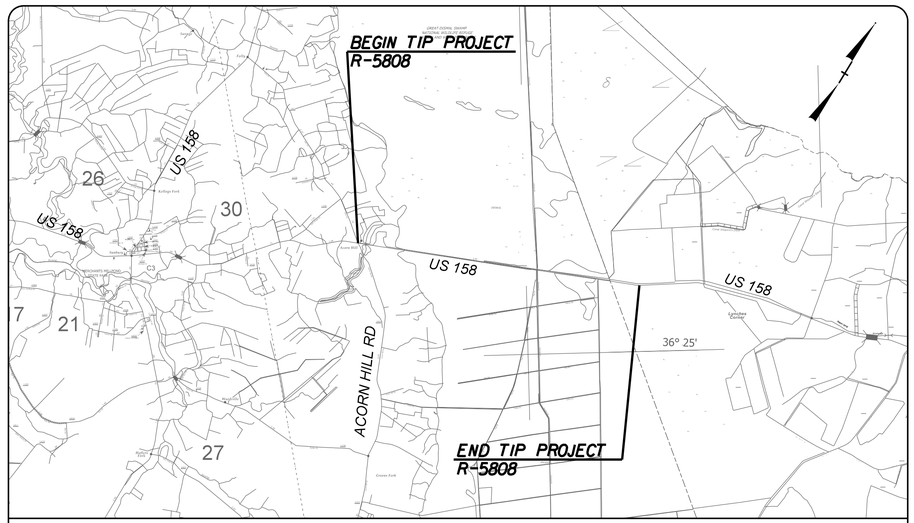
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GATES AND PASQUOTANK COUNTY



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A THRU TMP-1C	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, TEMPORARY PAVEMENT MARKINGS, MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES
TMP-1D	TEMPORARY SHORING NOTES & DETAILS
TMP-1E	PHASING NOTES
TMP-2A	TEMPORARY SHORING NOTES
TMP-3A & 3B	PHASE I DETAILS
TMP-4A & 4B	PHASE II DETAILS
TMP-5A & 5B	PHASE III DETAILS
TMP-6A & 6B	PHASE IV DETAILS

SHEET NO.
TMP 1

R-5808

TIP PROJECT:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PLANS PREPARED BY:

Brandon Gregg

Vince Riccio, P.E.

NCDOT CONTACTS:

Ryan Shook
PROJECT ENGINEER

PROJECT DESIGN ENGINEER

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

APPROVED: _____

DATE: 9/6/2024

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 55726 VINCENT E. RICCIO

DocuSigned by: Vince Riccio
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7/16/2024

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-1A

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCED 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
1130.01	DRUMS
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- TEMPORARY PAVEMENT

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- DRUM
- TEMPORARY CRASH CUSHION
- ANCHORED PORTABLE CONCRETE BARRIER

TEMPORARY SIGNING

- STATIONARY SIGN

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TEMPORARY RAISED PAVEMENT MARKERS

- YELLOW/YELLOW

TEMPORARY PAVEMENT MARKING

PAVEMENT MARKING LINES:

P1 - PAINT (4" WHITE, 2X) EDGELINE
P13 - PAINT (4" YELLOW, 2X) DOUBLE CENTER LINE
P61 - PAINT (24" WHITE, 2X) STOP BAR

TEMPORARY RAISED PAVEMENT MARKERS:

MH - YELLOW & YELLOW

Kimley»Horn

APPROVED:_____ DATE:_____

SEAL

Documents by:
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055728 VINCENT E. RICCIO
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9/6/2024

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

ROADWAY STANDARD DRAWINGS & LEGEND

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PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-1B

TRANSPORTATION MANAGEMENT STRATEGIES

PROPOSED IMPROVEMENTS ALONG US 158 WILL BE CONSTRUCTED WHILE MAINTAINING TRAFFIC ON TEMPORARY ON-SITE DETOUR, AND USING TEMPORARY LANE AND SHOULDER CLOSURES.

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. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 158	MONDAY - FRIDAY, FROM THIRTY (30) MINUTES BEFORE SUNSET TO THIRTY (30) MINUTES AFTER SUNRISE THE FOLLOWING DAY AND SATURDAY, FROM THIRTY (30) MINUTES BEFORE SUNSET TO THIRTY (30) MINUTES AFTER SUNRISE THE FOLLOWING MONDAY

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

ROAD NAME
US 158

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 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.***
3. ***FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.***
4. ***FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.***
5. ***FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 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 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. ***FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.***
7. ***FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.***
8. ***FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.***

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 158	ANYTIME

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

E) 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.

F) 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.

G) 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.

H) 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.

I) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) 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.

K) 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

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

Kimley»Horn

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 054728 ENGINEER VINCENT E. RICCIO

Docusigned by: Vince Riccio 6EE5F7E543E0434...

9/6/2024

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

TRANSPORTATION OPERATIONS PLAN

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7/16/2024

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-1C

GENERAL NOTES (CONT.)

SIGNING

M) 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.

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

TRAFFIC BARRIER

O) 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.

P) 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	0 FT

TRAFFIC CONTROL DEVICES

Q) 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.

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

S) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS) PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
US 158	PAINT	TEMPORARY RAISED

U) 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.

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

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

MISCELLANEOUS

MM) 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 AND 1000 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE TEH EDGE OF ROADWAY ALONG UNPAVED AREAS.

LOCAL NOTES

Kimley»Horn

APPROVED:________________ DATE:________

SEAL

DocuSigned by: Vince Riccio 6E554FA543ED434...

NORTH CAROLINA PROFESSIONAL SEAL 055728 ENGINEER VINCENT E. RICCIO

9/6/2024

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

TRANSPORTATION OPERATIONS PLAN

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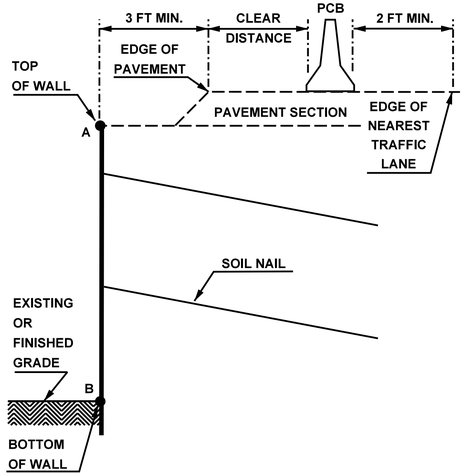
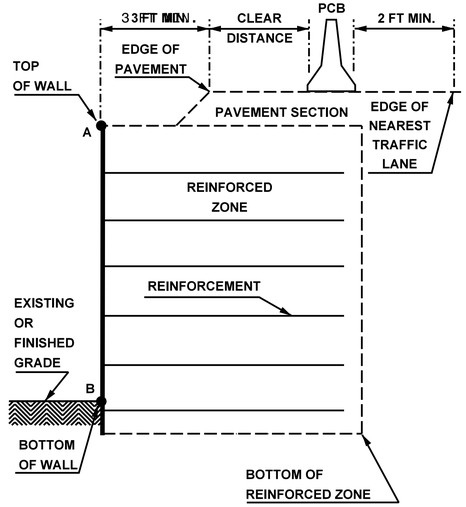
7/16/2024

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-1D

TEMPORARY SOIL NAIL WALL



TEMPORARY MSE WALL



NOTE: WALL OR SHORING HEIGHT = A-B

TEMPORARY SHORING

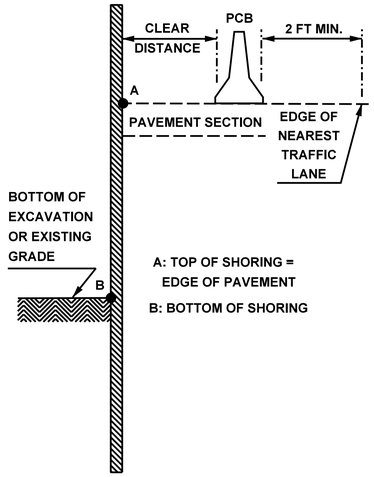


FIGURE A

NOTES

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

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

3- PCB IS REQUIRED IF TEMPORARY SHORING/WALL 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 FOR APPLICABLE PAVEMENT DESIGN).

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

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

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

7- 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 OR APPROVED BY THE ENGINEER.

8- 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 THIS MINIMUM REQUIRED DISTANCE IS NOT AVAILABLE, CONTACT THE ENGINEER.

9- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS.

MINIMUM REQUIRED CLEAR DISTANCE, inches

	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

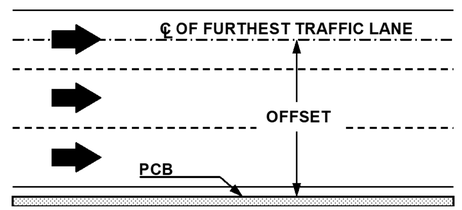


FIGURE B

Kimley»Horn

APPROVED:_____ DATE:_____

SEAL

Documents by: DocuSigned by: Vincente Riccio SEAL 6E65472643ED434... 055726 PROFESSIONAL ENGINEER VINCENTE RICCIO

9/6/2024

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

TEMPORARY SHORING NOTES & DETAILS

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-1E

PHASING

GENERAL

PHASES 1-4 ARE INTENDED TO CONSTRUCT THE BOX CULVERT UNDER US 158 UTILIZING RSD 1101.03 FOR TEMPORARY ROAD CLOSURE WITH ONSITE DETOUR.

PHASE 1

WHILE MAINTAINING TRAFFIC IN THE EXISTING PATTERN SHIFTED PER PLAN AND USING RSD 1101.04 FOR SHOULDER CLOSURES AS NECESSARY, PERFORM THE FOLLOWING:

- STEP 1: INSTALL WORK ZONE ADVANCED WARNING SIGNS IN ACCORDANCE WITH RSD 1101.01.
- STEP 2: INSTALL TEMPORARY STRIPING AND REMOVE CONFLICTING MARKINGS, INSTALL TEMPORARY CONCRETE BARRIER AND CRASH CUSHION IN FRONT OF SHORING AND EXCAVATION AREA TO PROTECT EXISTING TRAFFIC.
- STEP 3: INSTALL TEMPORARY SHORING NO. 1, 2 AND 3 IN ACCORDANCE WITH TMP 3A-3B TO SUPPORT TEMPORARY ROAD AS WELL AS DIVERTING STREAM FLOW.
- STEP 4: CONSTRUCT TEMPORARY ROAD AND PORTION OF 14' X 7' PERMANENT BOX CULVERT EXTENSION SHOWN ON TMP 3B.
- STEP 5: INSTALL TEMPORARY PIPES THRU SHORING TO MAINTAIN FLOW.

PHASE 2

WHILE MAINTAINING TRAFFIC IN THE EXISTING PATTERN SHIFTED PER PLAN AND USING RSD 1101.04 FOR SHOULDER CLOSURES AS NECESSARY, PERFORM THE FOLLOWING:

- STEP 1: INSTALL TEMPORARY SHORING NO. 4 AND 5 IN ACCORDANCE WITH TMP 4A-4B TO SUPPORT TEMPORARY ROAD AS WELL AS DIVERTING STREAM FLOW.
- STEP 2: CONSTRUCT TEMPORARY ROAD AND PORTION OF 14' X 7' PERMANENT BOX CULVERT EXTENSION SHOWN ON TMP 4B.
- STEP 3: INSTALL TEMPORARY PIPES THROUGH SHORING TO MAINTAIN FLOW. USING RSD 1101.02, SHEET 1 OF 19, PREFORM THE FOLLOWING:
- STEP 4: INSTALL TEMPORARY CONCRETE BARRIER AND CRASH CUSHIONS ALONG BOTH EDGES OF TEMPORARY ROAD.
- STEP 5: REMOVE TEMPORARY CONCRETE BARRIER AND CRASH CUSHIONS INSTALLED IN PHASE 1
- STEP 6: INSTALL TEMPORARY PAVEMENT MARKINGS AND REMOVE CONFLICTING MARKINGS.
- STEP 7: SHIFT TRAFFIC ONTO TEMPORARY ROADWAY.

PHASE 3

WITH TRAFFIC SHIFTED ONTO TEMPORARY DETOUR ROADWAY BEHIND TEMPORARY PCB AND AWAY FROM TRAFFIC, PERFORM THE FOLLOWING IN ACCORDANCE WITH RSD 1101.03:

- STEP 1: INSTALL TEMPORARY SHORING NO. 6, 7, 9 AND 11 IN ACCORDANCE WITH TMP 5B TO FURTHER DIVERT THE STREAM.
- STEP 2: CONSTRUCT REMAINDER OF 14' X 7' PERMANENT BOX CULVERT REPLACEMENT/EXTENSION AS SHOWN ON TMP 5B.
- STEP 3: REMOVE SHORING NO. 6, 9 AND 11 AS NECESSARY TO RESTORE STREAM FLOW.

PHASE 4

STAGE 1:

WITH TRAFFIC SHIFTED ONTO TEMPORARY DETOUR ROADWAY BEHIND TEMPORARY PCB AND AWAY FROM TRAFFIC, PERFORM THE FOLLOWING IN ACCORDANCE WITH RSD 1101.03, :

- STEP 1: INSTALL TEMPORARY SHORING NO. 8, 10 AND 12 IN ACCORDANCE WITH TMP 6B TO FURTHER DIVERT THE STREAM.
- STEP 2: CONSTRUCT REMAINDER OF (1) 14' X 7' PERMANENT BOX CULVERT REPLACEMENT/EXTENSIONS AS SHOWN ON TMP 6B.
- STEP 3: REMOVING SHORING AS NECESSARY TO RESTORE STREAM FLOW.
- STEP 4: REMOVE ALL TEMPORARY SHORING AND RESTORE CONDITIONS BACK TO EXISTING EXCEPT WHERE ROADWAY CAN BE INTEGRATED INTO PERMANENT CONDITION.

STAGE 2: (NOT SHOWN)

USING RSD 1101.02, SHEET 1 OF 19, PERFORM THE FOLLOWING:

- STEP 1: REMOVE TEMPORARY PCB ALONG BOTH SIDES OF EXISTING US-158
- STEP 2: INSTALL TEMPORARY PAVEMENT MARKING TO MATCH EXISTING CONDITION
- STEP 3: SHIFT TRAFFIC BACK ON US-158 IN THE EXISTING 2L2W PATTERN

PHASE 5 (NOT SHOWN)

WHILE MAINTAINING TRAFFIC IN THE EXISTING PATTERN AND USING RSD 1101.02 AND 1150.01 FOR LANE CLOSURES AND FLAGGING PROCEDURES AS NECESSARY, PERFORM THE FOLLOWING FROM -L- STA 45+75 +/- TO -L- STA 234+37 +/-:

- STEP 1: USING FLAGGERS, COMPLETE UNDERCUT EXCAVATION PER GEOTECHNICAL RECOMMENDATION AND RESTORE GROUND.
- STEP 2: INSTALL SETTLEMENT GUAGES IN ACCORDANCE WITH SHEET 2G-1 PRIOR TO PLACING BORROW.
- STEP 3: CONSTRUCT PROPOSED WIDENING TO THE SOUTH OF -L- INCLUDING SURCHARGE IN ACCORDANCE WITH SHEET 2G-1.
- STEP 4: AT THE COMPLETION OF THE WAITING PERIOD OR AS DIRECTED BY THE GEOTECH ENGINEER, REMOVE SURCHARGE AND CONSTRUCT PROPOSED PAVEMENT.
- STEP 5: CONTRACTOR SHALL RESTORE LANES TO MATCH EXISTING LANE WIDTHS AT THE END OF EACH WORK DAY.

PHASE 6 (NOT SHOWN)

SHIFT TRAFFIC TO PROPOSED EASTBOUND LANES USING RSD 1101.02 AND 1150.01 FOR LANE CLOSURES AND FLAGGING PROCEDURES AS NECESSARY, PERFORM THE FOLLOWING FROM -L- STA 45+75 +/- TO -L- STA 234+37 +/-:

- STEP 1: USING FLAGGERS, CONSTRUCT PROPOSED SHOULDERS TO THE NORTH OF -L- (TRAFFIC SHIFTED ON THE NEWLY CONSTRUCTED WIDENING)
- STEP 2: CONTRACTOR SHALL RESTORE LANES TO MATCH EXISTING LANE WIDTHS AT THE END OF EACH WORK DAY.

PHASE 7 (NOT SHOWN)

USING RSD 1101.02, SHEET 1 OF 19, PERFORM THE FOLLLOWING:

- STEP 1: REMOVE TEMPORARY PAVEMENTS, CONSTRUCTED IN PHASE 1 AND PHASE 2
- STEP 2: PLACE FINAL SURFACE COURSE AND FINAL PAVEMENT MARKINGS ON US-158 FROM -L- STA 17+59 +/- TO -L- STA 234+37 +/-
- STEP 3: REMOVE ALL TEMPORARY TC DEVICES

Kimley»Horn

APPROVED: ____________ DATE: ________

SEAL

9/6/2024

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

PHASING NOTES

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7/16/2024

CATLIN
Engineers and Scientists

155 N. Market Street
Washington, NC 27889

Telephone: (252) 623-2083
Fax: (252) 623-2062

www.catlinusa.com

June 12, 2024

MEMORANDUM TO: Vincent Ricco, P.E.
Project Engineer
Kimley - Horn

FROM: Lee Stone, PG
Senior Engineering Geologist
CATLIN Engineers and Scientists

STATE PROJECT: 46972.1.1 (R-5808)
F.A. NUMBER: NHP – 0158(076)
COUNTY: Gates

DESCRIPTION: US 158 from the Intersection of SR 1002 (Acorn Hill Rd.) and US 158 to the Pasquotank County Line

SUBJECT: Revised Geotechnical Recommendations for Temporary Shoring

CATLIN Engineers and Scientists (CATLIN) have revised the previous Geotechnical Recommendations to eliminate the temporary shoring for undercut excavations. This recommendation report supersedes the Geotechnical Recommendations for Temporary Shoring Dated November 13, 2023.

Shoring Location No.	Begin Station and Offset (±)	End Station and Offset (±)	Estimated Average Height	Estimated Maximum Height	Shoring Location Type
TM-1	21+51, 47' RT	24+61, 47' RT	3.6	8.0	Roadway
TM-2	24+34, 7' RT	24+61, 7' RT	3.6	4.0	Structure
TM-3	24+61, 7' RT	24+61, 47' RT	9.0	10.0	Structure
TM-4	24+61, 7' RT	24+87, 7' RT	3.6	4.0	Structure
TM-5	24+61, 47' RT	27+79, 37' RT	4.5	8.0	Structure
TM-6	24+59, 46' LT	25+07, 46' LT	6.5	8.0	Structure
TM-7	24+59, 24' LT	24+59, 46' LT	9.0	10.0	Structure
TM-8	24+26, 46' LT	24+61, 46' LT	6.5	8.0	Roadway
TM-9	24+61, 11.5' RT	24+87, 11' RT	3.6	4.0	Structure
TM-10	24+34, 12' RT	24+61, 12' RT	3.6	4.0	Structure
TM-11	25+07, 46' LT	25+07, 23' LT	8.0	10.0	Structure
TM-12	24+27, 23' LT	24+26, 46' LT	8.0	10.0	Structure

Shoring Location No. TM-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- 21+51±, 47' RT TO 24+61±, 47' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 21+51±, 47' RT TO 24+61±, 47' RT.

Shoring Location No. TM-2

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

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION -L- 24+34±, 7' RT TO 24+61±, 7' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+34±, 7' RT TO 24+47±, 7' RT.

DO NOT USE CANTILEVER, BRACED OR ANCHORED SHORING FOR TEMPORARY SHORING FROM STATION -L- 24+47±, 7' RT TO 24+61±, 7' RT.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+47±, 7' RT TO 24+61±, 7' RT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

Shoring Location No. TM-3

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- 24+61±, 7' RT TO 24+61±, 47' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+61±, 7' RT TO 24+61±, 47' RT.

Shoring Location No. TM-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- 24+61±, 7' RT TO 24+87±, 7' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+72±, 7' RT TO 24+87±, 7' RT.

DO NOT USE CANTILEVER, BRACED OR ANCHORED SHORING FOR TEMPORARY SHORING FROM STATION -L- 24+61±, 7' RT TO 24+72±, 7' RT.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+61±, 7' RT TO 24+72±, 7' RT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

Shoring Location No. TM-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- 24+61±, 47' RT TO 27+79±, 37' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+61±, 47' RT TO 27+79±, 37' RT.

Shoring Location No. TM-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- 24+59±, 46' LT TO 25+07±, 46' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+59±, 46' LT TO 25+07±, 46' LT.

Shoring Location No. TM-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 -L- 24+59±, 24' LT TO 24+59±, 46' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+59±, 24' LT TO 24+61±, 46' LT.

Shoring Location No. TM-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 -L- 24+26±, 46' LT TO 24+61±, 46' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+26±, 46' LT TO 24+61±, 46' LT.

Shoring Location No. TM-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 -L- 24+61±, 11.5' RT TO 24+87±, 11' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+61±, 11.5' RT TO 24+87±, 11'.

Shoring Location No. TM-10

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- 24+34±, 12' RT TO 24+61±, 12' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+34±, 12' RT TO 24+61±, 12' RT.

Shoring Location No. TM-11

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- 25+07±, 46' LT TO 25+07±, 23' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 25+07±, 46' LT TO 25+07±, 23' LT.

Shoring Location No. TM-12

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- 24+27±, 23' LT TO 24+26±, 46' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE (φ) = 0 DEGREES (EL≥14 FT±)
= 32 DEGREES (EL<14 FT±)
COHESION (c) = 750 PSF (EL≥14 FT±)
= 0 PSF (EL<14 FT±)
GROUNDWATER ELEVATION = 23 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 24+27±, 23' LT TO 24+26±, 46' LT.

CATLIN recommends including the Temporary Shoring provision (SP11 R002) in the contract for the referenced project. For standard temporary shoring, include the attached Standard Shoring provision and Geotechnical Standard Detail No. 1801.02 in the contract. Please call Lee Stone and Cindy Liu at (910) 452-5861 if there are any questions concerning this memorandum.

Prepared By:

NORTH CAROLINA LICENSED GEOLOGIST SEAL 2007 JOSEPH L STONE
DocuSigned by: Joseph L. Stone 10FDBDD34BEF4C4...
6/13/2024

J. Lee. Stone, PG
Senior Engineering Geologist

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034020 YINHUI LIU
DocuSigned by: Yinhui Liu
6/13/2024

Yinhui Liu, PE, PhD.
Senior Geotechnical Engineer

Attachments: Standard Temporary Shoring provision (4 pages)
Standard Detail No. 1801.02 - Standard Temporary Wall (3 sheets)

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH SEALED DOCUMENTS FROM THE GEOTECHNICAL ENGINEER OF RECORD.

Kimley»Horn

APPROVED:________ DATE:________

SEAL

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

TEMPORARY SHORING NOTES

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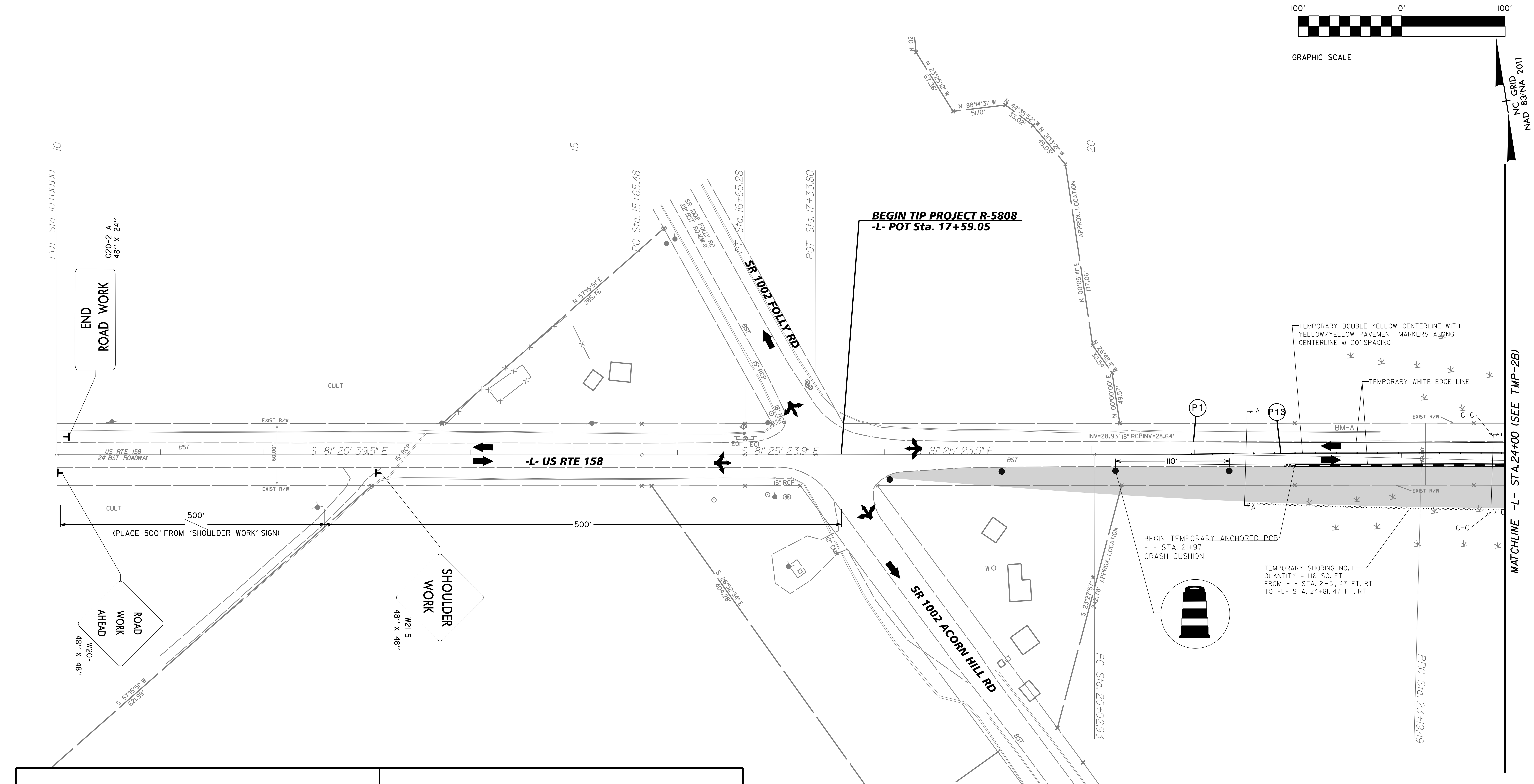
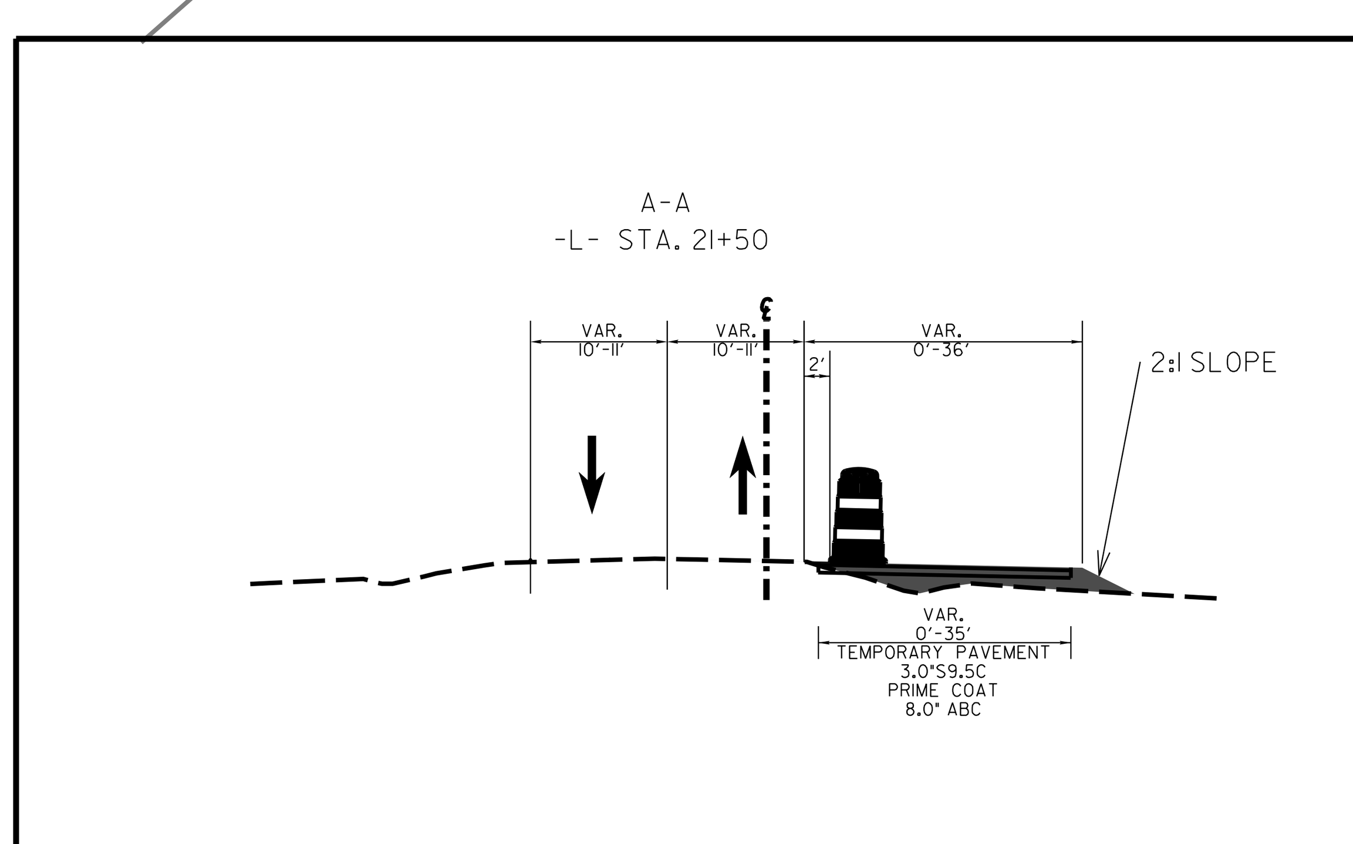
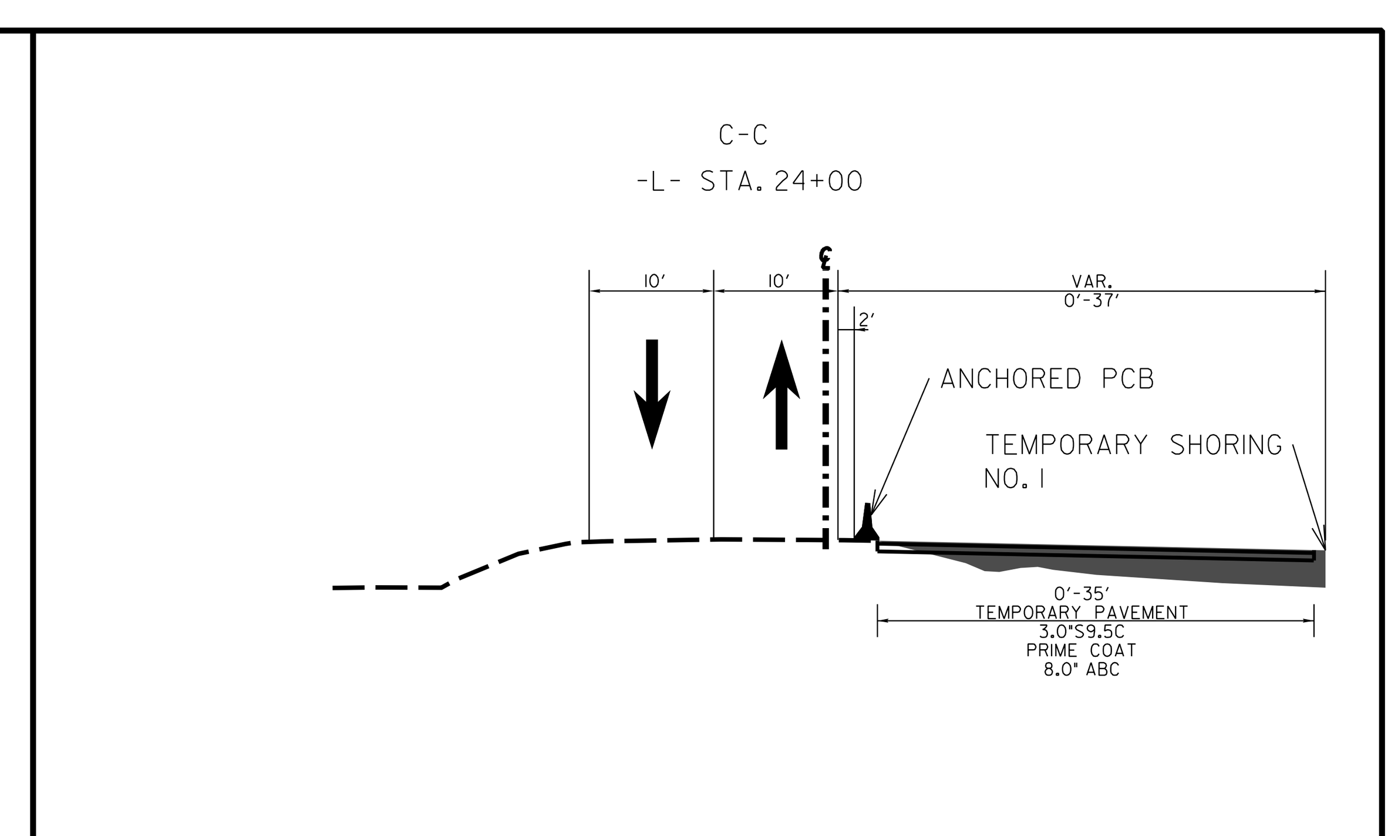
7/16/2024

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-3A







Kimley»Horn

APPROVED: DATE:

SEAL

DocuSigned by: Vincent E. Riccio, Professional Engineer, Seal 055726

9/6/2024

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

TRAFFIC CONTROL PHASE I

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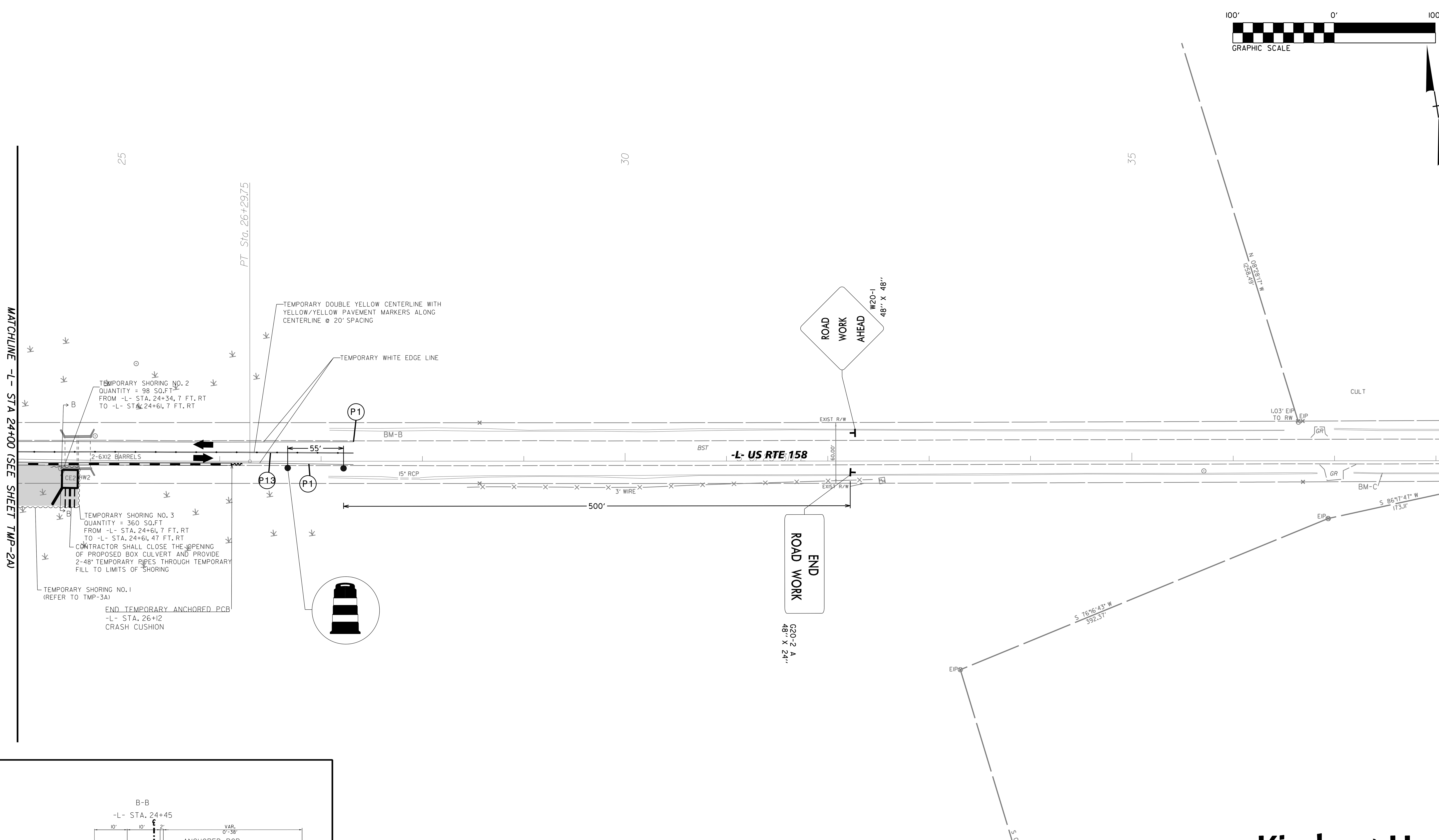
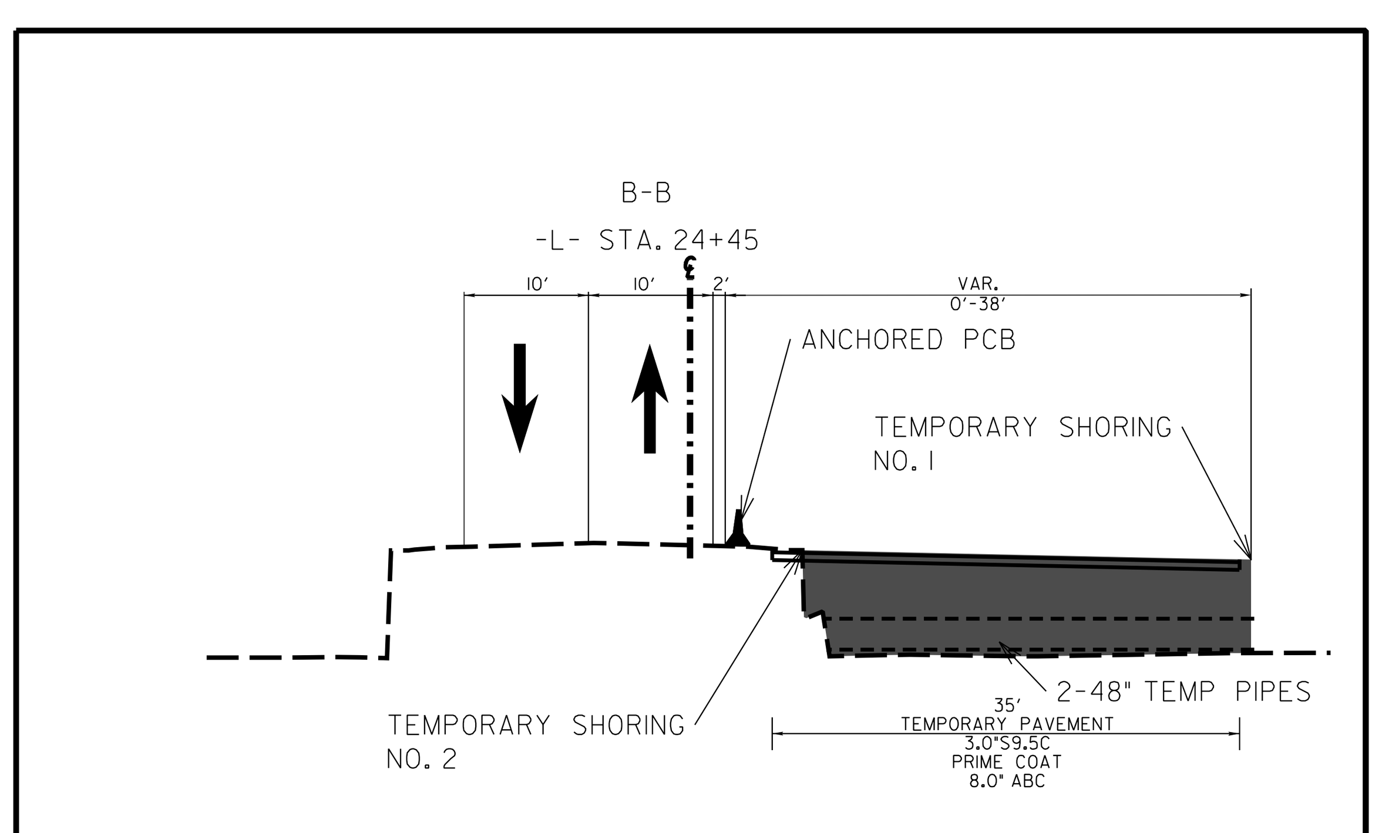
8/13/2024

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-3B





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8/13/2024

APPROVED: ____________ DATE: ________

SEAL

Docusigned by: Vince Riccio 655726 ... 6E5E46A543ED434...

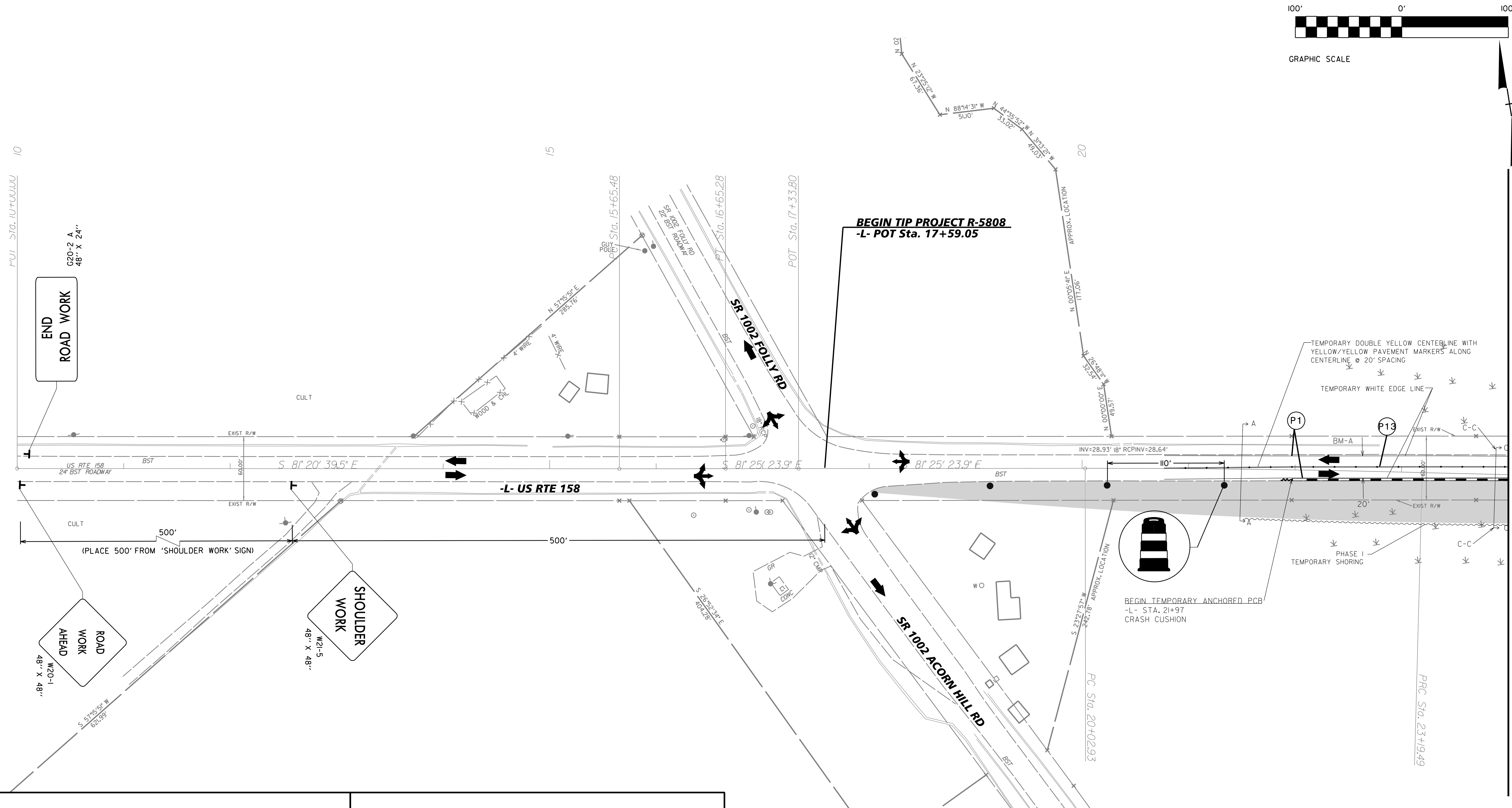
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055726 VINCENT E. RICCIO

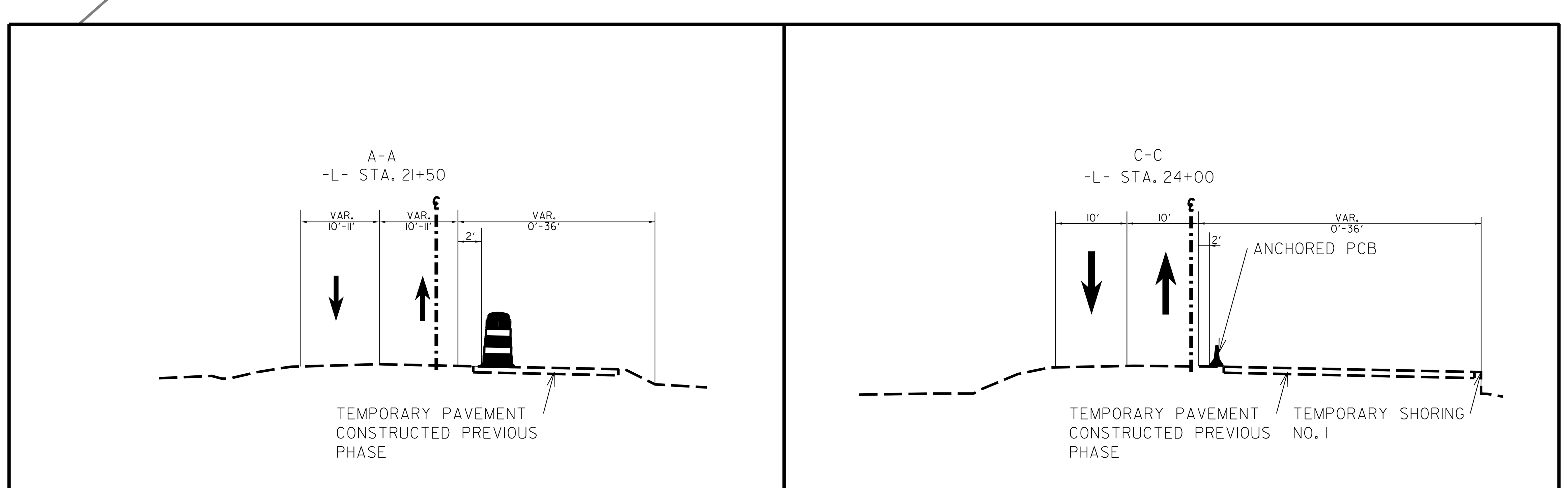
9/6/2024

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

TRAFFIC CONTROL PHASE I

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-4A





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7/16/2024

Kimley»Horn

APPROVED: ____________ DATE: ________

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055726 VINCENT E. RICCIO

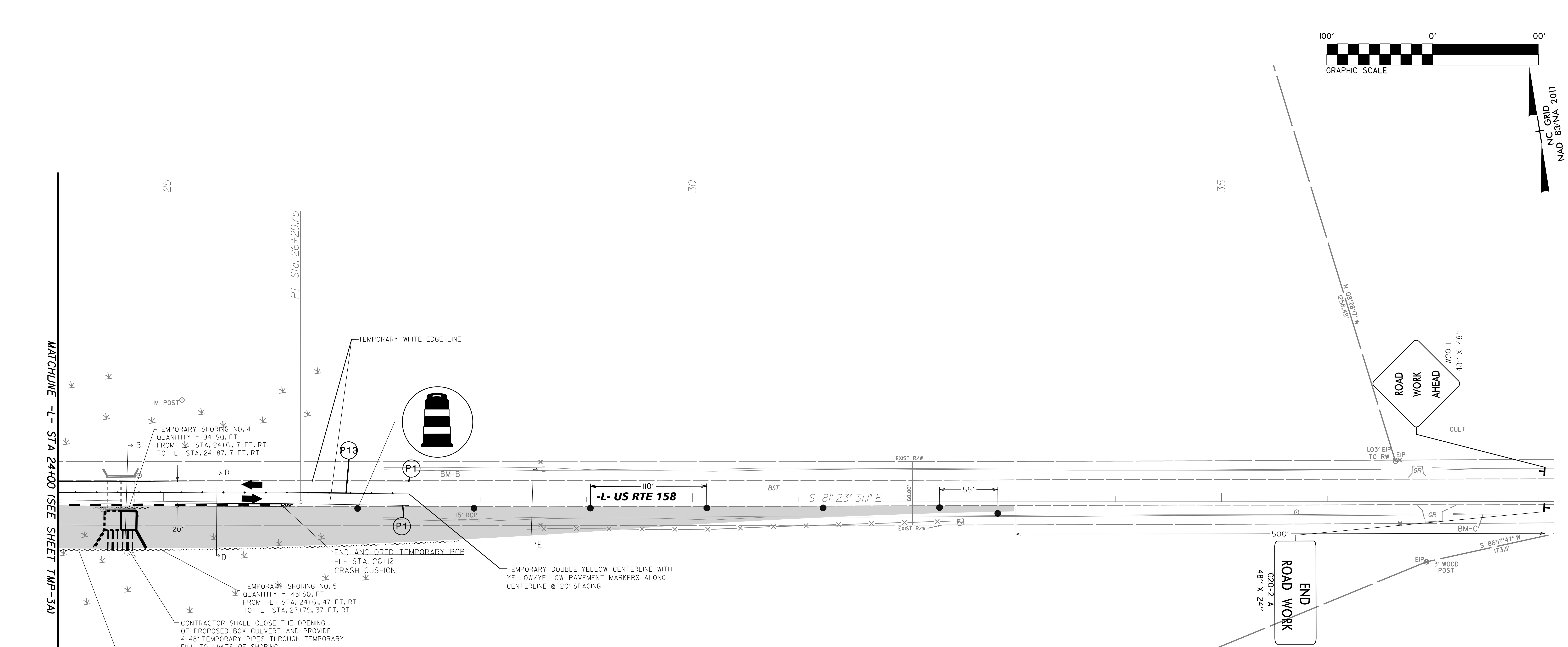
DocuSigned by: 655F45A543ED434...

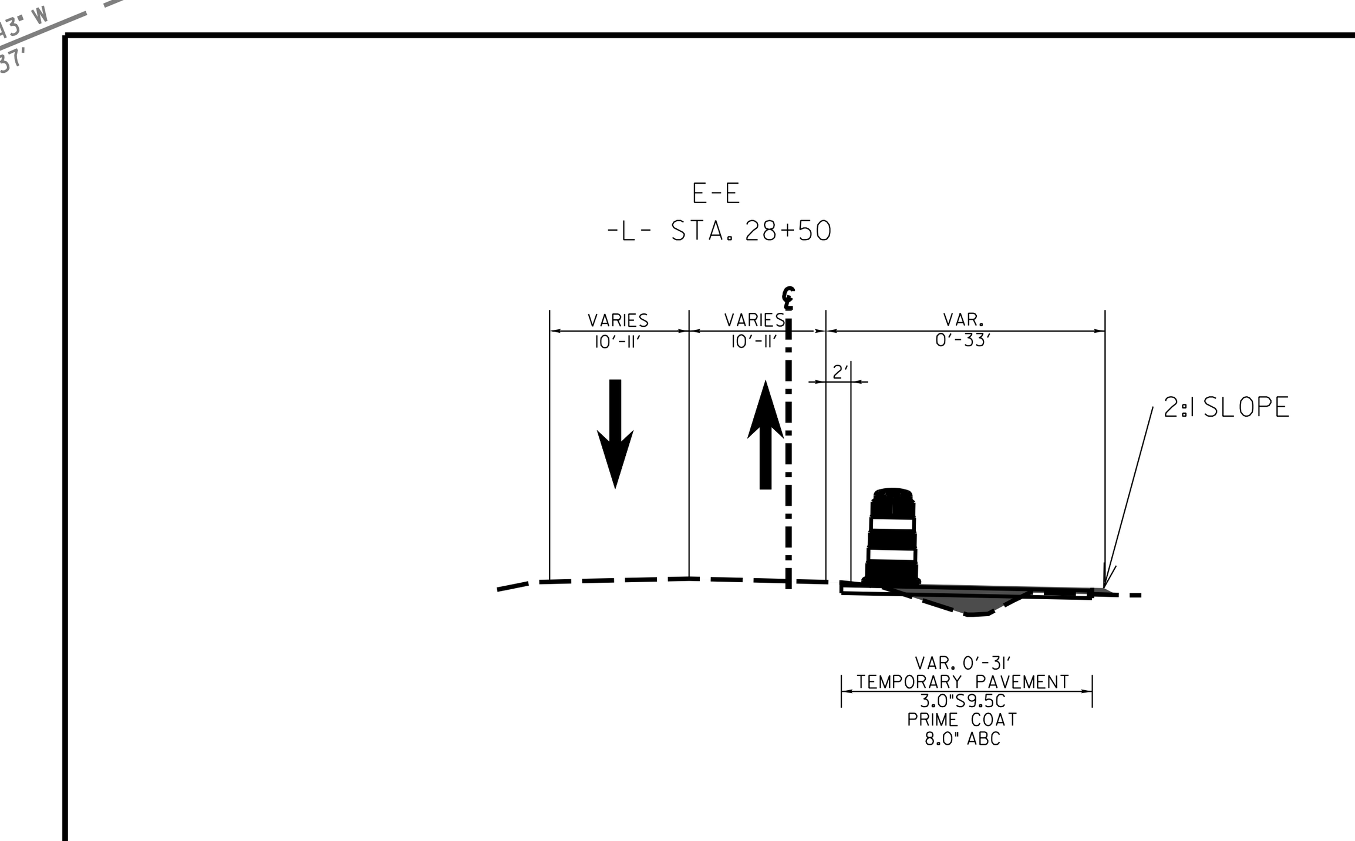
9/6/2024

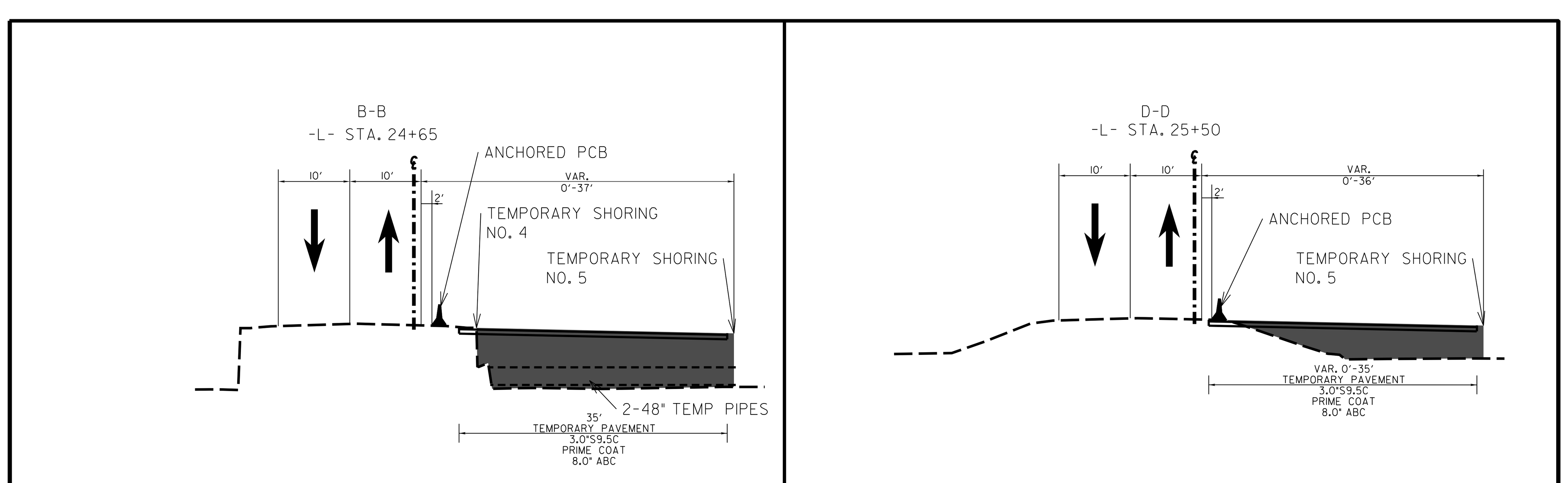
DIVISION OF HIGHWAYS, STATE OF NORTH CAROLINA, DEPARTMENT OF TRANSPORTATION — WORK ZONE TRAFFIC CONTROL

TRAFFIC CONTROL PHASE II

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-4B







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8/13/2024

Kimley»Horn

APPROVED:______________ DATE:________

SEAL

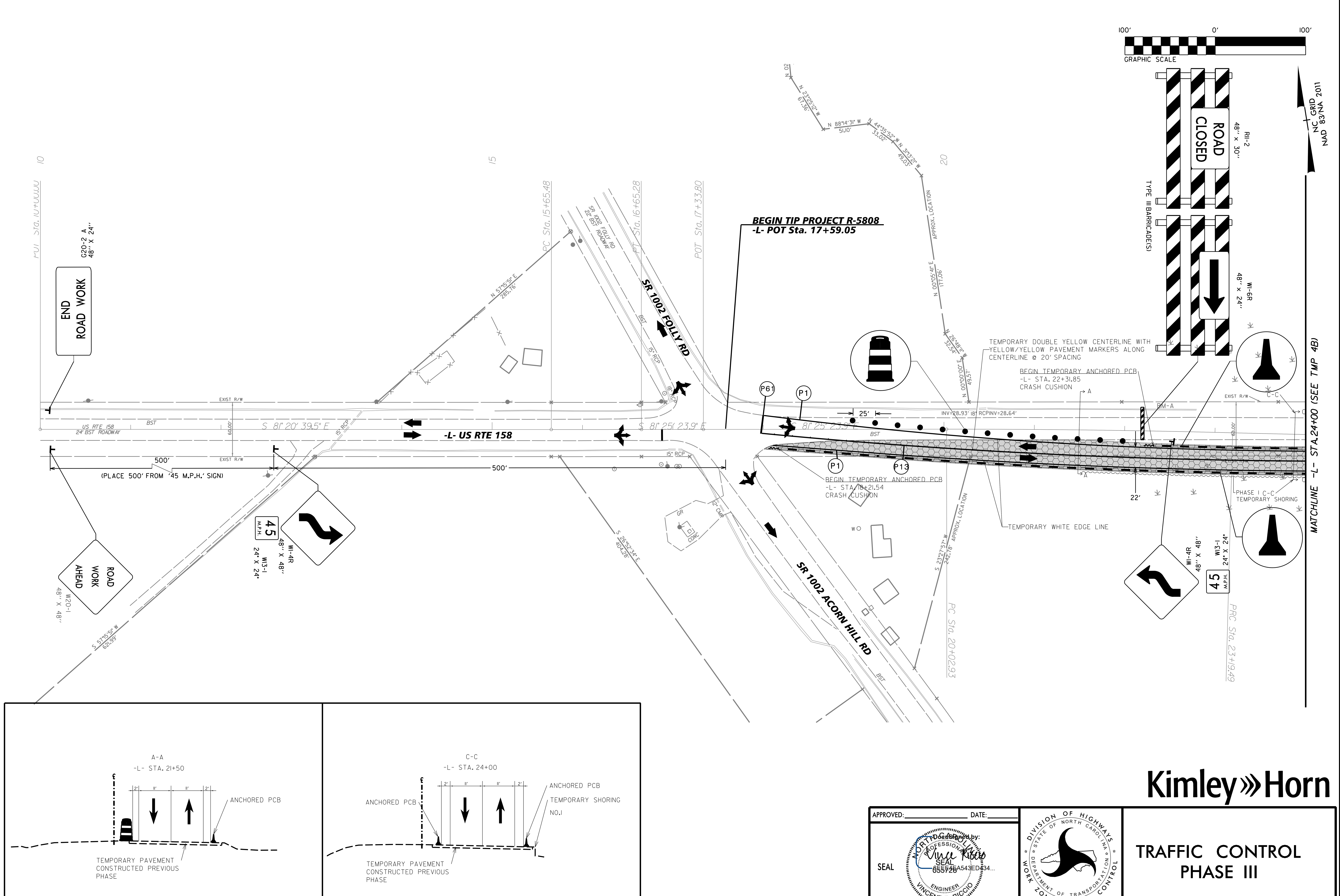
Docusigned by: 655726 655F4EA543ED434... VINCENT E. RICCIO

9/6/2024

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

TRAFFIC CONTROL PHASE II

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-5A



BEGIN TIP PROJECT R-5808
-L- POT Sta. 17+59.05
-L- US RTE 158
SR 1002 FOLLY RD
SR 1002 ACORN HILL RD
END ROAD WORK
G20-2 A 48" X 24"
ROAD WORK AHEAD
W20-1 48" X 48"
(PLACE 500' FROM '45 M.P.H.' SIGN)
W1-4R 48" X 48"
W13-1 24" X 24"
ROAD CLOSED
R11-2 48" X 30"
W1-6R 48" X 24"
TYPE III BARRICADE(S)
TEMPORARY DOUBLE YELLOW CENTERLINE WITH YELLOW/YELLOW PAVEMENT MARKERS ALONG CENTERLINE @ 20' SPACING
BEGIN TEMPORARY ANCHORED PCB -L- STA. 22+31.85 CRASH CUSHION
BEGIN TEMPORARY ANCHORED PCB -L- STA. 18+21.54 CRASH CUSHION
TEMPORARY WHITE EDGE LINE
PHASE I C-C TEMPORARY SHORING
MATCHLINE -L- STA.24+00 (SEE TMP 4B)
NC GRID NAD 83/NA 2011
GRAPHIC SCALE
A-A -L- STA. 21+50
ANCHORED PCB
TEMPORARY PAVEMENT CONSTRUCTED PREVIOUS PHASE
C-C -L- STA. 24+00
TEMPORARY SHORING NO.1

Kimley»Horn

APPROVED: ____ DATE: ____

SEAL

DocuSigned by: Vince Riccio

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055726 VINCENT E. RICCIO

9/6/2024

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

TRAFFIC CONTROL PHASE III

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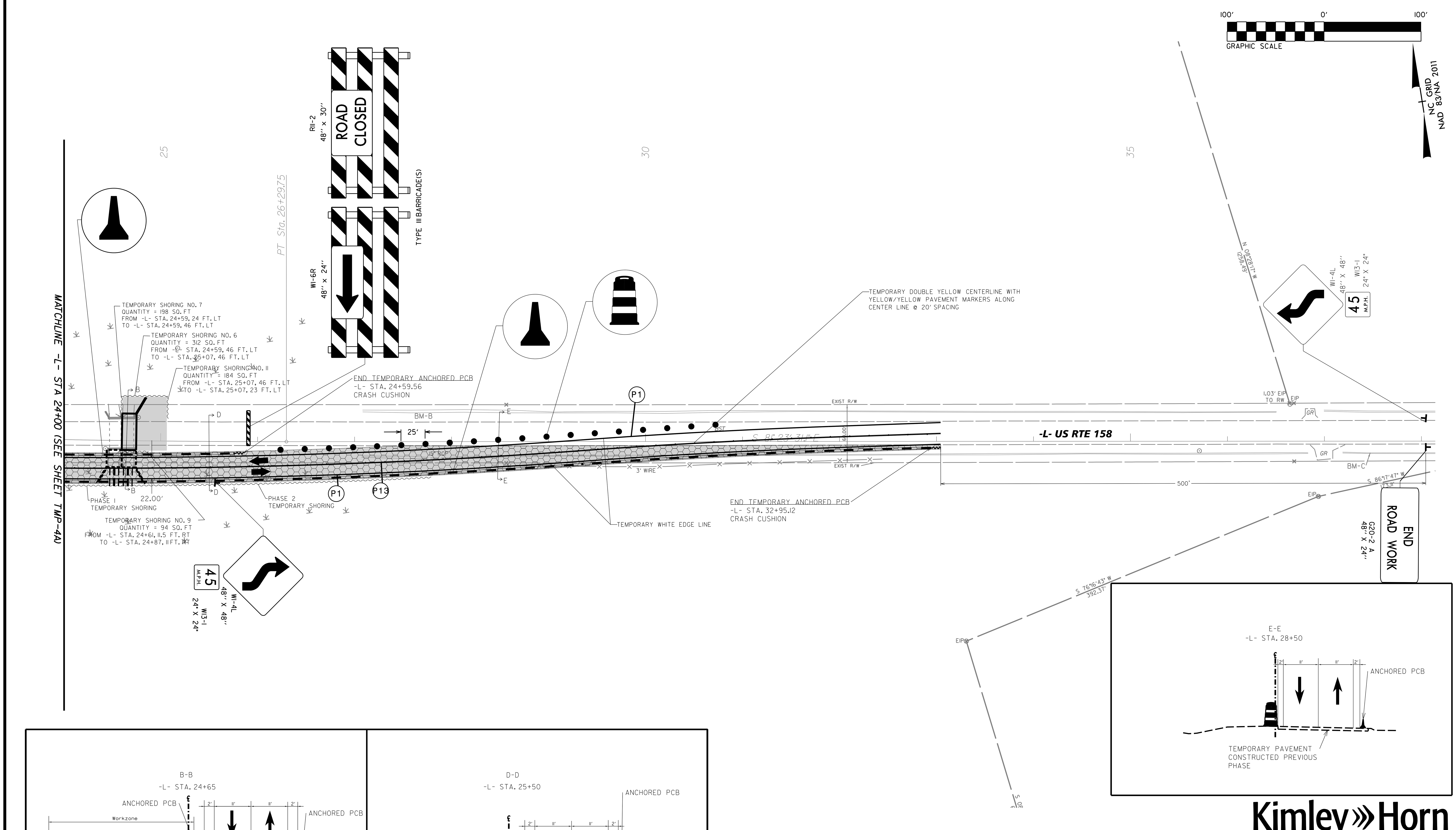
7/16/2024

Docusign Envelope ID: F2A63EC6-940E-4FB8-9169-8779A1E31CCF

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-5B



100' 0' 100'
GRAPHIC SCALE
NC GRID NAD 83/NA 2011
MATCHLINE -L- STA 24+00 (SEE SHEET TMP-4A)
25
30
35
PT Sta. 26+29.75
R11-2 48" x 30"
ROAD CLOSED
W1-6R 48" x 24"
TYPE III BARRICADE(S)
TEMPORARY SHORING NO. 7
QUANTITY = 198 SQ. FT
FROM -L- STA. 24+59.24 FT. LT
TO -L- STA. 24+59.46 FT. LT
TEMPORARY SHORING NO. 6
QUANTITY = 312 SQ. FT
FROM -L- STA. 24+59.46 FT. LT
TO -L- STA. 25+07.46 FT. LT
TEMPORARY SHORING NO. 11
QUANTITY = 184 SQ. FT
FROM -L- STA. 25+07.46 FT. LT
TO -L- STA. 25+07.23 FT. LT
END TEMPORARY ANCHORED PCB
-L- STA. 24+59.56
CRASH CUSHION
BM-B
25'
P1
P13
TEMPORARY DOUBLE YELLOW CENTERLINE WITH
YELLOW/YELLOW PAVEMENT MARKERS ALONG
CENTER LINE @ 20' SPACING
EXIST R/W
-L- US RTE 158
3' WIRE
PHASE 1
TEMPORARY SHORING
22.00'
PHASE 2
TEMPORARY SHORING
TEMPORARY SHORING NO. 9
QUANTITY = 94 SQ. FT
FROM -L- STA. 24+61, 11.5 FT. RT
TO -L- STA. 24+87, 11 FT. RT
TEMPORARY WHITE EDGE LINE
END TEMPORARY ANCHORED PCB
-L- STA. 32+95.12
CRASH CUSHION
500'
BM-C
GR
45 M.P.H.
W1-4L 48" X 48"
W3-1 24" X 24"
END ROAD WORK
G20-2 A 48" X 24"
S 76°16'43" W 392.37'
N 08°28'17" W
EIP
B-B
-L- STA. 24+65
Workzone
ANCHORED PCB
TEMPORARY PAVEMENT CONSTRUCTED PREVIOUS PHASE
TEMPORARY SHORING NO. 6
TEMPORARY SHORING NO. 9
TEMPORARY SHORING NO. 2
D-D
-L- STA. 25+50
E-E
-L- STA. 28+50
2' 11' 11' 2'

Kimley»Horn

APPROVED: ____________ DATE: ________

SEAL

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 655726 VINCENT E. RICCIO

9/6/2024

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

TRAFFIC CONTROL PHASE III

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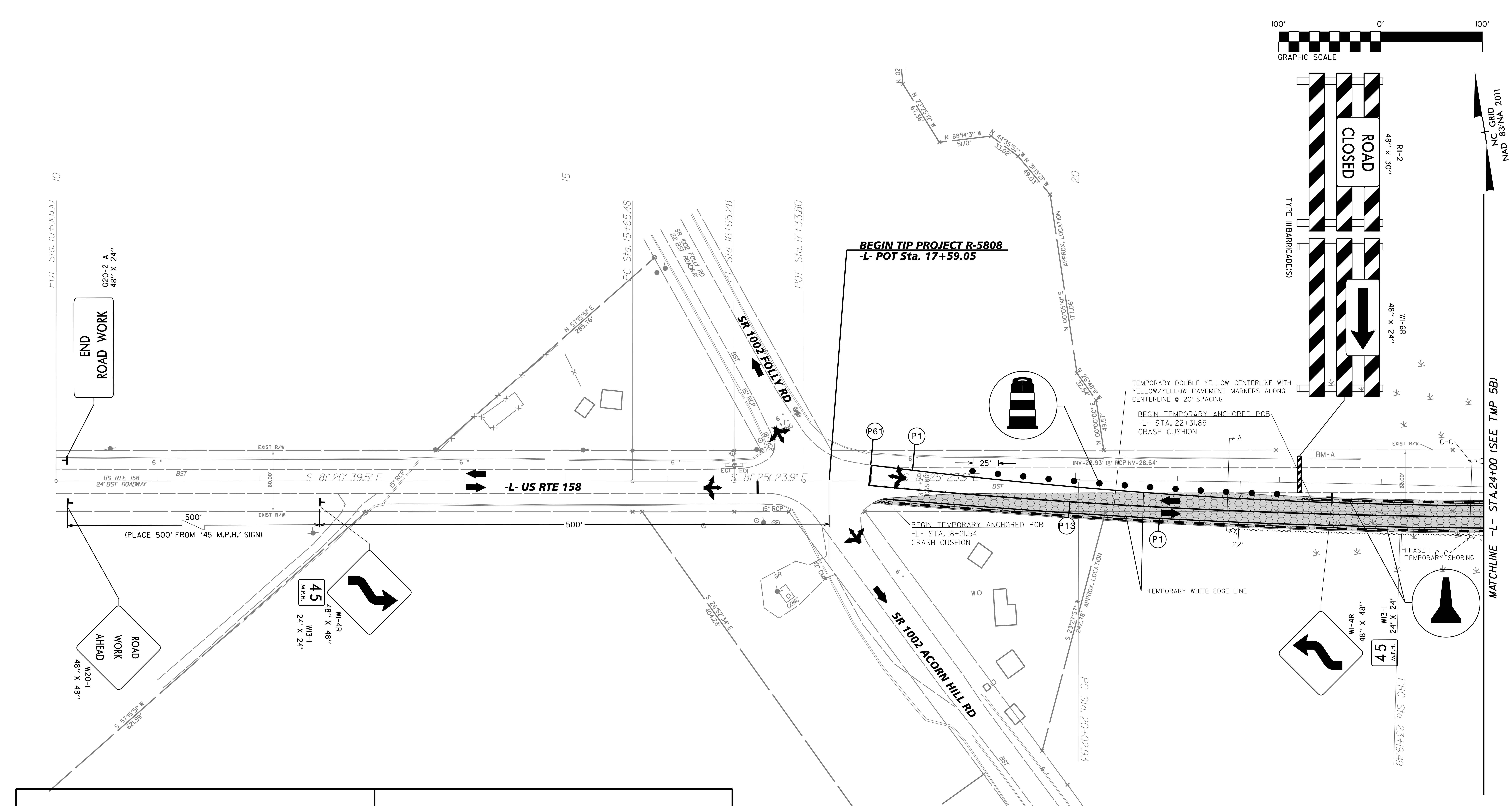
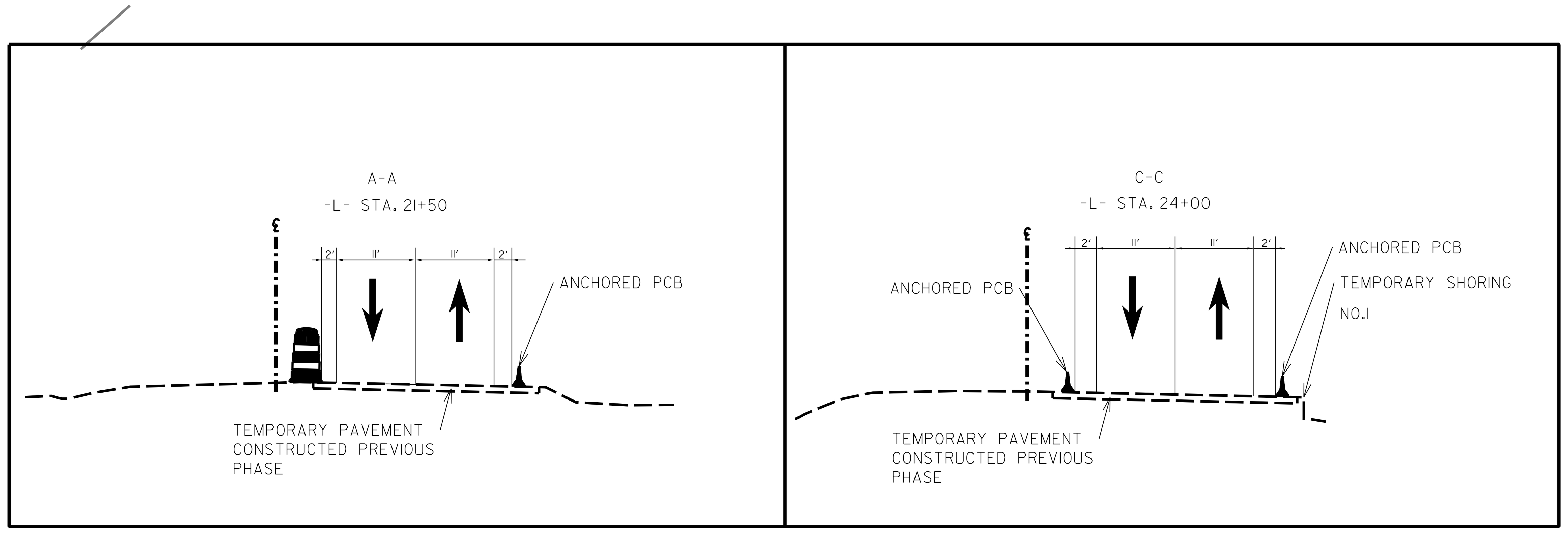
8/13/2024

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-6A





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7/16/2024

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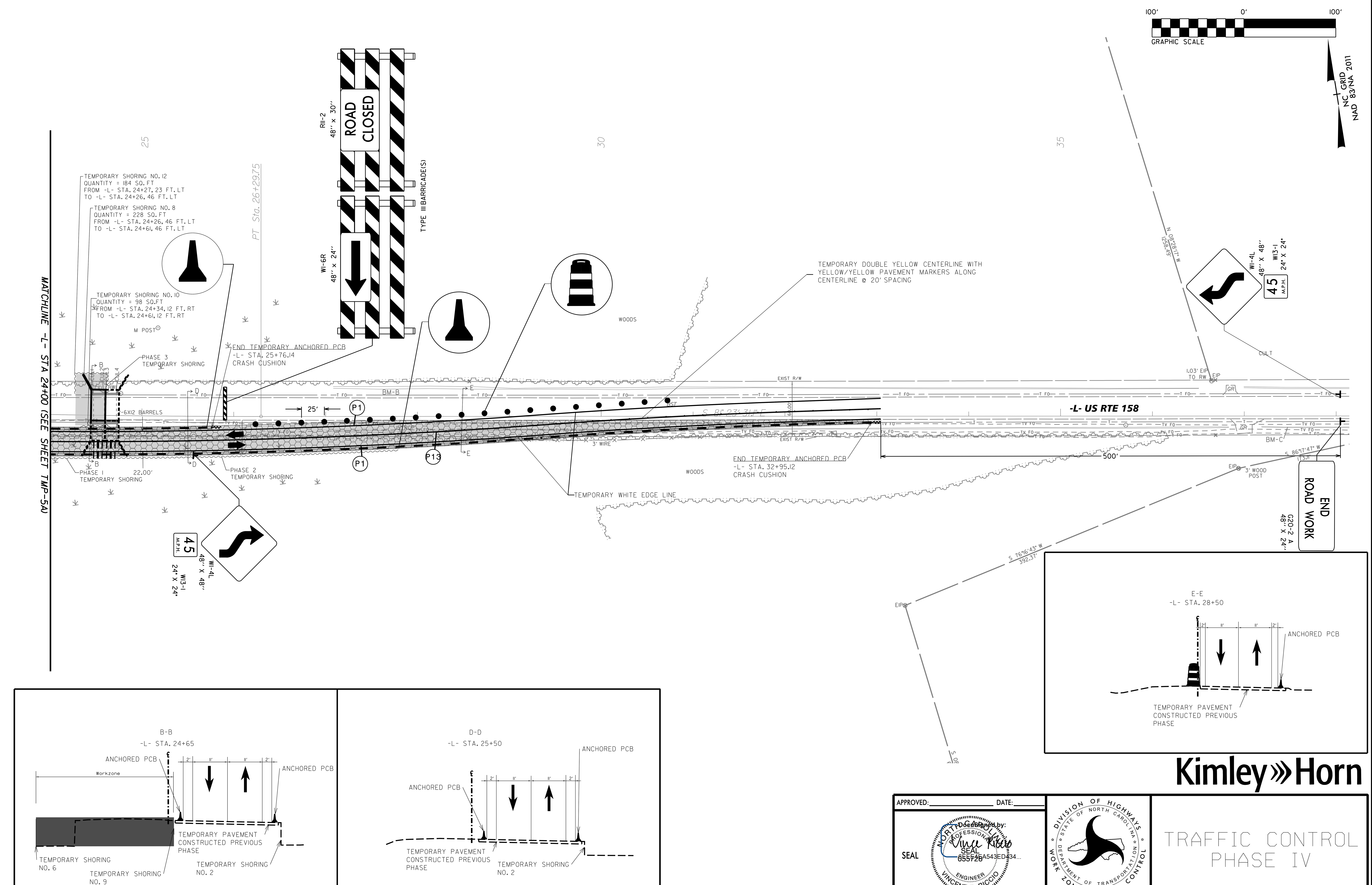
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035726 VINCENT E. RICCIO

9/6/2024

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

TRAFFIC CONTROL PHASE IV

PROJ. REFERENCE NO.	SHEET NO.
R-5808	TMP-6B



100'
0'
100'
GRAPHIC SCALE
NC GRID NAD 83/NA 2011
MATCHLINE -L- STA 24+00 (SEE SHEET TMP-5A)
25
30
35
PT Sta. 26+29.75
R11-2 48" x 30"
ROAD CLOSED
W1-6R 48" x 24"
TYPE III BARRICADE(S)
TEMPORARY SHORING NO. 12
QUANTITY = 184 SQ.FT
FROM -L- STA. 24+27, 23 FT. LT
TO -L- STA. 24+26, 46 FT. LT
TEMPORARY SHORING NO. 8
QUANTITY = 228 SQ.FT
FROM -L- STA. 24+26, 46 FT. LT
TO -L- STA. 24+61, 46 FT. LT
TEMPORARY SHORING NO. 10
QUANTITY = 98 SQ.FT
FROM -L- STA. 24+34, 12 FT. RT
TO -L- STA. 24+61, 12 FT. RT
M POST
PHASE 3
TEMPORARY SHORING
6X12 BARRELS
END TEMPORARY ANCHORED PCB
-L- STA. 25+76.14
CRASH CUSHION
BM-B
25'
P1
P13
PHASE 1
TEMPORARY SHORING
22.00'
PHASE 2
TEMPORARY SHORING
W1-4L 48" X 48"
W13-1 24" X 24"
45 M.P.H.
WOODS
TEMPORARY DOUBLE YELLOW CENTERLINE WITH
YELLOW/YELLOW PAVEMENT MARKERS ALONG
CENTERLINE @ 20' SPACING
-L- US RTE 158
EXIST R/W
3' WIRE
END TEMPORARY ANCHORED PCB
-L- STA. 32+95.12
CRASH CUSHION
TEMPORARY WHITE EDGE LINE
500'
BM-C
CULT
3' WOOD POST
END ROAD WORK
G20-2 A 48" X 24"
E-E
-L- STA. 28+50
ANCHORED PCB
TEMPORARY PAVEMENT
CONSTRUCTED PREVIOUS
PHASE
B-B
-L- STA. 24+65
Workzone
ANCHORED PCB
TEMPORARY SHORING
NO. 6
TEMPORARY SHORING
NO. 9
TEMPORARY SHORING
NO. 2
D-D
-L- STA. 25+50

Kimley»Horn

APPROVED: ______ DATE: ______

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NORTH CAROLINA PROFESSIONAL SEAL 055726 ENGINEER VINCENT E. RICCIO

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9/6/2024

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

TRAFFIC CONTROL PHASE IV

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8/13/2024