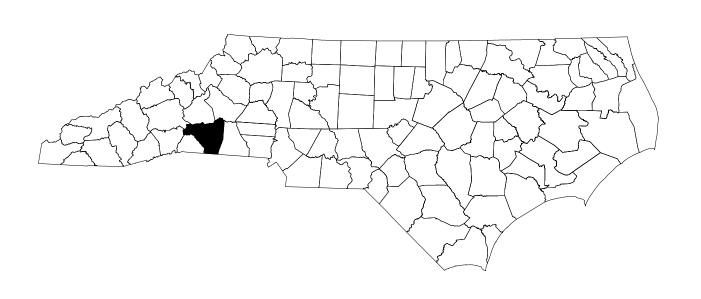
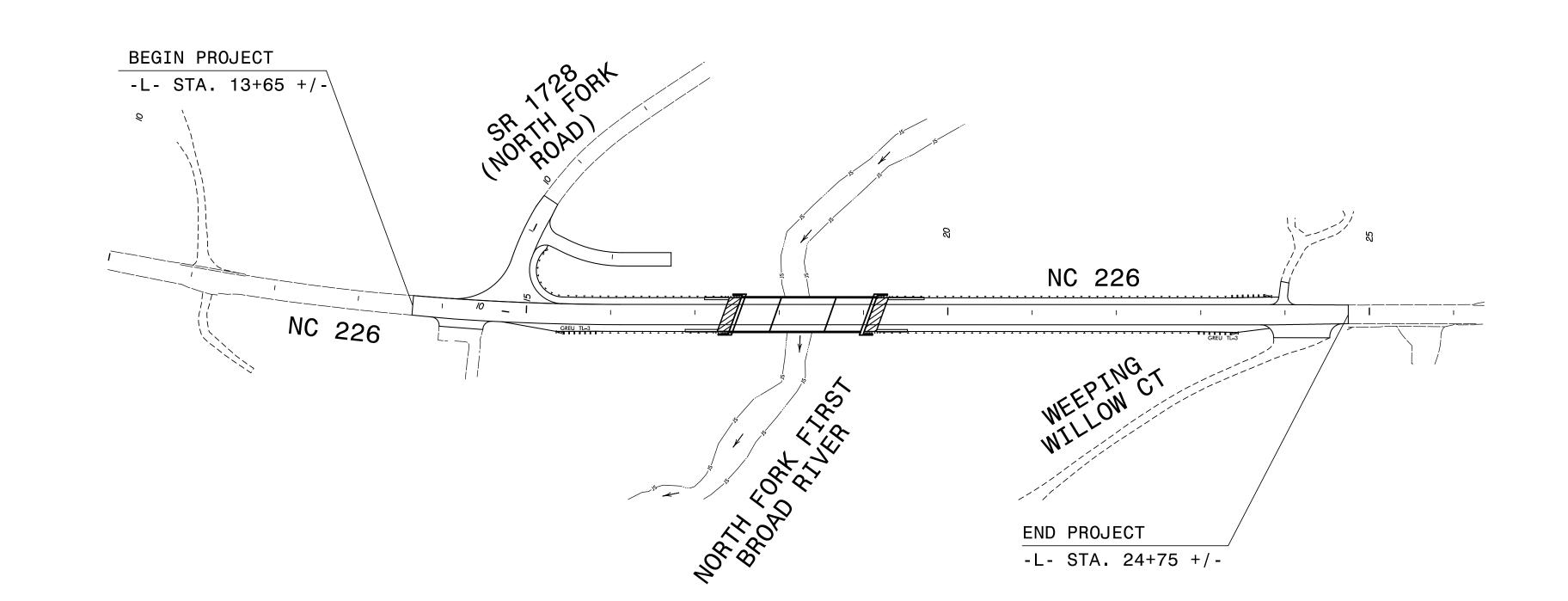
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

# TRANSPORTATION MANAGEMENT PLAN

# RUTHERFORD COUNTY







# INDEX OF SHEETS

SHEET NO. <u>TITLE</u> TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS TMP-01 ROADWAY STANDARD DRAWINGS AND LEGEND TMP-02 TMP-02A SHORING NOTES TMP-03 GENERAL NOTES AND WRITTEN PHASING TEMPORARY TRAFFIC CONTROL PHASE I TMP-04 TMP-05 TEMPORARY TRAFFIC CONTROL PHASE II TMP-06 TEMPORARY TRAFFIC CONTROL PHASE III

TMP-01

WORK ZONE SAFETY & MOBILITY

"from the MOUNTAINS to the COAST"

PLANS PREPARED BY:

RICHARD ODYNSKI, PE

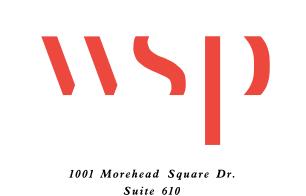
DERRICK DOHM, EI

NCDOT CONTACTS:

ZACHARY CLARK, PE PROJECT ENGINEER

KARMEN DAIS, PE PROJECT DESIGN ENGINEER





Charlotte NC, 28203 NC LIC. NO. F-0165 APPROVED: Kichard Odynski DATE:\_

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL



#### PROJ. REFERENCE NO. BR-0100 TMP-02

## ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" -N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

### STD. NO.

### TITLE

1101.01	WORK ZONE WARNING SIGNS	
1101.02	TEMPORARY LANE CLOSURES	
1101.03	TEMPORARY ROAD CLOSURES	
1101.04	TEMPORARY SHOULDER CLOSURES	
1101.05	WORK ZONE VEHICLE ACCESSES	
1101.06	WARNING SIGNS FOR BLASTING ZONES	
1101.11	TRAFFIC CONTROL DESIGN TABLES	
1110.01	STATIONARY WORK ZONE SIGNS	
1110.02	PORTABLE WORK ZONE SIGNS	
1115.01	FLASHING ARROW BOARDS	
1130.01	DRUMS	
1135.01	CONES	
1145.01	BARRICADES	
1150.01	FLAGGING DEVICES	
1160.01	TEMPORARY CRASH CUSHION	
1165.01	TRUCK MOUNTED ATTENUATOR	
1170.01	PORTABLE CONCRETE BARRIER	
1180.01	SKINNY - DRUMS	
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS	
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS	
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS	
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		
1205.10		
	PAVEMENT MARKINGS - RAILROAD CROSSINGS	
1205.12		
	PAVEMENT MARKINGS - LANE REDUCTIONS	
1205.14		
	PAVEMENT MARKINGS - SUPERSTREETS	
1250.01		
1251.01		
1261.01		
1261.02		
1262.01		
1264.01		
1264.02	OBJECT MARKERS - INSTALLATION	

## **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

USER DEFINED (IF NEEDED)

USER DEFINED (IF NEEDED)

### SIGNALS

EXISTING

### PAVEMENT MARKINGS

——EXISTING LINES ----TEMPORARY LINES

### TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

DRUM SKINNY DRUM STUBULAR 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

<u>PAINT (4")</u>

P1 WHITE EDGELINE

P13 YELLOW DOUBLE CENTER

APPROVED: Kichard Odynski DOCUMENT NOT CONSIDERED FINAL **UNLESS ALL SIGNATURES COMPLETED** 

TRANSPORTATION MANAGEMENT PLAN ROADWAY STANDARD DRAWINGS & LEGEND

OJ. REFERENCE NO.	SHEET NO.
BR-0100	TMP-02A

### SHORING NOTES

SHORING LOCATION NO. 1:

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

TEMPORARY SHORING IS REQUIRED FOR THE END BENT CONSTRUCTION FROM STATION  $17+30 \pm -L-$ , 27.5' LT, TO STATION  $17+85 \pm -L-$ , 27.5' 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 17+30  $\pm$  -L-, 27.5' LT, TO STATION 17+85  $\pm$  -L-, 27.5' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (Y) = 120 LB/CFFRICTION ANGLE  $(\Phi) = 30 \text{ DEGREES}$ COHESION (c) = 0 LB/SFGROUNDWATER ELEVATION = 1090 FT

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION  $17+30 \pm -L-$ , 27.5' LT, TO STATION  $17+85 \pm -L-$ , 27.5' LT MAY NOT PENETRATE BELOW ELEVATION 1088 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  $17+30 \pm -L-$ , 27.5' LT, TO STATION  $17+85 \pm -L-$ , 27.5' LT.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 17+30  $\pm$  -L-, 27.5' LT, TO STATION 17+85  $\pm$  -L-, 27.5' LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

SHORING LOCATION NO. 2:

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

TEMPORARY SHORING IS REQUIRED FOR THE END BENT CONSTRUCTION FROM STATION  $18+75 \pm -L-$ , 27.5' LT, TO STATION  $19+42 \pm -L-$ , 27.5' 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  $18+75 \pm -L-$ , 27.5' LT, TO STATION  $19+42 \pm -L-$ , 27.5' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

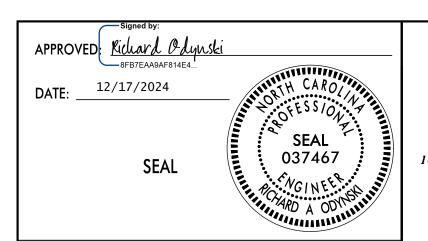
UNIT WEIGHT (Y) = 120 LB/CFFRICTION ANGLE  $(\Phi) = 30 \text{ DEGREES}$ COHESION (c) = 0 LB/SFGROUNDWATER ELEVATION = 1090 FT

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION  $18+75 \pm -L-$ , 27.5' LT, TO STATION  $19+42 \pm -L-$ , 27.5' LT MAY NOT PENETRATE BELOW ELEVATION 1087 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 18+75 ± -L-, 27.5' LT, TO STATION 19+42 ± -L-, 27.5' LT.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION  $18+75 \pm -L-$ , 27.5' LT, TO STATION  $19+42 \pm -L-$ , 27.5' LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON AUGUST 23, 2023 AND SEALED BY A PROFESSIONAL ENGINEER, SHIPING YANG, LICENSE # 031361.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203

NC LIC. NO. F-0165

TRANSPORTATION
MANAGEMENT PLAN
SHORING NOTES

### 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

NC 226

MONDAY THRU FRIDAY 6:00 TO 8:00 AM AND 4:00 TO 6:00 PM

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

ROAD NAME

NC 226

#### HOLIDAY

- 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 6:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.
- 3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.
- 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
- 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 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 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- 6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 6:00 P.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

#### LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) 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.
- D) 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.
- E) 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.

F) 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.

- G) 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.
- H) CONTRACTOR SHALL PROVIDE ACCESS TO ALL RESIDENCES AT ALL TIMES. COORDINATE WITH PROPERTY OWNERS DURING CONSTRUCTION ACTIVITIES IMPACTING DRIVEWAYS.

#### PAVEMENT EDGE DROP OFF REQUIREMENTS

I) 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.

J) 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 IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

#### TRAFFIC PATTERN ALTERATIONS

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

#### SIGNING

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

#### PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME ALL ROADS MARKING PAINT MARKER NONE

- O) 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.
- P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

PROJ. REFERENCE NO. SHEET NO. TMP - 03

### PHASING NOTES

#### PHASE I

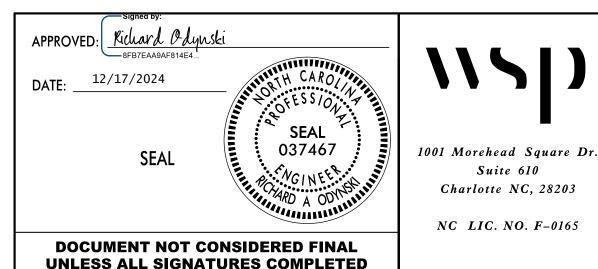
- STEP 1: INSTALL WORK ZONE ADVANCE WARNING SIGNS ON ALL ROADS ACCORDING TO ROADWAY STANDARD DRAWING NO. 1101.01 WHERE WORK WILL BE OCCURRING NO MORE THAN THREE DAYS PRIOR TO BEGINNING CONSTRUCTION.
- STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, INSTALL TEMPORARY BRIDGE AND PAVEMENT FOR ON-SITE DETOUR.

#### PHASE II

- STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, INSTALL GUARDRAIL, MARKINGS, STOP SIGN, AND SHIFT TRAFFIC TO TEMPORARY PATTERN AS SHOWN ON SHEET TMP-05.
- STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, CONSTRUCT BRIDGE IMPROVEMENTS ALONG -L-, AS SHOWN ON SHEET TMP-05.

#### PHASE III

- STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, INSTALL GUARDRAIL, MARKINGS AND SHIFT TRAFFIC TO -L- AS SHOWN ON SHEET TMP-06.
- STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, REMOVE ON-SITE DETOUR, AND CONSTRUCT IMPROVEMENTS ALONG -L- & -DR1- AS SHOWN ON SHEET TMP-06.
- STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, FINAL OVERLAY AND PAVEMENT MARKINGS.
- STEP 4: ONCE CONSTRUCTION IS COMPLETE, REMOVE ALL TEMPORARY SIGNS AND DEVICES PLACE TRAFFIC IN ITS FINAL PATTERN.



TRANSPORTATION
MANAGEMENT PLAN
GENERAL NOTES AND
WRITTEN PHASING

