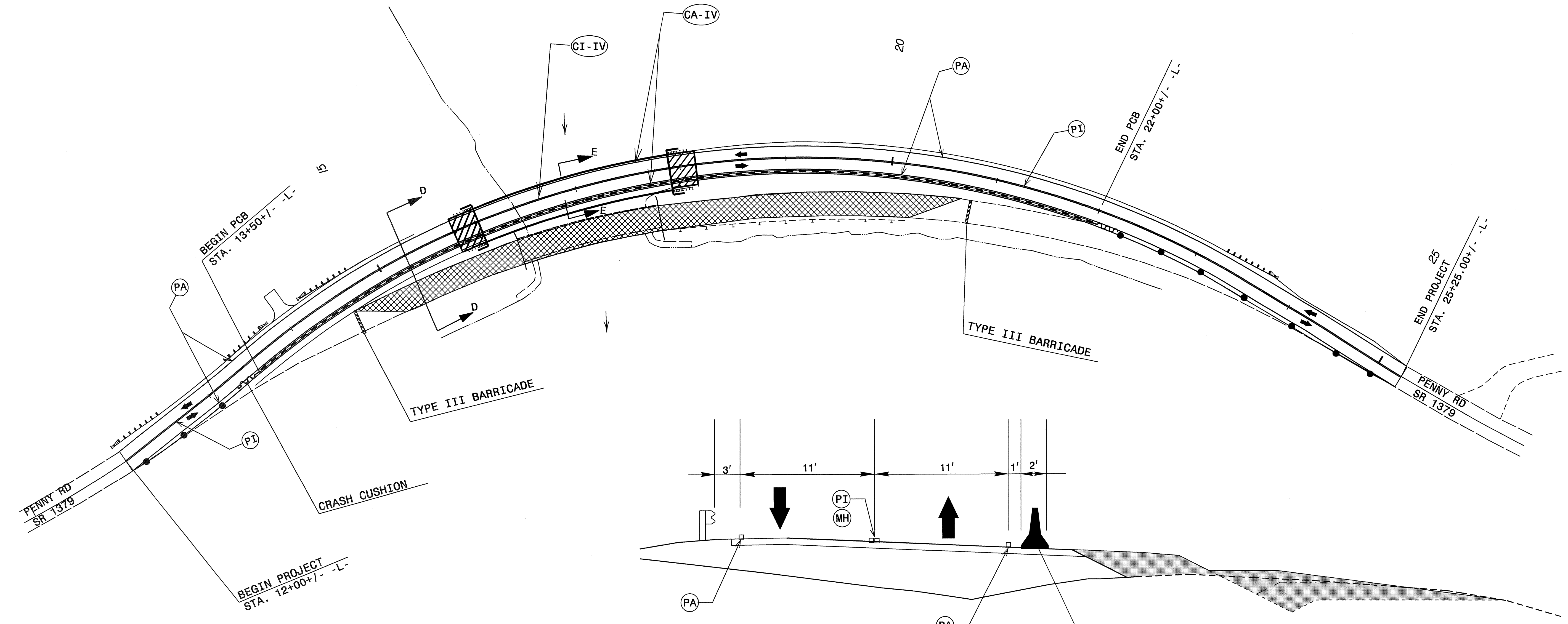


REVISIONS	

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 J. Spence  
 WZ1022424

SEE SHEET PM-1 FOR PAVEMENT MARKING SCHEDULE

SEE ROADWAY STANDARD DRAWING NO. 1250.01 AND 1251.01 FOR PAVEMENT MARKER SPACING AND RAISED PAVEMENT MARKERS.

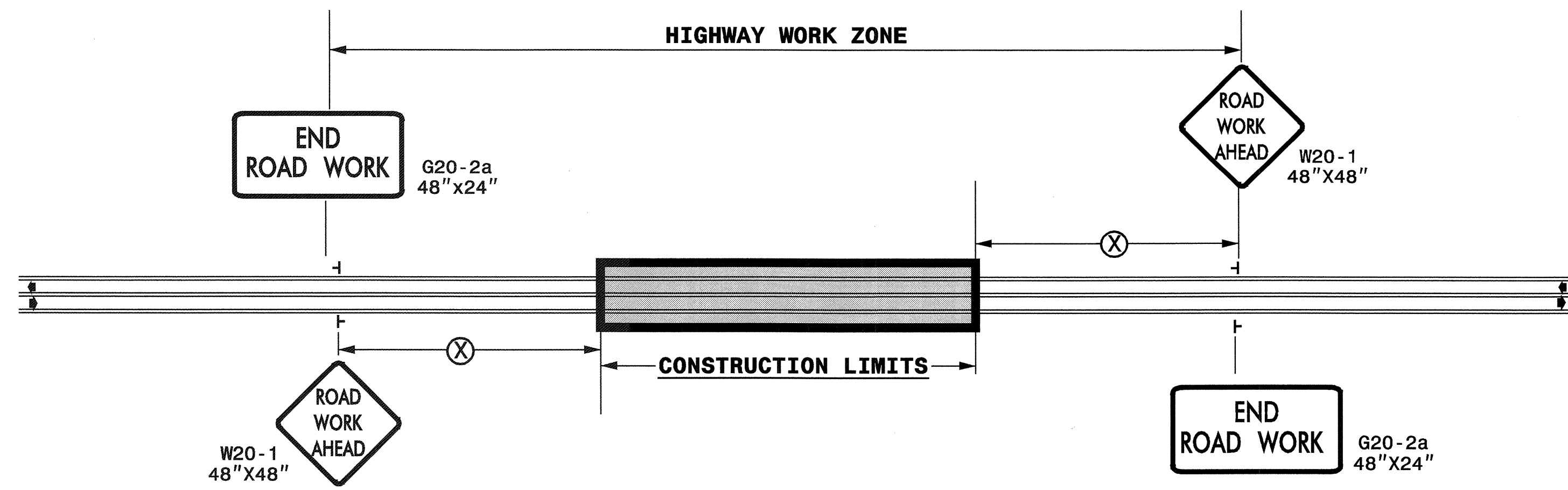


18-JAN-2007 14:04  
 I:\Projects\1800\Projects\B3917\TrafficControl\TCP-TCP-1TCP8.dgn  
 J:\spence AT WJ\1221244

APPROVED: <i>[Signature]</i> DATE: 8/1/07	<b>PHASE III, STEP 1</b>	
	SCALE: NONE	
	DATE: 01/07	
	DESIGN BY: MW	
	REVIEWED BY: JWG	
	REVISIONS	



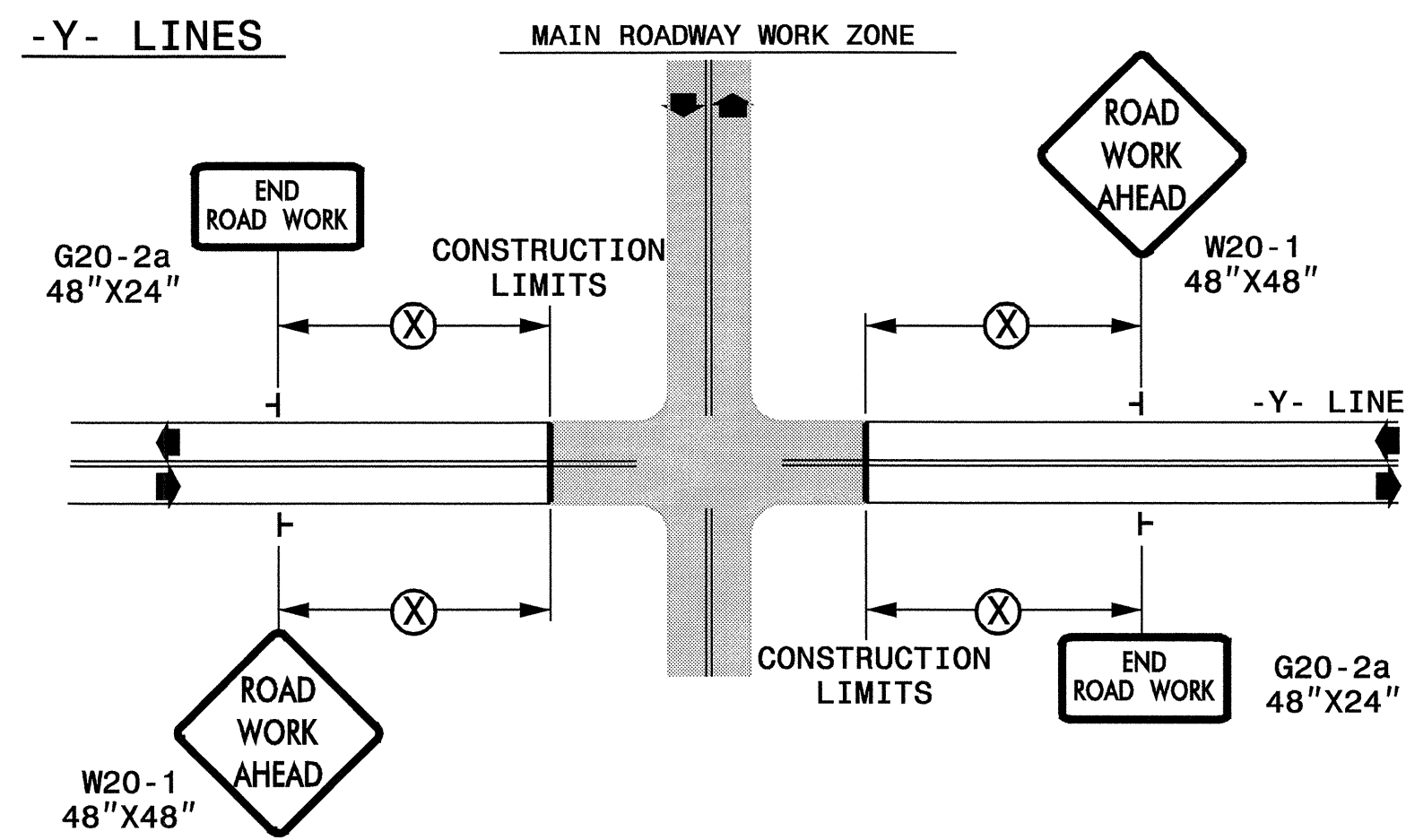
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



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)**



**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.

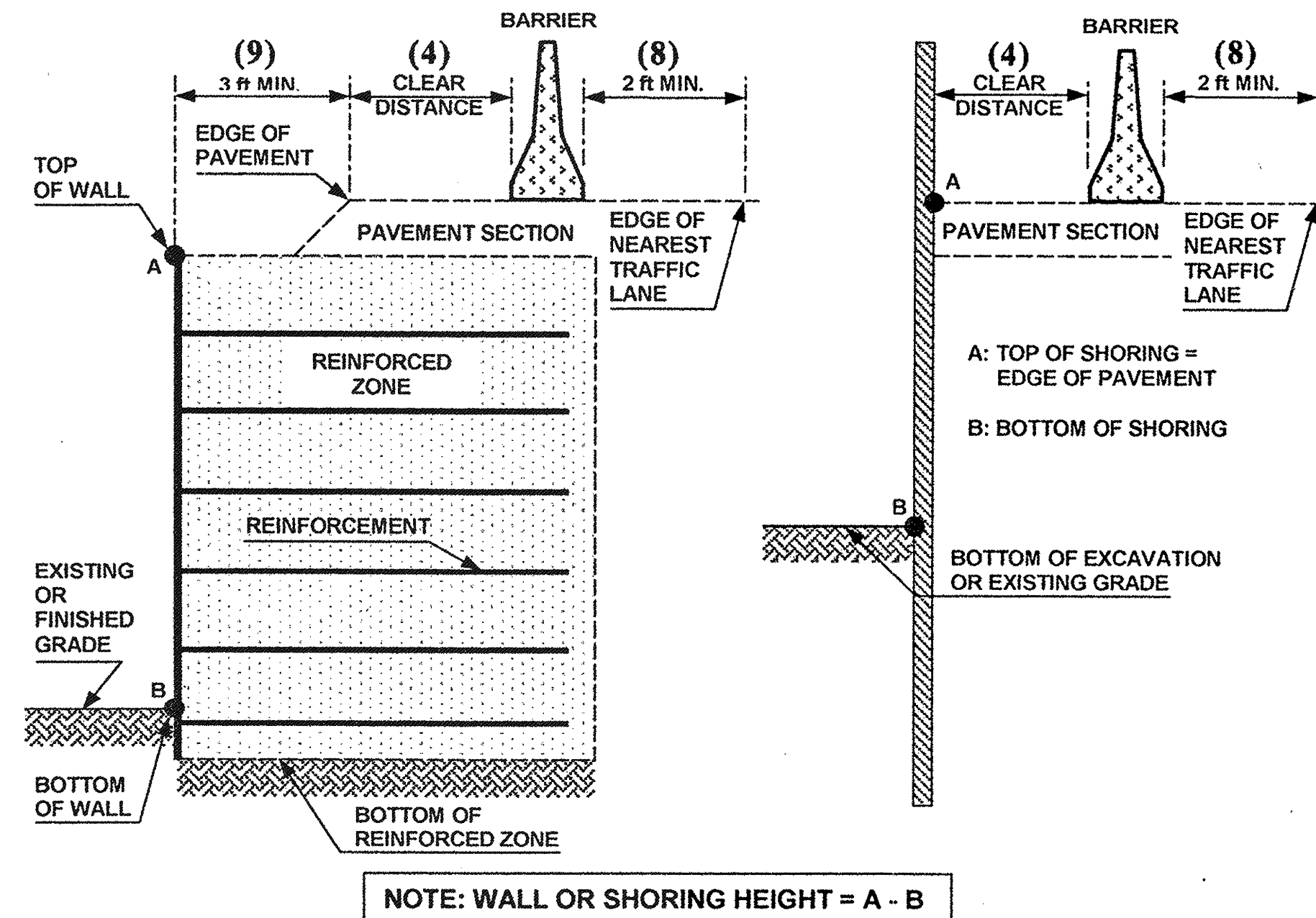
**LEGEND**

- ┆ STATIONARY SIGN
- ◀ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: <i>[Signature]</i> DATE: <i>10/11/04</i>	<b>DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS</b>	
	SCALE: NONE	REVISIONS
	DATE: 10-98	10/01
	DESIGN BY: G.L. GETTLER	03/04
	REVIEWED BY:	01/01 11/04

18-JAN-2007 10:33 AM C:\Program Files\AutoCAD\Projects\B3917-TCP-9\TrafficControl\Top\B3917-TCP-9\2way\_undiv.&.Urban\_Frwys.dgn



**FIGURE A**

**NOTES**

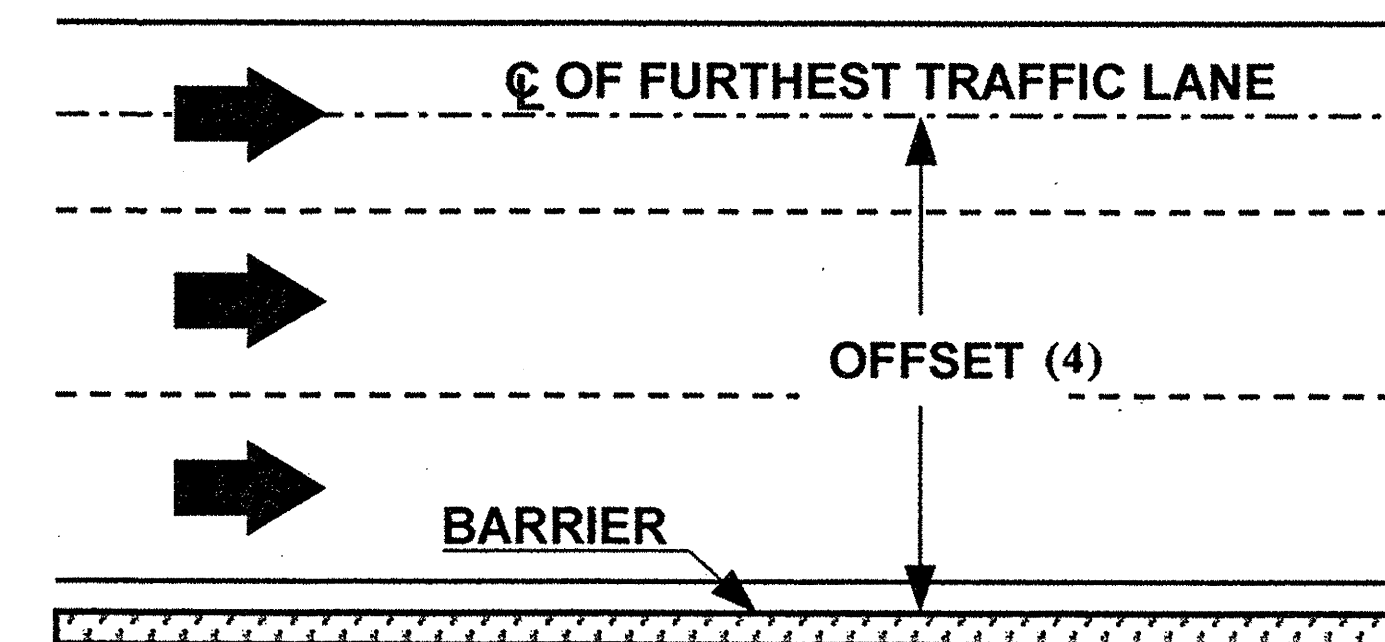
- REFER TO THE TRAFFIC CONTROL PLANS FOR SHORING LOCATIONS AND SOIL PARAMETERS.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR MORE INFORMATION ABOUT TEMPORARY SHORING, MEASUREMENT AND PAYMENT.
- PROVIDE PORTABLE CONCRETE BARRIER TO PROTECT TEMPORARY SHORING IF SHORING IS LOCATED WITHIN 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/DESRESENG.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 AND WET OR DRY PAVEMENT.

**MINIMUM REQUIRED CLEAR DISTANCE, inches**

Barrier Type	Pavement Type	Offset (4) 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 (4)	24 for All Design Speeds					
Anchored PCB or Oregon Barrier	Concrete (including bridge approach slabs)	All Offsets (4)	12 for All Design Speeds					



**FIGURE B**

APPROVED: <i>[Signature]</i>	DATE: 1/16/2007	<b>PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS</b>	
	SCALE: NONE		REVISIONS
	DATE: 1/07		
	DWG. BY: JI		
	DESIGN BY: JI		
	REVIEWED BY: JI		

16-JAN-2007 07:51  
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 lmarrrett AT WZTCCC