

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
I-4717	TCP-1

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

I-4717

ROADWAY STANDARD DRAWINGS

INDEX OF SHEETS

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
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW PANELS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
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
1205.03	PAVEMENT MARKINGS - INTERCHANGES
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - (TEMPORARY & PERMANENT)
1253.01	SNOWPLOWABLE RAISED PAVEMENT MARKERS
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS
1264.02	PLACEMENT OF OBJECT MARKERS

SHEET NO.	TITLE
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND INDEX OF SHEETS
TCP-02	TEMPORARY PAVEMENT MARKING/MARKERS SCHEDULE
TCP-03	PHASING
TCP-04 - TCP-06	PHASE I - LANE REALIGNMENT (I-40 EB)
TCP-07	DMS MESSAGES DURING CONSTRUCTION
TCP-08	ADVANCE WORK ZONE WARNING SIGNS
TCP-09	SIGN DESIGNS

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

TIP PROJECT:

15-JAN-2009 15:41
I:\Projects\14717\TrafficControl\TCP-1-TCP-01.dgn
At WZTC4421



APPROVED:	PLAN PREPARED BY: N.C.D.O.T. WORK ZONE TRAFFIC CONTROL UNIT
DATE: 1/22/09	
SEAL	J. S. BOURNE, P.E. TRAFFIC CONTROL ENGINEER
	J. S. KITE, JR., P.E. TRAFFIC CONTROL PROJECT ENGINEER
	J. D. KUSE, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
	R. M. GARRETT TRAFFIC CONTROL DESIGN ENGINEER / TECHNICIAN

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM QUANTITY	TOTAL
TEMPORARY PAVEMENT MARKINGS			
	PAINT(6")		
P6	WHITE EDGELINE (2X)	66741 LF	
P7	YELLOW EDGELINE (2X)	69167 LF	
PK	10 FT. WHITE SKIP (2X)	31024 LF	
PL	2 FT. WHITE MINISKIP (2X)	2231 LF	
		TOTAL	169163 LF
MARKERS			
	TEMPORARY RAISED PAVEMENT MARKERS		
MI	CRYSTAL & RED	38 EA	
		TOTAL	38 EA

NOTES:
1) FOR EACH PAINT PAVEMENT MARKING ITEM, 2X IMPLIES TWO APPLICATIONS.

I:\JAN-2009 15:41\PROJECTS\I-4717\Traffic\TrafficControl\Tcp-N-4717-TCP-02.dgn
RMG/ST

APPROVED: <i>Jessica D. Kule</i> DATE: 1/22/09		TEMPORARY PAVEMENT MARKINGS/ MARKERS SCHEDULE	
SEAL		SCALE: NONE	
		DATE: 01/09	REVISIONS
		DWG. BY: RMG	
		DESIGN BY: RMG	
		REVIEWED BY: JDK	

CONTRACT PROJECT LIMITS:

I-40 (BOTH DIRECTIONS) FROM E CLEMMONSVILLE ROAD (SR 2747) TO 1600'+/- EAST OF WILLARD ROAD (SR 2700) INCLUDING THE WESTBOUND OFF RAMP AND EASTBOUND ON RAMP AT NC 109 (THOMASVILLE RD).

NOTES:

POLICE MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA, AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR IS TO FURNISH, INSTALL, MAINTAIN, RELOCATE AND REMOVE CHANGEABLE MESSAGE BOARDS DURING VARIOUS STAGES OF CONSTRUCTION AT THE DISCRETION OF THE ENGINEER TO ADEQUATELY INFORM MOTORISTS OF CHANGING WORK ZONE CONDITIONS.

REMOVE TEMPORARY LANE CLOSURES AT THE END OF EACH WORKDAY AND RESTORE TRAFFIC TO EXISTING PATTERNS DESCRIBED WITHIN CONSTRUCTION PHASING UNLESS OTHERWISE SPECIFIED IN PLANS.

CONSTRUCTION PHASING:

PHASE I (I-40 EASTBOUND LANE REALIGNMENT)

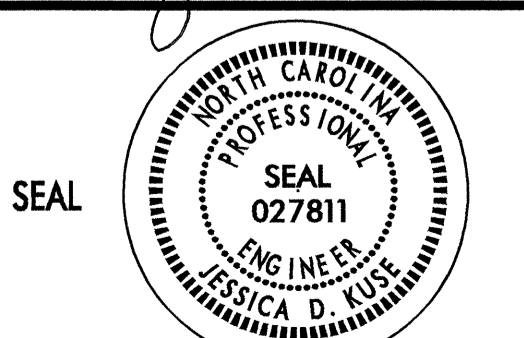
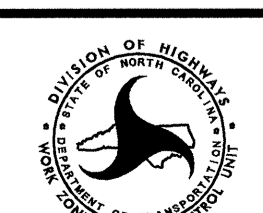
- STEP 1 - INSTALL WORK ZONE ADVANCE WARNING SIGNS ON -L- (I-40) EASTBOUND AND -Y- LINES AS SHOWN ON SHEETS TCP-17 AND TCP-18.
- STEP 2 - ENSURE ALL DMS SIGNS AND DISPLAY MESSAGES AS SHOWN ON SHEET TCP-15 FOR I-40 EASTBOUND PHASE I CONSTRUCTION ARE ACTIVATED.
 - INSTALL US 311 SOUTH ALTERNATE DETOUR SIGNS AND ACTIVATE SIGN CMS01 POSITIONED ALONG I-40 EASTBOUND LANES BETWEEN US 52 AND THE CLEMMONSVILLE ROAD (SR 2747) EXIT RAMP. (SEE SHEETS TCP-15 AND TCP-16 FOR SUGGESTED DISPLAY MESSAGE AND SIGN LOCATIONS ALONG ALTERNATE DETOUR ROUTE)
- STEP 3 - USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 3 AND 5 OF 9 AS NECESSARY:
 - INSTALL TEMPORARY PAVEMENT MARKINGS AND MARKERS FOR THE OUTER 2 LANES OF -L- (I-40) IN THE EASTBOUND DIRECTION AS DEPICTED ON SHEETS TCP-04 THROUGH TCP-06.
 - REMOVE ANY CONFLICTING MARKINGS AND MARKERS AT THIS TIME.
 - INSTALL ALL ADVANCE WARNING SIGNS AND DEVICES NECESSARY TO CLOSE THE LEFT INSIDE LANE.
 - SHIFT THE REMAINING 2 LANES OF TRAFFIC OUTWARD INTO THE TEMPORARY PATTERN DEPICTED ON SHEETS TCP-04 THROUGH TCP-06.
- STEP 4 - INSTALL PORTABLE CONCRETE BARRIER AND CRASH CUSHION PROVIDING A 2' CLEARANCE BETWEEN THE FACE OF THE BARRIER WITH THE EDGE OF TRAVEL LANE FROM -L- STA. 181+13, 0.5' LT TO -L- STA. 188+83, 13.7' RT. (SEE SHEET TCP-05)
- STEP 5 - CONSTRUCT THE INSIDE LANE AND SHOULDER REALIGNMENT ALONG I-40 EASTBOUND LANES UP TO BUT NOT INCLUDING THE FINAL SURFACE LAYER FROM -L- STA. 182+70+/- TO -L- STA. 201+13+/- . (SEE ROADWAY PLANS AND SHEETS TCP-04 THROUGH TCP-06)
 - INSTALL / REPLACE AND OR ADJUST GUARDRAIL AS REQUIRED WITHIN THE STA. LIMITS AFOREMENTIONED.
- STEP 6 - REMOVE THE TEMPORARY CRASH CUSHION AND PORTABLE CONCRETE BARRIER INSTALLED IN STEP 4.
 - USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 3 AND 5 OF 9 AS NECESSARY INSTALL TEMPORARY PAVEMENT MARKINGS FOR THE 2 INSIDE -L- (I-40) EASTBOUND LANES IN THE FINAL TRAFFIC PATTERN AND SHIFT TRAFFIC INTO SAME.
- STEP 7 - WHILE MAINTAINING I-40 EASTBOUND TRAFFIC IN THE 2 FINAL INSIDE LANES REMOVE OUTSIDE SHOULDER PAVEMENT IN EXCESS OF THE DESIRED 10' WIDTH OR AS DIRECTED BY THE ENGINEER.
 - INSTALL TEMPORARY PAVEMENT MARKING FOR THE REMAINING OUTSIDE I-40 EASTBOUND LANE AND OPEN ALL TRAFFIC LANES TO THE FINAL PATTERN.

PHASE II - (FINAL SURFACE / CONSTRUCTION)

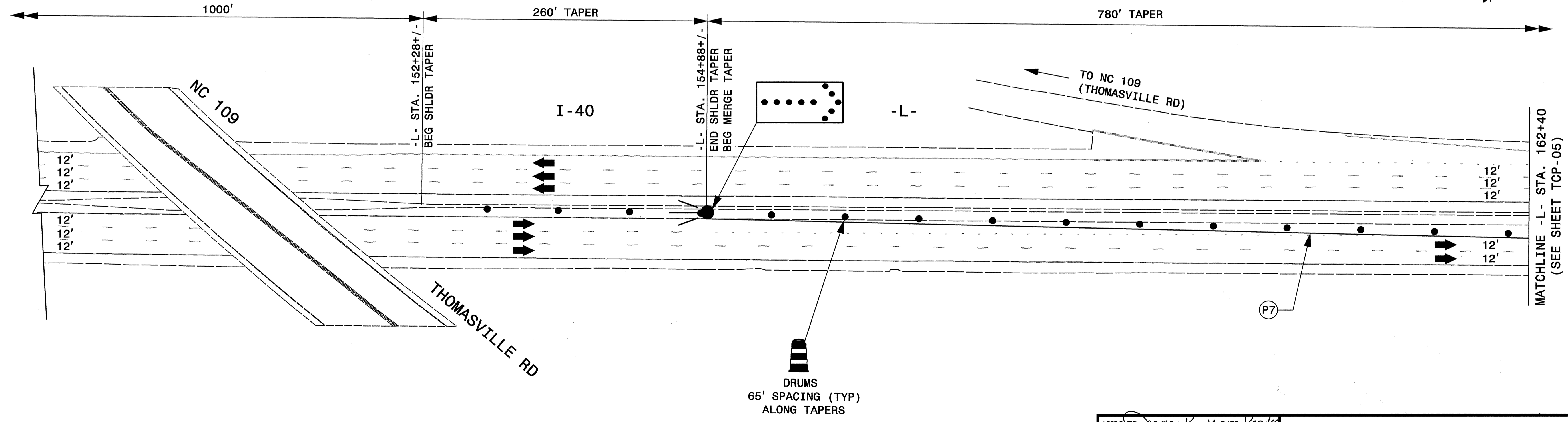
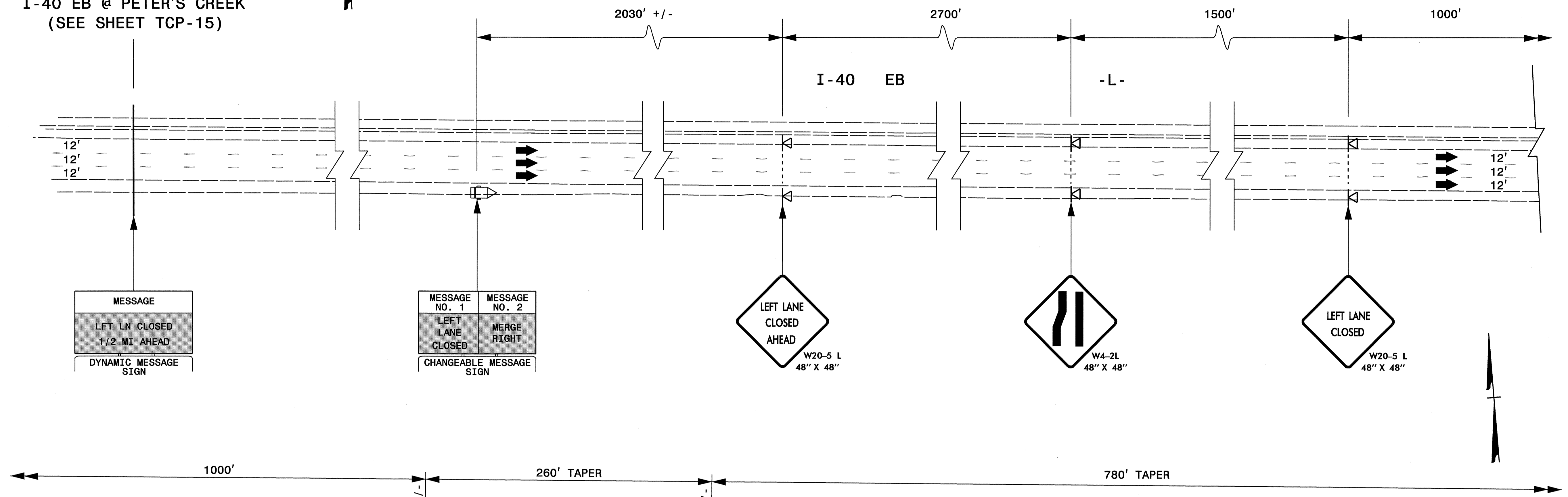
CONTRACTOR IS TO PERFORM THE FOLLOWING WORK ONE DIRECTION AT A TIME.

- STEP 1 - ACTIVATE DMS SIGNS AND DISPLAY MESSAGES AS SHOWN ON SHEET TCP-07 FOR THE APPROPRIATE DIRECTION OF WORK.
 - USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 3 AND 5 OF 9 AS NECESSARY INSTALL THE FINAL SURFACE LAYER, FINAL PAVEMENT MARKINGS AND MARKERS ON ALL TRAVEL LANES AND RAMPS WITHIN THE CONTRACT PROJECT LIMITS ALONG I-40.
- STEP 2 - REMOVE AND OR DEACTIVATE ALL TRAFFIC CONTROL SIGNS AND DEVICES AND OPEN -L- (I-40) TO THE FINAL TRAFFIC PATTERNS.

25-FEB-2009 07:28
 \dot\dfsroot\0\proj\traffic\tr\control\top\I-4717.tc.tcp.03.dgn
 rmgarratt AT WZTC244747

APPROVED: <i>Jessica D. Kule</i> DATE: 2/16/09	PHASING		
	SCALE: NONE		REVISIONS
	DATE: 01/09		
	DWG. BY: RMG		
	DESIGN BY: RMG		
REVIEWED BY: JDK			CADD FILE

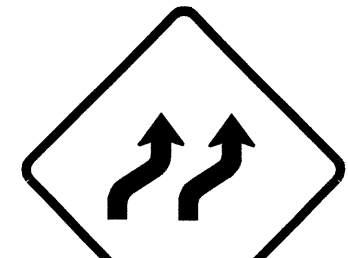
D9 - DMS05
I-40 EB @ PETER'S CREEK
(SEE SHEET TCP-15)



I5-JAN-2009 15:40
 \\dot\dfs\0010\WZ10244747
 \dot\dfs\0010\WZ10244747
 \dot\dfs\0010\WZ10244747

APPROVED: <i>Josakury</i> DATE: <i>10/14/09</i>	PHASE I - LANE REALIGNMENT		
	SCALE: NONE		
	DATE: 10/14		REVISIONS
	DWG. BY: RMG		
	DESIGN BY: RMG		
REVIEWED BY: JDK			

-L- STA. 163+00+/-



W1-4R
48" X 48"

55
M.P.H.

W13-1
24" X 24"

I-40

-L-

390' TAPER

MATCHLINE -L- STA. 162+40
(SEE SHEET TCP-04)

-L- STA. 162+68
END MERGE TAPER

12'
12'
12'

12'
12'

14'

FROM NC 109
(THOMASVILLE RD)

-L- STA. 167+10+/-
BEGIN (P6)

DRUMS
130' SPACING (TYP)

-L- STA. 175+30
BEG SHIFT TAPER

12'
12'
12'

12'
12'

MATCHLINE -L- STA. 176+20
(SEE SHEET BELOW)

MESSAGE NO. 1	MESSAGE NO. 2
I-40 EB	NEW TRAFFIC PATTERN

CHANGEABLE MESSAGE SIGN

TO BE PLACED ALONG
ENTRANCE RAMP

390' TAPER

I-40

180

-L-

185

MATCHLINE -L- STA. 176+20
(SEE SHEET ABOVE)

12'
12'
12'

12'
12'

DRUMS
65' SPACING (TYP)
ALONG TAPER

-L- STA. 179+20
END SHIFT TAPER

-L- STA. 181+13, 0.5' LT BEGIN PCB
FLARE OFFSET = 5.8'+/-

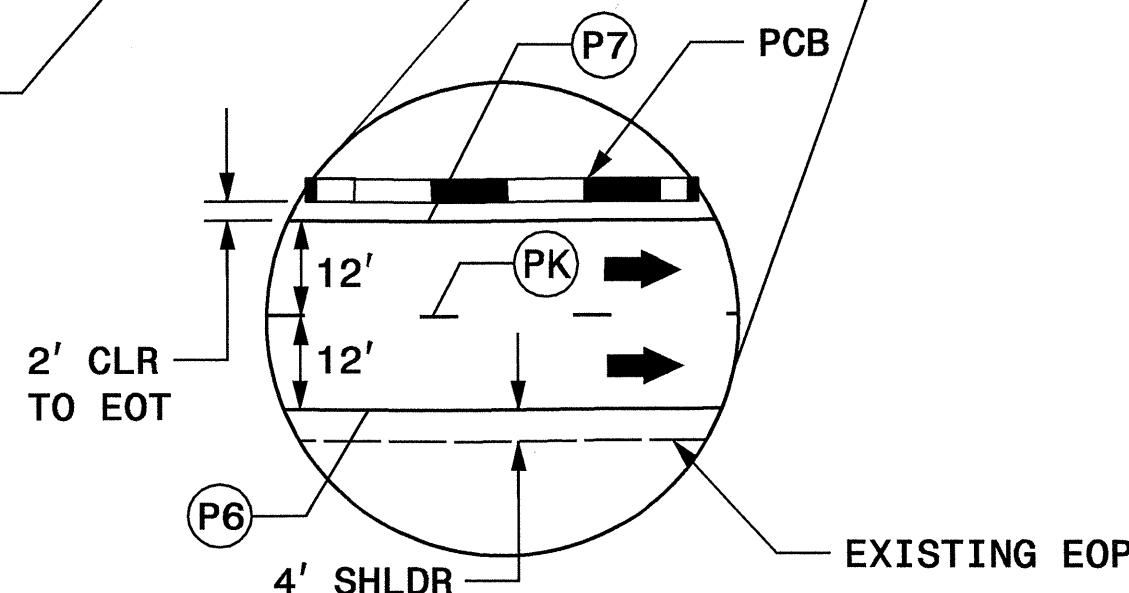
-L- STA. 182+70+/-
BEGIN REALIGNMENT
CONSTRUCTION

19:1 FLARE
RATE

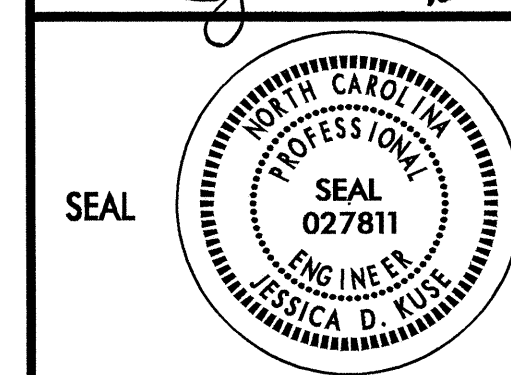
MATCHLINE STA. 189+00
(SEE SHEET TCP-06)

-L- STA. 188+83, 13.7' RT
END PCB

CRASH
CUSHION



APPROVED: *Jessica D. Huse* DATE: 10/2/09



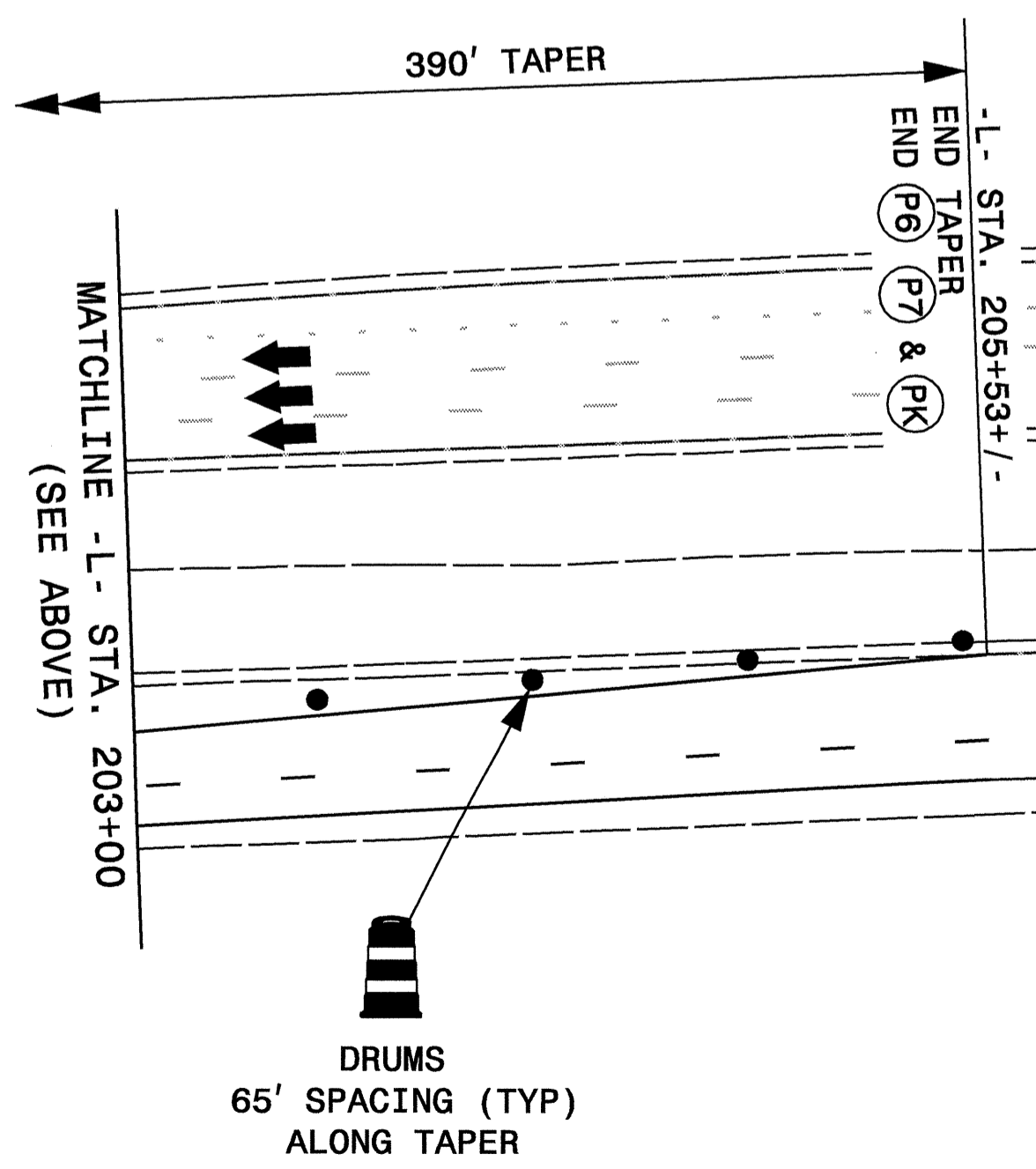
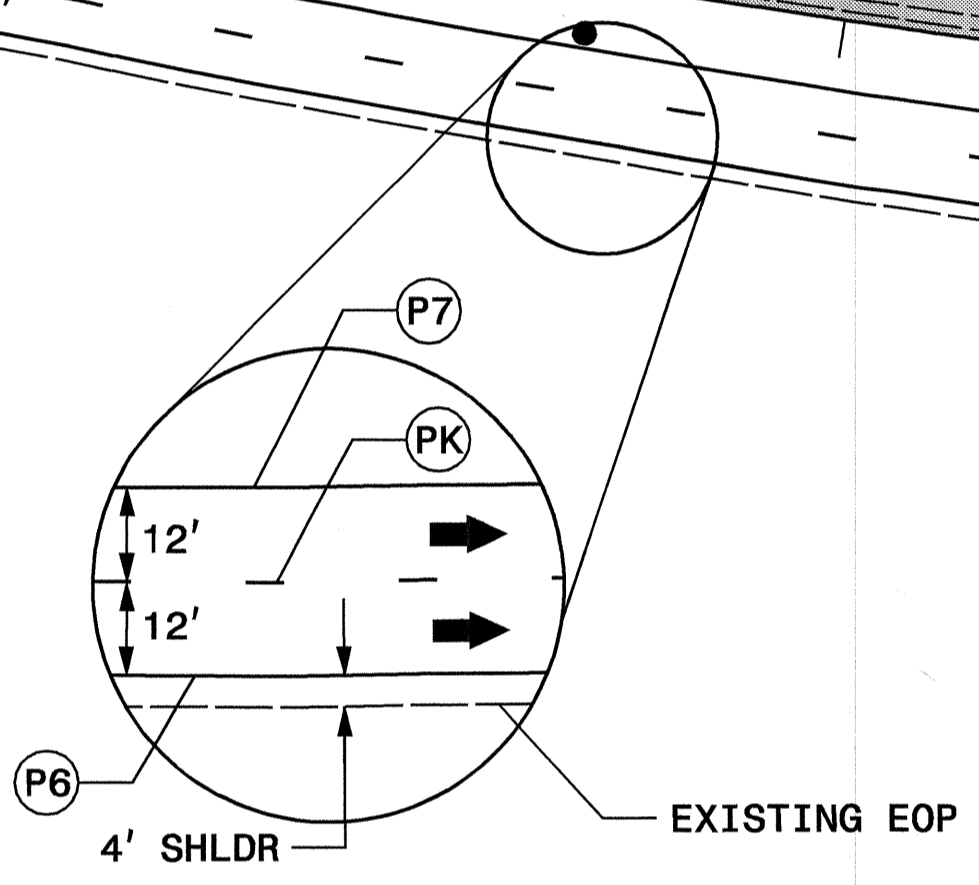
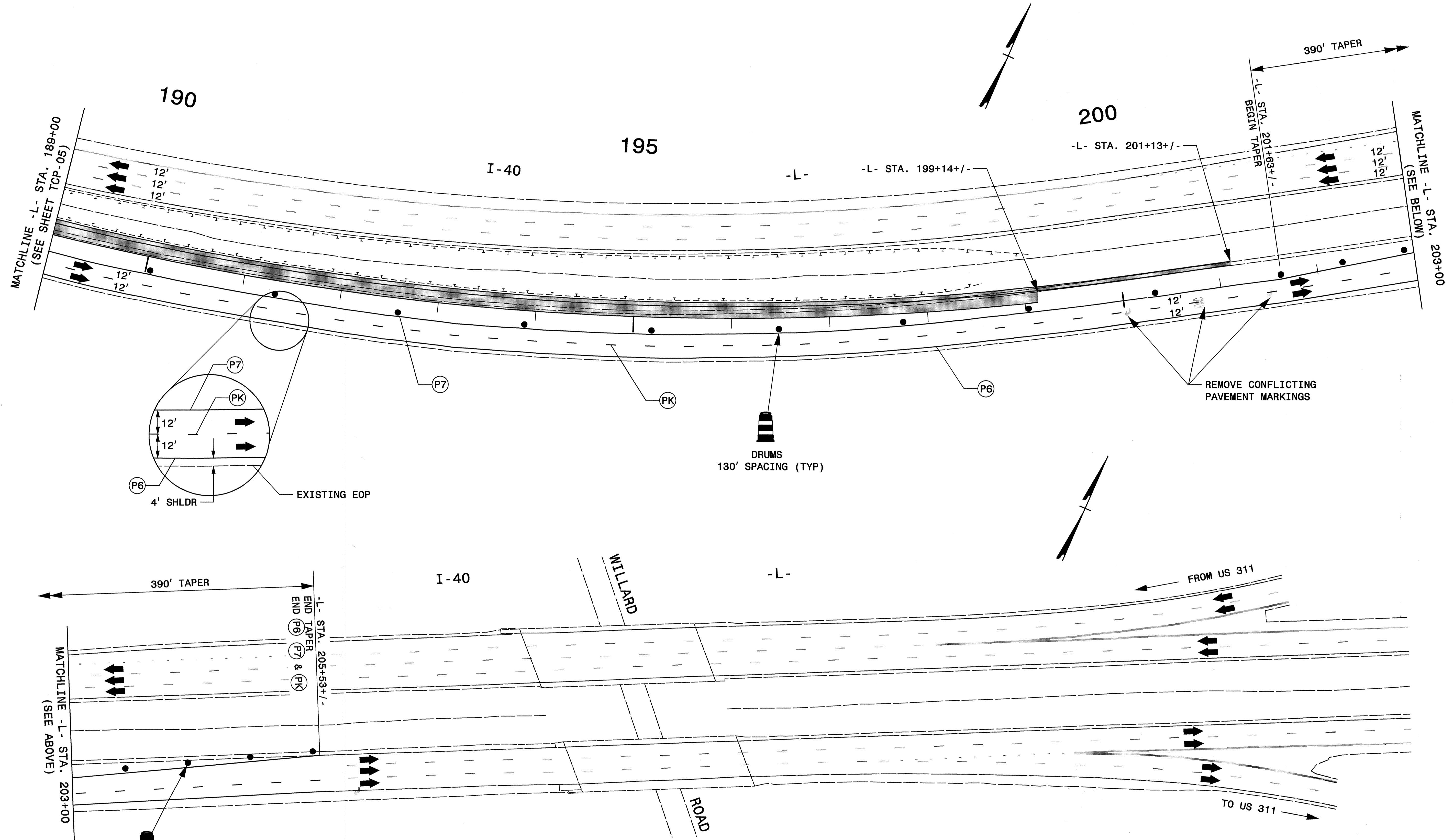
PHASE I - LANE REALIGNMENT

SCALE: NONE
DATE: 10/14
DWG. BY: RMG
DESIGN BY: RMG
REVIEWED BY: JDK



REVISIONS

I:\JAN-2009 15440\15440\I-40\Traffic\TrafficControl\topN-4717-TC-TCP-05.dgn



APPROVED: *Jessica D. Kuse* DATE: 10/14/09

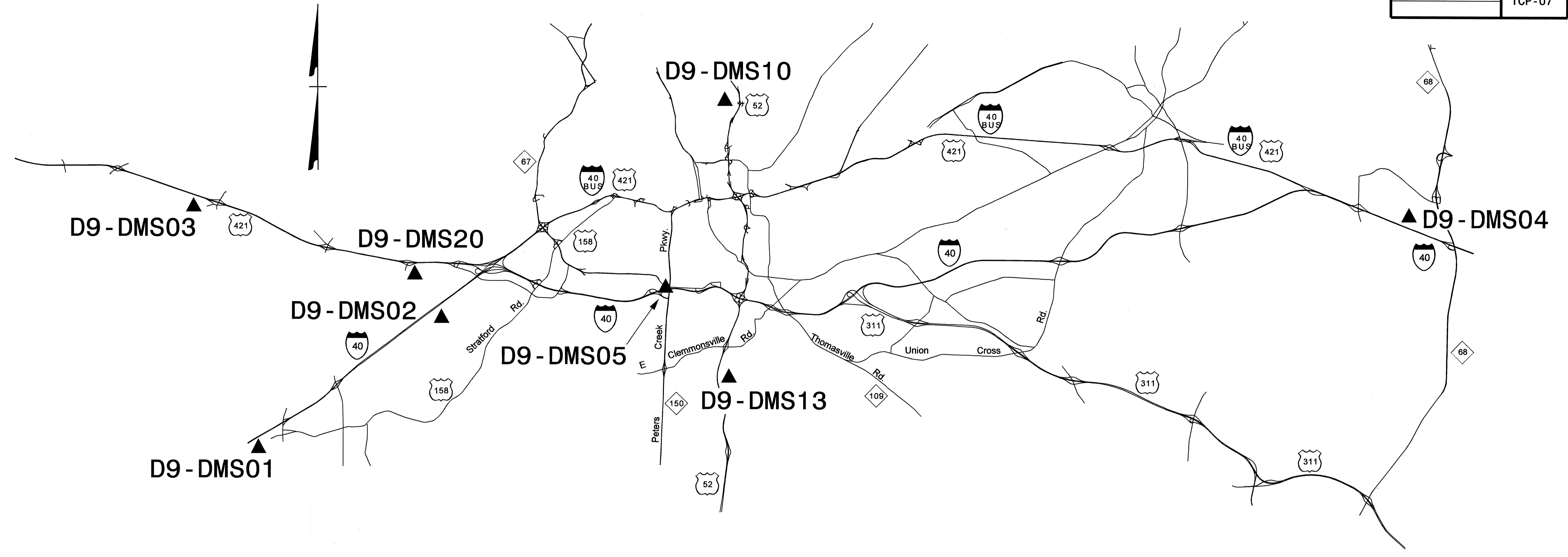
SEAL

PHASE I - LANE REALIGNMENT

SCALE:	NONE
DATE:	10/14
DWG. BY:	RMG
DESIGN BY:	RMG
REVIEWED BY:	JDK

REVISIONS	

I5-JAN-2009 15:38
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 LINGOR.FST AT WZTC24747



SIGN	SUGGESTED MESSAGES DURING CONSTRUCTION PHASING	
	PHASE I	PHASE II
D9-DMS01 D9-DMS02 D9-DMS03 D9-DMS10 D9-DMS13 D9-DMS20	TRAFFIC DELAYS I-40 E-BND AT US 311	TRAFFIC DELAYS I-40 E-BND AT US 311
D9-DMS05	LFT LN CLOSED 1/2 MI AHEAD	ROADWORK AHEAD EXPECT DELAYS
D9-DMS04	N/A	TRAFFIC DELAYS I-40 W-BND AT US 311 ALT RTE BUS I-40 W-BND

SIGN	LOCATION / DESCRIPTION
D9-DMS01	I-40 EB @ MM 181
D9-DMS02	I-40 EB @ MM 187
D9-DMS03	US 421 SB @ WILLIAMS RD
D9-DMS04	I-40 WB @ MM 208
D9-DMS05	I-40 EB @ PETERS CREEK
D9-DMS10	US 52 SB @ LIBERTY ST
D9-DMS13	US 52 NB @ MAIN ST
D9-DMS20	US 421 SB @ PEACEHAVEN RD
CMS01	I-40 EB BET US 52 & CLEMMONSVILLE RD
CMS02	US 311 BET HIGH POINT RD & UNION CROSS RD

LEGEND

MESSAGE #1	▲ = DMS SIGN
MESSAGE #2	

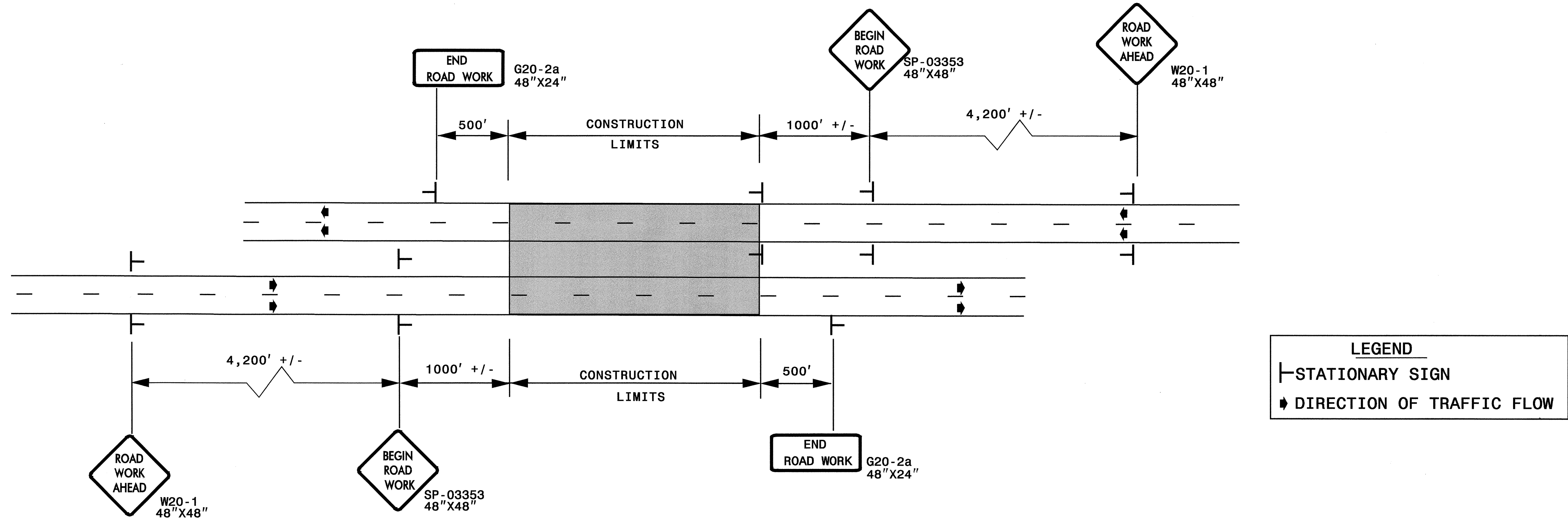
26-JAN-2009 10:37
 \\dot\dfs\0010\proj\4717\traffic\control\top\I-4717_TC_TCP_07.dgn
 WZT244747
 rmgarratt

APPROVED: <i>Jessica D. Kuse</i> DATE: 1/27/09	DMS MESSAGES DURING CONSTRUCTION		
	SCALE: NONE		
	DATE: 01/09		REVISIONS
	DWG. BY: RMG		
	DESIGN BY: RMG		
REVIEWED BY: JDK			

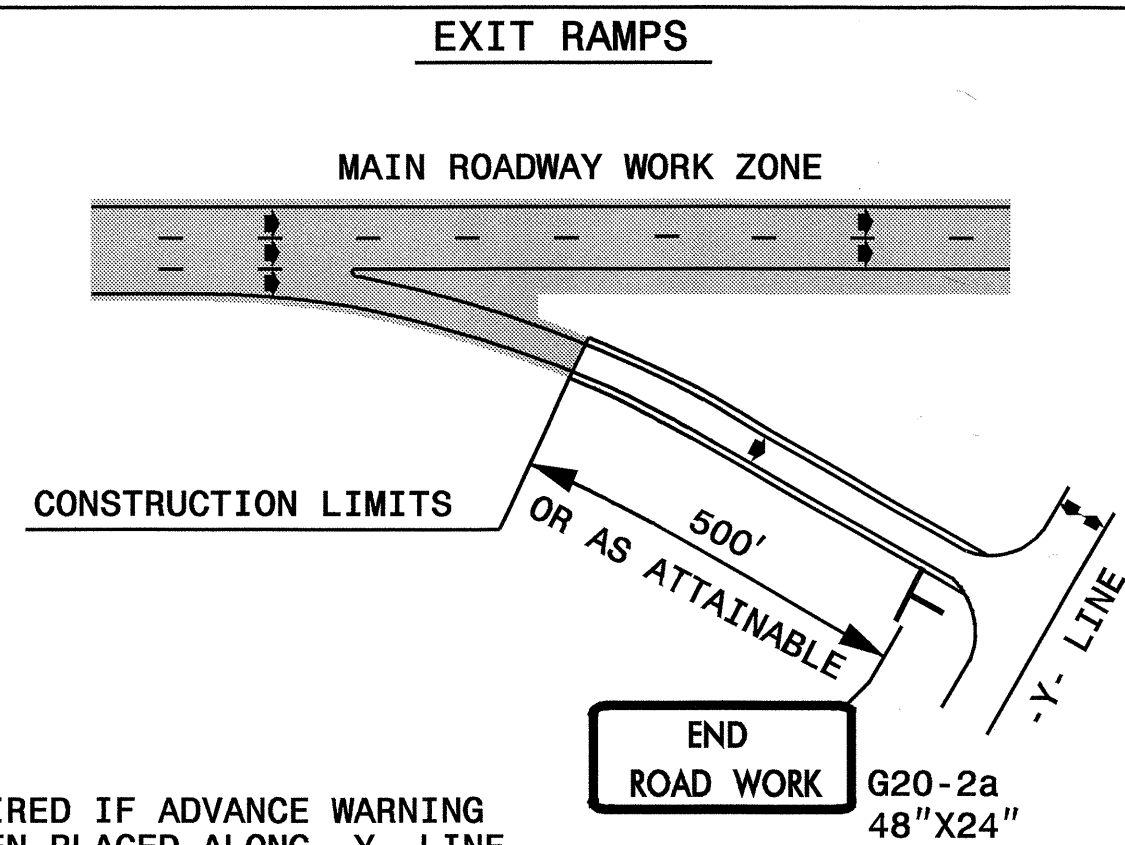
ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

PROJ. REFERENCE NO. I-4717	SHEET NO. TCP-08
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DETAIL A

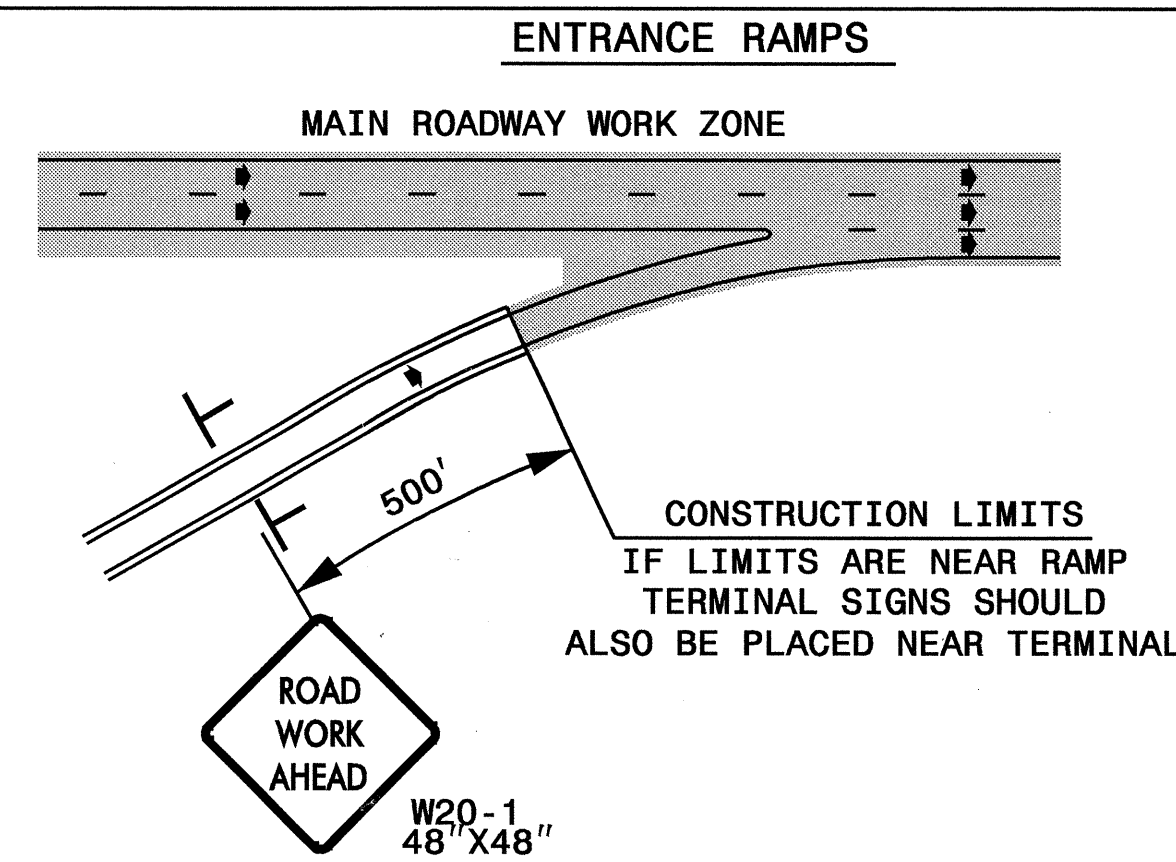


DETAIL B

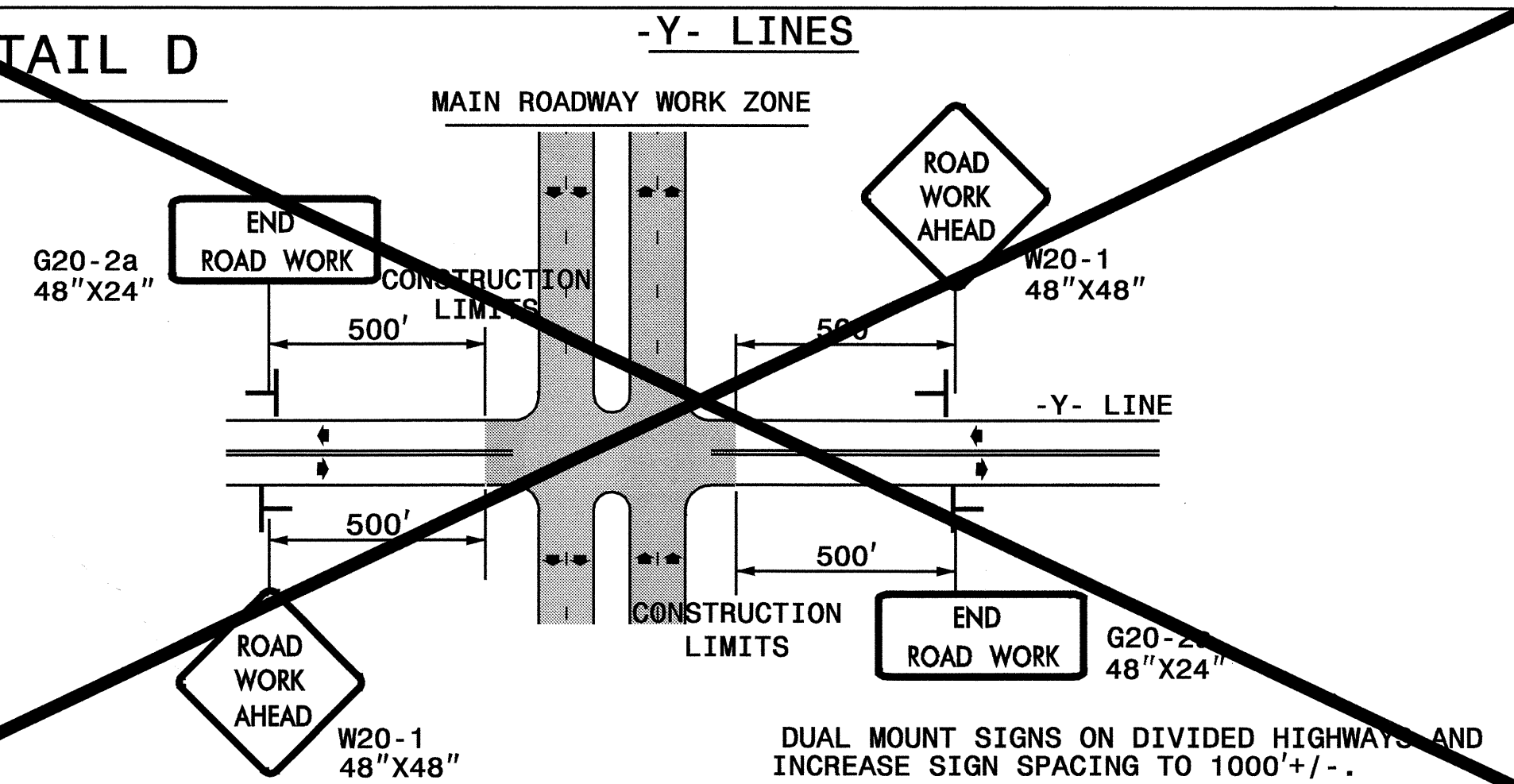


NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C



DETAIL D



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.

APPROVED: *J. J. [Signature]* DATE: 8/03

SEAL

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

SCALE: NONE		REVISIONS
DATE: 8/03		03/04
DWG. BY: JI		
DESIGN BY: JI		
REVIEWED BY:		

I:\JAN-2009 15:33 [Path] \TrafficControl\TcpN-4717_TC-TCP-08.dgn

SP 03353

SIGN NUMBER: SP-03353 TYPE: A QUANTITY: 1 SIGN WIDTH: 4'-0" HEIGHT: 4'-0" TOTAL AREA: 16.0 Sq.Ft. BORDER TYPE: FLUSH RECESS: 0.59" WIDTH: 0.75" RADII: 1.38" NO. Z BARS: N/A LENGTH: N/A	BACKG COLOR: Fluorescent Orange COPY COLOR: Black <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>	SYMBOL	X	Y	WID	HT																																														DESIGNER: DOWNEY CHECKED BY: CHECKED DIV: DIV STD #: W20-1 DATE: Aug 20,2003 PROJECT ID: ALL PROJECTS
SYMBOL	X	Y	WID	HT																																																

USE NOTES: 2, 4

- Legend and border shall be direct applied Type VII reflective sheeting.
- Legend and border shall be direct applied non-reflective sheeting.
- Shields shall be Type VII reflective sheeting on 0.032" (0.8mm) aluminum and demountable.
- Background shall be Type VII reflective sheeting.
- Background shall be Type I reflective sheeting.
- Center arrow(s) vertically on sign.
- Bottom panel shall be yellow Type III sheeting. Legend shall be direct applied black non-reflective sheeting. Yellow panel is:

LETTER POSITIONS

Letter spacings are to start of next letter

	B	E	G	I	N		Series/Size	
							Text Length	
	22.4	5.3	4.6	5.4	2.5	3.8	22.4	C7
		R	0	A	D			21.6
	23.4	5	5.2	5.6	3.8	23.4		C7
		W	0	R	K			19.6
	22.6	6.4	5.6	5.2	4	22.6		C7
								21.2

Spacing Factor is 1 unless specified otherwise

GENERAL NOTES FOR THE "BEGIN ROAD WORK" SIGN

-SIGN SP-03353 "BEGIN ROAD WORK" ONLY APPLIES TO FULL CONTROL AND PARTIAL CONTROL OF ACCESS ROADWAYS

-WHEN USED, INSTALL SIGN SP-03353 "BEGIN ROAD WORK" ACCORDING TO DETAIL A ON SHEET TCP-08.

I:\projects\14717\trafficcontrol\top\14717_TC_TCP_09.dgn
 W:\14717\14717.dwg
 15-JAN-2009 15:38
 rmgarrett

APPROVED: <i>Jessica D. Kuy</i> DATE: <i>Verlog</i>	SIGN DESIGNS		
	SCALE: NONE		
	DATE: 01/09		
	DWG. BY: RMG		REVISIONS
	DESIGN BY: RMG		
REVIEWED BY: JDK			