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# ROADWAY STANDARD DRAWINGS

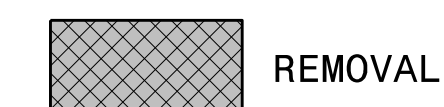
THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE 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
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY

# LEGEND

## GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)



## SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

## PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

## TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

## PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

## TEMPORARY PAVEMENT MARKING

- PA - WHITE EDGELINE (PAINT) - 4"
- PI - YELLOW DOUBLE CENTER (PAINT) - 4"
- P2 - WHITE STOP BAR (PAINT) - 24"

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APPROVED: <i>Lori Stouchko</i> <small>902CRD18918149C</small>			ROADWAY STANDARD DRAWINGS & LEGEND
DATE: 9/21/2015	SEAL		

## TRANSPORTATION OPERATIONS

### CONSTRUCTION

BRIDGE REPLACEMENT AND ROADWAY APPROACHES ON SR 1532 (ISLAND COVE ROAD). REMOVAL OF EXISTING STRUCTURE AND PAVEMENT.

### TMP DESIGN PARAMETERS

UTILIZE FLAGGERS, SIGNAGE, TRAFFIC CONTROL DEVICES, TEMPORARY SHORING, AND TEMPORARY SIGNALS FOR BRIDGE REPLACEMENT ON SR 1532. TRAFFIC WILL BE SHIFTED TO A ONE-LANE, TWO-WAY TRAFFIC PATTERN ONTO ON-SITE DETOUR DURING CONSTRUCTION.

### 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.

#### LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) 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.
- B) 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.
- C) 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.
- D) 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.
- E) 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

- F) 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.

- G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 350 FT. IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

#### TRAFFIC PATTERN ALTERATIONS

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

#### SIGNING

- I) 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.
- J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

#### TRAFFIC CONTROL DEVICES

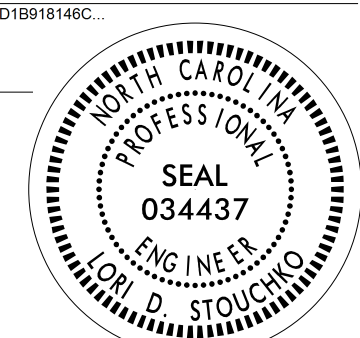
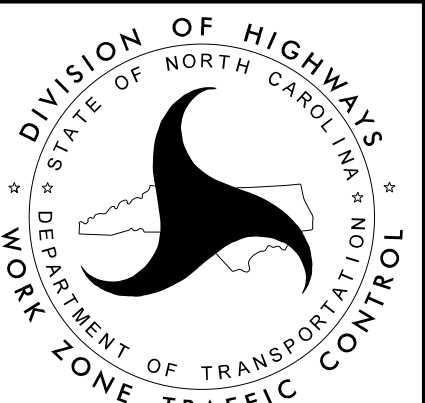
- K) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

#### PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
SR 1532 (-L-)	PAINT	TEMPORARY
-DET-	PAINT	TEMPORARY

- M) 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.
- N) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- O) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- P) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN FINAL PAVEMENT MARKING PLAN.

APPROVED: <i>Lovi Stouckho</i> <small>902CB018918148C</small> DATE: 9/21/2015			<h2 style="margin: 0;">TRANSPORTATION OPERATIONS PLAN</h2>
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SHORING LOCATION NO.	BEGIN STATION AND OFFSET	END STATION AND OFFSET	ESTIMATED AVERAGE HEIGHT	ESTIMATED MAXIMUM HEIGHT	SHORING LOCATION TYPE
NO. 1	STA. 14+05+/- -L- 18.0 FT. RT.	STA. 14+21+/- -L- 18.0 FT. RT.	3.6 FT.	4.4 FT.	STRUCTURE
NO. 2	STA. 14+83+/- -L- 18.0 FT. RT.	STA. 15+08+/- -L- 18.0 FT. RT.	4.8 FT.	5.1 FT.	STRUCTURE

### TEMPORARY SHORING NOTES

#### SHORING LOCATION NO. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION. BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 14+05+/- -L-, 18 FT. (RT.), TO STATION 14+21+/- -L-, 18 FT. (RT.), FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT ( $\gamma$ ) = 120 LB/CF  
FRICTION ANGLE ( $\phi$ ) = 30 DEGREES

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 14+05+/- -L-, 18 FT. (RT.), TO STATION 14+21+/- -L-, 18 FT. (RT.). THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 14+05+/- -L-, 18 FT. (RT.), TO STATION 14+21+/- -L-, 18 FT. (RT.). SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING AND 1801.02 FOR STANDARD TEMPORARY WALLS.

#### SHORING LOCATION NO. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION. BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 14+83+/- -L-, 18 FT. (RT.), TO STATION 15+08+/- -L-, 18 FT. (RT.), FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

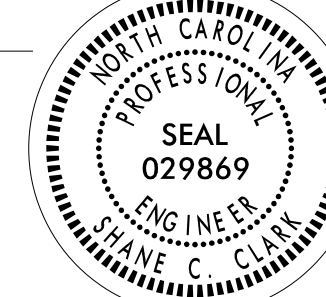
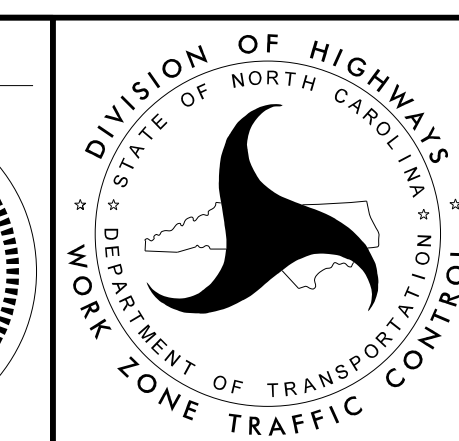
UNIT WEIGHT ( $\gamma$ ) = 120 LB/CF  
FRICTION ANGLE ( $\phi$ ) = 30 DEGREES

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 14+83+/- -L-, 18 FT. (RT.), TO STATION 15+08+/- -L-, 18 FT. (RT.). THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

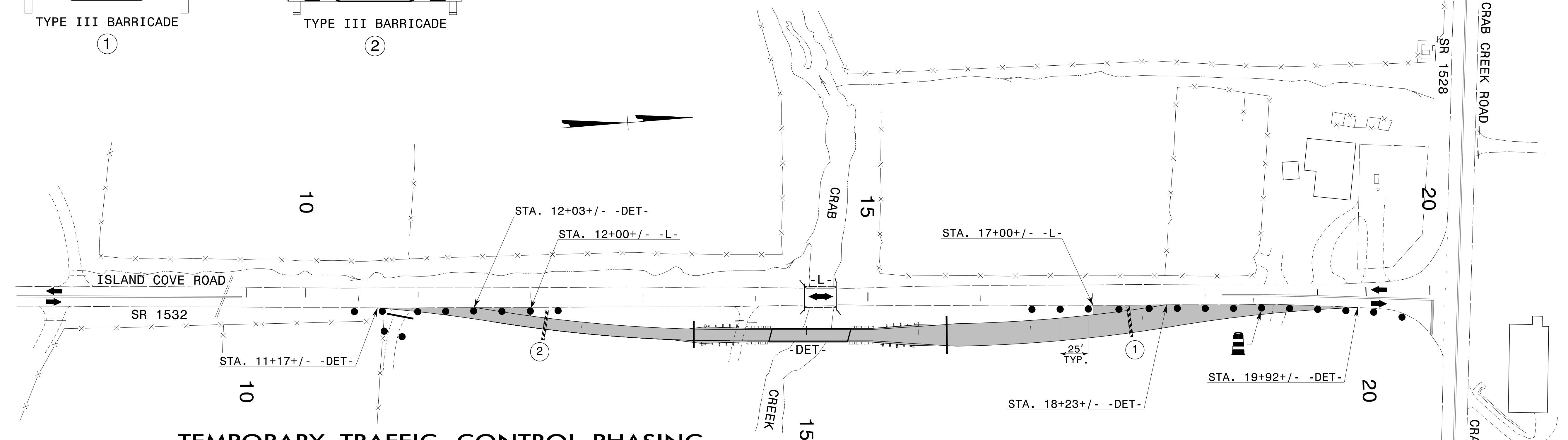
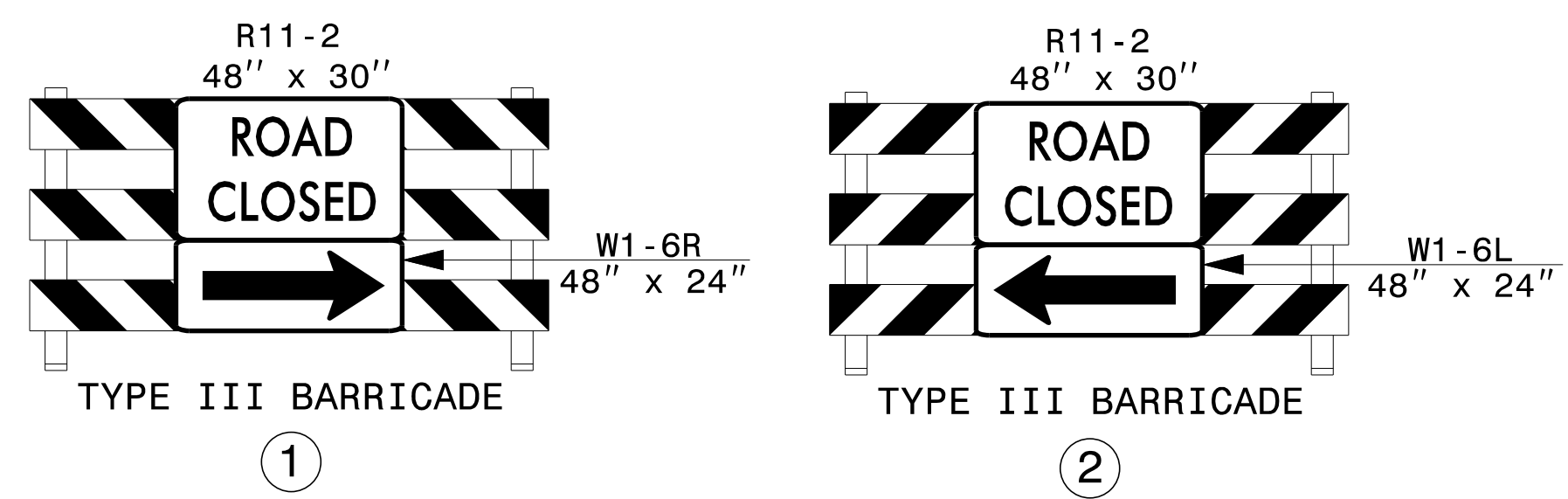
AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 14+83+/- -L-, 18 FT. (RT.), TO STATION 15+08+/- -L-, 18 FT. (RT.). SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING AND 1801.02 FOR STANDARD TEMPORARY WALLS.

9/18/2015  
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APPROVED: Shane C. Clark  
DATE: 9/18/2015

TEMPORARY SHORING NOTES



### TEMPORARY TRAFFIC CONTROL PHASING

NOTE: BEFORE BEGINNING CONSTRUCTION THE CONTRACTOR SHALL PLACE ADVANCE WORK ZONE WARNING SIGNS ALONG -L- LINE (ISLAND COVE RD.) AND CRAB CREEK RD., (SEE RSD 1101.01, SHEET 3 OF 3)

#### PHASE I

- STEP 1. USING RSD NO. 1101.02 (SHEET 1 OF 15), CONSTRUCT -DET- LINE, INCLUDING DRAINAGE AND THE FINAL LAYER OF SURFACE COURSE, UP TO EXISTING EDGE OF PAVEMENT ELEVATIONS, AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-3):
- STA. 11+17+/- -DET- TO STA. 19+92+/- -DET-
- PLACE TEMPORARY SIGNAL SIGNAGE AND TEMPORARY PORTABLE SIGNALS, BUT DO NOT ACTIVATE (SEE TMP-4).

#### PHASE II

- STEP 1. USING RSD NO. 1101.02 (SHEET 1 OF 15), PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS. ACTIVATE TEMPORARY SIGNALS AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-4):
- STA. 10+00+/- -DET- TO STA. 19+92+/- -DET-
- SHIFT TRAFFIC FROM A TWO-LANE, TWO WAY PATTERN TO A ONE-LANE, TWO WAY PATTERN ON -DET- LINE AND CLOSE -L- LINE TO TRAFFIC.
- STEP 2. AWAY FROM TRAFFIC, CONSTRUCT NEW BRIDGE AND ROADWAY APPROACHES, DRAINAGE, TEMPORARY SHORING, GUARDRAIL, AND PAVE UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-4):
- STA. 13+72+/- -L- TO STA. 15+42+/- -L-
- AWAY FROM TRAFFIC, WIDEN -L- UP TO EXISTING EDGE OF PAVEMENT ELEVATIONS AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-4):
- STA. 10+75+/- -L- TO STA. 13+72+/- -L- (LEFT)
  - STA. 15+42+/- -L- TO STA. 18+80+/- -L- (LEFT)
  - STA. 12+00+/- -L- TO STA. 13+72+/- -L- (RIGHT)
  - STA. 15+42+/- -L- TO STA. 17+00+/- -L- (RIGHT)

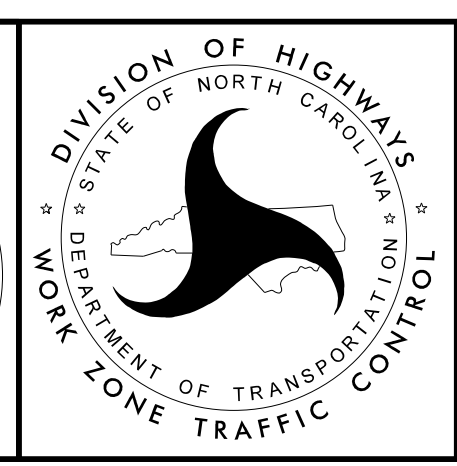
#### PHASE III

- STEP 1. USING FLAGGERS, PAVE UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-5):
- STA. 10+75+/- -L- TO STA. 13+72+/- -L-
  - STA. 15+42+/- -L- TO STA. 18+80+/- -L-
- USING FLAGGERS, PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-5):
- STA. 8+97+/- -L- TO STA. 19+36+/- -L-
- USING FLAGGERS, REMOVE STATIONARY SIGNING PERTAINING TO TEMPORARY PORTABLE SIGNALS.
- SHIFT TRAFFIC FROM A ONE-LANE, TWO WAY PATTERN TO A TWO-LANE, TWO WAY PATTERN ON -L- LINE AND CLOSE -DET- LINE TO TRAFFIC.
- USING FLAGGERS, REMOVE TEMPORARY PORTABLE SIGNALS AND TEMPORARY SIGNAL SIGNAGE.
- STEP 2. USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT REMAINDER OF -L- LINE UP TO BASE COURSE (SEE CONSTRUCTION PLANS AND TMP-5):
- STA. 10+64+/- -L- TO STA. 12+00+/- -L-
  - STA. 17+00+/- -L- TO STA. 18+80+/- -L-
- AWAY FROM TRAFFIC, OBLITERATE DETOUR BRIDGE AS SHOWN ON TMP-5.
- AWAY FROM TRAFFIC, REMOVE PAVEMENT AS SHOWN ON TMP-5.

#### PHASE IV

- STEP 1. USING RSD NO. 1101.02 (SHEET 1 OF 15), PAVE THE FINAL LAYER OF SURFACE COURSE FOR -L- LINE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-5):
- STA. 10+75+/- -L- TO STA. 18+80+/- -L-
- STEP 2. USING RSD NO. 1101.02 (SHEET 1 OF 15), PLACE FINAL PAVEMENT MARKINGS AND MARKERS FOR -L- LINE (SEE FINAL PAVEMENT MARKING PLANS).

APPROVED: *Lori Stouckho*  
902CB018916146C  
 DATE: 9/21/2015

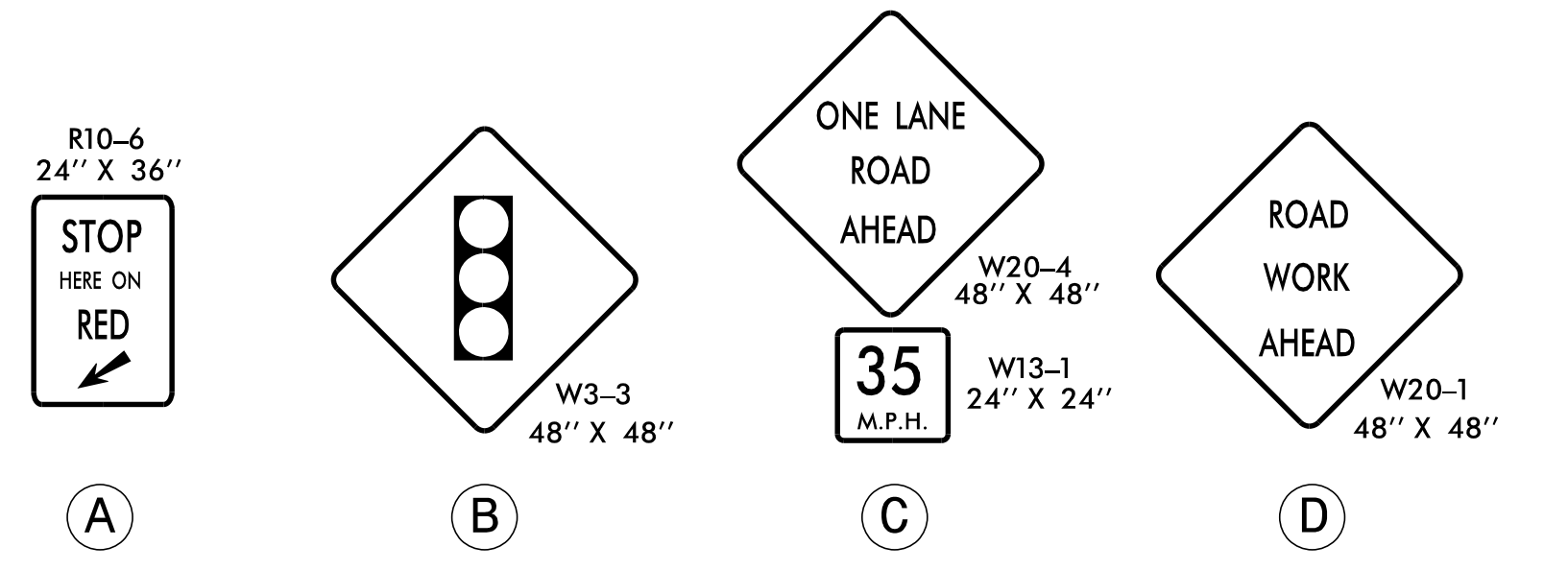


TEMPORARY TRAFFIC CONTROL PHASING AND PHASE I DETAILS

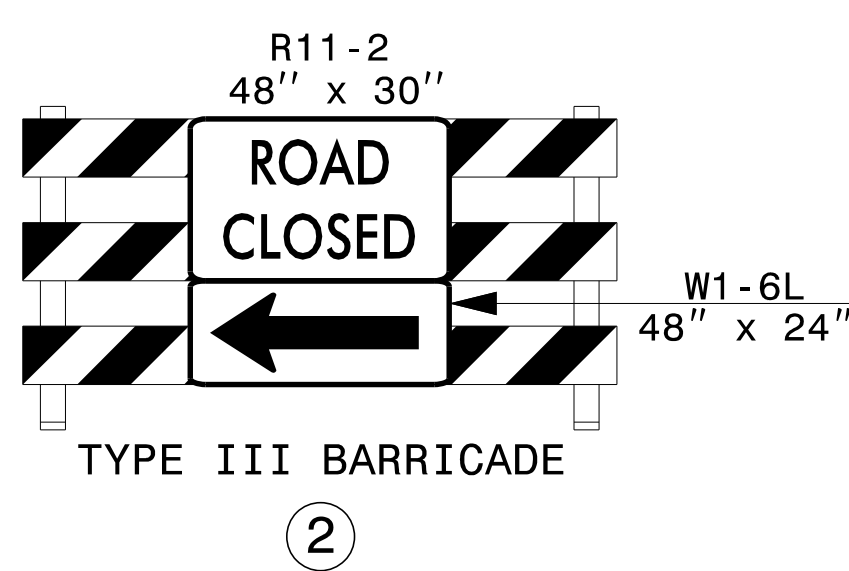
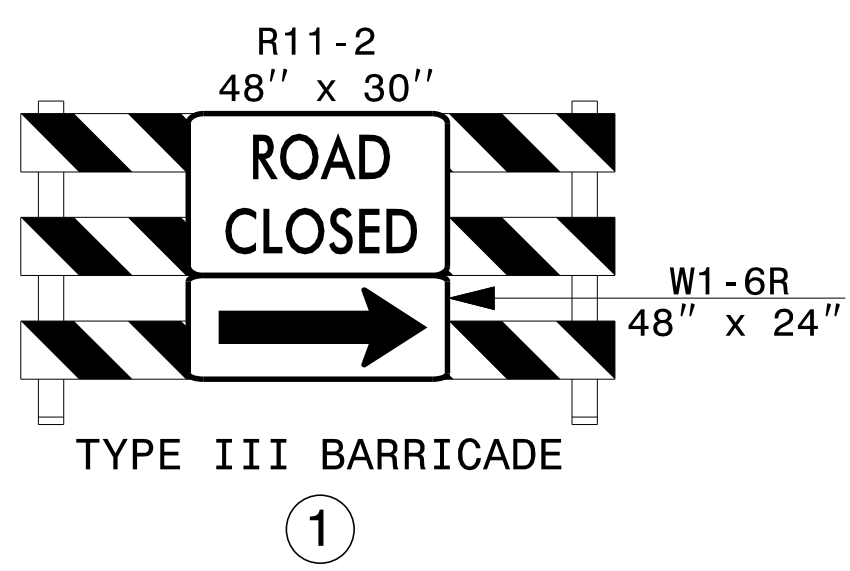
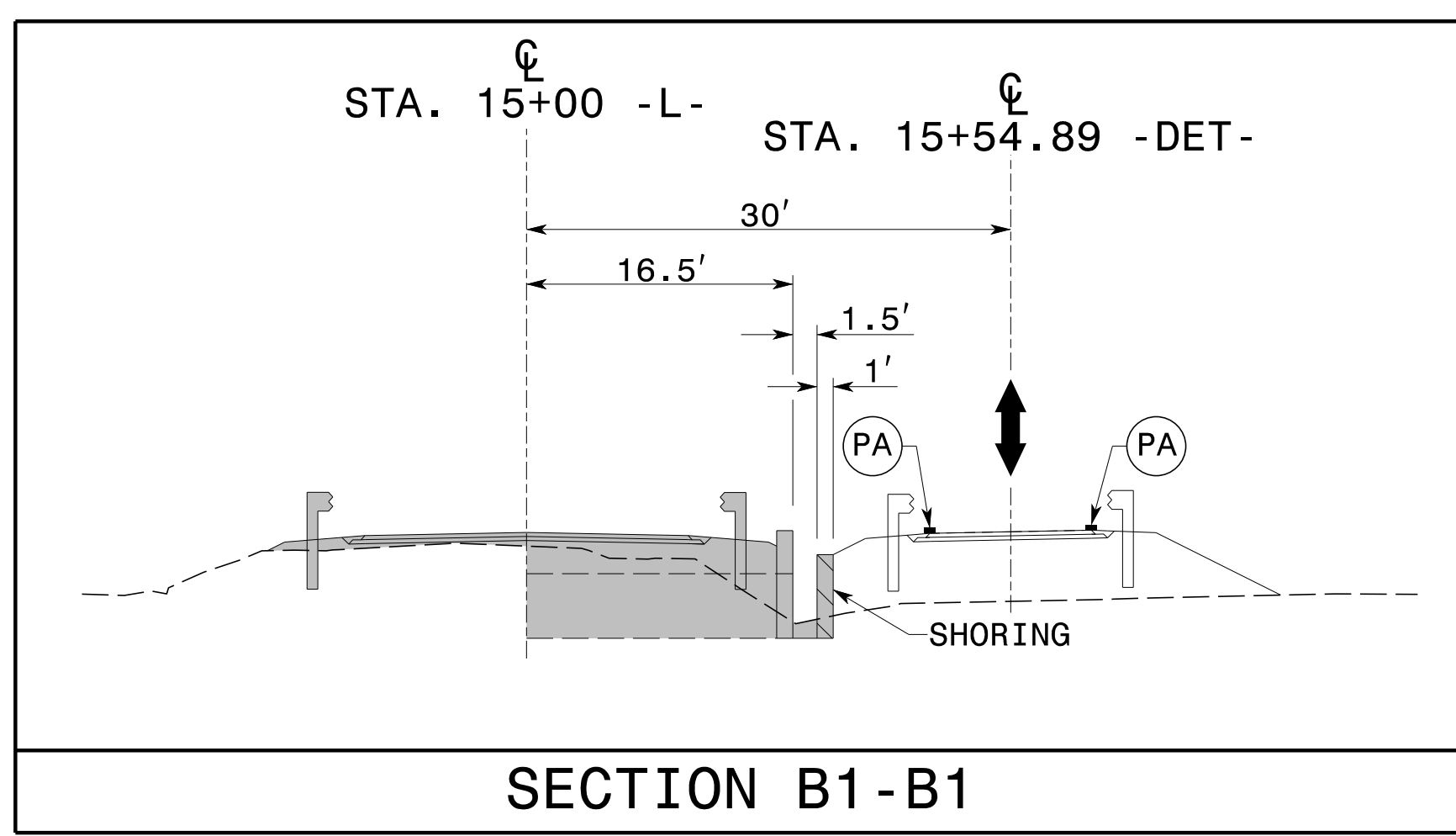
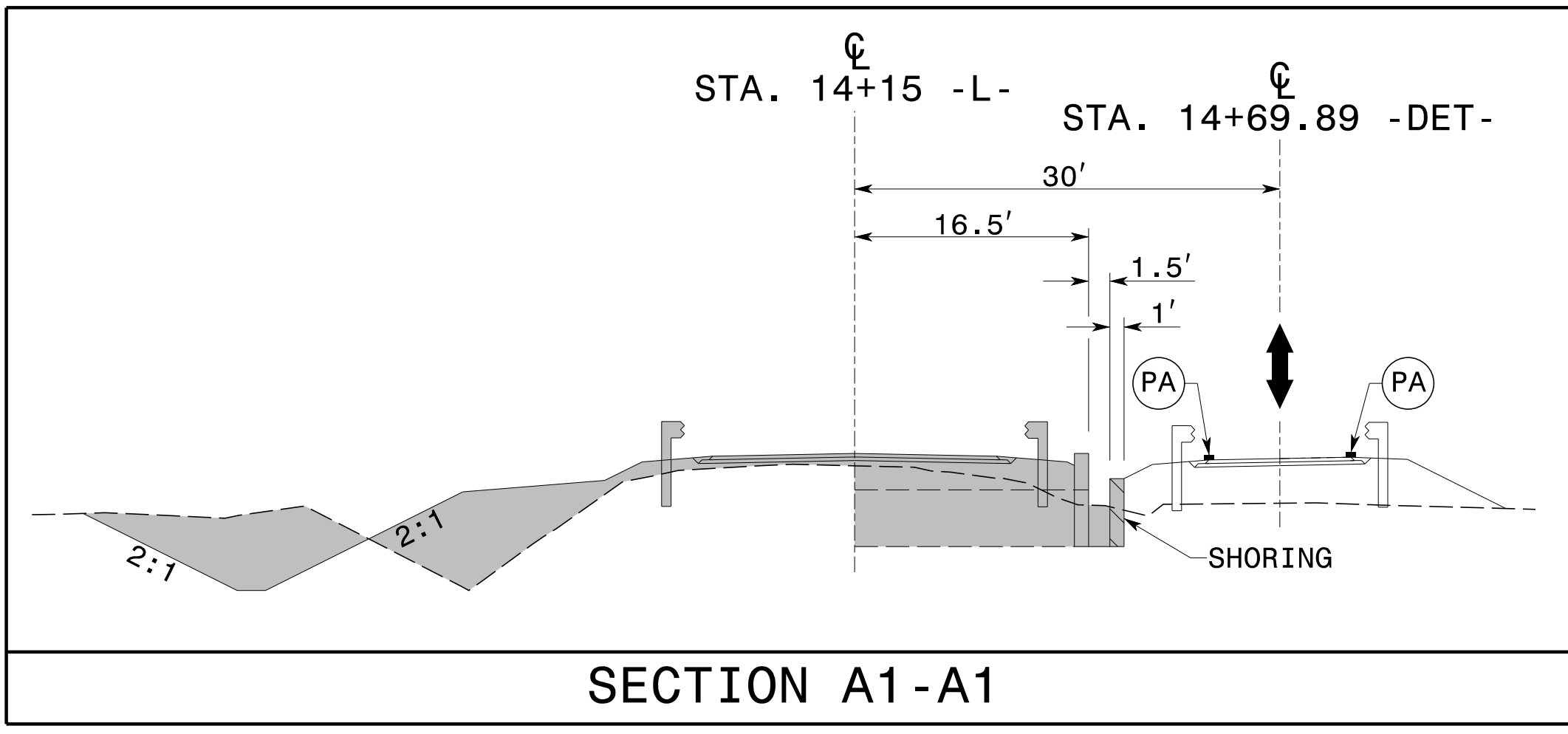
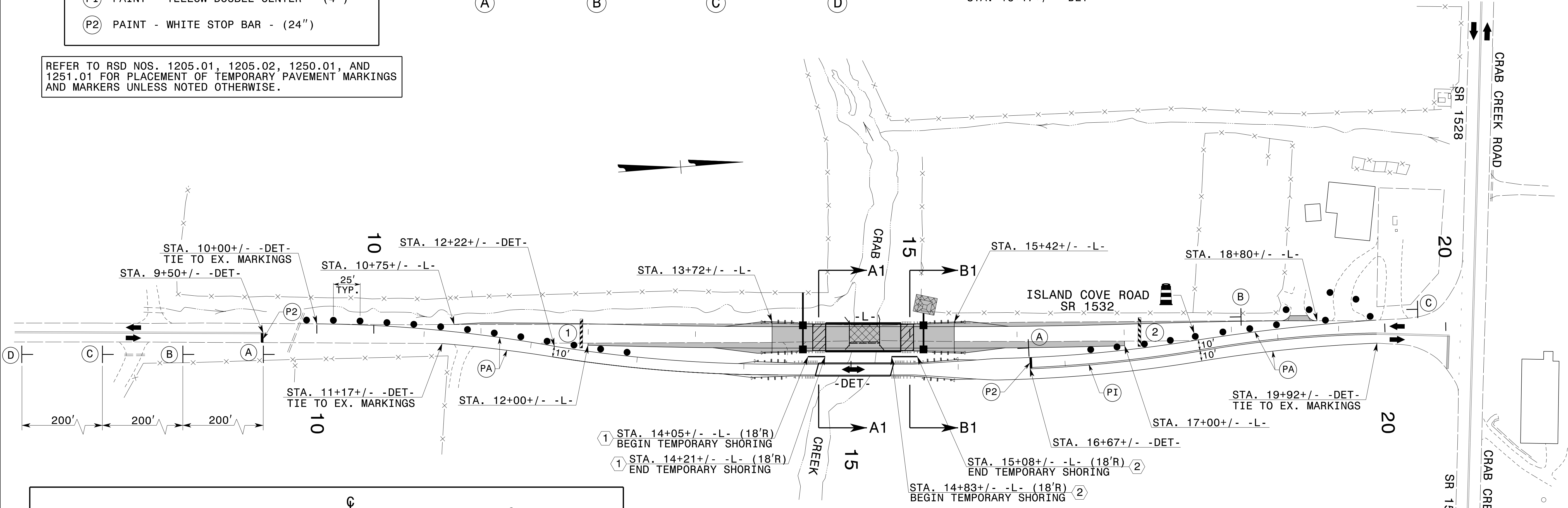
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TEMPORARY PAVEMENT MARKING LEGEND	
(PA)	PAINT - WHITE EDGELINE - (4")
(PI)	PAINT - YELLOW DOUBLE CENTER - (4")
(P2)	PAINT - WHITE STOP BAR - (24")

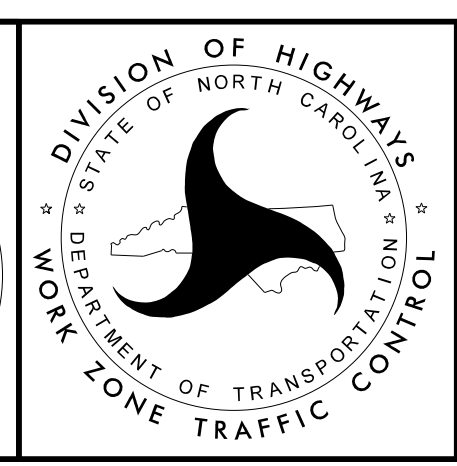
REFER TO RSD NOS. 1205.01, 1205.02, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.



Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
①	3.6 FT.	58 SQ. FT.
②	4.8 FT.	120 SQ. FT.



APPROVED: *Lovi Stoucho*  
 DATE: 9/21/2015  
 NORTH CAROLINA PROFESSIONAL SEAL 034437  
 CIVIL ENGINEER  
 LOVI D. STOUCHKO

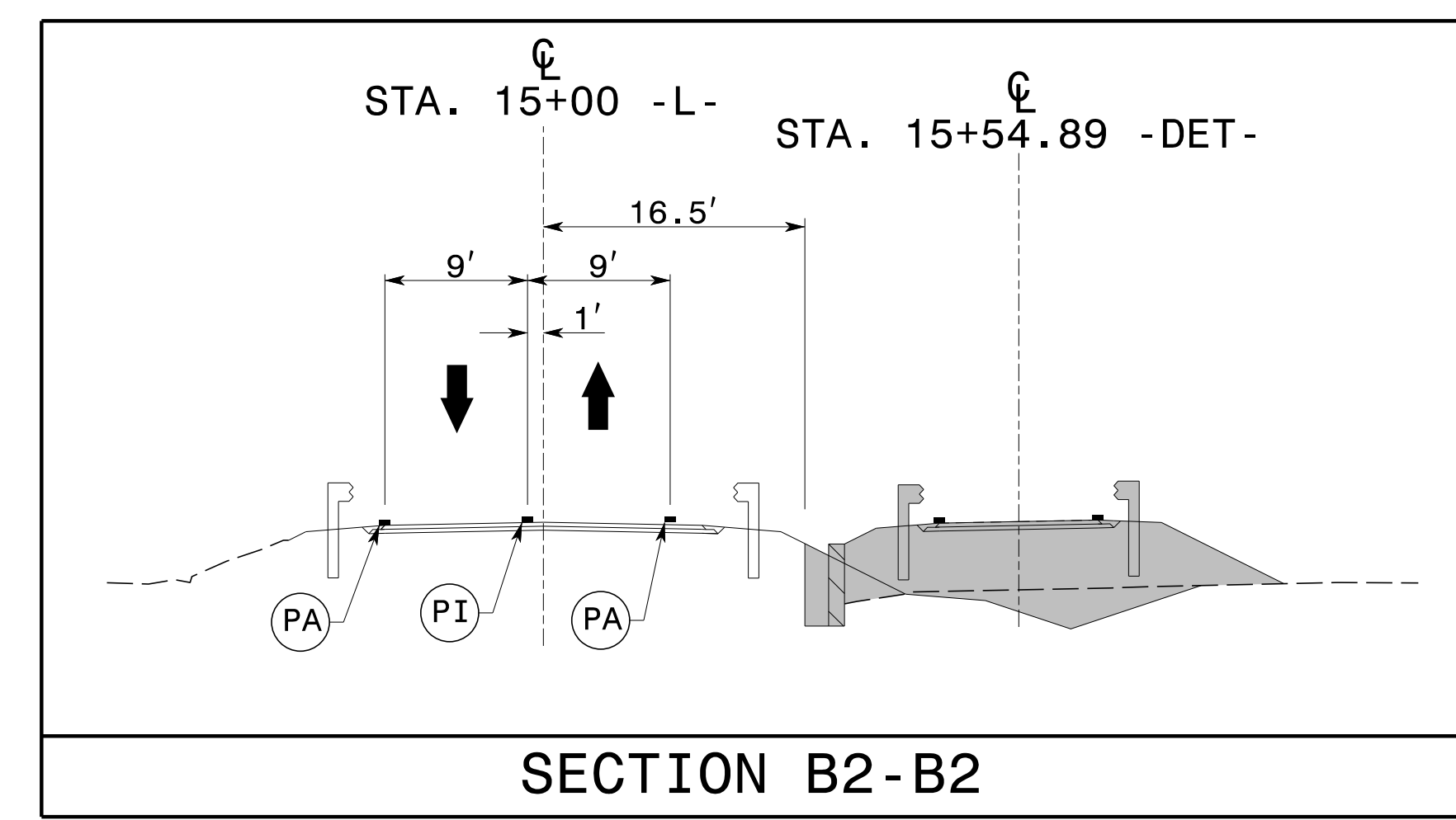
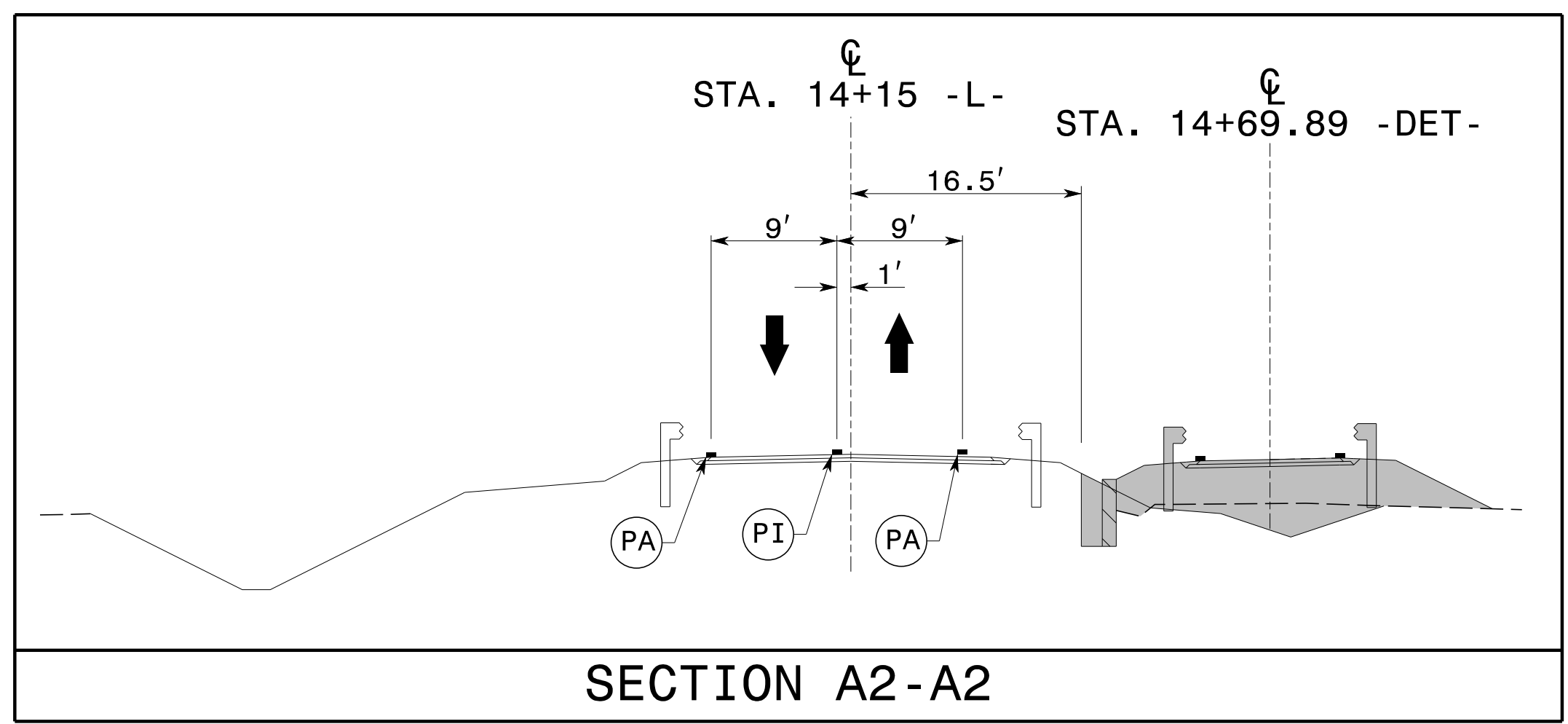
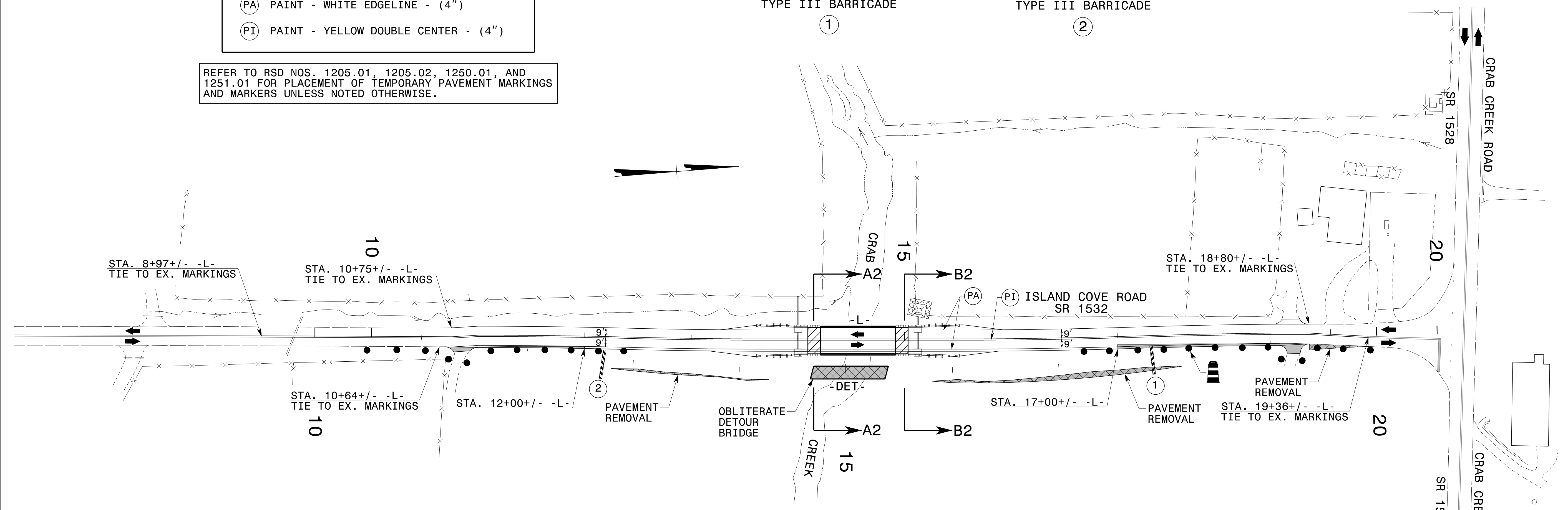
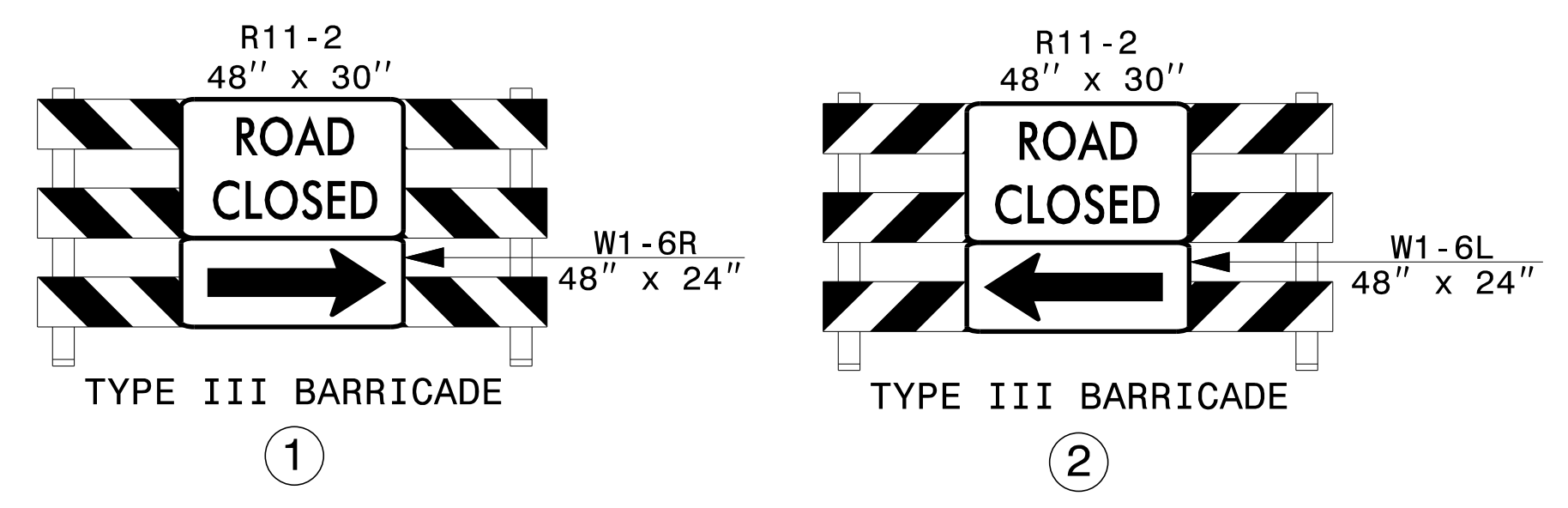


PHASE II DETAILS

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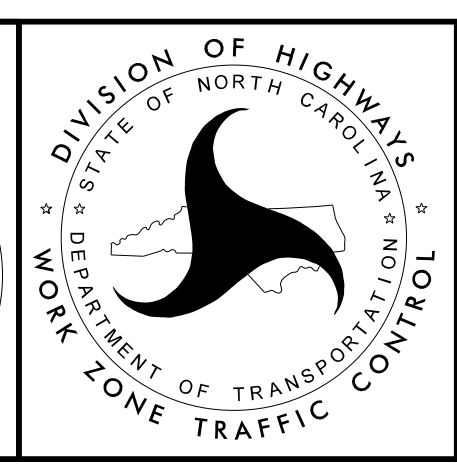
TEMPORARY PAVEMENT MARKING LEGEND	
(PA)	PAINT - WHITE EDGELINE - (4")
(PI)	PAINT - YELLOW DOUBLE CENTER - (4")

REFER TO RSD NOS. 1205.01, 1205.02, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.



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APPROVED: *Lovi Stouckho*  
922CB018916146C  
 DATE: 9/21/2015



**PHASE III DETAILS**