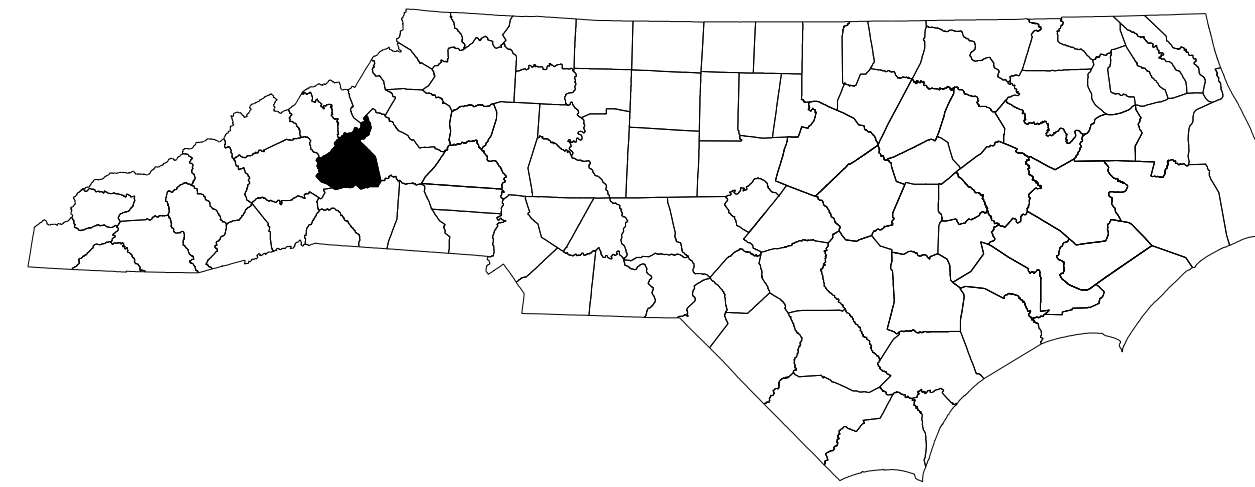


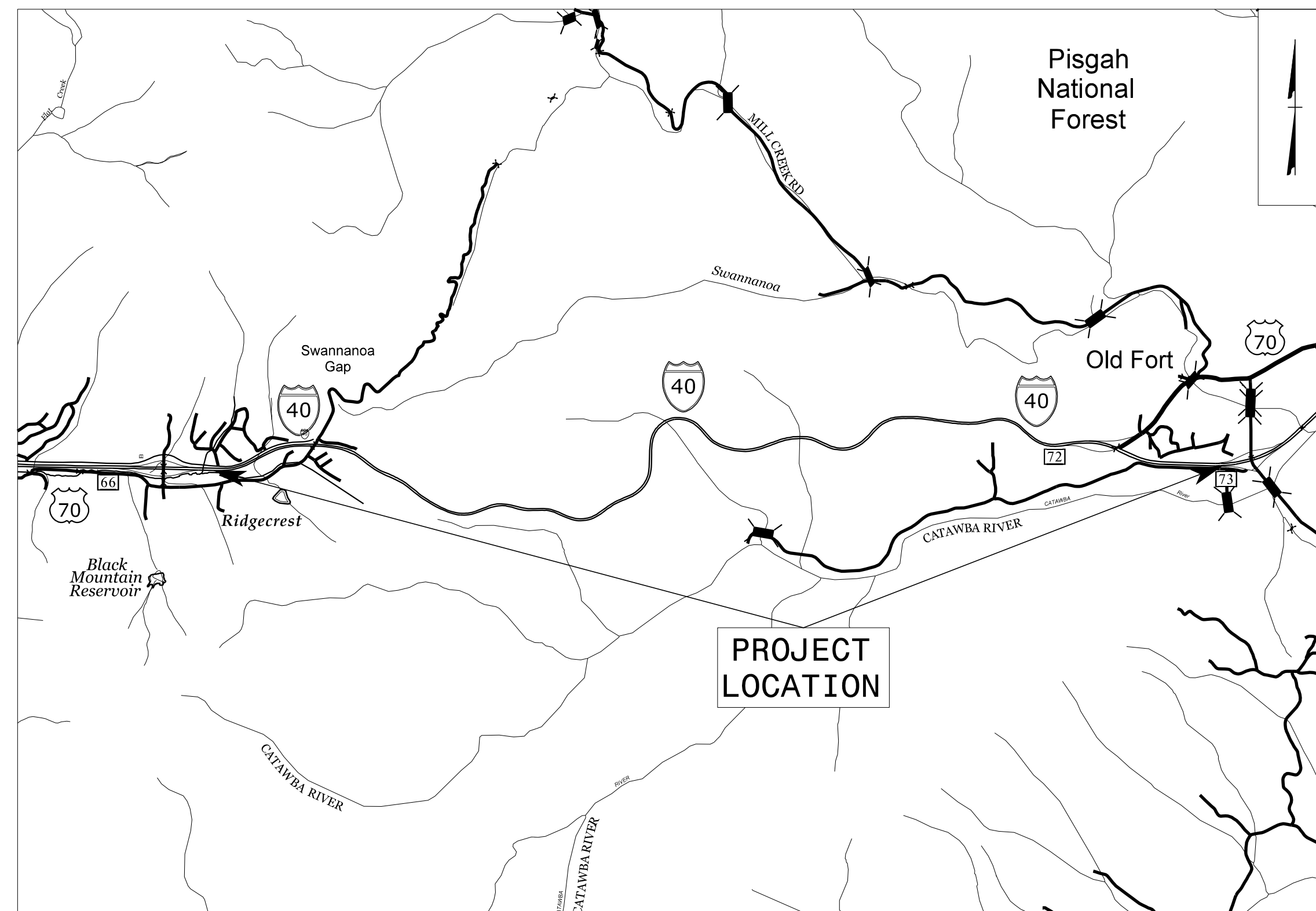
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**MCDOWELL COUNTY**



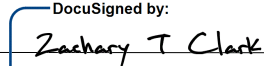
**LOCATION:** *I-40 FROM MM 67 TO MM 73*  
**TYPE OF WORK:** *PAVEMENT REHABILITATION, SAFETY AND DRAINAGE IMPROVEMENTS, AND RECONSTRUCT MEDIAN BARRIER*



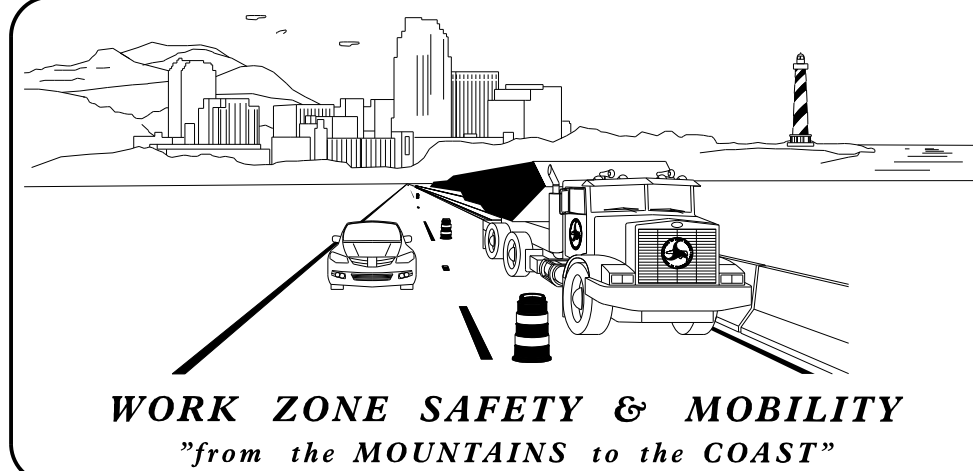
**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2	TRANSPORTATION OPERATIONS PLAN (GENERAL NOTES)
TMP-2A	TRANSPORTATION OPERATIONS PLAN (GENERAL NOTES, PHASING, AND MANAGEMENT STRATEGIES)
TMP-2B	WORK ZONE VARIABLE SPEED LIMIT REDUCTION
TMP-3	LONG-TERM LANE CLOSURE TYPICAL 3 LANE SECTION
TMP-4	LONG-TERM LANE CLOSURE PCB LAYOUT DETAIL
TMP-5	VICINITY MAP/TEMPORARY RUNAWAY TRUCK RAMP SETUP

**DOCUMENT NOT CONSIDERED FINAL  
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APPROVED:   
DocuSigned by: Zachary T. Clark  
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 DATE: 04/24/2023

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**PLANS PREPARED BY:**

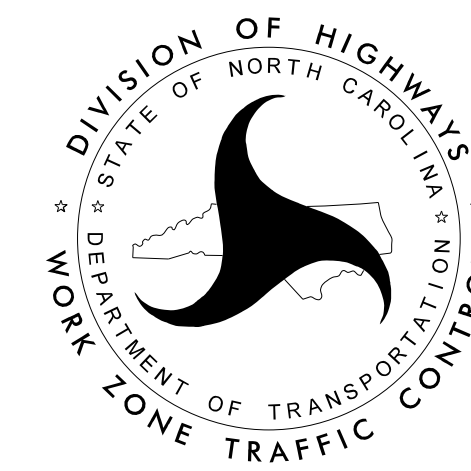
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**NCDOT CONTACTS:**

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KARMEN E. DAIS, PE  
PROJECT DESIGN ENGINEER



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SHEET NO.  
TMP-1

**HI-0010**

**TIP PROJECT:**

# 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 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 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
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1205.14	PAVEMENT MARKINGS - ROUNDABOUTS
1205.15	PAVEMENT MARKINGS - SUPERSTREETS
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
1264.01	OBJECT MARKERS - TYPES
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

WEDGING

## SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY
- PORT

## 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

P30 PAINT - YELLOW EDGELINE (6")

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DocuSigned by: Zachary T. Clark  
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 DATE: 04/12/2023

ROADWAY STANDARD  
DRAWINGS & LEGEND

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UNLESS ALL SIGNATURES COMPLETED

# 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 UNDESIRE 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) EXCEPT AS ALLOWED BY PHASE I, STEPS 2-5,

DO NOT CLOSE OR NARROW ONE OR MORE TRAVEL LANES OR CLOSE A SHOULDER AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
I-40	SATURDAY THROUGH THURSDAY 6:00 A.M. TO 7:00 PM
	FRIDAY 6:00 A.M. TO 12:00 AM

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

ROAD NAME

I-40

HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 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.
- FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
- 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.
- FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 9:00 P.M. TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
- 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 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

- D) 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.
- E) 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.

F) 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.

G) 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.

H) 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.

I) DO NOT INSTALL MORE THAN 2 MILES OF LANE CLOSURE ON I-40 MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE. APPROVAL BY THE ENGINEER IS REQUIRED BEFORE CLOSING MORE THAN 2 MILES OF INTERSTATE TO ENSURE THE CONTRACTOR HAS THE EQUIPMENT AND LABOR FORCE TO ACTIVELY PURSUE WORK.

CONTRACTOR MUST OBTAIN WRITTEN APPROVAL OF THE ENGINEER BEFORE WORKING IN MORE THAN ONE LOCATION OR SETTING UP ADDITIONAL LANE CLOSURES.

### TRAFFIC PATTERN ALTERATIONS

J) NOTIFY THE ENGINEER THIRTY (30) 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) 500 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

### TRAFFIC BARRIER

N) 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.

TEMPORARY BARRIER SHOULD BE PLACE A MINIMUM OF TWO FOOT OFFSET (SHY DISTANCE) FROM THE EDGE OF THE TRAVEL LANE.

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.

O) 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

P) 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.

Q) 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

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

ROAD NAME	MARKING	MARKER
I-40	PAINT	TEMP RAISED
I-40 BRIDGES	COLD APPLIED PLASTIC (TYPE IV)	TEMP RAISED

S) 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.

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

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

V) OBLITERATED PAVEMENT MARKINGS SHALL BE REPLACED BY THE END OF EACH WORK PERIOD.

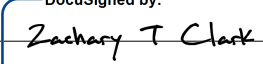
### MISCELLANEOUS

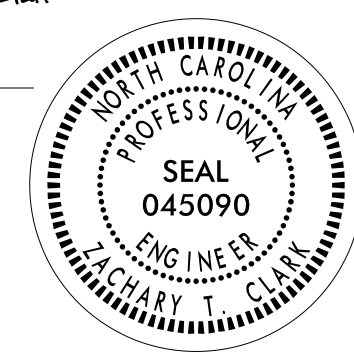
W) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

X) FOR LANE CLOSURES ON I-40 EASTBOUND MAINTAIN 500 FT BUFFER SPACE AFTER CREST OF THE MOUNTAIN BEFORE BEGINNING OF TAPER TO PROVIDE ADEQUATE STOPPING SIGHT DISTANCE.

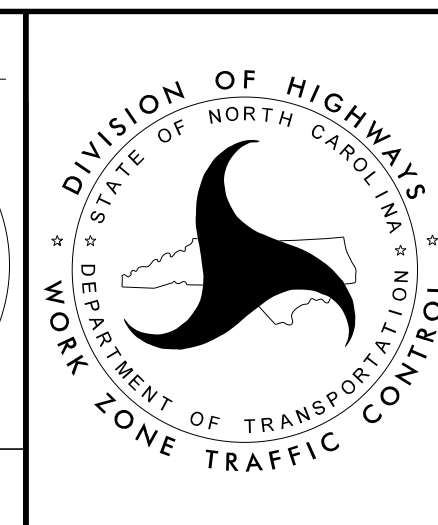
Y) FOR LONG TERM LANE CLOSURES ON I-40 (BOTH DIRECTIONS) START MERGE TAPERS WITHIN 3 LANE SECTIONS.

Z) LANE CLOSURES MUST TERMINATE AT LEAST 1/4 MILE UPSTREAM OF PERMANENT LANE DROPS. INSTALL INSIDE SHOULDER CLOSURES USING PCB IN 2 LANE SECTIONS OF I-40 TO COMPLETE MEDIAN WORK.

APPROVED:   
DocuSigned by:  
Zachary T. Clark  
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 DATE: 04/12/2023



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**TRANSPORTATION  
OPERATIONS  
PLAN**

## GENERAL NOTES

### MISCELLANEOUS

- AA) CLOSE RUNAWAY TRUCK RAMPS WHEN ACTIVE WORK IS WITHIN 500' OF THE RAMP UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SPACE DRUMS AT 40' CENTERS TO CLOSE THE RAMP. PLACE A CMS IN ADVANCE OF THE CLOSED RAMP WITH THE MESSAGE TRUCK RAMP CLOSED.
- BB) COVER CONFLICTING SIGNS FOR LONG TERM LANE CLOSURES WHEN SHORT TERM LANE CLOSURES ARE IN PLACE.
- CC) NOTIFY NCDOT STATEWIDE TRANSPORTATION OPERATIONS CENTER (STOC) AT 877-627-7862 WHEN INSTALLING AND REMOVING LANE CLOSURES ON I-40.
- DD) COORDINATE WITH ADJACENT NCDOT PROJECT TIP BR-0033 TO ENSURE THERE ARE NO OPERATIONAL CONFLICTS.

### PAVEMENT LIFT REQUIREMENTS

- EE) FOR SURFACE COURSE PAVING LIFTS OF 2.0" OR LESS THE CONTRACTOR SHALL CONDUCT HIS PAVING OPERATIONS SUCH THAT THE FOLLOWING CONDITIONS ARE MET:

ONCE PAVING BEGINS IN ANY LANE, THE CONTRACTOR WILL BE PERMITTED TO PAVE AS FAR AS WORK OPERATIONS ALLOW (UP TO 5 MILES) FOR THE INITIAL PAVING PERIOD. IN THE NEXT DAYS PAVING OPERATION, NOT TO EXCEED 72 HOURS, BRING THE ADJACENT LANE TO THE SAME STATION AND ELEVATION.

AT THE END OF THE WORK PERIOD, ANY UNEVEN LANE CONDITIONS SHALL BE SIGNED WITH AN "UNEVEN PAVEMENT/NEXT XX MILES" ON THE PORTABLE CHANGEABLE MESSAGE SIGNS AND PORTABLE "UNEVEN PAVEMENT" (DUAL MOUNTED) 1,000' IN ADVANCE OF THE UNEVEN PAVEMENT AND EVERY 1/2 MILES THEREAFTER ALONG THE UNEVEN PORTION OF ROADWAY. ONCE MITIGATED ALL PORTABLE "UNEVEN PAVEMENT" SIGNS SHALL BE REMOVED.

- FF) FOR 3" SURFACE COURSE MIXES, PLACE IN TWO PAVING LIFTS OF 1 1/2" UNLESS DIRECTED OTHERWISE BY THE ENGINEER. CONDITIONS FOR UNEVEN TRAVEL LANES SAME AS DESCRIBED IN NOTE EE.

### MILLING OPERATIONS

- GG) CONDUCT MILLING OPERATIONS SO THAT ANY MILLED PAVEMENT IS PAVED BACK BY THE END OF EACH WORK PERIOD. A MILLED/GROOVED SURFACE SHALL NOT BE RE-OPENED TO TRAFFIC EXCEPT IN CASES WHERE INCLEMENT WEATHER OR MECHANICAL FAILURE PREVENTS THE PAVING BACK OF THE LANE BY THE END OF THE WORK PERIOD.

IF MILLED AREAS ARE NOT PAVED BACK WITHIN THE SAME WORK PERIOD DUE TO INCLEMENT WEATHER OR MECHANICAL FAILURE, THE CONTRACTOR IS TO FURNISH AND INSTALL PORTABLE SIGNS TO WARN DRIVERS OF THE CONDITIONS. THE SIGNS INCLUDE "GROOVED PAVEMENT" (W8-15) W/ MOTORCYCLE PLAQUE MOUNTED BELOW, AND "UNEVEN LANES" (W8-11). THESE ARE TO BE DUAL INDICATED WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS. INSTALL THE "GROOVED PAVEMENT" (W8-15) W/ MOTORCYCLE PLAQUE 1500' IN ADVANCE OF THE MILLED AREA. INSTALL THE "UNEVEN LANES" (W8-11) 500' IN ADVANCE OF THE MILLED AREA. ALTERNATE THESE SIGNS EVERY 1/2 MILE. ONCE MITIGATED, ALL PORTABLE SIGNS ARE TO BE REMOVED.

SLOPE THE PAVEMENT AT THE BEGINNING AND ENDING OF THE DAILY MILLING OPERATION AS DIRECTED BY THE ENGINEER. SWEEP AND REMOVE ALL MILLED MATERIAL FROM THE ROADWAY AS SOON AS THE DAILY MILLING OPERATION IS COMPLETED. REMOVE ANY EXISTING PAVEMENT ADJACENT TO THE MILLED AREA THAT HAS BEEN DAMAGED AND REPLACE WITH PATCH MATERIAL AS DIRECTED BY THE ENGINEER.

## PHASING

BEFORE BEGINNING ANY CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES. FIELD VERIFY LOCATIONS WITH RESIDENT ENGINEER PRIOR TO INSTALLATION.

COMPLETE PAVEMENT WEDGING/BUILD UP IN SUCH A MANNER THAT NO PONDING OF WATER WILL OCCUR WITHIN THE TRAVEL LANE, MAINTAIN POSITIVE DRAINAGE IN EXISTING TRAVEL LANES.

THE CONTRACTOR SHALL COMPLETE EACH PHASE OF CONSTRUCTION CONSECUTIVELY ACCORDING TO THE TMP. CONCURRENT WORK OPERATIONS BETWEEN PHASES SHALL NOT BE ALLOWED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

### PHASE I

#### STEP 1:

USING RSD 1101.02 SHEET 1 OF 14 INSTALL ADVANCE WARNING SIGNS.

#### STEP 2:

USING RSD 1101.02 SHEET 8 OF 14 AND TMP-3 THROUGH TMP-4, INSTALL PORTABLE CONCRETE BARRIER FOR LONG TERM LANE CLOSURES AND TEMPORARY PAVEMENT MARKINGS ALONG 3 LANE SECTIONS OF I-40. USE STATIONARY SIGNS FOR LONG TERM LANE CLOSURES.

AWAY FROM TRAFFIC AND BEHIND PCB COMPLETE DRAINAGE WORK AND MEDIAN CONCRETE BARRIER REPLACEMENT.

#### STEP 3:

USING RSD 1101.02 SHEET 8 OF 14, INSTALL DOUBLE LANE CLOSURE TO RESET PCB AND CRASH CUSHIONS. AFTER PCB HAS BEEN RESET, REVISE TEMPORARY PAVEMENT MARKINGS, SHIFT LONG TERM LANE CLOSURE SIGNAGE AND OPEN CENTER LANE BACK TO TRAFFIC.

#### STEP 4:

USING RSD 1101.04 SHEET 1, INSTALL PCB TO CLOSE SHOULDERS AND REPLACE MEDIAN BARRIER ALONG 2 LANE SECTIONS OF I-40, AS NEEDED.

USING RSD 1101.02 SHEET 3 OF 14, INSTALL SINGLE LANE CLOSURE TO RESET PCB AND CRASH CUSHIONS FOR SHOULDER CLOSURES.

#### STEP 5

REPEAT STEPS 3 & 4 AS NEEDED, UNTIL ALL AREAS OF MEDIAN BARRIER AND DRAINAGE HAVE BEEN INSTALLED ALONG I-40 IN BOTH DIRECTIONS AS SHOWN IN ROADWAY PLANS.

#### STEP 6:

REMOVE LONG TERM LANE CLOSURE AND SHOULDER CLOSURE TRAFFIC CONTROL DEVICES FROM PROJECT AND REVISE TEMPORARY PAVEMENT MARKINGS.

### PHASE II

#### STEP 1:

USING RSD 1101.02 SHEETS 3 & 8 OF 14, BEGIN MILLING AND RESURFACING I-40, ONE DIRECTION AT A TIME.

USE LANE CLOSURES OR SHOULDER CLOSURES, AS NECESSARY TO COMPLETE GUARDRAIL REPAIR WORK.

REFER TO TMP-5 TO MAINTAIN ACCESS TO RUNAWAY TRUCK RAMPS AND PLACEMENT OF CMS DURING TRUCK RAMP CLOSURES.

#### STEP 2:

COMPLETE CONSTRUCTION, INCLUDING FINAL LAYER OF SURFACE COURSE, FINAL PAVEMENT MARKINGS AND MARKERS.

#### STEP 3:

REMOVE ALL TRAFFIC CONTROL DEVICES.

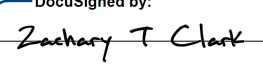
## MANAGEMENT STRATEGIES

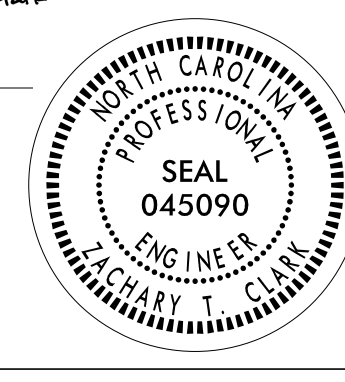
THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

### RECOMMENDED STRATEGIES:

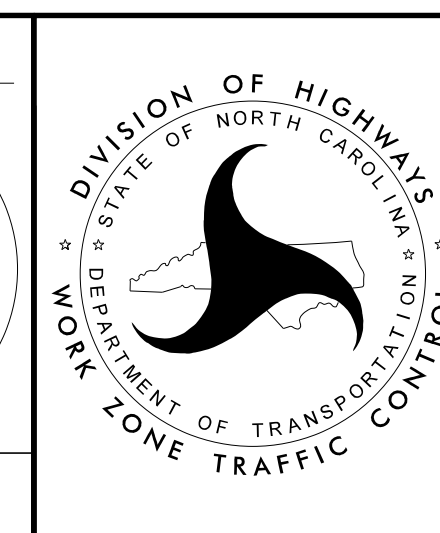
- LANE SHIFTS OR CLOSURES
- SHOULDER CLOSURES
- NIGHT WORK
- WEEKEND WORK
- WORK HOUR RESTRICTIONS FOR PEAK TRAVEL
- SEQUENTIAL FLASHING WARNING LIGHTS
- CONNECTED LANE CLOSURE DEVICES
- DIGITAL SPEED LIMIT SIGNS
- PRESENCE LIGHTING

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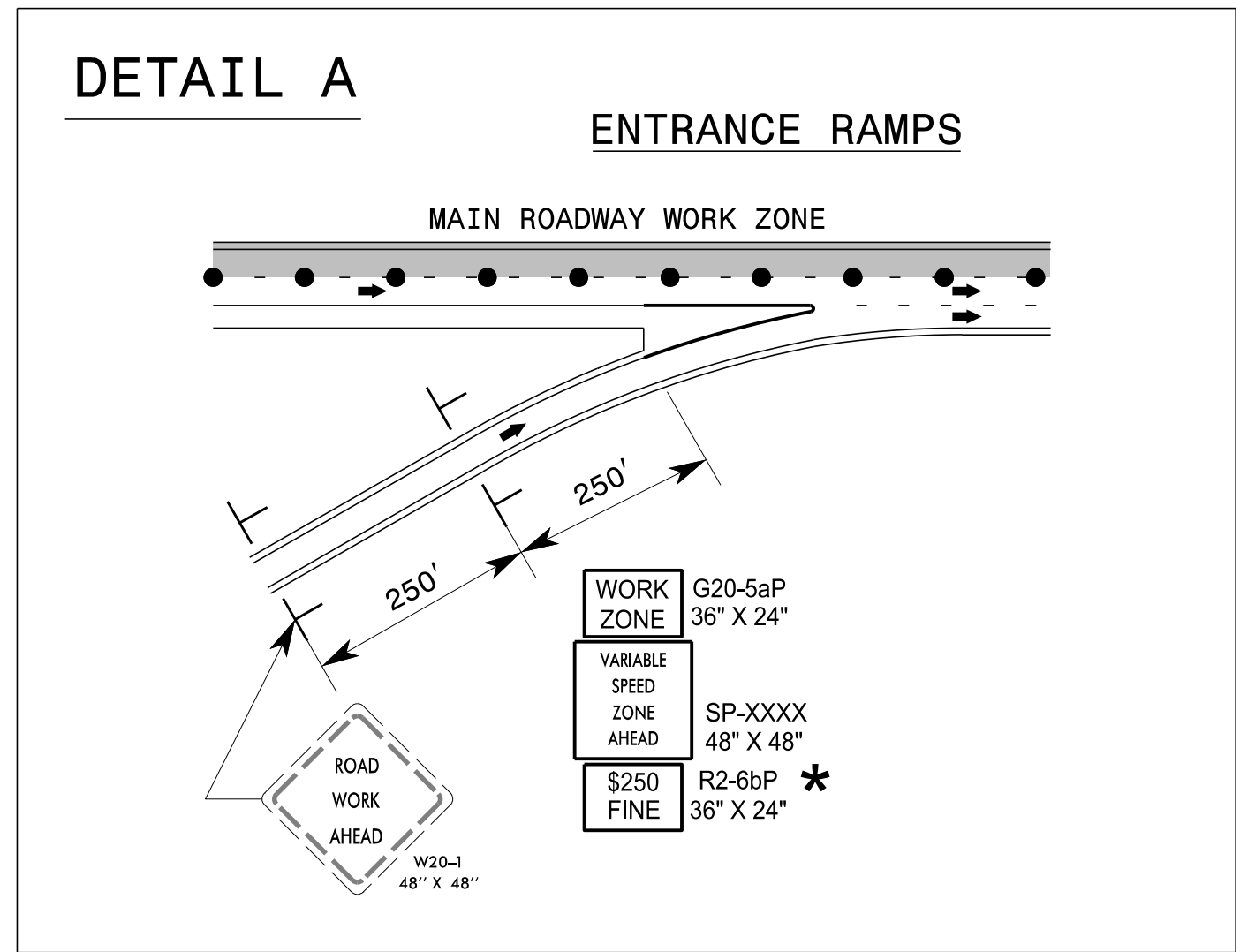
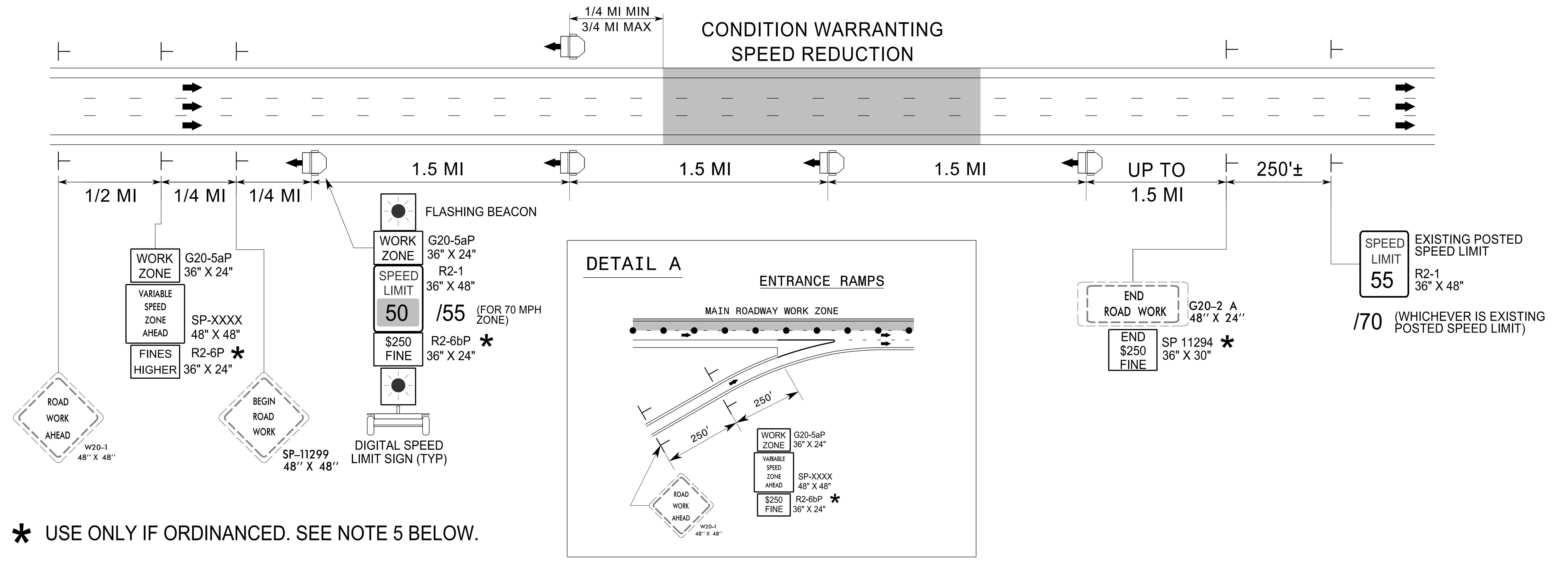
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TRANSPORTATION  
OPERATIONS  
PLAN



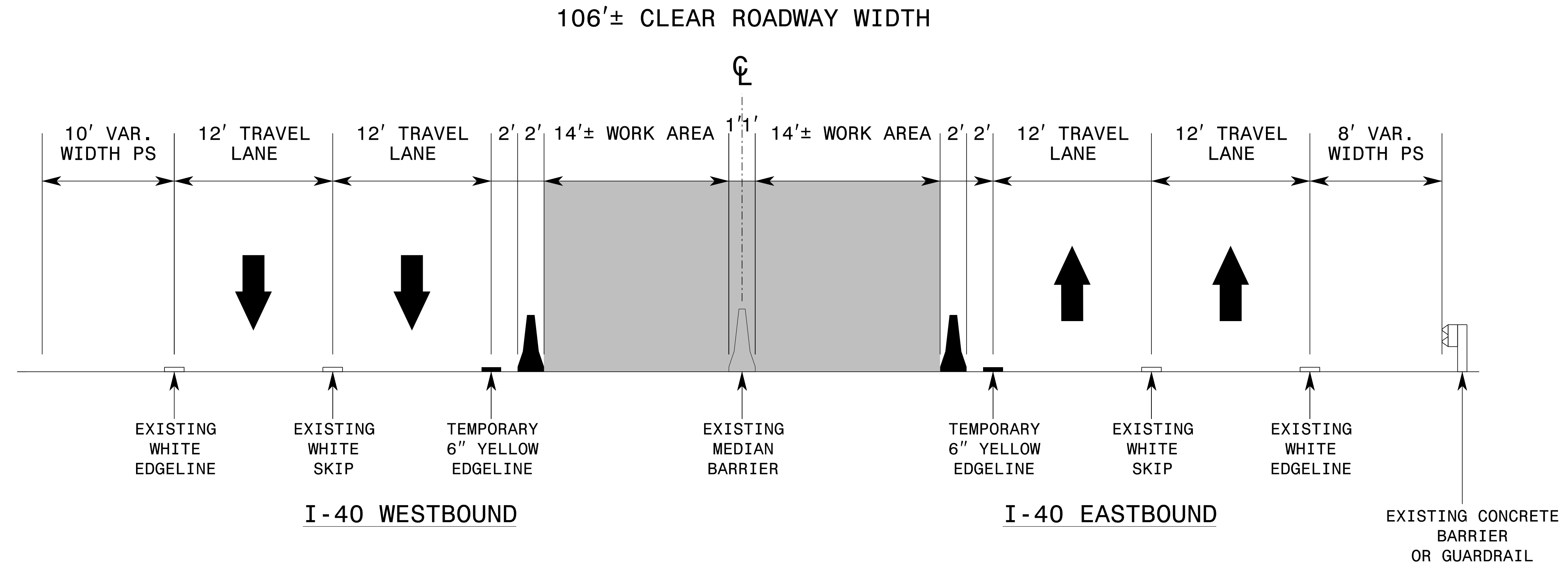
\* USE ONLY IF ORDINANCED. SEE NOTE 5 BELOW.

**NOTES**

1. THE DIGITAL SPEED LIMITS SIGNS WILL BE INSTALLED (TRAILER MOUNTED OR STATIONARY MOUNTED) IN ADVANCE OF AND SPACED APPROXIMATELY 1.5 MILES THROUGHOUT THE THE PROJECT LIMITS, UNLESS DIRECTED OTHERWISE.
2. WITHIN 1/4 TO 3/4 MILE UPSTREAM OF CONDITION WARRANTING A SPEED REDUCTION, PLACE A DIGITAL SPEED LIMIT SIGN ON BOTH THE INSIDE AND OUTSIDE SHOULDERS, UNLESS DIRECTED OTHERWISE BY THE ENGINEER. FOR AREAS WHERE INSIDE SHOULDERS ARE TOO NARROW, A DIGITAL SPEED LIMIT SIGN IS PERMITTED TO BE PLACED ONLY ON THE OUTSIDE SHOULDER. AT ALL OTHER LOCATIONS DOWNSTREAM, PLACE A SINGLE DIGITAL SPEED LIMIT SIGN ON THE OUTSIDE SHOULDER.  
  
IF SIGNS ARE NOT HIGHLY VISIBLE TO ALL MOTORISTS, SUPPLEMENTAL DIGITAL SPEED LIMIT SIGNS ARE PERMITTED ON THE MEDIAN SHOULDER.
3. THE DIGITAL SPEED LIMIT SIGNS TAKE PRECEDENCE OVER EXISTING SPEED LIMIT SIGNS AND SHOULD REMAIN UPRIGHT AND VISIBLE AT ALL TIMES. ALL EXISTING SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED FOR DURATION OF THE PROJECT.
4. NCDOT HAS SOLE AUTHORITY OF THE SPEED LIMITS DISPLAYED ON THE DIGITAL SPEED LIMIT SIGNS.
5. THE WORK ZONE VARIABLE SPEED LIMIT AND THE \$250 SPEEDING PENALTY ARE SEPARATE ORDINANCES THAT MUST BE SIGNED BY THE STATE TRAFFIC ENGINEER TO BE VALID AND ENFORCEABLE. WITHOUT SIGNED ORDINANCES, THE SPEED LIMIT ON A FACILITY SHALL REMAIN UNCHANGED AND/OR HIGHER FINES SIGNS SHALL NOT BE USED.
6. THE REDUCED SPEED SHALL BE DISPLAYED A MINIMUM OF 1/4 MILE AND A MAXIMUM OF 3/4 MILE IN ADVANCE OF AND THROUGHOUT THE AREA MEETING CONDITIONS WARRANTING A SPEED REDUCTION. THE EXISTING SPEED LIMIT SHALL BE DISPLAYED ON ALL OTHER DIGITAL SPEED LIMIT SIGNS.
7. THE BEACONS ON THE DIGITAL SPEED LIMIT SIGNS SHALL ONLY FLASH DURING TIMES THE SPEED IS REDUCED, AND REMAIN OFF AT ALL OTHER TIMES.

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APPROVED: <i>Zachary T. Clark</i> DATE: 04/12/2023 		<p><b>WORK ZONE VARIABLE SPEED LIMIT REDUCTION</b></p>
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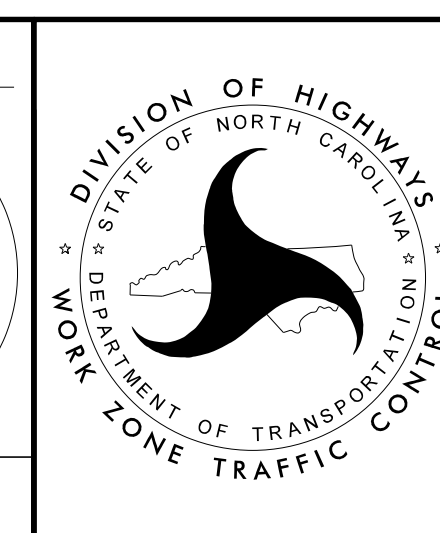
### NOTES

1. COMPLETE THE WORK OF PROPOSED MEDIAN BARRIER CONSTRUCTION FROM MM 67 TO MM 73 ± USING LONG-TERM LANE CLOSURES.
2. USE A 660 FT. MERGING TAPER TO TIE PROPOSED TEMPORARY PAVEMENT MARKINGS TO EXISTING PAVEMENT MARKINGS AT START OF LANE CLOSURES IN EACH DIRECTION. PROVIDE SEQUENTIAL FLASHING WARNING LIGHTS ON MERGE TAPER DRUMS.
3. CLOSE THE INSIDE LANES PER RSD 1101.02 PRIOR TO INTRODUCING UNANCHORED PORTABLE CONCRETE BARRIER.
4. MAINTAIN POSITIVE DRAINAGE AT ALL TIMES AND ENSURE NO PONDING OF WATER OCCURS IN TRAVEL LANES.
5. INSTALL SHOULDER CLOSURE SIGNS PER RSD 1101.04 SHEET 1.
6. TRUCKS WILL BE RESTRICTED TO RIGHT LANE ONLY PER TRAFFIC ORDINANCE.

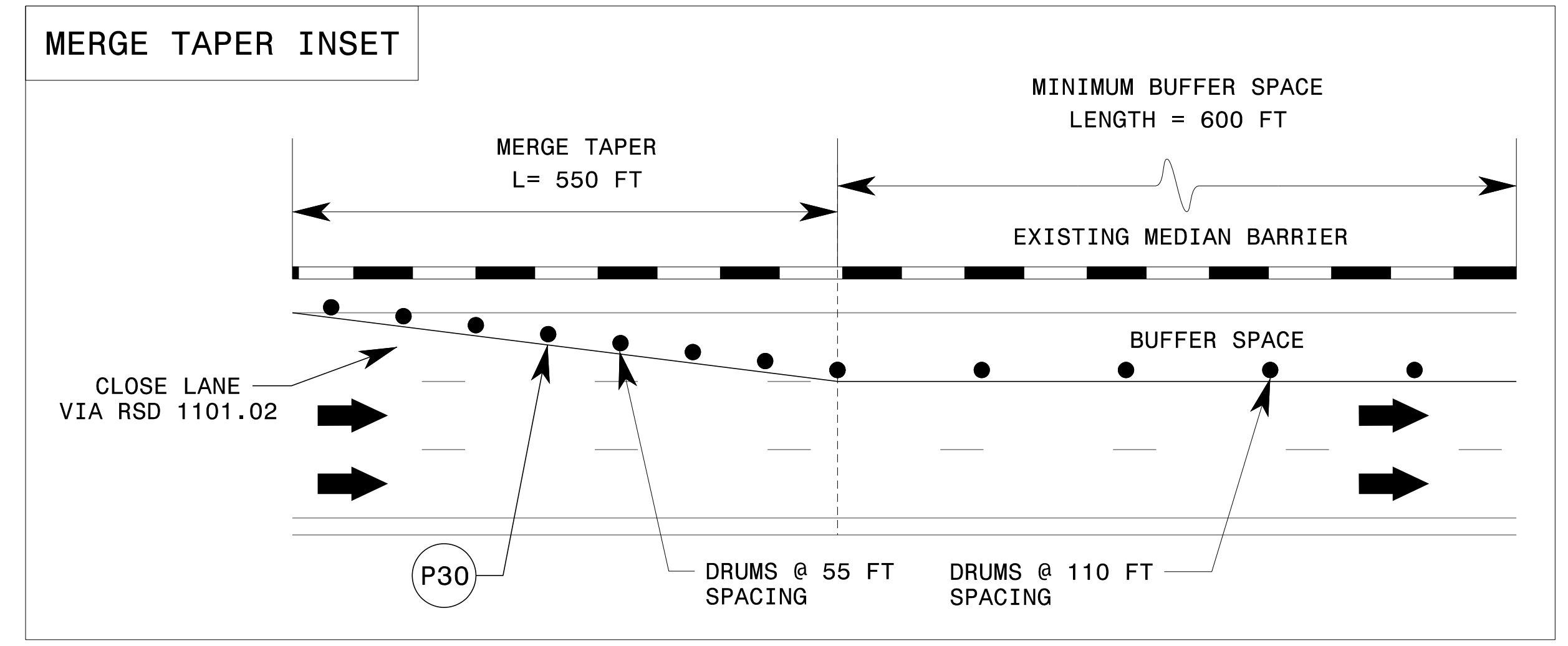
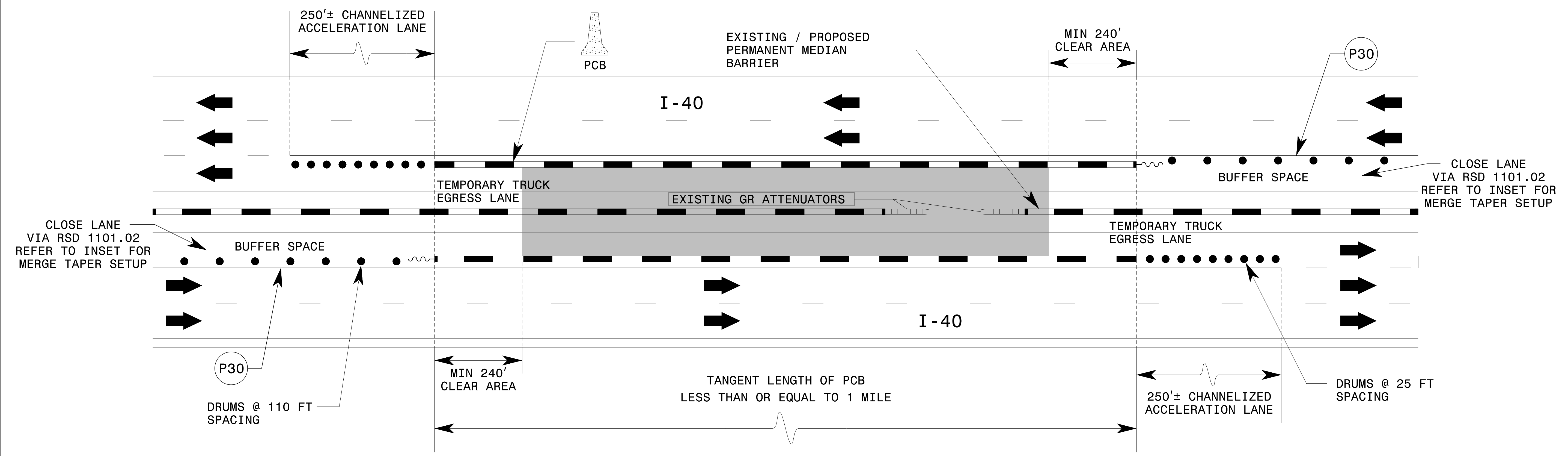
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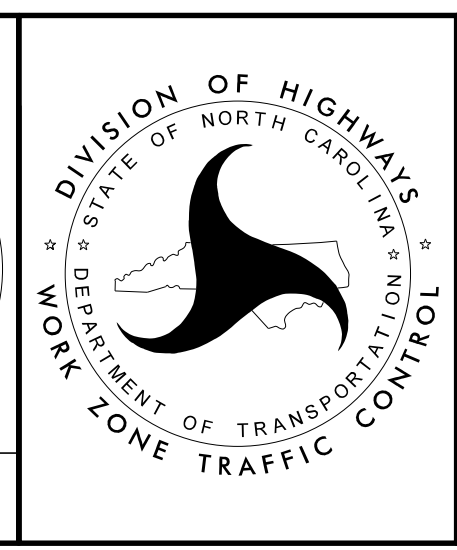
LONG-TERM LANE  
CLOSURE TYPICAL  
3 LANE SECTION



**NOTES**

1. MAINTAIN AN OFFSET OF 2 FT FROM PCB TO EDGELINE OF OPEN TRAVEL LANE AND A MINIMUM BUFFER DISTANCE OF 600 FT.
2. INSTALL ADVANCE WARNING STATIONARY SIGNS FOR LONG TERM LANE CLOSURE USING RSD 1101.02 SHEET 3 OF 14.
3. INSTALL SHOULDER CLOSURE SIGNS USING RSD 1101.04 SHEET 1 OF 1.
4. DO NOT INSTALL MORE THAN 1 MILE OF PORTABLE CONCRETE BARRIER IN EITHER DIRECTION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
5. REMOVE CONFLICTING MARKINGS, SHIFT STATIONARY SIGNS FOR LANE CLOSURES AND REVISE TEMPORARY PAVEMENT MARKINGS AS NECESSARY AFTER RESETTING BARRIER.

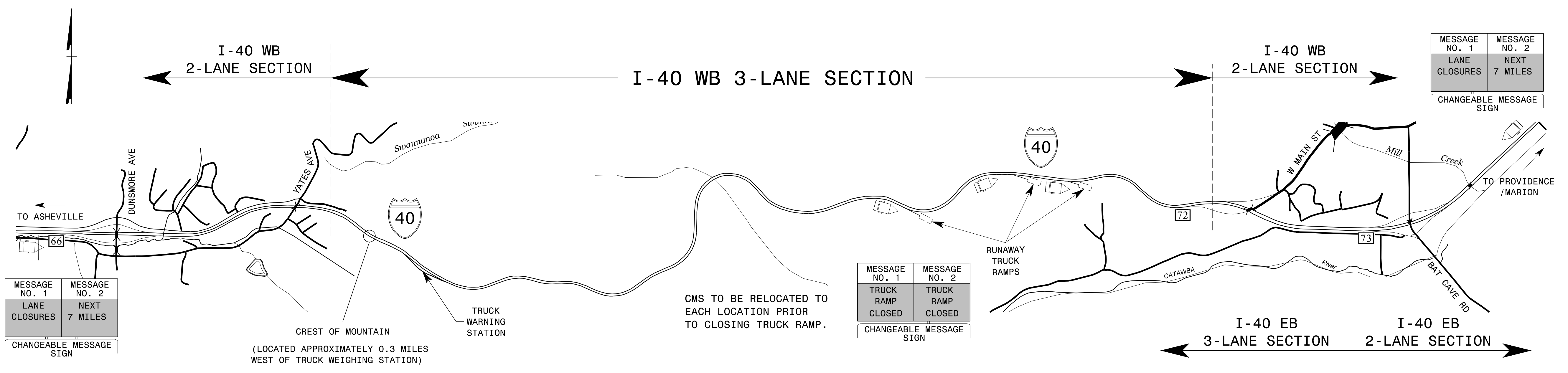
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 ZACHARY T. CLARK  
 PROFESSIONAL ENGINEER  
 NORTH CAROLINA



**LONG-TERM LANE CLOSURE  
 PCB LAYOUT DETAIL  
 (FOR 3 LANE SECTIONS)**

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 User:tmkelly



MESSAGE NO. 1	MESSAGE NO. 2
LANE CLOSURES	NEXT 7 MILES
CHANGEABLE MESSAGE SIGN	

MESSAGE NO. 1	MESSAGE NO. 2
TRUCK RAMP CLOSED	TRUCK RAMP CLOSED
CHANGEABLE MESSAGE SIGN	

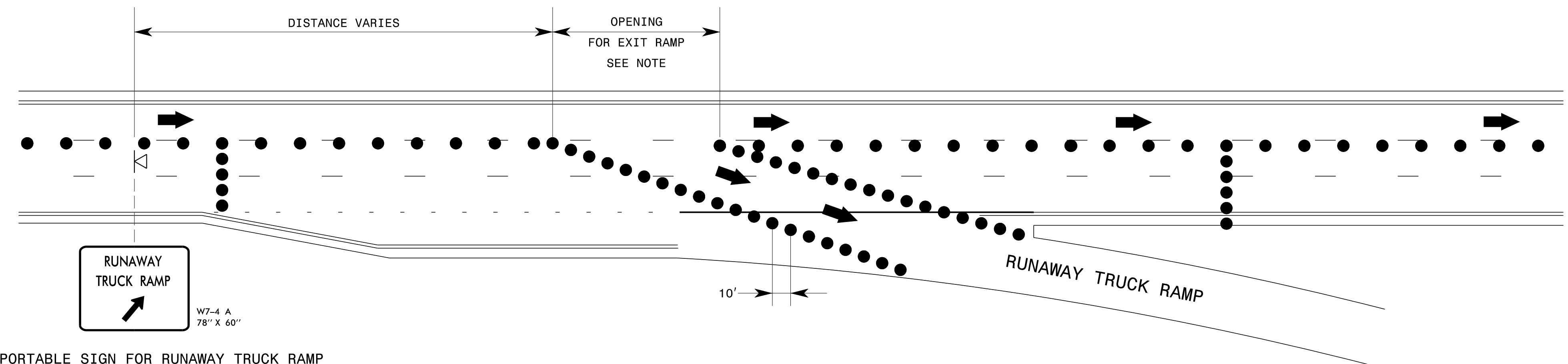
MESSAGE NO. 1	MESSAGE NO. 2
LANE CLOSURES	NEXT 7 MILES
CHANGEABLE MESSAGE SIGN	

CMS TO BE RELOCATED TO EACH LOCATION PRIOR TO CLOSING TRUCK RAMP.

NOTE: PLACE CMS BOARDS 1/4 MILE PRIOR TO TRUCK RAMP CLOSURE. DO NOT CLOSE MORE THAN ONE TRUCK RAMP AT A TIME.

KEEP TRUCK WARNING STATION OPEN AT ALL TIMES.

### TEMPORARY RUNAWAY TRUCK RAMP SETUP



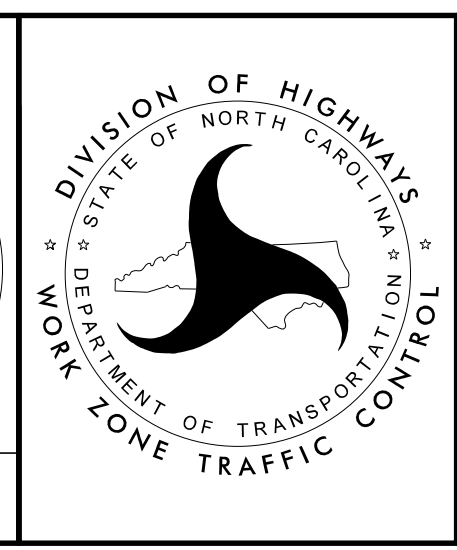
\*PLACE PORTABLE SIGN FOR RUNAWAY TRUCK RAMP INSIDE LANE CLOSURE AND PARALLEL WITH EXISTING SIGN RUNAWAY TRUCK RAMP SIGN.

NOTES: MAINTAIN A MINIMUM 250' OPENING FOR RUNAWAY TRUCK EXIT RAMP OR AS DIRECTED BY THE ENGINEER. CLOSE RAMP WHEN ACTIVE WORK AREAS ARE WITHIN 500' OF EACH LOCATION. INSTALL TEMPORARY RUNAWAY TRUCK RAMP SETUP WHEN RESURFACING CENTER LANE OR OUTSIDE LANE WITHIN VICINITY OF RUNAWAY TRUCK RAMP.

APPROVED: *Zachary T. Clark*  
 DATE: 04/12/2023

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 045090  
 ENGINEER  
 ZACHARY T. CLARK

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VICINITY MAP /  
 TEMPORARY RUNAWAY  
 TRUCK RAMP SETUP

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