TIP PROJECT: R-2100B

STATE PROJECT REFERENCE NO.	SHEET NO.
R-2100B	TCP-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

ASHE COUNTY

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "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
1101.05	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
1130.01	DRUM
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-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS (TEMPORARY)

INDEX OF SHEETS

TEMPORARY PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY BREAKDOWN	TOTAL QUANTITY
		PAVEMENT MARKING LINES		
		PAINT (4") →		176890 FT
PA	WHITE EDGELINE		85882 FT	
PI	YELLOW DOUBLE CENTER LINE		91008 FT	
		PAVEMENT MARKERS		
		TEMPORARY RAISED →		270 EA
MH	YELLOW & YELLOW		270 EA	

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, REFER TO GENERAL NOTE (BB) FOR NUMBER OF APPLICATIONS.

LEGEND

GENERAL

◀	DIRECTION OF TRAFFIC FLOW
─┼►	NORTH ARROW
────	PROPOSED PVMT.
---------	EXIST. PVMT.
■	WORK AREA
▨	MILL AND WEDGE
▩	REMOVAL OF EXISTING PAVEMENT

TRAFFIC CONTROL DEVICES

I	TYPE I BARRICADE
II	TYPE II BARRICADE
▬	TYPE III BARRICADE
▲	CONE
●	DRUM
◉	SKINNY DRUM
●<	FLASHING ARROW PANEL (TYPE C)
├	STATIONARY SIGN
⊲	PORTABLE SIGN
⊳	STATIONARY OR PORTABLE SIGN
∿∿	CRASH CUSHION
◁□	CHANGEABLE MESSAGE SIGN
◧□	TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
⊞	POLICE
●─■	FLAGGER
⊥	PORTABLE CONCRETE BARRIER (PCB)

PAVEMENT MARKINGS

☐	CRYSTAL/CRYSTAL PAVEMENT MARKER
◆	YELLOW/YELLOW PAVEMENT MARKER
◨	CRYSTAL/RED PAVEMENT MARKER
↑↰↱	PAVEMENT MARKING SYMBOLS

PLAN REVIEWED BY: N.C.D.O.T. WORK ZONE TRAFFIC CONTROL UNIT	
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JOSEPH ISHAK, P.E.	CENTRAL WZTC ENGINEER
	WZTC PROJECT DESIGN ENGINEER
	WZTC DESIGN ENGINEER/TECHNICIAN

APPROVED: Michelle Ward
DATE: 10-12-09

SEAL
SEAL 33789
MICHELLE WARD

PLAN PREPARED BY:

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P. MICHELLE WARD, P.E.	PROJECT DESIGNER
TRACEY TERRELL	DESIGN TECHNICIAN

GENERAL NOTES

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PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-2

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

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

TIME RESTRICTIONS

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

ROAD NAME

1. NC 16 & NC 16/88

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 5:00 P.M. DECEMBER 31ST TO 8:00 A.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN UNTIL 8:00 A.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 5:00 P.M. THURSDAY AND 8:00 A.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 5:00 P.M. FRIDAY TO 8:00 A.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 5:00 P.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 A.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 5:00 P.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 A.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 5:00 P.M. FRIDAY TO 8:00 A.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 5:00 P.M. TUESDAY TO 8:00 A.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 5:00 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
9. FOR "CHRISTMAS IN JULY" (IN WEST JEFFERSON), BETWEEN THE HOURS OF 5:00 P.M. THE THURSDAY BEFORE THE WEEKEND OF "CHRISTMAS IN JULY" AND 8:00 A.M. THE FOLLOWING MONDAY AFTER THE WEEKEND OF "CHRISTMAS IN JULY".

B) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
1. NC 16	MONDAY-SUNDAY	20 MINUTES FOR BLASTING OPERATIONS OR TRAFFIC SHIFTS

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 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.

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 REMAINS WITHIN THE CLOSED TRAVEL LANE.

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

I) DO NOT INSTALL MORE THAN 0.5 MILE OF LANE CLOSURE ON NC 16, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

J) DO NOT INSTALL MORE THAN 2 SIMULTANEOUS LANE CLOSURES ON NC 16.

K) 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.

L) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

M) 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.

N) 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

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

SIGNING

P) 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.

Q) STATE FORCES WILL BE RESPONSIBLE FOR PROVIDING PERMANENT SIGNING.

R) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

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

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

U) 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

V) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL 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 TRAFFIC CONTROL 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 TRAFFIC CONTROL 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.

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

PROTECT THE APPROACH END OF 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:

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

X) 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 OPENED 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.

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

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

PAVEMENT MARKINGS AND MARKERS

AA) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN THE PAVEMENT MARKING PLAN.

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

ROAD NAME	MARKING	MARKER
1. NC 16	PAINT	TEMPORARY RAISED

CC) 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.

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

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

FF) TRACE THE EXISTING AND PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO REMOVAL AND INSTALLATION. PLACE DRUMS OR SKINNY DRUMS TO DELINEATE ANY EXISTING AND PROPOSED MONOLITHIC ISLANDS AFTER REMOVAL AND BEFORE INSTALLATION.

LOCAL NOTES

1. ROAD CLOSURES WILL ONLY BE ALLOWED AS FOLLOWS ON NC 16:

DAY AND TIME	OPERATION
TUESDAY, WEDNESDAY, & THURSDAY 9:00 A.M. - 3:00P.M.	PIPE INSTALLATIONS 54" AND OVER & ANCHORING CUT SLOPES ON THE RIGHT SIDE OF -L1- (NC 16)
8:00 A.M. TUESDAY TO 6:00 A.M. THURSDAY OR 8:00 A.M. WEDNESDAY TO 6:00 A.M. FRIDAY	PIPE INSTALLATIONS 54" AND OVER REQUIRING MORE THAN A 6 HOUR OPERATION AS SHOWN ABOVE
8:00 A.M. THE TUESDAY AFTER LABOR DAY TO 5:00 P.M. THE TUESDAY BEFORE THANKSGIVING	BRIDGE CONSTRUCTION

APPROVED: Michelle Ward DATE: 10-28-09

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

PROJECT NOTES

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$USERNAME$$$$$$

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PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-3

PHASING

NOTES:

UTILIZE LAW ENFORCEMENT FOR ROAD CLOSURES AND TRAFFIC SHIFTS, AS DIRECTED BY THE ENGINEER.

REPLACE MARKINGS AND RETURN TRAFFIC TO THE CURRENT TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

MAINTAIN VEHICULAR ACCESS TO ALL RESIDENCES AND BUSINESSES DURING THE LIFE OF THE CONTRACT UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

COMPLETE ANY PROPOSED WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE.

PAVE UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE IN ALL PHASES UNTIL PHASE II, STEP 5 WHEN THE FINAL LAYER WILL BE PLACED.

PHASE I - (SEE PHASE I DETAILS, SHEETS TCP-4 THRU TCP-12)

STEP 1:
INSTALL ADVANCED WORK ZONE WARNING SIGNS ON -L1- (NC 16), SR 1158 (CLAUDE MASH RD), SR 1631 (OLD WILKESBORO RD) AND SR 1628 (BARE CREEK RD) AS SHOWN ON SHEET TCP-20 AND IN GENERAL NOTE (P) ON SHEET TCP-2.

INSTALL TRUCK DETOUR SIGNS AS SHOWN ON DETAIL 8, SHEET TCP-11.

STEP 2:
AWAY FROM TRAFFIC, BEGIN AS MUCH CONSTRUCTION AS POSSIBLE IN THE FOLLOWING LOCATIONS:

STA. 257+50 +/- -L1- TO STA. 266+50 +/- -L1-
STA. 282+00 +/- -L1- TO STA. 286+60 +/- -L1-
STA. 312+50 +/- -L1- TO STA. 338+00 +/- -L1-
STA. 347+50 +/- -L1- TO STA. 351+00 +/- -L1-
STA. 355+25 +/- -L1- TO STA. 363+93 +/- -L1-
STA. 365+07 +/- -L1- TO STA. 379+66 +/- -L1-

USING RSD 1101.02, SHEET 1 OF 9, CONDUCT THE FOLLOWING: (SEE PHASE I DETAILS 1 THRU 7, SHEETS TCP-4 THRU TCP-10)

- INSTALL TEMPORARY SHORING IN THE FOLLOWING LOCATIONS:
  STA. 252+85 +/- -L1- TO STA. 256+10 +/- -L1-
  STA. 267+40 +/- -L1- TO STA. 269+60 +/- -L1-
  STA. 271+90 +/- -L1- TO STA. 275+15 +/- -L1-
  STA. 279+80 +/- -L1- TO STA. 280+70 +/- -L1-
  STA. 290+30 +/- -L1- TO STA. 295+60 +/- -L1-
  STA. 298+85 +/- -L1- TO STA. 302+65 +/- -L1-
  STA. 306+35 +/- -L1- TO STA. 311+20 +/- -L1-
  STA. 339+35 +/- -L1- TO STA. 345+60 +/- -L1-
  STA. 352+30 +/- -L1- TO STA. 354+70 +/- -L1-
- INSTALL PORTABLE CONCRETE BARRIER WITH TEMPORARY CRASH CUSHIONS IN THE FOLLOWING LOCATIONS:
  STA. 252+00 +/- -L1- TO STA. 256+55 +/- -L1-
  STA. 266+50 +/- -L1- TO STA. 270+00 +/- -L1-
  STA. 271+46 +/- -L1- TO STA. 276+05 +/- -L1-
  STA. 279+00 +/- -L1- TO STA. 281+50 +/- -L1-
  STA. 289+60 +/- -L1- TO STA. 296+50 +/- -L1-
  STA. 298+13 +/- -L1- TO STA. 303+50 +/- -L1-
  STA. 305+75 +/- -L1- TO STA. 312+25 +/- -L1-
  STA. 338+35 +/- -L1- TO STA. 347+00 +/- -L1-
  STA. 351+35 +/- -L1- TO STA. 354+70 +/- -L1-
- INSTALL TEMPORARY MARKINGS AND SHIFT TRAFFIC TO THE TEMPORARY PHASE I PATTERN IN THE FOLLOWING LOCATIONS:
  STA. 251+60 +/- -L1- TO STA. 256+84 +/- -L1-
  STA. 267+00 +/- -L1- TO STA. 275+80 +/- -L1-
  STA. 279+00 +/- -L1- TO STA. 281+50 +/- -L1-
  STA. 283+62 +/- -L1- TO STA. 288+00 +/- -L1-
  STA. 289+00 +/- -L1- TO STA. 296+30 +/- -L1-

STEP 3:
BEHIND BARRIER, AWAY FROM TRAFFIC, OR USING RSD 1101.02, SHEET 1 OF 9 AS NECESSARY, BEGIN CONSTRUCTION OF -DR2-, -DR3-, -DR4- & THE WIDENING ON THE LEFT SIDE OF -L1- (NC 16) IN THE FOLLOWING LOCATIONS: (SEE PHASE I DETAILS 1 THRU 7, SHEETS TCP-4 THRU TCP-10)

STA. 252+50 +/- -L1- TO STA. 257+50 +/- -L1-
STA. 266+50 +/- -L1- TO STA. 282+00 +/- -L1-
STA. 289+50 +/- -L1- TO STA. 312+50 +/- -L1-
STA. 338+00 +/- -L1- TO STA. 347+50 +/- -L1-
STA. 351+00 +/- -L1- TO STA. 355+25 +/- -L1-

INSTALL AND COVER ADDITIONAL OFF-SITE DETOUR SIGN (L) AS SHOWN ON DETAIL 9, SHEET TCP-12. (SEE NOTES ON DETAIL 9, SHEET TCP-12 BEFORE MOVING ON TO PHASE I, STEP 4.)

THE CONTRACTOR SHALL COMPLETE THE PIPE INSTALLATIONS REQUIRED OF PHASE I, STEP 4 IN 46 CONSECUTIVE HOURS FROM 8:00 AM TUESDAY TO 6:00 AM THURSDAY, OR 8:00 AM WEDNESDAY TO 6:00 AM FRIDAY. EACH LOCATION WILL BE INSTALLED DURING A SEPARATE CLOSURE IN ORDER TO MAINTAIN ACCESS TO ALL BUSINESSES AND RESIDENCES. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 4:
USING RSD 1101.03, SHEET 1 OF 9, CLOSE -L1- (NC 16) ON EACH SIDE OF THE PIPE TO BE INSTALLED, UNCOVER OFF-SITE DETOUR SIGN (L) PLACED IN PHASE I, STEP 3, CHANGE CMS MESSAGES ALONG OFFSITE DETOUR ROUTE, AND PLACE ALL TRAFFIC IN THE OFF-SITE DETOUR. PERFORM THE FOLLOWING, OPENING -L1- (NC 16) BACK TO TRAFFIC AFTER EACH PIPE INSTALLATION: (SEE PHASE I DETAILS 1, 5 & 6, SHEETS TCP-4, 8 & 9, AND DETAIL 9, SHEET TCP-12 FOR OFF-SITE DETOUR ROUTE)(SEE LOCAL NOTE 1)

- INSTALL 60" PIPE AT -L1- STA. 258+05 +/-
- INSTALL 72" PIPE AT -L1- STA. 318+00 +/-
- INSTALL 54" PIPE AT -L1- STA. 322+20 +/-
- INSTALL 54" PIPE AT -L1- STA. 345+00 +/-

NOTE: IN ORDER TO MAINTAIN ACCESS TO ALL BUSINESSES AND RESIDENCES, -L1- (NC 16) MUST NOT BE CLOSED IN MORE THAN ONE OF THESE LOCATIONS AT A TIME, NOR CAN IT OCCUR DURING THE CLOSURE FOR THE BRIDGE CONSTRUCTION AS DESCRIBED IN PHASE I, STEP 5.

AFTER OPENING -L1- (NC 16) BACK UP TO TRAFFIC, COVER OFF-SITE DETOUR SIGN (L) SHOWN ON DETAIL 9, SHEET TCP-12 AND RETURN CMS MESSAGES TO MESSAGES SHOWN FOR THE TRUCK DETOUR ROUTE AS SHOWN ON DETAIL 8, SHEET TCP-11.

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF PHASE I, STEP 5, FROM 8:00 AM THE TUESDAY AFTER LABOR DAY TO 5:00 PM THE TUESDAY BEFORE THANKSGIVING DAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 5:
USING RSD 1101.03, SHEET 1 OF 9, CLOSE -L1- (NC 16) ON EACH SIDE OF THE BRIDGE AROUND -L1- STA. 364+00 +/-, UNCOVER OFF-SITE DETOUR SIGN (L) PLACED IN PHASE I, STEP 3, CHANGE CMS MESSAGES ALONG OFFSITE DETOUR ROUTE, AND PLACE ALL TRAFFIC IN AN OFF-SITE DETOUR. CONSTRUCT THE PROPOSED STRUCTURE FROM STA. 363+93 +/- -L1- TO STA. 365+07 +/- -L1-, PLACE TEMPORARY MARKINGS AND MARKERS ON THE NEW STRUCTURE (TIE TO EXISTING MARKINGS ON EACH END), AND OPEN -L1- (NC 16) BACK UP TO TRAFFIC. (SEE PHASE I DETAIL 7, SHEET TCP-10 FOR STRUCTURE LOCATION AND DETAIL 9, SHEET TCP-12 FOR OFF-SITE DETOUR ROUTE)(SEE LOCAL NOTE 1)

NOTE: IN ORDER TO MAINTAIN ACCESS TO ALL BUSINESSES AND RESIDENCES ON -L1- (NC 16), DO NOT CONDUCT PIPE INSTALLATIONS USING ROAD CLOSURES, AS DESCRIBED IN PHASE I, STEP 4, DURING CLOSURE FOR BRIDGE CONSTRUCTION.

AFTER OPENING -L1- (NC 16) BACK UP TO TRAFFIC, COVER OFF-SITE DETOUR SIGN (L) SHOWN ON DETAIL 9, SHEET TCP-12 AND RETURN CMS MESSAGES TO MESSAGES SHOWN FOR THE TRUCK DETOUR ROUTE AS SHOWN ON DETAIL 8, SHEET TCP-11.

STEP 6:
ONCE RETAINING WALL AND FILL HAS BEEN CONSTRUCTED BEHIND BARRIER, USING RSD 1101.02, SHEET 1 OF 9, CUT OR REMOVE SHORING AS DIRECTED BY THE ENGINEER, AND REMOVE BARRIER PLACED IN PHASE I, STEP 2.

USING RSD 1101.02, SHEET 1 OF 9, CONDUCT THE FOLLOWING:

- COMPLETE CONSTRUCTION OF -DR2-, -DR3-, -DR4- & THE WIDENING ON THE LEFT SIDE OF -L1- (NC 16) BEGUN EARLIER.
- MILL ENTIRE ROADWAY AS SHOWN ON ROADWAY PLANS AND WEDGE OVER EXISTING PAVEMENT FROM:
  STA. 252+50 +/- -L1- TO STA. 363+83 +/- -L1-
  STA. 365+17 +/- -L1- TO STA. 379+66 +/- -L1-
- PLACE TEMPORARY MARKINGS AND MARKERS IN THE PHASE II PATTERN AS AS SHOWN IN PHASE II DETAILS 10 THRU 15, SHEETS TCP-13 THRU TCP-18 AND SHIFT TRAFFIC TO THE PHASE II PATTERN.

PHASE II - (SEE PHASE II DETAILS, SHEETS TCP-13 THRU TCP-19)

STEP 1:
WITHOUT INTERFERING WITH EXISTING TRAFFIC PATTERN, BEGIN AS MUCH WORK AS POSSIBLE ON THE RIGHT SIDE OF -L1- (NC 16) ALONG THE ENTIRE PROJECT, INCLUDING -DR1-.

THE CONTRACTOR SHALL COMPLETE THE ANCHORING OF CUT SLOPES REQUIRED OF PHASE II, STEP 2 IN 6 CONSECUTIVE HOURS ON TUESDAY, WEDNESDAY, OR THURSDAY FROM 9:00 AM TO 3:00 PM. DRILLING WILL OCCUR AT EACH LOCATION DURING A SEPARATE CLOSURE IN ORDER TO MAINTAIN ACCESS TO ALL BUSINESSES AND RESIDENCES. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 2:
WHEN NECESSARY, USING RSD 1101.03, SHEET 1 OF 9, CLOSE -L1- (NC 16) FOR ANCHORING CUT SLOPES ON THE RIGHT SIDE OF -L1- (NC 16).(SEE LOCAL NOTE 1)

NOTE: UNCOVER OFF-SITE DETOUR SIGN (L) AND CHANGE CMS MESSAGES DURING EACH DRILLING OPERATION THEN COVER OFF-SITE DETOUR SIGN (L) AND RETURN CMS MESSAGES TO MESSAGES SHOWN FOR THE TRUCK DETOUR ROUTE WHEN -L1- (NC 16) IS OPEN. (SEE DETAIL 9, SHEET TCP-12 FOR OFF-SITE DETOUR ROUTE AND DETAIL 8, SHEET TCP-11 FOR TRUCK DETOUR ROUTE.)

STEP 3:
USING RSD 1101.02, SHEET 1 OF 9, COMPLETE CONSTRUCTION OF -DR1- AND WIDENING ON THE RIGHT SIDE OF -L1- (NC 16) FROM STA. 285+00 +/- TO STA. 290+50 +/-, THEN, PLACE TEMPORARY MARKING FROM -L1- STA. 285+00 +/- TO STA. 290+50 +/- AS SHOWN ON DETAIL 16, SHEET TCP-19, AND SHIFT TRAFFIC TO THE NEW ALIGNMENT.

STEP 4:
AWAY FROM TRAFFIC, CONSTRUCT WIDENING ON LEFT SIDE OF -L1- FROM STA. 286+60 +/- TO STA. 289+50 +/- AS SHOWN ON DETAIL 16, SHEET TCP-19.

USING RSD 1101.02, SHEET 1 OF 9, AS NECESSARY, COMPLETE CONSTRUCTION ON THE RIGHT SIDE ALONG THE ENTIRE PROJECT, INCLUDING -DR1-.

STEP 5:
USING RSD 1101.02, SHEETS 1 OF 9, COMPLETE THE FOLLOWING:

- MILL -L1- (NC 16) FROM STA. 379+38 +/- TO STA. 382+05 +/- AND RECONSTRUCT MONOLITHIC ISLAND FROM -L1- STA. 379+97 +/- TO STA. 381+87 +/-
- PLACE THE FINAL LAYER OF SURFACE COURSE ON -L1- (NC 16), -DR1-, -DR2-, -DR3-, AND -DR4-
- PLACE TEMPORARY MARKINGS (PAINT) AND MARKERS (TEMPORARY RAISED) IN THE FINAL PATTERN ON -L1- (NC 16)(SEE FINAL PAVEMENT MARKING PLANS)
- PLACE TRAFFIC IN THE FINAL PATTERN

STEP 6:
USING RSD 1101.02, SHEETS 1 OF 9, PLACE THE FINAL MARKINGS AND MARKERS IN THE FINAL PATTERN. (SEE FINAL PAVEMENT MARKING PLANS)

STEP 7:
REMOVE ALL DETOUR ROUTE SIGNS AND ALL REMAINING TRAFFIC CONTROL DEVICES.

APPROVED: Michelle Ward DATE: 10-28-09

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

PHASING

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

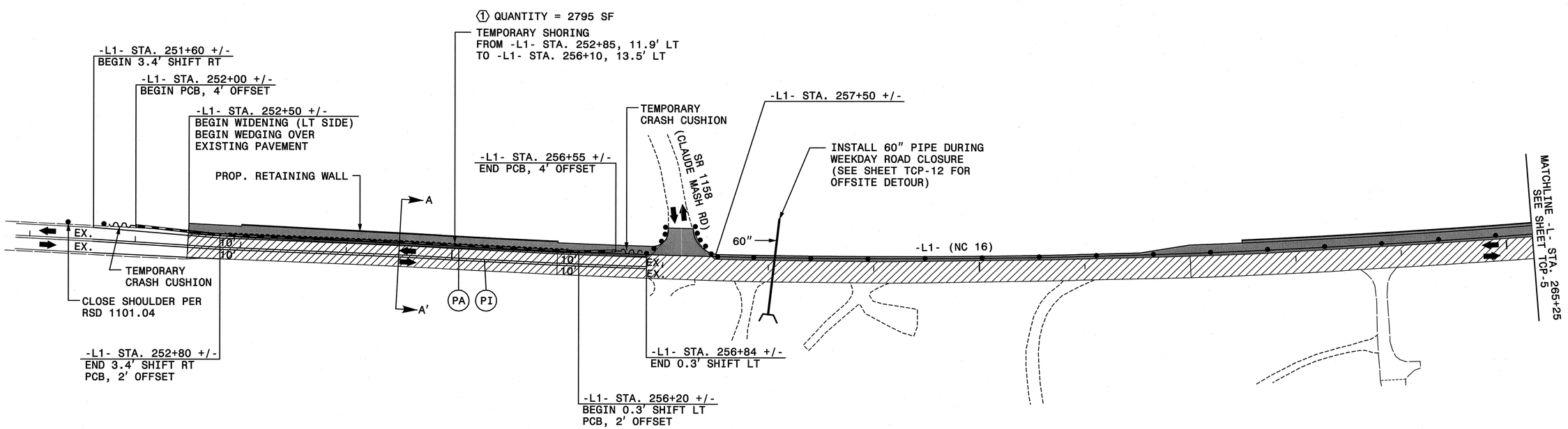
CADD FILE

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-4

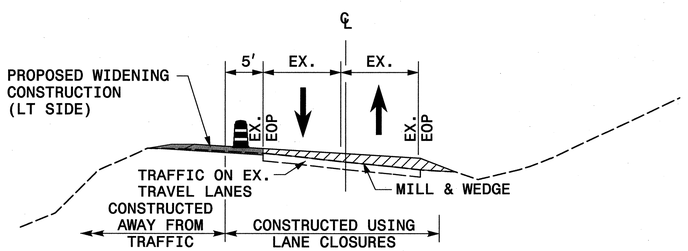
NAD 83/95

255 260 265

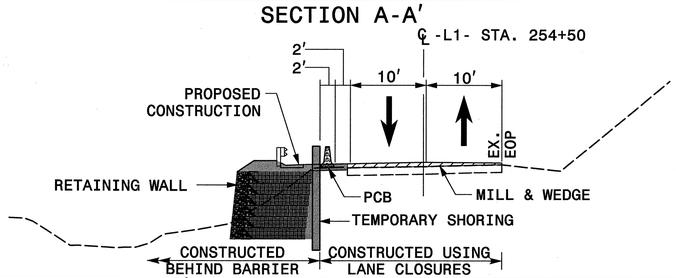


-L1- STA. 252+80 +/- TO -L1- STA. 256+20 +/-

GENERAL PHASE I PATTERN



SECTION A-A'



NOTE: REFER TO SHEETS TCP-21 AND TCP-22 FOR PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS AND TEMPORARY SHORING DATA.

APPROVED: [signature] DATE: 2-3-2010

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 1
PHASE I TRAFFIC PATTERN

SCALE:	NONE
DATE:	02/10
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

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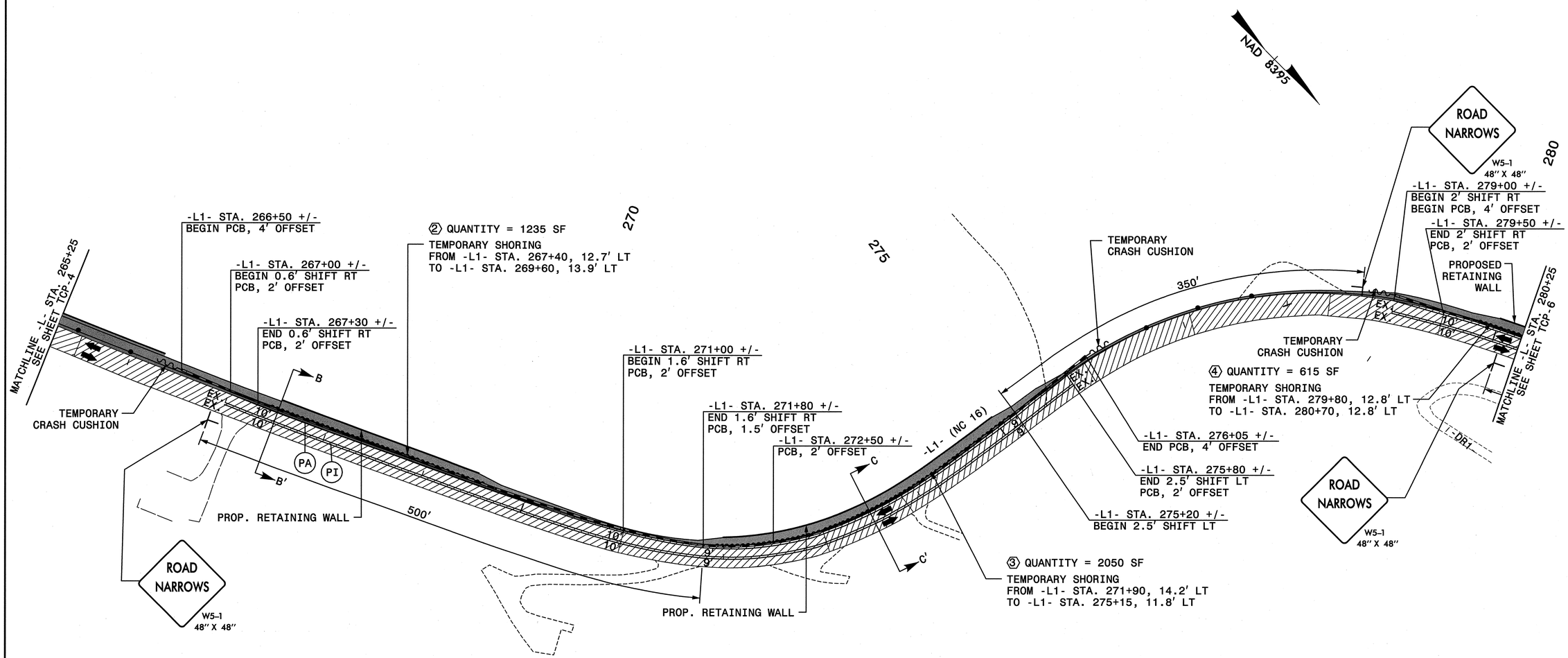
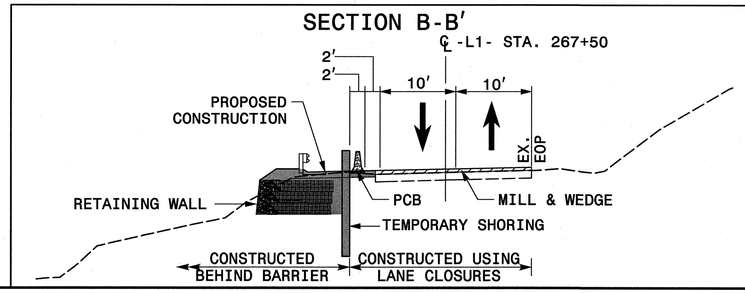
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-5



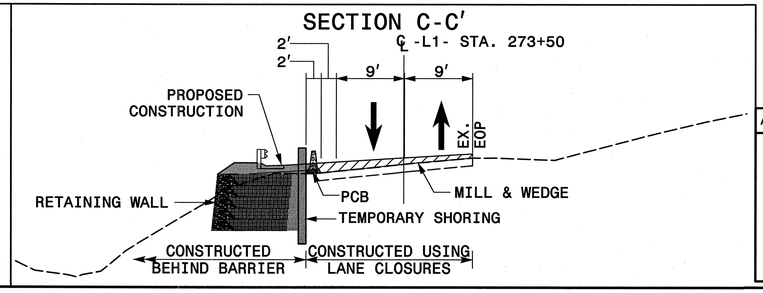
-L1- STA. 267+30 +/- TO -L1- STA. 271+00 +/-

SECTION B-B'



-L1- STA. 271+80 +/- TO -L1- STA. 275+20 +/-

SECTION C-C'



NOTE: REFER TO SHEETS TCP-21 AND TCP-22 FOR PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS AND TEMPORARY SHORING DATA.

APPROVED: Michelle Ward DATE: 2-3-2010

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 2
PHASE I TRAFFIC PATTERN

SCALE:	NONE
DATE:	02/10
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

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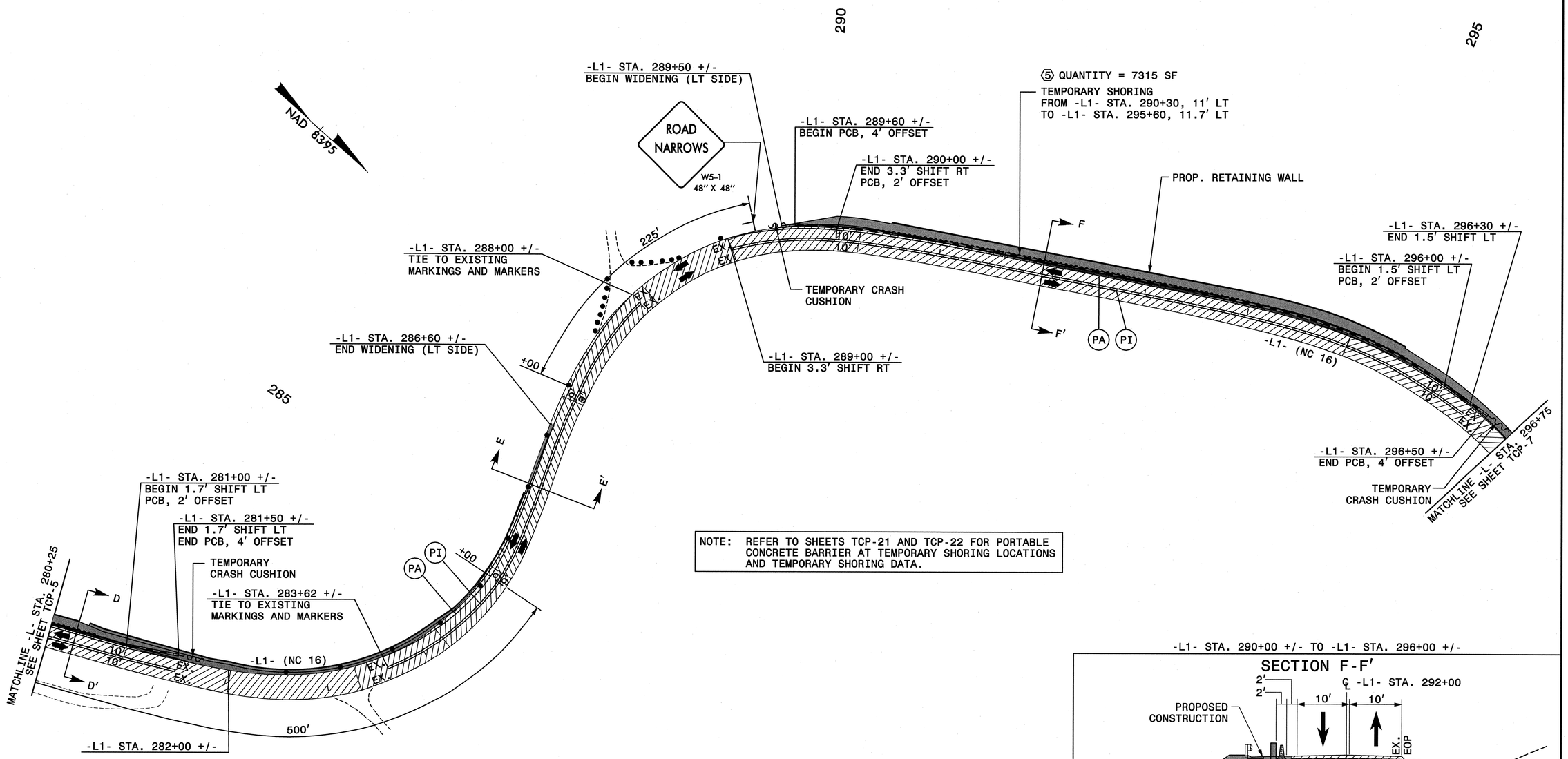
NC License No: C-1554

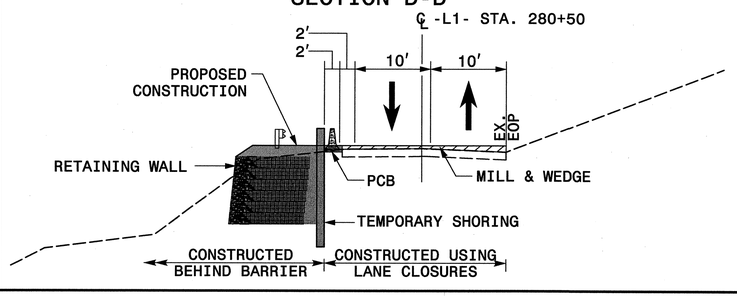
PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-6



NOTE: REFER TO SHEETS TCP-21 AND TCP-22 FOR PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS AND TEMPORARY SHORING DATA.

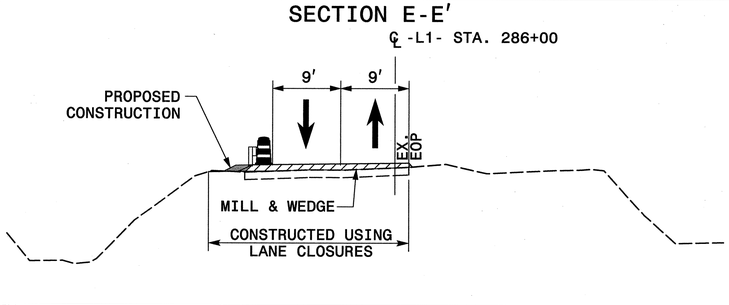
-L1- STA. 279+50 +/- TO -L1- STA. 281+00 +/-

SECTION D-D'



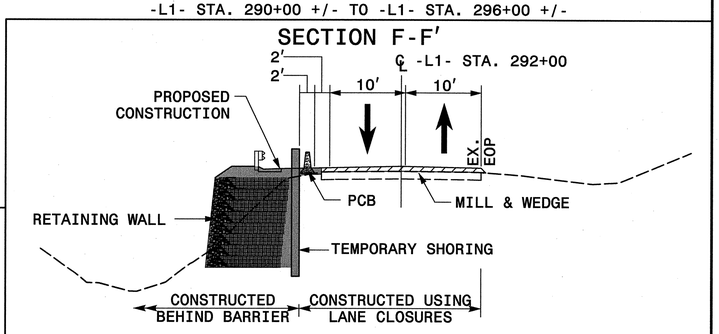
-L1- STA. 285+00 +/- TO -L1- STA. 287+00 +/-

SECTION E-E'



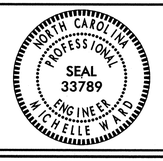
-L1- STA. 290+00 +/- TO -L1- STA. 296+00 +/-

SECTION F-F'



APPROVED: Michelle Ward DATE: 2-3-2010

SEAL



DETAIL 3
PHASE I TRAFFIC PATTERN

SCALE:	NONE
DATE:	02/10
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

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NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-7

NAD 83/95

300

305

310

TEMPORARY CRASH CUSHION

-L1- STA. 298+13 +/-
BEGIN PCB, 2' OFFSET
FROM DRIVEWAY EDGE
40' LT -L- CENTERLINE

-L1- STA. 298+85 +/-
PCB, 2' OFFSET
FROM -L- EOT

⑥ QUANTITY = 3385 SF
TEMPORARY SHORING
FROM -L1- STA. 298+85, 14.5' LT
TO -L1- STA. 302+65, 14.9' LT

PROP. RETAINING WALL

MATCHLINE -L- STA. 296+75
SEE SHEET TCP-6

G

G'

-L1- STA. 303+00 +/-
PCB, 2' OFFSET

-L1- (NC 16)

-L1- STA. 303+50 +/-
END PCB, 4' OFFSET

TEMPORARY
CRASH CUSHION

⑦ QUANTITY = 4270 SF
TEMPORARY SHORING
FROM -L1- STA. 306+35, 15' LT
TO -L1- STA. 311+20, 16.3' LT

-L1- STA. 311+50 +/-
PCB, 2' OFFSET

MATCHLINE -L- STA. 311+50
SEE SHEET TCP-8

PROP. RETAINING WALL

-L1- STA. 307+00 +/-
PCB, 2' OFFSET

-L1- STA. 306+50 +/-
PCB, 1' OFFSET

-L1- STA. 306+35 +/-
PCB, 1' OFFSET

-L1- STA. 305+75 +/-
BEGIN PCB, 4' OFFSET

H

H'

TEMPORARY CRASH
CUSHION

SECTION G-G'

℄ -L1- STA. 300+00

2'
2'

EXISTING
TRAVEL LANES

EX. EOP

EX. EOP

PROPOSED
CONSTRUCTION

RETAINING
WALL

PCB

MILL & WEDGE

TEMPORARY SHORING

CONSTRUCTED
BEHIND BARRIER

CONSTRUCTED USING
LANE CLOSURES

SECTION H-H'

℄ -L1- STA. 307+50

2'
2'

EXISTING
TRAVEL LANES

EX. EOP

EX. EOP

PROPOSED
CONSTRUCTION

RETAINING
WALL

PCB

MILL & WEDGE

TEMPORARY SHORING

CONSTRUCTED
BEHIND BARRIER

CONSTRUCTED USING
LANE CLOSURES

NOTE: REFER TO SHEETS TCP-21 AND TCP-22 FOR PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS AND TEMPORARY SHORING DATA.

APPROVED: Michelle Ward DATE: 2-3-2010

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 4
PHASE I TRAFFIC PATTERN

SCALE:	NONE
DATE:	02/10
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

DIVISION OF HIGHWAYS · TRAFFIC ENGINEERING BRANCH · TRAFFIC CONTROLS UNIT

REVISIONS

CADD FILE

$$$$$$$SYSTIME$$$$$$
$$$$$$$USERNAME$$$$$$
$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

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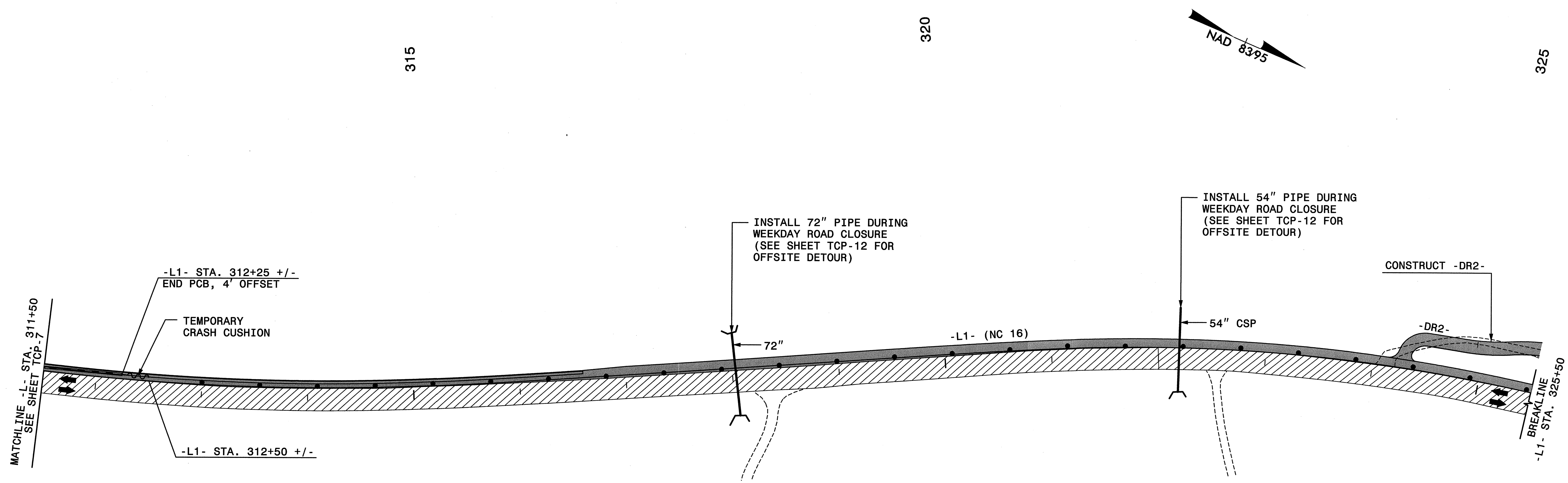
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-8



NOTE: REFER TO SHEETS TCP-21 AND TCP-22 FOR PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS AND TEMPORARY SHORING DATA.

APPROVED: Michelle Ward DATE: 10-12-09

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 5
PHASE I TRAFFIC PATTERN

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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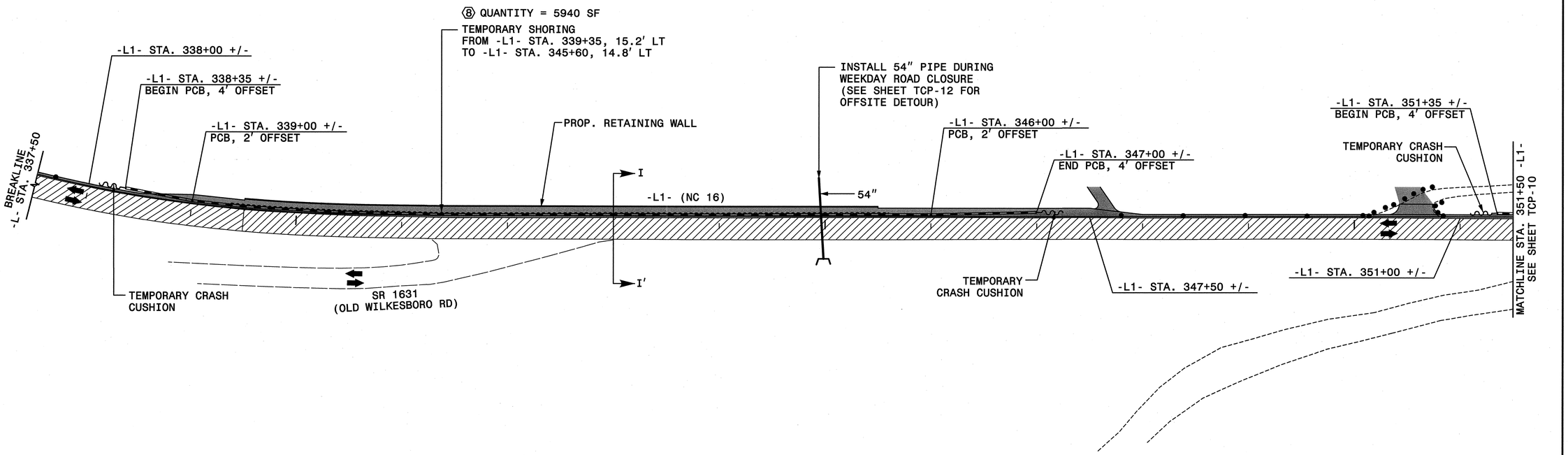
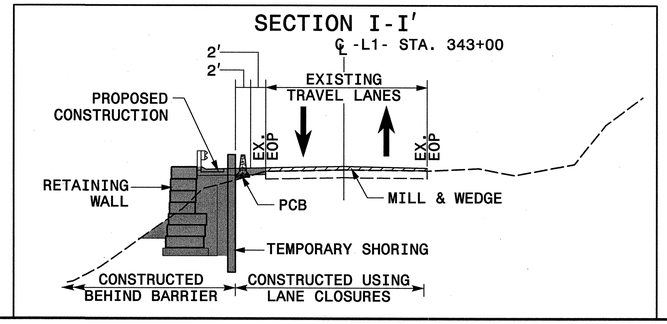
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-9

NAD 83/95

340 345 350





NOTE: REFER TO SHEETS TCP-21 AND TCP-22 FOR PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS AND TEMPORARY SHORING DATA.

APPROVED: Michelle Ward DATE: 2-3-2010

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE W. KRD

DETAIL 6
PHASE I TRAFFIC PATTERN

SCALE:	NONE
DATE:	02/10
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

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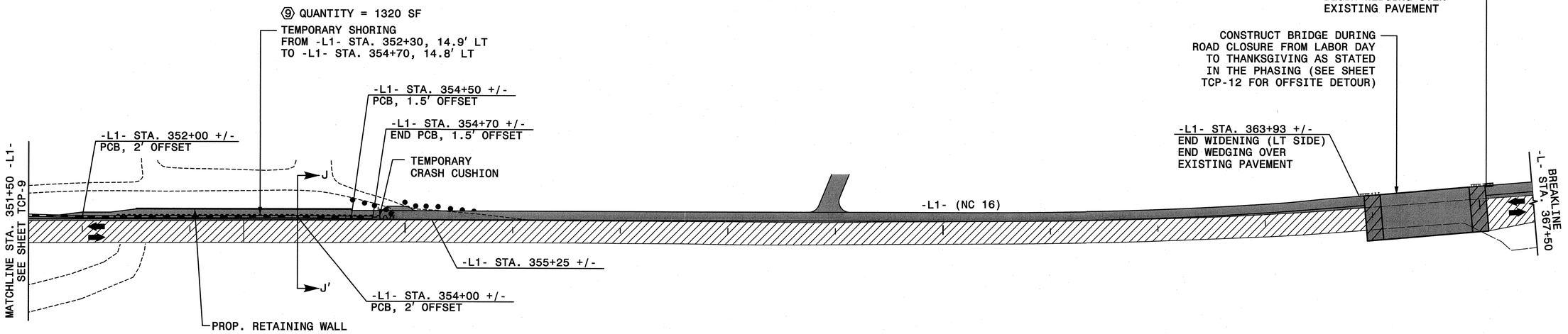
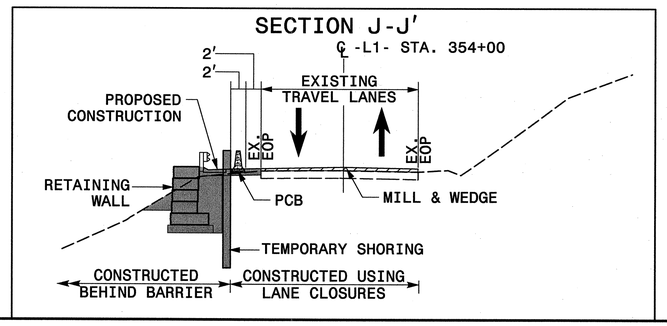
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-10

NAD 8395

355 360 365





NOTE: REFER TO SHEETS TCP-21 AND TCP-22 FOR PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS AND TEMPORARY SHORING DATA.

APPROVED: Michelle Ward DATE: 2-3-2010

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

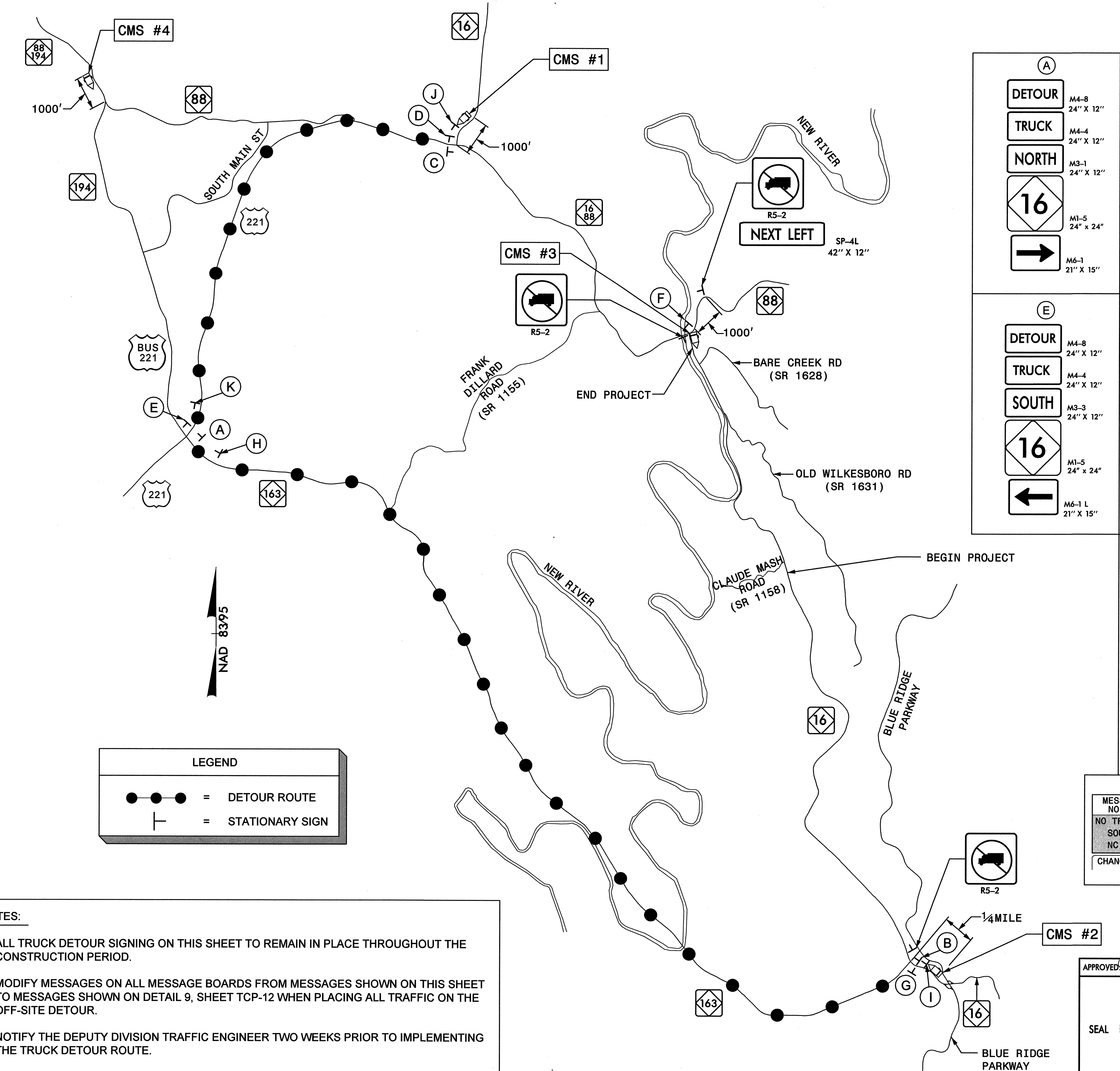
DETAIL 7
PHASE I TRAFFIC PATTERN

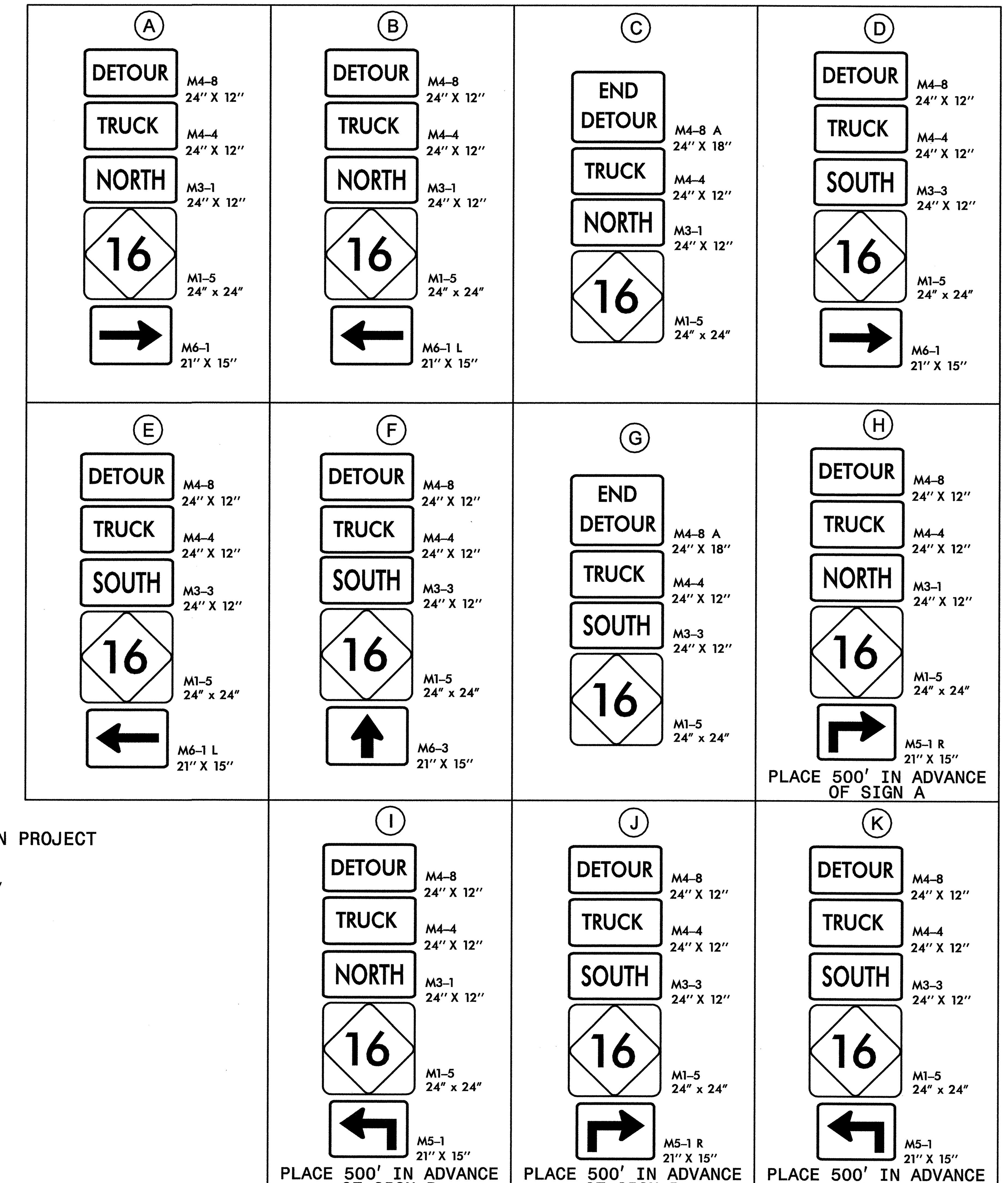
SCALE:	NONE
DATE:	02/10
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$
$$$$$$$$DGN$$$$$$$$





CMS #1		CMS #2		CMS #3		CMS #4	
MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2
NO TRUCKS SOUTH NC 16	3 MILES AHEAD	NO TRUCKS NORTH NC 16	TRUCK DETOUR 1/4 MILE	NO TRUCKS SOUTH NC 16	FOLLOW DETOUR SIGNS	NO TRUCKS SOUTH NC 16	USE NC 194
CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN	

NOTES:

1. ALL TRUCK DETOUR SIGNING ON THIS SHEET TO REMAIN IN PLACE THROUGHOUT THE CONSTRUCTION PERIOD.
2. MODIFY MESSAGES ON ALL MESSAGE BOARDS FROM MESSAGES SHOWN ON THIS SHEET TO MESSAGES SHOWN ON DETAIL 9, SHEET TCP-12 WHEN PLACING ALL TRAFFIC ON THE OFF-SITE DETOUR.
3. NOTIFY THE DEPUTY DIVISION TRAFFIC ENGINEER TWO WEEKS PRIOR TO IMPLEMENTING THE TRUCK DETOUR ROUTE.

APPROVED: Michelle Ward DATE: 10-12-09

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 8
TRUCK DETOUR ROUTE

SCALE:	NONE
DATE:	10/09
DWG. BY:	PMW
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

$$$$SYSTIME$$$$ $$$$$$$$DGN$$$$$$$$ $$$$USERNAME$$$$

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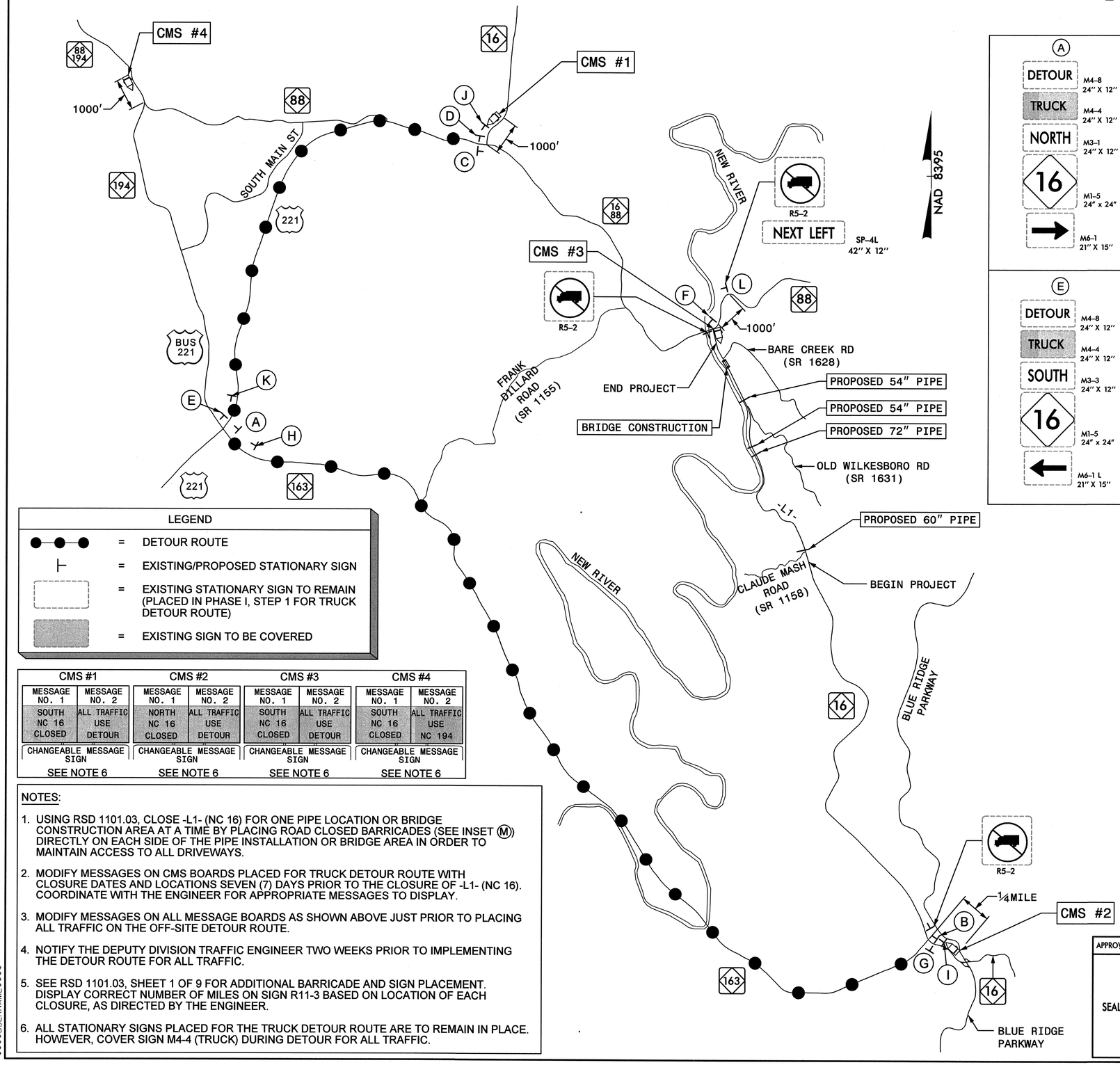
Raleigh, North Carolina 27609
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-12



LEGEND	
●—●—●	= DETOUR ROUTE
⊢	= EXISTING/PROPOSED STATIONARY SIGN
▭	= EXISTING STATIONARY SIGN TO REMAIN (PLACED IN PHASE I, STEP 1 FOR TRUCK DETOUR ROUTE)
▭	= EXISTING SIGN TO BE COVERED

CMS #1		CMS #2		CMS #3		CMS #4	
MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2
SOUTH NC 16 CLOSED	ALL TRAFFIC USE DETOUR	NORTH NC 16 CLOSED	ALL TRAFFIC USE DETOUR	SOUTH NC 16 CLOSED	ALL TRAFFIC USE DETOUR	SOUTH NC 16 CLOSED	ALL TRAFFIC USE NC 194
CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN	
SEE NOTE 6		SEE NOTE 6		SEE NOTE 6		SEE NOTE 6	

NOTES:

1. USING RSD 1101.03, CLOSE -L1- (NC 16) FOR ONE PIPE LOCATION OR BRIDGE CONSTRUCTION AREA AT A TIME BY PLACING ROAD CLOSED BARRICADES (SEE INSET Ⓜ) DIRECTLY ON EACH SIDE OF THE PIPE INSTALLATION OR BRIDGE AREA IN ORDER TO MAINTAIN ACCESS TO ALL DRIVEWAYS.
2. MODIFY MESSAGES ON CMS BOARDS PLACED FOR TRUCK DETOUR ROUTE WITH CLOSURE DATES AND LOCATIONS SEVEN (7) DAYS PRIOR TO THE CLOSURE OF -L1- (NC 16). COORDINATE WITH THE ENGINEER FOR APPROPRIATE MESSAGES TO DISPLAY.
3. MODIFY MESSAGES ON ALL MESSAGE BOARDS AS SHOWN ABOVE JUST PRIOR TO PLACING ALL TRAFFIC ON THE OFF-SITE DETOUR ROUTE.
4. NOTIFY THE DEPUTY DIVISION TRAFFIC ENGINEER TWO WEEKS PRIOR TO IMPLEMENTING THE DETOUR ROUTE FOR ALL TRAFFIC.
5. SEE RSD 1101.03, SHEET 1 OF 9 FOR ADDITIONAL BARRICADE AND SIGN PLACEMENT. DISPLAY CORRECT NUMBER OF MILES ON SIGN R11-3 BASED ON LOCATION OF EACH CLOSURE, AS DIRECTED BY THE ENGINEER.
6. ALL STATIONARY SIGNS PLACED FOR THE TRUCK DETOUR ROUTE ARE TO REMAIN IN PLACE. HOWEVER, COVER SIGN M4-4 (TRUCK) DURING DETOUR FOR ALL TRAFFIC.

Ⓐ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
NORTH M3-1 24″ X 12″
16 M1-5 24″ x 24″
→ M6-1 21″ X 15″

Ⓑ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
NORTH M3-1 24″ X 12″
16 M1-5 24″ x 24″
← M6-1 L 21″ X 15″

Ⓒ
END DETOUR M4-8 A 24″ X 18″
TRUCK M4-4 24″ X 12″
NORTH M3-1 24″ X 12″
16 M1-5 24″ x 24″

Ⓓ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
SOUTH M3-3 24″ X 12″
16 M1-5 24″ x 24″
→ M6-1 21″ X 15″

Ⓔ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
SOUTH M3-3 24″ X 12″
16 M1-5 24″ x 24″
← M6-1 L 21″ X 15″

Ⓕ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
SOUTH M3-3 24″ X 12″
16 M1-5 24″ x 24″
↑ M6-3 21″ X 15″

Ⓖ
END DETOUR M4-8 A 24″ X 18″
TRUCK M4-4 24″ X 12″
SOUTH M3-3 24″ X 12″
16 M1-5 24″ x 24″

Ⓗ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
NORTH M3-1 24″ X 12″
16 M1-5 24″ x 24″
↱ M5-1 R 21″ X 15″
PLACE 500′ IN ADVANCE OF SIGN A

Ⓘ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
NORTH M3-1 24″ X 12″
16 M1-5 24″ x 24″
↰ M5-1 21″ X 15″
PLACE 500′ IN ADVANCE OF SIGN B

Ⓙ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
SOUTH M3-3 24″ X 12″
16 M1-5 24″ x 24″
↱ M5-1 R 21″ X 15″
PLACE 500′ IN ADVANCE OF SIGN D

Ⓚ
DETOUR M4-8 24″ X 12″
TRUCK M4-4 24″ X 12″
SOUTH M3-3 24″ X 12″
16 M1-5 24″ x 24″
↰ M5-1 21″ X 15″
PLACE 500′ IN ADVANCE OF SIGN E

Ⓛ
ROAD CLOSED AHEAD W20-3 48″ X 48″
ADD TO SIGN ASSEMBLY WITH NO TRUCK SIGN (R5-2)

Ⓜ
R11-2 48″X30″
ROAD CLOSED
TYPE III BARRICADE
PLACE ON EACH SIDE OF PIPE AS WELL AS EACH SIDE OF PROPOSED BRIDGE

APPROVED: Michelle Ward DATE: 10-28-09

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 9

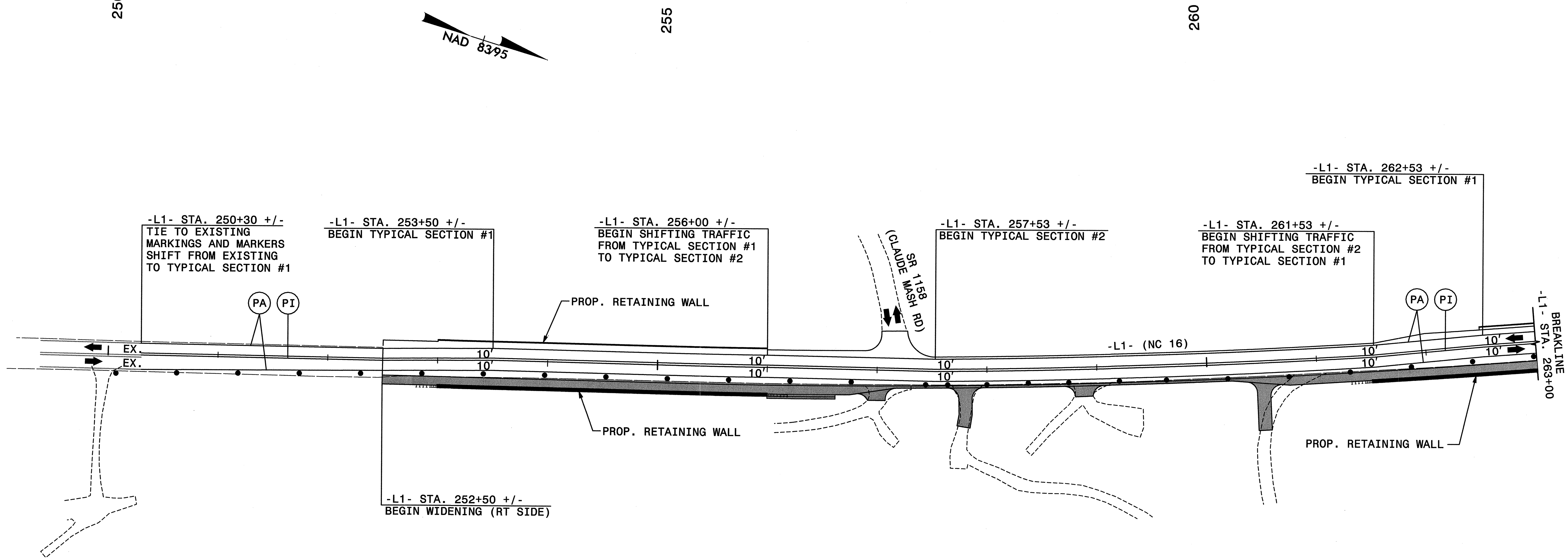
OFFSITE DETOUR ROUTE FOR BRIDGE CONSTRUCTION, PIPE INSTALLATIONS 54″ & OVER, AND DRILLING OPERATION FOR SOIL NAIL WALLS

SCALE:	NONE
DATE:	10/09
DWG. BY:	PMW
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

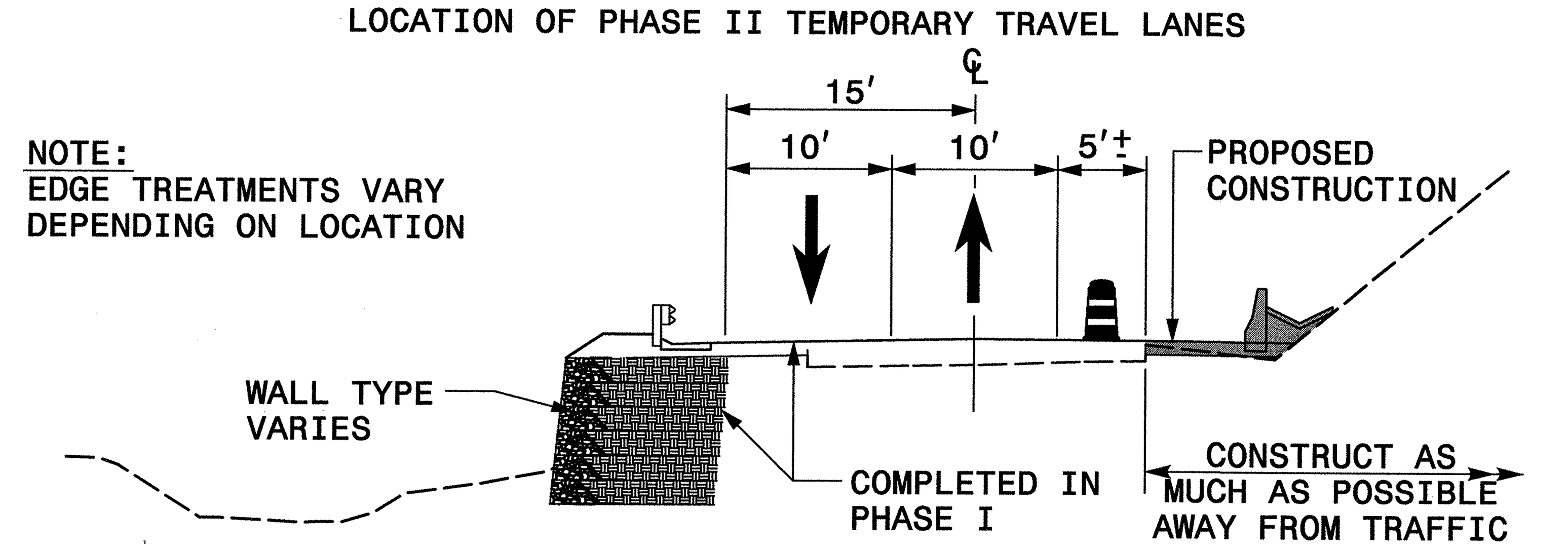
$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$



-L1- STA. 253+50 +/- TO -L1- STA. 256+00 +/-
-L1- STA. 262+53 +/- TO -L1- STA. 275+00 +/-
-L1- STA. 290+50 +/- TO -L1- STA. 316+60 +/-
-L1- STA. 339+50 +/- TO -L1- STA. 347+00 +/-
-L1- STA. 352+53 +/- TO -L1- STA. 370+50 +/-

TYPICAL SECTION #1

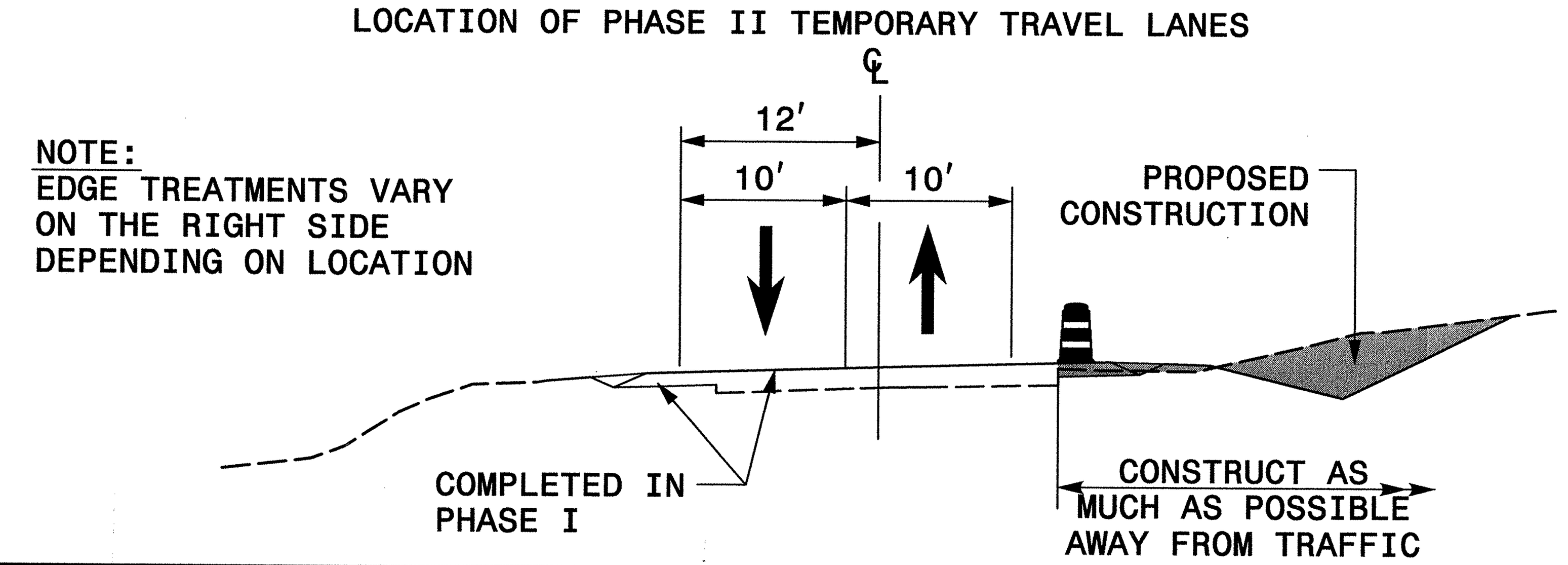
LOCATION OF PHASE II TEMPORARY TRAVEL LANES



-L1- STA. 257+53 +/- TO -L1- STA. 261+53 +/-
-L1- STA. 275+83 +/- TO -L1- STA. 278+55 +/-
-L1- STA. 331+24 +/- TO -L1- STA. 338+50 +/-
-L1- STA. 348+00 +/- TO -L1- STA. 351+68 +/-
-L1- STA. 371+50 +/- TO -L1- STA. 375+27 +/-

TYPICAL SECTION #2

LOCATION OF PHASE II TEMPORARY TRAVEL LANES



NOTE: WHEN CONSTRUCTING BARRIER WALL ON THE RIGHT SIDE OF -L1-, IF BLUNT END OF BARRIER IS LESS THAN 12' FROM THE EDGE OF TRAVEL LANE AT THE END OF THE WORK DAY, DO THE FOLLOWING:
- PLACE TRUCK MOUNTED IMPACT ATTENUATOR(S) TO PROTECT THE BLUNT END OF THE BARRIER
- PLACE DRUMS ALONG THE EDGE OF TRAVEL LANE AT 35' ON-CENTER IN THE VICINITY OF THE TMIA(S).

APPROVED: Michelle Ward DATE: 10-12-09

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33789 MICHELLE WARD

DETAIL 10
PHASE II TRAFFIC PATTERN

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

$$$$SYSTIME$$$$ $$$$$$$$$$DGN$$$$$$$$$$$$$$$ $$$USERNAME$$$

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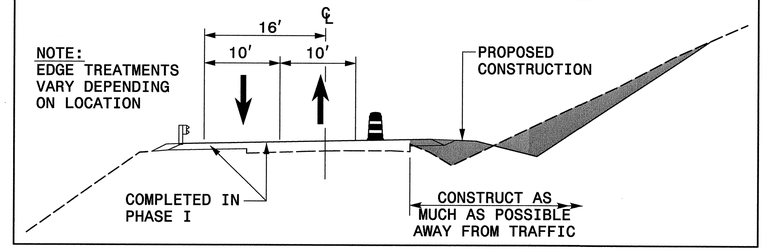
Raleigh, North Carolina 27609
NC License No: C-1554

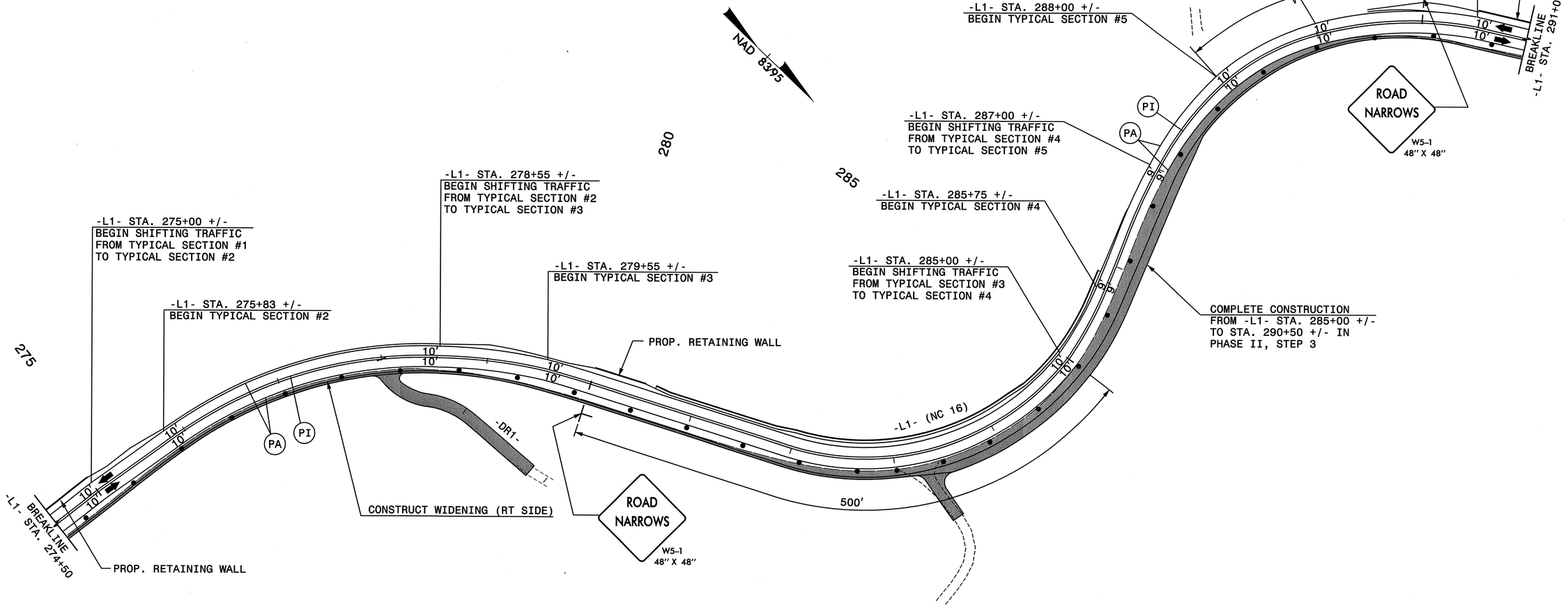
PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-14

TYPICAL SECTION #3
LOCATION OF PHASE II TEMPORARY TRAVEL LANES



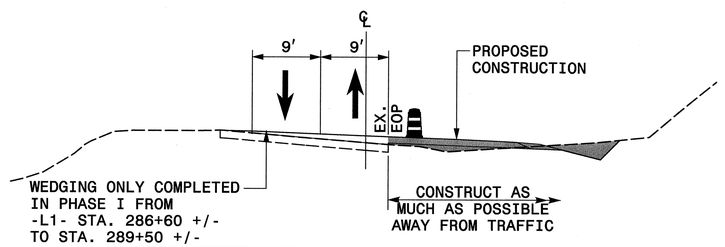
-L1- STA. 279+55 +/- TO -L1- STA. 285+00 +/-

NAD 8395



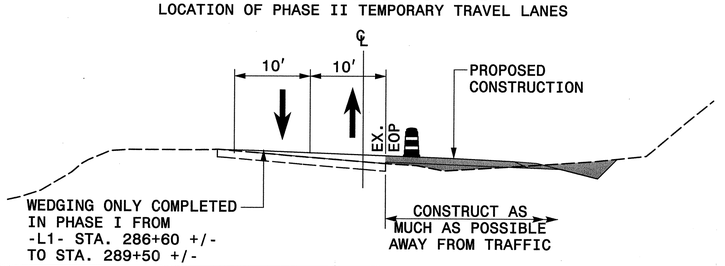
-L1- STA. 285+75 +/- TO -L1- STA. 287+00 +/-

TYPICAL SECTION #4
LOCATION OF PHASE II TEMPORARY TRAVEL LANES



-L1- STA. 288+00 +/- TO -L1- STA. 289+00 +/-

TYPICAL SECTION #5
LOCATION OF PHASE II TEMPORARY TRAVEL LANES



NOTE: WHEN CONSTRUCTING BARRIER WALL ON THE RIGHT SIDE OF -L1-, IF BLUNT END OF BARRIER IS LESS THAN 12' FROM THE EDGE OF TRAVEL LANE AT THE END OF THE WORK DAY, DO THE FOLLOWING:
- PLACE TRUCK MOUNTED IMPACT ATTENUATOR(S) TO PROTECT THE BLUNT END OF THE BARRIER
- PLACE DRUMS ALONG THE EDGE OF TRAVEL LANE AT 35' ON-CENTER IN THE VICINITY OF THE TMIA(S).

APPROVED: Michelle Ward DATE: 10-12-09

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 11
PHASE II TRAFFIC PATTERN

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

$$$$$$SYSTIME$$$$$$
$$$$$$USERNAME$$$$$$DGN$$$$$$

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Raleigh, North Carolina 27609
NC License No: C-1554

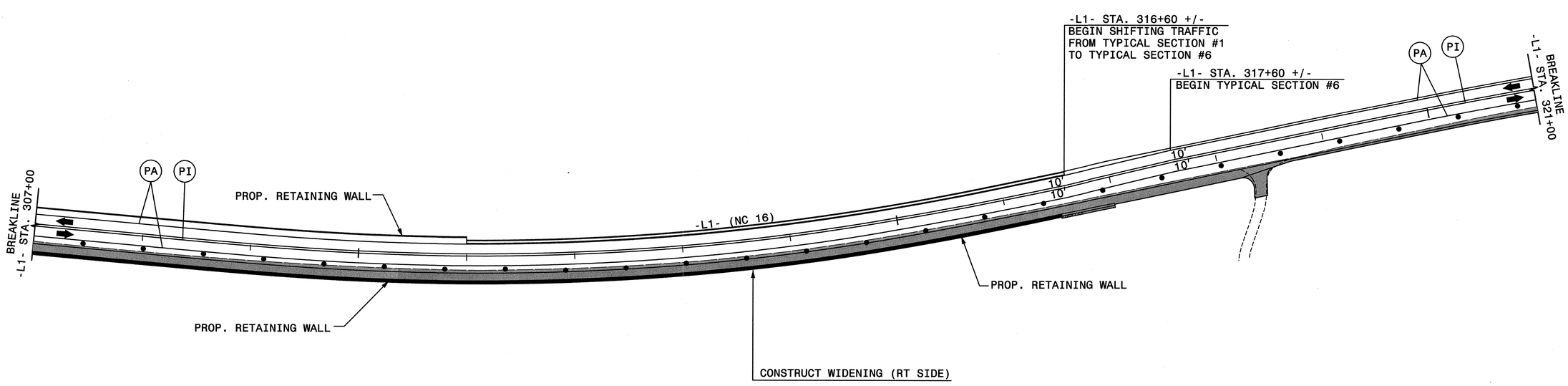
PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-15

NAD 8395

310

315

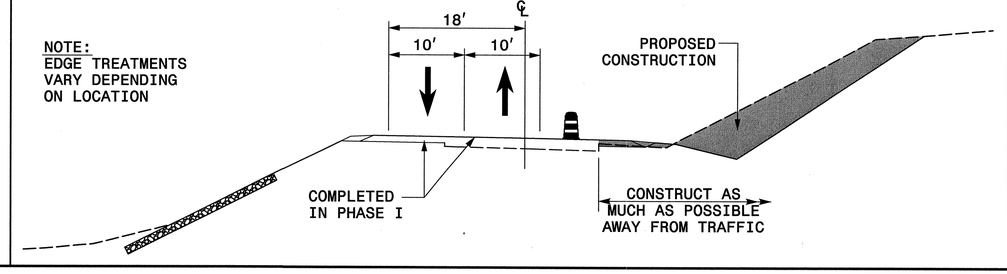
320



-L1- STA. 317+60 +/- TO -L1- STA. 329+50 +/-

TYPICAL SECTION #6

LOCATION OF PHASE II TEMPORARY TRAVEL LANES



NOTE: WHEN CONSTRUCTING BARRIER WALL ON THE RIGHT SIDE OF -L1-, IF BLUNT END OF BARRIER IS LESS THAN 12' FROM THE EDGE OF TRAVEL LANE AT THE END OF THE WORK DAY, DO THE FOLLOWING:
- PLACE TRUCK MOUNTED IMPACT ATTENUATOR(S) TO PROTECT THE BLUNT END OF THE BARRIER
- PLACE DRUMS ALONG THE EDGE OF TRAVEL LANE AT 35' ON-CENTER IN THE VICINITY OF THE TMIA(S).

APPROVED: Michelle Ward DATE: 10-12-09

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 12
PHASE II TRAFFIC PATTERN

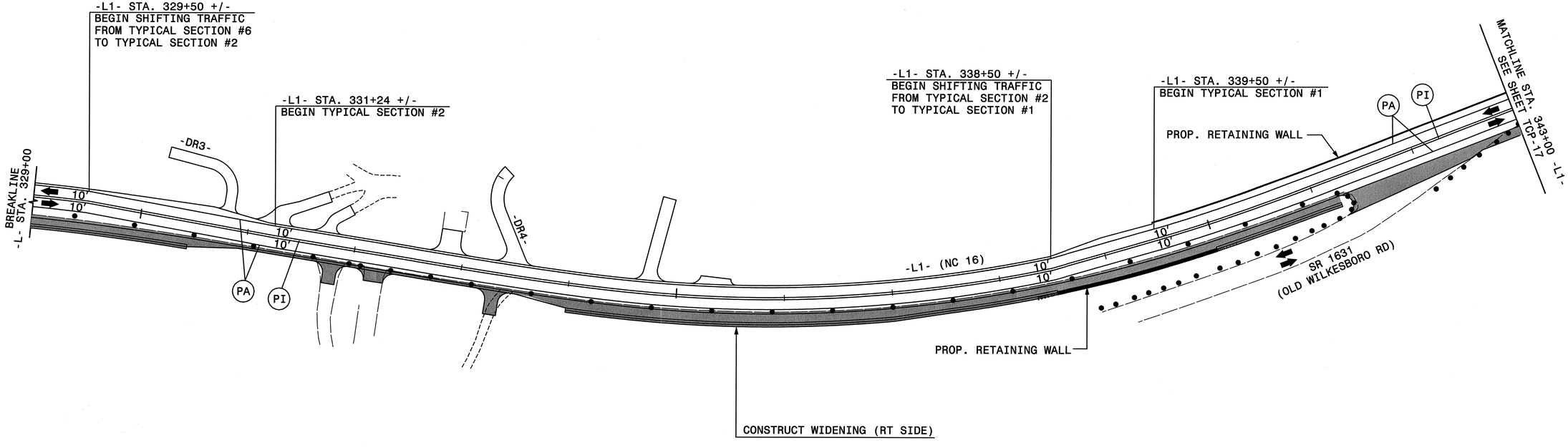
SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

DIVISION OF HIGHWAYS — STATE OF NORTH CAROLINA — WORK ZONE TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$USERNAME$$$$$$$$$$$$$$$$$$$$



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NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-16

-L1- STA. 329+50 +/-
BEGIN SHIFTING TRAFFIC
FROM TYPICAL SECTION #6
TO TYPICAL SECTION #2

-L1- STA. 331+24 +/-
BEGIN TYPICAL SECTION #2

-L1- STA. 338+50 +/-
BEGIN SHIFTING TRAFFIC
FROM TYPICAL SECTION #2
TO TYPICAL SECTION #1

-L1- STA. 339+50 +/-
BEGIN TYPICAL SECTION #1

PROP. RETAINING WALL

PROP. RETAINING WALL

CONSTRUCT WIDENING (RT SIDE)

NOTE: WHEN CONSTRUCTING BARRIER WALL ON THE RIGHT SIDE OF -L1-, IF BLUNT END OF BARRIER IS LESS THAN 12′ FROM THE EDGE OF TRAVEL LANE AT THE END OF THE WORK DAY, DO THE FOLLOWING:

- PLACE TRUCK MOUNTED IMPACT ATTENUATOR(S) TO PROTECT THE BLUNT END OF THE BARRIER
- PLACE DRUMS ALONG THE EDGE OF TRAVEL LANE AT 35′ ON-CENTER IN THE VICINITY OF THE TMIA(S).

APPROVED: Michelle Ward DATE: 10-12-09

SEAL

SEAL 33789
MICHELLE WARD

DETAIL 13
PHASE II TRAFFIC PATTERN

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

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

REVISIONS

CADD FILE

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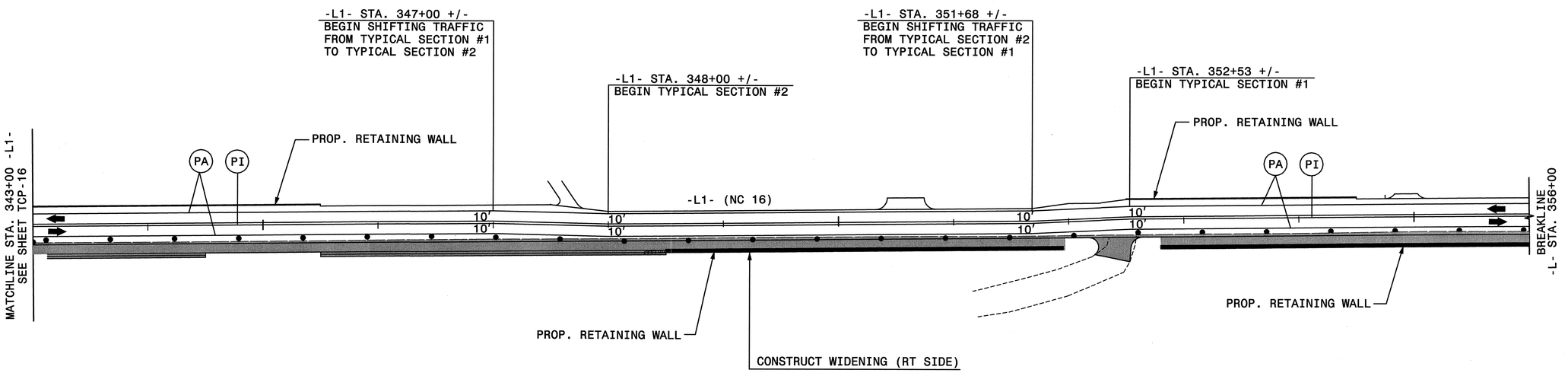
Raleigh, North Carolina 27609
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-17

NAD 83/95

345 350 355



NOTE: WHEN CONSTRUCTING BARRIER WALL ON THE RIGHT SIDE OF -L1-, IF BLUNT END OF BARRIER IS LESS THAN 12' FROM THE EDGE OF TRAVEL LANE AT THE END OF THE WORK DAY, DO THE FOLLOWING:
- PLACE TRUCK MOUNTED IMPACT ATTENUATOR(S) TO PROTECT THE BLUNT END OF THE BARRIER
- PLACE DRUMS ALONG THE EDGE OF TRAVEL LANE AT 35' ON-CENTER IN THE VICINITY OF THE TMIA(S).

APPROVED: Michelle Ward DATE: 10-12-09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 14
PHASE II TRAFFIC PATTERN

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS	
CADD FILE	

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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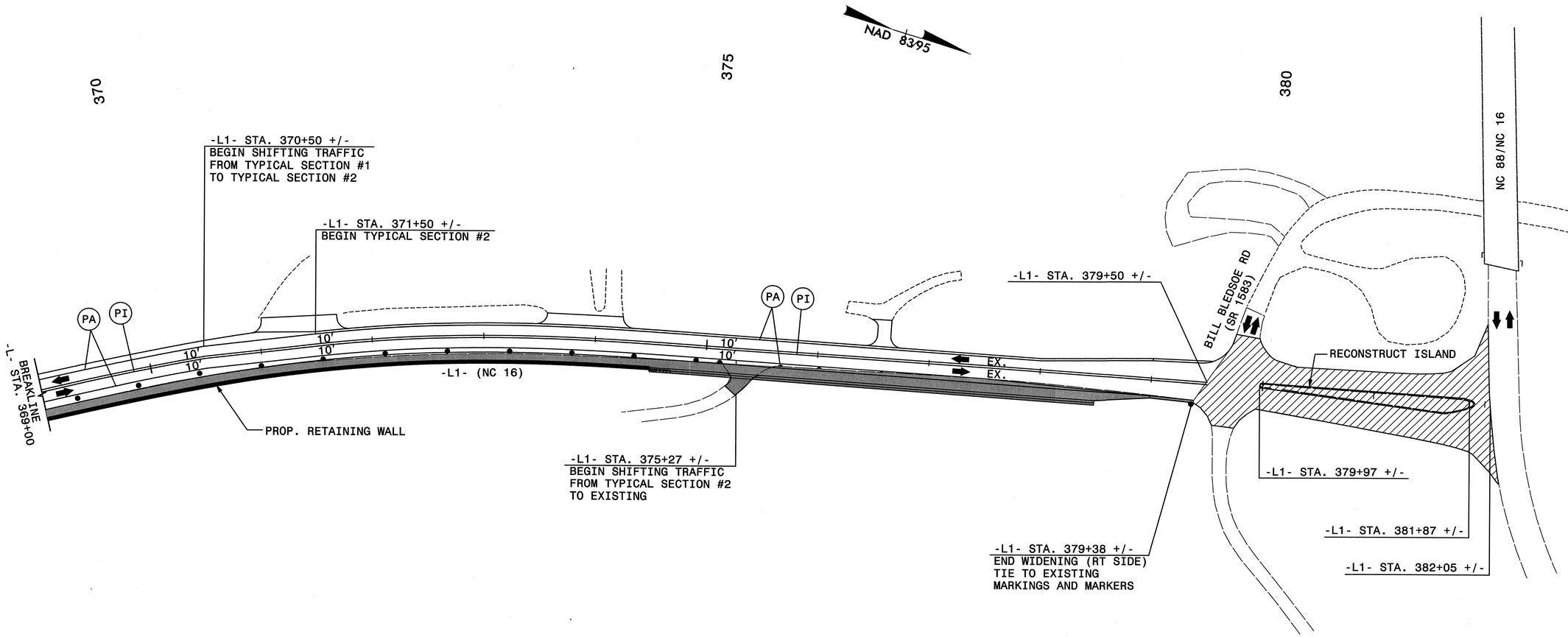
Raleigh, North Carolina 27609
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-18



NOTE: WHEN CONSTRUCTING BARRIER WALL ON THE RIGHT SIDE OF -L1-, IF BLUNT END OF BARRIER IS LESS THAN 12′ FROM THE EDGE OF TRAVEL LANE AT THE END OF THE WORK DAY, DO THE FOLLOWING:
- PLACE TRUCK MOUNTED IMPACT ATTENUATOR(S) TO PROTECT THE BLUNT END OF THE BARRIER
- PLACE DRUMS ALONG THE EDGE OF TRAVEL LANE AT 35′ ON-CENTER IN THE VICINITY OF THE TMIA(S).

APPROVED: Michelle Ward DATE: 10-12-09

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 15
PHASE II TRAFFIC PATTERN

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS	
CADD FILE	

$$$$$SYSTIME$$$$$
$$$$$DGN$$$$$
$$$$$USERNAME$$$$$

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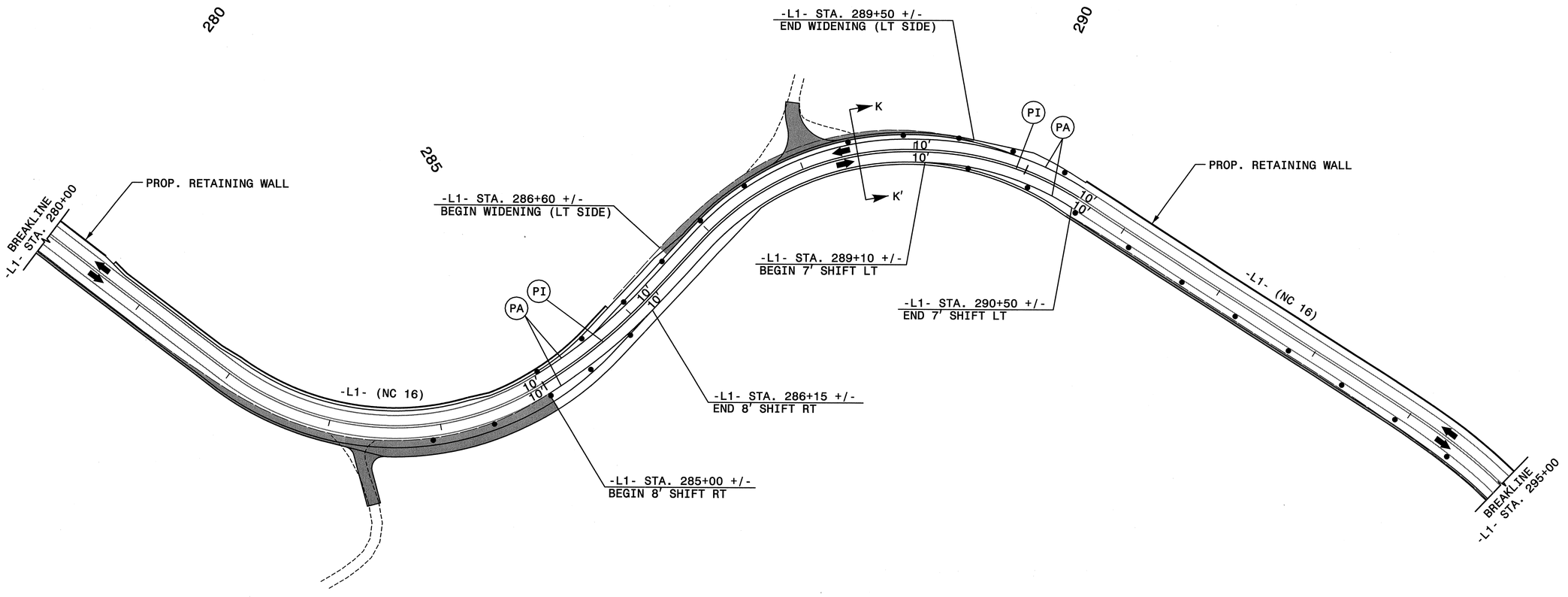
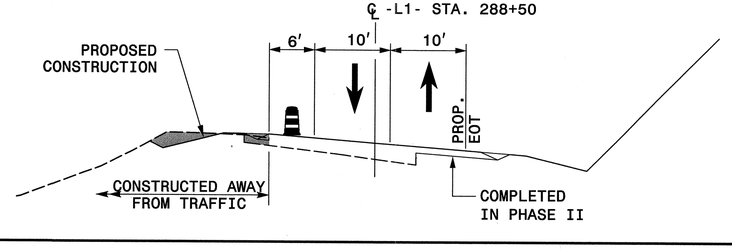
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-19

NAD 83/95



SECTION K-K'



APPROVED: Michelle Ward DATE: 10-12-09

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

DETAIL 16
PHASE II TRAFFIC PATTERN (STEPS 3 & 4)

SCALE:	NONE
DATE:	10/09
DWG. BY:	TRT
DESIGN BY:	PMW
REVIEWED BY:	DCK

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS	
CADD FILE	

$$$$$$SYSTIME$$$$$
$$$$$$$$DGN$$$$$$$$
$$$$$$USERNAME$$$$$

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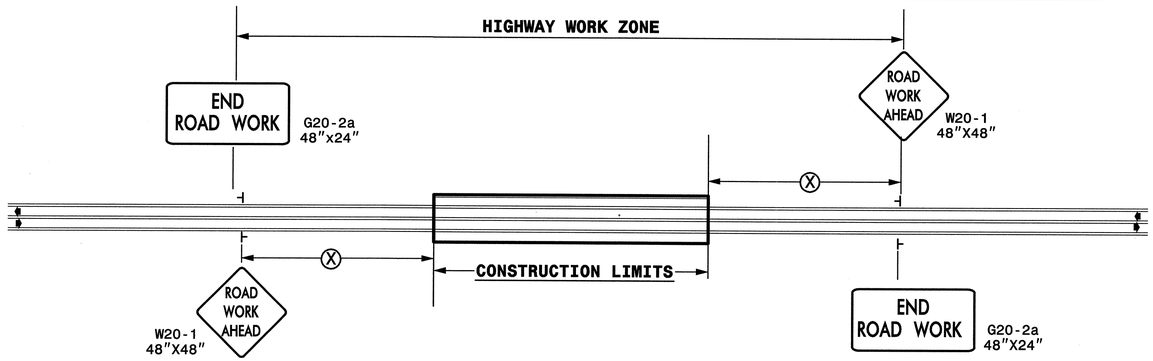
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-20

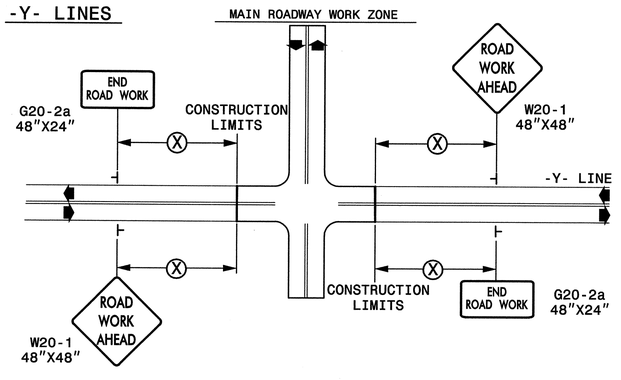
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING Ⓧ
≤ 50	500'
≥ 55	1000'

ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



DETAIL DRAWING FOR
TWO-WAY UNDIVIDED
WORK ZONE WARNING SIGNS

GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- 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.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

├ STATIONARY SIGN
⬅ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: Michelle Ward DATE: 10-12-09

SEAL
SEAL 33789
MICHELLE WARD

DETAIL DRAWING FOR TWO-WAY
UNDIVIDED AND URBAN FREEWAYS
ADVANCED WORK ZONE WARNING SIGNS

SCALE:	NONE
DATE:	10/09
DWG. BY:	NCDOT
DESIGN BY:	NCDOT
REVIEWED BY:	PMW

REVISIONS	
7-98	10/01
10-98	03/04
01/01	11/04
CADD FILE	

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP- 21

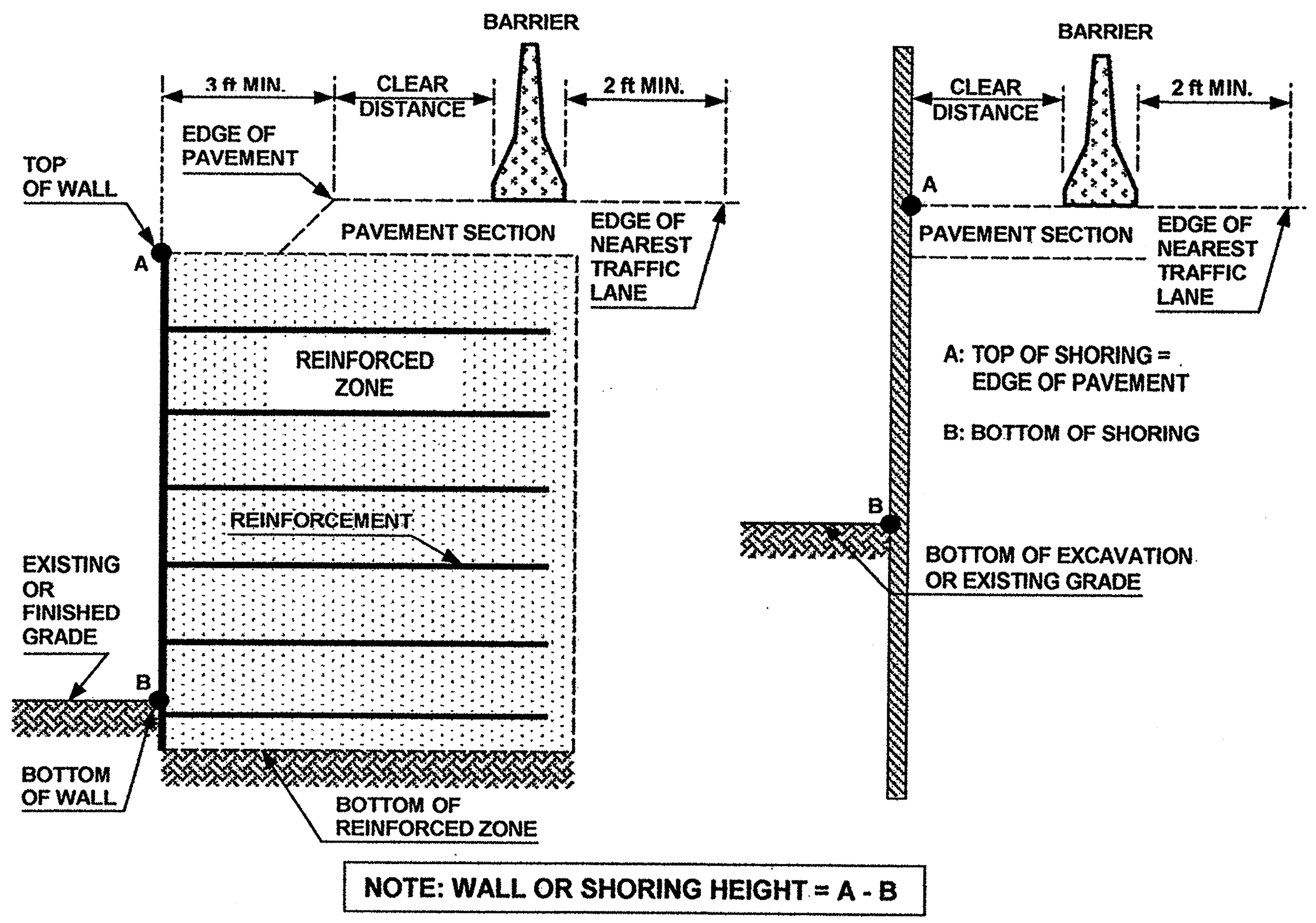


FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR SHORING LOCATIONS AND SOIL PARAMETERS.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR MORE INFORMATION ABOUT TEMPORARY SHORING, MEASUREMENT AND PAYMENT.

3- PROVIDE PORTABLE CONCRETE BARRIER TO PROTECT TEMPORARY SHORING IF SHORING IS LOCATED WITHIN THE CLEAR ZONE AS DEFINED IN THE AASHTO ROADSIDE DESIGN GUIDE.

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED PCB, ANCHORED PCB OR AN OREGON BARRIER FROM THE TABLE SHOWN IN FIGURE B. FOR TRAFFIC LANES AND PORTABLE CONCRETE BARRIER LOCATED ABOVE AND BEHIND TEMPORARY SHORING, THE FOLLOWING ARE DEFINED AS:

CLEAR DISTANCE - HORIZONTAL DISTANCE FROM THE BACK FACE OF THE BARRIER TO THE EDGE OF PAVEMENT FOR TEMPORARY MSE WALL OR TO THE FACE OF NON-ANCHORED TEMPORARY SHORING AS SHOWN IN FIGURE A.

OFFSET - HORIZONTAL DISTANCE FROM THE FRONT FACE OF THE BARRIER TO CENTERLINE OF THE FURTHEST TRAFFIC LANE AS SHOWN IN FIGURE B FOR 3 TRAFFIC LANES.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET AN UNANCHORED PCB AGAINST THE TRAFFIC SIDE OF THE SHORING AND DESIGN SHORING FOR TRAFFIC IMPACT OR USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT" FOR THE STANDARD TEMPORARY SHORING.

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

7- USE OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH DETAIL DRAWING AND SPECIAL PROVISION OBTAINED FROM: HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/WZTC/DESRES/ENGLISH/DESRESENG.HTML

8- UNLESS NOTED OTHERWISE ON THE PLANS, SET PORTABLE CONCRETE BARRIER WITH A MINIMUM DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A.

9- FOR PORTABLE CONCRETE BARRIER ABOVE AND BEHIND TEMPORARY MSE WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.

10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200' IN LENGTH AND WET OR DRY PAVEMENT.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	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 or Oregon Barrier	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB or Oregon Barrier	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

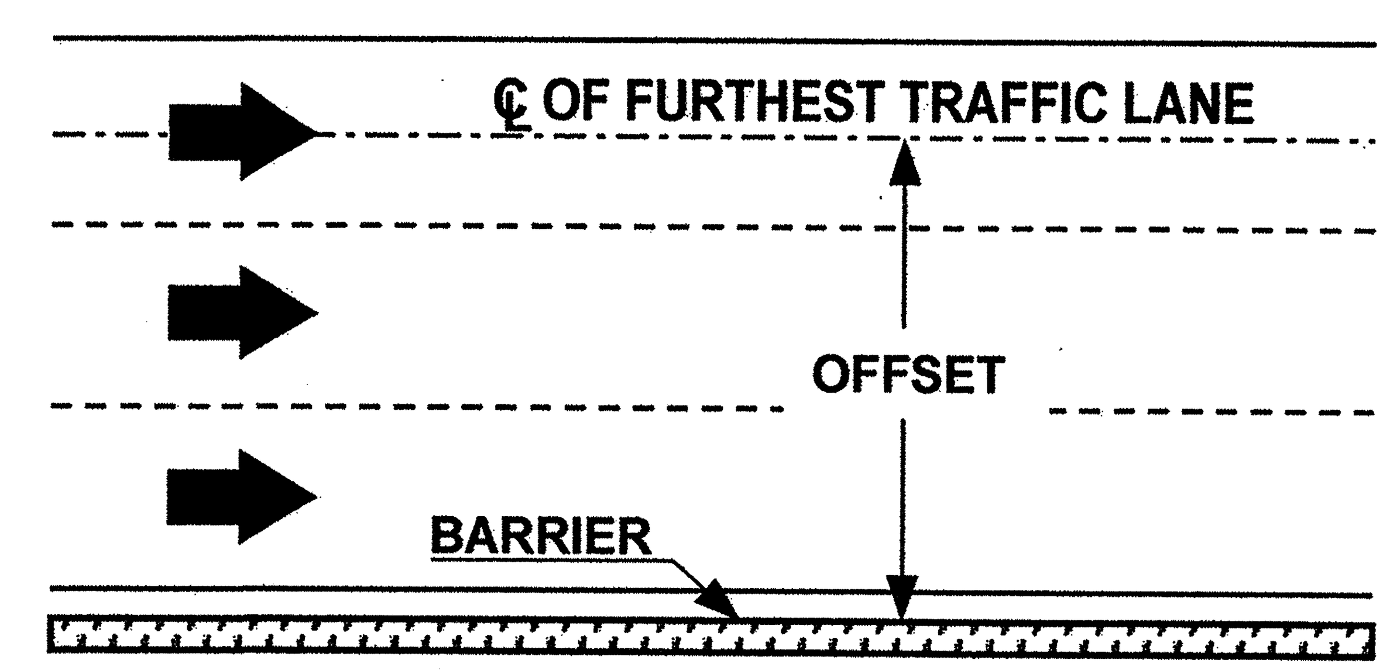


FIGURE B

APPROVED:	DATE:	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
SEAL	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028380 JOSEPH IAHAK	SCALE: NONE
		DATE: 3/07
		DWG. BY: JI
		DESIGN BY: JI
		REVIEWED BY: JI

REVISIONS

CADD FILE

22-MAR-2007 10:14
\\DOT\DFSROOT01\GROUPS-WZTCCC\share\share\stds_in_progress\barrierstd.dgn
rmgarrett AT WZTC22291

PROJ. REFERENCE NO.	SHEET NO.
R-2100B	TCP-22

LOCATION / SHORING TYPE	FROM STATION	TO STATION	OFFSET RANGE
#1 RETAINING WALL	-L1- 252+85	-L1- 256+10	11.9' TO 13.5' LT OF -L1-
#2 RETAINING WALL	-L1- 267+40	-L1- 269+60	12.7' TO 13.9' LT OF -L1-
#3 RETAINING WALL	-L1- 271+90	-L1- 275+15	14.2' TO 11.8' LT OF -L1-
#4 RETAINING WALL	-L1- 279+80	-L1- 280+70	12.8' LT OF -L1-
#5 RETAINING WALL	-L1- 290+30	-L1- 295+60	11.0' TO 11.7' LT OF -L1-
#6 RETAINING WALL	-L1- 298+85	-L1- 302+65	14.5' TO 14.9' LT OF -L1-
#7 RETAINING WALL	-L1- 306+35	-L1- 311+20	15.0' TO 16.3' LT OF -L1-
#8 RETAINING WALL	-L1- 339+35	-L1- 345+60	15.2' TO 14.8' LT OF -L1-
#9 RETAINING WALL	-L1- 352+30	-L1- 354+70	14.9' TO 14.8' LT OF -L1-

THE FOLLOWING NOTES APPLY TO EACH OF THE ABOVE REFERENCED SHORING LOCATIONS:

DO NOT USE STANDARD ________ SHORING.

WHEN USING CONTRACTOR DESIGNED SHORING, DESIGN SHORING FOR THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

IT MAY BE PREFERRED OR NECESSARY TO ANCHOR TEMPORARY SHORING. FOR ANCHORED TEMPORARY SHORING, SEE ANCHORED TEMPORARY SHORING PROVISION.

FOR CONTRACTOR DESIGNED SHORING, SURVEY THE SHORING LOCATION TO DETERMINE EXISTING ELEVATIONS AND ACTUAL DESIGN HEIGHTS BEFORE BEGINNING DESIGN.

FOR PORTABLE CONCRETE BARRIERS ABOVE AND BEHIND TEMPORARY SHORING, USE AN NCDOT PORTABLE CONCRETE BARRIER (UNANCHORED OR ANCHORED) OR AN OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

APPROVED: S.C. Clark DATE: 1/15/10

SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 29869 SHANE C. CLARK

TEMPORARY SHORING DATA

SCALE:	NONE
DATE:	1/10
DWG. BY:	JTW
DESIGN BY:	SCC
REVIEWED BY:	SCC

REVISIONS