# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO. SHEET NO. B-5179C

# PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

# BUNCOMBE & MADISON COUNTIES

LOCATION: BRIDGE NO.S 1, 68, 69, 77, 248, 254, 273, 348, 381, 384, 444, 445, 457, 497, 498, 499, 501, 504, 507, 509 AND 510 IN BUNCOMBE COUNTY.

BRIDGE NO. 528 IN MADISON COUNTY.

TYPE OF WORK: TRAFFIC CONTROL FOR BRIDGE DECK PRESERVATION

# ROADWAY STANDARD DRAWINGS

PROJECT SERVICES UNIT . N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW PANELS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1253.01	SNOWPLOWABLE RAISED PAVEMENT MARKERS

## INDEX OF SHEETS

SHEET NO.	<u>TITLE</u>
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND INDEX OF SHEETS
TCP-2, 2A	GENERAL NOTES
TCP-3	BRIDGE LOCATION MAP
TCP 4-4D	TRAFFIC CONTROL PHASING
TCP-5	BRIDGE 254 TRAFFIC CONTROL DETAIL
TCP-6	BRIDGE 77 TRAFFIC CONTROL DETAIL
TCP-7	BRIDGE 248 TRAFFIC CONTROL DETAIL
TCP-8	BRIDGE 381 TRAFFIC CONTROL DETAIL
TCP-9	BRIDGE 501 TRAFFIC CONTROL DETAIL
TCP-10	BRIDGE 510 TRAFFIC CONTROL DETAIL
TCP-11	BRIDGE 445 TRAFFIC CONTROL DETAIL
TCP-12	BRIDGE 444 TRAFFIC CONTROL DETAIL
TCP-12A	CHUNNS COVE RAMP CLOSURE DETAIL
TCP-13	BRIDGE 457 TRAFFIC CONTROL DETAIL
TCP-14	MADISON CO.BRIDGE 528-STAGE I DETAIL
TCP-14A	MADISON CO.BRIDGE 528-STAGE II DETAIL
TCP-15	WORK ZONE ADVANCE WARNING SIGNS

# **LEGEND**

### **GENERAL**

DIRECTION OF TRAFFIC FLOW

### TRAFFIC CONTROL DEVICES

TYPE III BARRICADE

STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

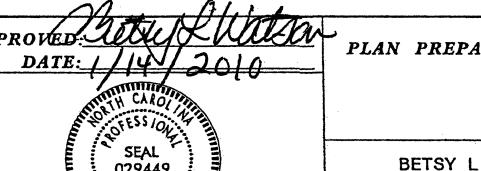
TEMPORARY CRASH CUSHION

CHANGEABLE MESSAGE SIGN

TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)

LAW ENFORCEMENT

FLAGGER



PLAN PREPARED BY:



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BETSY L. WATSON, PE

GEORGE KARAGEORGE

TRAFFIC CONTROL ENGINEER TRAFFIC CONTROL DESIGNER

PROJECT REFERENCE NO.	SHEET NO.
B-5179C	TCP-2

### 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.

### LANE CLOSURE TIME RESTRICTIONS

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

ROAD NAME

DAY AND TIME RESTRICTIONS

I-26, I-40 & I-240 6:30 A.M.- 6:30 P.M. EVERY DAY (7 DAYS PER WEEK) INCLUDING ALL RAMPS & LOOPS

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

ROAD NAME

I-26, I-40 & I-240 INCLUDING ALL RAMPS & LOOPS

- 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 6:30 P.M. DECEMBER 31st. TO 6:30 A.M. JANUARY 2nd. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:30 A.M. THE FOLLOWING TUESDAY.
- 3) FOR EASTER, BETWEEN THE HOURS OF 6:30 P.M. THURSDAY AND 6:30 A.M. MONDAY.
- 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:30 P.M. FRIDAY TO 6:30
- 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:30 P.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:30 A.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY: THEN BETWEEN THE HOURS OF 6:30 P.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:30 A.M. THE TUESDAY AFTER INDEPENDENCE DAY.
- 6) FOR LABOR DAY, BETWEEN THE HOURS OF 6:30 P.M. FRIDAY AND 6:30 A.M. TUESDAY.
- 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:30 P.M. TUESDAY TO 6:30 A.M. MONDAY.
- 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:30 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:30 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- 9) FOR THE BELE CHERE FESTIVAL, BETWEEN THE HOURS OF 6:30 P.M.THE WEDNESDAY BEFORE THE FESTIVAL AND 6:30 A.M. THE WEDNESDAY AFTER THE FESTIVAL.

C) DO NOT CLOSE ROADS AS FOLLOWS:

<u>ROAD</u>

DAY AND TIME RESTRICTIONS

BRIDGE #77 PATTON AVE.

6:30 A.M.-6:30 P.M. MONDAY THROUGH SUNDAY

### 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) PROVIDE A MINIMUM OF 1 MILE BETWEEN LANE CLOSURES, MEASURED FROM THE END OF ONE CLOSURE TO THE FIRST SIGN OF THE NEXT LANE CLOSURE.

### PAVEMENT EDGE DROP OFF REQUIREMENTS

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

### TRAFFIC PATTERN ALTERATIONS

K) NOTIFY THE ENGINEER TWENTY ONE (21) 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) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO

PROVIDE SIGNING REQUIRED FOR THE OFFSITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

N) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

AND

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFFSITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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



# TRAFFIC CONTROL PLAN

**GENERAL NOTES** 

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#### GENERAL NOTES

#### TRAFFIC BARRIER

P) 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 TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE TEMPORARY BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

PLACE TEMPORARY BARRIER NO CLOSER THAN 2 FT. FROM A TRAVEL LANE, UNLESS OTHERWISE SHOWN IN THE PLAN. A 1 FOOT OFFSET MAY BE USED IF 2 FT. IS NOT ATTAINABLE, 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.

Q) PROTECT THE APPROACH END OF PORTABLE CONCRETE BARRIER AT ALL TIMES INCLUDING DURING INSTALLATION AND REMOVAL OF THE BARRIER. PROTECT APPROACH END BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

### TRAFFIC CONTROL DEVICES

- R) UNLESS OTHERWISE NOTED IN THE PLANS, 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, WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED, REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.
- S) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- T) 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

V) REPLACE ALL PAVEMENT MARKINGS THAT WERE OBLITERATED DURING THE BRIDGE WORK AS FOLLOWS:

FOR DECKS WHERE ASPHALT OVERLAY IS USED INSTALL THERMOPLASTIC PAVEMENT MARKINGS AND SNOWPLOWABLE PAVEMENT MARKERS.

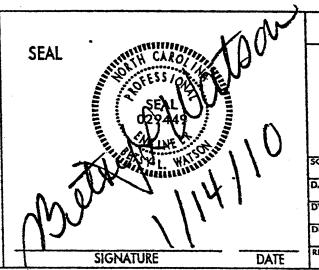
FOR DECKS WHERE CONCRETE/EPOXY OVERLAY IS USED INSTALL POLYUREA PAVEMENT MARKINGS. MARKERS ARE NOT REQUIRED ON CONCRETE BRIDGE DECKS.

REPLACE ALL PAVEMENT MARKINGS BEFORE RE-OPENING LANES TO TRAFFIC. PAINT MAY BE USED UNTIL FINAL PAVEMENT MARKINGS ARE INSTALLED.

### **MISCELLANEOUS**

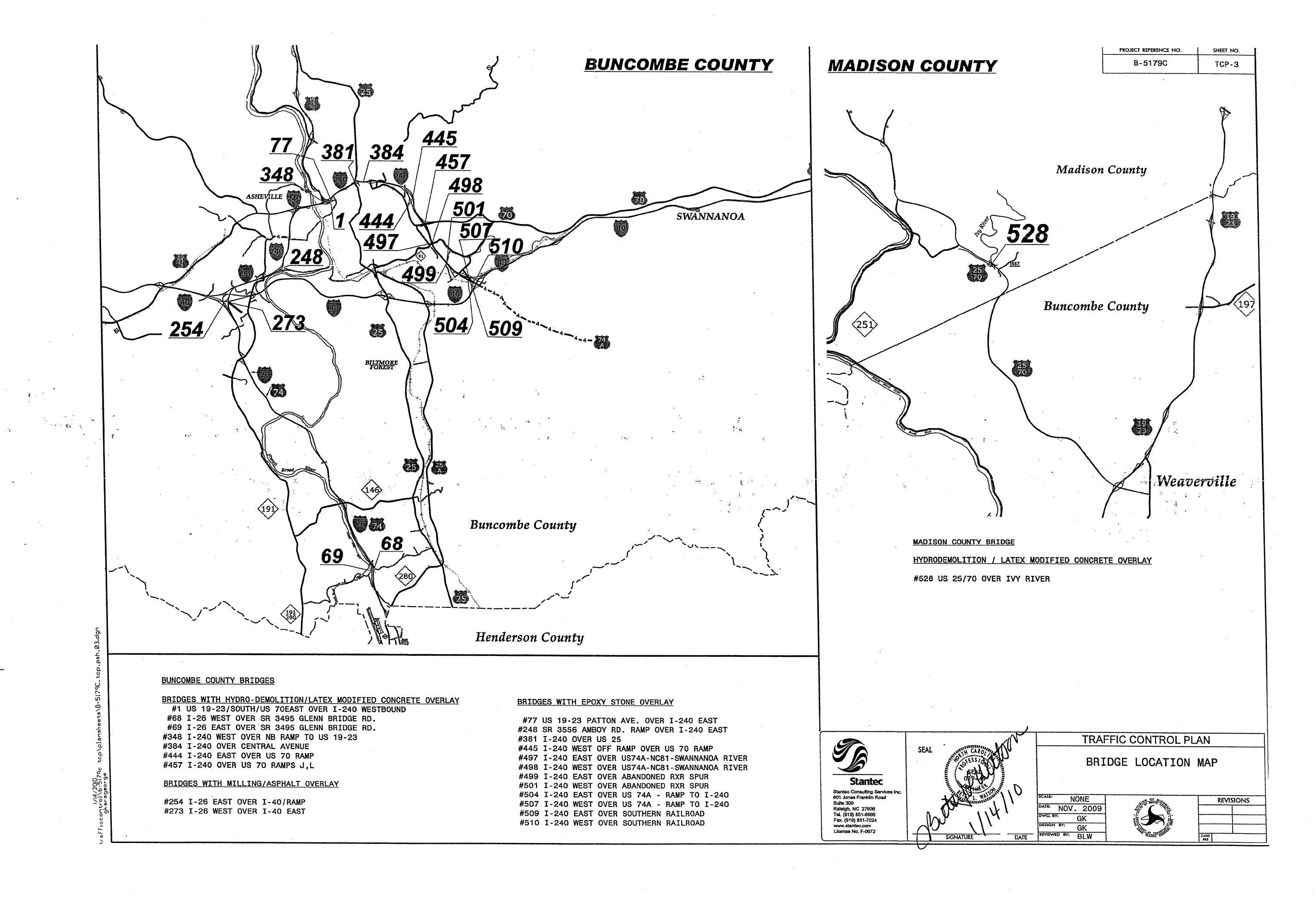
- W) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.
- X) ALL DIMENSIONS AND STATIONS IN THE TRAFFIC CONTROL PLAN AND PHASING ARE APPROXIMATE; FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- Y) THE CONTRACTOR IS TO FURNISH, INSTALL, MAINTAIN, RELOCATE AND REMOVE CHANGEABLE MESSAGE SIGNS DURING VARIOUS STAGES OF CONSTRUCTION AT THE DISCRETION OF THE ENGINEER TO ADEQUATELY INFORM MOTORISTS OF CHANGING WORK ZONE CONDITIONS.
- Z) PLACE ALL CHANGEABLE MESSAGE SIGNS AS NEEDED IN THE LOCATIONS AND WITH THE WORD MESSAGES AS SHOWN IN THE TCP OR AS DIRECTED BY THE ENGINEER TO PROVIDE ADVANCE WARNING TO THE PUBLIC DURING CONSTRUCTION.
- AA) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE INCLUDING THE FOLLOWING AREAS OF **CONCERN:** 
  - A. LANE CLOSURE RESTRICTIONS.
  - B. DETOURS OFFSITE AND ONSITE.
  - C. AREAS OF CONSTRICTED HORIZONTAL CLEARANCES (NARROW LANES OR LANES BORDERED WITH EITHER PCB AND/OR GUARDRAIL).
- BB) COORDINATE WITH THE ENGINEER TO MAKE SURE THAT THE NECESSARY PUBLIC INFORMATION MEASURES HAVE BEEN ADDRESSED.





TRAFFIC CONTROL PLAN GENERAL NOTES

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PROJECT REFERENCE NO.	SHEET NO.
B-5179C	TCP-4

### NOTE THE FOLLOWING BRIDGE WORK RESTRICTIONS AND ALLOWANCES:

- 1. DO NOT WORK ON BRIDGE 381 AND 384 SIMULTANEOUSLY.
- 2. DO NOT WORK ON BRIDGES 444, 497, 499, AND 504 SIMULTANEOUSLY. BRIDGE 504 MAY BE COMBINED WITH WORK ON BRIDGE 509 IF APPROVED BY THE ENGINEER. THE TRAFFIC CONTROL PLAN WOULD THEN HAVE TO BE MODIFIED TO INCLUDE TRAFFIC IN THE EXIT AREA.
- 3. DO NOT WORK ON BRIDGES 445, 457, 498, 501, 507 AND 510 SIMULTANEOUSLY. BRIDGE 507 MAY BE COMBINED WITH WORK ON BRIDGE 510 IF APPROVED BY THE ENGINEER. THE TRAFFIC CONTROL PLAN WOULD THEN HAVE TO BE MODIFIED TO EXTEND THE LANE CLOSURES TO INCLUDE BRIDGE 509.
- 4. AT BRIDGE 348 THE WORK INVOLVING THE RAMP MAY BE PERFORMED AT THE SAME TIME DURING THE ROAD CLOSURE IMPLEMENTED FOR BRIDGE 77.

### BUNCOMBE COUNTY

THE FOLLOWING BRIDGE WORK IS PERFORMED USING NIGHTLY LANE CLOSURES WITH WORK PERFORMED BEHIND DRUMS. REFER TO LANE CLOSURE HOUR RESTRICTIONS IN THE GENERAL NOTES.

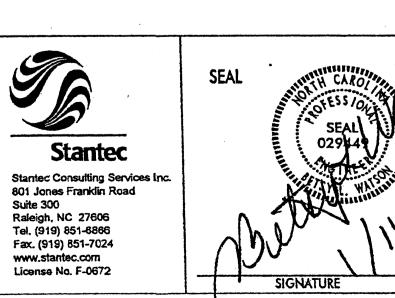
### BRIDGE NO.S

<u>1, 68, 69, 273, 384, 499, 504, 507 & 509</u> PERFORM BRIDGE WORK USING NIGHTLY LANE CLOSURES IN ACCORDANCE WITH STD. 1101.02-SHEET 3. MAINTAIN ENTRANCE AND EXIT RAMP TRAFFIC USING STD. 1101.02 SHEETS 6 AND 7.

PERFORM BRIDGE WORK USING NIGHTLY LANE CLOSURES. USE A DOUBLE LEFT LANE CLOSURE WHEN WORKING IN THE LEFT AND CENTER LANES IN ACCORDANCE WITH STD. 1101.02-SHEET 5. USE A RIGHT LANE CLOSURE WHEN WORKING IN THE OUTSIDE LANE IN ACCORDANCE WITH STD. 1101.02-SHEETS 3 AND 6.

PERFORM BRIDGE WORK USING NIGHTLY LANE CLOSURES. WHEN WORKING IN THE RIGHT LANE USE A RIGHT LANE CLOSURE IN ACCORDANCE WITH STD. 1101.02-SHEET 3. WHEN WORKING IN THE LEFT AND RAMP LANE USE A LEFT LANE CLOSURE IN ACCORDANCE WITH STD. 1101.02-SHEET 3 AND CLOSE THE ON RAMP FROM PATTON AVENUE IN THE SAME MANNER AS SHOWN ON SHEET TCP-6.

- 254 REFER TO SHEET TCP-5
- 248 REFER TO SHEET TCP-7
- 381 REFER TO SHEET TCP-8
- 501 REFER TO SHEET TCP-9
- 510 REFER TO SHEET TCP-10
- 445 REFER TO SHEET TCP-11
- 77 REFER TO SHEETS TCP-4A, TCP-6
- 444 REFER TO SHEETS TCP-4B & TCP-12, 12A
- 457 REFER TO SHEETS TCP-4C & TCP-13
- 528 REFER TO SHEETS TCP-4D & TCP-14, 14A



TRAFFIC CONTROL PLAN NONE

TRAFFIC CONTROL PHASING

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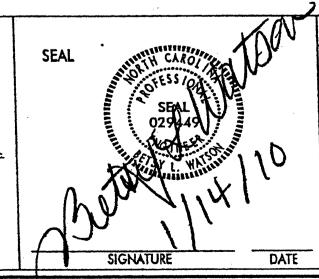
B-5179C TCP-4A

### BRIDGE 77 (TCP-6)

- STEP 1: CLOSE THE LEFT LANE OF PATTON AVE. AS SHOWN ON SHEET TCP-6.
- STEP 2: USING LAW ENFORCEMENT AND FLAGGERS AS NECESSARY IMPLEMENT PATTON AVE. ROAD CLOSURE.
- STEP 3: WITH PATTON AVE. CLOSED TO TRAFFIC PERFORM BRIDGE DECK PRESERVATION WORK ON BRIDGE 77.
- STEP 4: UPON COMPLETION OF BRIDGE WORK REMOVE ROAD CLOSURE THEN REMOVE LANE CLOSURE AND RESTORE PATTON AVE. TO THE NORMAL TRAFFIC PATTERN.

REPEAT THE STEPS AS NECESSARY UNTIL THE BRIDGE WORK IS COMPLETED.





# TRAFFIC CONTROL PLAN TRAFFIC CONTROL PHASIN

TRAFFIC CONTROL PHASING BRIDGE 77 BUNCOMBE COUNTY

DATE: NOV. 2009
DWG. BY: GK
DESIGN BY: GK
REVIEWED BY: BLW



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PROJECT REFERENCE NO.	SHEET NO.
B-5179C	TCP-4B

BRIDGE 444 (TCP-12, 12A)

### INTERMEDIATE CONTRACT TIME SPECIAL PROVISION

COMPLETE THE WORK REQUIRED OF BRIDGE 444-STEPS 1 THROUGH 7 IN A CONTINUOUS OPERATION BETWEEN THE HOURS OF FRIDAY 6:30 P.M. AND THE FOLLOWING TUESDAY AT 6:30 A.M.

STAGE 1 CONSTRUCTION BRIDGE 444

STEP 1: CLOSE RAMP CONNECTING CHUNN'S COVE RD. TO I-240 EAST AS SHOWN ON SHEET TCP-12A.

STEP 2: CLOSE I-240 EASTBOUND LEFT TWO LANES IN ACCORDANCE WITH STD. 1101.02 (SHEET 5 OF 9) AND SHIFT TRAFFIC TO A SINGLE RIGHT LANE AS SHOWN ON SHEET TCP-12 STAGE 1 CONSTRUCTION.

STEP 3: BEHIND LANE CLOSURE INSTALL PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION.

STEP 4: BEHIND PORTABLE CONCRETE BARRIER CONSTRUCT STAGE 1 OF THE BRIDGE LEFT SIDE DECK PRESERVATION.

STEP 5: UPON COMPLETION OF STAGE 1 REMOVE PORTABLE CONCRETE BARRIER AND CRASH CUSHION.

STEP 6: REMOVE TRAFFIC CONTROL DEVICES ON I-240 EASTBOUND AND RESTORE TO NORMAL TRAFFIC PATTERN.

STEP 7: REMOVE CLOSURE AND RE-OPEN RAMP CONNECTOR FROM CHUNN'S COVE RD. TO I-240 EAST.

### INTERMEDIATE CONTRACT TIME SPECIAL PROVISION

COMPLETE THE WORK REQUIRED OF BRIDGE 444-STEPS 8 THROUGH 14 IN A CONTINUOUS OPERATION BETWEEN THE HOURS OF FRIDAY 6:30 P.M. AND THE FOLLOWING TUESDAY AT 6:30 A.M.

STAGE 2 CONSTRUCTION BRIDGE 444

STEP 8: CLOSE RAMP CONNECTING CHUNN'S COVE RD. TO I-240 EAST AS SHOWN ON SHEET TCP-12A.

STEP 9: CLOSE I-240 EASTBOUND LEFT TWO LANES IN ACCORDANCE WITH STD. 1101.02 (SHEET 5 OF 9) AND SHIFT TRAFFIC AS SHOWN ON SHEET TCP-12 STAGE 2 CONSTRUCTION.

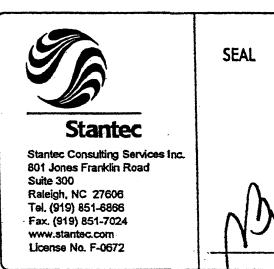
STEP 10: BEHIND LANE CLOSURE INSTALL PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION.

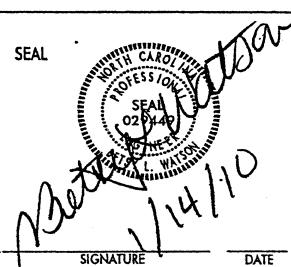
STEP 11: BEHIND PORTABLE CONCRETE BARRIER CONSTRUCT STAGE 2 OF THE BRIDGE RIGHT SIDE DECK PRESERVATION.

STEP 12: UPON COMPLETION OF STAGE 2 REMOVE PORTABLE CONCRETE BARRIER AND CRASH CUSHION.

STEP 13: REMOVE TRAFFIC CONTROL DEVICES ON I-240 EASTBOUND AND RESTORE TO NORMAL TRAFFIC PATTERN.

STEP 14: REMOVE CLOSURE AND RE-OPEN RAMP CONNECTOR FROM CHUNN'S COVE RD. TO I-240 EAST.





### TRAFFIC CONTROL PLAN

TRAFFIC CONTROL PHASING BRIDGE 444 BUNCOMBE COUNTY

NONE NOV. 2009 GK



BRIDGE 457 (TCP-13)

### INTERMEDIATE CONTRACT TIME SPECIAL PROVISION

COMPLETE THE WORK REQUIRED OF BRIDGE 457-STEPS 1 THROUGH 5 IN A CONTINUOUS OPERATION BETWEEN THE HOURS OF FRIDAY 6:30 P.M. AND THE FOLLOWING TUESDAY AT 6:30 A.M.

- STAGE 1 CONSTRUCTION BRIDGE 457
- STEP 1: CLOSE I-240 WESTBOUND LEFT LANE IN ACCORDANCE WITH STD. 1101.02 (SHEET 3 OF 9) AND SHIFT TRAFFIC TO A SINGLE RIGHT LANE ONTO THE OUTSIDE SHOULDER AS SHOWN ON SHEET TCP-13 STAGE 1 CONSTRUCTION.
- STEP 2: BEHIND LANE CLOSURE INSTALL PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION.
- STEP 3: BEHIND PORTABLE CONCRETE BARRIER CONSTRUCT STAGE 1 OF THE BRIDGE RIGHT SIDE DECK PRESERVATION.
- STEP 4: UPON COMPLETION OF STAGE 1 WORK REMOVE PORTABLE CONCRETE BARRIER AND CRASH CUSHION.
- STEP 5: REMOVE LANE CLOSURE AND REMAINING TRAFFIC CONTROL DEVICES FROM I-240 WESTBOUND AND RESTORE TO NORMAL TRAFFIC PATTERN.

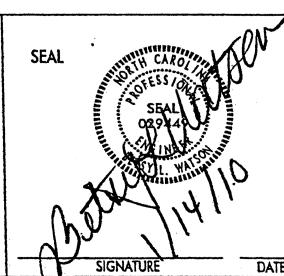
### INTERMEDIATE CONTRACT TIME SPECIAL PROVISION

COMPLETE THE WORK REQUIRED OF BRIDGE 457-STEPS 6 THROUGH 10 IN A CONTINUOUS OPERATION BETWEEN THE HOURS OF FRIDAY 6:30 P.M. AND THE FOLLOWING TUESDAY AT 6:30 A.M.

### STAGE 2 CONSTRUCTION BRIDGE 457

- STEP 6: CLOSE I-240 WESTBOUND RIGHT LANE IN ACCORDANCE WITH STD. 1101.02 (SHEET 3 OF 9) AND SHIFT TRAFFIC TO A SINGLE LEFT LANE ONTO THE OUTSIDE SHOULDER AS SHOWN ON SHEET TCP-13 STAGE 1 CONSTRUCTION.
- STEP 7: BEHIND LANE CLOSURE INSTALL PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION.
- STEP 8: BEHIND PORTABLE CONCRETE BARRIER CONSTRUCT STAGE 2 OF THE BRIDGE LEFT SIDE DECK PRESERVATION.
- STEP 9: UPON COMPLETION OF STAGE 2 WORK REMOVE PORTABLE CONCRETE BARRIER AND CRASH CUSHION.
- STEP 10: REMOVE LANE CLOSURE AND REMAINING TRAFFIC CONTROL DEVICES FROM I-240 WESTBOUND AND RESTORE TO NORMAL TRAFFIC PATTERN.





# TRAFFIC CONTROL PLAN

TRAFFIC CONTROL PHASING BRIDGE 457 **BUNCOMBE COUNTY** 

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DESIGN	BY:	GK.	1
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BRIDGE 528 MADISON COUNTY (TCP-14, 14A)

PHASE I

STAGE 1 CONSTRUCTION BRIDGE 528 (TCP-14)

STEP 1:

CLOSE US 25N/70W LEFT LANE IN ACCORDANCE WITH STD. 1101.02 (SHEET 3 OF 9).

CLOSE US 25S/70E LEFT LANE IN ACCORDANCE WITH STD. 1101.02 (SHEET 3 OF 9).

STEP 2:

BEHIND THE LEFT LANE CLOSURES INSTALL PORTABLE CONCRETE BARRIER, REMOVE CONFLICTING MARKINGS, PLACE TEMPORARY MARKINGS AND DEVICES AS MUCH AS POSSIBLE AWAY FROM TRAFFIC IN PREPARATION FOR IMPLEMENTING THE TRAFFIC SHIFT SHOWN ON SHEET TCP-14.

### COMPLETE STEP 3 IN A CONTINUOUS OPERATION

STEP 3:

USING A ROLLING ROAD BLOCK PER STD. 1101.03 SHEET 9 STOP US 25S/70E TRAFFIC TEMPORARILY AND REVISE THE LEFT LANE CLOSURE ON US 25S/70E TO A RIGHT LANE CLOSURE AND SHIFT US 25S/70E TRAFFIC ACROSS THE MEDIAN. WITH TRAFFIC OPERATING IN A TWO-LANE TWO-WAY PATTERN ON THE US 25N/70W SIDE COMPLETE PLACEMENT OF BARRICADES AND REMAINING DEVICES AND CLOSE THE US 25S/70E ROADWAY AS SHOWN ON SHEET TCP-14.

STEP 4:

BEHIND PORTABLE CONCRETE BARRIER CONSTRUCT STAGE 1 BRIDGE DECK

UPON COMPLETION OF STAGE 1 WORK REPLACE EXISTING PAVEMENT MARKINGS WITH PAINT ON THE BRIDGE DECK.

PHASE II

STAGE 2 CONSTRUCTION BRIDGE 528 (TCP-14A)

COMPLETE STEP 1 IN A CONTINUOUS OPERATION

UPON COMPLETION OF STAGE 1 BRIDGE WORK BEGIN REMOVAL OF PCB ALONG THE US 25S/70E TRAVEL LANE AND REPLACE WITH DRUMS.

STEP 2:

IMPLEMENT A ROLLING ROAD BLOCK PER STD. 1101.03 SHEET 9 AND STOP US 25S/70E TRAFFIC TEMPORARILY TO REVISE THE RIGHT LANE CLOSURE TO A LEFT LANE CLOSURE AND DIRECT US 25S/70E TRAFFIC TO A SINGLE RIGHT LANE AS SHOWN ON SHEET TCP-14A.

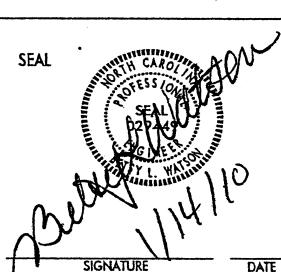
WITH TRAFFIC OPERATING AS SHOWN ON SHEET TCP-14A, CONSTRUCT STAGE 2 BRIDGE DECK PRESERVATION.

STEP 4: UPON COMPLETION OF BRIDGE WORK REPLACE ALL PAVEMENT MARKINGS THAT WERE PREVIOUSLY REMOVED! PAVEMENT MARKINGS MAY BE REPLACED WITH PAINT INITIALLY UNTIL THE FINAL MARKINGS ARE INSTALLED, AS DIRTECTED BY THE ENGINEER.

STEP 5:

REMOVE LANE CLOSURES AND REMAINING TRAFFIC CONTROL DEVICES FROM US 25/70 AND RESTORE TO NORMAL TRAFFIC PATTERN.

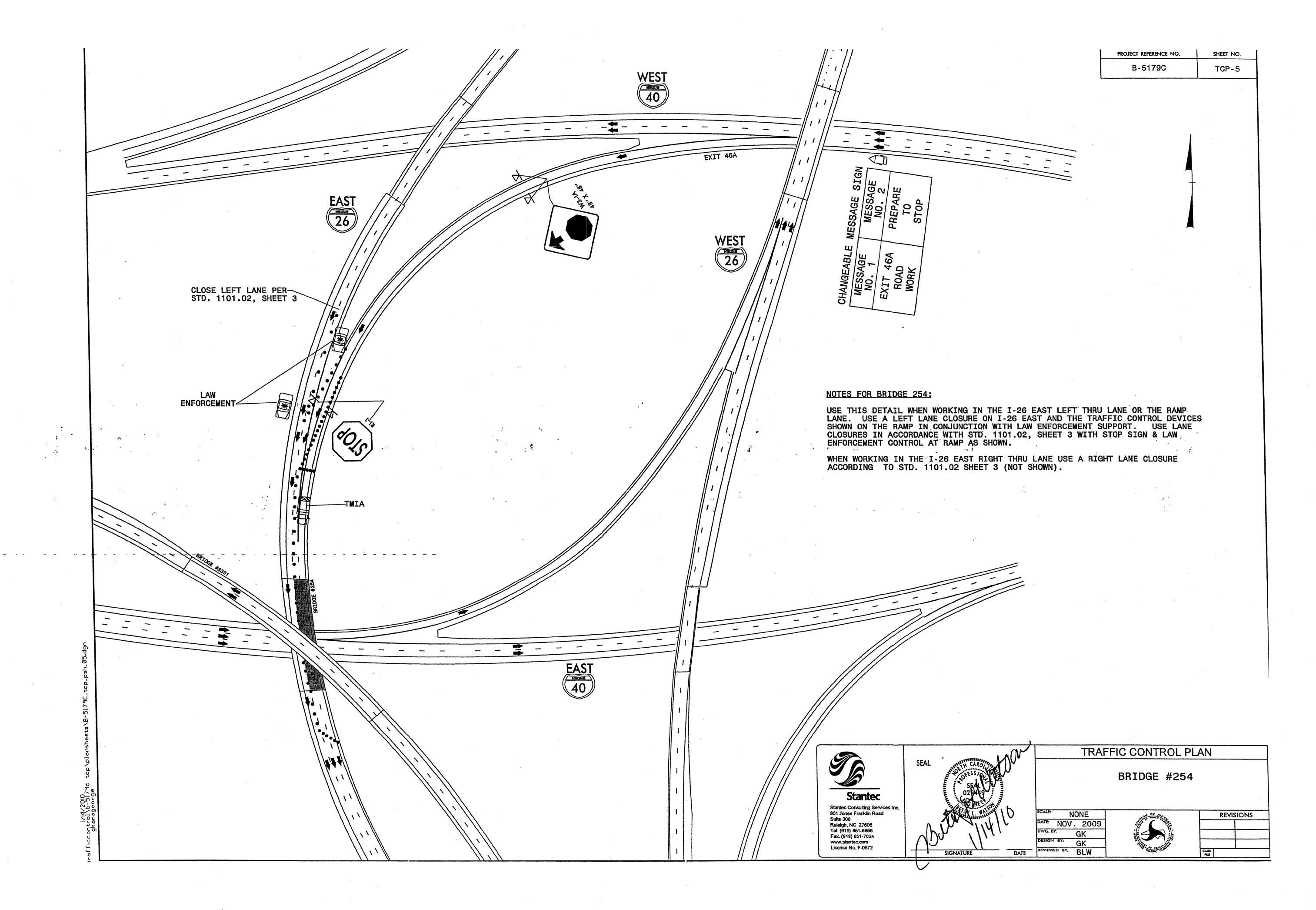


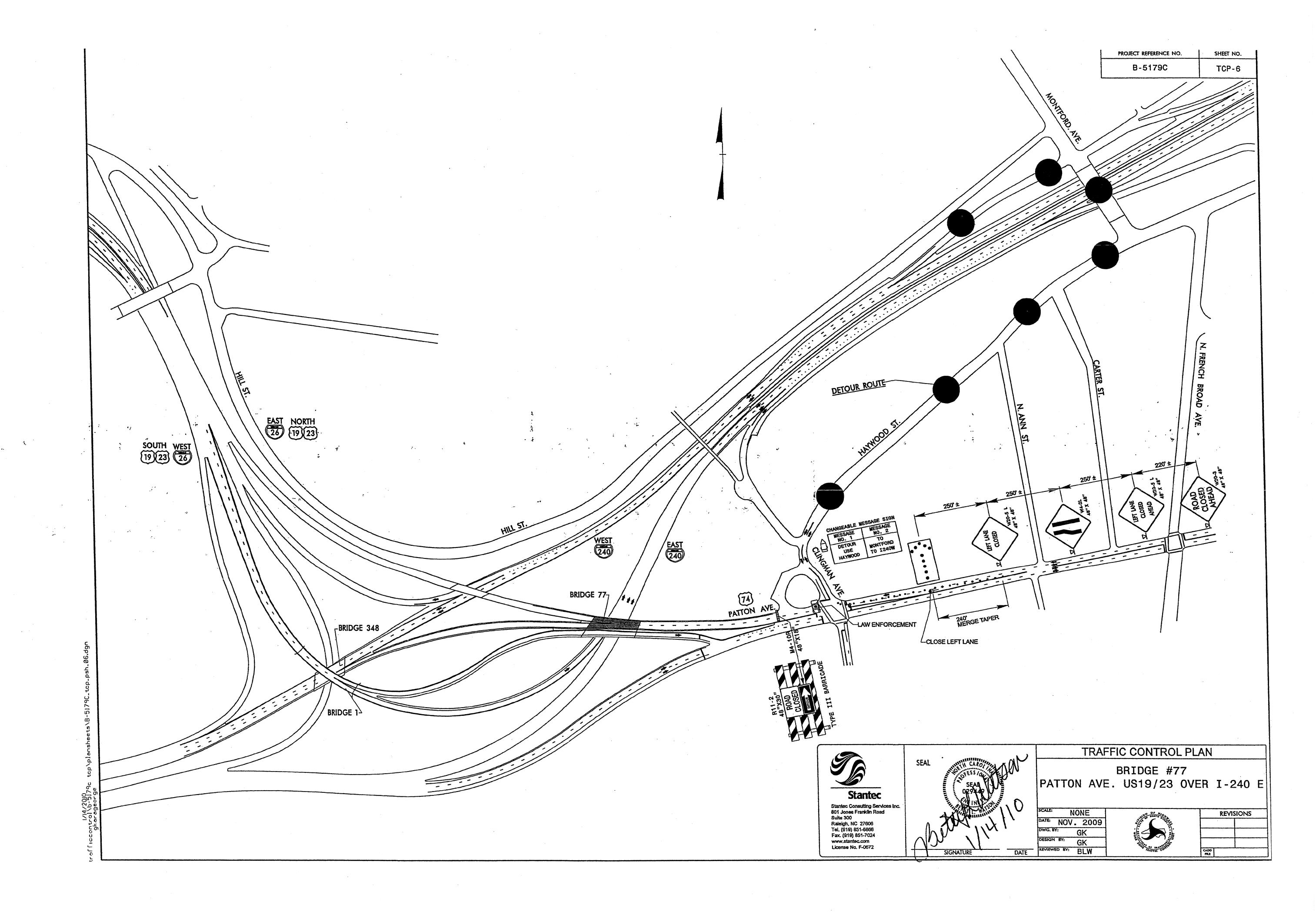


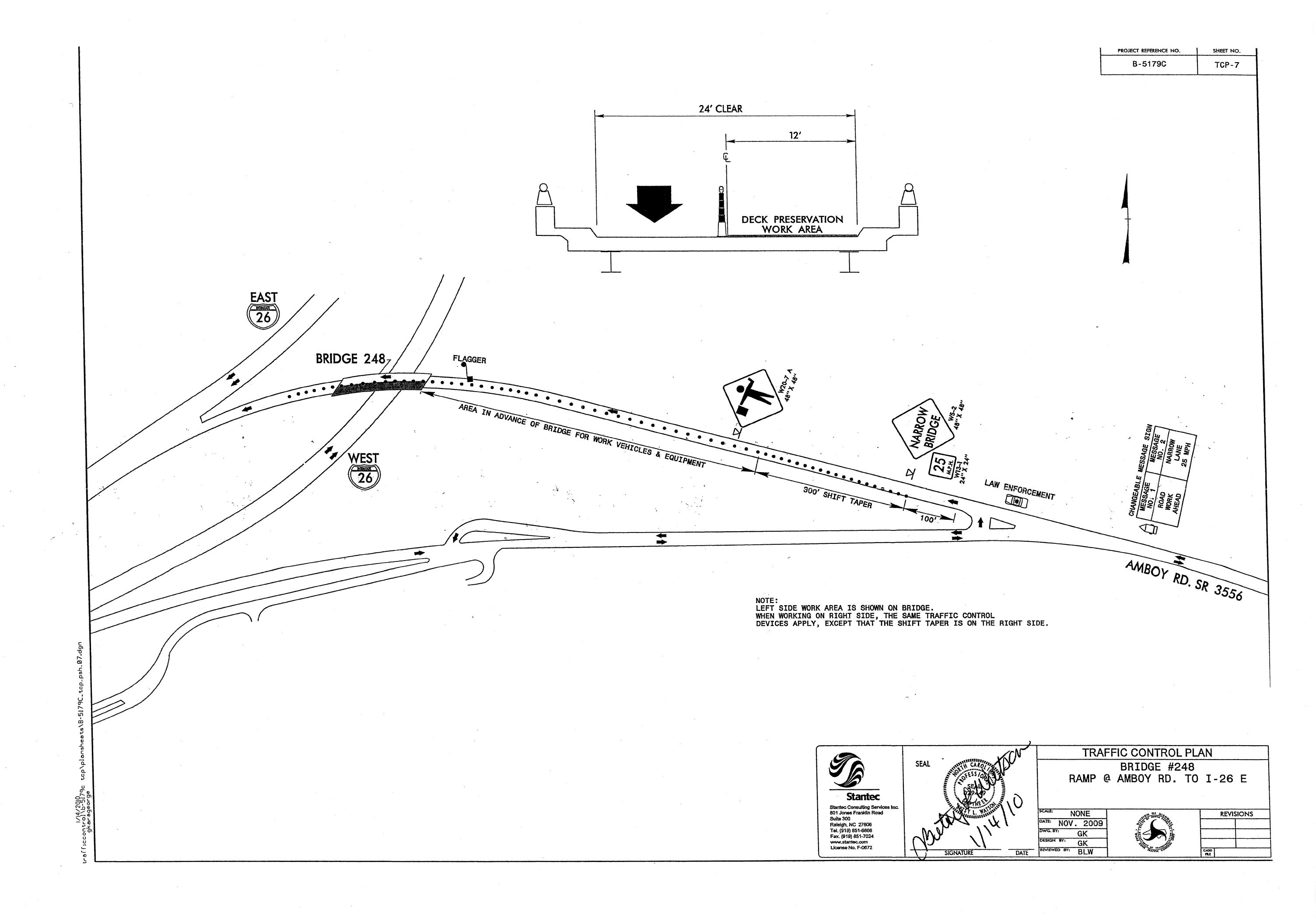
TRAFFIC CONTROL PLAN

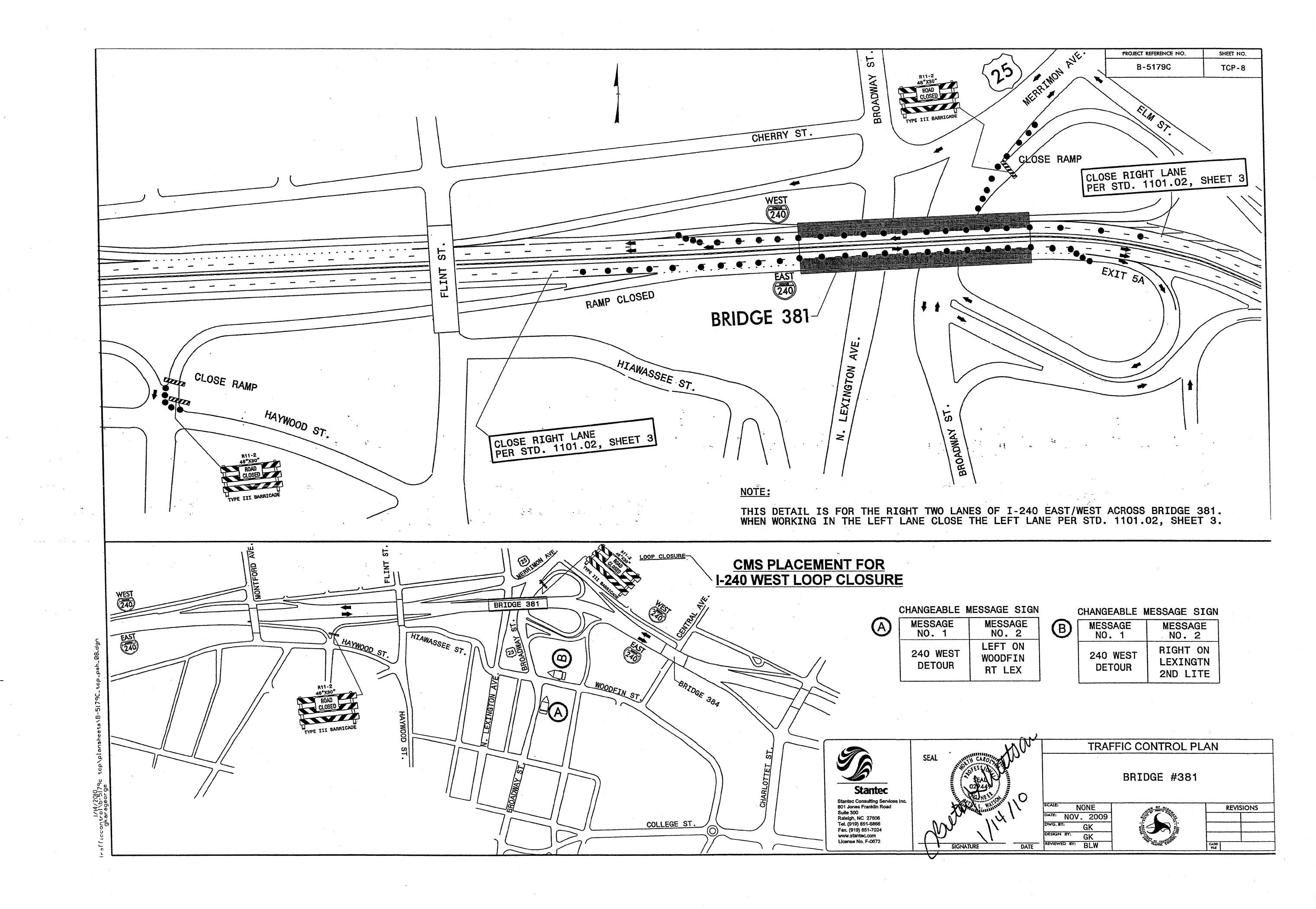
TRAFFIC CONTROL PHASING BRIDGE 528 MADISON COUNTY

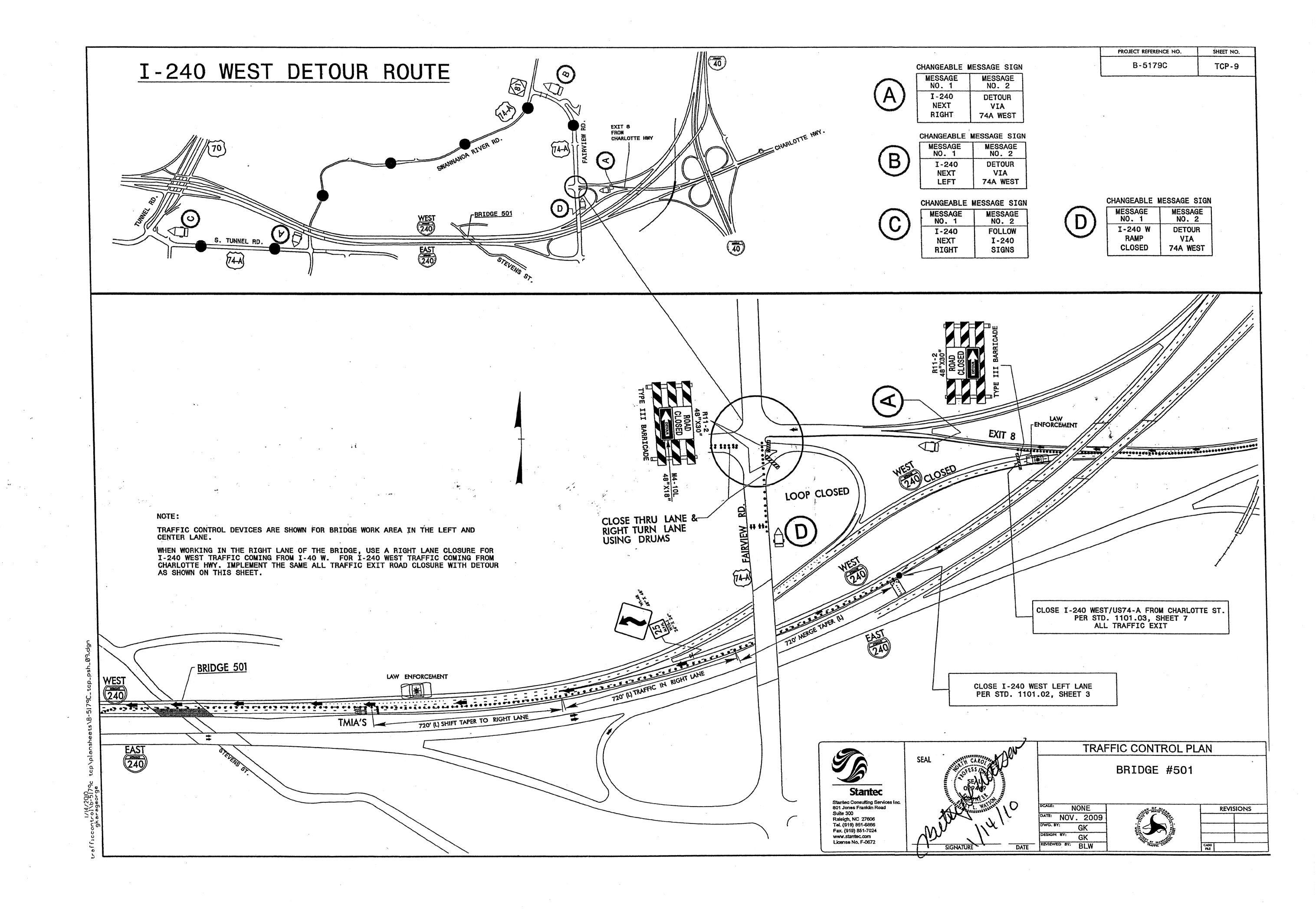
CALE:	NONE	
DATE:	NOV. 2009	
DWG. BY	GK	
DESIGN	GK	
REVIEWE	D BY: BLW	

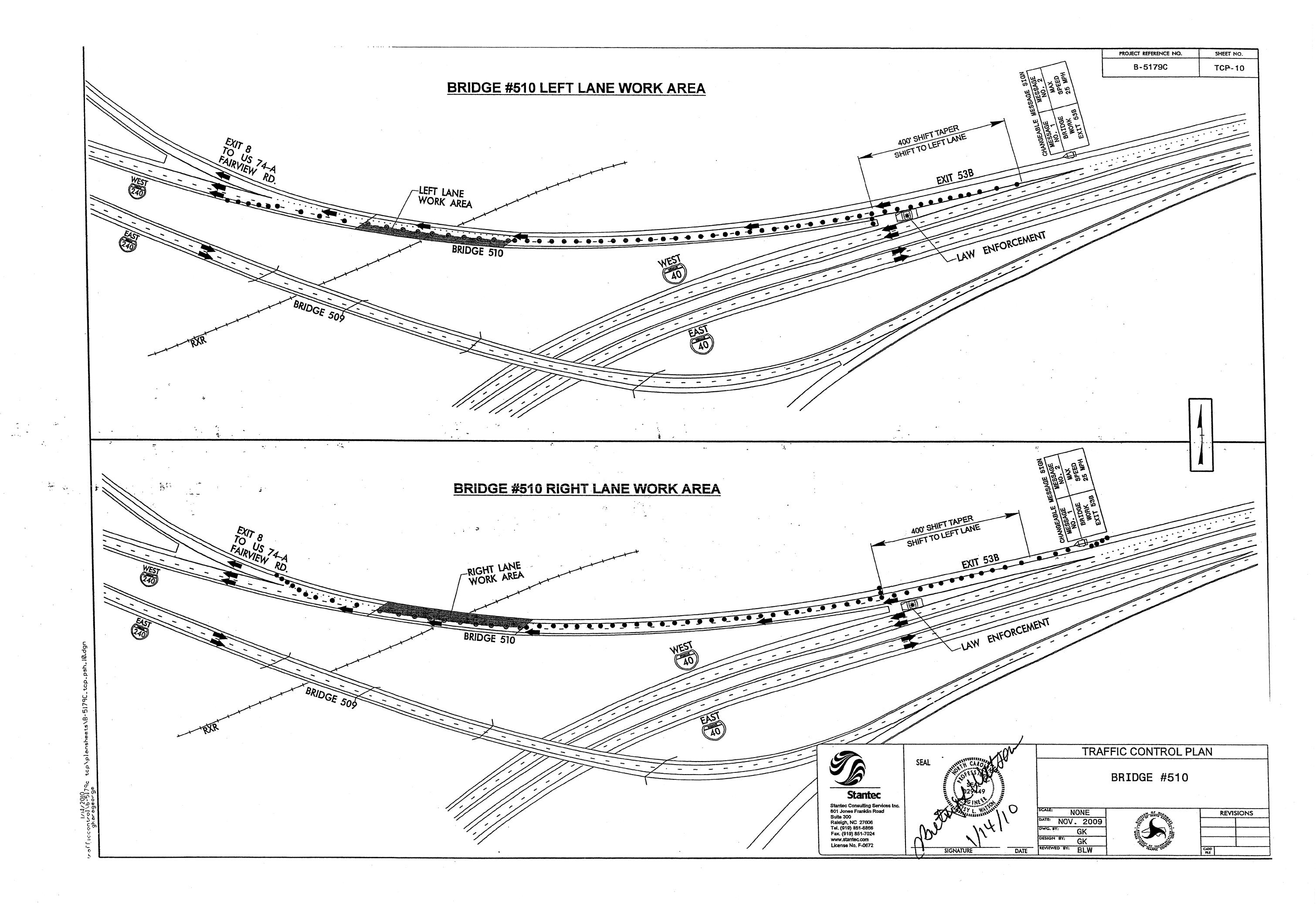


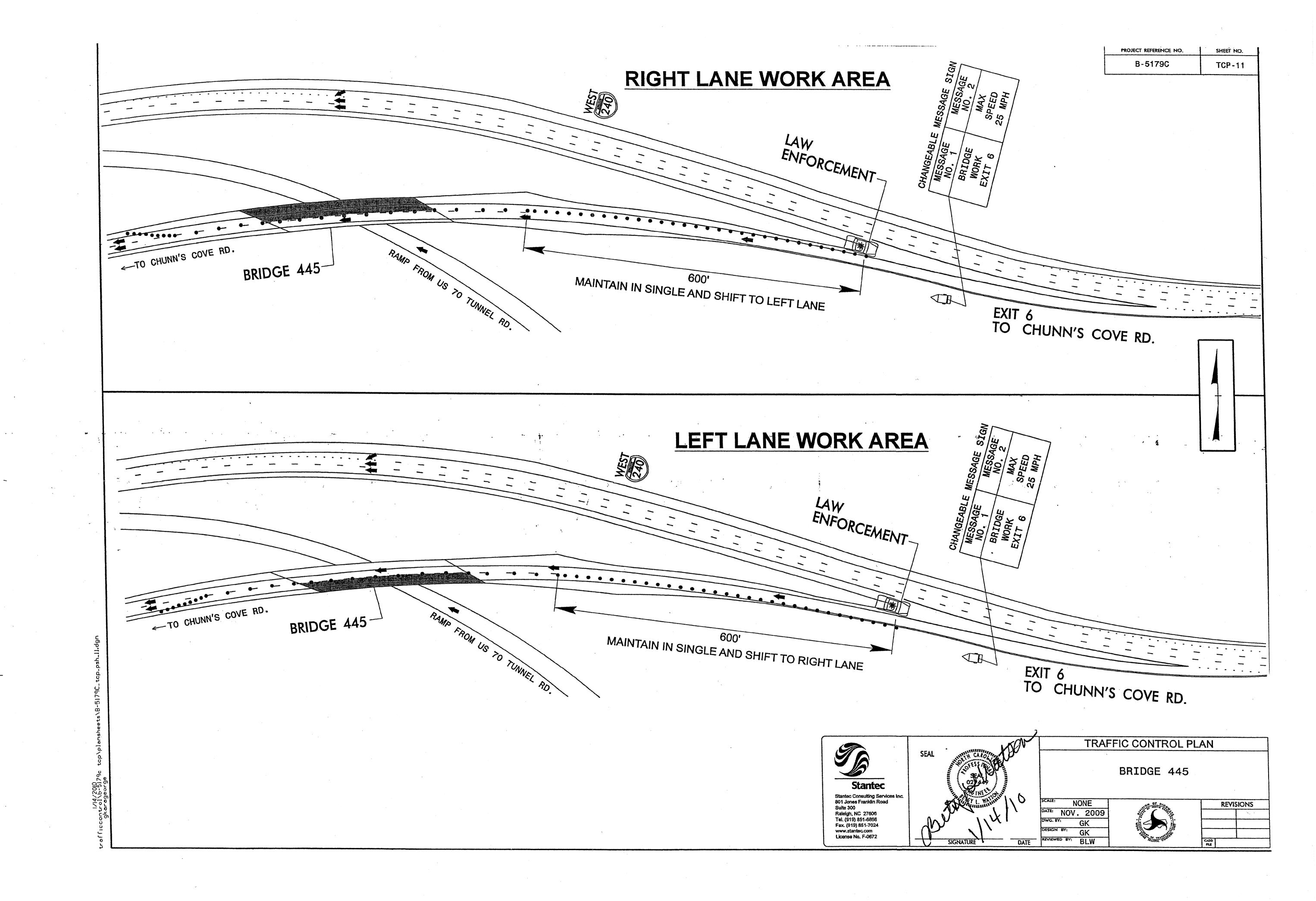


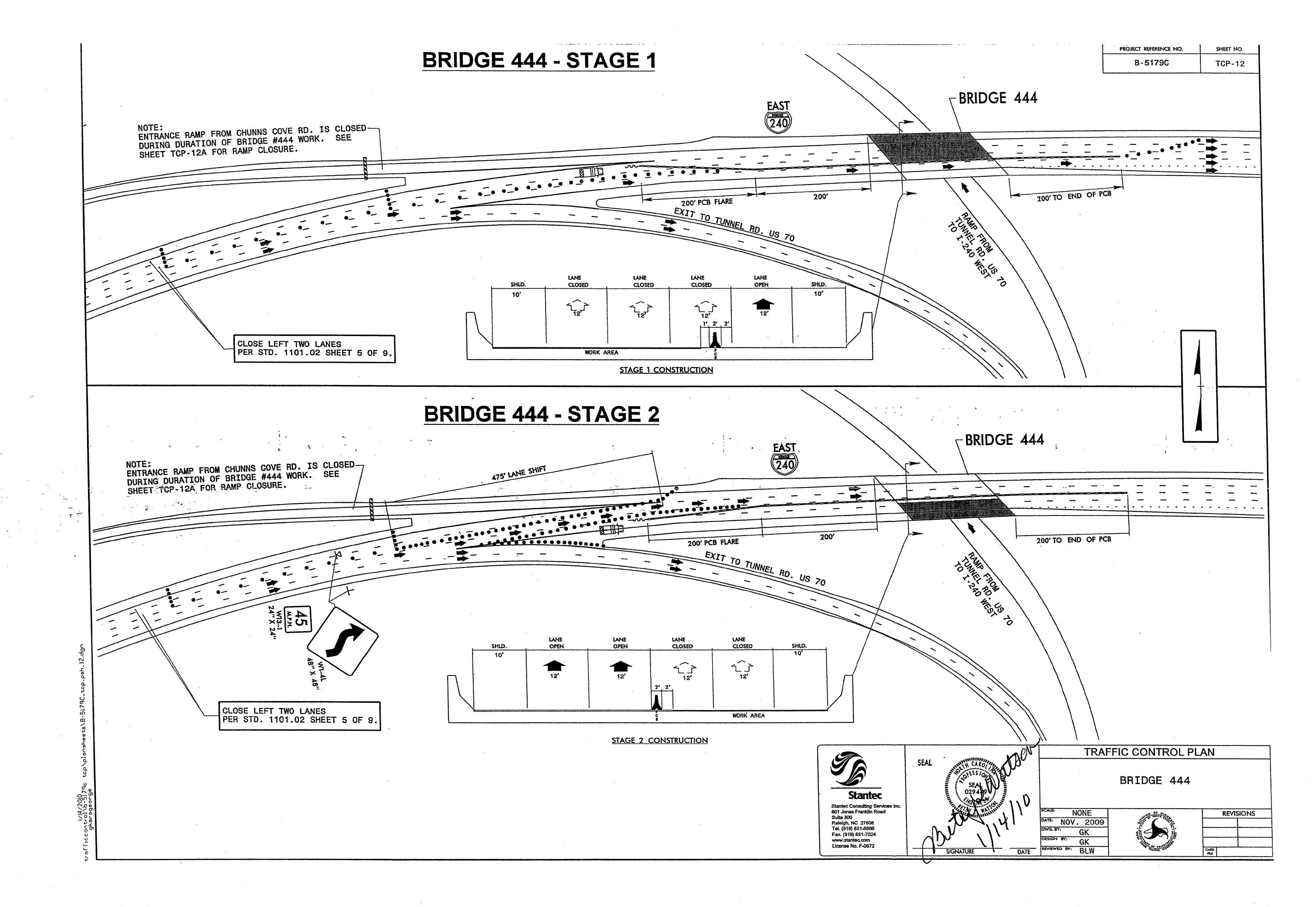


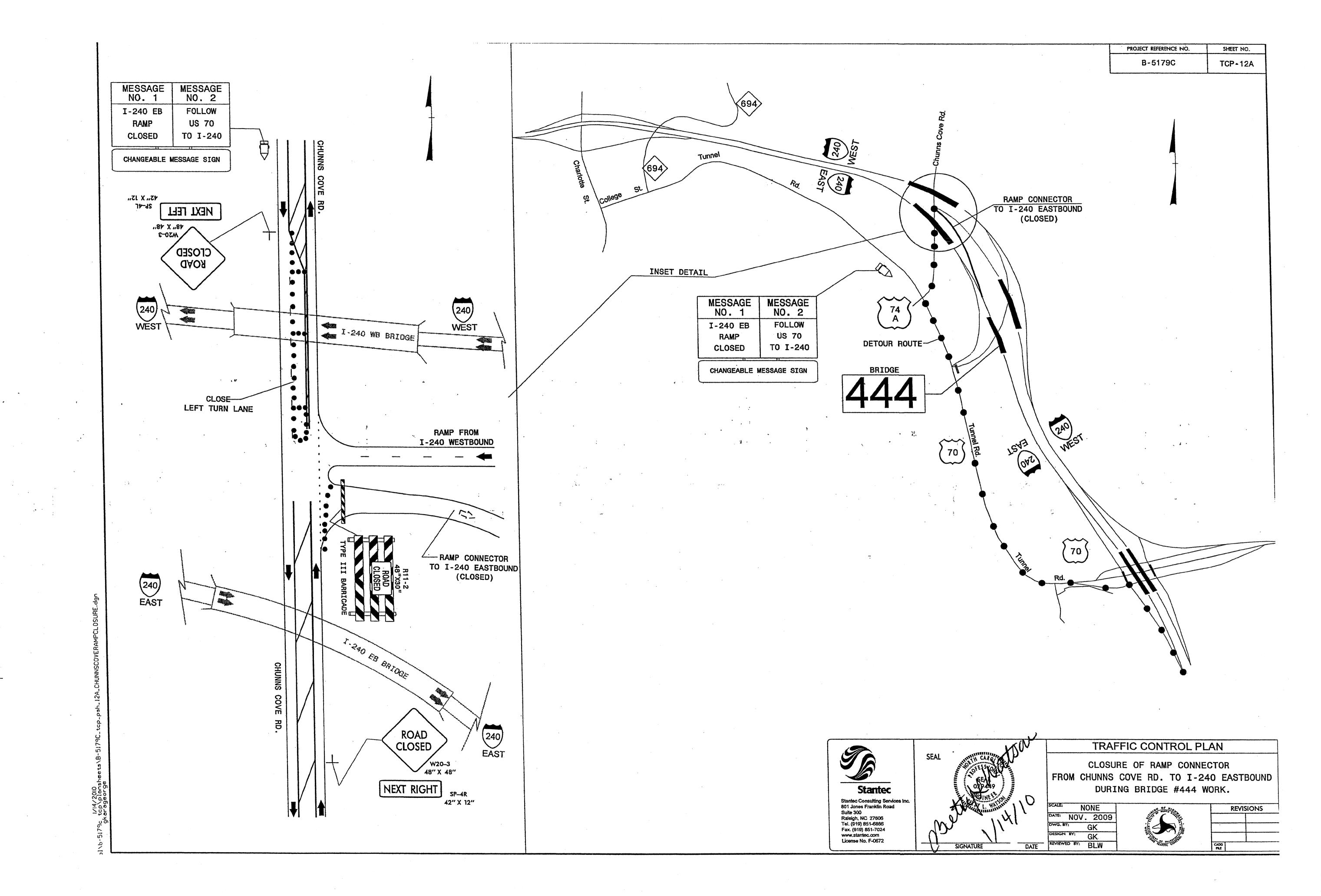


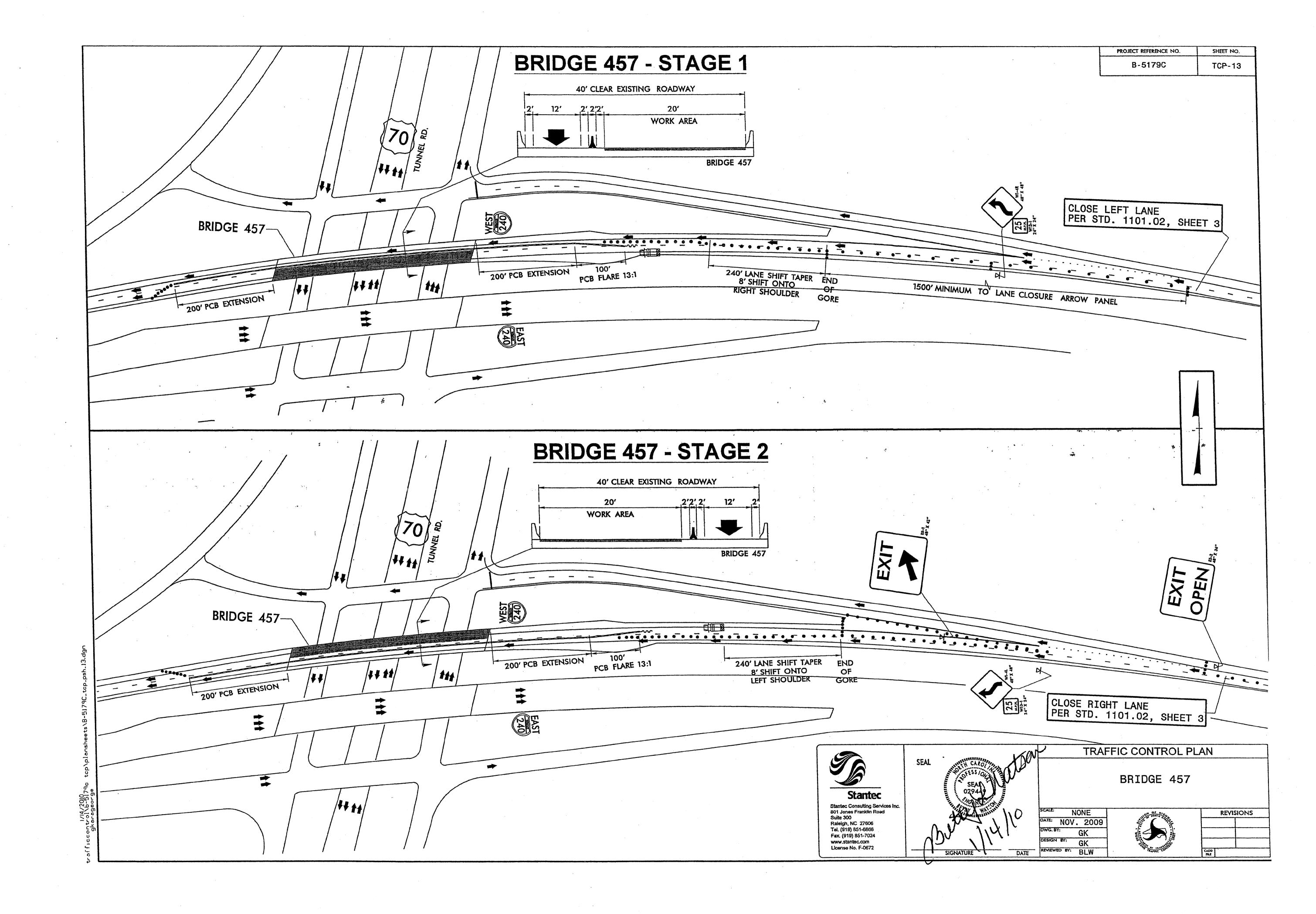


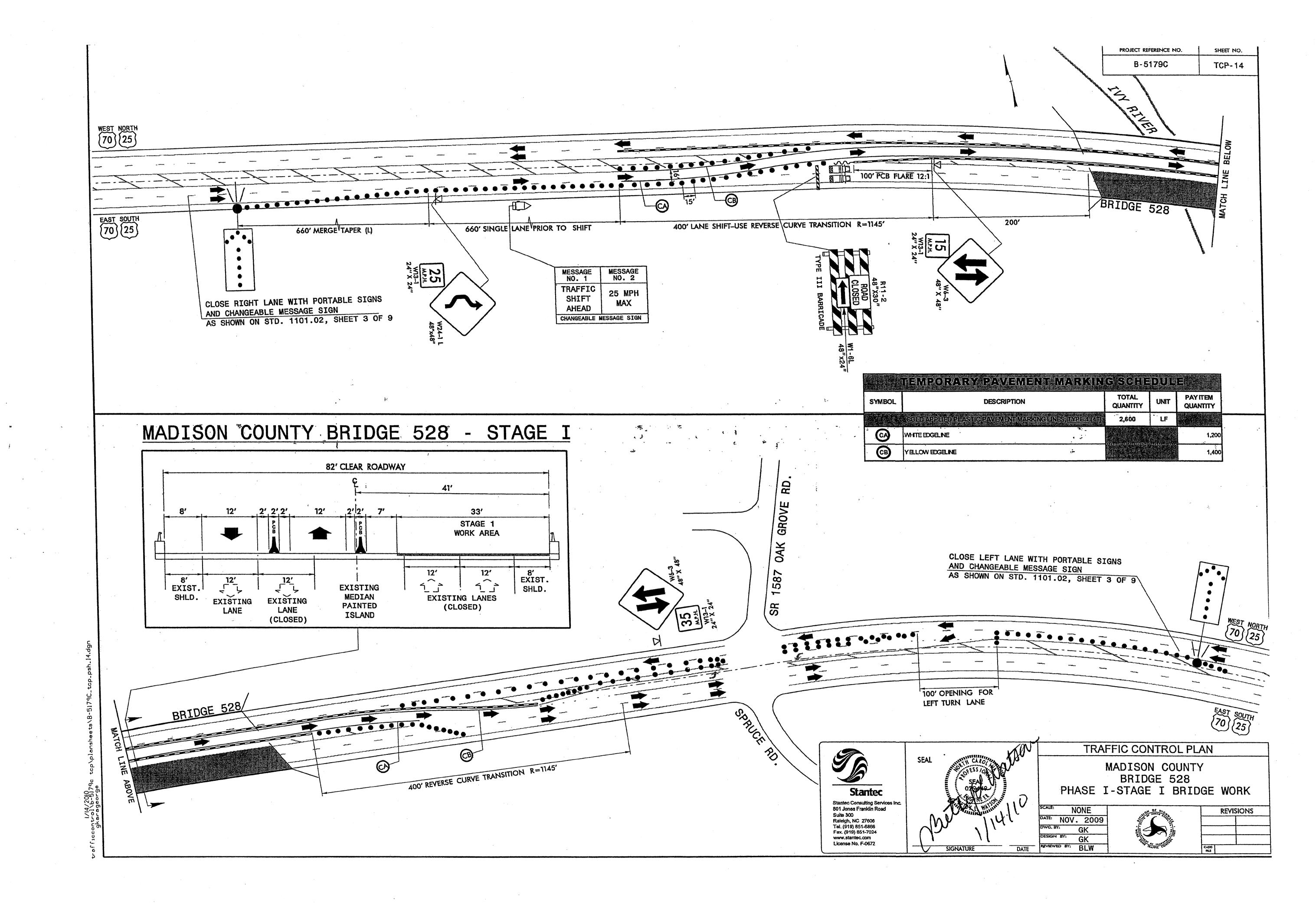












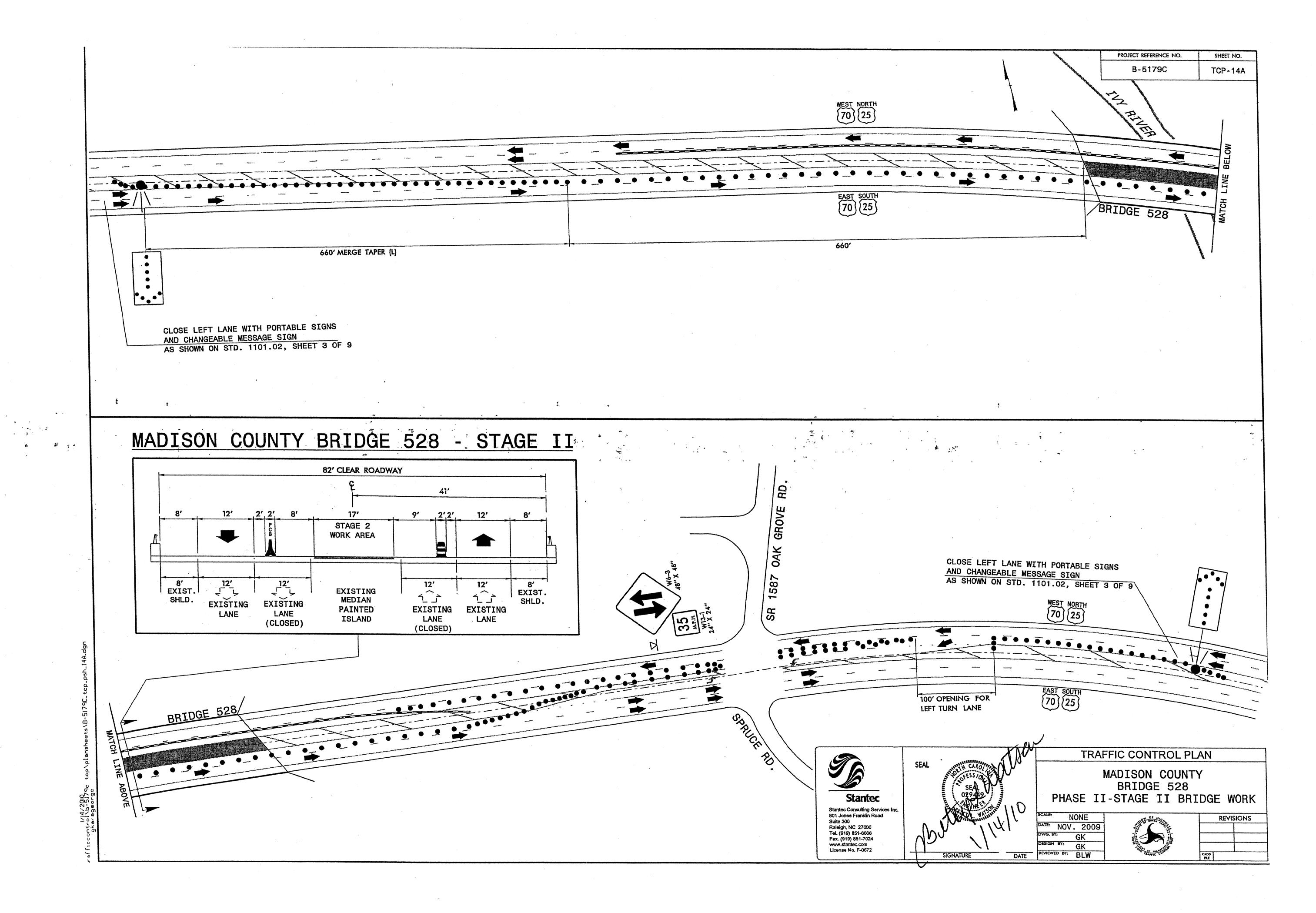
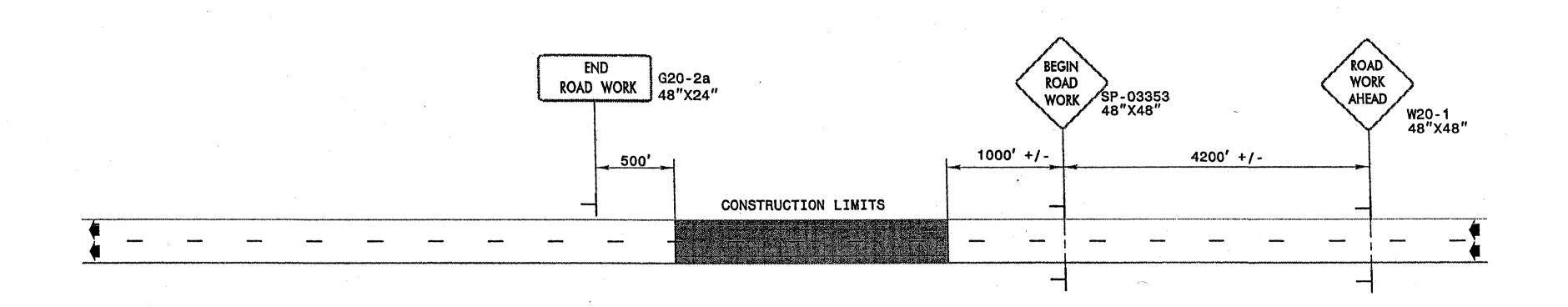


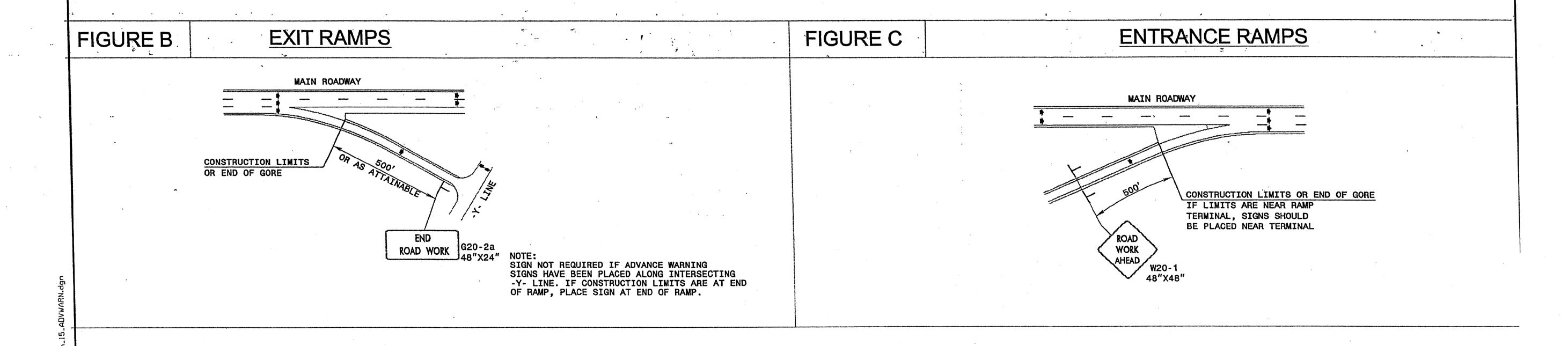
FIGURE A

# PER APPROACH OF MULTI-LANE ROADWAY (4 LANES OR GREATER)

PROJECT REFERENCE NO. SHEET NO.

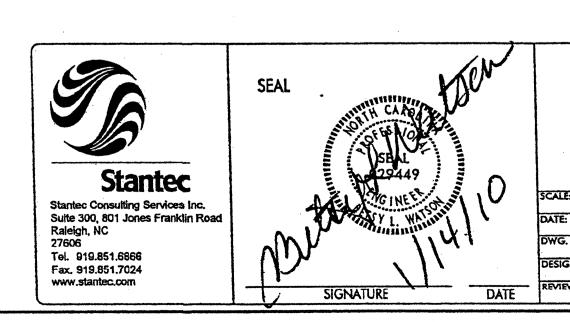
B-5179C TCP-15





### NOTES:

- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- FOR UNDIVIDED ROADWAYS SIGNS ARE NOT REQUIRED ON THE LEFT SIDE OF EACH APPROACH.



WORK ZONE ADVANCE WARNING SIGNS

NONE
AUG. 2009
BY: GK
N BY: BLW
MED BY: BLW

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REVISIONS
03/04

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### STANDARD NOTES

### DESIGN DATA:

---- A.A.S.H.T.O. (CURRENT) SPECIFICATIONS LIVE LOAD ---- SEE PLANS IMPACT ALLOWANCE ----- SEE A.A.S.H.T.O. STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36 - 20,000 LBS. PER SQ. IN. - AASHTO M270 GRADE 50W - 27,000 LBS. PER SQ. IN. - AASHTO M270 GRADE 50 - 27,000 LBS. PER SQ. IN. REINFORCING STEEL IN TENSION GRADE 60 - - 24,000 LBS. PER SQ. IN. ----- 1,200 LBS. PER SQ. IN. CONCRETE IN COMPRESSION CONCRETE IN SHEAR ---- SEE A.A.S.H.T.O. STRUCTURAL TIMBER - TREATED OR ---- 1.800 LBS. PER SQ. IN. UNTREATED - EXTREME FIBER STRESS COMPRESSION PERPENDICULAR TO GRAIN

### MATERIAL AND WORKMANSHIP:

EQUIVALENT FLUID PRESSURE OF EARTH

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

OF TIMBER

----

375 LBS. PER SQ. IN.

30 LBS. PER CU. FT.

(MINIMUM)

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4"WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2"RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4"FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4"RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12"INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

# ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER

PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16"IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2"OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990