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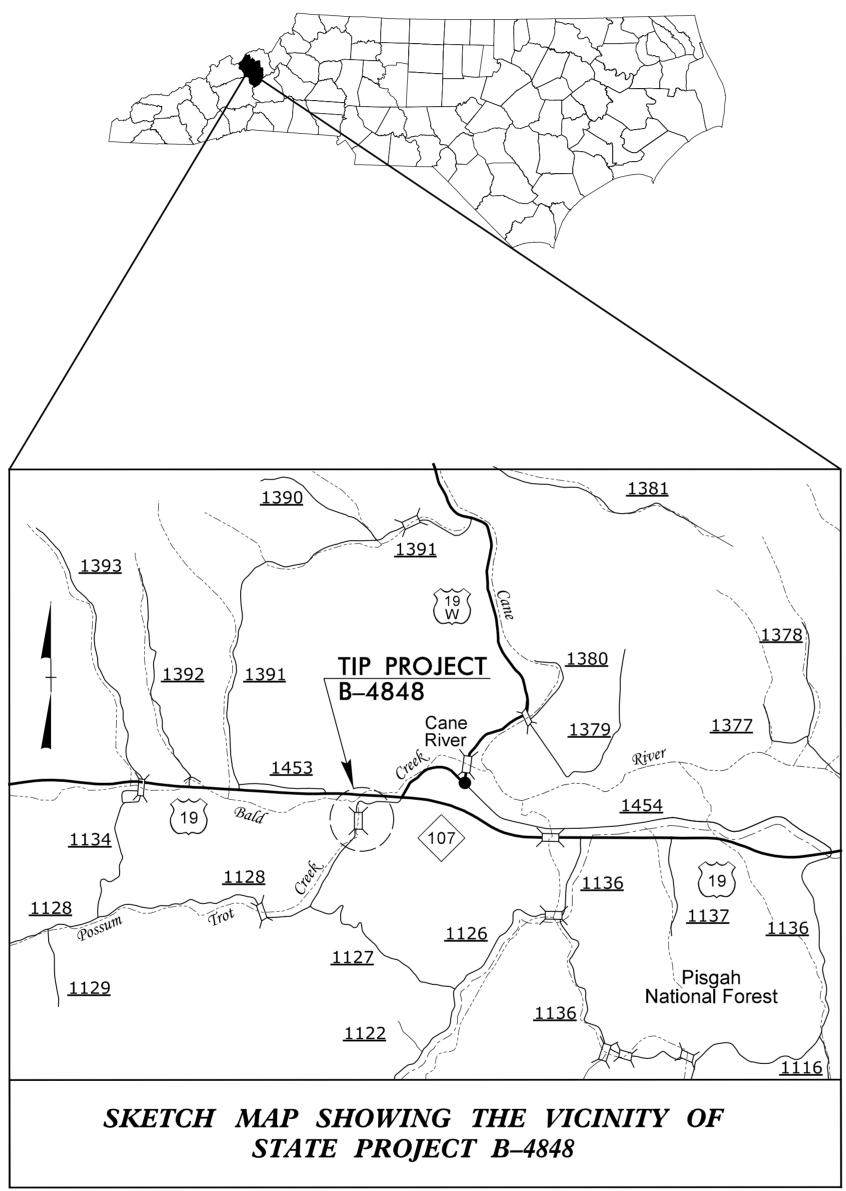
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STATE OF NORTH CAROLINA

TRANSPORTATION MANAGEMENT PLAN

YANCEY COUNTY



LOCATION: REPLACE BRIDGE NO.3 OVER POSSUM TROT CREEK ON SR 1128

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

TRAFFIC CONTROL PROJECT DESIGN ENGINEER

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

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

J. HUMMER, P.E., PhD STATE TRAFFIC MANAGEMENT ENGINEER

D. PARKER, P.E. TRAFFIC CONTROL PROJECT ENGINEER R. GARRETT

K. DAIS TRAFFIC CONTROL DESIGN ENGINEER



INDEX OF SHEETS

SHEET NO. TITLE

TMP-5

TMP - 1 TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS TMP-1A LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND & TEMPORARY PAVEMENT MARKING SCHEDULE TMP-2 TRANSPORTATION OPERATION PLAN (GENERAL NOTES & MANAGEMENT STRATEGIES) TEMPORARY SHORING NOTES TMP-2A PHASING TMP-3 PHASE I DETAIL TMP-4 PHASE II DETAIL

4848

SHEET NO.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	<u>TITLE</u>	
1101.01 1101.02	WORK ZONE ADVANCE WARNING SIGNS TEMPORARY LANE CLOSURES	
1101.05	WORK ZONE VEHICLE ACCESSES	
1101.11 1110.01	TRAFFIC CONTROL DESIGN TABLES STATIONARY WORK ZONE SIGNS	
1110.02	PORTABLE WORK ZONE SIGNS	
1130.01 1135.01	DRUM CONES	
1145.01	BARRICADES	
1150.01	FLAGGING DEVICES	
1180.01 1205.01	SKINNY-DRUM PAVEMENT MARKINGS - LINE TYPES AND OFFSETS	
1205.01	PAVEMENT MARKINGS - LINE TIPES AND OFFSETS PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS	
1205.12	PAVEMENT MARKINGS - BRIDGES	
1250.01 1251.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING 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	



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

LEGEND

<u>GENERAL</u>

DIRECTION OF TRAFFIC FLOW

DIRECTION OF PEDESTRIAN TRAFFIC FLOW

----- EXIST. PVMT.

NORTH ARROW

---- PROPOSED PVMT.

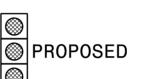
TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

SIGNALS







PAVEMENT MARKINGS

——EXISTING LINES
——TEMPORARY LINES

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

CONE

DRUM

SKINNY DRUM

TUBULAR MARKER

TEMPORARY CRASH CUSHION

FLASHING ARROW BOARD

FLAGGER

LAW ENFORCEMENT

TRUCK MOUNTED ATTENUATOR (TMA)

CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

PORTABLE SIGN

- STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

CRYSTAL/CRYSTAL

CRYSTAL/RED

YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

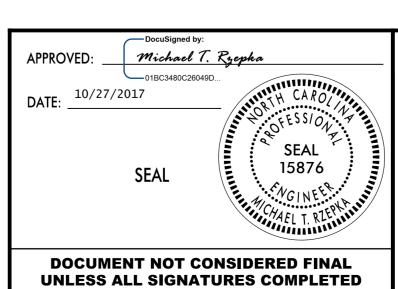
TEMPORARY PAVEMENT MARKING

PAINT (4")

P8 2 FT.-6 FT./ SP WHITE MINI-SKIP WHITE EDGELINE DOUBLE YELLOW CENTERLINE

TEMPORARY RAISED MARKERS

MH YELLOW & YELLOW





ROADWAY STANDARD
DRAWINGS, LEGEND &
TEMPORARY PAVEMENT
MARKING SCHEDULE

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.

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

- B) 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.
- C) 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.
- D) 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.

- E) 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.
- F) 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.
- G) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON POSSUM TROT ROAD.

PAVEMENT EDGE DROP OFF REQUIREMENTS

H) 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.

I) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN

LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 200 FEET IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- K) 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.
- L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- M) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 200 FEET IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

- N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- O) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
SR 1128	PAINT	TEMPORARY RAISED

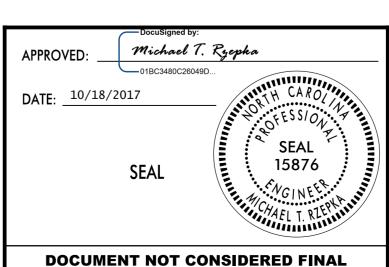
- Q) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS.
 PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE
 INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE
 ENGINEER.
- R) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MANAGEMENT STRATEGIES

THE PROJECT CONSISTS OF REPLACING BRIDGE NO. 3 WITH A CULVERT AND REALIGNING SR 1128 (POSSUMTROT ROAD). DURING CONSTRUCTION, TRAFFIC WILL REMAIN IN PLACE IN A TWO-LANE, TWO-WAY PATTERN ON EXISTING SR 1128 UNTIL CULVERT AND REALIGNMENT IS CONSTRUCTED.

THE TIE-IN CONSTRUCTION, TRAFFIC SHIFTS, AND PLACEMENT OF FINAL SURFACE COURSE AND PAVEMENT MARKINGS WILL BE PERFORMED USING FLAGGER OPERATIONS.

ACCESS FOR LOCAL TRAFFIC, INCLUDING DRIVEWAYS, MUST BE PROVIDED AT ALL TIMES WITHIN THE PROJECT LIMITS.



UNLESS ALL SIGNATURES COMPLETED



TRANSPORTATION OPERATIONS PLAN

TEMPORARY SHORING NOTES

(SEE SHEET TMP-4)

Shoring Location No. $\langle 1 \rangle$

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE END BENT INSTALLATION FROM STATION -L- 13+20+/-, 31'LT, TO STATION -L- 13+38+/-, 34'LT.

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- 13+20+/-, 31'LT, TO STATION -L-13+38+/-, 34'LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND **GROUNDWATER ELEVATION:**

> UNIT WEIGHT (γ) = 120 LB/CF FRICTION ANGLE (ϕ) \Box = 30 DEGREES COHESION (c) = 0 LB/SFGROUNDWATER ELEVATION = 2510 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 13+20+/-, 31'LT, TO STATION -L-13+38+/-, 34'LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L-13+20+/-, 31'LT, TO STATION -L- 13+38+/-, 34'LT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 13+20+/-, 31'LT, TO STATION -L-13+38+/-, 34'LT. 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 -L- 13+20+/-, 31'LT, TO STATION -L- 13+38+/-, 34'LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

(SEE SHEET TMP-4)

Shoring Location No. $\langle 2 \rangle$

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE END BENT INSTALLATION FROM STATION -L- 13+62+/-, 35'LT, TO STATION -L- 13+80+/-, 34'LT.

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- 13+62+/-, 35'LT, TO STATION -L-13+80+/-, 34'LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

> UNIT WEIGHT $(\gamma) = 120 \text{ LB/CF}$ FRICTION ANGLE (ϕ) \Box = 30 DEGREES COHESION (c) = 0 LB/SFGROUNDWATER ELEVATION = 2510 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 13+62+/-, 35'LT, TO STATION -L-13+80+/-, 34'LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

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AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 13+62+/-, 35'LT, TO STATION -L-13+80+/-, 34'LT. 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 -L- 13+62+/-, 35'LT, TO STATION -L- 13+80+/-, 34'LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

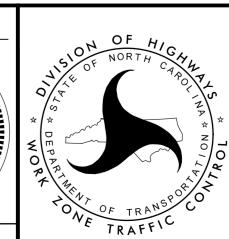
Michael T. Ryepha

UNLESS ALL SIGNATURES COMPLETED

SEAL

DATE: __10/18/2017

DOCUMENT NOT CONSIDERED FINAL



TEMPORARY SHORING NOTES

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED ON 04-04-2017 AND SEALED BY A PROFESSIONAL ENGINEER, SHIPING YANG PE, LICENSE #031361.

NOTES: - 'RSD' REFERS TO NCDOT ROADWAY STANDARD DRAWINGS

- ASPHALT CONSTRUCTION IN PHASE I THORUGH PHASE II, STEP 2 ARE UP TO, BUT NOT INCLUDING, THE FINAL LAYER OF SURFACE COURSE.

PHASE I

STEP 1

INSTALL WORK ZONE ADVANCE WARNING SIGNS ON POSSUM TROT ROAD (SEE RSD 1101.01, SHEET 3 OF 3).

STEP 2

USING RSD 1101.02 (SHEET 1 OF 14), INSTALL TEMPORARY SHORING AND PLACE WATER-FILLED BARRIER (WFB) (SEE SHEET TMP-4).

BEHIND WFB AND USING RSD 1101.02 (SHEET 1 OF 14), CONSTRUCT PROPOSED CULVERT, EXCEPT CULVERT OUTLET WINGWALL AND CHANNEL IMPROVEMENTS (SEE SHEET TMP-4).

USING RSD 1101.02 (SHEET 1 OF 14) AND FLAGGING, BEGIN CONSTRUCTION OF THE FOLLOWING PROPOSED UP TO EDGE OF EXISTING POSSUM TROT ROAD. WEDGE EXISTING PAVEMENT TO MAINTAIN CROSS-SLOPE AND DRAINAGE:

-L- STA 14+75± TO STA 19+25± -DRV1- STA 10+75± TO STA 12+38± -DRV2- STA 10+93± TO -L-

STEP 3

USING RSD 1101.02 (SHEET 1 OF 14) AND FLAGGING, REMOVE WFB AND CONSTRUCT PROPOSED –L- STA 10+50± TO STA 14+42± UP TO EDGE OF EXISTING POSSUM TROT ROAD. WEDGE EXISTING PAVEMENT TO MAINTAIN CROSS-SLOPE AND DRAINAGE. INSTALL PROPOSED GUARDRAIL –L- RIGHT (SEE SHEET TMP-4).

COMPLETE CONSTRUCTION BEGUN IN PHASE I, STEP 2.

STEP 4

USING 1101.02 (SHEET 1 OF 14) AND FLAGGING, PERFORM THE FOLLOWING:

- PAVE TIES BETWEEN -L- AND EXISTING POSSUM TROT ROAD
- PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS

SHIFT TRAFFIC TO PROPOSED PATTERN ON –L- AND –DRV1- SHOWN ON SHEET TMP-5.

PHASE II

STEP 1

AWAY FROM TRAFFIC AND USING 1101.02 (SHEET 1 OF 14), INSTALL WFB ALONG –L- LEFT AS SHOWN ON SHEET TMP-5.

BEHIND BARRIER, CONSTRUCT CULVERT OUTLET WINGWALL AND CHANNEL IMPROVEMENTS (SEE SHEET TMP-5).

AWAY FROM TRAFFIC, CONSTRUCT REMAINDER OF –DRV2- FROM STA 10+21± TO STA 10+93± (SEE SHEET TMP-5).

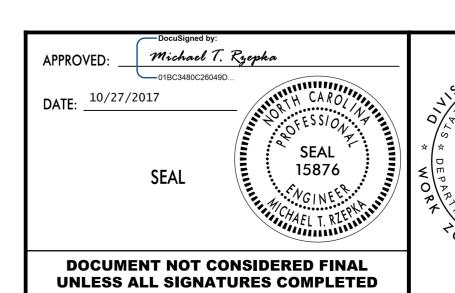
USING RSD 1101.02 (SHEET 1 OF 14) AND FLAGGING, REMOVE ABANDONED PORTIONS OF POSSUM TROT ROAD (SEE SHEET TMP-5).

STEP 2

USING 1101.02 (SHEET 1 OF 14), REMOVE WFB AND INSTALL PROPOSED GUARDRAIL ALONG –L- LEFT.

STEP 3

USING 1101.02 (SHEET 1 OF 14), PAVE FINAL LAYER OF SURFACE COURSE ON –L-, -DRV1- AND –DRV2-, AND PLACE FINAL PAVEMENT MARKINGS AND MARKERS (SEE FINAL PAVEMENT MARKING PLANS). REMOVE REMAINING TRAFFIC CONTROL DEVICES.



NORTH CARROLL X NO. LAND A NO. LA

PHASING

