COLORADO DEPARTMENT OF TRANSPORTATION

P.E. UNDER PROJECT IR(CX) 225-4(43)
UTILITIES AND R.O.W. UNDER
PROJECT IR-IM(CX) 070-4(130)

FED. ROAD REGION	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLO.	NH(CX) 225-4(39)	1

REVISIONS			
R-1	12-24-92	1, 10, 37, 67, 81	J.K.K

AS CONSTRUCTED
NO REVISIONS ☐ REVISED ☐ VOID ☐

FHWA OVERSIGHT? NO ☐ YES ☒ NOT APPLICABLE ☐

PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. NH(CX) 225-4(39)
STATE HIGHWAY NO. 225
ADAMS COUNTY

SCALES OF ORIGINAL DRAWINGS

PLAN SHEETS 1" = 50'
DETAIL SHEETS 1" = 50'

PROFILE SHEETS 1" = 10' VERTICAL
1" = 50' HORIZONTAL

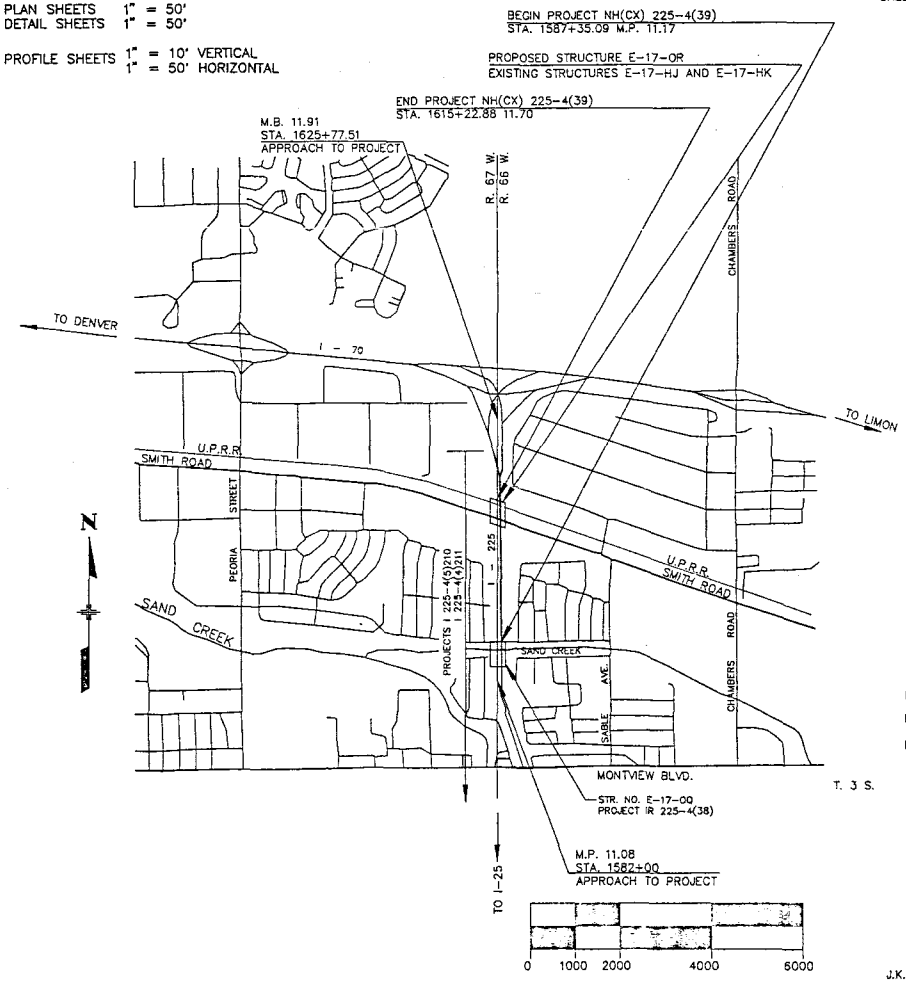
TABULATION OF LENGTH AND DESIGN DATA

STATION	ROADWAY FEET	ROADWAY MILE	STRUCTURE FEET	STRUCTURE MILE
STA. 1582+00 APPROACH TO PROJECT = M.P. 11.08				
	(535.09)	(0.101)		
STA. 1587+35.09 BEGIN PROJECT NH(CX) 225-4(39) = STA. 55+56.50 ON PROJECT IR 225-4(38) = M.P. 11.17				
	2455.32	0.465		
STA. 1611+90.41 BEGIN MAJOR STRUCTURE E-17-OR				
MAJOR STRUCTURE E-17-OR			318.48	0.060
STA. 1615+08.88 END MAJOR STRUCTURE E-17-OR				
	14.00	.003		
STA. 1615+22.88 END PROJECT NH(CX) 225-4(39) = M.P. 11.70				
	(1054.63)	(0.20)		
STA. 1625+77.51 APPROACH TO PROJECT = M.P. 11.91				
TOTALS	2469.32	0.468	318.48	0.060

SUMMARY	LIN. FT.	MILES
ROADWAY (NET LENGTH)	2469.32	0.468
MAJOR STRUCTURE	318.48	0.060
PROJECT GROSS LENGTH	2787.80	0.528

MAXIMUM DEGREE OF CURVE	= 0 30'
MAXIMUM GRADE	= 3.18%
MINIMUM S.S.D. HORIZONTAL	= N.A.
MINIMUM S.S.D. VERTICAL	= >550'
DESIGN SPEED	= 65 MPH
DESIGN SPEED (SMITH ROAD)	= 50 MPH

	2000	2010
ADT	63,000	76,000
DHV	6,000	7,250
DHV % TRUCKS	8.0	8.0



INDEX OF SHEETS

NEW AND REVISED STANDARDS:

M-606-12 GUARDRAIL, TYPE 4, CONCRETE BARRIER (9 SHEETS) 2-18-83

M-620-2 FIELD LABORATORY CLASS 2 5-25-88

AS CONSTRUCTED INFORMATION

CONTRACTOR _____

ENGINEER _____
(Project or Resident)

PROJECT STARTED _____

PROJECT COMPLETED _____

AS CONSTRUCTED PLANS APPROVED _____
TITLE DATE

J.K.K./DIST 6

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	NH(CX)225-4(39)	2	

THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

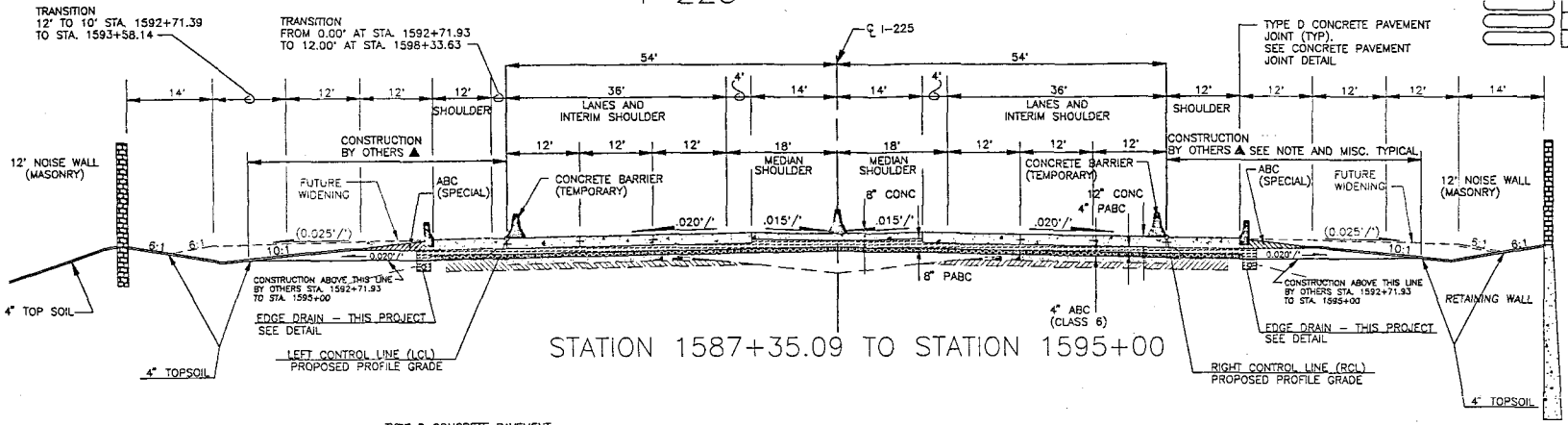
STANDARD PLANS LIST

M & S STANDARDS – JANUARY, 1982

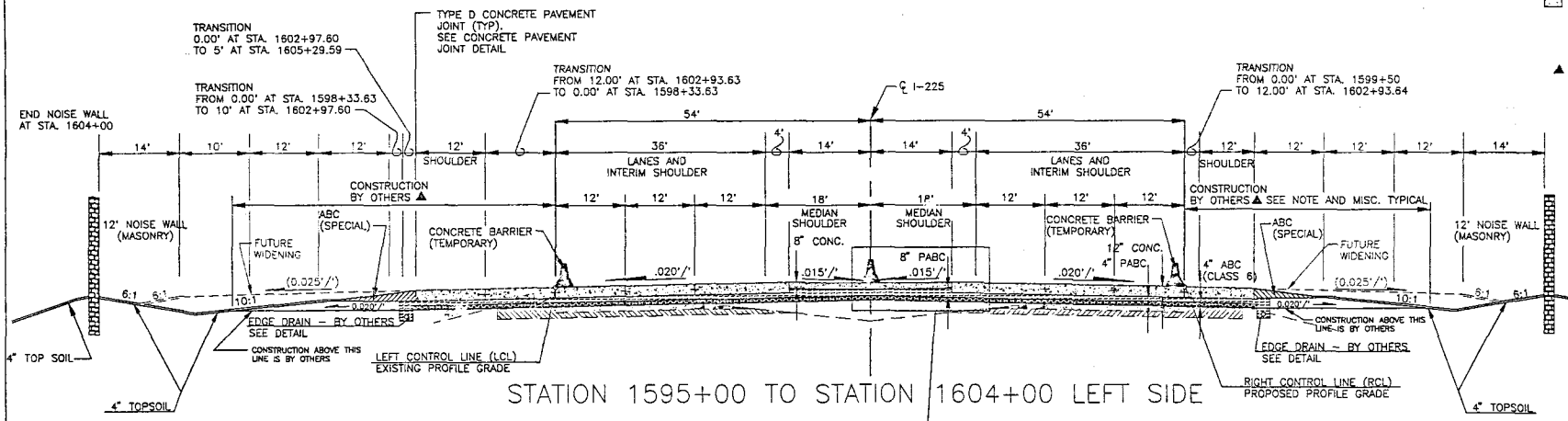
AS CONSTRUCTED	DIST	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	6	VIIC	COLO.	NH(CX) 225-4(39)	3

TYPICAL SECTIONS
I-225

REVISIONS

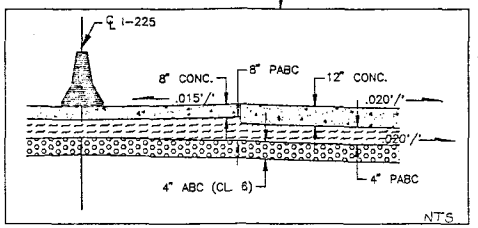


STATION 1587+35.09 TO STATION 1595+00



STATION 1595+00 TO STATION 1604+00 LEFT SIDE

STATION 1595+00 TO STATION 1602+15 RIGHT SIDE



TYPICAL SECTION NOTES

THE DEPTH AND WIDTH OF THE SIDE DITCH SHALL BE VARIED WHERE NECESSARY TO PROVIDE PROPER DRAINAGE.

FILL SLOPES:
SLOPE 6:1 WHERE "H" IS LESS THAN 4'
SLOPE 4:1 WHERE "H" IS 4' TO 15'
SLOPE 3:1 WHERE "H" IS OVER 15'

IN SPECIAL CASES, SLOPES MAY BE STEEPENED AS ACCORDING TO THE CROSS SECTIONS AND/OR AS DIRECTED BY THE ENGINEER

BREAK POINTS ON SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE. SEE STANDARDS FOR THE DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.

ALL TRANSVERSE JOINTS SHALL HAVE LOAD TRANSFER DEVICES FOR THE FULL WIDTH OF THE 12' PAVEMENT.

TIE BARS SHALL BE IN ALL LONGITUDINAL JOINTS.

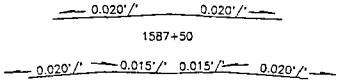
MAINLINE CONCRETE PAVEMENT SHALL BE SMOOTHNESS CATEGORY 2.

▲ CONSTRUCTION BY OTHERS INCLUDES OUTSIDE PAVEMENT, PABC, ABC (CL. 6) GUARD RAIL WHERE REQUIRED, EDGE DRAINS AND OUTLET PIPES, DELINEATORS AND ABC (SPECIAL).

EMBANKMENT FOR THIS PROJECT WILL BE UP TO THE TOP OF THE SUBGRADE THE FULL WIDTH AND TO THE PROPOSED TOE OF FILL OR RETAINING WALL.

THE CENTER 36' OF I-225 IS AVAILABLE FOR FUTURE TRANSIT USE.

THE WIDTH OF THE ABC (SPECIAL) IS 10' WHERE THE CROSS SLOPE IS 10:1 AND 6' WHERE THE SLOPE IS 6:1. (FOR INFORMATION ONLY)



TRANSITION FROM CROWNED MEDIAN AT STA. 1587+50 TO A DEPRESSED MEDIAN AT STA. 1589+50

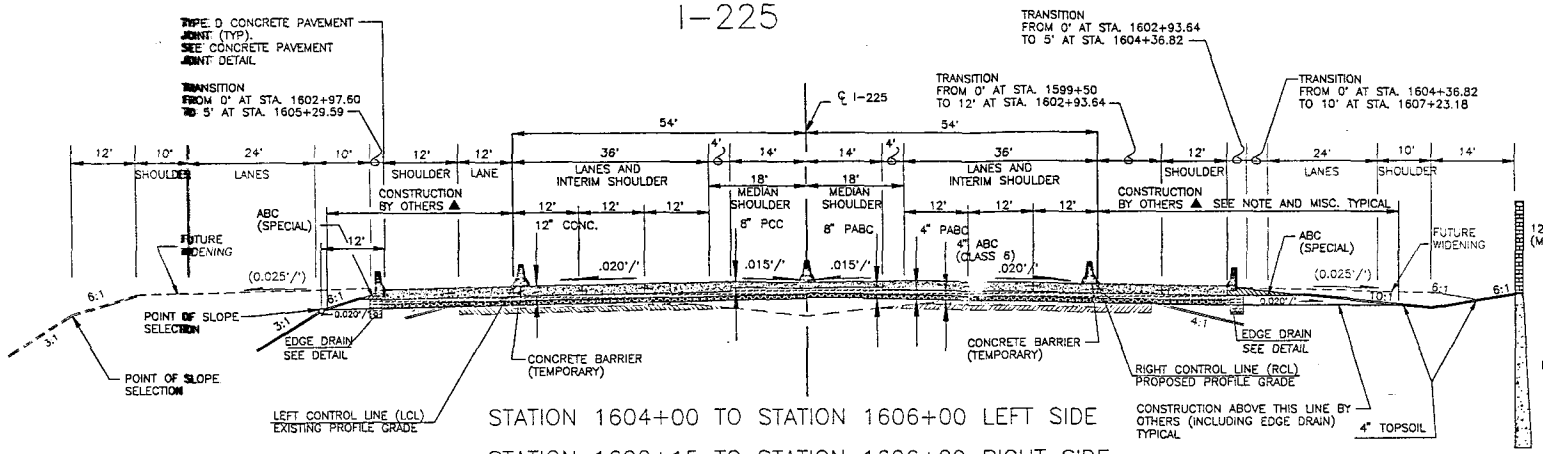
09/15/92 TYPICAL.DWG C:\MISC.DIR

TYPICAL SECTIONS
I-225

AS CONSTRUCTED							
NO REVISIONS		REVISED		VOID			

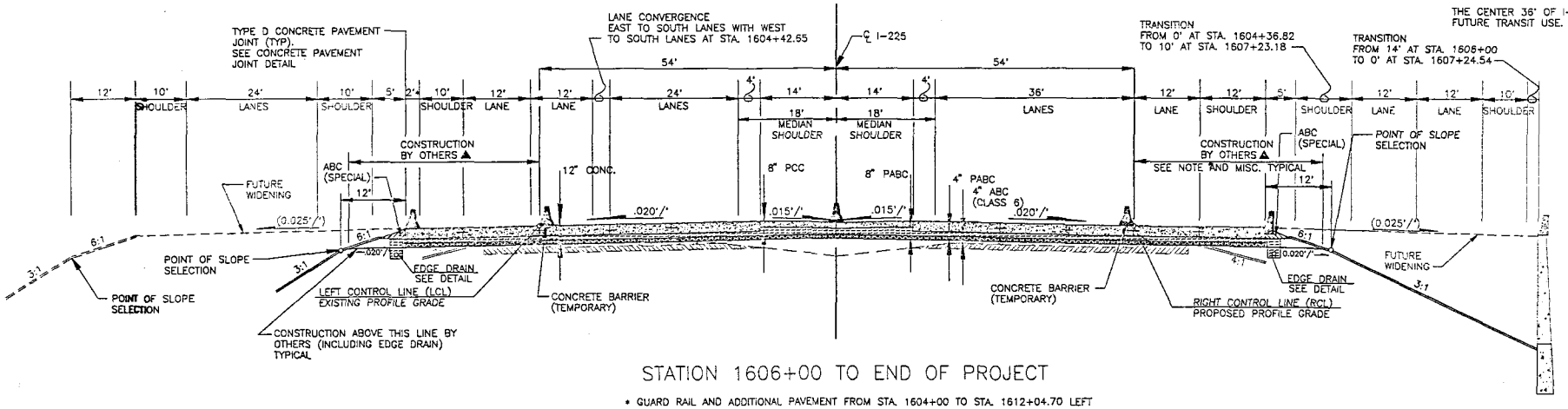
DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
6	VIII	COLO.	NH(CX) 225-4(39)	4

REVISIONS		



STATION 1604+00 TO STATION 1606+00 LEFT SIDE

STATION 1602+15 TO STATION 1606+00 RIGHT SIDE



STATION 1606+00 TO END OF PROJECT

* GUARD RAIL AND ADDITIONAL PAVEMENT FROM STA. 1604+00 TO STA. 1612+04.70 LEFT

TYPICAL SECTION NOTES

THE DEPTH AND WIDTH OF THE SIDE DITCH SHALL BE VARIED WHERE NECESSARY TO PROVIDE PROPER DRAINAGE.

IN SPECIAL CASES, SLOPES MAY BE STEEPENED AS ACCORDING TO THE CROSS SECTIONS AND/OR AS DIRECTED BY THE ENGINEER.

FILL SLOPES:
SLOPE 6:1 WHERE "H" IS LESS THAN 4'
SLOPE 4:1 WHERE "H" IS 4' TO 15'
SLOPE 3:1 WHERE "H" IS OVER 15'

BREAK POINTS ON SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE. SEE STANDARDS FOR THE DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.

ALL TRANSVERSE JOINTS SHALL HAVE LOAD TRANSFER DEVICES FOR THE FULL WIDTH OF THE 12' PAVEMENT.

TIE BARS SHALL BE IN ALL LONGITUDINAL JOINTS.

MAINLINE CONCRETE PAVEMENT SHALL BE SMOOTHNESS CATEGORY 2.

▲ CONSTRUCTION BY OTHERS INCLUDES OUTSIDE PAVEMENT, PABC, ABC (CL. 6), GUARD RAIL WHERE REQUIRED, EDGE DRAINS AND OUTLET PIPES, DELINEATORS AND ABC (SPECIAL).

EMBANKMENT FOR THIS PROJECT WILL BE UP TO THE TOP OF THE SUBGRADE THE FULL WIDTH AND TO THE PROPOSED TOE OF FILL OR RETAINING WALL.

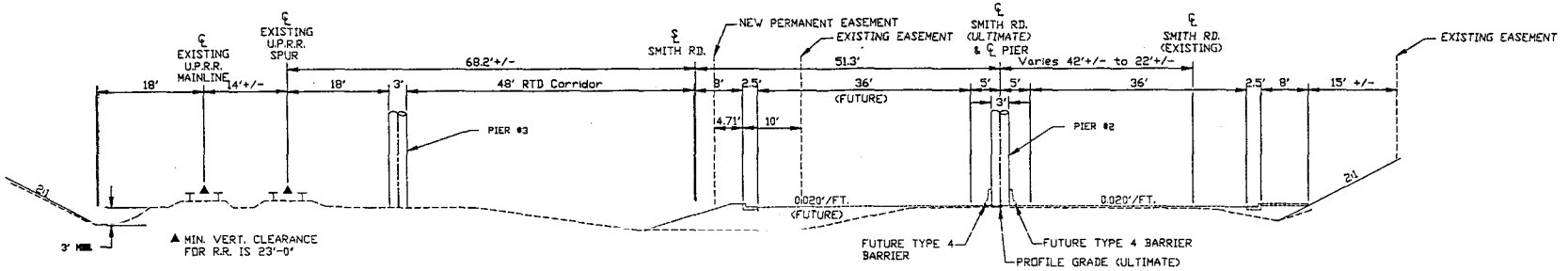
THE CENTER 36' OF I-225 IS AVAILABLE FOR FUTURE TRANSIT USE.

08/15/92 TYP2.DWG G:\MISC.DIR

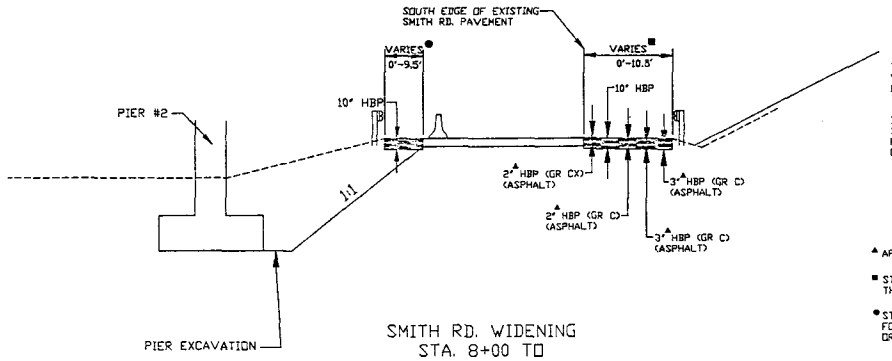
AUG. 89 F125A

AS CONSTRUCTED			DIST 6	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX) 225-4(39)	5

SMITH ROAD TYPICAL SECTIONS



ULTIMATE
SMITH RD.
(BY OTHERS)



SMITH RD. WIDENING
STA. 8+00 TO
STA. 13+50

THE DEPTH AND WIDTH OF THE SIDE DITCH SHALL BE VARIED WHERE NECESSARY IN ORDER TO PROVIDE PROPER DRAINAGE.

BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.

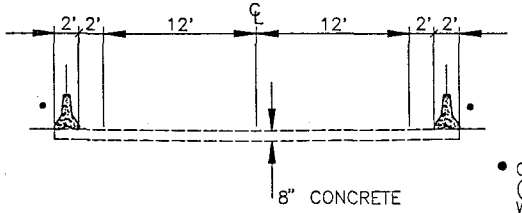
▲ APPROXIMATE THICKNESS

■ STATION 8+00 TO 13+50 WIDEN 0' TO 10' TO THE RIGHT OF SMITH RD.

● STATION 9+75 TO 11+60 REMOVE PAVEMENT FOR PIER EXCAVATION AND REPAVE TO ORIGINAL LOCATION.

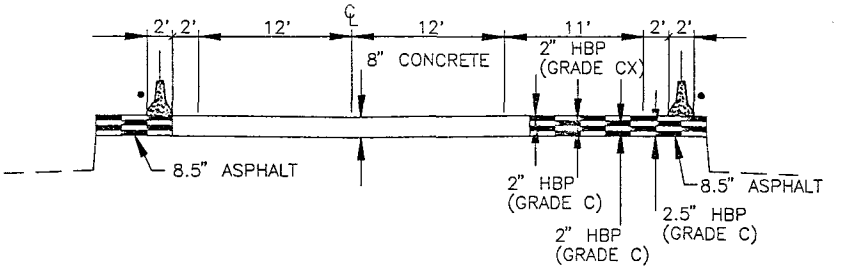
MISCELLANEOUS – TYPICAL SECTIONS

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX) 225-4(39)	6



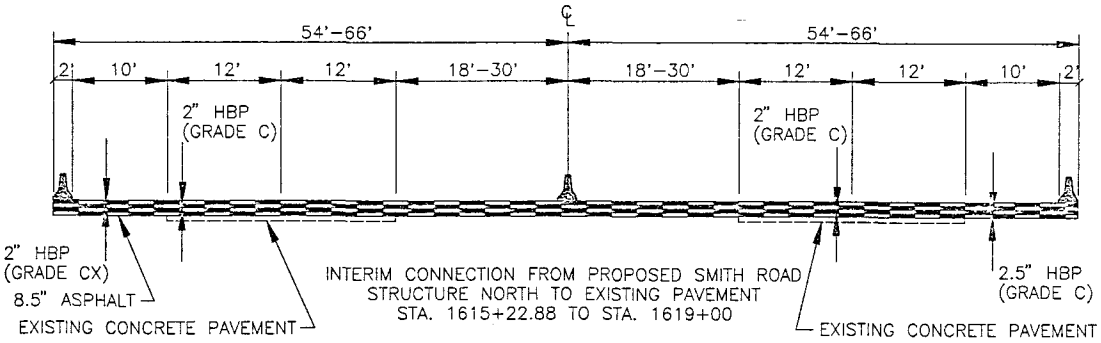
• CONCRETE BARRIER (TEMPORARY) WITH GLARE SCREEN

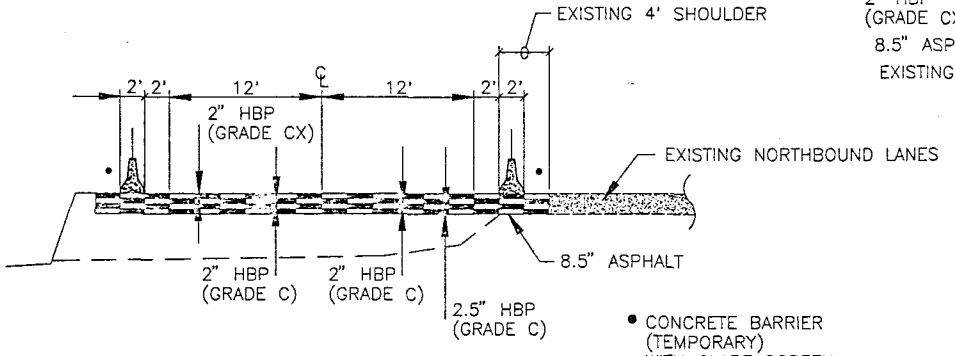
PHASE 2
MEDIAN DETOUR TO EXISTING SOUTHBOUND
STA. 1590+09.69 TO STA. 1583+17.22
AND
PHASE 3
EXISTING NORTHBOUND TO MEDIAN DETOUR
STA. 1583+17.22 TO STA. 1590+09.69



• CONCRETE BARRIER (TEMPORARY) WITH GLARE SCREEN

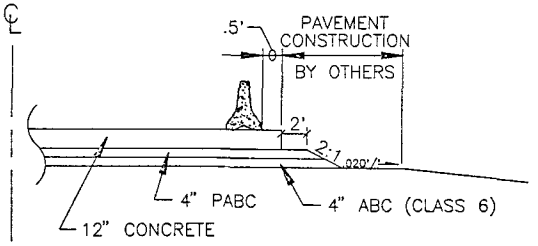
PHASE 2
SOUTHBOUND
TO THE MEDIAN DETOUR
STA. 4+91.84 TO STA. 10+28.32





• CONCRETE BARRIER (TEMPORARY) WITH GLARE SCREEN

PHASE 3
MEDIAN TO EXISTING NORTHBOUND
STA. 1620+12.62 TO STA. 1625+77.51



STAGE CONSTRUCTION DETAIL
EDGE OF PAVEMENT
STA. 1592+71.93 TO STA. 1611+57.90 RT.AND LT. AND
STA. 1592+71.93 TO STA. 1611+94.92 LT.

10/14/92 DET-TYP.DWG G:\DETOUR.DIR

AS CONSTRUCTED			DIST 6	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX) 225-4(39)	7

GENERAL NOTES

FOR PRELIMINARY PLAN QUANTITIES OF PAVEMENT MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:
TACK COAT DILUTED EMUL. ASPH. (SLOW SETTING) @ 0.10 GALS./SQ. YD. (DILUTED)
BITUMINOUS PAVEMENT GRADING C AND CX @ 110 LBS. PER SQ. YD./INCH
AGGREGATE BASE COURSE CLASS 6 @ 133 LBS. PER CU. FT.
DILUTED EMULSIFIED ASPHALT FOR TACK COAT SHALL CONSIST OF 1
PART EMULSIFIED ASPHALT AND 1 PART WATER.
RATES OF APPLICATION SHALL BE AS DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.

WATER SHALL BE USED AS A DUST PALLIATIVE AS DIRECTED BY THE ENGINEER AND SHALL BE INCLUDED IN THE WORK.

THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAVER.
1. A SKI TYPE DEVICE AT LEAST 30 FEET IN LENGTH.
2. SHORT SKI OR SHOE.

ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.

IT IS SUGGESTED THAT THE CONTRACTOR INITIATE A REQUEST TO PUBLIC SERVICE COMPANY FOR ANY CONSTRUCTION RELATED TEMPORARY ELECTRICAL POWER SOURCES AS SOON AS POSSIBLE. IN SOME INSTANCES UP TO 30 DAYS MAY BE REQUIRED TO PROVIDE THE SOURCES. THE REQUEST IS TO BE PROCESSED THROUGH PUBLIC SERVICE COMPANY OF COLORADO - LIGHTING UTILIZATION WITH CHERI WEERS - 571-2505.

UTILITY LINES AS SHOWN ON PLAN AND PROFILE SHEETS ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR'S ATTENTION IS DIRECTED TO PARAGRAPH 105.06 OF THE STANDARD SPECIFICATIONS CONCERNING UTILITIES. THE CONTRACTOR WILL CALL 534-6700 FOR UTILITY LOCATIONS WITHIN 2 WORKING DAYS PRIOR TO ANY DIGGING.

EMBANKMENT MATERIAL SHALL HAVE A MINIMUM R VALUE OF 10 AND SHALL BE APPROVED BY THE ENGINEER.

DEPTH OF MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS:

FULL DEPTH OF ALL EMBANKMENTS.
BASES OF CUTS AND FILLS 0.5 FOOT.

EXCAVATION REQUIRED FOR COMPACTION OF BASES OF CUTS AND FILLS WILL BE CONSIDERED AS SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

TYPE OF COMPACTION FOR THIS PROJECT WILL BE AASHTO T-99.

THE MINIMUM THICKNESS OF TOPSOIL SHALL BE 4 INCHES. IT IS ESTIMATED THAT 4050 CU. YDS. WILL BE REQUIRED BASED ON AVERAGE THICKNESS, AND WILL BE OBTAINED FROM CONTRACTORS SOURCE.

IT IS ESTIMATED THAT 500 LIN. FT. OF FENCE (TEMPORARY) WILL BE REQUIRED.

IT IS ESTIMATED THAT 20 DELINEATORS WILL BE REMOVED AND PAID FOR AS "REMOVAL OF DELINEATOR".

IT IS ESTIMATED THAT 200 EROSION BALES WILL BE REQUIRED.

IT IS ESTIMATED THAT 25 HOURS OF COMBINATION LOADER (POTHOLING) WILL BE REQUIRED AND WILL BE PAID FOR AS COMBINATION LOADER.

IT IS ESTIMATED THAT 3 LUMINAIRE HIGH PRESSURE SODIUM (WALL TYPE), (250 WATT) AND 270 FEET OF DIRECT BURIAL CABLE FROM THE POWER SOURCE WILL BE REQUIRED TO LIGHT SMITH ROAD UNDER STR. E-17-DR.

A DEWATERING PERMIT WILL BE REQUIRED FROM THE COLORADO DEPARTMENT OF HEALTH BEFORE WATER CAN BE DISCHARGED FROM THE CAISSONS DRILLING OPERATIONS. DEPENDING UPON THE LEVEL OF CONTAMINATION OF THE GROUND WATER, ONE OF THE FOLLOWING PERMITS WOULD APPLY:

1. NPDES PERMIT FOR DISCHARGING CLEAN WATER TO STORM SEWER AND DITCH.
2. LOAD APPLICATION PERMIT TO DISCHARGE WATER TO A SETTLING POINT.
3. NPDES PERMIT FOR TREATING CONTAMINATED WATER BEFORE DISCHARGE TO STORM SEWER OR DITCH.

SEEDING, FERTILIZING WITH COMMERCIAL FERTILIZER, AND MULCHING WILL BE REQUIRED FOR APPROXIMATELY 8 ACRES FOR ALL DISTURBED ROADWAY WITHIN RIGHT OF WAY LIMITS ON ALL DISTURBED AREAS NOT SURFACED.

THE FOLLOWING TYPES AND RATES SHALL BE USED:

COMMON NAME	BOTANICAL NAME	RATE PLS/ACRE POUNDS
BLUE GRAMA V. HACHITA	BOUTELOUA GRACILIS	1
STREAMBANK WHEATGRASS V. SODAR	ELYMUS LANCEOLATUS	5
WESTERN WHEATGRASS V. ARRIBA	PASCOPYRUM SMITHII	7
LITTLE BLUESTEM V. PASTURA	SCHIZACHYRIUM SCOPARIUM	2
BUFFALO GRASS (GRAIN) V. TEXOKA	BUCHLOE DACTYLOIDES	2
BLANKET FLOWER	GAILLARDIA ARISTATA	1
BLUE FLAX	LINUM PERENNE	0.5
PRAIRIE CONEFLOWER	RATIBIDA COLUMNIFERA	0.25
	TOTAL POUNDS/OUNCES PLS/ACRE SEEDING	18.75

MULCHING MATERIAL: NATIVE HAY AT 1-1/2 TONS PER ACRE MECHANICALLY CRIMPED INTO TOPSOIL

COMMERCIAL FERTILIZER	ANALYSIS (%)	RATE LBS/ACRE AVAILABLE
NITROGEN	18	45
PHOSPHORUS	46	115
POTASSIUM	0	

SEEDING APPLICATION: DRILL SEED .25"-.50" INTO TOPSOIL. ON SLOPES 2:1 AND STEEPER HANDPLACE AND RAKE TO A DEPTH OF .25"-.50" INTO TOPSOIL.

MULCHING REQUIREMENT AND APPLICATION: 1-1/2 TONS NATIVE HAY PER ACRE MECHANICALLY CRIMPED INTO TOPSOIL. ON SLOPES 2:1 AND STEEPER, SOIL RETENTION BLANKET (SPECIAL) SHALL BE USED. IT IS ESTIMATED THAT 2372 SQ. YDS. WILL BE REQUIRED FOR THE DITCH LINER (SEE DETAIL) AND 1000 SQ. YDS. WILL BE REQUIRED FOR 2:1 SLOPES NEAR BRIDGE ABUTMENTS.

SEEDING SHALL NOT BE PERFORMED AS A SINGLE OPERATION BUT SHALL BE PERFORMED UPON COMPLETION OF EACH GRADING PHASE.

PROJECT TOTALS

SEEDING (NATIVE)	8 ACRES
MULCHING	8 ACRES
#FERTILIZER (AVAILABLE N)	405 LBS.
#FERTILIZER (AVAILABLE P)	1035 LBS.
#FERTILIZER (AVAILABLE K)	0 LBS.

#FOR INFORMATION ONLY

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED			CDOH FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX)225-4(39)	8

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY						STR. NO. E-17-DR						RETAINING WALLS AND SOUND BARRIERS						PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.
			201	CLEARING AND GRUBBING	L S	1																		1	
			202	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L S	1																		1	
			202	REMOVAL OF STRUCTURE	EACH	3																		3	
			202	REMOVAL OF TREE	EACH	10																		10	
			202	REMOVAL OF DELINEATOR	EACH	20																		20	
			202	REMOVAL OF CURB	LF	4,852																		4,852	
			202	REMOVAL OF CONCRETE PAVEMENT	SY	14,738																		14,738	
			202	REMOVAL OF ASPHALT MAT	SY	12,249																		12,249	
			202	REMOVAL OF PAVEMENT MARKING	SF	5,600																		5,600	
			202	REMOVAL OF BRIDGE	EACH							2												2	
			202	REMOVAL OF GROUND SIGN	EACH	15																		15	
			202	REMOVAL OF IMPACT ATTENUATOR	EACH	1																		1	
			202	REMOVAL OF FENCE	LF	2,780																		2,780	
			202	REMOVAL OF GUARDRAIL TYPE 3	LF	4,380																		4,380	
			202	REMOVAL OF GUARDRAIL TYPE 4	LF	354																		354	
			202	REMOVAL OF END ANCHORAGE	EACH	6																		6	
			203	EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CY	122,199																		122,199	
			203	COMBINATION LOADER	HOUR	25																		25	
			206	STRUCTURE EXCAVATION	CY	85						2,420						5,275						7,780	
			206	STRUCTURAL BACKFILL (SPECIAL) (FLOW-FILL)	CY							1,190												1,190	
			206	STRUCTURE BACKFILL (CLASS 1)	CY	199																		199	
			206	STRUCTURE BACKFILL (CLASS 2)	CY							790						12,200						12,990	

2-Dec-1992 PROJ_ROOT:[...].DXF

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED			C D O H	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX)225-4(39)	9

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY						STR. NO. E-17-DR						RETAINING WALLS AND SOUND BARRIERS						PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.
			206	FILTER MATERIAL (CLASS B)	CY													860						860	
			207	TOPSOIL	CY	4,050																		4,050	
			210	RESET GROUND SIGN	EACH	33																		33	
			210	ADJUST MANHOLE	EACH	5																		5	
			210	MODIFY MANHOLE	EACH	1																		1	
			212	SEEDING (NATIVE)	ACRE	8																		8	
			213	MULCHING	ACRE	8																		8	
			213	EROSION BALES	EACH	200																		200	
			216	SOIL RETENTION BLANKET (SPECIAL)	SY	3,372																		3,372	
			255	PAINTED STRUCTURAL COMPONENTS REMOVAL AND WASTE DISPOSAL MANAGEMENT	L S							1												1	
			304	AGGREGATE BASE COURSE (CLASS 6)	TON	6,201																		6,201	
			304	AGGREGATE BASE COURSE (SPECIAL)	TON	394																		394	
			304	PERMEABLE AGGREGATE BASE COURSE	TON	7,481																		7,481	
			403	HOT BITUMINOUS PAVEMENT (GRADING C) (ASPHALT)	TON	3,126																		3,126	
			403	HOT BITUMINOUS PAVEMENT (GRADING CX) (ASPHALT)	TON	1,490																		1,490	
			411	EMULSIFIED ASPHALT (SLOW-SETTING)	GAL	1,857																		1,857	
			412	CONCRETE PAVEMENT (8 INCH)	SY	7,596																		7,596	
			412	CONCRETE PAVEMENT (12 INCH)	SY	23,346																		23,346	
			420	GEOTEXTILE (DRAINAGE) (CLASS A)	SY	816																		816	
			502	DRILLING HOLE TO FACILITATE PILE DRIVING	LF							920						675						1,595	
			502	STEEL PILING (HP 12X53)	LF							5,735						19,400						25,135	
			502	STEEL PILING (HP 14X89)	LF													1,024						1,024	

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED			C D O H	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX)225-4(39)	10

(R-1) *Revised Quantities, 12-24-92, JKK*

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY						STR. NO. E-17-DR						RETAINING WALLS AND SOUND BARRIERS						PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.
			503	DRILLED CAISSON (24 INCH)	LF													2,892						2,892	
			504	MECHANICALLY STABILIZED EARTH WALL	SF	3,331																		3,331	
			507	CONCRETE SLOPE AND DITCH PAVING	CY	20																		20	
			507	CONCRETE SLOPE AND DITCH PAVING (REINFORCED)	CY							293												293	
			515	CONCRETE SEALER	SY							6,549												6,549	
			518	BRIDGE EXPANSION DEVICE (0-4 INCH)	LF							362												362	
			601	CONCRETE CLASS A (BOX CULVERT)	CY	125																		125	
			601	CONCRETE CLASS B (WALL)	CY													4,050						4,050	
			601	CONCRETE CLASS D (BRIDGE)	CY							3,964												3,964	
			601	STRUCTURAL CONCRETE COATING	SF							32,805						25,000						57,805	
			602	REINFORCING STEEL	LB	10,713					(R-1)	*97,960*						1,065,000					(R-1)	*1,173,673*	
			602	REINFORCING STEEL (EPOXY COATED)	LB						(R-1)	*793,405*											(R-1)	*793,405*	
			603	24 INCH REINFORCED CONCRETE PIPE	LF	884																		884	
			603	24 INCH REINFORCED CONCRETE END SECTION	EACH	3																		3	
			603	36 INCH CORRUGATED STEEL PIPE	LF	84																		84	
			603	36 INCH STEEL END SECTION	EACH	2																		2	
			603	12 INCH PLASTIC PIPE	LF	114																		114	
			604	INLET TYPE C (5 FOOT)	EACH	2																		2	
			604	INLET TYPE C (SPECIAL)	EACH	3																		3	
			604	SLOTTED VANE DRAIN	EACH	2																		2	
			605	4 INCH PERFORATED PIPE UNDERDRAIN	LF	1,102																		1,102	
			605	SUBSURFACE DRAIN OUTLET	LF	80																		80	

2-Dec-1992 PROJ_ROOT:[BG034.DG]PREDU2T1103C.DXF

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED

NO REVISIONS ☐ REVISED ☐ VOID ☐

CDOH FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
VIII	COLO.	NH(CX)225-4(39)	11

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY						STR. NO. E-17-DR						RETAINING WALLS AND SOUND BARRIERS						PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.
			606	GUARDRAIL TYPE 3 (6-3 POST SPACING)	LF	515																		515	
			606	GUARDRAIL TYPE 4 SPECIAL	LF	152																		152	
			606	GUARDRAIL TYPE 4 (STYLE CA)	LF	2,441																		2,441	
			606	END ANCHORAGE TYPE 3E	EACH	3																		3	
			606	BRIDGE RAIL TYPE 4	LF							706												706	
			606	BRIDGE RAIL TYPE 4 SPECIAL	LF							700												700	
			607	FENCE (TEMPORARY)	LF	500																		500	
			607	FENCE MASONRY (SOUND BARRIER) (144 INCH)	LF													3,558						3,558	
			607	LINE POST (CHAIN LINK)	EACH	113																		113	
			607	END POST (CHAIN LINK)	EACH	6																		6	
			607	CORNER AND LINE BRACE POST (CHAIN LINK)	EACH	4																		4	
			607	FENCE CHAIN LINK (SPECIAL) (60 INCH)	LF							640												640	
			607	FENCE CHAIN LINK (72 INCH)	LF	1,145																		1,145	
			612	DELINEATOR (FLEXIBLE) (TYPE I)	EACH	2																		2	
			612	REFLECTOR (MEDIAN BARRIER)	EACH	61																		61	
			613	3/4 INCH ELECTRICAL CONDUIT	LF							630												630	
			613	2 INCH ELECTRICAL CONDUIT	LF							1,424												1,424	
			613	DIRECT-BURIAL CABLE	LF	270																		270	
			613	LUMINAIRE HIGH PRESSURE SODIUM (WALL TYPE) (250 WATT)	EACH	3																		3	
			614	SIGN PANEL (CLASS II)	SF	55																		55	
			614	STEEL SIGN POST (S 3X5.7)	LF	9																		9	
			614	STEEL SIGN POST (S 4X7.7)	LF	15																		15	

2-Dec-1992 PROJ_ROOT(B0034.DEP)REDGRT(1153).DXF

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED			C D O H	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX)225-4(39)	12

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY						STR. NO. E-17-DR						RETAINING WALLS AND SOUND BARRIERS						PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.
			618	PRESTRESSED CONCRETE UNIT (I SECTION) (105 TO 110 FEET)	EACH							61												61	
			620	FIELD OFFICE (CLASS 2)	EACH	2																		2	
			620	FIELD LABORATORY (CLASS 2)	EACH	1																		1	
			620	SANITARY FACILITY	EACH	1																		1	
			625	CONSTRUCTION SURVEYING	L S	1																		1	
			626	MOBILIZATION	L S	00.3						00.4						00.3						1	
			627	PAVEMENT MARKING PAINT	GAL	167																		167	
			627	EPOXY PAVEMENT MARKING	GAL	68																		68	
			629	SURVEY MONUMENT (TYPE 1)	EACH	5																		5	
			629	SURVEY MONUMENT (TYPE 3A)	EACH	1																		1	
			630	FLAGGING	HOUR	5,000																		5,000	
			630	*TRAFFIC CONTROL SUPERVISOR*	*DAY*	*300*																		300	
			630	UNIFORMED TRAFFIC CONTROL	HOUR	500																		500	
			630	TRAFFIC CONTROL VEHICLE	EACH	1																		1	
			630	FLASHING BEACON (PORTABLE)	EACH	8																		8	
			630	BARRICADE (TYPE 3 M-B) (TEMPORARY)	EACH	2																		2	
			630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH	19																		19	
			630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EACH	85																		85	
			630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE C)	EACH	11																		11	
			630	ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL (C TYPE)	EACH	4																		4	
			630	DRUM CHANNELIZING DEVICE	EACH	20																		20	

2-Dec-1992 PROJ_R08H68034_DSFRE08211130E.DXF

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

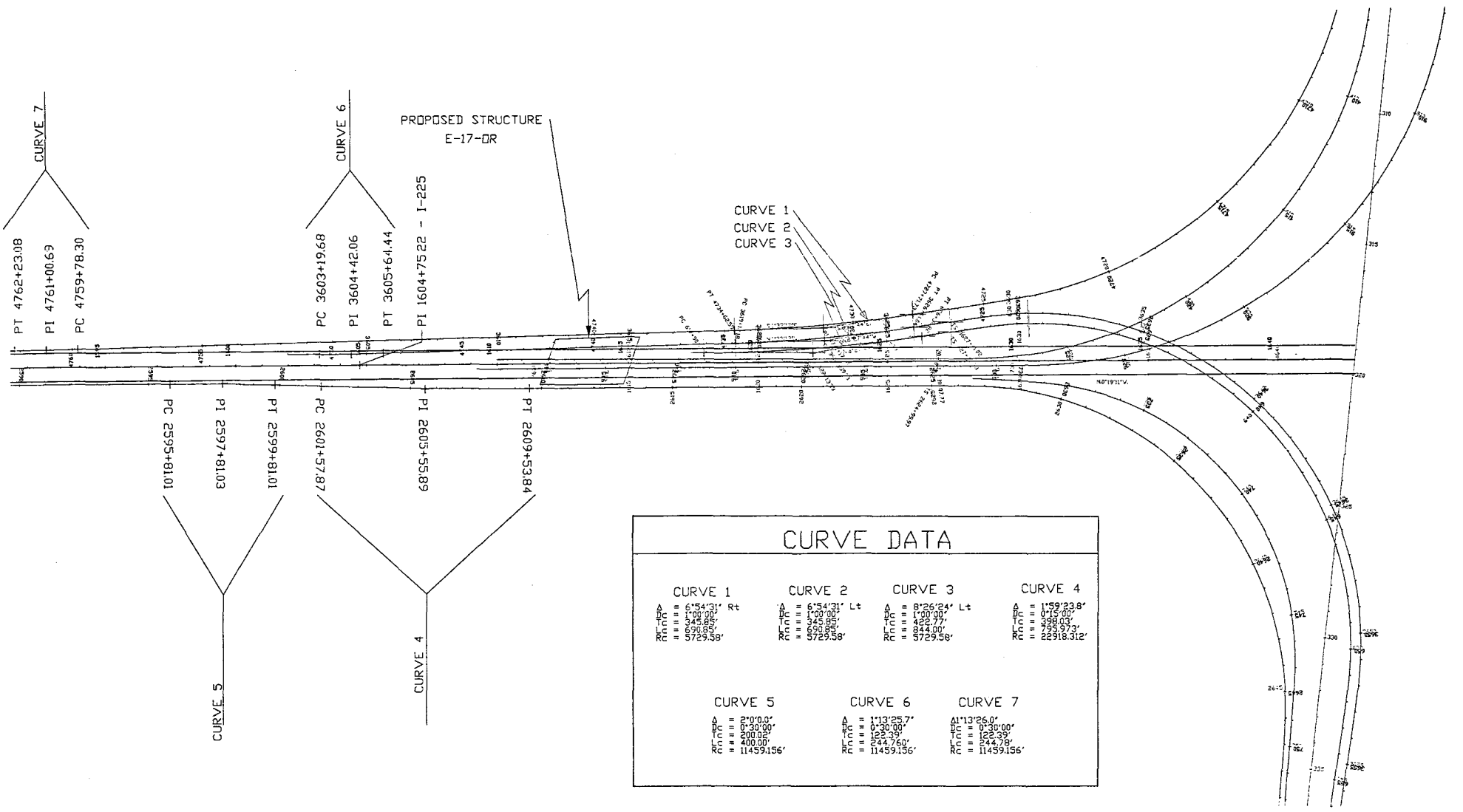
CDOH	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
	VIII	COLO.	NH(CX)225-4(39)	13

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY						STR. NO. E-17-DR						RETAINING WALLS AND SOUND BARRIERS						PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.					PLAN	AS CONST.
			630	DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING)	EACH	10																		10	
			630	DRUM CHANNELIZING DEVICE (WITH LIGHT) (STEADYBURN)	EACH	20																		20	
			630	CONCRETE BARRIER (TEMPORARY)	LF	11,060																		11,060	
			630	GLARE SCREEN (TEMPORARY)	LF	6,360																		6,360	
			630	TRAFFIC CONE	EACH	200																		200	
			630	IMPACT ATTENUATOR (SAND FILLED PLASTIC BARREL) (TEMPORARY)	EACH	5																		5	
				FORCE ACCOUNT																					
				============																					
			700	F/A MINOR CONTRACT REVISIONS	F A	1																		1	
			700	F/A ON-THE-JOB TRAINEE	EACH	3																		3	
			700	F/A OJT PILOT	F A	1																		1	
			700	F/A RAILROAD FLAGGING	F A	1																		1	
			700	F/A HEALTH AND SAFETY PLAN	F A							1												1	
			700	F/A SURVEY MONUMENTATION	F A	1																		1	
			700	F/A REMOVE COMMUNICATION LINES (WORK BY OTHERS)	F A	1																		1	

AS CONSTRUCTED				DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		6	VIII	COLO.	NH(CX) 225-4(39)	14

ULTIMATE INTERCHANGE BUILDOUT ALIGNMENTS

REVISIONS		



CURVE DATA

CURVE 1	CURVE 2	CURVE 3	CURVE 4
Δ = 6°54'31" Rt	Δ = 6°54'31" Lt	Δ = 8°26'24" Lt	Δ = 1°59'23.8"
Dc = 1°00'00"	Dc = 1°00'00"	Dc = 1°00'00"	Dc = 0°15'00"
Tc = 345.85'	Tc = 345.85'	Tc = 422.77'	Tc = 998.03'
Lc = 690.85'	Lc = 690.85'	Lc = 844.00'	Lc = 1999.72'
Rc = 5729.58'	Rc = 5729.58'	Rc = 5729.58'	Rc = 22918.312'

CURVE 5	CURVE 6	CURVE 7
Δ = 2°0'0.0"	Δ = 1°13'25.7"	Δ1°13'26.0"
Dc = 0°30'00"	Dc = 0°30'00"	Dc = 0°30'00"
Tc = 200.08'	Tc = 122.39'	Tc = 122.39'
Lc = 400.00'	Lc = 244.760'	Lc = 244.78'
Rc = 11459.156'	Rc = 11459.156'	Rc = 11459.156'

TABULATION OF REMOVALS

AS CONSTRUCTED			DIST	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	6	VIII	COLO.	NH(CX) 225-4(39)	15

STATION TO STATION	SIDE	REMOVAL OF STRUCTURES & OBSTRUCTIONS	REMOVAL OF TREE	REMOVAL OF CURB	REMOVAL OF ASPHALT MAT	REMOVAL OF CONCRETE PAVEMENT	REMOVAL OF FENCE	REMOVAL OF IMPACT ATTENUATOR	ADJUST MANHOLE	MODIFY MANHOLE	REMOVAL OF GUARD RAIL TYPE 3	REMOVAL OF GUARD RAIL TYPE 4	REMOVAL OF END ANCHORAGE	MISCELLANEOUS AND COMMENTS
		L. S.	EACH	LIN.FT.	SQ.YD.	SQ.YD.	LIN.FT.	EACH	EACH	EACH	LIN. FT.	LIN. FT.	EACH	
1598+48	LT.		1											
1602+13	RT.		1											
1602+30	RT.		1											
1603+87	LT.		1											
1606+92	LT.		1											
1607+73	LT.		1											
1608+52	RT.		1											
1609+20	LT.		1											
1609+76	RT.		1											
1610+27	RT.		1											
1587+36 TO 1611+72	BOTH					12,992								
1615+22.88 TO 1619+00	BOTH			1,010		1,746					1,015		1	
1591+00	MEDIAN							*1						
1615+22.88 TO 1626+00	BOTH				1,518									
1587+36 TO 1593+34	BOTH				4,918									
1593+34 TO 1611+72	BOTH				5,718									
1587+21.09 TO 1606+42	LT.			1,921										
1587+21.09 TO 1606+42	RT.			1,921										
ENTIRE PROJECT*		1												
SHEET TOTALS		1	10	4,852	12,154	14,738		1			1,015		1	

*INCLUDES 8 EMBANKMENT PROTECTORS AT STATIONS: 1589+94, 1590+92, 1593+95, 1594+66, 1598+48, 1602+85, 1603+07, 1607+90 AND ANY OTHER ITEMS AS IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

* G.R.E.A.T. IMPACT ATTENUATOR. ALL SALVAGEABLE MATERIALS TO BECOME THE PROPERTY OF THE DEPARTMENT.

TABULATION OF REMOVALS

AS CONSTRUCTED			DIST 6	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX) 225-4(39)	16

STATION TO STATION	SIDE	REMOVAL OF STRUCTURES & OBSTRUCTIONS	REMOVAL OF TREE	REMOVAL OF CURB	REMOVAL OF ASPHALT MAT	REMOVAL OF CONCRETE PAVEMENT	REMOVAL OF FENCE	REMOVAL OF IMPACT ATTENUATOR	ADJUST MANHOLE	MODIFY MANHOLE	REMOVAL OF GUARD RAIL TYPE 3	REMOVAL OF GUARD RAIL TYPE 4	REMOVAL OF END ANCHORAGE	MISCELLANEOUS AND COMMENTS
		L. S.	EACH	LIN.FT.	SQ.YD.	SQ.YD.	LIN.FT.	EACH	EACH	EACH	LIN. FT.	LIN. FT.	EACH	
1603+00	LT.									1				
1587+21.09 TO 1594+65	RT.										744		1	
1587+21.09 TO 1594+78	LT.										757		1	
1603+78 TO 1612+10	LT.										832		1	
1603+95 TO 1611+70	RT.										775		1	
1609+95 TO 1611+82	MEDIAN										257		1	
1587+21 TO 1590+75	MEDIAN											354		
1587+21 TO 1612+76							2,780							
28TH AVE. OVERLAY									2					
30TH AVE. OVERLAY									3					
SMITH RD. DETOURS					95									
SHEET TOTALS					95		2,780		5	1	3,365	354	5	
PROJECT TOTALS		1	10	4,852	12,249	14,738	2,780	1	5	1	4,380	354	6	

TABULATION OF GUARD RAIL & FENCING

AS CONSTRUCTED	DIST	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ____ REVISED ____ VOID ____	6	VIII	COLO.	NH(CX) 225-4(39)	17

STATION	● GUARD RAIL TYPE 3 (6-3 POST SPACING) LIN. FT.	3E END ANCHORAGE EACH	GUARD RAIL TYPE 4 (STYLE CA) LIN. FT.	GUARD RAIL TYPE 4 (SPECIAL) LIN. FT.	IMPACT ATTENUATOR (SAND-FILLED PLASTIC BARREL) (TEMPORARY) EACH	FENCE CHAIN LINK (72 INCH) LIN. FT.	LINE POST (CHAIN LINK) EACH	END POST (CHAIN LINK) EACH	CORNER AND LINE BRACE POST (CHAIN LINK) EACH	*CONCRETE BARRIER (TEMPORARY) LIN. FT.	GLARE SCREEN (TEMPORARY) LIN. FT.	MISCELLANEOUS AND COMMENTS
1604+00 TO 1612+55 LT.						1,045	105	2	4			
1587+35.60 TO 1611+73.70 MEDIAN			2,441									
1587+35.60 TO 1588+15.60 LT.				80		100	8	4				
1588+15.60 TO 1588+90.60 LT.	75	1										
1587+35.60 TO 1588+07.60 RT.				72								
DETOURS										10,790	6,360	
SMITH ROAD	440	2			2					270		
PROJECT TOTALS	515	3	2,441	152	2	1,145	113	6	4	11,060	6,360	

*ALL RESETS TO BE INCLUDED IN THE WORK

●TO BE GALVANIZED

TABULATION OF SURFACING

AS CONSTRUCTED			DIST 6	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX)225-4(39)	18

STATION	SIDE	CONCRETE PAVEMENT (12 INCH) SQ.YD.	CONCRETE PAVEMENT (8 INCH) SQ.YD.	AGGREGATE BASE COURSE (SPECIAL) TON	AGGREGATE BASE COURSE (CLASS 6) TON	PERMEABLE AGGREGATE BASE COURSE TON	HOT BITUMINOUS PAVEMENT (GRADING C) (ASPHALT) TON	HOT BITUMINOUS PAVEMENT (GRADING CX) (ASPHALT) TON	EMULSIFIED ASPHALT (SLOW-SETTING) GAL.	DESCRIPTION
1587+35 TO 1611+76.41	MEDIAN		7596		1519	2658				
1587+35 TO 1588+07.60	RT.	436		26	88	88				
1587+35 TO 1588+07.60	LT.	436		27	88	88				
1588+07.60 TO 1592+71.93	RT.	2,683		170	542	542				
1588+07.60 TO 1592+71.93	LT.	2,683		171	542	542				
1592+71.93 TO 1611+49.68	RT.	8,465			1,693	1,693				
1592+71.93 TO 1612+08.69	LT.	8,644			1,729	1,729				
28TH AVENUE UNDER STR. NO. E-17-QQ								88	41	
30TH AVENUE UNDER STR. NO. E-17-QQ								103	46	
SMITH ROAD	RT.						173	44	79	
SMITH RD.	LT.						*72	17	31	
DETOUR (PHASE 1)							776	323	470	
1615+22.88 TO 1619+00 (SOUTHBOUND INTERIM)	LT.						703	317	391	
DETOUR (PHASE 2) (SOUTHBOUND)							625	260	378	
1615+22.88 TO 1619+00 (NORTHBOUND INTERIM)	RT.						704	316	390	
DETOUR (PHASE 3) (NORTHBOUND)							73	72	31	
FROM STRUCTURE QUANTITIES						141				
PROJECT TOTALS		23,346	7,596	394	6,201	7,481	3,126	1,490	1,857	

DESIGN PARAMETERS, I-225
RELIABILITY_____95
OVERALL DEVIATION_____0.34
R-VALUE DESIGN_____10
M(R) SUBGRADE_____3562
PSI LOSS_____2
MODULUS OF RUPTURE___650
LOAD TRANSFER_____3.6, 2.8
LOSS OF SUPPORT_____1 FOR BASE (PERMEABLE)
DESIGN LIFE_____30 YEARS

DESIGN PARAMETERS, SMITH ROAD
RELIABILITY_____95
OVERALL DEVIATION_____0.44
R-VALUE DESIGN_____10
M(R) SUBGRADE_____3562
PSI LOSS_____2
DESIGN LIFE_____20 YEARS

*INCLUDES 4 TONS HBP FOR IMPACT ATTENUATOR PADS

E OF COLORADO
E DEPARTMENT OF HIGHWAYS
ON OF HIGHWAYS
H FORM NO. 126
FEB. 1984

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX)225-4(39)	19	

TABULATION OF DELINEATORS

STATION	LOCATION (SPACING)	DELINEATOR (FLEXIBLE) (TYPE I) EACH				REFLECTOR (MEDIAN BARRIER) EACH	
1587+20 to 1611+	Center (200')					28	
1587+36 to 1588+08	Rt. (37.5')					2	
1587+36 to 1588+16	Lt. (37.5')					2	
1588+59 to 1588+91	Lt. (37.5')	2					
1588+07 to 1618+97 (ON CONCRETE BARRIER (TEMPORARY))	Rt (200')					16	
1588+90 TO 1619+00 (ON CONCRETE BARRIER (TEMPORARY))	Lt (200')					15	
TOTALS		2				61	

It is estimated that 18 yellow and 16 crystal reflectors will be required.

Reflector's shall be yellow for barrier required on the left side of traffic and crystal for barrier required on the right side.

SUMMARY OF EARTHWORK

INDEX Book	Page	Sheet	ITEM	PROJECT TOTALS
			Embankment Material (CIP)	Cu. Yd.
			Roadway (From Cross-Sections) (I-225)	121,939
			Structure Quantities as Embankment	260
			Total for Pay Quantity	122,199
			Unclassified Excavation (For Information Only)	
			Roadway (From Cross-Sections)	0
			Structure Excavation-DRAINAGE	675
			Ditch Excavation	575
			STRUCTURE EXCAVATION-STR NO. E-17-OR	2420
			RETAINING WALL	5275
			TOTAL	8945
			Compaction (AASHTO T99) (For Information Only) (Moisture & Density Control)	
			Embankment (Net)	122,199
			Bases of Cuts & Fills	14,064
			Total	136263
			Wetting Quantities (For Information Only)	
			Compaction	M. Gal.
			(136268 x 0.040) Total	5451
			Roadway Quantities Balance (For Information Only)	
			Excavation	
			Unclassified	8945
			(Borrow from Contractors Source)	147763
			Total	156,708
			Embankment Net	
			Roadway	136268
			Total	136268
			Embankment x Factor (1.15)	
			Roadway	156,708
			Total	156,708

The source of the material shall be the Contractor's source.

‡ INCLUDES INTERIM HBP CONNECTION FROM JUST NORTH OF THE PROPOSED STRUCTURE TO EXISTING I-225 AND THE DETOUR CONNECTIONS NORTH OF THE PROPOSED STRUCTURE.

STRUCTURE QUANTITIES

AS CONSTRUCTED					
NO REVISIONS		REVISED		VOID	

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
VIII	COLO.	NH(CX) 225-4(39)	20

INDEX			LOCATION	NOTE #	INLET TYPE C		UNCLASSIFIED EXCAVATION			STRUCTURE BACKFILL	STRUCTURE BACKFILL	PERMEABLE AGGREGATE BASE COURSE	CONCRETE SLOPE & DITCH PAVING	4" PERFORATED PIPE	CONCRETE CLASS A	REINFORCING STEEL	GEOTEXTILE (DRAINAGE) (CLASS A)	REINFORCED CONCRETE PIPE	CORRUGATED STEEL PIPE	STEEL END SECTIONS	PIPE COVER "H"	STRUCTURE EXCAVATION	REINFORCED CONCRETE END SECTION	MISCELLANEOUS
BOOK	PAGE	SHEET			EACH		CUBIC YARD			CUBIC YARD	CUBIC YARD	TON	CU. YD.	LIN. FT.	CUBIC YARD	LB.	SQ. YD.	LINEAR FEET	LINEAR FEET	EACH	FEET	CU. YD.	EACH	
					5'	SPECIAL	DITCH	EMB.		CL. 1	CL. 2				CL. A			24"	36"	36"			24"	
			1587+21 TO 1592+71.93 EDGE DRAIN LT. AND RT.									141		1,102			816							80 LIN. FT. – SUBSURFACE DRAIN OUTLET (4" PLASTIC PIPE)
			CONCRETE BOX CULVERT STA. 1602+94 LT. AND RT.							199			20		125	10,713						85		
			1592+93	1592		1	250		20	•30	•51							158			8	•60	1	▲1 EACH – REMOVE INLET
			1598+52	1598		1	225		10	•20	•34							104			3	•56		▲1 EACH – REMOVE INLET
			1598+40 (107.25' LT.)	1598L	1		100			•7	•12							36			3	•4	1	
			1598+40 (97.25' RT.)	1598R	1				200	•79	•134							416			10	•386		
			1605+46	1605		1			30	•33	•55							170			8	•84	1	▲1 EACH – REMOVE INLET
			1587+38.09																					2 EACH – SLOTTED VANE DRAIN 114 LIN. FT. 12" PLASTIC PIPE
			1614+65																84	2				•CONTRACTOR WILL CLEAN EXISTING PIPE AT NO COST
			PROJECT TOTAL		2	3	575		260	199	•272	• 141	20	1,102	125	10,713	816	884	84	2		△675	3	

• FOR INFORMATION ONLY

• CARRIED TO SURFACING TAB
△ CARRIED TO EARTHWORK SUMMARY

▲ TO BE PAID FOR AS REMOVAL OF STRUCTURE

LANE TRANSITIONS AND OVERVIEW

SCALE: HORIZONTAL 1"=100'
VERTICAL 1"=20'

AS CONSTRUCTED			DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	6-10	VIII	COLO.	NH(CX) 225-4(39)	21

REVISIONS		

1587+25 TO 1587+75
50' TRANSITION CROSS SLOPE FROM 0.025'/' TO 0.020'/', TO MATCH THE SAND CREEK STRUCTURE. (FUTURE WIDENING ONLY)

50' CROSS SLOPE TRANSITION FROM 0.020'/' TO 0.025'/' TO AID DRAINAGE. (FUTURE WIDENING ONLY)

PI STA. 1592+71.93

PI STA. 1593+58.14
116' LT.

STA. 1604+00
END NOISE WALL

NOISE WALL

N 0 19 47.2 W

N 1 33 13.2 W

1598+33.63

1602+97.60

1605+29.59

46.80:1 TAPER

PI STA. 1604+05.22

STRUCTURE E-17-OR

18'

1590+00 1595+00 1600+00 1605+00 1610+00 1615+00

N 0 19 47.2 W

N 0 19 11.0 W

1599+50

2°

28.64:1 TAPER

1602+93.64

1604+36.82

N 1 40 12.8 E

N 0 19 10.9 W

STATION 1595+00 116' RT.
END RETAINING WALL

STA. 1586+83.00 116' RT.
BEGIN RETAINING WALL
AND NOISE WALL

OFFSETS SHOWN ARE TO THE INSIDE FACE OF RETAINING WALL AND/OR NOISE WALL.
SEE STRUCTURE DETAILS FOR CONSTRUCTION LAYOUT LINE OFFSETS.

PI STA. 1600+06.43 O
116' RT. @ NOISE WALL

STA. 1602+15
BEGIN RETAINING WALL
123.28' RIGHT

STATION 1606+00
END NOISE WALL
136.71' RIGHT

N 4 48 0.2 W
BEARING

PI STA. 1607+24.54
127' RT. @ RETAINING WALL

STA. 1611+97.00 127' RT.
END RETAINING WALL

RETAINING WALL BY OTHERS

BY OTHERS

FUTURE

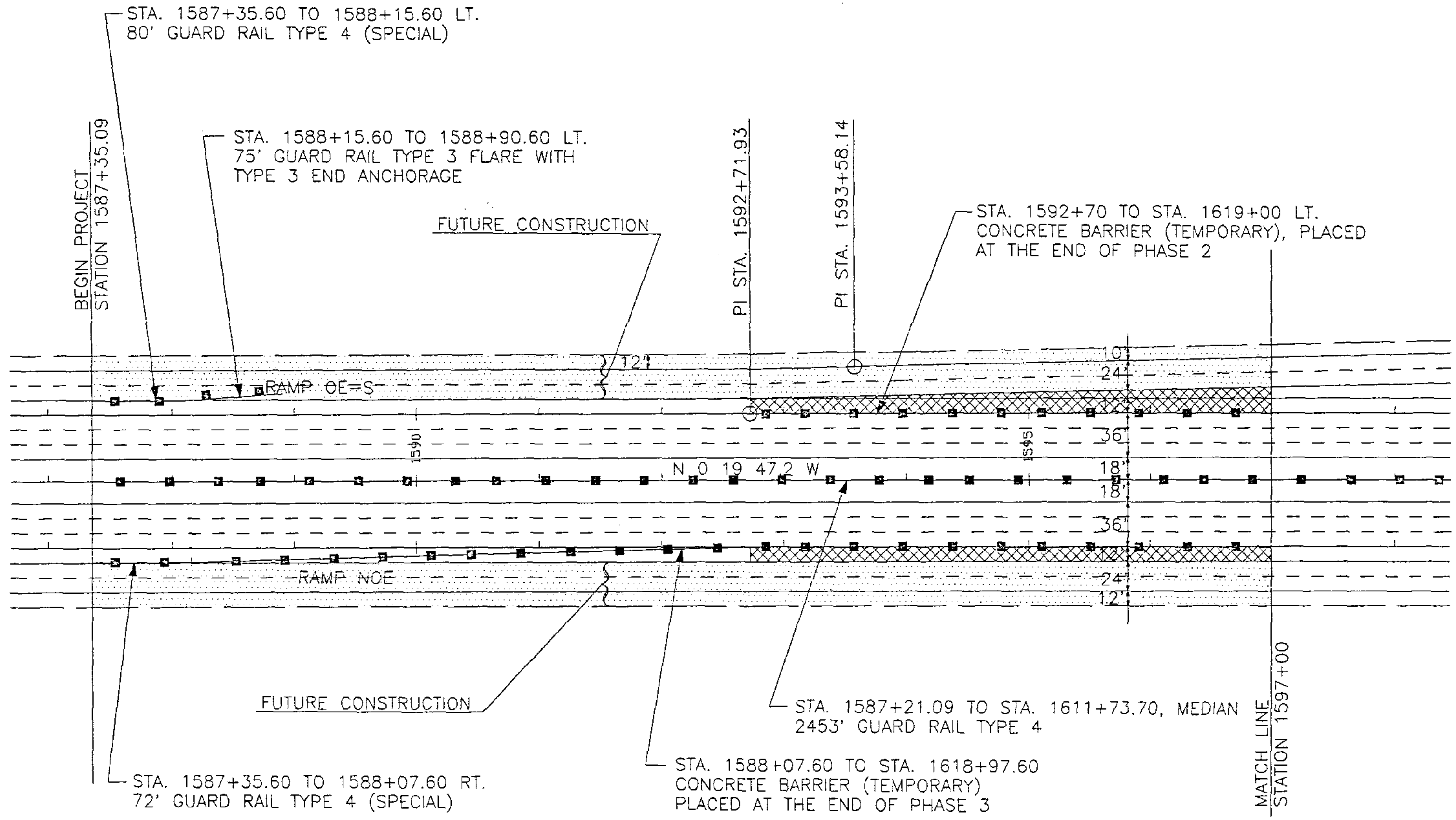
09/03/92 DETAIL1A.DWG G:\JANESH.DIR

AUG. 83 F126A

AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO
NO REVISIONS ☐ REVISED ☐ VOID ☐	VIII	COLO.	NH(CX) 225-4(39)	22

REVISIONS		

LANE LAYOUT DETAIL AND GUARD RAIL PLAN



- - - - - LANE LINES

——— EDGE OF SHOULDER

BY OTHERS

FUTURE

NOTE: THE LANES SHOWN HERE ARE FOR THE ULTIMATE BUILD-OUT. SEE THE SIGNING AND STRIPING PLANS FOR THE PROPOSED LANES.

NOTE: CONCRETE BARRIER (TEMPORARY) ON THE OUTSIDE FROM STA. 1595+00 TO STA. 1605+00 RT. & LT. (AS A MINIMUM) SHALL BE SLOTTED TO ALLOW DRAINAGE TO LEAVE THE ROADWAY. EROSION BALES SHALL BE PLACED AT THE LOCATION OF CONCENTRATED DRAINAGE AND AS DIRECTED BY THE ENGINEER.

N

20 100 50 200

ORIGINAL SCALE 1"=50'

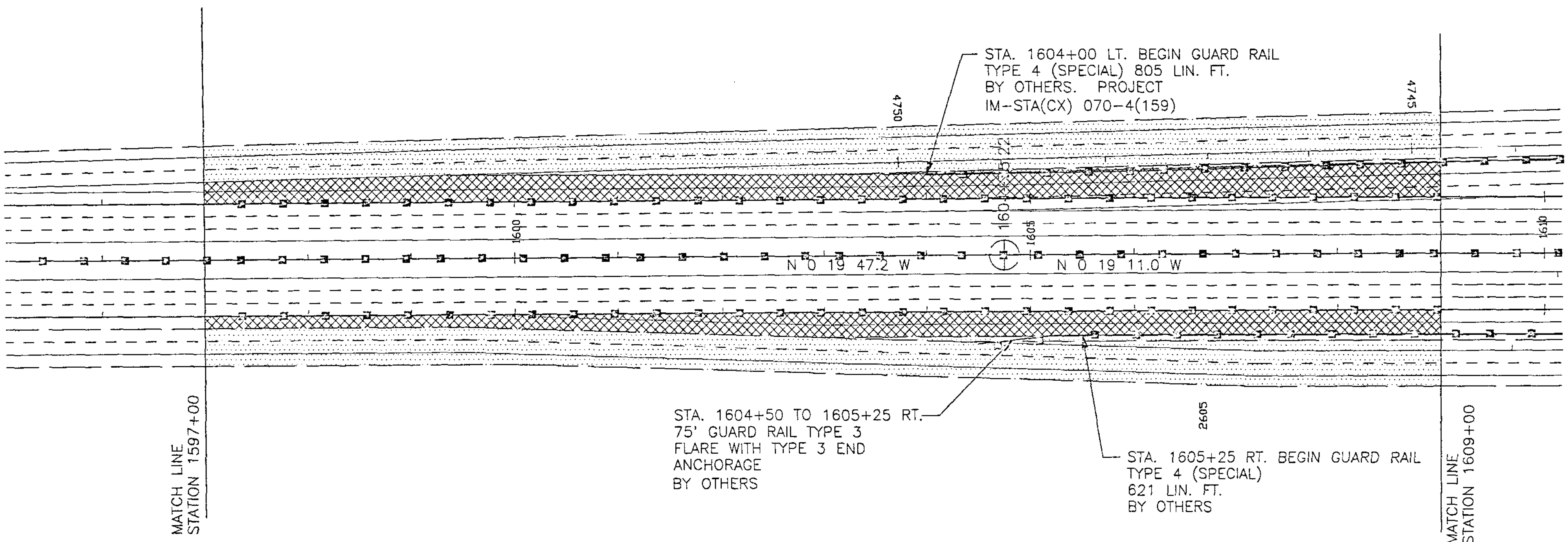
AUG. 89 F125A

PROJECT2:[87027.64502.CAD.FOR] LANESH1.DWG

AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	VIII	COLO.	NH(CX) 225-4(39)	23

REVISIONS		

LANE LAYOUT DETAIL AND GUARD RAIL PLAN



BY OTHERS

FUTURE

LANE LINES

EDGE OF PAVEMENT

NOTE: THE LANES SHOWN HERE ARE FOR THE ULTIMATE BUILD-OUT. SEE THE SIGNING AND STRIPING PLANS FOR THE PROPOSED LANES.

N

20 100 50 200

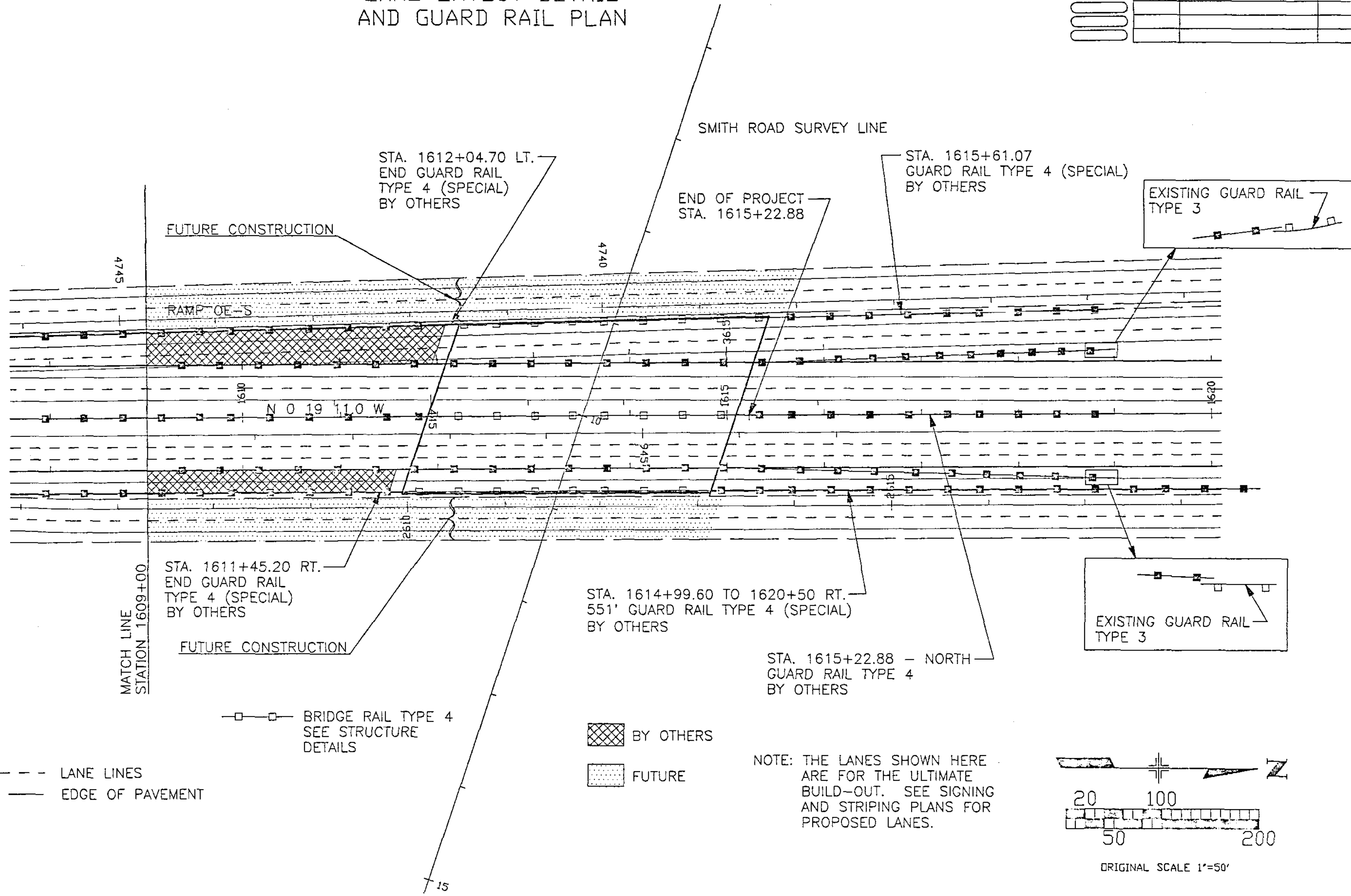
ORIGINAL SCALE 1"=50'

AUG. 89 F126A

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX) 225-4(39)	24

REVISIONS

LANE LAYOUT DETAIL AND GUARD RAIL PLAN



BRIDGE RAIL TYPE 4 SEE STRUCTURE DETAILS

LANE LINES

EDGE OF PAVEMENT

BY OTHERS

FUTURE

NOTE: THE LANES SHOWN HERE ARE FOR THE ULTIMATE BUILD-OUT. SEE SIGNING AND STRIPING PLANS FOR PROPOSED LANES.

20 100 50 200

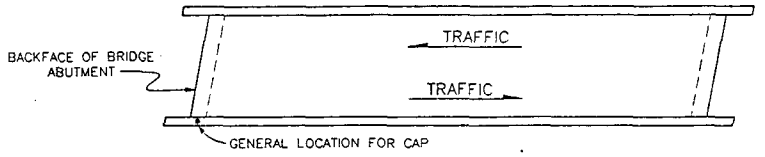
ORIGINAL SCALE 1"=50'

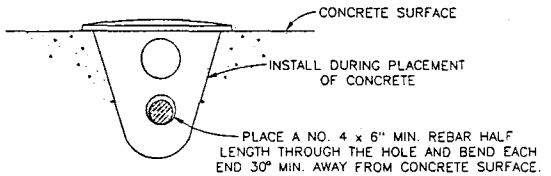
PROJECT2:[87027.84802.CAD.FOR] LANESH2.DWG

AUG. 89 F126A

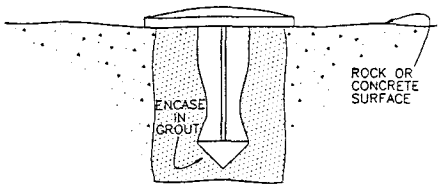
AS CONSTRUCTED						
NO REVISIONS		REVISED		VOID		

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
VIII	COLO.	NH(CX)225-9(39)	25

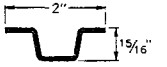




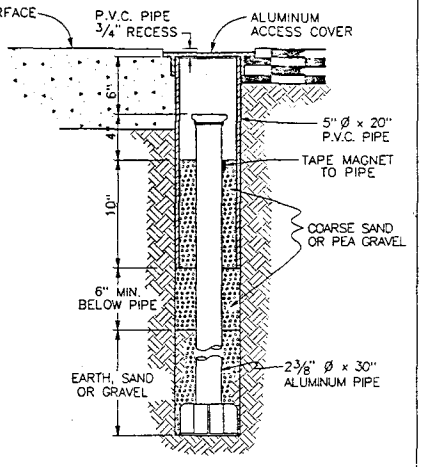
TYPE 4 MONUMENT



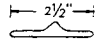
TYPE 5 MONUMENT



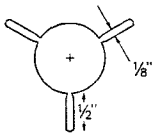
DELINEATOR POST
SECTION C–C



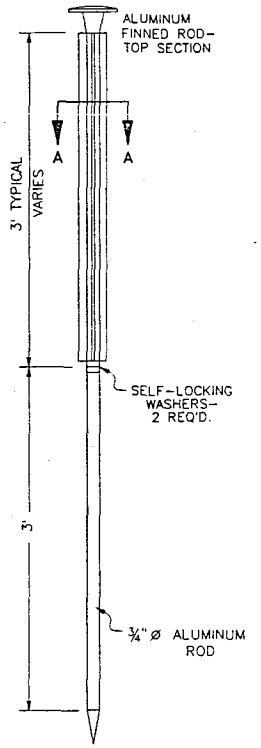
TYPE 3A MONUMENT,
ROADWAY INSTALLATION



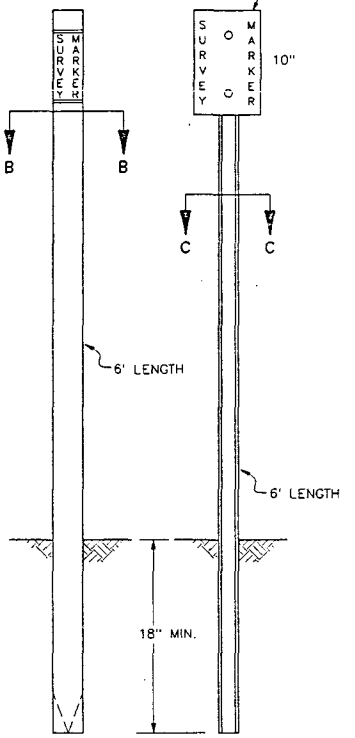
SECTION B–B



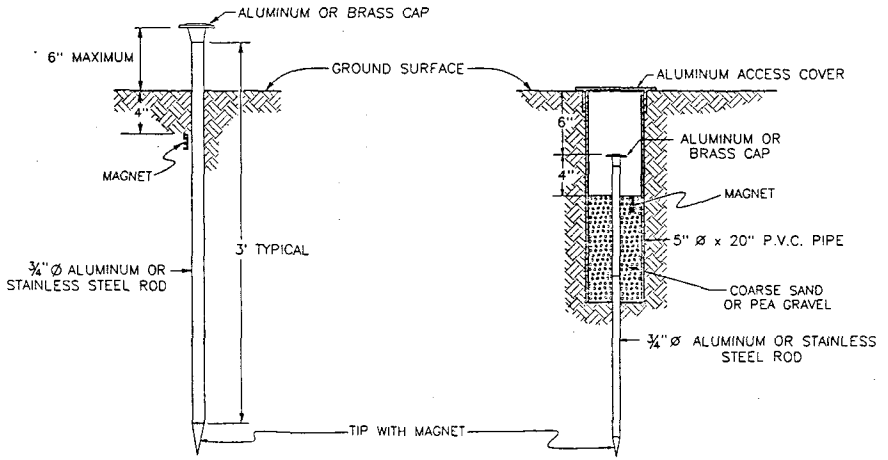
SECTION A–A



TYPE 2 MONUMENT

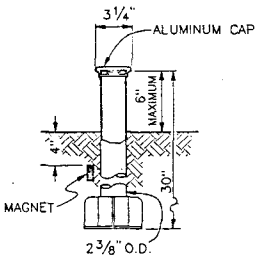


WITNESS POSTS



TYPE 1 MONUMENT

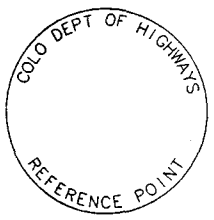
TYPE 1A MONUMENT & TYPE 2A MONUMENT
INCLUDES MONUMENT BOX



TYPE 3 MONUMENT

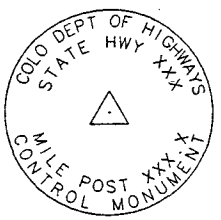
SURVEY MONUMENTS

AS CONSTRUCTED			FED. ROAD / REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CA)225-4(39)	26



REFERENCE MONUMENT CAP

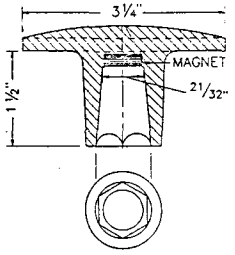
ROW MONUMENT CAP



CONTROL MONUMENT CAP

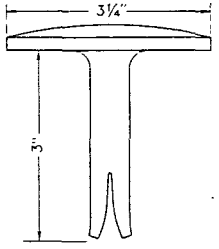
ALIQUOT CORNER CAP

NOTE: (A BLANK CAP MAY BE SUBSTITUTED IF THE APPROPRIATE ABOVE CAP IS NOT AVAILABLE. IF A BLANK CAP IS USED, ALL INFORMATION NORMALLY INCLUDED ON THE APPROPRIATE STANDARD CAP, SHALL BE STAMPED ON THE BLANK CAP ALONG WITH SPECIFIC PROJECT INFORMATION SUCH AS PROJECT NO., DATE, POINT NO., ETC..)



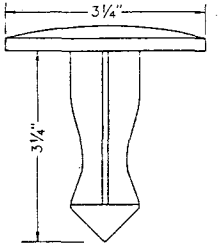
BRASS AND ALUMINUM CAPS

BRASS CAP USED WITH STAINLESS STEEL ROD. ALUMINUM CAP USED WITH ALUMINUM ROD. (THREADED CAP IS ALSO AVAILABLE)



BRASS CAP

FOR PLACING IN EXISTING CONCRETE OR ROCK

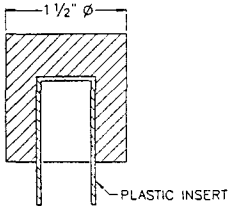


BRASS CAP

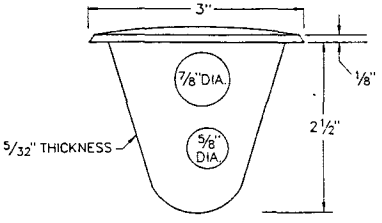
FOR PLACING IN EXISTING CONCRETE OR ROCK

MONUMENT APPLICATION

CAP TYPE	MONUMENT TYPE							
	1	1A	2	2A	3	3A	4	5
REFERENCE	X	X					X	
ROW	X	X						X
CONTROL		X	X	X			X	
ALIQUOT CORNER					X	X		
WITNESS POST (WHEN REQUIRED)	X	X	X	X	X			X



TEMPORARY ALUMINUM CAP



BRASS CAP

FOR PLACING IN NEW CONCRETE.

TYPE 1 AND TYPE 1A ALUMINUM AND STAINLESS STEEL DRIVEN MONUMENTS

MONUMENTS ARE INSTALLED BY ATTACHING THE PROPER SIZE TIP TO ONE END OF A SECTION OF ROD AND A 3" LONG x 3/4" DIA. STAINLESS STEEL DRIVER TO THE OTHER END. A STEEL DRIVER IS THEN PLACED OVER THE STAINLESS STEEL DRIVER FOR THE HAMMER TO CONTACT. WHEN ADDITIONAL SECTIONS OF ROD ARE NEEDED, THEY ARE TO BE ATTACHED USING A SET OF SELF-LOCKING WASHERS. RODS ARE STOCKED IN TWO-FOOT AND THREE-FOOT SECTIONS. ONE-FOOT SECTIONS MAY BE OBTAINED BY CUTTING A TWO-FOOT SECTION IN HALF. THE ROD SECTION IS DRIVEN BY USING THE PROPER HAMMER WITH A SOFT FACE OR BY USING A POWER ADAPTER WITH A GASOLINE-POWERED DRIVER.

TYPE 1 MONUMENTS TYPICALLY USE A THREE-FOOT SECTION OF ROD. WHEN SUBSURFACE ROCK OR CONCRETE IS ENCOUNTERED LESS THAN 3 FEET BELOW THE GROUND SURFACE, THE ROD SHALL BE EMBEDDED IN THE ROCK OR CONCRETE AT LEAST 6" WITH A GROUT MATERIAL. THE ROD MAY BE SHORTENED TO ACCOMMODATE THE CONDITIONS.

TYPE 1A MONUMENTS SHALL BE DRIVEN TO REFUSAL BY THREADING ADDITIONAL SECTIONS ONTO THE FIRST SECTION. ADDED SECTIONS REQUIRE A SET OF LOCK WASHERS. REFUSAL IS DEFINED AS ONE INCH OF MOVEMENT WITH FOUR HEAVY BLOWS OF A 12 LB. HAMMER. A DRIVEN CAP IS NECESSARY (VS. A THREADED CAP) WHEN A CUT ROD IS USED. A SOFT FACED HAMMER IS REQUIRED TO SEAT THE DRIVEN CAP ONTO THE ROD.

TYPE 2 AND TYPE 2A ALUMINUM FINNED ROD MONUMENTS

A TYPE 2 MONUMENT IS USED FOR HORIZONTAL CONTROL MONUMENTS WHERE LOOSE MATERIAL IS ENCOUNTERED. THE LARGER SIZE TIP IS TO BE USED ON ONE END OF THE THREE-FOOT ROD AND THE FINS ON THE OPPOSITE END OF THE THREE-FOOT ROD ARE TO BE BENT OVER TO ACCOMMODATE THE CAP. IF MORE VERTICAL STABILITY IS REQUIRED FOR USE AS A VERTICAL CONTROL MONUMENT, THE ADDED SECTIONS WHICH ARE NOT FINNED, SHOULD BE DRIVEN FIRST. THE NUMBER OF SECTIONS TO BE ADDED WILL VARY WITH NEEDS AND TYPE OF SOIL.

THE TYPE 1A MONUMENT NOTE ABOVE ALSO APPLIES TO THE TYPE 2A MONUMENT.

TYPE 3 AND TYPE 3A ALUMINUM PIPE MONUMENTS

THIS MONUMENT IS USED TO MONUMENT AN ALIQUOT CORNER. THE INSTALLATION OF THIS MONUMENT AND RECORD FILING SHALL BE DONE IN ACCORDANCE WITH THE COLORADO REVISED STATUTES, TITLE 38, ARTICLES 50 AND 51. ALSO REFER TO THE CDOH SURVEY MANUAL. THE LAND SURVEYOR'S LICENSE NUMBER AND THE YEAR SHALL BE STAMPED ON THE CAP.

TYPE 4 BRASS CAP MONUMENT

THIS MONUMENT IS PLACED IN CONCRETE, SUCH AS BRIDGE SUPER STRUCTURE CONCRETE. IT IS PLACED ABOVE A FOOTING SUPPORT OVER THE ABUTMENT OR OVER A PIER. AN ALTERNATIVE PLACEMENT IS VERTICALLY IN THE ABUTMENT WALL OR PIER IF ONLY AN ELEVATION REFERENCE IS DESIRED AND IT IS POSSIBLE TO LEAVE ACCESS FOR AN ELEVATION ROD.

TYPE 5 BRASS CAP MONUMENT

THIS MONUMENT IS PLACED IN LOCATIONS WHERE A TYPE 1 OR TYPE 1A MONUMENT CANNOT BE PLACED. A COMMON APPLICATION IS IN A LARGE BOULDER WHERE A PROPERTY CORNER HAS BEEN PLACED. THIS MONUMENT COULD ALSO BE PLACED IN A SIDEWALK.

WITNESS POSTS

THE WITNESS POST, WHEN REQUIRED, WILL BE SUPPLIED BY THE DIVISION AND INSTALLATION SHALL BE INCLUDED IN THE WORK. IT SHALL BE DRIVEN WITHIN 10 FEET OF THE MONUMENT, WHEN POSSIBLE. A DELINEATOR POST WITH A 6" x 10" METAL SIGN PANEL MAY BE USED IN LIEU OF THE PLASTIC POST. THIS POST SHALL CONFORM TO STANDARD S-612-1.

SELF-LOCKING WASHERS

A SET OF TWO WASHERS SHALL BE USED AT ROD JOINTS AND THREADED CAP JOINTS, BUT NOT AT TIP JOINTS.

TEMPORARY MONUMENTS

A TEMPORARY ALUMINUM CAP IS USED ON A NO. 5 REBAR.

SURVEY MONUMENTS

CONTROL AND MONUMENTATION SHEET

I-225 (I-70 TO SAND CREEK)

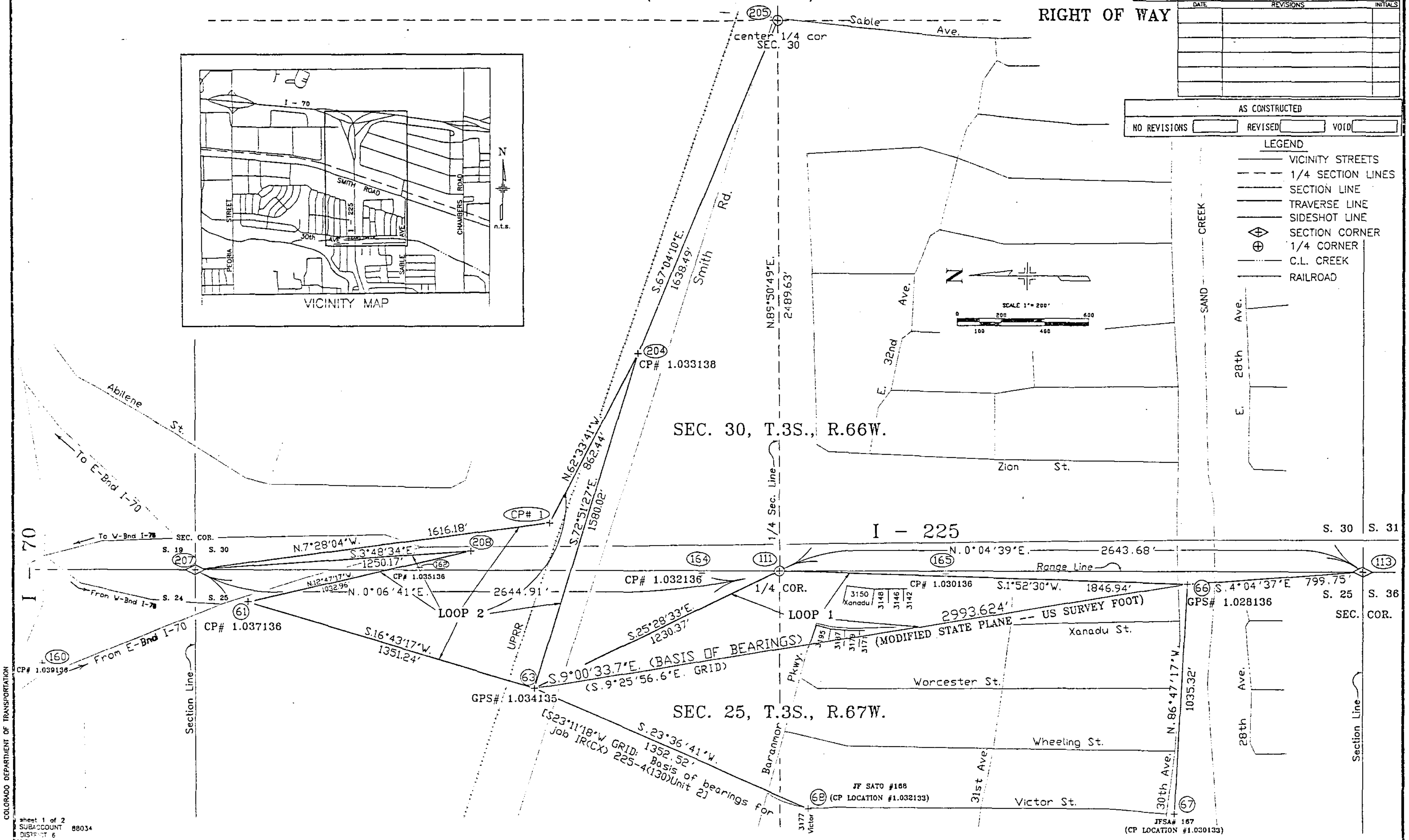
FED. ROAD REGION	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLO.	NH(CX)225-4(39)	27

RIGHT OF WAY

DATE	REVISIONS	INITIALS

AS CONSTRUCTED

NO REVISIONS [ ] REVISED [ ] VOID [ ]



LEGEND
VICINITY STREETS
1/4 SECTION LINES
SECTION LINE
TRAVERSE LINE
SIDESHOT LINE
SECTION CORNER
1/4 CORNER
C.L. CREEK
RAILROAD
VICINITY MAP
I - 70
SMITH ROAD
CHAMBERS ROAD
PEORIA STREET
I - 225
30th AVE
SABLE AVE
N
n.t.s.
SCALE 1" = 200'
205
center 1/4 cor SEC. 30
Sable Ave.
S.67°04'10"E. 1638.49'
Smith Rd.
N.89°50'49"E. 2489.63'
204
CP# 1.033138
N.62°33'41"W. 862.44'
S.72°51'27"E. 1580.02'
SEC. 30, T.3S., R.66W.
E. 32nd Ave.
Zion St.
SAND CREEK
E. 28th Ave.
Abilene St.
To E-Bnd I-70
I - 70
To W-Bnd I-70
SEC. COR.
S. 19
S. 30
S. 24
S. 25
207
N.7°28'04"W.
1616.18'
CP# 1
208
S.3°48'34"E.
1250.17'
162
N.12°47'17"W. 1032.96'
CP# 1.035136
N.0°06'41"E.
2644.91'
LOOP 2
From W-Bnd I-70
61
CP# 1.037136
From E-Bnd I-70
160
CP# 1.039136
S.16°43'17"W. 1351.24'
UPRR
63
GPS# 1.034135
164
CP# 1.032136
111
1/4 COR.
1/4 Sec. Line
I - 225
N.0°04'39"E.
2643.68'
165
Range Line
113
S. 30
S. 31
S. 25
S. 36
SEC. COR.
CP# 1.030136
S.1°52'30"W.
1846.94'
66
S.4°04'37"E
799.75'
GPS# 1.028136
LOOP 1
3150 Xanadu
S.25°28'33"E. 1230.37'
S.9°00'33.7"E. (BASIS OF BEARINGS)
(S.9°25'56.6"E. GRID)
2993.624'
(MODIFIED STATE PLANE -- US SURVEY FOOT)
Xanadu St.
Worcester St.
N.86°47'17"W. 1035.32'
E. 28th Ave.
SEC. 25, T.3S., R.67W.
Baranmor Pkwy.
[S23°11'18"W GRID: Basis of bearings for Job IR(CX) 225-4(130)Unit 2]
S.23°36'41"W. 1352.52'
Wheeling St.
31st Ave.
30th Ave.
JF SATO #168
68 (CP LOCATION #1.032133)
3177 Victor
Victor St.
67
JFSA# 167
(CP LOCATION #1.030133)
Section Line

CONTROL AND MONUMENTATION SHEET

RIGHT OF WAY

FED. ROAD REGION	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLO.	NH(CX)225-9(39)	28

REVISIONS

AS CONSTRUCTED

NO REVISIONS ☐ REVISED ☐ VOID ☐

TABULATION OF R.O.W. MONUMENTS TO BE SET

These Coordinates are Based on the Primary Control as described in Note 7

PNT	NORTHING	EASTING	DESCRIPTION OF MONUMENTS
57	704095.225	188907.413	TYPE 1
275	703986.598	188772.560	TYPE 1
300	703475.387	188906.205	TYPE 1
302	704141.417	188773.181	TYPE 1
303	703471.210	188831.197	TYPE 1

PRIMARY CONTROL POINT TABULATION

SECTIONS 25 & 30 TOWNSHIP 3 SOUTH, RANGES 66 & 67 WEST OF THE 6TH P.M.

POINT #	COMPUTER #	NORTHING	EASTING	DESCRIPTION OF MONUMENTS
1.028136	66	701,425.8454'	188,845.3809'	Fnd. Type 1A mon. stamped "JFSA 166 1.028136"
1.034135	63	704,382.5339'	188,376.5910'	Fnd. Type 1 mon. stamped "CP 1.034135"
168	68	703,143.2415'	187,834.8666'	Fnd. 1 1/2" Al. cap flush w/ asphalt stamped "JFSA 168"
111	111	703,271.7956'	188,905.8133'	Fnd 2 1/2" Al. Cap – 1/4 cor. S.25, S.30
1.033138	204	703,916.8241'	189,686.4185'	Set Type 1 mon. stamped "CP 1.033138 "
1 – 225	1	704,314.2335'	189,121.0036'	Fnd. Type 1 mon. stamped "225 CP1"
207	207	705,916.7021'	188,910.9497'	Fnd. 2 1/2" Alum. Cap flush w/grnd. Sec. cor. 24,19,25,30
208	208	704,669.2919'	188,994.0098'	punch mark in top of #5 re–bar
161	61	705676.6338'	188,765.3656'	Fnd. type 1 mon. driven flush stamped "JFSA 161"
The following coordinates are based on published coordinates by J.F. SATO rotated and translated to this coordinate base. See map #88034 from job # IM–IR(CX) 070–4(130)				
1.039136	160	706,619.2725'	188,489.1416'	
1.035136	162	704,901.2197'	188,913.6091'	
1.032136	164	703,624.9904'	188,905.4281'	
1.030136	165	702,524.0045'	188,903.1042'	

SIDE SHOT CONTROL POINT TABULATION

POINT #	COMPUTER #	NORTHING	EASTING	DESCRIPTION OF MONUMENTS
113	113	700,628.1207'	188,902.2393'	S.E. Cor. Sec. 25 Conc.–filled pipe – missing cap
205	205	703,278.4412'	191,395.4348'	Ctr. Sec. 30, 3 1/4" Brass Cap in Range Box
167	67	701,483.8542'	187,811.6888'	1 1/2" Alum. Cap driven flush stamped "JFSA 167"

TABULATION OF ALIQUOT CORNERS TO BE SET

PNT	NORTHING	EASTING	DESCRIPTION OF MONUMENTS
113 ①			

① See note 10

QUANTITY OF MONUMENTS TO BE SET

CAP TYPE	MONUMENT TYPE							
	1	1A	2	2A	3	3A	4	5
REFERENCE								
RIGHT OF WAY	5							
CONTROL								
ALIQUOT CORNER						1		
WITNESS POST								

TYPE 1 MONUMENT–CDOH MONUMENT (3 1/4"CAP, 3/4"ø ROD)
TYPE 1A MONUMENT–CDOH MONUMENT (3 1/4"CAP, 3/4"ø ROD IN A MONUMENT BOX)
TYPE 3A MONUMENT–CDOH MONUMENT (3 1/4"CAP, 2 3/8"ø PIPE IN A MONUMENT BOX)

GENERAL NOTES

1. This Right of Way plan is not a complete boundary survey of adjoining owners and is prepared for Colorado Department of Transportation purposes only.
2. NOTICE: According to Colorado law you must *commence any legal action based upon any defect* in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be *commenced more than ten years from the date of the certification shown hereon.*
3. All R.O.W. Markers are to be set from survey control points
4. All centerline and offset stationing is theoretical only and may not represent the centerline as constructed in the field. All stationing is approximate.
5(a). Loop 1, from GPS pt. #1.034135 to GPS pt. #1.028136 closed with a distance error of 0.106' for an error closure of 1:57,000.
(b). Loop 2, *from* GPS pt. #1.034135 *closed back into* itself with a distance error of 0.028' for an error of closure of 1:278,000.
6. *Title Commitments prepared by:*
Security Title Guaranty Company
& obtained from Security Title by
Victor Robertson of CDOT
7. COORDINATE BASE:
The Project Modified State Plane Coordinate base was modified to surface from Grid using the meaned factor values for points 1.034135 and 1.028136 as listed below:
Zone: Colorado Central
Mean Grid Scale factor = 1.00000218
Mean Ellipse height = 1608.216 Meters
Mean Elev. Scale Factor = 0.99974768
Geodetic Coordinates on pt. 1.034135:
Latitude = 39° 45' 53.80635"
Longitude = 104° 49' 48.26427"
Grid Coordinates on pt. 1.034135 (in Meters)
N = 519,443.130843; E = 971,804.76615
Origin Base: (as per CRS 38–52–105,2(b))
N = 304,800.6096; E = 914,401.8289 (METERS)
or, in U.S. Survey Foot:
N = 1,000,000.000'; E = 3,000,000.000'
8. COORDINATE BASE (3 sets)
1. J.F. Sato and Assoc. – Produced 1991 to 1992 Grid Bearings with surface modified coordinates, generated from GPS coordinates.
2. ROW ownership plan base – Sato coordinate base with updated CDOT prelim crew data. This is the base as given to the design squad.
3. *Primary control loop tabulation base – To be* used on present and future control.
To convert the R.O.W. ownership base to the "Primary Base", the following data must be applied:
Rotation: 0°25'22.95" clockwise.
Origin: pt. #1.034135
Translation from: N=704,204.824, E=188,334.478
To: N=704,382.53656, E=188,376.59183
After rotation and translation, the coordinates will match to within 0.08 feet.

GENERAL NOTES (continued)

9. BASIS OF BEARINGS:
The calculated azimuth obtained from GPS point 1.034135 to GPS point 1.028136 (Sand Creek) was rotated clockwise 0°25'22.9" (mean rotational value) about point 1.034135 achieving a Geodetic Azimuth of 170°59'26.3". A solar observation on a different traverse line confirmed the bearing base within 20 seconds of arc.
10. Point 113 – To be remonumented under construction contract.

FIELD SURVEYOR CERTIFICATION NO. 1

Control Survey and Monumentation was done under my supervision and checking.

NAME Frank F. Knowles P.L.S. NO. 22571

DATE April 2, 1992

FIELD SURVEYOR CERTIFICATION NO. 2

Right of Way Monumentation was done under my supervision and checking.

NAME _____ P.L.S. NO. _____

DATE _____

OFFICE SURVEYOR CERTIFICATION

R.O.W. Plans and Legal Descriptions were prepared under my supervision and checking.

NAME Frank F. Knowles P.L.S. NO. 22571

DATE April 2, 1992

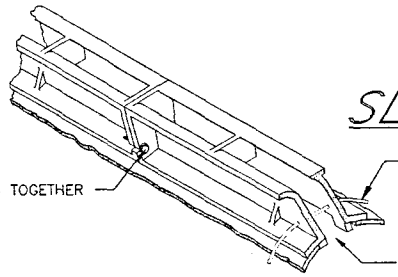
COLORADO DEPARTMENT OF TRANSPORTATION

SHEET 2 OF 2
SUBACCOUNT 88034
DISTRICT 6
TCM ADAMS

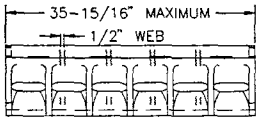
AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX)225-4(39)	29

FREE OPEN AREA: 79 SQUARE INCHES PER SECTION
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT

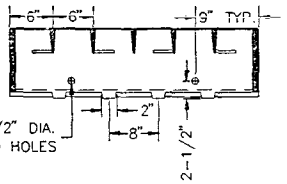
SLOTTED VANE DRAIN



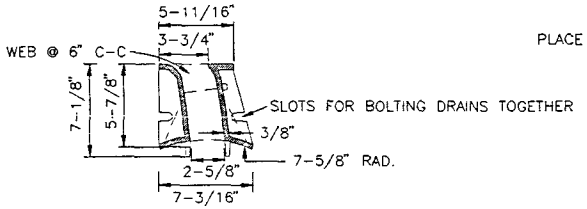
LEFT SIDE VIEW OF VANE DRAIN



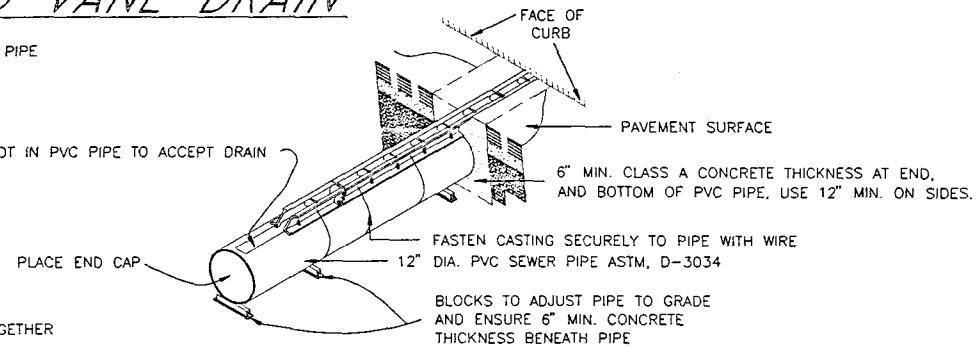
TOP VIEW OF VANE DRAIN



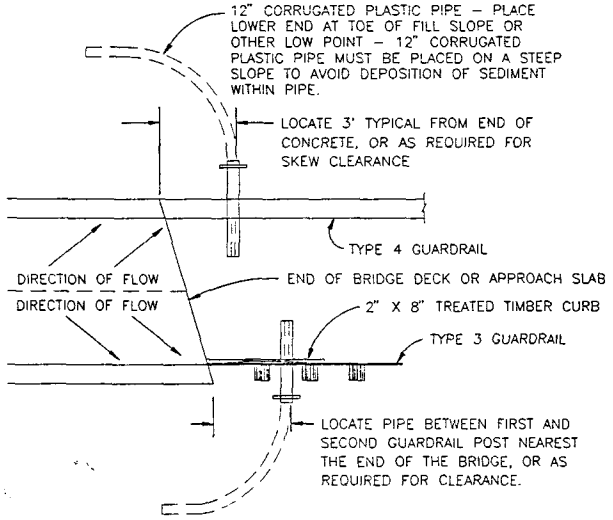
SECTION OF VANE DRAIN



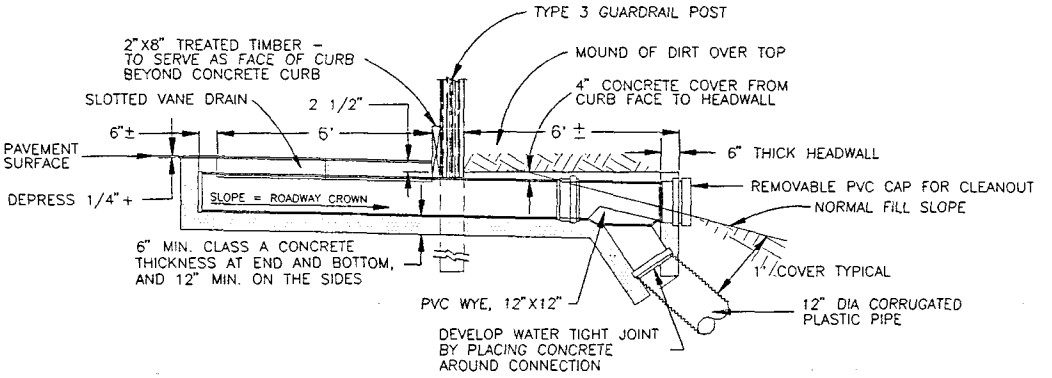
SECTION THRU VANE DRAIN



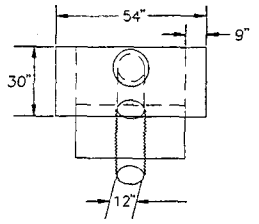
RIGHT SIDE VIEW OF VANE DRAIN



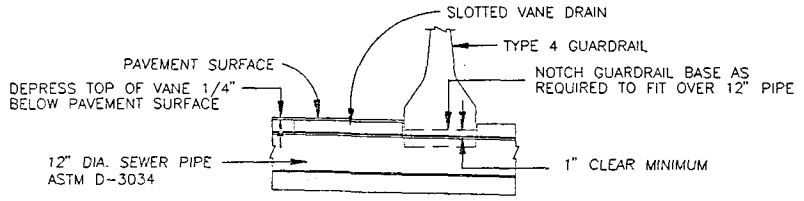
LAYOUT AT THE END OF THE BRIDGE



PIPE SECTION WITH TYPE 3 GUARD RAIL



END VIEW OF CONCRETE HEADWALL



PIPE SECTION WITH TYPE 4 GUARD RAIL

NOTES:

PAYMENT FOR THIS WORK SHALL BE AS FOLLOWS:

603	12" PLASTIC PIPE	LIN. FT.
604	SLOTTED VANE DRAIN	EACH

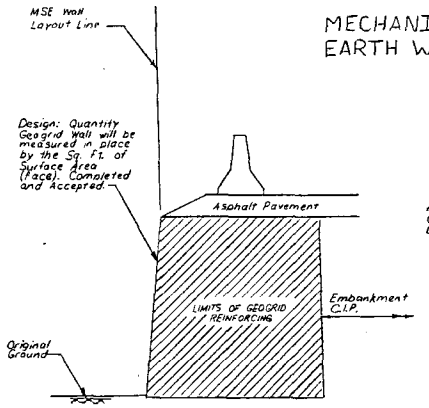
STRUCTURE EXCAVATION, STRUCTURE BACKFILL, AND CLASS A CONCRETE SHALL BE INCLUDED IN THE COST OF THE ABOVE ITEMS, AND SHALL NOT BE PAID SEPARATELY. ITEM 604 INCLUDES THE ASTM D-3034, PIPE, WYE, AND END CAPS.

VANE.DWG\07-17-92

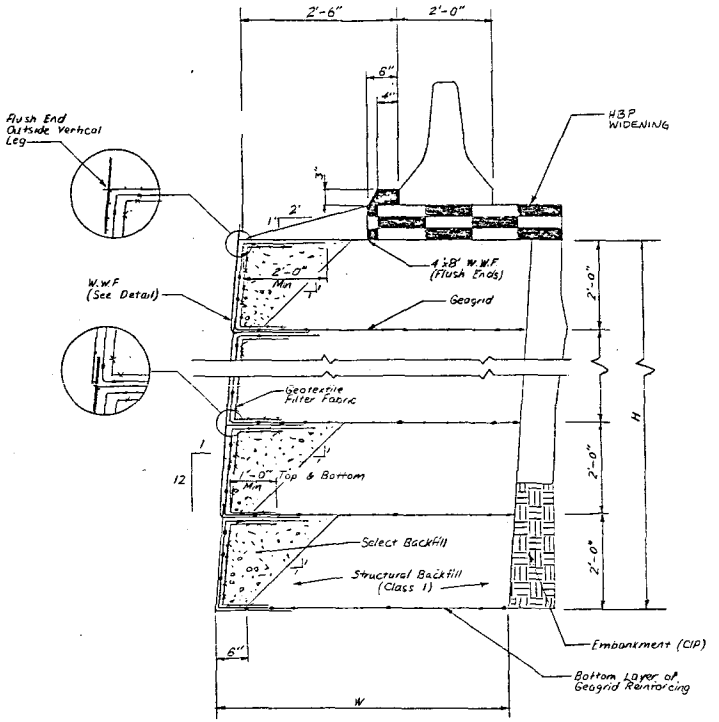
AS CONSTRUCTED								
NO REVISIONS		REVISED		VOID				

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	NH(CX)225-4(39)	30	

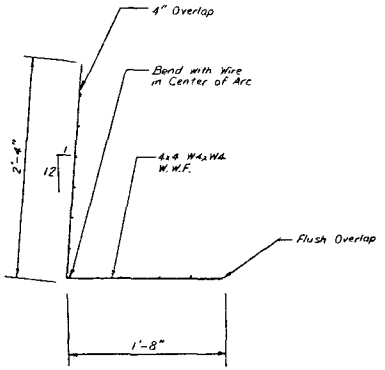
MECHANICALLY STABILIZED EARTH WALL DETAILS



LIMITS OF PAYMENT



A W1 TYPICAL SECTION MSE WALLS



W.W.F. DETAIL

DESIGN HEIGHT H (Ft.)	GEOGRID WIDTH W (Ft.)
12	9
10	8
8	7
6	5
4	4

SUMMARY

GEOGRID REINFORCING DESIGN CRITERIA

Geogrid Reinforcing:

W.W.F. ASTM-A-185
F_y = 65ksi

Internal Stability F.S. = 1.5
Ta = 1333plf per GRI GG4
External Stability:
Sliding F.S. = 1.5
Overturning F.S. = 2.0
Bearing Cap F.S. = 2.0

Galvanizing ASTM A-123

Design Loads: Surcharge: 140psf Asphalt
250psf Live Load

390psf Total

Soil Parameters:

Reinforced Soil Mass = Structural Backfill (Class 1)
γr = 125pcf
ϕr = 30
Cr = 0
Reinforced Backfill Soil Mass
γb = 125pcf
ϕb = 30
Cb = 0
Foundation Soil
γf = 125pcf
ϕf = 30
Cf = 0
Ultimate Bearing Capacity = 7500psf

Note:

Alternate designs from the following companies will be allowed for this project:

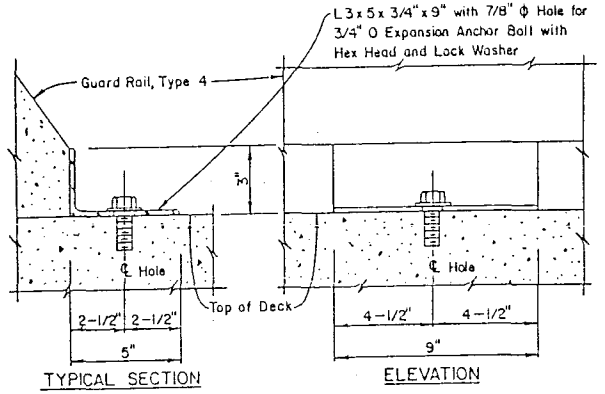
1. The Reinforced Earth Company
2. Hilfiker Retaining Walls
3. VSL Corporation
4. Tensar Corporation
5. Mirafi

The Contractor shall assume all responsibility for the internal and external stability of any alternate design.
The Welded Wire Fabric shall meet the requirements of AASHTO M-55 f_y = 65ksi

IT HAS BEEN ESTIMATED THAT 3331 SQFT OF MSE WALL WILL BE REQUIRED.

OF COLORADO
EPARTMENT OF H GHWAYS
Y OF HIGHWAYS
FORM NO. 129
1984

AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS ☐ REVISED ☐ VOID ☐	VIII	COLO.	NH(CX)225-4(39)	31	



GUARD RAIL KEEPER

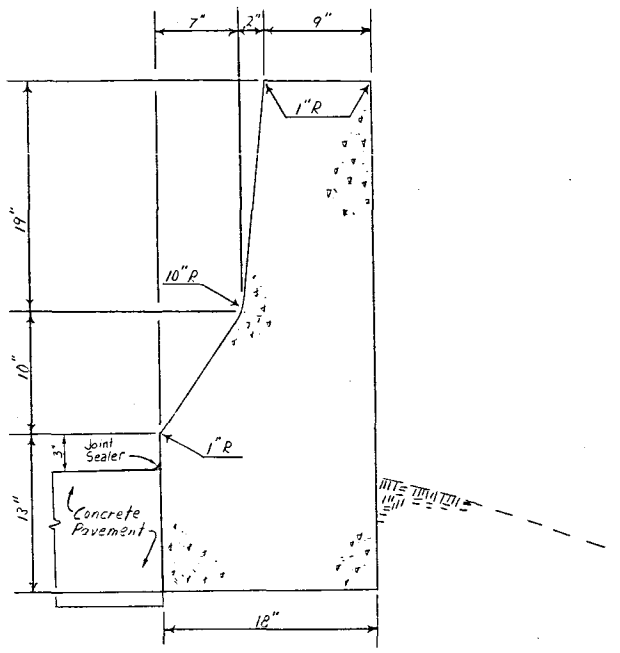
GUARDRAIL KEEPER NOTES:

SPACE KEEPERS 2'-6" FROM EACH END OF GUARDRAIL TYPE 4 SECTION (172 TOTAL).

EXPANSION ANCHOR BOLT TYPE SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

AFTER THE EXPANSION ANCHOR BOLTS ARE REMOVED THE REMAINING HOLE SHALL BE FILLED WITH NON-SHRINK EPOXY GROUT.

ANGLES, ANCHOR BOLTS, NON-SHRINK GROUT AND ALL OTHER WORK NECESSARY TO INSTALL AND REMOVE THE GUARDRAIL KEEPERS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 606, GUARDRAIL TYPE 4 (PRECAST-PORTABLE).



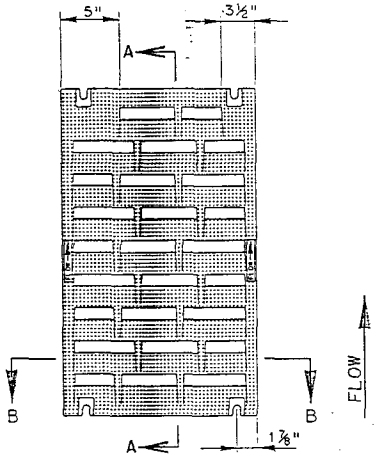
DETAIL FOR GUARD RAIL TYPE 4 SPECIAL

Note: Guard Rail Type 4 Special shall be cast in place and colored to match Bridge Rail Type 4 this project.

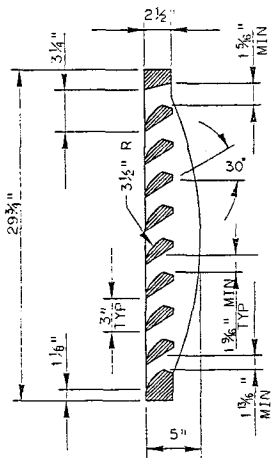
AS CONSTRUCTED					
NO REVISIONS		REVISED		VOID	

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX)225-9(37)	32

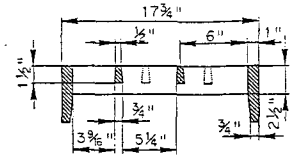
REVISIONS			
- -			
- -			
- -			



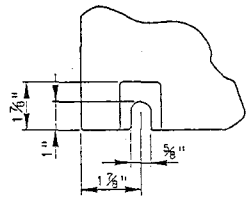
PLAN
GRATE DETAIL



SECTION A-A



SECTION B-B
END SECTION



BOLT SLOT DETAIL
TYP. PER CORNER

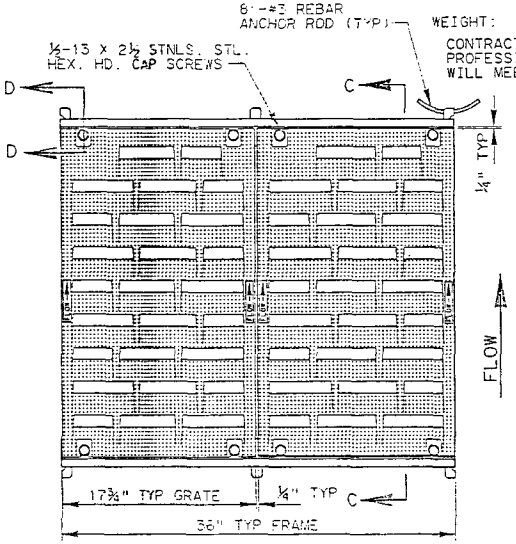
FREE OPEN AREA: 190 SQUARE INCHES/GRATE

MATERIAL: CAST GRAY IRON ASTM A-48 CLASS 35B

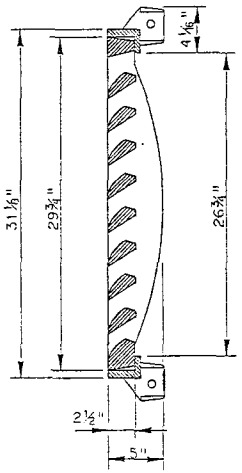
FINISH: NO PAINT

WEIGHT: GRATE 170#/EA; FRAME 29#/EA

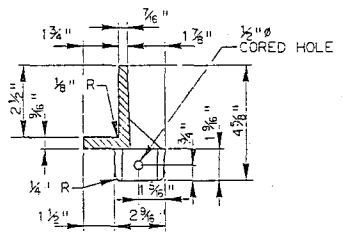
CONTRACTOR SHALL PROVIDE CERTIFICATION BY A PROFESSIONAL ENGINEER THAT THE GRATE AND FRAME WILL MEET AASHTO HS-20-44 LOADING.



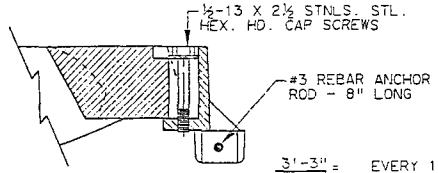
PLAN
MULTIPLE GRATE WITH FRAME



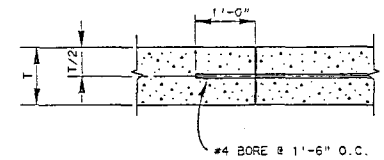
SECTION C-C



SECTION THRU FRAME

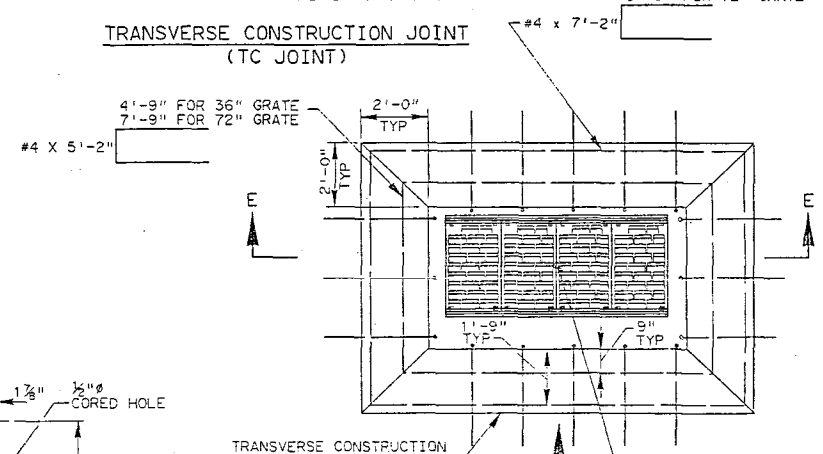


SECTION D-D

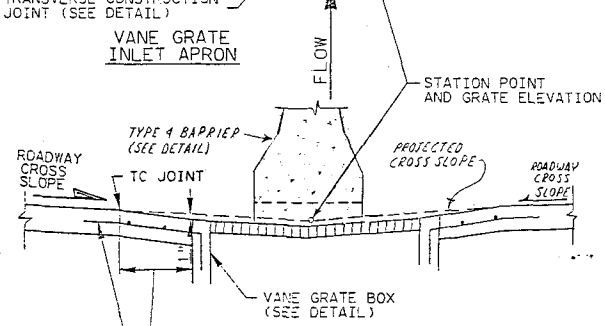


TRANSVERSE CONSTRUCTION JOINT
(TC JOINT)

Note: Vane Grate Inlet & Frame to be paid for as Inlet Type C (Special)



VANE GRATE INLET APRON



SECTION E-E

3'-3" = #4X 1'-0" EVERY 18" O.C. ALL AROUND EACH SIDE OF INLET

2 FT. CONCRETE TRANSITION DOWN TO DEPRESSED INLET, ALL AROUND INLET, KEYED INTO INLET AND SURROUNDING PAVEMENT. CONCRETE TRANSITION SHALL BE THE SAME THICKNESS AND TYPE AS THE SURROUNDING CONCRETE. COST FOR THE CONCRETE TRANSITION SHALL BE INCLUDED IN THE COST FOR THE INLET.

DIVISION OF HIGHWAYS

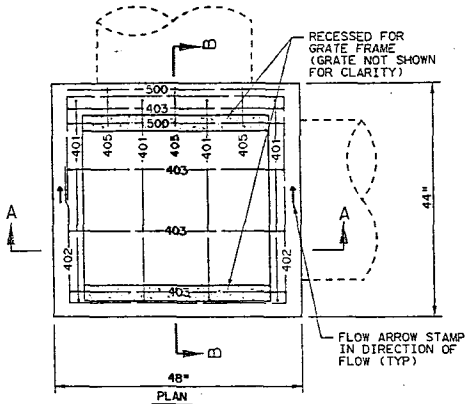
VANE GRATE INLET WITH FRAME AND CONCRETE APRON

Designed By		Checked By	
Detailed By		Quantities By	
Checked By			
Date			

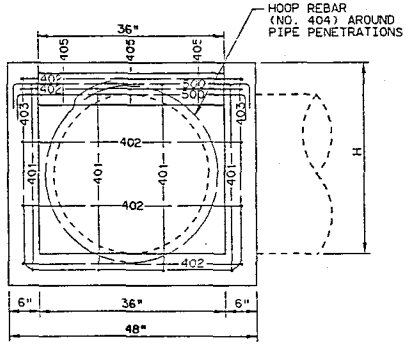
Designer		Structure Numbers	
Detailer			
Drawing Number /		of	Drawings

DRAINAGE DETAILS

36" VANE GRATE INLET BOX



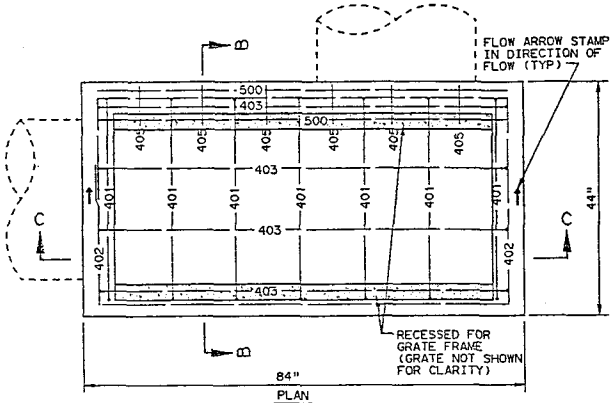
PLAN



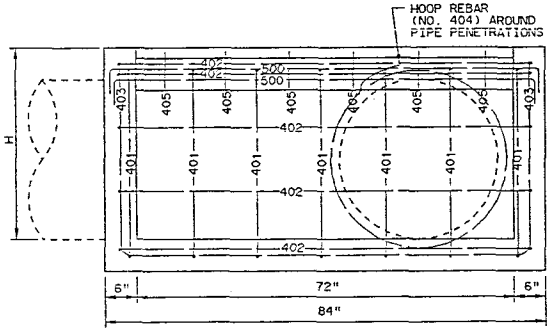
SECTION A-A

BAR LIST FOR H= 3'-0"				
MARK	NO. REQ'D	HT. "A"	HT. "B"	LENGTH (EACH)
500	6			5'-2"
405	6			3'-6"
401	4	3'-0"		9'-2"
402	10			7'-9"
403	4		3'-0"	9'-6"
404	2			10'-5"

72" VANE GRATE INLET BOX



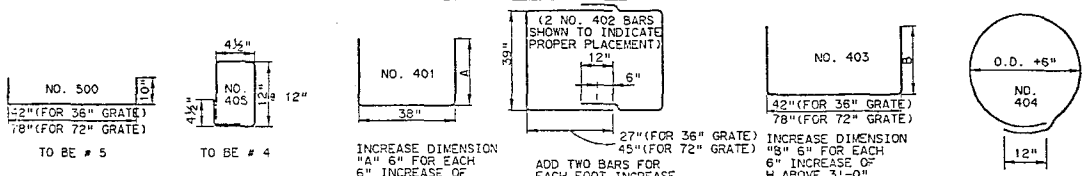
PLAN



SECTION C-C

BAR LIST FOR H= 3'-0"				
MARK	NO. REQ'D	HT. "A"	HT. "B"	LENGTH (EACH)
500	6			8'-2"
405	12			3'-6"
401	7	3'-0"		9'-2"
402	10			10'-9"
403	4		3'-0"	12'-6"
404	2			10'-5"

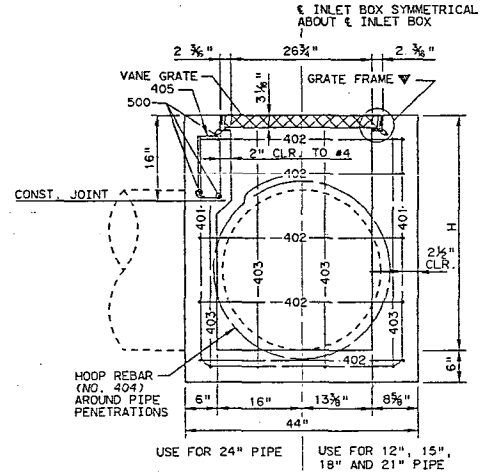
BENDING DIAGRAM



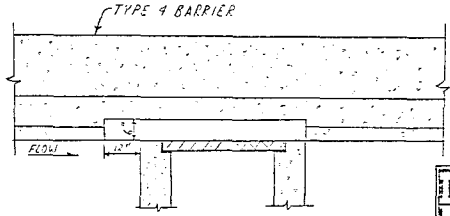
AS CONSTRUCTED					
NO REVISIONS		REVISED		VOID	

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX)225-4(39)	33

REVISIONS			
-	-		
-	-	-	
-	-		



SECTION B-B



DETAIL OF DRAINAGE SLOT IN TYPE 4 BARRIER

DIVISION OF HIGHWAYS

VANE GRATE INLET BOX DETAILS
36" AND 72"

Designer	Structure Numbers	SEPT. 9, 1991
Detailer		
Drawing Number 2	of	Drawings

DRAINAGE DETAILS

Assigned By
Checked By
Detailed By
Quantities By
Checked By

/data/144204.10a
hanes
10-SEP-1991 09:56

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX)225-4(39)	34

REVISIONS	
- -	
- -	
- -	

QUANTITIES FOR ONE INLET

H	NO. STEPS REQ'D	36" VANE GRATE 24" PIPE CONC. CU. YD.	36" VANE GRATE 24" PIPE STEEL LBS	36" VANE GRATE 21" & SMALLER PIPE CONC. CU. YD.	36" VANE GRATE 21" & SMALLER PIPE STEEL LBS	72" VANE GRATE 24" PIPE CONC. CU. YD.	72" VANE GRATE 24" PIPE STEEL LBS	72" VANE GRATE 21" & SMALLER PIPE CONC. CU. YD.	72" VANE GRATE 21" & SMALLER PIPE STEEL LBS	H
3'-0"	0	1.07	163	1.18	116	1.66	243	1.85	163	3'-0"
3'-6"	1	1.19	169	1.33	122	1.84	251	2.08	171	3'-6"
4'-0"	1	1.31	184	1.48	137	2.02	273	2.31	193	4'-0"
4'-6"	2	1.44	190	1.62	143	2.20	281	2.54	201	4'-6"
5'-0"	2	1.56	205	1.77	158	2.37	303	2.76	223	5'-0"
5'-6"	2	1.68	211	1.92	164	2.55	311	2.99	231	5'-6"
6'-0"	3	1.81	226	2.07	179	2.73	333	3.22	253	6'-0"
6'-6"	3	1.93	232	2.21	185	2.91	341	3.45	261	6'-6"
7'-0"	3	2.05	247	2.36	200	3.09	363	3.67	283	7'-0"
7'-6"	4	2.18	253	2.51	206	3.27	371	3.90	291	7'-6"
8'-0"	4	2.30	268	2.66	221	3.45	393	4.13	313	8'-0"
8'-6"	4	2.42	274	2.81	227	3.63	401	4.36	321	8'-6"
9'-0"	5	2.55	289	2.95	242	3.81	423	4.58	343	9'-0"
9'-6"	5	2.67	295	3.10	248	3.99	431	4.81	351	9'-6"
10'-0"	5	2.80	310	3.25	263	4.16	453	5.04	373	10'-0"
10'-6"	6	2.92	316	3.40	269	4.34	461	5.27	381	10'-6"
11'-0"	6	3.04	331	3.54	284	4.52	483	5.49	403	11'-0"
11'-6"	6	3.17	337	3.69	290	4.70	491	5.72	411	11'-6"
12'-0"	7	3.29	352	3.84	305	4.88	513	5.95	433	12'-0"
12'-6"	7	3.41	358	3.99	311	5.06	521	6.18	441	12'-6"
13'-0"	7	3.54	373	4.14	326	5.24	543	6.41	463	13'-0"
13'-6"	8	3.66	379	4.28	332	5.42	551	6.63	471	13'-6"
14'-0"	8	3.79	394	4.43	347	5.60	573	6.89	493	14'-0"
14'-6"	8	3.91	400	4.58	353	5.78	581	7.09	501	14'-6"
15'-0"	9	4.03	415	4.73	368	5.95	603	7.32	523	15'-0"
15'-6"	9	4.15	421	4.87	374	6.13	611	7.54	531	15'-6"
16'-0"	9	4.28	436	5.02	389	6.31	633	7.77	553	16'-0"
16'-6"	10	4.40	442	5.17	395	6.49	641	8.00	561	16'-6"
17'-0"	10	4.52	457	5.32	410	6.67	663	8.23	583	17'-0"
17'-6"	10	4.65	463	5.47	416	6.85	671	8.45	591	17'-6"
18'-0"	11	4.77	478	5.61	431	7.03	693	8.68	613	18'-0"
18'-6"	11	4.89	484	5.76	437	7.21	701	8.91	621	18'-6"
19'-0"	11	5.02	499	5.91	452	7.39	723	9.14	643	19'-0"
19'-6"	12	5.14	505	6.06	458	7.57	731	9.36	651	19'-6"
20'-0"	12	5.26	520	6.20	473	7.74	753	9.59	673	20'-0"

VANE GRATE INLET BOX

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.
2. ALL CONCRETE SHALL BE CLASS A OR B. EXPOSED SURFACES SHALL RECEIVE A CLASS 1 FINISH.
3. STEPS OR LADDER WILL BE REQUIRED WHEN INLET "H" EXCEEDS 3'-6" AND SHALL BE INCLUDED IN THE COST OF THE BOX. FOR DETAIL OF INLET STEP, SEE M-STANDARD "STEPS FOR MANHOLE AND INLETS".
4. ALL REINFORCING BARS SHALL BE DEFORMED, OF GRADE 60, AND SHALL BE TAGGED WITH THE STATION NUMBER AND BAR DESIGNATION.
5. ALL EDGE DISTANCES NOT MARKED "CLEAR" ARE TO ℄ OF BAR.
6. SEE PLANS FOR SIZE AND LOCATION OF CONDUIT.
7. ALL BARS TO BE #4 UNLESS SHOWN OTHERWISE CUT OR BEND AROUND PIPES AS REQ'D
8. INLET MAYBE CAST-IN-PLACE OR PRECAST.
9. GRATE TO BE INSTALLED DURING CONSTRUCTION OF BOX WITH THE VANE GRATE BOLTED IN PLACE TO THE FRAME, AND IN ACCORDANCE WITH VANE GRATE SPECIFICATIONS. (SEE VANE GRATE/FRAME PLANS)
10. THE INVERT OF THE INLET BOX SHALL BE SLOPED TO DRAIN TO AVOID SEDIMENT ACCUMULATION.
11. THE CONTRACTOR SHALL STAMP FLOW ARROWS INTO THE TOP SURFACE OF THE INLET BOX SIDEWALLS TO INDICATE THE DIRECTION OF GUTTER FLOW. THESE STAMPED ARROWS SHALL BE SIX (6) INCHES LONG, ONE (1) INCH HIGH AND THREE-EIGHTS (3/8) INCH DEEP. FOR INLETS IN SUMP CONDITIONS, THE STAMPED FLOW ARROWS SHALL INDICATE THE PREDOMINATE DIRECTION OF STORM RUNOFF.

NOTE:

1. CONCRETE QUANTITIES INCLUDES VOLUME OCCUPIED BY PIPES.
2. REINFORCING STEEL QUANTITIES ASSUMES 2-NO. 404 HOOPS, FOR 24" PIPE.
3. REINFORCING STEEL MARKS 405 AND 500 USED FOR 24" PIPE ONLY.

DIVISION OF HIGHWAYS

VANE GRATE INLET BOX DETAILS
36" AND 72"

Designer	Structure Numbers	SEPT. 9, 1991
Detailer		
Drawing Number	of	Drawings

Designed By / Checked By / Detailed By / Checked By / Quantities By / Checked By

/data/144205.10a
harms
09-SEP-1991 09:58

DRAINAGE DETAILS

DIVISION OF HIGHWAYS, STATE OF COLORADO
D.O.H. FORM NO. 136
REV. FEB., 1977

FLASHING BEACON (PORTABLE)

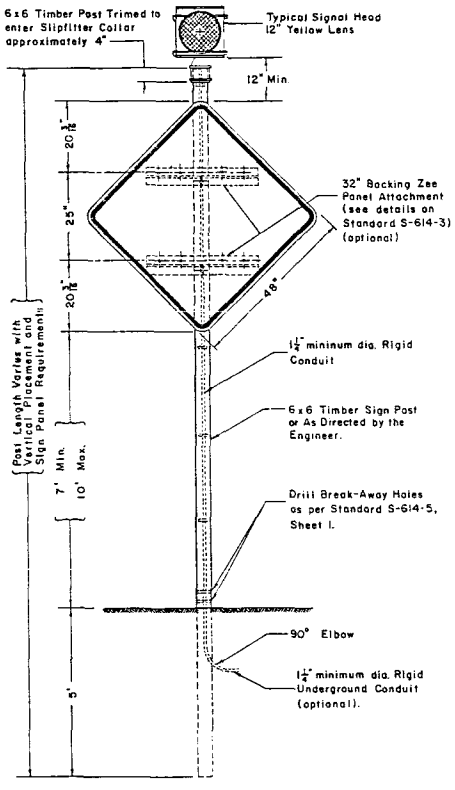
FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	NH(CX)225-4(39)	35	

AS CONSTRUCTED

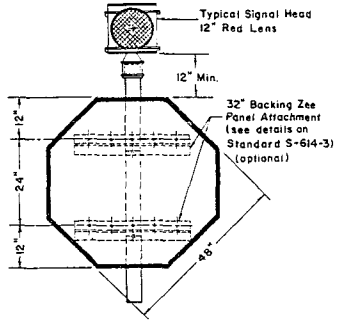
NO REVISIONS | REVISED | VOID

TYPICAL ELEVATION FACING TRAFFIC

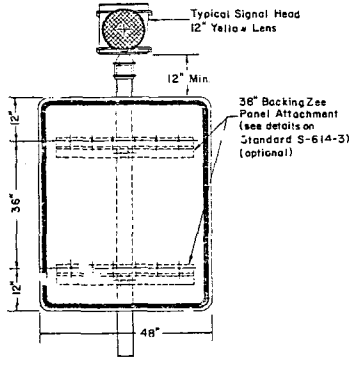
COMPLETE INSTALLATION with DIAMOND PANEL



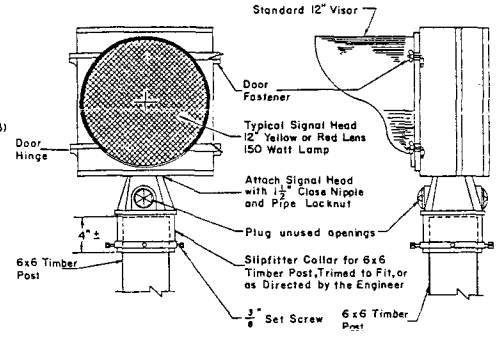
with OCTAGON PANEL



with RECTANGLE PANEL



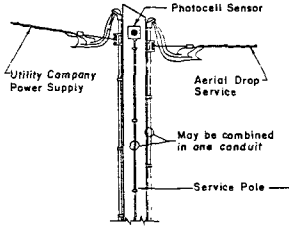
TYPICAL SIGNAL HEAD - 12" LENS



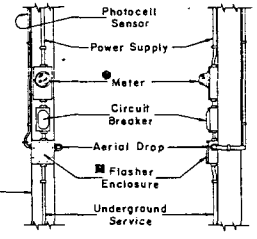
1. All electrical materials and workmanship shall conform to the latest requirements of the NEC, NEMA, UL or EIA wherever applicable; any state and local codes or ordinances which may apply; and the following:
   a. It is the Contractor's responsibility to supply power.
   b. The Contractor is to provide all necessary wiring within the beacon and from there to the power source. The Utility Company will make the connection with the Contractor's wiring.
   c. The electrical service between the power source and the flashing beacon shall be as authorized by the Engineer.
   d. The "flasher" shall be housed in a suitable enclosure on the utility pole at the power source unless the Engineer directs that the enclosure be mounted on the beacon post or that the device may be contained within the signal head itself.
   e. A suitable enclosure for the flasher shall be in accordance with "a raintight junction box or can approximately 8" x 8" x 4" surface mount, with a flanged screw attached cover, and fabricated from not less than 16 gage galvanized steel".
   f. A built-in radio interference suppression device and a photocell sensor type signal lamp dimmer shall be provided for each flashing beacon.
2. Timber posts shall be in accordance with Section 614 of the Standard Specifications as to Size, Alternate Size, Grade, Species, Treatment, and Break-Away Holes.
3. For lateral and vertical placement of flashing beacon (portable), (Regulatory and Warning), see Standard S-614-1.
4. All work shall be done in accordance with the "Standard Specifications" applicable to the project and the "Manual on Uniform Traffic Control Devices for Streets and Highways" (adopted by the Federal Highway Administration) and the "Colorado Supplement" thereto.
5. For Median Barrier Installations See Standard S-614-50, Note No. 26.
6. A Photo Cell or Mechanism approved by the Engineer for turning off the flasher shall be provided as part of this item. Beacons shall be operated only during those hours when the hazard or regulation exists.

TYPICAL ELECTRICAL SERVICE DETAILS

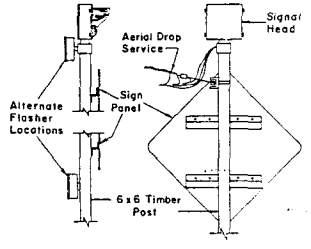
VIEW AT POWER SOURCE



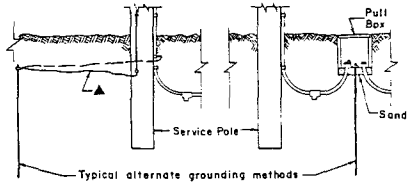
VIEWS AT ENCLOSURES



VIEWS AT BEACON



UNDERGROUND VIEWS AT POWER SOURCE



NOTES

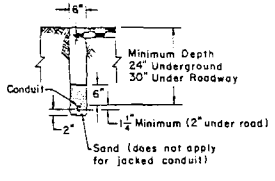
Location and configuration of electrical equipment is diagramatic only (use any method complying with the General Notes).

▲ Existing ground at service pole; otherwise pull thru conduit or attach to conduit and tap off underground.

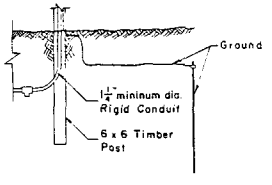
■ Provide weep hole with aerial drop service.

● *Optional (Per Utility Company Requirements)*

TRENCHING DETAIL



UNDERGROUND VIEW AT BEACON



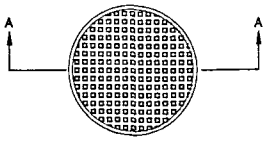
DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

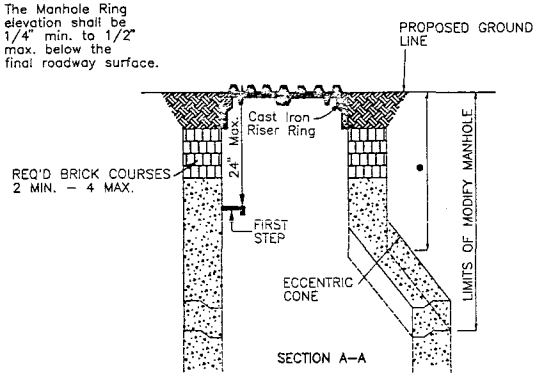
FLASHING BEACON (PORTABLE) DETAILS

AS CONSTRUCTED	DIST	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	6	VIII	COLO.	NH(CX) 225-4(39)	36

MODIFY MANHOLE DETAIL

NOTE: DETAILS NOT TO SCALE.



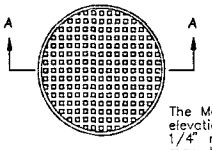


- GREATER THAN 20" WILL BE PAID FOR AS MODIFY MANHOLE

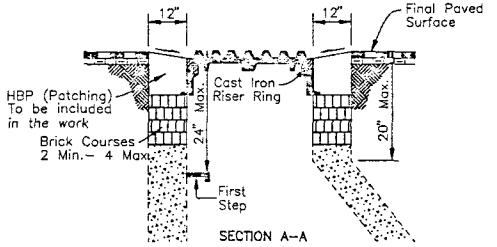
NOTES:

1. BID PRICE OF MODIFY MANHOLE SHALL INCLUDE THE COST OF CONCRETE COLLAR, BRICK COURSES, BARREL SECTIONS, RESETING OF ECCENTRIC CONE AND INSTALLATION OF NEW STEPS AS REQUIRED.
2. MANHOLE BARREL, ECCENTRIC CONE AND BRICK MASONRY LEVELING COURSE SHALL CONFORM TO STANDARD M-604-20.
3. STEPS FOR MANHOLE SHALL CONFORM TO STANDARD M-604-21.

MANHOLE ADJUSTMENT DETAIL



The Manhole Ring elevation shall be 1/4" min. to 1/2" max. below the final roadway surface.



GENERAL NOTES

SEE PLANS FOR DIMENSION T, THICKNESS OF CONCRETE PAVEMENT.

TIE BARS (PER AASHTO M 284) FOR LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE GRADE 40 OR 60, EPOXY-COATED, DEFORMED, AND OF THE FOLLOWING MINIMUM SIZES: T < 8", NO. 4; T = 8" TO 10", NO. 5; T > 10", NO. 6. WHEN TIE BARS ARE STABBED INTO AN (L) JOINT, THE CONTRACTOR SHALL DEMONSTRATE BY TESTING AT LEAST 15 OF THE BARS THAT THE AVERAGE BAR PULLOUT RESISTANCE IS AT LEAST 8,000 POUNDS WITH SLIPPAGE OF 1/16" OR LESS. THE CONTRACTOR SHALL PERFORM ADDITIONAL PULLOUT TESTS AND TAKE CORRECTIVE ACTION WHEN AND AS DIRECTED. CONCRETE STRENGTH TO BE 2,500 PSI BEFORE TESTING.

DOWEL BARS (PER AASHTO M 254) FOR TRANSVERSE JOINTS SHALL BE EPOXY-COATED, SMOOTH, LIGHTLY GREASED FOR THEIR FULL LENGTH, AND OF THE FOLLOWING MINIMUM SIZES:

T ≤ 10", 1 1/4" DIA.; T < 10" TO 12", 1 1/2" DIA.; T > 12, T/8" DIA.

DOWEL BARS SHALL BE FURNISHED IN A RIGID WELDED ASSEMBLY, OR DOWEL BARS MAY BE PLACED BY MACHINE WHEN THE CONTRACTOR DEMONSTRATES THAT THE DOWEL PLACEMENT IS WITHIN REQUIRED TOLERANCES. THE RIGID ASSEMBLY SHALL BE FABRICATED FROM NO. 1/0 (0.306") WIRE OR HEAVIER WITH VERTICAL SUPPORT WIRES EVERY 12". THE ASSEMBLY SHALL BE SECURELY FASTENED TO THE SUBBASE AND CONSTRUCTED TO FIRMLY HOLD ALL THE DOWEL BARS AT T/2, PARALLEL TO EACH OTHER AND TO THE PAVEMENT GRADE AND ALIGNMENT. DOWEL PLACEMENT TOLERANCES ARE: HORIZONTAL LOCATION ±1", VERTICAL POSITION ± 1/4", SKEW FROM PARALLEL (PER 18") 1/8".

SPACER WIRES SHALL BE CUT IN THE FIELD AFTER STAKING ASSEMBLY IN POSITION. (R-1)

ON 4 LANE DIVIDED HIGHWAYS, THE 2 LANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED WITH (E) LONGITUDINAL SAWED CONTRACTION JOINTS. ON A PAVEMENT HAVING 3 OR 4 TRAVEL LANES, THE LONGITUDINAL JOINT NEAREST THE CENTER OF PAVEMENT SHALL BE A (D) LONGITUDINAL KEY JOINT AND THE OTHER LONGITUDINAL JOINTS SHALL BE (E) SAWED JOINTS.

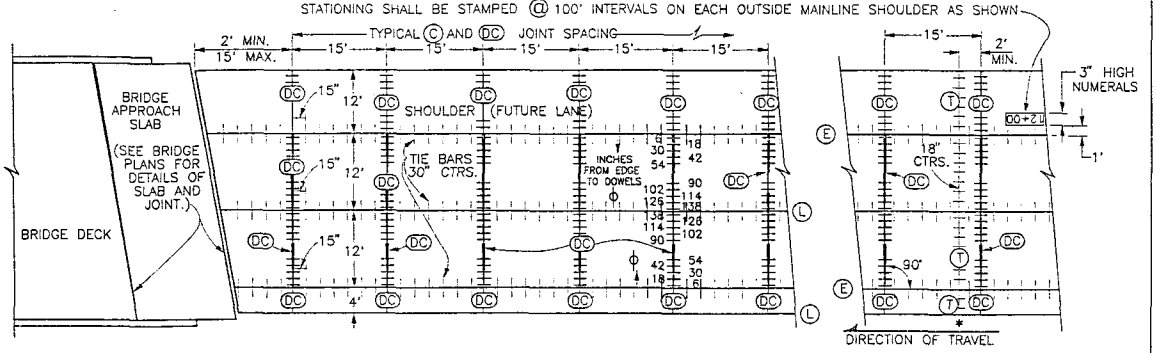
ON VARIABLE WIDTH SLABS, THE 2', OR 6' END OF SLAB WIDTH DIMENSION MAY VARY ± 6".

CONSTRUCTION JOINT GROOVE FOR JOINT SEALANT SHALL BE SAWED TO THE DIMENSIONS SHOWN.

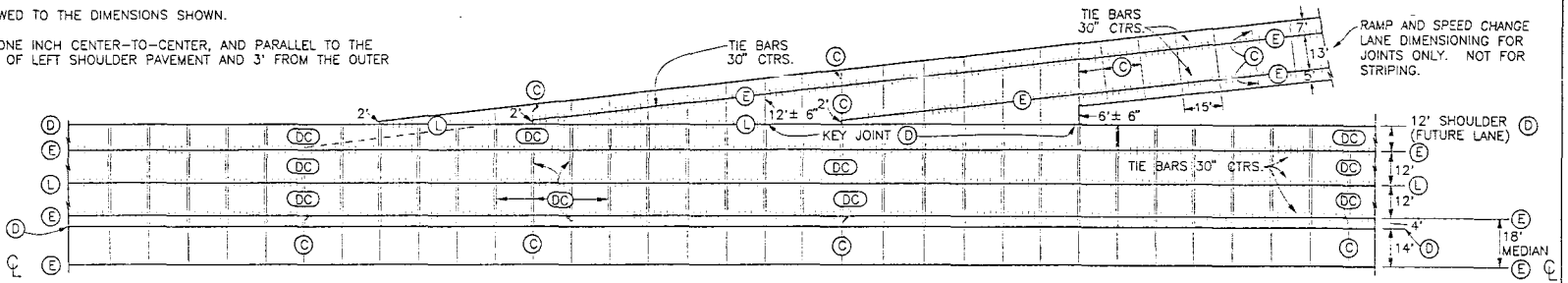
THE TINED FINISH SHALL BE GROOVES OF 3/16" × 3/16" SPACED ONE INCH CENTER-TO-CENTER, AND PARALLEL TO THE TRANSVERSE JOINT. STOP GROOVES 6" FROM THE MEDIAN EDGE OF LEFT SHOULDER PAVEMENT AND 3' FROM THE OUTER EDGE OF RIGHT SHOULDER PAVEMENT.

(R-1) ADDED NOTE, J.K.K., 12-24-92

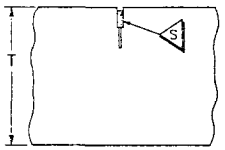
AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ____ REVISED ____ VOID ____	VIII	COLO.	NH(CX) 225-4(39)	37



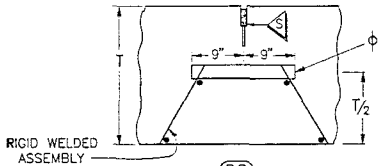
CONCRETE ROADWAY WITH CONCRETE SHOULDERS



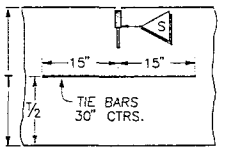
SPEED CHANGE LANE WITH CONCRETE SHOULDERS



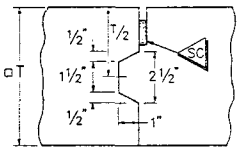
(C) TRANSVERSE CONTRACTION JOINT



(DC) DOWELED TRANSVERSE CONTRACTION JOINT



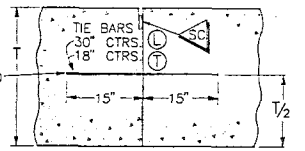
(E) LONGITUDINAL CONTRACTION JOINT



(D) LONGITUDINAL CONSTRUCTION JOINT

□ T IS THE LESSER THICKNESS WHEN SLAB THICKNESSES ARE DIFFFERENT

A KEYWAY IS ALLOWED TO FACILITATE USE OF BENT, GRADE 40 TIE BARS OR APPROVED TWO PIECE CONNECTORS.

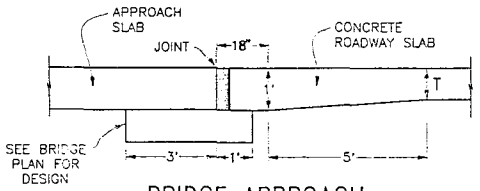


*(T) TRANSVERSE CONSTRUCTION JOINT

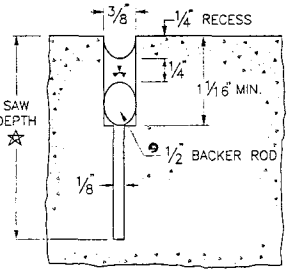
▲(L) LONGITUDINAL CONSTRUCTION JOINT

▲ TO BE USED WHEN TRAFFIC LANE IS ADDED SEPARATELY OR FOR TAPERS OR SPEED CHANGE LANES. ALTERNATIVE LONGITUDINAL JOINT LOCATIONS AT SPEED CHANGE LANE MAY BE USED IF APPROVED.

* REQUIRED WHEN POUR HAS BEEN INTERRUPTED MORE THAN 30 MINUTES AND AT END OF A DAY'S POUR.



BRIDGE APPROACH

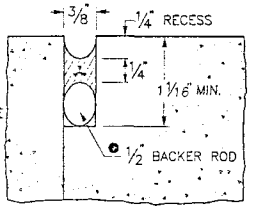


SAWED JOINT —S

● BACKER ROD OF CLOSED CELL POLYETHYLENE STRAND AS APPROVED.

⁂ JOINT FILLER SHALL BE A SILICONE SEALANT THAT IS ON THE DIVISION'S APPROVED SILICONE SEALANT LIST. IT SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

☆ LONGITUDINAL JOINT, T/3
TRANSVERSE JOINT, T/4



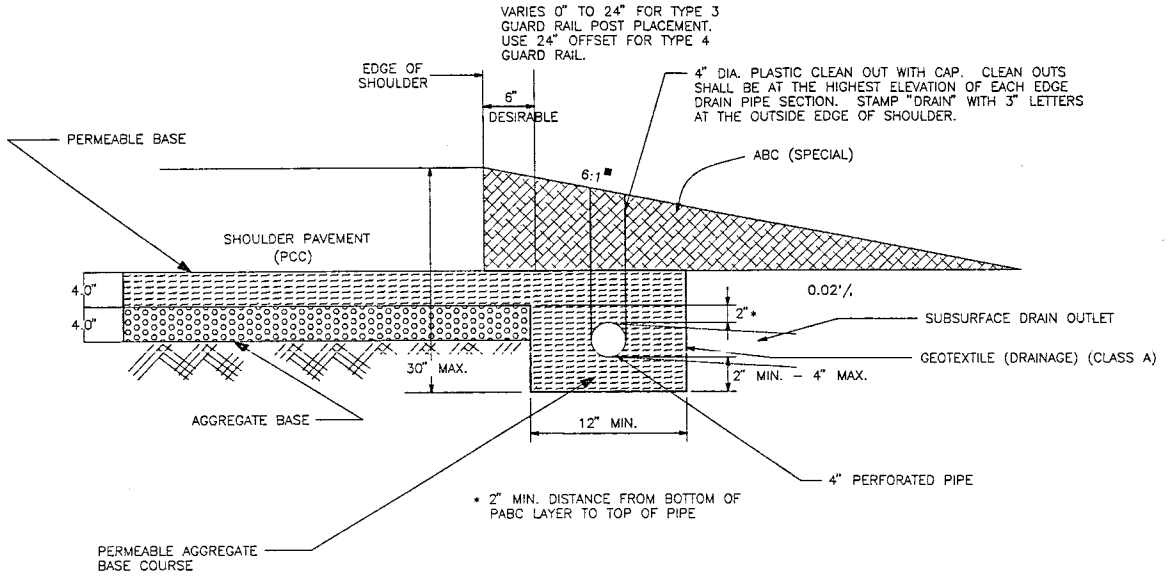
SEAL AT CONSTRUCTION JOINT —SC

CONCRETE PAVEMENT JOINTS

SPECIAL FOR THIS PROJECT

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX) 225-4(39)	38

EDGE DRAIN DETAILS



PIPE EDGE DRAIN

GENERAL NOTES

THE LOCATION AND GRADE OF SUBSURFACE DRAINS AND OUTLET PIPES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED. THE LOCATION WILL TAKE INTO CONSIDERATION THE PLACEMENT OF TYPE 3 OR TYPE 4 GUARD RAIL.
WHERE GUARD RAIL TYPE 3 FLARES AWAY FROM THE ROADWAY, THE POSTS SHALL BE STAKED IN THE FIELD PRIOR TO EXCAVATING THE EDGE DRAIN TRENCH SO AS TO AVOID DRIVING GUARD RAIL POSTS THROUGH THE EDGE DRAIN.

OUTLETS FOR THE EDGE DRAINS ARE TO BE SPACED AT MAXIMUM 300 FT. INTERVALS OR AS SHOWN ON THE PLANS.

WHERE THE UNDERDRAIN PIPE OUTLETS ONTO A SLOPE OR DITCH, THE OUTLET PIPE END SHALL BE MARKED WITH A DELINEATOR POST, AND HAVE AN ANIMAL GUARD AND AN EROSION CONTROL PAD.

PAYMENT FOR SUBSURFACE DRAIN OUTLET SHALL INCLUDE THE EROSION CONTROL PAD, THE ANIMAL GUARD, AND THE DELINEATOR POST.

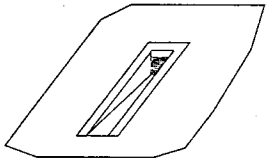
END CAPS, TEES, CLEAN OUTS, AND STAMPING OF CONCRETE WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE COST OF 4" PERFORATED PIPE.

THE PERMEABLE AGGREGATE BASE COURSE SHALL BE TAMPED WITH A LIGHT VIBRATORY TAMPER PRIOR TO OVERLAPPING THE GEOTEXTILE FABRIC.

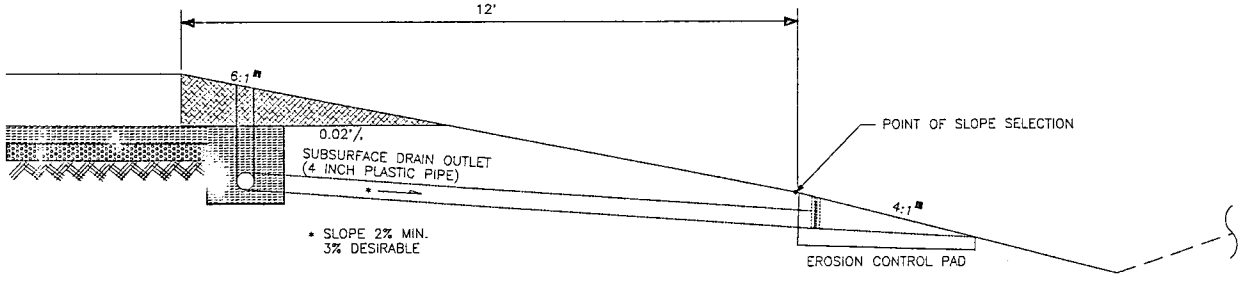
THE EDGE DRAIN TRENCH SHALL BE CONSTRUCTED AFTER PLACEMENT OF THE CONCRETE PAVEMENT.

EDGE DRAIN PIPE SHALL CONFORM TO AASHTO M252 TYPE SP.

OUTLET PIPES SHALL CONFORM TO AASHTO M252 TYPE S.



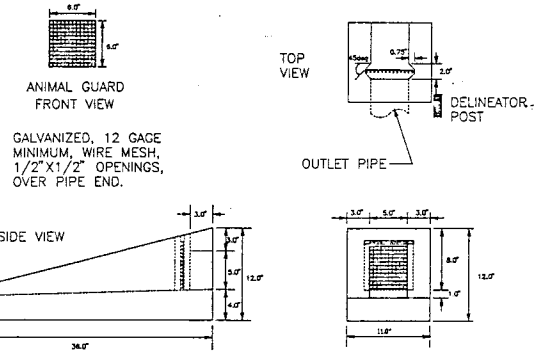
PRECAST CONCRETE HEADWALL IN SLOPE



NOT TO SCALE

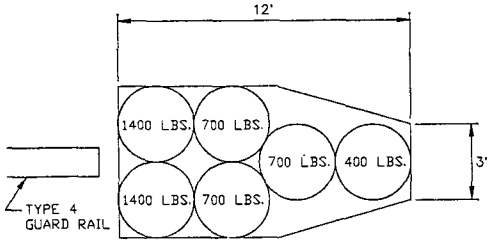
SUBSURFACE DRAIN OUTLET

■ CROSS SLOPE VARIES. SEE TYPICAL SECTION AND CROSS SECTIONS.



EROSION CONTROL PAD
(PRECAST CONCRETE HEADWALL)
WITH REMOVABLE ANIMAL GUARD

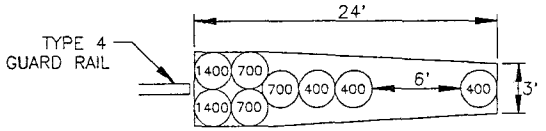
AS CONSTRUCTED				FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	HSM	VIII	COLO.	NH(CX) 225-4(39)	39



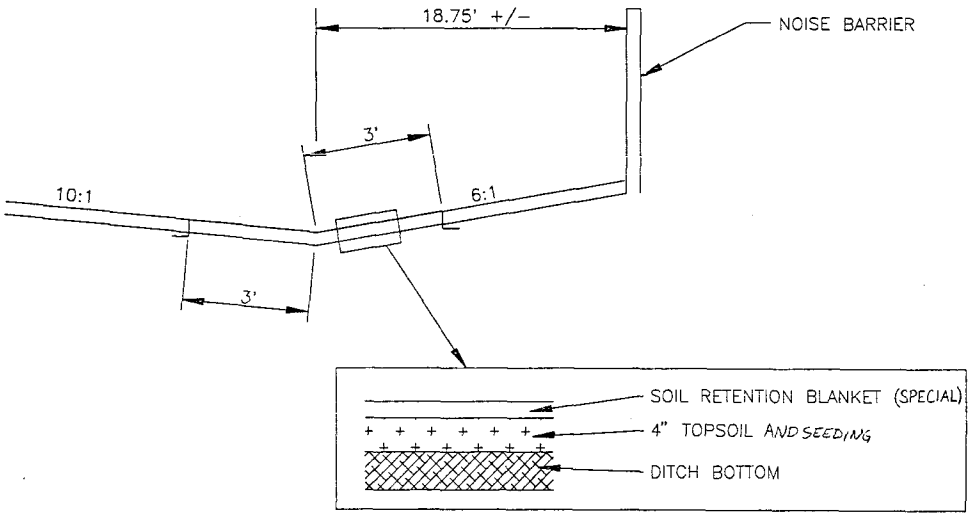
DETAIL OF IMPACT ATTENUATOR NORTH SIDE
AT APPROX. STA. 9+00 AND STA. 11+75
ON 6" HBP PAD

(SAND FILLED PLASTIC BARREL) (TEMPORARY)
40 MPH DESIGN

SAND BARREL IMPACT ATTENUATORS
AVERAGE G'S 4.5
OCCUPANT IMPACT VELOCITY
2000 LB. CAR (FPS) 26
4500 LB. CAR (FPS) 24



DETAIL OF IMPACT ATTENUATOR EAST SIDE
AT APPROX. 1626+00 ON 6" HBP PAD
(SAND FILLED PLASTIC BARREL) (TEMPORARY)
60 MPH DESIGN
SAND BARREL IMPACT ATTENUATORS
AVERAGE G'S 5.0
OCCUPANT IMPACT VELOCITY
2000 LB. CAR (FPS) 23
4500 LB. CAR (FPS) 24



SOIL RETENTION BLANKET (SPECIAL)

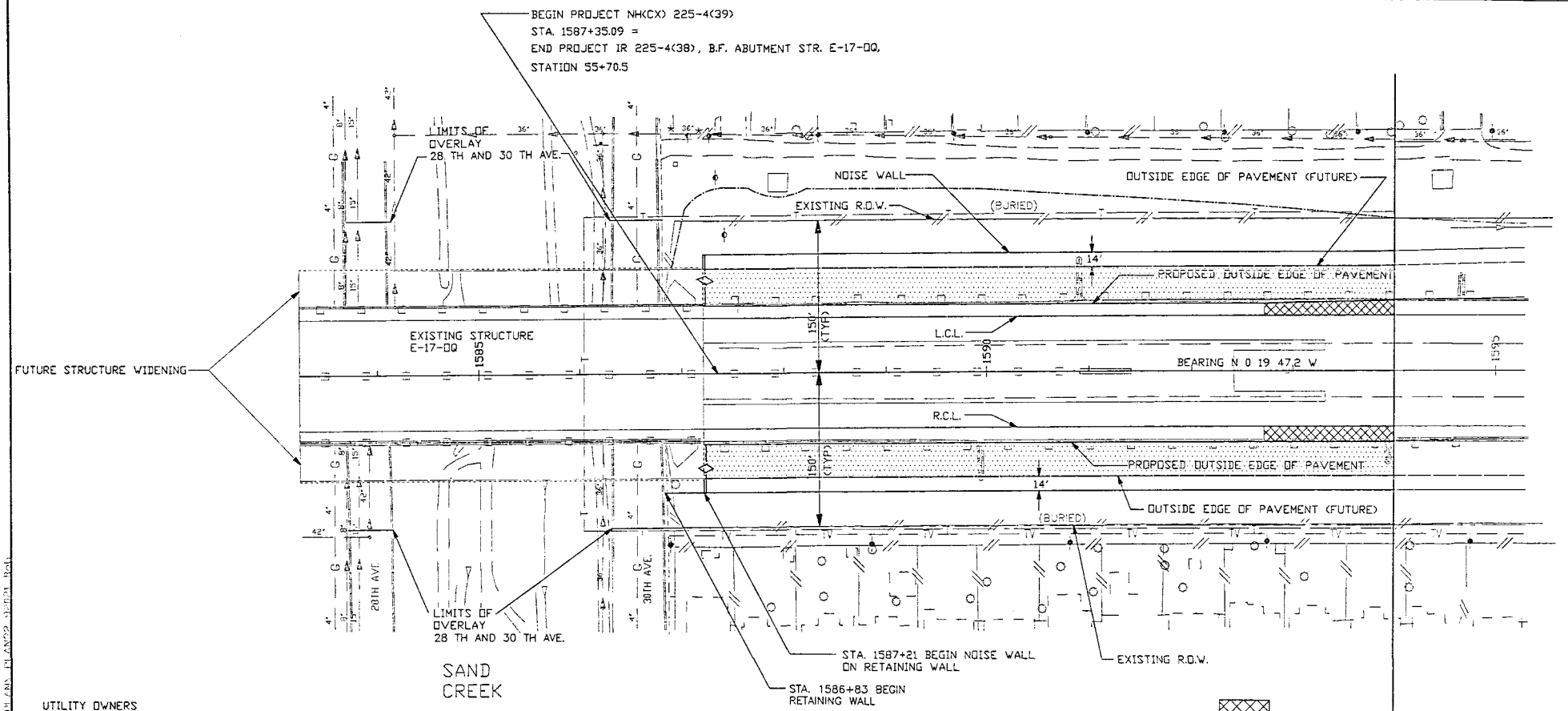
SOIL RETENTION BLANKET WILL BE PLACED
ON THE FOLLOWING LOCATIONS:
STA. 1587+21 TO STA. 1604+00 LT.
STA. 1587+21 TO STA. 1606+00 RT.

09/03/92 DETAIL.DWG C:\MISC.DIR

AS CONSTRUCTED	DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	6	VIII	COLO.	NH(CX) 225-4(39)	40

I-225 PLAN

REVISIONS		



UTILITY OWNERS

PUBLIC SERVICE COMPANY - ELECTRICAL (LIGHTING)
PUBLIC SERVICE COMPANY - ELECTRICAL (DIST.)
PUBLIC SERVICE COMPANY - ELECTRICAL (TRANS.)
PUBLIC SERVICE COMPANY - GAS
US WEST COMMUNICATIONS
CITY OF AURORA WATER, SANITATION, AND STORM SEWER
UNITED ARTISTS CABLE
CHASE PIPELINE
PHILLIPS PIPELINE COMPANY
TELEPORT DENVER, LTD. (FIBER OPTIC)
MCI FIBER OPTICS

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
OR 534-6700 IN METRO DENVER
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

N
20 100
50 200
ORIGINAL SCALE
1"= 50'

BY OTHERS
FUTURE

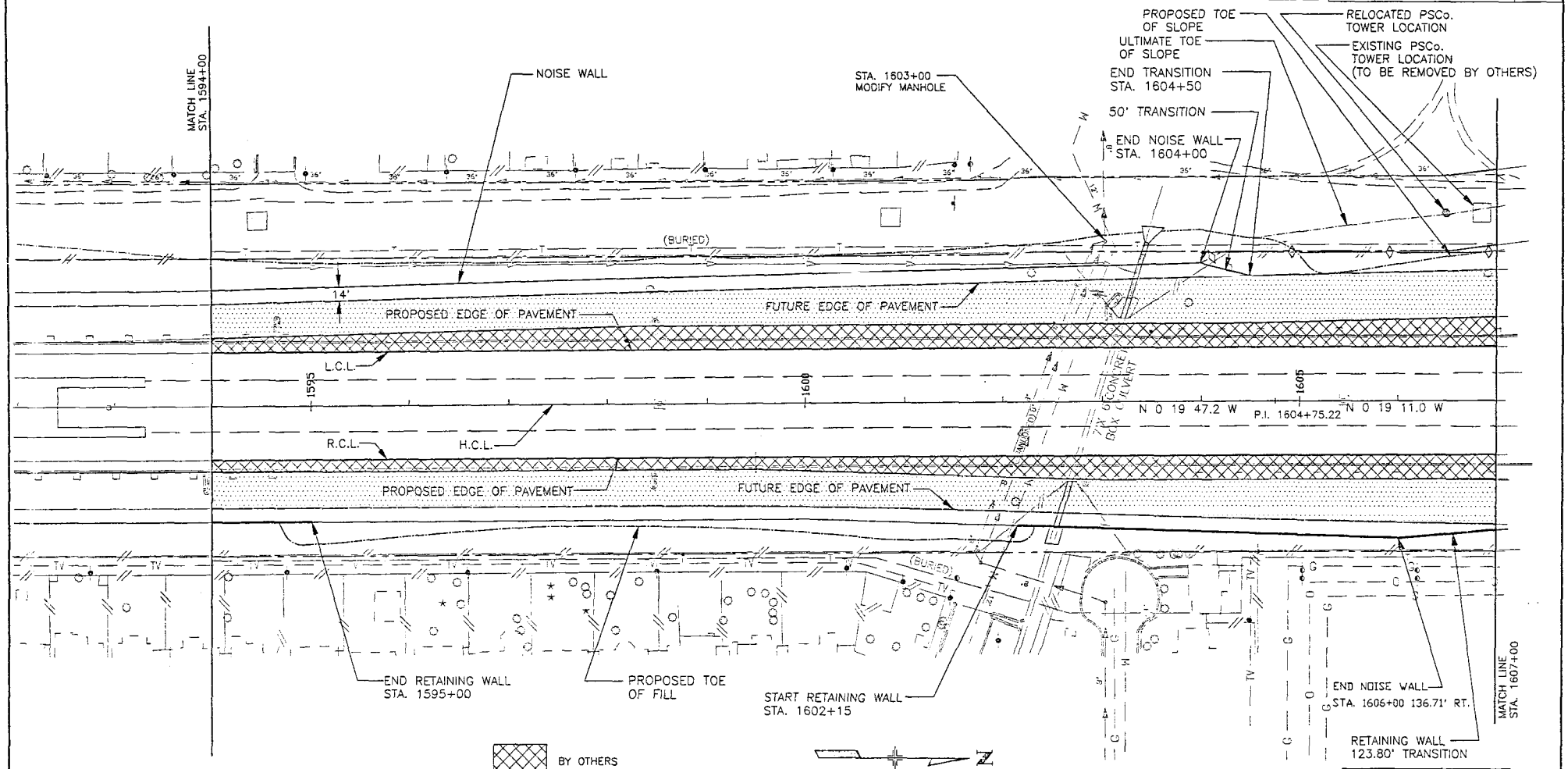
NOTE: SEE LANE LAYOUT AND GUARD RAIL PLAN FOR PROPOSED GUARD RAIL

SEE UTILITIES AND DRAINAGE PLAN FOR PROPOSED DRAINAGE FEATURES

AS CONSTRUCTED				DIGITS	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID			VIII	COLO.	NH(CX) 225-4(39)	41

I-225 PLAN

REVISIONS		



CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
OR 534-6700 IN METRO DENVER
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

I-225 PLAN

AS CONSTRUCTED			DIGITS	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX) 225-4(39)	42

REVISIONS			

NOTE: THE CONTRACTOR SHALL NOT PERFORM ANY CONSTRUCTION ACTIVITIES OUTSIDE (WEST) OF THE EXISTING WEST SIDE RIGHT OF WAY FENCE UNTIL THE EXISTING TRANSMISSION TOWER HAS BEEN REMOVED AND THE OIL AND GAS LINES ARE ENCASED. IT IS ESTIMATED THAT THIS UTILITY WORK WILL BE COMPLETED PRIOR TO PHASE 2 OF THIS PROJECT. STATION 1606+50 TO 1613+00 LT.

POWER SOURCE
NOTE: CONTRACTOR TO COIL 30' OF DIRECT BURIAL CABLE AT THE BASE OF POWER SOURCE POLE

ULTIMATE TOE OF FILL (FUTURE)
36" RCP
EXISTING PSCo. TOWER LOCATION
PROPOSED TOE OF FILL
RELOCATED PSCo. TOWER LOCATION
ULTIMATE TOE OF FILL (FUTURE)
RELOCATED PSCo. TOWER LOCATION
PROPOSED TOE OF FILL BY OTHERS
STA. 1615+22.88 END PROJECT NH(CX) 225-4(39)= STA. 1615+22.88 ON PROJECT IM-STA(CX) 70-4(159)
EXISTING PSCo. TOWER LOCATION (TO BE REMOVED BY OTHERS)
(BURIED)
EXISTING PSCo. TOWER LOCATION (TO BE REMOVED BY OTHERS)
FUTURE EDGE OF PAVEMENT
PROJECTED EDGE OF PAVEMENT
EXISTING STRUCTURE E-17-HK (TO BE REMOVED)
FUTURE STRUCTURE
RAMP ROE-S (FUTURE)
EDGE OF PAVEMENT BY OTHERS
L.C.L.
BEARING N, 0 19 11.0 W
1610
1615
1620
PROPOSED STRUCTURE E-17-OR
R.C.L.
I-225 H.C.L.
EDGE OF PAVEMENT BY OTHERS
FUTURE EDGE OF PAVEMENT
PROPOSED EDGE OF PAVEMENT
FUTURE STRUCTURE
RAMP NOE (FUTURE)
INTERIM CONNECTION TO MATCH EXISTING ROADWAY
(BURIED)
6" SPARE LINE
6" NATURAL GAS
8" OIL
RETAINING WALL
PARTIAL RETAINING WALL
STA. 1611+97 END PARTIAL HEIGHT RETAINING WALL
STA. 1613+51.16= STA. 10+00 ON SMITH RD. S.L.
EXISTING STRUCTURE E-17-HJ (TO BE REMOVED)
MATCH LINE STA. 1607+00
EXISTING SMITH ROAD
UNION PACIFIC R.R.
EXTEND EXISTING 48" RCP 70' LT. AND 6' RT. WITH 48" END SECTIONS LT. AND RT. BY OTHERS
SMITH RD. SURVEY LINE
BY OTHERS
FUTURE
N
20 100 50 200
ORIGINAL SCALE 1"=50'

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987 OR 534-6700 IN METRO DENVER
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

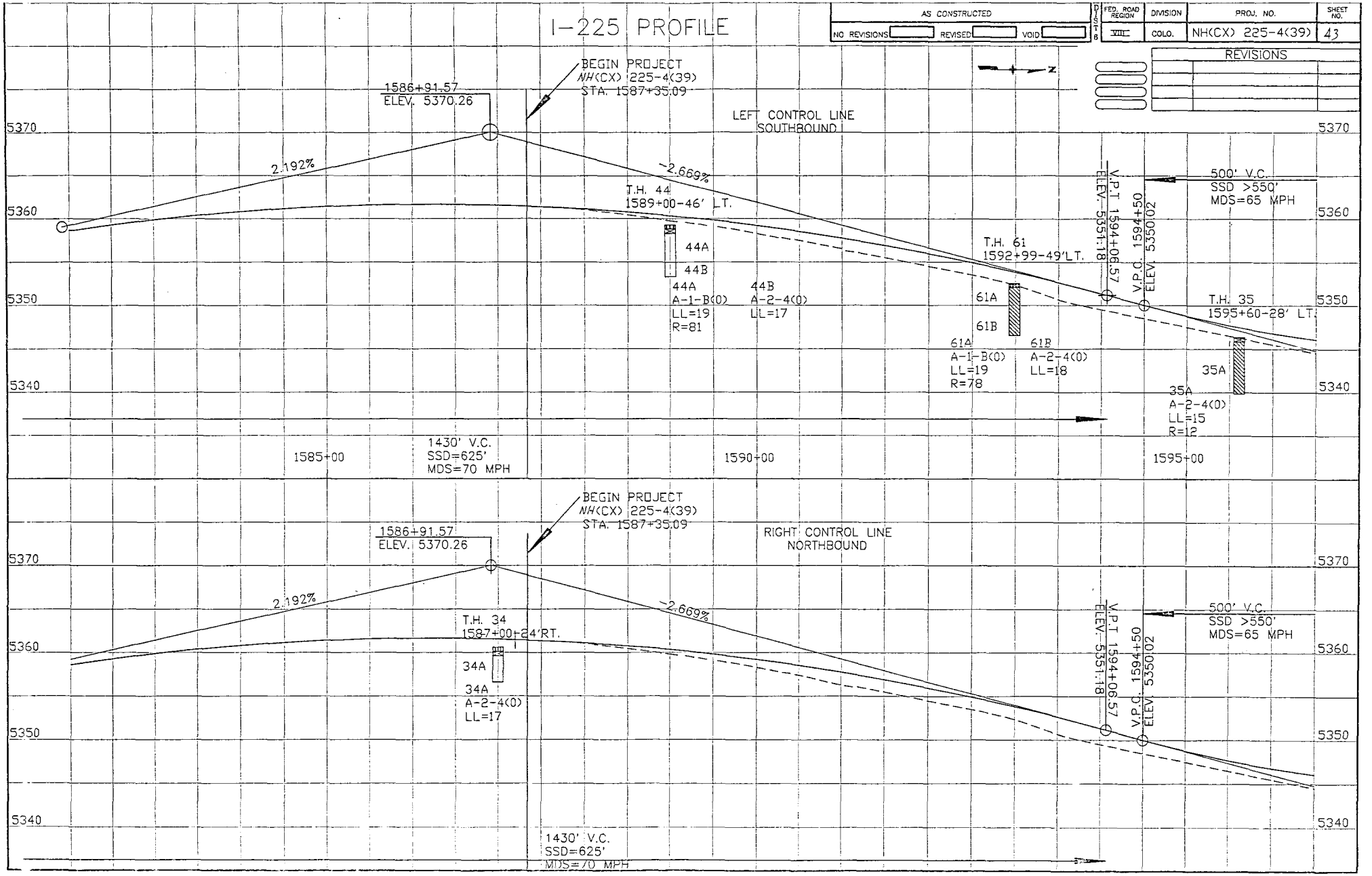
G:\PLAN\PLAN12.DWG 5/7/92

AUG. 89 F126A

I-225 PROFILE

AS CONSTRUCTED			DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐	REVISED ☐	VOID ☐	6	VIII	COLO.	NH(CX) 225-4(39)	43

REVISIONS			

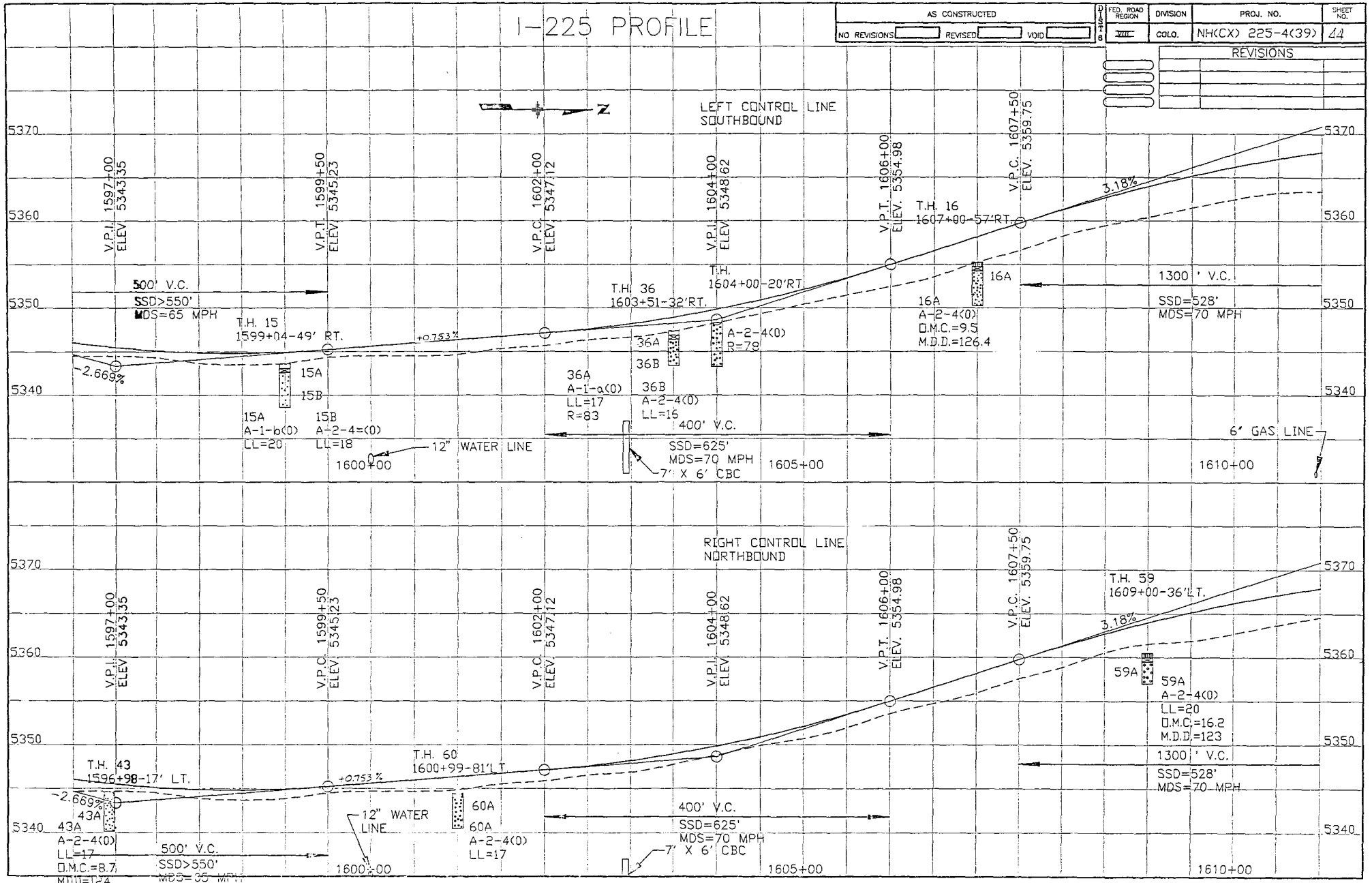


FORM 210

I-225 PROFILE

AS CONSTRUCTED	DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	6	VIII	COLO.	NH(CX) 225-4(39)	44

REVISIONS



FORM 210

I-225 PROFILE

AS CONSTRUCTED			DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	6	VIII	COLO.	NH(CX) 225-4(39)	45

REVISIONS

5380
5370
5360
5350
5340

3.18%
-3.08%
END OF PROJECT
STATION 1615+22.88
LEFT CONTROL LINE
SOUTHBOUND
CONSTRUCTION
BY OTHERS
V.P.T. 1620+50
ELEV. 5360.40
T.H. 37
1611+00-28'RT.
37A
37A
A-2-4(0)
LL=19
P.I.=4
V.P.I. 1614+00
ELEV. 5380.42
T.H. 17
1615+52-49'RT.
17A
17B
T.H.
1617+00-22' RT.
A-2-4(0)
R=78
17A
A-2-4(0)
LL=19
17B
A-2-4(0)
LL=17
1300' V.C.
SSD=528'
MDS=60 MPH
1615+00
1620+00
48" STORM SEWER LINE

INTERIM CURVE
VPC 1615+52.5
ELE. 5369.76
-0.6743
VPI 1616+40
ELE. 5369.17
-2.334
VPT 1617+27.5
ELE. 5367.13
INSTANTANEOUS GRADE
= -0.6843 @ 1615+52.5
175' V.C.
SSD = 485
55 MPH DESIGN SPEED
NTS

8" GAS LINE
8" SPARE LINE

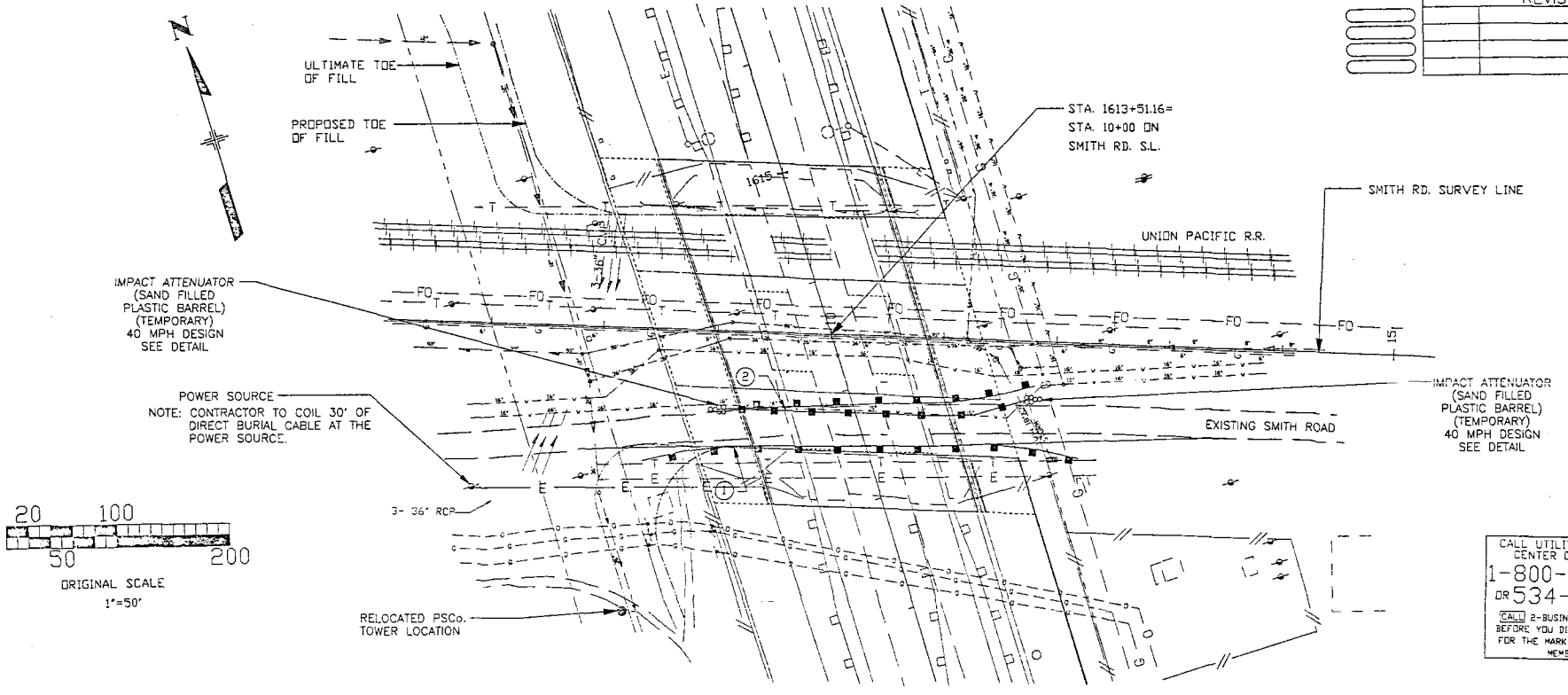
3.18%
-3.08%
END OF PROJECT
STATION 1615+22.88
RIGHT CONTROL LINE
NORTHBOUND
CONSTRUCTION
BY OTHERS
V.P.T. 1620+50
ELEV. 5360.40
T.H. 42
1611+42-29' LT.
42A
42B
42A
A-1-a(0)
LL=14
R=81
42B
A-2-4(0)
LL=16
R=72
V.P.I. 1614+00
ELEV. 5380.42
T.H. 58
1617+00-50' LT.
58A
58A
A-1-a(0)
LL=20
R=78
T.H. 41
1621+00-36' LT.
41A
41A
A-2-4(0)
LL=18
1300' V.C.
SSD=528'
MDS=60 MPH
1615+00
1620+00
48" STORM SEWER LINE

FORM 210

SMITH ROAD PLAN AND DETAILS

AS CONSTRUCTED	DIST 6	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐		VIII	COLO.	NH(CX) 225-4(39)	46

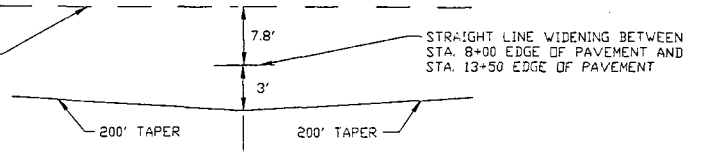
REVISIONS		



CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
OR 534-6700 IN METRO DENVER
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

① GUARD RAIL SOUTH SIDE OF SMITH ROAD - PERMANENT TYPE 3 TO PROTECT SLOPE PAVING.

② GUARD RAIL NORTH SIDE OF SMITH ROAD - CONCRETE BARRIER (TEMPORARY) TO PROTECT PIER CONSTRUCTION. PERMANENT TYPE 3 TO PROTECT PIER AFTER CONSTRUCTION.



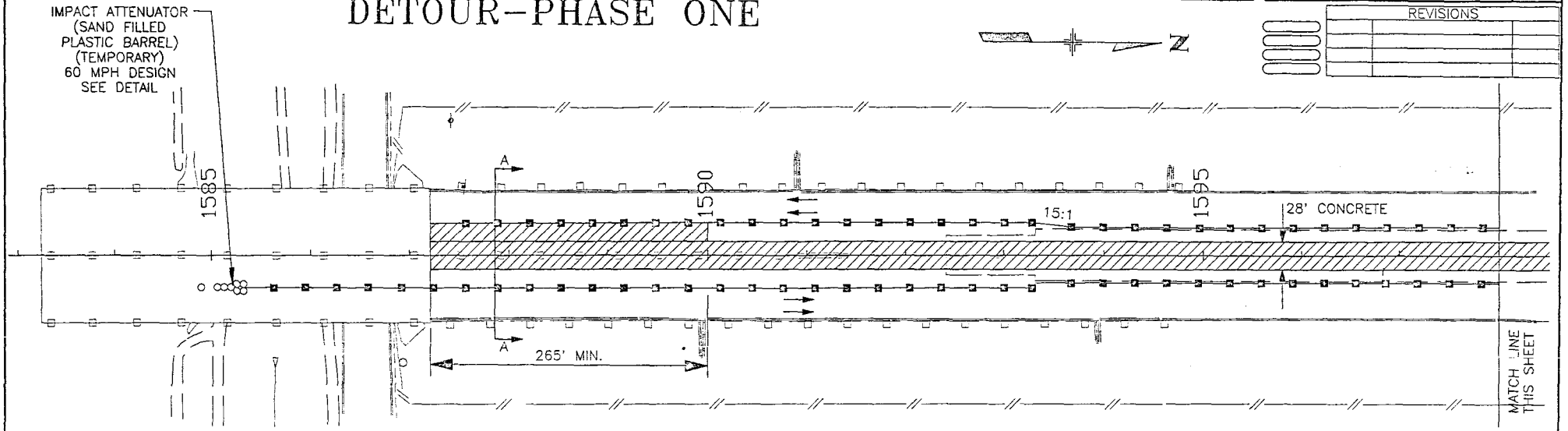
DETAIL OF TAPER WIDENING STATION 11+00 RT.

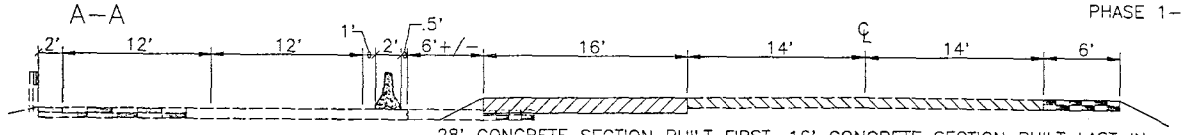
FORM 210

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX) 225-4(39)	47

REVISIONS		

DETOUR–PHASE ONE

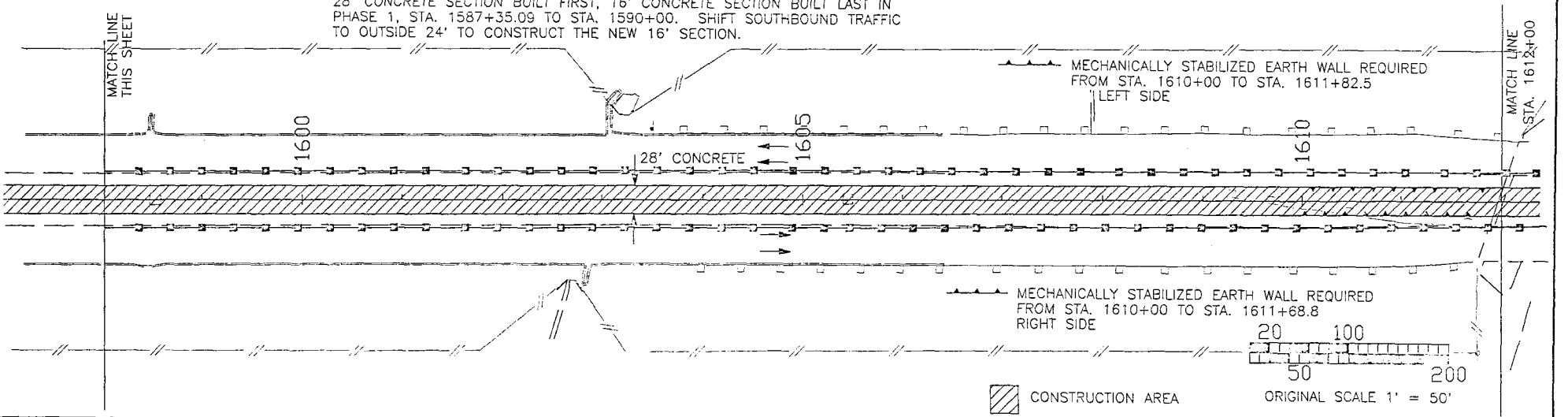




28' CONCRETE SECTION BUILT FIRST, 16' CONCRETE SECTION BUILT LAST IN PHASE 1, STA. 1587+35.09 TO STA. 1590+00. SHIFT SOUTHBOUND TRAFFIC TO OUTSIDE 24' TO CONSTRUCT THE NEW 16' SECTION.

PHASE 1– TRAFFIC WILL STAY ON THE EXISTING ROADWAY. CONSTRUCT AND PAVE THE CENTER PORTION OF I–225; 44' WIDE FOR A MINIMUM OF 265' NORTH OF THE SAND CREEK STRUCTURE, 41' WIDE FOR THE SMITH ROAD STRUCTURE, AND 28' WIDE CONCRETE PLUS ADDITIONAL TEMPORARY ASPHALT FOR THE REMAINDER OF I–225.

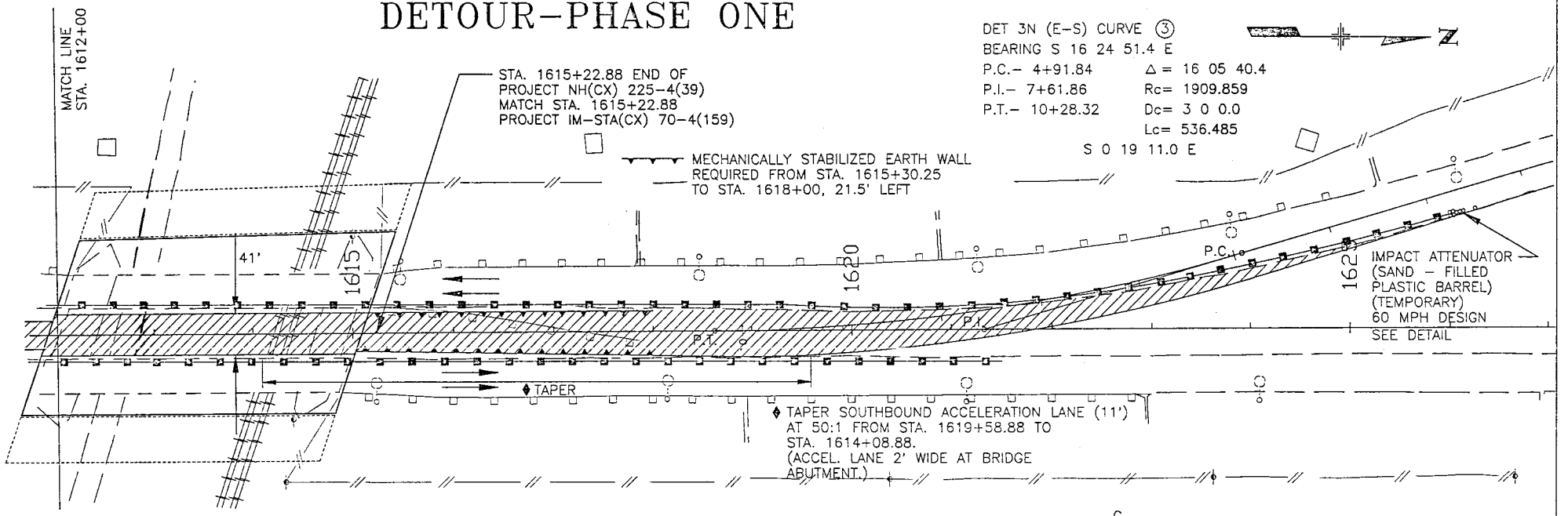
GUARD RAIL IS REQUIRED ALONG NORTH AND SOUTHBOUND I–225 BETWEEN THE EXISTING LANES AND THE CONSTRUCTION ZONE.

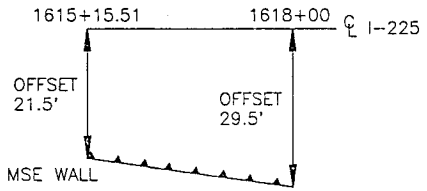


AUG. 89 F126A

AS CONSTRUCTED			DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	6	VIII	COLO.	NH(CX) 225-4(39)	48

DETOUR–PHASE ONE

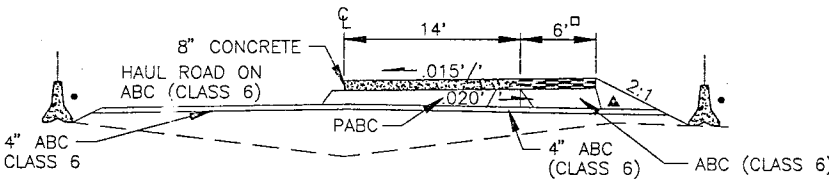


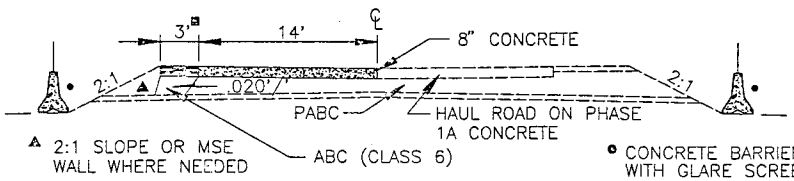


MECHANICALLY STABILIZED EARTH WALL REQUIRED FROM STA. 1615+15.51 TO STA. 1618+00.
WALL WILL BE 21.5' RIGHT OF C.L. AT STA. 1615+15.51. TAPER FROM 21.5' RIGHT OF C.L. AT STA. 1615+15.51 29.5' AT STA. 1618+00.

□ EXCEPT SMITH ROAD BRIDGE AND THE WIDENED SECTION NORTH OF THE SMITH ROAD BRIDGE:
6.28' AT STA. 1615+15.85
50:1 TAPER TO
15.5' AT STA. 1619+51.85
15.5' FROM STA. 1619+51.85 TO STA. 1620+00

■ EXCEPT:
0.0' FROM STA. 1587+35.09 TO STA. 1590+00
0.0' AT SMITH ROAD BRIDGE STRUCTURE

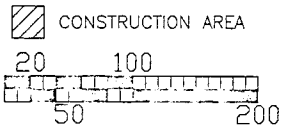




PHASE 1 MEDIAN PAVING

1. CLEAR AND GRUB MEDIAN. BRING IN EMBANKMENT FOR RAISED SECTION. GRADE MEDIAN TO SUBGRADE. CONSTRUCT GEOGRID WALLS WHERE REQUIRED.
2. REMOVE MEDIAN INLETS AND BEGIN CONSTRUCTION OF NEW INLETS.
3. PLACE ABC (CLASS 6) TO GRADE.
4. PLACE PABC TO GRADE FOR HALF OF THE SECTION.
5. PAVE 14' PASS OF 8" CONCRETE PAVEMENT IN ONE DIRECTION. PLACE REMAINDER OF MEDIAN PABC. PAVE 14' PASS AND 16' PASS IN SECOND DIRECTION. PAVE HBP SHOULDERS
6. COMPLETE INLETS TO GRADE AND PLACE GRATES. PLACE TYPE 4 BARRIER, STRIPE AND SIGN.
7. SHIFT TRAFFIC TO MEDIAN FOR PHASE 2 CONSTRUCTION.

DURING PHASE 1 CONSTRUCTION THE CONTRACTOR CAN BE DOING THE EARTHWORK FOR PHASES 2 AND 3 AND WORKING ON THE NOISE WALLS AND FOOTERS FOR THE RETAINING WALLS AND EXTENDING CBC.

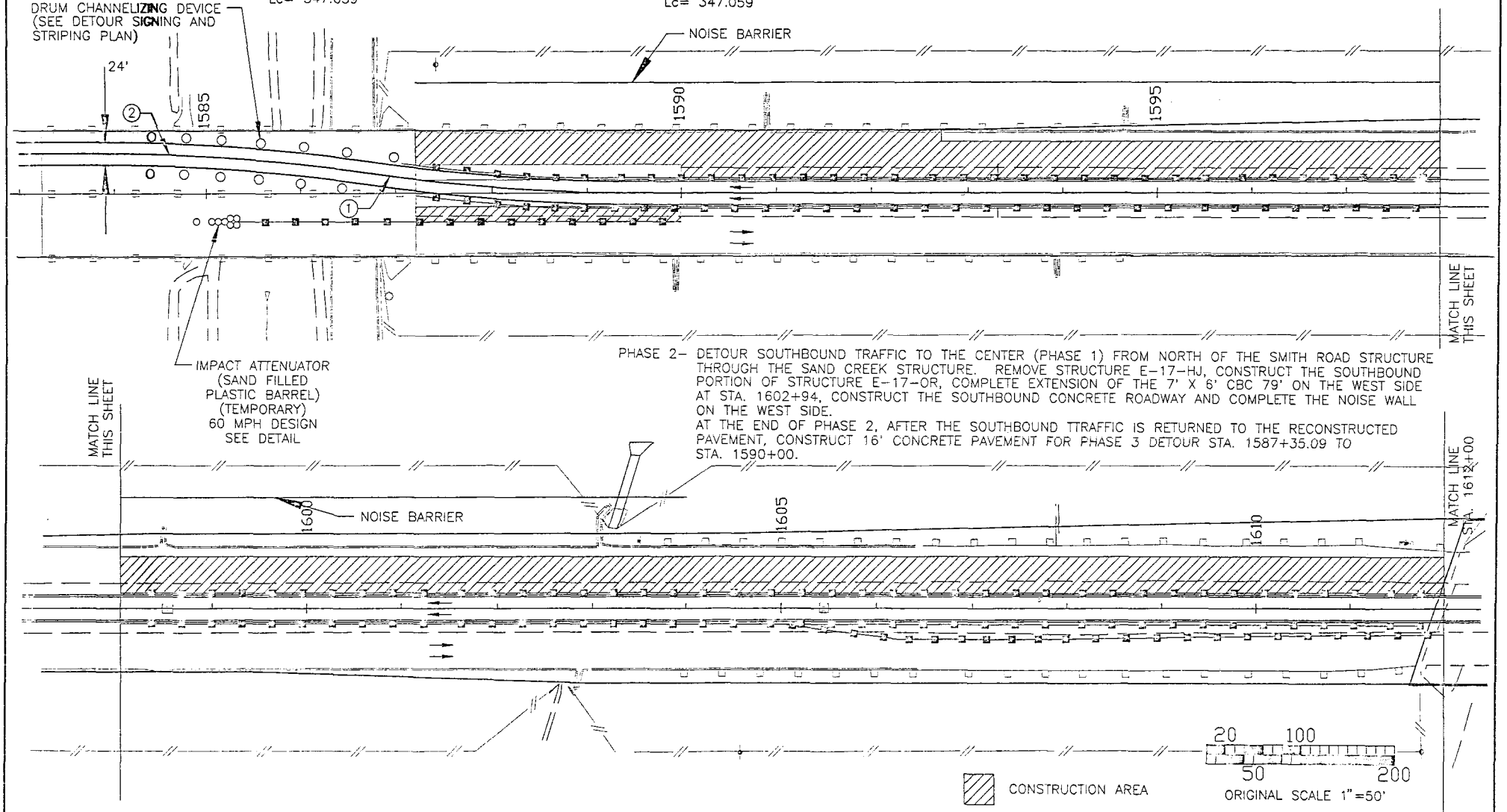


DETOUR–PHASE TWO

AS CONSTRUCTED			DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	6	VIII	COLO.	NH(CX) 225-4(39)	49

SOUTHBOUND (DET C) CURVE ①
BEARING S 0 19 47.2 E
P.C.– 3+38.26 1590+09.69 Δ = 6 56 28.3
P.I.– 5+12.00 1588+36.06 Rc= 2864.789
P.T.– 6+85.32 1586+63.48 Dc= 2 0 0.0
Lc= 347.059

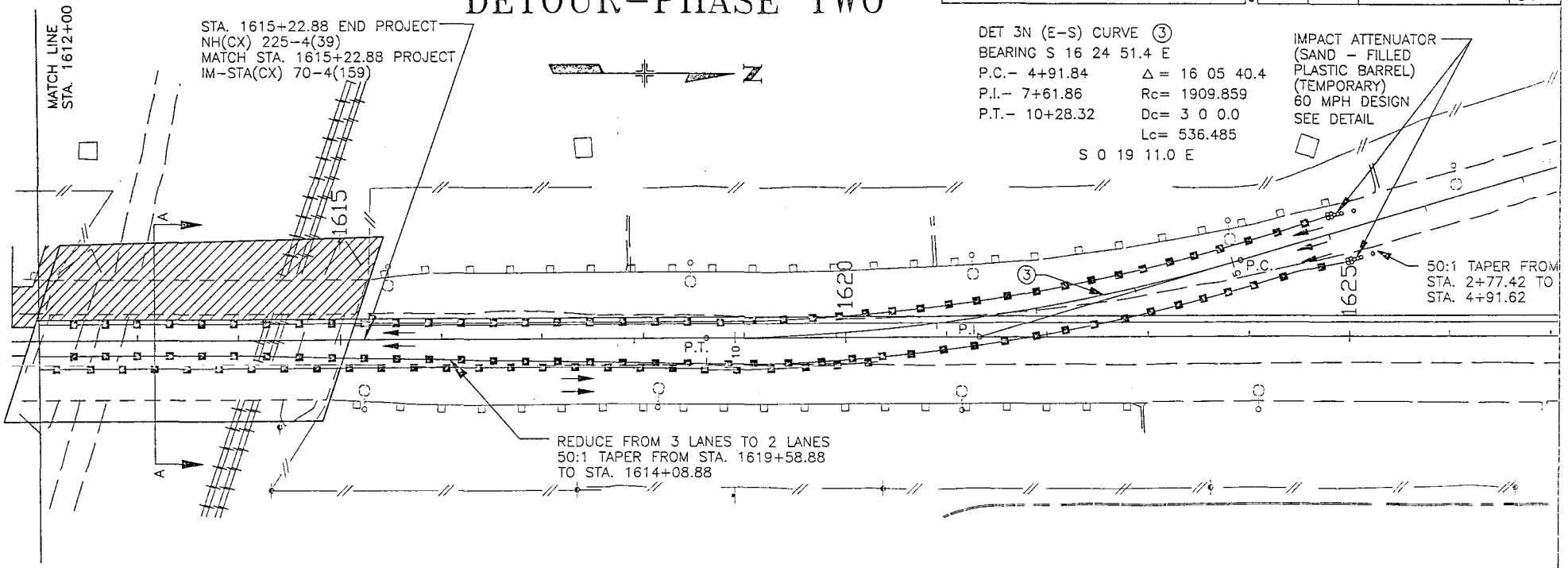
CURVE ② BEARING S 0 19 47.2 E
P.C.– 6+85.37 1586+63.43 Δ = 6 56 28.3
P.I.– 8+59.11 1584+90.43 Rc= 2864.789
P.T.– 10+32.43 1583+17.22 Dc= 2 0 0.0
Lc= 347.059

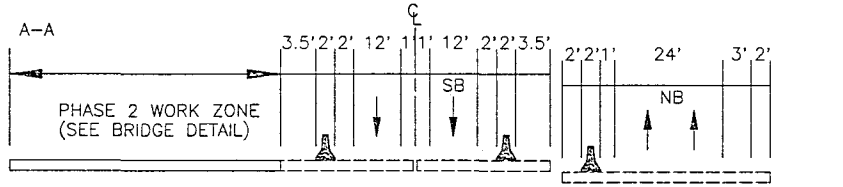


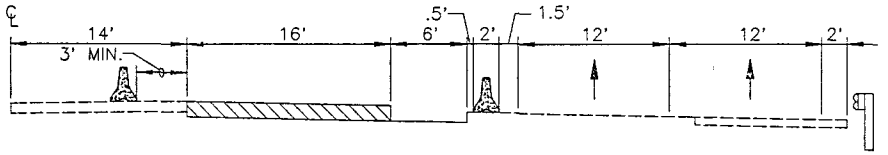
AUG. 89 F126A

AS CONSTRUCTED	DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	6	VIII	COLO.	NH(CX) 225-4(39)	50

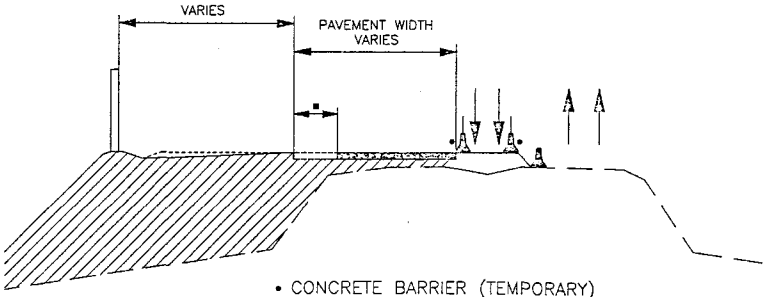
DETOUR–PHASE TWO







SHIFT NORTHBOUND TRAFFIC TO OUTSIDE FOR CONSTRUCTION OF THE 16' SECTION, STA. 1587+35 TO STA. 1590+00 AT THE END OF PHASE 2.



- CONCRETE BARRIER (TEMPORARY) WITH GLARE SCREEN
- PAVEMENT BY OTHERS

CONSTRUCTION AREA

20 100
50 200
ORIGINAL SCALE 1"=50'

AUG. 89 F:128A

DETOUR–PHASE THREE

AS CONSTRUCTED			D-10-18	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX) 225-4(39)	51

NORTHBOUND (DET 3N) CURVE ④
BEARING N 0 19 47.2 W
P.C.– 4+71.10 1583+17.22 Δ = 6 56 28.3
P.I.– 6+13.10 1584+90.85 Rc= 2864.789
P.T.– 7+54.58 1586+63.43 Dc= 2 0 0.0
Lc= 347.059

CURVE ⑤ BEARING N 0 19 47.2 W
P.C.– 7+54.58 1586+63.48 Δ = 6 56 28.3
P.I.– 8+96.58 1588+36.48 Rc= 2864.789
P.T.– 10+38.06 1590+09.69 Dc= 2 0 0.0
Lc= 347.059

N

STA. 1582+00–
IMPACT ATTENUATOR
(SAND FILLED
PLASTIC BARREL)
(TEMPORARY)
60 MPH DESIGN
SEE DETAIL

1585 1590 1595

END CONCRETE BARRIER (TEMPORARY)
AT STA. 1592+70

④ ⑤

STA. 1582+00–
IMPACT ATTENUATOR
(SAND FILLED
PLASTIC BARREL)
(TEMPORARY)
60 MPH DESIGN
SEE DETAIL

NOISE WALL ON
RETAINING WALL

PHASE 3– SHIFT SOUTHBOUND TRAFFIC ON TO THE RECONSTRUCTED SOUTHBOUND I–225 AT THE END OF PHASE 2 AND DETOUR NORTHBOUND TRAFFIC ON TO THE CENTER AT SAND CREEK THROUGH STA. 1619+00 AT THE BEGINNING OF PHASE 3. REMOVE STRUCTURE E–17–HK. CONSTRUCT THE NORTHBOUND PORTION OF STRUCTURE E–17–OR, THE NORTHBOUND ROADWAY, COMPLETE EXTENSION OF 7' X 6' CBC 60' ON THE EAST SIDE AT STA. 1602+94, AND COMPLETE THE RETAINING WALLS AND NOISE WALLS ON THE EAST SIDE OF I–225.

MATCH LINE
THIS SHEET

MATCH LINE
THIS SHEET

MATCH LINE
STA. 1612+00

1600 1605 1610

54'

E–17

NOISE WALL
ONLY

NOISE WALL ON
RETAINING WALL

NOISE WALL
ENDS

RETAINING
WALL
CONSTRUCTION AREA

20 100
50 200
ORIGINAL SCALE 1"=50'

AUG. 89 F125A

AS CONSTRUCTED			DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX) 225-4(39)	52

DETOUR–PHASE THREE

MATCH LINE STA. 1612+00

END OF PROJECT STATION 1615+22.88

DET NB CURVE ⑥
BEARING N 0 19 11.0 W
P.C.- 1+14.63 1616+14.63
P.I.- 2+56.63 1617+56.86
P.T.- 3+98.11 1619+00.21
Δ = 8 30 15.6
Rc= 1909.859
Dc= 3 0 0.0
Lc= 283.478

CURVE ⑦
P.C.- 3+98.11 1619+00.21
P.I.- 5+40.11 1620+40.72
P.T.- 6+81.59 1621+79.51
Δ = 8 30 15.6
Rc= 1909.859
Dc= 3 0 0.0
Lc= 283.478

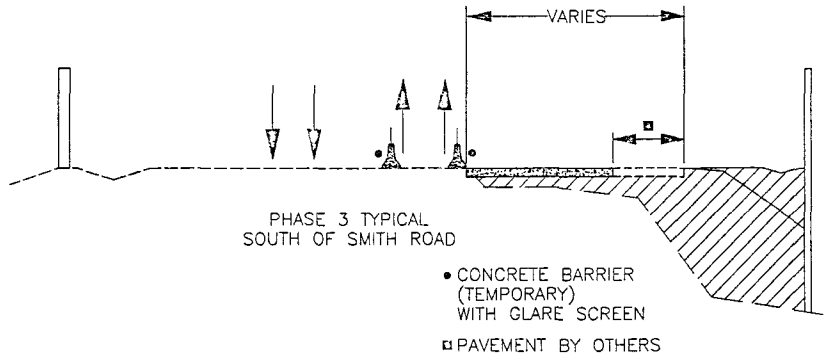
CURVE ⑧
P.C.- 3+72.61 1625+06.39
P.I.- 6+42.63 1622+42.53
P.T.- 9+09.09 1619+76.94
Δ = 16 05 40.9
Rc= 1909.859
Dc= 3 0 0.0
Lc= 536.485

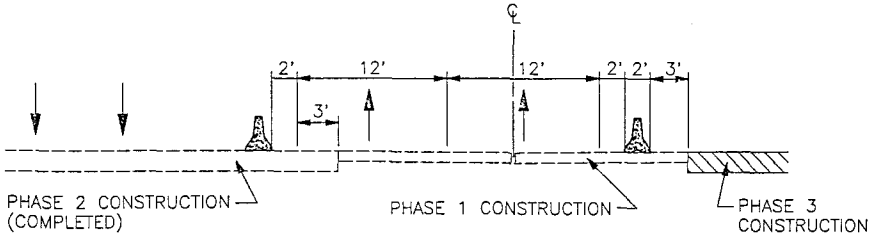
TAPER ACCELERATION LANE FROM 12' AT STA. 1621+25 TO 0' AT STA. 1615+25

1615 1620 1625

END RETAINING WALL (PARTIAL HEIGHT) (BY OTHERS)

BEGIN RETAINING WALL (PARTIAL HEIGHT) (BY OTHERS)





NOTE: NORTHBOUND TRAFFIC MAY BE SHIFTED TO THE LEFT (WEST) AS APPROVED BY THE ENGINEER, TO MINIMIZE TRAFFIC CONFLICTS WITH THE MEDIAN INLETS.

CONSTRUCTION AREA

20 100
50 200
ORIGINAL SCALE 1"=50'

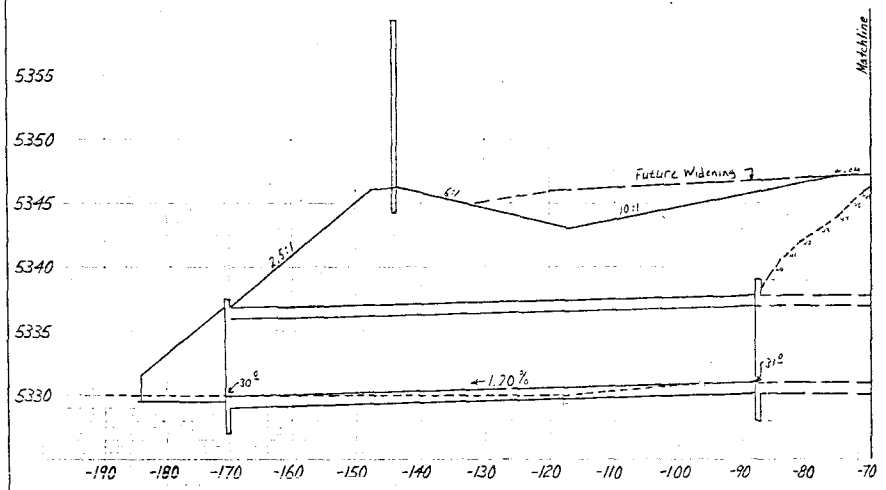
AUG. 89 F125A

EXCAVATION CU. YDS.	AREA	AREA	EMBANKMENT CU. YDS.	EXCAVATION CU. YDS.	AREA	AREA	EMBANKMENT CU. YDS.

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
VIII	COLO.	NH(CX) 225-4(39)	53

AS CONSTRUCTED

NO REVISIONS | REVISED | VOID



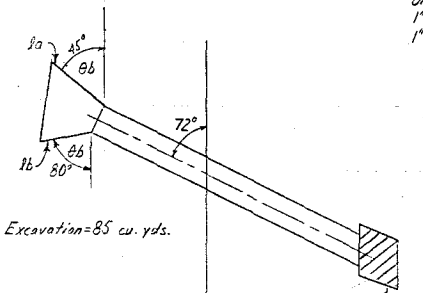
Totals	Concrete	Steel
West Side Extension	69.36	6365
East Side Extension	38.99	3601
Concrete Apron	4.07	196
Wingwalls	12.17	551
	124.59	10,713

Structure Backfill
Length= : =
(1.5+1.5)(9.5)(129) = 3676.5
(1)(8.5)(129) = 1096.5
4773 cu. ft. = 177 cu. yds.

Structure Backfill (Cl. 1)
Wingwalls - from Design Aid 50
l_a = 20' 12.8 cu. yds.
l_b = 14' 9 cu. yds.
22 cu. yds.

Structure Excavation = 85 cu. yds.

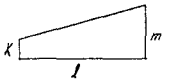
HYDRAULIC DATA
Q_{100} = 140 cfs.
Capacity = 370 cfs.
Tributary Area = 95 Acres



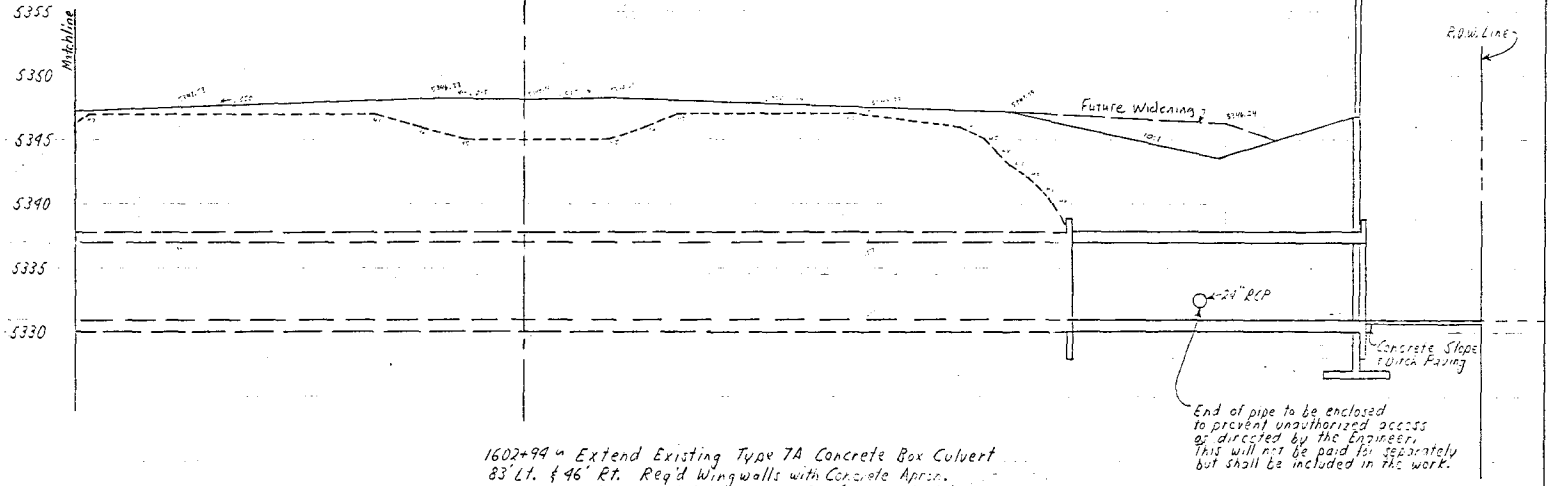
Original Scale
1" = 10' Horiz.
1" = 5' Vert.

Type 7A Span = 7', Height = 6'
Concrete = 0.832 yds./lin. ft.
Steel = 75.5 lbs./lin. ft.

m = 7.33'
K = 2'
l_a = 20'
l_b = 14'
θ_a = 45°
θ_b = 80°
Z = 2.5:1



Summary of Pay Items
Structure Excavation = 85 cu. yds.
Structure Bkfl. (Cl. 1) = 199 cu. yds.
Concrete Class A (Box Culvert) = 125 cu. yds.
Reinforcing Steel = 10,713 lbs.
Concrete Slope and Ditch Paving = 20 cu. yds.



1602+99 to Extend Existing Type 7A Concrete Box Culvert 83' Lt. & 46' Rt. Req'd Wingwalls with Concrete Aprons. Req'd Concrete Slope & Ditch Paving Rt. (See Details) For further details see M-601-1, M-601-20 & M-601-12.

ORIGINAL SURVEY / FINAL SURVEY
BOOK NO.
BY
DATE

SHEET TOTALS EXCAVATION CU. YDS.
EMBANKMENT CU. YDS.

-70 -60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60 +70 +80 +90 +100 +110 +120 +130 +140 +150

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX) 225-4(39)	54

TABULATION OF SIGNING QUANTITIES

ITEM NO.	ITEM	UNIT	PROJECT TOTALS
202	REM PAVEMENT MARKING	SF	5600
202	REM GROUND SIGN	EA	15
210	RES GROUND SIGN	EA	33
614	SIGN PANEL (CL III)	SF	55
614	STEEL SIGN POST (S 3 X 5.7)	LF	9.0
614	STEEL SIGN POST (S 4 X 7.7)	LF	15
627	PVMT MKG PAINT	GAL	167
627	EPOXY PAVEMENT MKG	GAL	68
630	FLASHING BEACON (PORTABLE)	EA	8
630	CONST TRAF SIGN (A)	EA	19
630	CONST TRAF SIGN (B)	EA	85
630	CONST TRAF SIGN (C)	EA	11
630	FLASH ARROW PANEL (C TY)	EA	4
630	DRUM CHANNELIZING DEVICE	EA	20
630	DRUM DEVICE (LIGHT) (F)	EA	10
630	DRUM DEVICE (LIGHT) (SB)	EA	20
630	TRAFFIC CONE	EA	200
630	IMPACT ATTEN (SANDFL) (TEMP)	EA	3
630	BARRICADE (3 M-B) (TEMP)	EA	2

APPROPRIATE COLORED REFLECTORS TO BE INSTALLED EVERY 50 FEET ON TEMPORARY TYPE 4 BARRIER. REFLECTORS TO BE MAINTAINED AND REPLACED BY CONTRACTOR COST OF MAINTAINENCE AND REPLACEMENT TO BE INCLUDED IN THE PAY ITEM CONCRETE BARRIER (TEMP).

SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES

SIGNS						OTHER DEVICES	
SIGN CODE	LEGEND	DIMENSIONS	PANEL SIZE A	B	C	ITEM	QUANTITY
48W20-1	ROAD/CONST/_____	48" X 48"		14		PVMT MKG PAINT	167 GAL
120W20-51	Give em a/BRAKE	120"X48" 48" X 48"			3	FLASHING BEACON PORTABLE	8 EA
48W20-51a	Give em a BRAKE	48" X 48"		2		~~CONST TRAF SIGN (A)~~	~~19 EA~~
60G20-2	END/CONSTRUCTION	60" X 24"		5		~~CONST TRAF SIGN (B)~~	~~85 EA~~
36W1-8	Chevron Symbol	36" X 48"		18		~~CONST TRAF SIGN (C)~~	~~11 EA~~
● 30M4-9( )	DETOUR/_____	30" X 30"	15			FLASH ARROW PANEL (C TY)	4 EA
● 48M4-10( )	Detour Arrow	48" X 18"	2			DRUM CHANNELIZING DEVICE	20 EA
▲ 48R2-1( )	SPEED/LIMIT/40	48" X 60"			4	DRUM DEVICE (LIGHT) (F)	10 EA
▲ 48R2-1(55)	SPEED/LIMIT/55	48" X 60"			4	DRUM DEVICE (LIGHT) (SB)	20 EA
● 48R11-2	ROAD/CLOSED	48" X 30"		2		TRAFFIC CONE	200 EA
● 48R11-4	ROAD CLOSED/TO/ THRU TRAFFIC	48" X 48"		2		IMPACT ATTEN (SANDFL) (TEMP)	3 EA
48W20-7a	Flagger Symbol	48" X 48"		4		BARRICADE (3 M-B) (TEMP)	2 EA
▲ 48R2-5a	REDUCED/SPEED/AHEAD	48" X 48"		4			
SPECIAL	ON/I-225	36" X 24"		8			
SPECIAL	See Fig. 1	10' X 7'		3			
SPECIAL	See Fig. 2	5' X 3'		3			
SPECIAL	LANE/CHANGE/PROHIBITED	48" X 36"		4			
SPECIAL	1000 FT	48" X 18"	2				
48W4-2(R)	Transition Symbol	48" X 48"		9			
48W4-2(L)	Transition Symbol	48" X 48"		3			
* 48W20-5	_____ LANE/CLOSED/(DIST)	48" X 48"		4			
	SIGN TOTALS		19	85	11		

TEMPORARY PAVEMENT MARKING PAINT INCLUDES 69 GAL. OF YELLOW AND 98 GALS. OF WHITE. TEMPORARY PAVEMENT MARKING PAINT PER THE SPECIAL PROVISIONS SHALL BE FULL COMPLIANCE MARKINGS AND SHALL BE IN PLACE PRIOR TO THE OPENING OF LANES TO TRAFFIC. A PORTABLE PAINT APPLICATOR WILL BE PERMITTED FOR THIS WORK.

BASED UPON SIGHT DISTANCE AND OTHER CONSIDERATIONS THE FINAL PLACEMENT OF THESE SIGNS IS LEFT TO THE DISCRETION OF THE ENGINEER.

* ALL W20-5 ADVANCE WARNING SIGNS SHALL BE PROVIDED WITH EXCHANGEABLE PLAQUES READING "RIGHT", "LEFT", AND "CENTER" AT NO ADDITIONAL COST.

▲ THESE SIGNS TO BE INSTALLED FOR THE DETOURS IN CONSTRUCTION PHASING.

● THESE SIGNS TO BE INSTALLED FOR THE DETOUR ON SMITH ROAD GIRDER PLACEMENT.

R11-4 "ROAD CLOSED/TO/THRU TRAFFIC" (FOR URBAN USE) -- THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.

W20-7a "FLAGGER SYMBOL" -- THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT AT WHICH A FLAGGER HAS BEEN STATIONED TO CONTROL TRAFFIC THROUGH OR AROUND THE PROJECT.

M4-9( ) "DETOUR/<<<" -- THIS SIGN IS USED FOR UNNUMBERED ROUTES, FOR USE IN EMERGENCY SITUATIONS, FOR PERIODS OF SHORT DURATION OVER RELATIVELY SHORT DISTANCES, OR WHERE IT IS NOT NECESSARY TO SHOW ROUTE MARKERS TO GUIDE TRAFFIC ALONG THE DETOUR AND BACK TO ITS AUTHORIZED ROUTE.

M4-10( ) "DETOUR ARROW" -- THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DETOUR ROADWAY OR ROUTE HAS BEEN ESTABLISHED DUE TO THE CLOSURE OF THE STREET OR HIGHWAY TO THROUGH TRAFFIC.

R2-1( ) "SPEED/LIMIT/XX" -- THESE SIGNS ARE INTENDED TO REDUCE TRAFFIC SPEED IN ADVANCE OF THE DAILY WORK AREA WITHIN THE OVERALL PROJECT LIMITS.

R2-1(55) "SPEED/LIMIT/55" -- THIS SIGN IS INTENDED FOR USE 300 FEET PAST THE "END CONSTRUCTION" SIGN TO BRING TRAFFIC BACK TO ORIGINAL POSTED SPEED.

R11-2 "ROAD/CLOSED" -- THIS SIGN IS TO BE MOUNTED ON THE BARRICADE THAT IS PLACED BEFORE THE WORK ZONE ENTRANCE TO PROHIBIT TRAFFIC FROM ENTERING THE WORK ZONE.

R11-3 ROAD/CLOSED/X MILES AHEAD/L.T.D. -- THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX) 225-4(39)	55

TABULATION OF SIGNS

SIGN NO.	SIGN CODE	STATION	SIGN PANEL SIZE	BACK-GROUND COLOR	REMOVE GROUND SIGN (EACH)	RESET GROUND SIGN (EACH)	NO. OF POSTS	LENGTH OF POST	POST TYPE (LIN.FT.)										CONC FOOTING TYPE (EACH)								SIGN PANEL (SQ.FT.)		
									4X4 TIMBER	6X6 TIMBER	W6X12 BEAM	W6X15 BEAM	W6X18 BEAM	W8X21 BEAM	W10X22 BEAM	W10X26 BEAM	W12X35 BEAM	S3X5.7	S4X7.7	1	2	3	5	6	7	8	CLASS I	CLASS II	CLASS III
1		1591+40 TO 1592+30			10																								
2		1599+20				1																							
3		1603+20				1																							
4a	48W4-2	1626+00	48" X 48"	YELLOW		1																							
4b	SPECIAL	1626+00	48" X 18"	YELLOW																									
5a	48W9-2	1633+00	48" X 48"	YELLOW		1																							
5b	SPECIAL	1633+00	48" X 18"	YELLOW																									
6	DELETED																												
7		1615+25			1																								
8		1616+25			1																								
9		1617+25			1																								
10a	DELETED																												
10b	DELETED																												
11	48R2-1(55)	1607+85	48" X 60"	WHITE			1	7'6"											7.5'										20
12	48R2-1(55)	1607+85	48" X 60"	WHITE			1	7'6"											7.5'										20
13a	30M3-3a	1617+85	30" X 15"	BLUE			1	9'0"										9.0'											3.13
13b	45M1-1a	1617+85	SHEILD 45"X 36"	RED/BLUE																									11.25
14	DELETED																												
15a	DELETED																												
15b	DELETED																												
16		1609+60			1																								
17		1609+60			1																								
	PROJECT	TOTALS			15	4	3											9.0'	15.0'										54.38

NOTES:

1. POST LENGTHS ARE APPROXIMATE ONLY. EXACT LENGTHS TO BE DETERMINED BY THE ENGINEER.

2. THE FOLLOWING SIGNS SHALL BE FABRICATED WITH HIGH BRIGHTNESS ENCAPSULATED TYPE REFLECTIVE SHEETING:

   REGULATORY: R1-1, R1-2, R5-1 and R5-1a.

   WARNING: W1-8, and W7-4 (Runaway Truck Ramp - SPECIAL).

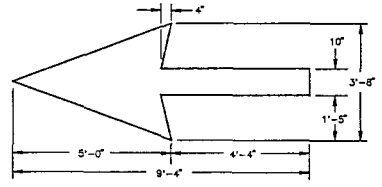
   GUIDE: E5-1 (Exit Gore - SPECIAL) and M1-1, M1-2, M1-3, M1-4a and M1-6A (Route Marker Shields) used as legend on Guide Signs(SPECIAL).

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	NH(CX) 225-4(39)	56

TABULATION OF PAVEMENT MARKINGS

STATION	LOCATION	PAVEMENT MARKING LINES (Linear Feet)												PVMT MKG ARROW (EACH)
		EDGE		LANE	CENTER		CHANNELIZING		CROSSHATCH		CROSS-WALK	STOP		
		WHITE SOLID 4 INCH	YELLOW SOLID 4 INCH	WHITE BROKEN 4 INCH	YELLOW SOLID 4 INCH	YELLOW BROKEN 4 INCH	WHITE SOLID 8 INCH	YELLOW SOLID 8 INCH	WHITE SOLID 8 INCH	YELLOW SOLID 8 INCH	WHITE SOLID 12 INCH	WHITE SOLID 24 INCH		
1581+00 TO 1627+00	I-225 NB	4600												
1581+00 TO 1627+00	I-225 NB		4600											
1581+00 TO 1627+00	I-225 NB			4600										
1627+00 TO 1581+00	I-225 SB	4600												
1627+00 TO 1581+00	I-225 SB		4600											
1627+00 TO 1581+00	I-225 SB			4600										
1627+00 TO 1623+00	I-225 SB			400										
	PROJECT TOTALS (LIN. FT.)	9200	9200	9600										
	(SQ. FT.)	3067	3067	800										

SUMMARY OF PAVEMENT MARKING QUANTITIES				
COLOR	PAINT (GAL.)	EPOXY PAINT (GAL.)	PREFORMED PLASTIC (SQ.FT.)	
			60 MIL.	90 MIL.
YELLOW		30		
WHITE		38		
TOTAL		68		



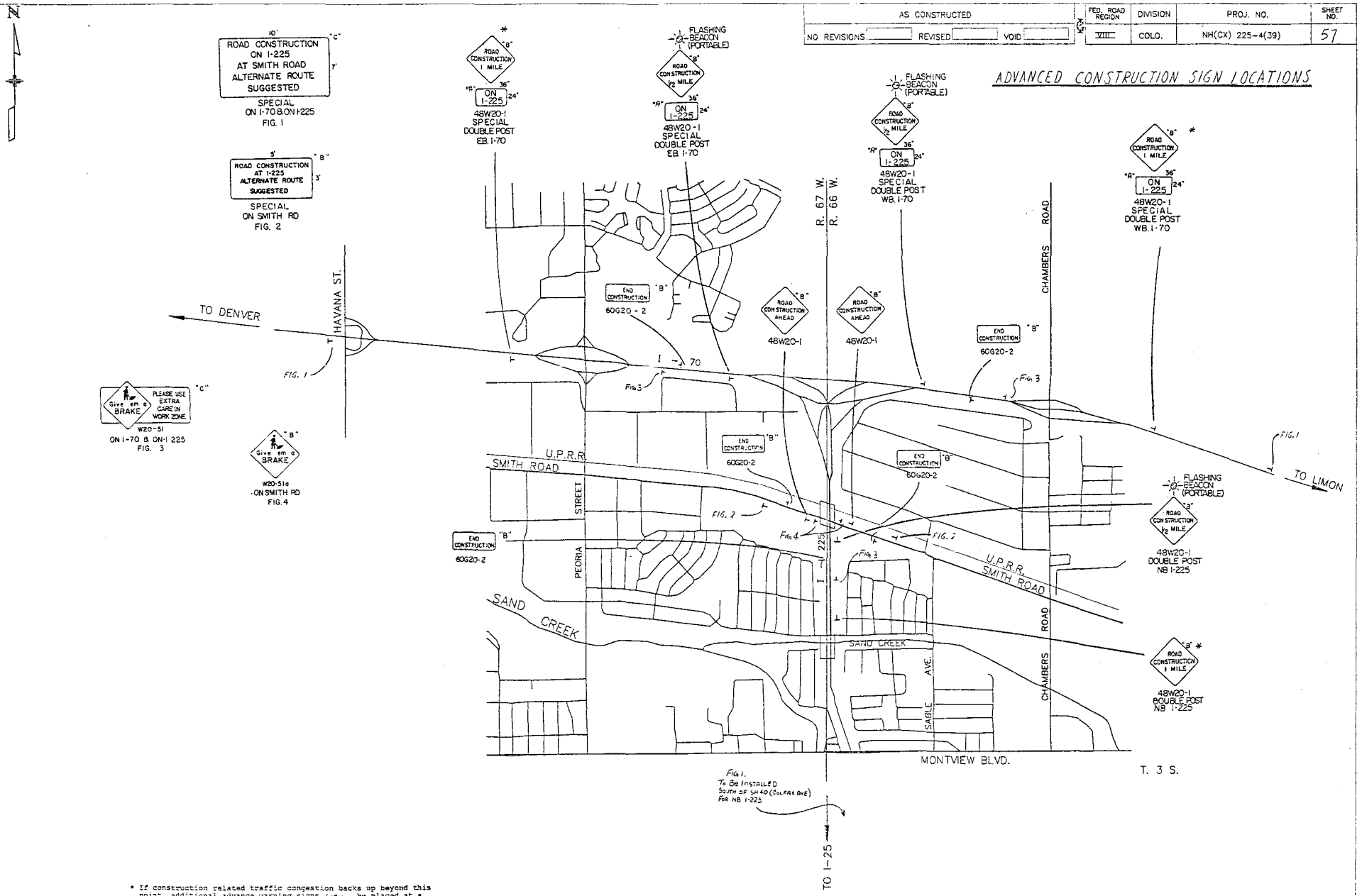
PAVEMENT MARKING
ARROW DETAIL

NOTE

FOR DETAILS OF PAVEMENT MARKING LINES AND LINE PLACEMENT, SEE STANDARD S-627-1

AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ____ REVISED ____ VOID ____	VIII	COLO.	NH(CX) 225-4(39)	57

ADVANCED CONSTRUCTION SIGN LOCATIONS



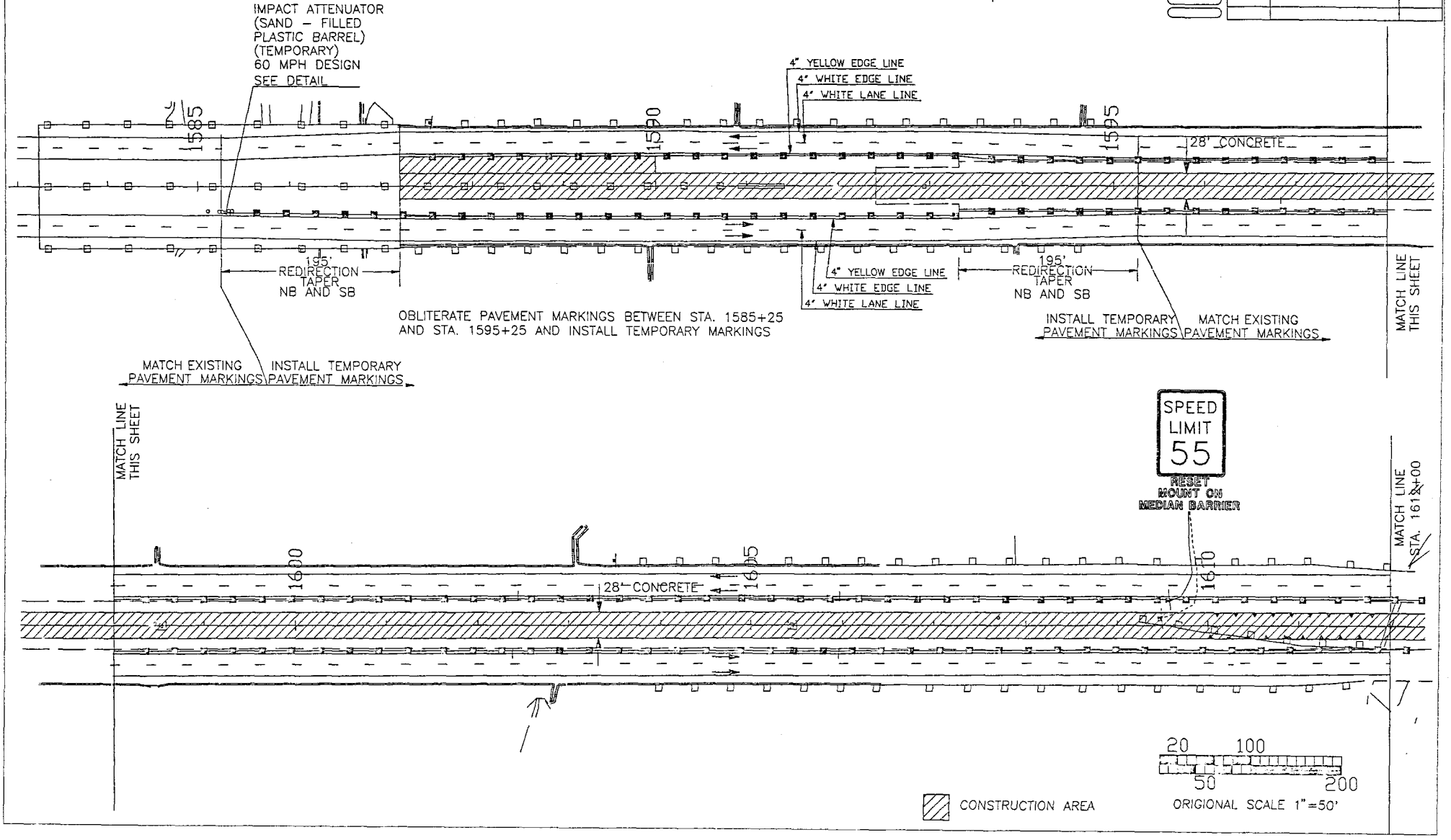
* If construction related traffic congestion backs up beyond this point, additional advance warning signs SHALL be placed at a location beyond the congestion.

DETOUR–SIGNING AND STRIPING

PHASE 1

AS CONSTRUCTED			DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	6	VIII	COLO.	NH(CX) 225-4(39)	58

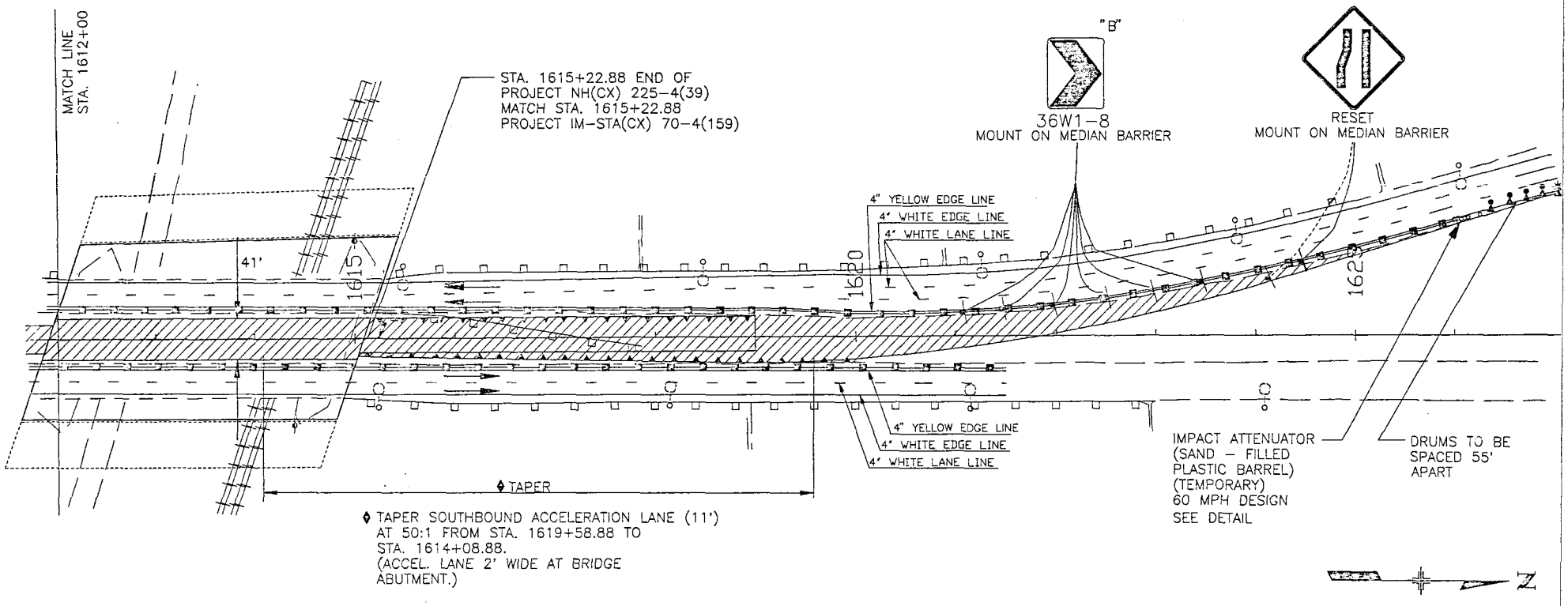
REVISIONS		



AS CONSTRUCTED	DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	8	VIII	COLO.	NH(CX) 225-4(39)	59

DETOUR–SIGNING AND STRIPING

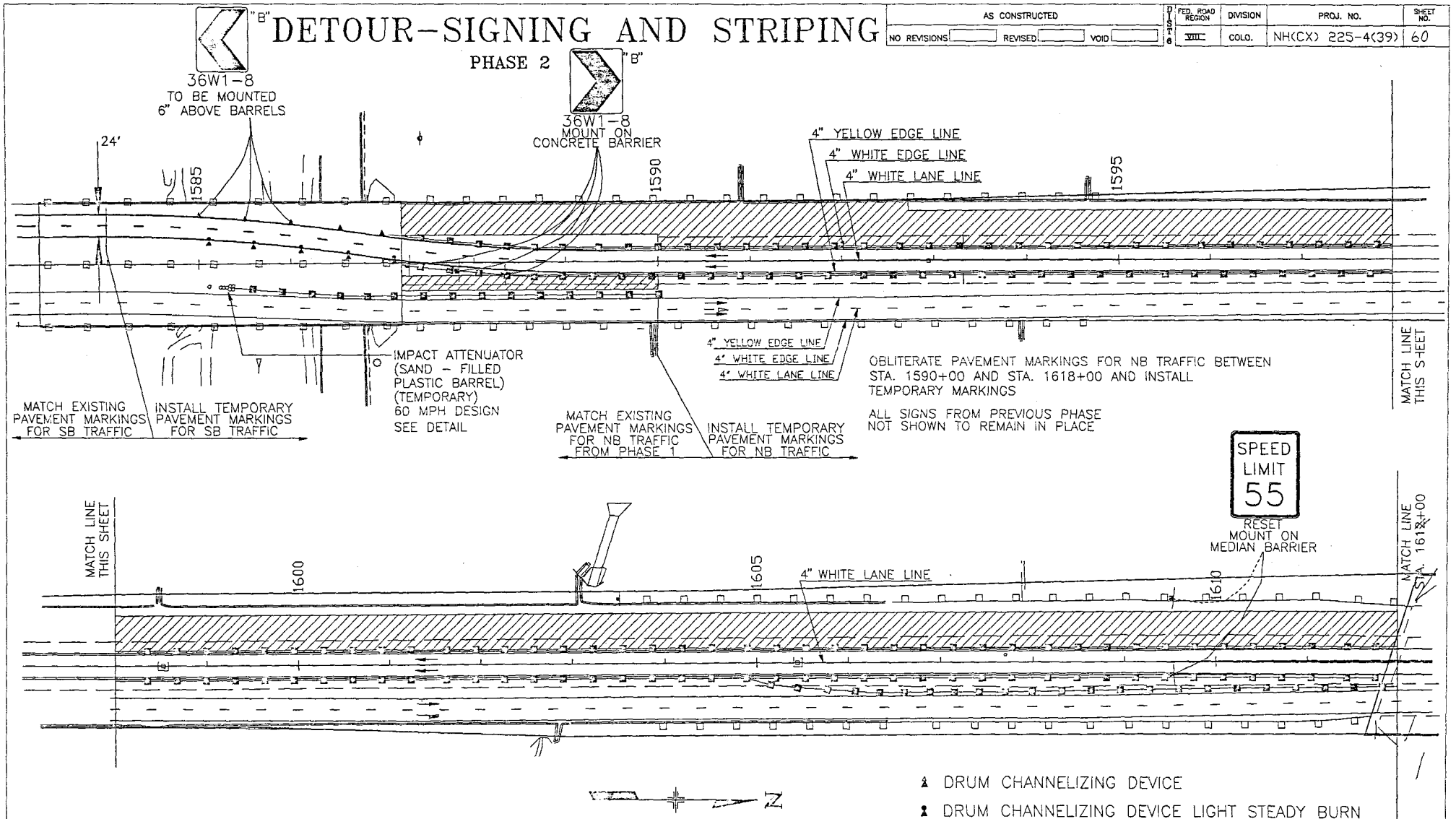
PHASE 1



DETOUR-SIGNING AND STRIPING

AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	VIII	COLO.	NH(CX) 225-4(39)	60

PHASE 2



DRUM CHANNELIZING DEVICE

DRUM CHANNELIZING DEVICE LIGHT STEADY BURN

20 100

50 200

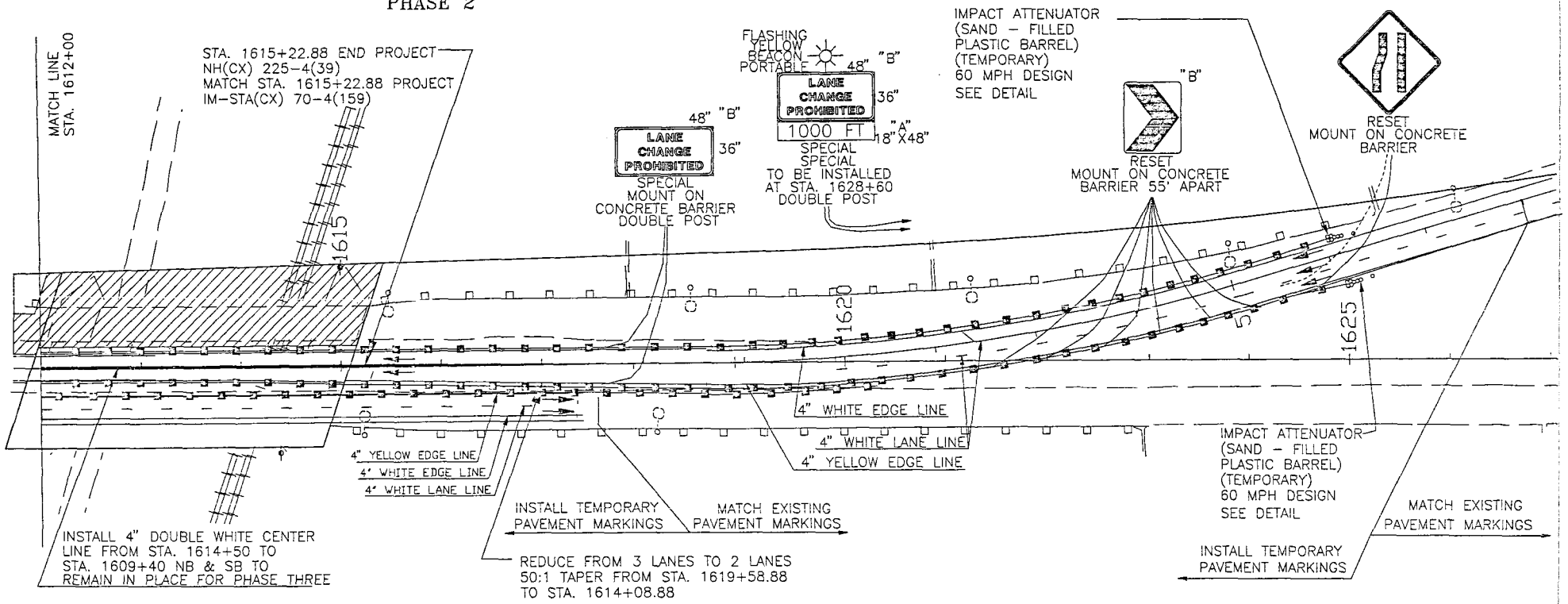
ORIGINAL SCALE 1"=50'

CONSTRUCTION AREA

AS CONSTRUCTED			DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	6	VIII	COLO.	NH(CX) 225-4(39)	61

DETOUR-SIGNING AND STRIPING

PHASE 2



CONSTRUCTION AREA

20 100
50 200

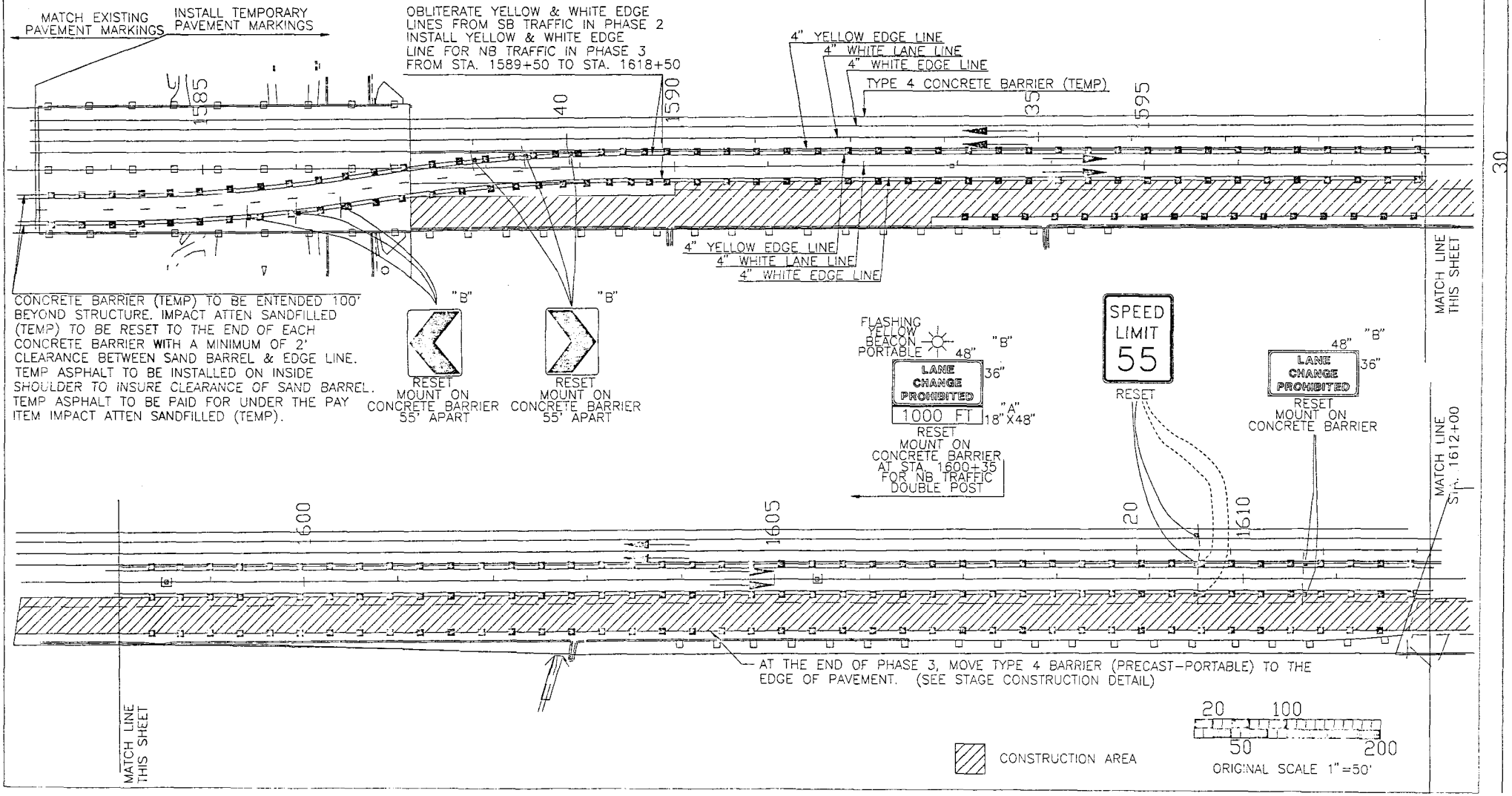
ORIGINAL SCALE 1"=50'

N

DETOUR SIGNING AND STRIPING

PHASE 3

AS CONSTRUCTED			DIST	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	6	VIII	COLO.	NH(CX) 225-4(39)	62

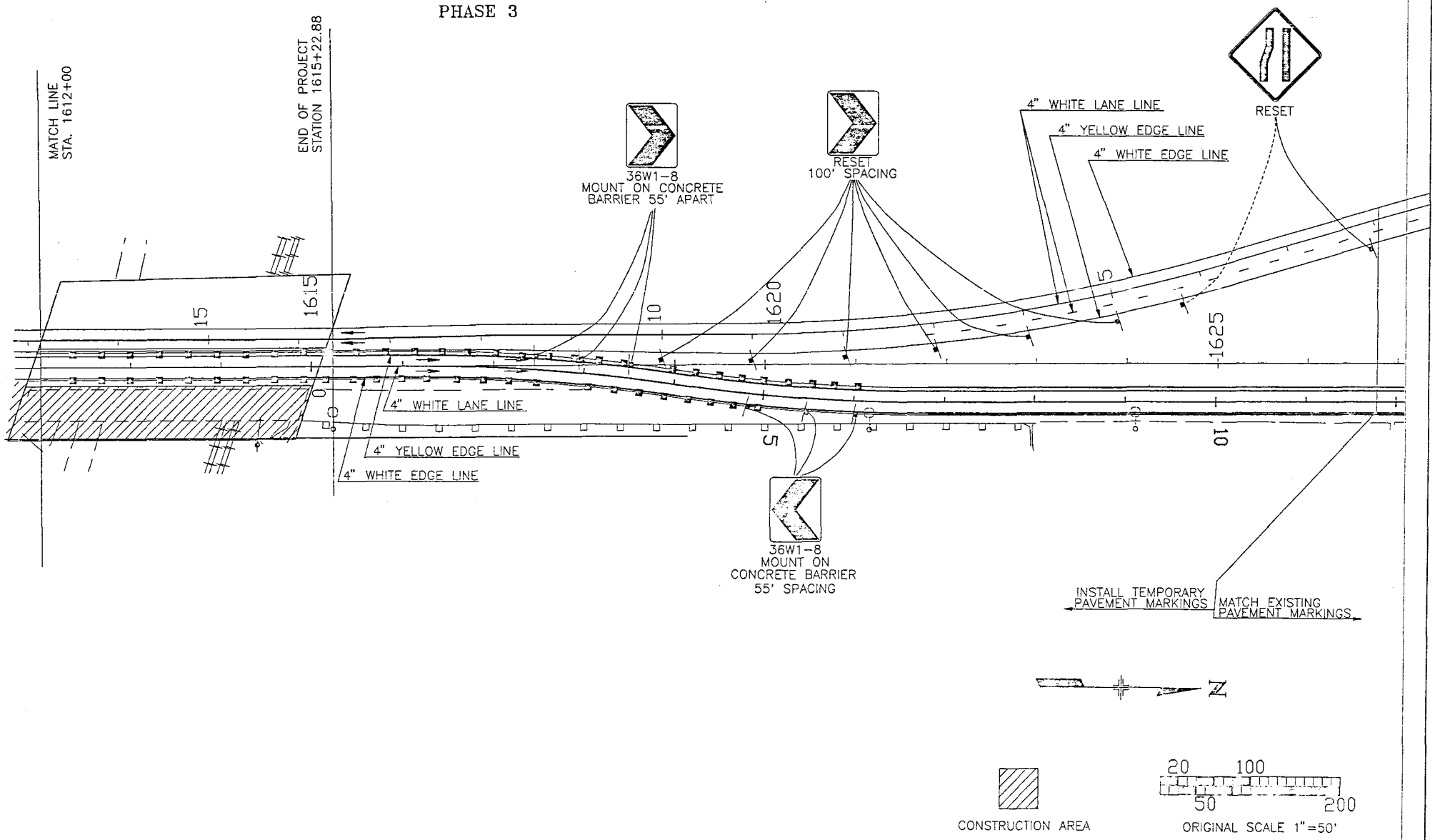


AS CONSTRUCTED						
NO REVISIONS		REVISED		VOID		

DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
8	VIII	COLO.	NH(CX) 225-4(39)	63

DETOUR–SIGNING AND STRIPING

PHASE 3



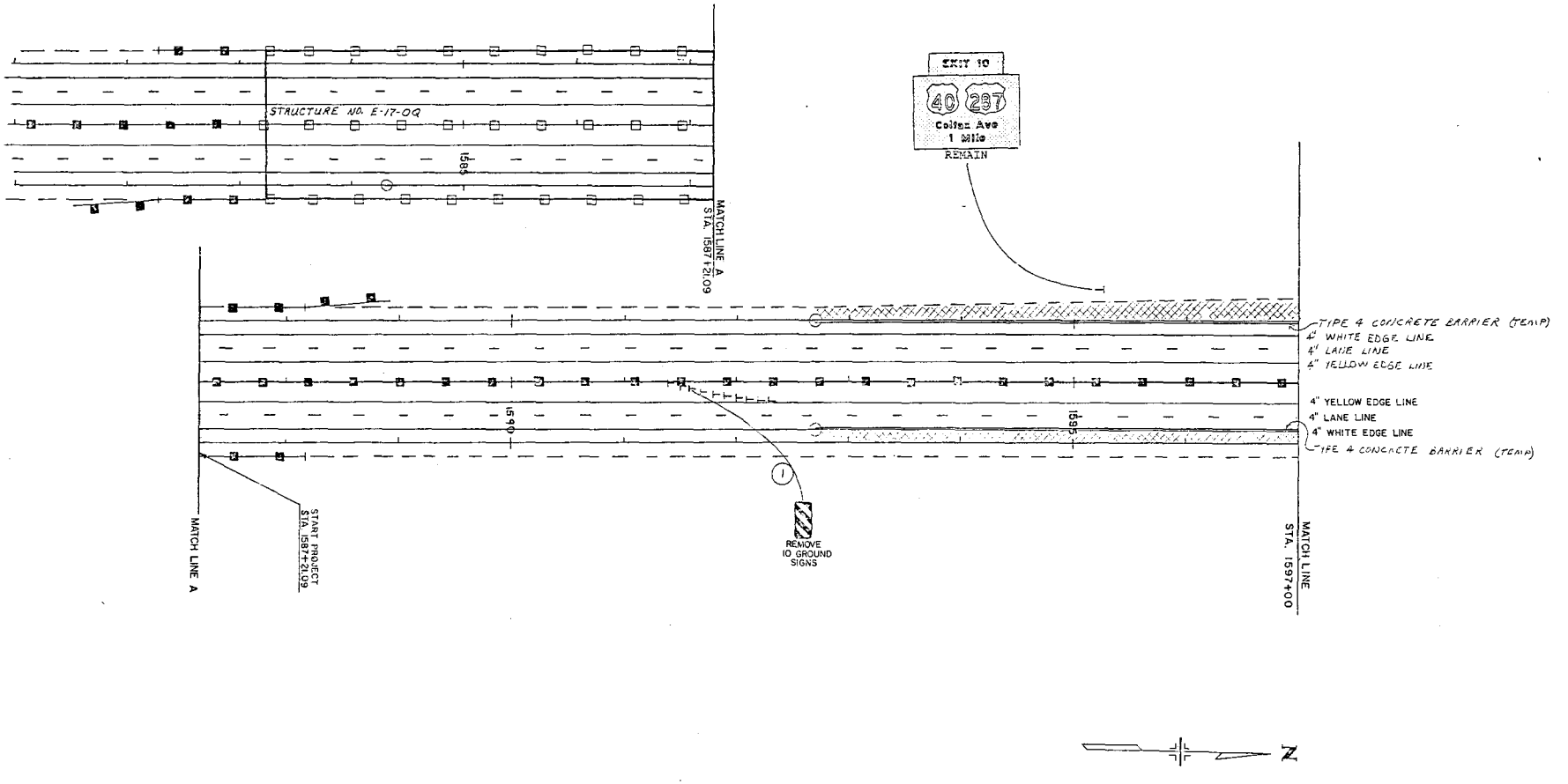
09/16/92 11:54:02 C:\ PH3DET D 99999 BOB

F COLORADO
PARTMENT OF HIGHWAYS
F HIGHWAYS
FORM NO. 126.
E 1964

AS CONSTRUCTED							
NO REVISIONS		REVISED		VOID			

FED. ROAD REGION	DIVISION	PROJ. NO	SHEET NO.	SHEET TOTALS
VIII	COLO.	NH(CX) 225-4(39)	64	

FINAL SIGNING AND STRIPING PLAN



CONSTRUCTION TO BE DONE BY OTHERS

SIGNS TO REMAIN IN PLACE

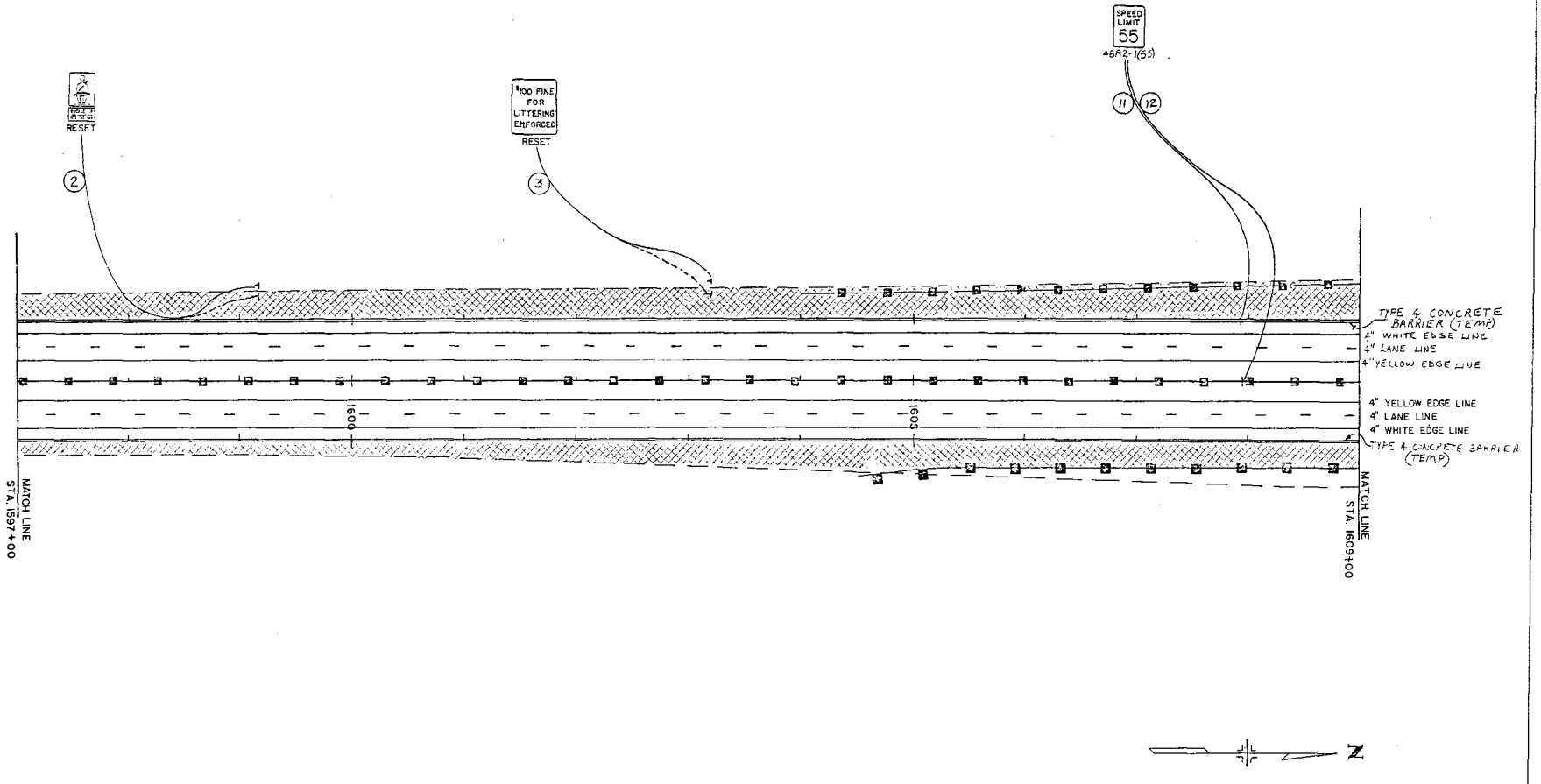
SCALE 1" = 50'

CDOT - DISTRICT VI TRAFFIC

AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	NC(CX) 225-4(39)	65	

FINAL SIGNING AND STRIPING PLAN



CONSTRUCTION TO BE DONE BY OTHERS

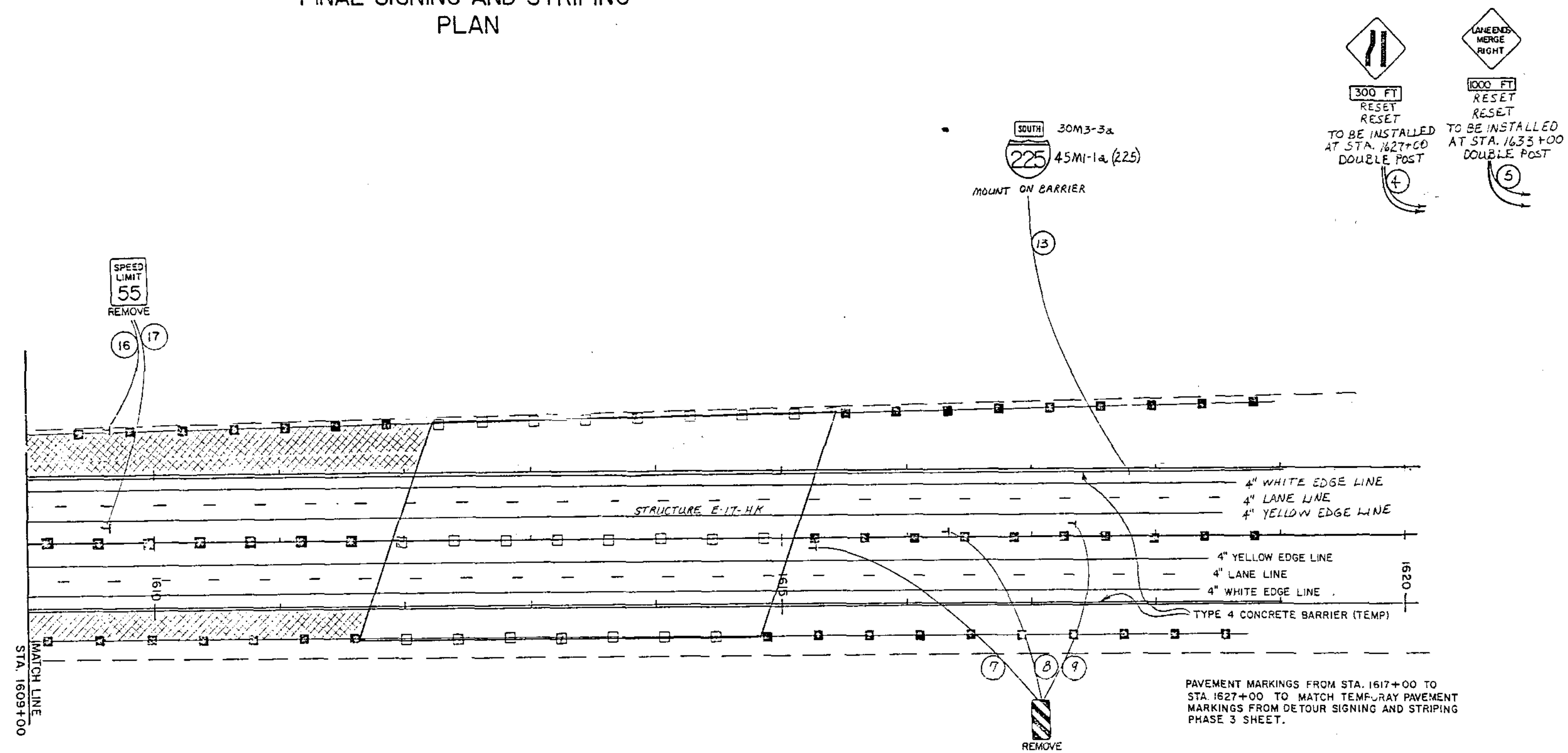
SCALE 1" = 50'

CDOT - DISTRICT VI TRAFFIC

COLORADO
DEPARTMENT OF HIGHWAYS
... OF HIGHWAYS
FORM NO 126
... 1984

AS CONSTRUCTED	FED ROAD REGION	DIVISION	PROJ NO	SHEET NO	SHEET TOTALS
NO REVISIONS ☐ REVISED ☐ VOID ☐	VIII	COLO.	NH(CX) 225-4(39)	66	

FINAL SIGNING AND STRIPING PLAN



PAVEMENT MARKINGS FROM STA. 1617+00 TO STA. 1627+00 TO MATCH TEMPORAY PAVEMENT MARKINGS FROM DETOUR SIGNING AND STRIPING PHASE 3 SHEET.

CONSTRUCTION TO BE DONE BY OTHERS

SCALE 1" = 50'

CDOT - DISTRICT VI TRAFFIC

AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	67

REVISIONS			
R-1	12-24-92	REVISED QUANTITIES	SC

GENERAL NOTES

STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH STANDARD M-206-2 AND DWG. NO. B 25.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.

GRADE 60 REINFORCING STEEL IS REQUIRED.

ALL REINFORCING STEEL SHALL BE NON-EPOXY COATED UNLESS OTHERWISE NOTED.

(E) DENOTES EPOXY COATED REINFORCING STEEL.

THE FOLLOWING TABLE GIVES THE MINIMUM LAP SPLICE LENGTH FOR REINFORCING BARS:

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH FOR CLASS B CONCRETE	1'-3"	1'-6"	2'-0"	2'-8"	3'-6"	4'-5"	5'-7"	5'-10"
SPLICE LENGTH FOR CLASS D CONCRETE	1'-3"	1'-6"	1'-10"	2'-2"	2'-10"	3'-7"	4'-7"	5'-7"

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

FOR STRUCTURE NUMBER INSTALLATION, SEE STANDARD S-614-12.

PERMANENT BRIDGE DECK FORMS ARE REQUIRED. CONTRACTOR HAS THE OPTION BETWEEN STEEL AND PRECAST PANEL DECK FORMS.

ADDITIONAL COPIES OF BRIDGE GEOMETRY WILL BE PROVIDED, UPON REQUEST, FROM THE ENGINEER.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

B.F. = BACK FACE

ALL EXPOSED CONCRETE SURFACES, DOWN TO 1'-0" BELOW FINISHED GRADE SHALL BE FINISHED WITH A CLASS 1 FINISH, FOLLOWED BY AN APPLICATION OF COLORED CONCRETE COATING, MEETING THE REQUIREMENTS IN THE SPECIAL PROVISION REVISION OF SECTION 601, STRUCTURAL CONCRETE COATING AND AS SHOWN ON THE PLANS. COATING OF RAILS, DECK OVERHANGS, SUBSTRUCTURE AND SLOPE PAVING SHALL BE FEDERAL COLOR #33531. COATING OF GIRDERS SHALL BE FEDERAL COLOR #30108.

	INITIAL	DATE	Checked By	K.C.S.	1/92
Designed By	M.W.	7/91		F.C.S.	8/92
Detailed By	M.W.	1/92	Quantities By		
Checked By	R.A.D.	7/91	Checked By	J.A.C.	8/92

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	SUPER-STRUCTURE	ABUT. 1	PIER 2	PIER 3	ABUT. 4	APPRCH. SLABS	TOTAL	
202	REMOVAL OF BRIDGE	EACH							2	
(1) 205	STRUCTURE EXCAVATION	CU YD		500	665	745	510		2,420	
206	STRUCTURE BACKFILL (CLASS 2)	CU YD			360	430			790	
206	STRUCTURE BACKFILL (SPECIAL) (FLOW-FILL)	CU YD		585			605		1,190	
502	DRILLING HOLE TO FACILITATE PILE DRIVING	LIN FT		460			460		920	
502	STEEL PILING (HP 12X53)	LIN FT		1,143	1,710	1,670	1,212		5,735	
507	CONCRETE SLOPE AND DITCH PAVING (REINFORCED)	CU YD		147.3			145.7		293	
515	CONCRETE SEALER	SQ YD	6,034					515	6,549	
518	BRIDGE EXPANSION DEVICE (0-4 INCH)	LIN FT						362	362	
601	CONCRETE CLASS D (BRIDGE)	CU YD	1,889.6	162.9	721.0	781.3	169.0	240.2	3,964	
601	STRUCTURAL CONCRETE COATING	SQ FT	17,425	1,435	5,730	6,765	1,450		32,805	
602	REINFORCING STEEL	LB	5,405	13,835	19,920	19,923	14,285	24,595	97,960	R-1
602	REINFORCING STEEL (EPOXY COATED)	LB	592,130		93,425	99,540		8,310	793,405	R-1
606	BRIDGE RAIL TYPE 4	LIN FT	706						706	
605	BRIDGE RAIL TYPE 4 (SPECIAL)	LIN FT	700						700	
607	FENCE CHAIN LINK SPECIAL (60 INCH)	LIN FT	640						640	
613	1 INCH ELECTRICAL CONDUIT	LIN FT	630						630	
613	2 INCH ELECTRICAL CONDUIT	LIN FT	1,424						1,424	
618	PRESTRESSED CONCRETE UNIT (I SECTION) (105 TO 110 FEET)	EACH	61						61	
626	MOBILIZATION	L S							0.4	

(1) INCLUDES 293 CU. YDS. STRUCTURE EXCAVATION FOR CONCRETE SLOPE AND DITCH PAVING. 147.3 CU. YDS. AT ABUTMENT 1 AND 145.7 CU. YDS. AT ABUTMENT 4.

(2) INCLUDES BOTH APPROACH SLABS.

INDEX OF DRAWINGS

BRIDGE DESCRIPTION

3-SPAN (104'-2",104'-2",104'-2") BRIDGE.
CONCRETE PRESTRESSED GIRDER, CONTINUOUS.

OVER SMITH ROAD AND U.P.R.R.
VARIES 90'-6" TO 97'-6" ROADWAY CURB TO CURB (S.B.)
76'-5" ROADWAY CURB TO CURB (N.B.), 71° 05' 00" SKEW
BRIDGE RAIL TYPE 4, FENCE CHAIN LINK SPECIAL.

DESIGN DATA

1989 AASHTO SPECIFICATIONS, 14th EDITION.

SERVICE LOAD DESIGN.

LIVE LOAD: AASHTO HS-20-44 AND INTERSTATE ALTERNATE AND LIGHT RAIL TRANSIT (R.T.D.)

DEAD LOAD: ASSUMES 48 LBS. PER SQ. FT. FOR BITUMINOUS PAVEMENT AND 12 LBS. PER SQ. FT. FOR STAY-IN-PLACE STEEL DECK FORMS.

REINFORCED CONCRETE:

CLASS D CONCRETE: f_c = 1,800 psi, n = 8
f'_c = 4,500 psi

REINFORCING STEEL: f_s = 24,000 psi
f_y = 60,000 psi

PRESTRESSED CONCRETE: f'_s = 270,000 psi
f'_c = (SEE DETAILS)

CROSS REFERENCE DRAWING NUMBER

SECTION OR DETAIL IDENTIFICATION

DIVISION OF HIGHWAYS

GENERAL INFORMATION
SUMMARY OF QUANTITIES

Station 1611 + 90.41 to
Station 1615 + 08.88

Near Aurora Sec 30 T 3 S R 66 W

Designer	M. Condiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		

Drawing Number B 1 of 30 Drawings

Revision Dates	Preliminary Status Only!

AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

FEDERAL ROAD TRUST NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
	COLORADO	NH(CX) 225-4(39)	68

REVISIONS			

	Initial	DATE
Designed By	M.C.	7/92
Checked By	T.W.	7/92
Quantities By	R.A.D.	7/92
Detailed By		
Checked By		

K.C.S.	7/92	
K.D.S.	8/92	
M.C.	8/92	

Left Control Line

Right Control Line

℄ 1225 = Horizontal Control Line

Exist. Str. No. E-17-HK (To be removed)

Exist. Str. No. E-17-HJ (To be removed)

Sta. 1614+38.05 ℄ 1225

Sta. 33246+75.25 ℄ Mainline U.P.P.R.

Sta. 1613+51.16 ℄ 1225 = Sta. 10+00.00 ℄ Survey

Sta. 1611+90.41 B.F. Abut. 1

Sta. 1612+96.73 ℄ Pier 2

Sta. 1614+02.56 ℄ Pier 3

Sta. 1615+08.88 B.F. Abut. 4

71° 05' 00" (typ.)

N 0° 19' 11" W

92'-0"

54'-0"

54'-0"

103'-0" (typ.)

99'-0"

127'-0" (typ.)

Varies 73'-0" to 80'-0" Phase 2 Construction

41'-0" Phase 1 Construction

59'-0" Phase 3 Construction

Approach Slab (typ.)

2:1 (typ.)

8'-0" walk

2'-6"

5'-0"

36'-0"

5'-0"

36'-0"

2'-6"

119.5±

3'-0" Pier column

48' ± Corridor Available to RTD for Future Transit

18' cl.

14'

18' cl.

2:1 (typ.)

Retaining Wall

℄ Smith Road

℄ North Track Mainline U.P.R.R.

℄ South Track U.P.R.R.

Retaining Wall (Not this Contract)

PLAN

⊕ indicates location of min. vertical clearance.

318'-5¾"

1'-3⅞" | 104'-2" | 10" 10" | 104'-2" | 10" 10" | 104'-2" | 1'-3⅞"

B.F. Abut. 1 ℄ Brg. ℄ Bk. Brg. ℄ Ah. Brg. ℄ Pier 2 ℄ Bk. Brg. ℄ Ah. Brg. ℄ Pier 3 ℄ Brg. B.F. Abut. 4

▲El. 5368.88 ▲El. 5369.83 ▲El. 5370.23 ▲El. 5370.10

5380 5360 5340 5320

Existing Ground Line

23'-0" min. cl.

3'-0"* min.

6'-0" min

19" Water

6" Gas

36" SS

90° SS

Fiber Optic

Telephone

Electric

16" Water

Telephone

36" SS

* from bottom of tie

1612 1613 1614 1615

SECTION

Section taken at Right Control Line.

▲ Elevations are at finished grade along Right Control Line

DIVISION OF HIGHWAYS

GENERAL LAYOUT

Designer	M. Cardiotti	Structure Number	E-17-OR
Detailer	R. Dickey		
Drawing Number	B 2 of 30	Drawings	

08/05/92 LONGS:\USER/01200/USER/DICKEY/E17OP\DRGENLAY1

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
STANDARD FORM FHWA 1337
APR. 1958

AS CONSTRUCTED			FEDERAL AID REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	VOID	VIII	COLORADO	NH(CX) 225-4(39)	69

REVISIONS			

	INITIAL	DATE	Checked By	K.C.S.	1/92
Designed By	K.C.	7/91	Quantities By	K.C.S.	8/92
Checked By	T.W.	1/92	Structural By	M.C.	8/92
Drawn By	S.A.D.	7/91			

Varies 173'-0" to 180'-0"

℄ 1225

Varies 93'-6" to 100'-6" (S.B.) | 79'-6" (N.B.)

Varies 73'-0" to 80'-0" Phase 2 Const. | 41'-0" Phase 1 Const. | 59'-0" Phase 3 Const.

1'-6" | 10'-0" Shoulder | 12'-0" Lane | 12'-0" Lane | Varies 16'-0" to 23'-0" | 12'-0" Lane | 12'-0" Lane | 1'-6½" | 15'-5½" | 1'-6½" | 16'-5½" | 12'-0" Lane | 12'-0" Lane | 12'-0" Lane | 12'-0" Lane | 12'-0" Shoulder | 1'-6"

54'-0" | 54'-0"

14'-0" | 14'-0"

Concrete Sealer (typ.)

Left Control Line

Profile Grade

Pivot point

0.02% | 0.015% | 1" | 0.015% | 0.02%

Bridge Rail Type 4 (Special) (typ.)

Pivot point

Right Control Line

Profile Grade

Fence Chain Link (Special) (typ.)

Bridge Rail Type 4 (typ.)

2-2"ø Electrical Conduits (typ.)

5'-8"

Additional G68 Girder Span 3 Only

② (typ.)

Colorado G68 Prestressed Girder (typ.)

Crosswall (Pier 3 only) (typ.)

① Limits of Light (Fed. #33531) Structural Concrete Coating

② Limits of Dark (Fed. #30108) Structural Concrete Coating

TYPICAL SECTION

P.I. Sta. 1614+00.00
Elev. 5380.42

+3.18% | -3.09%

Location of structure

1300' V.C.

PROFILE GRADE

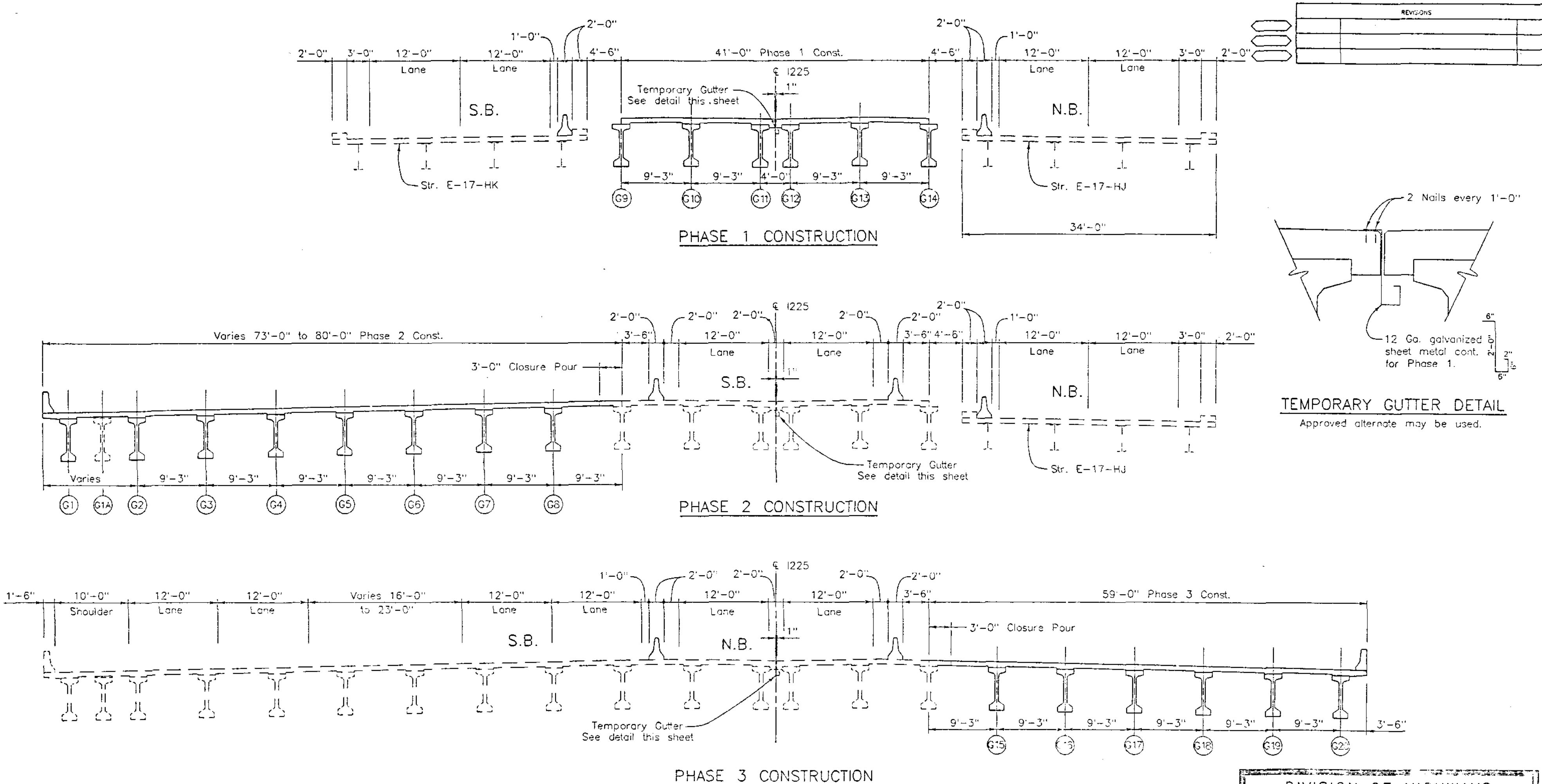
DIVISION OF HIGHWAYS

GENERAL LAYOUT

Designed	M. Condit	Structure Number	E-17-OR
Detailed	R. Dickey		
Drawing Number	B 3 of 30		Drawing

08/10/92 L:\NCS\:(USER/01200/USER/DICKEY/E170R)ORGENLAY2

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
8	COLORADO	NH(CX) 225-4(39)	70



DIVISION OF HIGHWAYS

CONSTRUCTION PHASES

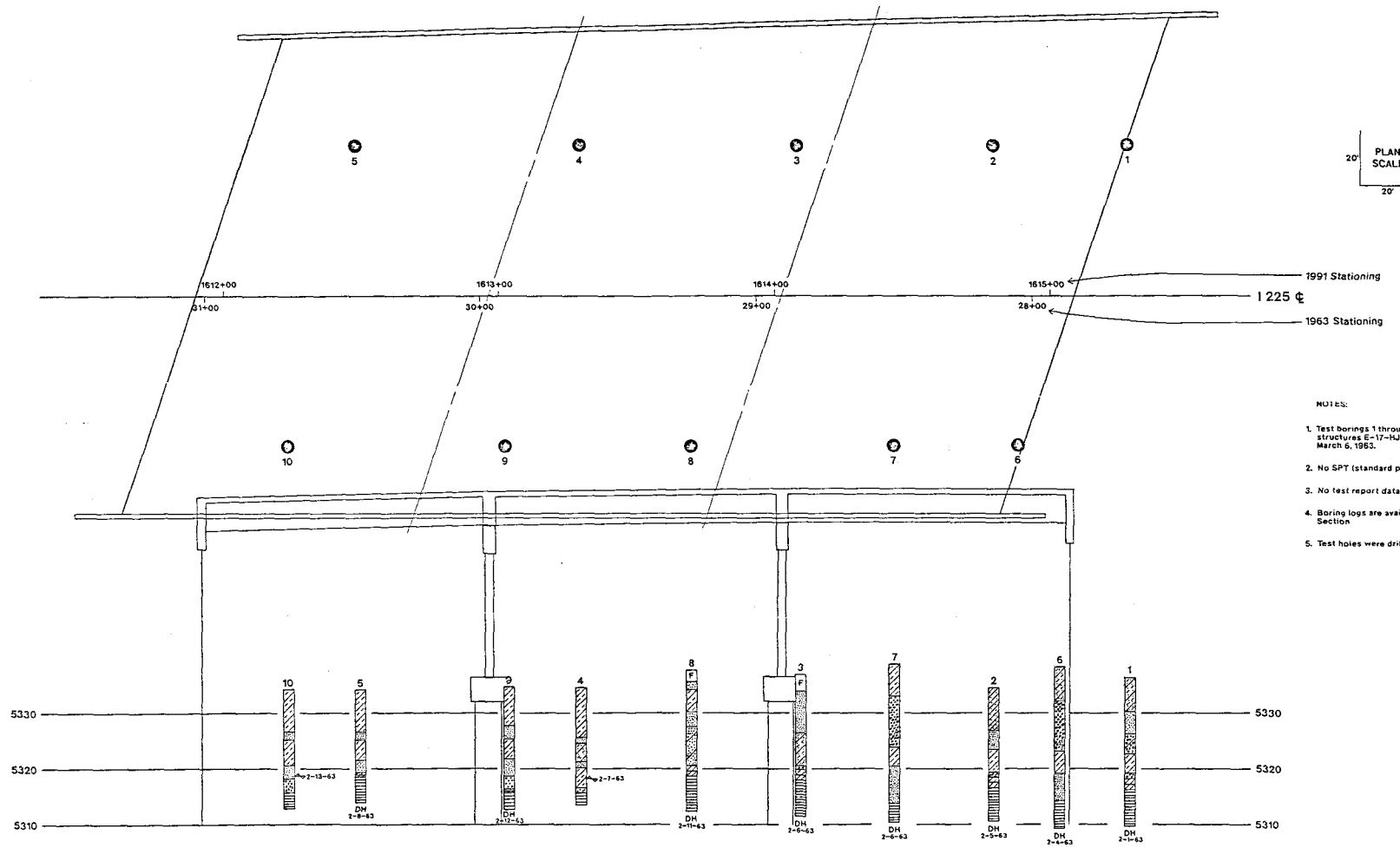
Designer	M. Candiotti	Structure Number	E-17-OR
Detailer	R. Dickey		
Drawing Number B 4 of 31 Drawings			

Designed By	Checked By	Detailed By	INITIAL	DATE		Checked By	Quantities By	Checked By
			M.C. / T.W. / R.A.D.	7/91 / 1/92 / 7/91		K.G.S. 1/92	K.G.S. 6/92	M.C. 8/92

03/05/92 LONGS::(USER/01200/USER/DICKEY/E17OR)ORPHASES

AS CONSTRUCTED				FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
NO REVISION	REVISED	VOID		VIII	COLORADO	NH-CX225-4(39)	71	

N



NOTES:

1. Test borings 1 through 10 are from the existing structures E-17-HJHK foundation study of March 6, 1963.
2. No SPT (standard penetration test) data available
3. No test report data available
4. Boring logs are available from CDOT Geotechnical Section
5. Test holes were drilled with 1" Barco hand auger

SUMMARY OF TEST RESULTS

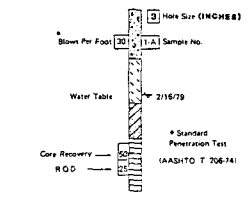
Sample No.	Depth	Classification: Corps of Engrs. or Visual	Classification: AASHTO	Grading Analysis (AASHTO): Percent Gravel	Coarse Sand	Fine Sand	Silt and Clay	Atterberg Limits: Liquid Limit LL	Plast. Limit PL	Plasticity Index Ip	Water Content w	Dry Unit Weight γ P.C.F.

TYPE OF MATERIAL

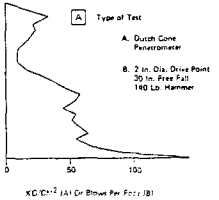
- F Fill
- Silty Clay/Sand
- Silty Clay
- Clay/Fine Sand
- Fine Sand
- Fine Sand/Clay
- Coarse Sand/Clay
- Coarse Sand
- Brown Clay Shale
- Brown Shale

LEGEND

TEST BORING



CONTINUOUS PENETRATION TEST



- Location of Test Boring
- Location of Continuous Penetration Test
- Rotary Boring
- Auger Boring
- DH Dry Hole

DIVISION OF HIGHWAYS

ENGINEERING GEOLOGY

Colfax to I 70

I 225 at Smith Road and UPRR

Geologist EB
Drawn by TM
Checked by EB
Date 12-19-91

STRUCTURE NO. E-17-OR
DWG. NO. 8 OF 30

THE COLORADO DEPARTMENT OF HIGHWAYS
STD. PLAN NO. 117
APR. 1986

AS CONSTRUCTED			
NO REVISIONS		REVISED	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	72

REVISIONS		

	INITIAL	DATE	Checked By		K.C.S.	1/92
Designed By	M.C.	7/91				
Checked By	T.W.	1/92	Quantities By		K.C.S.	8/92
Detailed By	R.A.D.	7/91	Checked By		M.C.	8/92

354'-3¾"
320'-0" Fence Chain Link (Special)
17'-1⅞" | 18'-0" | 104'-11¾" | 10⅛" 10⅛" | 104'-11¾" | 10⅛" 10⅛" | 104'-11¾" | 18'-0" | 17'-1⅞"

℄ Brg. | 3.728' | ℄ Pier 2 | 3.728' | 5.375' | 3.728' | ℄ Pier 3 | 6.609' | 3.728' | ℄ Brg.

1'-6" Rail | 3'-6"

2-2"ø Electrical conduits (proj. 2'-0" each end)

5.774' | 8.237' | 5.335' | 6.559'

¾"ø Elec. conduit | ¾"ø Elec. conduit

℄ Intermediate Diaphragm (Place at midspan)(typ.)

93'-6" | 100'-6"

℄ Temporary Diaphragm Place at midspan between G11 and G12, typ. each span. For Diaphragm details see Dwg. No. B 19. Remove Diaphragm after Phase 3 Construction.

℄ Bk. Brg. ℄ Ah. Brg. | ℄ Bk. Brg. ℄ Ah. Brg.

G1 G1A G2 G3 G4 G5 G6 G7 G8 G9 G10 G11 G12 G13 G14 G15 G16 G17 G18 G19 G20

*"J" | "J"

N 0° 19' 11" W

℄ 1225 H.C.L.

71° 05' 00" (typ.)

Sta. 1611+91.73 | Sta. 1612+96.73 | Sta. 1614+02.56 | Sta. 1615+07.56

1'-3" | B.F. Abut. 1 | B.F. Abut. 4 | 1'-3"

Approach slab (typ.)

¾"ø Elec. conduit | ¾"ø Elec. conduit

2-2"ø Electrical conduits (proj. 2'-0" each end)

1'-6" Rail | 2'-0" | 9 spa. @ 9'-3" = 83'-3" | 2'-0" | 1'-6" Rail | 41'-0" | Varies 73'-0" to 80'-0" Phase 2 Const. | Varies 93'-6" @ Sta. 1611+90.41 to 100'-6" @ Sta. 1615+08.88

8 spa. @ 9'-3" = 74'-0" | 79'-6"

59'-0" Phase 3 Const. | Phase 1 Const.

1'-6" Rail | 3'-6"

18'-0" | 104'-2" | 10" 10" | 104'-2" | 10" 10" | 104'-2" | 18'-0"

15'-11" | 320'-0" Fence Chain Link (Special) | 15'-11"

351'-10"

CONSTRUCTION LAYOUT

"J" = 6" x 6" x 4" junction box. Flush with bottom of slab. Drain for interior condensation.

*"J" – See Pier details for locations.

DIVISION OF HIGHWAYS

CONSTRUCTION LAYOUT

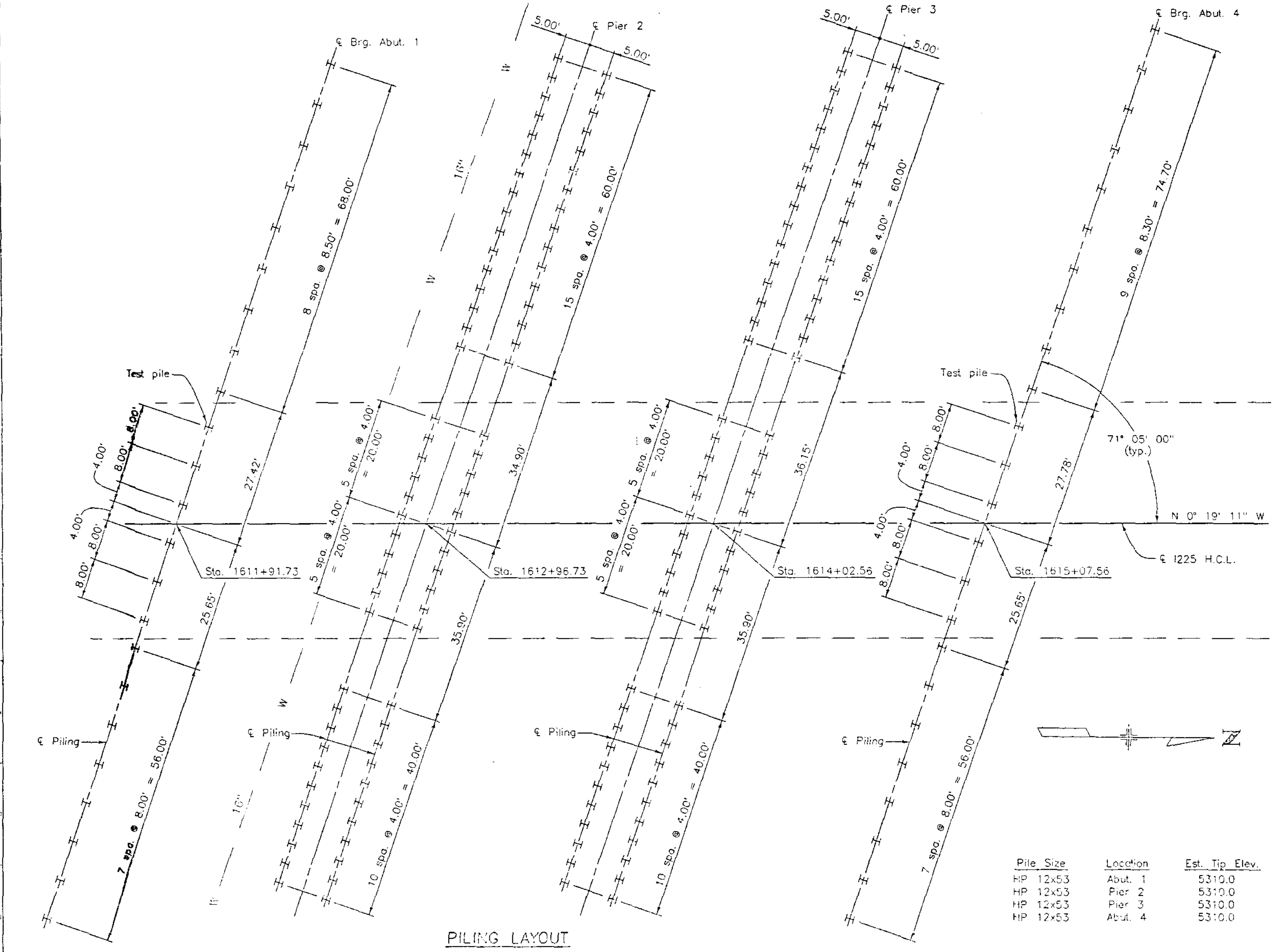
Designer	M. Condiotti	Structure	E-17-OR
Detailer	R. Dibley	Numbers	
Drawing Number	B 6 of 30	Drawings	

10/27/92 LONGS::[USER/01200/USER/DICKEY/E17OR]ORCONST

Federal Road Region No.	Division	Project Number	Sheet Number
8	Colorado	NH(CX) 225-4(39)	73

AS CONSTRUCTED: NO REVISIONS / REVISED / VOID

REVISIONS



PILING LAYOUT

Pile Size	Location	Est. Tip Elev.
HP 12x53	Abut. 1	5310.0
HP 12x53	Pier 2	5310.0
HP 12x53	Pier 3	5310.0
HP 12x53	Abut. 4	5310.0

Notes:

Piling dimensions shown are at the bottom of the concrete.

All piling shall be end bearing HP 12x53 with a maximum pile load of 70 tons at abutments and 70 tons at piers.

Predrilling Abutment piling may be necessary to an elevation of 5340.0. Refer to Section 502.07 of the Standard Specifications.

The Contractor is responsible for making his own determination as to the type and location of underground utilities as may be necessary to avoid damage thereto.

	Initial	Date			
Designed By	M.C.	7/91	Checked By	K.G.S.	1/92
Checked By	T.W.	1/92	Quantities By	K.G.S.	8/92
Detailed By	R.A.D.	7/91	Checked By	M.C.	8/92

DIVISION OF HIGHWAYS

PILING LAYOUT

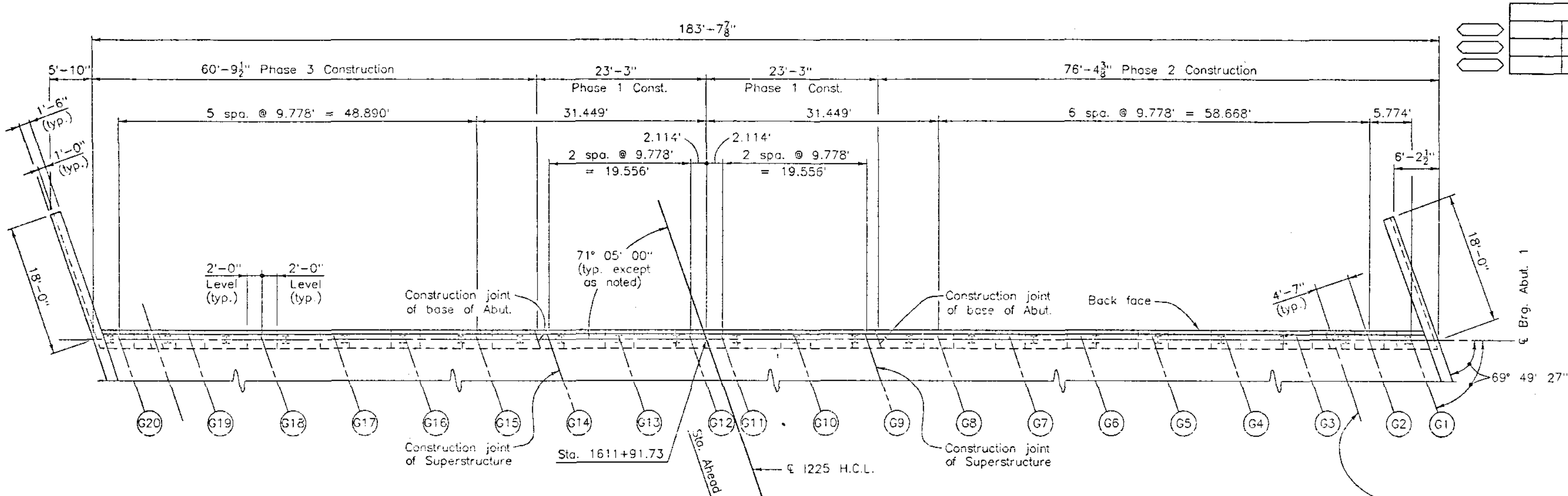
Designer: M. Cundiutti | Structure Numbers: E-17-OR
Detailer: R. Dickey
Drawing Number B 7 of 30 Drawings

08/07/92 LOXVS::[USER/01200/USER/DICKEY/E17OR]ORPILE

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VI	COLORADO	NH(CX) 225-4(39)	74

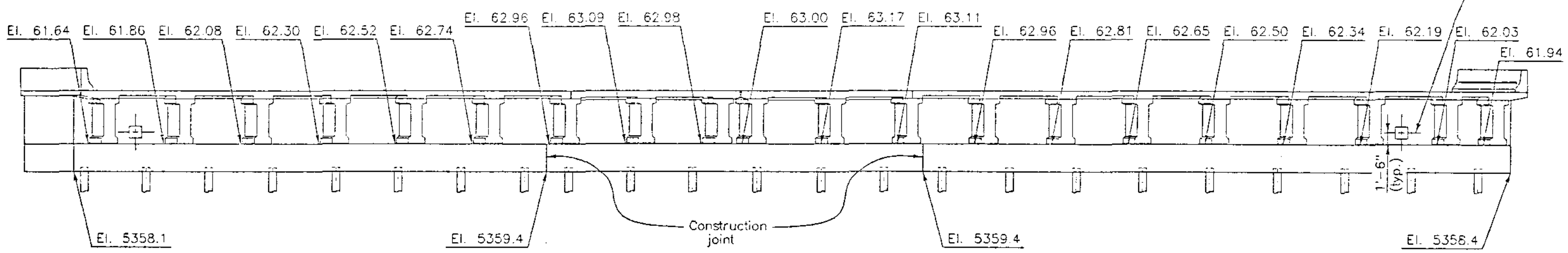
AS CONSTRUCTED — NO REVISIONS ☐ REVISED ☐ VOID ☐

REVISIONS



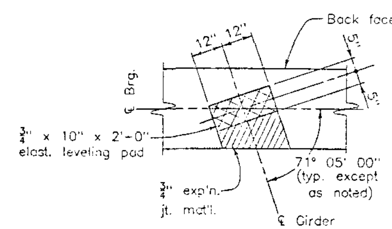
183'-7 7/8"
5'-10"
60'-9 1/2" Phase 3 Construction
23'-3" Phase 1 Const.
23'-3" Phase 1 Const.
76'-4 3/8" Phase 2 Construction
5 spa. @ 9.778' = 48.890'
31.449'
31.449'
6 spa. @ 9.778' = 58.668'
5.774'
2.114'
2.114'
2 spa. @ 9.778' = 19.556'
2 spa. @ 9.778' = 19.556'
6'-2 1/2"
1'-6" (typ.)
1'-0" (typ.)
18'-0"
18'-0"
2'-0" Level (typ.)
2'-0" Level (typ.)
71° 05' 00" (typ. except as noted)
Construction joint of base of Abut.
Construction joint of base of Abut.
Back face
4'-7" (typ.)
℄ Brg. Abut. 1
69° 49' 27"
G20 G19 G18 G17 G16 G15 G14 G13 G12 G11 G10 G9 G8 G7 G6 G5 G4 G3 G2 G1
Construction joint of Superstructure
Sta. 1611+91.73
Sta. Ahead
℄ I225 H.C.L.
Construction joint of Superstructure
℄ 1'-6" x 1'-6" Blockout. Cut longitudinal reinforcing and move stirrups to clear. (typ.) For details see Dwg. No. B 9.

PLAN



ELEVATION

For Typical Section and Wingwall Details see Dwg. No. B 10.



BEARING DETAIL

Initial	Date		Checked By	
Designed By M.C.	7/91		K.G.S.	1/92
Checked By T.W.	1/92	Quantities By	K.G.S.	6/92
Detailed By R.A.D.	7/91	Checked By	M.C.	6/92

DIVISION OF HIGHWAYS

ABUTMENT 1 DETAILS

Designer	M. Canfield	Structure Numbers	E-17-OP
Detailer	R. Dickey		
Drawing Number B 8	of 30 Drawings		

03/07/92 LONGS::[USER/0120D/USER/DICKEY/E17OP]ORABUT1

AS CONSTRUCTED							
NO REVISIONS		REVISED		VOID			

FEDERAL FUND REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
8	COLORADO	NH(CX) 225-4(39)	75

REVISIONS			

	INITIAL	DATE	
Designed By	M.C.	7/92	Checked By
Detailed By	R.D.	7/92	Quantities By
Checked By	R.A.M.	7/92	Checked By

K.C.S.	7/92
K.C.S.	8/92
K.C.S.	8/92

191'-0⅝"

6'-2½" | 83'-9⅛" Phase 2 Construction | 23'-3" Phase 1 Const. | 23'-3" Phase 1 Const. | 60'-9½" Phase 3 Construction

1'-6" (typ.) | 1'-0" (typ.)

6.609' | 6.559' | 6 spa. @ 9.778' = 58.668' | 31.449' | 2.114' | 2 spa. @ 9.778' = 19.556' | 2.114' | 2 spa. @ 9.778' = 19.556' | 31.449' | 5 spa. @ 9.778' = 48.890' | 5'-10"

18'-0" | 69° 49' 27" | 70° 27' 13" | 2'-0" Level (typ.) | 2'-0" Level (typ.) | Construction joint of base of Abut. | 71° 05' 00" (typ. except as noted) | Construction joint of base of Abut. | Back face | 4'-7" (typ.) | 18'-0" | ℄ Brg. Abut. 4

G1 | G1A | G2 | G3 | G4 | G5 | G6 | G7 | G8 | G9 | G10 | G11 | G12 | G13 | G14 | G15 | G16 | G17 | G18 | G19 | G20

Construction joint of Superstructure | Sta. 1615+07.56 | Sta. Ahead | ℄ 1225 H.C.L. | Construction joint of Superstructure

PLAN

℄ 1'-6" x 1'-6" Blockout. Cut longitudinal reinforcing and move stirrups to clear. (typ.) For details see this sheet.

El. 62.24 | El. 62.37 | El. 62.51 | El. 62.72 | El. 62.92 | El. 63.12 | El. 63.32 | El. 63.53 | El. 63.73 | El. 63.93 | El. 64.03 | El. 63.91 | El. 63.92 | El. 64.07 | El. 64.00 | El. 63.82 | El. 63.65 | El. 63.48 | El. 63.31 | El. 63.13 | El. 62.96

El. 5358.7 | El. 5360.4 | Construction joint | El. 5360.4 | 1'-6" (typ.) | El. 5359.4

ELEVATION

6" | 10" | 10" | 4" | #5 (tot. 3) | 2'-2" | 2'-0" | Back face | 1'-6" (typ.) | 4"

UTILITY BLOCKOUT DETAIL

For Bearing Detail see Dwg. No. B 8.
For Typical Section and Wingwall Details see Dwg. No. B 10.

DIVISION OF HIGHWAYS

ABUTMENT 4 DETAILS

Designer	M. Condietti	Structure Numbers	E-17-DF
Detailer	R. Dickey		
Drawing Number	B 9	of 30	Drawings

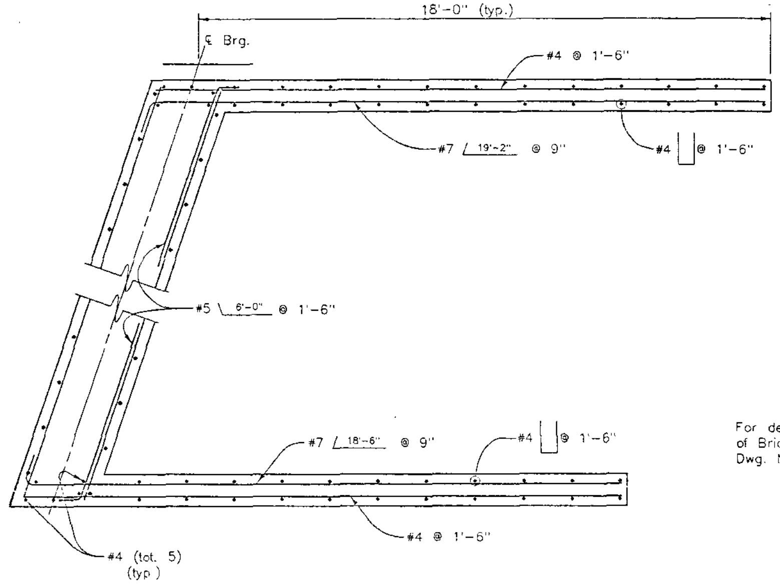
09/07/92 LDNGS: (USER/0120R/USER/DICKEY/E170P)GRABUT4

AS CONSTRUCTED					
NO REVISIONS		REVISED		VOID	

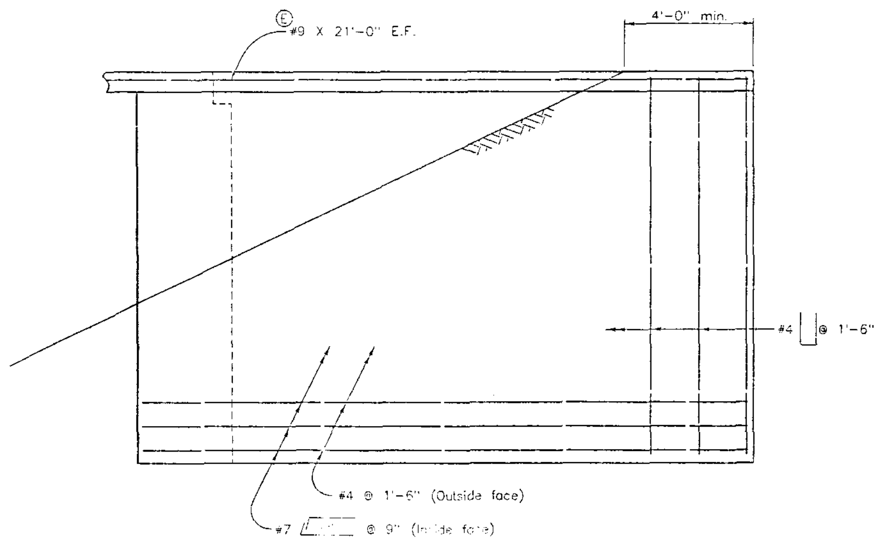
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
II	COLORADO	NH(CX) 225-4(39)	76

REVISIONS

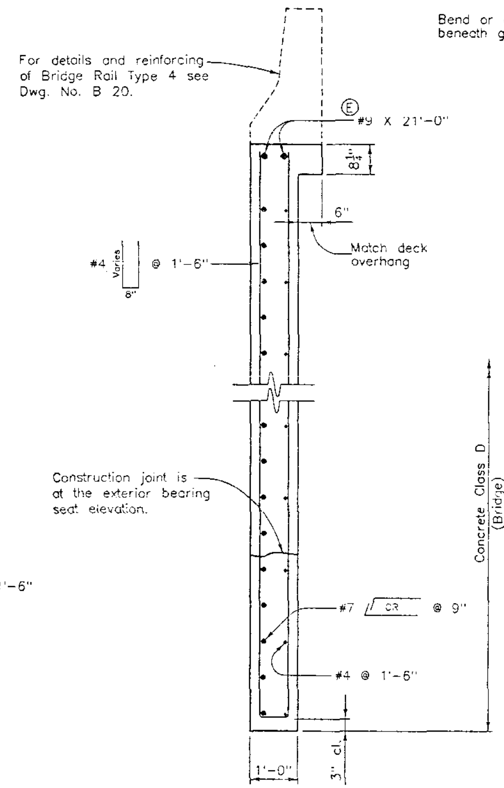
Slab and portion of Abutment above bearing seat to be poured monolithically.



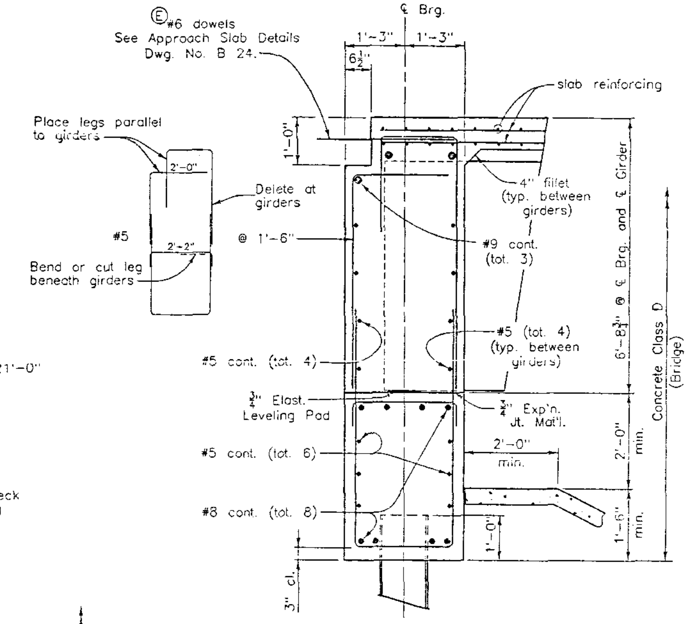
PLAN



ELEVATION



SECTION



TYPICAL SECTION

Use mechanical connectors on all longitudinal Abutment reinforcing at phase construction joints.

INITIAL	DATE		
Designed By M.C.	7/91	Checked By K.G.S.	1/92
Checked By T.W.	1/92	Quantities By K.G.S.	8/92
Detailed By R.A.D.	7/91	Checked By M.C.	8/92

08/07/92 LONGS::(USER/01200/USER/DICKEY/E170P)DRWW

DIVISION OF HIGHWAYS

WINGWALL DETAILS

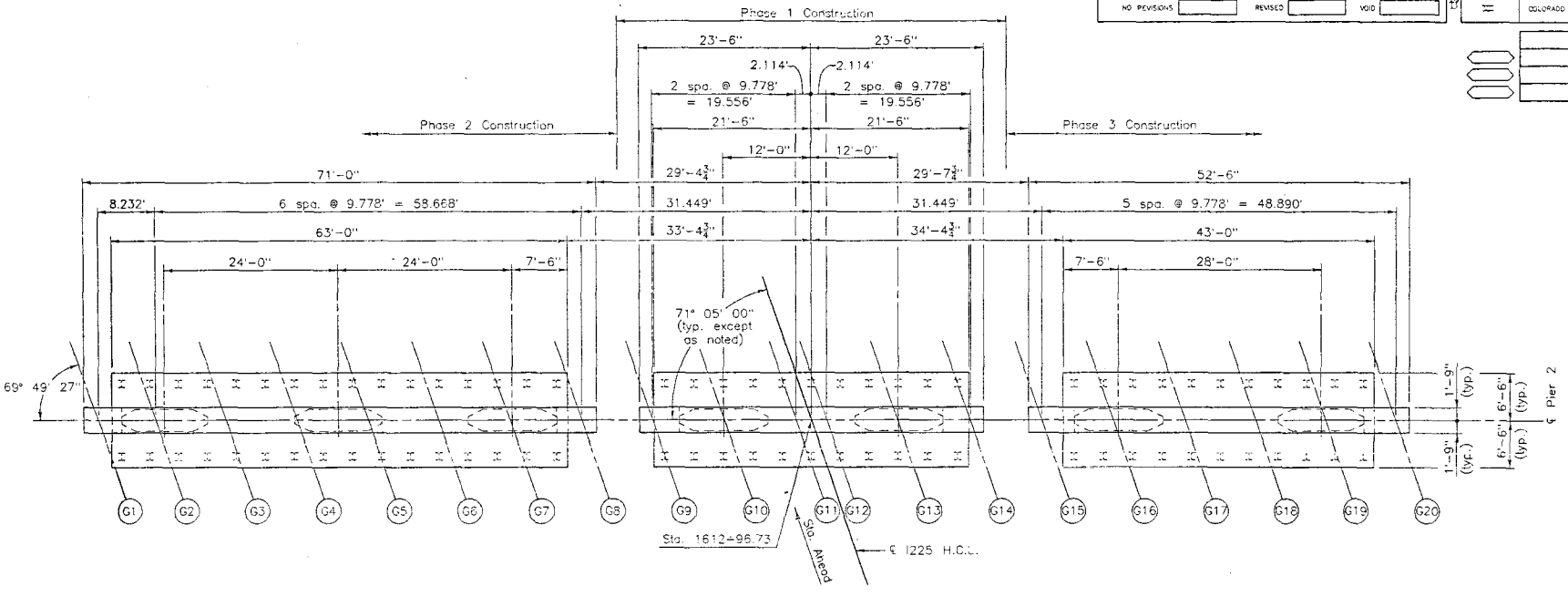
Designer	M. Candiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number B 10 of 30 Drawings			

AS CONSTRUCTED
NO REVISIONS | REVISED | VOID

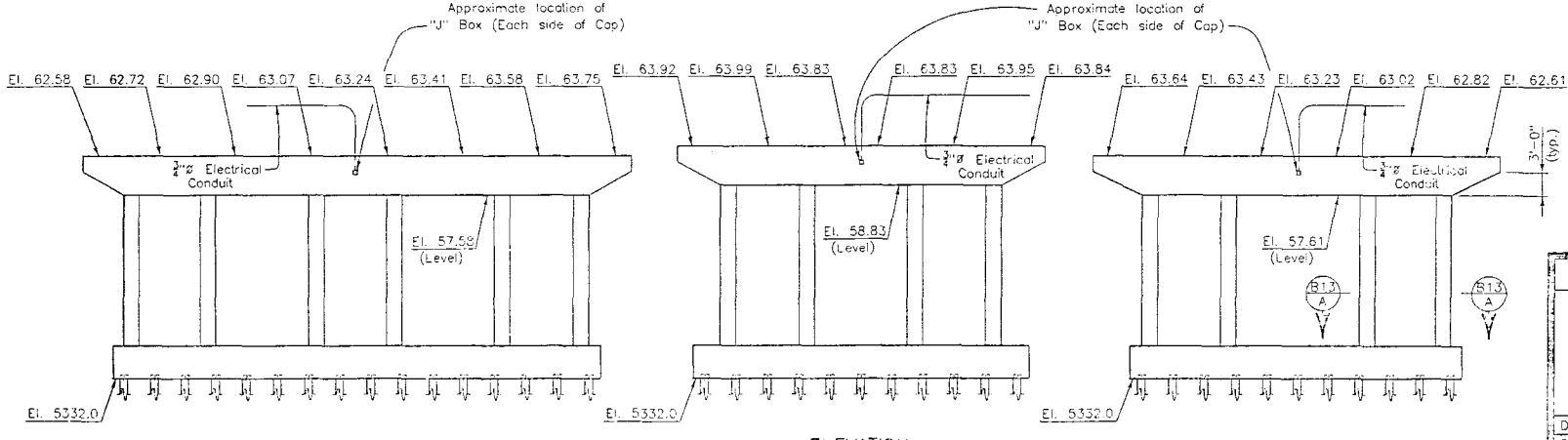
FEDERAL AID PROJECT NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
	COLORADO	NH(CX) 225-4(39)	77

REVISIONS			

BRIDGE	DATE	Checked By	K.G.S.	1/92
Designed By K.G.S.	1-92	Quantities By	K.G.S.	8/92
Detailed By R.D.	7/92	Checked By	M.K.	9/92
Checked By				



PLAN



ELEVATION

For details of reinforcing see Dwg. No. B 13.

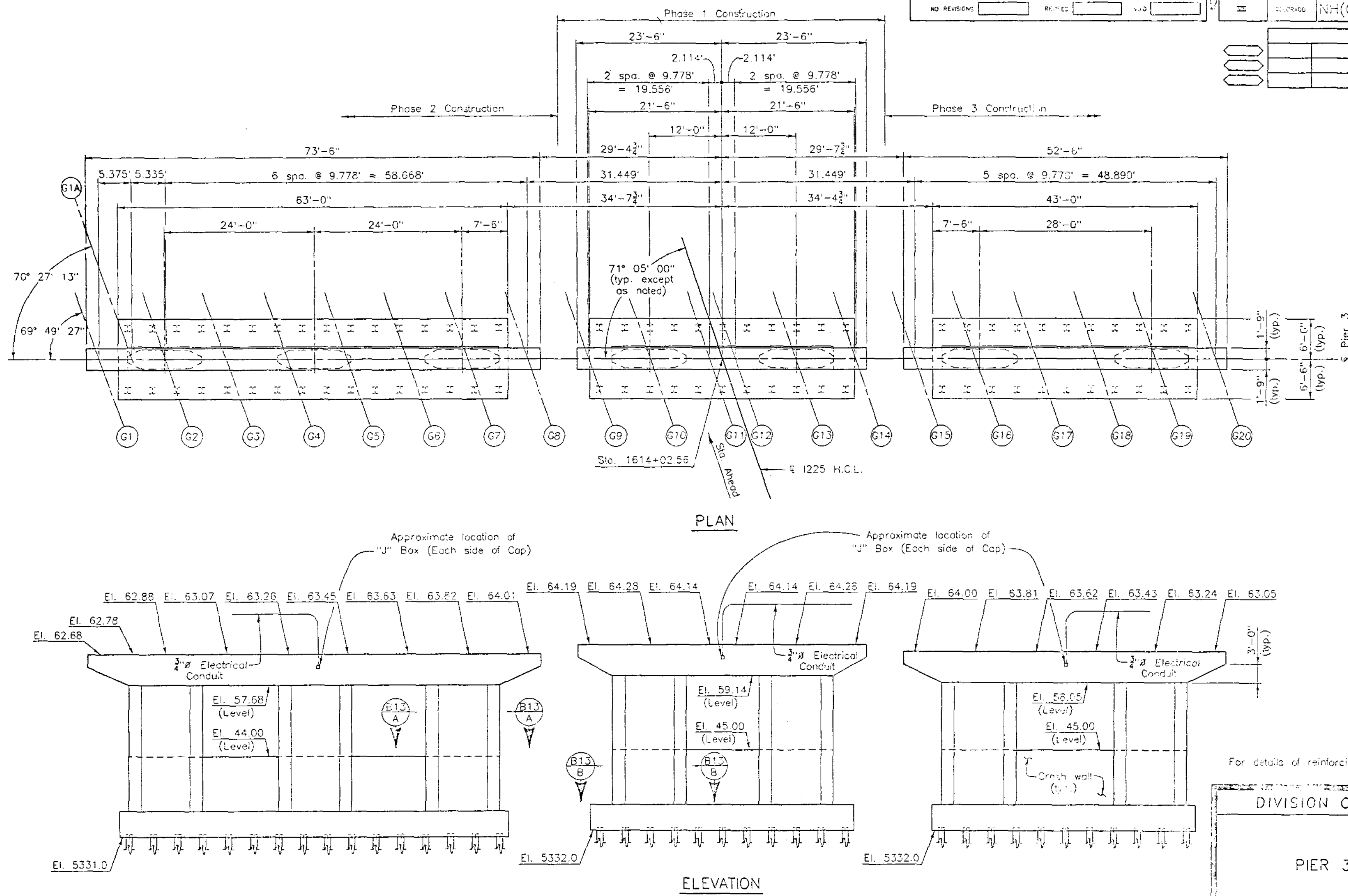
DIVISION OF HIGHWAYS

PIER 2 DETAILS

Designer M. Condotti	Structure	E-17-OR
Detailer R. Dickey	Numbers	
Drawing Number B 11 of 71 Drawings		

09/07/92 LOADS: (USER/01200/USER/DICKEY/E17OR)PIER2

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
8	COLORADO	NH(CX) 225-4(39)	78



For details of reinforcing see Dwg. No. B 13.

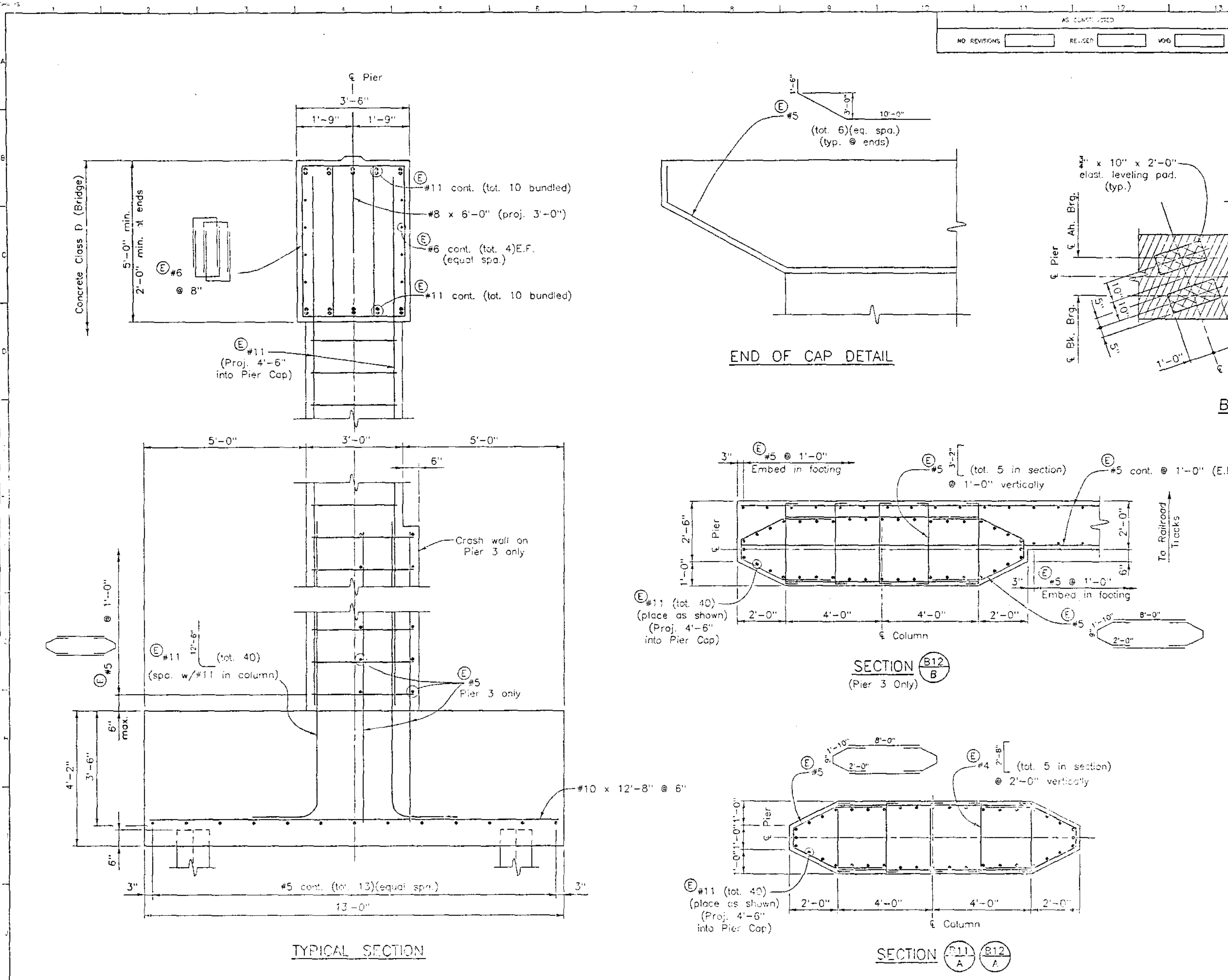
DIVISION OF HIGHWAYS

PIER 3 DETAILS

Designer: M. C...		Structure Number	E-17-OR
Detailer: R. ...			
Drawing Number B 12 of 30 Drawings			

08/07/92 LONGS::(USER/0129)/USER/DICKEY/E17OP)DRPIER3

Federal Aid Project No. NH(CX) 225-4(39) — Colorado — Sheet No. 79



℄ Pier
3'-6"
1'-9"
1'-9"
Concrete Class D (Bridge)
5'-0" min.
2'-0" min. at ends
(E) #6 @ 8"
(E) #11 cont. (tot. 10 bundled)
#8 x 6'-0" (proj. 3'-0")
(E) #6 cont. (tot. 4)E.F. (equal spa.)
(E) #11 cont. (tot. 10 bundled)
(E) #11 (Proj. 4'-6" into Pier Cap)
(E) #5
(tot. 6)(eq. spa.) (typ. @ ends)
END OF CAP DETAIL
x 10" x 2'-0" elast. leveling pad. (typ.)
9" x 1½" x 5'-0" Key (Centered btwn. girders)
6"
#8 @ 1'-0" (tot. 5)(typ.)
℄ Ah. Brg.
℄ Pier
℄ Bk. Brg.
1'-0"
¾" exp'n. jt. mat'l.
℄ Girder
BEARING DETAIL
5'-0"
3'-0"
5'-0"
6"
Crash wall on Pier 3 only
@ 1'-0"
(E) #5
(E) #11 (tot. 40) (spa. w/#11 in column)
(E) #5 Pier 3 only
6" max.
4'-2"
3'-6"
#10 x 12'-8" @ 6"
6"
3"
#5 cont. (tot. 13)(equal spa.)
13'-0"
TYPICAL SECTION
3"
(E) #5 @ 1'-0" Embed in footing
(E) #5 (tot. 5 in section) @ 1'-0" vertically
(E) #5 cont. @ 1'-0" (E.F.)
2'-6"
1'-0"
2'-0"
6"
To Railroad Tracks
(E) #5 @ 1'-0" Embed in footing
(E) #11 (tot. 40) (place as shown) (Proj. 4'-6" into Pier Cap)
2'-0"
4'-0"
4'-0"
2'-0"
℄ Column
8'-0"
2'-0"
SECTION B12/B (Pier 3 Only)
9"
1½"
KEY DETAIL
(E) #5
(E) #4 (tot. 5 in section) @ 2'-0" vertically
(E) #11 (tot. 40) (place as shown) (Proj. 4'-6" into Pier Cap)
SECTION B11/A B12/A

DIVISION OF HIGHWAYS

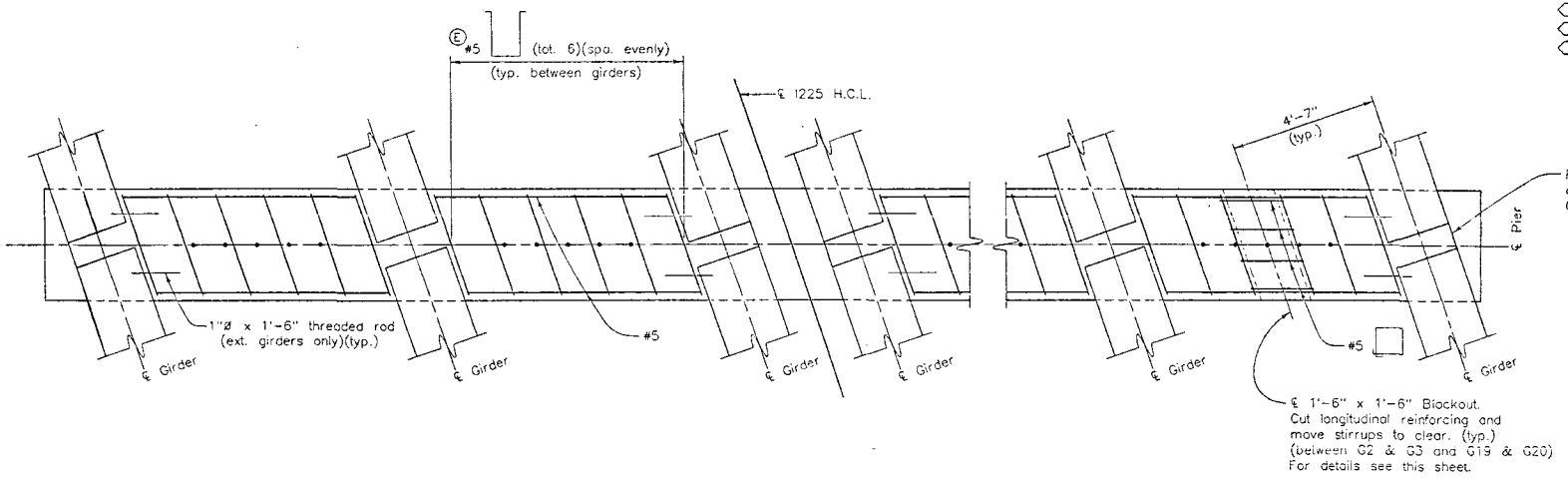
PIER DETAILS

Designer	M. Cuadlatti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number 12 of 30 Drawings			

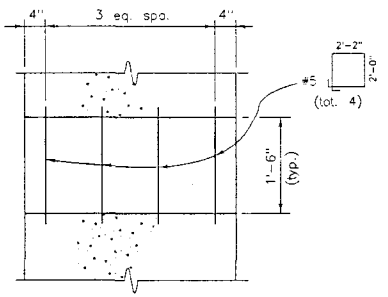
AS CONSTRUCTED				FEDERAL AID PROJ. NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	MINOR					
					14	NH(CX) 225-4(39)	80

REVISIONS			

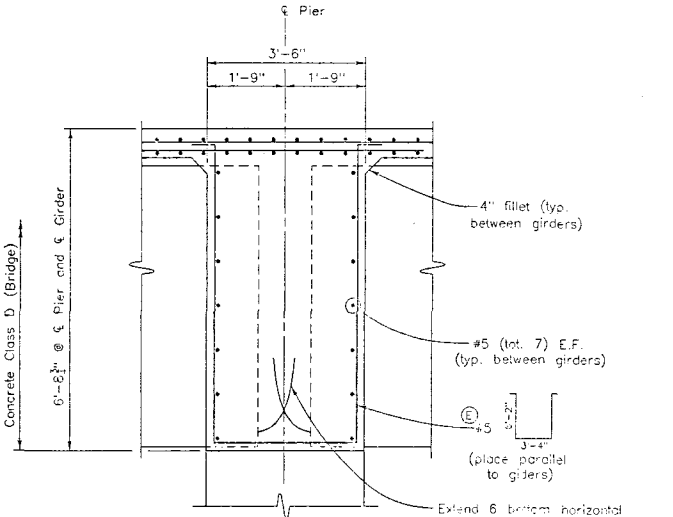
	INITIAL	DATE	Checked By	I.C.O.S.	1/92
Engineered By	M.C.	7/91	Quantities By	I.C.O.S.	8/92
Checked By	J.W.	1/92	Checked By	M.C.	R/92
Detailed By	R.D.	7/91			



DIAPHRAGM PLAN DETAIL



UTILITY BLOCKOUT DETAIL



SECTION

Slab and portion of Pier Diaphragm above bearing seat to be poured monolithically.

DIVISION OF HIGHWAYS

PIER DIAPHRAGM DETAILS

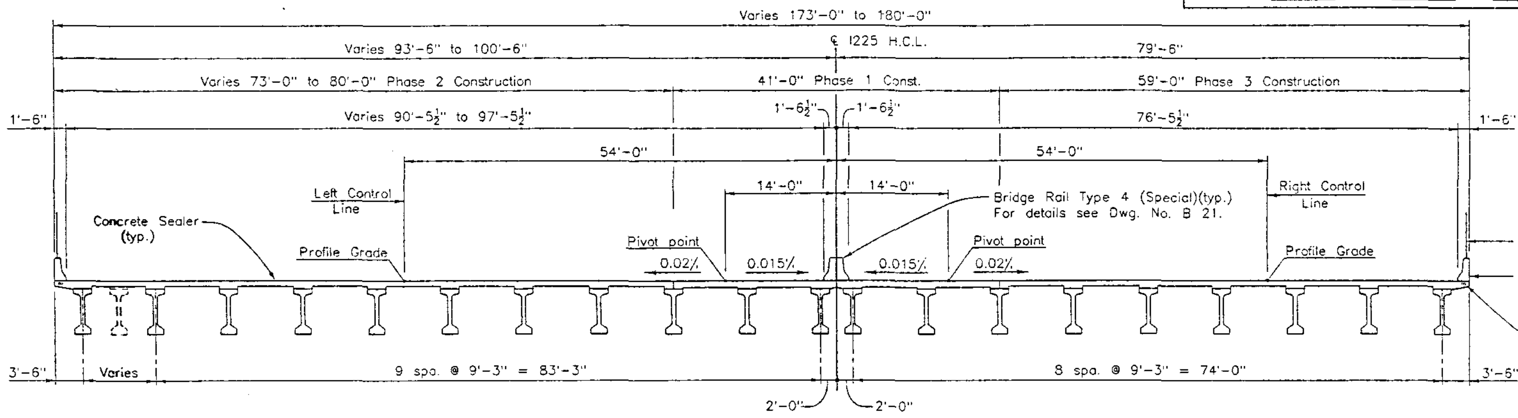
Designer	M. Conforti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number	B 14 of 30		Drawings

08/10/92 LONGS...\USER/01200/USER/DICKEY/E170P/OR\PIERDIA

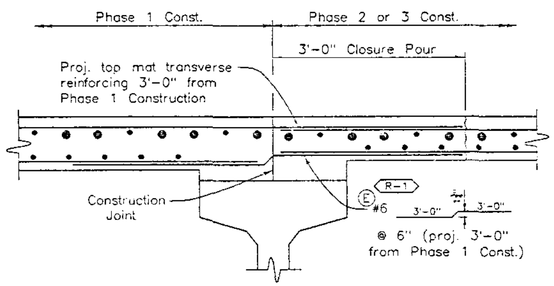
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
8	COLORADO	NH(CX) 225-4(39)	81

AS CONSTRUCTED: NO REVISIONS ☐ REVISED ☐ VOID ☐

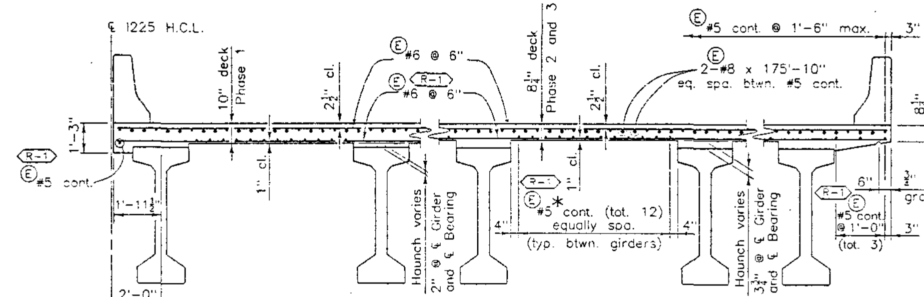
REVISIONS			
R-1	12-24-92	CHANGED REINFORCING STEEL TO REINFORCING STEEL (EPOXY COATED)	SC



TYPICAL SECTION



CONSTRUCTION JOINT DETAIL

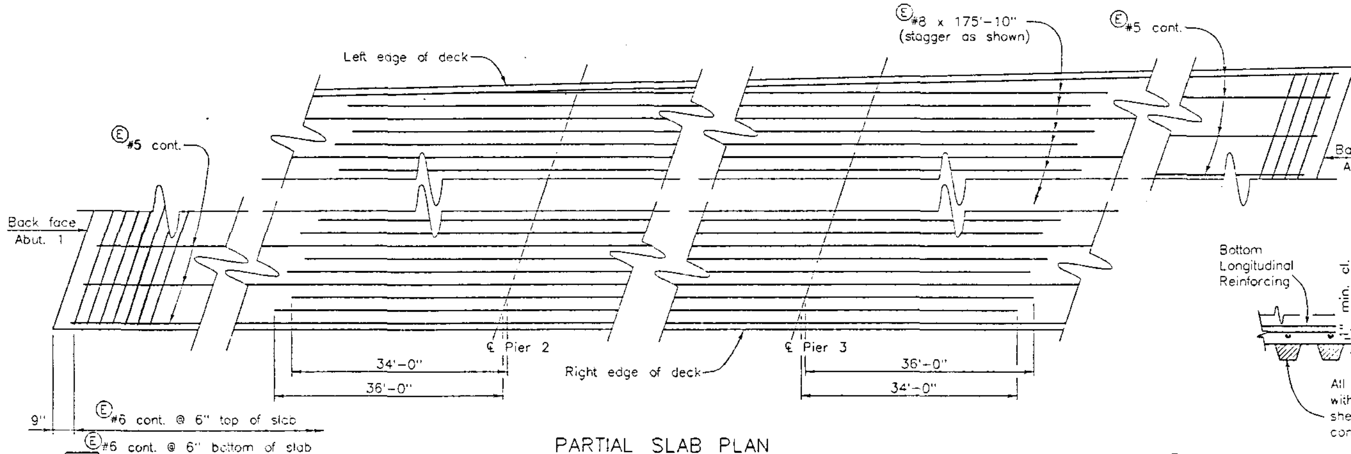


PHASE 1 CONST.

PHASE 2 & 3 CONST.

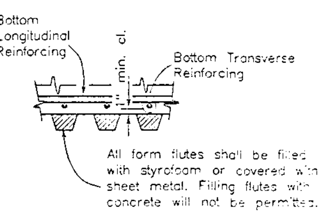
REINFORCING DETAIL

* Spread 6 bars on each side of Girder 1A in span 3 and project those bars 2'-0" over Pier 3.



PARTIAL SLAB PLAN

Bottom longitudinal reinforcing not shown.



PERMANENT STEEL DECK FORM DETAIL

Initial	Date	
Designed By M.C.	7/91	Checked By K.G.S. 1/92
Checked By T.W.	1/92	Quantities By K.G.S. 8/92
Detailed By R.A.D.	7/91	Checked By M.C. 8/92

DIVISION OF HIGHWAYS

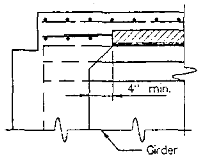
SUPERSTRUCTURE DETAILS

Designer	M. Candiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number B 15 of 30 Drawings			

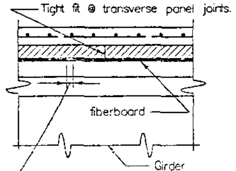
12/17/92 LONGS::[USER/01200/USER/DICKEY/E17OR]GRSS

AS CONSTRUCTED — NO REVISIONS / REVISED / VOID

REVISIONS

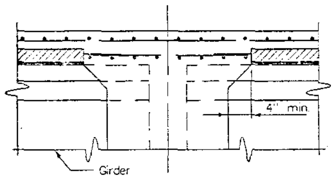


SEC. AT ABUTMENT

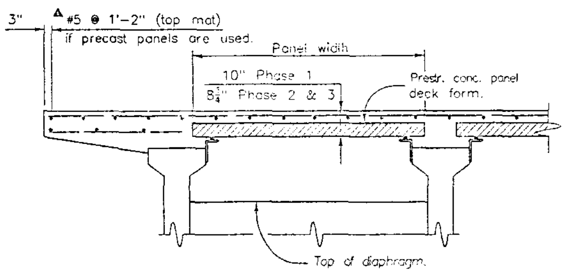


SEC. THRU TRANSVERSE PANEL JOINTS

½" open joint in fiberboard @ 3'-0" ±. Place 6" long piece of fiberboard behind opening if necessary to reduce concrete leakage.

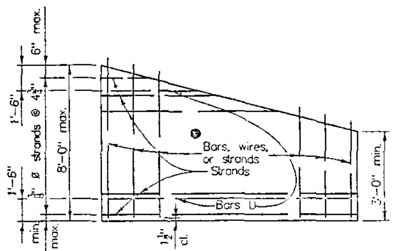


SEC. AT PIER



Additional top mat reinforcing, required with the use of the precast deck panels, will not be paid for separately, but shall be included in the work.

SECTION



PLAN - SKEWS 70° TO 90°

OPTIONAL END PANEL

Notes:

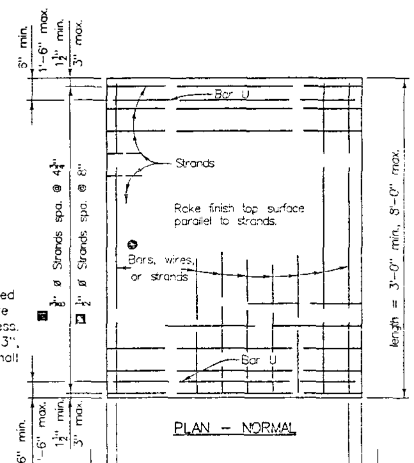
For precast I girders, the alternate steel channel intermediate diaphragm must be used.

Sawing of panels is acceptable where reinforcing projection is not required.

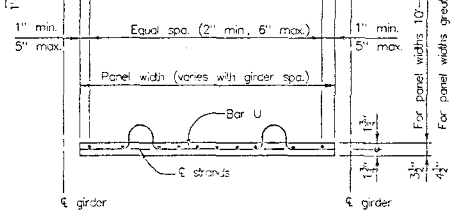
Longitudinal reinforcing steel may be deformed reinf. bars, welded wire fabric, or welded deformed bar mats, and may be placed directly above or below the strands. Minimum area of reinforcing perpendicular to strands shall be 0.22 sq.in. per ft. Prestressing strands may also be used, spaced at 6" for ½"ø strands and 4½" for ⅜"ø strands. Individual bars or wires shall be no larger than #3. Reinforcing parallel to strands shall be as required to ensure proper handling of the fabric or bar mat.

● For location of longitudinal bar extensions, see sheet 2 of 2.

■ #4 @ 6" shall be substituted for strands in panels where panel width is 5'-6" or less. Panel widths less than 2'-3", or greater than 12'-6", shall not be used.

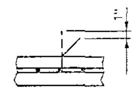


PLAN - NORMAL

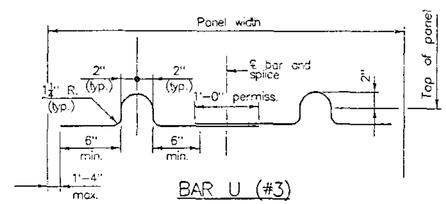


PRESTRESSED PANEL DETAILS

⅜"ø strands shall be used for panel widths of 10'-3" or less.
½"ø strands shall be used for panel widths greater than 10'-3".



For panels used with epoxy coated slab reinf., the loops of Bar U shall be field bent as shown. Bar U may be field bent to clear slab reinf.



BAR U (#3)

PRESTRESSED PANEL DETAILS

Initial	Date	Checked By
M.C.	1/92	K.G.S. 1/92
T.W.	1/92	K.G.S. 8/92
R.A.D.	1/92	M.C. 8/92

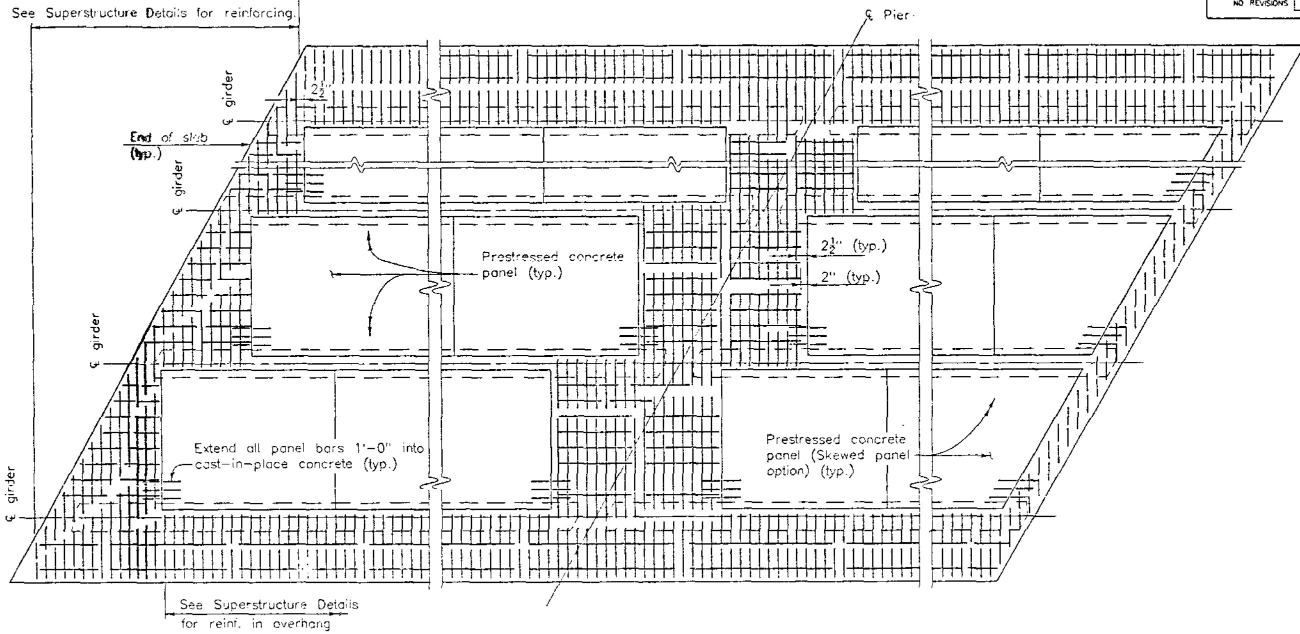
Designed By / Checked By / Detailed By

DIVISION OF HIGHWAYS

PRECAST PANEL DECK FORM (OPTIONAL)

(Sheet 1 of 2)

Designer	M. Condiotti	Structure Numbers	E-17-CR
Detailer	R. Dickey		
Drawing Number B 16 of 30 Drawings			



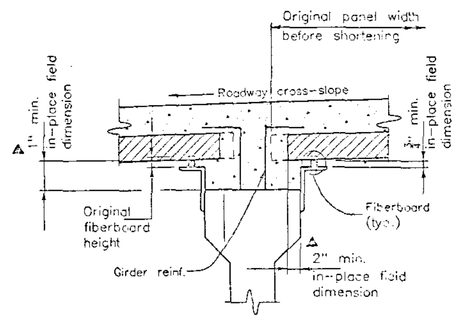
END OF SLAB RECTANGULAR PANEL OPTION AND SKEWS LESS THAN 70°

CONTINUOUS SLAB OVER PIER

END OF SLAB SKEWED PANEL OPTION FOR SKEWS 70° to 90°

Rectangular **panel** option shall be used for skews less than 70°.

PART PLAN



GRADING DETAIL

NOTES:

Composite total slab designed for HS 20-44 and interstate alternate (and in accordance with AASHTO 14th edition with 1991 interim). All concrete shall be Class S with release strength f'_{ci} = 4500 psi and minimum 28 day strength f'_c = 6000 psi.

Use ⅜"Ø (or ½"Ø) (270 K) low relaxation strands meeting the requirements of ASTM A416. Jacking force per strand (F_i) shall be 17.2 kips (30.9 kips for ½"Ø) and final force per strand (F_f) shall be 14.9 kips (26.6 kips for ½"Ø). ⅜"Ø (or ½"Ø) (270 K) stress relieved strands meeting the requirements of ASTM A416 may be used. When stress relieved strands are used, the jacking force and initial concrete strengths shall be adjusted as necessary to provide the final force (F_f) shown. The Fabricator shall include design calculations with the shop plans.

Suitable holes or anchorage devices for lifting panels may be cast in the panels provided they are shown on the shop plans and approved by the Engineer. Panel lengths shall be determined by the Contractor and shown on the shop plans.

The Contractor is responsible for the stability of the panels on the girders. Erected panels shall bear uniformly on blocking strips of fiberboard.

Care must be taken to ensure proper cleaning of construction debris and consolidation of concrete mortar under the edges of the panels. It is also important that adequate space (▲ min. 1" x 2") is provided for the concrete to fill the space under the panel as the slab concrete is placed.

The Contractor is responsible for meeting the total slab thickness shown on the Superstructure Details. Alternate methods for grading may be used, provided they are approved by the Engineer.

INFORMATION ONLY

Description	Unit	Per Sq. Yd. ⊟3½"	Per Sq. Yd. ⊟4½"
Concrete Class S (Bridge)	Cu.Yd.	.097	.125
Reinforcing Steel	Lb.	7.61	7.61
Prestressing Steel	Lb.	7.01	7.98

⊟ Panel thickness

Federal Road Region No.	Division	Project Number	Sheet Number
6	COLORADO	NH(CX) 225-4(39)	83

AS CONSTRUCTED: NO REVISIONS / REVISED / VOID

REVISIONS

DIVISION OF HIGHWAYS

PRECAST PANEL DECK FORM (OPTIONAL)

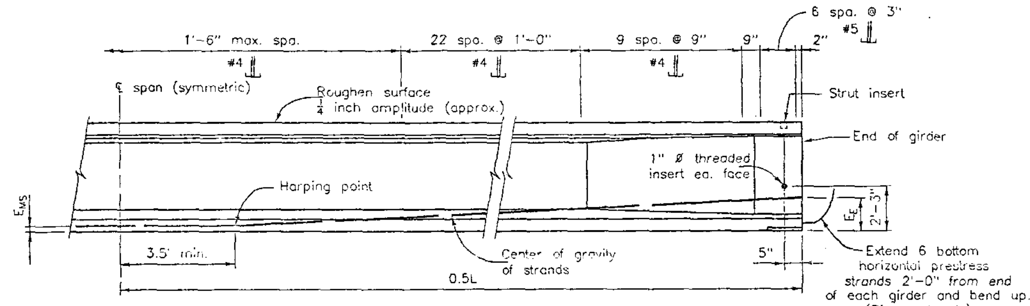
(Sheet 2 of 2)

Designer	M. Condiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		

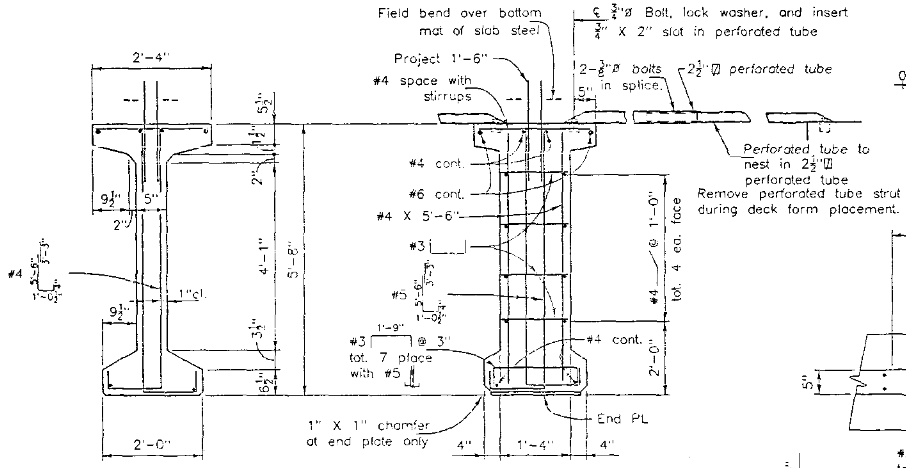
Drawing Number B 17 of 30 Drawings

Initial	Date		
Designed By	M.C.	7/91	Checked By K.C.S. 1/92
Checked By	T.W.	1/92	Quantities By K.C.S. 6/92
Detailed By	P.A.D.	7/92	Checked By M.C. 6/92

08/10/92 LONGS::[USER/01200/USER/DICKEY/E17OR]ORDF2



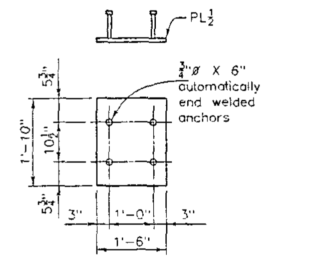
GIRDER ELEVATION



THROUGH MID SPAN

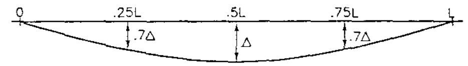
THROUGH END PLATE

TYPICAL GIRDER SECTIONS

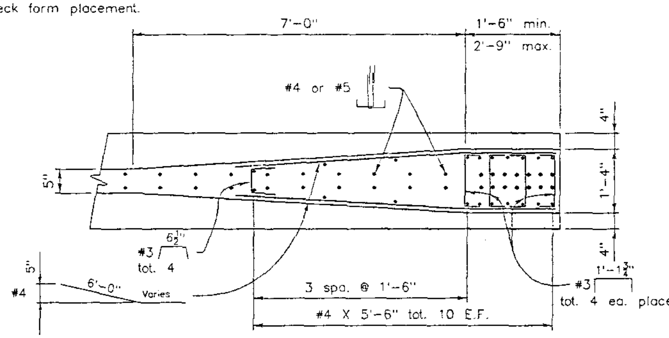


END PLATE DETAIL

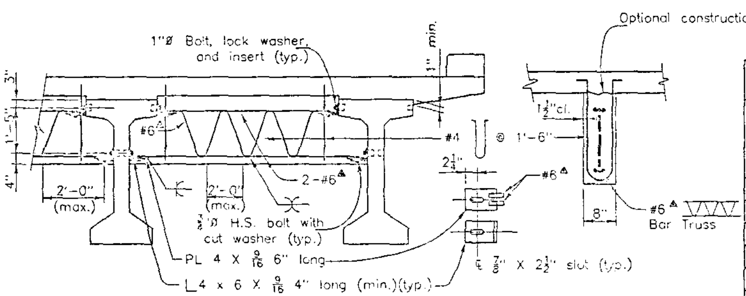
Galvanize after fabrication.
Epoxy coat galvanized end plates within eight feet of deck expansion joint.



DEAD LOAD DEFLECTION DIAGRAM



SECTION THRU END BLOCK



INTERMEDIATE DIAPHRAGM DETAILS

For location of diaphragms, see Construction Layout.
For alternative diaphragm details see Alternate Diaphragm.

#6 bar shall be ASTM A706 or ¾"Ø A36

GIRDER SCHEDULE

Span No.	Girder No.	L (Feet)	A_s* (Square inch)	E_{MS} (Inch)	E_E (Inch)	F_i (KIPS)	F_f (KIPS)	Concrete Strength f'_{ci} (PSI)	Concrete Strength f'_c (PSI)	Δ (inch)	Expected Camber (Inch)
1,2,3	1	105.82	5.81	3.4	17.0	1180	835	5000	6000	1.80	2.8
3	1A	105.40	5.81	3.4	17.0	1180	835	5000	6000	1.80	2.8
1,2,3	2-8	105.00	5.81	3.4	17.0	1180	835	5000	6000	1.80	2.8
1,2,3	15-20	105.00	5.81	3.4	17.0	1180	835	5000	6000	1.80	2.8
1,2,3	9-14	105.00	6.73	4.0	17.0	1320	975	5500	6500	2.24	3.9

NOTES

All work necessary to fabricate and install the integral parts of the girder (including the Tube Struts and #6 Bar Truss, 1"Ø threaded rods and elastomeric leveling and bearing pads) as shown on the plans shall be included in the bid price for Item No. 618, Prestressed Concrete Unit.

When approved by the Engineer a minimum of tack welding will be permitted on ASTM A706 uncoated reinforcing steel.

Reinforcing projecting from the top of the girder and reinforcing within eight feet of an expansion device in the bridge deck shall be epoxy coated. Damaged coating on girder reinforcing need not be repaired.

At girder ends not embedded in concrete diaphragms, cut strands off 1" below the surface of the concrete and finish with an approved epoxy grout. At girder ends embedded in concrete diaphragms, cut strands to project 3", except as noted. Do not make cosmetic repairs (damage less than 1½" deep) to the parts of the girders embedded in concrete.

Use ½"Ø f'_s=270 KSI low relaxation strands meeting the requirements of ASTM A416 grade 270. Alternate strands are ½"Ø stress relieved strands meeting the requirements of ASTM A416 grade 270. If stress relieved strands are used, the jacking force and initial concrete strengths shall be adjusted as appropriate to provide the final force (F_f) shown. The fabricator shall include design calculations with the shop plans.

The minimum distance between groups or individual strands shall be 1¾" (measured between centers of adjacent strands). The minimum cover for prestressing steel is 1½".

A minimum of two harping points shall be used per girder.

A_s* is the minimum area of the prestressing steel.

f'_s is the ultimate strength of the prestressing steel.

F_i is the jacking force per girder including all losses.

F_f is the final force per girder after all losses.

f'_{ci} is the required concrete strength at release of prestress force.

f'_c is the required concrete strength at 28 days of age.

Δ is the deflection at centerline of span due to cast-in-place slab, diaphragms, asphalt, curbs, rails, and walks.

Concrete shall be Class S.

Entrained air is not required for girder concrete.

End blocks shall be used on all girders unless otherwise noted.

Use ½" chamfer on all corners, except as noted.

Expected camber is projected to 90 days girder age. If girders, deck forms, and reinforcing will not be placed before that girder age, weights, temporary tensioning, or other means approved by the Engineer shall be used to limit camber growth. Prior to deck pour, measure and report to CDOH Bridge Design cambers exceeding the expected camber by more than 1½", because the anticipated haunch may not exist and the girder flange may interfere with the deck reinforcing.

Use and installation of Tube Struts and #6 Bar Truss shall not relieve the Contractor of its full responsibility to construct the work in a manner which provides all necessary rigidity, supports all loads imposed, and provides in the finished structure the lines and grades indicated on the plans.

No girders shall be erected and left unbraced. Tube Struts and #6 Bar Truss shall be connected to the adjacent girders simultaneously with the erection of the girders.

For girders passing over traffic the Tube Struts and #6 Bar Truss shall be connected to the girders prior to the release of the erection equipment.

The contractor is responsible for determining necessary bracing requirements, and for providing adequate bracing for the specific wind and weather conditions to be encountered for each specific project.

Designed By	Checked By	K.C.S.	1/92
Checked By	Quantities By	K.C.S.	8/92
Detailed By	Checked By	M.C.	8/92

INITIAL	DATE
M.C.	7/91
T.W.	1/92
F.A.D.	7/91

DIVISION OF HIGHWAYS

COLORADO G68 GIRDER

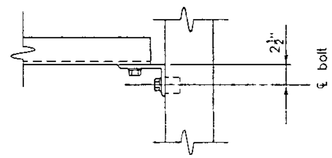
Designer	M. Condiotti	Structure	E-17-OR
Detailer	R. Dickey	Numbers	
Drawing Number B	18 of	30	Drawings

Revision Dates: 12-87

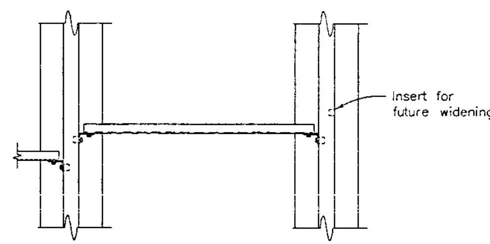
08/10/92 LONGS::[USER/01200/USER/DICKEY/E17OR]ORGIRD

AS CONSTRUCTED			FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	VOID	8	COLORADO	NH(CX) 225-4(39)	85

REVISIONS



SECTION (B19/B)



SECTION (B19/A)

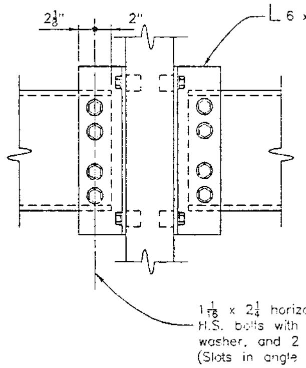
Notes

All diaphragm materials, including bolts, nuts, and washers shall be A-36 and galvanized after fabrication.

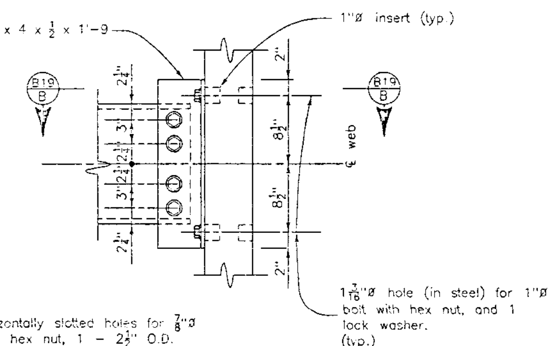
These steel diaphragms are an approved alternate for the concrete intermediate diaphragms shown on other sheets of these plans. If the Contractor chooses to use these steel diaphragms, the cost of the steel is assumed to be equal in value to the concrete, reinforcing, and other items that would be deleted and no pay adjustment will be made.

If the steel diaphragm alternate is used, two copies of shop drawings of the diaphragm details shall be submitted to the Engineer for information only.

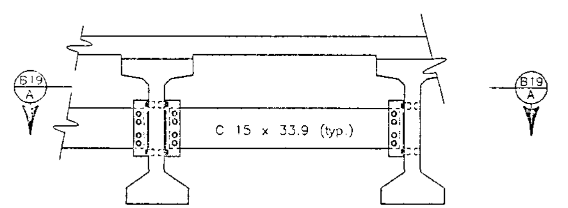
The 2½" O.D. plain washers shall meet the dimensional requirements of A.N.S.I. B18.22.1, Type A plain washers.



INTERIOR GIRDER



EXTERIOR GIRDER



INTERMEDIATE DIAPHRAGM DETAILS

For location of diaphragms, see Construction Layout

Designed By	M.C.	7/91	Checked By	K.G.S.	1/92
Checked By	P.J.C.	1/92	Quantities By	K.G.S.	8/92
Detailed By	T.W.	1/92	Checked By	M.C.	8/92

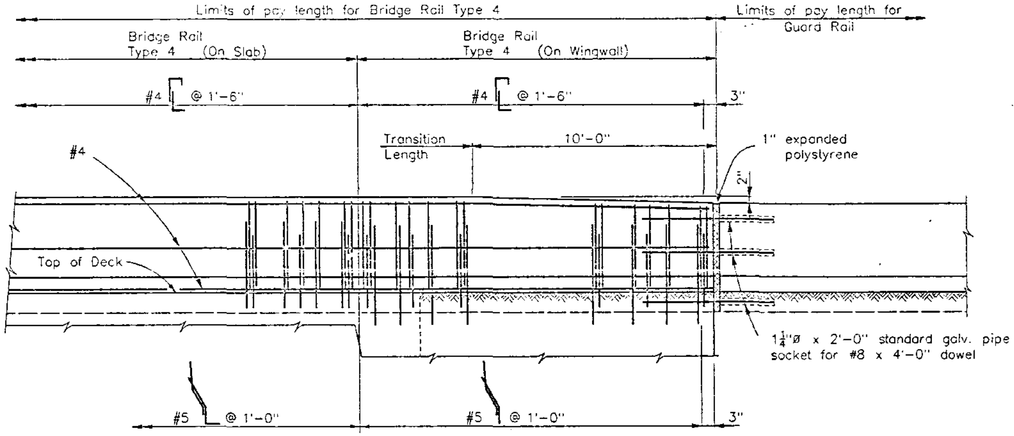
03/10/92 LONGS:::(USER/01200/USER/DICKEY/E17OR)DRCALT

DIVISION OF HIGHWAYS

ALTERNATE DIAPHRAGM DETAILS

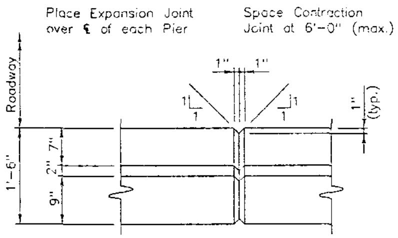
Designer	M. Condiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number B 19 of 30 Drawings			

REVISIONS



ELEVATION

TRANSITION TO CONNECT BRIDGE RAIL TYPE 4 TO GUARD RAIL

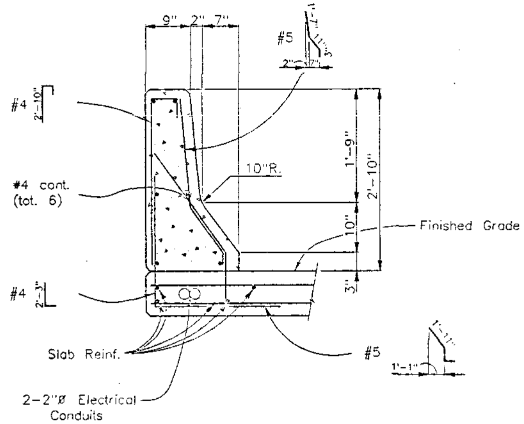


PLAN – CONTRACTION JOINT AND EXPANSION JOINT

Notes:

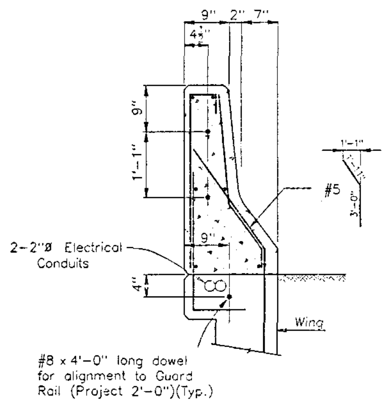
At Contraction Joint reinforcing is continuous thru joint, concrete is monolithic thru joint.

At Expansion Joint break bond between concrete each side of joint full height of rail; Hold reinforcing back 1" from joint.



SECTION

On deck slab



SECTION

On wingwall

NOTES:

Backfill wingwalls and retaining walls before barrier is placed.

All bridge rail concrete shall be Class D.

Longitudinal reinforcement shall stop at all expansion joints.

Bridge rail shall be constructed plumb.

Bridge rail concrete (Class D) and bridge rail reinforcement shall be included in Item No. 606, Bridge Rail Type 4.

For Guard Rail Type 4, see Std. M-606-12 for details.

For Guard Rail Type 3, see Std. M-606-12 for details of transition and attachment to concrete barrier. See Std. M-606-1 and M-606-2 for details of Guard Rail.

DESIGN DATA

Reinforced Concrete:

Class D Concrete: f_c = 1,800 psi, n = 8
Reinforcing Steel: f_s = 24,000 psi

INFORMATION ONLY

Description	Unit	Per Lin.Ft.
Concrete Class D	Cu. Yd.	0.11
Reinforcing Steel (Epoxy)	Lb.	13.8

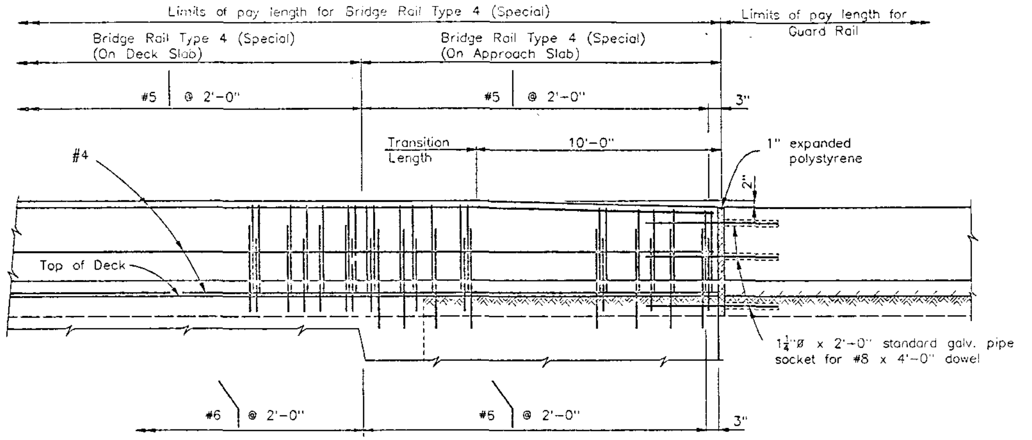
INITIAL	DATE			
Designed By M.C.	7-1-91	Checked By	K.G.S.	1/92
Checked By T.W.	7-1-91	Quantities By	K.G.S.	8/92
Detailed By R.D.	7-1-91	Checked By	M.C.	8/92

DIVISION OF HIGHWAYS

BRIDGE RAIL TYPE 4

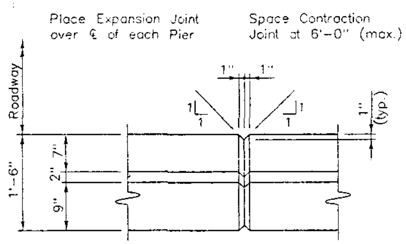
Designer M. Condictti | Structure Numbers E-17-OR
Detailer R. Dickey
Drawing Number B 20 of 30 Drawings

Issued 12-87 | Dates 7-80



ELEVATION

TRANSITION TO CONNECT BRIDGE RAIL TYPE 4 (SPECIAL) TO GUARD RAIL

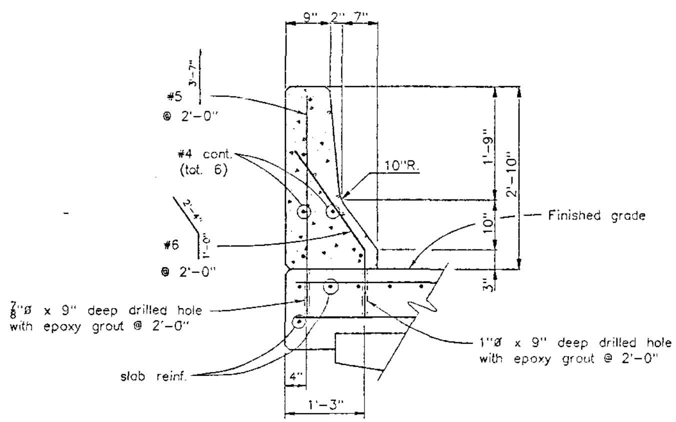


PLAN - CONTRACTION JOINT AND EXPANSION JOINT

Notes:

At Contraction Joint reinforcing is continuous thru joint, concrete is monolithic thru joint.

At Expansion Joint break bond between concrete each side of joint full height of rail; Hold reinforcing back 1" from joint.



SECTION

On deck slab or approach slab

NOTES:

Backfill wingwalls and retaining walls before barrier is placed.

All bridge rail concrete shall be Class D.

Longitudinal reinforcement shall stop at all expansion joints.

Bridge rail shall be constructed plumb.

Bridge rail concrete (Class D) and bridge rail reinforcement shall be included in Item No. 606, Bridge Rail Type 4 (Special).

For Guard Rail Type 4, see Std. M-606-12 for details.

For Guard Rail Type 3, see Std. M-606-12 for details of transition and attachment to concrete barrier. See Std. M-606-1 and M-606-2 for details of Guard Rail.

DESIGN DATA

Reinforced Concrete:

Class D Concrete: f_c = 1,800 psi, n = 8
Reinforcing Steel: f_s = 24,000 psi

INFORMATION ONLY

Description	Unit	Per Lin.Ft.
Concrete Class D	Cu. Yd.	0.11
Reinforcing Steel (Epoxy)	Lb.	8.4

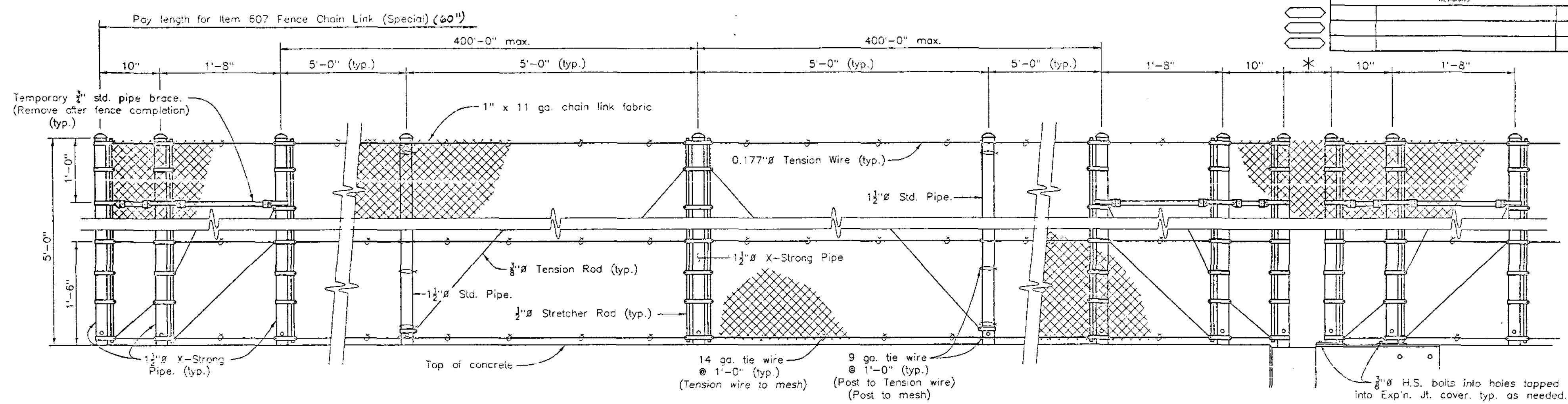
Initial	Date	Checked By		
Designed By M.C.	7/91	Checked By	K.G.S.	1/92
Checked By T.W.	1/92	Quantities By	K.G.S.	8/92
Detailed By P.A.D.	7/91	Checked By	M.C.	8/92

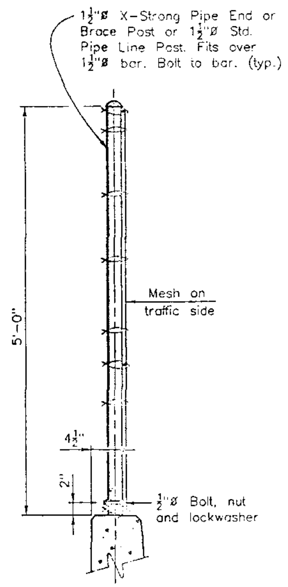
DIVISION OF HIGHWAYS

BRIDGE RAIL TYPE 4 SPECIAL

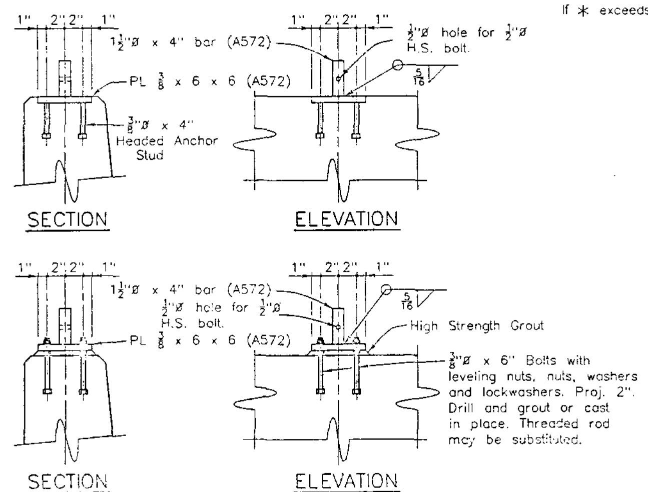
Designer	M. Cianfotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing No. B 21 of 30 Drawings			

08/11/92 LONGS::(USER/01200/USEP/DICKEY/E170R)ORBR4SPEC





TYPICAL SECTION



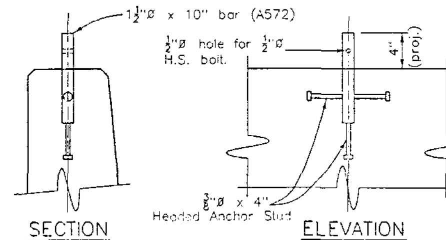
ALTERNATE ANCHORAGE DETAILS

✱ For Steel Bridges:
Use $\frac{1}{2}$ of rated joint motion +6", 8" min. If not known, rated motion may be assumed to be $1\frac{1}{4}$" per 100' contributing to motion.
✱ For Concrete Bridges:
Use $\frac{1}{4}$ of rated joint motion +6", 8" min. If not known, rated motion may be assumed to be $1\frac{1}{4}$" per 100' contributing to motion.
If ✱ exceeds 10" run mesh over gap with enough slack for $\frac{1}{2}$ rated expansion motion.

	Standard Color Vinyl Coatings over Galvanized Wire	Munsell Color System No. (as per ASTM)
	Galvanized Only	None
X	Brown	7YR 2.4/1.75
	Green	8.8G 2.63/5.8
	Black	1.8PB 1.26/0.5

	Special Color Vinyl Coatings over Galvanized Wire	☐ Federal Color No. ☐ Munsell Color System No.

If the specific color of coating is not marked and the Federal Color No. or the Munsell Color System No. is not given, vinyl coating is not required.



ANCHORAGE DETAIL

NOTES

Anchorage assembly shall be galvanized after fabrication. *If Vinyl Coating is specified, the fence assembly shall* be Galvanized and Vinyl Coated after fabrication. Anchorages shall only be galvanized after fabrication.

Tension Rods and Wires shall have turnbuckles.

Post shall be vertical.

Pipe shall conform to ASTM A53 Type E or S, Grade B.

DESIGN DATA

1989 AASHTO Specifications

Total Tension = 5400 lbs.
Test with: Max. Midbay deflection = $1\frac{1}{4}$" for Lateral Load of 160 lbs. on 1 ft^2, 1'-6" up @ center of bay.

Live Load: wind load = 11 psf
or snow impact load = 96 plf @ 1'-6" up

Structural Steel: Pipe f_s = 23,100 psi
ASTM A572 (GR 50) f_s = 40,000 psi

COLORADO DEPARTMENT OF TRANSPORTATION

FENCE CHAIN LINK (SPECIAL)

Designer	M. Condiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number B 22 of 30 Drawings			

5-91

Federal Aid Region No.	Division	Project Number	Sheet Number
	Colorado	NH(CX) 225-4(39)	88

AS CONSTRUCTED — NO REVISIONS / REVISED / VOID

REVISIONS

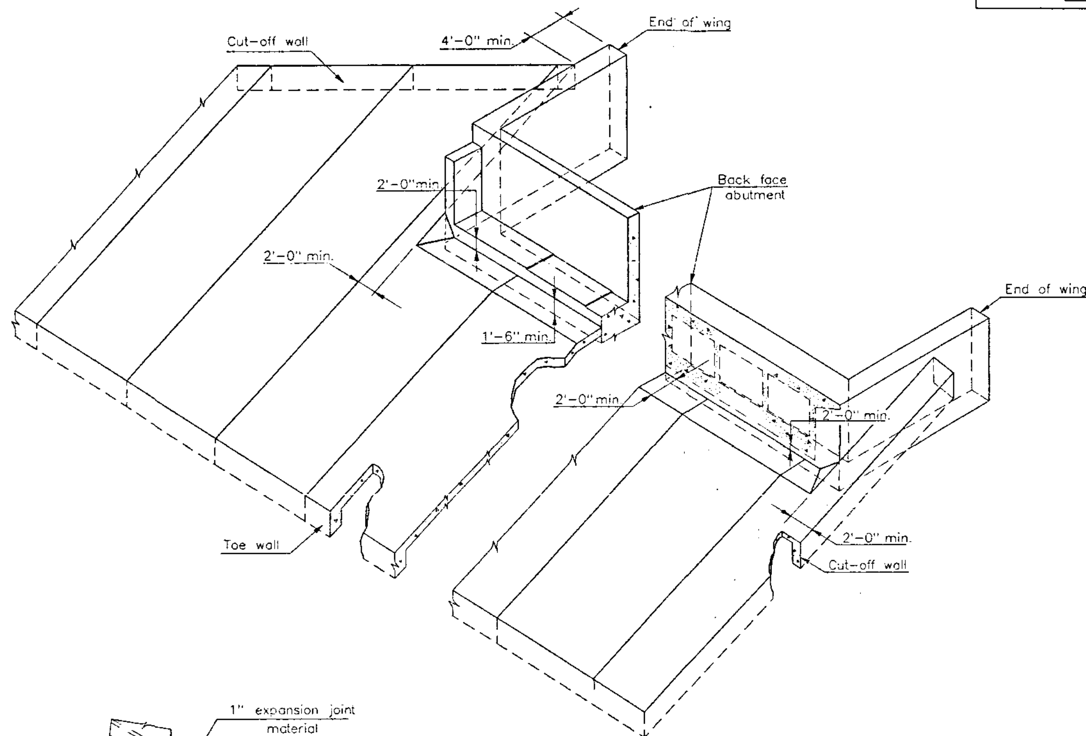
Design	Initial	Date	Detail	Initial	Date	Quantities	Initial	Date
Designed By	M.C.	7/91	Detailed By	R.A.D.	7/91	Quantities By	K.G.S.	8/92
Checked By	T.W.	1/92	Checked By	K.G.S.	1/92	Checked By	M.C.	8/92

09/10/92 LONGS::(USER/01200/USER/DICKEY/E170R)ORFENCE

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	89

REVISIONS



NOTES:

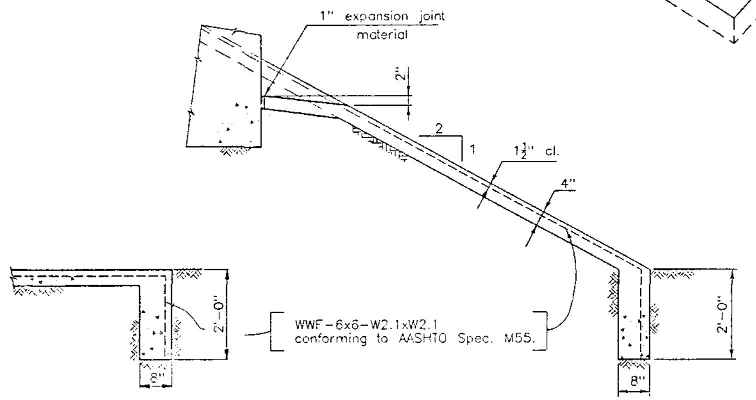
Slope paving shall be poured in 10 ft. transverse sections with a tooled construction joint at each section.

Wire fabric shall be 2" from the end of joints and shall lap 8" at splices.

Where slope or berm paving butts against structural concrete, separate with 1" expansion joint material.

Expansion joint material and welded wire fabric shall not be paid for separately, but shall be included in the work.

Structure excavation for concrete slope and ditch paving shall be limited to the actual volume occupied by the slope paving concrete.



TYPICAL SECTION
THRU CUT-OFF WALL

TYPICAL SECTION
THRU SLOPE PAVING

These drawings show general details only. For limits of slope paving see General Layout.

	Initial	Date			
Designed By	M.C.	7/91	Checked By	K.G.S.	1/92
Checked By	T.W.	1/92	Quantities By	K.G.S.	8/92
Detailed By	R.A.D.	7/91	Checked By	M.C.	8/92

DIVISION OF HIGHWAYS

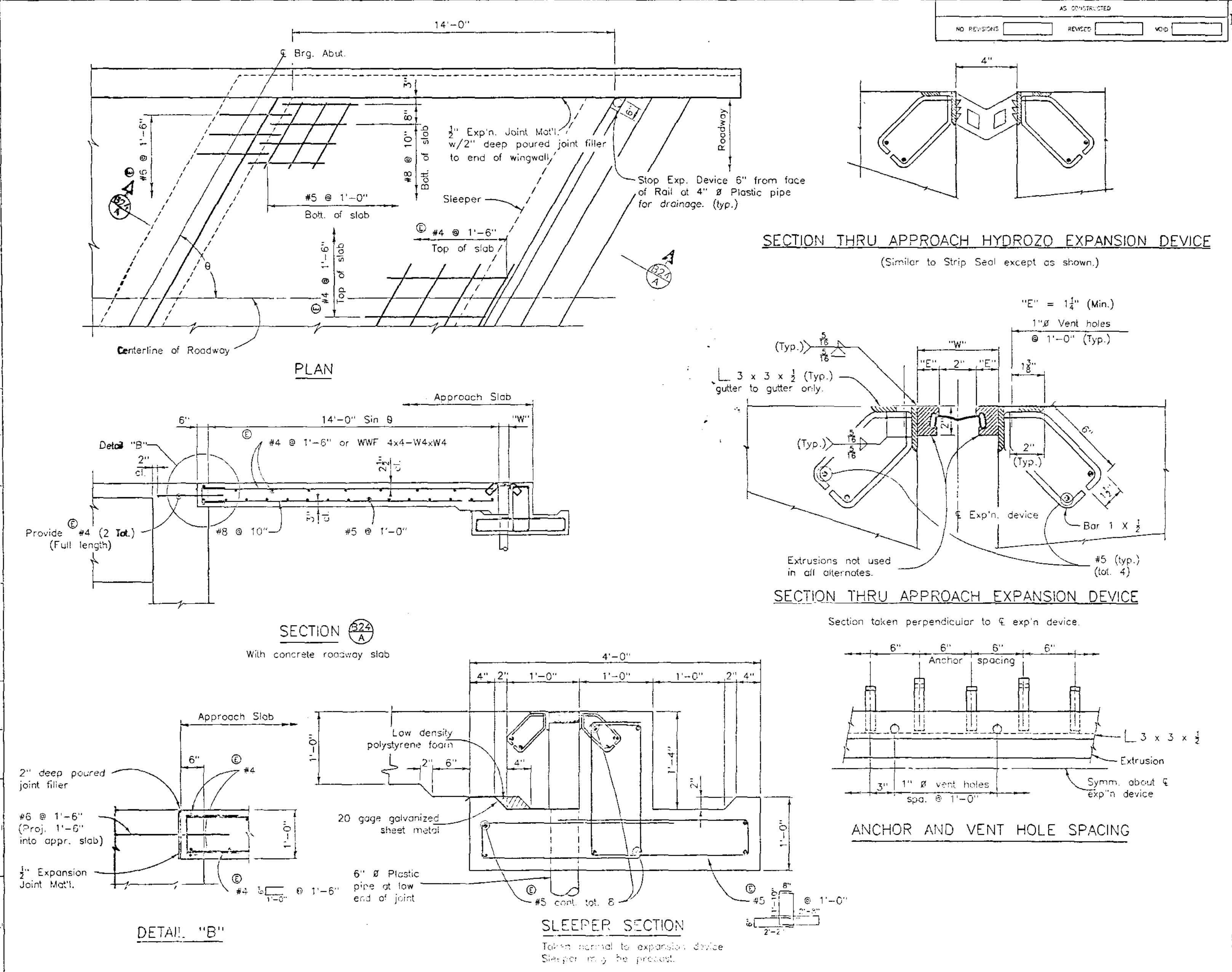
SLOPE PAVING DETAILS

Designer	M. Condiotti	Structure	E-17-OR
Detailer	P. Dickey	Numbers	

Drawing Number B 23 of 30 Drawings

12-87

08/10/92 LONGS::(USER/01200/USER/DICKEY/E17OR)ORSLPV



NOTES:

Concrete Class D (Bridge) shall be used for approach slabs.

½" expansion joint material shall meet A.A.S.H.T.O. Spec. M213.

The expansion device shall be installed on grade, parallel to the slope and grade of the deck.

After the concrete has attained initial set, the attachments used to hold the angle assembly in its proper position shall be removed.

Do not paint steel surfaces in contact with either concrete or seal.

"W" and "E" dimensions are dependent upon the particular expansion device supplied, and shall be shown on the shop drawings.

The neoprene seal shall be one piece.

Vent holes shall not be used for support bolts.

See Special Provisions for epoxy grouting of vent holes.

ACCEPTABLE ALTERNATES

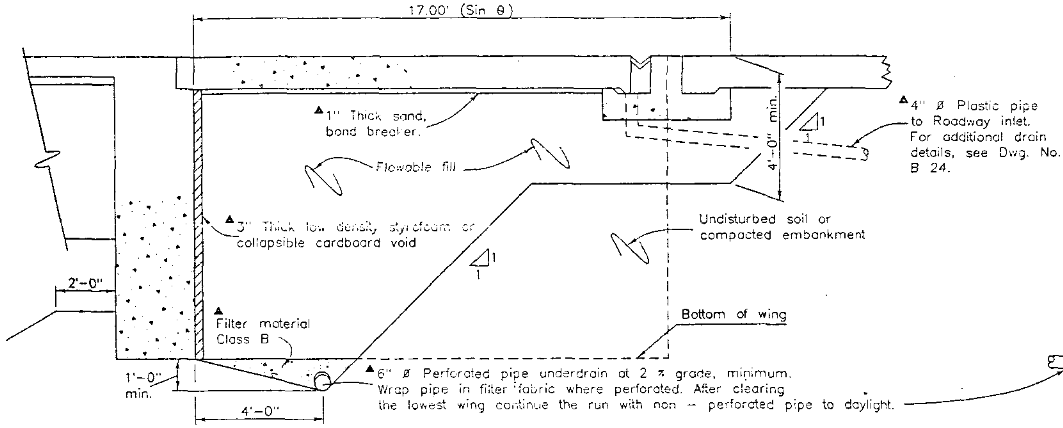
WABO-S-400
ONFLEX 40-SEQ
D. S. BROWN SS-400, SSA-400
EPOXY BRG. IND. BS-400-A
LENCO L400 TYPE W
HYDROZO/JEENE 4" W

DIVISION OF HIGHWAYS

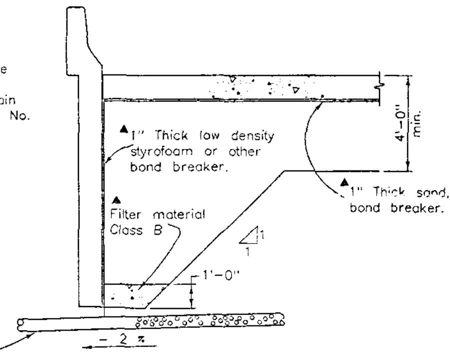
APPROACH SLAB DETAILS

Designer M. Condictti | Structure E-17-OR
Detailer R. Dickey | Numbers
Drawing Number B 24 of 3_ Drawings

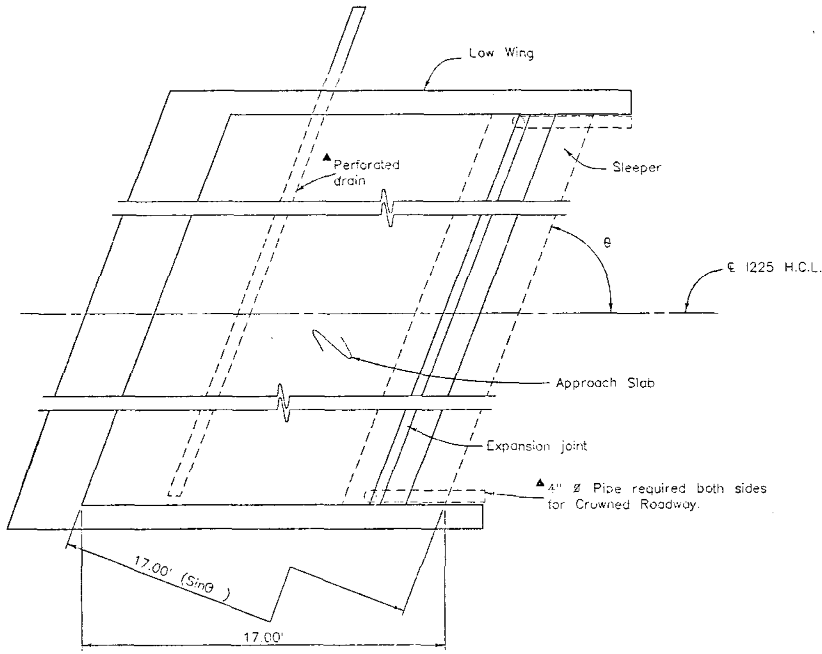
REVISIONS



SECTION PERPENDICULAR TO ABUTMENT



SECTION AT LOW WING



PLAN

Concrete Roadway

▲ To be included in the bid price for Item 206 Structure Backfill (Flow-Fill).

Designed By	M.C.	1/92
Checked By	K.G.S.	1/92
Quantities By	K.G.S.	6/92
Detailed By	R.A.D.	8/92

DIVISION OF HIGHWAYS

STRUCTURE BACKFILL
(SPECIAL)

Designer M. Condiotti	Structure Numbers E-17-OR
Detailer R. Dickey	
Drawing Number B 25 of 30 Drawings	

08/11/92 LONGS::(USER/01200/USER/DICKEY/E17OR)ORBKFILL

State of Colorado
State Department of Highways
Division of Highways
DOH Form # 117
Revised NOV 1990

Design			Detail			Quantities	
	INITIAL	DATE		INITIAL	DATE		INIT AL	DATE
Designed By	M.C.	7/91	Detailed By	R.A.D.	7/91	Quantities by	K.G.S.	8/92
Checked By	T.W.	1992	Checked By	K.G.S.	1992	Checked By	M.C.	8/92

DICKEYR
Bridgefile: E17ORGEOL_DKELEV
brg$disk:[dickeyr]
Picaso II v01.00a Thu Aug 20 09:06:17 1992

LONGITUDINAL LINE: LEFT EDGE OF DECK

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
END WING 1	1612+06.0303	-93.8433	5368.4478
BF ABUT 1	1612+22.6944	-94.2096	5364.5977
CL BRG A1	1612+24.0258	-94.2389	5368.6091
F-1	1612+34.5215	-94.4696	5368.6961
F-2	1612+45.0173	-94.7003	5368.7777
F-3	1612+55.5130	-94.9310	5368.8540
F-4	1612+66.0087	-95.1617	5368.9250
F-5	1612+76.5045	-95.3924	5368.9907
F-6	1612+87.0002	-95.6231	5369.0511
F-7	1612+97.4959	-95.8538	5369.1062
F-8	1613+07.9917	-96.0845	5369.1560
F-9	1613+18.4874	-96.3152	5369.2005
CL BK BRG2	1613+28.9831	-96.5458	5369.2396
CL PIER 2	1613+29.3227	-96.5643	5369.2428
CL AH BRG2	1613+30.6624	-96.5828	5369.2434
F-1	1613+41.1581	-96.8135	5369.2734
F-2	1613+51.6538	-97.0442	5369.3069
F-3	1613+62.1496	-97.2749	5369.3286
F-4	1613+72.6453	-97.5055	5369.3457
F-5	1613+83.1410	-97.7362	5369.3575
F-6	1613+93.6367	-97.9669	5369.3640
F-7	1614+04.1325	-98.1976	5369.3652
F-8	1614+14.6282	-98.4283	5369.3611
F-9	1614+25.1239	-98.6590	5369.3517
CL BK BRG3	1614+35.6197	-98.8897	5369.3370
CL PIER 3	1614+36.4593	-98.9082	5369.3356
CL AH BRG3	1614+37.2990	-98.9266	5369.3341
F-1	1614+47.7947	-99.1573	5369.3133
F-2	1614+58.2905	-99.3880	5369.2871
F-3	1614+68.7862	-99.6187	5369.2556
F-4	1614+79.2819	-99.8494	5369.2186
F-5	1614+89.7776	-100.0801	5369.1767
F-6	1615+00.2733	-100.3108	5369.1293
F-7	1615+10.7691	-100.5415	5369.0766
F-8	1615+21.2648	-100.7722	5369.0186
F-9	1615+31.7605	-101.0029	5368.9553
CL BRG A4	1615+42.2562	-101.2336	5368.8867
BF ABUT 4	1615+43.5876	-101.2629	5368.8776
END WING 4	1615+46.2523	-101.3292	5368.7587

LONGITUDINAL LINE: C.L. GIRDER 1

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1612+21.4859	-90.6831	5368.6573
CL BRG A1	1612+22.8173	-90.7123	5368.6688
F-1	1612+33.3130	-90.9430	5368.7563
F-2	1612+43.8087	-91.1737	5368.8348
F-3	1612+54.3044	-91.4044	5368.9155
F-4	1612+64.8002	-91.6351	5368.9871
F-5	1612+75.2959	-91.8658	5369.0534
F-6	1612+85.7916	-92.0965	5369.1144
F-7	1612+96.2874	-92.3272	5369.1701
F-8	1613+06.7831	-92.5579	5369.2205
F-9	1613+17.2788	-92.7886	5369.2656
CL BK BRG2	1613+27.7746	-93.0193	5369.3054
CL PIER 2	1613+28.6142	-93.0377	5369.3084
CL AH BRG2	1613+29.4538	-93.0562	5369.3113
F-1	1613+39.9495	-93.2869	5369.3449
F-2	1613+50.4453	-93.5176	5369.3732
F-3	1613+60.9410	-93.7483	5369.3963
F-4	1613+71.4367	-93.9790	5369.4140
F-5	1613+81.9325	-94.2097	5369.4264
F-6	1613+92.4282	-94.4404	5369.4335
F-7	1614+02.9239	-94.6711	5369.4353
F-8	1614+13.4196	-94.9018	5369.4318
F-9	1614+23.9154	-95.1325	5369.4230
CL BK BRG3	1614+34.4111	-95.3632	5369.4089
CL PIER 3	1614+35.2507	-95.3816	5369.4076
CL AH BRG3	1614+36.0905	-95.4001	5369.4062
F-1	1614+46.5862	-95.6308	5369.3859
F-2	1614+57.0819	-95.8615	5369.3604
F-3	1614+67.5776	-96.0922	5369.3295
F-4	1614+78.0733	-96.3229	5369.2933
F-5	1614+88.5691	-96.5536	5369.2518
F-6	1614+99.0648	-96.7843	5369.2051
F-7	1615+09.5605	-97.0150	5369.1530
F-8	1615+20.0562	-97.2457	5369.0956
F-9	1615+30.5519	-97.4764	5369.0329
CL BRG A4	1615+41.0477	-97.7070	5368.9649
BF ABUT 4	1615+42.3791	-97.7363	5368.9559

LONGITUDINAL LINE: C.L. GIRDER 1A

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
CL PIER 3	1614+33.5081	-90.2967	5369.5113
CL AH BRG3	1614+34.3447	-90.3059	5369.5102
F-1	1614+44.8007	-90.4208	5369.4932
F-2	1614+55.2567	-90.5357	5369.4709
F-3	1614+65.7126	-90.6506	5369.4434
F-4	1614+76.1686	-90.7655	5369.4106
F-5	1614+86.6245	-90.8804	5369.3725
F-6	1614+97.0805	-90.9953	5369.3292
F-7	1615+07.5365	-91.1102	5369.2806
F-8	1615+17.9924	-91.2252	5369.2266
F-9	1615+28.4484	-91.3401	5369.1677
CL BRG A4	1615+38.9051	-91.4550	5369.1033
BF ABUT 4	1615+40.2314	-91.4696	5369.0948

LONGITUDINAL LINE: C.L. GIRDER 2

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1612+19.6239	-85.2500	5368.7490
CL BRG A1	1612+20.9453	-85.2500	5368.7611
F-1	1612+31.3620	-85.2500	5368.8535
F-2	1612+41.7786	-85.2500	5368.9406
F-3	1612+52.1953	-85.2500	5369.0226
F-4	1612+62.6120	-85.2500	5369.0993
F-5	1612+73.0287	-85.2500	5369.1709
F-6	1612+83.4453	-85.2500	5369.2371
F-7	1612+93.8620	-85.2500	5369.2982
F-8	1613+04.2787	-85.2500	5369.3540
F-9	1613+14.6953	-85.2500	5369.4046
CL BK BRG2	1613+25.1120	-85.2500	5369.4500
CL PIER 2	1613+25.9453	-85.2500	5369.4534
CL AH BRG2	1613+26.7786	-85.2500	5369.4568
F-1	1613+37.1953	-85.2500	5369.4961
F-2	1613+47.6119	-85.2500	5369.5302
F-3	1613+58.0286	-85.2500	5369.5591
F-4	1613+68.4453	-85.2500	5369.5827
F-5	1613+78.8620	-85.2500	5369.6012
F-6	1613+89.2786	-85.2500	5369.6144
F-7	1613+99.6953	-85.2500	5369.6223
F-8	1614+10.1120	-85.2500	5369.6251
F-9	1614+20.5286	-85.2500	5369.6226
CL BK BRG3	1614+30.9453	-85.2500	5369.6149
CL PIER 3	1614+31.7786	-85.2500	5369.6141
CL AH BRG3	1614+32.6120	-85.2500	5369.6132
F-1	1614+43.0287	-85.2500	5369.5994
F-2	1614+53.4453	-85.2500	5369.5804
F-3	1614+63.8620	-85.2500	5369.5562
F-4	1614+74.2786	-85.2500	5369.5268
F-5	1614+84.6953	-85.2500	5369.4921
F-6	1614+95.1120	-85.2500	5369.4522
F-7	1615+05.5286	-85.2500	5369.4071
F-8	1615+15.9453	-85.2500	5369.3568
F-9	1615+26.3619	-85.2500	5369.3012
CL BRG A4	1615+36.7786	-85.2500	5369.2404
BF ABUT 4	1615+38.1000	-85.2500	5369.2324

LONGITUDINAL LINE: C.L. GIRDER 3

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1612+16.4540	-76.0000	5368.9046
CL BRG A1	1612+17.7753	-76.0000	5368.9169
F-1	1612+28.1920	-76.0000	5369.0109
F-2	1612+38.6087	-76.0000	5369.0997
F-3	1612+49.0253	-76.0000	5369.1832
F-4	1612+59.4420	-76.0000	5369.2615
F-5	1612+69.8587	-76.0000	5369.3346
F-6	1612+80.2753	-76.0000	5369.4025
F-7	1612+90.6920	-76.0000	5369.4652
F-8	1613+01.1087	-76.0000	5369.5226
F-9	1613+11.5253	-76.0000	5369.5748
CL BK BRG2	1613+21.9420	-76.0000	5369.6218
CL PIER 2	1613+22.7753	-76.0000	5369.6253
CL AH BRG2	1613+23.6086	-76.0000	5369.6288
F-1	1613+34.0253	-76.0000	5369.6697
F-2	1613+44.4420	-76.0000	5369.7054
F-3	1613+54.8586	-76.0000	5369.7359
F-4	1613+65.2753	-76.0000	5369.7611
F-5	1613+75.6920	-76.0000	5369.7811
F-6	1613+86.1086	-76.0000	5369.7959
F-7	1613+96.5253	-76.0000	5369.8055
F-8	1614+06.9420	-76.0000	5369.8098
F-9	1614+17.3586	-76.0000	5369.8089
CL BK BRG3	1614+27.7753	-76.0000	5369.8026
CL PIER 3	1614+28.6086	-76.0000	5369.8021
CL AH BRG3	1614+29.4420	-76.0000	5369.8014
F-1	1614+39.8587	-76.0000	5369.7892
F-2	1614+50.2753	-76.0000	5369.7718
F-3	1614+60.6920	-76.0000	5369.7492
F-4	1614+71.1087	-76.0000	5369.7213
F-5	1614+81.5253	-76.0000	5369.6882
F-6	1614+91.9420	-76.0000	5369.6499
F-7	1615+02.3586	-76.0000	5369.6064
F-8	1615+12.7753	-76.0000	5369.5577
F-9	1615+23.1920	-76.0000	5369.5037
CL BRG A4	1615+33.6086	-76.0000	5369.4445
BF ABUT 4	1615+34.9300	-76.0000	5369.4366

LONGITUDINAL LINE: C.L. GIRDER 4

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1612+13.2840	-66.7500	5369.0598
CL BRG A1	1612+14.6053	-66.7500	5369.0723
F-1	1612+25.0220	-66.7500	5369.1678
F-2	1612+35.4387	-66.7500	5369.2582
F-3	1612+45.8553	-66.7500	5369.3433
F-4	1612+56.2720	-66.7500	5369.4233
F-5	1612+66.6887	-66.7500	5369.4980
F-6	1612+77.1053	-66.7500	5369.5674
F-7	1612+87.5220	-66.7500	5369.6317
F-8	1612+97.9387	-66.7500	5369.6907
F-9	1613+08.3554	-66.7500	5369.7445
CL BK BRG2	1613+18.7720	-66.7500	5369.7930
CL PIER 2	1613+19.6053	-66.7500	5369.7967
CL AH BRG2	1613+20.4386	-66.7500	5369.8003
F-1	1613+30.8553	-66.7500	5369.8428
F-2	1613+41.2720	-66.7500	5369.8801
F-3	1613+51.6886	-66.7500	5369.9121
F-4	1613+62.1053	-66.7500	5369.9390
F-5	1613+72.5220	-66.7500	5369.9606
F-6	1613+82.9386	-66.7500	5369.9770
F-7	1613+93.3553	-66.7500	5369.9881
F-8	1614+03.7720	-66.7500	5369.9940
F-9	1614+14.1887	-66.7500	5369.9947
CL BK BRG3	1614+24.6053	-66.7500	5369.9902
CL PIER 3	1614+25.4386	-66.7500	5369.9898
CL AH BRG3	1614+26.2720	-66.7500	5369.9890
F-1	1614+36.6887	-66.7500	5369.9744
F-2	1614+47.1053	-66.7500	5369.9626
F-3	1614+57.5220	-66.7500	5369.9416
F-4	1614+67.9387	-66.7500	5369.9153
F-5	1614+78.3553	-66.7500	5369.8839
F-6	1614+88.7720	-66.7500	5369.8471
F-7	1614+99.1886	-66.7500	5369.8052
F-8	1615+09.6053	-66.7500	5369.7581
F-9	1615+20.0220	-66.7500	5369.7057
CL BRG A4	1615+30.4386	-66.7500	5369.6481
BF ABUT 4	1615+31.7600	-66.7500	5369.6404

LONGITUDINAL LINE: C.L. GIRDER 5

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1612+10.1140	-57.5000	5369.2144
CL BRG A1	1612+11.4353	-57.5000	5369.2271
F-1	1612+21.8520	-57.5000	5369.3243
F-2	1612+32.2687	-57.5000	5369.4163
F-3	1612+42.6853	-57.5000	5369.5030
F-4	1612+53.1020	-57.5000	5369.5845
F-5	1612+63.5187	-57.5000	5369.6608
F-6	1612+73.9354	-57.5000	5369.7318
F-7	1612+84.3520	-57.5000	5369.7977
F-8	1612+94.7687	-57.5000	5369.8583
F-9	1613+05.1854	-57.5000	5369.9136
CL BK BRG2	1613+15.6020	-57.5000	5369.9638
CL PIER 2	1613+16.4353	-57.5000	5369.9676
CL AH BRG2	1613+17.2686	-57.5000	5369.9713
F-1	1613+27.6853	-57.5000	5370.0154
F-2	1613+38.1020	-57.5000	5370.0543
F-3	1613+48.5186	-57.5000	5370.0879
F-4	1613+58.9353	-57.5000	5370.1164
F-5	1613+69.3520	-57.5000	5370.1396
F-6	1613+79.7687	-57.5000	5370.1575
F-7	1613+90.1853	-57.5000	5370.1703
F-8	1614+00.6020	-57.5000	5370.1778
F-9	1614+11.0187	-57.5000	5370.1801
CL BK BRG3	1614+21.4353	-57.5000	5370.1772
CL PIER 3	1614+22.2686	-57.5000	5370.1767
CL AH BRG3	1614+23.1020	-57.5000	5370.1762
F-1	1614+33.5187	-57.5000	5370.1672
F-2	1614+43.9354	-57.5000	5370.1530
F-3	1614+54.3520	-57.5000	5370.1335
F-4	1614+64.7687	-57.5000	5370.1089
F-5	1614+75.1853	-57.5000	5370.0790
F-6	1614+85.6020	-57.5000	5370.0439
F-7	1614+96.0187	-57.5000	5370.0035
F-8	1615+06.4353	-57.5000	5369.9580
F-9	1615+16.8520	-57.5000	5369.9072
CL BRG A4	1615+27.2686	-57.5000	5369.8512
BF ABUT 4	1615+28.5900	-57.5000	5369.8437

LONGITUDINAL LINE: LT CONTROL LINE P.G.

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1612+08.9145	-54.0000	5369.2728
CL BRG A1	1612+10.2359	-54.0000	5369.2856
F-1	1612+20.6526	-54.0000	5369.3834
F-2	1612+31.0692	-54.0000	5369.4759
F-3	1612+41.4859	-54.0000	5369.5633
F-4	1612+51.9026	-54.0000	5369.6454
F-5	1612+62.3192	-54.0000	5369.7223
F-6	1612+72.7359	-54.0000	5369.7939
F-7	1612+83.1526	-54.0000	5369.8603
F-8	1612+93.5692	-54.0000	5369.9216
F-9	1613+03.9859	-54.0000	5369.9775
CL BK BRG2	1613+14.4026	-54.0000	5370.0283
CL PIER 2	1613+15.2359	-54.0000	5370.0321
CL AH BRG2	1613+16.0692	-54.0000	5370.0359
F-1	1613+26.4859	-54.0000	5370.0806
F-2	1613+36.9025	-54.0000	5370.1201
F-3	1613+47.3192	-54.0000	5370.1543
F-4	1613+57.7359	-54.0000	5370.1834
F-5	1613+68.1525	-54.0000	5370.2072
F-6	1613+78.5692	-54.0000	5370.2257
F-7	1613+88.9859	-54.0000	5370.2391
F-8	1613+99.4025	-54.0000	5370.2472
F-9	1614+09.8192	-54.0000	5370.2501
CL BK BRG3	1614+20.2359	-54.0000	5370.2478
CL PIER 3	1614+21.0692	-54.0000	5370.2473
CL AH BRG3	1614+21.9026	-54.0000	5370.2469
F-1	1614+32.3192	-54.0000	5370.2385
F-2	1614+42.7359	-54.0000	5370.2249
F-3	1614+53.1526	-54.0000	5370.2061
F-4	1614+63.5692	-54.0000	5370.1820
F-5	1614+73.9859	-54.0000	5370.1527
F-6	1614+84.4025	-54.0000	5370.1182
F-7	1614+94.8192	-54.0000	5370.0784
F-8	1615+05.2359	-54.0000	5370.0335
F-9	1615+15.6525	-54.0000	5369.9833
CL BRG A4	1615+26.0692	-54.0000	5369.9279
BF ABUT 4	1615+27.3905	-54.0000	5369.9205

LONGITUDINAL LINE: C.L. GIRDER 6

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1612+06.9440	-48.2500	5369.3686
CL BRG A1	1612+08.2653	-48.2500	5369.3815
F-1	1612+18.6820	-48.2500	5369.4803
F-2	1612+29.0987	-48.2500	5369.5738
F-3	1612+39.5154	-48.2500	5369.6621
F-4	1612+49.9320	-48.2500	5369.7452
F-5	1612+60.3487	-48.2500	5369.8231
F-6	1612+70.7654	-48.2500	5369.8958
F-7	1612+81.1820	-48.2500	5369.9632
F-8	1612+91.5987	-48.2500	5370.0254
F-9	1613+02.0154	-48.2500	5370.0823
CL BK BRG2	1613+12.4320	-48.2500	5370.1341
CL PIER 2	1613+13.2653	-48.2500	5370.1380
CL AE BRG2	1613+14.0986	-48.2500	5370.1419
F-1	1613+24.5153	-48.2500	5370.1876
F-2	1613+34.9320	-48.2500	5370.2280
F-3	1613+45.3487	-48.2500	5370.2633
F-4	1613+55.7653	-48.2500	5370.2933
F-5	1613+66.1820	-48.2500	5370.3181
F-6	1613+76.5987	-48.2500	5370.3376
F-7	1613+87.0153	-48.2500	5370.3519
F-8	1613+97.4320	-48.2500	5370.3611
F-9	1614+07.8487	-48.2500	5370.3649
CL BK BRG3	1614+18.2653	-48.2500	5370.3636
CL PIER 3	1614+19.0986	-48.2500	5370.3633
CL AH BRG3	1614+19.9320	-48.2500	5370.3629
F-1	1614+30.3487	-48.2500	5370.3555
F-2	1614+40.7654	-48.2500	5370.3429
F-3	1614+51.1820	-48.2500	5370.3250
F-4	1614+61.5987	-48.2500	5370.3019
F-5	1614+72.0153	-48.2500	5370.2738
F-6	1614+82.4320	-48.2500	5370.2401
F-7	1614+92.8487	-48.2500	5370.2014
F-8	1615+03.2653	-48.2500	5370.1574
F-9	1615+13.6820	-48.2500	5370.1082
CL BRG A4	1615+24.0986	-48.2500	5370.0538
BF ABUT 4	1615+25.4200	-48.2500	5370.0465

As Constructed
No Revisions [ ] Revised [ ] Void [ ]

B-100-3

Federal Road Region NO	Division	Project Number	Sheet Number
VIII	Colorado	NH(CX) 225-4(39)	92

Revisions

NOTE: ELEVATIONS ARE AT TOP OF CONCRETE DECK WHICH IS FINISHED GRADE.

THESE STATIONS, COORDINATES, OFFSETS, AND LENGTHS DEFINE THE LAYOUT OF THE STRUCTURE IN A TWO DIMENSIONAL HORIZONTAL PLANE. ELEVATIONS DEFINE THE FINAL GRADE OF THE FINISHED CONCRETE DECK. FABRICATION OF STRUCTURAL COMPONENTS THROUGH THE DIRECT USE OF THIS INFORMATION IS NOT INTENDED OR ADVISABLE.

DIVISION OF HIGHWAYS

BRIDGE DECK ELEVATIONS

Designer	M. Condiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number B	26	of 30	Drawings

Revision Dates | Preliminary Stage Only

State of Colorado
State Department of Highways
Division of Highways
DOH Form # 117
Revised NOV 1990

Design			Detail			Quantities		
	INITIAL	DATE		INITIAL	DATE		INIT AL	DATE
Designed By	MC	7/91	Detailed By	R.A.D.	7/91	Quantities by	K.G.S.	8/92
Checked By	T.W.	1992	Checked By	K.G.S.	1992	Checked By	M.C.	8/92

As Constructed: No Revisions ☐ Revised ☐ Void ☐

Federal Road Region NO.	Division	Project Number	Sheet Number
VIII	Colorado	NH(CX) 225-4(39)	93

B-100-3

Revisions

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
LONGITUDINAL LINE: C.L. GIRDER 7			
BF ABUT 1	1612+03.7740	-39.0000	5369.5223
CL BRG A1	1612+05.0954	-39.0000	5369.5354
F-1	1612+15.5120	-39.0000	5369.6358
F-2	1612+25.9287	-39.0000	5369.7309
F-3	1612+36.3454	-39.0000	5369.8209
F-4	1612+46.7620	-39.0000	5369.9055
F-5	1612+57.1787	-39.0000	5369.9850
F-6	1612+67.5954	-39.0000	5370.0592
F-7	1612+78.0121	-39.0000	5370.1282
F-8	1612+88.4287	-39.0000	5370.1920
F-9	1612+98.8454	-39.0000	5370.2506
CL BK BRG2	1613+09.2621	-39.0000	5370.3039
CL PIER 2	1613+10.0954	-39.0000	5370.3079
CL AH BRG2	1613+10.9287	-39.0000	5370.3119
F-1	1613+21.3453	-39.0000	5370.3592
F-2	1613+31.7620	-39.0000	5370.4013
F-3	1613+42.1787	-39.0000	5370.4381
F-4	1613+52.5953	-39.0000	5370.4697
F-5	1613+63.0120	-39.0000	5370.4961
F-6	1613+73.4287	-39.0000	5370.5172
F-7	1613+83.8454	-39.0000	5370.5331
F-8	1613+94.2620	-39.0000	5370.5438
F-9	1614+04.6787	-39.0000	5370.5493
CL BK BRG3	1614+15.0954	-39.0000	5370.5496
CL PIER 3	1614+15.9287	-39.0000	5370.5494
CL AH BRG3	1614+16.7621	-39.0000	5370.5491
F-1	1614+27.1787	-39.0000	5370.5433
F-2	1614+37.5954	-39.0000	5370.5323
F-3	1614+48.0120	-39.0000	5370.5160
F-4	1614+58.4287	-39.0000	5370.4945
F-5	1614+68.8454	-39.0000	5370.4678
F-6	1614+79.2620	-39.0000	5370.4359
F-7	1614+89.6787	-39.0000	5370.3987
F-8	1615+00.0953	-39.0000	5370.3563
F-9	1615+10.5120	-39.0000	5370.3087
CL BRG A4	1615+20.9287	-39.0000	5370.2559
BF ABUT 4	1615+22.2500	-39.0000	5370.2488
LONGITUDINAL LINE: C.L. GIRDER 8			
BF ABUT 1	1612+00.6040	-29.7500	5369.6755
CL BRG A1	1612+01.9254	-29.7500	5369.6884
F-1	1612+12.3420	-29.7500	5369.7906
F-2	1612+22.7587	-29.7500	5369.8875
F-3	1612+33.1754	-29.7500	5369.9790
F-4	1612+43.5921	-29.7500	5370.0653
F-5	1612+54.0087	-29.7500	5370.1463
F-6	1612+64.4254	-29.7500	5370.2222
F-7	1612+74.8421	-29.7500	5370.2928
F-8	1612+85.2587	-29.7500	5370.3581
F-9	1612+95.6754	-29.7500	5370.4183
CL BK BRG2	1613+06.0921	-29.7500	5370.4732
CL PIER 2	1613+06.9254	-29.7500	5370.4774
CL AH BRG2	1613+07.7587	-29.7500	5370.4815
F-1	1613+18.1753	-29.7500	5370.5304
F-2	1613+28.5920	-29.7500	5370.5740
F-3	1613+39.0087	-29.7500	5370.6124
F-4	1613+49.4254	-29.7500	5370.6456
F-5	1613+59.8420	-29.7500	5370.6736
F-6	1613+70.2587	-29.7500	5370.6963
F-7	1613+80.6754	-29.7500	5370.7138
F-8	1613+91.0920	-29.7500	5370.7261
F-9	1614+01.5087	-29.7500	5370.7332
CL BK BRG3	1614+11.9254	-29.7500	5370.7350
CL PIER 3	1614+12.7587	-29.7500	5370.7350
CL AH BRG3	1614+13.5921	-29.7500	5370.7348
F-1	1614+24.0087	-29.7500	5370.7306
F-2	1614+34.4254	-29.7500	5370.7212
F-3	1614+44.8420	-29.7500	5370.7065
F-4	1614+55.2587	-29.7500	5370.6866
F-5	1614+65.6754	-29.7500	5370.6615
F-6	1614+76.0920	-29.7500	5370.6311
F-7	1614+86.5087	-29.7500	5370.5956
F-8	1614+96.9254	-29.7500	5370.5548
F-9	1615+07.3420	-29.7500	5370.5087
CL BRG A4	1615+17.7587	-29.7500	5370.4575
BF ABUT 4	1615+19.0800	-29.7500	5370.4506
LONGITUDINAL LINE: C.L. GIRDER 9			
BF ABUT 1	1611+97.4340	-20.5000	5369.8283
CL BRG A1	1611+98.7554	-20.5000	5369.8418
F-1	1612+09.1721	-20.5000	5369.9453
F-2	1612+19.5887	-20.5000	5370.0436
F-3	1612+30.0054	-20.5000	5370.1367
F-4	1612+40.4221	-20.5000	5370.2246
F-5	1612+50.8387	-20.5000	5370.3072
F-6	1612+61.2554	-20.5000	5370.3846
F-7	1612+71.6721	-20.5000	5370.4568
F-8	1612+82.0887	-20.5000	5370.5238
F-9	1612+92.5054	-20.5000	5370.5855
CL BK BRG2	1613+02.9221	-20.5000	5370.6421
CL PIER 2	1613+03.7554	-20.5000	5370.6464
CL AH BRG2	1613+04.5887	-20.5000	5370.6506
F-1	1613+15.0054	-20.5000	5370.7011
F-2	1613+25.4220	-20.5000	5370.7463
F-3	1613+35.8387	-20.5000	5370.7863
F-4	1613+46.2554	-20.5000	5370.8211
F-5	1613+56.6720	-20.5000	5370.8506
F-6	1613+67.0887	-20.5000	5370.8750
F-7	1613+77.5054	-20.5000	5370.8941
F-8	1613+87.9220	-20.5000	5370.9079
F-9	1613+98.3387	-20.5000	5370.9166
CL BK BRG3	1614+08.7554	-20.5000	5370.9200
CL PIER 3	1614+09.5887	-20.5000	5370.9201
CL AH BRG3	1614+10.4221	-20.5000	5370.9201
F-1	1614+20.8387	-20.5000	5370.9175
F-2	1614+31.2554	-20.5000	5370.9096
F-3	1614+41.6721	-20.5000	5370.8965
F-4	1614+52.0887	-20.5000	5370.8782
F-5	1614+62.5054	-20.5000	5370.8547
F-6	1614+72.9220	-20.5000	5370.8259
F-7	1614+83.3387	-20.5000	5370.7919
F-8	1614+93.7554	-20.5000	5370.7527
F-9	1615+04.1720	-20.5000	5370.7083
CL BRG A4	1615+14.5887	-20.5000	5370.6587
BF ABUT 4	1615+15.9100	-20.5000	5370.6520
LONGITUDINAL LINE: PIVOT POINT LINE LEFT			
BF ABUT 1	1611+95.2065	-14.0000	5369.9353
CL BRG A1	1611+96.5278	-14.0000	5369.9490
F-1	1612+06.9445	-14.0000	5370.0536
F-2	1612+17.3612	-14.0000	5370.1530
F-3	1612+27.7778	-14.0000	5370.2473
F-4	1612+38.1945	-14.0000	5370.3362
F-5	1612+48.6112	-14.0000	5370.4200
F-6	1612+59.0278	-14.0000	5370.4985
F-7	1612+69.4445	-14.0000	5370.5718
F-8	1612+79.8612	-14.0000	5370.6399
F-9	1612+90.2779	-14.0000	5370.7028
CL BK BRG2	1613+00.6945	-14.0000	5370.7604
CL PIER 2	1613+01.5278	-14.0000	5370.7648
CL AH BRG2	1613+02.3611	-14.0000	5370.7691
F-1	1613+12.7778	-14.0000	5370.8207
F-2	1613+23.1945	-14.0000	5370.8671
F-3	1613+33.6111	-14.0000	5370.9082
F-4	1613+44.0278	-14.0000	5370.9441
F-5	1613+54.4445	-14.0000	5370.9748
F-6	1613+64.8611	-14.0000	5371.0002
F-7	1613+75.2778	-14.0000	5371.0204
F-8	1613+85.6945	-14.0000	5371.0354
F-9	1613+96.1112	-14.0000	5371.0452
CL BK BRG3	1614+06.5278	-14.0000	5371.0497
CL PIER 3	1614+07.3611	-14.0000	5371.0499
CL AH BRG3	1614+08.1945	-14.0000	5371.0500
F-1	1614+18.6112	-14.0000	5371.0485
F-2	1614+29.0278	-14.0000	5371.0417
F-3	1614+39.4445	-14.0000	5371.0294
F-4	1614+49.8612	-14.0000	5371.0125
F-5	1614+60.2778	-14.0000	5370.9902
F-6	1614+70.6945	-14.0000	5370.9625
F-7	1614+81.1111	-14.0000	5370.9297
F-8	1614+91.5278	-14.0000	5370.8916
F-9	1615+01.9445	-14.0000	5370.8482
CL BRG A4	1615+12.3611	-14.0000	5370.7997
BF ABUT 4	1615+13.6825	-14.0000	5370.7932
LONGITUDINAL LINE: C.L. GIRDER 10			
BF ABUT 1	1611+94.2640	-11.2500	5369.8843
CL BRG A1	1611+95.5854	-11.2500	5369.8980
F-1	1612+06.0021	-11.2500	5370.0031
F-2	1612+16.4187	-11.2500	5370.1030
F-3	1612+26.8354	-11.2500	5370.1977
F-4	1612+37.2521	-11.2500	5370.2872
F-5	1612+47.6687	-11.2500	5370.3714
F-6	1612+58.0854	-11.2500	5370.4504
F-7	1612+68.5021	-11.2500	5370.5242
F-8	1612+78.9188	-11.2500	5370.5927
F-9	1612+89.3354	-11.2500	5370.6561
CL BK BRG2	1612+99.7521	-11.2500	5370.7142
CL PIER 2	1613+00.5854	-11.2500	5370.7186
CL AH BRG2	1613+01.4187	-11.2500	5370.7230
F-1	1613+11.8354	-11.2500	5370.7750
F-2	1613+22.2520	-11.2500	5370.8218
F-3	1613+32.6687	-11.2500	5370.8634
F-4	1613+43.0854	-11.2500	5370.8998
F-5	1613+53.5020	-11.2500	5370.9309
F-6	1613+63.9187	-11.2500	5370.9569
F-7	1613+74.3354	-11.2500	5370.9776
F-8	1613+84.7521	-11.2500	5370.9930
F-9	1613+95.1687	-11.2500	5371.0033
CL BK BRG3	1614+05.5854	-11.2500	5371.0083
CL PIER 3	1614+06.4187	-11.2500	5371.0085
CL AH BRG3	1614+07.2521	-11.2500	5371.0086
F-1	1614+17.6688	-11.2500	5371.0076
F-2	1614+28.0854	-11.2500	5371.0013
F-3	1614+38.5021	-11.2500	5370.9898
F-4	1614+48.9187	-11.2500	5370.9731
F-5	1614+59.3354	-11.2500	5370.9512
F-6	1614+69.7521	-11.2500	5370.9240
F-7	1614+80.1687	-11.2500	5370.8916
F-8	1614+90.5854	-11.2500	5370.8540
F-9	1615+01.0020	-11.2500	5370.8111
CL BRG A4	1615+11.4187	-11.2500	5370.7631
BF ABUT 4	1615+12.7401	-11.2500	5370.7566
LONGITUDINAL LINE: C.L. GIRDER 11			
BF ABUT 1	1611+91.0940	-2.0000	5369.7123
CL BRG A1	1611+92.4154	-2.0000	5369.7262
F-1	1612+02.8321	-2.0000	5369.8329
F-2	1612+13.2487	-2.0000	5369.9344
F-3	1612+23.6654	-2.0000	5370.0307
F-4	1612+34.0821	-2.0000	5370.1217
F-5	1612+44.4988	-2.0000	5370.2076
F-6	1612+54.9154	-2.0000	5370.2881
F-7	1612+65.3321	-2.0000	5370.3635
F-8	1612+75.7488	-2.0000	5370.4337
F-9	1612+86.1654	-2.0000	5370.4986
CL BK BRG2	1612+96.5821	-2.0000	5370.5583
CL PIER 2	1612+97.4154	-2.0000	5370.5628
CL AH BRG2	1612+98.2487	-2.0000	5370.5673
F-1	1613+08.6654	-2.0000	5370.6210
F-2	1613+19.0820	-2.0000	5370.6694
F-3	1613+29.4987	-2.0000	5370.7126
F-4	1613+39.9154	-2.0000	5370.7505
F-5	1613+50.3321	-2.0000	5370.7833
F-6	1613+60.7487	-2.0000	5370.8108
F-7	1613+71.1654	-2.0000	5370.8331
F-8	1613+81.5821	-2.0000	5370.8501
F-9	1613+91.9987	-2.0000	5370.8620
CL BK BRG3	1614+02.4154	-2.0000	5370.8686
CL PIER 3	1614+03.2487	-2.0000	5370.8689
CL AH BRG3	1614+04.0821	-2.0000	5370.8691
F-1	1614+14.4988	-2.0000	5370.8697
F-2	1614+24.9154	-2.0000	5370.8650
F-3	1614+35.3321	-2.0000	5370.8551
F-4	1614+45.7487	-2.0000	5370.8400
F-5	1614+56.1654	-2.0000	5370.8196
F-6	1614+66.5821	-2.0000	5370.7941
F-7	1614+76.9987	-2.0000	5370.7633
F-8	1614+87.4154	-2.0000	5370.7272
F-9	1614+97.8320	-2.0000	5370.6860
CL BRG A4	1615+08.2487	-2.0000	5370.6395
BF ABUT 4	1615+09.5701	-2.0000	5370.6332

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
LONGITUDINAL LINE: C.L. I225 H.C.L.			
BF ABUT 1	1611+90.4046	0.0000	5369.6750
CL BRG A1	1611+91.7300	0.0000	5369.6890
F-1	1612+02.1467	0.0000	5369.7961
F-2	1612+12.5633	0.0000	5369.8979
F-3	1612+22.9800	0.0000	5369.9945
F-4	1612+33.3967	0.0000	5370.0859
F-5	1612+43.8134	0.0000	5370.1721
F-6	1612+54.2300	0.0000	5370.2530
F-7	1612+64.6467	0.0000	5370.3287
F-8	1612+75.0634	0.0000	5370.3992
F-9	1612+85.4800	0.0000	5370.4645
CL BK BRG2	1612+95.8967	0.0000	5370.5245
CL PIER 2	1612+96.7300	0.0000	5370.5291
CL AH BRG2	1612+97.5633	0.0000	5370.5336
F-1	1613+07.9800	0.0000	5370.5876
F-2	1613+18.3966	0.0000	5370.6364
F-3	1613+28.8133	0.0000	5370.6799
F-4	1613+39.2300	0.0000	5370.7182
F-5	1613+49.6466	0.0000	5370.7513
F-6	1613+60.0633	0.0000	5370.7791
F-7	1613+70.4800	0.0000	5370.8018
F-8	1613+80.8967	0.0000	5370.8192
F-9	1613+91.3133	0.0000	5370.8313
CL BK BRG3	1614+01.7300	0.0000	5370.8383
CL PIER 3	1614+02.5633	0.0000	5370.8386
CL AH BRG3	1614+03.3967	0.0000	5370.8389
F-1	1614+13.8134	0.0000	5370.8398
F-2	1614+24.2300	0.0000	5370.8355
F-3	1614+34.6467	0.0000	5370.8259
F-4	1614+45.0633	0.0000	5370.8111
F-5	1614+55.4800	0.0000	5370.7911
F-6	1614+65.8967	0.0000	5370.7659
F-7	1614+76.3133	0.0000	5370.7354
F-8	1614+86.7300	0.0000	5370.6994
F-9	1614+97.1466	0.0000	5370.6580
CL BRG A4	1615+07.5633	0.0000	5370.6127
BF ABUT 4	1615+08.8847	0.0000	5370.6065

NOTE: ELEVATIONS ARE AT TOP OF CONCRETE DECK WHICH IS FINISHED GRADE.

THESE STATIONS, COORDINATES, OFFSETS, AND LENGTHS DEFINE THE LAYOUT OF THE STRUCTURE IN A TWO DIMENSIONAL HORIZONTAL PLANE. ELEVATIONS DEFINE THE FINAL GRADE OF THE FINISHED CONCRETE DECK. FABRICATION OF STRUCTURAL COMPONENTS THROUGH THE DIRECT USE OF THIS INFORMATION IS NOT INTENDED OR ADVISABLE.

DIVISION OF HIGHWAYS

BRIDGE DECK ELEVATIONS

Designer	M. Condrotte	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number B	27	of 30	Drawings

Revision Dates | Preliminary Stage Only

DICKEYR
Bridgefile: E17ORGEOL_DKELEV
brg$disk:[dickeyr]
Picasso II v01.00a Thu Aug 20 09:06:17 1992

State of Colorado
State Department of Highways
Division of Highways
OOH Form # 117
Revised NOV 1990

As Constructed				Federal Road Region NO.	Division	Project Number	Sheet Number
No Revisions	Revised	Void		VIII	Colorado	NH(CX) 225-4(39)	94

B-100-3

Revisions

Design			Detail			Quantities		
	INITIAL	DATE		INITIAL	DATE		INITIAL	DATE
Designed By	M.C.	7/91	Detailed By	R.A.D.	7/91	Quantities by	K.G.S.	8/92
Checked By	T.W.	1/92	Checked By	K.G.S.	1/92	Checked By	M.C.	8/92

LONGITUDINAL LINE: C.L. I225 H.C.L.

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+90.4086	0.0000	5369.6750
CL BRG A1	1611+91.7300	0.0000	5369.6890
F-1	1612+02.1467	0.0000	5369.7961
F-2	1612+12.5633	0.0000	5369.8979
F-3	1612+22.9800	0.0000	5369.9945
F-4	1612+33.3967	0.0000	5370.0859
F-5	1612+43.8134	0.0000	5370.1721
F-6	1612+54.2300	0.0000	5370.2530
F-7	1612+64.6467	0.0000	5370.3287
F-8	1612+75.0634	0.0000	5370.3992
F-9	1612+85.4800	0.0000	5370.4645
CL BK BRG2	1612+95.8967	0.0000	5370.5245
CL PIER 2	1612+96.7300	0.0000	5370.5291
CL AH BRG2	1612+97.5633	0.0000	5370.5336
F-1	1613+07.9800	0.0000	5370.5876
F-2	1613+18.3966	0.0000	5370.6364
F-3	1613+28.8133	0.0000	5370.6799
F-4	1613+39.2300	0.0000	5370.7182
F-5	1613+49.6466	0.0000	5370.7513
F-6	1613+60.0633	0.0000	5370.7791
F-7	1613+70.4800	0.0000	5370.8018
F-8	1613+80.8967	0.0000	5370.8192
F-9	1613+91.3133	0.0000	5370.8313
CL BK BRG3	1614+01.7300	0.0000	5370.8383
CL PIER 3	1614+02.5633	0.0000	5370.8386
CL AH BRG3	1614+03.3967	0.0000	5370.8389
F-1	1614+13.8134	0.0000	5370.8398
F-2	1614+24.2300	0.0000	5370.8355
F-3	1614+34.6467	0.0000	5370.8259
F-4	1614+45.0633	0.0000	5370.8111
F-5	1614+55.4800	0.0000	5370.7911
F-6	1614+65.8967	0.0000	5370.7659
F-7	1614+76.3133	0.0000	5370.7354
F-8	1614+86.7300	0.0000	5370.6998
F-9	1614+97.1466	0.0000	5370.6588
CL BRG A4	1615+07.5633	0.0000	5370.6127
BF ABUT 4	1615+08.8847	0.0000	5370.6065

LONGITUDINAL LINE: C.L. GIRDER 12

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+89.7232	2.0000	5369.6978
CL BRG A1	1611+91.3446	2.0000	5369.7118
F-1	1612+01.4613	2.0000	5369.8192
F-2	1612+11.8779	2.0000	5369.9214
F-3	1612+22.2946	2.0000	5370.0183
F-4	1612+32.7113	2.0000	5370.1101
F-5	1612+43.1279	2.0000	5370.1966
F-6	1612+53.5446	2.0000	5370.2778
F-7	1612+63.9613	2.0000	5370.3539
F-8	1612+74.3780	2.0000	5370.4247
F-9	1612+84.7946	2.0000	5370.4903
CL BK BRG2	1612+85.2113	2.0000	5370.5507
CL PIER 2	1612+96.0446	2.0000	5370.5553
CL AH BRG2	1612+96.8779	2.0000	5370.5599
F-1	1613+07.2946	2.0000	5370.6142
F-2	1613+17.7112	2.0000	5370.6633
F-3	1613+28.1279	2.0000	5370.7072
F-4	1613+38.5446	2.0000	5370.7458
F-5	1613+48.9612	2.0000	5370.7793
F-6	1613+59.3779	2.0000	5370.8075
F-7	1613+69.7946	2.0000	5370.8304
F-8	1613+80.2113	2.0000	5370.8482
F-9	1613+90.6279	2.0000	5370.8607
CL BK BRG3	1614+01.0446	2.0000	5370.8680
CL PIER 3	1614+01.8779	2.0000	5370.8684
CL AH BRG3	1614+02.7113	2.0000	5370.8687
F-1	1614+13.1280	2.0000	5370.8699
F-2	1614+23.5446	2.0000	5370.8659
F-3	1614+33.9613	2.0000	5370.8567
F-4	1614+44.3779	2.0000	5370.8423
F-5	1614+54.7946	2.0000	5370.8226
F-6	1614+65.2113	2.0000	5370.7977
F-7	1614+75.6279	2.0000	5370.7676
F-8	1614+86.0446	2.0000	5370.7323
F-9	1614+96.4612	2.0000	5370.6917
CL BRG A4	1615+06.8779	2.0000	5370.6459
BF ABUT 4	1615+08.1993	2.0000	5370.6397

LONGITUDINAL LINE: C.L. GIRDER 13

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+86.5532	11.2500	5369.9026
CL BRG A1	1611+87.8746	11.2500	5369.8168
F-1	1611+98.2913	11.2500	5369.9258
F-2	1612+08.7079	11.2500	5370.0296
F-3	1612+19.1246	11.2500	5370.1281
F-4	1612+29.5413	11.2500	5370.2214
F-5	1612+39.9580	11.2500	5370.3095
F-6	1612+50.3746	11.2500	5370.3924
F-7	1612+60.7913	11.2500	5370.4701
F-8	1612+71.2080	11.2500	5370.5425
F-9	1612+81.6246	11.2500	5370.6097
CL BK BRG2	1612+92.0413	11.2500	5370.6717
CL PIER 2	1612+92.8746	11.2500	5370.6764
CL AH BRG2	1612+93.7079	11.2500	5370.6811
F-1	1613+04.1246	11.2500	5370.7370
F-2	1613+14.5412	11.2500	5370.7877
F-3	1613+24.9579	11.2500	5370.8331
F-4	1613+35.3746	11.2500	5370.8734
F-5	1613+45.7913	11.2500	5370.9084
F-6	1613+56.2079	11.2500	5370.9382
F-7	1613+66.6246	11.2500	5370.9627
F-8	1613+77.0413	11.2500	5370.9821
F-9	1613+87.4579	11.2500	5370.9962
CL BK BRG3	1613+97.8746	11.2500	5371.0051
CL PIER 3	1613+98.7079	11.2500	5371.0056
CL AH BRG3	1613+99.5413	11.2500	5371.0060
F-1	1614+09.9580	11.2500	5371.0088
F-2	1614+20.3746	11.2500	5371.0064
F-3	1614+30.7913	11.2500	5370.9988
F-4	1614+41.2079	11.2500	5370.9860
F-5	1614+51.6246	11.2500	5370.9679
F-6	1614+62.0413	11.2500	5370.9446
F-7	1614+72.4579	11.2500	5370.9161
F-8	1614+82.8746	11.2500	5370.8823
F-9	1614+93.2912	11.2500	5370.8433
CL BRG A4	1615+03.7079	11.2500	5370.7991
BF ABUT 4	1615+05.0293	11.2500	5370.7932

LONGITUDINAL LINE: PIVOT POINT LINE RIGHT

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+85.6108	14.0000	5369.8337
CL BRG A1	1611+86.9322	14.0000	5369.8479
F-1	1611+97.3488	14.0000	5369.9574
F-2	1612+07.7655	14.0000	5370.0616
F-3	1612+18.1822	14.0000	5370.1607
F-4	1612+28.5989	14.0000	5370.2545
F-5	1612+39.0155	14.0000	5370.3430
F-6	1612+49.4322	14.0000	5370.4264
F-7	1612+59.8489	14.0000	5370.5045
F-8	1612+70.2655	14.0000	5370.5774
F-9	1612+80.6822	14.0000	5370.6451
CL BK BRG2	1612+81.0989	14.0000	5370.7075
CL PIER 2	1612+81.9322	14.0000	5370.7123
CL AH BRG2	1612+82.7655	14.0000	5370.7170
F-1	1613+03.1821	14.0000	5370.7734
F-2	1613+13.5988	14.0000	5370.8246
F-3	1613+24.0155	14.0000	5370.8705
F-4	1613+34.4322	14.0000	5370.9112
F-5	1613+44.8488	14.0000	5370.9467
F-6	1613+55.2655	14.0000	5370.9770
F-7	1613+65.6822	14.0000	5371.0020
F-8	1613+76.0988	14.0000	5371.0218
F-9	1613+86.5155	14.0000	5371.0364
CL BK BRG3	1613+96.9322	14.0000	5371.0457
CL PIER 3	1613+97.7655	14.0000	5371.0463
CL AH BRG3	1613+98.5989	14.0000	5371.0468
F-1	1614+09.0155	14.0000	5371.0501
F-2	1614+19.4322	14.0000	5371.0481
F-3	1614+29.8489	14.0000	5371.0410
F-4	1614+40.2655	14.0000	5371.0286
F-5	1614+50.6822	14.0000	5371.0110
F-6	1614+61.0988	14.0000	5370.9882
F-7	1614+71.5155	14.0000	5370.9601
F-8	1614+81.9322	14.0000	5370.9268
F-9	1614+92.3488	14.0000	5370.8883
CL BRG A4	1615+02.7655	14.0000	5370.8446
BF ABUT 4	1615+04.0868	14.0000	5370.8387

LONGITUDINAL LINE: C.L. GIRDER 14

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+83.3833	29.5000	5369.6794
CL BRG A1	1611+84.7046	29.5000	5369.6938
F-1	1611+95.1213	29.5000	5369.8044
F-2	1612+05.5380	29.5000	5369.9098
F-3	1612+15.9546	29.5000	5370.0099
F-4	1612+26.3713	29.5000	5370.1048
F-5	1612+36.7880	29.5000	5370.1945
F-6	1612+47.2046	29.5000	5370.2790
F-7	1612+57.6213	29.5000	5370.3582
F-8	1612+68.0380	29.5000	5370.4322
F-9	1612+78.4546	29.5000	5370.5010
CL BK BRG2	1612+88.8713	29.5000	5370.5646
CL PIER 2	1612+89.7046	29.5000	5370.5695
CL AH BRG2	1612+90.5379	29.5000	5370.5743
F-1	1613+00.9546	29.5000	5370.6318
F-2	1613+11.3713	29.5000	5370.6841
F-3	1613+21.7879	29.5000	5370.7311
F-4	1613+32.2046	29.5000	5370.7729
F-5	1613+42.6213	29.5000	5370.8095
F-6	1613+53.0379	29.5000	5370.8409
F-7	1613+63.4546	29.5000	5370.8671
F-8	1613+73.8713	29.5000	5370.8880
F-9	1613+84.2879	29.5000	5370.9037
CL BK BRG3	1613+94.7046	29.5000	5370.9142
CL PIER 3	1613+95.5379	29.5000	5370.9148
CL AH BRG3	1613+96.3713	29.5000	5370.9154
F-1	1614+06.7880	29.5000	5370.9198
F-2	1614+17.2046	29.5000	5370.9190
F-3	1614+27.6213	29.5000	5370.9129
F-4	1614+38.0380	29.5000	5370.9017
F-5	1614+48.4546	29.5000	5370.8852
F-6	1614+58.8713	29.5000	5370.8635
F-7	1614+69.2879	29.5000	5370.8366
F-8	1614+79.7046	29.5000	5370.8044
F-9	1614+90.1213	29.5000	5370.7670
CL BRG A4	1615+00.5379	29.5000	5370.7244
BF ABUT 4	1615+01.8593	29.5000	5370.7186

LONGITUDINAL LINE: C.L. GIRDER 15

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+80.2133	29.7500	5369.4595
CL BRG A1	1611+81.5346	29.7500	5369.4741
F-1	1611+91.9513	29.7500	5369.5863
F-2	1612+02.3680	29.7500	5369.6933
F-3	1612+12.7846	29.7500	5369.7950
F-4	1612+23.2013	29.7500	5369.8915
F-5	1612+33.6180	29.7500	5369.9828
F-6	1612+44.0346	29.7500	5370.0688
F-7	1612+54.4513	29.7500	5370.1497
F-8	1612+64.8680	29.7500	5370.2253
F-9	1612+75.2847	29.7500	5370.2957
CL BK BRG2	1612+85.7013	29.7500	5370.3608
CL PIER 2	1612+86.5346	29.7500	5370.3658
CL AH BRG2	1612+87.3679	29.7500	5370.3707
F-1	1612+97.7846	29.7500	5370.4298
F-2	1613+08.2013	29.7500	5370.4837
F-3	1613+18.6179	29.7500	5370.5323
F-4	1613+29.0346	29.7500	5370.5758
F-5	1613+39.4513	29.7500	5370.6140
F-6	1613+49.8679	29.7500	5370.6469
F-7	1613+60.2846	29.7500	5370.6747
F-8	1613+70.7013	29.7500	5370.6972
F-9	1613+81.1180	29.7500	5370.7145
CL BK BRG3	1613+91.5346	29.7500	5370.7265
CL PIER 3	1613+92.3679	29.7500	5370.7273
CL AH BRG3	1613+93.2013	29.7500	5370.7280
F-1	1614+03.6180	29.7500	5370.7340
F-2	1614+14.0346	29.7500	5370.7348
F-3	1614+24.4513	29.7500	5370.7303
F-4	1614+34.8680	29.7500	5370.7207
F-5	1614+45.2846	29.7500	5370.7058
F-6	1614+55.7013	29.7500	5370.6856
F-7	1614+66.1179	29.7500	5370.6603
F-8	1614+76.5346	29.7500	5370.6297
F-9	1614+86.9513	29.7500	5370.5939
CL BRG A4	1614+91.0280	48.2500	5370.2085
BF ABUT 4	1614+92.3493	48.2500	5370.2033

LONGITUDINAL LINE: C.L. GIRDER 16

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+77.0433	39.0000	5369.2392
CL BRG A1	1611+78.3646	39.0000	5369.2540
F-1	1611+88.7813	39.0000	5369.3677
F-2	1611+99.1980	39.0000	5369.4763
F-3	1612+09.6146	39.0000	5369.5796
F-4	1612+20.0313	39.0000	5369.6777
F-5	1612+30.4480	39.0000	5369.7706
F-6	1612+40.8647	39.0000	5369.8582
F-7	1612+51.2813	39.0000	5369.9406
F-8	1612+61.6980	39.0000	5370.0178
F-9	1612+72.1147	39.0000	5370.0898
CL BK BRG2	1612+82.5313	39.0000	5370.1565
CL PIER 2	1612+83.3646	39.0000	5370.1616
CL AH BRG2	1612+84.1979	39.0000	5370.1667
F-1	1612+94.6146	39.0000	5370.2274
F-2	1613+05.0313	39.0000	5370.2829
F-3	1613+15.4479	39.0000	5370.3331
F-4	1613+25.8646	39.0000	5370.3781
F-5	1613+36.2813	39.0000	5370.4179
F-6	1613+46.6980	39.0000	5370.4524
F-7	1613+57.1146	39.0000	5370.4818
F-8	1613+67.5313	39.0000	5370.5059
F-9	1613+77.9480	39.0000	5370.5248
CL BK BRG3	1613+88.3646	39.0000	5370.5384
CL PIER 3	1613+89.1979	39.0000	5370.5393
CL AH BRG3	1613+90.0313	39.0000	5370.5401
F-1	1614+00.4480	39.0000	5370.5477
F-2	1614+10.8647	39.0000	5370.5501
F-3	1614+21.2813	39.0000	5370.5472
F-4	1614+31.6980	39.0000	5370.5392
F-5	1614+42.1146	39.0000	5370.5259
F-6	1614+52.5313	39.0000	5370.5073
F-7	1614+62.9480	39.0000	5370.4836
F-8	1614+73.3646	39.0000	5370.4546
F-9	1614+83.7813	39.0000	5370.4204
CL BRG A4	1614+94.1979	39.0000	5370.3810
BF ABUT 4	1614+95.5193	39.0000	5370.3756

LONGITUDINAL LINE: C.L. GIRDER 17

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+73.6733	48.2500	5369.0183
CL BRG A1	1611+75.1947	48.2500	5369.0333
F-1	1611+85.6113	48.2500	5369.1467
F-2	1611+96.0280	48.2500	5369.2588
F-3	1612+06.4447	48.2500	5369.3637
F-4	1612+16.8613	48.2500	5369.4634
F-5	1612+27.2780	48.2500	5369.5579
F-6	1612+37.6947	48.2500	5369.6471
F-7	1612+48.1113	48.2500	5369.7311
F-8	1612+58.5280	48.2500	5369.8099
F-9	1612+68.9447	48.2500	5369.8834
CL BK BRG2	1612+79.3614	48.2500	5369.9518
CL PIER 2	1612+80.1947	48.2500	5369.9570
CL AH BRG2	1612+81.0280	48.2500	5369.9622
F-1	1612+91.4446	48.2500	5370.0245
F-2	1613+01.8613	48.2500	5370.0815
F-3	1613+12.2780	48.2500	5370.1334
F-4	1613+22.6946	48.2500	5370.1800
F-5	1613+33.1113	48.2500	5370.2213
F-6	1613+43.5280	48.2500	5370.2575
F-7	1613+53.9446	48.2500	5370.2884
F-8	1613+64.3613	48.2500	5370.3141
F-9	1613+74.7780	48.2500	5370.3346
CL BK BRG3	1613+85.1947	48.2500	5370.3496
CL PIER 3	1613+86.0280	48.2500	5370.3508
CL AH BRG3	1613+86.8614	48.2500	5370.3518
F-1	1613+97.2780	48.2500	5370.3610
F-2	1614+07.6947	48.2500	5370.3649
F-3	1614+18.1113	48.2500	5370.3637
F-4	1614+28.5280	48.2500	5370.3572
F-5	1614+38.9447	48.2500	5370.3455
F-6	1614+49.3613	48.2500	5370.3285
F-7	1614+59.7780	48.2500	5370.3064
F-8	1614+70.1946	48.2500	5370.2790
F-9	1614+80.6113	48.2500	5370.2463
CL BRG A4	1614+91.0280	48.2500	5370.2085
BF ABUT 4	1614+92.3493	48.2500	5370.2033

LONGITUDINAL LINE: RT CONTROL LINE P.G.

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
BF ABUT 1	1611+71.9028	54.0000	5368.8808
CL BRG A1	1611+73.2241	54.0000	5368.8959
F-1	1611+83.6408	54.0000	5369.0122
F-2	1611+94.0575	54.0000	5369.1234
F-3	1612+04.4741	54.0000	5369.2293
F-4	1612+14.8908	54.0000	5369.3298
F-5	1612+25.3075	54.0000	5369.4254
F-6	1612+35.7241	54.0000	5369.5156
F-7	1612+46.1408	54.0000	5369.6006
F-8	1612+56.5575	54.0000	5369.6804
F-9	1612+66.9741	54.0000	5369.7549
CL BK BRG2	1612+77.3908	54.0000	5369.8242
CL PIER 2	1612+78.2241	54.0000	5369.8296
CL AH BRG2	1612+79.0574	54.0000	5369.8349
F-1	1612+89.4741	54.0000	5369.8981
F-2	1612+99.8908	54.0000	5369.9561
F-3	1613+10.3074	54.0000	5370.0090
F-4	1613+20.7241	54.0000	5370.0565
F-5	1613+31.1408	54.0000	5370.0989
F-6	1613+41.5574	54.0000	5370.1360
F-7	1613+51.9741	54.0000	5370.1680
F-8	1613+62.3908	54.0000	5370.1946
F-9	1613+72.8074	54.0000	5370.2161
CL BK BRG3	1613+83.2241	54.0000	5370.2323
CL PIER 3	1613+84.0574	54.0000	5370.2334
CL AH BRG3	1613+84.8908	54.0000	5370.2344
F-1	1613+95.3075	54.0000	5370.2446
F-2	1614+05.7241	54.0000	5370.2496
F-3	1614+16.1408	54.0000	5370.2493
F-4	1614+26.5575	54.0000	5370.2438
F-5	1614+36.9741	54.0000	5370.2331
F-6	1614+47.3908	54.0000	5370.2171
F-7	1614+57.8074	54.0000	5370.1959
F-8	1614+68.2241	54.0000	5370.1695
F-9	1614+78.6408	54.0000	5370.1379
CL BRG A4	1614+89.0574	54.0000	5370.1011
BF ABUT 4	1614+90.3788	54.0000	5370.0960

NOTE: ELEVATIONS ARE AT TOP OF CONCRETE DECK WHICH IS FINISHED GRADE.

THESE STATIONS, COORDINATES, OFFSETS, AND LENGTHS DEFINE THE LAYOUT OF THE STRUCTURE IN A TWO DIMENSIONAL HORIZONTAL PLANE. ELEVATIONS DEFINE THE FINAL GRADE OF THE FINISHED CONCRETE DECK. FABRICATION OF STRUCTURAL COMPONENTS THROUGH THE DIRECT USE OF THIS INFORMATION IS NOT INTENDED OR ADVISABLE.

DIVISION OF HIGHWAYS

BRIDGE DECK ELEVATIONS

Designer	M. Condiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number B	28	of 30	Drawings

Revision Dates				Preliminary Stage Only!

DICKEYR
Bridgelib: E17ORGEOR_DKELEV
brgjdisk [dickeyd] Thu Aug 20 09:06:48 1992
Picaso II v01.00a Thu Aug 20 09:06:48 1992

State of Colorado
State Department of Highways
Division of Highways
DOH Form # 117
Revised NOV 1990

Design		
	INITIAL	DATE
Designed By	M.C.	7/91
Checked By	T.W.	1/92

Detail		
	INITIAL	DATE
Detailed By	R.A.D.	7/91
Checked By	K.G.S.	1/92

Quantities		
	INITIAL	DATE
Quantities by	K.G.S.	8/92
Checked By	M.C.	8/92

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
LONGITUDINAL LINE: C.L. GIRDER 18			
BF ABUT 1	1611+70.7033	57.5000	5368.7970
CL BRG A1	1611+72.0247	57.5000	5368.4122
P-1	1611+82.4413	57.5000	5368.3291
P-2	1611+92.8580	57.5000	5369.0408
P-3	1612+03.2747	57.5000	5369.1473
P-4	1612+13.6913	57.5000	5369.2486
P-5	1612+24.1080	57.5000	5369.3447
P-6	1612+34.5247	57.5000	5369.4355
P-7	1612+44.9414	57.5000	5369.5211
P-8	1612+55.3580	57.5000	5369.6015
P-9	1612+65.7747	57.5000	5369.6766
CL BK BRG2	1612+76.1914	57.5000	5369.7465
CL PIER 2	1612+77.0247	57.5000	5369.7519
CL AH BRG2	1612+77.8580	57.5000	5369.7572
P-1	1612+88.2746	57.5000	5369.8211
P-2	1612+98.6913	57.5000	5369.8797
P-3	1613+09.1080	57.5000	5369.9331
P-4	1613+19.5246	57.5000	5369.9813
P-5	1613+29.9413	57.5000	5370.0243
P-6	1613+40.3580	57.5000	5370.0620
P-7	1613+50.7747	57.5000	5370.0945
P-8	1613+61.1913	57.5000	5370.1218
P-9	1613+71.6080	57.5000	5370.1439
CL BK BRG3	1613+82.0247	57.5000	5370.1607
CL PIER 3	1613+82.8580	57.5000	5370.1619
CL AH BRG3	1613+83.6914	57.5000	5370.1629
P-1	1613+94.1080	57.5000	5370.1737
P-2	1614+04.5247	57.5000	5370.1793
P-3	1614+14.9413	57.5000	5370.1796
P-4	1614+25.3580	57.5000	5370.1747
P-5	1614+35.7747	57.5000	5370.1646
P-6	1614+46.1913	57.5000	5370.1492
P-7	1614+56.6080	57.5000	5370.1287
P-8	1614+67.0246	57.5000	5370.1029
P-9	1614+77.4413	57.5000	5370.0718
CL BRG A4	1614+87.8580	57.5000	5370.0356
BF ABUT 4	1614+89.1793	57.5000	5370.0306
LONGITUDINAL LINE: C.L. GIRDER 19			
BF ABUT 1	1611+67.5333	66.7500	5368.5751
CL BRG A1	1611+68.8547	66.7500	5368.5905
P-1	1611+79.2713	66.7500	5368.7091
P-2	1611+89.6880	66.7500	5368.8224
P-3	1612+00.1047	66.7500	5368.9305
P-4	1612+10.5214	66.7500	5369.0333
P-5	1612+20.9380	66.7500	5369.1310
P-6	1612+31.3547	66.7500	5369.2234
P-7	1612+41.7714	66.7500	5369.3106
P-8	1612+52.1880	66.7500	5369.3926
P-9	1612+62.6047	66.7500	5369.4693
CL BK BRG2	1612+73.0214	66.7500	5369.5408
CL PIER 2	1612+73.8547	66.7500	5369.5463
CL AH BRG2	1612+74.6880	66.7500	5369.5518
P-1	1612+85.1046	66.7500	5369.6172
P-2	1612+95.5213	66.7500	5369.6774
P-3	1613+05.9380	66.7500	5369.7324
P-4	1613+16.3547	66.7500	5369.7822
P-5	1613+26.7713	66.7500	5369.8268
P-6	1613+37.1880	66.7500	5369.8661
P-7	1613+47.6047	66.7500	5369.9002
P-8	1613+58.0213	66.7500	5369.9291
P-9	1613+68.4380	66.7500	5369.9527
CL BK BRG3	1613+78.8547	66.7500	5369.9712
CL PIER 3	1613+79.6880	66.7500	5369.9724
CL AH BRG3	1613+80.5214	66.7500	5369.9736
P-1	1613+90.9380	66.7500	5369.9860
P-2	1614+01.3547	66.7500	5369.9931
P-3	1614+11.7714	66.7500	5369.9950
P-4	1614+22.1880	66.7500	5369.9917
P-5	1614+32.6047	66.7500	5369.9832
P-6	1614+43.0213	66.7500	5369.9694
P-7	1614+53.4380	66.7500	5369.9505
P-8	1614+63.8547	66.7500	5369.9263
P-9	1614+74.2713	66.7500	5369.8968
CL BRG A4	1614+84.6880	66.7500	5369.8622
BF ABUT 4	1614+86.0093	66.7500	5369.8574

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION
LONGITUDINAL LINE: C.L. GIRDER 20			
BF ABUT 1	1611+64.3633	76.0000	5368.3528
CL BRG A1	1611+65.6847	76.0000	5368.3684
P-1	1611+76.1014	76.0000	5368.4886
P-2	1611+86.5180	76.0000	5368.6035
P-3	1611+96.9347	76.0000	5368.7131
P-4	1612+07.3514	76.0000	5368.8176
P-5	1612+17.7680	76.0000	5368.9168
P-6	1612+28.1847	76.0000	5369.0108
P-7	1612+38.6014	76.0000	5369.0996
P-8	1612+49.0180	76.0000	5369.1832
P-9	1612+59.4347	76.0000	5369.2615
CL BK BRG2	1612+69.8514	76.0000	5369.3346
CL PIER 2	1612+70.6847	76.0000	5369.3402
CL AH BRG2	1612+71.5180	76.0000	5369.3458
P-1	1612+81.9347	76.0000	5369.4128
P-2	1612+92.3513	76.0000	5369.4747
P-3	1613+02.7680	76.0000	5369.5313
P-4	1613+13.1847	76.0000	5369.5826
P-5	1613+23.6013	76.0000	5369.6286
P-6	1613+34.0180	76.0000	5369.6697
P-7	1613+44.4347	76.0000	5369.7054
P-8	1613+54.8513	76.0000	5369.7358
P-9	1613+65.2680	76.0000	5369.7611
CL BK BRG3	1613+75.6847	76.0000	5369.7811
CL PIER 3	1613+76.5180	76.0000	5369.7825
CL AH BRG3	1613+77.3514	76.0000	5369.7838
P-1	1613+87.7680	76.0000	5369.7978
P-2	1613+98.1847	76.0000	5369.8065
P-3	1614+08.6014	76.0000	5369.8100
P-4	1614+19.0180	76.0000	5369.8083
P-5	1614+29.4347	76.0000	5369.8014
P-6	1614+39.8513	76.0000	5369.7892
P-7	1614+50.2680	76.0000	5369.7718
P-8	1614+60.6847	76.0000	5369.7492
P-9	1614+71.1013	76.0000	5369.7213
CL BRG A4	1614+81.5180	76.0000	5369.6883
BF ABUT 4	1614+82.8393	76.0000	5369.6837
LONGITUDINAL LINE: RIGHT EDGE OF DECK			
END WING 1	1611+46.4852	79.5000	5368.0633
BF ABUT 1	1611+63.1639	79.5000	5368.2686
CL BRG A1	1611+64.4852	79.5000	5368.2843
P-1	1611+74.9019	79.5000	5368.4050
P-2	1611+85.3186	79.5000	5368.5205
P-3	1611+95.7352	79.5000	5368.6308
P-4	1612+06.1519	79.5000	5368.7358
P-5	1612+16.5686	79.5000	5368.8357
P-6	1612+26.9852	79.5000	5368.9303
P-7	1612+37.4019	79.5000	5369.0197
P-8	1612+47.8186	79.5000	5369.1038
P-9	1612+58.2353	79.5000	5369.1827
CL BK BRG2	1612+68.6519	79.5000	5369.2564
CL PIER 2	1612+69.4852	79.5000	5369.2621
CL AH BRG2	1612+70.3185	79.5000	5369.2678
P-1	1612+80.7352	79.5000	5369.3354
P-2	1612+91.1519	79.5000	5369.3978
P-3	1613+01.5685	79.5000	5369.4550
P-4	1613+11.9852	79.5000	5369.5070
P-5	1613+22.4019	79.5000	5369.5537
P-6	1613+32.8185	79.5000	5369.5952
P-7	1613+43.2352	79.5000	5369.6315
P-8	1613+53.6519	79.5000	5369.6626
P-9	1613+64.0686	79.5000	5369.6884
CL BK BRG3	1613+74.4852	79.5000	5369.7091
CL PIER 3	1613+75.3185	79.5000	5369.7105
CL AH BRG3	1613+76.1519	79.5000	5369.7119
P-1	1613+86.5686	79.5000	5369.7264
P-2	1613+96.9852	79.5000	5369.7358
P-3	1614+07.4019	79.5000	5369.7399
P-4	1614+17.8186	79.5000	5369.7388
P-5	1614+28.2352	79.5000	5369.7324
P-6	1614+38.6519	79.5000	5369.7209
P-7	1614+49.0685	79.5000	5369.7041
P-8	1614+59.4852	79.5000	5369.6820
P-9	1614+69.9019	79.5000	5369.6546
CL BRG A4	1614+80.3185	79.5000	5369.6223
BF ABUT 4	1614+81.6399	79.5000	5369.6178
END WING 4	1614+98.3185	79.5000	5369.5539

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION

As Constructed
No Revisions | Revised | Void

B-100-3

Federal Road Region NO.	Division	Project Number	Sheet Number
VIII	Colorado	NH(CX) 225-4(39)	95

Revisions		

NOTE: ELEVATIONS ARE AT TOP OF CONCRETE DECK WHICH IS FINISHED GRADE.

THESE STATIONS, COORDINATES, OFFSETS, AND LENGTHS DEFINE THE LAYOUT OF THE STRUCTURE IN A TWO DIMENSIONAL HORIZONTAL PLANE. ELEVATIONS DEFINE THE FINAL GRADE OF THE FINISHED CONCRETE DECK. *FABRICATION OF STRUCTURAL* COMPONENTS THROUGH THE DIRECT USE OF THIS INFORMATION IS NOT INTENDED OR ADVISABLE.

DIVISION OF HIGHWAYS

BRIDGE DECK ELEVATIONS

Designer	M. Condiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number B	29	of 30	Drawings

Revision Dates								Preliminary Stage Only!

DICKEYR
Bridgefile: E17ORGEOR_DKELEV
brg$disk:[dickeyr]
Picasso II v01.00a Thu Aug 20 09:06:48 1992

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
M FORM NO. 117
APR. 1989

AS CONSTRUCTED				FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	VOID		VIII	COLORADO	NH(CX) 225-4(39)	96

REVISIONS			

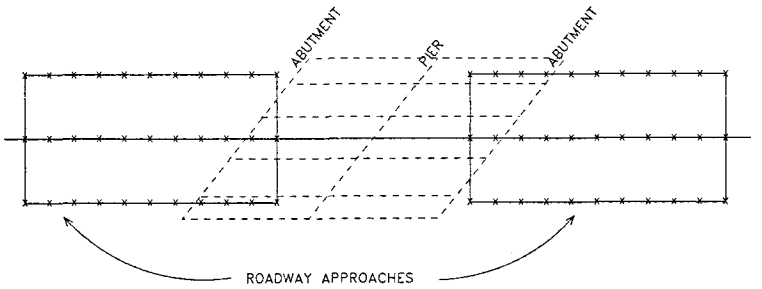
ROADWAY APPROACHES

ELEVATIONS ON ROADWAY APPROACHES (AT FINISHED GRADE)

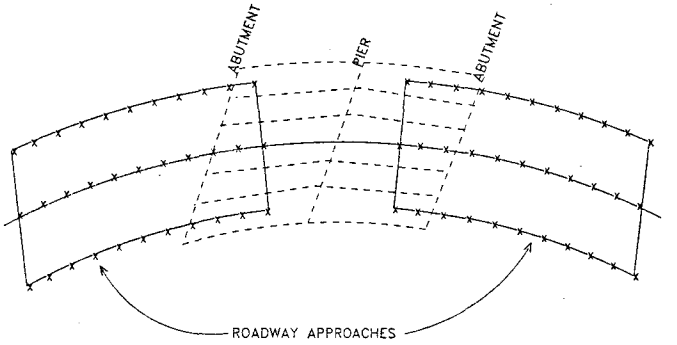
STATION	OFFSETS -54.0000	-42.0000	-30.0000	-18.0000	-14.0000	14.0000	18.0000	30.0000	42.0000	54.0000	66.0000
1610+90.0	5367.78	5368.02	5368.26	5368.50	5368.58	5368.58	5368.50	5368.26	5368.02	5367.78	5367.54
1611+00.0	67.93	68.17	68.41	68.65	68.73	68.73	68.65	68.41	68.17	67.93	67.69
+10.0	68.08	68.32	68.56	68.80	68.88	68.88	68.80	68.56	68.32	68.08	67.84
+20.0	68.22	68.46	68.70	68.94	69.02	69.02	68.94	68.70	68.46	68.22	67.98
1611+30.0	5368.36	5368.60	5368.84	5369.08	5369.16	5369.16	5369.08	5368.84	5368.60	5368.36	5368.12
+40.0	68.49	68.73	68.97	69.21	69.29	69.29	69.21	68.97	68.73	68.49	68.25
+50.0	68.62	68.86	69.10	69.34	69.42	69.42	69.34	69.10	68.86	68.62	68.38
+60.0	68.74	68.98	69.22	69.46	69.54	69.54	69.46	69.22	68.98	68.74	68.50
1611+70.0	5368.85	5369.10	5369.34	5369.58	5369.66	5369.66	5369.58	5369.34	5369.10	5368.86	5368.62
+80.0	68.97	69.21	69.45	69.69	69.77	69.77	69.69	69.45	69.21	68.97	68.73
+90.0	69.08	69.32	69.56	69.80	69.88	69.88	69.80	69.56	69.32	69.08	68.84
1612+00.0	69.18	69.42	69.66	69.90	69.98	69.98	69.90	69.66	69.42	69.18	68.94
1612+10.0	5369.28	5369.52	5369.76	5370.00	5370.08	5370.08	5370.00	5369.76	5369.52	5369.28	5369.04
+20.0	69.38	69.62	69.86	70.10	70.18	70.18	70.10	69.86	69.62	69.38	69.14
+30.0	69.47	69.71	69.95	70.19	70.27	70.27	70.19	69.95	69.71	69.47	69.23
+40.0	69.55	69.79	70.03	70.27	70.35	70.35	70.27	70.03	69.79	69.55	69.31

ELEVATIONS ON ROADWAY APPROACHES (AT FINISHED GRADE)

STATION	OFFSETS -54.0000	-42.0000	-30.0000	-18.0000	-14.0000	14.0000	18.0000	30.0000	42.0000	54.0000	66.0000
1614+70.0	5370.16	5370.40	5370.64	5370.88	5370.96	5370.96	5370.88	5370.64	5370.40	5370.16	5369.92
+80.0	70.13	70.37	70.61	70.85	70.93	70.93	70.85	70.61	70.37	70.13	69.89
+90.0	70.10	70.34	70.58	70.82	70.90	70.90	70.82	70.58	70.34	70.10	69.86
1615+00.0	70.06	70.30	70.54	70.78	70.86	70.86	70.78	70.54	70.30	70.06	69.82
1615+10.0	5370.01	5370.25	5370.49	5370.73	5370.81	5370.81	5370.73	5370.49	5370.25	5370.01	5369.77
+20.0	69.96	70.20	70.44	70.68	70.76	70.76	70.68	70.44	70.20	69.96	69.72
+30.0	69.91	70.15	70.39	70.63	70.71	70.71	70.63	70.39	70.15	69.91	69.67
+40.0	69.85	70.09	70.33	70.57	70.65	70.65	70.57	70.33	70.09	69.85	69.61
1615+50.0	5369.78	5370.02	5370.26	5370.50	5370.58	5370.58	5370.50	5370.26	5370.02	5369.78	5369.54
+60.0	69.71	69.95	70.19	70.43	70.51	70.51	70.43	70.19	69.95	69.71	69.47
+70.0	69.64	69.88	70.12	70.36	70.44	70.44	70.36	70.12	69.88	69.64	69.40
+80.0	69.56	69.80	70.04	70.28	70.36	70.36	70.28	70.04	69.80	69.56	69.32
1615+90.0	5369.47	5369.71	5369.95	5370.19	5370.27	5370.27	5370.19	5369.95	5369.71	5369.47	5369.23
1616+00.0	69.38	69.62	69.86	70.10	70.18	70.18	70.10	69.86	69.62	69.38	69.14
+10.0	69.29	69.53	69.77	70.01	70.09	70.09	70.01	69.77	69.53	69.29	69.05
+20.0	69.19	69.43	69.67	69.91	69.99	69.99	69.91	69.67	69.43	69.19	68.95



* TANGENT ALIGNMENT



* HORIZONTAL CURVE ALIGNMENT

* THESE DRAWINGS ARE SCHEMATICS ONLY AND DO NOT NECESSARILY REFLECT THE ACTUAL BRIDGE LAYOUT.

	INITIAL	DATE	Checked By	K.C.S.	1/92
Designed By	M.C.	1/92	Quantities By	K.C.S.	8/92
Checked By	M.C.	1/92	Checked By	M.C.	8/92
Detailed By	P.A.D.	7/91			

08/10/92 LONGS::[USER.D1200.USER.DICKEY.E17OR]ORRAPP

DIVISION OF HIGHWAYS

ROADWAY APPROACHES

Designer	M. Condiotti	Structure Numbers	E-17-OR
Detailer	R. Dickey		
Drawing Number	B 30 of 30	Drawings	

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
FORM NO. 117
APR. 1966

AS CONSTRUCTED				FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	VOID		VIII	COLORADO	NH(CX) 225-4(39)	97

REVISIONS		

GENERAL NOTES

STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH STANDARD M-206-2 AND ROADWAY PLANS.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.

GRADE 60 REINFORCING STEEL IS REQUIRED.

ALL REINFORCING STEEL SHALL BE NON-EPOXY COATED.

THE FOLLOWING TABLE GIVES THE MINIMUM LAP SPLICE LENGTH FOR REINFORCING BARS:

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH FOR CLASS B CONCRETE	1'-3"	1'-6"	2'-0"	2'-6"	3'-6"	4'-5"	5'-7"	6'-10"

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

E.F. = EACH FACE

ALL EXPOSED CONCRETE SURFACES, DOWN TO 1'-0" BELOW FINISHED GRADE SHALL BE FINISHED WITH A CLASS 1 FINISH, FOLLOWED BY AN APPLICATION OF COLORED CONCRETE COATING, MEETING THE REQUIREMENTS IN THE SPECIAL PROVISION REVISION OF SECTION 601, STRUCTURAL CONCRETE COATING AND AS SHOWN ON THE PLANS. COATING SHALL BE FEDERAL COLOR #33531.

CONTRACTOR IS RESPONSIBLE TO POTHOLE AND EXPOSE AND PROVE POSITIVE THE LOCATION OF UTILITIES FAR ENOUGH IN ADVANCE AS TO NOT DELAY THE PROJECT.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL
206	STRUCTURE EXCAVATION	CU YD	5,275
206	STRUCTURE BACKFILL (CLASS 2)	CU YD	12,200
206	FILTER MATERIAL (CLASS B)	CU YD	860
502	DRILLING HOLE TO FACILITATE PILE DRIVING	LIN FT	675
502	STEEL PILING (HP 12X53)	LIN FT	19,400
502	STEEL PILING (HP 14X89)	LIN FT	1,024
503	DRILLED CAISSON (24 INCH)	LIN FT	2,892
601	CONCRETE CLASS B (WALL)	CU YD	4,050
601	STRUCTURAL CONCRETE COATING	SQ FT	25,000
602	REINFORCING STEEL	LB	1,065,000
607	FENCE MASONRY (SOUND BARRIER)(144 INCH)	LIN FT	3,558
625	MOBILIZATION	L.S.	0.3

INDEX OF DRAWINGS

DESIGN DATA

1989 AASHTO SPECIFICATIONS, 14th EDITION.

LIVE LOAD: AASHTO HS-20-44 AND INTERSTATE ALTERNATE

REINFORCED CONCRETE:

CLASS B CONCRETE: f_c = 1,200 psi, n = 9
f'_c = 3,000 psi

REINFORCING STEEL: f_s = 24,000 psi
f_y = 60,000 psi

BRIDGE DESCRIPTION

2 - Retaining Walls (817'-0",982'-0")
2 - Sound Barriers (1679'-0",1879'-0")

Designed By		MATERIAL	
Checked By		W.C.	4/92
Detailed By		W.C.	5/92
Quantities By		R.A.O.	5/92
Checked By		L.S.	6/92
Quantities By		V.L.C.	6/92
Checked By		L.S.	6/92

CROSS REFERENCE DRAWING NUMBER
B
SECTION OR DETAIL IDENTIFICATION

DIVISION OF HIGHWAYS	
GENERAL INFORMATION SUMMARY OF QUANTITIES	
Station 1586+83.00 to Station 1611+97.00	
Near Aurora Sec 30, 31, 6 T 3S R 66W	
Designer M. Condiotti	Structure Numbers
Detailer R. Dickey	
Drawing Number B 1 of 18 Drawings	

Revision Dates (Preliminary Stage Only)

08/17/92 LONGS::(USER/01200/USER/DICKEY/E170R)RWDS

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
FORM NO. 117
APR. 1969

AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	98

REVISIONS			

1679'-0" Sound Barrier (Section C)

79'-0" | 200'-0" | 200'-0" | 200'-0" | 200'-0" | 200'-0" | 200'-0" | 200'-0" | 200'-0"

El. 72.5, El. 72.0, El. 70.0, El. 66.5, El. 62.0, El. 57.0, El. 55.5, El. 56.0, El. 57.5, El. 60.0

Top of Sound Barrier

El. 57.5, El. 57.0, El. 55.0, El. 51.5, El. 47.0, El. 42.0, El. 40.5, El. 41.0, El. 42.5, El. 45.0

Caisson (typ.)

5370, 5360, 5350, 5340

1590, 1595, 1600, 1605

CBC

12" Water

8" San. (Abandoned)

8" San.

SECTION

Section taken at Left Layout Line.

Sta. 1587+21.00, 117' Lt.

Sta. 1593+58.00, 117' Lt.

Sta. 1604+00.00, 139' Lt.

Stations and Offsets are to Left Layout Line

Left Layout Line

N 0° 19' 47.2" W

N 1° 33' 13.2" W

℄ 1225 = Horizontal Control Line

Sta. 1604+75.22
Kink in 1225 Alignment

N 0° 19' 11.0" W

N 0° 19' 47.2" W

N 1° 40' 12.8" E

Right Layout Line

Sta. 1586+83.00, 117' Rt.

Sta. 1587+21.00, 117' Rt.

Sta. 1592+50.00, 117' Rt.

Sta. 1595+00.00, 117' Rt.

Sta. 1600+06.43, 117' Rt.

Sta. 1602+15.00, 124.3' Rt.

Sta. 1602+95.00, 127.1' Rt.

Sta. 1604+25.00, 131.6' Rt.

Sta. 1606+00.00, 137.7' Rt.

PLAN

Stations and Offsets are to Right Layout Line

38'-0" Retaining Wall (Section D)

529'-0" Retaining Wall under Sound Barrier (Section A1)

250'-0" Retaining Wall under Sound Barrier (Section A2)

715'-0" Sound Barrier (Section C)

385'-0" Retaining Wall under Sound Barrier

Retaining Wall

279'-0" | 250'-0" | 250'-0" | 150'-0" | 565'-0" | 80' (Section A1) | 55' (Section A2) | 75' (Section A1) | 75' | 100'-0"

El. 72.0, El. 70.0, El. 60.0, El. 58.0, El. 41.0, El. 37.0, El. 40.0, El. 38.0, El. 36.0, El. 48.0, El. 46.0, El. 43.0, El. 59.0, El. 60.0, El. 47.0, El. 48.0, El. 45.0, El. 63.0, El. 66.0, El. 54.0, El. 51.0, El. 35.0, El. 34.0, El. 28.0

Top of Sound Barrier

Top of Retaining Wall

Piling (typ.)

Caisson (typ.)

Existing Ground line

CBC

12" Water

8" San. (Abandoned)

8" San.

Piling (typ.)

5370, 5360, 5350, 5340, 5330

1590, 1595, 1600, 1605

SECTION

Section taken at Right Layout Line.

Contractor is responsible to pothole and expose and prove positive the location of utilities far enough in advance as to not delay the project.

	INITIAL	DATE	Checked By	
Designed By	M.C.	4-92	L.S.	8/92
Checked By	L.S.	8/92	M.C.	8/92
Detailed By	R.A.D.	4-92	L.S.	8/92

DIVISION OF HIGHWAYS

GENERAL LAYOUT

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number 8 2 of 18 Drawings			

Revised Sheets (Preliminary Stage Only)

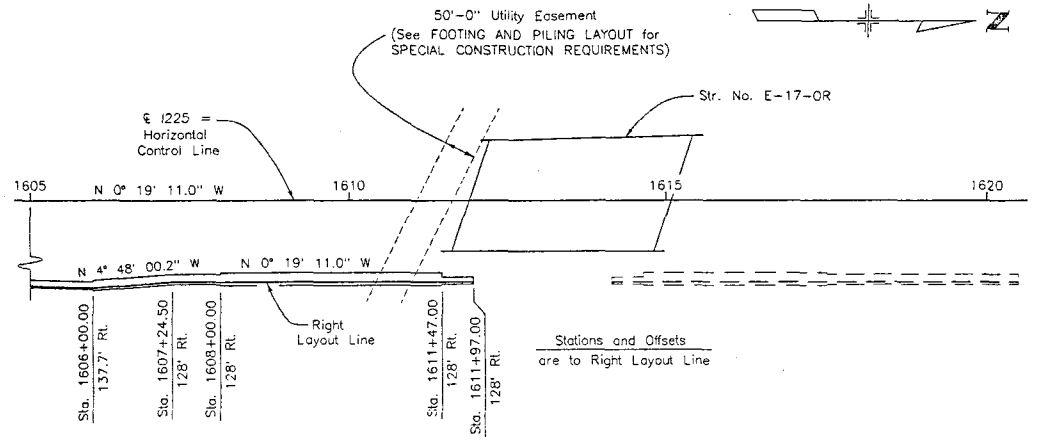
08/17/92 LONGS::[USER.01200.USER.DICKEY.E170P]RWGENLAY1

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
STANDARD FORM NO. 117
APR. 1966

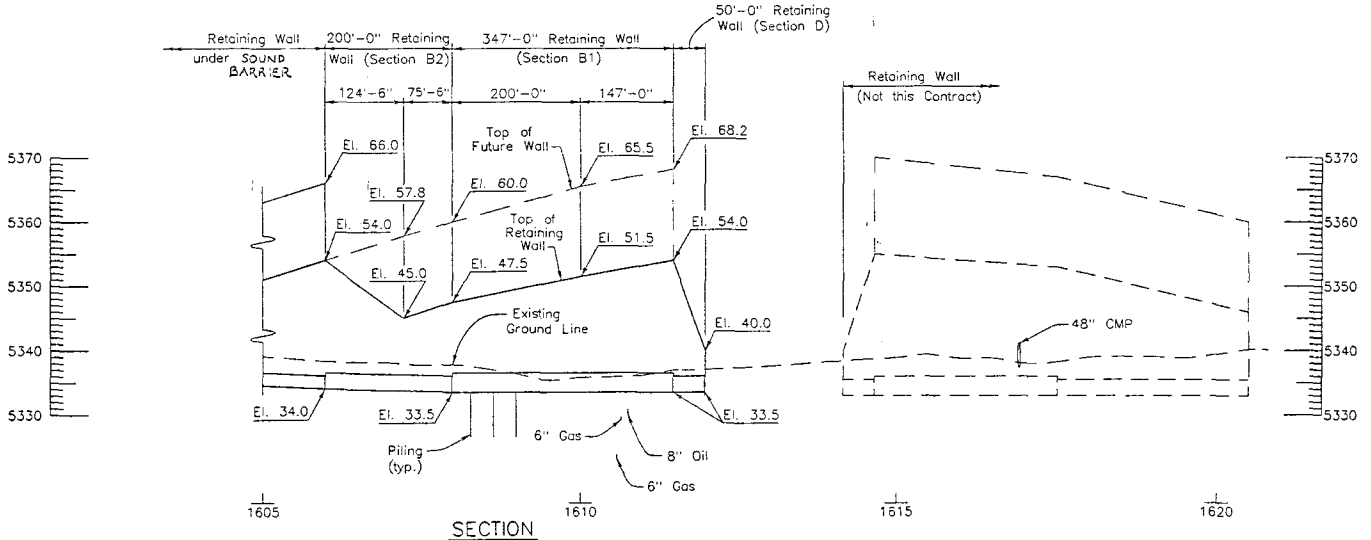
AS CONSTRUCTED				FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	VOID		VIII	COLORADO	NH(CX) 225-4(39)	99

REVISIONS			

	INITIAL	DATE			
Designed By	M.C.	4/92	Checked By	L.S.	8/92
Checked By	L.S.	8/92	Quantities By	M.C.	8/92
Detailed By	R.A.D.	4/92	Checked By	L.S.	8/92



PLAN



SECTION

Section taken at Right Layout Line.

Contractor is responsible to pothole and expose and prove positive the location of utilities far enough in advance as to not delay the project.

DIVISION OF HIGHWAYS

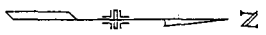
GENERAL LAYOUT

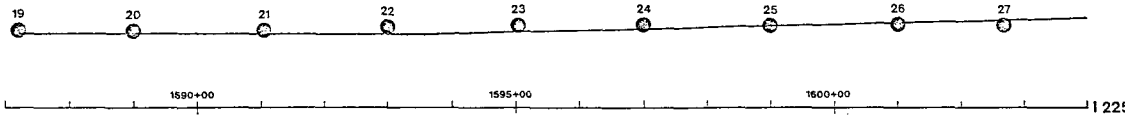
Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number B 3 of 18 Drawings			

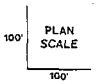
Revision Date (Preliminary Stage Only)

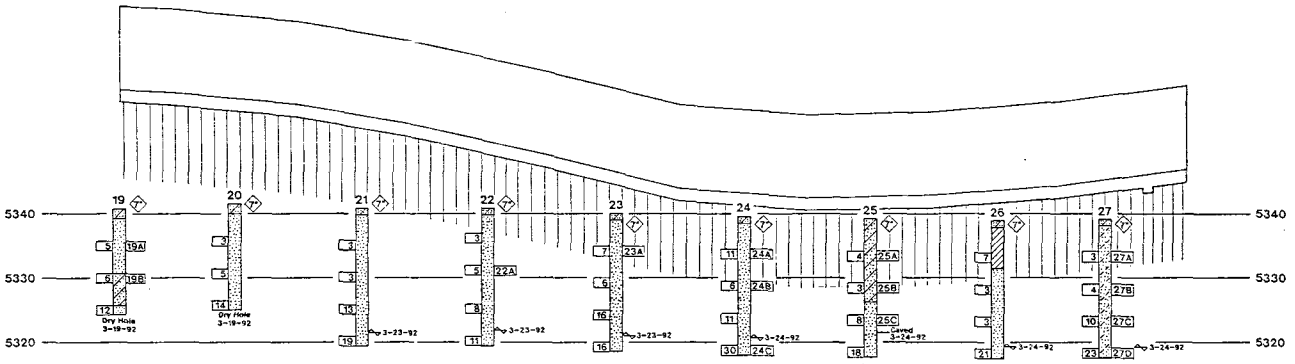
08/17/92 LONGS::(USER/01200/USER/DICKEY/E17OR)RWGENLAY2

AS CONSTRUCTED				FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
NO REVISION	REVISED	VOID		XIII	COLORADO	NHX 225-4(39)	100	









The boring logs of the above test holes are on file in the Geotechnical Section Office, Staff Materials Branch – (303)757-9274

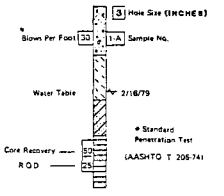
SUMMARY OF TEST RESULTS

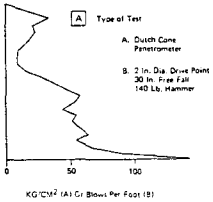
Sample No.	Depth	Classification: Corps of Engrs. or Visual	Classification: AASHTO	Grading Analysis (AASHTO): Percent Gravel	Coarse Sand	Fine Sand	Silt and Clay	Atterberg Limits: Liquid Limit, L_L	Plastic Limit, P_L	Plastic Index, I_P	Water Content, w %	Dry Unit Weight, γ P.C.F.
19A	5.0–6.5	Silty Sand	A-2-4(0)	0	5	66	29	NV	NP	NP	11	4
19B	10.0–11.5	Sandy Clay	A-4(4)	1	1	29	69	29	21	8	24	3
22A	10.0–11.5	Sand	A-3(0)	0	12	82	8	NV	NP	NP	10	8
23A	5.0–6.5	Sand	A-3(0)	1	47	42	10	NV	NP	NP	5	3
24A	5.0–6.5	Sand	A-3(0)	1	78	58	7	NV	NP	NP	5	3
24B	10.0–11.5	Sand	A-1-b(0)	2	59	32	7	NV	NP	NP	6	4
24C	20.0–21.5	Gravelly Sand	A-1-b(0)	20	47	17	6	NV	NP	NP	15	9
25A	5.0–6.5	Clayey Sand	A-6(2)	1	30	31	38	33	16	17	15	7
25B	10.0–11.5	Sandy Clay	A-6(11)	0	21	27	52	35	16	19	27	9
25C	15.0–16.5	Sand	A-1-b(0)	1	83	17	2	NV	NP	NP	5	6
27A	5.0–6.5	Sandy Clay	A-4(2)	0	3	47	50	27	17	10	16	4
27B	10.0–11.5	Silty Sand	A-2-4(0)	0	0	97	3	NV	NP	NP	13	8
27C	20.0–21.5	Sand	A-1-b(0)	1	51	47	1	NV	NP	NP	5	7

TYPE OF MATERIAL

- Clay
- Sandy Clay, Clayey Sand
- Silty Sand
- Sand

LEGEND





- Location of Test Boring
- Location of Continuous Penetration Test
- Rotary Boring
- Auger Boring

DIVISION OF HIGHWAYS

ENGINEERING GEOLOGY

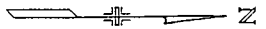
Colfax to I 70

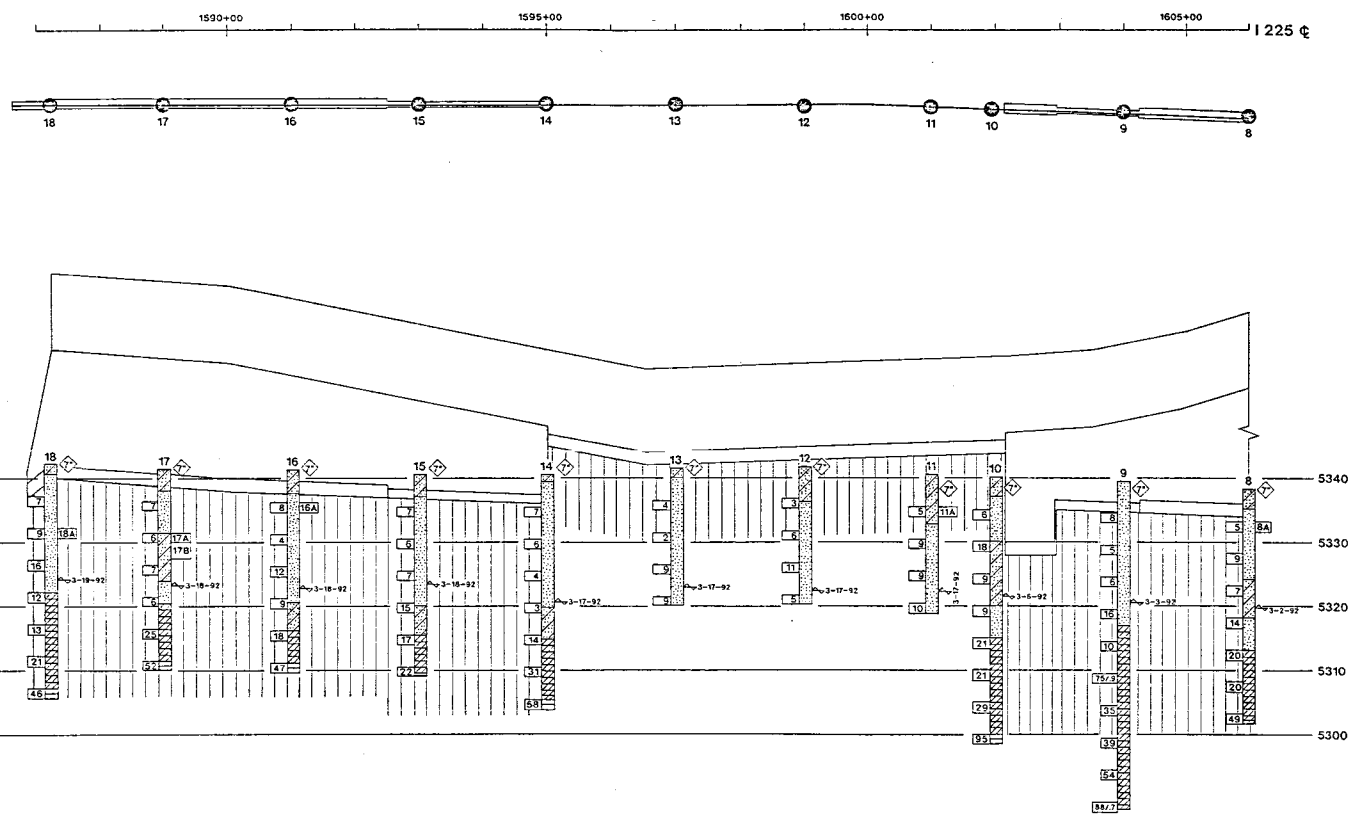
Sta 1587+00 to 1604+00 (West Side)

Geologist PM LB
Drawn by TM
Checked by LB
Date 6-10-92

STRUCTURE NO. _____
DWG. NO. 8 4 OF 10

AS CONSTRUCTED				FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
NO REVISION	REVISED	VOID		VIII	COLORADO	NHCX225-4(19)	101	





The boring logs of the above test holes are on file in the Geotechnical Section Office, Staff Materials Branch – (303)757-9274

SUMMARY OF TEST RESULTS

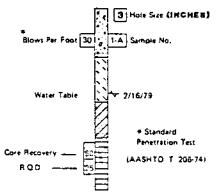
Sample No.	Depth	Classification: Corps of Engrs. or Visual	Classification: AASHTO	Grading Analysis (AASHTO) Percent: Gravel	Coarse Sand	Fine Sand	Silt and Clay	Atterberg Limits: Liquid Limit L_L	Plastic Limit P_I	Plasticity Index I_P	Water Content w %	Dry Unit Weight γ P.C.F.
8A	5.0-6.5	Silty Sand	A-2-4(0)	1	15	59	25	NV	NP	NP	3.9	
11A	5.0-6.5	Clay	A-6(12)	0	0	18	82	37	22	15	29.5	
16A	5.0-6.5	Silty Sand	A-4(0)	0	8	55	37	23	17	6	6.6	
17A	10.0-11.5	Sandy Clay	A-7-6(13)	2	1	23	74	41	22	19	27.4	
18A	10.0-11.5	Silty Sand	A-2-4(0)	0	29	55	16	NV	NP	NP	3.8	

TYPE OF MATERIAL

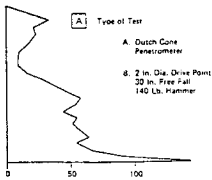
- Sand
- Sandy Clay
- Sandy Claystone, Claystone
- Sandy Shale, Weathered Shale

LEGEND

TEST BORING



CONTINUOUS PENETRATION TEST



- Location of Test Boring
- Location of Continuous Penetration Test
- Rotary Boring
- Auger Boring

DIVISION OF HIGHWAYS

ENGINEERING GEOLOGY

Colfax to I 70

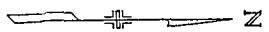
Sta 1587+00 to 1606+00 (East Side)

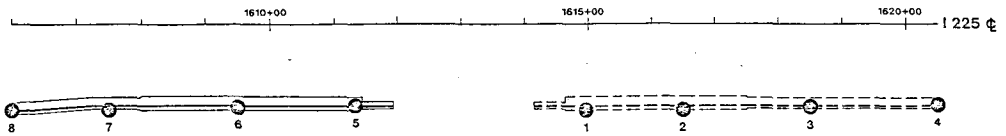
Geologist LB
Drawn by TM
Checked by LB
Date 6-8-92

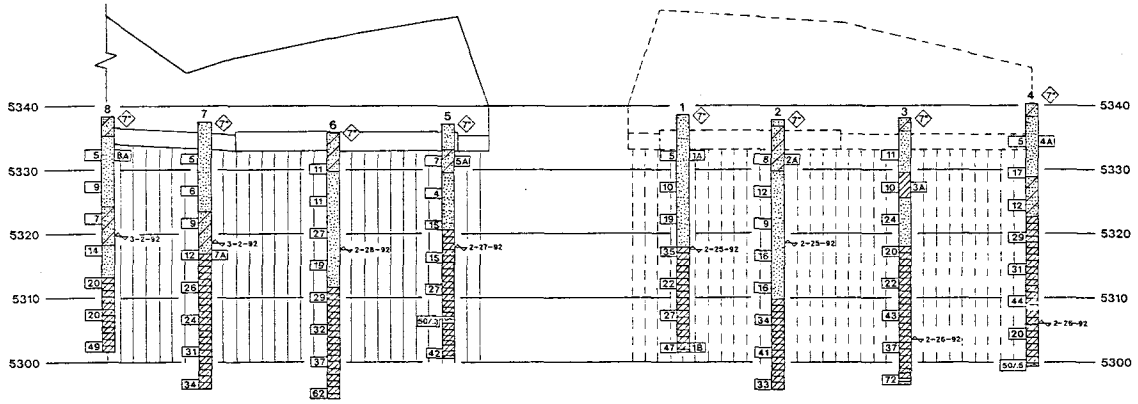
STRUCTURE NO.
DWG. NO B-5 OF 12

R64477

AS CONSTRUCTED				FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
NO REVISION	REVISED	VOID		VOI	COLORADO	NHPP 225-4(39)	102	







The boring logs of the above test holes are on file in the Geotechnical Section Office, Staff Materials Branch – (303)757-9274

SUMMARY OF TEST RESULTS

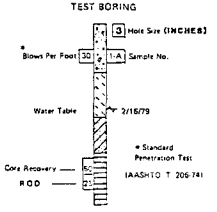
Sample No.	Depth	Classification: Corps of Engrs. or Visual	Classification: AASHTO	Grading Analysis (AASHTO) Percent: Gravel	Coarse Sand	Fine Sand	Silt and Clay	Atterberg Limits: Liquid Limit L_L	Plastic Limit P_L	Plasticity Index I_P	Water Content %	Dry Unit Weight P.C.F.
1A	5.5–7.0	Clayey Sand	A-4(0)	0	25	39	36	24	15	9	9.6	
1B	35.5–37.0	Sandy Clay	A-7-6(36)	0	2	28	70	80	26	54	37.8	
2A	5.5–7.0	Sandy Clay	A-6(11)	0	11	16	73	35	17	18	19.5	
3A	10.0–11.5	Clay	A-7-5(68)	0	1	5	94	92	30	62	33.5	
4A	5.0–6.5	Silty Sand	A-2-4(0)	2	37	46	15	NV	NP	NP	31.2	
5A	5.0–6.5	Sandy Clay	A-6(9)	0	6	28	66	33	16	17	17.9	
7A	20.5–21.5	Clay	A-7-5(52)	0	1	16	83	97	45	52	46.9	
8A	5.0–6.5	Silty Sand	A-2-4(0)	1	15	59	25	NV	NP	NP	3.9	

TYPE OF MATERIAL

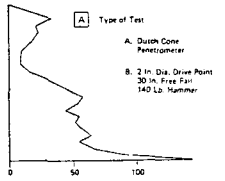
- Clay
- Sandy Clay
- Sand
- Sandstone
- Silty Shale
- Sandy Claystone, Claystone

LEGEND

TEST BORING



CONTINUOUS PENETRATION TEST



- Location of Test Boring
- Location of Continuous Penetration Test
- Rotary Boring
- Auger Boring

DIVISION OF HIGHWAYS

ENGINEERING GEOLOGY

Colfax to I 70

Sta 1606+00 to 1620+50 (East Side)

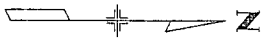
Geologist LB
Drawn by TM
Checked by LB
Date 6-4-92

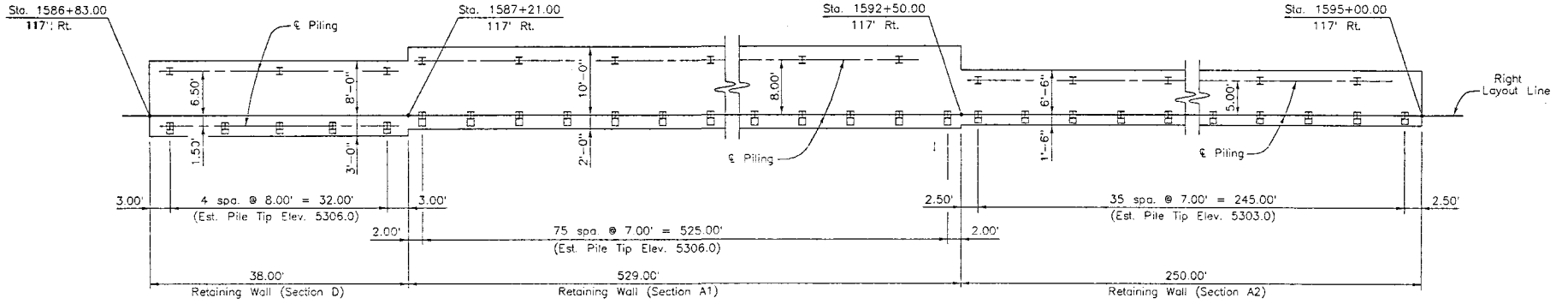
STRUCTURE NO. _____
DWG. NO. B-6 OF 16

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
C.H. FORM NO. 117
APR. 1966

AS CONSTRUCTED				FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	VOID		VIII	COLORADO	NH(CX) 225-4(39)	103

REVISIONS		





FOOTING AND PILING LAYOUT

	INITIAL	DATE	Checked By		
Designed By	M.C.	4-92		U.S.	8/92
Checked By	U.S.	8/92	Quantities By	M.C.	8/92
Detailed By	P.A.D.	4-92	Checked By	U.S.	8/92

Notes:

Piling dimensions shown are to the bottom of the concrete.

⊟ Indicate piling to be battered 4:12 in the direction shown.

All piling shall be end bearing HP 12x53 with a maximum design pile load of 70 tons.

DIVISION OF HIGHWAYS

FOOTING AND PILING LAYOUT

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number	B 7 of 18	Drawings	

Revision Dates (Preliminary Stage Only)

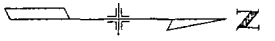
08/17/92 L:\DGS::[USER.01200.USER.DICKEY.E170R]PWPILE1

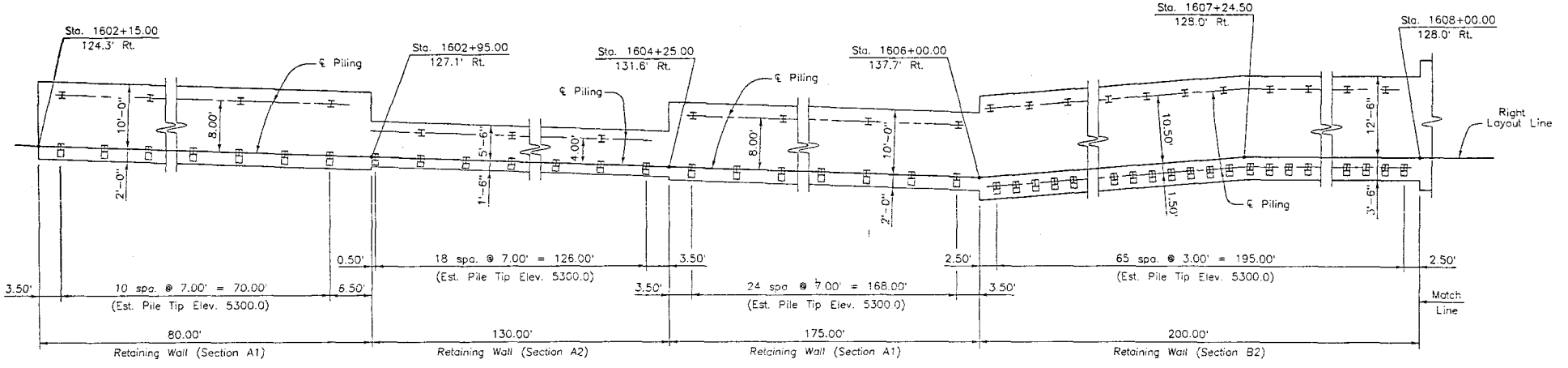
STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
STD. FORM NO. 117
APR. 1956

AS CONSTRUCTED						
NO REVISIONS		REVISED		VOID		

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
8	COLORADO	NH(CX) 225-4(39)	104

REVISIONS			





FOOTING AND PILING LAYOUT

	INITIAL	DATE	Checked By	
Designed By	M.C.	4/92	L.S.	8/92
Checked By	L.S.	8/92	M.C.	8/92
Detailed By	R.A.D.	4/92	Quantities By	
			Checked By	

Notes:

Piling dimensions shown are to the bottom of the concrete.

Indicate piling to be battered 4:12 in the direction shown.

All piling shall be end bearing HP 12x53 with a maximum design pile load of 70 tons.

DIVISION OF HIGHWAYS

FOOTING AND PILING LAYOUT

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number	B 8 of 18 Drawings		

Revision Dates (Preliminary Stage Only)

08/17/92 LONGS:::USER/01200/USER/DICKEY/E170R)RKPILE2

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
FORM NO. 117
APR. 1969

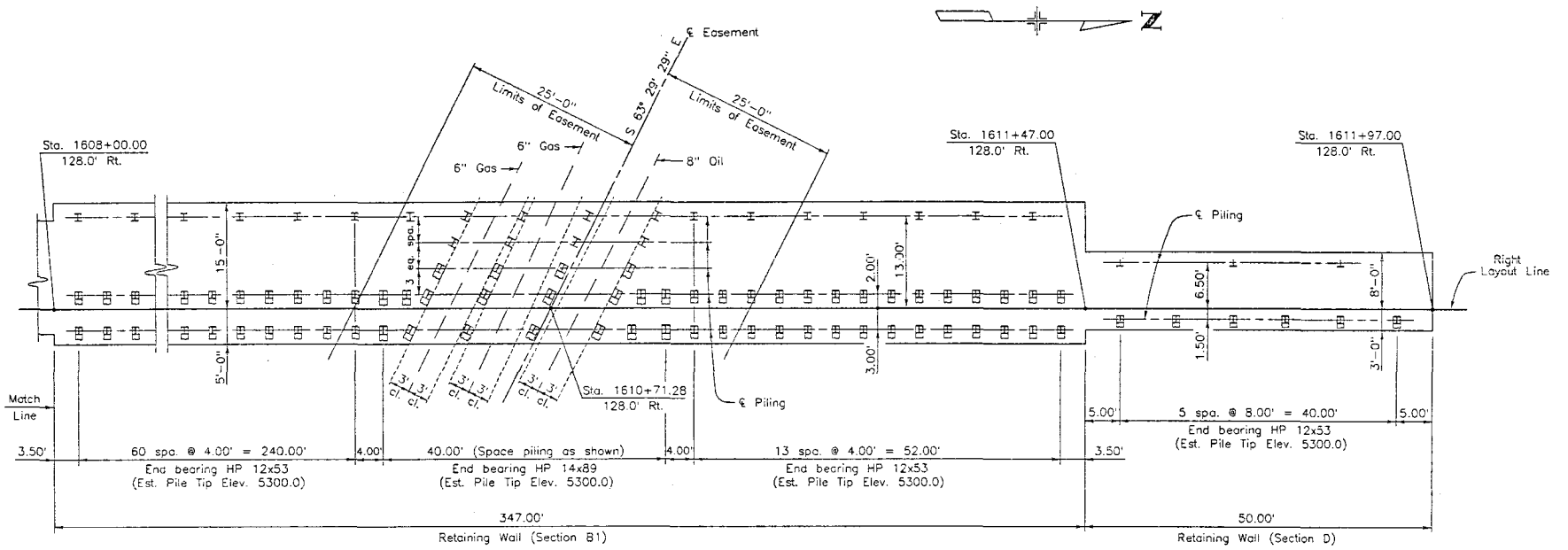
AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
XII	COLORADO	NH(CX) 225-4(39)	105

REVISIONS			

SPECIAL CONSTRUCTION REQUIREMENTS

1. Pothole and expose and prove positive the location of the three utility lines on both sides of footing.
2. Predrill all piles within the limits of the easement to bedrock.
3. Contact Phillips at least one week prior to doing any work within the easement.
4. The only equipment allowed within the easement will be the pile leads. The crane used to support the leads shall not travel across or be within the easement.



FOOTING AND PILING LAYOUT

Notes:

Piling dimensions shown are to the bottom of the concrete.

Indicate piling to be battered 4:12 in the direction shown.

All piling sizes shall be as shown in layout with a maximum design pile load of 70 tons for HP 12x53 and 109 tons for HP 14x89.

	INITIAL	DATE	Checked By		
Designed By	M.C.	4/92	M.C.	8/92	
Detailed By	M.C.	4/92	Quantities By	M.C.	8/92
Checked By	R.A.D.	4/92	Checked By	J.S.	8/92
Layout By					

DIVISION OF HIGHWAYS			
FOOTING AND PILING LAYOUT			
Designer M. Condiotti		Structure Numbers	
Detailer R. Dickey			
Drawing Number B 9 of 18 Drawings			
Revision Dates	(Preliminary Stage Only)		

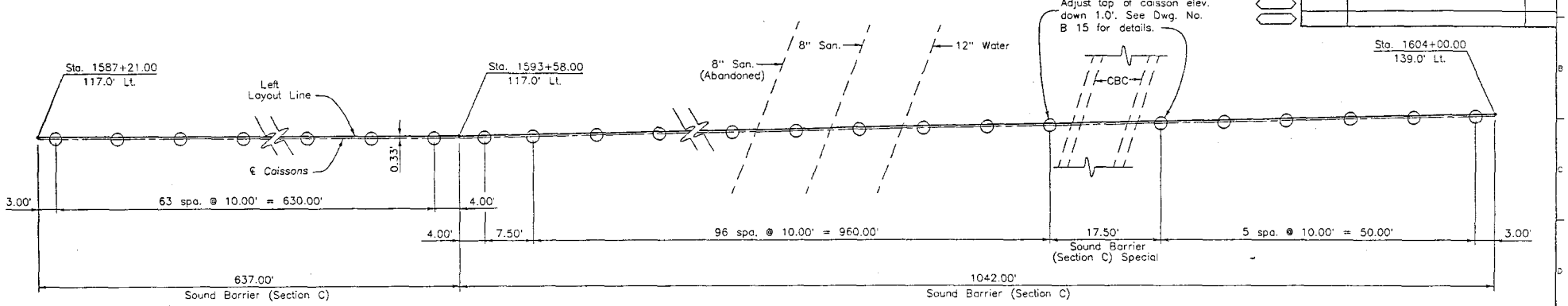
08/17/92 LONGS::USER/01200/USER/DICKEY/E170R)RWPILE3

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
FORM NO. 117
APR. 1968

AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

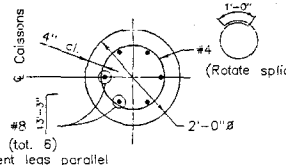
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	106

REVISIONS			

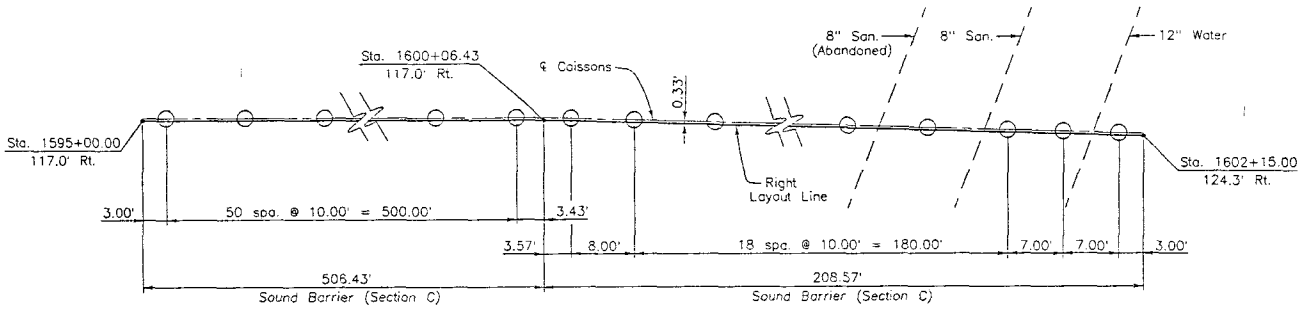


CAISSON LAYOUT
(Left Side)

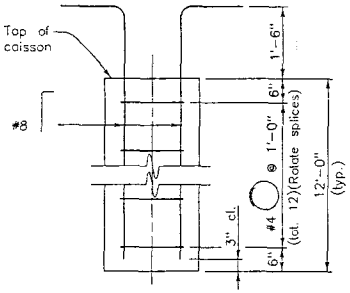
Utility locations shown are approximate. Contractor is responsible to pothole and expose and prove positive the location of utilities. Caisson spacing may be adjusted to avoid utilities as approved by the Engineer.



Note:
#4 spiral reinforcement with a 3" pitch may be substituted for the #4 caisson stirrups shown, substitution shall be at the Contractors option and expense.



CAISSON LAYOUT
(Right Side)



CAISSON DETAIL

See GENERAL LAYOUT for top of caisson elevations.

All caissons are 2'-0"ø with a Maximum Caisson Load = 20 Tons.

	INITIAL	DATE	
Designed By	M.C.	4/92	Checked By
Checked By	L.S.	8/92	Quantities By
Detailed By	R.A.D.	4/92	Checked By

L.S.	8/92	M.C.	8/92
L.S.			

DIVISION OF HIGHWAYS

CAISSON LAYOUT

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		

Drawing Number B 10 of 18 Drawings

Revision Dates (Preliminary Stage Only)

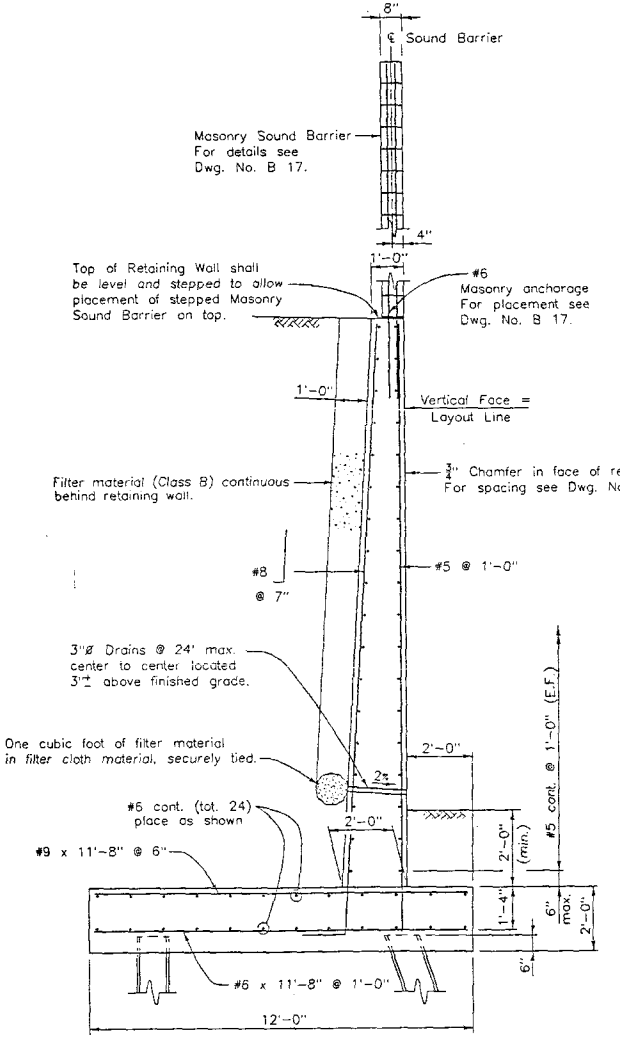
08/17/92 LOADS:::(USER/01200/USER/DICKEY/E170R)RWCAISSON

COLORADO DEPARTMENT OF HIGHWAYS
FORM NO. 117
R-1956

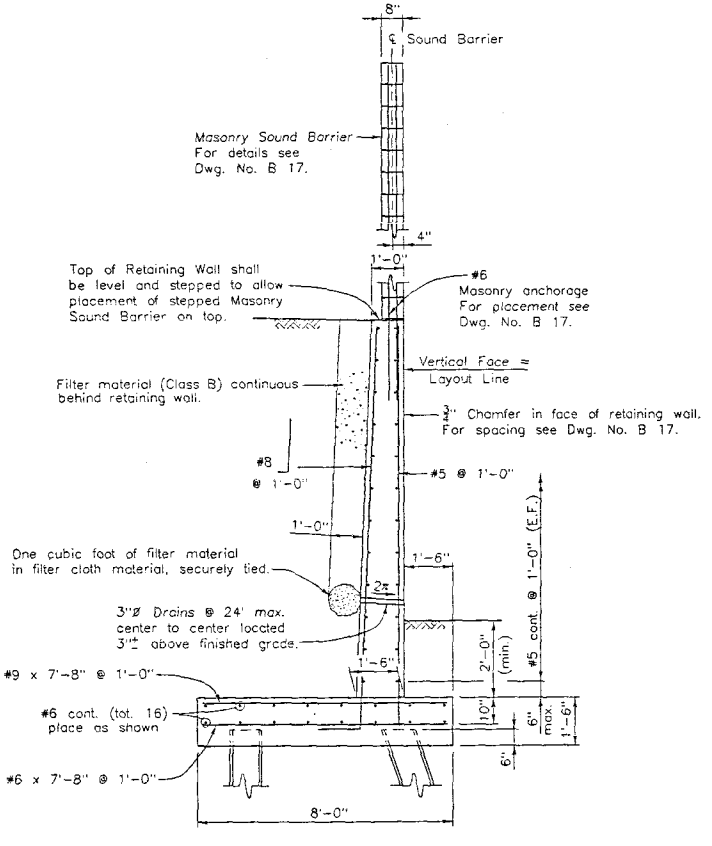
AS CONSTRUCTED			FEDERAL ROAD REGION NO	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	VOID	VIII	COLORADO	NH(CX) 225-4(39)	107

REVISIONS			

	INITIAL	DATE	Checked By		
Designed By	M.C.	4/92	L.S.	M.C.	8/92
Checked By	L.S.	8/92	Quantities By	L.S.	8/92
Detailed By	R.A.D.	4/92	Checked By	L.S.	8/92



SECTION A1



SECTION A2

RETAINING WALL UNDER SOUND BARRIER

DIVISION OF HIGHWAYS

SECTION A
RETAINING WALL DETAILS

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number B 11 of 18 Drawings			

Revision Dates (Preliminary Right Only)

08/17/92 LONGS:::USER/01200/USER/DICKEY/E170R)RWSECA

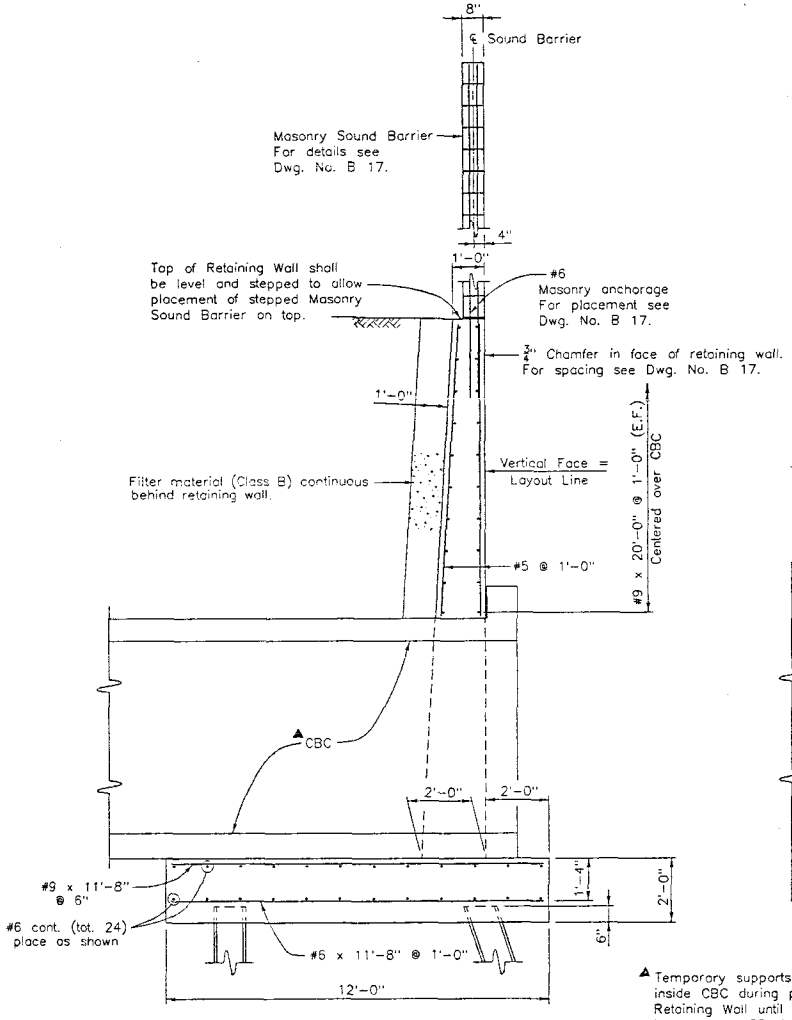
STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
M & S FORM NO. 117
APR. 1986

AS CONSTRUCTED						
NO REVISIONS		REVISED		VOID		

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	108

REVISIONS			

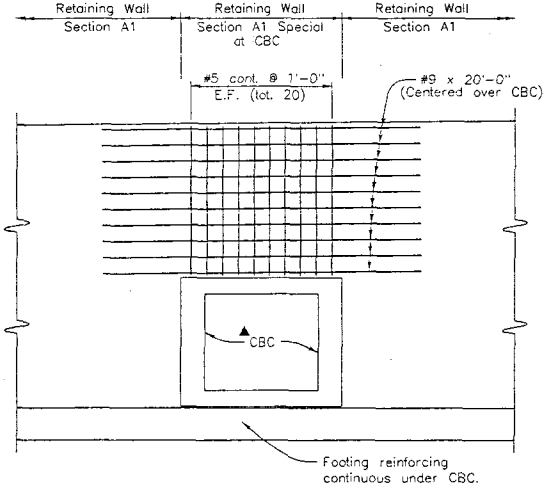
	INITIAL	DATE	Checked By		
Designed By	M.C.	8/92	L.S.	8/92	
Checked By	L.S.	8/92	M.C.	8/92	
Detailed By	P.A.D.	4/92	Quantities By	L.S.	
			Checked By		



SECTION A1 SPECIAL AT CBC

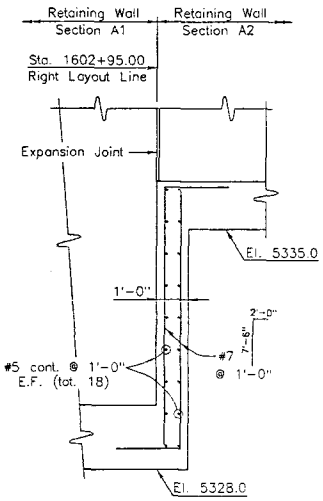
Approx. Sta. 1602+53

▲ Temporary supports are required inside CBC during placement of Retaining Wall until concrete has reached 28 day strength. Submit temporary support details to the Engineer for approval.



ELEVATION AT CBC

Approx. Sta. 1602+53



FOOTING STEP DETAIL

RETAINING WALL UNDER SOUND BARRIER

DIVISION OF HIGHWAYS

SECTION A
RETAINING WALL DETAILS

Designer	M. Condiotti	Structure	
Detailer	R. Dickey	Numbers	
Drawing Number	B 12 of 18	Drawings	

Revision Dates (Preliminary Stage Only)

08/17/92 LONGS::[USER6.01200.USER.DICKEY.E170R]RWCBDSEC

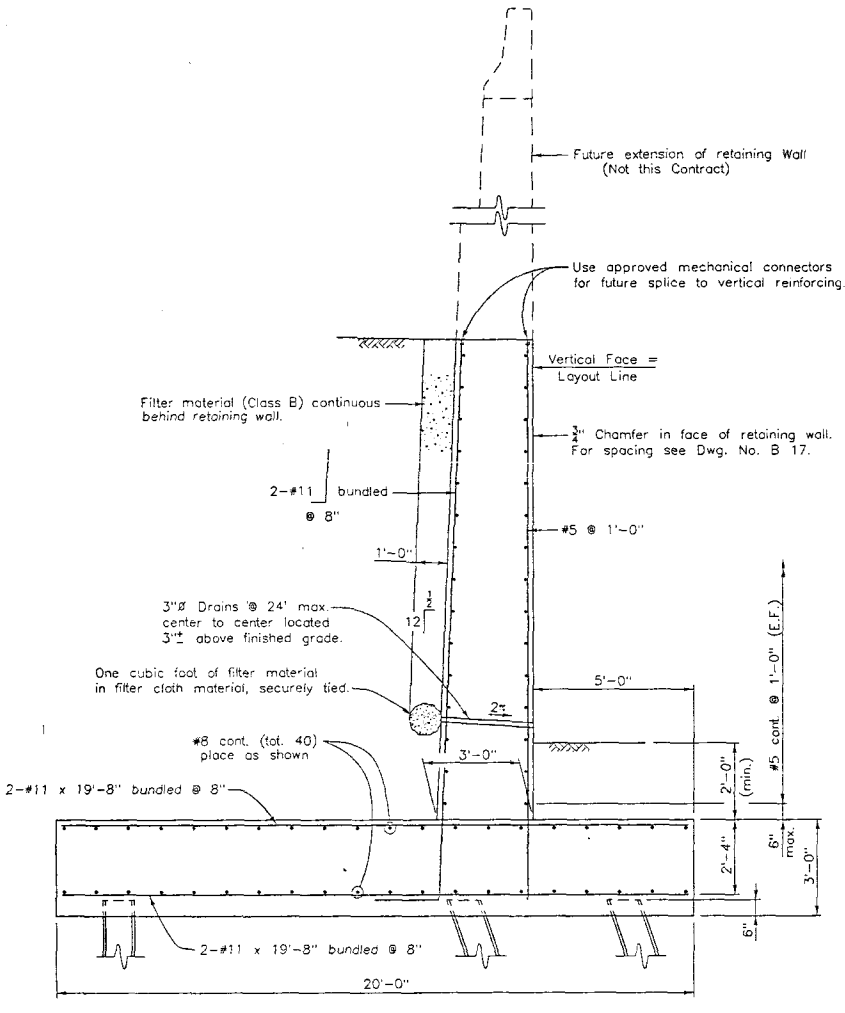
STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
M & S Form No. 117
APR. 1986

AS CONSTRUCTED						
NO REVISIONS		REVISED		VOID		

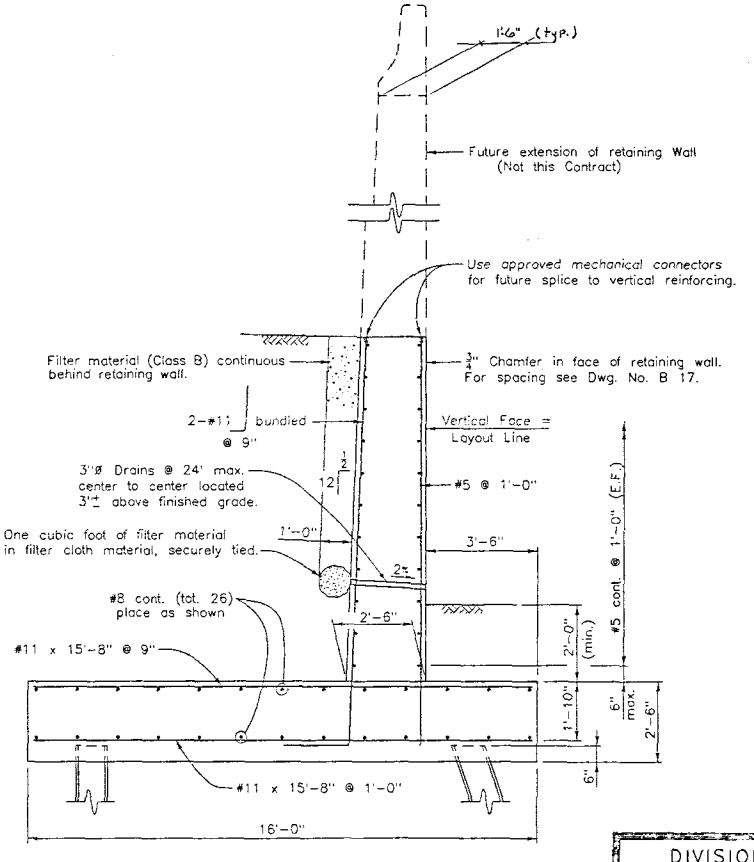
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	109

REVISIONS			

	INITIAL	DATE	Checked By	
Designed By	M.C.	4/92	L.S.	8/92
Checked By	L.S.	8/92	N.C.	8/92
Detailed By	P.A.D.	4/92	Quantities By	
			Checked By	L.S.



SECTION B1



SECTION B2

RETAINING WALL

DIVISION OF HIGHWAYS

SECTION B
RETAINING WALL DETAILS

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number B 13 of 18 Drawings			

Revision Dates (Preliminary Signature)

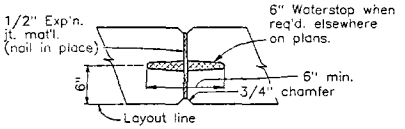
08/17/92 LONGS::[USER/01200/USER/DICKEY/E170R]SVSECB

STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIV. OF HIGHWAYS
M FORM NO. 117
APR. 1986

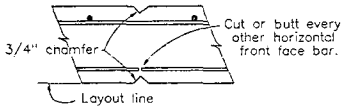
AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	110

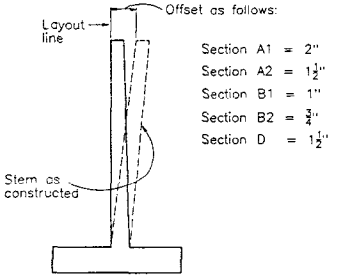
REVISIONS			



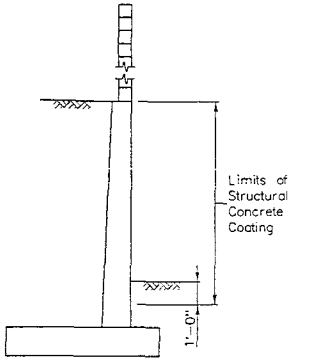
EXPANSION JOINT



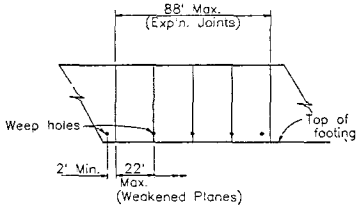
WEAKENED PLANE
(@ 22'-0" Max.)



APPROX. WALL OFFSETS



STRUCTURAL CONCRETE COATING DETAIL



WALL EXPANSION JOINTS
AND WEAKENED PLANES

	INITIAL	DATE	Checked By	
Designed By	M.C.	4/92	L.S.	8/92
Checked By	L.S.	8/92	M.C.	8/92
Detailed By	R.A.D.	4/92	Quantities By	
			Checked By	L.S. 8/92

08/17/92 LONGS::[USER/01200/USER/DICKEY/E170R]RWMSC

DIVISION OF HIGHWAYS

RETAINING WALL DETAILS

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number	B 14 of 13	Drawings	

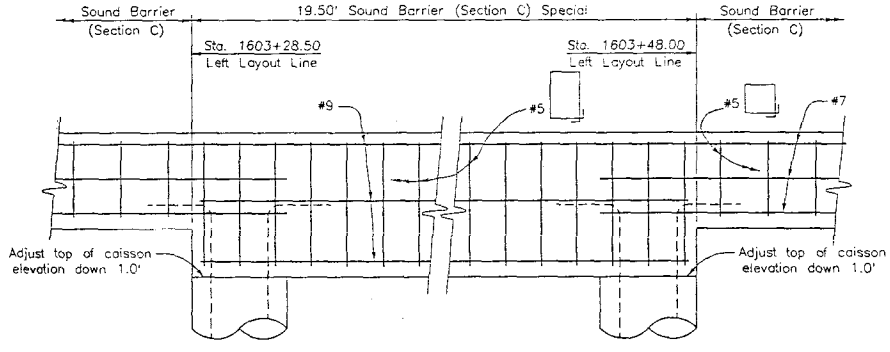
Revision Dates (Preliminary Stage Only)

THE COLORADO DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
FORM NO. 117
APR. 1986

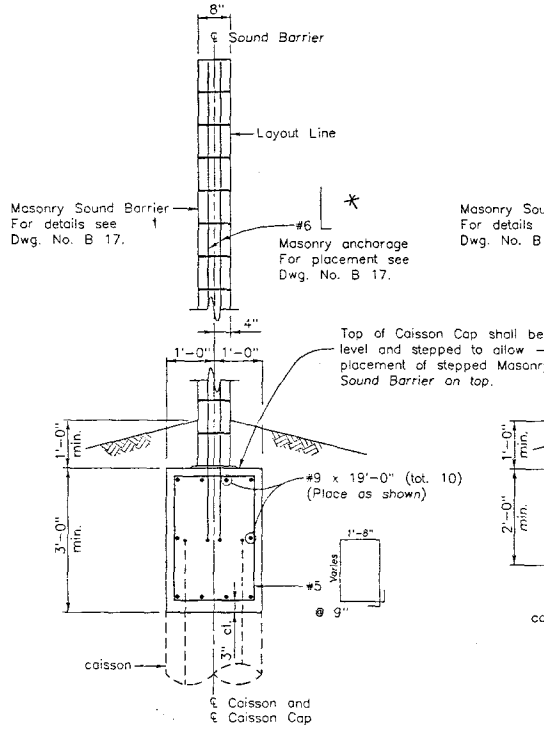
AS CONSTRUCTED				FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
NO REVISIONS	REVISED	VOID	BIDS	VIII	COLORADO	NH(CX) 225-4(39)	111

REVISIONS			

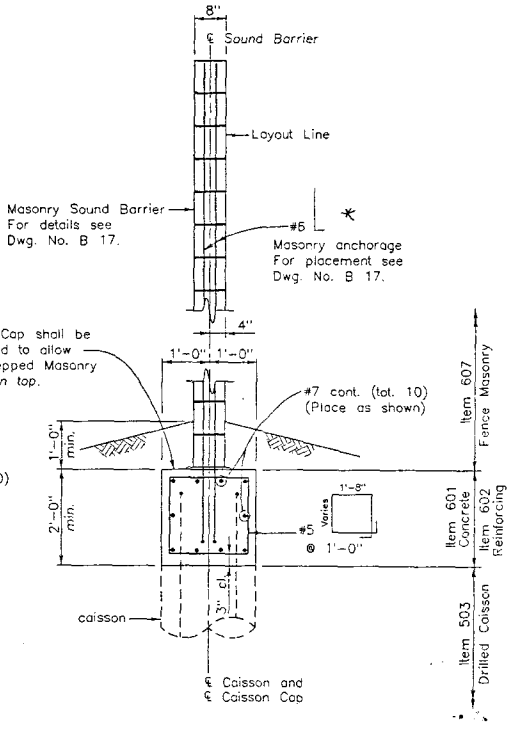
	INITIAL	DATE		INITIAL	DATE
Designed By	M.C.	4/92	Checked By	L.S.	8/92
Checked By	L.S.	8/92	Quantities By	M.C.	8/92
Detailed By	K.A.D.	4/92	Checked By	L.S.	8/92



SECTION C SPECIAL CAISSON CAP ELEVATION



SECTION C SPECIAL



SECTION C

* incl. in Item No. 602 REINFORCING STEEL

DIVISION OF HIGHWAYS

SECTION C DETAILS

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number	B 15 of 18 Drawings		

Revision Dates (Preliminary State Only)

08/17/92 LONGS::[USER.01200.USER.DICKEY.E170R]RWSECC

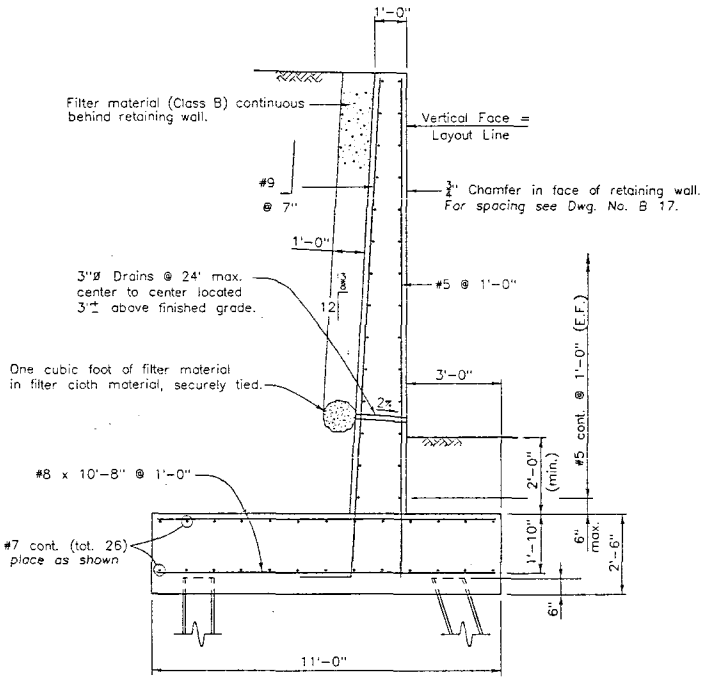
STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
FORM NO. 117
APR. 1966

AS CONSTRUCTED				
NO REVISIONS		REVISED		VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	112

REVISIONS			

	INITIAL	DATE	Checked By		
Designed By	M.C.	4/92	L.S.		8/92
Detailed By	M.C.	8/92	Quantities By	M.C.	8/92
Checked By	L.S.	4/92	Checked By	L.S.	8/92



RETAINING WALL SECTION D

DIVISION OF HIGHWAYS

SECTION D
RETAINING WALL DETAILS

Designer	M. Condiotti	Structure Numbers	
Detailer	R. Dickey		
Drawing Number	B 16 of 18	Drawings	

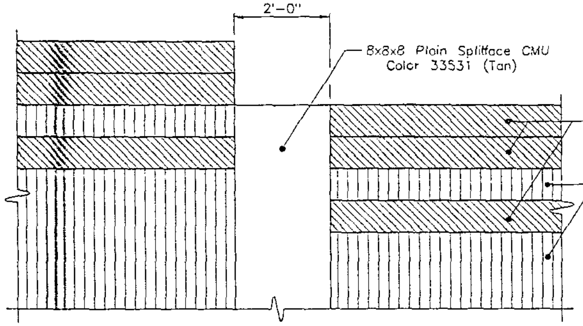
(Preliminary Stage Only)

08/17/92 LONGS::[USER.01200.USER.DICKEY.E170R]RWSECD

REVISIONS

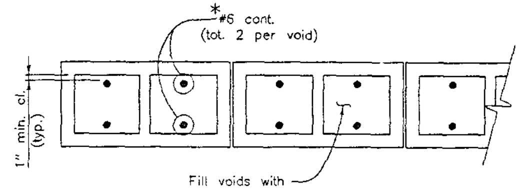
SPECIFICATIONS FOR MASONRY UNITS

The Contractor shall refer to Section 704-MASONRY UNITS in the Colorado Std. Specifications. Where provisions in these specifications do not adequately cover all the requirements for constructing the barrier, the Contractor shall refer to the Unified Building Code, 1988 Edition, Section 2404 -*CONSTRUCTION* and Section 2405-*QUALITY CONTROL*.



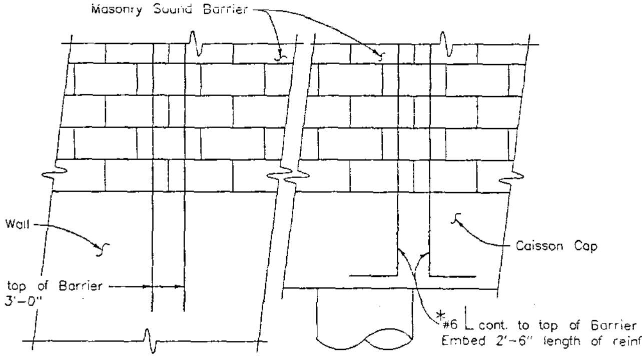
SOUND BARRIER ELEVATION
TYPICAL STEP DETAIL

Step top of Retaining Wall and top of Caisson Cap to accomodate the step in the Masonry Sound Barrier to match Elevations given on the GENERAL LAYOUT as closely as possible.



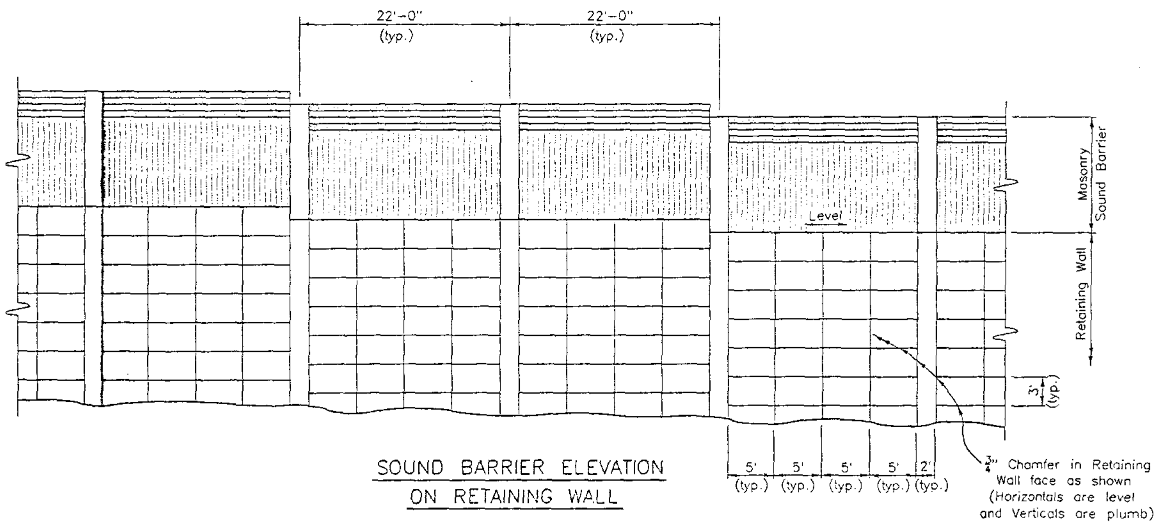
PLAN

*#6 cont. to top of Barrier may be spliced as necessary to facilitate construction of CMU. Splice using either approved mechanical splices or a minimum splice length of 2'-6".



SECTION A SECTION C

MASONRY ANCHORAGE ELEVATION



SOUND BARRIER ELEVATION ON RETAINING WALL

Designed By	INITIAL	DATE	Checked By		
Designed By	M.C.	4/92	Checked By	L.S.	8/92
Checked By	L.S.	8/92	Quantities By	M.C.	8/92
Detailed By	R.A.D.	4/92	Checked By	L.S.	8/92

08/17/92 LONGS::(USER/O1200/USER/DICKEY/E170R)RWSOUND8

DIVISION OF HIGHWAYS

SOUND BARRIER DETAILS

Designer	M. Candiotti	Structure Numbers	
Detailer	R. Dickey		

Drawing Number B 17 of 18 Drawings

Revision Dates (Preliminary Stage Only)

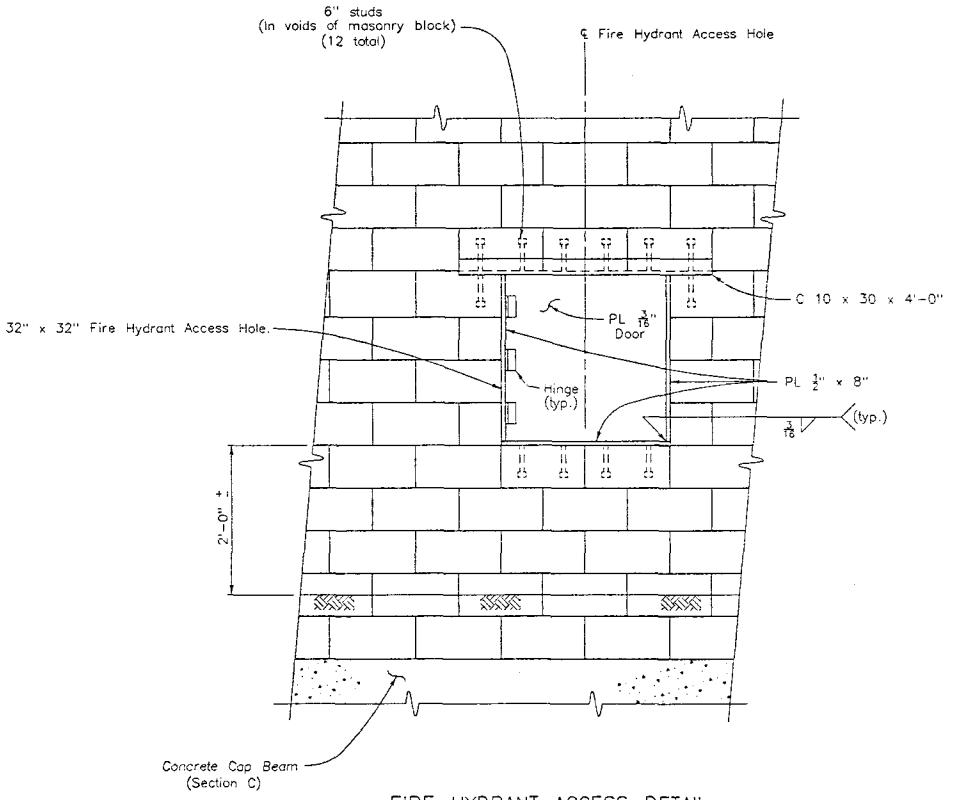
STATE OF COLORADO
DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS
STANDARD FORM NO. 117
APPROVED APR. 1988

AS CONSTRUCTED			
NO REVISIONS		REVISED	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NUMBER	SHEET NUMBER
VIII	COLORADO	NH(CX) 225-4(39)	114

REVISIONS			

	INITIAL	DATE	Checked By		
Designed By	M.C.	4/92		L.S.	8/92
Checked By	L.S.	8/92	Quantities By	M.C.	8/92
Detailed By	R.A.D.	4/92	Checked By	L.S.	8/92



FIRE HYDRANT ACCESS DETAIL

To be included in the bid price for
Item No. 607 Fence Masonry (Sound Barrier)

Approximate locations:
Sta. 1595+00 Left Side
Sta. 1602+00 Right Side

DIVISION OF HIGHWAYS

SOUND BARRIER DETAILS

Designer	M. Condotti	Structure	
Detailer	R. Dickey	Numbers	
Drawing Number	B 18 of 18	Drawings	

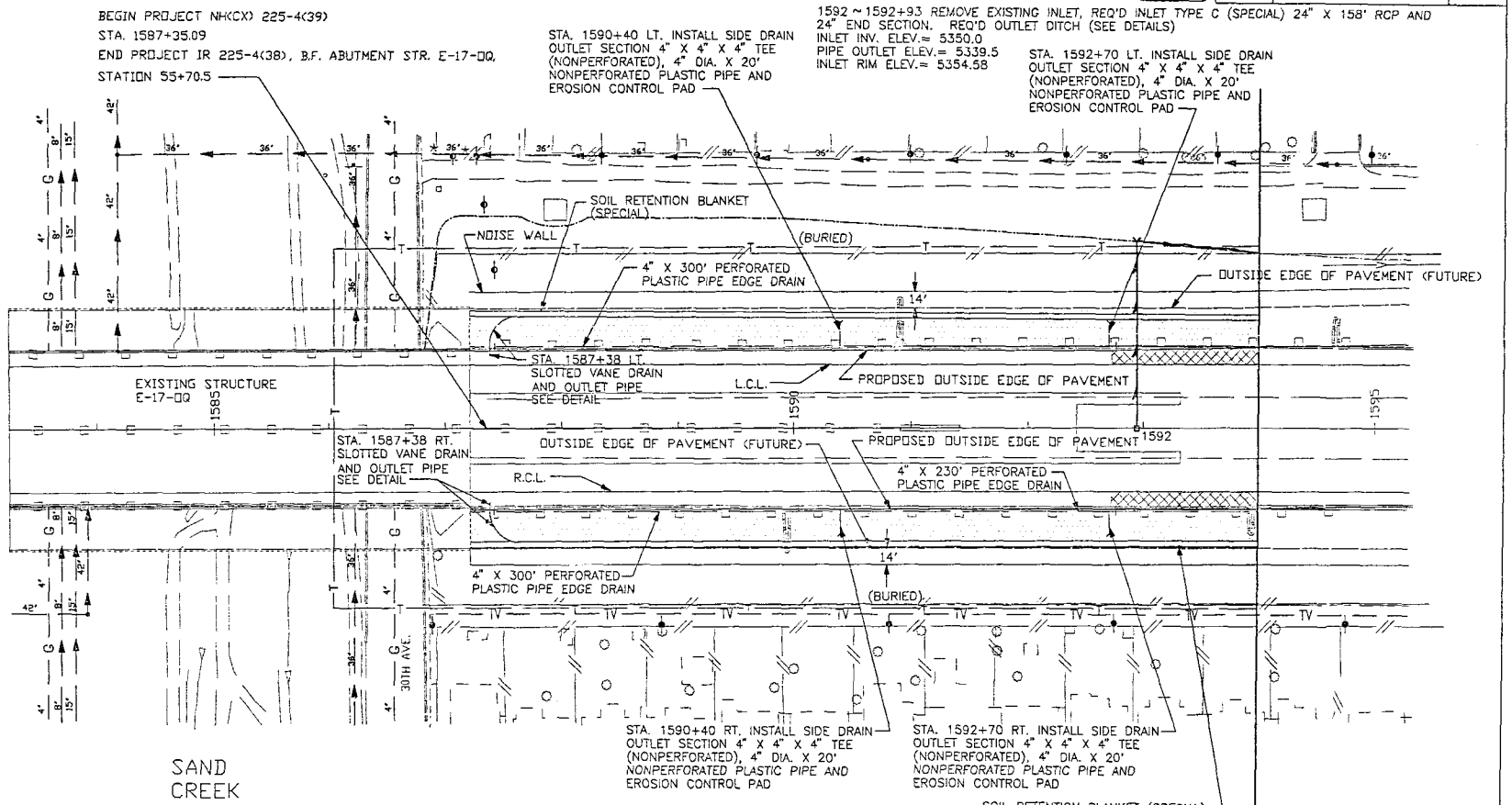
Revision Dates (Preliminary Stage Only)

08/17/92 LONGS:::USER/01200/USER/DICKEY/E170R)HWSBDET

I-225 UTILITIES & DRAINAGE

AS CONSTRUCTED	DIGITS	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐		VIII	COLO.	NH(CX) 225-4(39)	115

REVISIONS			

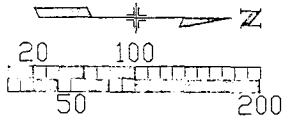


EDGE DRAIN SCHEMATIC

UTILITY OWNERS

PUBLIC SERVICE COMPANY - ELECTRICAL (LIGHTING)
PUBLIC SERVICE COMPANY - ELECTRICAL (DIST.)
PUBLIC SERVICE COMPANY - ELECTRICAL (TRANS.)
PUBLIC SERVICE COMPANY - GAS
US WEST COMMUNICATIONS
CITY OF AURORA WATER, SANITATION, AND STORM SEWER
UNITED ARTISTS CABLE
CHASE PIPELINE
PHILLIPS PIPELINE COMPANY
TELEPORT DENVER, LTD. (FIBER OPTIC)
MCI FIBER OPTICS

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
OR 534-6700 IN METRO DENVER
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.



ORIGINAL SCALE
1"≈ 50'

04/22/98 14:34:50 G:\PLAN\PLAN32 92031 Bob

AUG. 89 F126A

AS CONSTRUCTED			DIGITS	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID		VIII	COLO.	NH(CX) 225-4(39)	116

I-225 UTILITIES & DRAINAGE

REVISIONS		

1598 ~ 1598+40 REQ'D INLET TYPE C (SPECIAL) AND 24" X 104' RCP CONNECTION TO 1598L (SEE DETAILS) AND REMOVE EXISTING INLET AT STA. 1598+52
INLET RIM ELEV.= 5345.41
INLET INV. ELEV.= 5341.41

SEE LANE LAYOUT DETAIL FOR LOCATION REQUIRING SLOTTED CONCRETE BARRIER (TEMPORARY) AND EROSION BALES.

1598L ~ 1598+40 (107.25' LT.) REQ'D INLET TYPE C (5 FOOT) 24" X 36' RCP WITH 24" END SECTION. REQ'D OUTLET DITCH.
INLET RIM ELEV.= 5341.5
INLET INV. ELEV.= 5338.0
PIPE OUTLET ELEV.= 5337.0

RELOCATED PSCo. TOWER LOCATION

EXISTING PSCo. TOWER LOCATION (TO BE REMOVED BY OTHERS)

MATCH LINE STA. 1594+00

SOIL RETENTION BLANKET (SPECIAL) STA. 1587+21 TO STA. 1604+00 LT.

STA. 1603+00 MODIFY MANHOLE

EROSION BALES LOCATION AS DIRECTED BY THE ENGINEER

(BURIED)

1598L

FUTURE EDGE OF PAVEMENT

14'

L.C.L.

1595

1598

1600

1604

1605

N 0 19 47.2 W

N 0 19 11.0 W

7'-6" CONCRETE BOX CULVERT

(REMOVED)

R.C.L.

H.C.L.

FUTURE EDGE OF PAVEMENT

1598R

(BURIED)

EROSION BALES LOCATION AS DIRECTED BY THE ENGINEER

SOIL RETENTION BLANKET (SPECIAL) STA. 1587+21 TO STA. 1606+00 RT.

1604 ~ 1604+05 REQ'D INLET TYPE C (SPECIAL) AND 24" X 170' RCP WITH 24" END SECTION (SEE DETAILS) AND REMOVE EXISTING INLET AT STA. 1605+46. REQ'D OUTLET DITCH
INLET RIM ELEV.=5350.52
INLET INV. ELEV.= 5345.52
PIPE OUTLET ELEV.= 5338.00

MATCH LINE STA. 1607+00

1598R ~ 1598+40 (97.25' RT.) (5 FOOT)
REQ'D INLET TYPE C, 24" X 416' RCP CONNECTION TO CBC
INLET RIM ELEV.= 5341.0
INLET INV. ELEV.= 5337.0
PIPE OUTLET ELEV.= 5334.0

1602+94 ~ EXTEND EXISTING TYPE 7A CONCRETE BOX CULVERT 83' LT. AND 43' RT. REQ'D WINGWALLS LT. WITH CONCRETE APRON. REQUIRED CONCRETE SLOPE AND DITCH PAVING RT. (SEE DETAILS)
NOTE: FOR FURTHER DETAILS SEE M-601-1, M-601-20, AND M-601-12.

NOTE: EDGE DRAINS AND OUTLETS BY OTHERS TO BE LOCATED BY OTHERS AND ARE SHOWN FOR INFORMATION ONLY.

N

20 100

50 200

ORIGINAL SCALE
1"= 50'

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
OR 534-6700 IN METRO DENVER
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

AUG. 89 F126A

I-225 UTILITIES & DRAINAGE

AS CONSTRUCTED	DIST 6	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐		VIII	COLO.	NH(CX) 225-4(39)	117

REVISIONS		

POWER SOURCE
NOTE: CONTRACTOR TO COIL 30' OF DIRECT BURIAL CABLE AT THE BASE OF POWER SOURCE POLE

EXISTING PSCo. TOWER LOCATION

RELOCATED PSCo. TOWER LOCATION

3 - 36" RCP

3 - LUMINAIRE HIGH PRESSURE SODIUM (WALL TYPE) (250 WATT)

EXTEND 36" CMP 70' LEFT WITH END SECTION

RELOCATED PSCo. TOWER LOCATION

STA. 1615+22.88 END PROJECT NH(CX) 225-4(39)=
STA. 1615+22.88 ON PROJECT IM-STA(CX) 70-4(159)

EXISTING PSCo. TOWER LOCATION (TO BE REMOVED BY OTHERS)

(BURIED)

EXISTING PSCo. TOWER LOCATION (TO BE REMOVED BY OTHERS)

FUTURE EDGE OF PAVEMENT

PERFORATED PIPE EDGE DRAIN AND OUTLET PIPE BY OTHERS

SLOTTED VANE DRAIN BY OTHERS

L.C.L.

1610

1615

1620

R.C.L.

I-225 H.C.L.

FUTURE EDGE OF PAVEMENT

PERFORATED PIPE EDGE DRAIN AND OUTLET PIPE BY OTHERS

(BURIED)

6" SPARE LINE
6" NATURAL GAS
8" OIL

SLOTTED VANE DRAIN BY OTHERS

EXTEND 36" CMP 14' RT. WITH END SECTION.
CLEAN CULVERT NOT PAID FOR SEPARATELY, BUT INCLUDED IN THE COST OF THE PIPE.

MATCH LINE
STA. 1607+00

EXISTING SMITH ROAD

UNION PACIFIC R.R.

EXTEND EXISTING 48" RCP 70' LT. AND 6' RT. WITH 48" END SECTIONS LT. AND RT. BY OTHERS

BY OTHERS

FUTURE

SMITH RD. SURVEY LINE

15

20 100
50 200
ORIGINAL SCALE
1"=50'

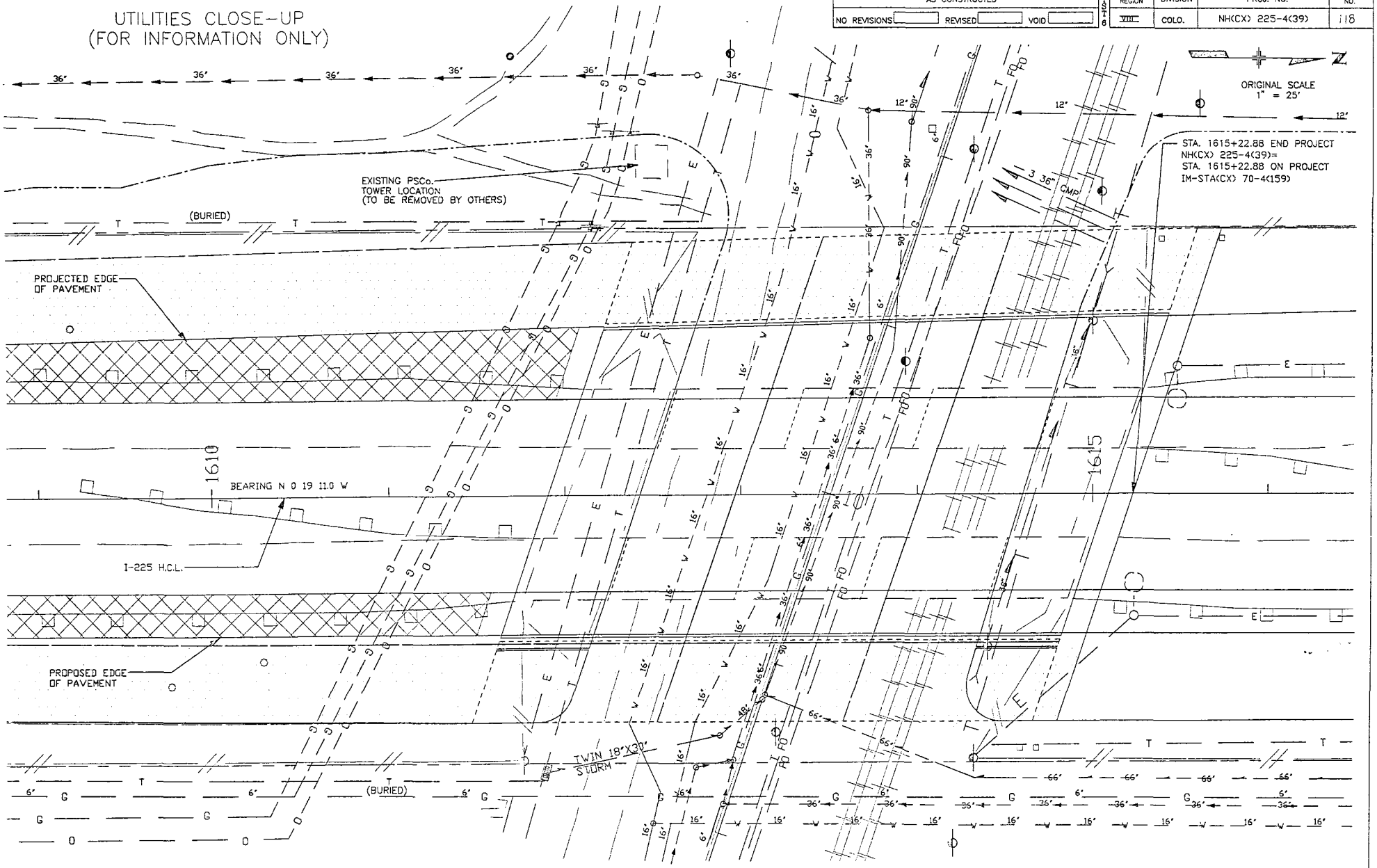
CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
OR 534-6700 IN METRO DENVER
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

G:\PLAN\PLAN12.DWG 5/7/92

AUG. 89 F126A

UTILITIES CLOSE-UP
(FOR INFORMATION ONLY)

AS CONSTRUCTED	DIST.	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS ☐ REVISED ☐ VOID ☐	6	VIII	COLO.	NH(CX) 225-4(39)	118



AUG. 89 F126A