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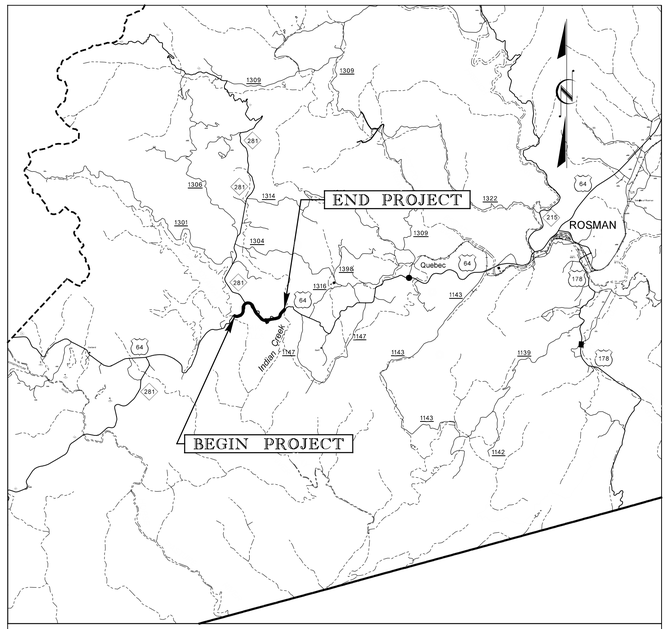
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

TRANSYLVANIA COUNTY



VICINITY MAP SHOWING LOCATION OF PROJECT R-2409C

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND & TEMPORARY PAVEMENT MARKING SCHEDULE
TMP-2	PROJECT NOTES
TMP-2A	TEMPORARY SHORING NOTES
TMP-2B	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-3	PHASING
TMP-4 THRU 9	PHASE I DETAILS
TMP-10	PHASE II DETAIL
TMP-11 & 12	PHASE III DETAILS
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SHEET NO.
TMP-1

R-2409C

TIP PROJECT:

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
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TRAFFIC CONTROL DESIGN ENGINEER

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ICA Engineering
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5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

APPROVED: DocuSigned by: Michael T. Rzepka 018C3480C2604...
DATE: 12/2/2015

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

10/30/2015
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ICA Engineering

PROJ. REFERENCE NO.	SHEET NO.
R-3432	TMP-1A

ICA Engineering
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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
1101.06	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	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- CONTINUING CONSTRUCTION
- REMOVAL

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM ◉ SKINNY DRUM ⊙ TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING PROPOSED TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
	PAINT (4")
PA	WHITE EDGELINE
PC	10 FT. WHITE SKIP
PD	3FT.-9FT./SP WHITE MINISKIP
PE	WHITE SOLID LANE LINE
PI	DOUBLE YELLOW CENTERLINE
P8	2 FT.-6FT./SP WHITE MINISKIP
	PAINT (8")
PP	YELLOW DIAGONAL
	PAINT (24")
P2	WHITE STOP BAR
	PAINT SYMBOL
QA	LEFT TURN ARROW
QP	MERGE ARROW
	TEMPORARY RAISED MARKERS
MH	YELLOW & YELLOW
MI	CRYSTAL & RED

APPROVED: DocuSigned by: Michael T. Rzepka DATE: 10/30/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS, LEGEND & TEMPORARY PAVEMENT MARKING SCHEDULE

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PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-2

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	MONDAY THRU FRIDAY 7:00 AM - 8:30 AM 2:30 PM - 4:00 PM

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

ROAD NAME

US 64

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR CHRISTMAS AND NEW YEAR'S, BETWEEN 7:00 AM DECEMBER 18TH AND 4:00 PM JANUARY 4TH.
3. FOR EASTER, BETWEEN 7:00 AM THE THURSDAY BEFORE EASTER TO 4:00 PM THE TUESDAY AFTER EASTER.
4. FOR MEMORIAL DAY, BETWEEN 7:00 AM THE THURSDAY BEFORE MEMORIAL DAY TO 4:00 PM THE TUESDAY AFTER MEMORIAL DAY.
5. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY, THEN BETWEEN THE 7:00 AM THE THURSDAY BEFORE INDEPENDENCE DAY TO 4:00 PM THE TUESDAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A TUESDAY, WEDNESDAY OR THURSDAY, THEN BETWEEN 7:00 AM THE FRIDAY BEFORE INDEPENDENCE DAY TO 4:00 PM THE MONDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN 7:00 AM THE THURSDAY BEFORE LABOR DAY TO 4:00 PM THE TUESDAY AFTER LABOR DAY.
7. FOR THANKSGIVING DAY, BETWEEN 7:00 AM THE TUESDAY BEFORE THANKSGIVING TO 4:00 PM THE MONDAY AFTER THANKSGIVING.
8. FOR LEAF SEASON AND CHRISTMAS TREE HARVEST FROM 7:00 AM THE THURSDAY CLOSEST TO OCTOBER 7TH TO 7:00 AM DECEMBER 18TH.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 64	MONDAY THRU FRIDAY 7:00 AM - 8:30 AM 2:30 PM - 4:00 PM	PAVEMENT TIES, BLASTING AND CLEARING TRAVEL LANES, 30 MINUTES

D) 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 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.

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.

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.

K) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 64.

L) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

M) 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.

N) 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) 200' IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

P) 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.

Q) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

R) 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 BARRIER

S) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT 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 TRANSPORTATION MANAGEMENT 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 TRANSPORTATION MANAGEMENT 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.

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 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: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

U) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	TEMPORARY RAISED

X) 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.

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

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

LOCAL NOTES

1) EXISTING ISLANDS MAY BE REPLACED WITH ASPHALT FOR MAINTENANCE OF TRAFFIC DURING PIPE INSTALLATIONS.

2) WHEN NOT WORKING ON DRAINAGE INSTALLATION, COVER ANY OPENING WITH STEEL PLATES AT THE END OF EACH WORKDAY UNTIL COMPLETE.

3) INSTALL PORTABLE MESSAGE SIGNS TO LET TRAFFIC KNOW ONE WEEK IN ADVANCE OF PLANNED LANE CLOSURES.

4) THE ENGINEER OR SUPERVISOR IN CHARGE SHALL COORDINATE WITH LOCAL OFFICIALS WHENEVER WORK IS PLANNED ON US 64.

DocuSigned by:
APPROVED: Michael T. Rzepka DATE: 10/30/2015
01BC3480C26049D...

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PROJECT NOTES

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

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	R-2409C	TMP-2A

TEMPORARY SHORING NOTES

SHORING LOCATION ⟨1⟩ ON -L- (SEE SHEET TMP-13)

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 10+74.00 +/-, 10 FT RT, TO STATION 16+50.00 +/-, 10 FT RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ)= 120 LB/CF
FRICTION ANGLE (ϕ)= 30 DEGREES
COHESION (c) = 0 LB/SF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 10+74.00 +/-, 10 FT RT, TO STATION 16+50.00 +/-, 10 FT RT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 10+74.00 +/-, 10 FT RT, TO STATION 16+50.00 +/-, 10 FT RT. MAY NOT PENETRATE BEYOND GROUND SURFACE DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION 10+74.00 +/-, 10 FT RT, TO STATION 16+50.00 +/-, 10 FT RT.

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ICA Engineering

DocuSigned by:
APPROVED: Shane C. Clark DATE: 10/30/2015

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 29869 ENGINEER SHANE C CLARK

TEMPORARY SHORING NOTES

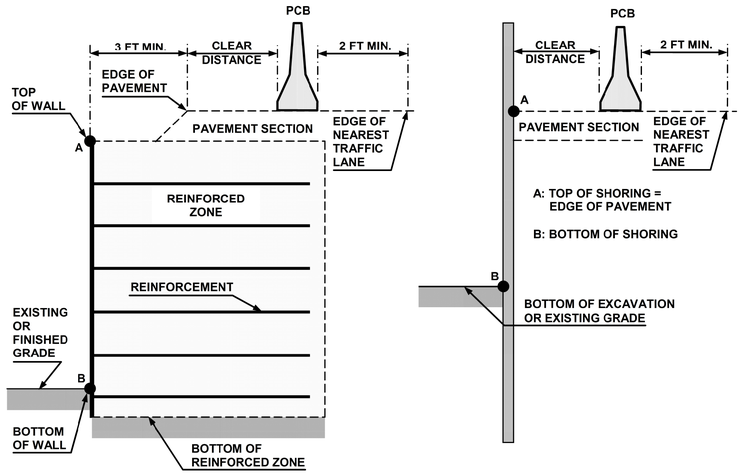
SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-2B



NOTE: WALL OR SHORING HEIGHT = A - B

FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.

8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.

9- FOR PCB ABOVE AND BEHIND TEMPORARY 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.

10- 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 FT 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	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

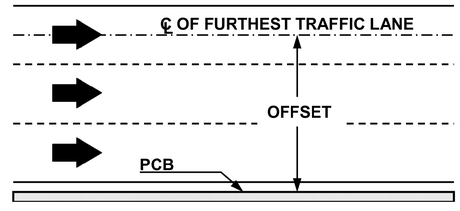


FIGURE B

APPROVED: Michael T. Rzepka DocuSigned by: 018C3480C260490... DATE: 11/2/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

10/30/2015
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ICA Engineering

PHASING

PHASE I

NOTES:

- IN PHASING BELOW "RSD" REFERS TO NCDOT ROADWAY STANDARD DRAWING.
- MAINTAIN EXISTING TRAFFIC PATTERNS IN PHASE I.
- IN PHASES I, II AND III, PROPOSED CONSTRUCTION IS UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, UNLESS OTHERWISE NOTED.
- REFER TO LOCAL NOTES 3 AND 4 ON SHEET TMP-2 FOR WORK IN PHASE I THROUGH PHASE IV.

STEP 1

INSTALL ADVANCE WARNING SIGNS ON -L- LINE AND ALL -Y- LINES. USE RSD 1101.01, SHEET 3 OF 3 FOR FOR ADVANCE WORK ZONE SIGNS.

STEP 2

AWAY FROM TRAFFIC, BEGIN CONSTRUCTION OF ROADWAY AND GUARDRAIL INSTALLATION AT THE FOLLOWING PROPOSED (SEE SHEETS TMP-4 THRU TMP-9):

-L- STA 16+50± TO -L- STA 19+50±
-L- STA 20+50± TO -L- STA 27+20±
-L- STA 28+50± TO -L- STA 32+80±
-L- STA 32+95± TO -L- STA 40+75±
-L- STA 41+10± TO -L- STA 51+00±
-DET2- STA 11+75± TO -DET2- STA 16+00±
-L- STA 59+85± TO -L- STA 62+70±
-L- STA 69+00± TO -L- STA 71+55±
-L- STA 16+50± TO -L- STA 18+00± (PAVING OF PROP. SHLD. LEFT)

USING RSD 1101.02 (SHEET 1 OF 15), BEGIN PROPOSED WIDENING AND WEDGING OF EXISTING ROADWAY AND GUARDRAIL INSTALLATION AT THE FOLLOWING LOCATIONS (SEE SHEETS TMP-4 THRU 9):

-L- STA 10+00± TO -L- STA 16+50± (LEFT)
-L- STA 19+50± TO -L- STA 20+50± (LEFT)
-DET2- STA 15+10± TO -DET2- STA 16+00± (LEFT)
-L- STA 63+00± TO -L- STA 65+70± (LEFT)
-L- STA 65+00± TO -L- STA 69+00± (RIGHT)
-L- STA 72+40± TO -L- STA 73+75± (LEFT)
-L- STA 73+25± TO -L- STA 77+00± (RIGHT)
-L- STA 10+00± TO -L- STA 16+50± (PAVING OF PROP. SHLD. LEFT)

USING RSD 1101.02 (SHEET 1 OF 15) AND FLAGGERS, REMOVE EXISTING PIPE AND CONSTRUCT 66" DRAINAGE STRUCTURE #0510 AND INSTALL PIPES ON NC 281 (SEE SHEET TMP-5), (SEE LOCAL NOTES 1 & 2).

USING RSD 1101.02 (SHEET 1 OF 15), BEGIN CONSTRUCTION OF -Y1-.

PHASE II

STEP 1

USING RSD 1101.02 (SHEET 1 OF 15), COMPLETE THE FOLLOWING (SEE SHEET TMP-10):

- WEDGE TIE TO EXISTING PAVEMENT AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AS SHOWN FROM -DET2- STA 11+75± TO -DET2- STA 16+00±
- INSTALL TEMPORARY GUARDRAIL ALONG -DET2- WB LANE (SEE ROADWAY PLANS)
- SHIFT TRAFFIC TO -DET2-

STEP 2

USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT PROPOSED ROADWAY AND INSTALL TEMPORARY GUARDRAIL AT THE FOLLOWING LOCATIONS (SEE SHEET TMP-10):

-DET1- STA 11+15± TO -DET1- STA 21+30±

USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT PROPOSED WIDENING OF EXISTING ROADWAY AT THE FOLLOWING LOCATIONS (SEE SHEET TMP-10):

-DET1- STA 11+15± TO -DET1- STA 12+90± (RIGHT)

PERFORM ALL REQUIRED PAVEMENT REMOVAL.

PHASE III

STEP 1

USING RSD 1101.02 (SHEET 1 OF 15), COMPLETE THE FOLLOWING (SEE SHEET TMP-11):

- WEDGE TIES TO EXISTING PAVEMENT AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AS SHOWN FROM -DET1- STA 11+15± TO -DET1- STA 21+50±
- INSTALL TEMPORARY GUARDRAIL ALONG -DET1- EB LANE (SEE ROADWAY PLANS)
- SHIFT TRAFFIC TO -DET1-
- CLOSE -Y2- STA 10+00± TO -Y2- STA 13+00±

STEP 2

USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT PROPOSED ROADWAY AND INSTALL GUARDRAIL AT THE FOLLOWING LOCATIONS (SEE SHEET TMP-11):

-L- STA 51+00± TO -L- STA 58+00±
-Y2- STA 10+00± TO -Y2- STA 13+15±
TEMPORARY TIE FROM -L- TO -DET1-

STEP 3

USING RSD 1101.02 (SHEET 1 OF 15), COMPLETE THE FOLLOWING (SEE SHEET TMP-12):

- WEDGE TIES TO EXISTING PAVEMENT AND -L- AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AS SHOWN FROM -DET1- STA 19+35± TO -Y2- STA 13+55±
- SHIFT TRAFFIC TO -Y2-

USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT PROPOSED AND INSTALL GUARDRAIL AT THE FOLLOWING LOCATIONS (SEE SHEET TMP-11):

-L- STA 58+00± TO -L- STA 59+85±

PERFORM ALL REQUIRED PAVEMENT REMOVAL.

COMPLETE CONSTRUCTION OF PROPOSED BEGUN IN PHASE I.

PHASE IV

STEP 1

USING RSD 1101.02 (SHEET 1 OF 15), COMPLETE THE FOLLOWING (SEE SHEETS TMP-13 THRU TMP-18):

- PERFORM WEDGING AND COMPLETE TIE-INS FROM -L- STA 18+00± TO -L- STA 77+00±
- COMPLETE INSTALLATION OF GUARDRAIL
- PLACE A LAYER OF SURFACE COURSE AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS SHOWN FROM -L- STA 18+00± TO -L- STA 77+00±AND SHIFT TRAFFIC TO PROPOSED -L- PATTERN (ALSO SEE FINAL PAVEMENT MARKING PLANS FOR MARKING DIMENSIONS AND LAYOUT)
- PLACE A LAYER OF SURFACE COURSE AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS SHOWN FROM -L- STA 10+00± TO -L- STA 18+00±AND SHIFT TRAFFIC TO TEMPORARY
- INSTALL ANCHORED PORTABLE CONCRETE BARRIER FROM -L- STA 10+00± TO STA 16+75±

BEHIND BARRIER, INSTALL TEMPORARY SHORING AND CONSTRUCT PROPOSED WALL, SHOULDER AND GUARDRAIL FROM -L- STA 10+00± TO STA 16+50± RIGHT. USING RSD 1101.02 (SHEET 1 OF 15), WEDGE ADJACENT TRAVEL LANES WITH SHOULDER CONSTRUCTION (SEE SHEET TMP-13).

USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT PROPOSED WALL, SHOULDER AND GUARDRAIL FROM -L- STA 67+53± TO STA 68+66± LEFT. USING RSD 1101.02 (SHEET 1 OF 15), WEDGE ADJACENT TRAVEL LANES WITH SHOULDER CONSTRUCTION (SEE SHEETS TMP-17 AND TMP-18).

PERFORM ALL REQUIRED PAVEMENT REMOVAL.

STEP 2

USING RSD 1101.02 (SHEET 1 OF 15), PLACE FINAL LAYER OF SURFACE COURSE ON -L- STA 10+00± TO -L- STA 77+00± AND ON ALL -Y- LINES AND INSTALL FINAL PAVEMENT MARKINGS AND MARKERS. (SEE PAVEMENT MARKING PLANS)

APPROVED Michael T. Rzepka DATE: 10/30/2015

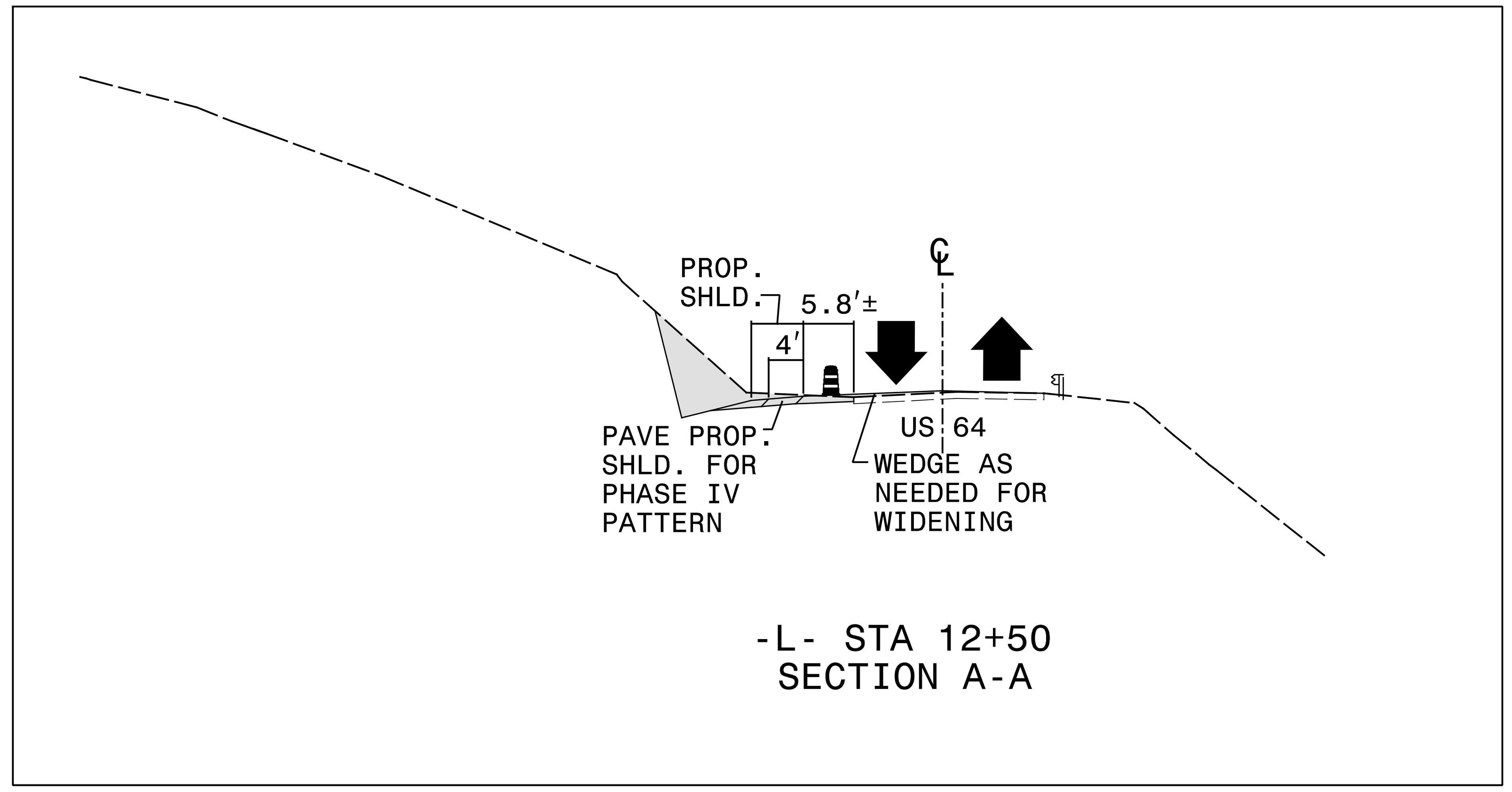
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

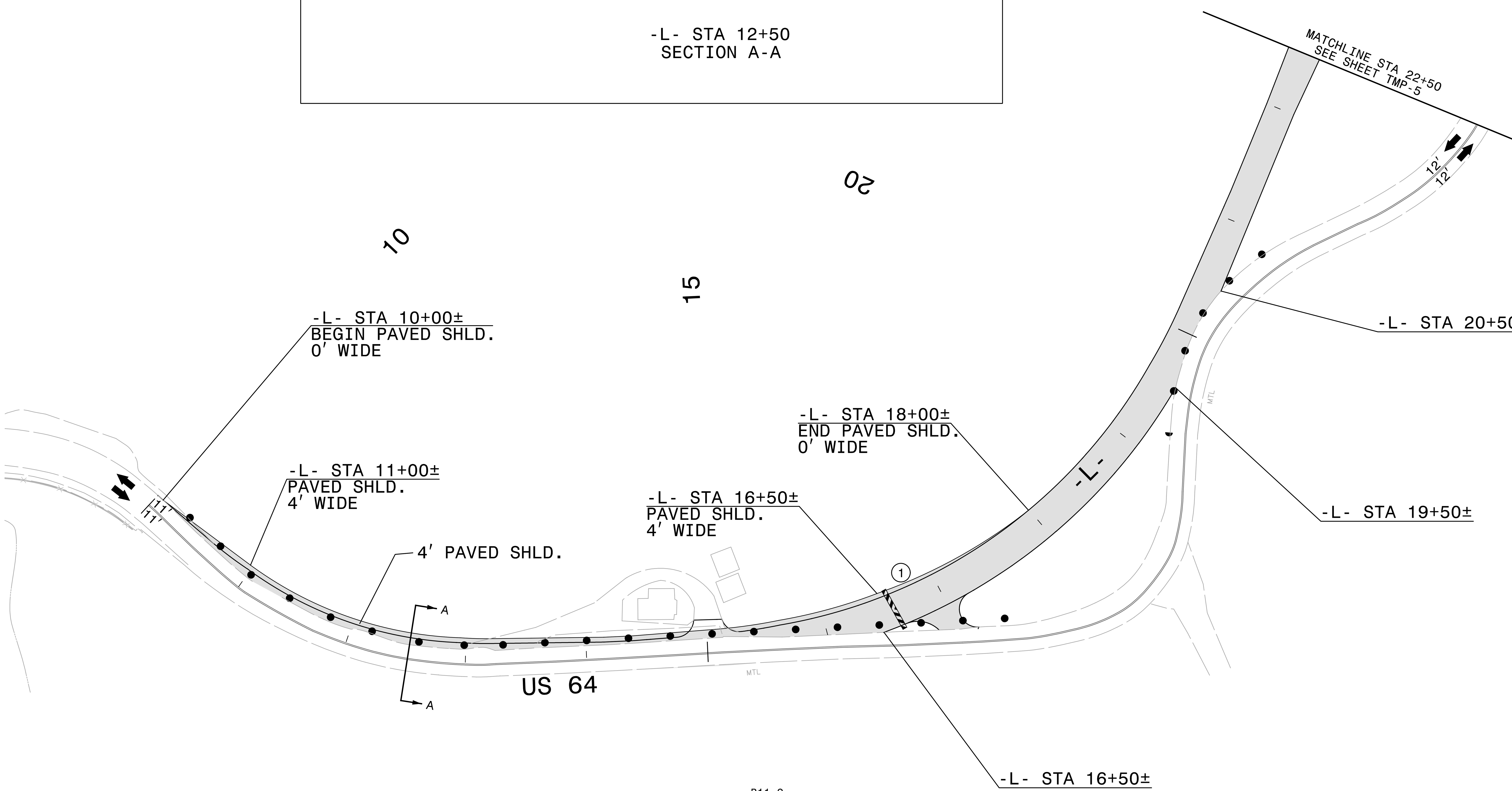
PHASING

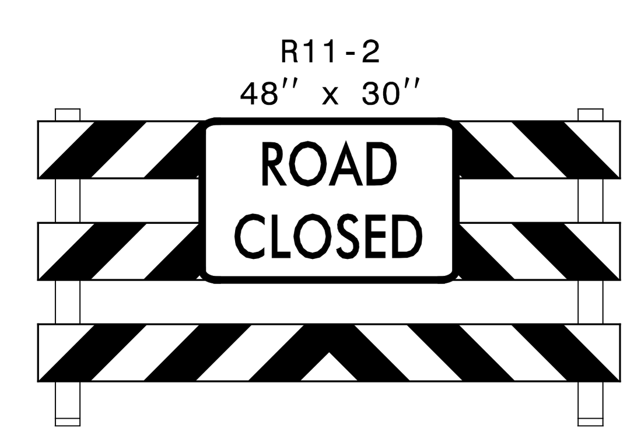
SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

REVISIONS



-L- STA 12+50
SECTION A-A





TYPE III BARRICADE

(1)

APPROVED: Michael T. Rzepka (DocuSigned by)	DATE: 10/30/2015	
SEAL	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA	

PHASE I DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

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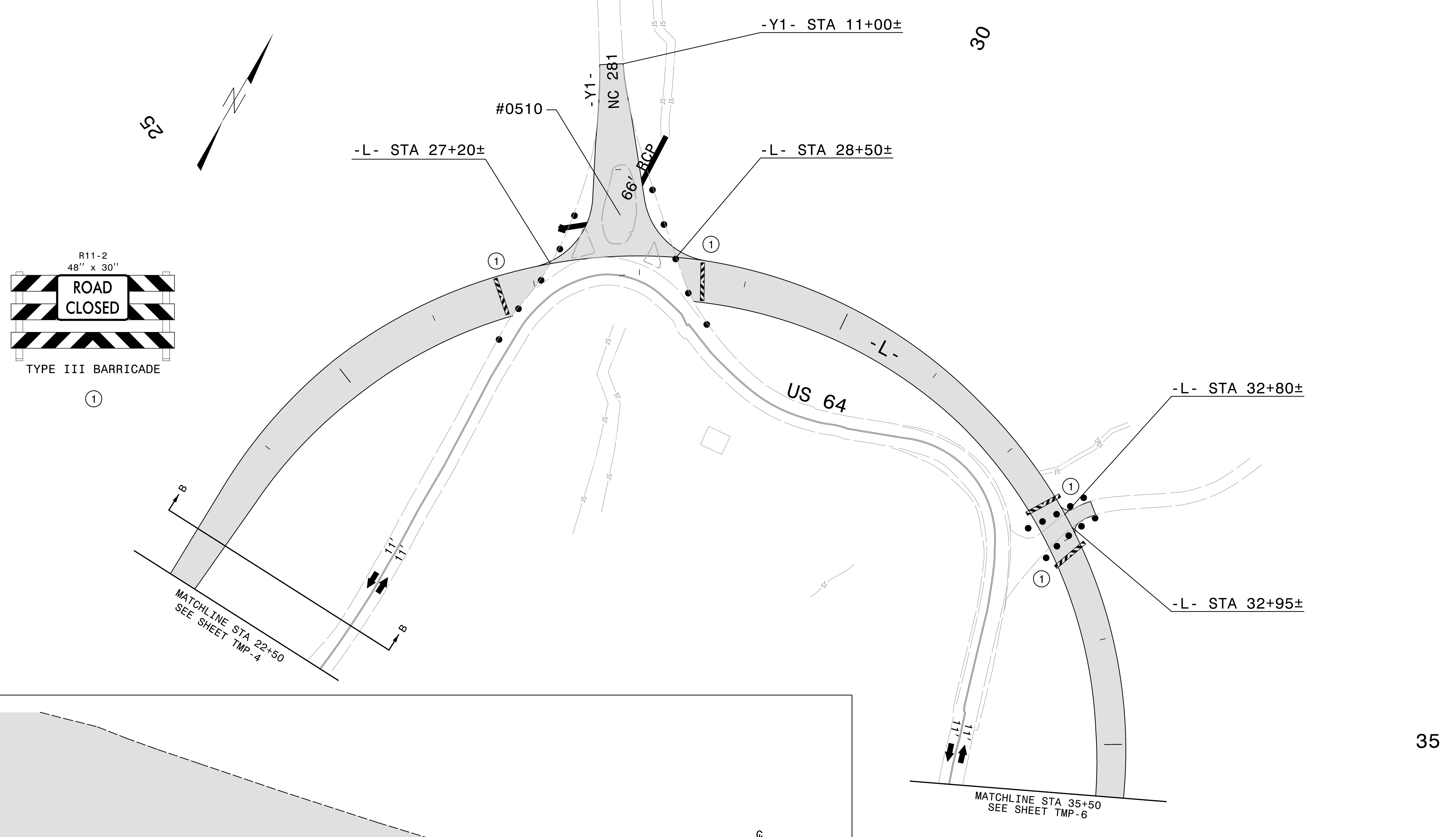
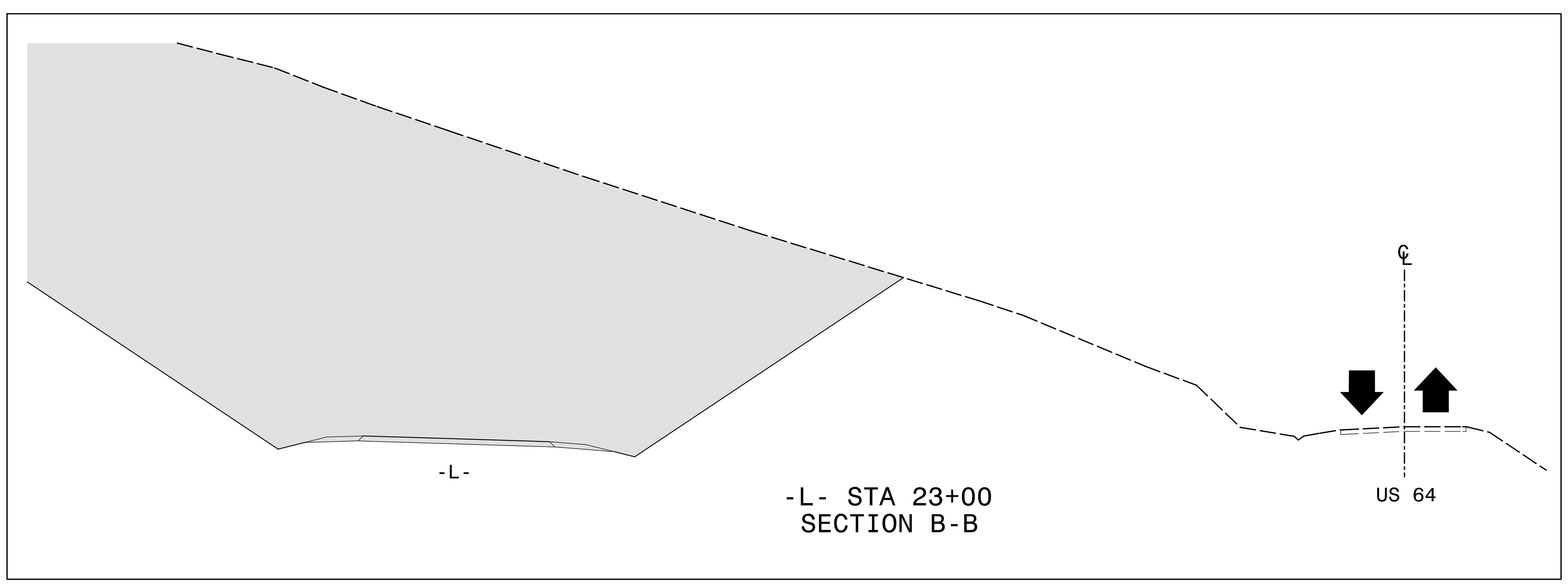
ICA Engineering

NOTE: USING RSD 1101.02 SHEET 1 OF 15 AND FLAGGERS, CONSTRUCT DRAINAGE STRUCTURE #0510 AND INSTALL PIPES.





-L- STA 23+00
SECTION B-B

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	R-2409C	TMP-5

APPROVED: Michael T. Rzepka DATE: 10/30/2015

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA

PHASE I DETAIL

SCALE:	NONE
DATE:	OCT '15
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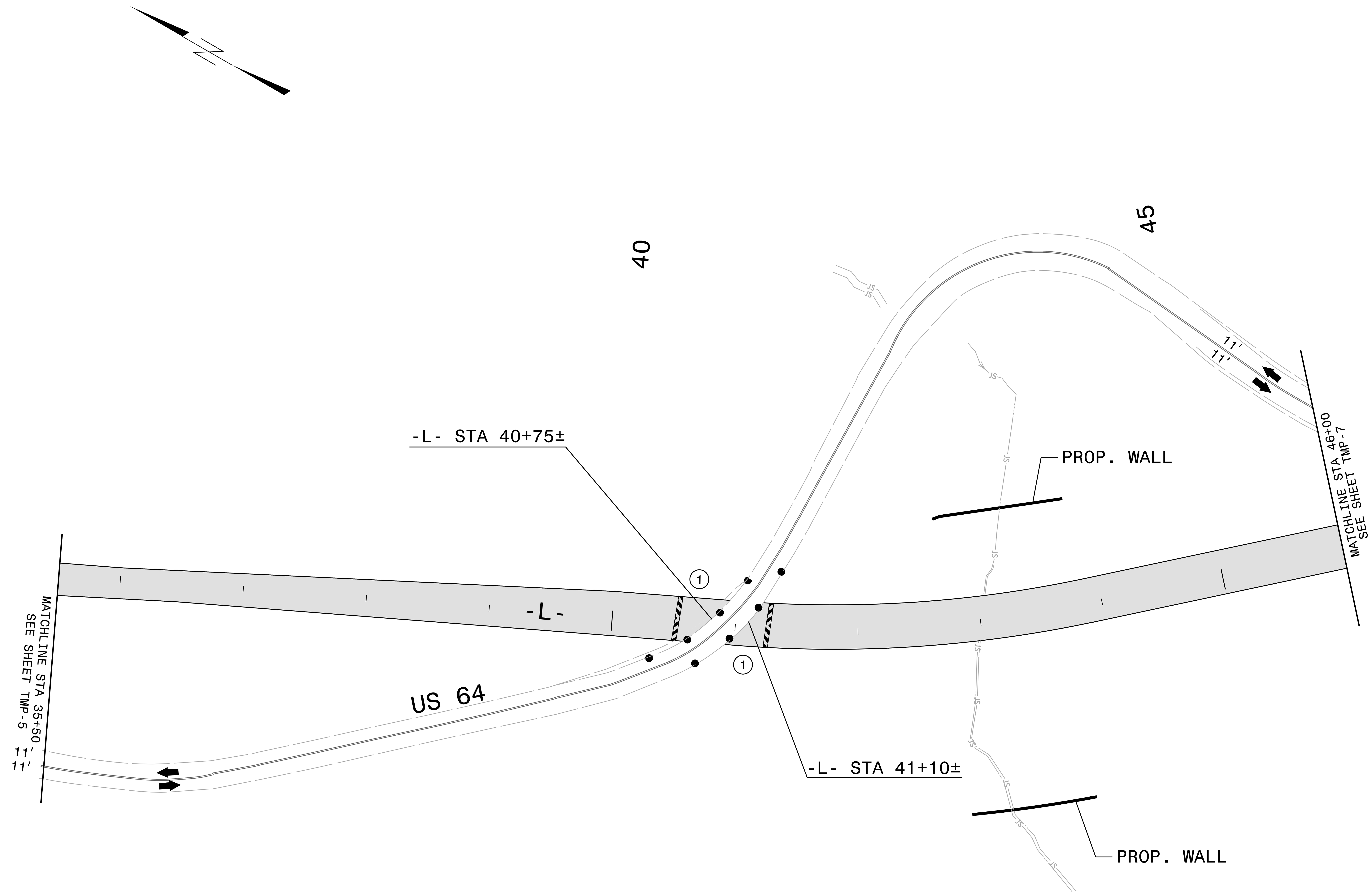
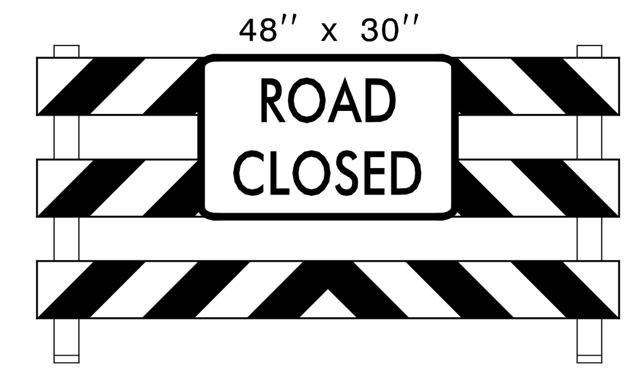
PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-6





TYPE III BARRICADE

1

APPROVED: Michael T. Rzepka DATE: 10/30/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE I DETAIL

SCALE:	NONE
DATE:	OCT '15
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DESIGN BY:	ACP
REVIEWED BY:	MTR

REVISIONS

10/30/2015
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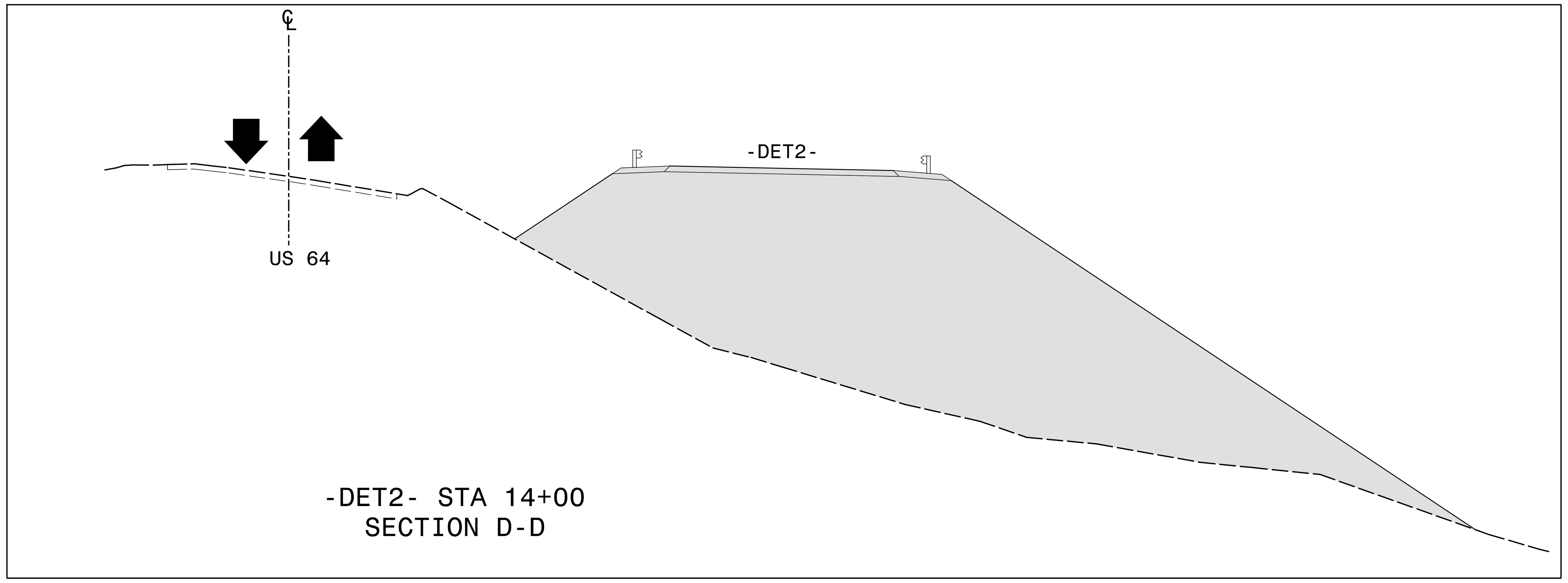
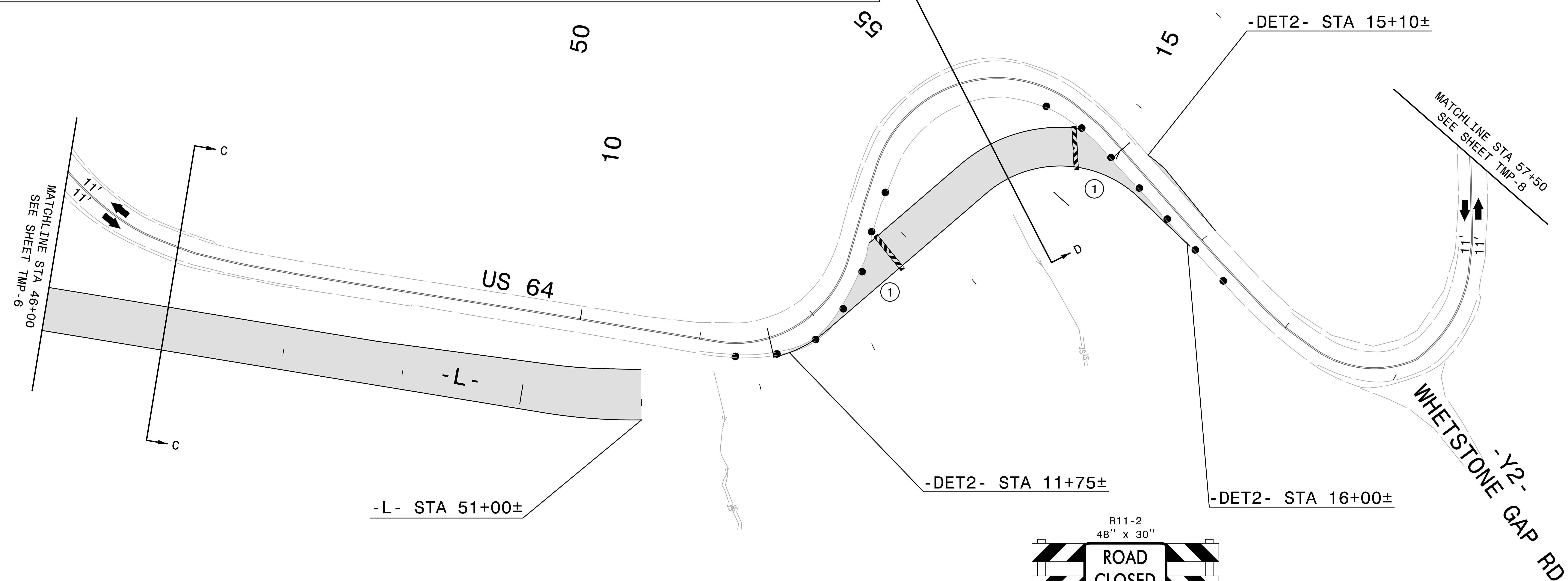
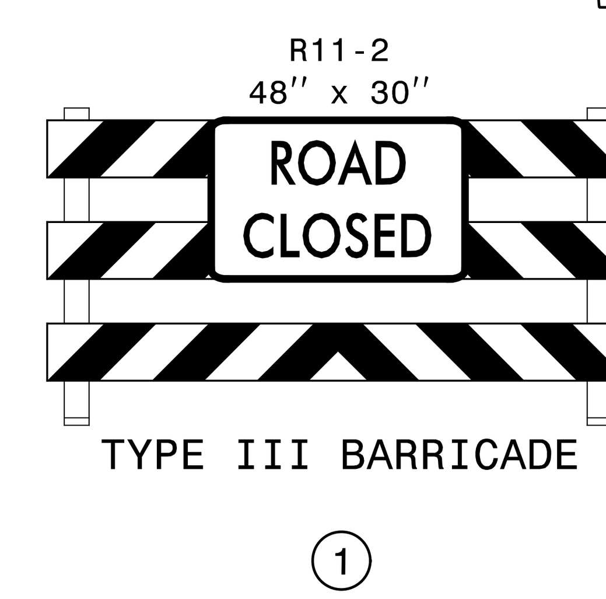
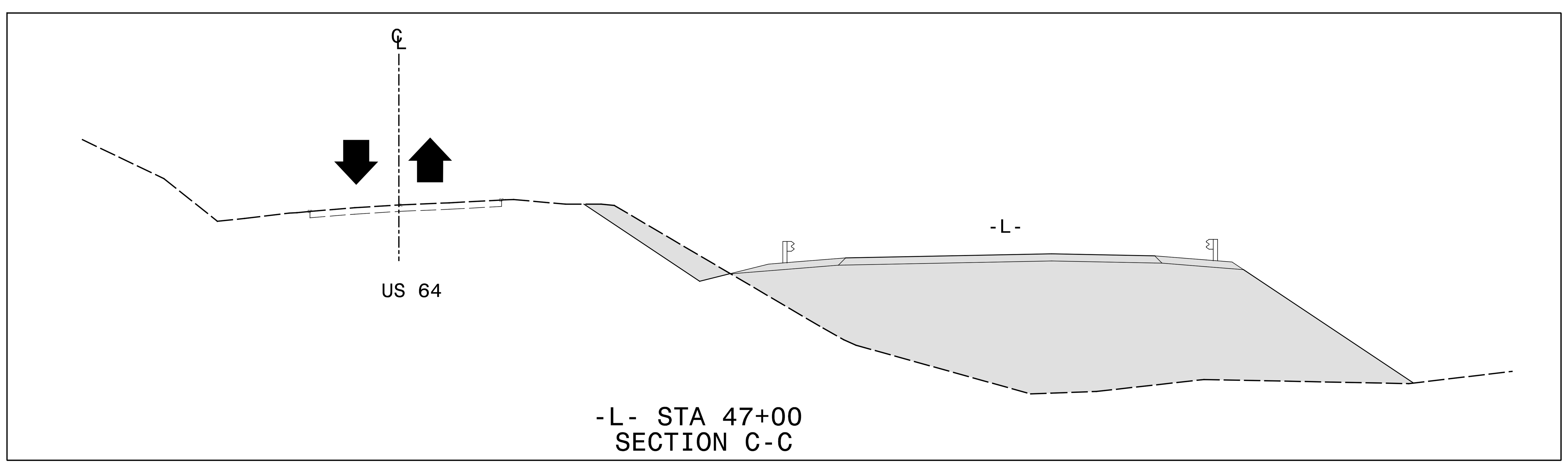
PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-7









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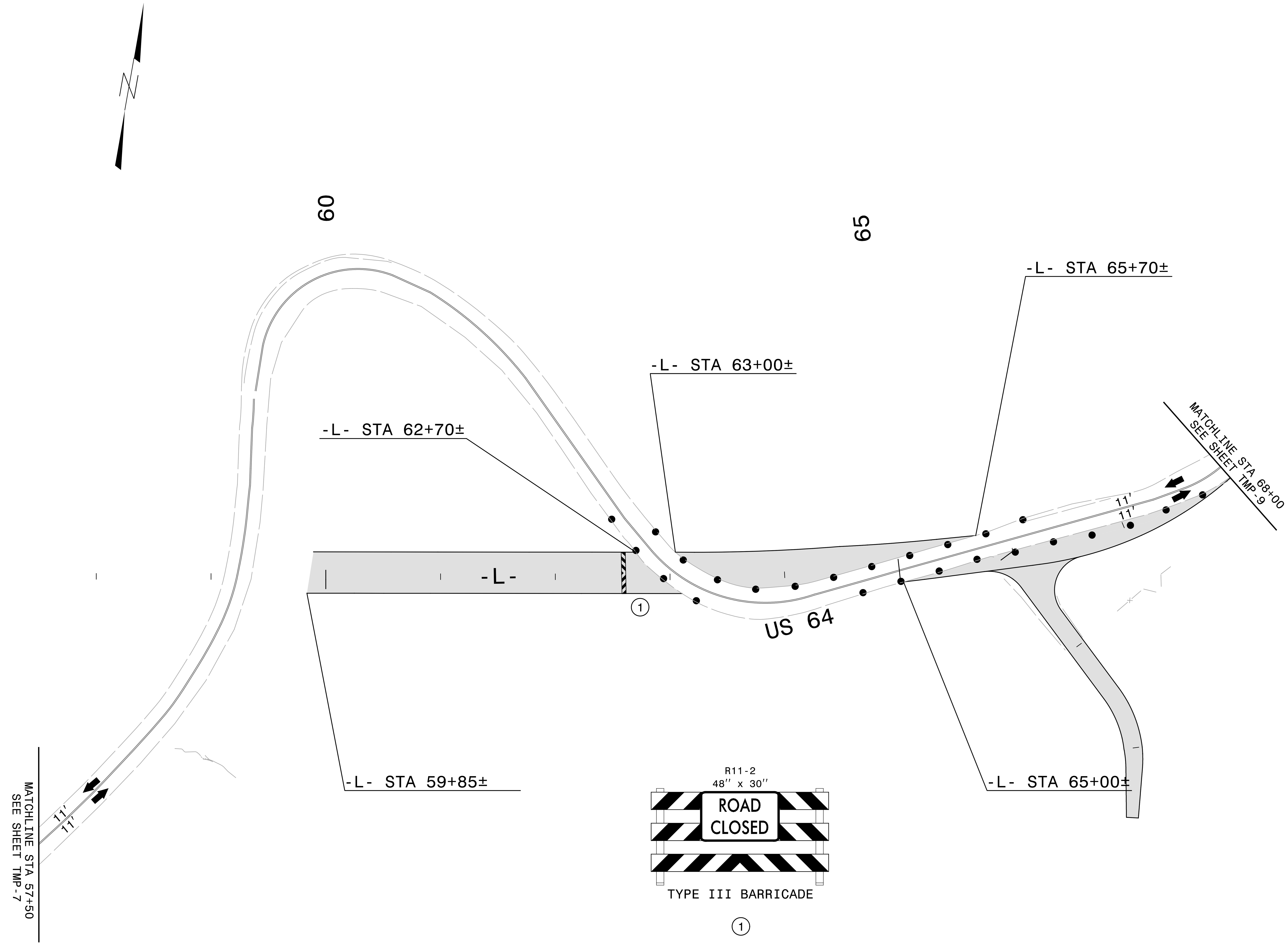
SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA

PHASE I DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

REVISIONS



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ICA Engineering

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE I DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
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REVISIONS

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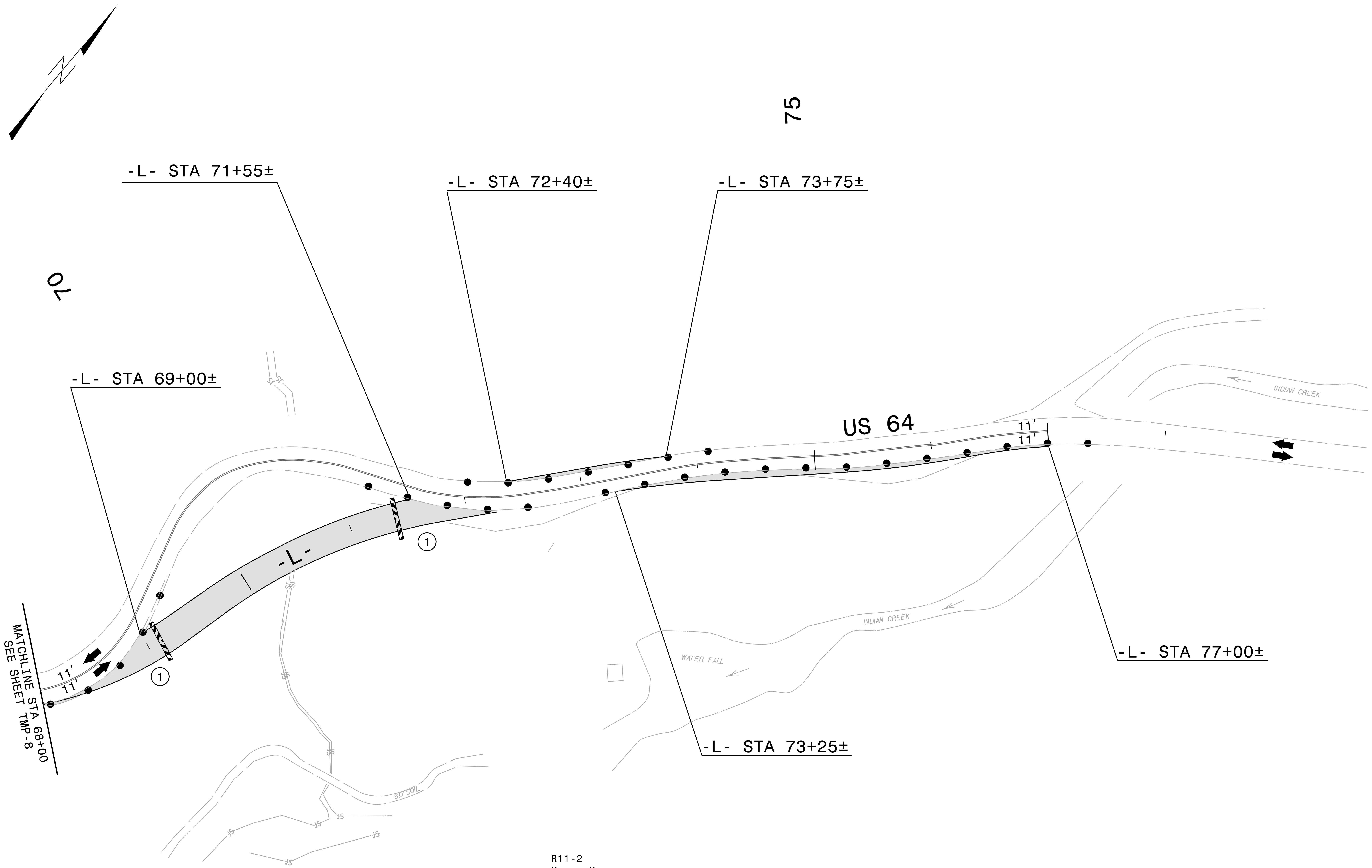
	R-2409C	TMP-9



R11-2
48'' x 30''

TYPE III BARRICADE

(1)

APPROVED: Michael T. Rzepka	DATE: 10/30/2015
SEAL	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA

PHASE I DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
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ICA Engineering

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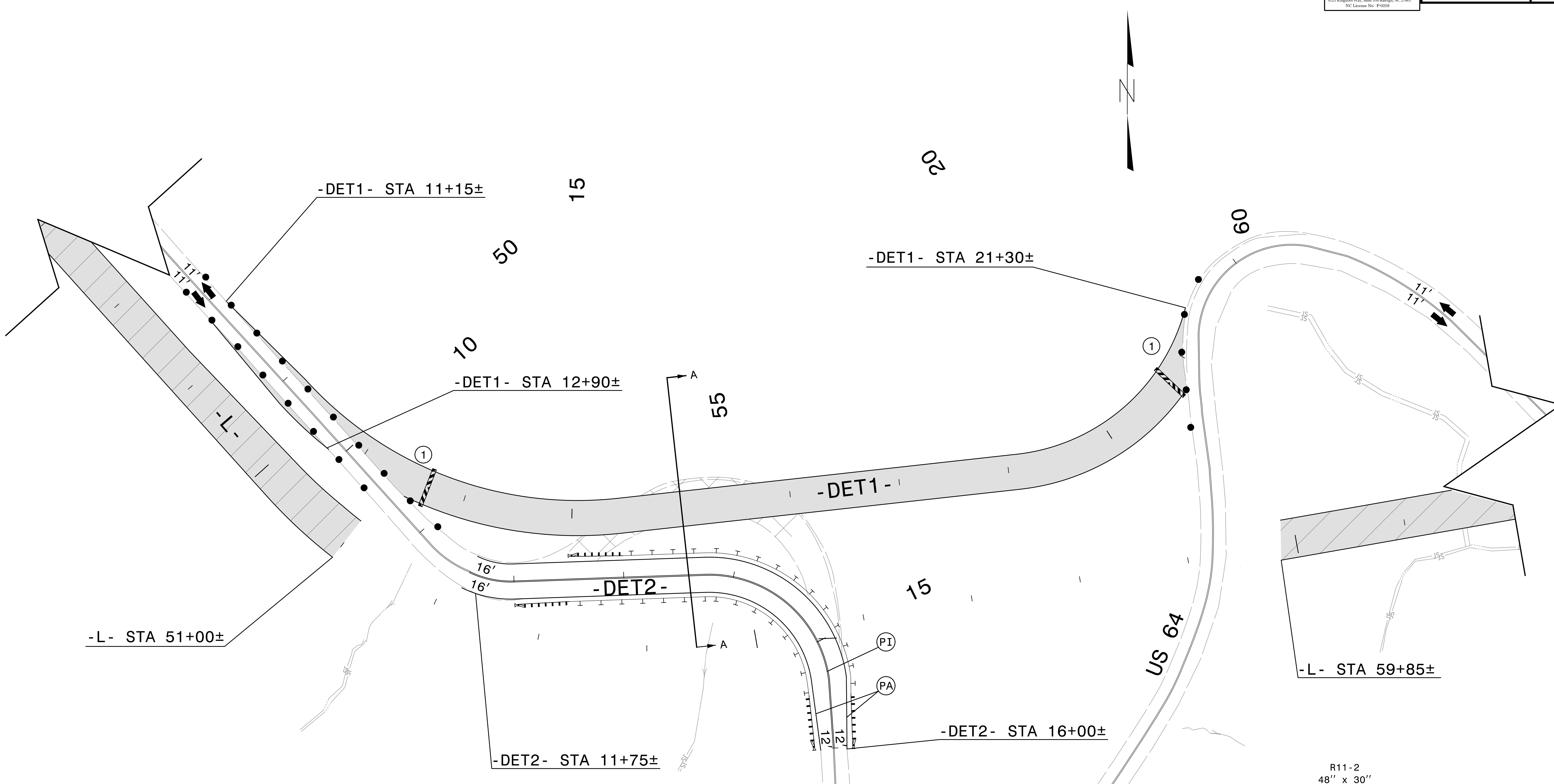
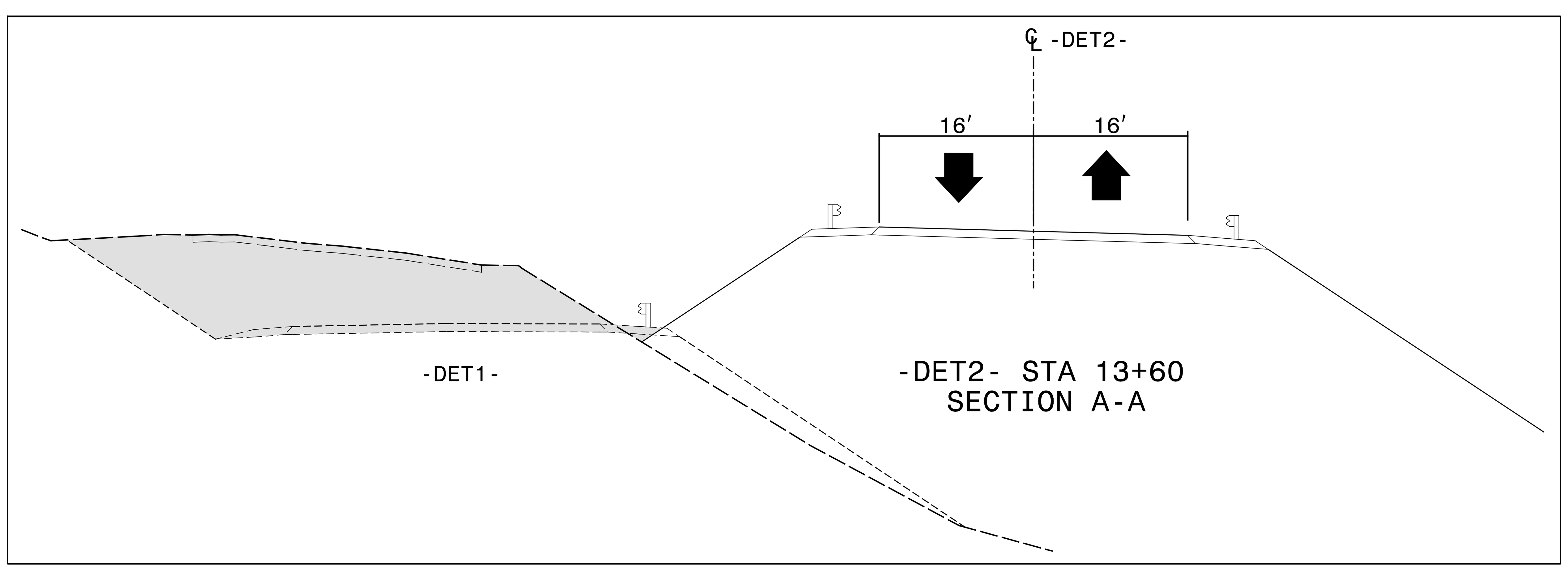
PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-10





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SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA

PHASE II DETAIL

SCALE:	NONE
DATE:	OCT '15
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PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-11

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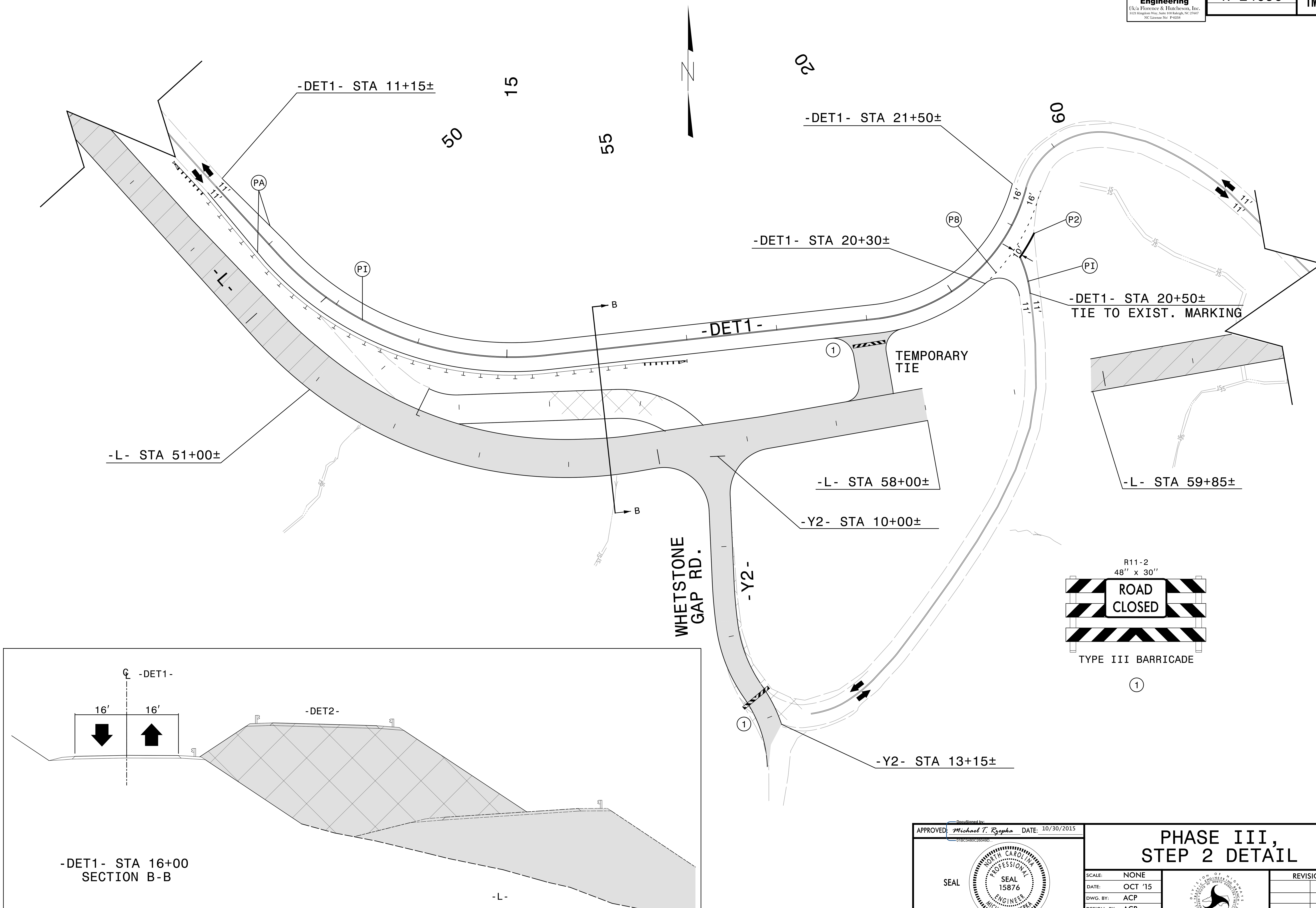

-DET1- STA 16+00
SECTION B-B

APPROVED: Michael T. Rzepka DATE: 10/30/2015

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA

PHASE III, STEP 2 DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
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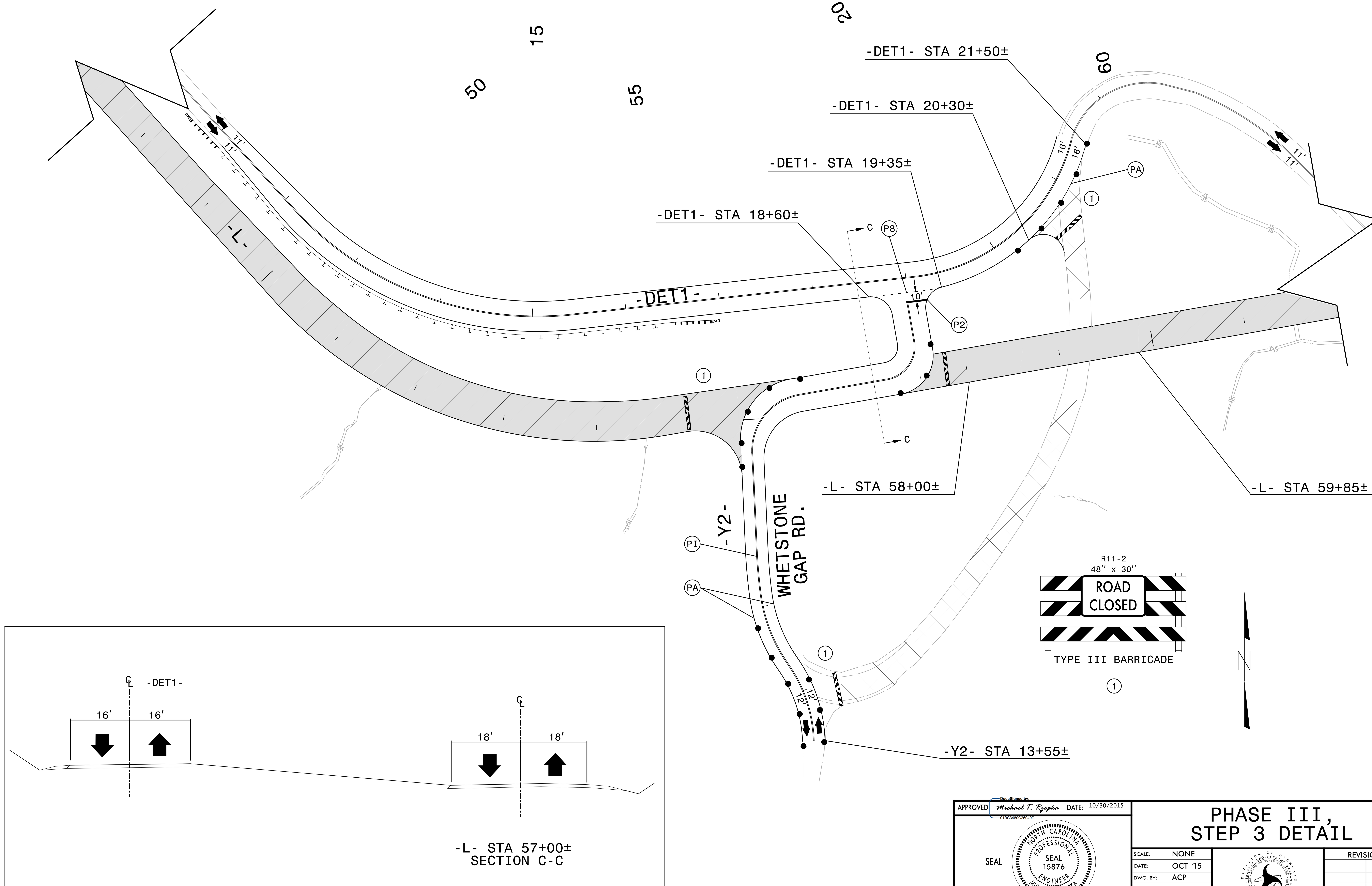

APPROVED: Michael T. Rzepka DATE: 10/30/2015

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA

PHASE III, STEP 3 DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
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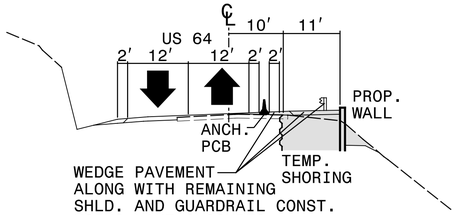
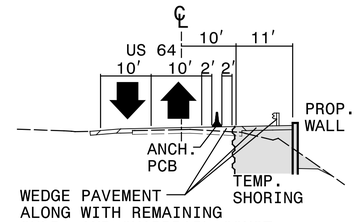
NC License No: P-0258

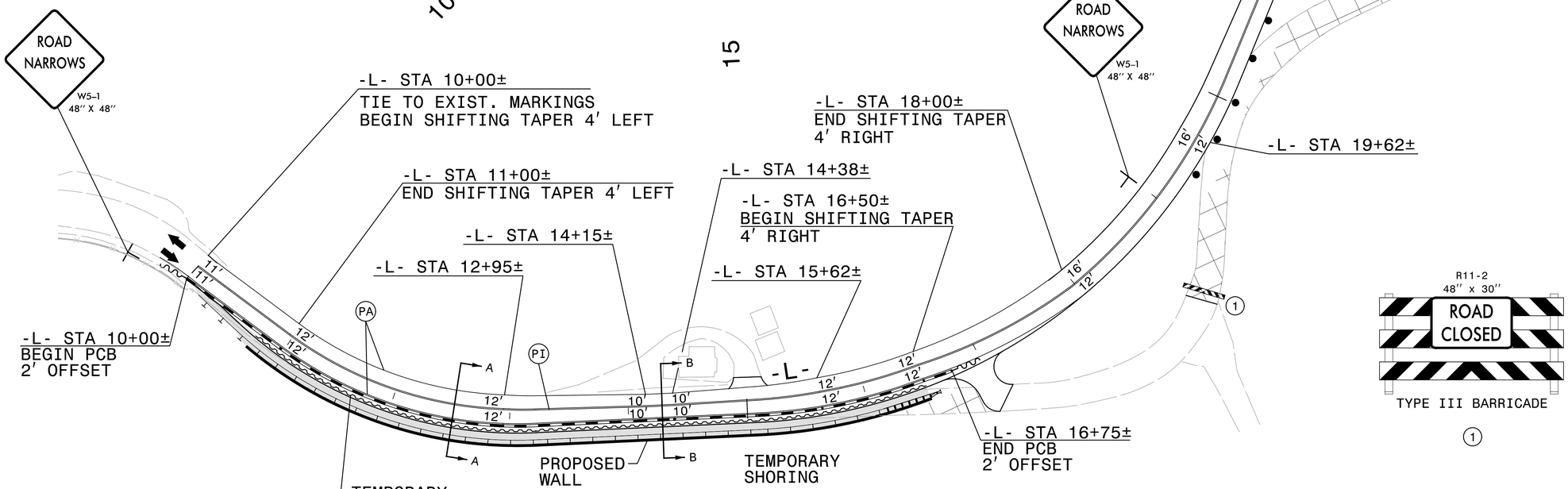
PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-13



-L- STA 12+50
SECTION A-A



-L- STA 14+25
SECTION B-B



TYPE III BARRICADE

1

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

REVISIONS	
CADD FILE	

10/30/2015
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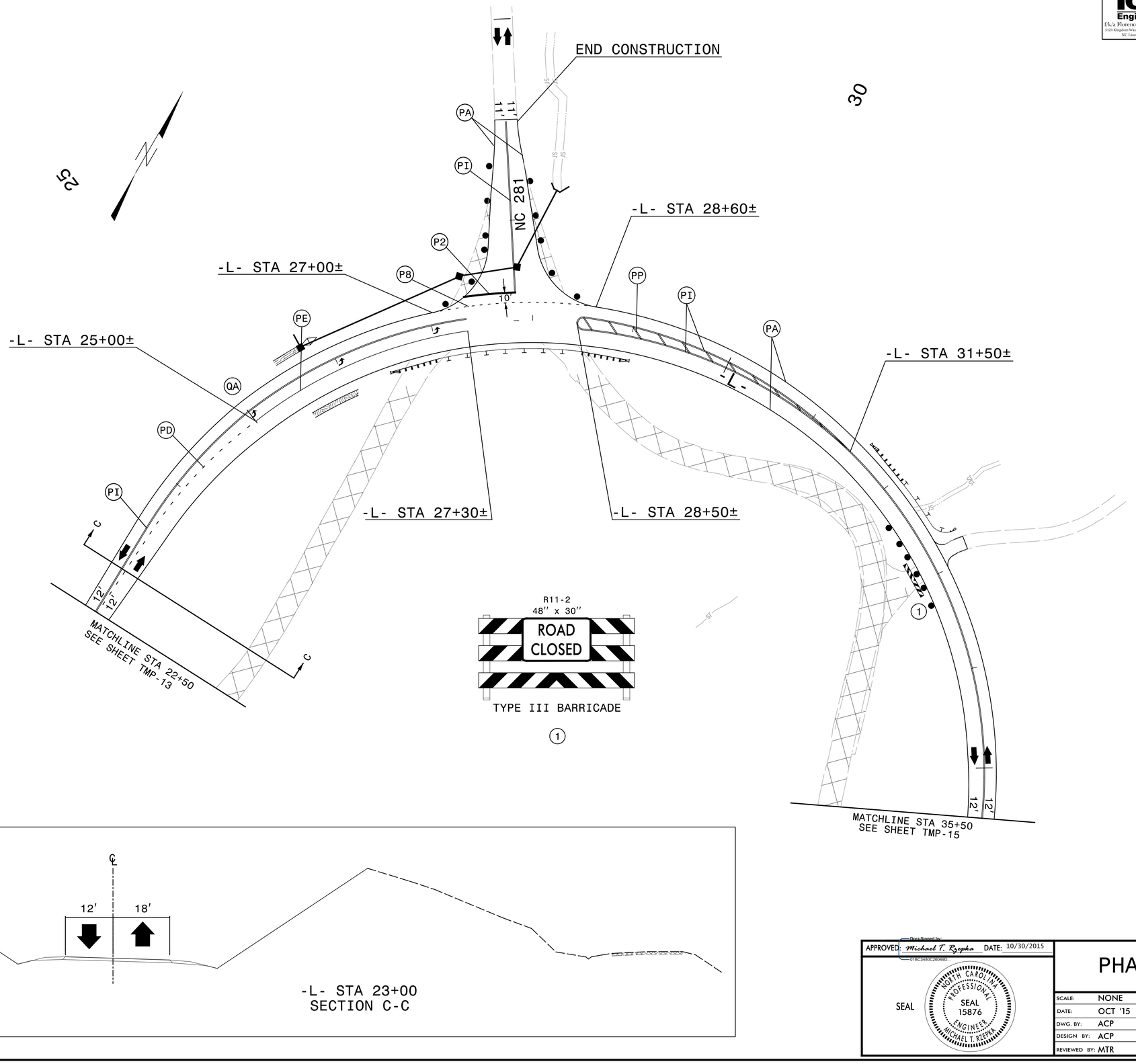
PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-14



APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C280460... DATE: 10/30/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T RZEPKA

PHASE IV DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

REVISIONS	
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10/30/2015
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ICA Engineering

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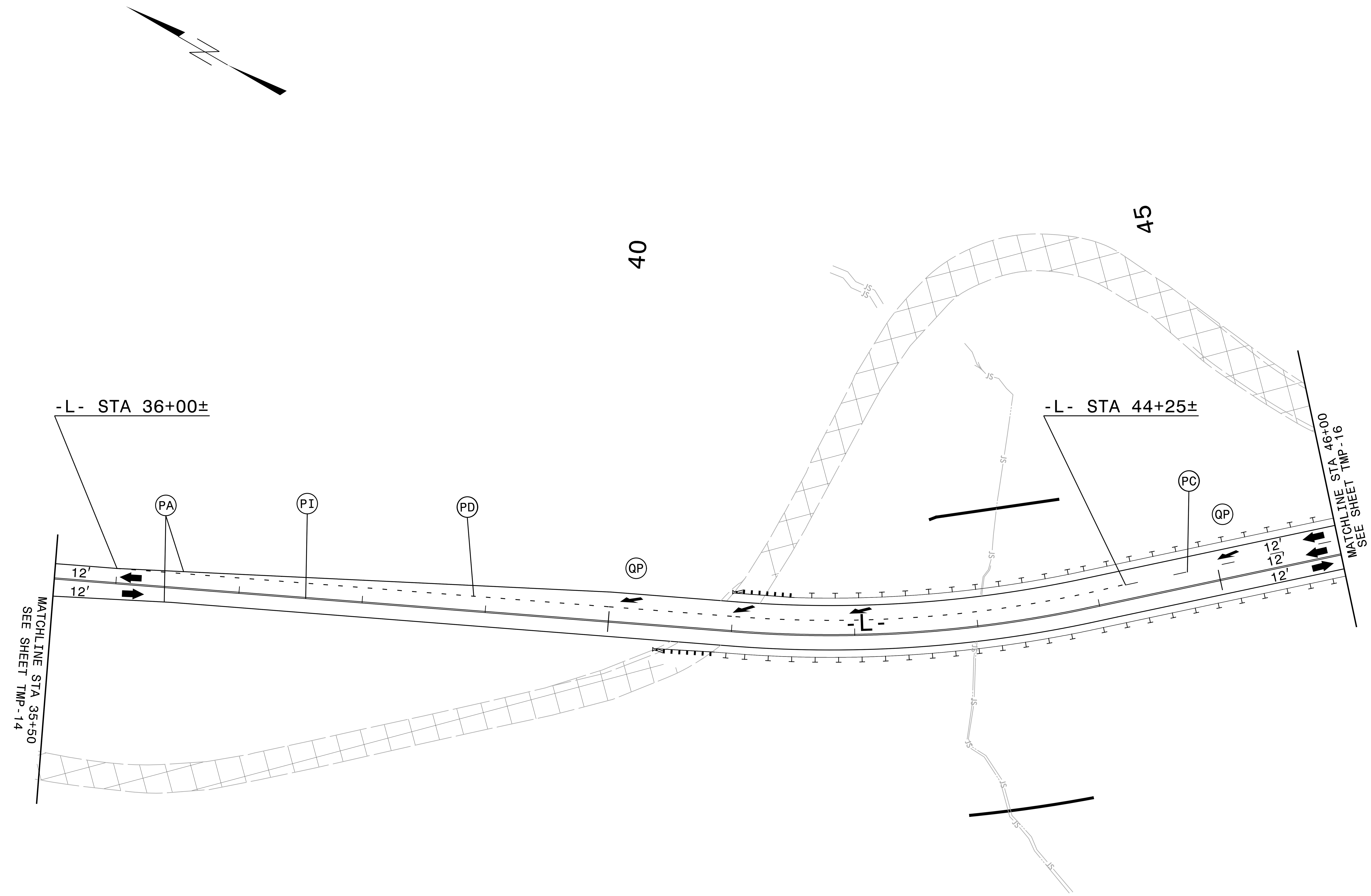
	R-2409C	TMP-15



APPROVED *Michael T. Rzepka* DATE: 10/30/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
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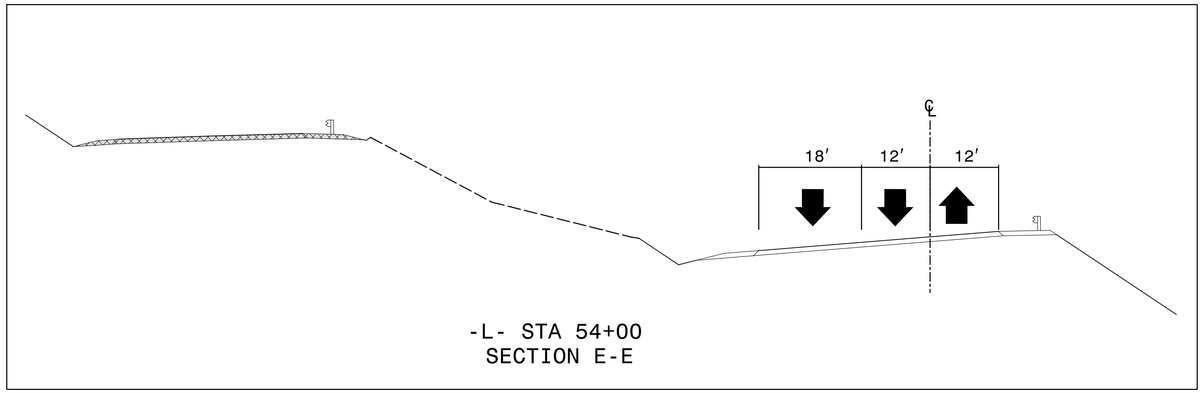
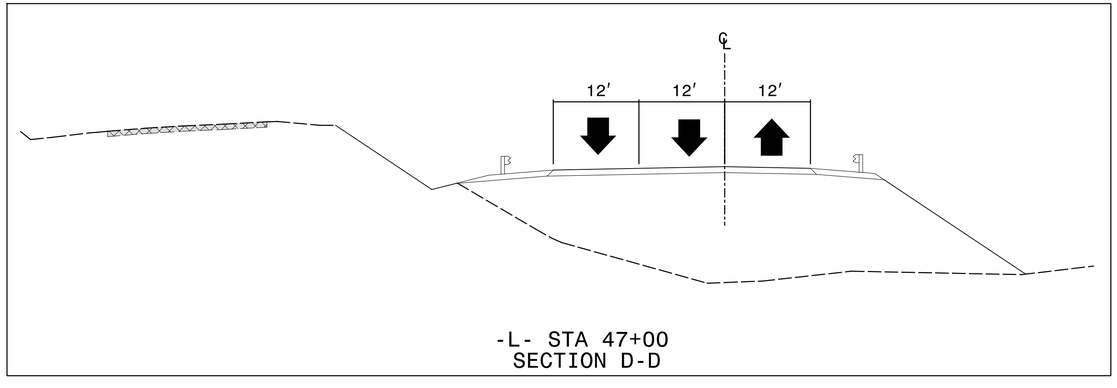
PROJ. REFERENCE NO.	SHEET NO.
R-2409C	TMP-16



-L- STA 54+00
SECTION E-E

TYPE III BARRICADE

①



-L- STA 47+00
SECTION D-D

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DTBC3480C280460...

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

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CADD FILE	

10/30/2015
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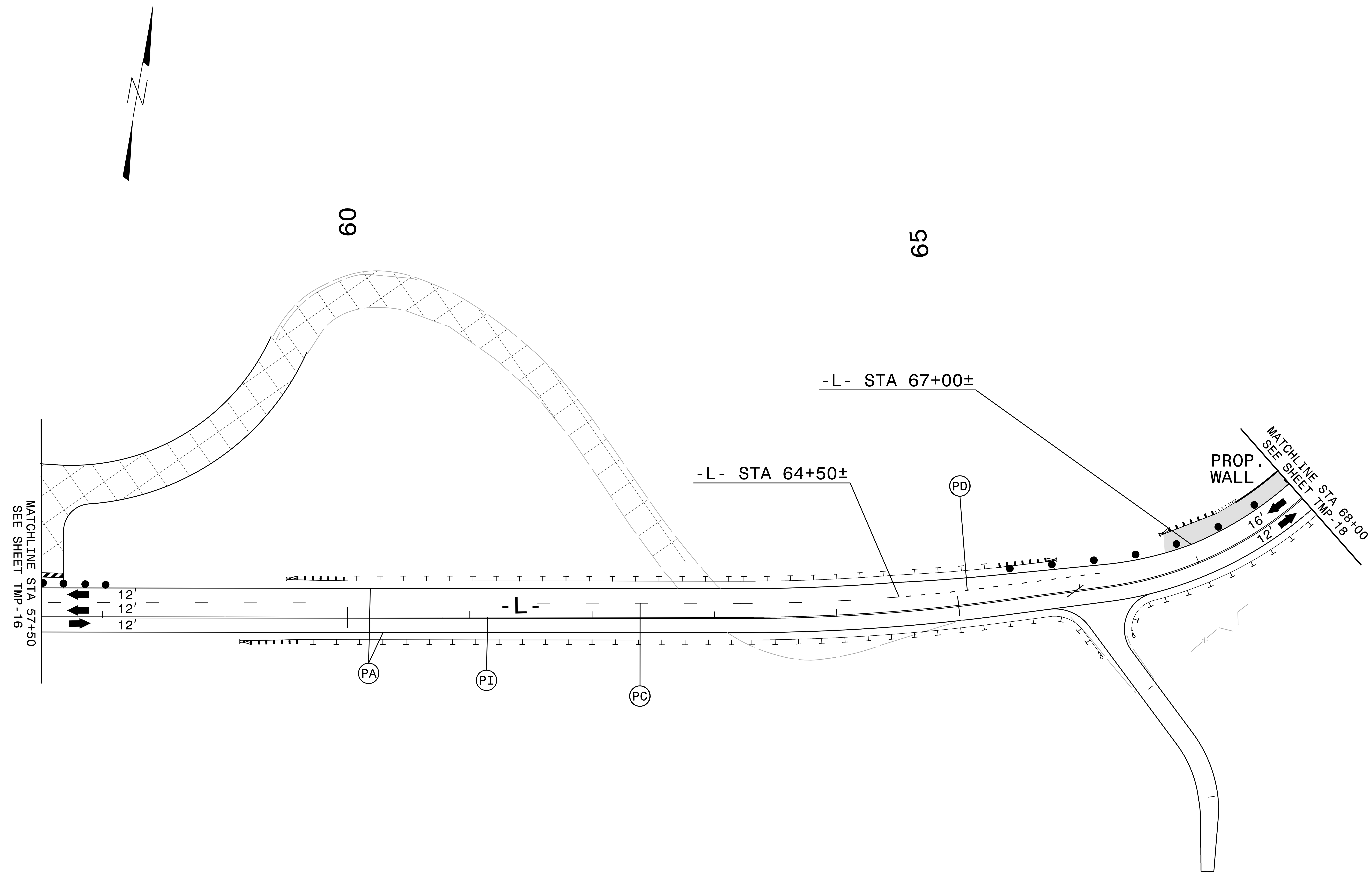

APPROVED: Michael T. Rzepka DATE: 10/30/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
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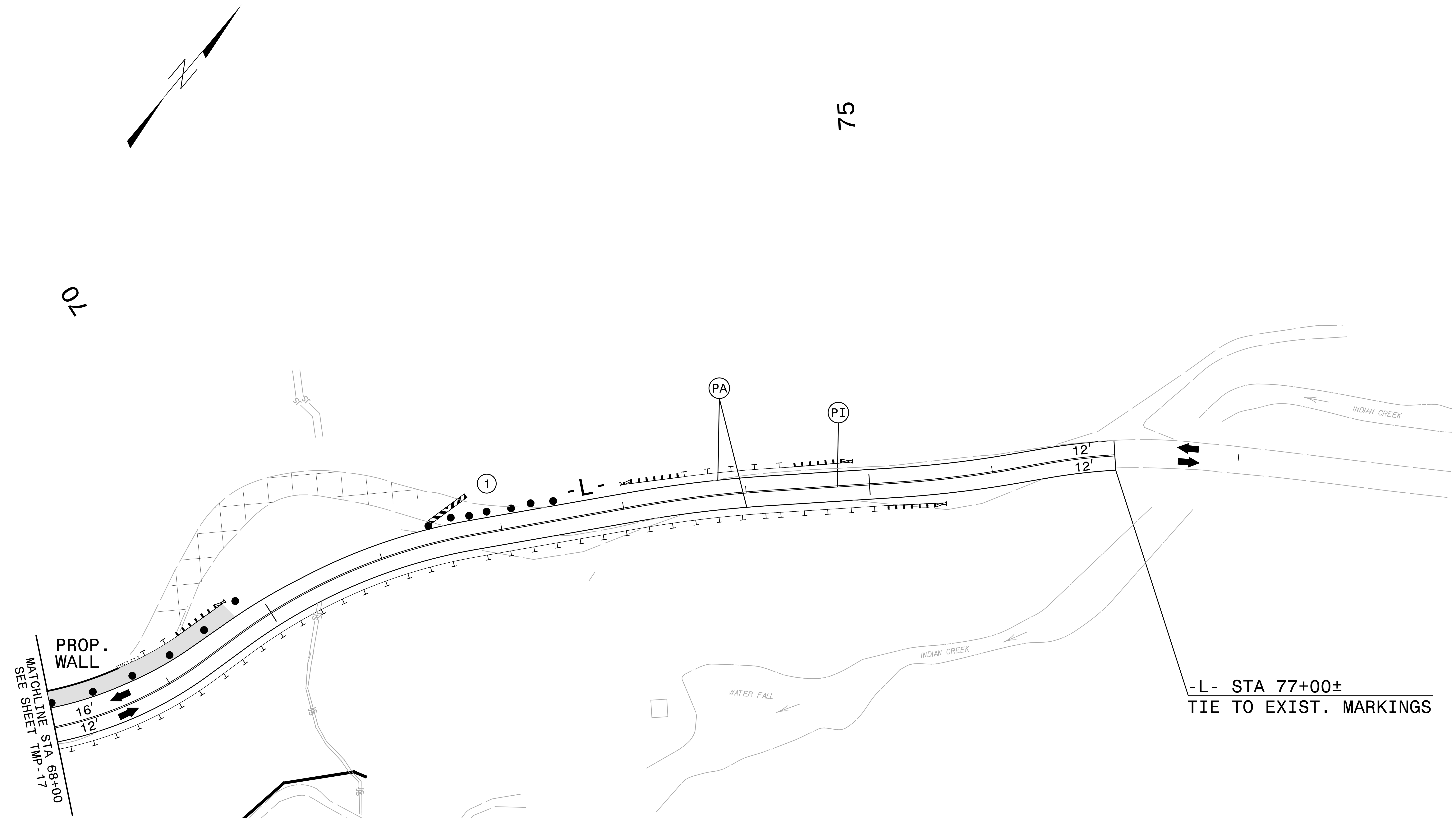
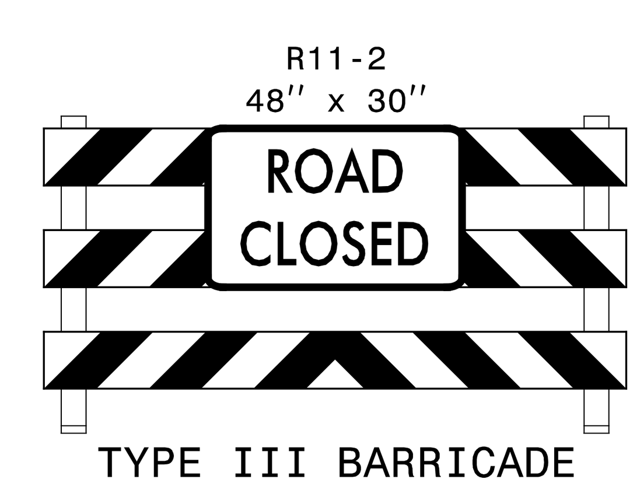
R-2409C	TMP-18





TYPE III BARRICADE

(1)

APPROVED: Michael T. Rzepka DATE: 10/30/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

PHASE IV DETAIL

SCALE:	NONE
DATE:	OCT '15
DWG. BY:	ACP
DESIGN BY:	ACP
REVIEWED BY:	MTR

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

10/30/2015
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ICA Engineering