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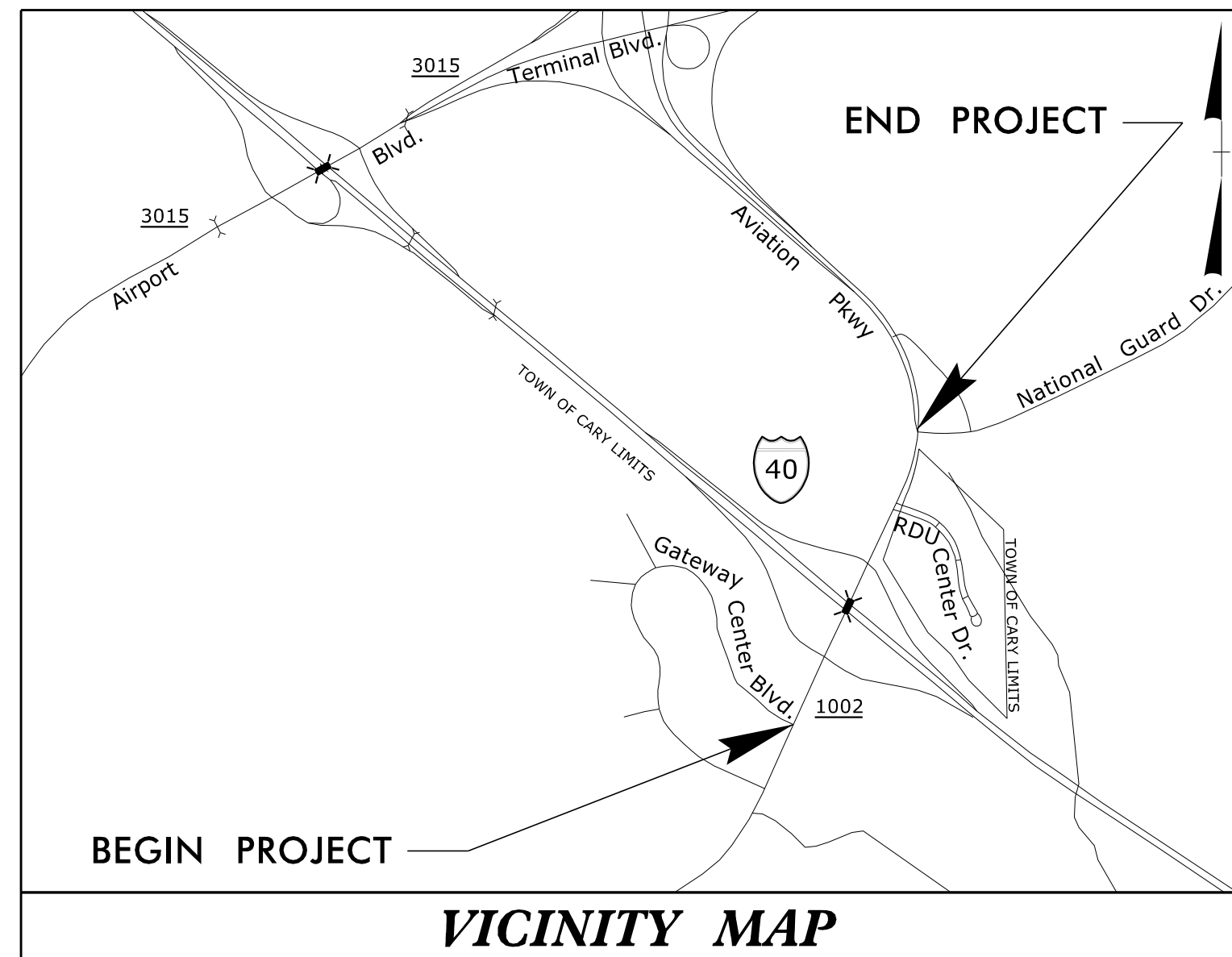
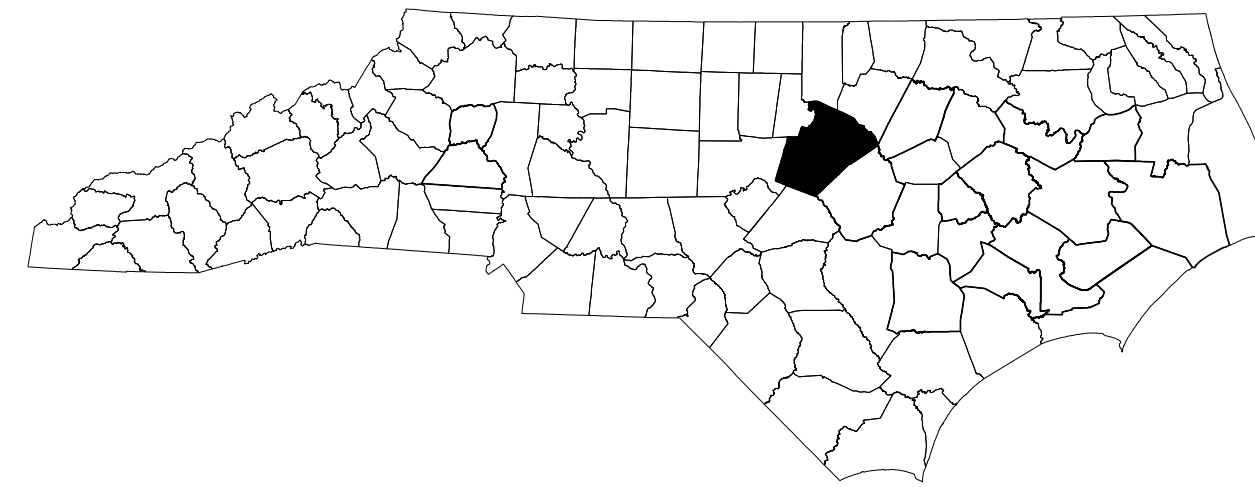
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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**WAKE COUNTY**



**LOCATION:** I-40 AND SR 1002 (AVIATION PARKWAY) INTERCHANGE

**TYPE OF WORK:** GRADING, DRAINAGE, PAVING, SIGNALS  
CULVERTS AND STRUCTURES

**INDEX OF SHEETS**

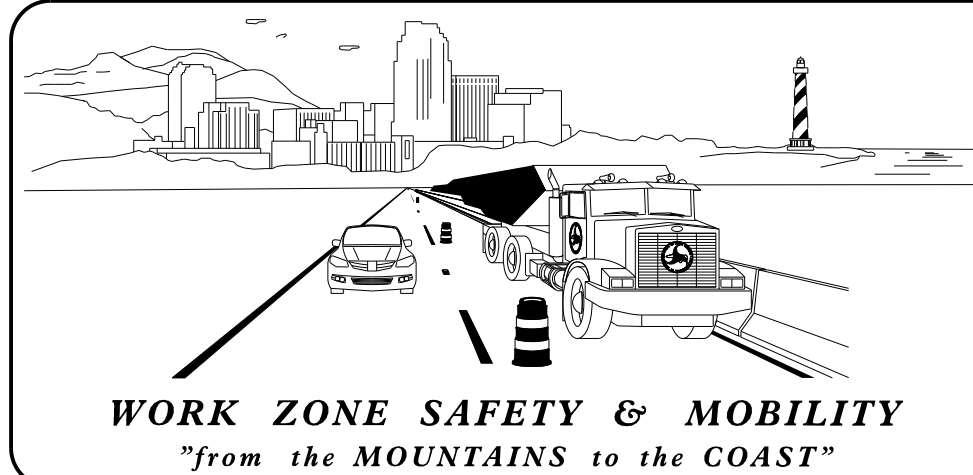
SHEET NO.	TITLE
TMP-01	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
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SHEET NO.  
TMP-01

**I-5506**

**TIP PROJECT:**

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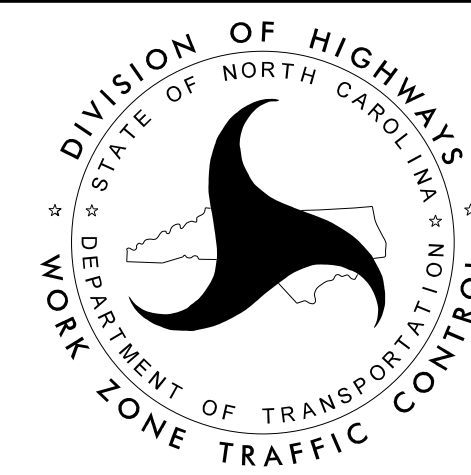
**N.C.D.O.T. WORK ZONE TRAFFIC CONTROL**  
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561  
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)  
PHONE: (919) 814-5000 FAX: (919) 771-2745

JOSEPH E. HUMMER STATE TRAFFIC MANAGEMENT ENGINEER

TRAFFIC CONTROL PROJECT ENGINEER

MICHAEL STEELMAN TRAFFIC CONTROL PROJECT DESIGN ENGINEER

TRAFFIC CONTROL DESIGN ENGINEER



DATE SUBMITTED

SUBMITTAL:

STAGING CONCEPT

MIDPOINT

PRE-FINAL

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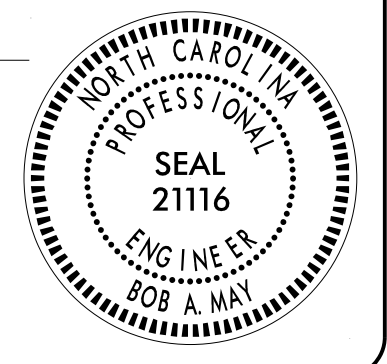
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
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APPROVED: *Bob A. May*

DATE: 11/21/2017

SEAL



# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 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
1101.03	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
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
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
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMP
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.12	PAVEMENT MARKINGS - BRIDGES
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.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

PAVEMENT MASKING

TEMPORARY PAVEMENT

WEDGING

## 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

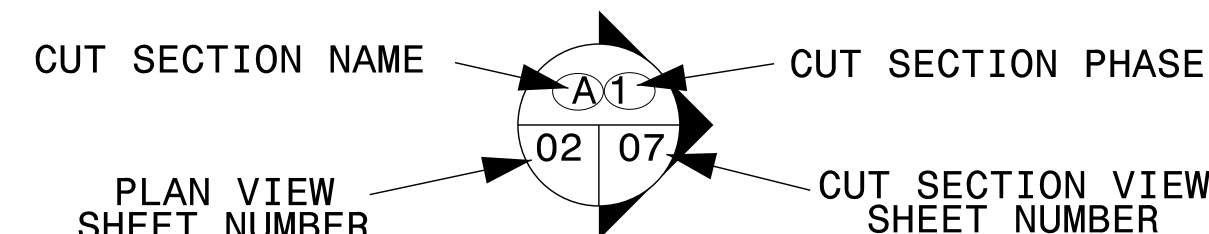
- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## PAVEMENT MARKING SYMBOLS AND CHARACTERS

- PAINT
- LEFT TURN ARROW
  - RIGHT TURN ARROW
  - STRAIGHT ARROW
  - COMBO STRAIGHT/RIGHT ARROW
  - ALPHANUMERIC CHARACTER

## TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	COLD APPLIED PLASTIC (4")		PAINT(8")		WORK ZONE PERFORMANCE(6")
CA	Type4 - Removable Tape	P13	3 FT. - 9 FT./SP WHITE MINISKIP	W6	WHITE EDGELINE
CC	WHITE EDGELINE	PQ	WHITE CROSSWALK LINE	W7	YELLOW EDGELINE
CD	10 FT. WHITE SKIP			WJ	10 FT. WHITE SKIP
CH	3 FT. - 9 FT./SP WHITE MINISKIP		PAINT(24")	WK	3 FT. - 9 FT./SP WHITE MINISKIP
CI	YELLOW SINGLE CENTER	P2	WHITE STOPBAR	WL	WHITE SOLID LANE LINE
	YELLOW DOUBLE CENTER				
	PAINT(4")		TEMPORARY RAISED PAVEMENT MARKERS		WORK ZONE PERFORMANCE(12")
P8	2 FT. - 6 FT./SP WHITE MINISKIP	MH	YELLOW & YELLOW	WS	WHITE GORELINE
PA	WHITE EDGELINE	MI	CRYSTAL & RED		
PB	YELLOW EDGELINE				
PC	10 FT. WHITE SKIP				
PD	3 FT. - 9 FT./SP WHITE MINISKIP				
PE	WHITE SOLID LANE LINE				
PH	YELLOW SINGLE CENTER				
PI	YELLOW DOUBLE CENTER				



**ETHERILL ENGINEERING**

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APPROVED:

DATE: 1/16/2018

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**ROADWAY STANDARD DRAWINGS & LEGEND**

## 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
1. -L- (SR 1002 AVIATION PKWY) NORTH OF -Y5- (GATEWAY CENTRE BLVD)	7:00 A.M. - 10:00 A.M. 3:00 P.M. - 7:00 P.M. MONDAY - FRIDAY
2. -L- (SR 1002 AVIATION PKWY) SOUTH OF -Y5- (GATEWAY CENTRE BLVD)	6:00 A.M. - 10:00 P.M. MONDAY - FRIDAY 9:00 A.M. - 6:00 P.M. SATURDAY - SUNDAY
3. -Y- (I-40) (ONE LANE) TO INCLUDE ALL RAMPS AND LOOPS	6:00 A.M. - 8:00 P.M. MONDAY - FRIDAY 10:00 A.M. - 7:00 P.M. SATURDAY - SUNDAY
4. -Y- (I-40) (TWO LANES)	6:00 A.M. - 10:00 P.M. MONDAY - FRIDAY 7:00 A.M. - 9:00 P.M. SATURDAY - SUNDAY
5. -Y- (I-40) (THREE LANES)	5:00 A.M. - 12:00 A.M. MONDAY - FRIDAY 6:00 A.M. - 1:00 A.M. SATURDAY - SUNDAY

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

ROAD NAME	HOLIDAY
1. -L- (SR 1002 AVIATION PKWY)	
1. FOR ANY UNEXPECTED OCCURRENCE 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 10:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 10:00 P.M. THE FOLLOWING TUESDAY.	
3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 10:00 P.M. MONDAY.	
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 10:00 P.M. TUESDAY.	

- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 10:00 P.M. THE DAY AFTER INDEPENDENCE DAY.  
  
IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 10:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
- FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 10:00 P.M. TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 10:00 P.M. MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 10:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

### ROAD NAME

- Y- (I-40) INCLUDING ALL RAMPS AND LOOPS

### HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 5:00 A.M. DECEMBER 31st TO 1:00 A.M. JANUARY 3RD. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 1:00 A.M. THE FOLLOWING WEDNESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 5:00 A.M. THURSDAY AND 1:00 A.M. TUESDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 5:00 A.M. FRIDAY TO 1:00 A.M. WEDNESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 5:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 1:00 A.M. TWO DAYS AFTER INDEPENDENCE DAY.  
  
IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 5:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 1:00 A.M. THE WEDNESDAY AFTER INDEPENDENCE DAY.
- FOR LABOR DAY, BETWEEN THE HOURS OF 5:00 A.M. FRIDAY AND 1:00 A.M. WEDNESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 5:00 A.M. TUESDAY TO 1:00 A.M. TUESDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 5:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 1:00 A.M. THE FOLLOWING WEDNESDAY AFTER THE WEEK OF CHRISTMAS.

#### C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. -Y- (I-40)	5:00 A.M. - 12:00 A.M. MONDAY - FRIDAY 6:00 A.M. - 1:00 A.M. SATURDAY - SUNDAY

#### D) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
1. -L- (SR 1002 AVIATION PKWY) NORTH OF -Y5- (GATEWAY CENTRE BLVD)	7:00 A.M. - 10:00 A.M. 3:00 P.M. - 7:00 P.M. MONDAY - FRIDAY	15 MINUTES, TRAFFIC OPERATIONS
2. -L- (SR 1002 AVIATION PKWY) SOUTH OF -Y5- (GATEWAY CENTRE BLVD)	6:00 A.M. - 10:00 P.M. MONDAY - FRIDAY 9:00 A.M. - 6:00 P.M. SATURDAY - SUNDAY	15 MINUTES, TRAFFIC OPERATIONS
3. -Y- (I-40)	5:00 A.M. - 12:00 A.M. MONDAY - FRIDAY 6:00 A.M. - 1:00 A.M. SATURDAY - SUNDAY	30 MINUTES, OVERHEAD SIGN REMOVAL AND INSTALLATION

#### E) DO NOT CONDUCT SINGLE VEHICLE HAULING AS FOLLOWS; INGRESS AND EGRESS FROM RAMPS WILL BE ALLOWED:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. -L- (SR 1002 AVIATION PKWY)	7:00 A.M. - 10:00 A.M. 3:00 P.M. - 7:00 P.M. MONDAY - FRIDAY
2. -Y- (I-40) INCLUDING RAMPS AND LOOPS	6:00 A.M. - 8:00 P.M. MONDAY - FRIDAY 10:00 A.M. - 7:00 P.M. SATURDAY - SUNDAY

#### F) DO NOT CONDUCT MULTI-VEHICLE HAULING AS FOLLOWS; INGRESS AND EGRESS FROM RAMPS WILL BE ALLOWED:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. -L- (SR 1002 AVIATION PKWY)	7:00 A.M. - 10:00 A.M. 3:00 P.M. - 7:00 P.M. MONDAY - FRIDAY
2. -Y- (I-40) INCLUDING RAMPS AND LOOPS	6:00 A.M. - 8:00 P.M. MONDAY - FRIDAY 10:00 A.M. - 7:00 P.M. SATURDAY - SUNDAY

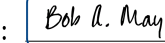
#### G) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

11/21/2017  
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 User: AHayes




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## GENERAL NOTES

## GENERAL NOTES (continued)

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- H) 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.
- I) 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.
- J) 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.

- K) 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.
- L) 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.
- M) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON -L- AVIATION PARKWAY AND -Y- I-40.

### PAVEMENT EDGE DROP OFF REQUIREMENTS

- N) 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.
- O) 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) 500 FT (ON -L-) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 1000 FT (ON -Y-) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

### TRAFFIC PATTERN ALTERATIONS

- P) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

### SIGNING

- Q) 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.
- R) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS. PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- S) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION. COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- T) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- U) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT (ON -L-) IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 1000 FT (ON -Y-) IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

### TRAFFIC BARRIER

- V) 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.

- W) 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

- X) 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 RADIUS, 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.

- Y) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- Z) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

### PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
1. -Y- (I-40)	WORK ZONE "PERFORMANCE" PAVEMENT MARKINGS	TEMPORARY RAISED
2. ALL OTHER ROADS	PAINT	TEMPORARY RAISED
3. BRIDGE STRUCTURE	COLD APPLIED TYPE IV	TEMPORARY RAISED

- BB) 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.
- CC) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- DD) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- EE) TRACE THE EXISTING AND PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO REMOVAL AND INSTALLATION. PLACE DRUMS TO DELINEATE ANY EXISTING AND PROPOSED MONOLITHIC ISLANDS AFTER REMOVAL AND BEFORE INSTALLATION.

### MISCELLANEOUS

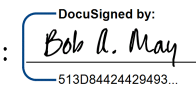
- FF) LAW ENFORCEMENT SHALL BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.
- GG) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 500 FT (ON -L-) AND 500 FT (ON -L-) RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS.
  - PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 1000 FT (ON -Y-) AND 1000 FT (ON -Y-) RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.
- HH) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.
- II) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).
- JJ) CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND OTHERS TO DEVELOP A PLAN FOR ENDING BUS SERVICE ON SHOULDER WITHIN THE CONSTRUCTION AREA, INCLUDING COVERING 'BUSES ON SHOULDER' SIGNS.

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1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
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Bus: 919 851 8077  
Fax: 919 851 8107

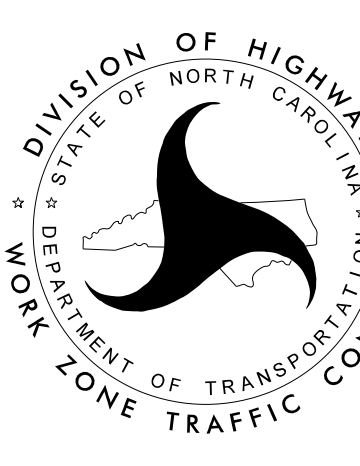
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: 

DATE: 11/21/2017

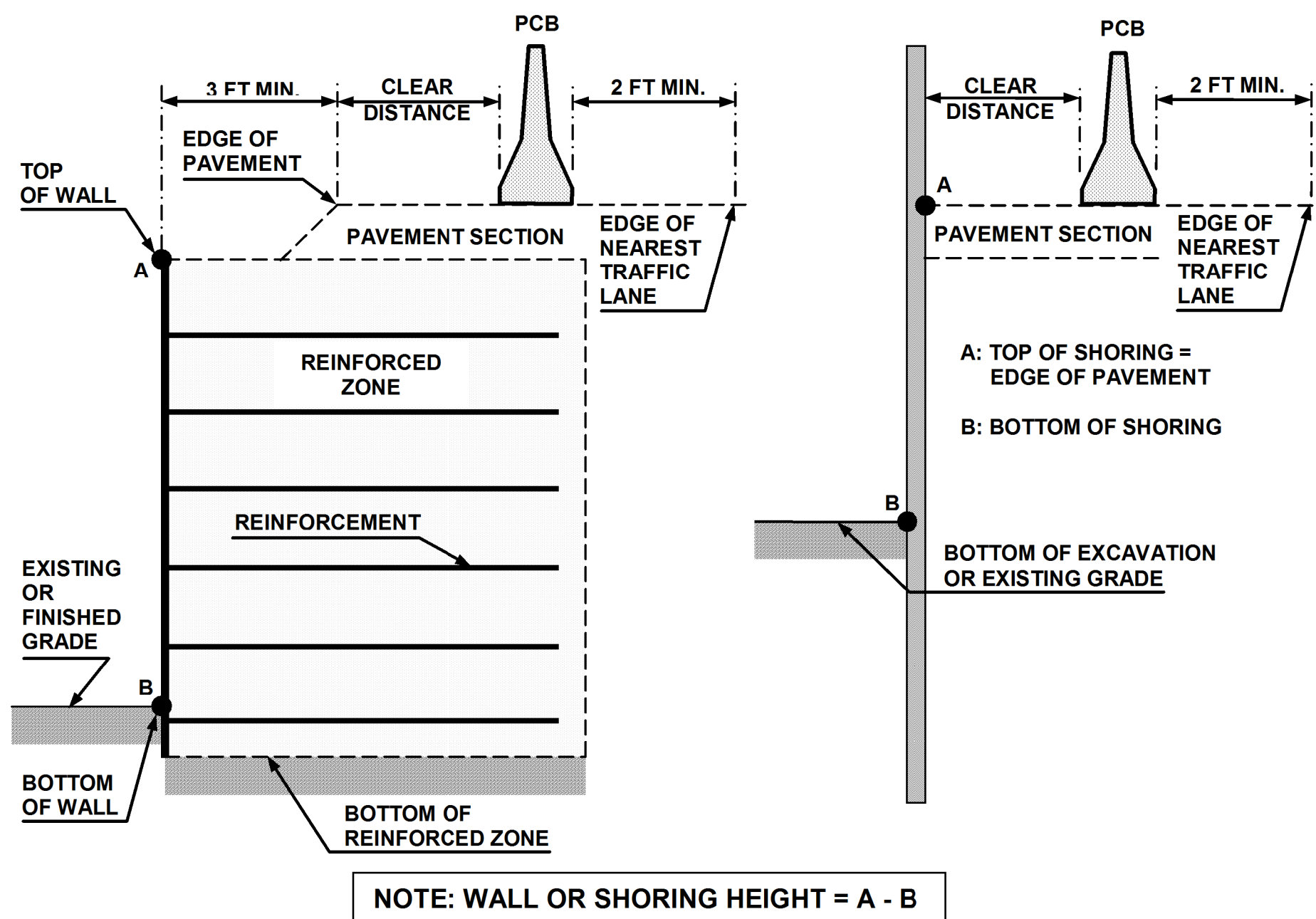


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DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
WORK ZONE TRAFFIC CONTROL

## GENERAL NOTES



**FIGURE A**

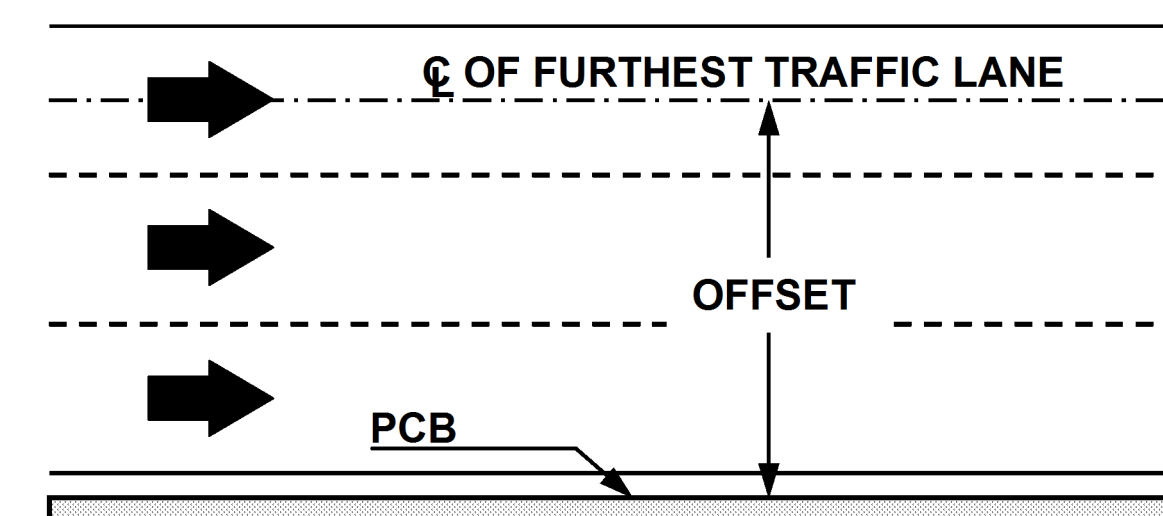
**NOTES**

- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- 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).
- 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.
- 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.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- 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.
- 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.
- 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		
	Concrete	44-50	31	35	41	43	46	49		
		50-56	32	36	42	44	47	50		
		>56	32	36	42	45	47	51		
		<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		
Anchored PCB	Asphalt	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	Concrete (including bridge approach slabs)	All Offsets	24 for All Design Speeds					
				All Offsets	12 for All Design Speeds					

\* See Figure Below



**FIGURE B**

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED *Bob A. May* DATE: 11/21/2011

SEAL  
 NORTH CAROLINA  
 PROFESSIONAL  
 SEAL 21116  
 ENGINEER  
 BOB A. MAY

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

PORTABLE CONCRETE BARRIER  
 AT  
 TEMPORARY SHORING LOCATIONS

11/21/2011  
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## SHORING DATA

### 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 -L- 48+50±, 8.3 FT RIGHT, TO STATION -L- 48+98 ±, 7.0 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 29 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DO NOT USE CANTILEVER, BRACED AND/OR ANCHORED SHORING FOR TEMPORARY SHORING STATION -L- 48+50±, 8.3 FT RIGHT, TO STATION -L- 48+98 ±, 7.0 FT RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 48+50±, 8.3 FT RIGHT, TO STATION -L- 48+98 ±, 7.0 FT RIGHT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

### Shoring Location No. ②A

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 -L- 48+98 ±, 7.0 FT± RIGHT, TO STATION -L- 49+73 ±, 7.0 FT± RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 29 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -L- 48+98 ±, 7.0 FT± RIGHT, TO STATION -L- 49+73 ±, 7.0 FT± RIGHT MAY NOT PENETRATE BELOW ELEVATION 350 FT TO 333 FT 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 -L- 48+98 ±, 7.0 FT± RIGHT, TO STATION -L- 49+73 ±, 7.0 FT± RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 48+98 ±, 7.0 FT± RIGHT, TO STATION -L- 49+73 ±, 7.0 FT± RIGHT. SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

AT THE CONTRACTOR'S OPTION, USE A 1.5:1 (H:V) SLOPE OR FLATTER INSTEAD OF TEMPORARY SHORING FROM STATION -L- 49+27 ±, 7.0 FT± RIGHT, TO STATION -L- 49+73 ±, 7.0 FT± RIGHT.

### Shoring Location No. ②B

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 -L- 48+98 ±, 7.0 FT± RIGHT, TO STATION -L- 49+23 ±, 7.0 FT± RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 29 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DO NOT USE CANTILEVER, BRACED AND/OR ANCHORED SHORING FOR TEMPORARY SHORING FROM STATION -L- 48+98 ±, 7.0 FT± RIGHT, TO STATION -L- 49+23 ±, 7.0 FT± RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 48+98 ±, 7.0 FT± RIGHT, TO STATION -L- 49+23 ±, 7.0 FT± RIGHT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

WHEN BACKFILL FOR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ZONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

### Shoring Location No. ③A

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 -L- 51+45±, 7.0 FT± RIGHT, TO STATION -L- 52+38 ±, 7.0 FT± RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 30 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -L- 51+45±, 7.0 FT± RIGHT, TO STATION -L- 52+38 ±, 7.0 FT± RIGHT MAY NOT PENETRATE BELOW ELEVATION 333 FT TO 348 FT 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 -L- 51+45±, 7.0 FT± RIGHT, TO STATION -L- 52+38 ±, 7.0 FT± RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 51+45±, 7.0 FT± RIGHT, TO STATION -L- 52+38 ±, 7.0 FT± RIGHT. SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

AT THE CONTRACTOR'S OPTION, USE A 1.5:1 (H:V) SLOPE OR FLATTER INSTEAD OF TEMPORARY SHORING FROM STATION -L- 51+45 ±, 7.0 FT± RIGHT, TO STATION -L- 52+06 ±, 7.0 FT± RIGHT.

### Shoring Location No. ③B

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 -L- 52+14±, 7.0 FT± RIGHT, TO STATION -L- 52+38 ±, 7.0 FT± RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 30 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DO NOT USE CANTILEVER, BRACED AND/OR ANCHORED SHORING FOR TEMPORARY SHORING FROM STATION -L- 52+14±, 7.0 FT± RIGHT, TO STATION -L- 52+38 ±, 7.0 FT± RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 52+14±, 7.0 FT± RIGHT, TO STATION -L- 52+38 ±, 7.0 FT± RIGHT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

WHEN BACKFILL FOR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ZONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

### Shoring Location No. ④

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 -L- 52+38±, 7.0 FT RIGHT, TO STATION -L- 53+50 ±, 10.7 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 30 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DO NOT USE CANTILEVER, BRACED AND/OR ANCHORED SHORING FOR TEMPORARY SHORING FROM STATION -L- 52+38±, 7.0 FT RIGHT, TO STATION -L- 53+50 ±, 10.7 FT RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 52+38±, 7.0 FT RIGHT, TO STATION -L- 53+50 ±, 10.7 FT RIGHT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

### Shoring Location No. ⑤

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 -L- 45+74±, 15.6 FT RIGHT, TO STATION -L- 48+50 ±, 8.3 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 29 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DO NOT USE CANTILEVER, BRACED AND/OR ANCHORED SHORING FOR TEMPORARY SHORING FROM STATION -L- 45+74±, 15.6 FT RIGHT, TO STATION -L- 48+50 ±, 8.3 FT RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 45+74±, 15.6 FT RIGHT, TO STATION -L- 48+50 ±, 8.3 FT RIGHT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

### Shoring Location No. ⑥

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 -L- 53+50±, 10.7 FT RIGHT, TO STATION -L- 55+00 ±, 12.6 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 30 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DO NOT USE CANTILEVER, BRACED AND/OR ANCHORED SHORING FOR TEMPORARY SHORING FROM STATION -L- 53+50±, 10.7 FT RIGHT, TO STATION -L- 55+00 ±, 12.6 FT RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 53+50±, 10.7 FT RIGHT, TO STATION -L- 55+00 ±, 12.6 FT RIGHT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

### Shoring Location No. ⑦

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.

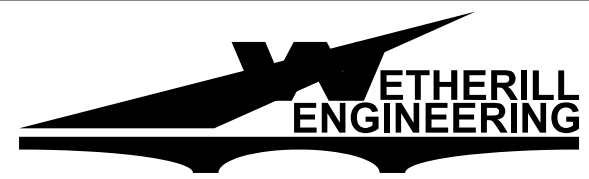
DESIGN TEMPORARY SHORING FROM STATION -Y- 109+25±, 6.3 FT LEFT, TO STATION -Y- 110+25 ±, 6.3 FT LEFT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:  
 UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 38 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -Y- 109+25±, 6.3 FT LEFT, TO STATION -Y- 110+25 ±, 6.3 FT LEFT MAY NOT PENETRATE BELOW ELEVATION 331 FT TO 327 FT 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 -Y- 109+25±, 6.3 FT LEFT, TO STATION -Y- 110+25 ±, 6.3 FT LEFT.

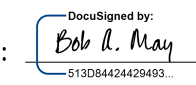
AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -Y- 109+25±, 6.3 FT LEFT, TO STATION -Y- 110+25 ±, 6.3 FT LEFT. SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION


APPROVED: 

DATE: 11/21/2017

SEAL



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



## SHORING DATA

## SHORING DATA

Shoring Location No. **8**

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 -Y- 109+25±, 6.2 FT RIGHT, TO STATION -Y- 110+25 ±, 6.2 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 38 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -Y- 109+25±, 6.2 FT RIGHT, TO STATION -Y- 110+25 ±, 6.2 FT RIGHT MAY NOT PENETRATE BELOW ELEVATION 331 FT TO 327 FT 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 -Y- 109+25±, 6.2 FT RIGHT, TO STATION -Y- 110+25 ±, 6.2 FT RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -Y- 109+25±, 6.2 FT RIGHT, TO STATION -Y- 110+25 ±, 6.2 FT RIGHT. SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

Shoring Location No. **9**

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 -Y- 109+50±, 79.2 FT RIGHT, TO STATION -Y- 110+36 ±, 79.2 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT ( $\gamma$ )= 120 LB/CF  
 FRICTION ANGLE ( $\phi$ )= 38 DEGREES  
 COHESION (c) = 0 LB/SF  
 GROUNDWATER ELEVATION = 326.0 FT ±

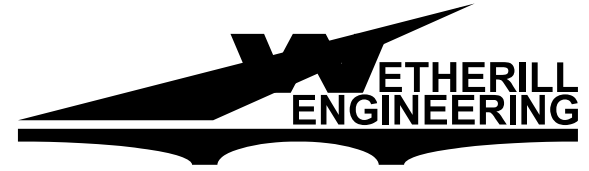
DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -Y- 109+50±, 79.2 FT RIGHT, TO STATION -Y- 110+36 ±, 79.2 FT RIGHT MAY NOT PENETRATE BELOW ELEVATION 333 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -Y- 109+50±, 79.2 FT RIGHT, TO STATION -Y- 110+36 ±, 79.2 FT RIGHT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -Y- 109+50±, 79.2 FT RIGHT, TO STATION -Y- 110+36 ±, 79.2 FT RIGHT. SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION -Y- 109+50±, 79.2 FT RIGHT, TO STATION -Y- 110+36 ±, 79.2 FT RIGHT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

I:\2\2017  
 P:\2013\I-5506\Traffic\WZTC\TMP\ND\035\_I-5506\_Traffic\WZTC\_TMP\_ND\_02B\_Shorling\_Data.dgn  
 User: AHayes

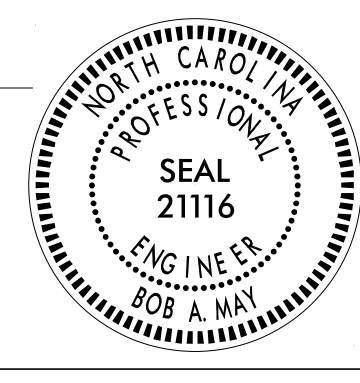


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 License No. F-0377  
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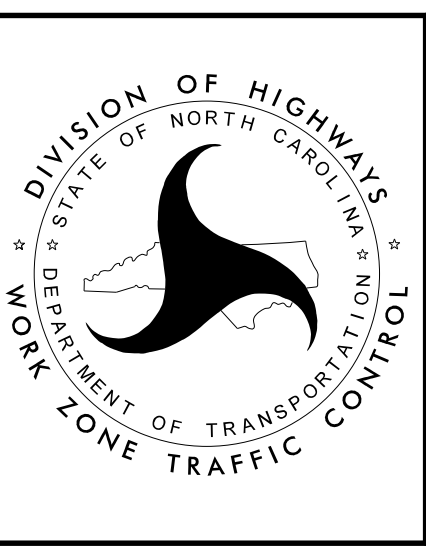
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
DocuSigned by:  
Bob A. May  
51064424426493

DATE: 11/21/2017



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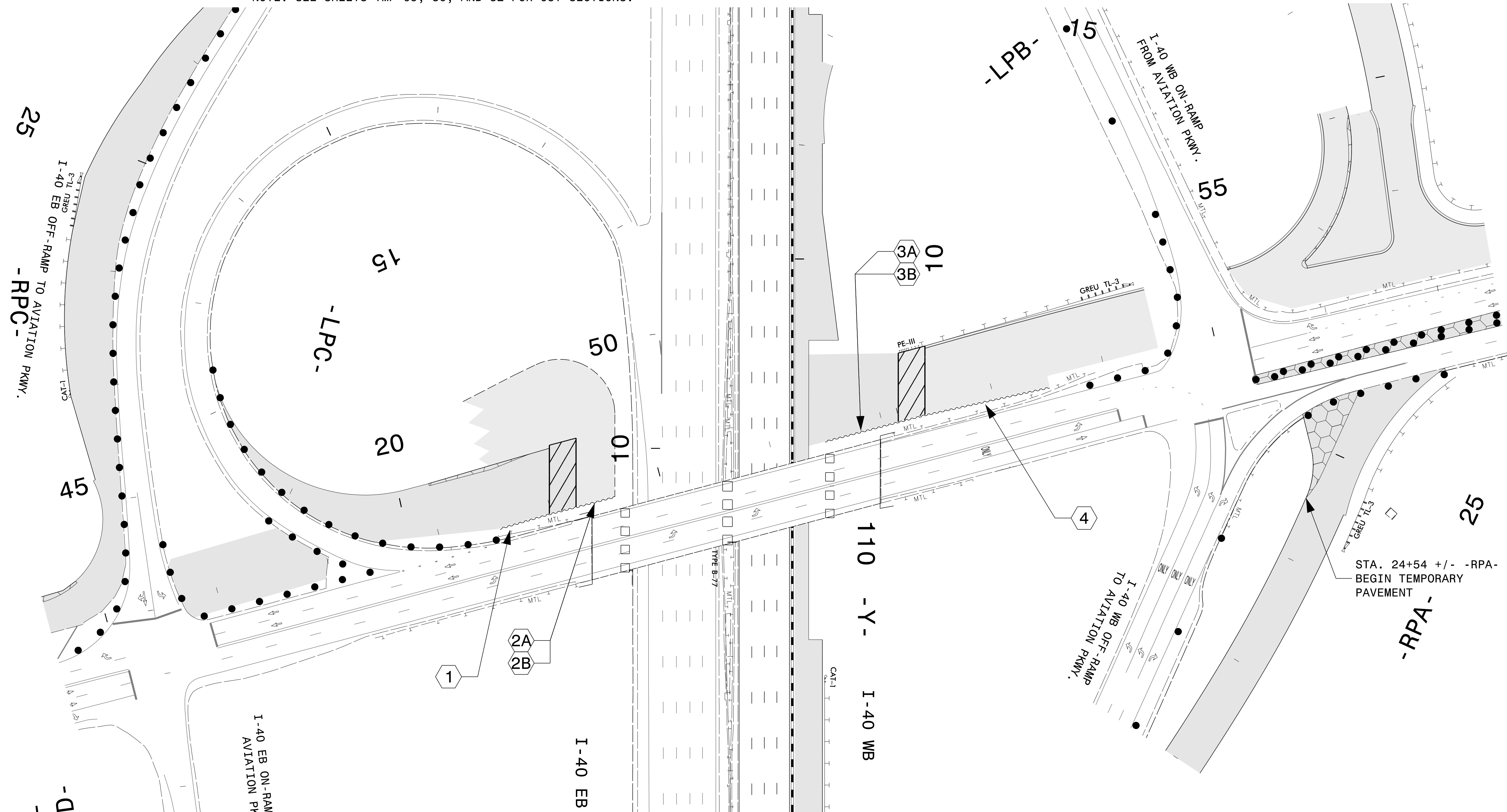


SHORING DATA



- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| <p>1 QUANTITY = 221 SF</p> <p>TEMPORARY SHORING<br/>FROM STA. 48+50 +/- -L, 8.3' RT<br/>TO STA. 48+98 +/- -L, 7' RT</p> <p>(SEE SHEET TMP-02A FOR<br/>TEMPORARY SHORING NOTES)</p> | <p>2A QUANTITY = 293 SF</p> <p>TEMPORARY SHORING<br/>FROM STA. 48+98 +/- -L, 7' RT<br/>TO STA. 49+73 +/- -L, 7' RT</p> <p>(SEE SHEET TMP-02A FOR<br/>TEMPORARY SHORING NOTES)</p> | <p>2B QUANTITY = 198 SF</p> <p>TEMPORARY SHORING<br/>FROM STA. 48+98 +/- -L, 7' RT<br/>TO STA. 49+23 +/- -L, 7' RT</p> <p>(SEE SHEET TMP-02A FOR<br/>TEMPORARY SHORING NOTES)</p> | <p>3A QUANTITY = 410 SF</p> <p>TEMPORARY SHORING<br/>FROM STA. 51+45 +/- -L, 7' RT<br/>TO STA. 52+38 +/- -L, 7' RT</p> <p>(SEE SHEET TMP-02A FOR<br/>TEMPORARY SHORING NOTES)</p> | <p>3B QUANTITY = 190 SF</p> <p>TEMPORARY SHORING<br/>FROM STA. 52+14 +/- -L, 7' RT<br/>TO STA. 52+38 +/- -L, 7' RT</p> <p>(SEE SHEET TMP-02A FOR<br/>TEMPORARY SHORING NOTES)</p> | <p>4 QUANTITY = 672 SF</p> <p>TEMPORARY SHORING<br/>FROM STA. 52+38 +/- -L, 7' RT<br/>TO STA. 53+50 +/- -L, 10.7' RT</p> <p>(SEE SHEET TMP-02A FOR<br/>TEMPORARY SHORING NOTES)</p> |
|--|---|---|---|---|---|

NOTE: SEE SHEETS TMP-09, 30, AND 32 FOR CUT SECTIONS.



11/21/2017  
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 User: AHayes

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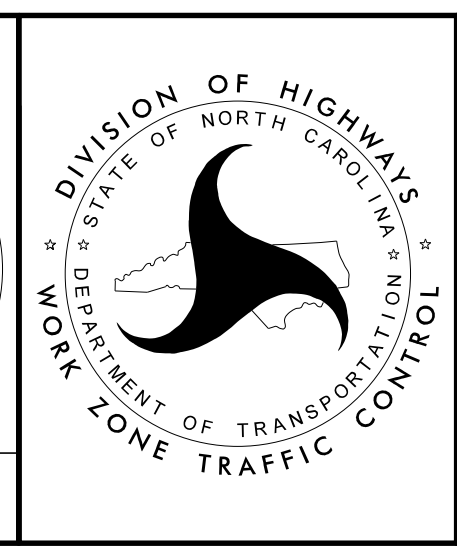
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
DocuSigned by:  
Bob A. May  
513D8442420493

DATE: 11/21/2017

**SEAL**  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 21116  
 BOB A. MAY

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**PHASE I TEMPORARY SHORING DETAIL**

5 QUANTITY = 966 SF

TEMPORARY SHORING  
FROM STA. 45+74 +/- -L, 15.6' RT  
TO STA. 48+50 +/- -L, 8.3' RT

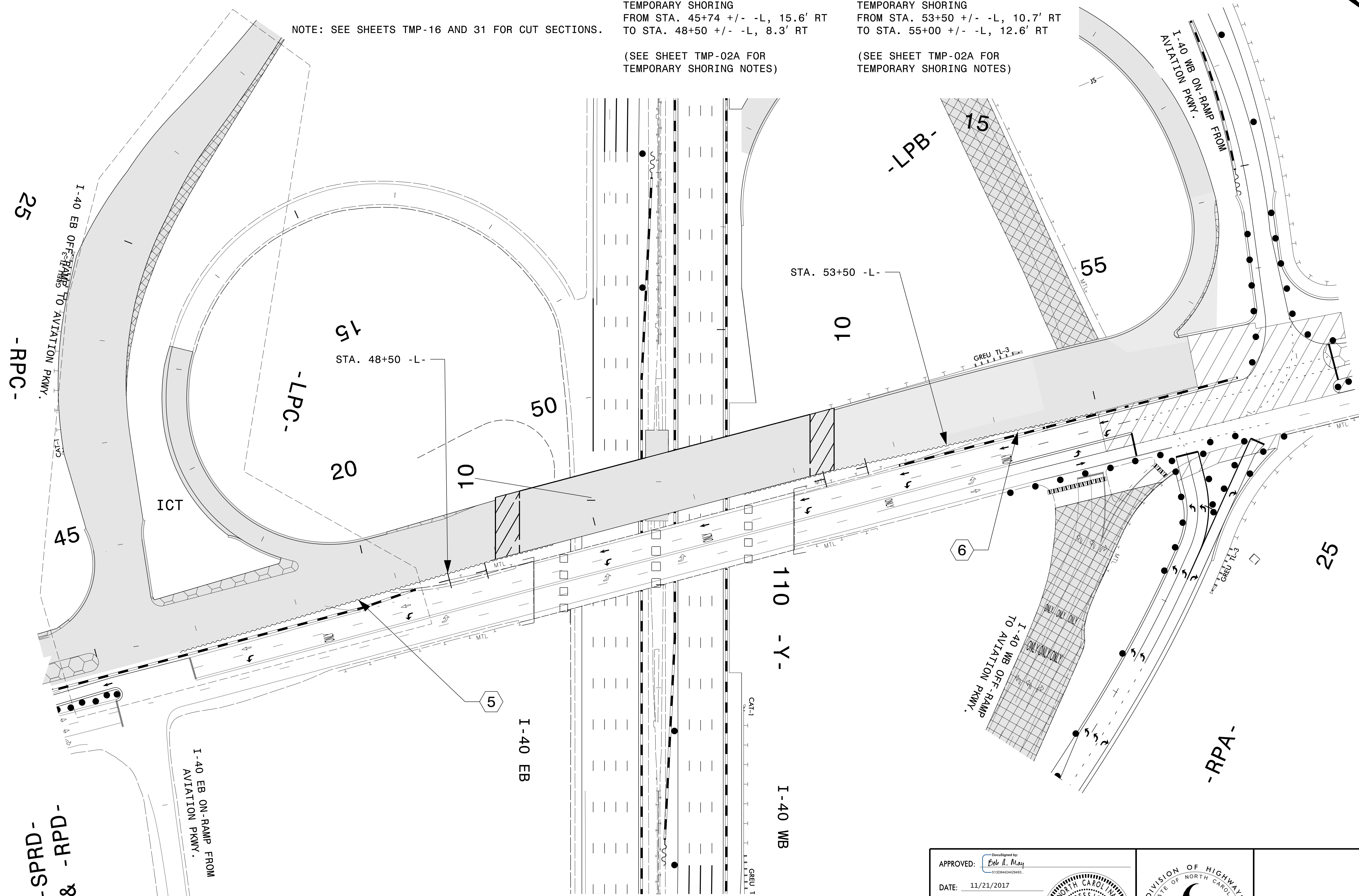
(SEE SHEET TMP-02A FOR  
TEMPORARY SHORING NOTES)

6 QUANTITY = 510 SF

TEMPORARY SHORING  
FROM STA. 53+50 +/- -L, 10.7' RT  
TO STA. 55+00 +/- -L, 12.6' RT

(SEE SHEET TMP-02A FOR  
TEMPORARY SHORING NOTES)

NOTE: SEE SHEETS TMP-16 AND 31 FOR CUT SECTIONS.



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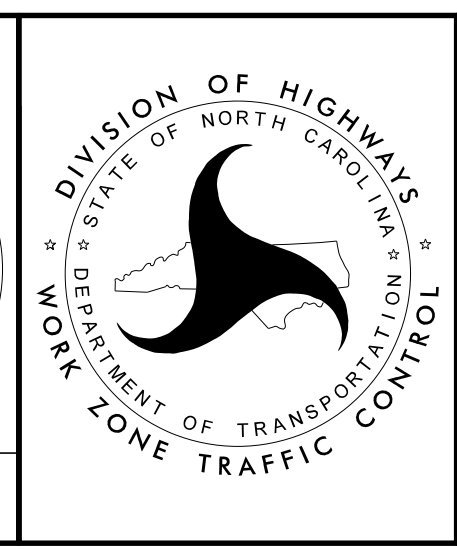
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
DocuSigned by:  
Bob A. May  
51308442420493

DATE: 11/21/2017

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 ENGINEER  
 21116  
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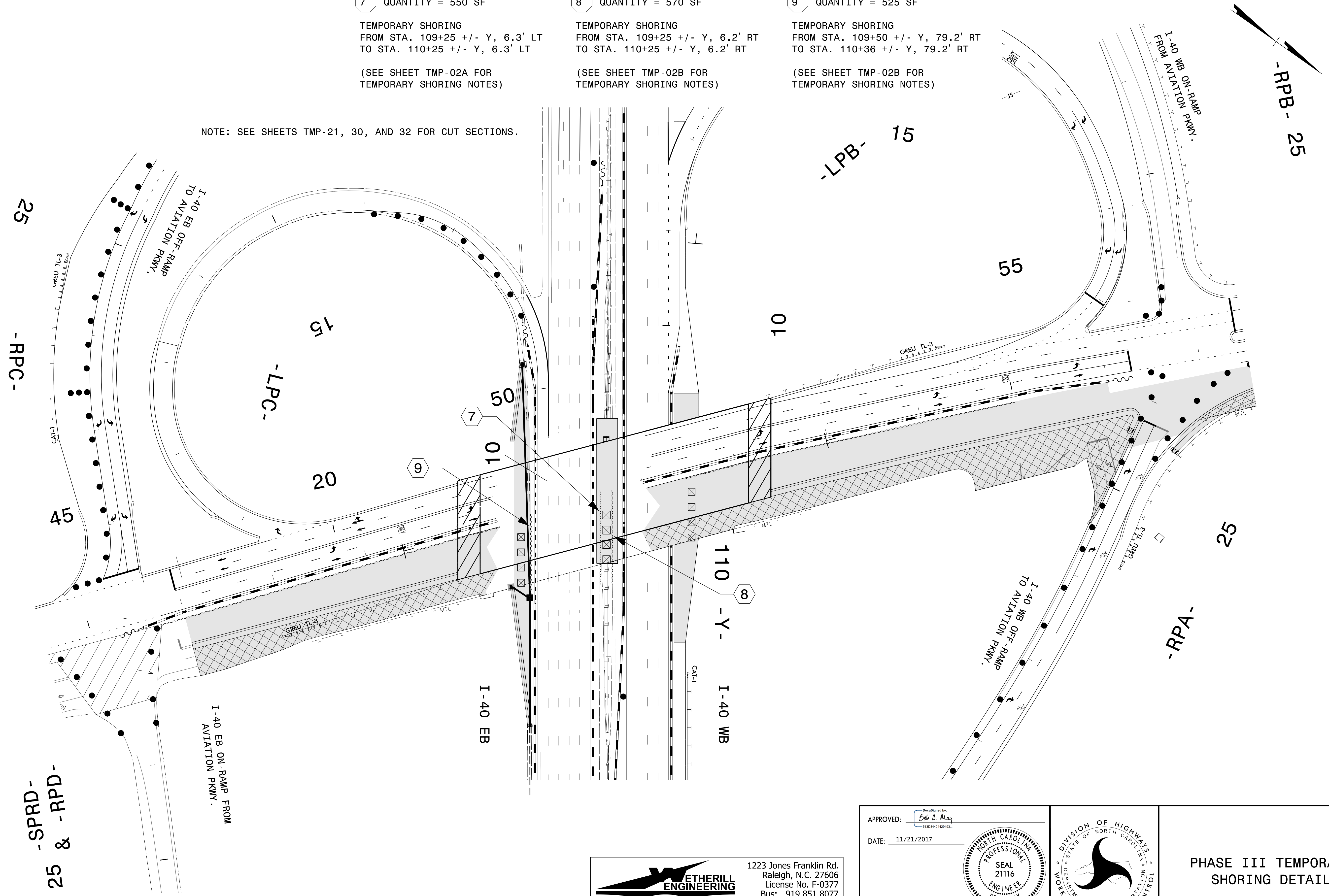
PHASE II TEMPORARY  
SHORING DETAIL

7 QUANTITY = 550 SF  
 TEMPORARY SHORING  
 FROM STA. 109+25 +/- Y, 6.3' LT  
 TO STA. 110+25 +/- Y, 6.3' LT  
 (SEE SHEET TMP-02A FOR  
 TEMPORARY SHORING NOTES)

8 QUANTITY = 570 SF  
 TEMPORARY SHORING  
 FROM STA. 109+25 +/- Y, 6.2' RT  
 TO STA. 110+25 +/- Y, 6.2' RT  
 (SEE SHEET TMP-02B FOR  
 TEMPORARY SHORING NOTES)

9 QUANTITY = 525 SF  
 TEMPORARY SHORING  
 FROM STA. 109+50 +/- Y, 79.2' RT  
 TO STA. 110+36 +/- Y, 79.2' RT  
 (SEE SHEET TMP-02B FOR  
 TEMPORARY SHORING NOTES)

NOTE: SEE SHEETS TMP-21, 30, AND 32 FOR CUT SECTIONS.



11/21/2017  
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 User: AHayes

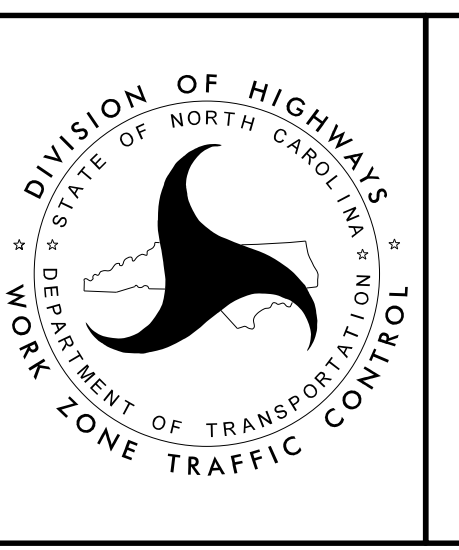
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 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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APPROVED: *Bob A. May*  
 DATE: 11/21/2017

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 21116  
 BOB A. MAY

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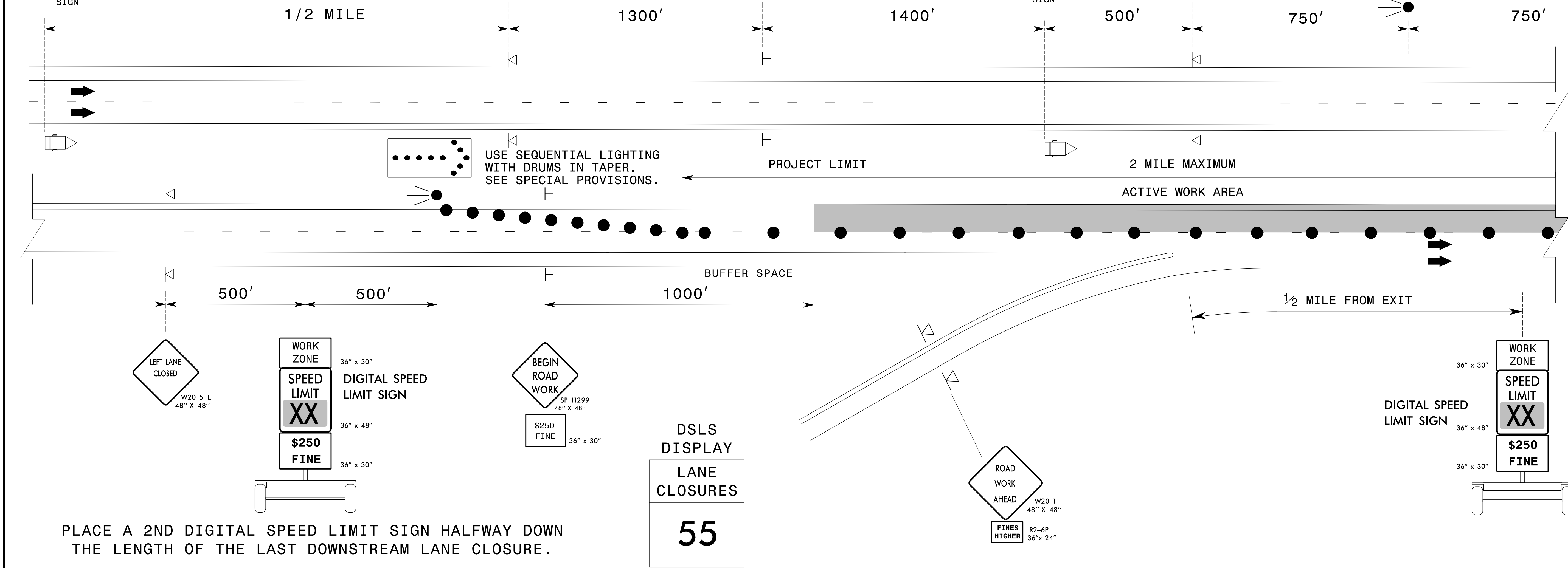
**PHASE III TEMPORARY SHORING DETAIL**

MESSAGE NO. 1	MESSAGE NO. 2
55 MPH ZONE AHEAD	\$250 FINE AHEAD

CHANGEABLE MESSAGE SIGN

MESSAGE NO. 1	MESSAGE NO. 2
BEGIN 55 MPH 2500 FT	\$250 FINE AHEAD

CHANGEABLE MESSAGE SIGN



PLACE A 2ND DIGITAL SPEED LIMIT SIGN HALFWAY DOWN THE LENGTH OF THE LAST DOWNSTREAM LANE CLOSURE.

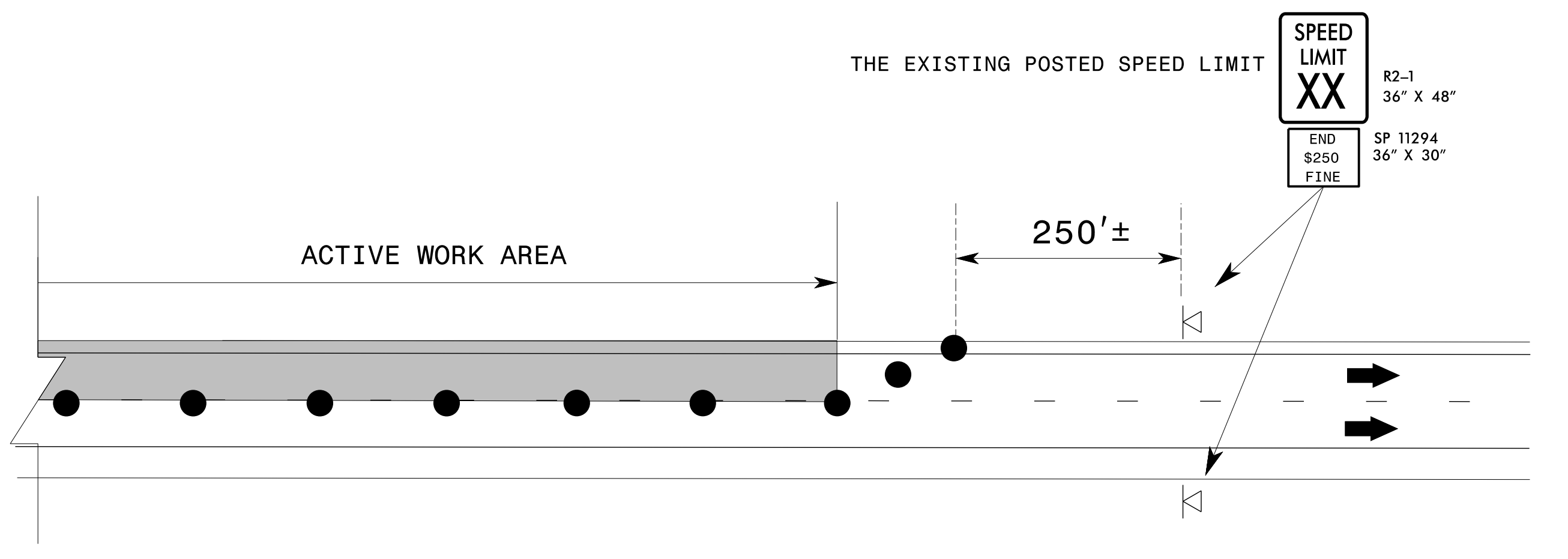
### NOTES

1. ALL ORIGINAL SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED. THE DIGITAL SPEED LIMIT SIGNS WILL TAKE THE PLACE OF ALL ORIGINAL STATIONARY SPEED LIMIT SIGNS. THE DIGITAL SPEED LIMIT SIGNS SHALL BE TRAILER MOUNTED.
2. THE STATE TRAFFIC ENGINEER HAS TO ORDINANCE THE "WZVSLR" IN ORDER FOR THE REDUCTION AND/OR \$250 SPEEDING FINE TO BE VALID AND ENFORCEABLE. NO SPEED LIMIT MESSAGES/SIGNS SHALL BE INSTALLED PRIOR TO RECEIVING A SIGNED ORDINANCE. IN ADDITION, THE \$250 SPEEDING FINE ALSO REQUIRES A SEPARATE SIGNED ORDINANCE BY THE STATE TRAFFIC ENGINEER.
3. EACH DIRECTION OF THE PROJECT IS TO BE EVALUATED FOR THE "WZVSLR". THIS DRAWING INTENTIONALLY HAS 1 DIRECTION SIGNED AS A REMINDER TO CAREFULLY CONSIDER WHETHER BOTH DIRECTIONS OF THE PROJECT NEED TO HAVE THE SPEED LIMIT REDUCED.
4. FOR DOUBLE LANE CLOSURES, REFER TO RSD 1101.02, SHEET 8 OF 15. APPLY THE SAME PRINCIPLES FOR TRIPLE LANE CLOSURES.
5. FOR DOUBLE AND TRIPLE LANE CLOSURES, ADD ONE ADDITIONAL CMS ONE MILE IN ADVANCE OF 1" CMS SHOWN ON DRAWING TO WARN/NOTIFY MOTORISTS OF UPCOMING SPEED LIMIT REDUCTION/LANE CLOSURE.

MESSAGE NO. 1	MESSAGE NO. 2
(SIDE) # LANES CLOSED	REDUCE SPEED AHEAD

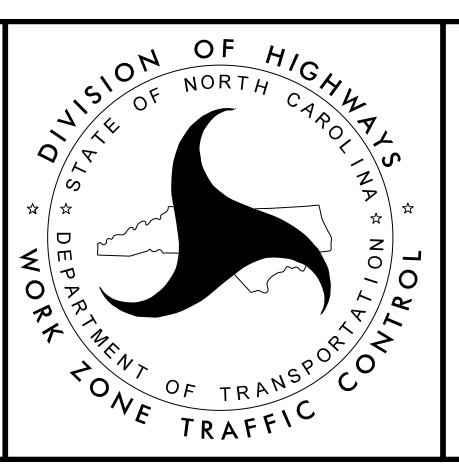
CHANGEABLE MESSAGE SIGN

WHERE (SIDE) IS EITHER LEFT OR RIGHT AND # IS EITHER 2 OR 3.

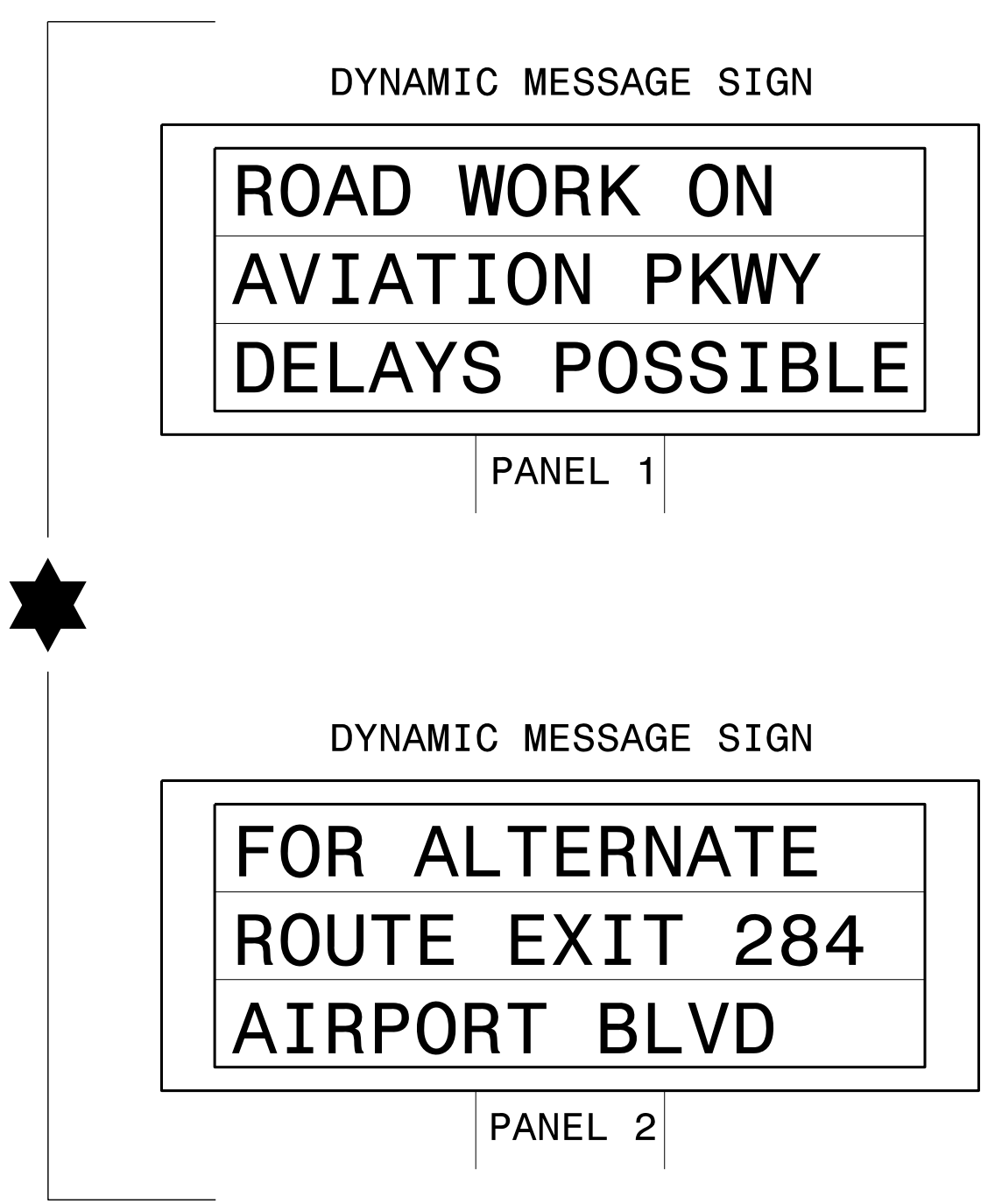


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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



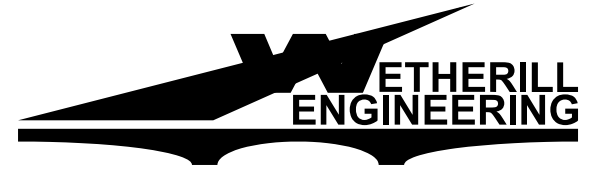
**WORK ZONE "VARIABLE" SPEED LIMIT REDUCTION USING DIGITAL SPEED LIMIT SIGNS**



NOTE: CONTACT THE NCDOT STATE TRAFFIC OPERATIONS CENTER AT 919-825-2617 TO COORDINATE MESSAGES.

NOTE: MESSAGES ARE NOT TO BE DISPLAYED DURING 60 ICT BEGINNING IN PHASE II, STEP 3.

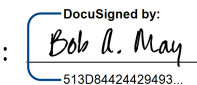
11/21/2017  
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 User: AHayes



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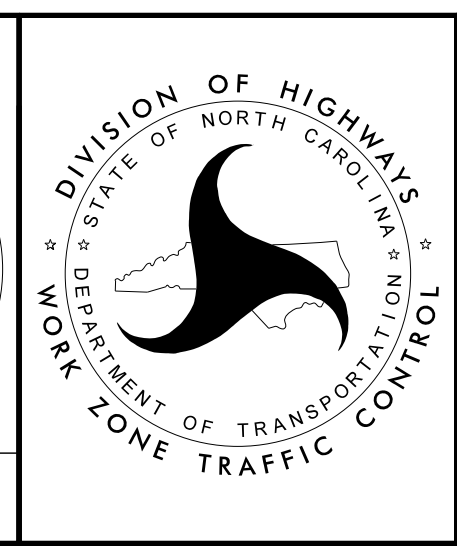
APPROVED:   
DocuSigned by:  
Bob A. May  
51308426420493

DATE: 11/21/2017

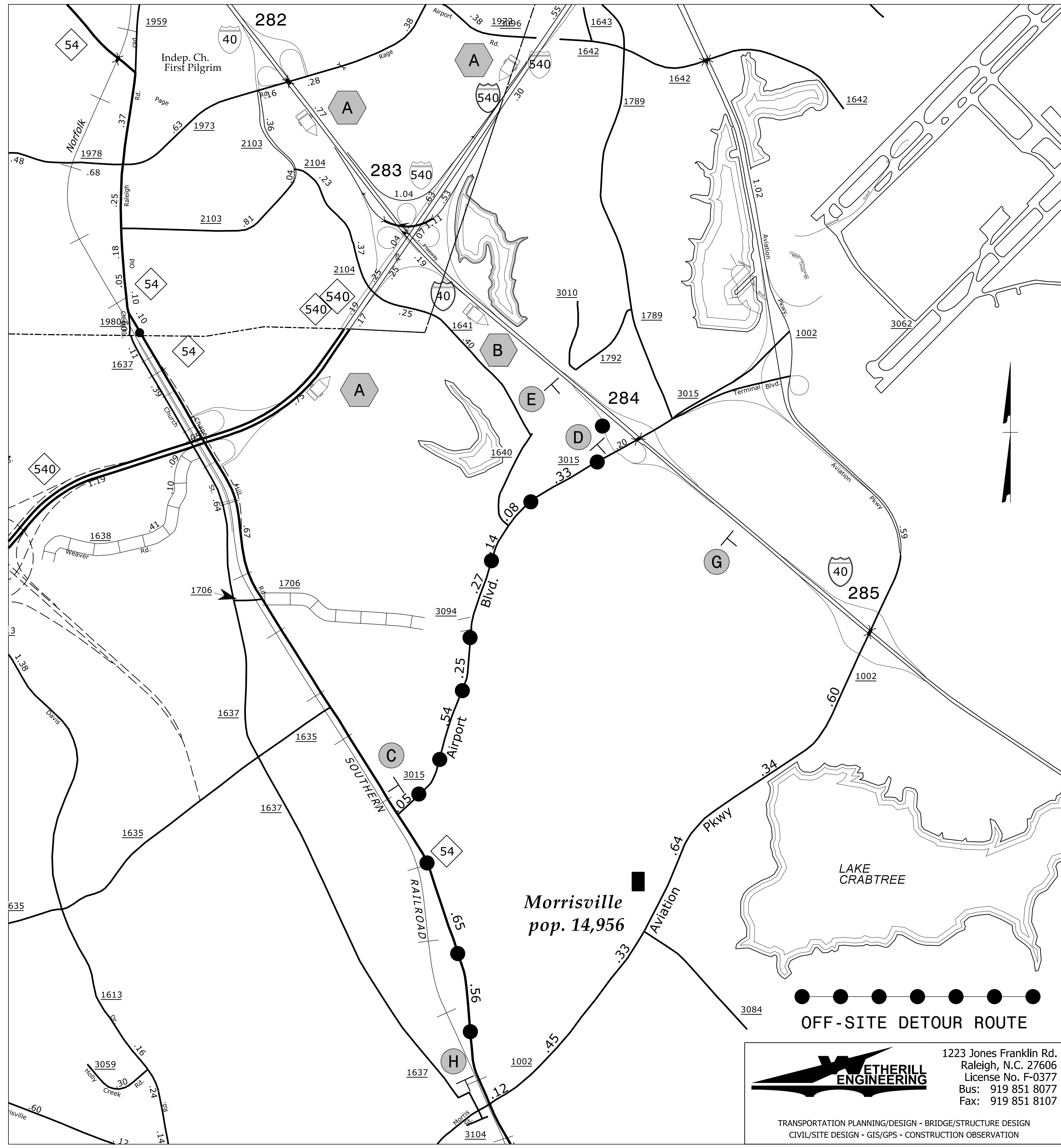
SEAL



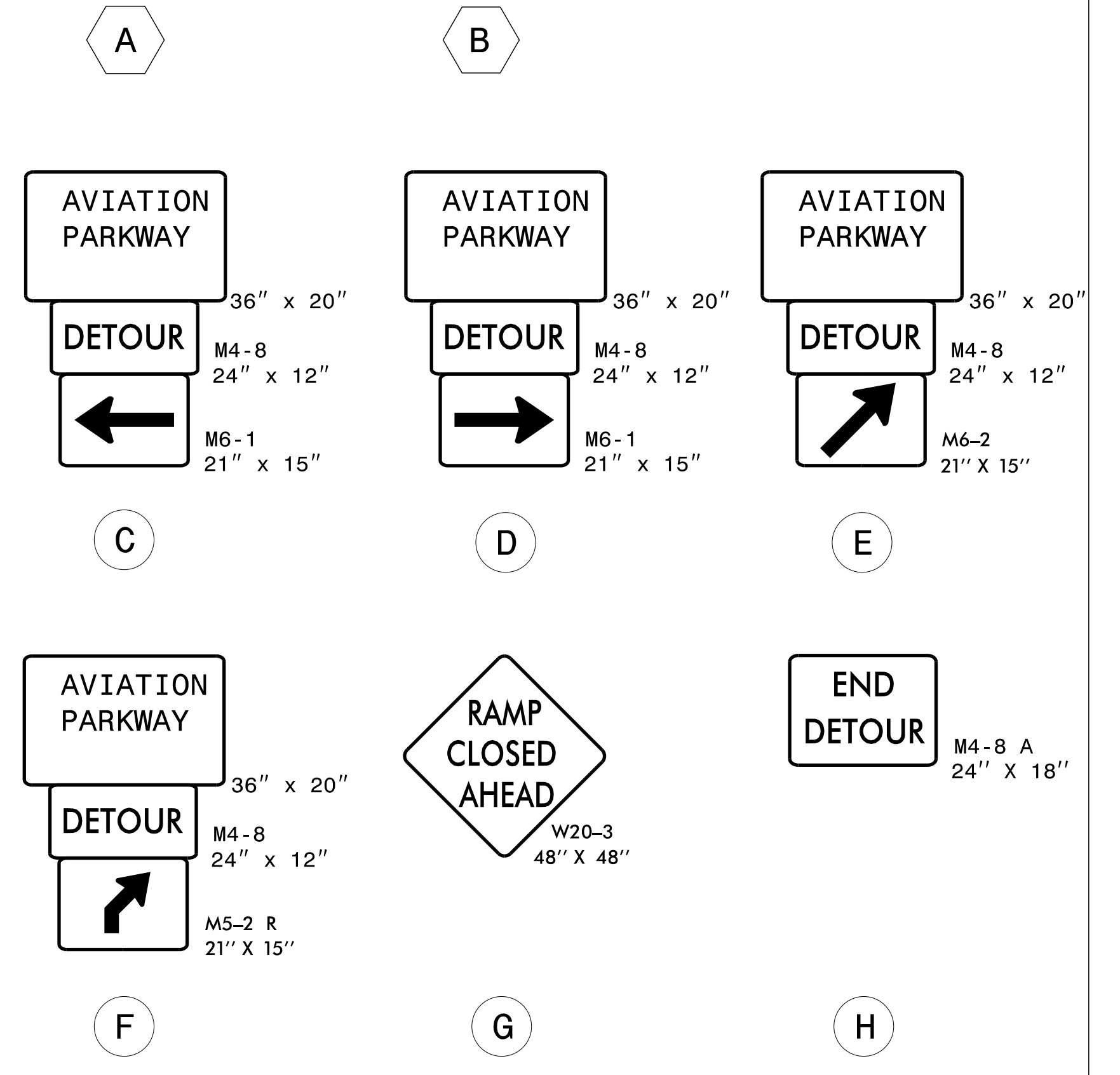
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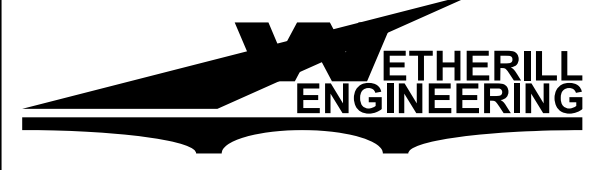
**DYNAMIC MESSAGE  
BOARD PLAN**

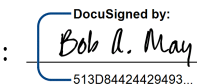




MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2
I-40 EB	DETOUR	EXIT 285	DETOUR
EXIT 285	USE	AVIATION	EXIT 284
CLOSED	EXIT 284	CLOSED	
CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN	



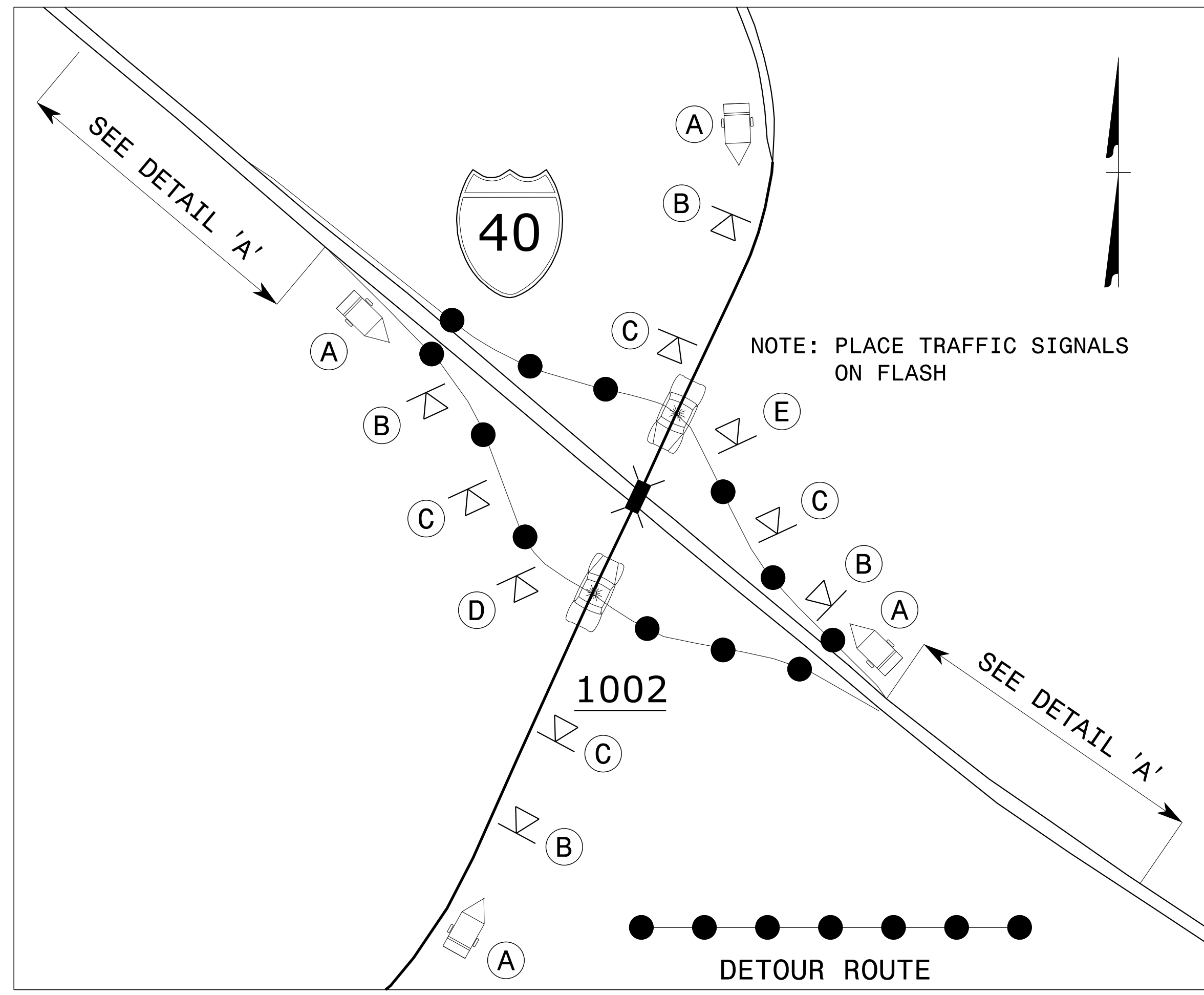
11/21/2017  
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 User: AHayes


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APPROVED:   
 DATE: 11/21/2017  
 SEAL  


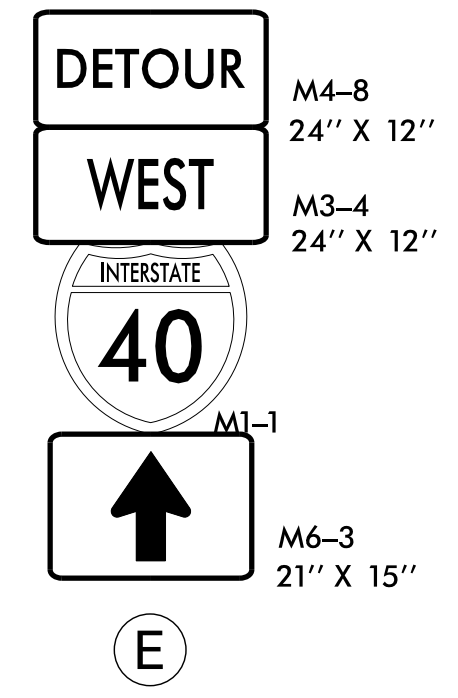
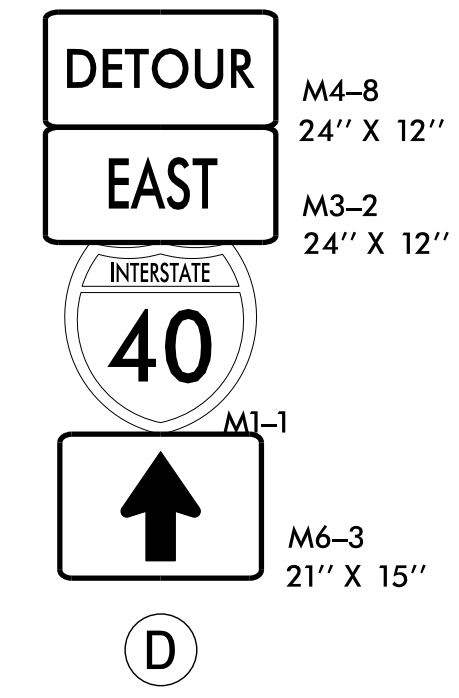
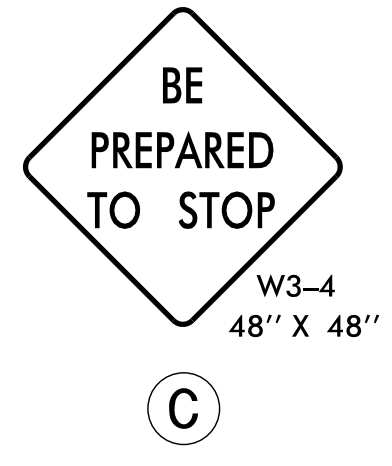
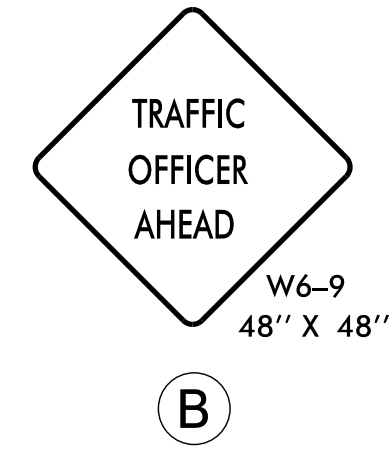

 DIVISION OF HIGHWAYS  
 NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

**-RPC- OFF-SITE DETOUR**

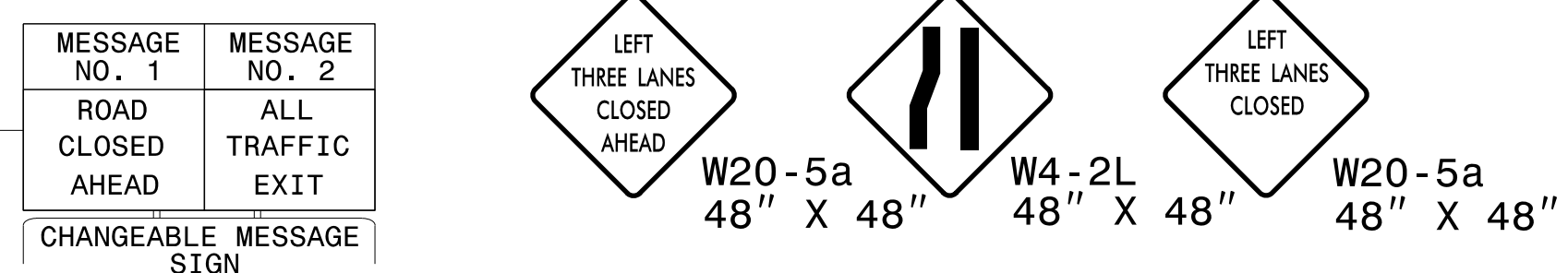
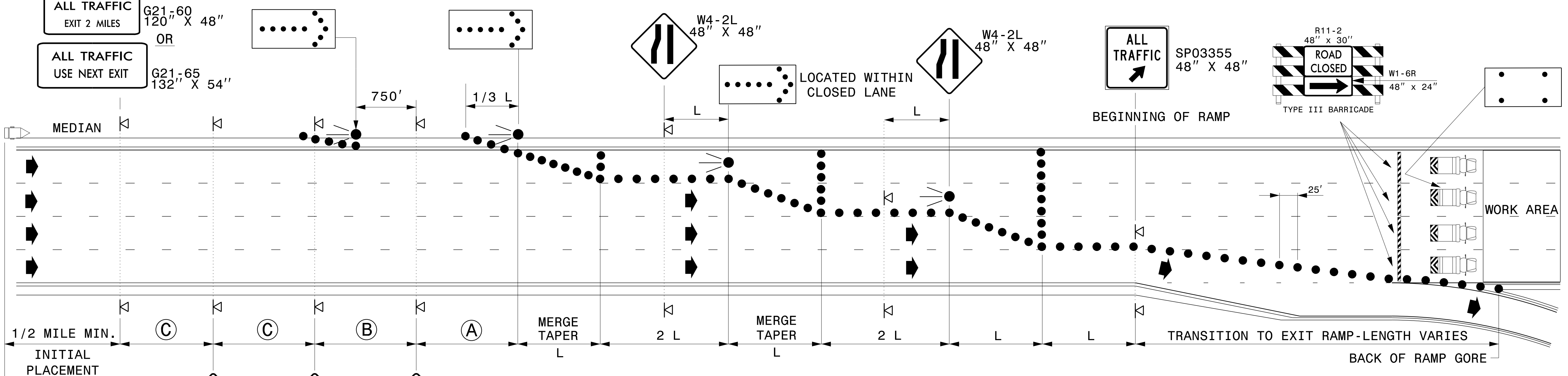


MESSAGE NO. 1	MESSAGE NO. 2
TRAFFIC OFFICER AHEAD	BE PREPARED TO STOP
CHANGEABLE MESSAGE SIGN	

(A)



ALL TRAFFIC EXIT 2 MILES G21-60 120" X 48"  
 OR  
 ALL TRAFFIC USE NEXT EXIT G21-65 132" X 54"



NOTE: REFER TO RSD 1101.02, SHEET 8 OF 15 AND RSD 1101.03, SHEET 7 OF 9 FOR GENERAL NOTES.

# DETAIL 'A'

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APPROVED: *Bob A. May*  
 DATE: 11/21/2017

SEAL

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I-40 DETOUR FOR GIRDER INSTALLATION

11/21/2017  
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 User: AHayes

SIGN NUMBER: name TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 3'-0" HEIGHT: 1'-8" TOTAL AREA: 5.0 Sq.Ft. BORDER TYPE: INSET RECESS: 0.47" WIDTH: 0.63" RADII: 1.5" NO. Z BARS: LENGTH:	BACKG COLOR: Fluorescent Orange COPY COLOR: Black SYMBOl X Y WID HT MAT'L: 0.080" (2.0 mm) ALUMINUM	DESIGN BY: SLK PROJECT ID: I-5506 CHECKED BY: JWG DIVISION: 5 Apr 19, 2017
--	--	--

BORDER  
R=1.5"  
TH=0.63"  
IN=0.47"

Spacing Factor is 1 unless specified otherwise

USE NOTES: 1,2

- Legend and border shall be direct applied black non-reflective sheeting.
- Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

LETTER POSITIONS

Letter locations are panel edge to lower left corner										Series/Size	Text Length	
A	v	i	a	t	i	o	n				D 2000	
5.8	10.3	14.4	16	19.3	21.9	23.5	27.3					24.5
P	a	r	k	w	a	y					D 2000	
4.7	8.5	12.3	14.8	18.2	24.2	27.6						26.7

FILENAME: Guidesign6\_033017 NORTH CAROLINA D.O.T. SIGN DETAIL

I:\2\2017  
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 User:AHayes

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APPROVED: Bob A. May DATE: 4/21/2017

SPECIAL  
SIGN  
DESIGN(S)



PROJ. REFERENCE NO.	SHEET NO.
I-5506	TMP-03

## PHASE I

STEP 1) USING ROADWAY STANDARD DRAWING (RSD) 1101.01 AND SHEET TMP-02F FOR "250 FINE" SIGN AND "FINES HIGHER" SIGN, INSTALL ADVANCE WARNING SIGNS ON -L- AND ALL -Y- LINES. IF CONSTRUCTION HAS NOT BEGUN WITHIN THREE DAYS OF INSTALLATION, REMOVE OR COVER SIGNING WITH AN APPROPRIATE MATERIAL.

STEP 2) USING RSD 1101.02, REMOVE MEDIAN RUMBLE STRIPS AS NEEDED, INSTALL PAVEMENT MASKING AND TEMPORARY PAVEMENT MARKINGS ON I-40 WB, AND SHIFT TRAFFIC INTO THE PHASE I PATTERN (SEE SHEETS TMP-02F, 04 - 06, 09, & 11).

USING RSD 1101.02 OR 1101.03, BEGIN INSTALLATION OF ALL OVERHEAD SIGNS AND COVER. INSTALLATION OF EACH SIGN SHALL BE COMPLETED PRIOR TO OPENING THE ROADWAY FOR WHICH THE SIGN IS INTENDED (OR AT THE ENGINEER'S DISCRETION) (SEE SHEET TMP-02F).

NOTE: PHASE I, STEPS 3 THRU 4 CAN BE CONSTRUCTED SIMULTANEOUSLY.

THE CONTRACTOR SHALL COMPLETE PHASE I, STEP 3 WITHIN 45 CONSECUTIVE CALENDAR DAYS. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.

STEP 3) USING RSD 1101.02, INSTALL PORTABLE CONCRETE BARRIER (ANCHORED) ON THE OUTSIDE SHOULDER OF -Y- (I-40) WB AND EXISTING -RPB-. AWAY FROM TRAFFIC CONSTRUCT -Y- WB UP TO THE EXISTING EDGE AND ELEVATION FROM STA. 81+58 +/- -Y- TO STA. 94+73 +/- -Y-. UPON COMPLETION, RESET BARRIER AS SHOWN ON TMP-05, INSET 1 (SEE SHEETS TMP-02F, 04 - 06, 09, & 11).

ACTIVATE MESSAGES ON DYNAMIC MESSAGE SIGNS ON THE DAY CONSTRUCTION ON -L- BEGINS BEFORE CONSTRUCTION BEGINS (SEE SHEET TMP-02G).

STEP 3A) BEHIND PORTABLE CONCRETE BARRIER INSTALLED IN STEP 3, CONSTRUCT -Y- WB UP TO THE EXISTING EDGE AND ELEVATION FROM STA. 60+21 +/- -Y- TO STA. 81+58 +/- -Y- INCLUDING CULVERT EXTENSION, STA. 94+73 +/- -Y- TO STA. 96+53 +/- -Y-, STA. 100+00 +/- -Y- TO STA. 115+72 +/- -Y-, AND -RPB- (SEE SHEETS TMP-04 - 06, 09, & 11).

USING RSD 1101.02 CONSTRUCT TEMPORARY PAVEMENT AND TEMPORARY GUARDRAIL ON -L- (SR 1002) 'RIGHT' FROM STA. 23+90 +/- -L- TO STA. 30+51 +/- -L-. REMOVE CONFLICTING PAVEMENT MARKINGS AND MONOLITHIC ISLAND, INSTALL TEMPORARY PAVEMENT AND PAVEMENT MARKINGS, AND SHIFT TRAFFIC AS SHOWN ON SHEETS TMP-07 AND 08.

USING RSD 1101.02 AS NEEDED AND/OR BEHIND EXISTING GUARDRAIL AND/OR AWAY FROM TRAFFIC, BEGIN CONSTRUCTION OF -L- (SR 1002) 'LEFT' AND SHORING FROM STA. 52+16 +/- -L- TO STA. 59+19 +/- -L- INCLUDING STAGE 1 ENDBENT 2 UP TO BUT NOT INCLUDING THE FINAL LIFT OF PAVEMENT AND FROM STA. 59+19 +/- -L- TO STA. 65+80 +/- -L- UP TO THE EXISTING EDGE & ELEVATION. TRAFFIC IS TO REMAIN ON EXISTING ALIGNMENT DURING THIS CONSTRUCTION (SEE SHEETS TMP-02, 02A, 02C, 09, & 10).

USING RSD 1101.02 AS NEEDED, BEGIN CONSTRUCTION OF -L- 'RIGHT' FROM -Y3- TO -Y1- UP TO THE EXISTING EDGE AND ELEVATION (SEE SHEET TMP-10).

USING RSD 1101.02 AS NEEDED, BEGIN CONSTRUCTION OF -L- 'LEFT' FROM STA. 23+90 +/- -L- TO STA. 44+82 +/- -L- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE AND TEMPORARY PAVEMENT, INCLUDING -Y4-. INSTALL DRAINAGE AND STRUCTURES #0402, #0403, #0410, & #0414 AND COVER WITH STEEL PLATES. (SEE SHEETS TMP-07 THRU 09).

USING RSD 1101.04 AS NEEDED, WIDEN -RPC- UP TO THE EXISTING EDGE AND ELEVATION (SEE SHEET TMP-09).

USING RSD 1101.02 AS NEEDED, BEGIN CONSTRUCTION OF -RPA- ALONG EXISTING -RPA- UP TO THE EXISTING EDGE AND ELEVATION. AWAY FROM TRAFFIC, BEGIN CONSTRUCTION OF REMAINING -RPA- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE INCLUDING TEMPORARY PAVEMENT. TRAFFIC IS TO REMAIN ON EXISTING ALIGNMENT DURING THIS CONSTRUCTION (SEE SHEETS TMP- 09 & 11).

USING RSD 1101.02 AS NEEDED, CONSTRUCT -L- (SR 1002) 'LEFT', TEMPORARY PAVEMENT AND SHORING FROM -RPC- TO STA. 49+24 +/- -L- INCLUDING STAGE 1 ENDBENT 1 AS MUCH AS POSSIBLE AND -LPC- FROM STA. 17+79 +/- -LPC- TO -L- KEEPING EXISTING -LPC- AND -RPC- OPEN TO TRAFFIC. TRAFFIC IS TO RETURN TO THE EXISTING ALIGNMENT BY THE END OF THE WORK PERIOD (SEE SHEETS TMP-02, 02A, 02C, & 09).

INSTALL AND ACTIVATE TEMPORARY SIGNAL AT THE -L-/-Y5-/-Y6- INTERSECTION.

THE CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK IN PHASE I, STEP 3B FROM 10:00 P.M. FRIDAY TO 6:00 A.M. MONDAY. REPEAT WEEKEND WORK AS DIRECTED BY THE ENGINEER TO COMPLETE PHASE I, STEP 3B (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES).

STEP 3B) USE TYPE III BARRICADES TO CLOSE ONE DIRECTION OF -Y5- AND DRUMS TO CLOSE THE LEFT TURN LANE ON THE NORTHBOUND APPROACH OF -L- AND DETOUR -Y5- TRAFFIC TO THE OTHER DIRECTION OF -Y5-. USING RSD 1101.02 AND FLAGGERS, IN A CONTINUOUS MANNER, CONSTRUCT ONE SIDE OF -Y5- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE. THEN, REMOVE TYPE III BARRICADES AND DRUMS AND RE-OPEN -Y5- TO TRAFFIC (SEE SHEET TMP-07).

STEP 4) USING RSD 1101.02, REMOVE EXISTING MONOLITHIC ISLANDS AS SHOWN ON SHEETS TMP-09 AND 10 AND REPLACE WITH TEMPORARY PAVEMENT. TRAFFIC WILL RETURN TO THE EXISTING PATTERN BY THE END OF THE WORK PERIOD.

BEGIN INSTALLATION OF TEMPORARY SIGNAL AT THE -L-/-RPA-/-RPB- INTERSECTION. BAG/COVER SIGNAL HEADS.

## PHASE II

STEP 1) USING RSD 1101.02, REMOVE PORTABLE CONCRETE BARRIER AND INSTALL PAVEMENT MASKING AND TEMPORARY PAVEMENT MARKINGS ON -Y- (I-40) WB. RESET THE REMAINING PHASE I PORTABLE CONCRETE BARRIER ON I-40 WB AND -RPB- AND SHIFT I-40 TRAFFIC TO THE OUTSIDE SHOULDER. INSTALL PORTABLE CONCRETE BARRIER ALONG THE MEDIAN. TRAFFIC WILL BE ON TEMPORARY ALIGNMENT BY THE END OF THE WORK PERIOD (SEE SHEETS TMP-02F, 12 THRU 14, 16, & 18).

USING RSD 1101.02, INSTALL PAVEMENT MASKING AND PAVEMENT MARKINGS AND INSTALL PORTABLE CONCRETE BARRIER ALONG THE MEDIAN ON -Y- (I-40) EB (SEE SHEETS TMP-02F, 14, 16, & 18).

USING RSD 1101.02, REMOVE EXISTING GUARDRAIL AS NEEDED AND WEDGE -L- 'LEFT' FROM STA. 55+00 +/- -L- TO STA. 59+19 +/- -L- AND -RPA- FROM STA. 13+35 +/- -RPA- TO STA. 17+63 +/- -RPA- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE. INSTALL TEMPORARY PAVEMENT MARKINGS AND DEVICES ON -L-, -RPA-, AND -RPB-. COMPLETE INSTALLATION OF TEMPORARY SIGNAL AT THE -L-/-RPA-/-RPB- INTERSECTION AND ACTIVATE. SHIFT TRAFFIC TO THE TEMPORARY PATTERN. CLOSE EXISTING -RPB- AND EXISTING -RPA- (SEE SHEETS TMP-14, 16, & 18).

STEP 2) USING RSD 1101.02 AS NEEDED, COMPLETE CONSTRUCTION OF -L- (SR 1002) 'LEFT' UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE ON -L- FROM STA. 23+90 +/- -L- TO STA. 31+21 +/- -L-. TRAFFIC WILL RETURN TO THE PHASE II PATTERN BY THE END OF THE WORK PERIOD (SEE SHEET TMP-15).

BEHIND BARRIER, BEGIN CONSTRUCTION OF STAGE I MEDIAN ON -Y- (I-40) AND CENTER BENT (SEE SHEET TMP-16).

USING RSD 1101.02 AS NEEDED, INSTALL WATER-FILLED BARRIER FROM STA. 53+00 TO STA. 56+40 +/- -L-. CONSTRUCT AND COMPLETE CONSTRUCTION OF -L- (SR 1002) 'LEFT' BEGUN IN PHASE I FROM STA. 33+11 +/- -L- TO STA. 65+80 +/- -L- INCLUDING SHORING AND -Y4-. CONSTRUCT THE FIRST STAGE OF THE BRIDGE. DETOUR I-40 TRAFFIC ALONG RAMP DURING GIRDER INSTALLATION. TRAFFIC WILL RETURN TO THE PHASE II PATTERN BY THE END OF THE WORK PERIOD (SEE SHEETS TMP-02, 02A, 02D, 02I, & 15 - 17).

AWAY FROM TRAFFIC, CONSTRUCT -LPB- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE AND REMOVE EXISTING -RPB- (SEE SHEETS TMP-13, 14, & 16).

AWAY FROM TRAFFIC, COMPLETE CONSTRUCTION OF -RPA- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE AND REMOVE EXISTING -RPA- (SEE SHEETS TMP-16 & 18).

USING RSD 1101.02, REMOVE REMAINING EXISTING MONOLITHIC ISLANDS AS SHOWN ON SHEET TMP-10 AND REPLACE WITH TEMPORARY PAVEMENT. TRAFFIC WILL RETURN TO THE EXISTING PATTERN BY THE END OF THE WORK PERIOD.

BEGIN INSTALLATION OF ALL PHASE III TEMPORARY SIGNALS. BAG AND COVER SIGNAL HEADS.

THE CONTRACTOR SHALL COMPLETE PHASE II, STEP 3 THRU PHASE III, STEP 1 WITHIN 60 CONSECUTIVE CALENDAR DAYS. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.

STEP 3) INSTALL TEMPORARY GUIDE SIGNING AS SHOWN ON SHEETS TMP-16 & 17 AND TEMPORARY SIGNAL AT THE -L-/-RPD- INTERSECTION. INSTALL TYPE III BARRICADES AND CLOSE EXISTING -LPC-, ACTIVATE TEMPORARY SIGNAL AND REDIRECT I-40 EB TRAFFIC DOWN EXISTING -RPD-. CONSTRUCT -LPC- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE AND TEMPORARY MARKINGS (SEE SHEET TMP-16).

USING RSD 1101.02 AS NEEDED, INSTALL WATER-FILLED BARRIER FROM STA. 44+50 +/- -L- TO STA. 48+12 +/- -L-. CONSTRUCT AND COMPLETE CONSTRUCTION OF -L- (SR 1002) 'LEFT' FROM STA. 44+50 +/- -L- TO STA. 49+24 +/- -L- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE AND TEMPORARY PAVEMENT. TRAFFIC IS TO RETURN TO THE EXISTING ALIGNMENT BY THE END OF THE WORK PERIOD (SEE SHEET TMP-16).

INSTALL DETOUR SIGNING AND TYPE III BARRICADES AND CLOSE -RPC-. COMPLETE CONSTRUCTION OF -RPC- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE INCLUDING TEMPORARY MARKINGS AND MARKERS (SEE SHEET TMP-02H, 02J, 13, 14, & 16).

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## PHASE III

STEP 1) USING RSD 1101.02 AS NEEDED, INSTALL ANCHORED PORTABLE CONCRETE BARRIER ALONG -L- (SR 1002) 'LEFT' AND WEDGE -L- 'LEFT' UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE, INCLUDING THE INSTALLATION OF THE REMAINING TEMPORARY PAVEMENT MARKINGS AND MARKERS. REMOVE TRAFFIC MANAGEMENT DEVICES AND OPEN -LPC- AND -RPC-. TRAFFIC SHALL BE ON THE PHASE III PATTERN BY THE END OF THE WORK PERIOD (SEE SHEETS TMP-19 - 22).

INSTALL PAVEMENT MARKINGS ON -LPB-, REMOVE PORTABLE CONCRETE BARRIER AS SHOWN FROM THE I-40 WB OUTSIDE SHOULDER TO ALLOW ACCESS TO -LPB-, AND OPEN -LPB- TO TRAFFIC. USING DRUMS AND TYPE III BARRICADES, CLOSE THE LEFT TURN LANES ON -RPA- (SEE SHEET TMP-21).

COMPLETE INSTALLATION OF ALL PHASE III TEMPORARY SIGNALS AND ACTIVATE.

STEP 2) USING RSD 1101.02 AS NEEDED, REMOVE WATER-FILLED BARRIER AND CONSTRUCT -L- (SR 1002) 'RIGHT' FROM STA. 24+82 +/- -L- TO STA. 68+61 +/- -L- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE, INCLUDING SHORING, STAGE 2 ENDBENTS, AND THE SECOND STAGE OF THE BRIDGE. DETOUR I-40 TRAFFIC ALONG RAMP DURING GIRDER REMOVAL/INSTALLATION. TRAFFIC WILL RETURN TO THE PHASE III PATTERN BY THE END OF THE WORK PERIOD. CONSTRUCTION OF -RPD- SHALL NOT COINCIDE WITH OPERATIONS THAT REQUIRE I-40 EB TO BE DETOURED ON-SITE (SEE SHEETS TMP-02, 02A THRU 02B, 02E, 02F, 02I, & 19 - 22).

BEHIND BARRIER, CONSTRUCT STAGE II MEDIAN ON -Y- AND CENTERBENT. COMPLETE CONSTRUCTION OF STAGE I MEDIAN ON -Y- (SEE TMP-21).

USING DRUMS, CONSTRUCT -Y1- (NATIONAL GUARD DR), -Y3- (RDU CENTER), -Y6- (LAKE CRABTREE PARK), AND -RPD- UNDER TRAFFIC UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE. TRAFFIC SHALL RETURN TO THE EXISTING ALIGNMENT BY THE END OF THE WORK PERIOD (SEE SHEETS TMP-19 THRU 22).

BEGIN INSTALLATION OF ALL PHASE IV TEMPORARY SIGNALS. COVER SIGNAL HEADS.

## PHASE IV

STEP 1) INSTALL ALL PHASE IV PATTERN MARKINGS IN THE AREAS AWAY FROM TRAFFIC. REMOVE ALL PORTABLE CONCRETE BARRIER ALONG -L- (SR 1002) 'LEFT' AND -Y- (I-40) (SEE SHEETS TMP-23 THRU 26).

STEP 2) USING RSD 1101.02 AS NEEDED, REMOVE ANY CONFLICTING PAVEMENT MARKINGS AND INSTALL REMAINING PHASE IV TEMPORARY PAVEMENT MARKINGS AND MARKERS ON -L- 'RIGHT', AND SHIFT -L- (SR 1002) NB TRAFFIC ONTO -L- 'RIGHT'. INSTALL DRUMS AS SHOWN ON -L- (SEE SHEETS TMP-23 THRU 26).

COMPLETE INSTALLATION OF ALL TEMPORARY SIGNALS AND ACTIVATE.

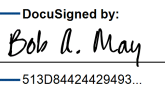
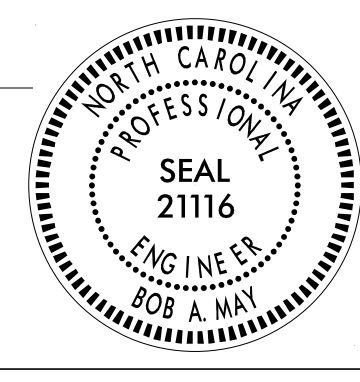
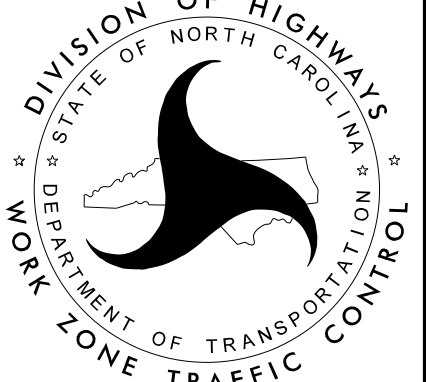
STEP 3) USING RSD 1101.02 AS NEEDED, REMOVE THE TEMPORARY PAVEMENT INSTALLED ON THE -L- LEFT SHOULDER IN PHASE I AND II, CONSTRUCT REMAINING CURB & GUTTER AND SIDEWALK, MONOLITHIC ISLANDS, AND MEDIANS ON -L-. TRAFFIC SHALL RETURN TO THE PHASE IV PATTERN AT THE END OF THE WORK PERIOD (SEE SHEETS TMP-23 THRU 26).

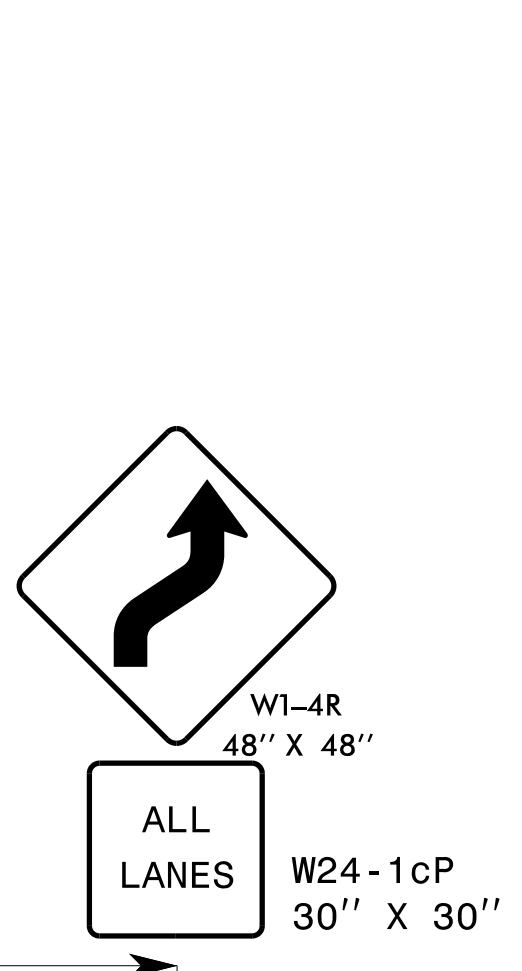
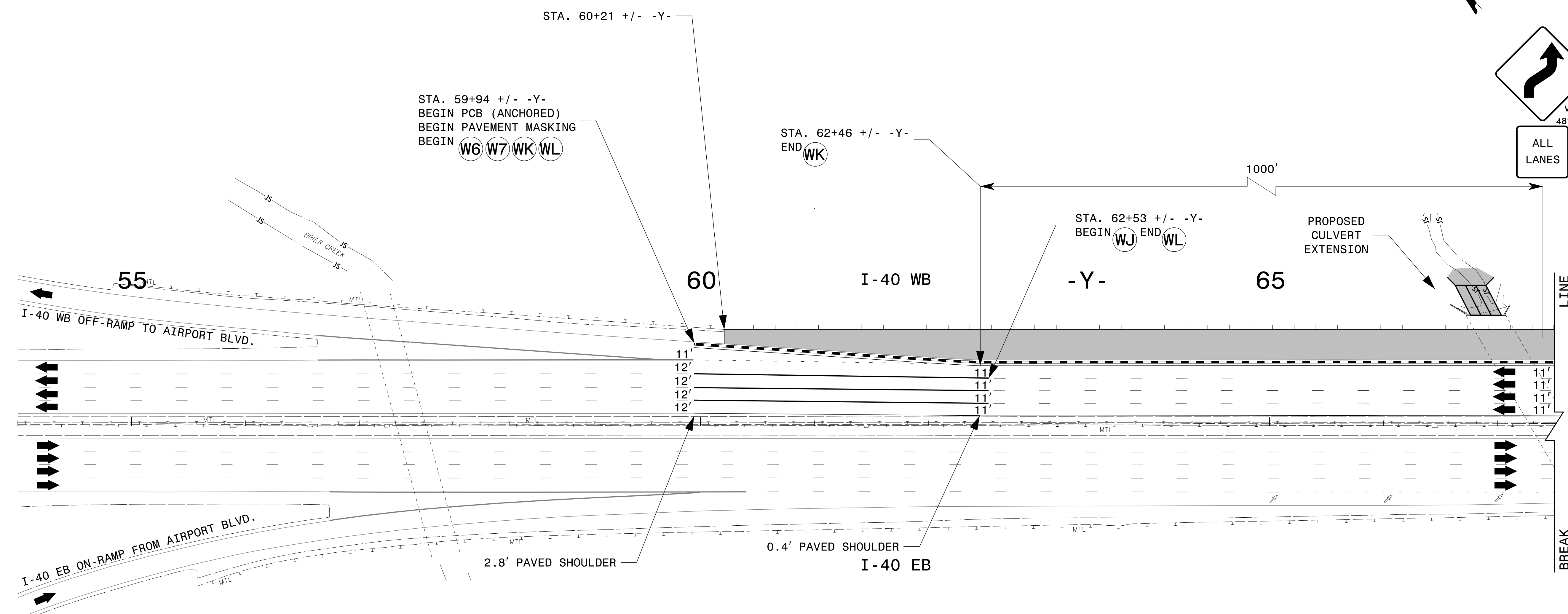
## PHASE V

STEP 1) USING RSD 1101.02, MILL AND RESURFACE -Y- (I-40) AND INSTALL THE FINAL PAVEMENT MARKINGS AND MARKERS. TRAFFIC SHALL BE ON THE FINAL PATTERN BY THE END OF THE WORK PERIOD (SEE FINAL PAVEMENT MARKING PLAN). BEGIN INSTALLATION OF ALL FINAL SIGNALS AND COVER (SEE SHEET TMP-02F).

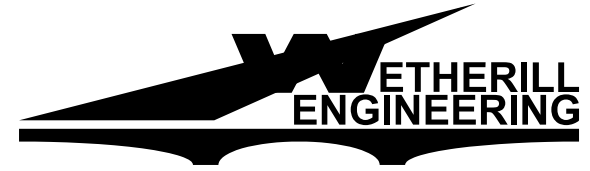
STEP 2) USING RSD 1101.02, INSTALL THE FINAL LIFT OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS AND MARKERS (SEE FINAL PAVEMENT MARKING PLAN) ON -L- (SR 1002), REMAINING -Y- LINES, RAMP, AND LOOPS. UPON COMPLETION, REMOVE ALL TRAFFIC MANAGEMENT DEVICES AND TEMPORARY SIGNING, UNCOVER FINAL SIGNALS AND ACTIVATE, AND PLACE TRAFFIC ON THE FINAL TRAFFIC PATTERN.

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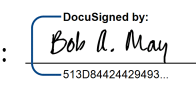
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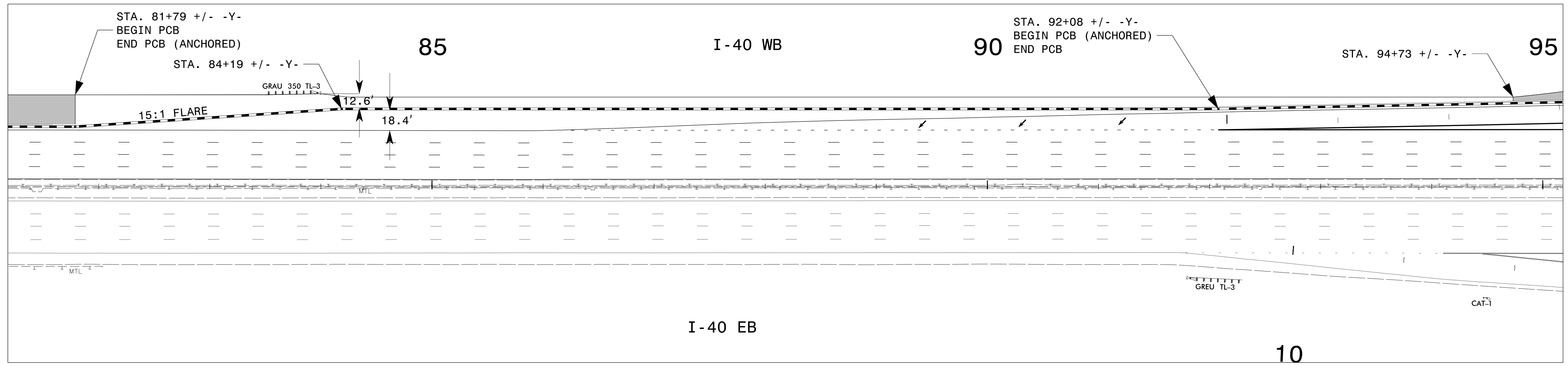


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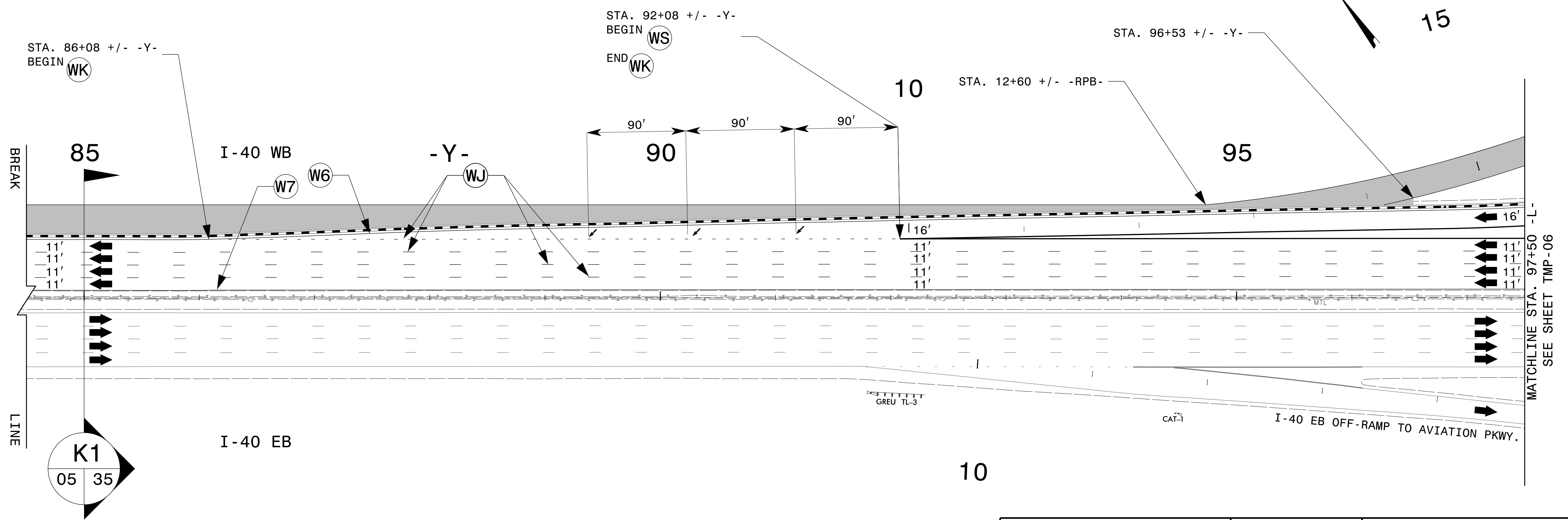


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PHASE I DETAIL



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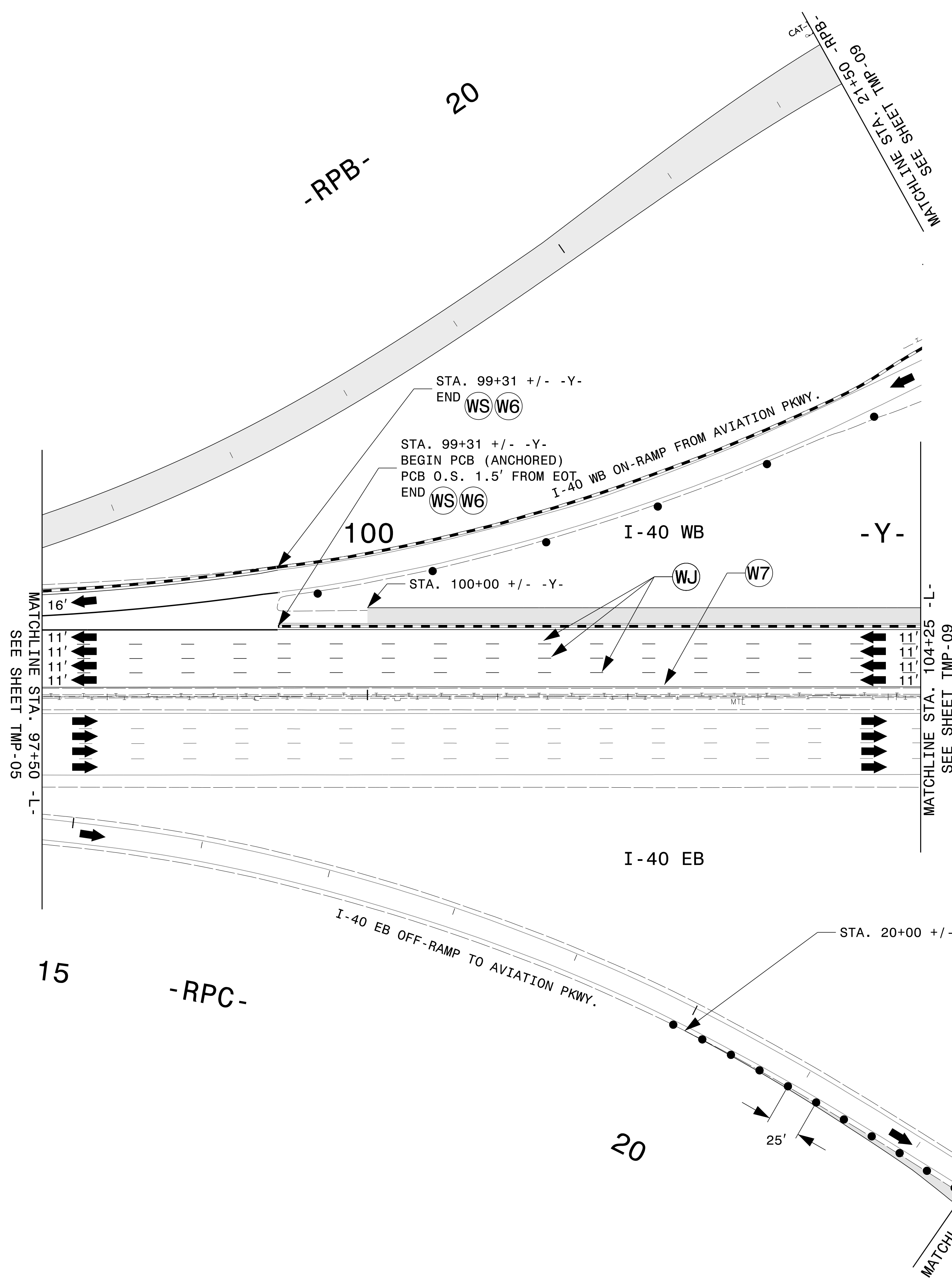
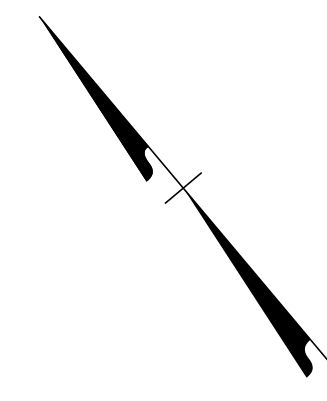
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 NORTH CAROLINA PROFESSIONAL ENGINEER  
 BOB A. MAY  
 21116

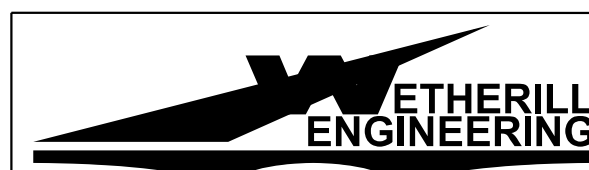
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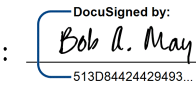
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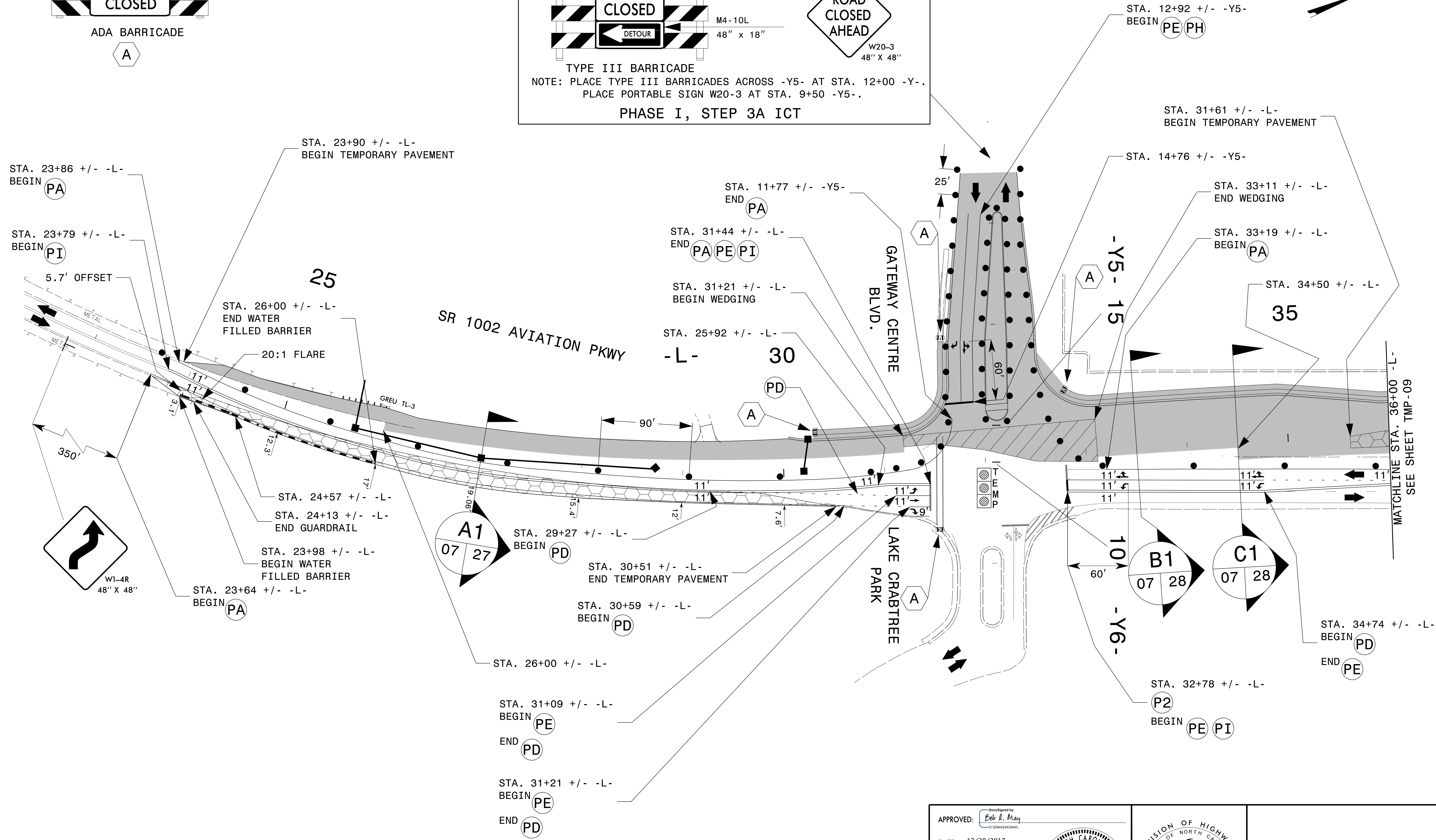
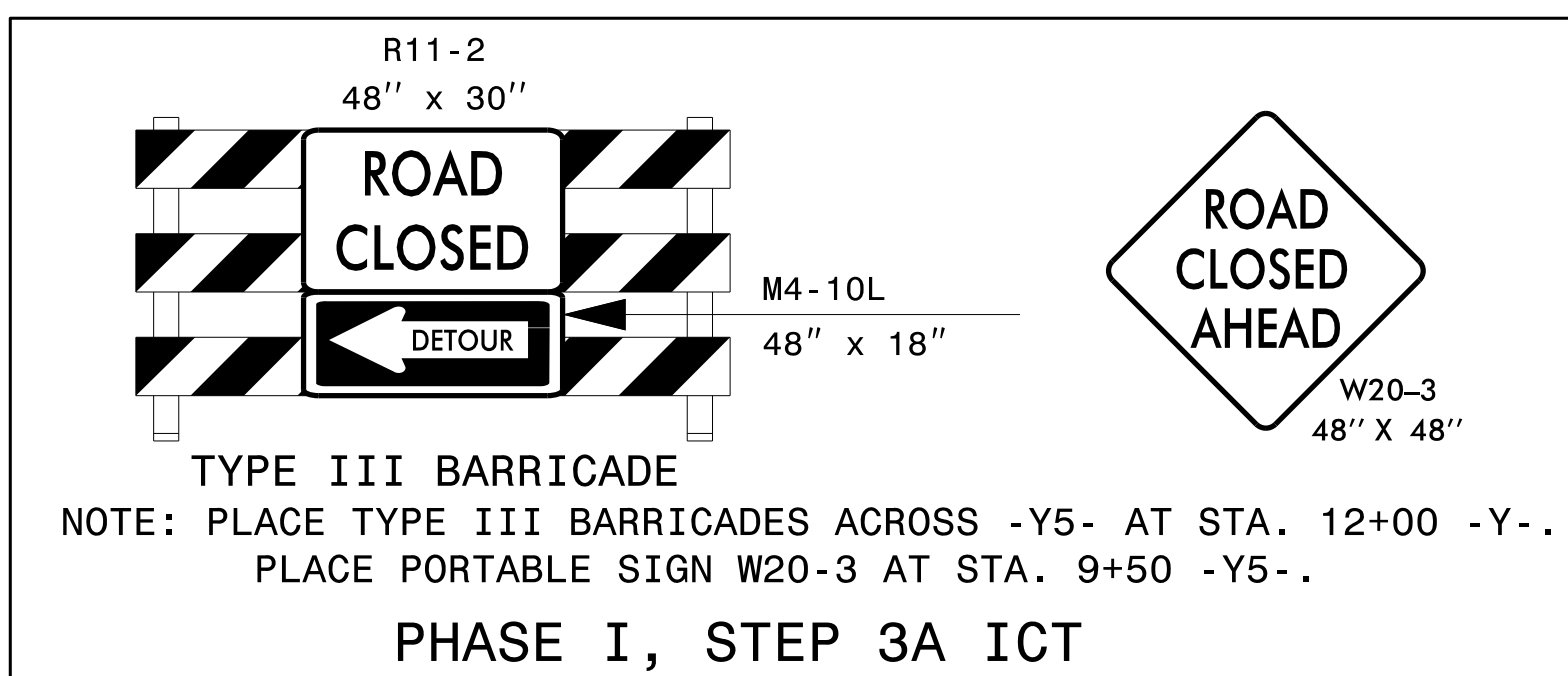
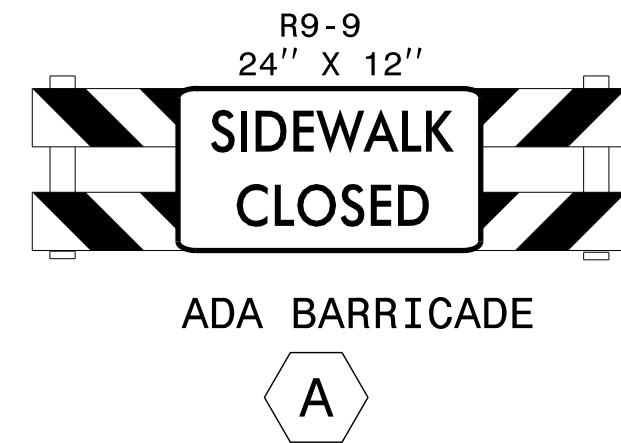
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\*\* SEE PHASE I, STEP 3B FOR ICT.

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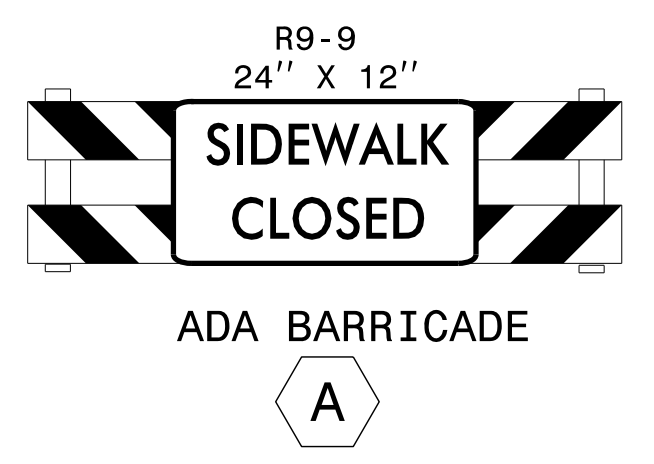
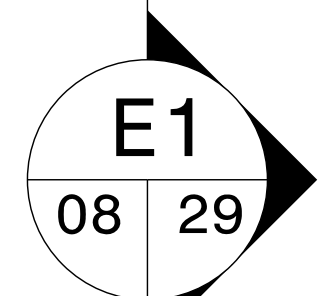
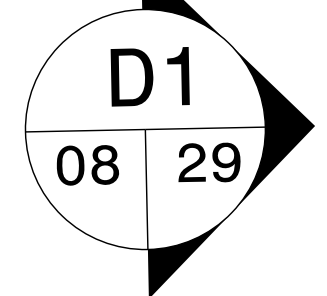
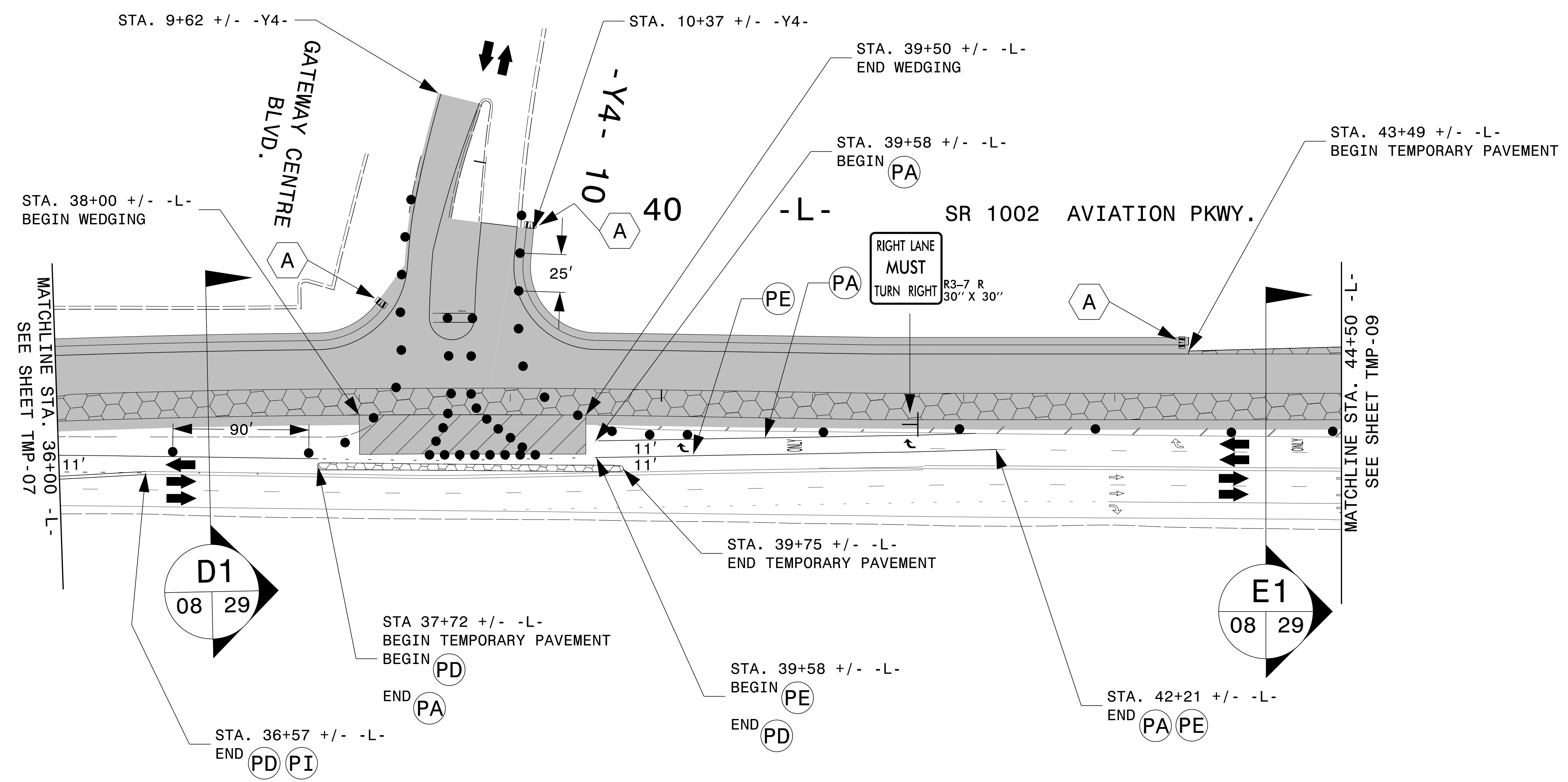
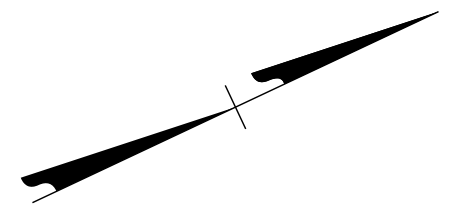
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\*\* REMOVE EXISTING MONOLITHIC CONCRETE ISLAND AND REPLACE WITH TEMPORARY PAVEMENT.

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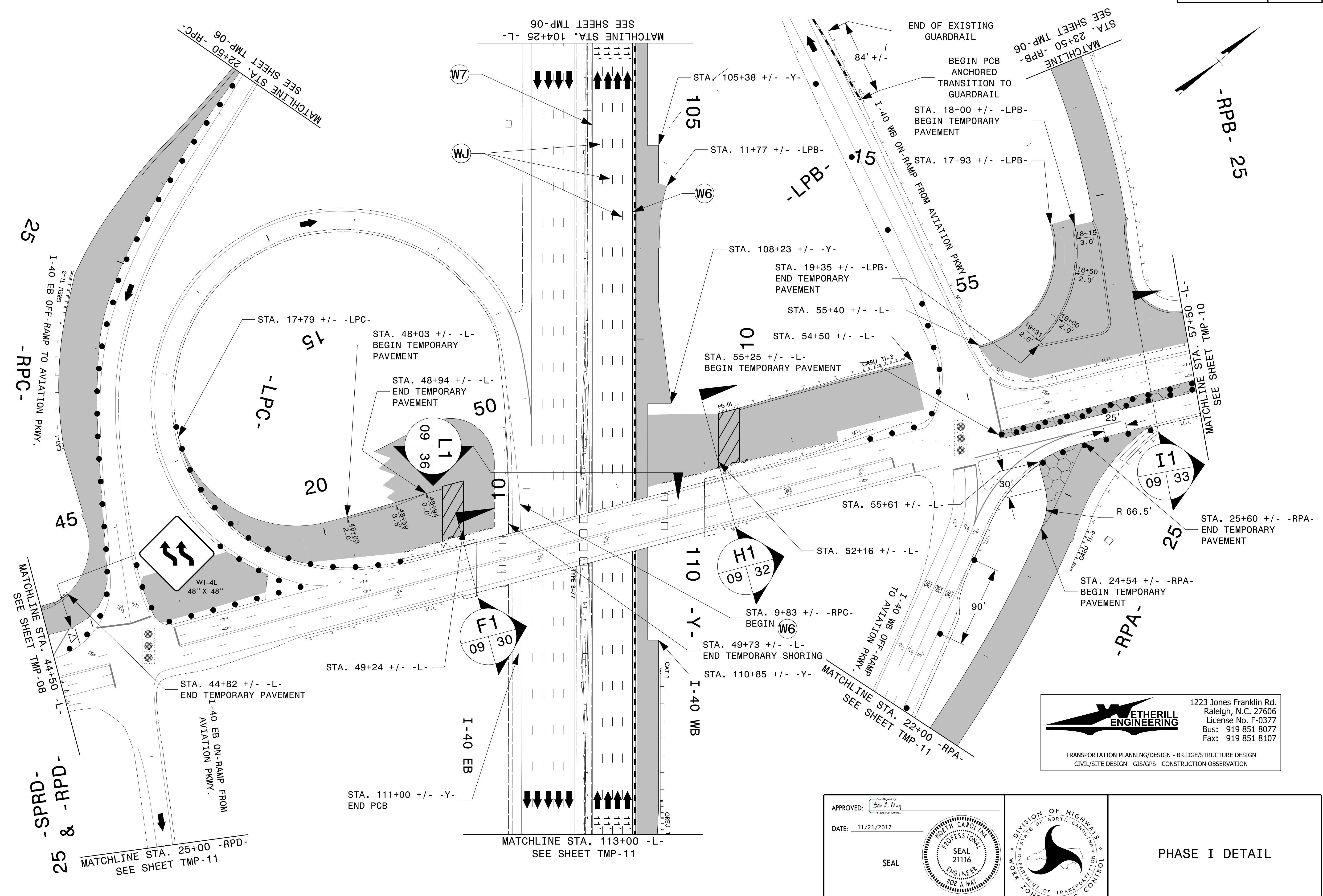
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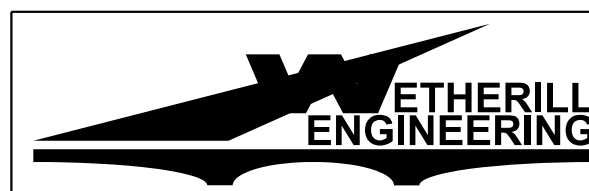
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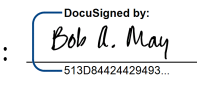

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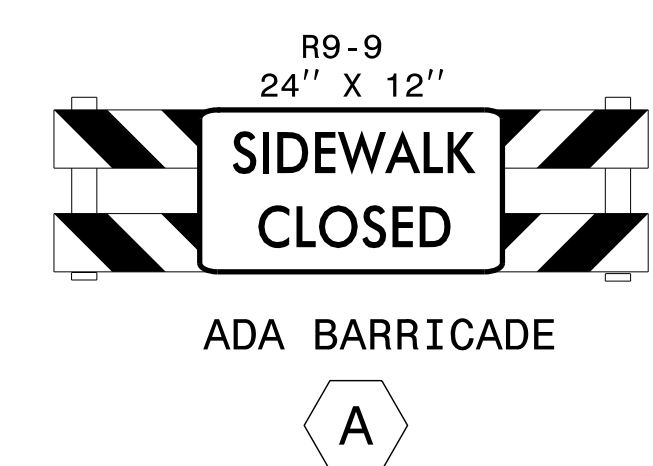
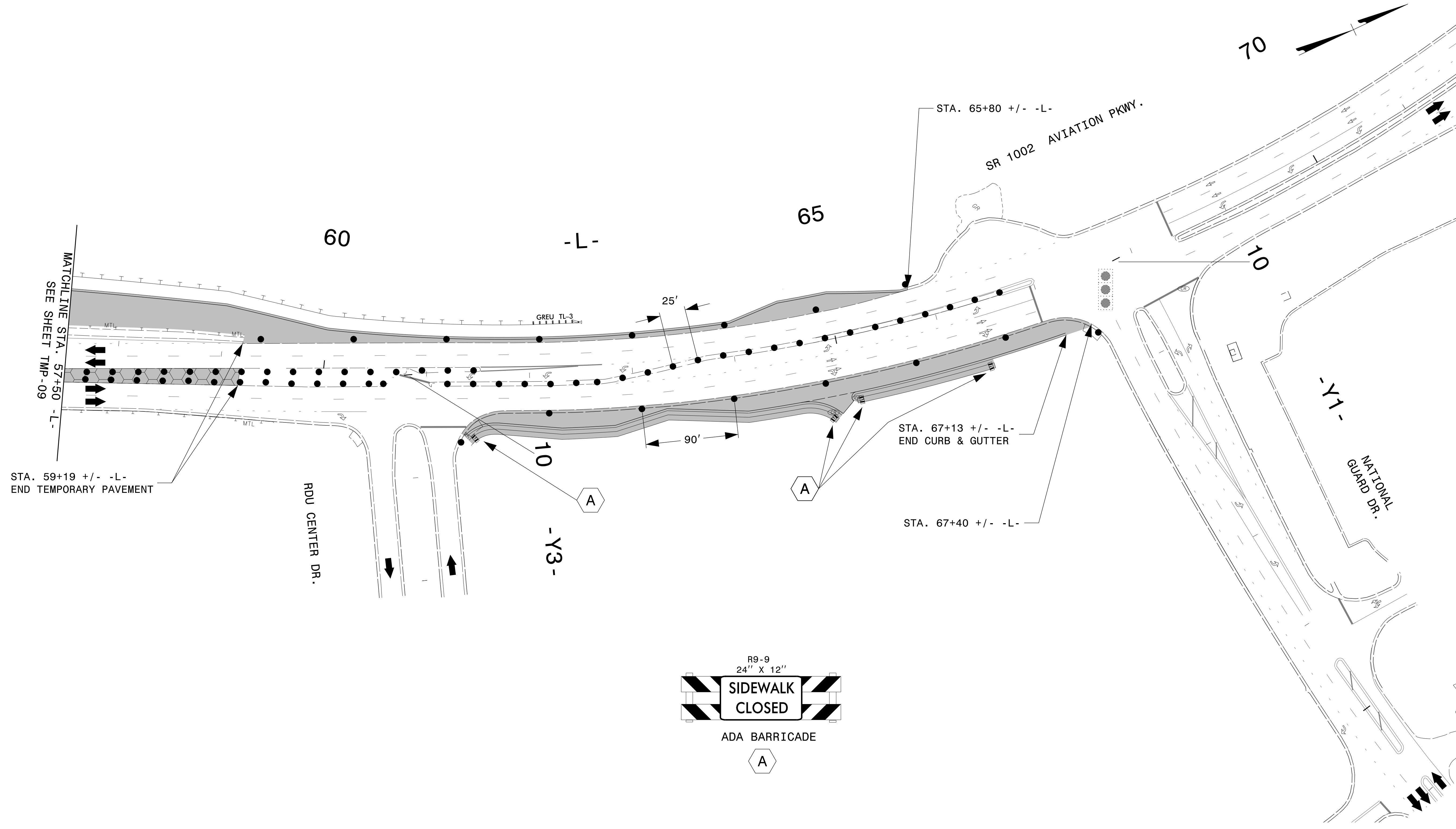
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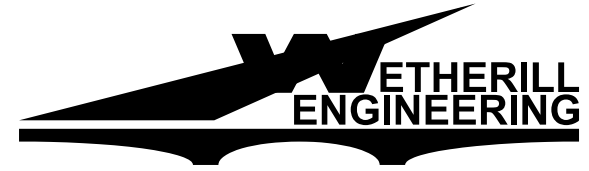
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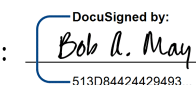


 DIVISION OF HIGHWAYS  
 NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL


PHASE I DETAIL



12/20/2017  
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 User: AHayes

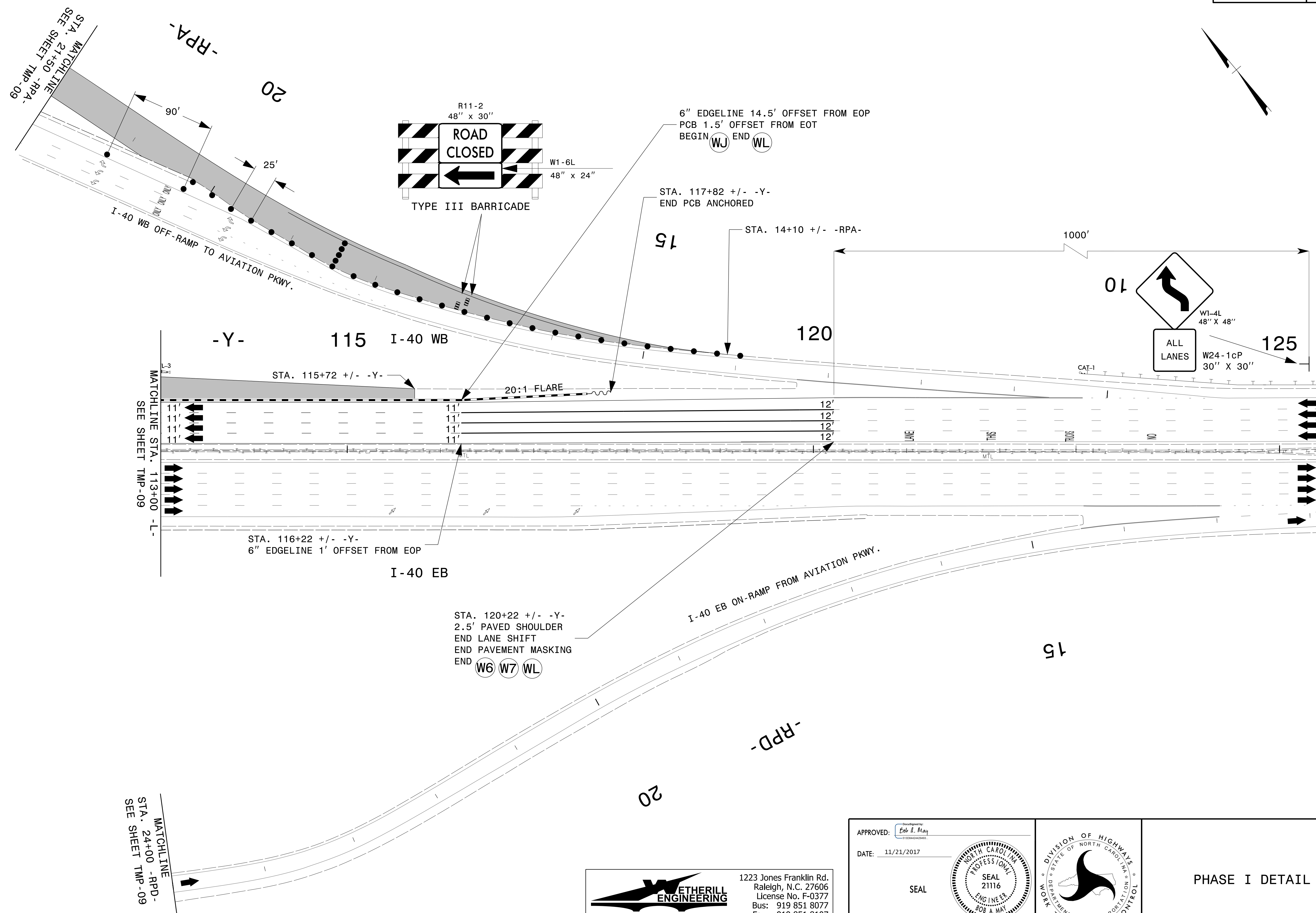

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 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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 DATE: 12/20/2017  
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 DIVISION OF HIGHWAYS  
 NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

PHASE I DETAIL





11/21/2017  
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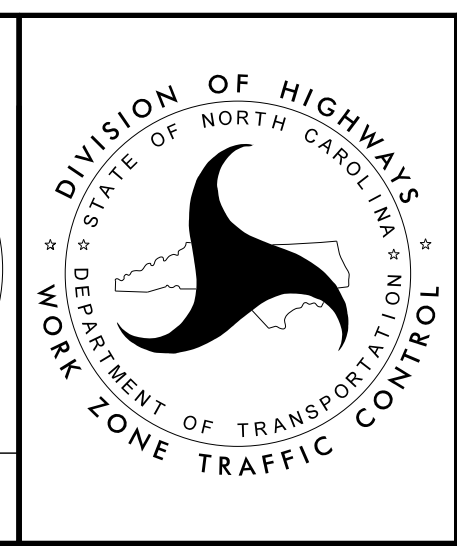
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DATE: 11/21/2017

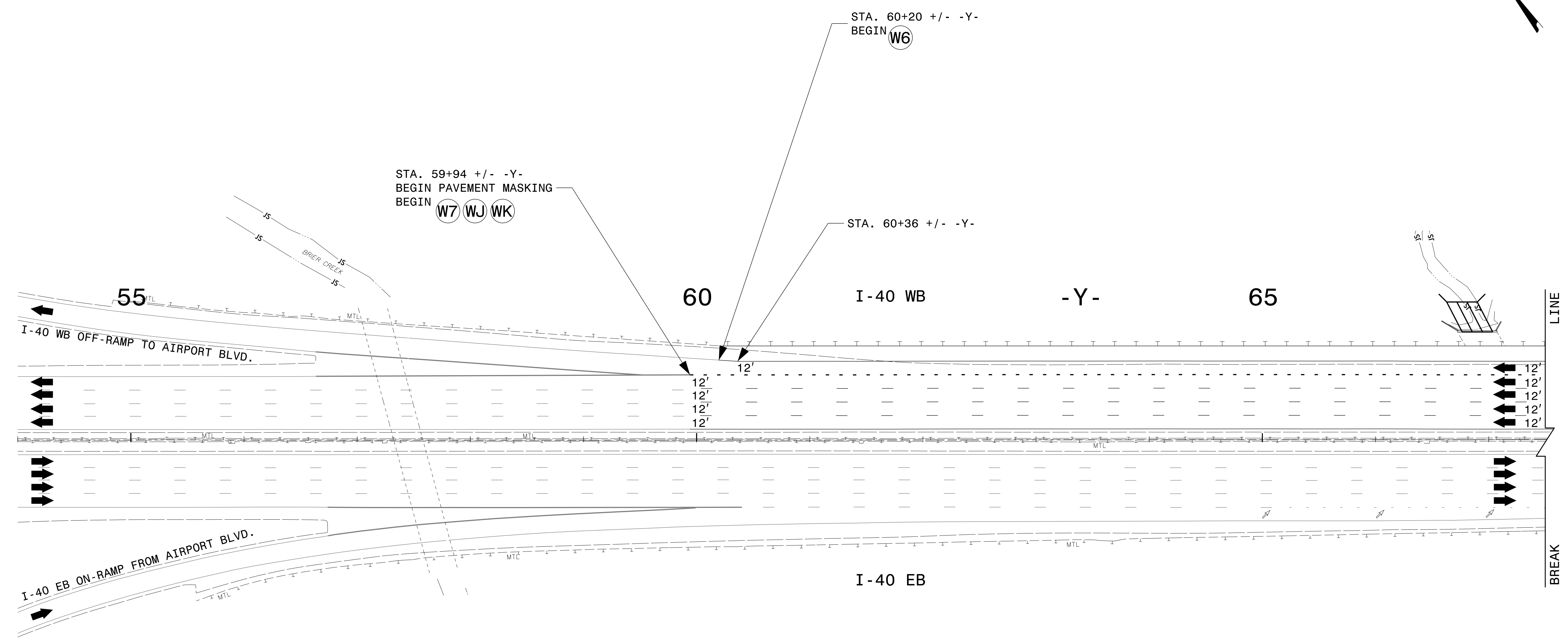
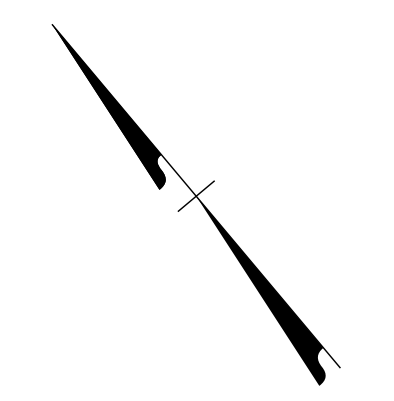
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**SEAL 21116**  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 BOB A. MAY

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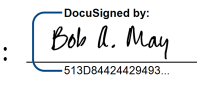
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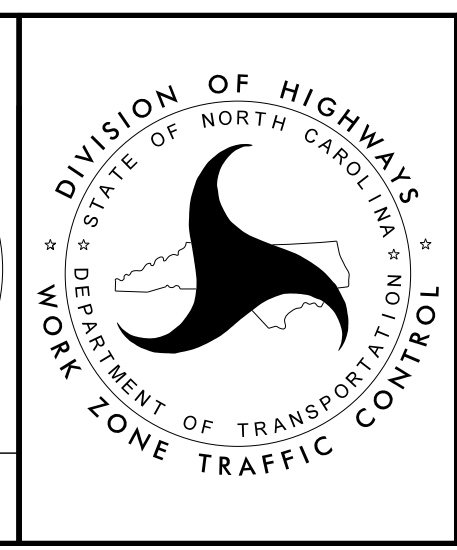
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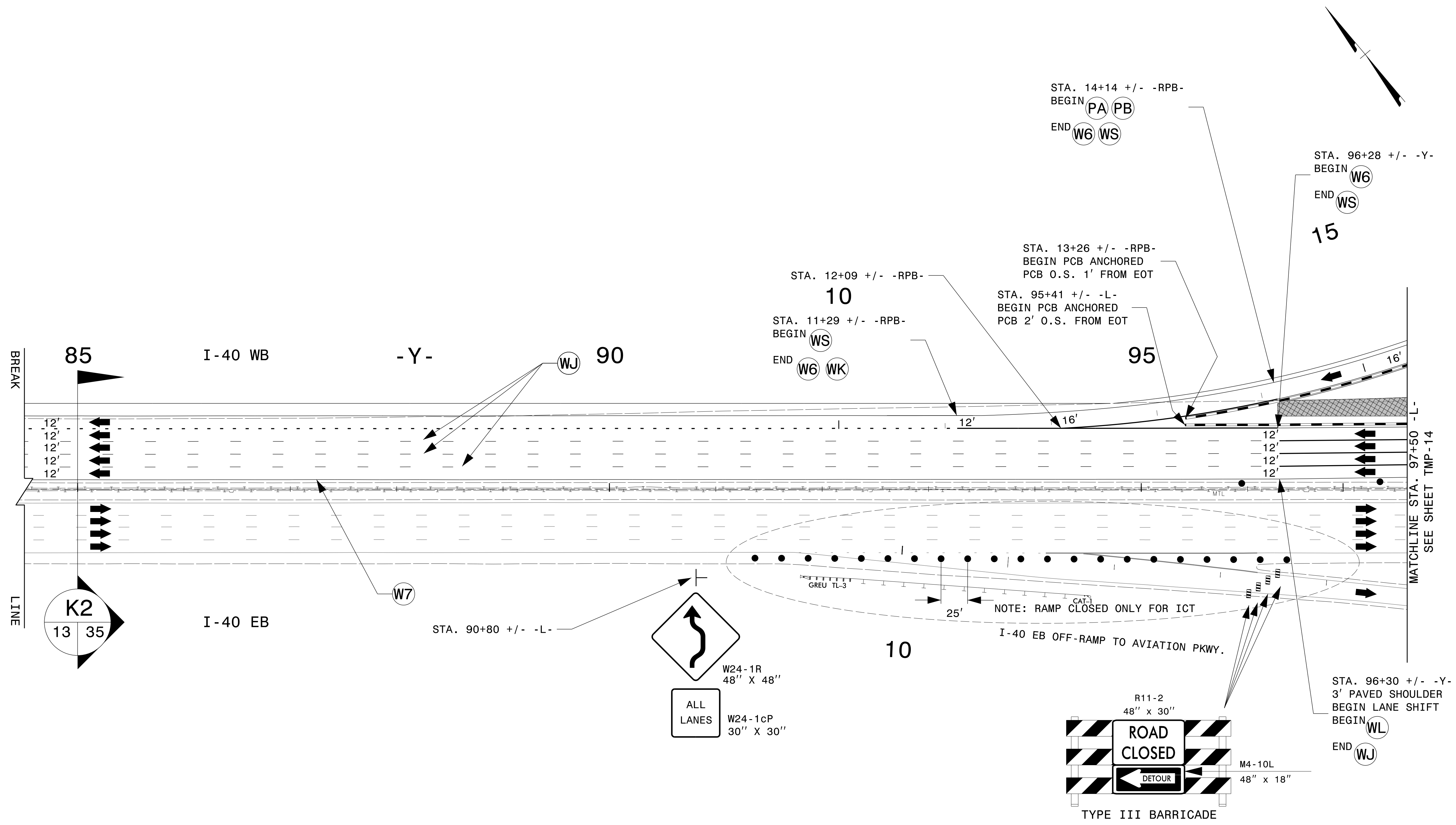
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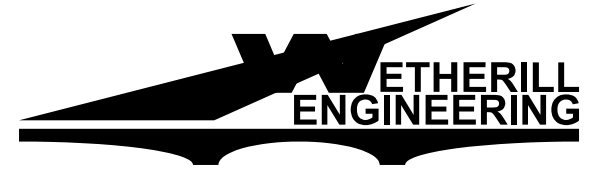
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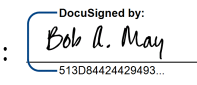




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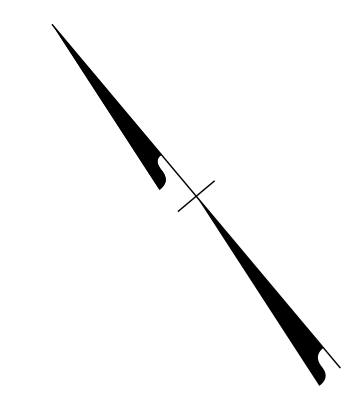
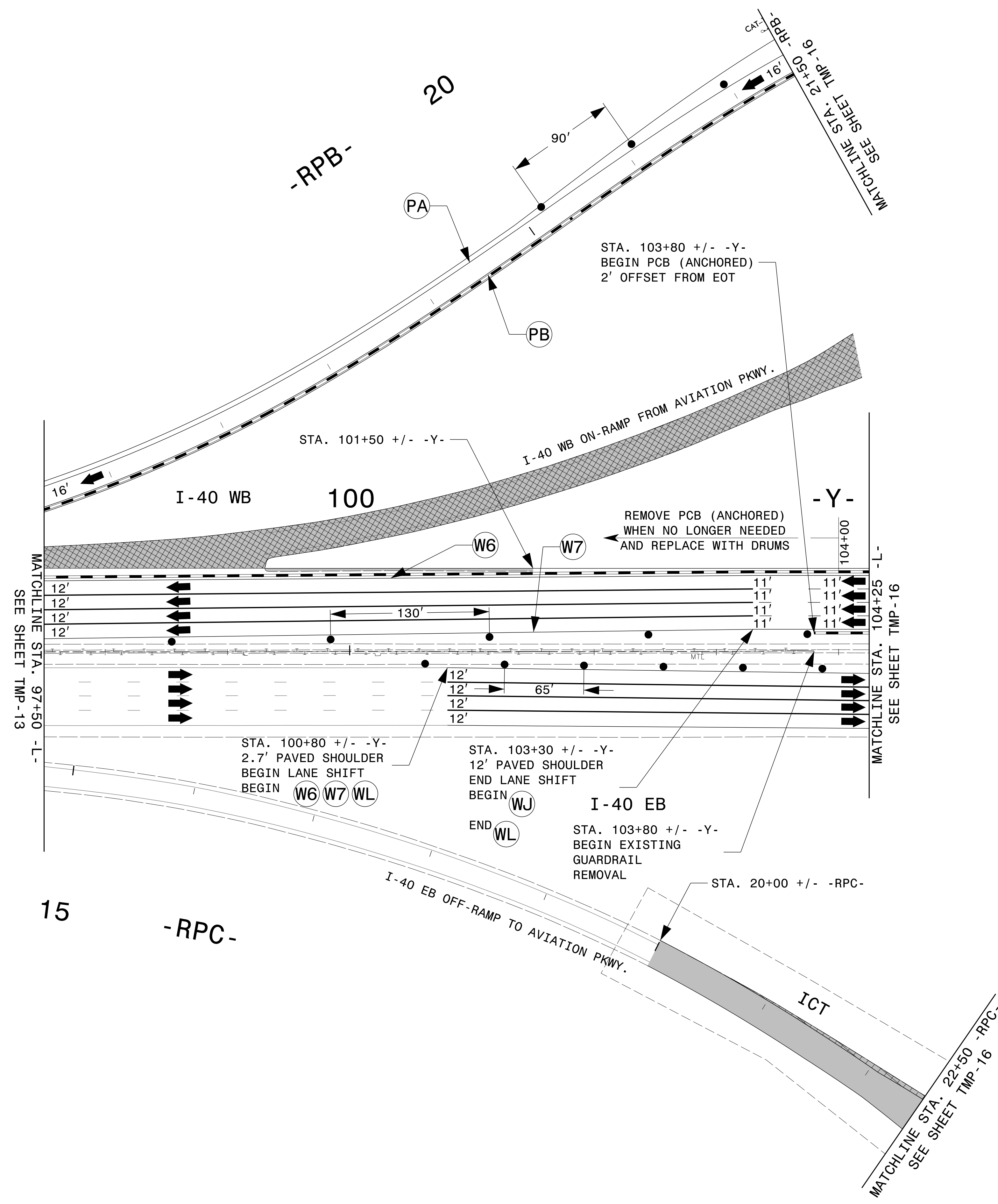

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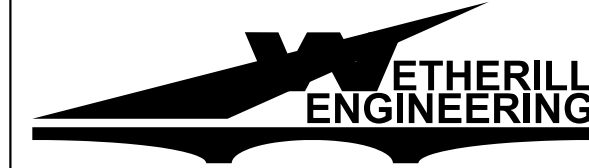
  
 DIVISION OF HIGHWAYS  
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 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

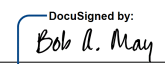

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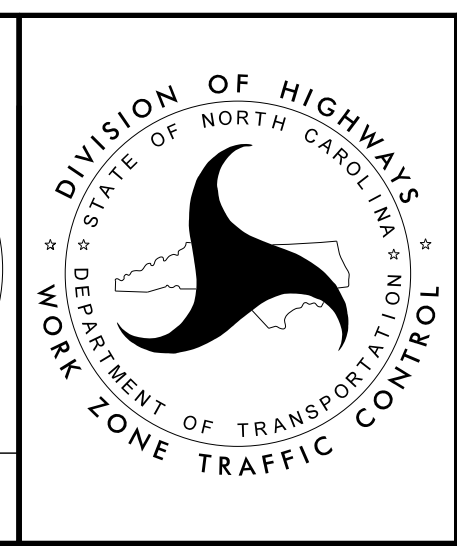
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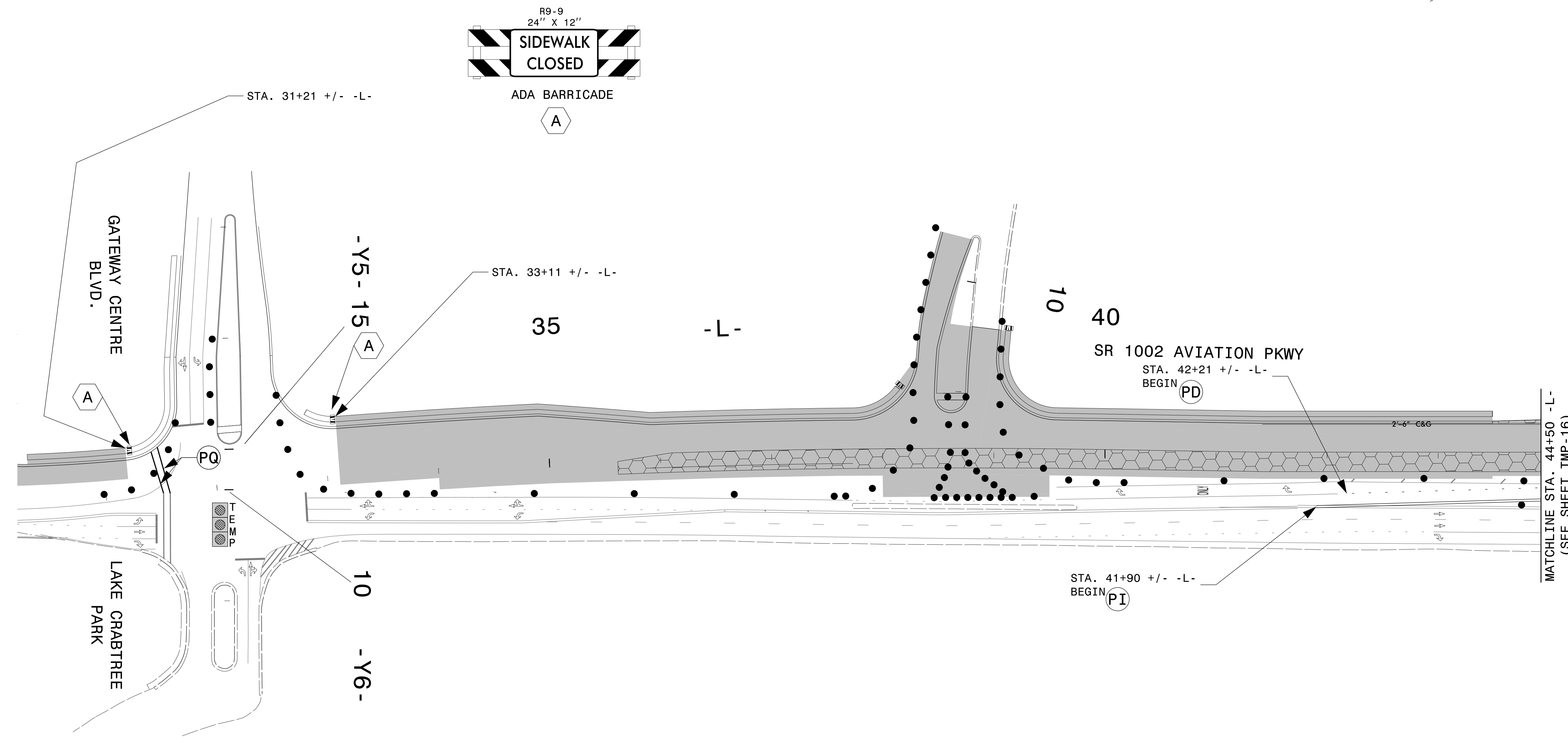
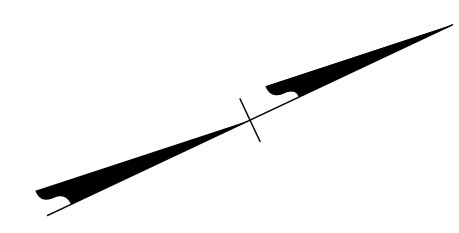
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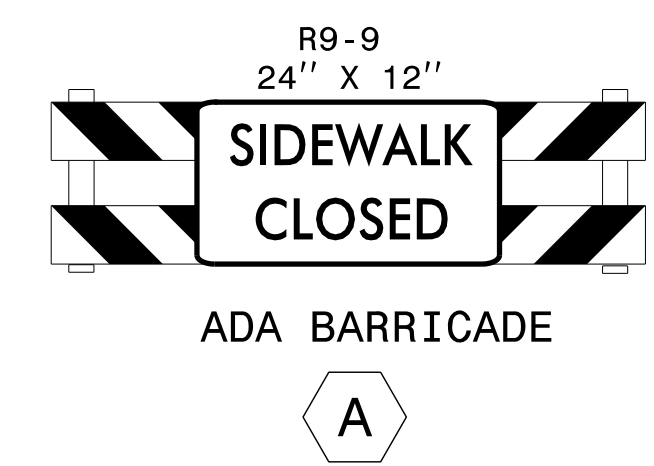
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PHASE II DETAIL



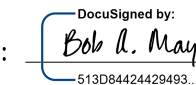
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MATCHLINE STA. 44+50 -L-  
(SEE SHEET TMP-16)

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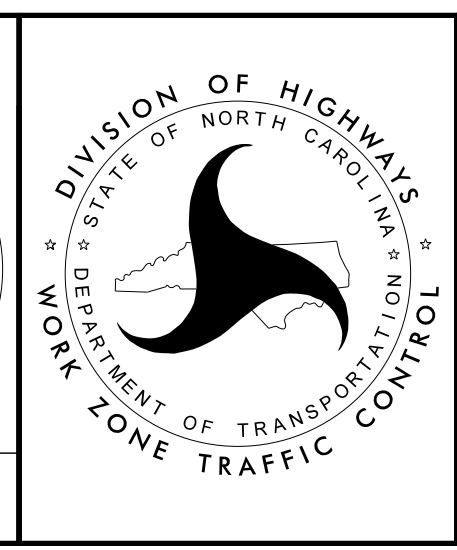
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APPROVED:   
 DATE: 12/20/2017

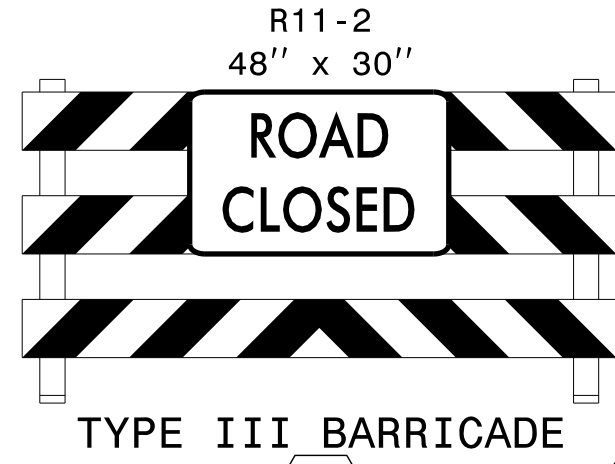
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PHASE II DETAIL



TYPE III BARRICADE

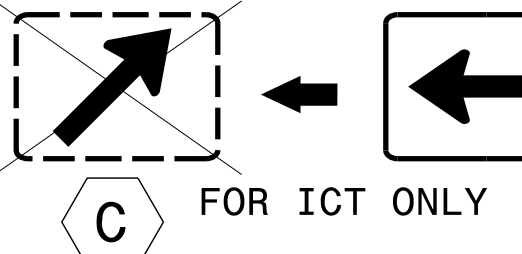
I-40 EB OFF-RAMP TO AVIATION PKWY. -RPC-

SPRD-25 & RPD-25

STA. 45+66 +/- -L- BEGIN TEMPORARY PAVEMENT

MATCHLINE STA. 25+00 -RPD- SEE SHEET TMP-18

NOTE: PLACE DRUMS ALONG OUTSIDE OF I-40 EB LANE 4 FROM LOOPC GORE TO END OF ACCELERATION LANE WHEN LOOP C IS CLOSED.



\* SEE PHASE II STEP 3 THRU PHASE III, STEP 1 FOR ICT.

MATCHLINE STA. 113+00 -L- SEE SHEET TMP-18

NOTE: LANE WIDTHS ARE EXISTING UNLESS OTHERWISE NOTED.

STA. 105+80 +/- -Y- 9.8' PAVED SHOULDER END LANE SHIFT BEGIN PCB (ANCHORED) BEGIN (WJ) END (WL)

STA. 107+22 +/- -Y- BEGIN (WS) END (W6)

STA. 16+81 +/- -LPC- STA. 48+12 +/- -L- END WATER-FILLED BARRIER (2' MIN. OFFSET) STA. 108+00 +/- -Y- PCB 2' OFFSET FROM EOT 6" YELLOW EDGELINE 9.4' OFFSET FROM EOP STA. 108+09 +/- -Y- BEGIN (WJ) END (WS)

STA. 108+71 +/- -Y- BEGIN (WJ) END (WS)

STA. 109+12 +/- -Y- BEGIN (W6)

STA. 49+24 +/- -L-

STA. 110+52 +/- -Y- BEGIN LANE SHIFT 6" EDGELINE 12.25' OFFSET FROM EOP PCB 2' OFFSET FROM EOT BEGIN (WL) END (WJ)

STA. 112+72 +/- -Y- 12.2' PAVED SHOULDER BEGIN LANE SHIFT END PCB (ANCHORED)

MATCHLINE STA. 104+25 -L- SEE SHEET TMP-14

105

STA. 11+77 +/- -LPB-

STA. 55+28 +/- -L- BEGIN (P2) END (P8)

STA. 55+00 +/- -L- BEGIN WEDGING

STA. 54+93 +/- -L- END (PA)

STA. 54+43 +/- -L- BEGIN (PA)

STA. 54+30 +/- -L- BEGIN (PC)

STA. 53+00 +/- -L- BEGIN WFB (2' MIN. OFFSET)

STA. 54+03 +/- -L- BEGIN (PI)

STA. 54+24 +/- -L- BEGIN (PA) END (PE)

STA. 54+68 +/- -L-

STA. 54+03 +/- -L- BEGIN (PI)

STA. 54+24 +/- -L- BEGIN (PA) END (PE)

STA. 54+68 +/- -L-

STA. 54+03 +/- -L- BEGIN (PI)

STA. 54+24 +/- -L- BEGIN (PA) END (PE)

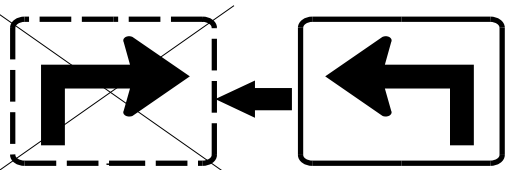
STA. 54+68 +/- -L-

STA. 54+03 +/- -L- BEGIN (PI)

STA. 54+24 +/- -L- BEGIN (PA) END (PE)

STA. 54+68 +/- -L-

EAST



M5-1 21" X 15" FOR ICT ONLY

STA. 17+93 +/- -LPB-

STA. 26+42 +/- -LPB-

STA. 56+66 +/- -L-

STA. 56+40 +/- -L- END WFB (2' MIN. OFFSET) BEGIN (PB) END (PA)

STA. 56+00 +/- -L-

STA. 56+59 +/- -L- END (P8)

STA. 25+31 +/- -RPA- END (PB) END (PE) END (PS)

STA. 25+12 +/- -RPA-

STA. 25+31 +/- -RPA- END (PB) END (PE) END (PS)

STA. 25+12 +/- -RPA-

STA. 25+31 +/- -RPA- END (PB) END (PE) END (PS)

STA. 25+12 +/- -RPA-

STA. 25+31 +/- -RPA- END (PB) END (PE) END (PS)

STA. 25+12 +/- -RPA-

STA. 25+31 +/- -RPA- END (PB) END (PE) END (PS)

STA. 25+12 +/- -RPA-

STA. 25+31 +/- -RPA- END (PB) END (PE) END (PS)

STA. 25+12 +/- -RPA-

STA. 25+31 +/- -RPA- END (PB) END (PE) END (PS)

STA. 25+12 +/- -RPA-

MATCHLINE STA. 23+50 -RPB- SEE SHEET TMP-14

MATCHLINE STA. 22+50 -RPC- SEE SHEET TMP-14

MATCHLINE STA. 22+50 -RPC- SEE SHEET TMP-14

MATCHLINE STA. 22+50 -RPC- SEE SHEET TMP-14

MATCHLINE STA. 22+50 -RPC- SEE SHEET TMP-14

MATCHLINE STA. 22+50 -RPC- SEE SHEET TMP-14

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MATCHLINE STA. 22+50 -RPC- SEE SHEET TMP-14

MATCHLINE STA. 22+50 -RPC- SEE SHEET TMP-14

-RPP-25

STA. 25+27 +/- -RPP- END PCB

STA. 25+67 +/- -RPP-

STA. 57+36 +/- -L- BEGIN (PA) END (PH) END (PI) END (P8)

STA. 57+50 +/- -L-

STA. 56+59 +/- -L- END (P8)

STA. 25+78 +/- -RPA- END (PA) END (PE)

STA. 25+78 +/- -RPA- END (PA) END (PE)

STA. 25+78 +/- -RPA- END (PA) END (PE)

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STA. 25+78 +/- -RPA- END (PA) END (PE)

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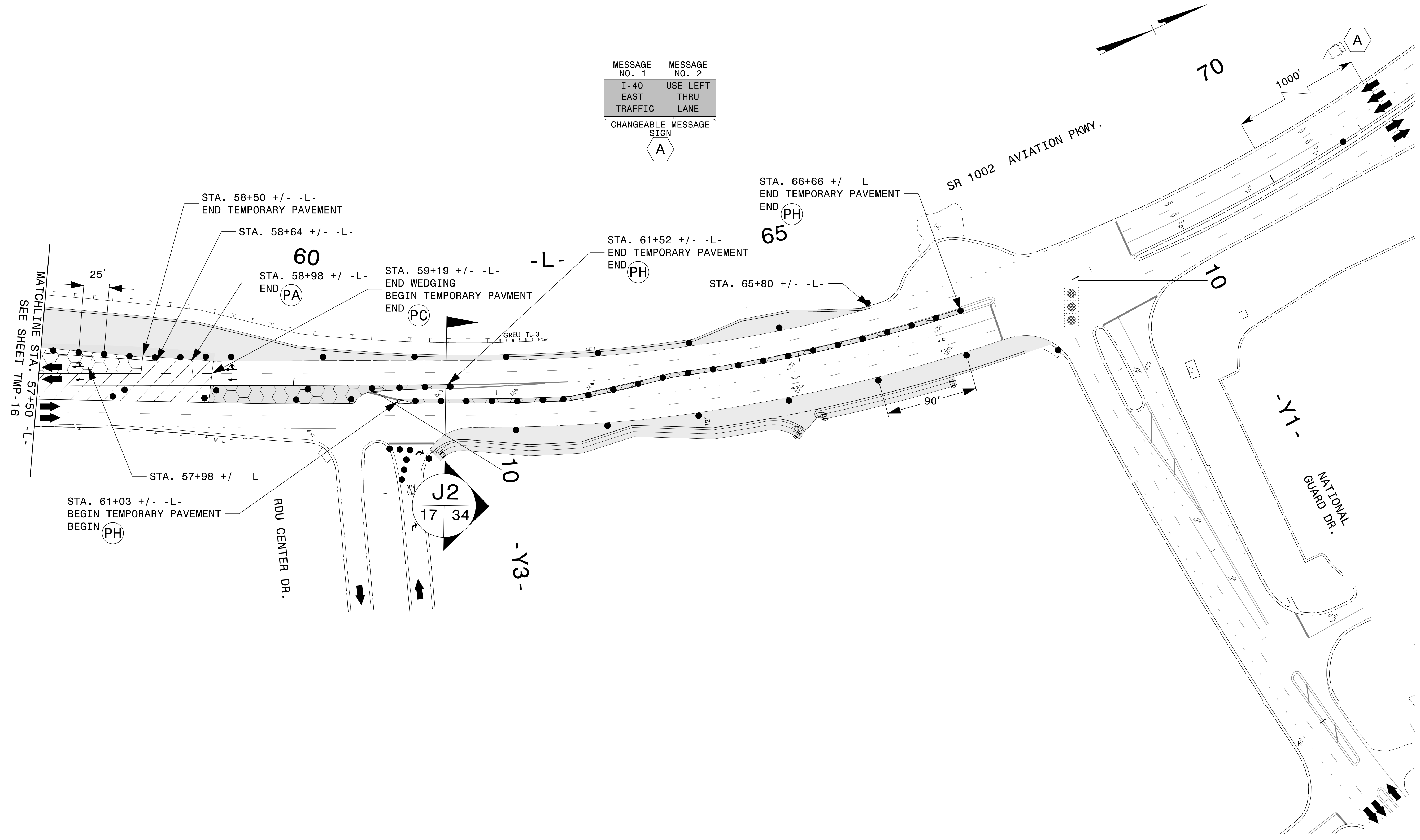
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: Bob A. May DATE: 11/21/2017 SEAL DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA PHASE II DETAIL

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MESSAGE NO. 1	MESSAGE NO. 2
I-40 EAST TRAFFIC	USE LEFT THRU LANE
CHANGEABLE MESSAGE SIGN	
A	

STA. 58+50 +/- -L- END TEMPORARY PAVEMENT

STA. 58+64 +/- -L-

60

STA. 58+98 +/- -L- END PA

STA. 59+19 +/- -L- END WEDGING BEGIN TEMPORARY PAVEMENT END PC

GREU TL-3

STA. 61+52 +/- -L- END TEMPORARY PAVEMENT END PH

65

STA. 65+80 +/- -L-

70

1000'

SR 1002 AVIATION PKWY.

70

10

-Y1- NATIONAL GUARD DR.

90'

10

-Y3-

J2  
17 34

STA. 61+03 +/- -L- BEGIN TEMPORARY PAVEMENT BEGIN PH

STA. 57+98 +/- -L-

RDU CENTER DR.

25'

MATCHLINE STA. 57+50 -L- SEE SHEET TMP-16

NOTE: ALL LANE WIDTHS ARE EXISTING UNLESS OTHERWISE NOTED.

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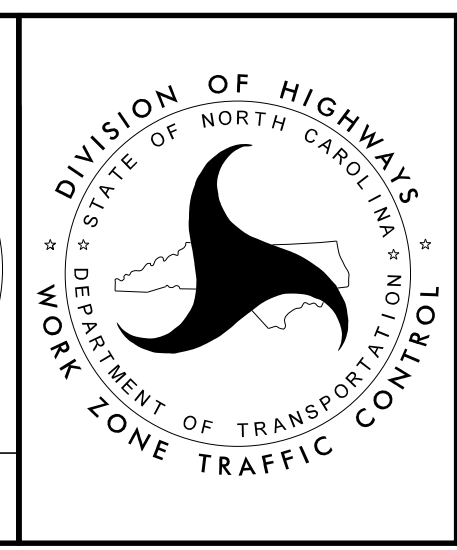
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DATE: 11/21/2017

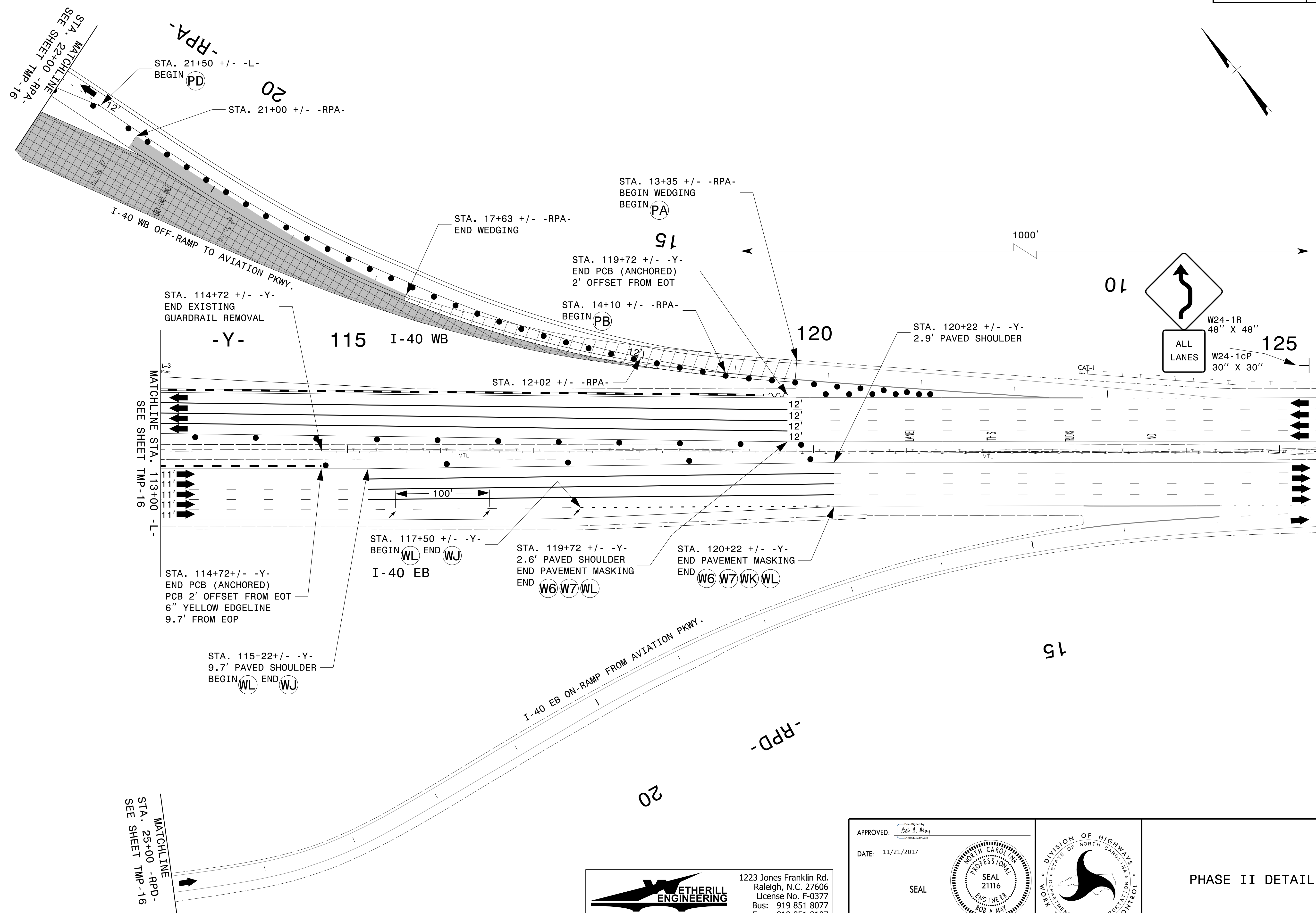
**SEAL**  
21116  
ENGINEER  
BOB A. MAY

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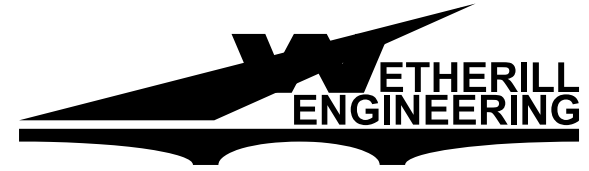


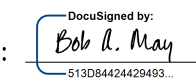

PHASE II DETAIL


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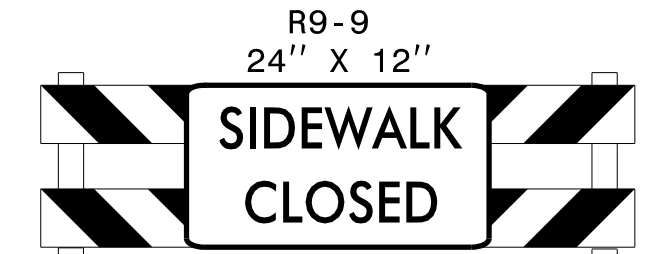

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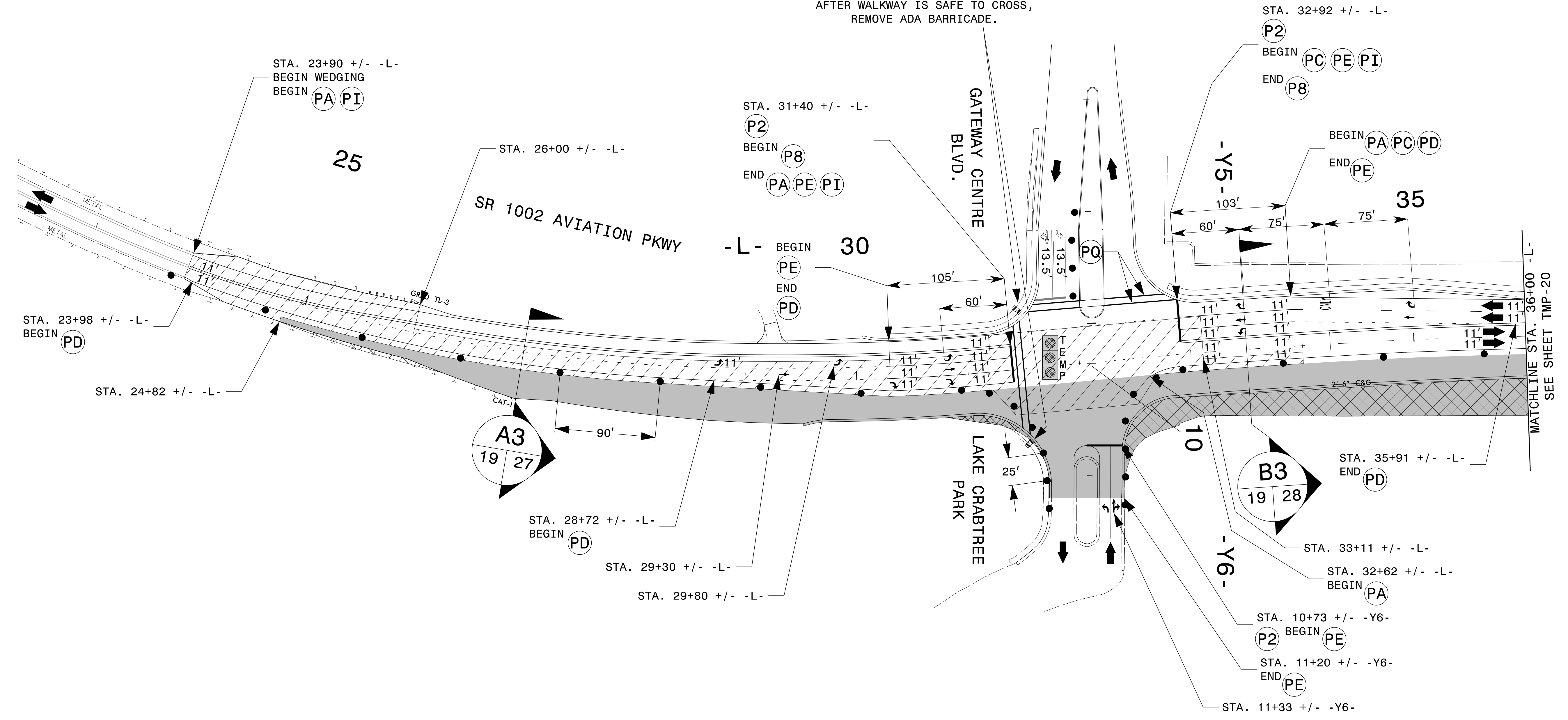
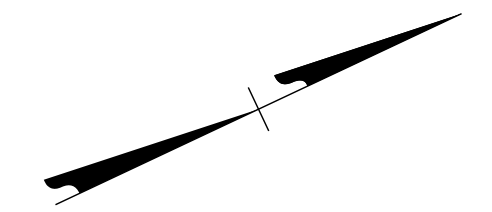
  
 DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

PHASE II DETAIL





**ADA BARRICADE**  
 NOTE: INSTALL ADA BARRICADE ONLY WHEN CONSTRUCTION INTERFERES WITH CROSSWALK INCLUDING WEDGING, CURB & GUTTER INSTALLATION, WIDENING, AND MARKING OPERATIONS. AT THE END OF EACH DAY'S OPERATIONS AND AFTER WALKWAY IS SAFE TO CROSS, REMOVE ADA BARRICADE.



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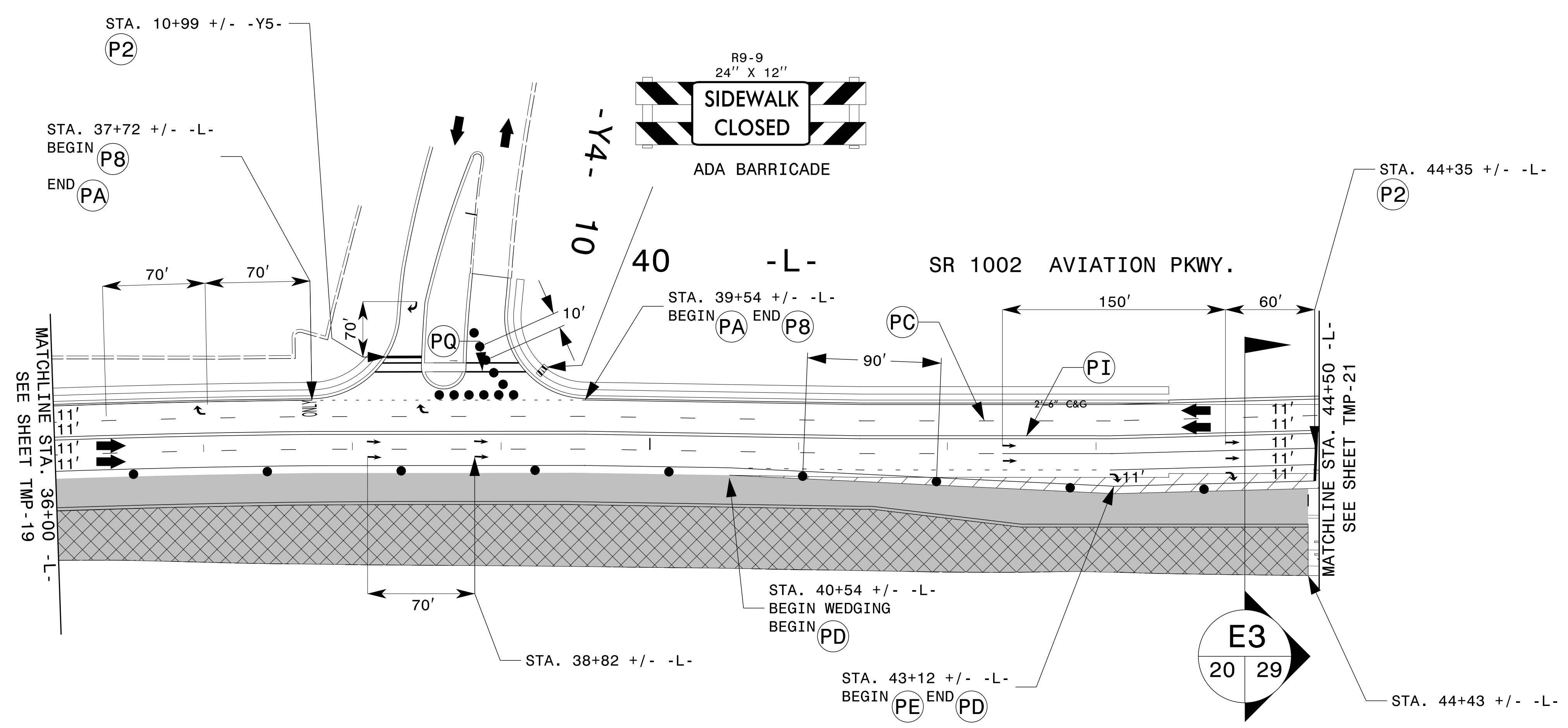
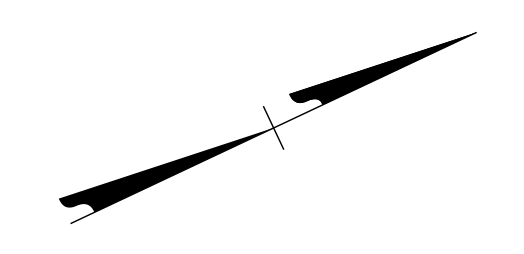
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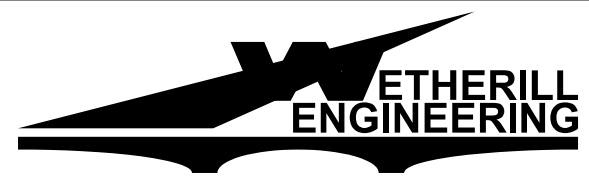
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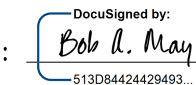

**PHASE III DETAIL**



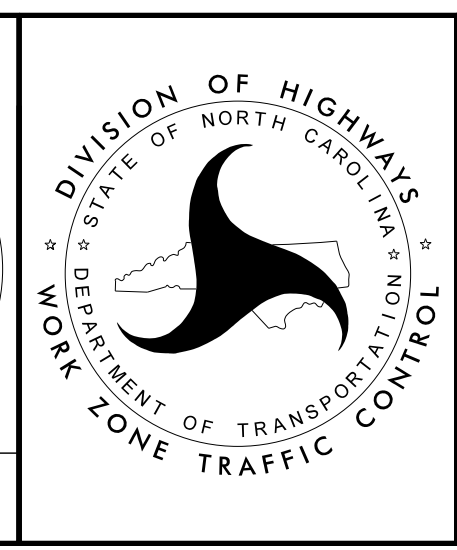
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 User: AHayes


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 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

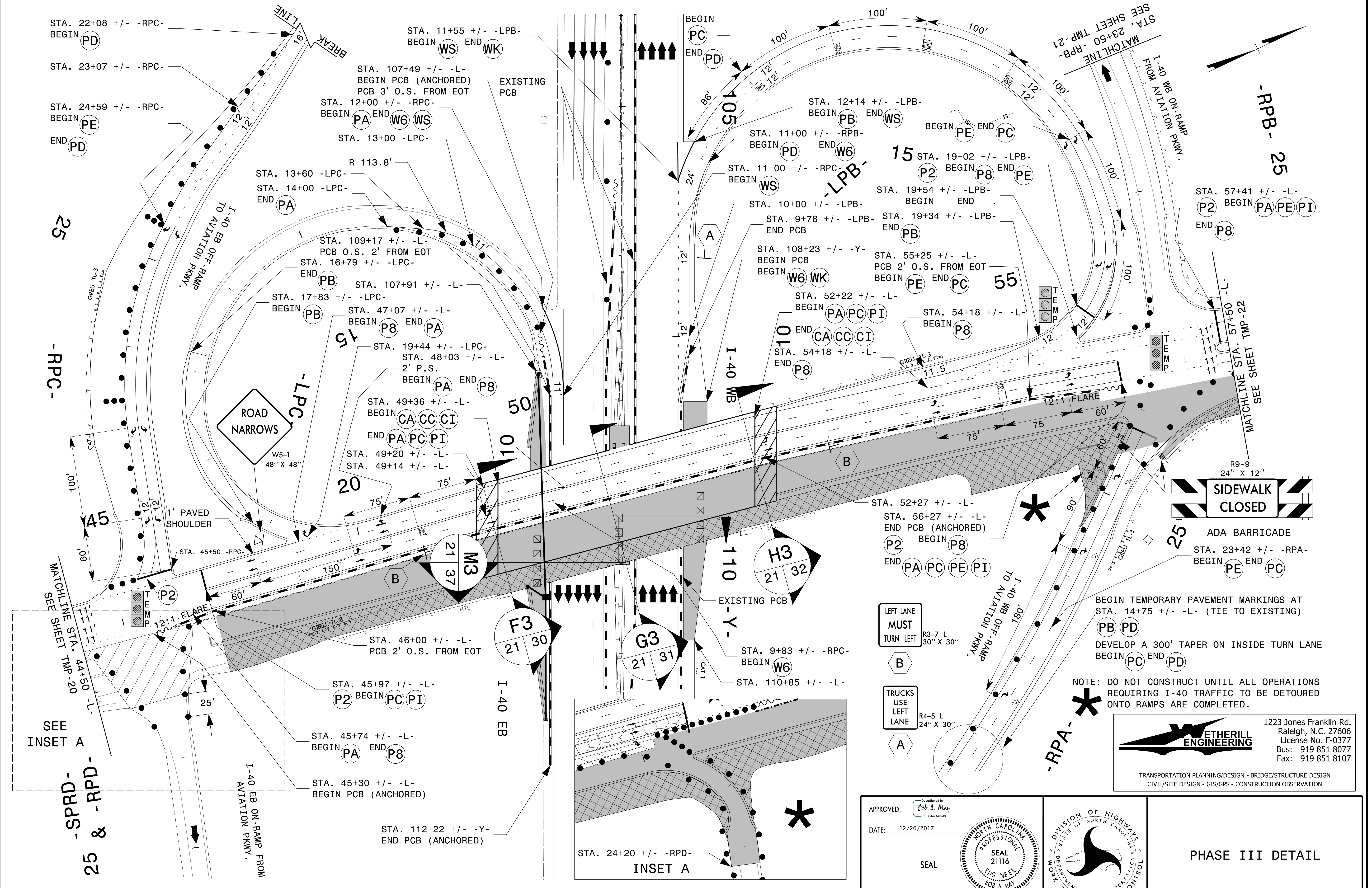
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 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED:   
 DATE: 12/20/2017  
 SEAL  


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PHASE III DETAIL

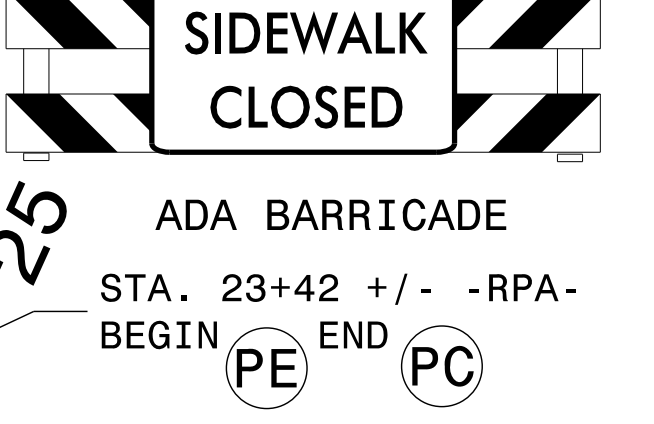


-RPC- 25

-RPB- 25

-SPRD- 25 & -RPD-

-RPA- 25



BEGIN TEMPORARY PAVEMENT MARKINGS AT STA. 14+75 +/- -L- (TIE TO EXISTING) PB PD  
 DEVELOP A 300' TAPER ON INSIDE TURN LANE BEGIN PC END PD

NOTE: DO NOT CONSTRUCT UNTIL ALL OPERATIONS REQUIRING I-40 TRAFFIC TO BE DETOURED ONTO RAMPS ARE COMPLETED.

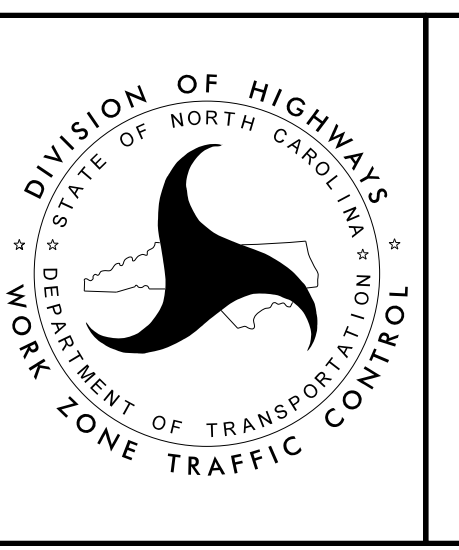
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

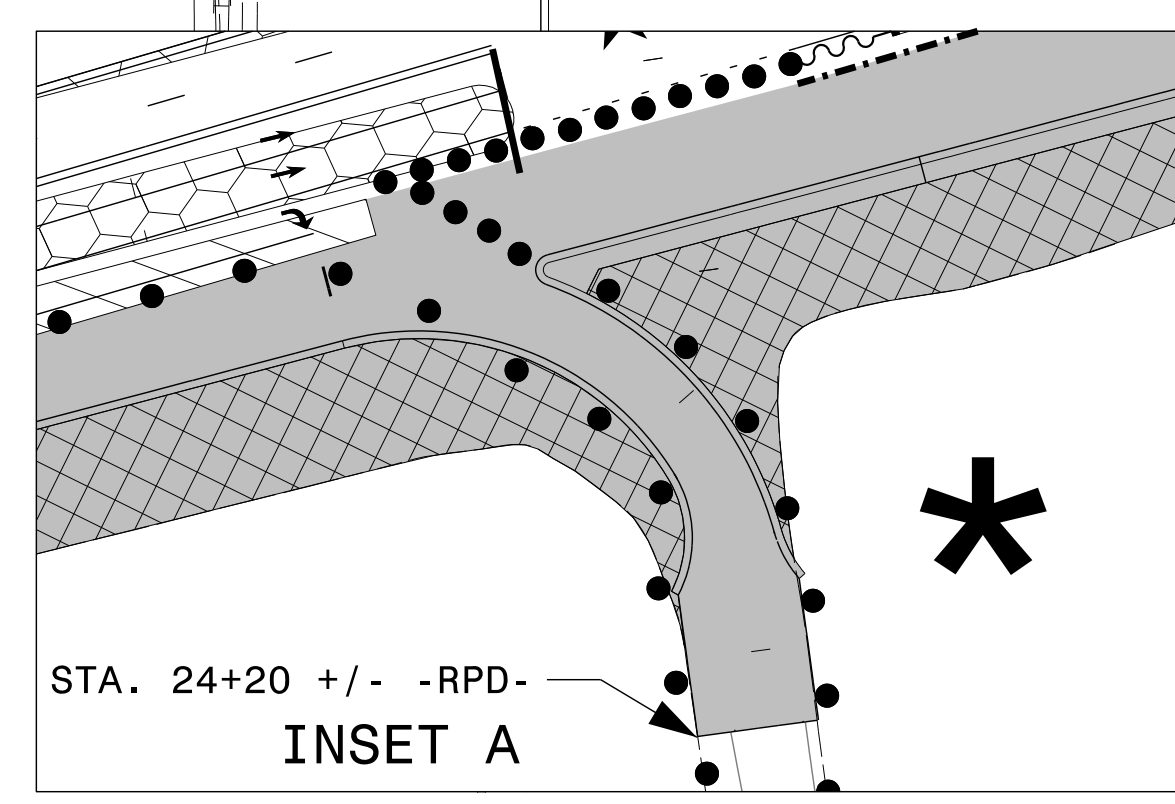
APPROVED: *Bob A. May*  
 DATE: 12/20/2017

SEAL

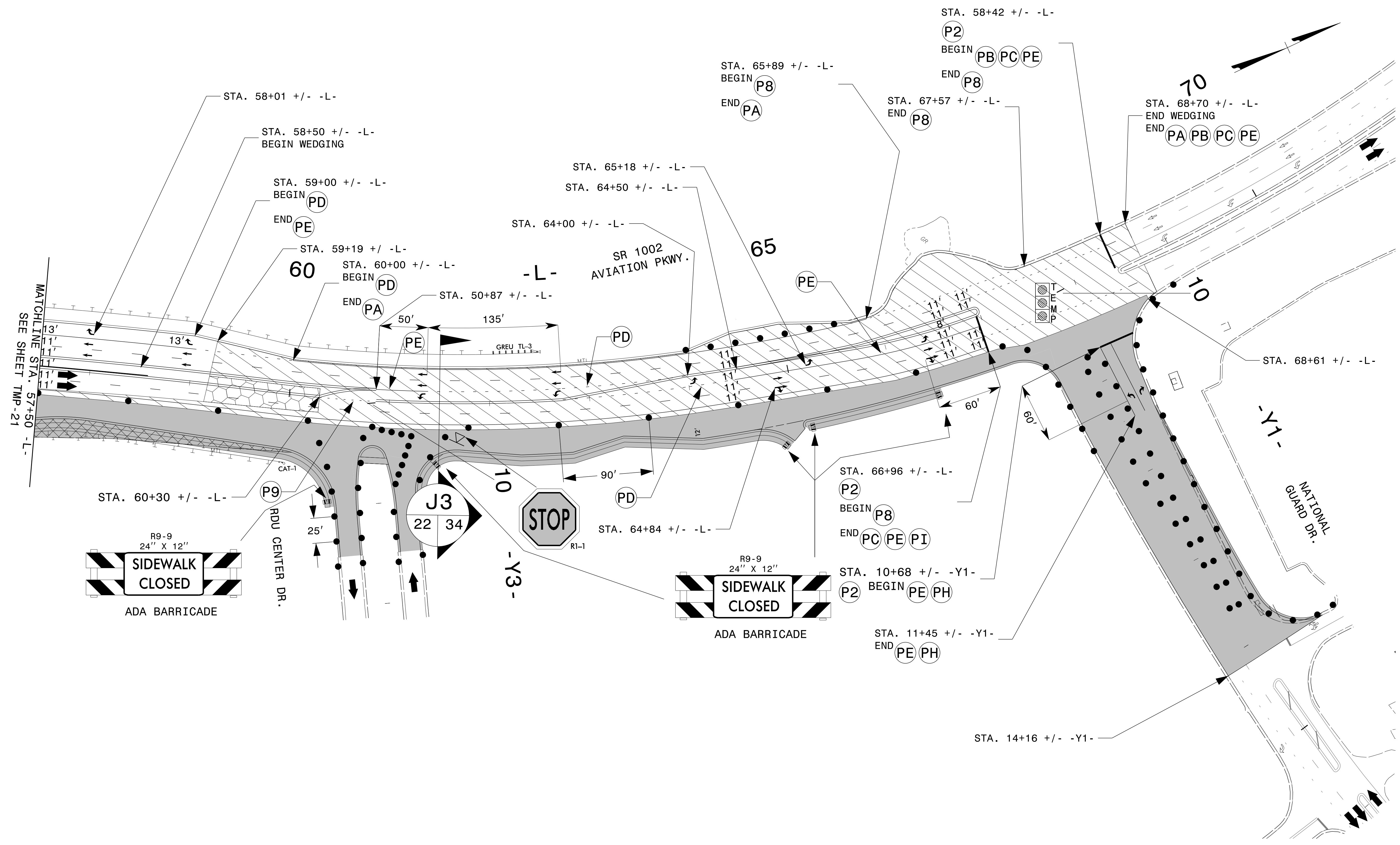
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**



**PHASE III DETAIL**



12/20/2017  
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 User: AHayes



NOTE: LANE WIDTHS ARE EXISTING UNLESS OTHERWISE NOTED.

12/20/2017  
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User:AHayes

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 Fax: 919 851 8107

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 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

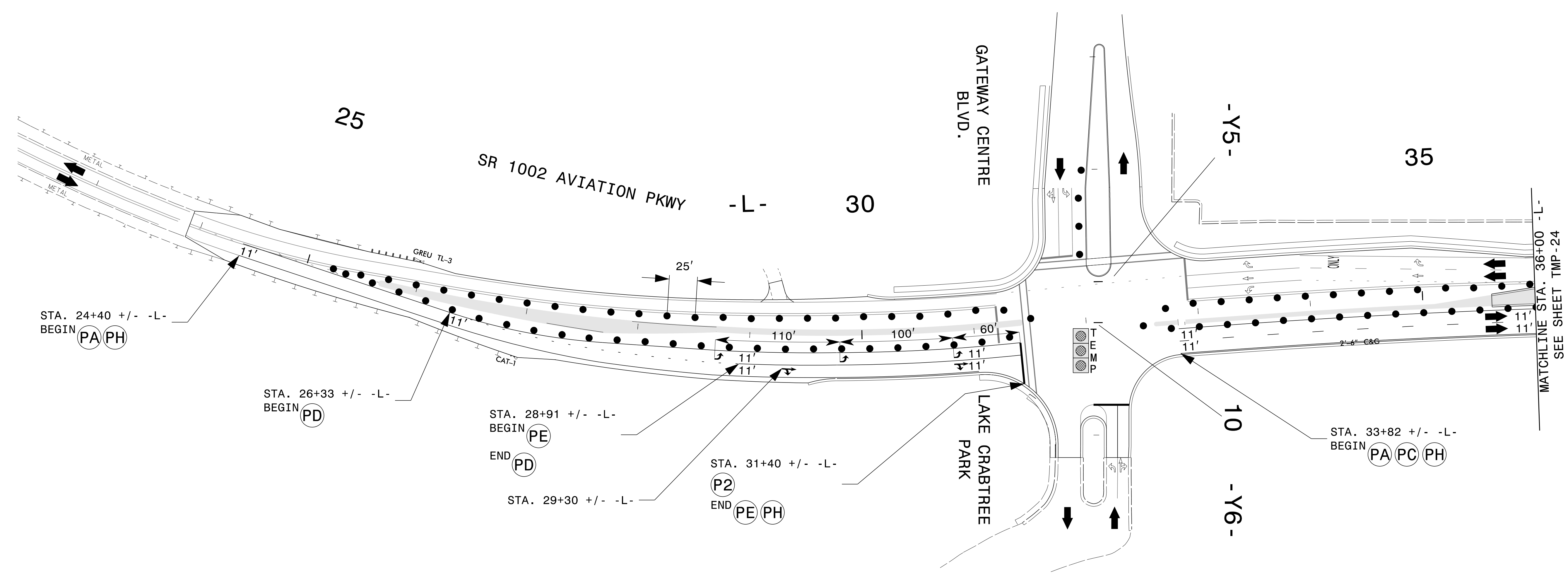
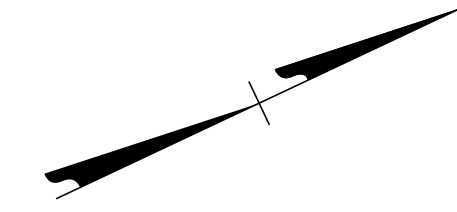
APPROVED: *Bob A. May*  
 DATE: 12/20/2017

SEAL

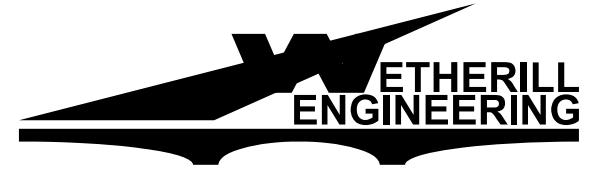
**DOCUMENT NOT CONSIDERED FINAL  
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 NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

PHASE III DETAIL



11/21/2017  
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 User: AHayes



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 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

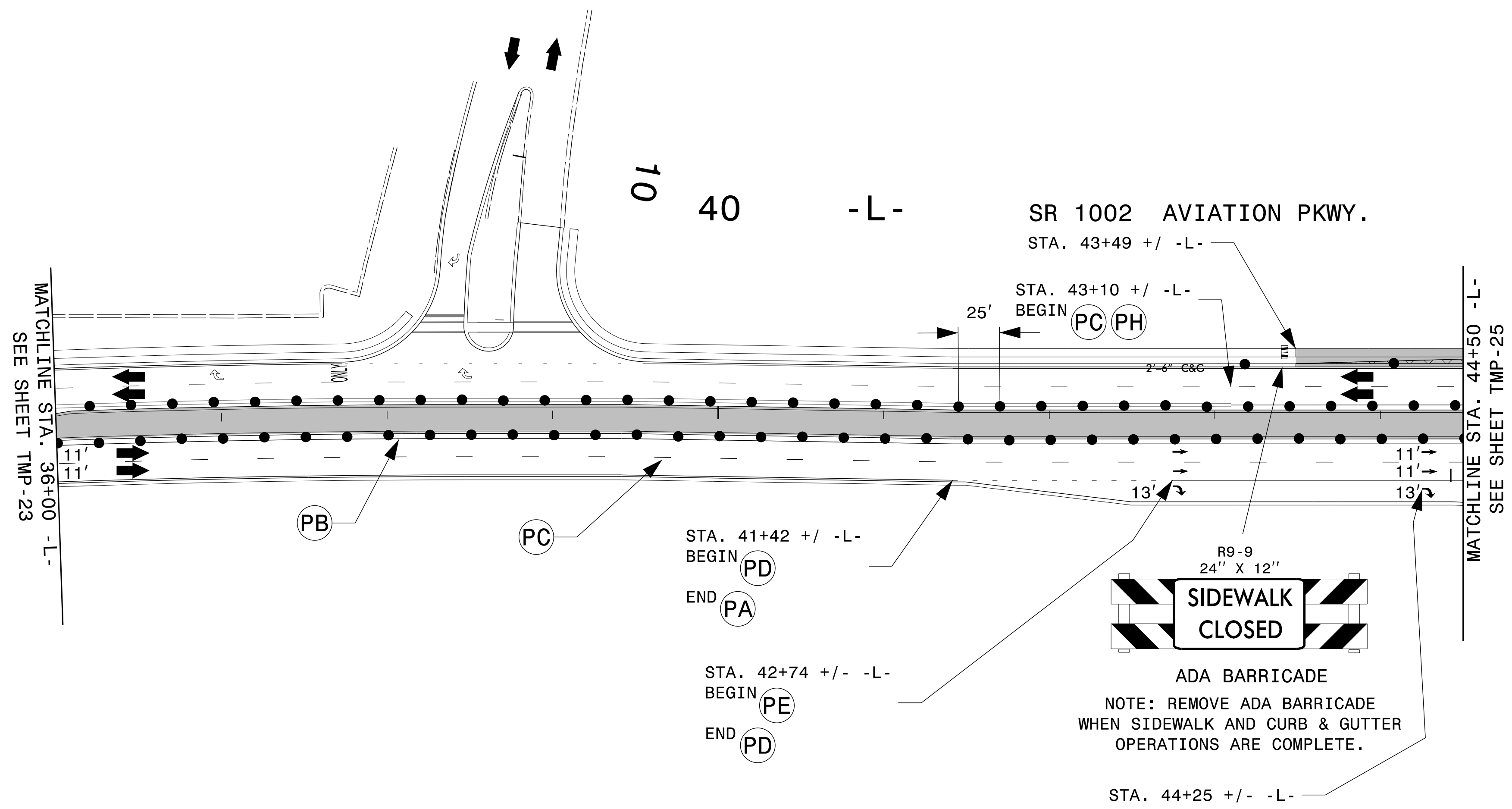
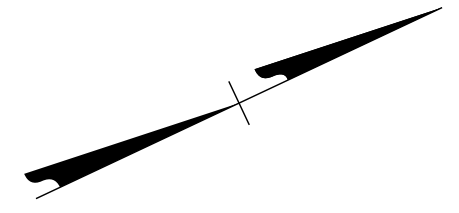
APPROVED:   
 DATE: 11/21/2017



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PHASE IV DETAIL



12/20/2017  
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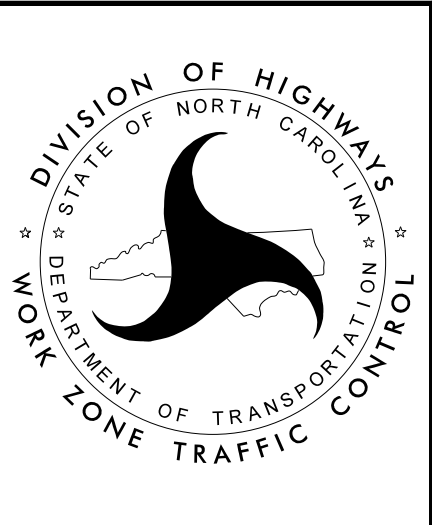
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 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

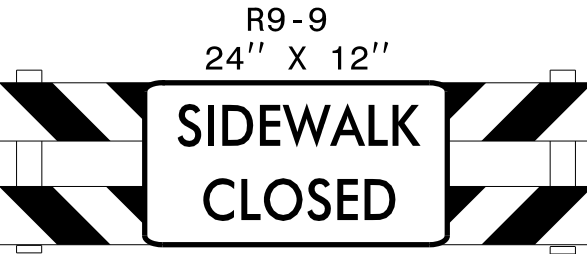
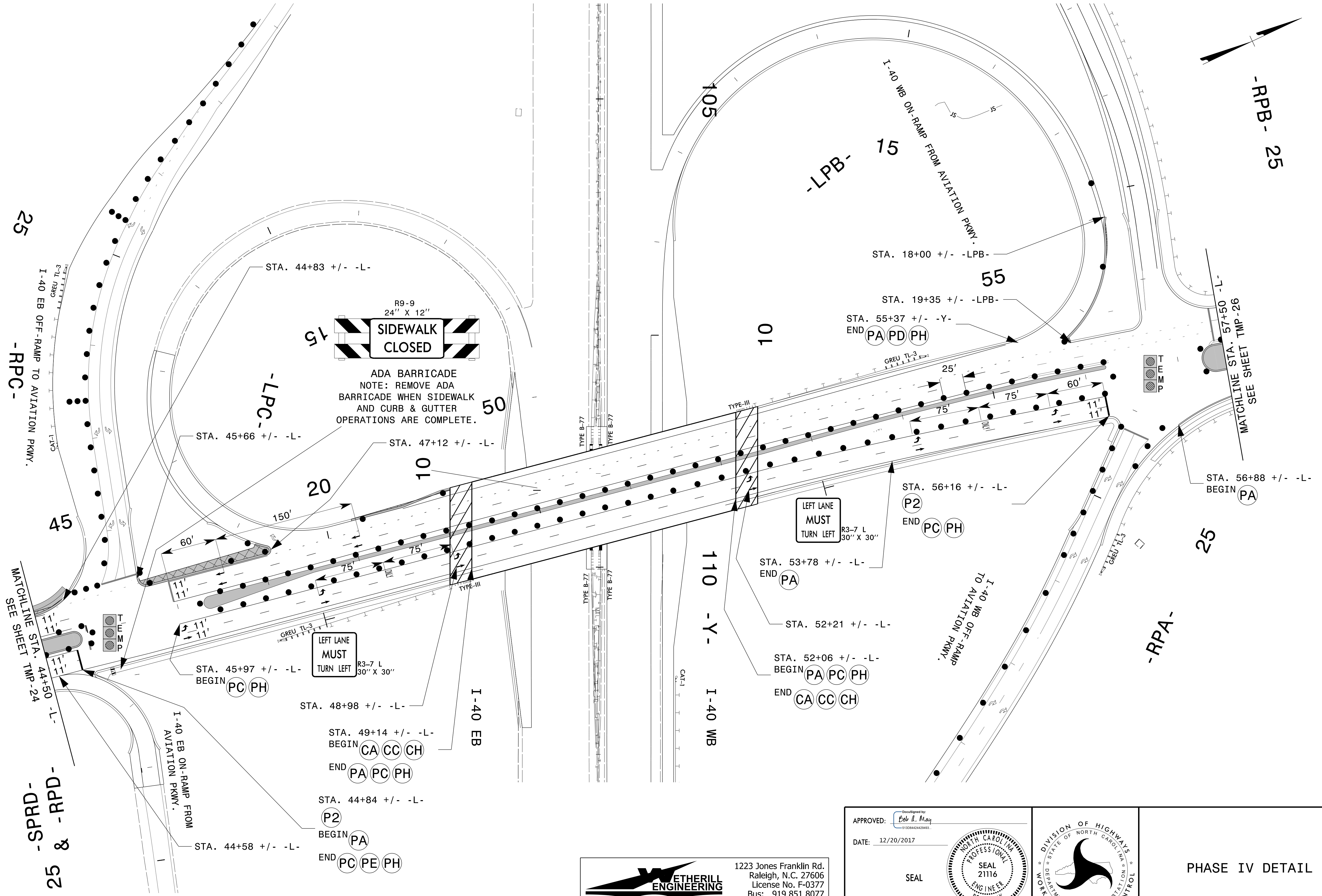
APPROVED: *Bob A. May*  
DocuSigned by:  
Bob A. May  
5130842425493  
 DATE: 12/20/2017

SEAL

**DOCUMENT NOT CONSIDERED FINAL  
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PHASE IV DETAIL



ADA BARRICADE  
NOTE: REMOVE ADA  
BARRICADE WHEN SIDEWALK  
AND CURB & GUTTER  
OPERATIONS ARE COMPLETE.

LEFT LANE  
MUST  
TURN LEFT

LEFT LANE  
MUST  
TURN LEFT

12/20/2017  
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User:AHayes

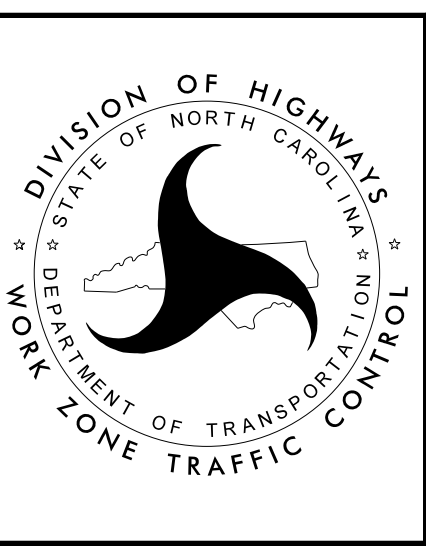
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Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
DATE: 12/20/2017

SEAL

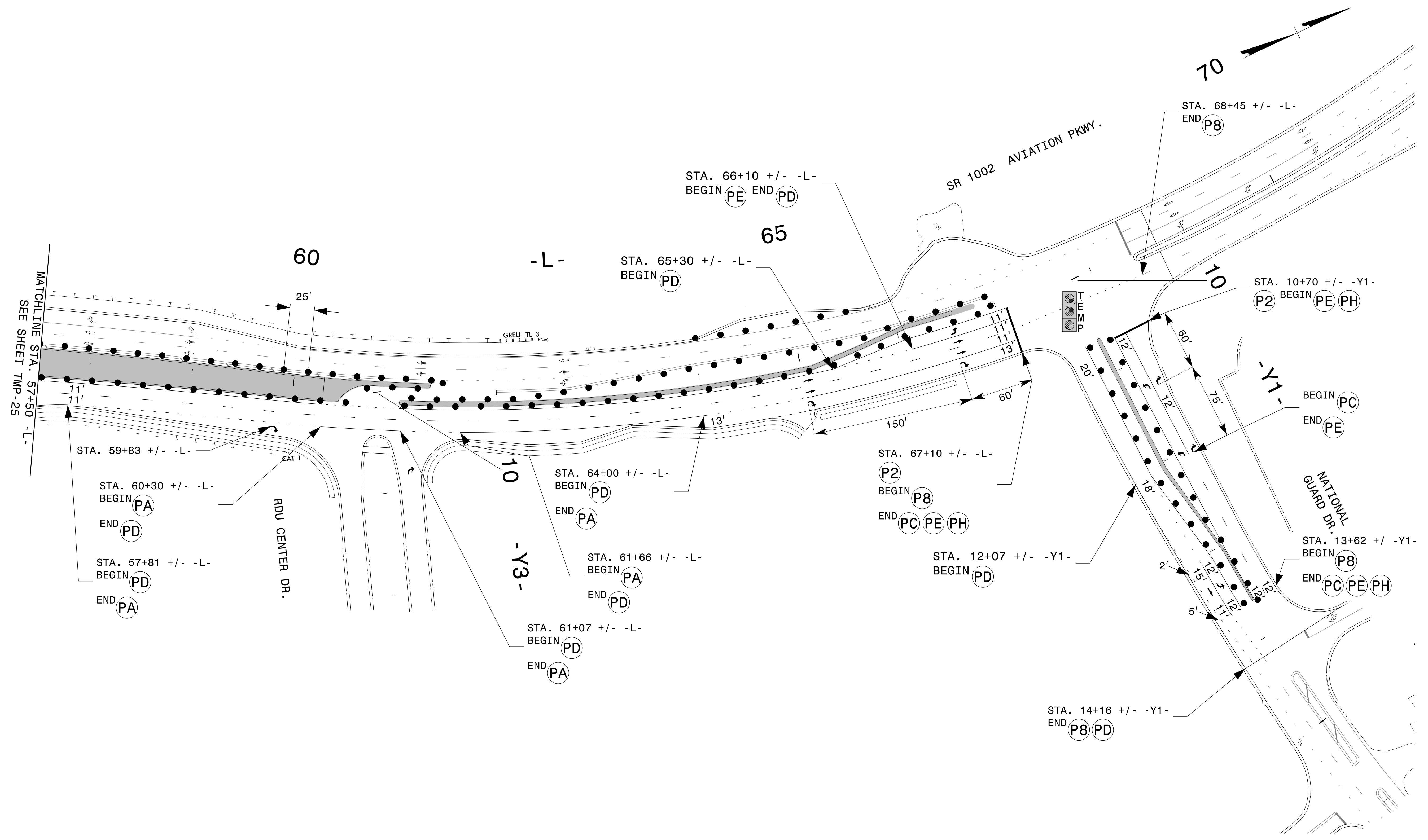
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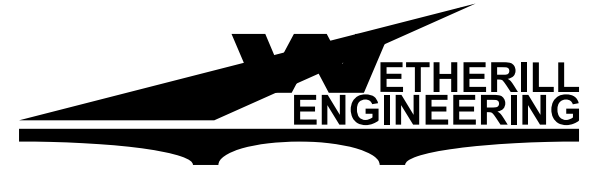
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SEAL

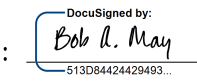

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11/21/2017  
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 User: AHayes


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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

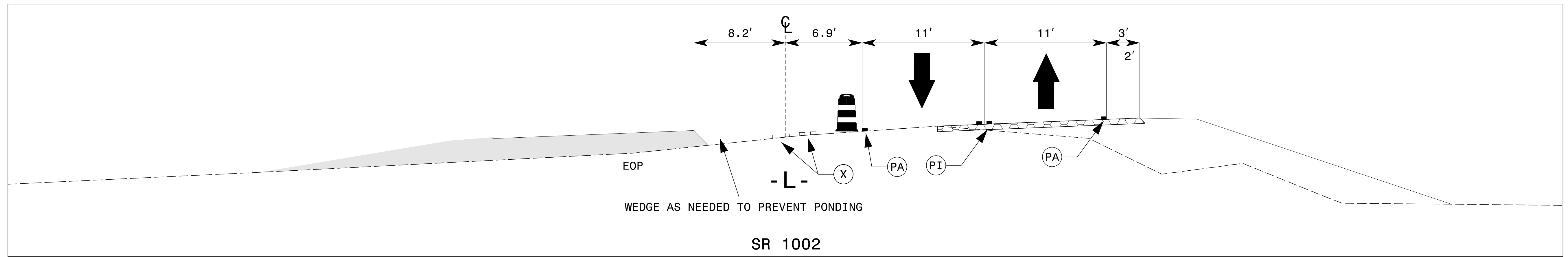
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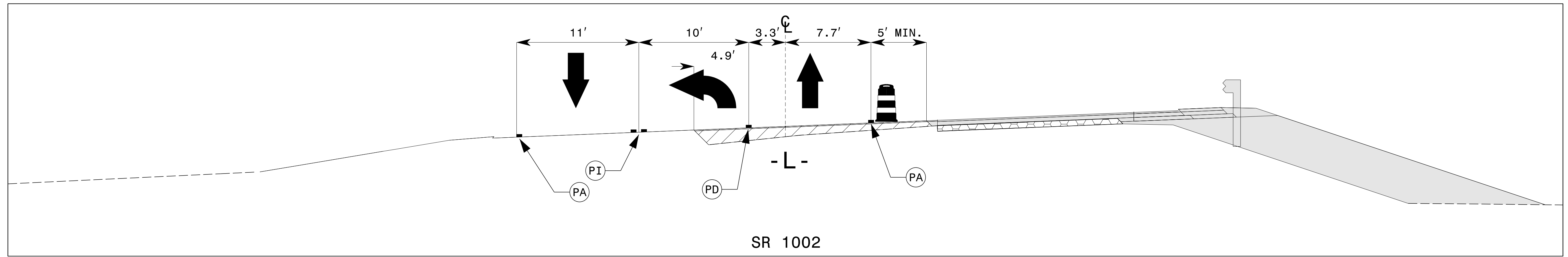

 DIVISION OF HIGHWAYS  
 NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

PHASE IV DETAIL





**A1** CUT SECTION  
07 | 27 STA. 27+00 -L-



**A3** CUT SECTION  
19 | 27 STA. 27+00 -L-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

(X) EXISTING MARKINGS

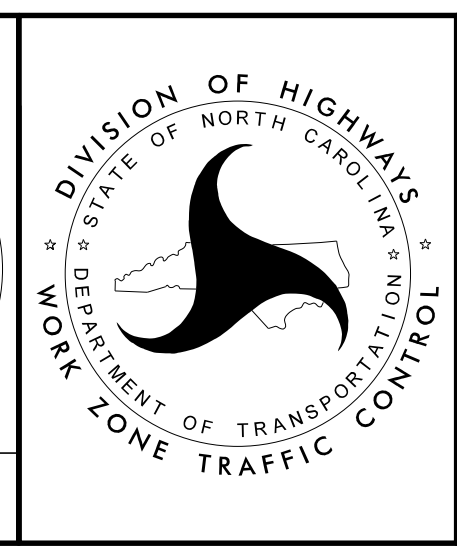
**ETHERILL ENGINEERING**  
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 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
DocuSigned by: Bob A. May 5108442429493  
 DATE: 11/21/2017

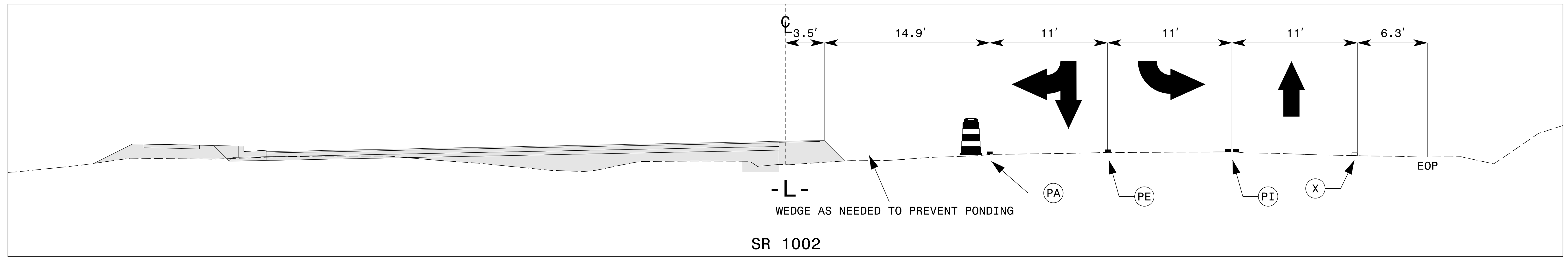
**PROFESSIONAL SEAL**  
 NORTH CAROLINA  
 21116  
 ENGINEER  
 BOB A. MAY

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

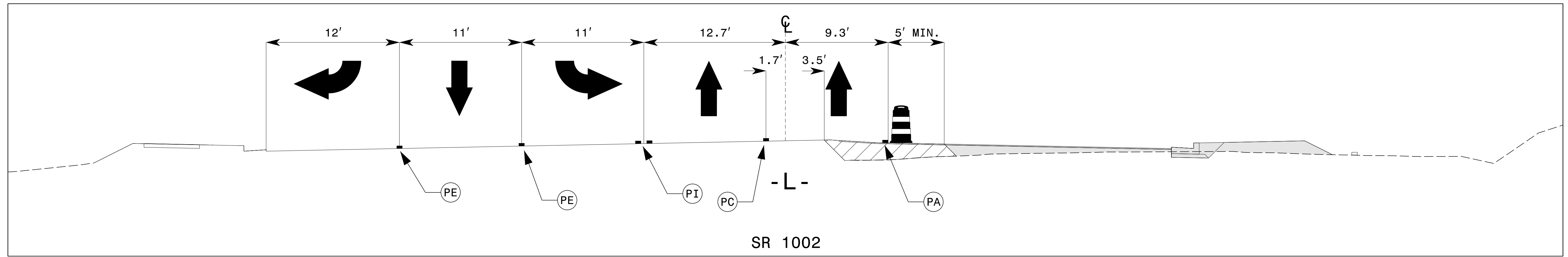


CUT SECTION A

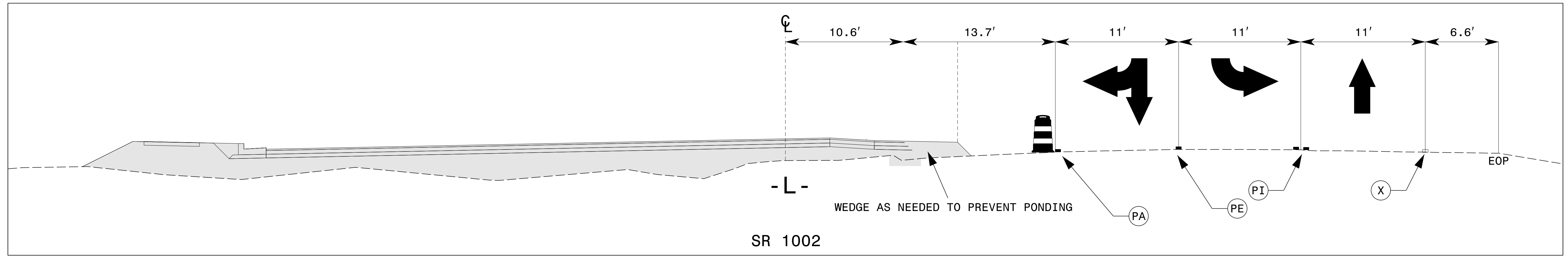
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**B1** CUT SECTION  
07 | 28 STA. 33+50 -L-



**B3** CUT SECTION  
19 | 28 STA. 33+50 -L-



**C1** CUT SECTION  
07 | 28 STA. 34+50 -L-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

(X) EXISTING MARKINGS

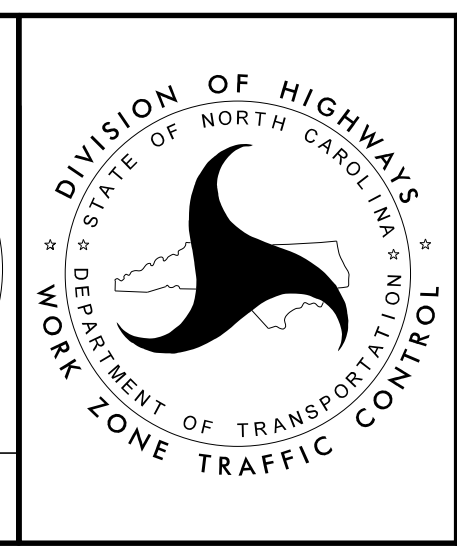
**ETHERILL ENGINEERING**  
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Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
DATE: 11/21/2017

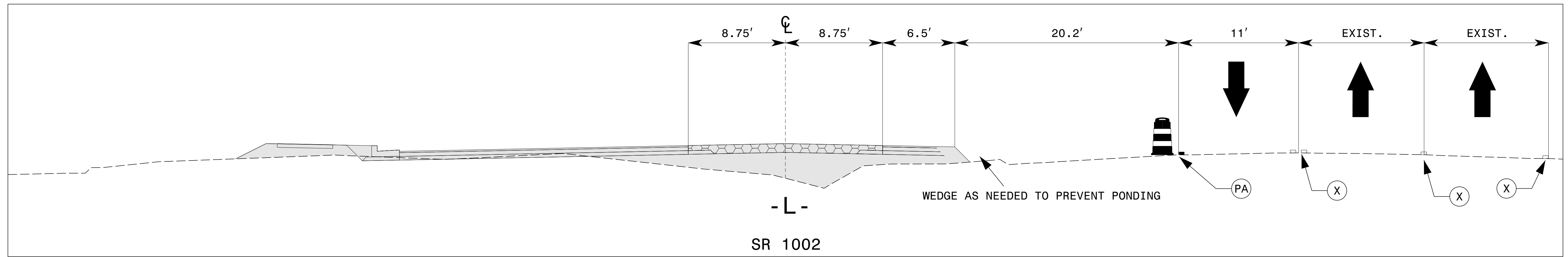
SEAL  
21116  
ENGINEER  
BOB A. MAY

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UNLESS ALL SIGNATURES COMPLETED**

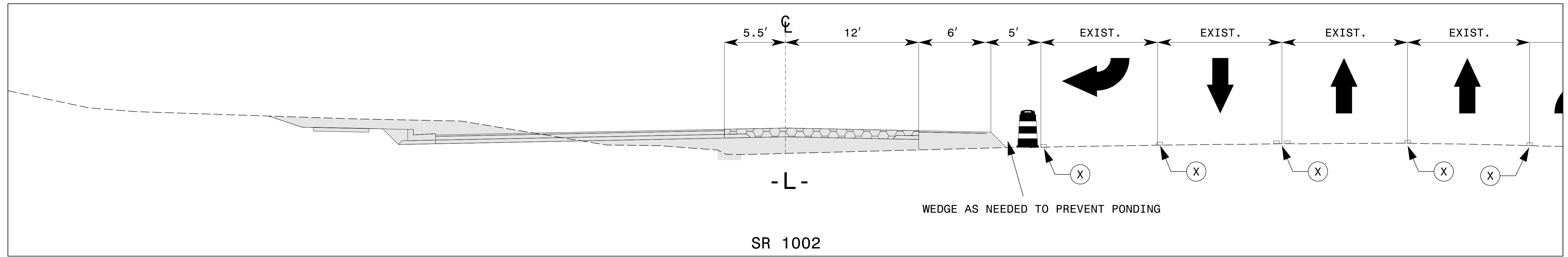


CUT SECTIONS B & C

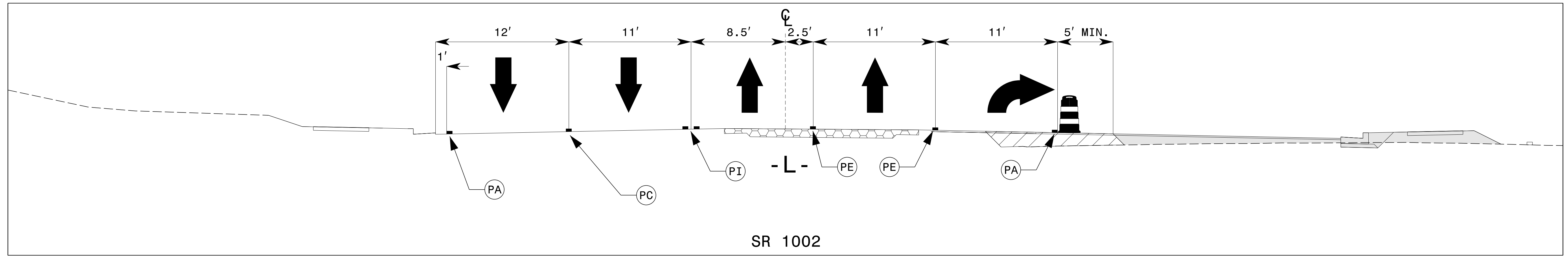
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**D1** CUT SECTION  
08 29 STA. 37+00 -L-



**E1** CUT SECTION  
08 29 STA. 44+00 -L-



**E3** CUT SECTION  
20 29 STA. 44+00 -L-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

(X) EXISTING MARKINGS

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
DocuSigned by: Bob A. May 51308424423493  
 DATE: 11/21/2017

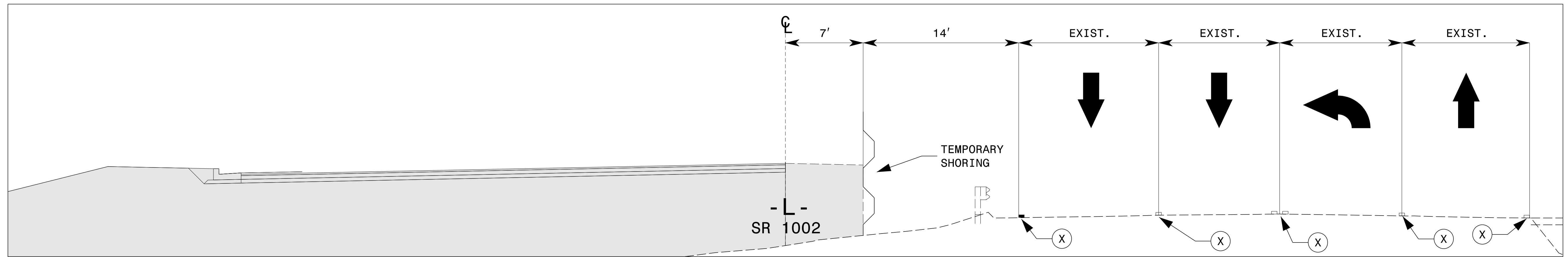
**SEAL**  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 BOB A. MAY  
 21116

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

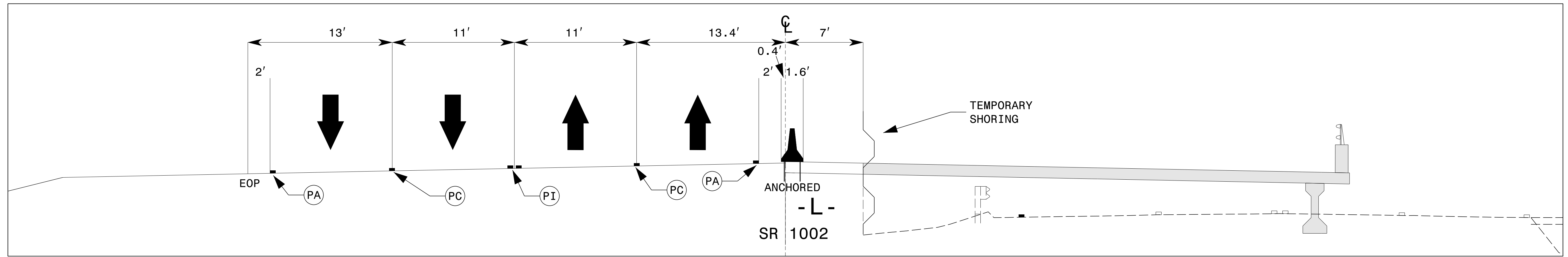
DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

CUT SECTIONS D & E

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 User: AHayes



**F1** CUT SECTION  
09 | 30 STA. 49+20 -L-



**F3** CUT SECTION  
21 | 30 STA. 49+20 -L-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

(X) EXISTING MARKINGS

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
 DATE: 11/21/2017

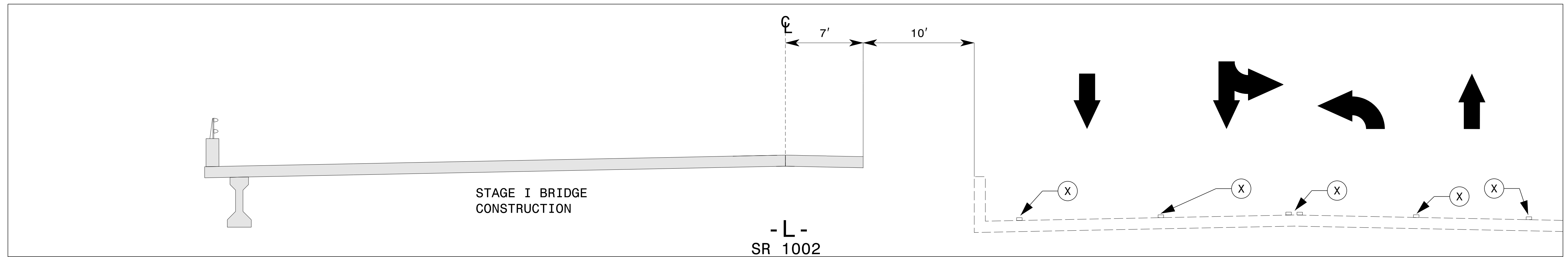
**SEAL**  
 21116  
 ENGINEER  
 BOB A. MAY

**DOCUMENT NOT CONSIDERED FINAL  
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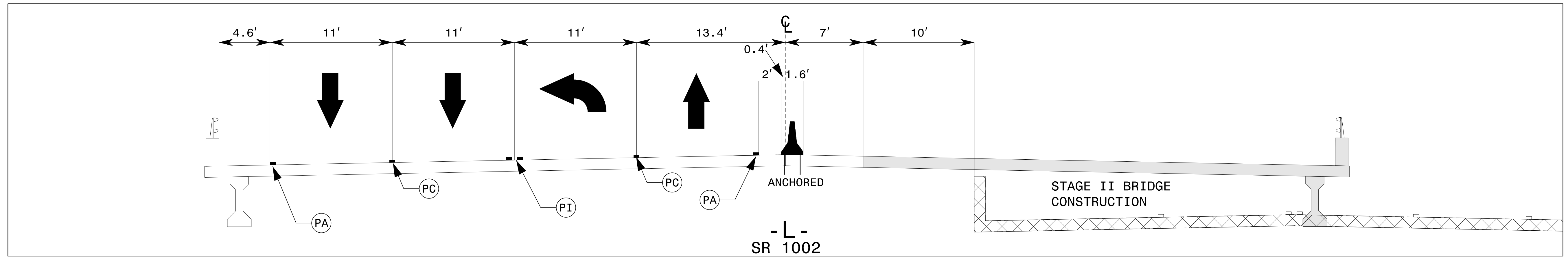
**DIVISION OF HIGHWAYS**  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

CUT SECTION F

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 User: AHayes



**G2** CUT SECTION  
16 | 31 STA. 50+50 -L-



**G3** CUT SECTION  
21 | 31 STA. 50+50 -L-

(X) EXISTING MARKINGS

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

11/21/2017 P:\2013\I-5506\Traffic\WZTC\TMP\DTL\TCS\220\_I-5506\_Traffic\WZTC-TMP-DTL-TCS-G.L..31.dgn User:AHayes

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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

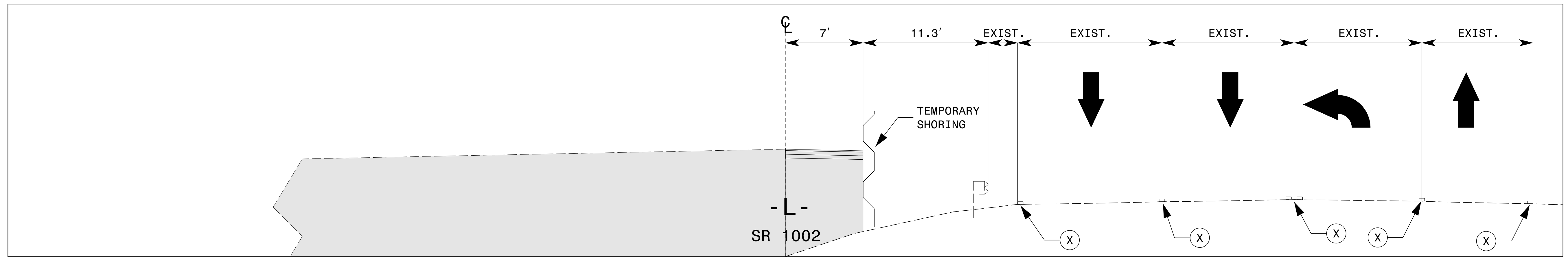
APPROVED: *Bob A. May*  
DATE: 11/21/2017

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

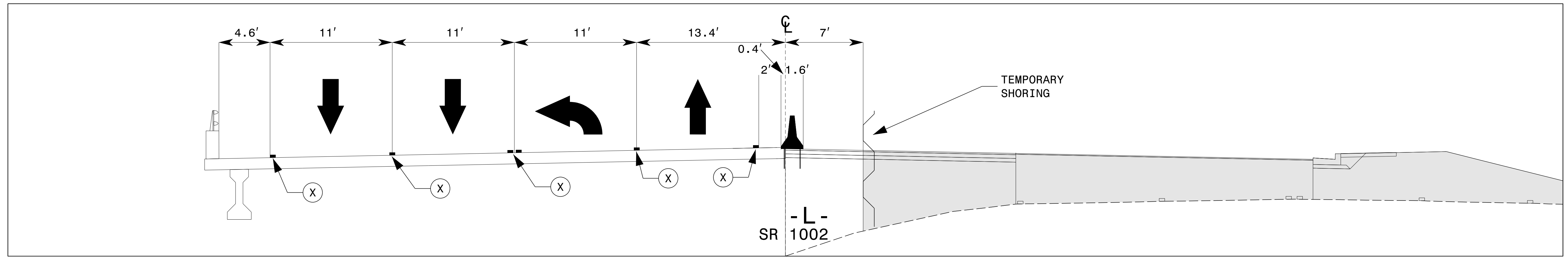
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

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

CUT SECTION G



**H1** CUT SECTION  
09 | 32 STA. 52+15 -L-



**H3** CUT SECTION  
21 | 32 STA. 52+15 -L-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

(X) EXISTING MARKINGS

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 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
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 Fax: 919 851 8107

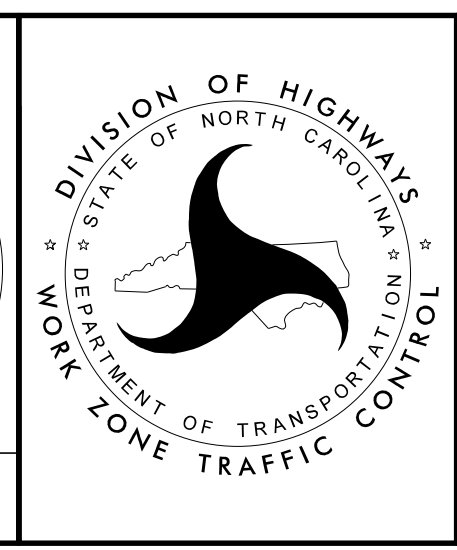
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. Way*  
DocuSigned by:  
Bob A. Way  
9130844429493

DATE: 11/21/2017

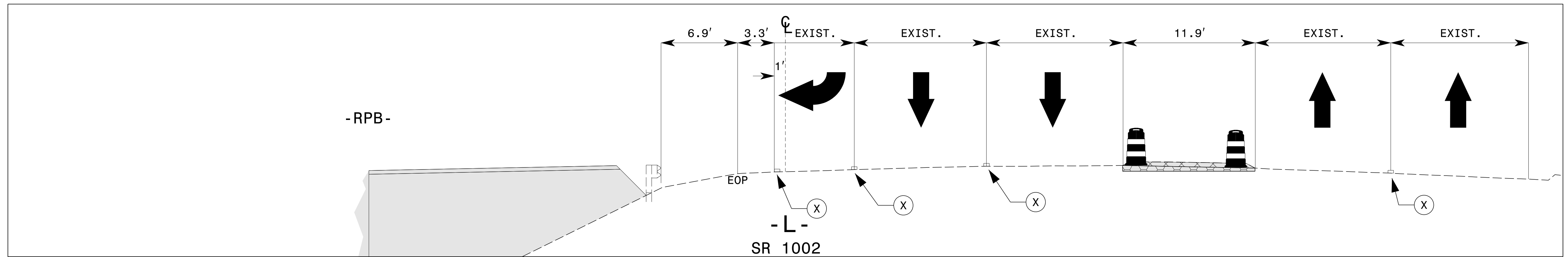
**SEAL 21116**  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 BOB A. WAY

**DOCUMENT NOT CONSIDERED FINAL  
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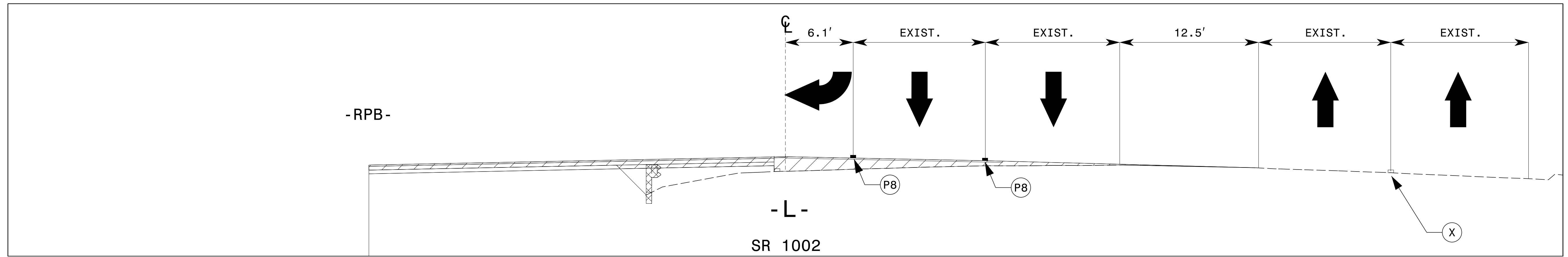


CUT SECTION H

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**I 1** CUT SECTION  
 09 33 STA. 57+00 -L-



**I 2** CUT SECTION  
 16 33 STA. 57+00 -L-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

(X) EXISTING MARKINGS

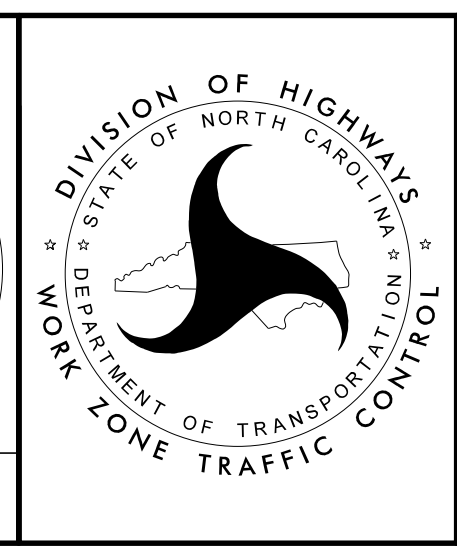
**ETHERILL ENGINEERING**  
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
 DATE: 11/21/2017

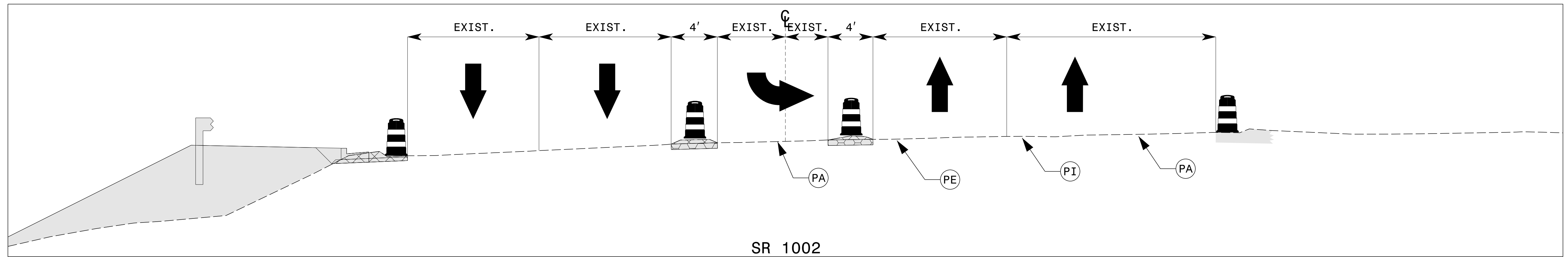
**SEAL**  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 21116  
 BOB A. MAY

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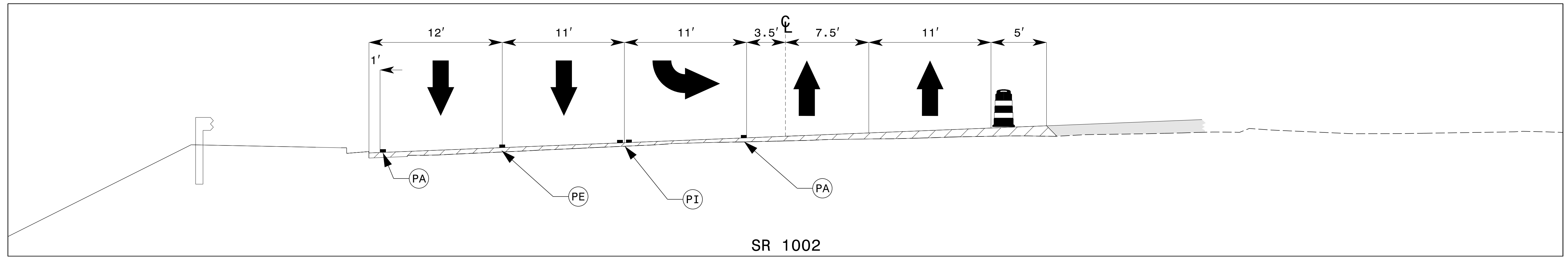


CUT SECTION I

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**J2** CUT SECTION  
 17 | 34 STA. 61+50 -L-



**J3** CUT SECTION  
 22 | 34 STA. 61+50 -L-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

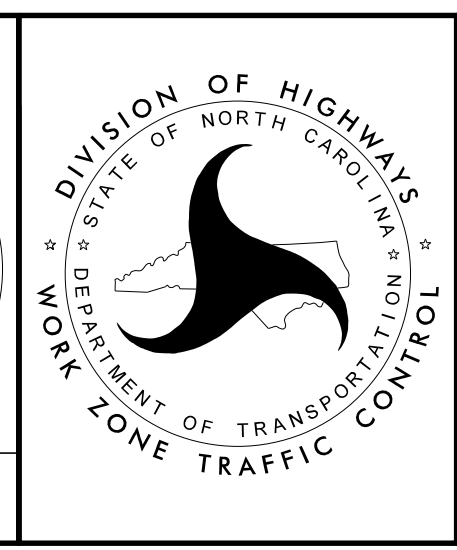
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 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
 DATE: 11/21/2017

**SEAL**  
 21116  
 ENGINEER  
 BOB A. MAY

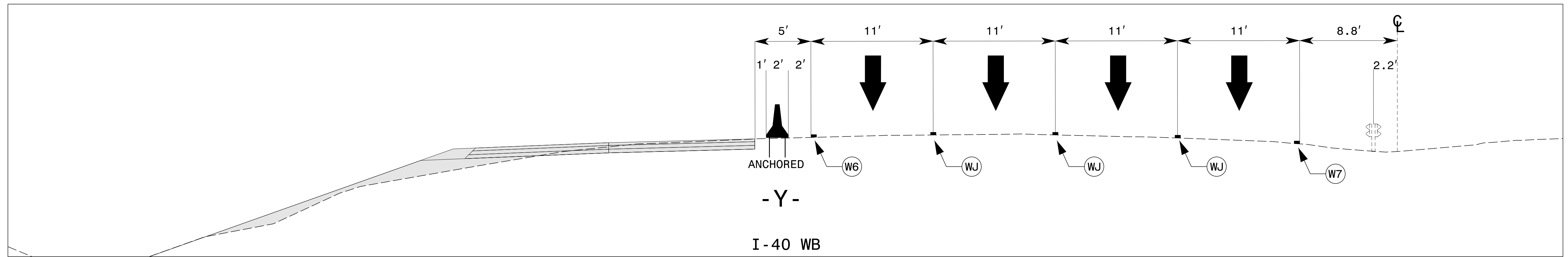
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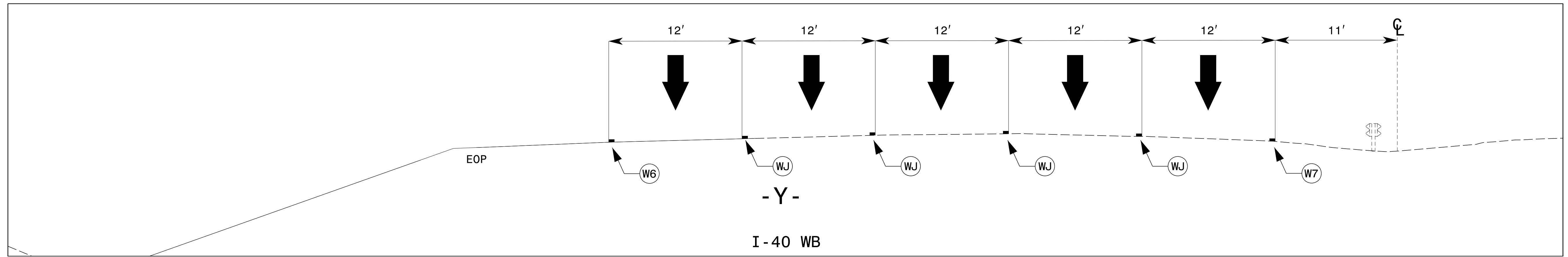
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 User: AHayes





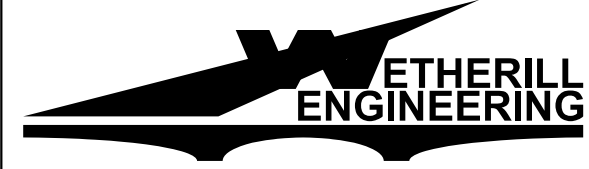
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 05 | 35 STA. 85+00 -Y-

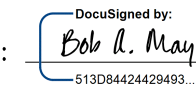




**K2** CUT SECTION  
 13 | 35 STA. 85+00 -Y-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

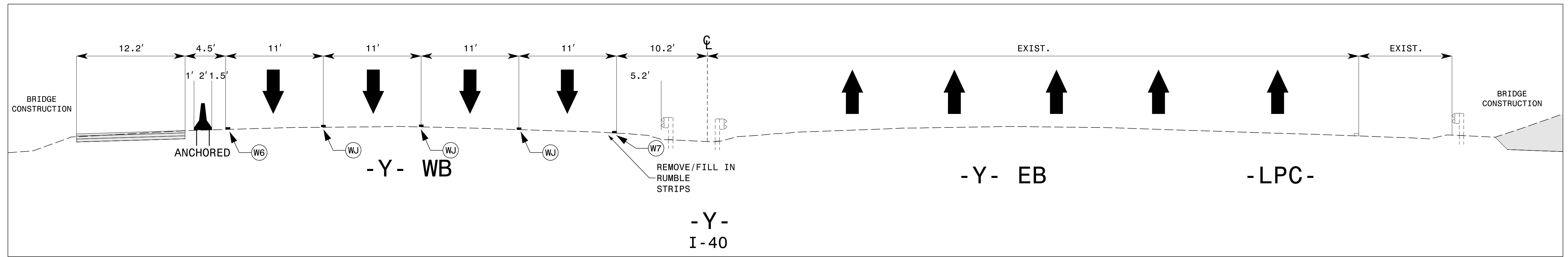
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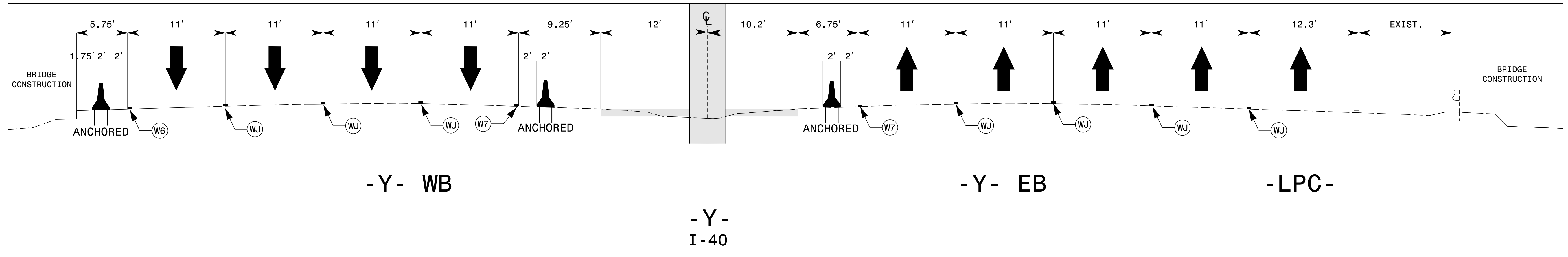
APPROVED:   
 DATE: 11/21/2017  
  
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 DIVISION OF HIGHWAYS  
 NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

CUT SECTION K



**L1** CUT SECTION  
 09 | 36 STA. 109+00 -Y-



**L2** CUT SECTION  
 16 | 36 STA. 109+00 -Y-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

11/21/2017  
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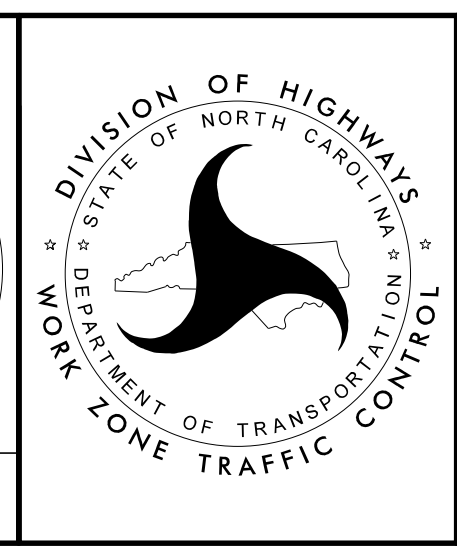
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
DocuSigned by:  
Bob A. May  
5100842429493

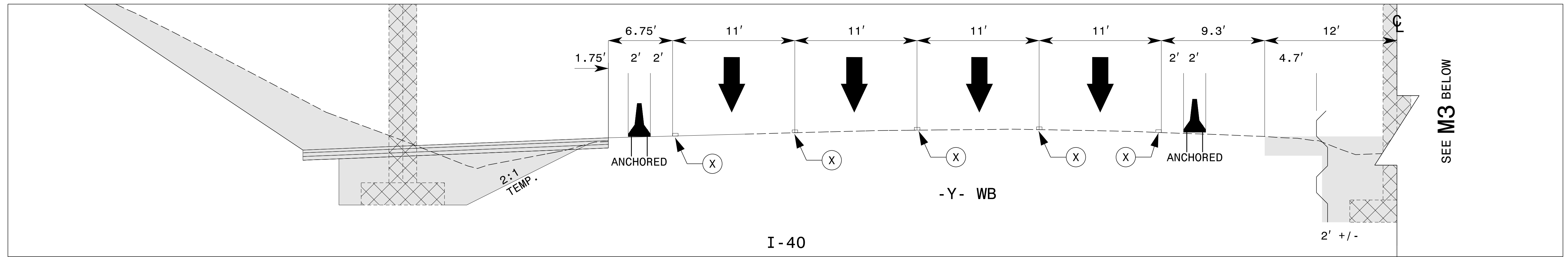
DATE: 11/21/2017

**SEAL**  
 21116  
 ENGINEER  
 BOB A. MAY

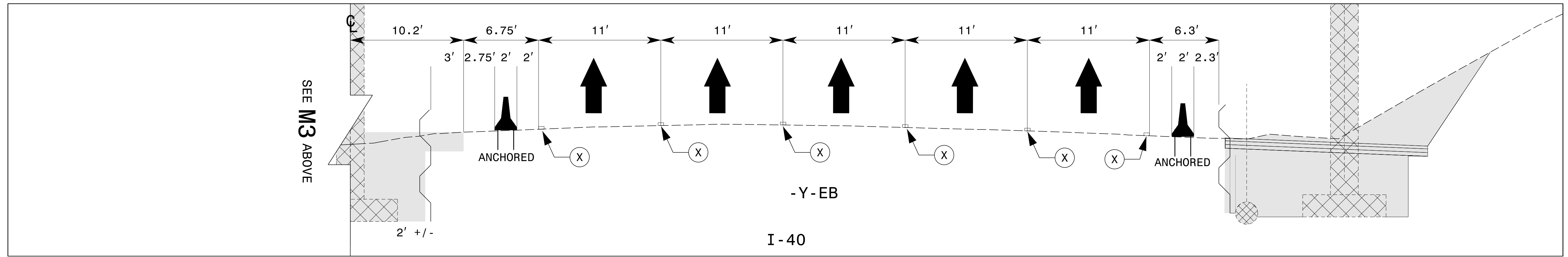
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CUT SECTION L



**M3** CUT SECTION  
21 | 37 STA. 109+50 -Y-



**M3** CUT SECTION  
21 | 37 STA. 110+00 -Y-

NOTE: SEE SHEET TMP-01A FOR LEGEND. SEE ROADWAY PLANS FOR ROADWAY RELATED INFORMATION.

(X) EXISTING MARKINGS

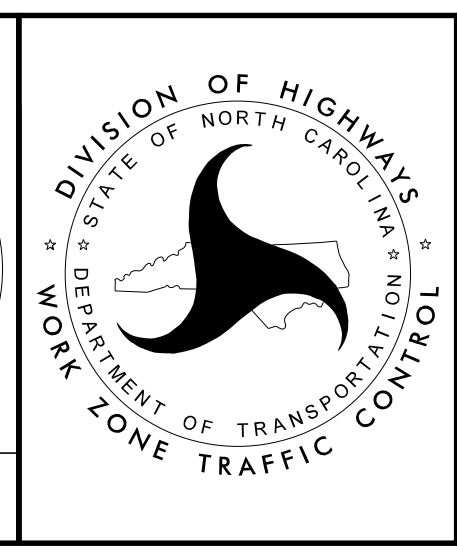
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 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May*  
 DATE: 11/21/2017

**SEAL**  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 21116  
 BOB A. MAY

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CUT SECTION M

11/21/2017  
 P:\2013\I-5506\Traffic\WZTC\TMP\DTL\TCS\250\_I-5506\_Traffic\WZTC-TMP-DTL-TCS-M-Y-37.dgn  
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