

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
R-2562AC	TCP-1

**PLAN FOR PROPOSED  
TRAFFIC CONTROL, MARKING & DELINEATION  
CUMBERLAND COUNTY**

R-2562AC

**ROADWAY STANDARD DRAWINGS**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-  
ROADWAY DESIGN UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C.,  
DATED JANUARY 2002 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
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR-DELINEATION
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
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

**INDEX OF SHEETS**

SHEET NO.	TITLE
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND INDEX OF SHEETS
TCP-2	PROJECT NOTES
TCP-3	PROJECT PHASING
TCP-4	PHASING DETAILS
TCP-5	DRUM DETAIL
TCP-6	PORTABLE BARRIER DETAIL
TCP-7	PORTABLE BARRIER DETAIL
TCP-8	WORK ZONE SIGNAGE
TCP-9	REDUCED SPEED SIGNAGE

**LEGEND**

- GENERAL**
- DIRECTION OF TRAFFIC FLOW
  - NORTH ARROW
  - PROPOSED PVMT. EXIST. PVMT.
  - WORK AREA
  - REMOVAL OF EXISTING PAVEMENT

**TRAFFIC CONTROL DEVICES**

- TYPE I BARRICADE
- TYPE II BARRICADE
- TYPE III BARRICADE
- CONE
- TUBULAR MARKER
- DRUM
- FLASHING ARROW PANEL (TYPE C)
- TYPE 'B' WARNING LIGHT
- STATIONARY SIGN
- PORTABLE SIGN
- STATIONARY OR PORTABLE SIGN
- WARNING FLAGS
- CRASH CUSHION
- CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- POLICE
- FLAGGER

**PAVEMENT MARKINGS**

- CRYSTAL/CRYSTAL PAVEMENT MARKER
- YELLOW/YELLOW PAVEMENT MARKER
- CRYSTAL/RED PAVEMENT MARKER
- PAVEMENT MARKING SYMBOLS

Pavement Marking Schedule TIP Project # R-2562AA				
SYMBOL	DESCRIPTION	FINAL PAVEMENT MARKINGS	PAY ITEM QUANTITY BREAKDOWN	TOTAL QUANTITY
TA	WHITE EDGELINE	THERMOPLASTIC (100MM, 2.3MM)	2394 M	
TB	YELLOW EDGELINE	THERMOPLASTIC (100MM, 2.3MM)	2402 M	TOTAL 4796 M
TC	3 M. WHITE SKIP	THERMOPLASTIC (100MM, 3.1MM)	611 M	
TD	0.5 M. WHITE MINISKIP	THERMOPLASTIC (100MM, 3.1MM)	32 M	
TE	WHITE SOLID LANE LINE	THERMOPLASTIC (100MM, 3.1MM)	290 M	TOTAL 933 M
TP	WHITE GORELINE	THERMOPLASTIC (200MM, 2.3MM)	50 M	TOTAL 50 M
T2	WHITE STOPBAR	THERMOPLASTIC (600MM, 3.1MM)	25 M	TOTAL 25 M
UA	LEFT TURN ARROW	THERMOPLASTIC SYMBOL (2.3MM)	5 EA	
UB	RIGHT TURN ARROW	THERMOPLASTIC SYMBOL (2.3MM)	4 EA	
UC	STRAIGHT ARROW	THERMOPLASTIC SYMBOL (2.3MM)	8 EA	TOTAL 17 EA
MF	CRYSTAL & RED	PERMANENT RAISED MARKERS	150 EA	TOTAL 150 EA
SYMBOL	DESCRIPTION	TEMPORARY PAVEMENT MARKINGS	PAY ITEM QUANTITY BREAKDOWN	TOTAL QUANTITY
RP	3 M. BLACK SKIP	REMOVABLE TAPE (150MM)	175 M	TOTAL 175 M
PA	WHITE EDGELINE (1X)	PAINT (100MM)	4426 M	
PB	YELLOW EDGELINE (1X)	PAINT (100MM)	4687 M	
PC	3 M. WHITE SKIP	PAINT (100MM)	268 M	TOTAL 9381 M
QC	STRAIGHT ARROW (1X)	PAINT SYMBOL	6 EA	TOTAL 6 EA

TIP PROJECT:

<p>PLAN REVIEWED BY: <b>TRAFFIC CONTROL, MARKING, &amp; DELINEATION SECTION</b></p> <p>J.S. BOURNE, PE <b>TRAFFIC CONTROL ENGINEER</b></p> <p>G.L. GETTIER, PE <b>TRAFFIC CONTROL PROJECT ENGINEER</b></p> <p>J.W. WOOLARD, PE <b>TRAFFIC CONTROL PROJECT DESIGN ENGINEER</b></p> <p><b>TRAFFIC CONTROL DESIGN ENGINEER / TECHNICIAN</b></p>	<p>APPROVED: <i>Brian D. Dehler</i></p> <p>DATE: 12-22-04</p> <p>SEAL</p>	<p>PLAN PREPARED BY: <b>N.C.D.O.T. TRAFFIC CONTROL, MARKING &amp; DELINEATION SECTION</b></p> <p>BRIAN D. DEHLER, PE <b>TRAFFIC CONTROL ENGINEER</b></p> <p><b>TRAFFIC CONTROL PROJECT ENGINEER</b></p> <p><b>TRAFFIC CONTROL PROJECT DESIGN ENGINEER</b></p> <p>JENNIFER L. STARNES <b>TRAFFIC CONTROL DESIGN ENGINEER / TECHNICIAN</b></p>
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## PROJECT NOTES

A) ADAPT THE TRAFFIC CONTROL PLANS, WHEN DIRECTED BY THE ENGINEER, TO MEET FIELD CONDITIONS TO PROVIDE SAFE AND EFFICIENT TRAFFIC MOVEMENT.

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE, OR RESULT IN DUPLICATE, OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES.

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

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- B) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GAURDRAIL OR OTHERWISE DIRECTED BY THE ENGINEER.
- C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 12m 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.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 3m OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- G) DO NOT WORK SIMULTANEOUSLY, ON BOTH SIDES OF AN OPEN TRAVELWAY, WITHIN THE SAME LOCATION, ON A TWO-LANE, TWO WAY ROAD.

### TRAFFIC PATTERN ALTERATIONS

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

### SIGNING

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 31m FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.  
  
WHEN NO WORK IS BEING CONDUCTED FOR A PERIOD LONGER THAN ONE WEEK, REMOVE OR COVER ALL ADVANCE WORK ZONE WARNING SIGNS, AS DIRECTED BY THE ENGINEER, AT NO COST TO THE DEPARTMENT.
- J) COVER OR REMOVE ALL DETOUR SIGNS WITHIN AND/OR OFF THE PROJECT LIMITS WHEN A DETOUR IS NOT IN OPERATION.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- L) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) 500 FT. IN ADVANCE OF THE UNEVEN AREA.
- M) INSTALL BLACK ON ORANGE "BUMP" SIGNS (W8-1) 500 FT IN ADVANCE OF THE UNEVEN AREA.

### TRAFFIC BARRIER

N) INSTALL MOVABLE/PORTABLE CONCRETE BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN 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.

ONCE MOVABLE/PORTABLE CONCRETE BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE MOVABLE/PORTABLE CONCRETE BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET MOVABLE/PORTABLE CONCRETE BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

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

OFFSET THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER A MINIMUM OF 12m FROM ONCOMING TRAFFIC OR PROTECT AT ALL TIMES BY A TEMPORARY CRASH CUSHION.

INSTALL MOVABLE/PORTABLE CONCRETE BARRIER WITH TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE MOVABLE/PORTABLE CONCRETE BARRIER AGAINST THE FLOW OF TRAFFIC BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS EQUAL IN METERS TO 2/3rds THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP CLOSED THE SECTION OF THE ROADWAY UNTIL THE BARRIER CAN BE PLACED OR AFTER BARRIER IS REMOVED.

### TRAFFIC CONTROL DEVICES

- P) SPACE CHANNELIZING DEVICES IN WORK AREAS EQUAL IN METERS TO 2/3rds THE POSTED SPEED LIMIT (MPH), EXCEPT 3m ON-CENTER IN RADII, AND 1m OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT.
- Q) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY. STAGGER OR OVERLAP BARRICADES TO ALLOW FOR INGRESS OR EGRESS.
- R) PLACE SETS OF THREE DRUMS PERPENDICULAR TO THE EDGE OF THE TRAVELWAY ON 500 FT. CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC. THESE DRUMS SHALL BE IN ADDITION TO CHANNELIZING DEVICES.

### PAVEMENT MARKING AND MARKERS

S) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. NC 87 (X-OVERS)	PAINT	NONE
2. NC 87 (RESURFACING)	THERMO	RAISED PAVEMENT MARKER

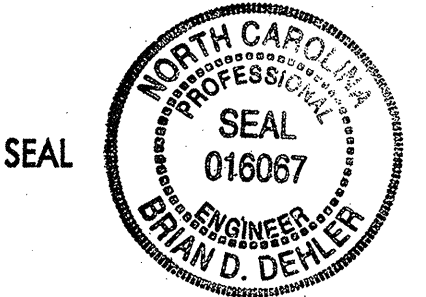

T) INSTALL TEMPORARY PAVEMENT MARKINGS ON THE EXISTING PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. NC 87	PAINT	NONE (EXISTING TO REMAIN)

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

V) REPLACE ANY PAVEMENT MARKINGS THAT HAVE BEEN DAMAGED BY THE END OF EACH DAY'S OPERATION.

W) PLACE AT LEAST TWO APPLICATIONS OF PAINT ON NEW ASPHALT WITH TEMPORARY TRAFFIC PATTERNS WHICH WILL REMAIN IN PLACE OVER THREE (3) MONTHS. PLACE ADDITIONAL APPLICATIONS OF PAINT UPON SUFFICIENT DRYING TIME, AS DETERMINED BY THE ENGINEER.

APPROVED: <i>Brian D. Deyle</i> DATE: 12-22-04		<b>PROJECT NOTES</b>	
	SCALE:	NONE	
	DATE:	07/01/04	
	DWG. BY:	MAB	
	DESIGN BY:	JLS	
REVIEWED BY:	BDD	REVISIONS	
		RALPH WHITEHEAD ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 35624 CHARLOTTE, N.C. 28235	
		CADD FILE: R2562AA_B01_TCP2.dgn	

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 matfnew.bell



## PHASE I

### STEP 1:

INSTALL WORK ZONE ADVANCE WARNING SIGNS ON ALL ROADWAYS WITHIN THE PROJECT LIMITS. IF WORK IS NOT PURSUED WITHIN THREE DAYS OF SIGN INSTALLATION, THE SIGNS SHALL BE COVERED OR REMOVED IN A METHOD APPROVED BY THE ENGINEER ACCORDING TO STANDARD SPECIFICATION SECTION 1110.

### STEP 2:

WHILE MAINTAINING ACCESS TO SR 2233 (BUTLER NURSERY RD), USE ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 7 (LEFT LANE CLOSURE) FOR NC 87 (NB AND SB) AND CONSTRUCT NB CROSSOVER AS FOLLOWS:

- NBXO- STA. 10+19 +/- TO 11+87 +/-
- NBXO- STA. 15+70 +/- TO 17+16 +/-

NOTE: RESTORE 4-LANE, 2-WAY TRAFFIC PATTERN AT THE END OF EACH WORK DAY.

COMPLETE STEPS 3 THRU 6 IN A CONTINUOUS MANNER.

### STEP 3:

COMPLETE THE NORTHBOUND CROSSOVER FROM -NBXO- STA. 10+19 +/- TO 11+87 +/- AND FROM 15+70 +/- TO 17+16 +/-.

USING ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 7\* (RIGHT LANE CLOSURE) FOR NC 87 (SB ONLY), OBLITERATE EXISTING CONFLICTING PAVEMENT MARKINGS (OUTSIDE EDGELINE) FROM -NBXO- STA. 10+19 +/- TO 17+87 +/- RT.

PLACE TEMPORARY PAVEMENT MARKINGS FROM -NBXO- STA. 7+50 +/- TO 17+87 +/- RT IN ACCORDANCE WITH DETAIL 1 ON TCP-4.

### STEP 4:

USING ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 7\* (LEFT LANE CLOSURE), SHIFT SB TRAFFIC TO TEMPORARY ONE-LANE, ONE-WAY TRAFFIC PATTERN ON NC 87 (SB).

INSTALL TEMPORARY CONCRETE BARRIER FROM -NBXO- STA. 10+19 +/- TO 17+37 +/- IN ACCORDANCE WITH DETAIL 1 ON SHEET TCP-4, AND ROADWAY PLAN SHEETS 4 THRU 6.

### STEP 5:

USING ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 7\* (LEFT LANE CLOSURE) FOR NC 87 (NB), OBLITERATE REMAINING EXISTING CONFLICTING PAVEMENT MARKINGS FROM -NBXO- STA. 10+19 +/- TO 17+37 +/-.

PLACE TEMPORARY PAVEMENT MARKINGS FROM -NBXO- STA. 10+19 +/- TO 20+07 +/- IN ACCORDANCE WITH DETAIL 1 ON TCP-4.

USING DETAIL 3 ON TCP-4, MAINTAIN LIMITED ACCESS TO BUTLER NURSERY RD.

### STEP 6:

USING ROADWAY STANDARD DRAWING 1101.03 SHEET 4 OF 9\*, CLOSE NC 87 (NB) AND SHIFT NB TRAFFIC TO NB CROSSOVER AND TEMPORARY 2-LANE, 2-WAY TRAFFIC PATTERN ON NC 87 (SB LANES) FROM -NBXO- STA. 10+19 +/- TO 20+07 +/-.

### STEP 7:

PERFORM REPAIRS TO EMBANKMENT UNDER NC 87 NORTHBOUND BRIDGE OVER ROCKFISH CREEK.

\*MODIFY BUFFER LENGTH TO 90m FOLLOWING MERGE TAPER IN ROADWAY STANDARD DRAWINGS 1101.02 SHEET 3 OF 7 AND 1101.03 SHEET 4 OF 9.

## PHASE II

### STEP 1:

OBLITERATE EXISTING OUTSIDE EDGE LINE OF NB LANES FROM -SBXO- STA. 12+00 +/- TO 19+44 +/- LT.

PLACE TEMPORARY PAVEMENT MARKINGS FROM -SBXO- STA. 12+00 +/- TO 22+14 +/- LT IN ACCORDANCE WITH DETAIL 2 ON TCP-4.

### STEP 2:

REMOVE TUBULAR MARKERS ON BUTLER NURSERY ROAD AND USING ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 7\* (LEFT LANE CLOSURE) FOR NC 87 (NB), SHIFT NB TRAFFIC TO TEMPORARY ONE-LANE, ONE-WAY TRAFFIC PATTERN ON NC 87 (NB).

REMOVE TEMPORARY CONCRETE BARRIER FROM -NBXO- STA. 10+19 +/- TO 17+37 +/- RT.

### STEP 3:

USING ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 7\* (LEFT LANE CLOSURE) FOR NC 87 (NB AND SB), OBLITERATE THE NB CROSSOVER FROM -NBXO- STA. 10+19 +/- TO 11+87 +/- AND FROM STA. 15+70 +/- TO 17+37 +/- AND CONSTRUCT THE SB CROSSOVER AS FOLLOWS:

- SBXO- STA. 12+50 +/- TO 13+95 +/-
- SBXO- STA. 18+25 +/- TO 19+44 +/-

INSTALL TEMPORARY CONCRETE BARRIER FROM -SBXO- STA. 12+50 +/- TO 19+44 +/- LT.

COMPLETE STEPS 4 THRU 5 IN A CONTINUOUS MANNER.

### STEP 4:

OBLITERATE CONFLICTING PAVEMENT MARKINGS FROM -SBXO- STA. 11+90 +/- TO 20+05 +/-.

PLACE TEMPORARY PAVEMENT MARKINGS FROM -SBXO- STA. 9+80 +/- TO 20+05 +/- IN ACCORDANCE WITH DETAIL 2 ON TCP-4.

### STEP 5:

USING ROADWAY STANDARD DRAWING 1101.03 SHEET 4 OF 9\*, CLOSE NC 87 (SB) AND SHIFT SB TRAFFIC TO SB CROSSOVER AND TEMPORARY 2-LANE, 2-WAY TRAFFIC PATTERN ON NC 87 (NB LANES) FROM -SBXO- STA. 9+80 +/- TO 20+05 +/-.

### STEP 6:

PERFORM REPAIRS TO EMBANKMENT UNDER NC 87 SOUTHBOUND BRIDGE OVER ROCKFISH CREEK.

## PHASE III

### STEP 1:

RESTORE FINAL TRAFFIC PATTERN BY PLACING TEMPORARY PAVEMENT MARKINGS ON NC 87 (SB) FROM -SBXO- STA. 9+80 +/- TO 20+05 +/- USING ROADWAY STANDARD DRAWING 1205.02.

### STEP 2:

USING ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 7\* (LEFT LANE CLOSURE), SHIFT SB TRAFFIC TO TEMPORARY ONE-LANE, ONE-WAY TRAFFIC PATTERN ON NC 87 (SB LANES).

### STEP 3:

REMOVE TEMPORARY CONCRETE BARRIER FROM -SBXO- STA. 12+50 +/- TO 19+44 +/-.

OBLITERATE SB CROSSOVER FROM STA. 12+50 +/- TO 13+95 +/- AND FROM 18+25 +/- TO 19+44 +/-.

### STEP 4:

RESTORE TWO-LANE, ONE-WAY TRAFFIC PATTERN ON NC 87 (SB ONLY).

### STEP 5:

USING ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 7\* (RIGHT LANE CLOSURE), SHIFT NB TRAFFIC TO ONE-LANE, ONE-WAY TRAFFIC PATTERN ON NC 87 (NB LANES) AND OBLITERATE TEMPORARY PAVEMENT MARKINGS FROM -SBXO- STA. 12+00 +/- TO 19+44 +/-.

RESTORE FINAL TRAFFIC PATTERN BY PLACING TEMPORARY PAVEMENT MARKINGS ON NC 87 (NB) FROM -SBXO- STA. 12+00 +/- TO 22+14 +/- USING ROADWAY STANDARD DRAWING 1205.02 AND ALTERNATING LANE CLOSURES AS NECESSARY.


### STEP 6:

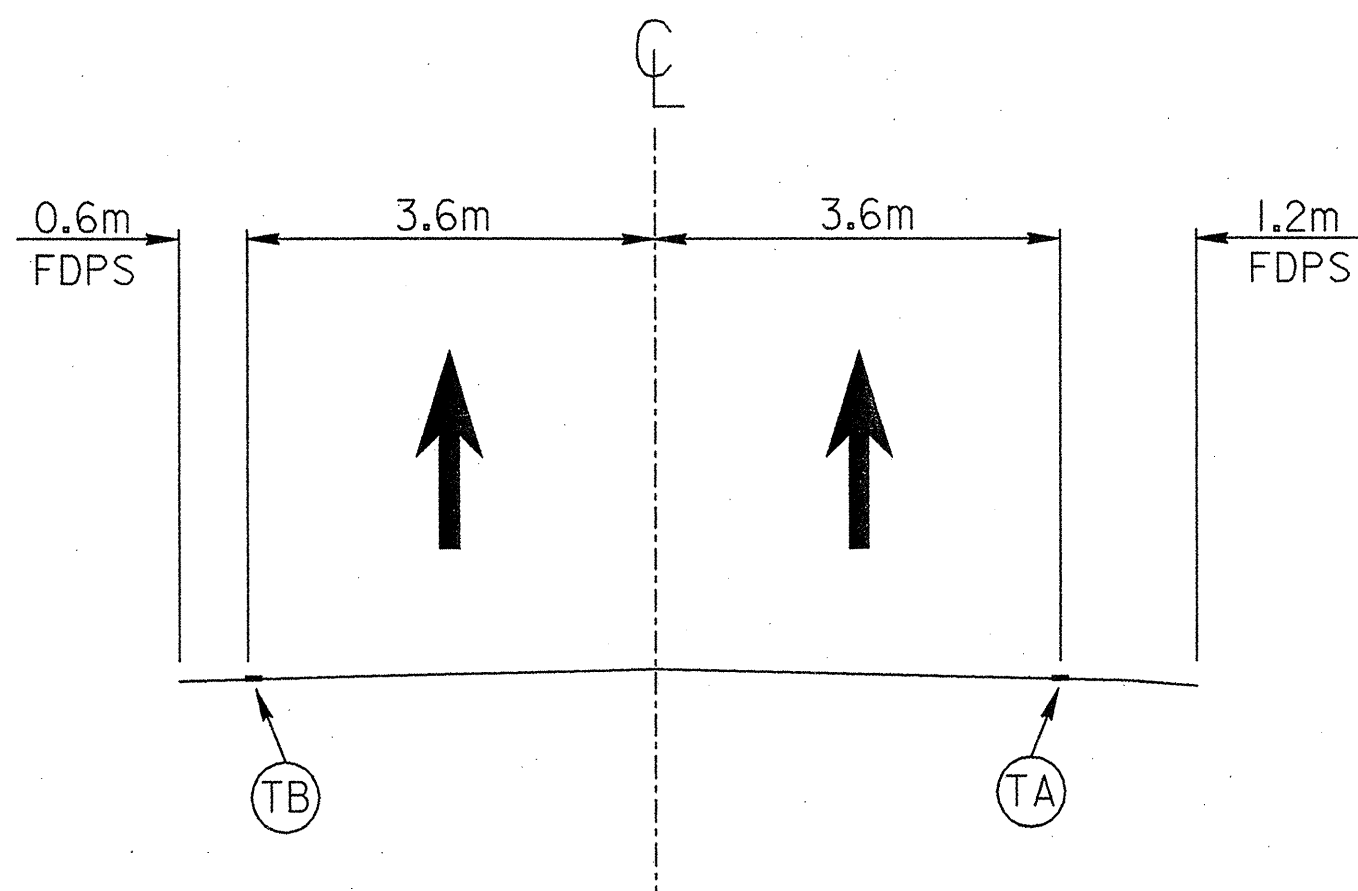
RESTORE TWO-LANE, ONE-WAY TRAFFIC PATTERN ON NC 87 (NB LANES).

## PHASE IV

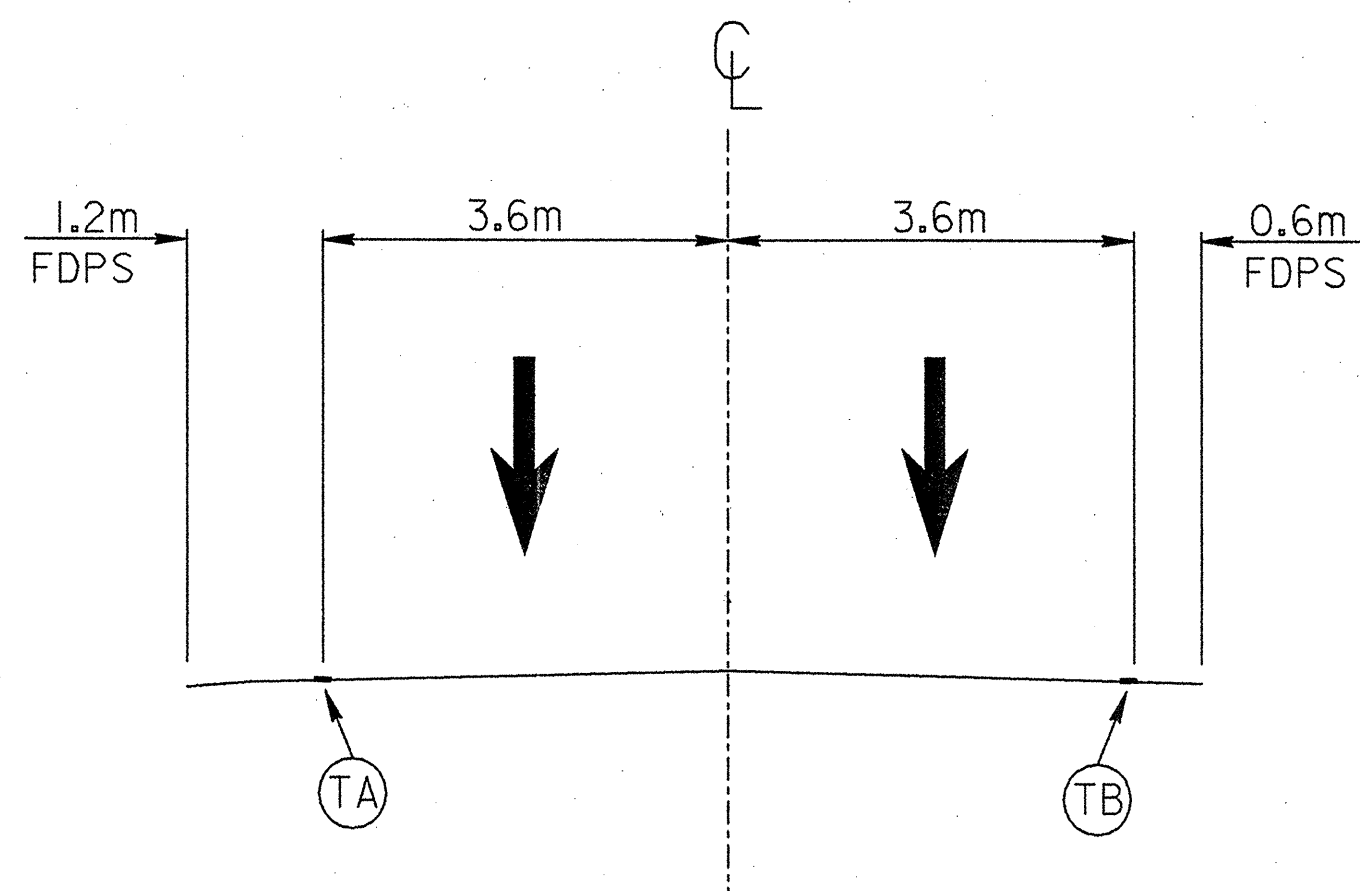
### STEP 1:

ALTERNATE LANE CLOSURES USING STANDARD ROADWAY DRAWING 1101.02 SHEET 3 OF 7, RESURFACE EXISTING NC-87 AND PLACE PERMANENT PAVEMENT MARKINGS (RDWY. STD. NO. 1205.01, 1205.02, 1205.04, 1205.05, 1205.08, AND 1205.12) AND RAISED PAVEMENT MARKERS (RDWY. STD. NO. 1250.01 AND 1251.01) FROM -LREV- STA. 20+31 +/- TO 32+52 +/-.

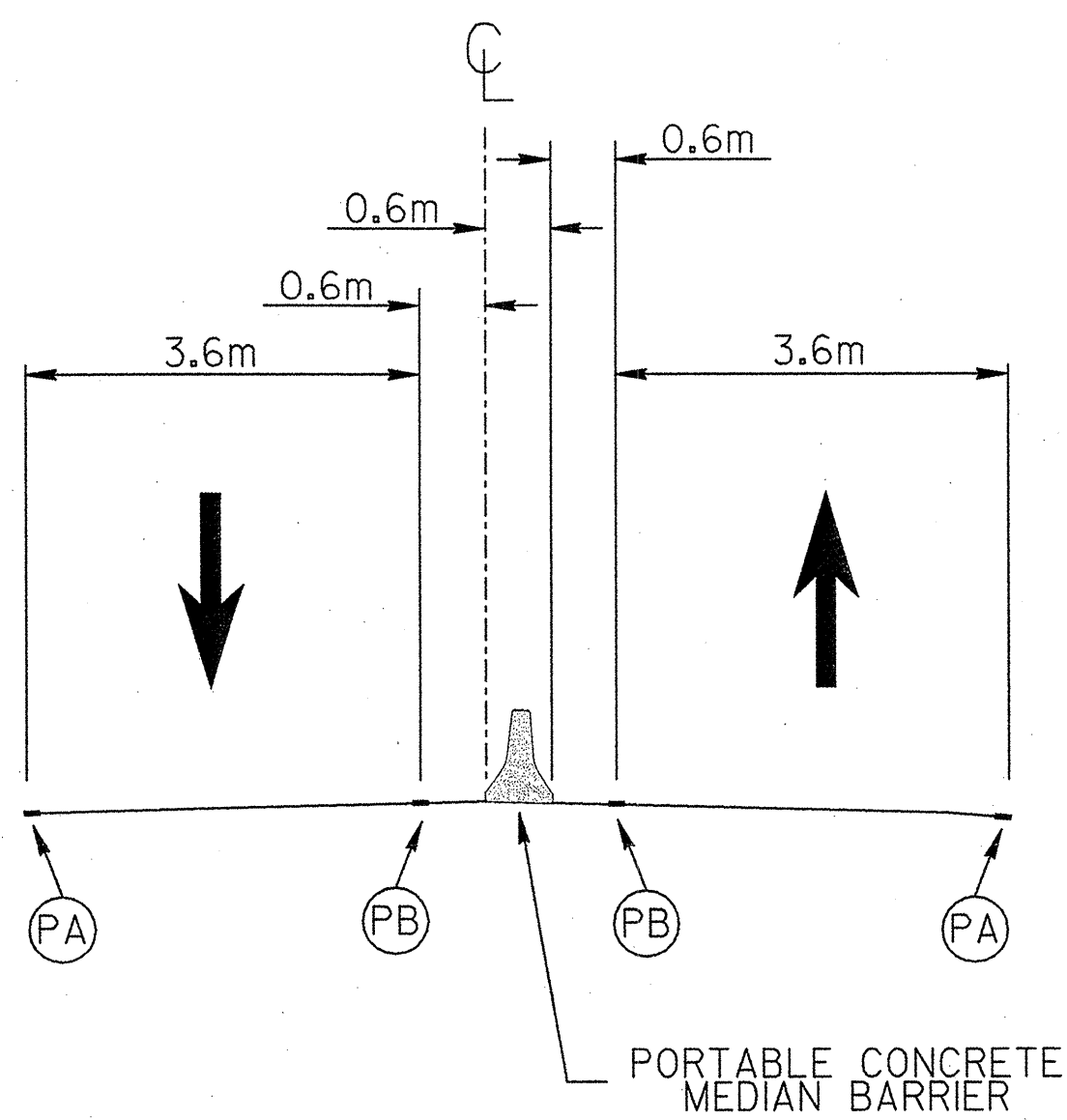
APPROVED: <i>Brian D. DeWler</i> DATE: 12-22-04	<b>PHASING</b>	
	SCALE: NONE	REVISIONS
	DATE: 06/21/04	
	DWG. BY: JLS	
	DESIGN BY: JLS	
REVIEWED BY: BDD		
<small>RALPH WHITEHEAD ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 35504 CHARLOTTE, N.C. 28235</small>		<small>CADD FILE R2562AA_rdy_tcp3.dgn</small>



EXISTING (SB LANES)



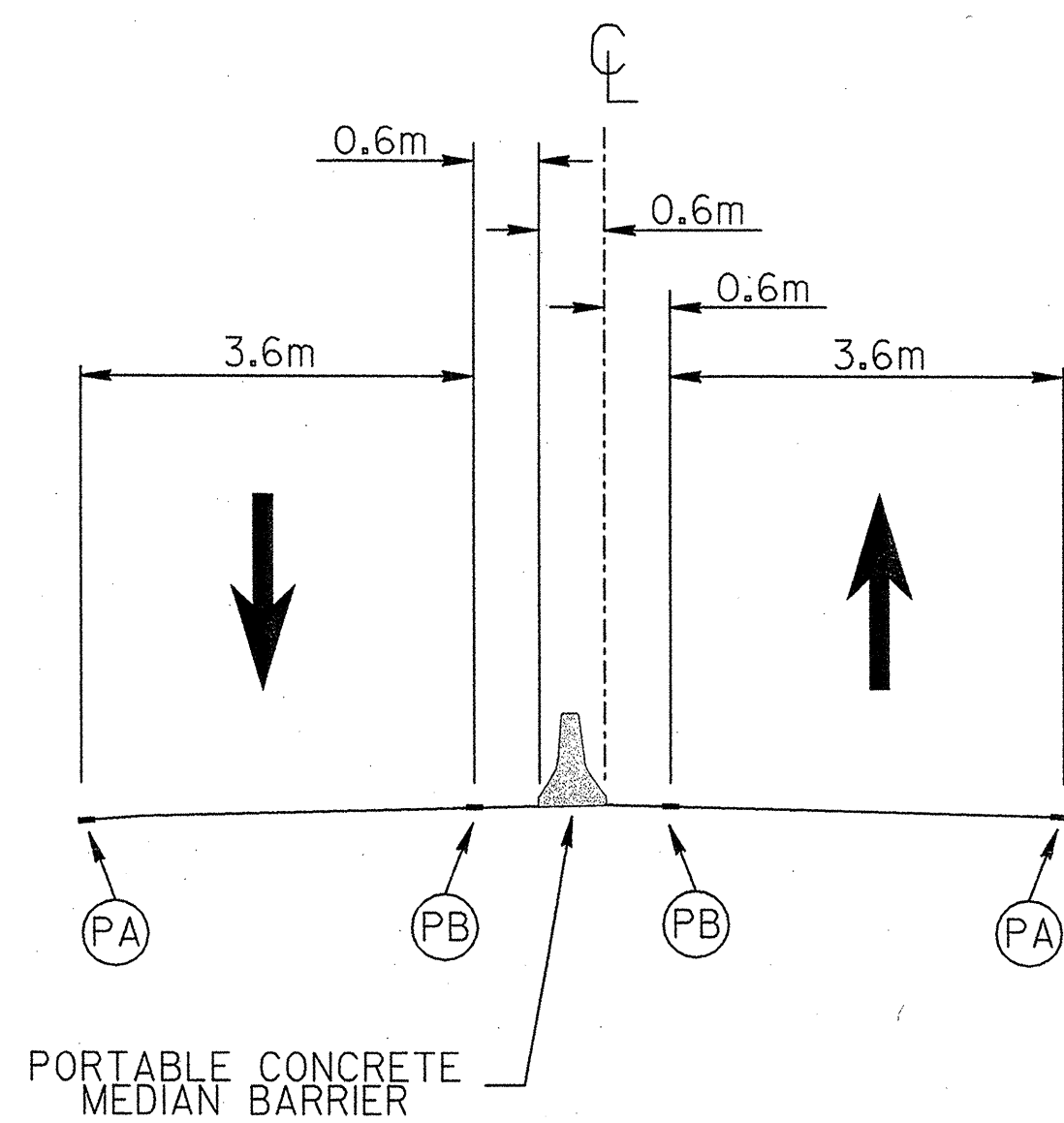
EXISTING (NB LANES)



TEMPORARY (SB LANES)

**DETAIL 1**

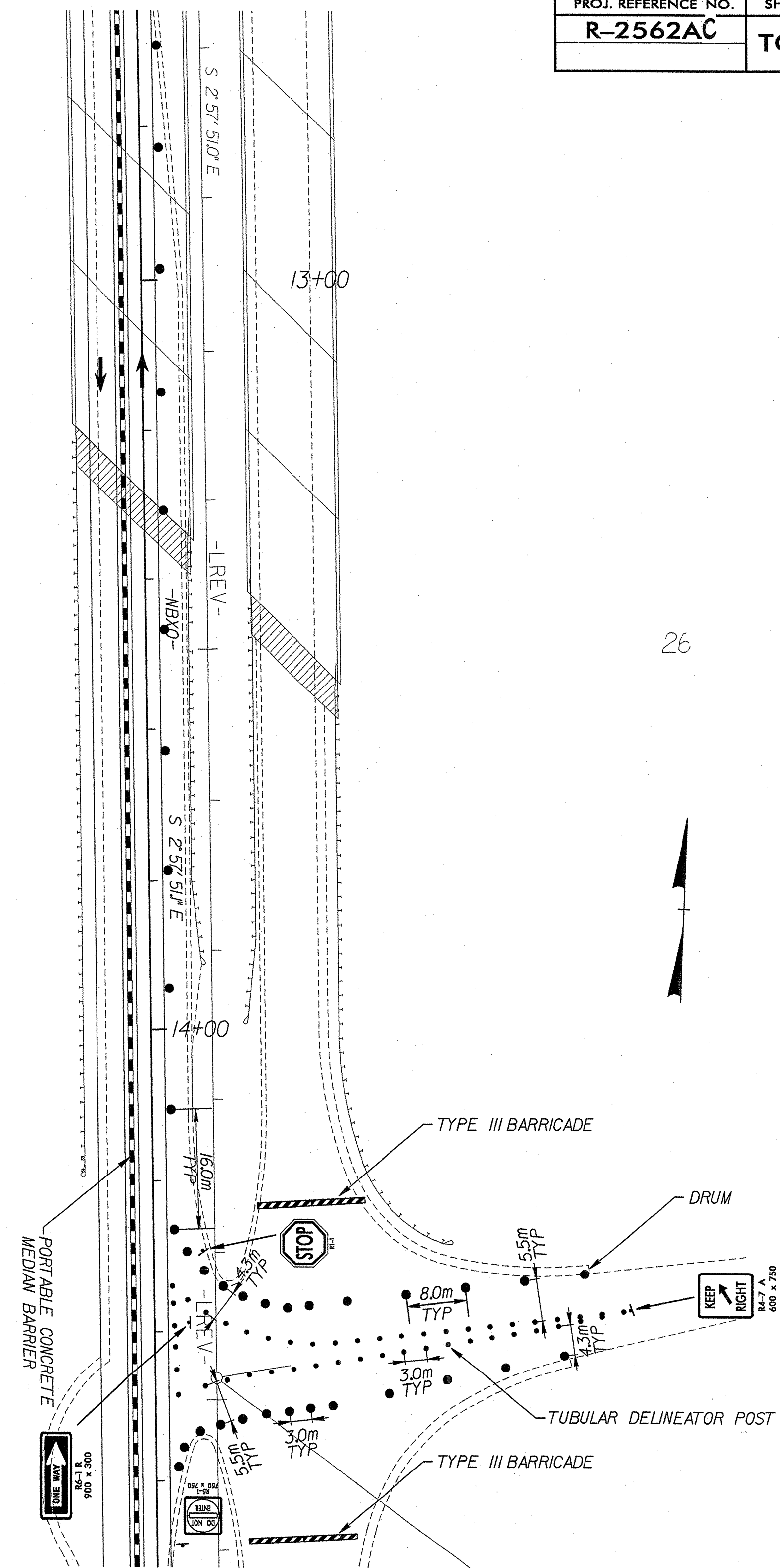
SHOWING RELATIONSHIP BETWEEN EXISTING AND TEMPORARY LANE CONFIGURATION



TEMPORARY (NB LANES)

**DETAIL 2**

SHOWING RELATIONSHIP BETWEEN EXISTING AND TEMPORARY LANE CONFIGURATION



**DETAIL 3**

PHASE I TRAFFIC CONTROL AT INTERSECTION OF NC 87 AND BUTLER NURSERY ROAD

APPROVED: <i>Brian D. Dehler</i> DATE: 11-22-04	<b>TRAFFIC CONTROL DETAILS</b>	
SCALE: NONE	REVISIONS	
DATE: 07/104		
DWG. BY: JLS		
DESIGN BY: JLS		
REVIEWED BY: BDD		
<small>RALPH WHITEHEAD ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 35624 CHARLOTTE, N.C. 28235</small>		<small>CADD FILE R2562AA_rdy_tcp4.dgn</small>



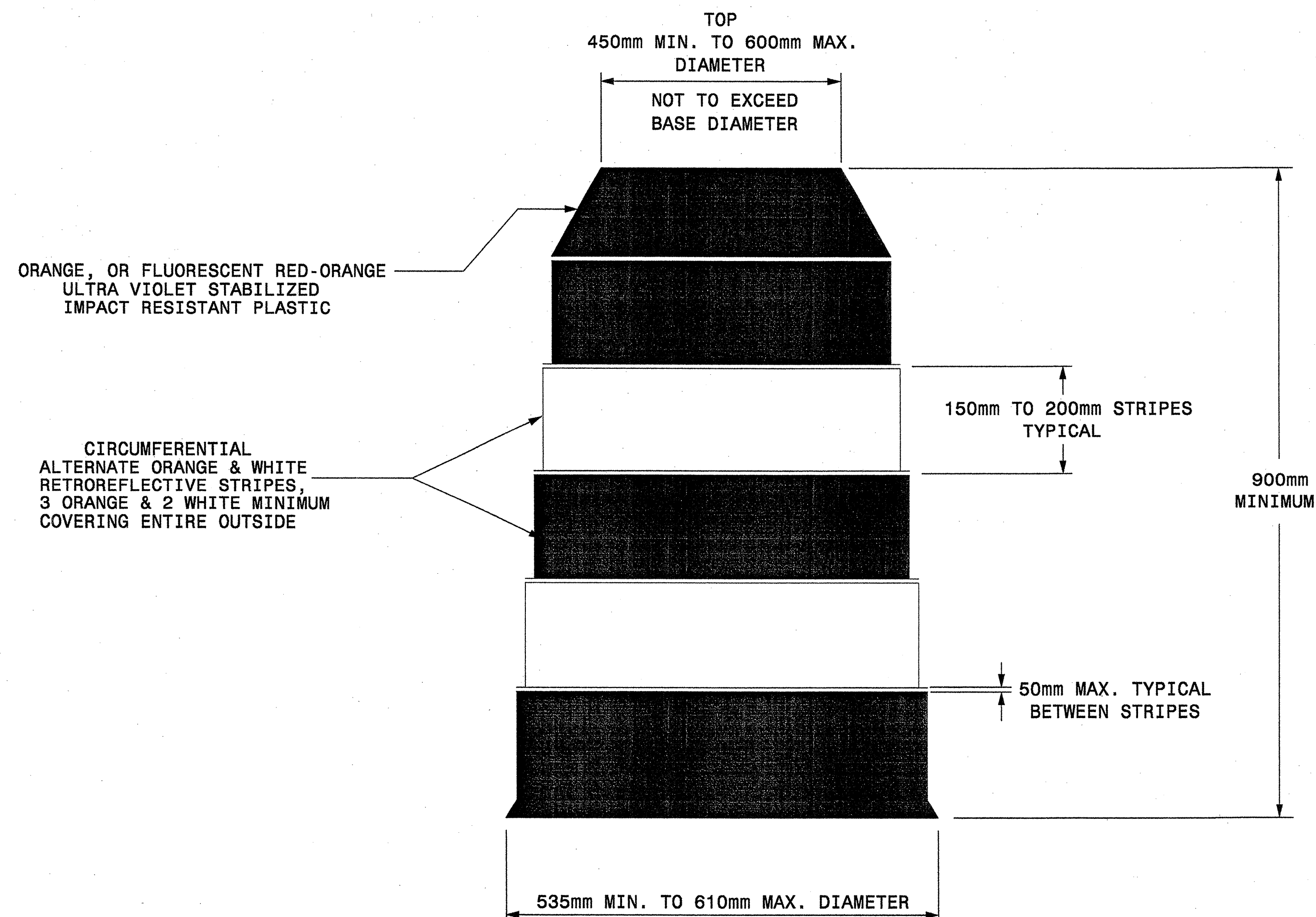
PROJ. REFERENCE NO.	SHEET NO.
R-2562AC	TCP-5

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

1-02

METRIC STANDARD DRAWING FOR  
**DRUMS**

SHEET 1 OF 1  
**1130D01**



**GENERAL NOTES**

- BALLASTING SHALL BE ACHIEVED BY THE SAND BAG, TIRE-SIDEWALL BALLAST, OR PREFORMED WEIGHTED BASE BALLASTING METHODS. DO NOT PLACE BALLAST ON TOP OF THE DRUM, NOR AS TO PRESENT A HAZARD WHEN STRUCK.
- IF NECESSARY PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE DRUM SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 50mm IN HEIGHT.

**Note:**  
This drawing is dimensioned in  
millimeters unless otherwise  
depicted within the drawing.

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

1-02

METRIC STANDARD DRAWING FOR  
**DRUMS**

SHEET 1 OF 1  
**1130D01**

12/22/2004  
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matthew.bell

APPROVED: *[Signature]* DATE: 12-22-04

**REPLACEMENT DETAIL FOR  
RSD 1130.01**

SCALE: NONE		REVISIONS
DATE: 7/04		
DWG. BY:		
DESIGN BY:		
REVIEWED BY:		

CADD FILE



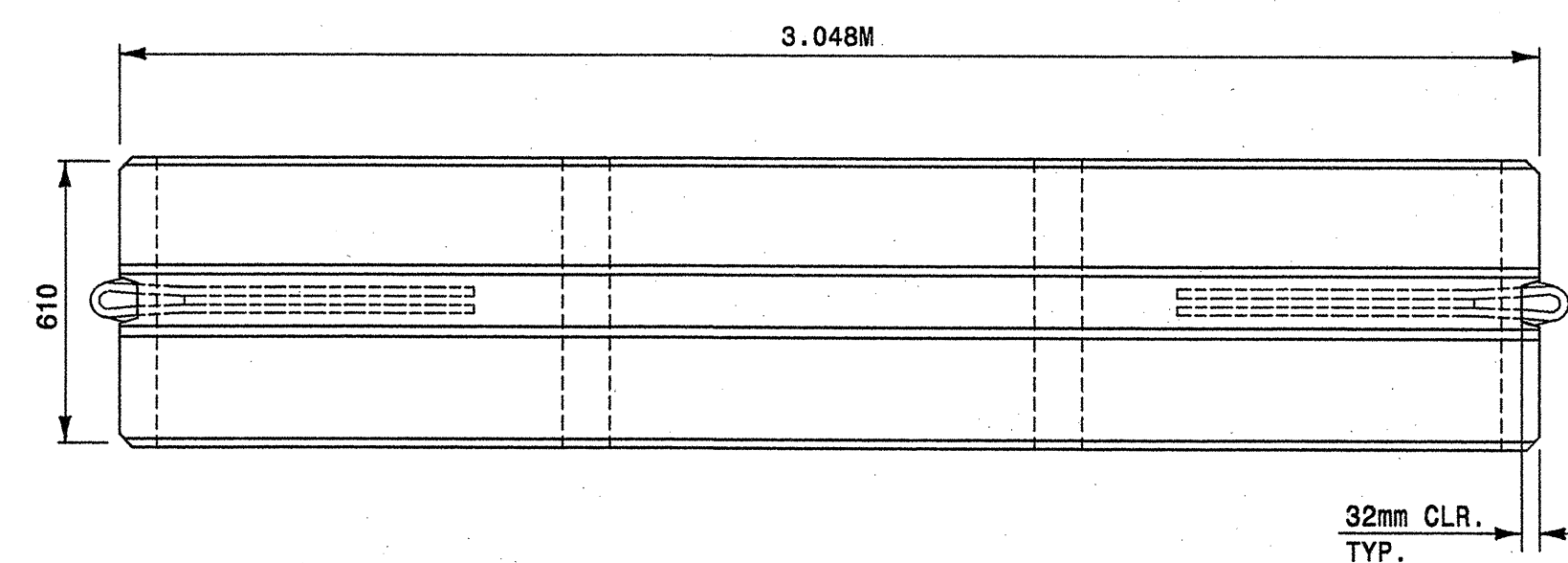


PROJ. REFERENCE NO.	SHEET NO.
R-2562AC	TCP-6

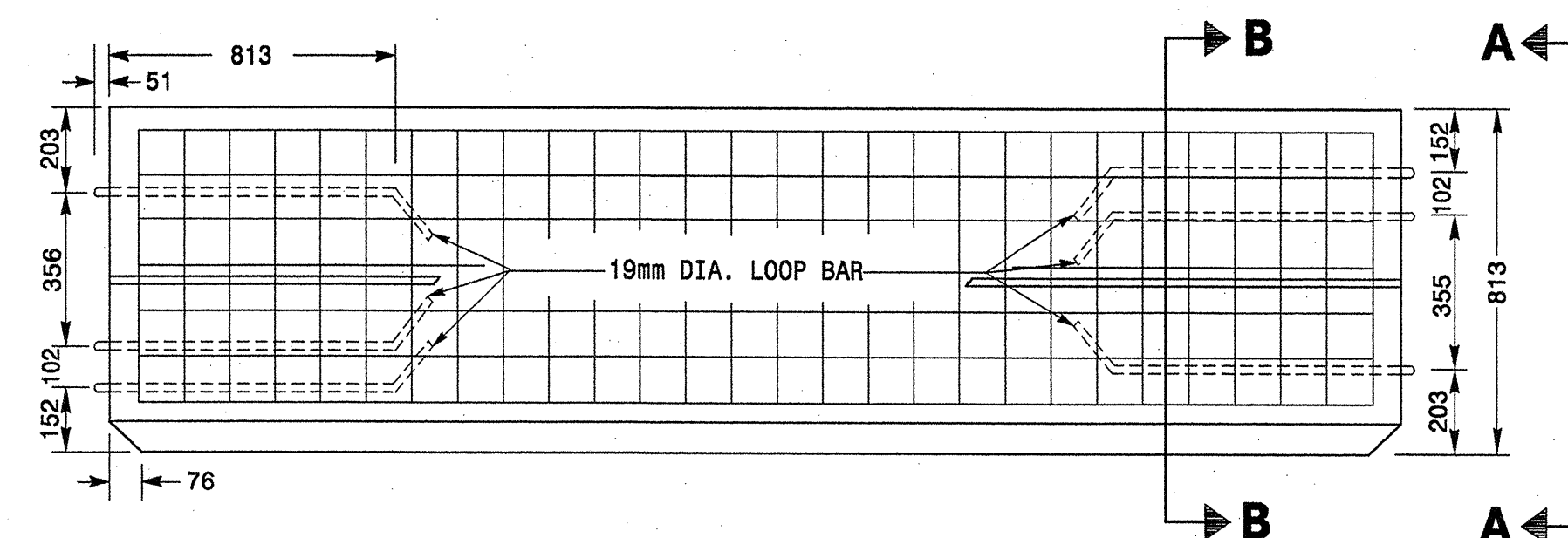
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

METRIC STANDARD DRAWING FOR  
**PORTABLE CONCRETE BARRIER**

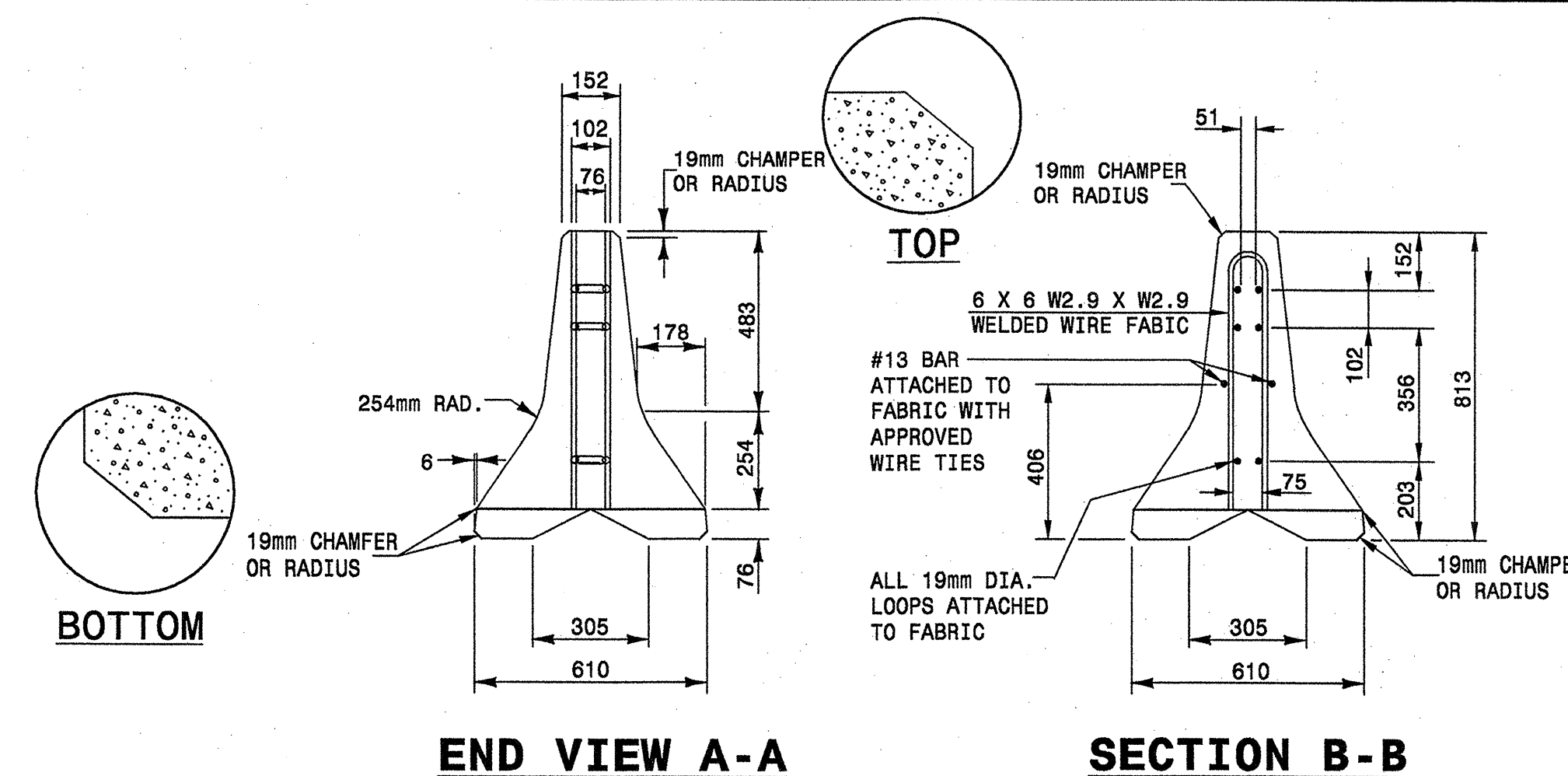
SHEET 1 OF 4  
**1170.01**



**PLAN**

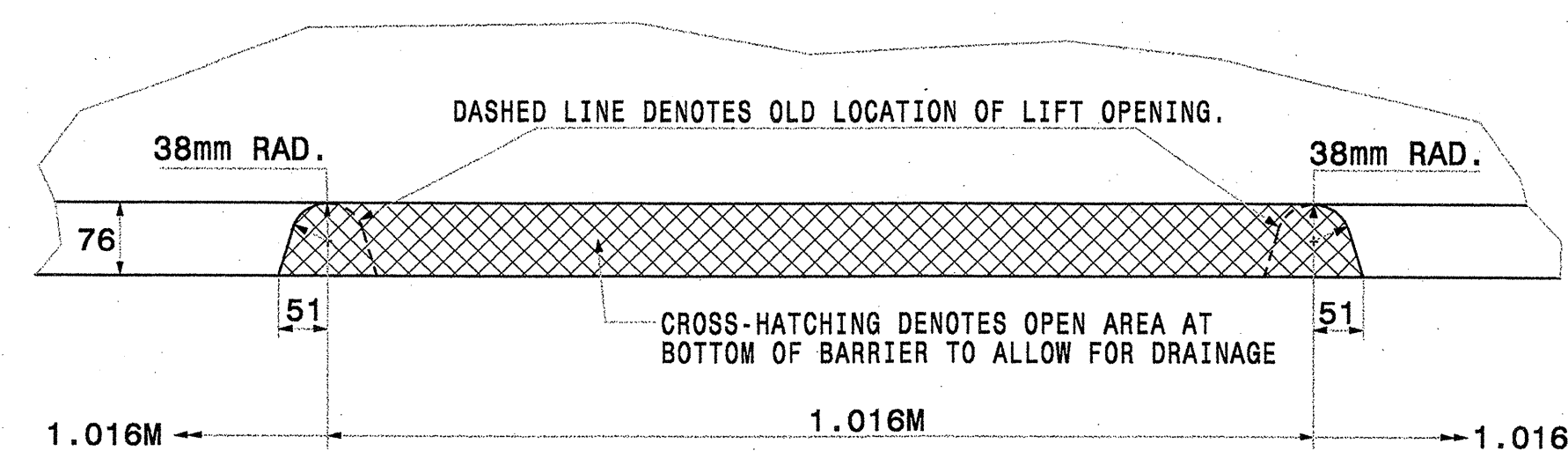


**ELEVATION**



**END VIEW A-A**

**SECTION B-B**



**ELEVATION DETAIL OF DRAINAGE/LIFT SLOT**

**GENERAL NOTES**

- THE DRAINAGE/LIFT SLOT SHOWN IS A MODIFICATION OF THE LIFT OPENINGS, ALL OTHER DESIGN CRITERIA SUCH AS REINFORCEMENT BARS ETC. ARE THE SAME AS SHOWN ON THE STANDARD DRAWING.
- BARRIER WITH DRAINAGE/LIFT SLOT IS INTENDED TO BE USED IN AREAS WHERE ROADWAY SURFACE WATER RUNOFF CAUSES EXCESS PUDDLING ADJACENT TO THE TEMPORARY BARRIER. INSTALL THE BARRIER AS SHOWN IN THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- DRAINAGE/SLOT CAN BE USED WITH ANCHORED "PORTABLE CONCRETE BARRIER".

**Note:**  
This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

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METRIC STANDARD DRAWING FOR  
**PORTABLE CONCRETE BARRIER**

SHEET 1 OF 4  
**1170.01**

12/22/2004  
n:\proj\312\ustation\rdwy\2562aa\_rdy\_top6.dgn  
mhf\newbell

APPROVED: <i>Brian D. Dehler</i> DATE: 12-22-04	<b>REPLACEMENT DETAIL FOR RSD 1170.01</b>	
	SCALE: NONE	
	DATE: 7/04	
	DWG. BY:	
	DESIGN BY:	
REVIEWED BY:	REVISIONS	CADD FILE

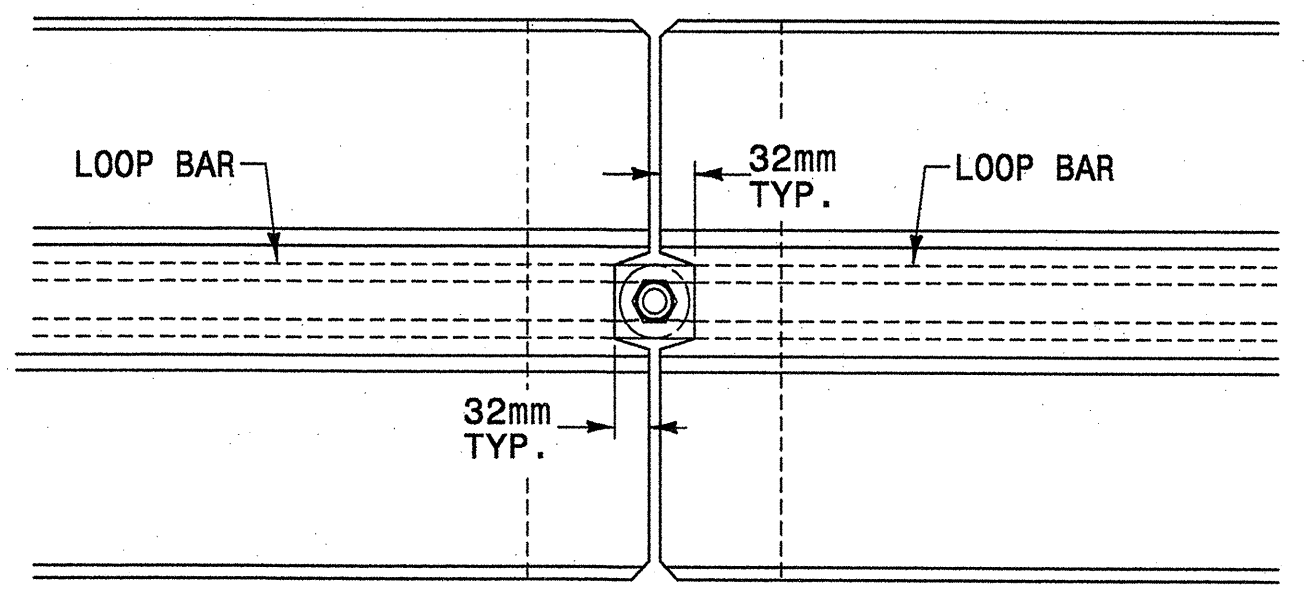


PROJ. REFERENCE NO.	SHEET NO.
R-2562AC	TCP-7

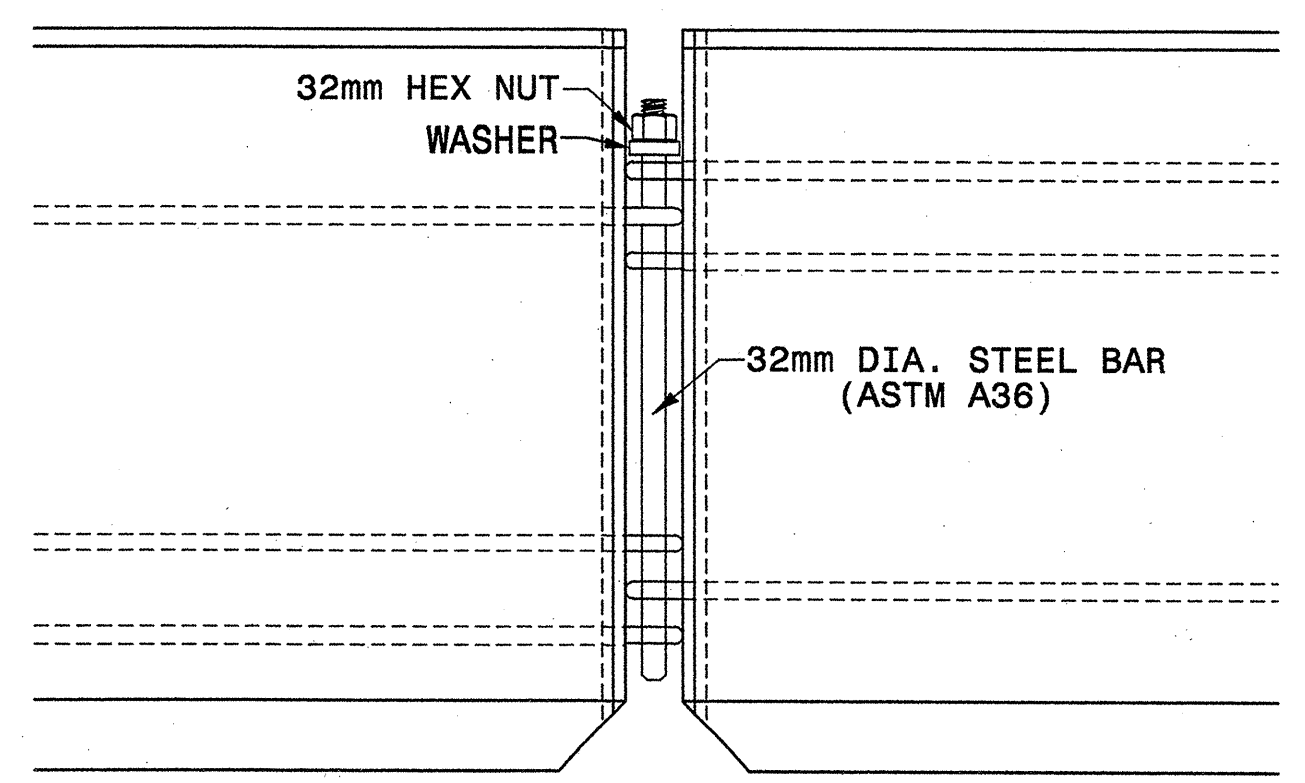
STATE OF  
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DIVISION OF HIGHWAYS  
RALEIGH, N.C.

METRIC STANDARD DRAWING FOR  
**PORTABLE CONCRETE BARRIER**

SHEET 3 OF 4  
**1170.01**

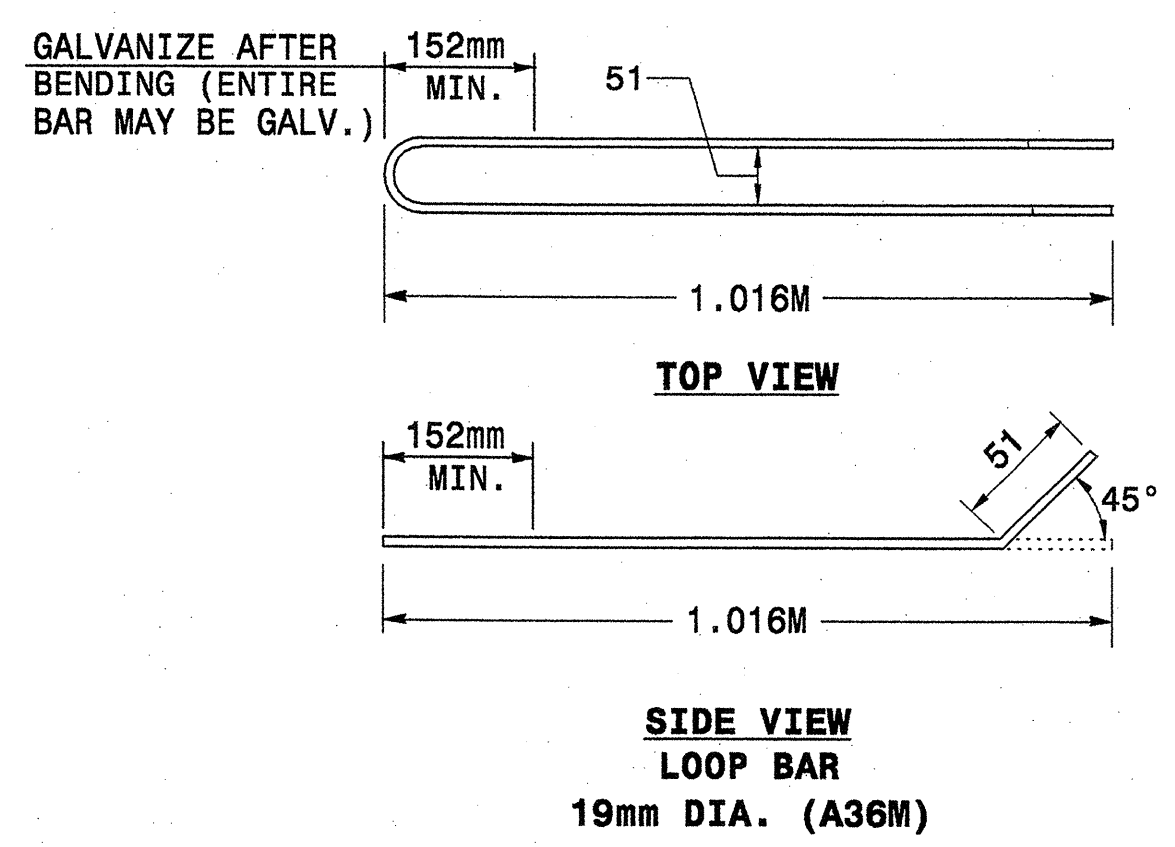


**PLAN OF CONNECTION**

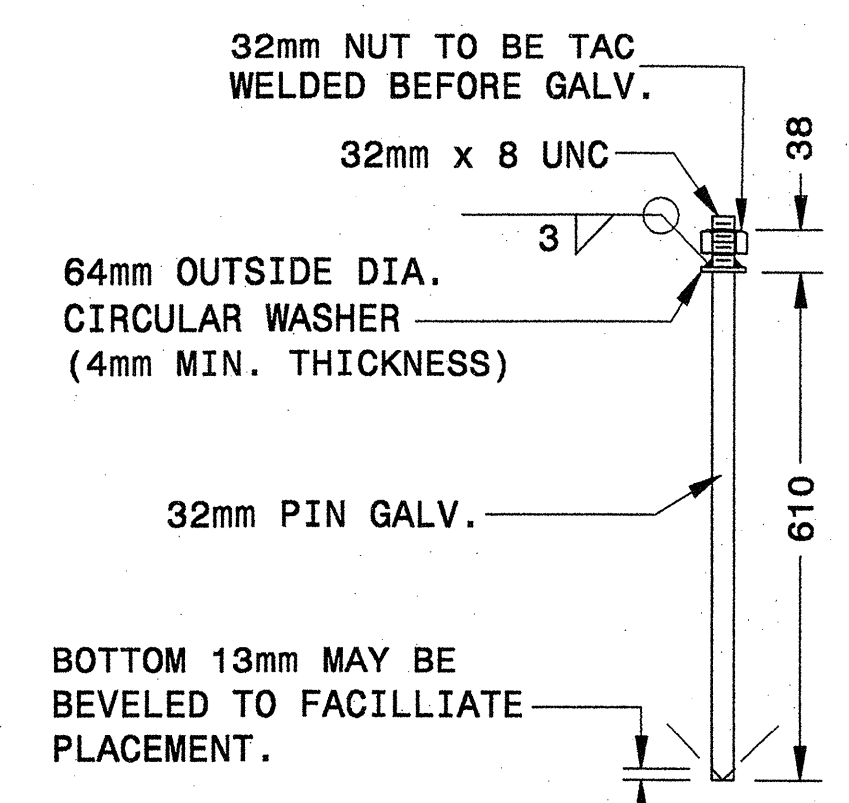


**ELEVATION OF CONNECTION**

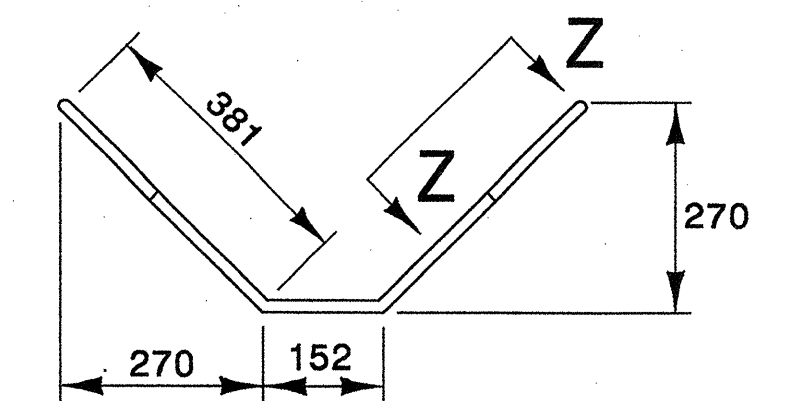
**Note:**  
This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.



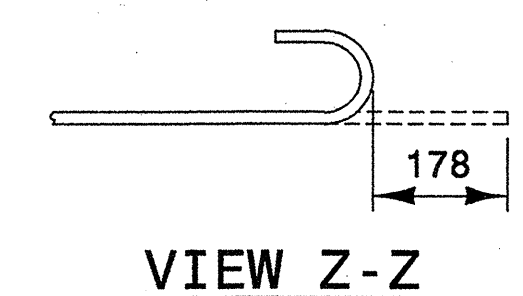
**REINFORCEMENT DETAIL**



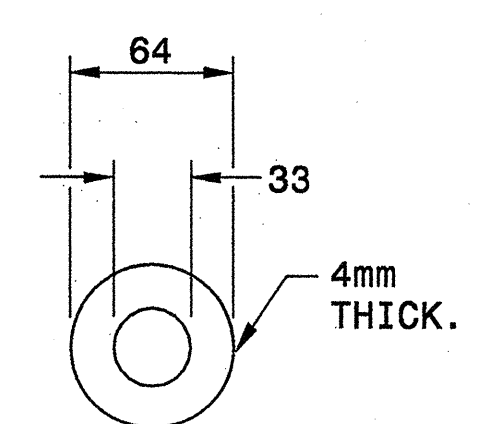
**CONNECTOR PIN ASSEMBLY**



**S1 BARS  
#16 BARS**



**VIEW Z-Z**



**PLAIN GALVANIZED STEEL WASHER FOR 32mm PIN**

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METRIC STANDARD DRAWING FOR  
**PORTABLE CONCRETE BARRIER**

SHEET 3 OF 4  
**1170.01**

12/22/2004  
n:\pro1\312\ustation\rdwy\12562aa\_r\_dy\_tcp7.dgn  
matthew.bell

APPROVED: *Brian D. Dehler* DATE: 12-22-04

**REPLACEMENT DETAIL FOR RSD 1170.01**

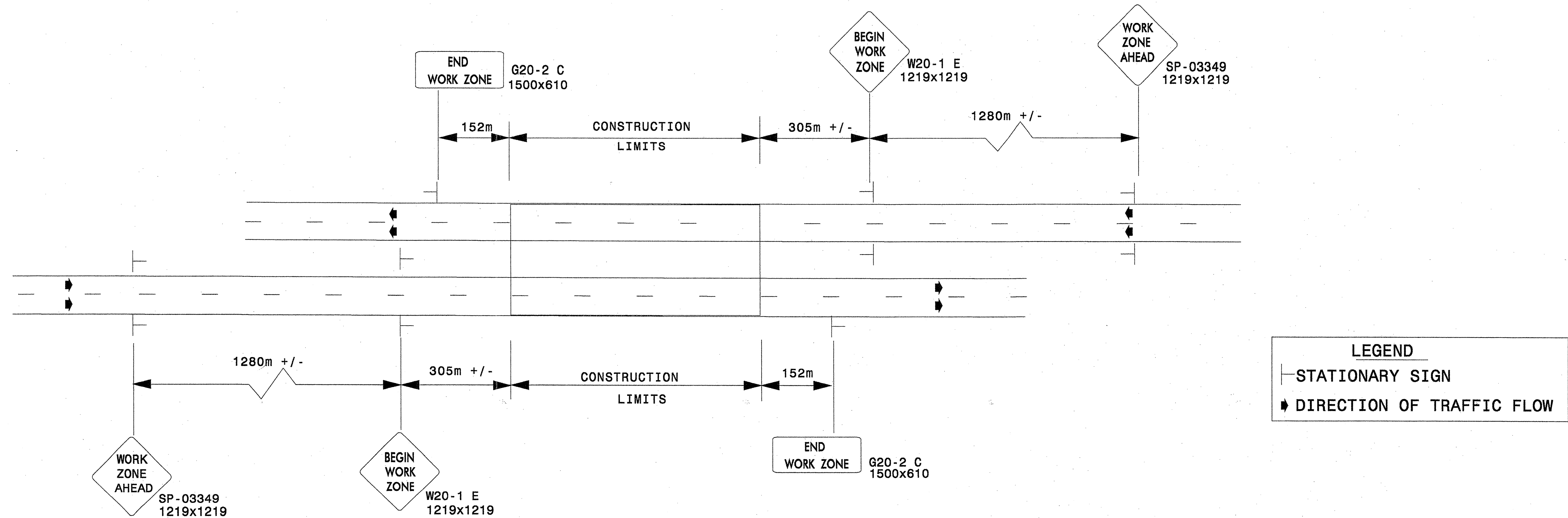
SCALE: NONE		REVISIONS
DATE: 7/04		
DESIGN BY:		
REVIEWED BY:		

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# ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

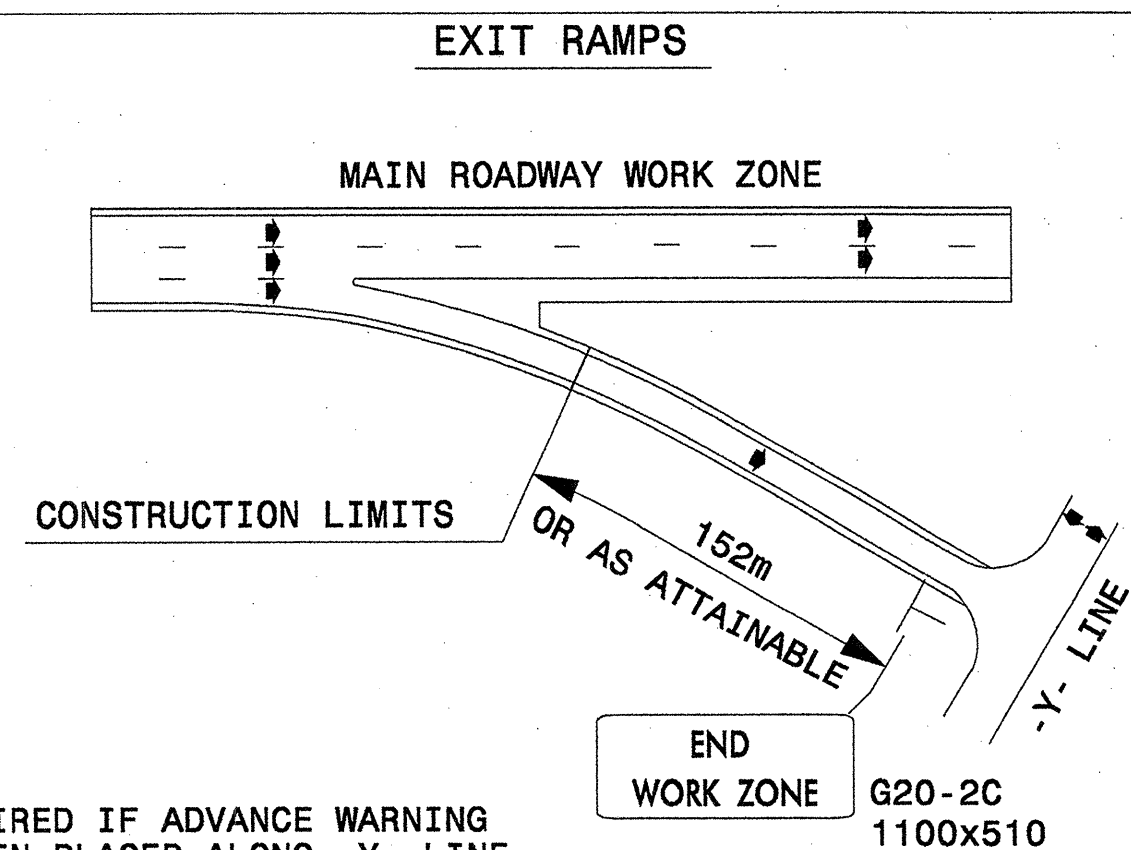
PROJ. REFERENCE NO.	SHEET NO.
R-2562A0	TCP-8

## DETAIL A



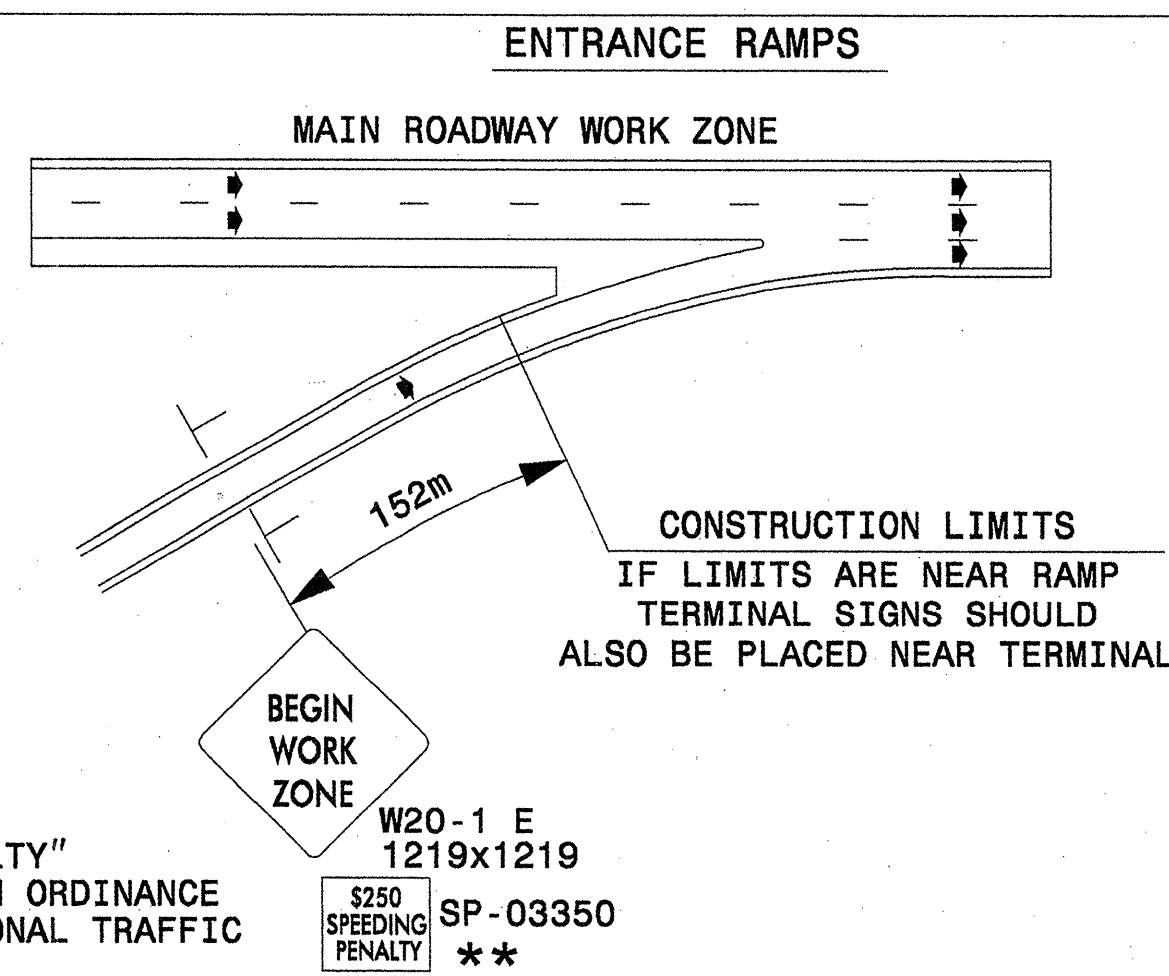
LEGEND	
	STATIONARY SIGN
▶	DIRECTION OF TRAFFIC FLOW

## DETAIL B



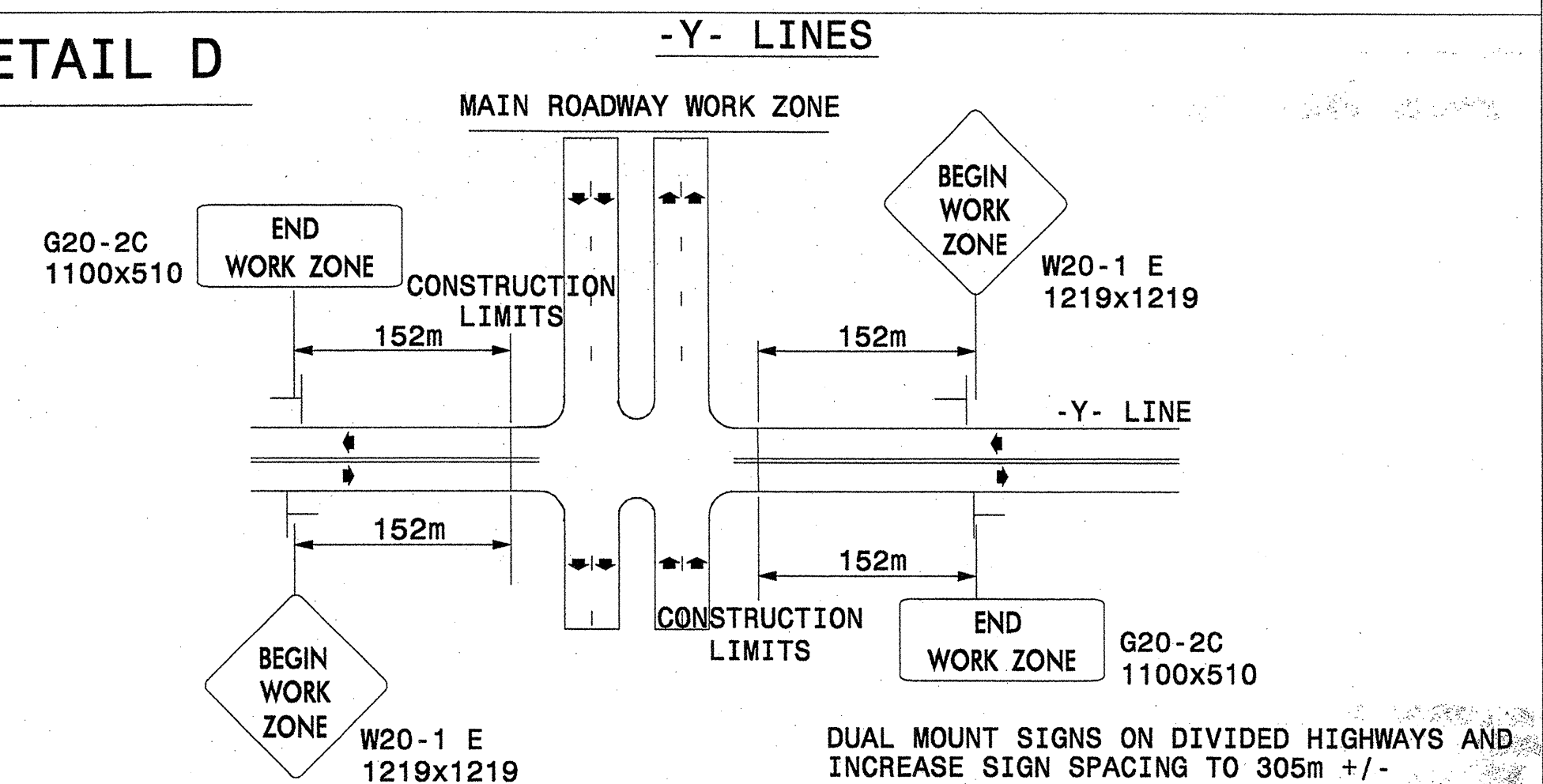
NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

## DETAIL C



\*\* USE THE "\$250 SPEEDING PENALTY" SUPPLEMENTAL SIGN ONLY IF AN ORDINANCE HAS BEEN ISSUED BY THE REGIONAL TRAFFIC ENGINEER.

## DETAIL D



## GENERAL NOTES

- USE TYPE VII SHEETING OR HIGHER FOR ALL WORK ZONE WARNING SIGNS. (STANDARD PRACTICE FOR SIGN SHEETING, S-68)
- 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 1.4Kg STEEL U-CHANNEL POST OR 90mmx90mm WOOD POST FOR ALL WORK ZONE SIGNS. 1.4Kg 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 1.4Kg STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 1.4Kg 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.

APPROVED: <i>Brian D. DeWiler</i> DATE: 12-22-04 	<b>ADVANCED WORK ZONE WARNING SIGNS FOR FREEWAYS (4 LANES OR GREATER)</b>	<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>SCALE:</td> <td>NONE</td> </tr> <tr> <td>DATE:</td> <td>07/04</td> </tr> <tr> <td>DWG. BY:</td> <td>JLS</td> </tr> <tr> <td>DESIGN BY:</td> <td>JLS</td> </tr> <tr> <td>REVIEWED BY:</td> <td>BDD</td> </tr> </table>	SCALE:	NONE	DATE:	07/04	DWG. BY:	JLS	DESIGN BY:	JLS	REVIEWED BY:	BDD
SCALE:	NONE											
DATE:	07/04											
DWG. BY:	JLS											
DESIGN BY:	JLS											
REVIEWED BY:	BDD											
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REVISIONS												

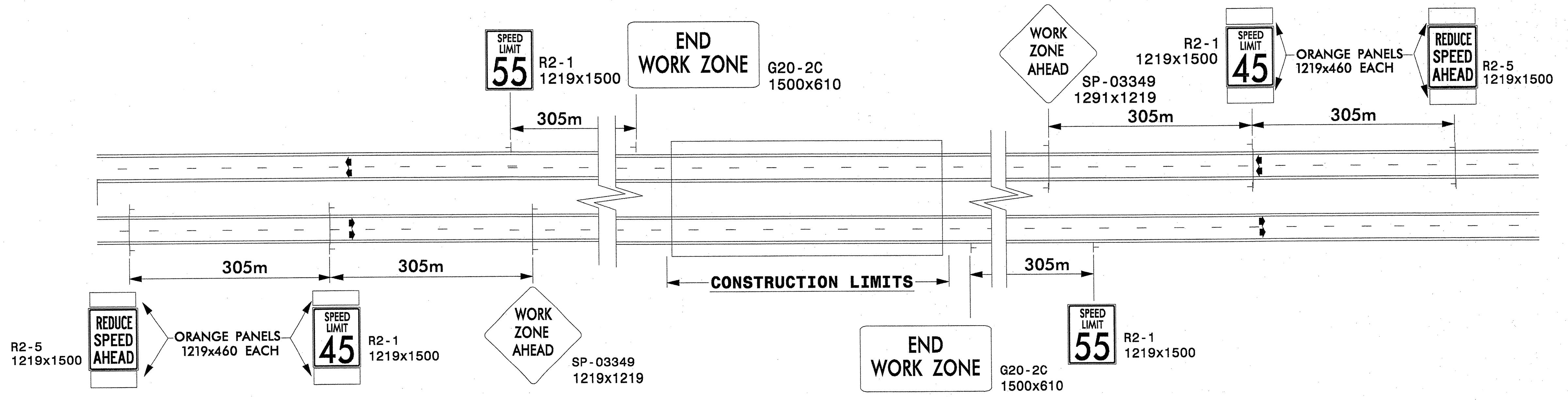
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DETAIL DRAWING FOR  
WORK ZONE SIGNS  
"REDUCE SPEED AHEAD SIGN"

SHEET 1 OF 1



**GENERAL NOTES**

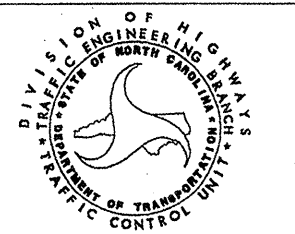
- FOR UNDIVIDED AND TWO LANE-TWO WAY ROADWAYS, SIGNS ARE REQUIRED ONLY ON THE RIGHT SIDE OF THE ROADWAY.
- SEE SHEET TCP-8 FOR ALL OTHER WORK ZONE SIGNS SIZE AND SPACING OTHER THAN THE "REDUCE SPEED AHEAD" SIGN.

APPROVED: *Brian D. Dehler* DATE: 12-22-04



**DETAIL DRAWING FOR WORK ZONE SIGNS**

SCALE: NONE	REVISIONS
DATE: 7-04	7-98 1/00
DWG. BY:	10-98 5/00
DESIGN BY:	12-99
REVIEWED BY:	



12/22/2004  
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