

# STATE DEPARTMENT OF HIGHWAYS

## DIVISION OF HIGHWAYS—STATE OF COLORADO

PE, ROW & UTILITIES  
UNDER FC 093-1(7)

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
III	COLORADO	FR-HES 093-1(7)	2

AS CONSTRUCTED			
NO REVISIONS	REVISED	VOID	

REVISIONS			
NO.	DATE	DESCRIPTION	

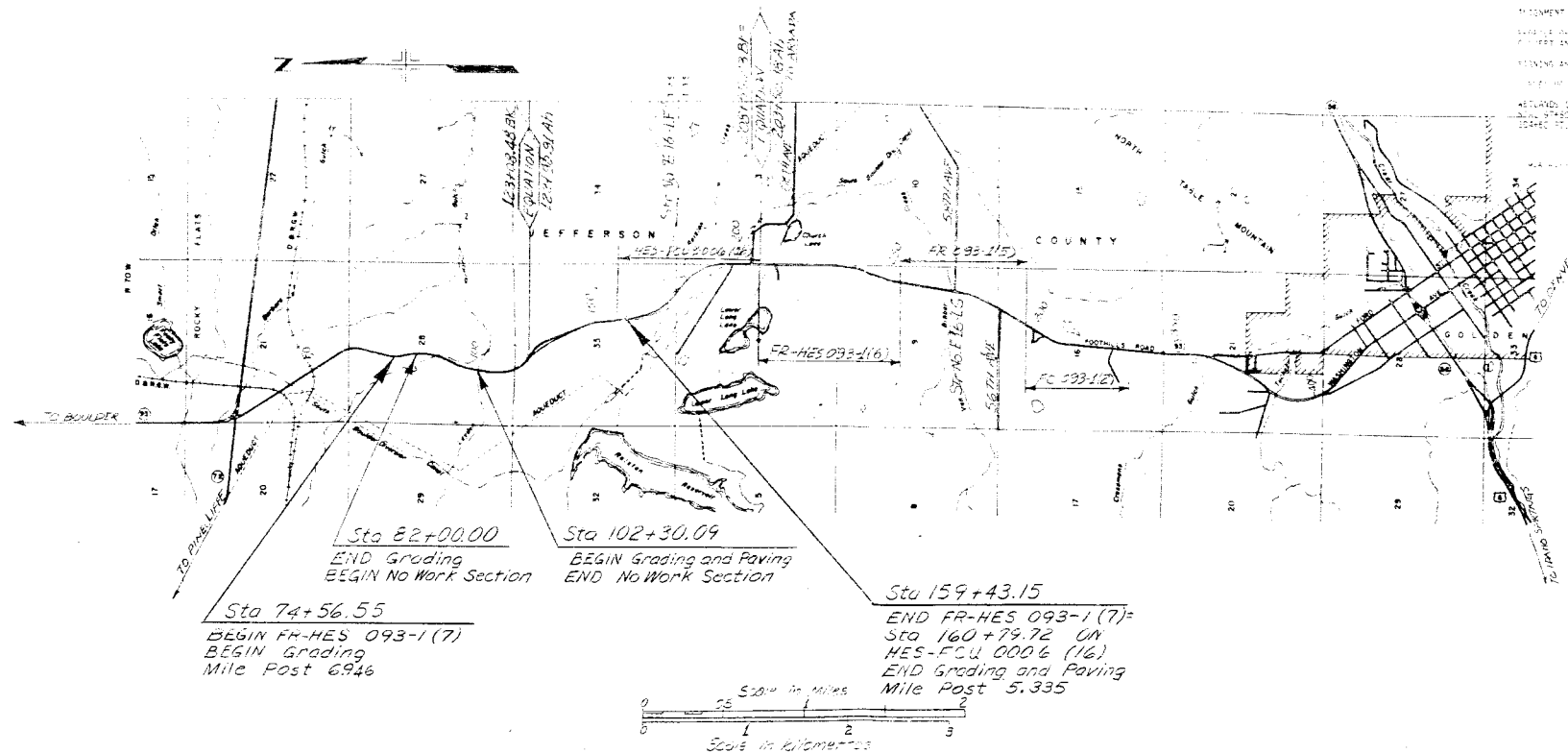
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See Elsewhere in the Plans For Tabulation of Length and Design Data.

### PLAN AND PROFILE OF PROPOSED FEDERAL AID PROJECT NO. FR-HES 093-1(7) STATE HIGHWAY NO. 93 JEFFERSON COUNTY

SCALES OF ORIGINAL DRAWINGS  
ON PLAN 1 IN = 100 FT  
ON PROFILE 1 IN = 100 FT HORIZONTAL  
1 IN = 10 FT VERTICAL  
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD  
NET LENGTH OF PROJECT 6,474.08 Lin. Ft. = 1.226 miles



DIVISION OF HIGHWAYS

APPROVED: \_\_\_\_\_ 12-21-55 DATE

James F. Smith  
ASST. CHIEF ENGINEER

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AS CONSTRUCTED INFORMATION

CONTRACTOR Asphalt Paving Co.

RESIDENT ENGINEER R. B. Dickerson  
(Project or Resident)

PROJECT STARTED 3-12-56

PROJECT COMPLETED 10-17-56

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AS CONSTRUCTED PLANS APPROVED \_\_\_\_\_

TITLE \_\_\_\_\_ DATE \_\_\_\_\_

JLH

AS CONSTRUCTED		
NO. REVISIONS	16/17/84	REVISED
		VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	PR-HES 032-07	2	29

Plan No.	Title	Page	Plan No.	Title	Page	Plan No.	Title	Page
<input checked="" type="checkbox"/> M-100-1	STANDARD SYMBOLS	1	<input checked="" type="checkbox"/> M-607-1	WIRE FENCES AND GATES (2 SHEETS)	52	<input checked="" type="checkbox"/> S-612-1	TYPICAL DELINEATOR INSTALLATIONS (4 SHEETS)	75
<input type="checkbox"/> M-107-1	TEMPORARY EROSION CONTROL	2	<input type="checkbox"/> M-607-2	CHAIN LINK FENCE (3 SHEETS)	54	<input checked="" type="checkbox"/> S-614-1	TYPICAL GROUND SIGN PLACEMENT	79
<input checked="" type="checkbox"/> M-203-1	APPROACH ROADS, FLARING, CUT SLOPE TREATMENT, BRIDGE & CREST WIDENING	3	<input type="checkbox"/> M-607-3	BARRIER FENCE	57	<input checked="" type="checkbox"/> S-614-2	CLASS I GROUND SIGN INSTALLATIONS	80
<input checked="" type="checkbox"/> M-203-2	DITCH TYPES	4	<input type="checkbox"/> M-607-4	DEER FENCE AND GATE (2 SHEETS)	58	<input checked="" type="checkbox"/> S-614-3	CLASS II GROUND SIGN INSTALLATIONS	81
<input checked="" type="checkbox"/> M-203-10	SUPERELEVATION OF CURVES - CROWNED HIGHWAYS	5	<input type="checkbox"/> M-607-10	PICKET SNOW FENCE	60	<input type="checkbox"/> S-614-4	CLASS III SIGNS, LAMINATED ALUMINUM PANELS AND POST SPACING TABLE (2 SHEETS)	82
<input type="checkbox"/> M-203-11	SUPERELEVATION OF CURVES - DIVIDED HIGHWAYS - SHOULDER PIVOT	6	<input type="checkbox"/> M-608-1	CURB RAMPS	61	<input checked="" type="checkbox"/> S-614-5	BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)	84
<input type="checkbox"/> M-203-12	SUPERELEVATION OF CURVES - STREETS	7	<input type="checkbox"/> M-609-1	CURBS AND GUTTERS	62	<input type="checkbox"/> S-614-6	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS)	86
<input type="checkbox"/> M-203-13	SUPERELEVATION OF CURVES - DIVIDED HIGHWAYS - CENTER PIVOT	8	<input type="checkbox"/> M-611-1	CATTLE GUARD - WELDED GRILL UNITS - 10' THRU 42' ROADWAYS (2 SHEETS)	63	<input type="checkbox"/> S-614-10	TYPICAL MARKER ASSEMBLY INSTALLATIONS	88
<input checked="" type="checkbox"/> M-206-1	EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	9	<input type="checkbox"/> M-613-1	HIGHWAY LIGHTING (2 SHEETS)	65	<input type="checkbox"/> S-614-11	MILEPOST SIGN AND INSTALLATION	89
<input type="checkbox"/> M-206-2	EXCAVATION AND BACKFILL FOR BRIDGES	11	<input type="checkbox"/> M-615-1	EMBANKMENT PROTECTOR, TYPES 3 & 4	67	<input type="checkbox"/> S-614-12	STRUCTURE NUMBER INSTALLATION (BRIDGE INFORMATION SHEET)	90
<input type="checkbox"/> M-214-1	PLANTING DETAILS	12	<input type="checkbox"/> M-615-2	EMBANKMENT PROTECTOR, TYPE 5	68	<input type="checkbox"/> S-614-13	STANDARD RAILROAD CROSSING SIGNS AND MARKINGS	91
<input type="checkbox"/> M-412-1	CONCRETE PAVEMENT JOINTS	13	<input type="checkbox"/> M-616-1	INVERTED SIPHON (ALSO USE M-603 OR M-604 AS REQUIRED)	69	<input type="checkbox"/> S-614-20	TYPICAL POLE MOUNT SIGN INSTALLATION	92
<input type="checkbox"/> M-504-1	STEEL CRIBBING	14	<input checked="" type="checkbox"/> M-620-1	FIELD LABORATORY - CLASS 1	70	<input type="checkbox"/> S-614-21	CONCRETE BARRIER SIGN POST INSTALLATIONS	93
<input type="checkbox"/> M-506-1	GABIIONS AND SLOPE MATRESS	15	<input type="checkbox"/> M-620-2	FIELD LABORATORY - CLASS 2	71	<input type="checkbox"/> S-614-22	TYPICAL MULTI-SIGN INSTALLATIONS	94
<input type="checkbox"/> M-510-1	STRUCTURAL PLATE CULVERT PIPE - H-20 LOADING (2 SHEETS)	16	<input type="checkbox"/> M-620-11	FIELD OFFICE - CLASS 1	72	<input type="checkbox"/> S-614-30	INTERSTATE ROUTE MARKERS	95
<input type="checkbox"/> M-601-1	SINGLE CONCRETE BOX CULVERT	18	<input checked="" type="checkbox"/> M-620-12	FIELD OFFICE - CLASS 2	73	<input type="checkbox"/> S-614-31	U. S. & COLORADO ROUTE MARKERS	96
<input type="checkbox"/> M-601-2	DOUBLE CONCRETE BOX CULVERT	19				<input type="checkbox"/> S-614-32	AUXILIARY MARKERS	97
<input type="checkbox"/> M-601-3	TRIPLE CONCRETE BOX CULVERT	20				<input type="checkbox"/> S-614-40	TRAFFIC SIGNAL INSTALLATION DETAILS (3 SHEETS)	98
<input checked="" type="checkbox"/> M-601-10	HEADWALL FOR PIPE CULVERTS	21				<input checked="" type="checkbox"/> S-614-50	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (4 SHEETS)	101
<input checked="" type="checkbox"/> M-601-11	TYPE "S" SADDLE HEADWALL FOR PIPE CULVERTS	22				<input checked="" type="checkbox"/> S-614-51	BARRICADES, DRUMS, CONCRETE BARRIER (TEMP) & VERTICAL PANELS	105
<input type="checkbox"/> M-601-12	HEADWALL, INTERCEPTING HEADWALL AND CULVERT OUTLET PAVING	23				<input checked="" type="checkbox"/> S-627-1	TYPICAL PAVEMENT MARKINGS (3 SHEETS)	106
<input checked="" type="checkbox"/> M-601-20	WINGWALLS FOR PIPE OR BOX CULVERTS	24						
<input checked="" type="checkbox"/> M-603-1	METAL CULVERT PIPE - H-20 LOADING (2 SHEETS)	25						
<input checked="" type="checkbox"/> M-603-2	REINFORCED CONCRETE PIPE	27						
<input type="checkbox"/> M-603-3	PRECAST CONCRETE BOX CULVERT	28						
<input checked="" type="checkbox"/> M-603-10	CONCRETE AND METAL END SECTIONS	29						
<input type="checkbox"/> M-604-1	PIPE SEWER IN TRENCH	30						
<input type="checkbox"/> M-604-10	INLET, TYPE C	31						
<input type="checkbox"/> M-604-11	INLET, TYPE D	32						
<input type="checkbox"/> M-604-12	CURB INLET, TYPE R (2 SHEETS)	33						
<input type="checkbox"/> M-604-13	CONCRETE INLET, TYPE 13	35						
<input type="checkbox"/> M-604-20	MANHOLES	36						
<input type="checkbox"/> M-604-21	STEPS FOR MANHOLES & INLETS	37						
<input type="checkbox"/> M-606-1	GUARD RAIL, TYPE 3, W-BEAM (8 SHEETS)	38						
<input type="checkbox"/> M-606-2	GUARD RAIL, TYPE 3, W-BEAM FOR LOCAL ROADS & STREETS (4 SHEETS)	46						
<input type="checkbox"/> M-606-10	GUARD RAIL, TYPE 4, CONCRETE BARRIER, CAST-IN-PLACE	50						
<input type="checkbox"/> M-606-11	GUARD RAIL, TYPE 4, CONCRETE BARRIER, PRECAST - PORTABLE	51						

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

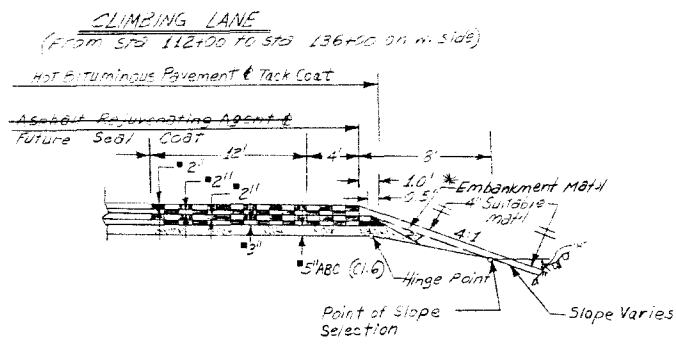
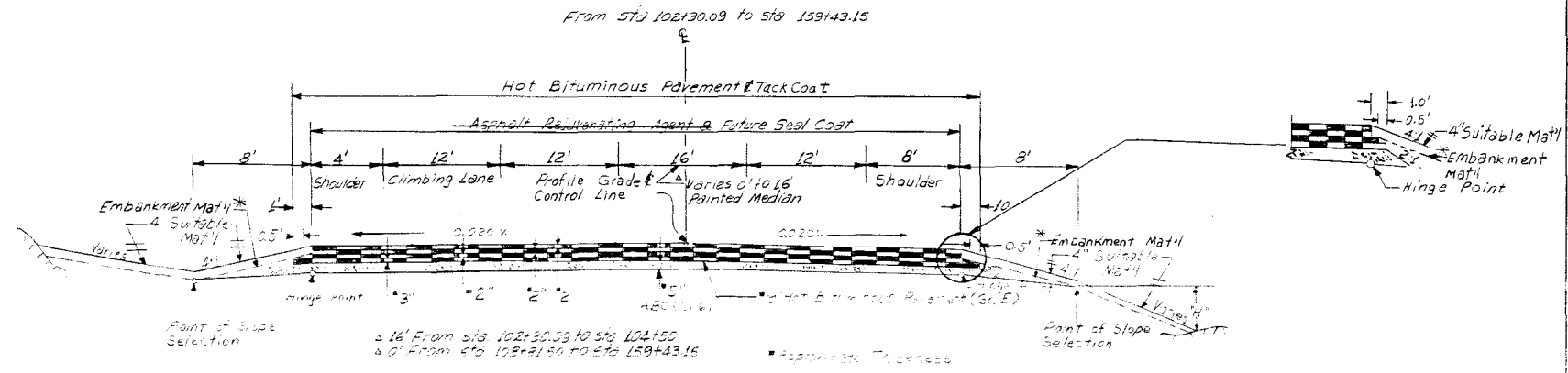
## STANDARD PLANS LIST

M & S STANDARDS - JANUARY, 1982

AS CONSTRUCTED	
NO REVISIONS	REVISED 10/17/82 VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	FR-HES 093-1(7)	3	29

# TYPICAL SECTION



### TYPICAL SECTIONS NOTES

1. ALL DIMENSIONS AND LOCATIONS OF THE USE OF MATERIAL SHALL BE VARIED WHEN NECESSARY IN ORDER TO PROVIDE PROPER DRAINAGE.

2. MATERIAL SHALL BE PLACED IN SEPARATE COURSES AT THE FOLLOWING APPROXIMATE RATES PER 100 L.I.N. FT. OF ROADWAY:

TYPICAL SECTION	DEPTH				
	2"	2"	2"	3"	5"
THICKNESS COURSES	2	2	2	3	5
TON PER STATION	79	79	79	121	181

THE RATES SHOWN HAVE BEEN DETERMINED FROM INFORMATION AVAILABLE AT THE TIME OF DESIGN. RATES SHOULD BE ADJUSTED DURING CONSTRUCTION TO OBTAIN THE REQUIRED APPROXIMATE THICKNESS. THE CONTRACTOR WILL BE REQUIRED TO PLACE SUITABLE MATERIAL TO THIS LINE AFTER COMPLETION OF PAVING OPERATION. AS DIRECTED, SUITABLE MATERIAL SHALL BE SEEDED.

CUT SLOPES:  
 SLOPE 3:1 WHERE "H" IS LESS THAN 4'  
 SLOPE 4:1 WHERE "H" IS 4' TO 10'  
 SLOPE 2:1 WHERE "H" IS OVER 10'

FILL SLOPES:  
 SLOPE 4:1 WHERE "H" IS 10' OR LESS  
 SLOPE 3:1 WHERE "H" IS OVER 10'

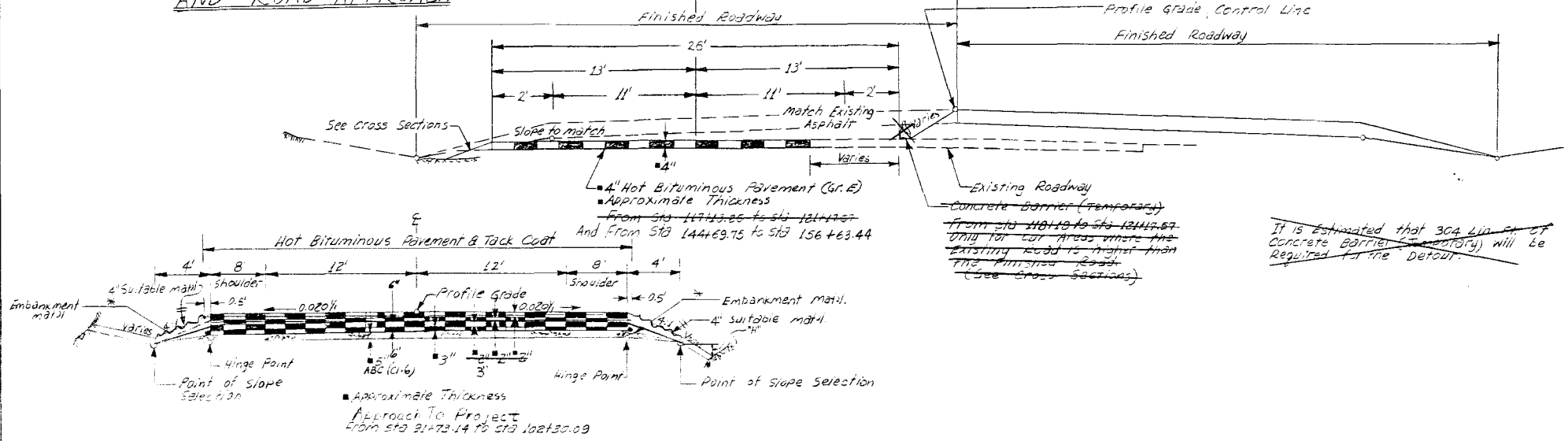
IN SPECIAL CASES, SLOPE MAY BE STEEPENED.

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

\* THE CONTRACTOR WILL BE REQUIRED TO PLACE EMBANKMENT MATERIAL TO THIS LINE AFTER COMPLETION OF PAVING OPERATION.

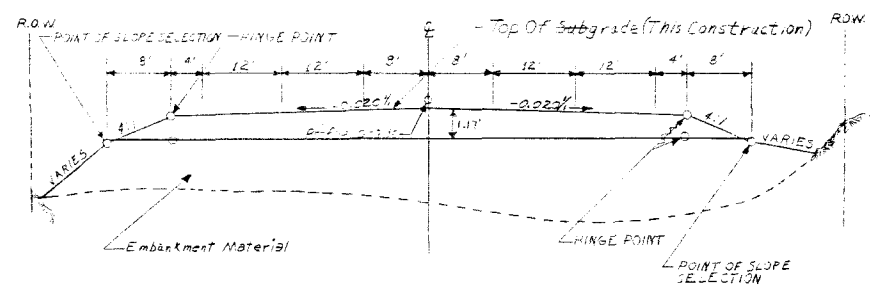
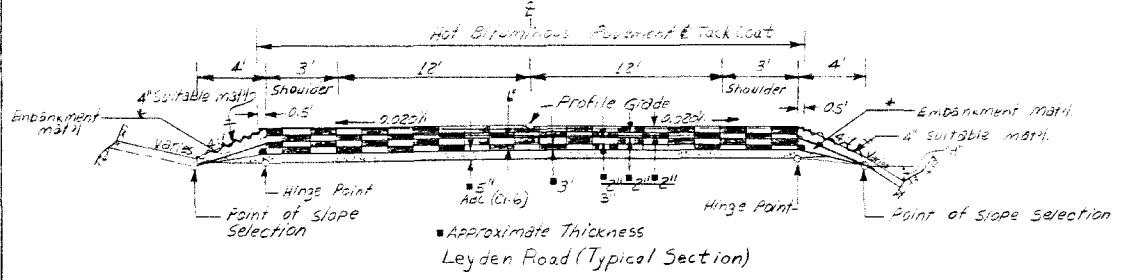
# TYPICAL SECTIONS OF DETOUR AND ROAD APPROACH

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	REVISED 12/17/82	VIII	COLO.	FR-HE50933-1(D)	4	29



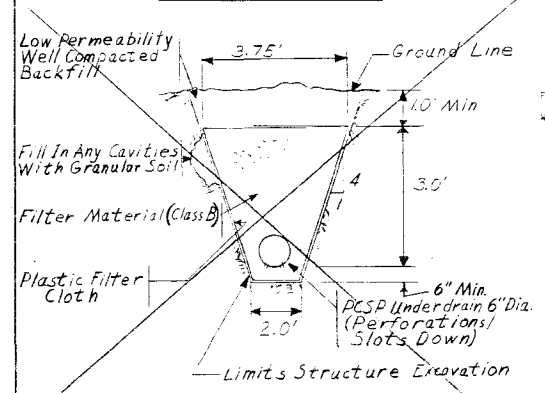
It is estimated that 304 Lin. Ft. of Concrete Barrier (Temporary) will be required for the detour.

## TYPICAL SECTION FROM STA 74+56.55 TO STA 80+00

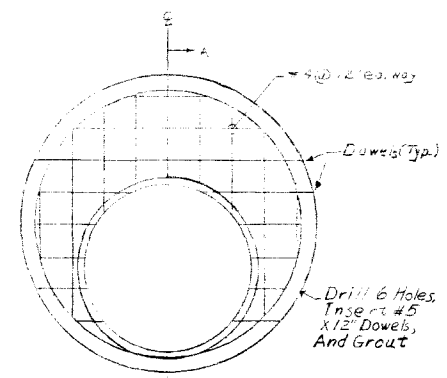


- \* The Contractor will be required to place Suitable material to this line after completion of Paving operation. Material will be obtained from Excess Excavation
- \* The Contractor will be required to place Embankment material to this line after completion of Paving operation.

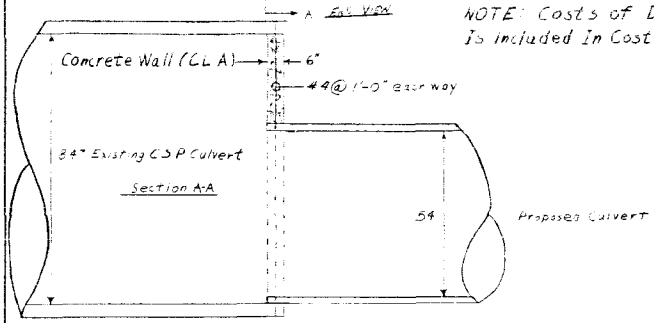
Detail Of Underdrain



Detail Of Bulkhead Connection Sta 113+75



NOTE: Costs of Drilling Dowels And Grouting is included in Cost of Concrete



GENERAL NOTES

FOR PRELIMINARY PLAN QUANTITIES OF PAVEMENT STRUCTURE MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:

- TACK COAT DILUTED EMUL. ASPH. (SLOW-SETTING) @ 0.1 GALS./SQ. YD. (DILUTED)
- BITUMINOUS PAVEMENT @ 110 LBS. PER SQ. YD./2INCH
- AGGREGATE BASE COURSE (CLASS B) @ 135 LBS. PER CU. FT.
- ~~ASPHALT REGENERATING AGENT @ 0.05 GALS./SQ. YD. (DILUTED)~~
- DILUTED EMULSIFIED ASPHALT FOR TACK COAT SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER.

~~ASPHALT REGENERATING AGENT SHALL BE DILUTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. RATES OF APPLICATION SHALL BE AS DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAYER.~~

1. AN ELECTRONICALLY CONTROLLED SKI EDGE DEVICE AT LEAST 30 FEET IN LENGTH.
2. AN ELECTRONICALLY CONTROLLED SHORT SKI OR SHOE.
3. PAPER STRIPS TO BE PLACED AT THE END OF EACH PAYER AND TO BE USED TO CONTROL LONG END STAKES.

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

THIS APPROVED PAVING METHOD IS A STANDARD TREATMENT WHICH IS TO BE USED UNLESS THE ENGINEER OF PAVEMENT PUBLISHES AS FOLLOWS: FOR LEGION ROAD, SEE TYPICAL SECTION.

PUBLIC APPROACHES AND ENTRANCES TO BUILDINGS OR RESIDENCES SHALL BE PAVED AS FULL CUT FROM EDGE OF SHOULDER OR TO THE RIGHT OF WAY LINE, WHICHEVER IS LESS. FIELD ENTRANCES SHALL BE PAVED 4 FEET OUT FROM EDGE OF SHOULDER.

DEPTH OF WHEEL-TRACKS FOR THIS PROJECT SHALL BE AS FOLLOWS:

- TYPE 1: 2 INCH
- TYPE 2: 1 INCH

EXCAVATION REQUIRED FOR CORRECTION OF BASES OF CUTS AND TILLS WILL BE CONSIDERED AS SUBORDINARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

~~CONCRETE CURB AND GUTTERS SHALL BE CONSTRUCTED ON ALL CONCRETE CURB INSTALLATION EXCLUDING SIDE DRAINING.~~

SEEDING, SOIL PREPARATION, FERTILIZING WITH COMMERCIAL FERTILIZER, AND MULCHING WILL BE REQUIRED FOR APPROXIMATELY 2.3 ACRES 4/4 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
SIDE-OATS GRAMA	BOUTELLOUA CURTIPENDULA	5
WESTERN WHEATGRASS	AGROPYRON SMITHII	7
WHITE DUTCH CLOVER	TRIFOLIUM REPENS	4
BUFFALO GRASS (TREATED)	BUCHLOE DACTYLOIDES	4
SMOOTH BROME	BROMUS INERMIS	5
CRESTED WHEATGRASS (FAIRWAY STRAIN)	AGROPYRON CRISTATUM	7
TOTAL PLS/ACRE SEEDING		32

2.0 TONS PER ACRE

\* NATIVE GRASS 2 TONS PER ACRE

COMMERCIAL FERTILIZER (20-20-20)	PER ACRE
AVAILABLE N	25
AVAILABLE P	175

\* 2.0 TONS PER ACRE NATIVE GRASS WHICH SHALL BE MECHANICALLY TRIMMED INTO SOIL.

PROJECT TOTALS

SEEDING	(NATIVE)	2.3 acres
MULCHING		0.7 acres
FERTILIZER	(AVAILABLE N)	55 lbs
FERTILIZER	(AVAILABLE P)	2,195 lbs

■ FOR INFORMATION ONLY INCLUDED AS PART OF SEEDING PAY ITEM.

# SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED 10/17/84	VOID	VIII	COLO. FR-HES 013-1(7)	6

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PROJECT TOTALS			
				PLAN	AS CONST.	DIFF. +/-	% PLAN
305	201	CLEARING AND GRUBBING	L S	1	1	0	100
305	202	REMOVAL OF STRUCTURE	EACH	11	11	0	100
305	202	REMOVAL OF ASPHALT MAT	SQ YD	10,643	10,643	0	100
305	202	REMOVAL OF PAVEMENT MARKING	SQ FT	2,000	1,493	-507	75
305	202	REMOVAL OF FENCE	LIN FT	8,245	16,910	+8,665	205
305	202	Removal of Ground Sign (MCR #1)	EACH	25	25	0	100
305	203	UNCLASSIFIED EXCAVATION (HAUL)	CU YD	170,723	170,723	0	100
305	203	Dozing (MCR #1)	Hour	25	0	-25	0
305	203	MUCK EXCAVATION (HAUL) (Deleted)	CU YD	11,353	25	-11,328	0
305	203	BLADING (MCR #1)	Hour	25	25	0	100
305	203	COMPACTION (AASHTO T 99)	CU YD	146,449	151,630	+5,181	104
305	206	STRUCTURE EXCAVATION	CU YD	853	718	-135	84
305	206	STRUCTURE BACKFILL (CLASS 2)	CU YD	790	672	-118	85
305	206	FILTER MATERIAL (CLASS B) (Deleted)	CU YD	146	0	-146	0
305	207	TOPSOIL (HAUL)	CU YD	3,146	3,146	0	100
305	207	STABLE TOPSOIL (HAUL)	CU YD	3,146	3,146	0	100
305	209	NETTING (Deleted)	SQ GAL	6,701	0	-6,701	0
305	209	WATER (LANDSCAPING) (Deleted)	SQ GAL	479	0	-479	0
305	210	RESET MAILBOX STRUCTURE	EACH	10	10	0	100
305	210	RESET GATE	EACH	2	2	0	100
305	210	SEEDING (NATIVE)	ACRE	19	25	+6	131
305	213	MULCHING	ACRE	19	28	+9	147
305	400	AGGREGATE BASE COURSE (CLASS 5) (HAUL)	TON	12,589	12,279.60	-309.40	98
305	400	HOT BITUMINOUS PAVEMENT (GRADING) (HAUL AND ASPHALT) (Deleted)	TON	50	0	-50	0
305	400	HOT BITUMINOUS PAVEMENT (GRADING E) (HAUL AND ASPHALT)	TON	20,684	19,627.66	-1,056.34	95
305	411	EMULSIFIED ASPHALT (SLOW-SETTING)	QAL	6,011	2,925	-3,086	49
305	411	ASPHALT REGENERATING AGENT (Deleted)	QAL	1,371	0	-1,371	0
305	506	RIPRAP	CU YD	139	165	+26	119
305	506	IMPERVIOUS PLASTIC LINING (Deleted)	SQ YD	253	0	-253	0
305	506	PLASTIC FILTER CLOTH (Deleted)	SQ YD	774	0	-774	0
305	601	CONCRETE CLASS A (WALL)	CU YD	37	37	0	100
305	602	REINFORCING STEEL	LB	2,244	2,244	0	100
305	602	6 INCH PERFORATED CORRUGATED STEEL PIPE (Deleted)	LIN FT	400	0	-400	0
305	607	END POST	EACH	14	17	+3	121
305	607	CORNER AND LINE BRACE POST	EACH	24	60	+36	250
305	607	FENCE BARBED WIRE WITH METAL POSTS	LIN FT	8,742	13,909	+5,167	159
305	607	FENCE COMBINATION WIRE WITH TREATED WOODEN POSTS	LIN FT	3,445	4,266	+821	124
305	607	20 FOOT GATE	EACH	3	1	-2	33
305	612	DELINEATOR (TYPE 1)	EACH	34	25	-9	74

NO NUMBER 12-16/85 10-30-17 DUBA : (DRINK PJ : 79X26.XDNY.HI 06.10B) 011 306X

FINAL  
 SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED 12/16/85	VOID	III	FR-HES 093-1(7)	7

INDEX FORM PAGE SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PROJECT TOTALS			
				PLAN	AS CONST.	DIFF +/-	% PLAN
305	612	DELINEATOR (TYPE II)	EACH	33	33	0	100
305	612	DELINEATOR (TYPE III)	EACH	2	2	0	100
305	612	SURVEY MONUMENT (TYPE 3)	EACH	46	46	0	100
7	614	FLAGGING	HOUR	2,000	1463	-537	73
7	614	TRAFFIC CONTROL SUPERVISOR	DAY	75	76	+1	101
305	614	SIGN PANEL (CLASS I)	SQ FT	34	34	0	100
305	614	SIGN PANEL (CLASS II)	SQ FT	27	27	0	100
305	614	SIGN PANEL (CLASS III)	SQ FT	20	20	0	100
305	614	TIMBER SIGN POST 4X4 INCH	LIN FT	86	86	0	100
305	614	TIMBER SIGN POST 6X6 INCH	LIN FT	83	83	0	100
305	614	BARRICADE (TYPE 3 M-B) (TEMPORARY)	EACH	2	2	0	100
305	614	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE 4) (DELETED)	EACH	1	0	-1	0
305	614	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE 5)	EACH	2	2	0	100
305	614	VERTICAL PANEL (WITH LIGHT) (FLASHING)	EACH	50	50	0	100
305	614	DRUM CHANNELIZING DEVICE	EACH	50	50	0	100
305	614	CONCRETE BARRIERS (TEMPORARY) (SLOPE)	LIN FT	304	0	-304	0
305	614	TRAFFIC CONE	EACH	100	100	0	100
305	617	18 INCH CULVERT PIPE	LIN FT	472	464	-8	98
305	617	24 INCH CULVERT PIPE	LIN FT	191	155	-36	81
305	617	36 INCH CULVERT PIPE	LIN FT	94	94	0	100
305	617	66 INCH CULVERT PIPE	LIN FT	55	55	0	100
305	620	FIELD OFFICE (CLASS 2)	EACH	1	1	0	100
305	620	FIELD LABORATORY (CLASS 1)	EACH	1	1	0	100
305	620	SANITARY FACILITY	EACH	1	1	0	100
305	624	78 INCH CULVERT PIPE (CR 1)	LIN FT	320	320	0	100
305	626	MOBILIZATION	L S	1	1	0	100
305	627	PAVEMENT MARKING PAINT	GAL	205	254	+54	126
305	627	PAVEMENT MARKING PAINT	L S	1	1	0	100
		FORCE ACCOUNT =====					
	F/R01	MINOR CONTRACT REVISIONS (MCR #1)	FA	1	1	0	100
	F/R02	ON THE JOB TRAINEE	EACH	140,000.00	13,567.00	-126,433.00	10
	F/R03	MBE INCENTIVE PAYMENT	FA	1	1	0	100
7				18,000.00	1	-17,999.00	0
				36,700.00	4,061.56	-32,638.44	11

NO NUMBER 12/16/85 10:30:17 DJHL: (DRWH, CJ) 75026:MKY:HL08:TAG) 011 PROJ

DELINEATOR TABULATION

LOCATION	SIDE	SPACING	TYPE I	TYPE II	TYPE III
			CRYSTAL	CRYSTAL	YELLOW
			EACH	EACH	EACH
102+70 (APPROACH)	RT		1		
103+50	LT&RT				2
104+00 (APPROACH)	LT		1		
98+30.09 TO 102+30.09	LT	100' (TAPERED IN)		4	
98+30.09 TO 102+30.09	RT	100' (TAPERED IN)		3	
107+43.51 TO 120+06.54	LT	120'	11		
107+43.51 TO 120+06.54	RT	120'		11	
112+00 (APPROACH)	LT		1		
113+00 (APPROACH)	RT		1		
128+80.38 TO 132+30.18	LT			3	
128+80.38 TO 132+30.18	RT		3		
135+30.18 TO 143+11.08	LT	528'	3		
135+30.18 TO 143+11.08	RT	528'	3		
136+00 TO 143+50	RT	100' (TAPERED IN)		8	
145+61.08 TO 151+04.69	LT			4	
145+61.08 TO 151+04.69	RT		4		
147+00 (APPROACH)	LT		1		
147+00 (APPROACH)	RT		1		
153+54.69 TO 159+43.15	LT	528'	2		
153+54.69 TO 159+43.15	RT	528'	2		
TOTAL			25-34	33	2

LENGTH AND DESIGN DATA

STATION	ROADWAY	NO WORK SECTION
	LIN. FT.	LIN. FT.
STA 74-58.55 BEGIN FR-HES 093-1(7) BEGIN GRADING MILE POST 6.946 STA 82+00 END GRADING BEGIN NO WORK SECTION 102+30.09	743.45	2,030.09
BEGIN GRADING AND PAVING END NO WORK SECTION 123+08.48 BK # EQUATION 122+30.81	2,078.39	
STA 159+43.15 END FR-HES 093-1(7) STA 160+79.72 ON HES-300 006.18 END GRADING AND PAVING MILE POST 5.335	2,952.29	
TOTAL	6,474.08	2,030.09
SUMMARY	LINEAR FEET	MILE
ROADWAY NET LENGTH	6,474.08	1.226
NO WORK SECTION	2,030.09	0.384
TOTAL GROSS LENGTH	8,504.17	1.610
DESIGN DATA		
MAXIMUM DEGREE OF CURVE	3.30	
MAXIMUM GRADE	7.22%	
MINIMUM SSD HORIZONTAL	>=1300	
MINIMUM SSD VERTICAL	605'	
MAXIMUM DESIGN SPEED	70 MPH	
2005 DESIGN TRAFFIC VOLUME		
ADT=11,110		
DHV=1,330		

**SUBBASE AND SURFACING PLAN**

LENGTH STA.	STATION TO STATION	SOURCE	AGGREGATE BASE COURSE CLASS - 6 (HAUL)	HOT BITUMINOUS PAVEMENT (HAUL AND ASPHALT) (GRADING E)				EMULSIFIED ASPHALT (SLOA SETTING) GALLON
				QUANTITY - TONS				
				BOTTOM LAYER 3"	MIDDLE LAYER 2"	MIDDLE LAYER 2"	TOP LAYER 2"	
6.5695	91+73.14 to 98+30.09 (ACPROACH)	UNDESIGNATED	780	506	330	322	322	450
4.00	98-30.09 to 102-30.09 (MAIN ROADWAY)		608	397	261	256	256	355
2.1991	102-30.09 to 104+50 (MAIN ROADWAY)		408	267	175	172	172	239
0.3150	104+50 to 104+81.50 (ROADWAY & MEDIAN)		43	28	18	18	18	25
4.00	104+81.50 to 108-81.50 (MAIN ROADWAY)		564	357	241	236	236	328
3.1850	108-81.50 to 112+00 (MAIN ROADWAY)		378	246	160	156	156	218
7.80	104+50 to 112+00 (MAIN ROADWAY)		250	166	110	110	110	151
24.00	112+00 to 136+00 (MAIN ROADWAY)		2,313	1,352	873	863	863	1,161
7.80	136+00 to 143+50 (MAIN ROADWAY)		1,141	743	486	477	477	653
10.40	143+50 to 153+90 (MAIN ROADWAY)		1,024	661	391	388	388	523
REPAIR FROM STRUCTURE QUANTITIES			1,115	282				
ESTIMATED QUANTITIES IN SUBBASE			1,115					
ESTIMATED QUANTITIES IN BASE COURSE						200		
PROJECT SUB TOTALS			12,427	7,709	4,930	4,929	4,929	
PROJECT TOTALS			12,427	7,709	4,930	4,929	4,929	

**SUMMARY OF EARTHWORK QUANTITIES**

PROJECT TOTALS	CU. YD.	TOTAL
UNCLASSIFIED EXCAVATION (HAUL)		
Roadway (From Computer)	156,533	
Structure Quantities as Excavation	3,833	
*Estimated for Cut Slope Treatment Suitable Material	653	
TOTAL	161,019	170,723
MUCK EXCAVATION		
TOTAL (Roadway)	11,353	
COMPACTION (ASH TO T99)		
Embankment (Net)	109,793	
Base Compaction	18,682	
Structure Quantities as Emb. (Net)	6,821	
To Replace Muck Excavation	11,353	
TOTAL	146,649	157,630
WETTING		
Compactor (Roadway)	5,956	
Aggregate Base Course	189	
Dust Palliative	200	
To Replace Muck Excavation	454	
TOTAL	6,800	1
ROADWAY QUANTITIES BALANCE (FOR INFORMATION ONLY)		
EXCAVATION	CU. YD.	TOTAL
Unclassified	156,533	
TOTAL	156,533	
EMULSIFIED (NET)		
Roadway (From Computer)	116,258	
TOTAL	116,258	
EXCAVATION (NET)		
Roadway (From Computer)	116,258	
* Muck Excavation	30,723	
TOTAL	146,981	

NOTE: QUANTITIES SHOWN ARE BASED ON THE FOLLOWING ASSUMPTIONS:  
 1. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 2. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 3. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 4. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 5. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 6. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 7. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 8. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 9. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.  
 10. ALL EXCAVATION IS TO BE USED FOR SUBBASE OR BASE COURSE.

IT IS HEREBY STATED THAT 100% OF THE QUANTITY OF REMOVAL OF ASPHALT MATERIAL FROM THE DETOUR AND THE EXISTING ROAD WILL BE REQUIRED FOR THIS PROJECT.

\* Note: Excess excavation to be disposed of as follows:  
 3,804 cu. yds. to be used for suitable material and  
 1,029 cu. yds. to be used for quantities as embankment.  
 3,804 cu. yds. to be used for quantities as embankment.  
 3,804 cu. yds. to be used for quantities as embankment.

\* Includes 4,404 cu. yds. of asphalt material from the existing road.

### TABULATION OF FENCING

STATION TO STATION	SIDE	REMOVAL OF FENCE	BARBED WIRE FENCE W/METAL POSTS		POSTS		COMBINATION WIRE FENCE WITH TREATED WOODEN POSTS	20 FOOT GATE
			LINEAR FEET		END	CORNER AND LINE BRACE		
91+73.14 TO 104+43	RT	1130						
91+73.14 TO 104+43	LT	870						
104+43 TO 120+00	RT	810						
104+43 TO 120+00 (O4+60 APPROACH)	LT	1240						
120+00 TO 123+20	RT	230		6				3*
120+00 TO 130+50	LT	2020						
130+50 TO 145+61	LT	1525						
145+61 TO 149+85	RT	420						
144+85.54 TO 149+85	RT & LT	4708						
98+00 TO 118+00	RT	2502		6	9			
115+00 TO 135+00	LT	1532						
115+00 TO 150+00	RT			2*	8*	3,445		
TOTALS		10,723	8,742	14	17	3,445		3

\* WOODEN POSTS

FENCE APPROACH AT STA. 104+43 RT. AS SHOWN ON THE PLANS.

\* GATES TO BE PLACED AS FOLLOWS.

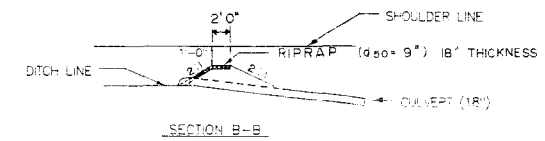
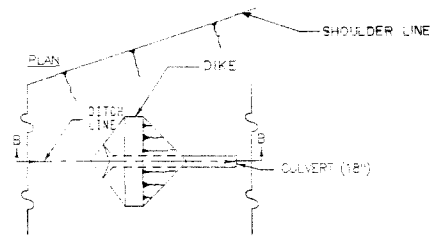
1. PLACE 1 GATE AT 1/2 MI. OF THE APPROACH AT STA. 10+37 1/2

2. PLACE 2 GATES ON THE R.O.V. LINE 125 FEET AT 90 DEG.

3. PLACE 1 GATE ON THE R.O.V. LINE 125 FEET AT 90 DEG.

### TABULATION OF SURVEY MONUMENTS

LOCATION PROJECTED CENTER LINE	OFFSET RIGHT (FEET)	OFFSET LEFT (FEET)	SURVEY MONUMENTS (TYPE 3) EACH
74+36.86		115.02	1
78+50.45		181.97	1
79+28.55		106.02	1
86+70.00		130.00	1
87+00.00		90.00	1
88+00.00		120.00	1
75+00.00	130.00		1
78+00.00	145.00		1
84+00.00	130.00		1
85+00.00	90.00		1
90+00.00	285.00		1
95+00.00	170.00		1
98+00.00	82.00		1
107+00.00	120.00		1
109+00.00	225.00		1
109+75.00	225.00		1
112+00.00	170.00		1
114+00.00	130.00		1
114+45.58	127.68		1
117+00.00		141.00	1
114+13.25		49.50	1
113+74.54		87.93	1
107+82.33		148.34	1
100+80.75		161.33	1
106+83.46		211.76	1
92+79.87		131.81	1
82+80.00		121.00	1
110+00.00	150.00		1
120+00.00	175.00		1
123+08.48	100.00		1
125+80.29	90.00		1
128+80.39	75.00		1
135+30.38	90.00		1
145+84.97	96.00		1
149+97.32	110.00		1
167+33.14	153.00		1
159+33.44	132.71		1
169+36.86		150.00	1
157+24.69		205.00	1
146+17.00		127.00	1
130+55.31		111.62	1
128+80.39		85.00	1
124+80.39		80.00	1
120+00.00		110.00	1
117+00.00		110.00	1
115+00.00		80.00	1
TOTAL			46



DETAIL OF DIKE Sta. 161+50

# FINAL STRUCTURE QUANTITIES

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
NO REVISIONS	REVISED <u>10/11/88</u>	VOID	XIII	COLG.	FR-HES 093-1(7)	11
						29

INDEX BOOK PAGE SHEET	LOCATION	UNCLASSIFIED EXCAVATION CUBIC YARD		STRUCTURE EXCAVATION	STRUCTURE BACKFILL	AGGREGATE BASE COURSE (HAUL CLASS 6)	HOT BITUMINOUS PAVEMENT (HAUL CLASS 6) (GRADING E)	CONCRETE WALL	REINFORCING STEEL	CULVERT PIPE		"H"	END SECTION	MISCELLANEOUS		
		EACH	EXCAV/DITCH	EMB	CUBIC YARD	CUBIC YARD	TON	TON	CUBIC YARD	CL. A	CL. B	LINEAR FEET	OVER, CULV. FT.		EACH	
	91+73.44 to 159+43.15 91+73.44 to 102+32.08 (Road Approach to Proj)	0	0	208	59						18" 24" 54"	66"	72"		100 in. EA 5" Perforated Pipe CSP 146 Cu Yds. Filter Material (CLB) 621 Sq. Yds. Plastic Filter Cloth	
	88+13 (Cross Culvert) 97+30			49	20										18" CSP	
	102+65 (Side Drain) Lt 1														750-9 Yds. Plastic Filter Cloth 57-77 Cu Yds. of Riprap (d50 = 9") 30' X 82' R.C.P. 24' X 39' CSP Lt.	
	103+30 (Cross Culvert) 1	1744		279	385			31	2,013				320	10	2 Each ~ Reset mailbox Structures	
	103+65 (Cross Culvert) 1															
	104+60 (Leyden Rd) Lt	504	230			117	183								2 Each ~ Reset mailbox Structures	
	104+80 (Approach) Rt	15	6,193	36	45	185	31	4	130				55	3		
	111+00 RT Lt 1														10' X 10' Conc. Block 2 Each ~ Reset mailbox structures	
	112+10 (Approach) Lt		129			180	31									
	113+75 (Cross Culvert)			35	106			2	101				94	23		
	115+79.50 (Approach) Rt 1	83		27	9	27	2								12.9 Cu Yds. of Riprap (d50 = 9") 6 Each ~ Reset mailbox Structures 12' X 31' CSP	
	115+87 (Approach) Lt	334		44	16	62	31								156 Cu Yds. of Riprap (d50 = 9")	
	119+55 (Cross Culvert)			17	28											
	121+40 (Cross Culvert) 1														2.4' X 72' CSP Cross Culvert Lt.	
	145+72 (Approach) Rt	138		16	6	7	2								1 Each ~ Reset gate	
	145+72 (Approach) Lt 3	125	60	32	13	537	2								(1 Each) ~ Reset gate, 2-2' X 6' concrete blocks, and 1' X 162' CSP	
	149+00 (Approach) Lt 1														2.4' X 36' CSP	
	161+50 To 165+00 (Approach to Project)	1	829	9	202	93									192 Cu Yds of Riprap (d50 = 9") 253 Sq Yds. Impervious Plastic Lining 18' X 50' Side Drain	
	97+50 to 104+50 Rt (Wetlands)		25,968												3,146 Cu Yds TOPSOIL (Haul) 3,146 Cu Yds STOKPILE TOPSOIL (Haul)	
	Roadway Totals	11	2922 3832	6621	718 853	672 790	1,115	282	37	2,244	461 472	155 171	94	55	320	46 8

▲ For information only      ♦ Quantities Included In Roadway Earthwork      ◻ Embankment Material and Compaction Required to Fill Trench to original Ground or subgrade line shall be included in the contract unit bid Price Per 100 FT. Pipe. Estimated 208 Cu. Yds.      ◻ Carried To Summary Of Earthwork

● Carried to Surfacing Plan

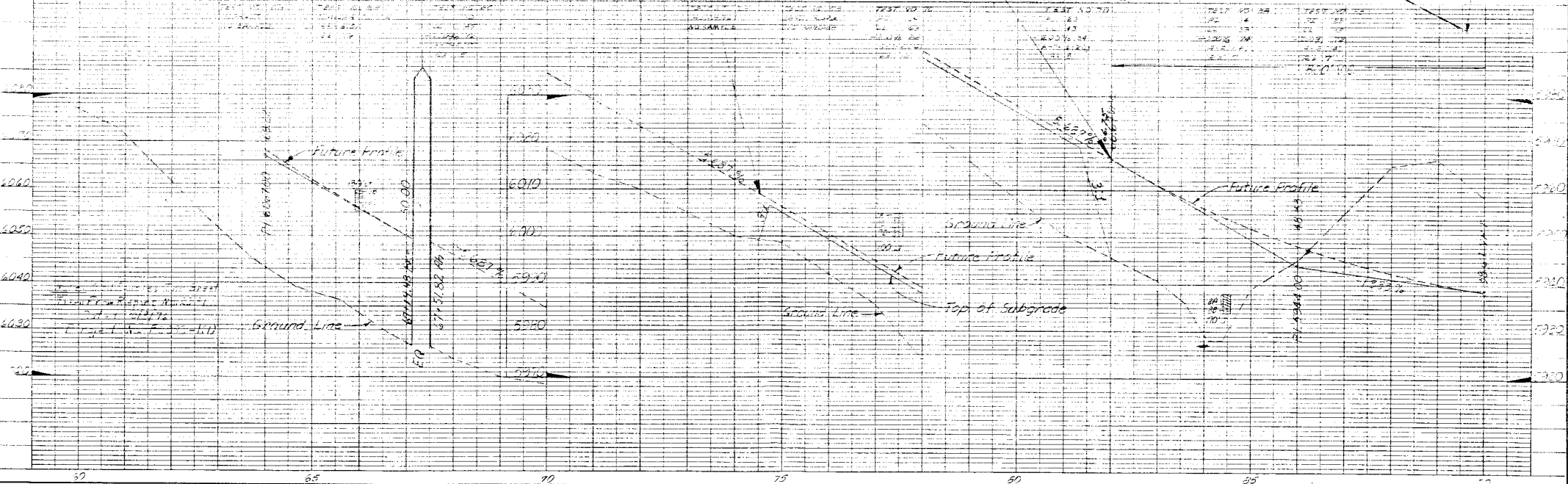
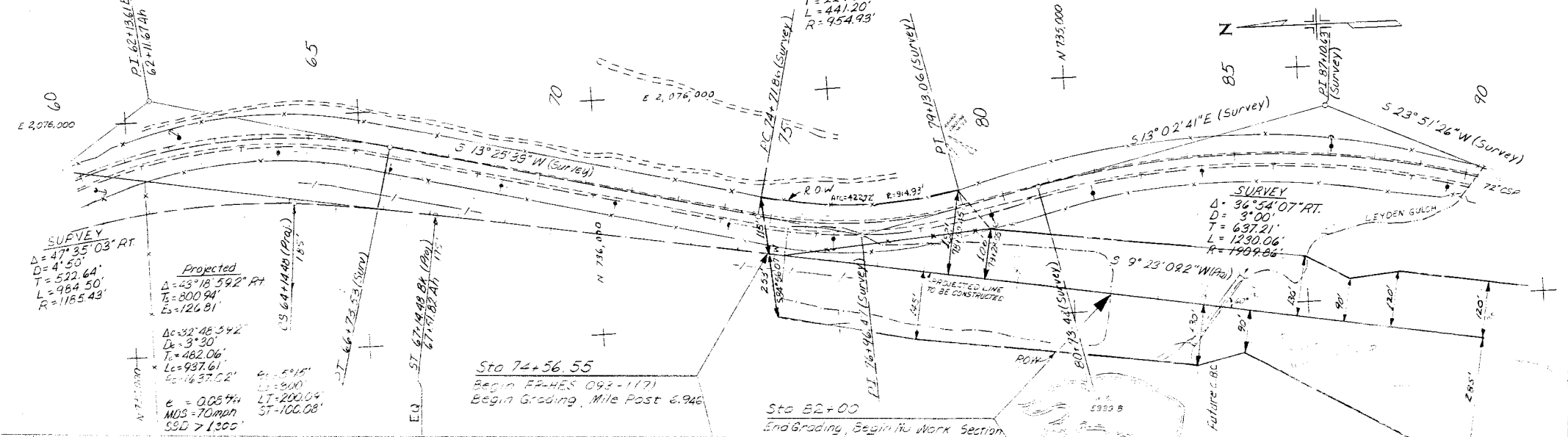


Utilities  
 Public Service Co of Colo  
 (Gas & Electric)  
 Mountain Bell (Telephone)

SW 1/4 Section 23, T2S, R70W

AS CONSTRUCTED		
NO REVISIONS	REVISED 11/17/24	VOID

FEDERAL ROAD DISTRICT NO. VIII	DIVISION COLORADO	PROJ. NO. FR-HES 093-1(7)	SHEET NO. 13	TOTAL SHEETS 29
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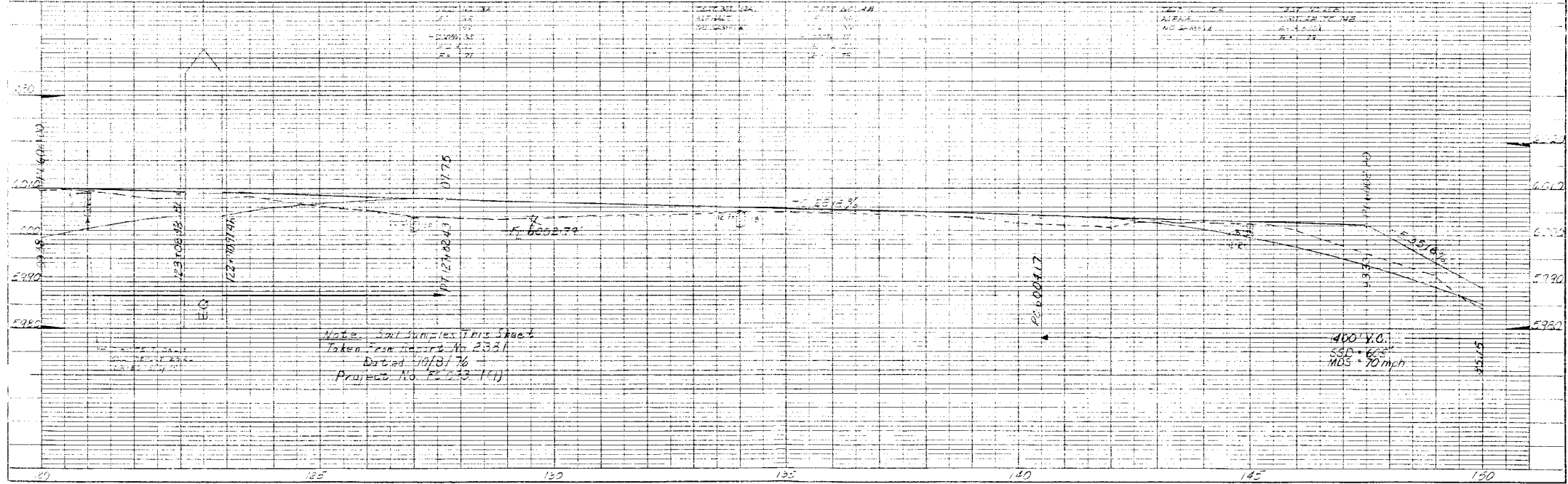
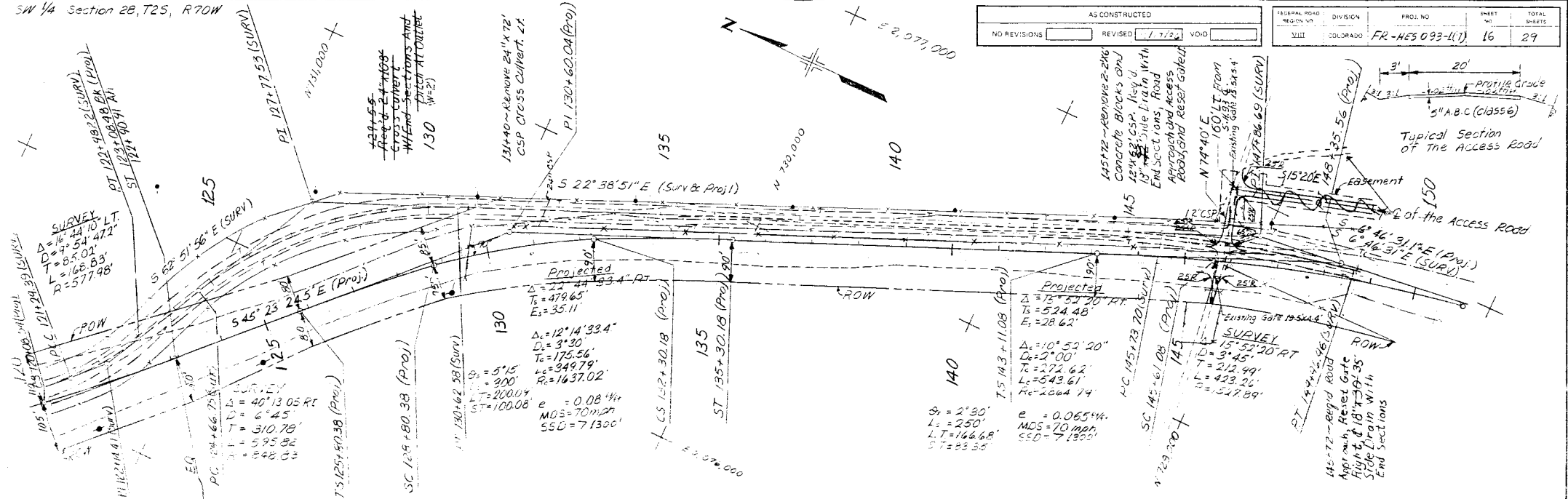




SW 1/4 Section 28, T25, R70W

AS CONSTRUCTED		REVISION	DATE	BY
NO REVISIONS	REVIS	7/7/21	VOID	

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3111	COLORADO	FR-465 093-1(1)	16	29





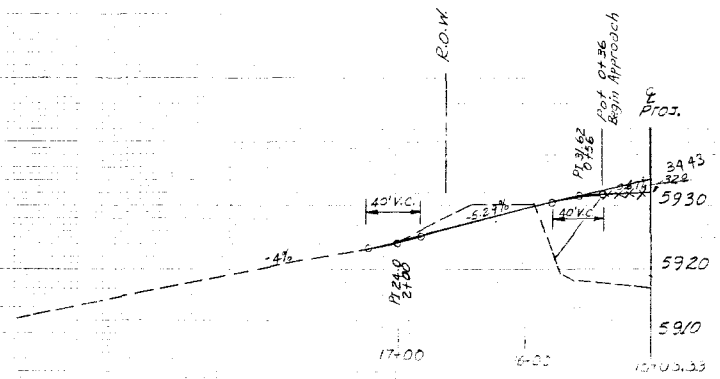
AS CONSTRUCTED	
NO REVISIONS	REVISED 12/1/62 VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	FR-HES093-1(7)	18	29

PROFILES OF ROAD APPROACHES

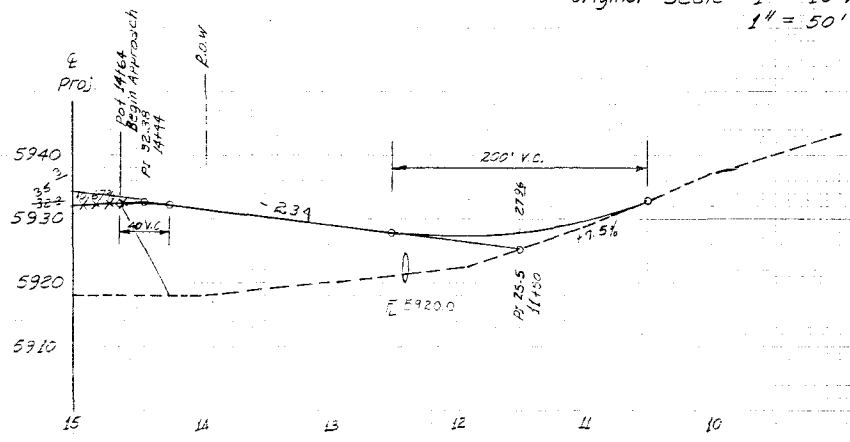
NOTE: CALCULATED QUANTITIES ARE BASED ON CMP

Original scale 1" = 10' Vert.  
1" = 50' Horiz.



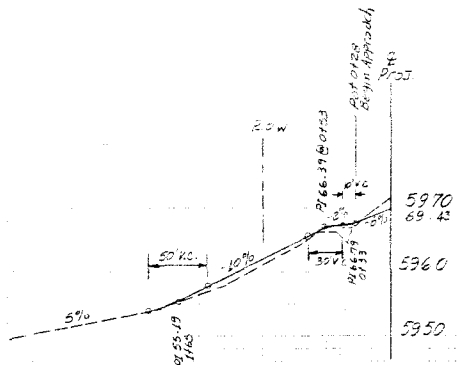
Sta 104+60 Reg'd Road Approach (Lt.) (Leiden Rd) (W=30')

EMBANKMENT =  $\frac{282 \times 1.22}{27} = 2.23 \text{ CU. YDS.}$   
 EXCAVATION =  $\frac{252 \times 1.54}{27} = 3.04 \text{ CU. YDS.}$



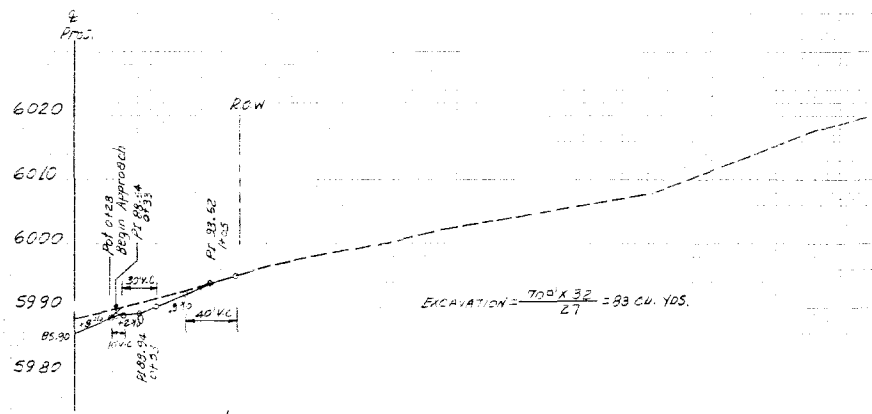
Sta 104+60.00 on S.A. 92 = 13+03.33 on Approach. Kind 66' x 15' Side Drain with 'Type B' Saddle Roadway and Road Approach Rt. (W=20')

From Cross Sections: EXCAVATION = 15 CU. YDS.  
 EMBANKMENT = 6,183 CU. YDS.



Sta 112+10 Reg'd Road Approach (Lt.) (W=20')

EMBANKMENT =  $\frac{134 \times 1.26}{27} = 1.29 \text{ CU. YDS.}$



Sta 115+79.50 Reg'd 12" x 46' Side Drain W/End Sections and Road Approach Rt. (W=20')









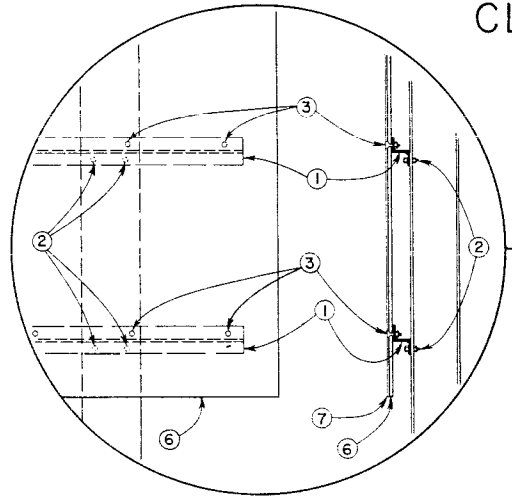


# CLASS III SIGNS - SHEET 2

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	FR. RES. 078-1 (7)	24	29

REVISIONS	

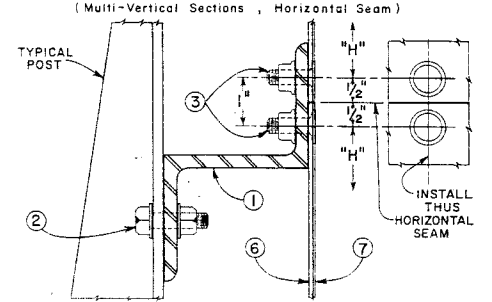


TYPICAL ELEVATION - DETAIL

## FABRICATION NOTES

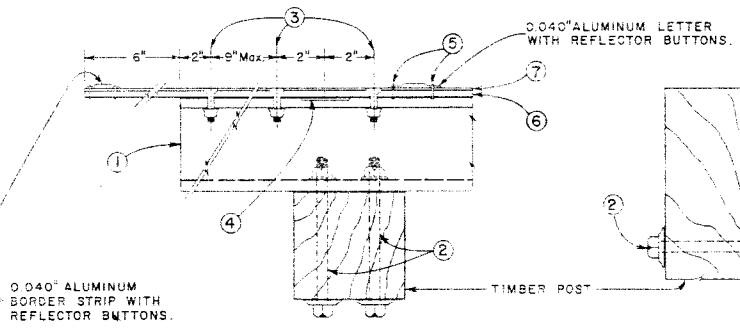
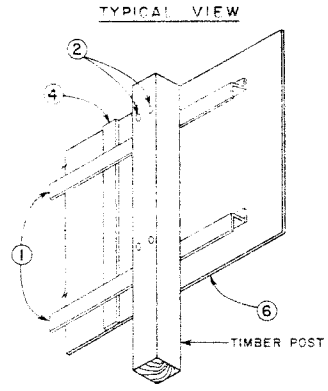
- ① BACKING ZEE. See "SPACING TABLE" Aluminum Alloy 6061-T6. Each zee to be provided with a 3/16" x 2" horizontal slot for each post mounting bolt. The length of each zee to be 1" less than the sign panel width.
- ② 3/8" # HEX-HEAD BOLT. With nut and washers; 2 per backing zee per post are required.
- ③ 3/8" # (No. 6) 90° COUNTERSUNK ALUMINUM LOCKBOLT FASTENER.
- ④ 2" x 0.080" ALUMINUM CLOSURE STRIP.
- ⑤ 1/4" # x 3/8" UNIVERSAL-HEAD, HOLLOW SHANK ALUMINUM RIVET.
- ⑥ SHEET ALUMINUM. 0.125" minimum thickness.
- ⑦ NON-EXPOSED LENS REFLECTIVE SHEETING. To have a dry (heat activated) adhesive backing.

## TYPICAL DETAIL SEAM CLOSURE ZEE

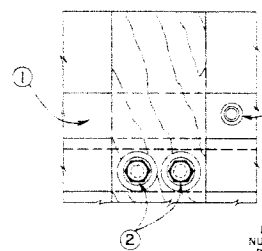


## TYPICAL TIMBER POST INSTALLATION

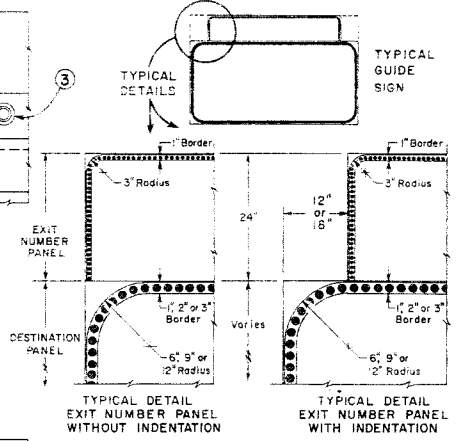
### PANEL FABRICATION AND MOUNTING DETAILS



### BORDER STRIP

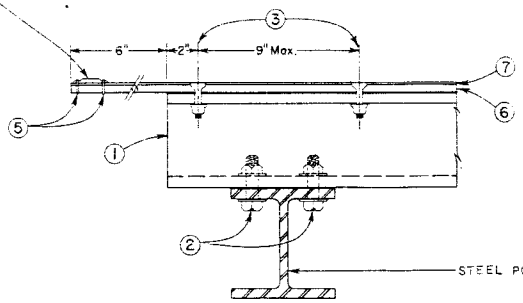
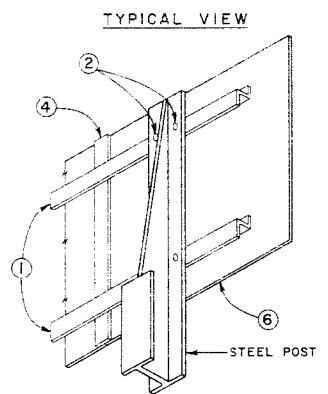


## TYPICAL BORDER DETAILS EXIT NUMBER PANELS

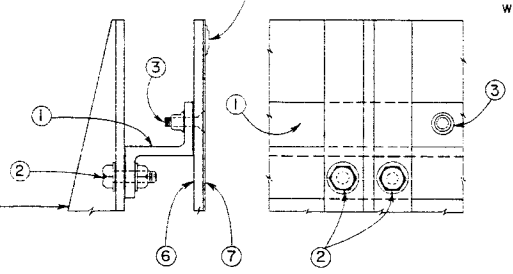


## TYPICAL STEEL POST INSTALLATION

### PANEL FABRICATION AND MOUNTING DETAILS



### BORDER STRIP



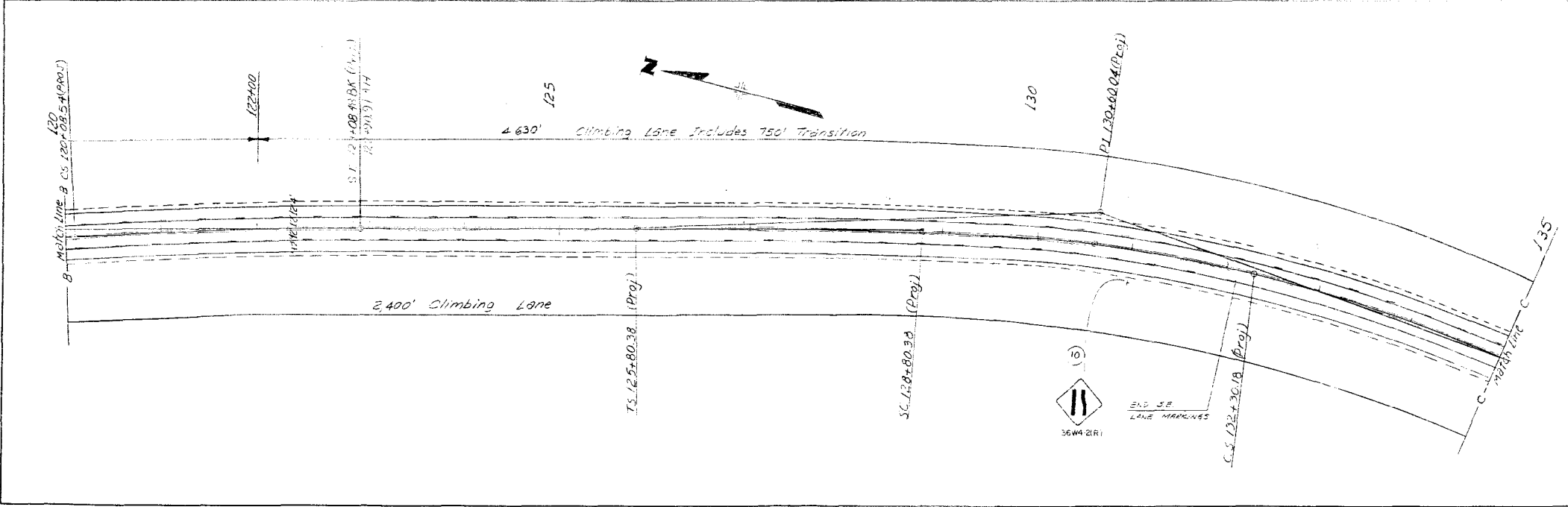
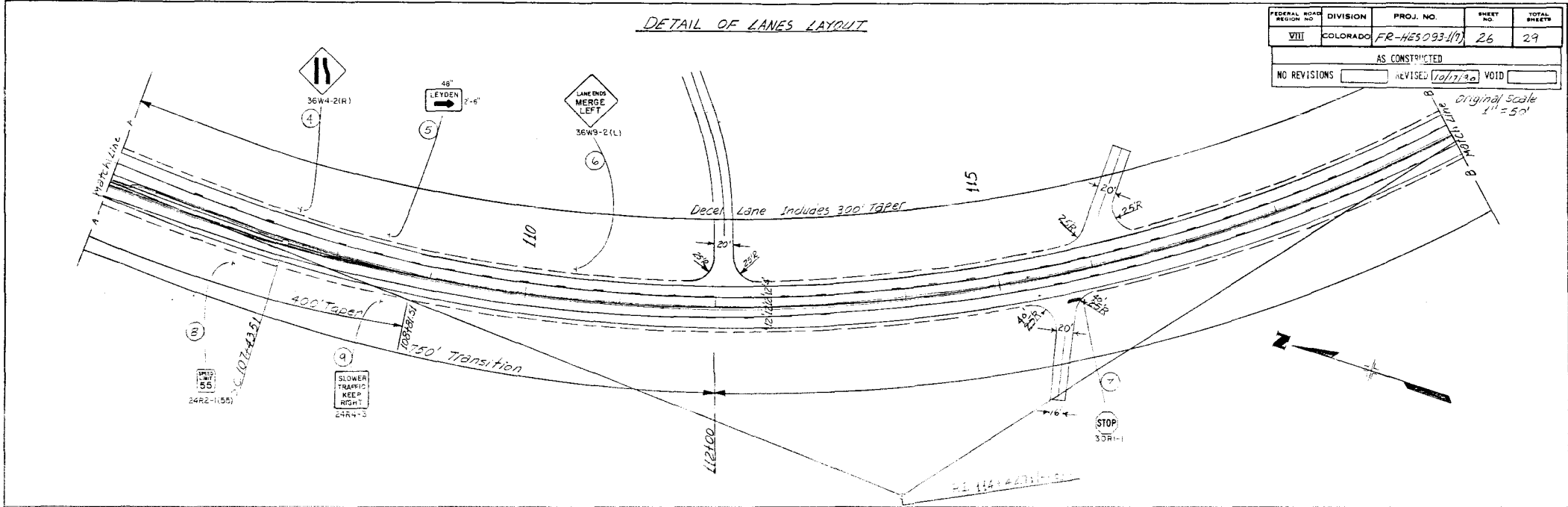
DEPARTMENT OF HIGHWAYS  
STATE OF COLORADO  
DIVISION OF HIGHWAYS

CLASS III SIGNS  
SHEET ALUMINUM  
PANELS



DETAIL OF LANES LAYOUT

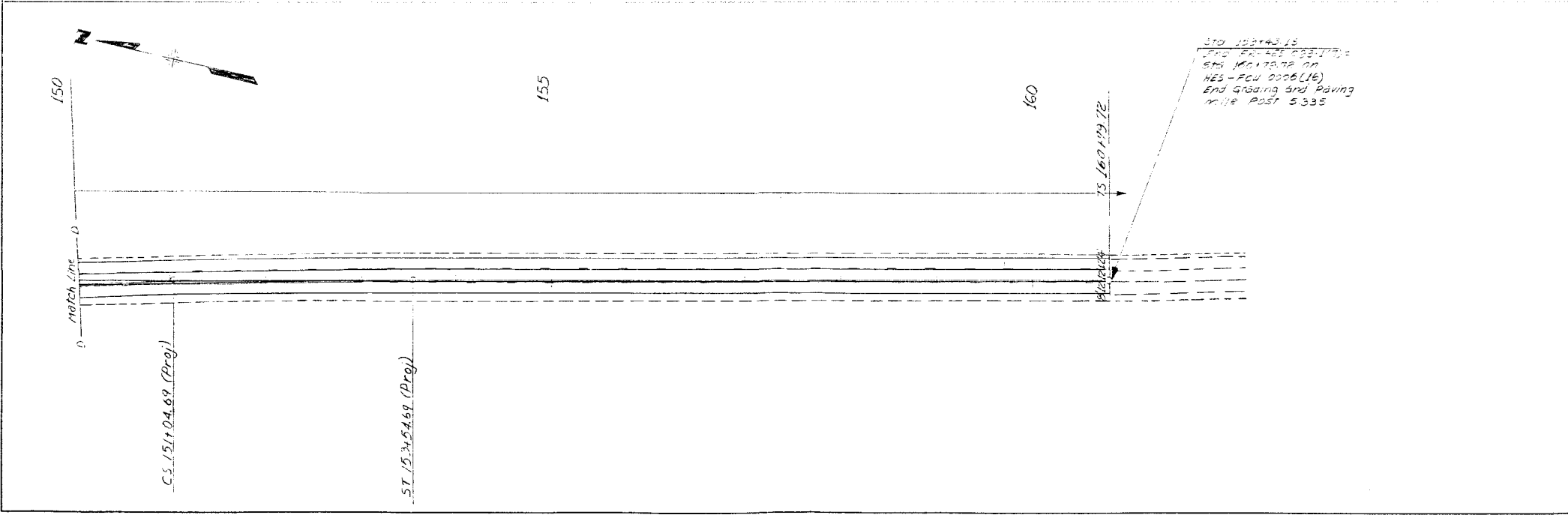
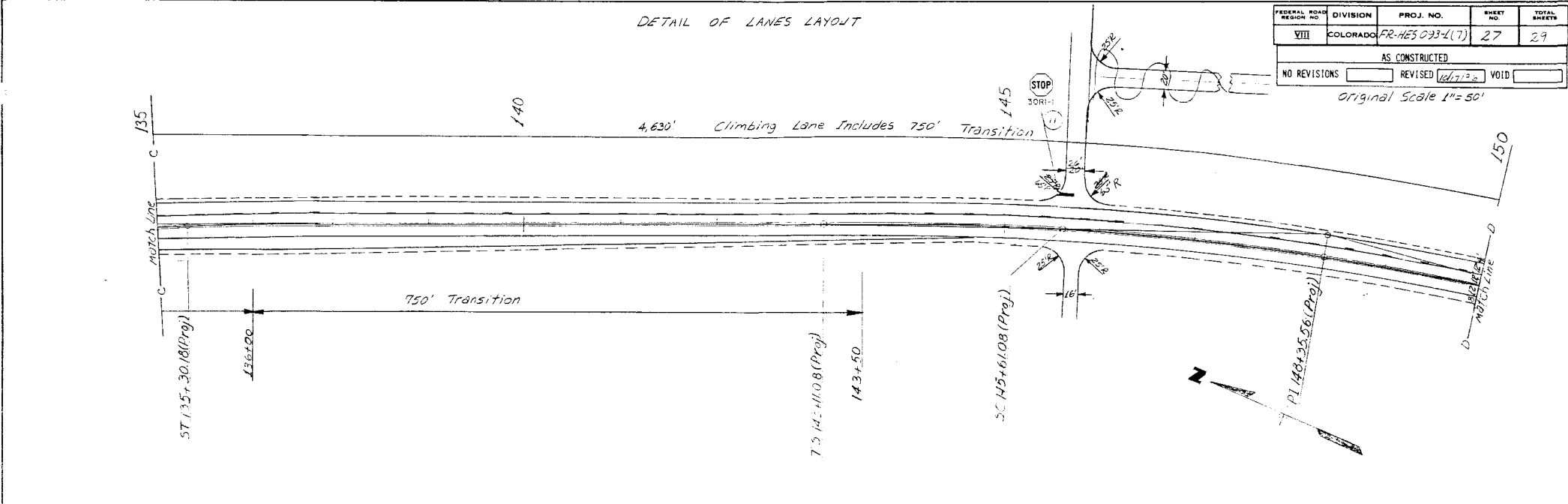
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	FR-HE3093-1(7)	26	29
AS CONSTRUCTED				
NO REVISIONS		REVISED	10/17/80	VOID



DETAIL OF LANES LAYOUT

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	FR-HES 033-1(7)	27	29
AS CONSTRUCTED				
NO REVISIONS		REVISED	VOID	
		10/7/92		

Original Scale 1" = 50'

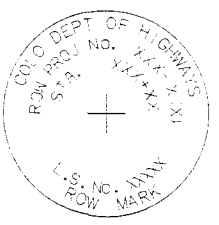


Sta 153+43.15  
 End FR-HES 033-1(7) =  
 Sta 160+78.72 or  
 HES-FCU 0006(16)  
 End Gasding and Paving  
 Mile Post 5.335

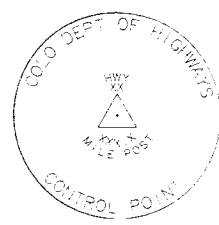
AS CONSTRUCTED		FED ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	FR-HESD13-1(7) 28
REVISIONS					



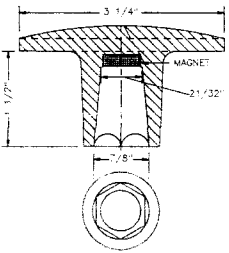
REFERENCE MARK CAP



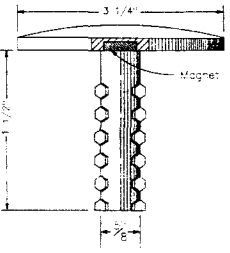
ROW MARK CAP



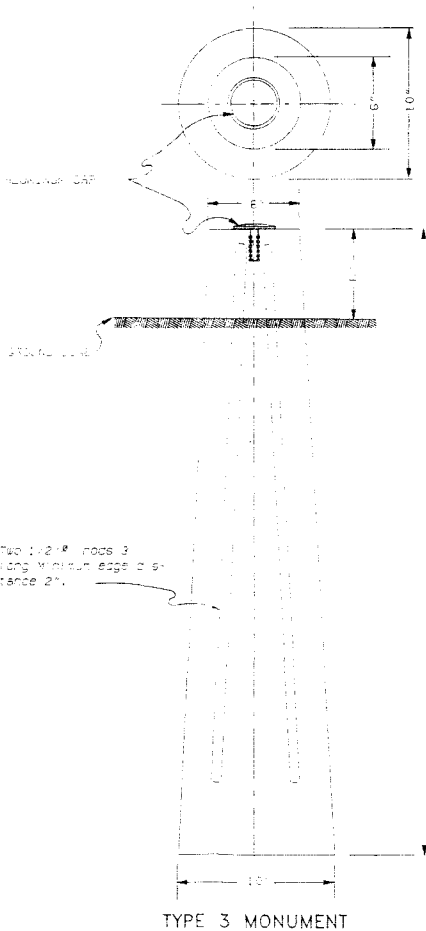
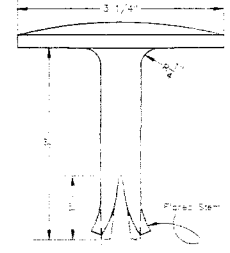
CONTROL POINT CAP



ALUMINUM CAP  
 USED WITH TYPES 1 AND 2



ALTERNATE BRASS CAPS  
 USED WITH TYPES 3 AND 4



TYPE 3 MONUMENT

**TYPE 1 MONUMENT**

1. A minimum four foot section of monument rod should be driven one to three inches above grade.
2. The cap shall be installed in a manner similar to the type 2 monument.

**TYPE 2 MONUMENT**

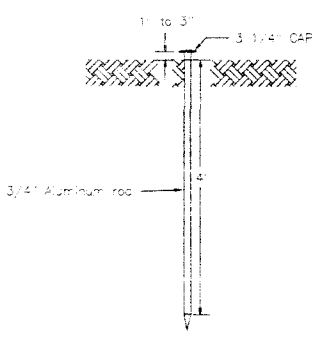
1. The monuments will be driven to refusal with an eight pound or heavier sledge hammer using a manual adapter or with a power hammer and power adapter.
2. The monument shall be set 2" to 4" below grade. It shall be protected with a 5" P.V.C. sleeve with an aluminum or other suitable access cover. The cover shall be glued or fixed to the upper end.
3. The plastic witness post shall be driven within 10 feet of the monument and located to be visible from the highway. It shall not obstruct the sight line to other control point monuments.
4. The cap shall be tapped onto the end of the monument rod using a piece of wood as a cushion to avoid marring or deformation.
5. Excess rod shall be cut or sheared off.

**TYPE 3 AND 4 MONUMENTS :**

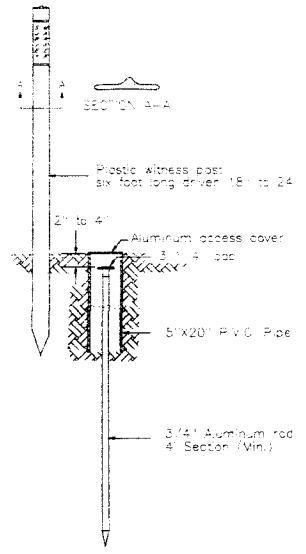
1. All work shall be done in accordance with the Standard Specifications applicable to the project.
2. Posts shall be 10 to 40 feet in length. The upper 10 inches of marker posts shall be rubbed free of ferris marks, and the top surface of the post must be constructed to drain.
3. A type 4 monument is identical to type 3 with the addition of a plastic witness post.

**GENERAL NOTES**

1. Measurement marks and plastic witness posts can be purchased from the Colorado Dept. of Highways.
2. Type 3 and 4 monuments are intended to be used as control point monuments. These monuments will eventually have first or second order surveys to establish their state plane coordinates. A minimum of two control point monuments should be installed per project. These monuments shall be identifiable from 1/4 to 2 miles apart. Caps should be marked with the state highway number and milepost to the nearest tenth.
3. Type 1 and 2 monuments are intended for use as reference and ROW monuments. A reference monument is used to monument any point with a more permanent and accurate mark than a stake. The rod shall be stamped with appropriate identification. The project number and offset could be used. Coordinates and elevations shall not be included. A ROW monument is a required monument placed on the highway ROW (as according to state law). The one mile, one number, ROW project number, and station number shall be stamped.



TYPE 1 MONUMENT



TYPE 2 MONUMENT

STATE DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 STATE OF COLORADO

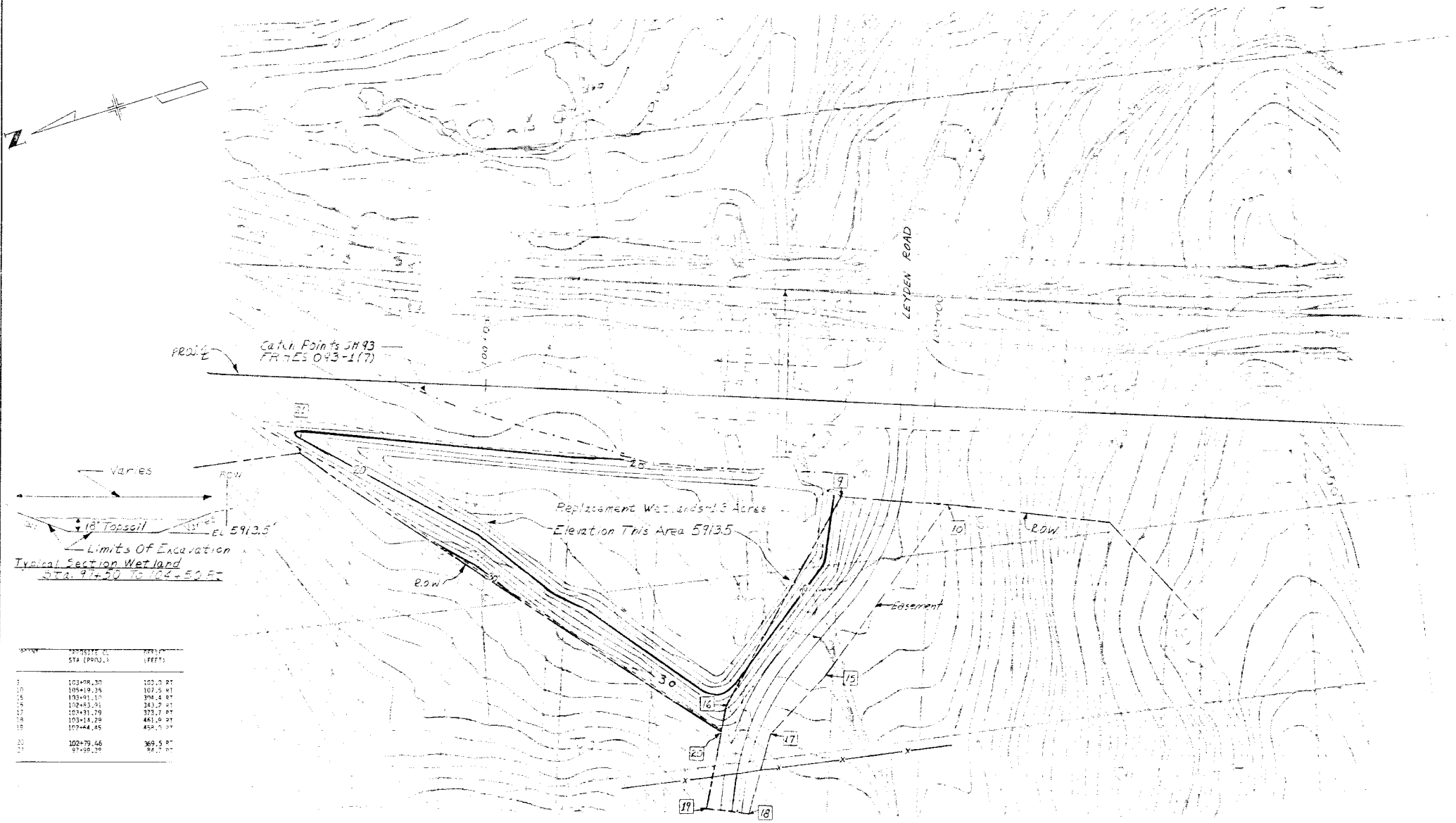
SURVEY  
 MONUMENTS

APPROVED BY:	STANDARD PLAN NO.
STAFF DESIGN ENGINEER	M-612-1
DATE	SHEET 1 OF 1
DESIGNED	

# WETLANDS CONSTRUCTION AT STA. 97+50 RT. TO 104+50 RT.

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	FR-HES 043-117	29	29
AS CONSTRUCTED				
NO REVISIONS	REVISED	VOID		
10/17/82				

Original Scale 1"=50'



Calc. Points SH 93  
FR-HES 043-117

Varies  
18" Topsoil  
Limits Of Excavation  
Typical Section Wetland  
STA. 97+50 TO 104+50 RT.

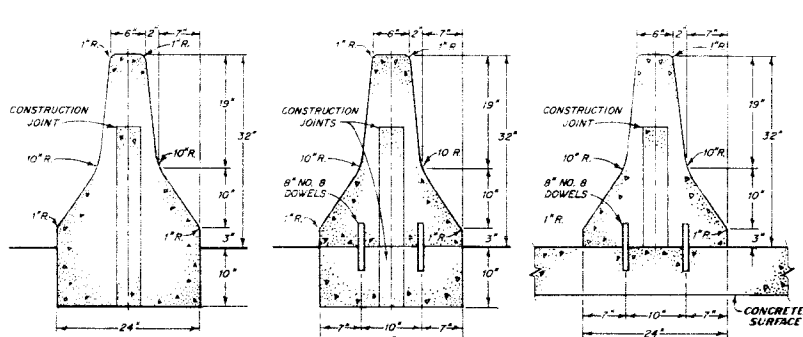
STATION	PROPOSED CL STA (PROJ.)	PROJ CL (FEET)
10	103+06.30	102.0 RT
15	103+10.24	103.5 RT
20	103+01.17	394.4 RT
25	102+43.91	343.2 RT
30	103+01.29	373.7 RT
35	103+14.29	461.0 RT
40	102+44.45	454.0 RT
45	102+79.46	369.5 RT
50	97+50.20	84.7 RT

# DETAILS FOR CAST IN PLACE CONCRETE BARRIER

# STANDARD M-606-12

(SHEET 1 OF 9)

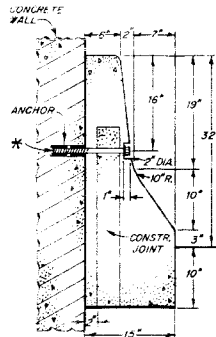
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO			
REVISIONS				



**STYLE CA**  
**MONOLITHIC**  
**BARRIER**

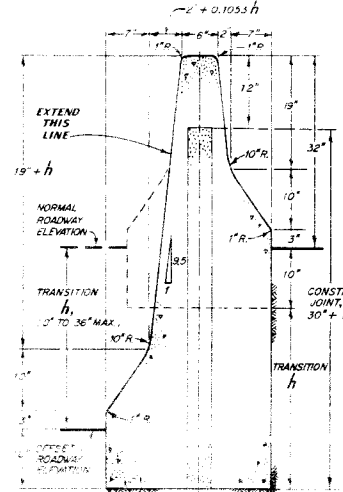
**STYLE CA (OPT.)**  
**TWO PIECE DOWELLED**  
**BARRIER**  
 (OPTIONAL)

**STYLE CC**  
**BARRIER DOWELLED TO**  
**CONCRETE SURFACE**

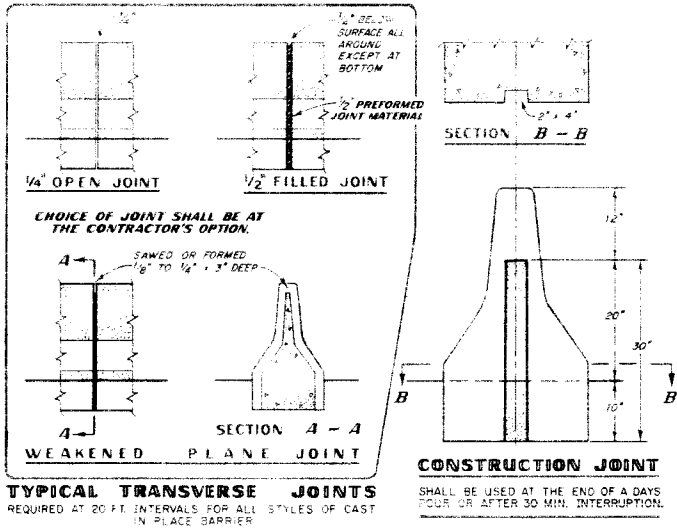
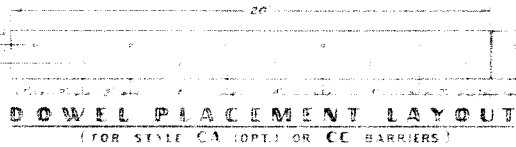


**STYLE CD**  
**BARRIER**  
**AGAINST WALL**

\* 3/4" DIA. x 12" LONG GALVANIZED STEEL ROD AND WASHER MECHANICALLY FASTENED AT 6" INTS. USE ONLY WHEN CALLED FOR ON PLANS.



**STYLE CE**  
**BARRIER FOR**  
**OFFSET ROADWAYS**



**TYPICAL TRANSVERSE JOINTS**  
 REQUIRED AT 20 FT. INTERVALS FOR ALL STYLES OF CAST IN PLACE BARRIER

**CONSTRUCTION JOINT**  
 SHALL BE USED AT THE END OF A DAY'S POUR OR AFTER 30 MIN. INTERRUPTION.

**GENERAL NOTES**

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.

CONCRETE SHALL BE CLASS A, B OR D.

PAVEMENT SHALL BE PATCHED ALONG THE BARRIER FOUNDATION TO MATCH EXISTING ASPHALT SURFACE.

TYPE 4 BARRIER MAY BE CAST IN PLACE OR PRECAST UNLESS A SPECIFIC STYLE OF BARRIER IS SPECIFIED ON THE PLAN.

DOWEL BARS MAY BE PLACED IN WET CONCRETE OR GROUTED IN HOLES DRILLED IN EXISTING CONCRETE.

ALL INCIDENTAL WORK AND MATERIALS SUCH AS DOWELS, GROUT, ANCHORS, BOLTS, PINS, JOINT MATERIAL, EXCAVATION FOR BASE, ETC. SHALL BE INCLUDED IN THE COST OF BARRIER.

**PRECAST BARRIER:**  
 ALL EXPOSED LOOPS SHALL BE THOROUGHLY CLEANED AND PAINTED IN ACCORDANCE WITH SECTION 509.

NUTS, WASHERS, LIFTING HARDWARE, CONNECTING PINS, DRIFT PINS AND ANCHOR BOLTS SHALL BE GALVANIZED.

TRIANGULAR SPACE IN BASE OF BARRIER IS TYPICAL, CIRCULAR ARC OR RECTANGULAR SHAPE WILL BE PERMITTED.

DRAINAGE SLOTS MAY BE OMITTED ON:

1. MEDIAN INSTALLATION WITH INLET DRAINAGE
2. SHOULDER BARRIER ON HIGH EDGE OF SUPERELEVATED SHOULDER
3. MEDIAN BARRIER ON CROSS VERTICAL CURVE.
4. PERMANENT BARRIER

STYLE CE BARRIER SHALL BE CAST IN PLACE UNLESS OTHERWISE PERMITTED.

THE JOINT BETWEEN CAST IN PLACE AND PERMANENT PRECAST BARRIER SHALL INCLUDE ALL RECESSES, LOOP REBARS AND PINS TO MAKE A PROPER MATCHING JOINT.

**MIXING GUARD RAIL TYPES:**  
 THIS STANDARD SHOWS THE DETAILS FOR VARIOUS USAGES OF GUARD RAIL, TYPE 4, CONCRETE BARRIER.

THE PLANS WILL INDICATE THE LOCATIONS ON THE PROJECT WHERE GUARD RAIL TYPES 3 OR 4 ARE REQUIRED.

WHEN GUARD RAIL, TYPE 3, W-BEAM IS TO BE USED AS AN END TREATMENT TO CONCRETE BARRIER OR AT A LOCATION SHOWN ON THE PLAN; REFER TO THE W-BEAM GUARD RAIL STANDARD FOR DETAILS.

WHEN BRIDGE RAIL IS DIFFERENT FROM ROADWAY RAIL, THE BRIDGE PLANS WILL SHOW THE CONNECTION DETAILS.

STATE DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 STATE OF COLORADO

**GUARD RAIL-TYPE 4**  
**CONCRETE BARRIER**

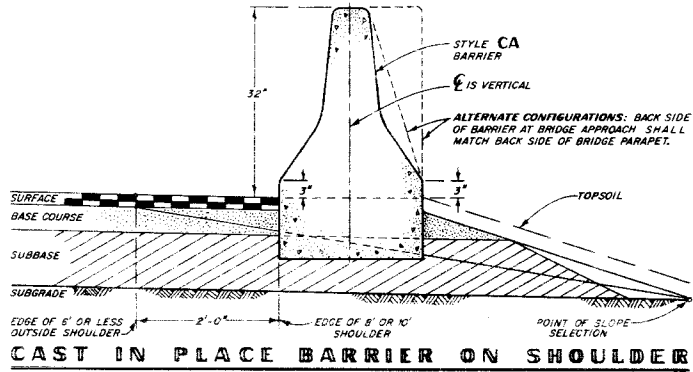
APPROVED BY: [Signature]  
 PROJECT DESIGN ENGINEER  
 DATE FEBRUARY 18, 1983

STANDARD PLAN NO.  
**M-606-12**  
 SHEET 1 OF 9

DETAILS FOR CAST IN PLACE CONCRETE BARRIER (CONT'D)

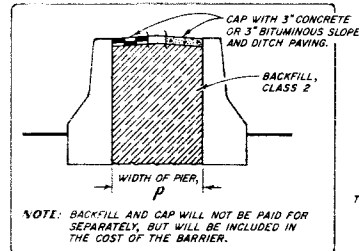
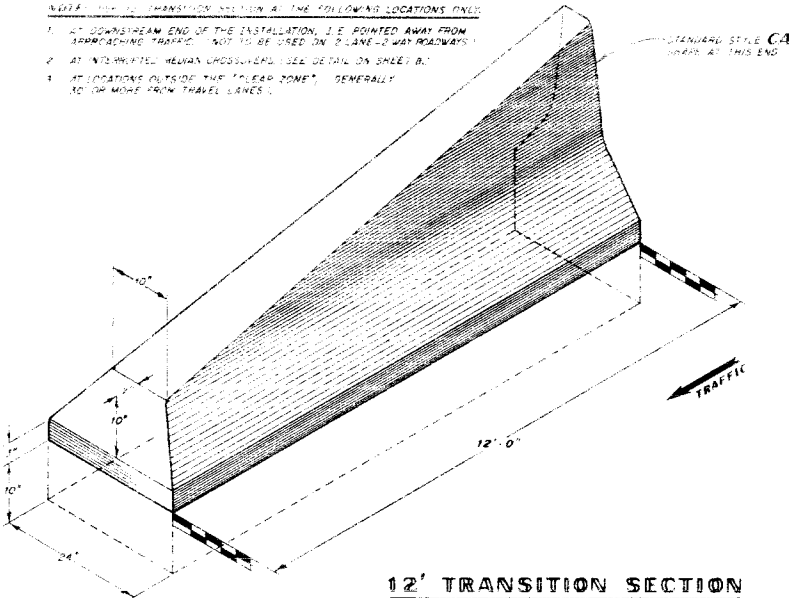
STANDARD M-606-12  
 (SHEET 2)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO			
REVISIONS				



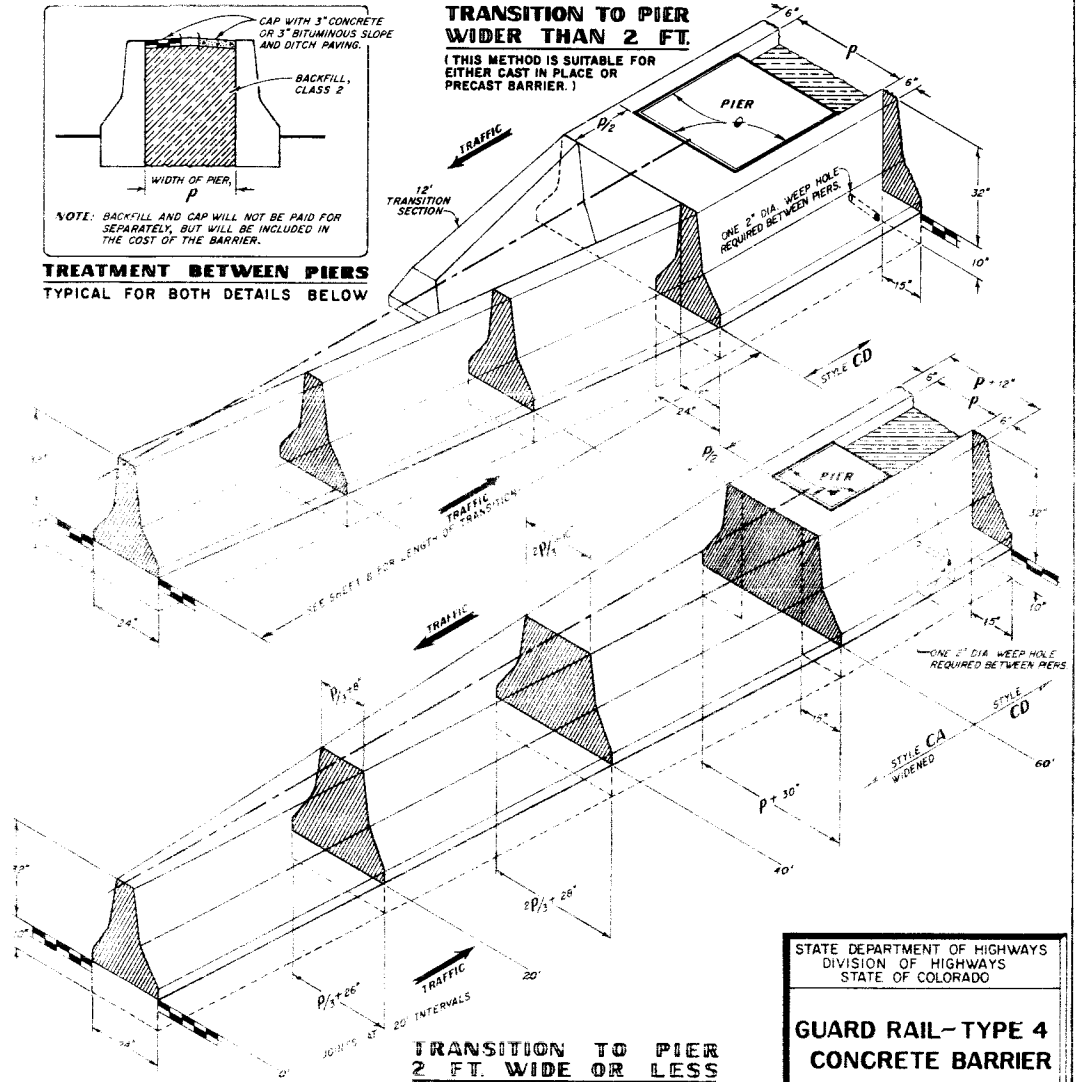
NOTE: THIS 12' TRANSITION SECTION IS TO BE USED AT THE FOLLOWING LOCATIONS ONLY:

1. AT DOWNSTREAM END OF THE INSTALLATION, I.E. POINTED AWAY FROM APPROACHING TRAFFIC. NOT TO BE USED ON 2-LANE 2-WAY ROADWAYS.
2. AT INTERCHANGES (HEAVY CROSSOVERS) (SEE DETAIL ON SHEET B).
3. AT LOCATIONS OUTSIDE THE "CLEAR ZONE", GENERALLY 10' OR MORE FROM TRAVEL LANES.



TREATMENT BETWEEN PIERS  
 TYPICAL FOR BOTH DETAILS BELOW

TRANSITION TO PIER  
 WIDER THAN 2 FT.  
 (THIS METHOD IS SUITABLE FOR  
 EITHER CAST IN PLACE OR  
 PRECAST BARRIER.)



TRANSITION TO PIER  
 2 FT. WIDE OR LESS

1/2" PREFORMED JOINT MATERIAL.

STATE DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 STATE OF COLORADO

**GUARD RAIL - TYPE 4  
 CONCRETE BARRIER**

APPROVED BY  
 STAFF DESIGN ENGINEER  
 DATE: FEBRUARY 18, 1983

STANDARD PLAN NO.  
**M-606-12**  
 SHEET 2 OF 9

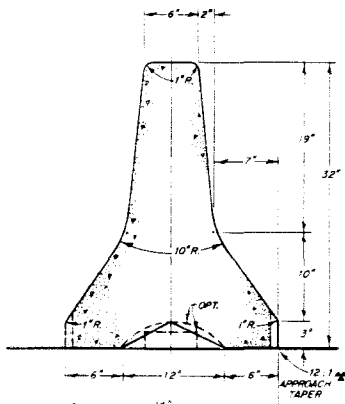
DETAILS FOR PRECAST CONCRETE BARRIER

STANDARD M-606-12

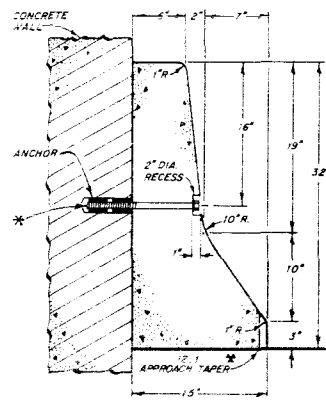
(SHEET 3)

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO			

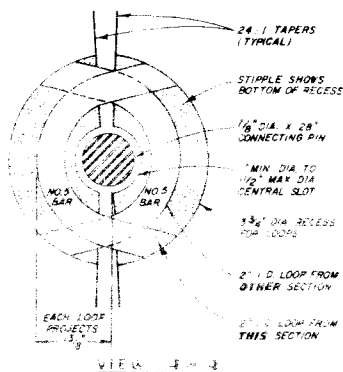
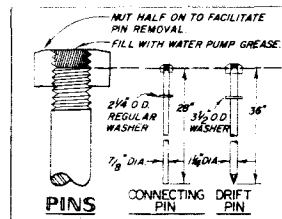
REVISIONS	



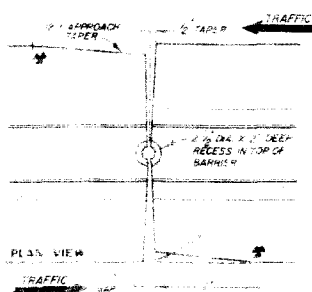
STYLE PA  
**PRECAST BARRIER**



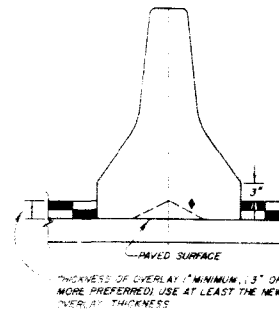
STYLE PD  
**PRECAST BARRIER AGAINST WALL**



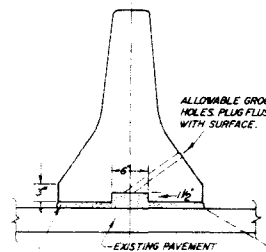
**BARRIER CONNECTION**  
 (FOR STYLE PA OR PD)



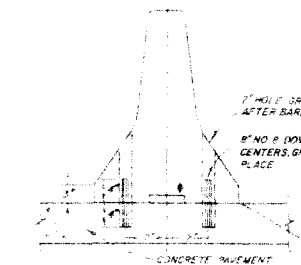
**JOINT IN PRECAST BARRIER**



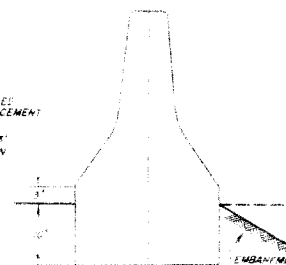
**ADJACENT OVERLAY**



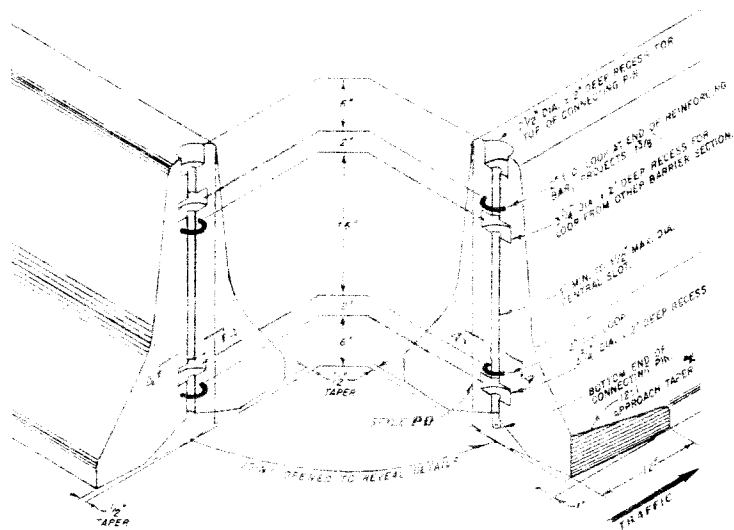
**GROUT BED**



**DOWELLED TO PAVEMENT**



**BARRIER WITH BASE**



**JOINT IN STYLES PA AND PD**

ANCHOR DETAILS FOR PERMANENT BARRIERS

NOTES

- ONE OF THE FOUR ALTERNATE ANCHOR DETAILS SHALL BE USED WHEN PRECAST BARRIER IS INSTALLED AS A PERMANENT BARRIER. STYLE PA DIMENSIONS APPLY AND THE BARRIER SHALL BE CAST WITH EXTRA REINFORCEMENT. HOLES, EXTRA BASE DEPTH, MODIFIER OR NO LONGITUDINAL SPACE IN BASE, ETC. AS NECESSARY TO PROVIDE THE ANCHOR DETAIL TO BE USED.
- THESE ANCHOR DETAILS MAY BE USED FOR SHOULDER OR MEDIAN LOCATIONS EXCEPT THE ADJACENT OVERLAY ALTERNATE WHICH IS FOR MEDIANS ONLY.
- THE 12.1' APPROACH TAPER ON BARRIER BOTTOM IS NOT REQUIRED ON PERMANENT BARRIERS.

STATE DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 STATE OF COLORADO

**GUARD RAIL - TYPE 4  
 CONCRETE BARRIER**

APPROVED BY: [Signature]  
 DATE: FEBRUARY 16, 1983

STANDARD PLAN NO.  
**M-606-12**  
 SHEET 3 OF 9



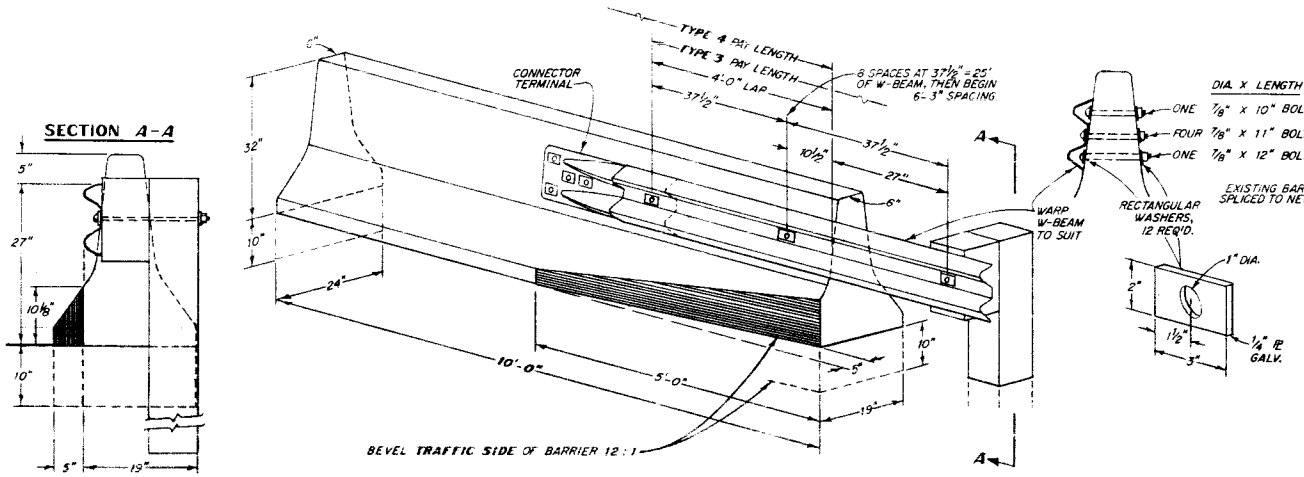
# STANDARD M-606-12

(SHEET 5)

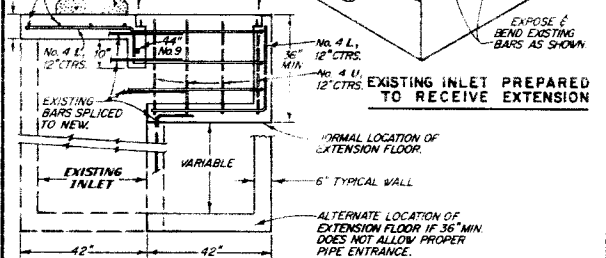
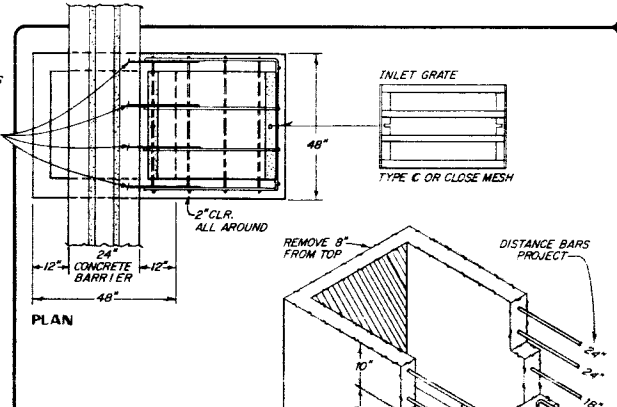
FEDERAL REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO			

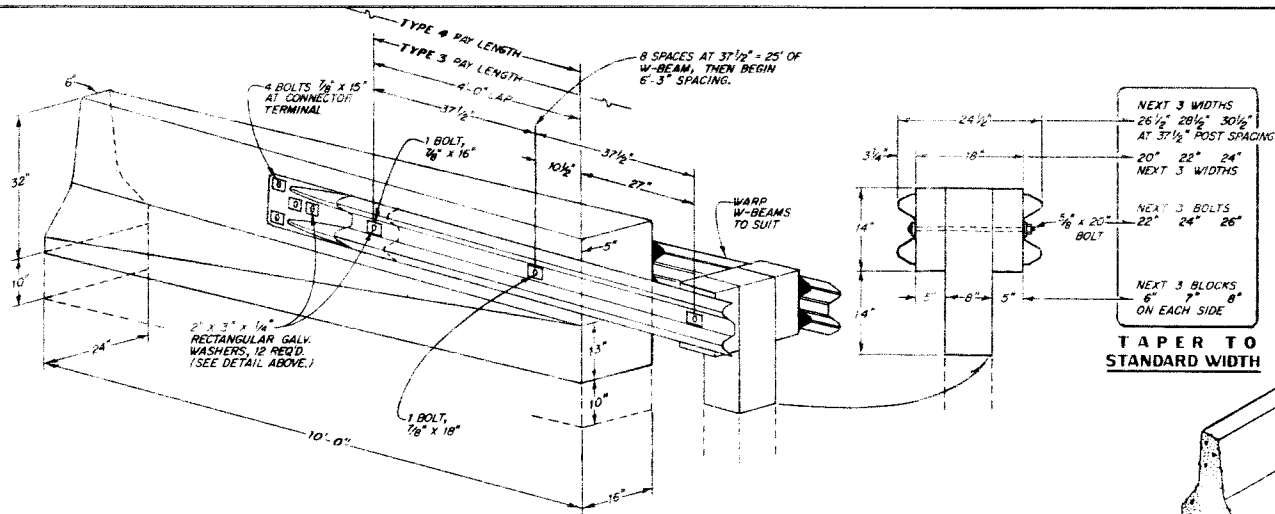
REVISIONS	



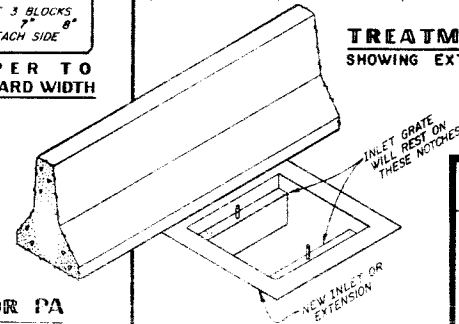
**10' TRANSITION TO CONNECT SINGLE W-BEAM TO CONCRETE BARRIER - STYLE CA OR PA**



**TREATMENT AT INLET**  
 SHOWING EXTENSION OF EXISTING INLET



**10' TRANSITION TO CONNECT DOUBLE W-BEAM TO CONCRETE BARRIER - STYLE CA OR PA**



STATE DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 STATE OF COLORADO

**GUARD RAIL - TYPE 4  
 CONCRETE BARRIER**

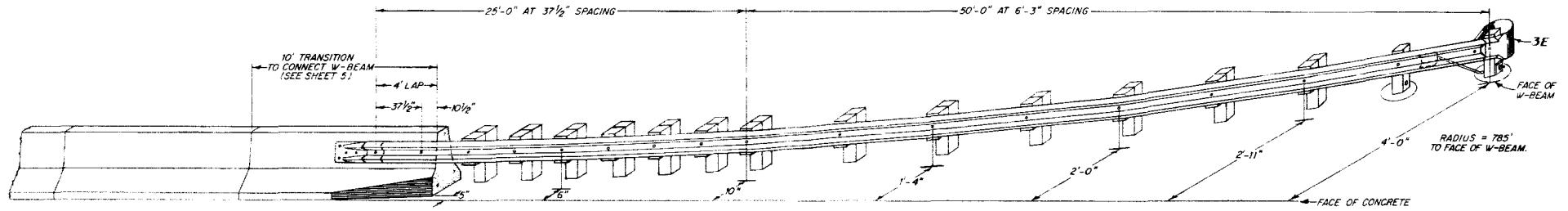
APPROVED BY: *[Signature]*  
 STAFF DESIGN ENGINEER  
 DATE: FEBRUARY 18, 1983

STANDARD PLAN NO.  
**M-606-12**  
 SHEET 5 OF 9

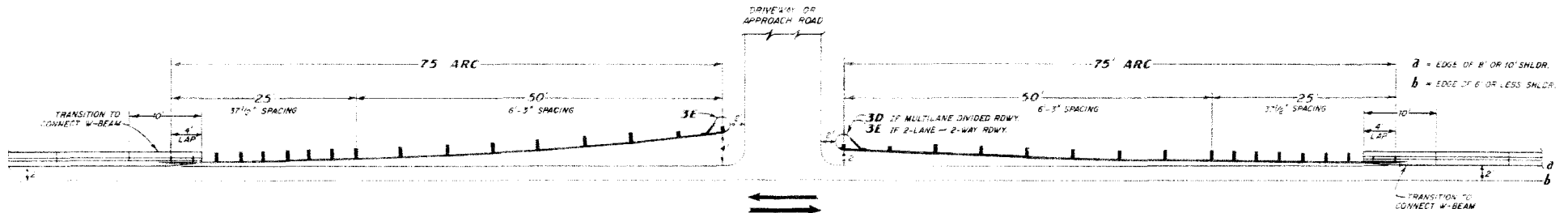
# STANDARD M-606-12

(SHEET 6)

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO			
REVISIONS				



**CONCRETE BARRIER WITH TYPE 3 FLARE**



**LAYOUT FOR INTERRUPTED SHOULDER BARRIER**

STATE DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 STATE OF COLORADO

**GUARD RAIL - TYPE 4  
 CONCRETE BARRIER**

APPROVED BY: *K. C. VAUGHN*  
 STAFF DESIGN ENGINEER  
 DATE FEBRUARY 18, 1983

STANDARD PLAN NO.  
**M-606-12**  
 SHEET 6 OF 9

MULTILANE DIVIDED HIGHWAYS  
 (DEPRESSED MEDIAN)

STANDARD M - 606 - 12  
 (SHEET 7)

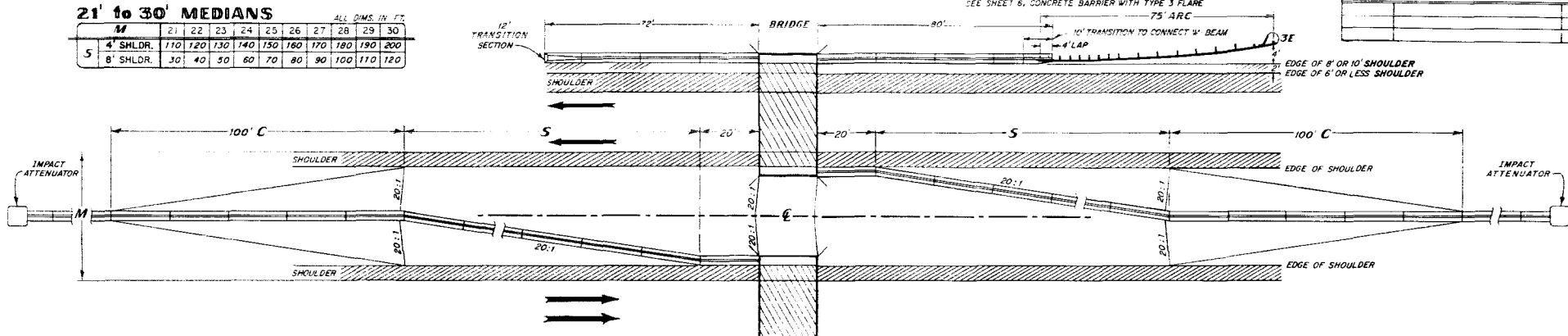
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO			

REVISIONS	

21' to 30' MEDIANS

ALL DIMS. IN FT.

M	21	22	23	24	25	26	27	28	29	30
4' SHLDR.	170	120	130	140	150	160	170	180	190	200
8' SHLDR.	30	40	50	60	70	80	90	100	110	120

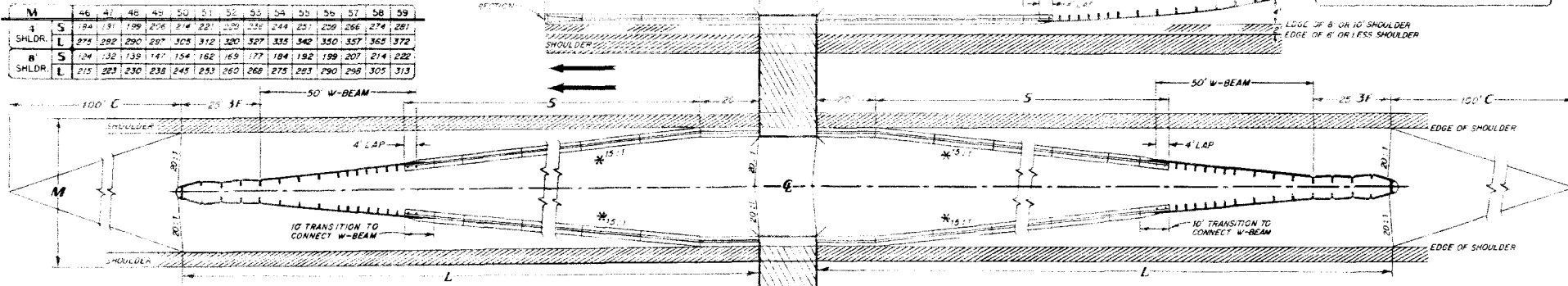


31' to 59' MEDIANS

ALL DIMS. IN FT.

M	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
4' SHLDR.	71	79	86	94	101	109	116	124	131	139	146	154	161	169	176
8' SHLDR.	162	170	177	185	192	200	207	215	222	230	237	245	252	260	267

M	46	47	48	49	50	51	52	53	54	55	56	57	58	59
4' SHLDR.	184	191	199	206	214	221	229	236	244	251	259	266	274	281
8' SHLDR.	275	282	290	297	305	312	320	327	335	342	350	357	365	372



**LEGEND**

- S = STRAIGHT TRANSITION OF CONCRETE BARRIER.
- C = CHANGE: 100' TRANSITION TO NORMAL SLOPE
- 3E & 3F = STANDARD END TREATMENTS FOR W-BEAM RAIL
- L = TOTAL LENGTH
- = DIRECTION OF TRAFFIC
- M = MEDIAN WIDTH

\*15:1 FLARE RATE BASED ON A 55 MPH OPERATING SPEED.

STATE DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 STATE OF COLORADO

**GUARD RAIL TYPE 4  
 CONCRETE BARRIER**

APPROVED BY: [Signature]  
 STATE DESIGN ENGINEER  
 DATE: FEBRUARY 18, 1963

STANDARD PLAN NO.  
**M-606-12**  
 SHEET 7 OF 9



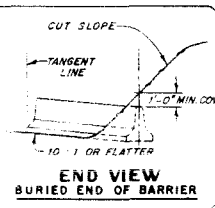
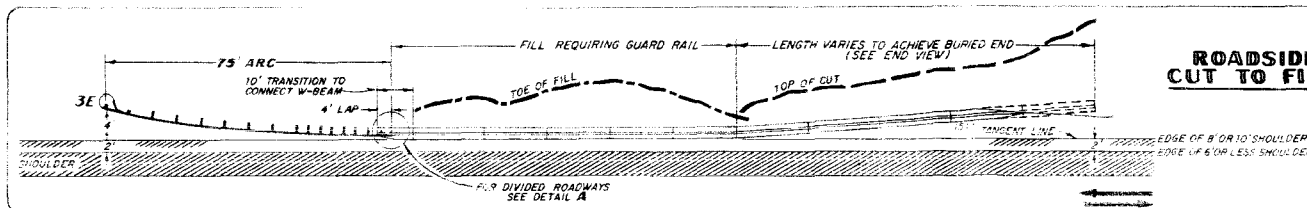
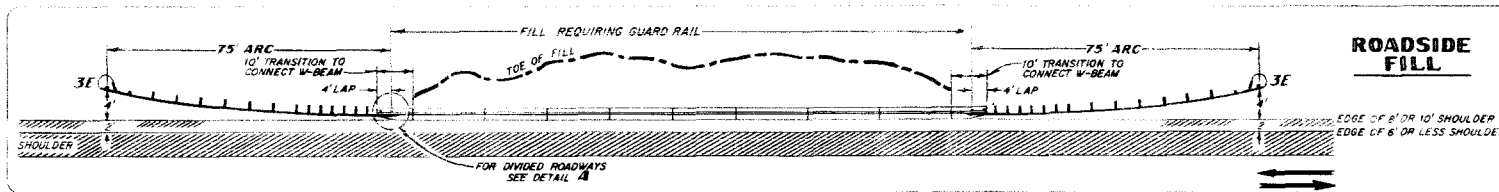
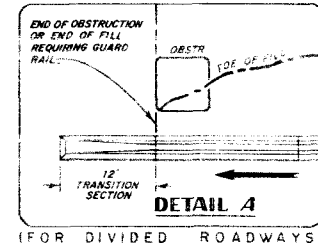
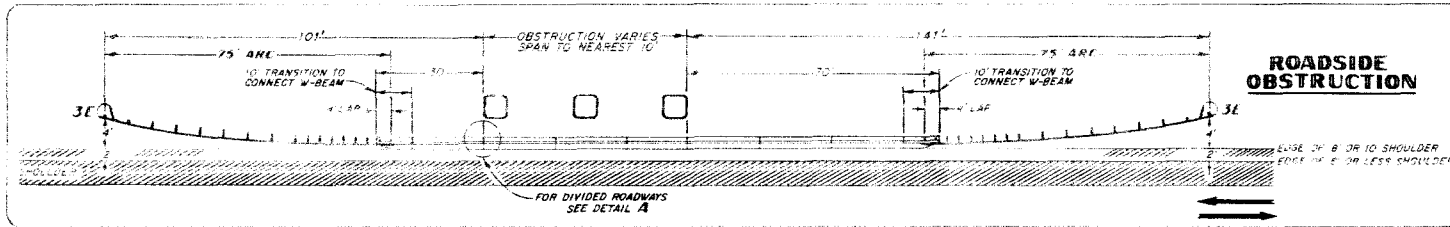
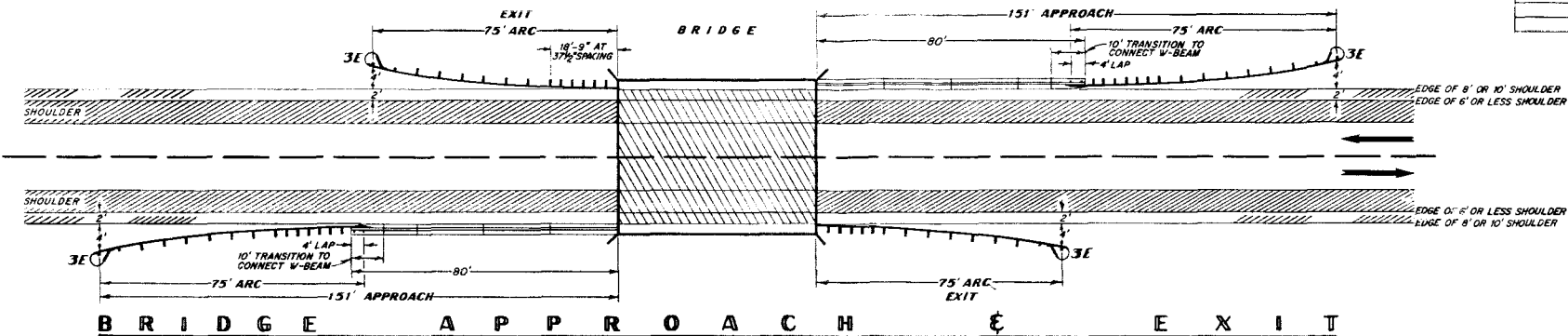
2 LANE - 2 WAY HIGHWAYS

STANDARD M-606-12

(SHEET 9 OF 9)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO			

REVISIONS	



STATE DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 STATE OF COLORADO

**GUARD RAIL - TYPE 4  
 CONCRETE BARRIER**

APPROVED BY: [Signature]  
 STATE DESIGN ENGINEER  
 DATE: FEBRUARY 18, 1983

STANDARD PLAN NO.  
**M-606-12**  
 SHEET 9 OF 9