

PER. ROW under FCU 034-1(19)

STATE DEPARTMENT OF HIGHWAYS DIVISION OF HIGHWAYS - STATE OF COLORADO

PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. FCU 034-1(21)
STATE HIGHWAY NO. 34
WELD COUNTY

STA. 177+00 BEG. FCU 034-1(21) =
STA. 77+00 ON C03-0016-11

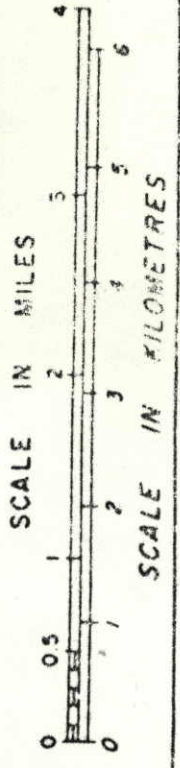
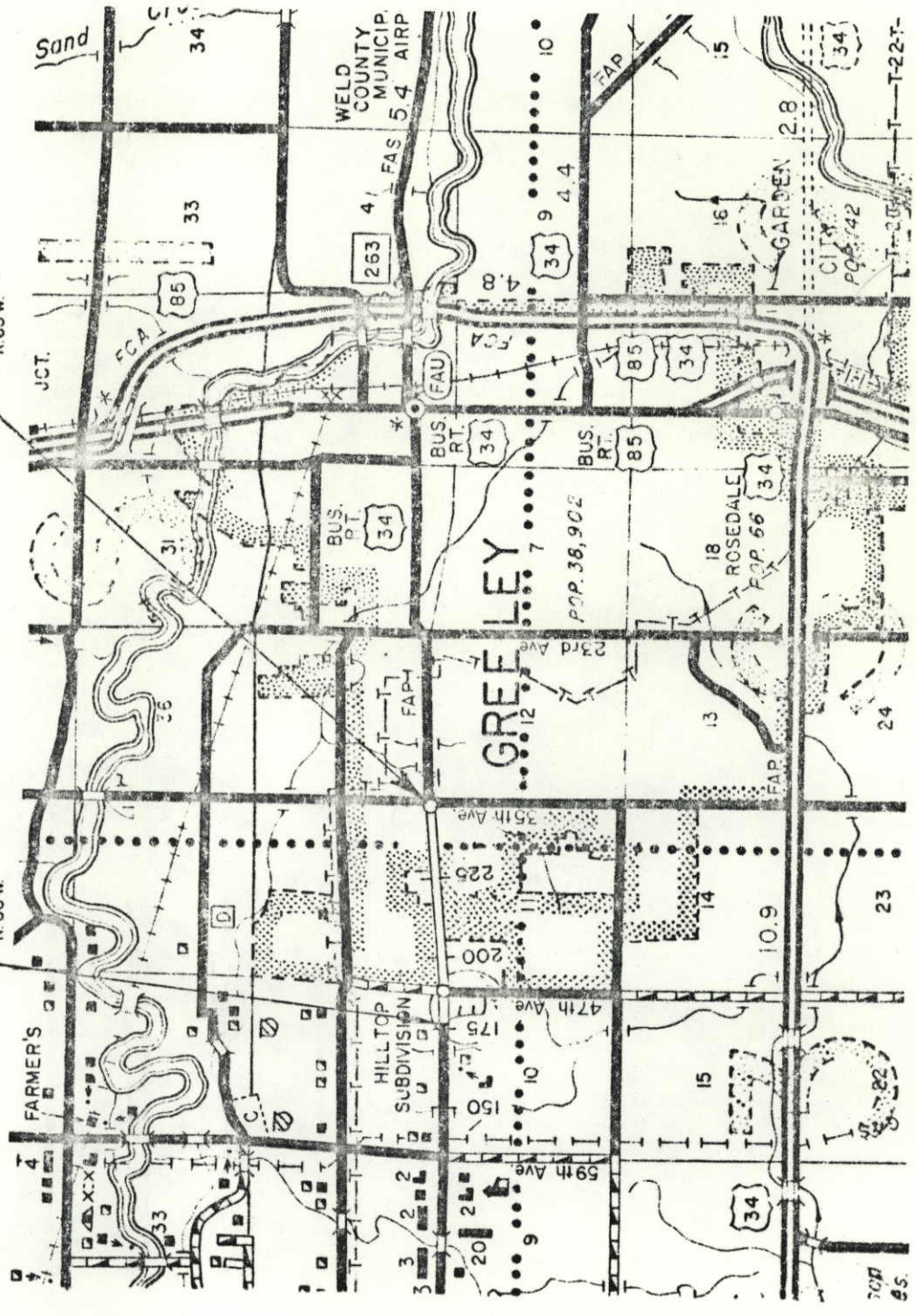
STA. 243+83.13 END FCU 034-1(21) =
STA. 144+03.25 ON C03-0016-11

OCT 1982
R.O.W. SECT.
DIST. 4
B.O.H.

OCT 1982
CONSTR. SEC.
DIST. 4
B.O.H.

SCALES OF ORIGINAL DRAWINGS
ON PLAN, 1 IN. = 50 FT.
ON PROFILE 1 IN. = 50 FT. HORIZONTAL
1 IN. = 5 FT. VERTICAL
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

TABULATION OF LENGTH & DESIGN DATA	
STATION TO STATION	ROADWAY LIN. FT.
STA. 177+00 BEG. FCU 034-1(21) = STA. 77+00 ON C03-0016-11	6683.13
STA. 243+83.13 END FCU 034-1(21) = STA. 144+03.25 ON C03-0016-11	6683.13
TOTAL	6683.13
SUMMARY	
ROADWAY NET	6683.13 1.27
TOTAL GROSS & NET LENGTH	6683.13 1.27
DESIGN DATA	
MAXIMUM DEGREE OF CURVE	0°30'
MAXIMUM GRADE	3.35% (Approx)
MINIMUM SSD HORIZONTAL	> 1300'
MINIMUM SSD VERTICAL	455'
MAXIMUM DESIGN SPEED	45 MPH
2001 DESIGN VOLUME	{ DHV = 2090 ADT = 19,000



INDEX OF SHEETS

- TITLE SHEET, SKETCH MAP, TABULATION OF LENGTH AND DESIGN DATA
- INDEX OF STANDARDS
- TYPICAL SECTIONS
- GENERAL NOTES AND UNDERDRAIN DETAIL
- SUMMARY OF APPROXIMATE QUANTITIES
- STRUCTURE QUANTITIES
- SUMMARY OF EARTHWORK AND SURFACING PLAN
- TABULATIONS OF CONCRETE SIDEWALK, CONCRETE PAVEMENT, MEDIAN COVER MATERIAL AND SOIL STERILIZATION
- TABULATION OF CURB AND GUTTER, SCHEDULE OF CONSTRUCTION TRAFFIC SIGNS AND REMOVAL OF CURB AND GUTTER
- DIVISION BOX DETAILS, STATION 214+17
- TRAFFIC SIGNAL PLAN AND TRAFFIC MOVEMENTS AT 43RD AND 47TH STREETS
- DETAILS OF CURB AND GUTTER MEDIAN NOSE ENDS, HANDICAPPED RAMPS AND LANE TAPER FOR MEDIAN
- PLAN AND PROFILE SHEETS
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17-22 PLAN AND PROFILE SHEETS
23-24 STRIPING PLANS

AS CONSTRUCTED PLANS
RETURN TO DIST. 4 DESIGN

- REVISED STANDARDS
- M-601-KB TYPE "S" SADDLE HEADMALL FOR PIPE CULVERT 10-28-90
 - M-604-S PIPE SEWER IN TRENCH 10-31-80
 - M-609-A CURBS AND GUTTERS 3-6-90
 - M-320-B FIELD LABORATORY - CLASS 1 5-30-50

DIST. IV	FILE	COPY
DIST. ENGR.		
ASST. ENGR.		
CONSTR.		
PRE-CONSTR.		
ERA		
UTIL.		
DESIGN		
ROW		
MATLS		
EEO		
RE-PE'S		
MAINT.		
TRAFFIC		

DIVISION OF HIGHWAYS

APPROVED: *[Signature]* 7-2-81 DATE
ASST. CHIEF ENGINEER

AS CONSTRUCTED INFORMATION

CONTRACTOR: *[Signature]*
RESIDENT ENGINEER: *[Signature]*
(Project or Resident): STARK, JOHANN
PROJECT STARTED: AUG 21 81
PROJECT COMPLETED: *[Signature]*
AS CONSTRUCTED PLANS APPROVED: *[Signature]*
DATE: 9/2/82
TITLE: _____ DATE: _____

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

PLAN NUMBER	TITLE	PAGE	PLAN NUMBER	TITLE	PAGE
<input checked="" type="checkbox"/> M-100-A	STANDARD SYMBOLS	1	<input type="checkbox"/> M-607-C	PICKET SNOW FENCE	57
<input type="checkbox"/> M-107-A	TEMPORARY EROSION CONTROL	2	<input type="checkbox"/> M-607-D	BARRIER FENCE	58
<input checked="" type="checkbox"/> M-203-B	APPROACH ROADS, FLARING, CUT SLOPE TREATMENT, BRIDGE & CREST WIDENING	3	<input type="checkbox"/> M-607-E	DEER FENCE AND GATE	59
<input checked="" type="checkbox"/> M-203-C	DITCH TYPES	4	<input checked="" type="checkbox"/> M-608-A	CURB RAMPS FOR THE HANDICAPPED	61
<input type="checkbox"/> M-203-SC	SUPERELEVATION OF CURVES - CROWNED HIGHWAYS	5	<input type="checkbox"/> M-609-A	CURBS AND GUTTERS	62
<input type="checkbox"/> M-203-SD	SUPERELEVATION OF CURVES - DIVIDED HIGHWAYS	6	<input type="checkbox"/> M-611-D	CATTLE GUARD - WELDED GRILL UNITS - 10' THRU 42' ROADWAYS	63
<input type="checkbox"/> M-203-SS	SUPERELEVATION OF CURVES - STREETS	7	<input type="checkbox"/> M-612-A	MARKER POSTS AND BENCH MARKS	65
<input checked="" type="checkbox"/> M-206-AB	EXCAVATION AND BACKFILL FOR STRUCTURES	8	<input type="checkbox"/> M-613-AA	HIGHWAY LIGHTING	66
<input type="checkbox"/> M-214-A	PLANTING DETAILS	11	<input type="checkbox"/> M-615-A	EMBANKMENT PROTECTOR, TYPES 3 & 4	67
<input checked="" type="checkbox"/> M-412-AB	CONCRETE PAVEMENT JOINTS	12	<input type="checkbox"/> M-615-A	EMBANKMENT PROTECTOR, TYPE 5	68
<input type="checkbox"/> M-504-B	STEEL CRIBBING	13	<input type="checkbox"/> M-616-S	INVERTED SIPHON (ALSO USE M-603 OR M-604 AS REQUIRED)	69
<input type="checkbox"/> M-506-A	GABIONS AND SLOPE MATTRESS	14	<input type="checkbox"/> M-620-A	FIELD LABORATORY - CLASS 2	70
<input type="checkbox"/> M-510-AB	STRUCTURAL PLATE CULVERT PIPE - H-20 LOADING	15	<input checked="" type="checkbox"/> M-707-CB	TYPICAL ALTERNATE COUPLING BANDS FOR CORRUGATED CULVERT PIPE	71
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<input type="checkbox"/> M-601-XA	TYPE "S" SADDLE HEADWALL FOR PIPE CULVERTS	21	<input type="checkbox"/> S-614-3	CLASS II GROUND SIGN INSTALLATIONS	78
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<input checked="" type="checkbox"/> M-604-E	MANHOLES	31	<input type="checkbox"/> S-614-30	INTERSTATE ROUTE MARKERS	90
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<input checked="" type="checkbox"/> M-604-R	CURB INLET, TYPE R	33	<input type="checkbox"/> S-614-32	AUXILIARY MARKERS	92
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<input type="checkbox"/> M-607-BA	CHAIN LINK FENCE	54			

DEPARTMENT OF HIGHWAYS
 STATE OF COLORADO
 DIVISION OF HIGHWAYS
STANDARD PLANS LIST
 M & S STANDARDS — JANUARY, 1980

GENERAL CASE REGION NO.	DIVISION	PROJ. NO.	ASLET NO.	TOTAL SHEETS
VIII	COLORADO	FCU 034-1(21)	4	24
NO REVISIONS <input type="checkbox"/> REVISED <input type="checkbox"/> AS CONSTRUCTED <input type="checkbox"/>				
VOID <input type="checkbox"/>				

GENERAL NOTES

FOR PRELIMINARY PLAN QUANTITIES OF BITUMINOUS MATERIALS THE FOLLOWING RATES OF APPLICATION WERE USED:

- PRIME COAT (MC-70) a 0.25 GALS./SQ. YD.
- TACK COAT DILUTED ENUL. ASPH. (CSS-1) a 0.10 GALS./SQ. YD. (DILUTED)
- BITUMINOUS PAVEMENT a 110 LBS. PER SQ. YD./INCH

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 WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. IT IS ESTIMATED THAT 80 M GALS. WILL BE REQUIRED.

THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAYER,

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.

ROAD APPROACHES WHICH REQUIRE BITUMINOUS PAVEMENT SHALL BE PRIMED AND A 2" THICKNESS OF PAVEMENT PLACED AS FOLLOWS:

PUBLIC APPROACHES AND ENTRANCES TO BUILDINGS OR RESIDENCES SHALL BE PAVED 50 FEET OUT FROM EDGE OF SHOULDER OR TO THE RIGHT-OF-WAY LINE, WHICHEVER IS LESS, OR TO END OF PROPOSED CURB AND GUTTER. FIELD ENTRANCES SHALL BE PAVED 4 FEET OUT FROM EDGE OF SHOULDER.

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.

FULL DEPTH OF EMBANKMENT SECTIONS USED FOR DITCHES AND CHANNEL CHANGES.

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 180.

IT IS ESTIMATED THAT 2,800 HOURS OF FLAGGING AND 80 DAYS OF TRAFFIC CONTROL SUPERVISION FOR CONTROLLING TRAFFIC WILL BE REQUIRED FOR THIS PROJECT.

FLEXIBLE CONDUITS ON THIS PROJECT WITH HELICAL CORRUGATIONS, JOINED BY DIMPLED CONNECTING BANDS, SHALL USE A SEALING COMPOUND OR GASKET WITH THE CONNECTING BAND.

THE MINIMUM THICKNESS OF TOPSOIL SHALL BE 4 INCHES. IT IS ESTIMATED THAT 2,700 CU. YDS. WILL BE REQUIRED AND WILL BE OBTAINED FROM AN UNDESIGNATED SOURCE.

TYPE 5 ANNULAR COUPLING BANDS FOR CORRUGATED CULVERT PIPE WILL NOT BE PERMITTED ON THIS PROJECT FOR PIPES LARGER THAN 30 INCHES IN DIAMETER.

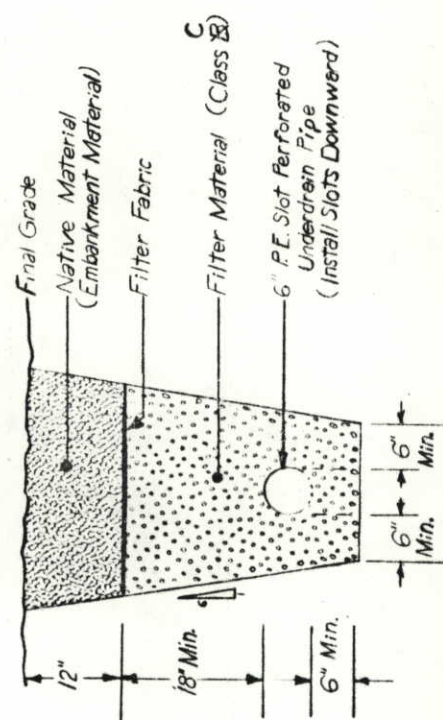
IT IS ESTIMATED THAT 24 HOURS OF BLADING WITH A MOTOR GRADER IN THE 105 TO 125 FLYWHEEL HORSEPOWER RANGE WILL BE REQUIRED.

IT IS ESTIMATED THAT 40 HOURS OF ROLLING WITH A SELF-PROPELLED SWEEPSUOT IN THE 105 TO 200 FLYWHEEL HORSEPOWER RANGE WILL BE REQUIRED.

GUARD POSTS, DELINEATORS AND HIGHWAY SIGNS WILL BE REMOVED BY STATE FORCES AT NO COST TO THE PROJECT.

UNDERDRAIN TRENCH DETAIL

Sta 178+ to Sta. 184+



GENERAL NOTES (CONT.)

SEEDING, SOIL PREPARATION, FERTILIZING WITH COMMERCIAL FERTILIZER, AND MULCHING WILL BE REQUIRED FOR APPROXIMATELY 4.1 ACRES FOR ROADWAY WITHIN RIGHT OF WAY LIMITS ON ALL DISTURBED AREAS NOT SURFACED. 7.1

THE FOLLOWING TYPES AND RATES SHALL BE USED:

COMMON NAME	BOTANICAL NAME	RATE PLS/ACRE
BLUE GRAMA	BOUTELOUA GRACILIS	1
WHITE DUTCH CLOVER	TRIFOLIUM REPENS	3
CRESTED WHEATGRASS (FAIRWAY)	AGROPYRON CHRISTATUM	5
BUFFALO GRASS (SHARPS)	BUCHLOE DACTYLOIDES	4
HARD FESCUE (QUAR)	FESTUCA OVINA	3
SMOOTH BROME (MANCHAR)	DURTUSCULA BROMIS INERMIS	5
TOTAL PLS/ACRE SEEDING (NATIVE)		21.0

SEED SHALL BE MECHANICALLY DRILL SEED TO A DEPTH OF 0.5 INCHES.

COMMERCIAL FERTILIZER	% AVAILABLE	LBS/ACRE AVAILABLE
NITROGEN	18	54
PHOSPHORUS	46	138

TOTAL FERTILIZER RATE: 300 LBS/ACRE DIAMMONIUM PHOSPHATE (18-46-0).

MULCHING MATERIAL: HYDRAULIC APPLIED MUD FIBER MULCH AT 1400 POUNDS PER ACRE

SOIL PREPARATION: PRIOR TO SEEDING AND MULCHING, FERTILIZER SHALL BE WORKED INTO THE TOP FOUR INCHES OF SOIL.

200 #	PROJECT TOTALS	PLAN	FINAL
112	SEEDING (NATIVE)	8.6 LBS.	147
113	MULCHING (GRASS)	3 TONS	4.98
111	FERTILIZER	1230 LBS.	4.130
111	SOIL PREPARATION (NATIVE)	4.1 ACRES	7.1
(FORM 107-35712-B)	WATER (LANDSCAPING)	103 M GAL.	0

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED
 FEDERAL ROAD DISTRICT NO. VIII COLORADO
 PROJECT NO. FCU 034-1(21)
 SHEET NO. 5
 TOTAL SHEETS 24

NO REVISIONS
 AS CONSTRUCTED
 REVISED 6.11.22
 VOID

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PLAN ROADWAY	AS CONSTRUCTED ROADWAY	PLAN UTILITIES	AS CONSTRUCTED UTILITIES	DIFF. +/-	% PLAN	PROJECT TOTALS	AS CONST. PROJ. TOTALS	DIFF. +/-	% PLAN
(266 #)	201	Cleaning & Grubbing	L.S.	1	1					1	1	-0	100%
10	202	Removal of Structure	Each	14	25					14	25	+11	179%
10	202	Removal of Slope & Ditch Paving	Sq. Yd.	3	12					3	12	+9	400%
(Form 105)	202	Removal of Curb	Lin. Ft.	316	0					316	0	-316	0%
13	202	Removal of Curb & Gutter	Lin. Ft.	206	693					206	693	+487	336%
10	202	Removal of Ground Sign	Each	3	3					3	3	-0	100%
15	202	Removal of Traffic Signal Face	Each	8	8					8	8	-0	100%
15	202	Removal of Traffic Signal Pole	Each	2	2					2	2	-0	100%
15	202	Removal of Traffic Signal Controller & Cabinet	Each	1	1					1	1	-0	100%
10	202	Removal of Concrete Footing	Each	2	9					2	9	+7	450%
10	202	Plug Structure	Each	1	2					1	2	+1	200%
(Form 7s)	203	Embankment Material (Complete in Place)	Cu. Yd.	44,091	48,030					44,091	48,030	+3,939	109%
(Form 7s)	203	Rolling (Self-Propelled)	Hour	16	10					16	10	-6	63%
(Form 7s)	203	Blading	Hour	24	33					24	33	-9	138%
10	206	Structure Excavation	Cu. Yd.	975	1,045					975	1,045	+70	107%
10	206	Structure Backfill (Class 1)	Cu. Yd.	242	239					242	239	-3	99%
10	206	Structure Backfill (Class 2)	Cu. Yd.	288	360					288	360	+72	125%
10	206	Filter Material (Class B)	Cu. Yd.	209	274					209	274	+65	131%
3 80	207	Topsoil	Cu. Yd.	2,200	2,763					2,200	2,763	+563	126%
(Form 7s)	209	Wetting	M. Gal.	300	316					300	316	+16	105%
(Form 7s)	209	Water (Landscaping)	M. Gal.	103	6					103	6	-97	6%
10	210	Reset Mailbox Structure	Each	5	3					5	3	-2	60%
(Form 105)	210	Reset Water Service	Each			1	0	-1	0%	1	0	-1	0%
15	210	Reset Traffic Signal Face	Each	6	6					6	6	-0	100%
15	210	Reset Traffic Signal Pole	Each	3	3					3	3	-0	100%
10	210	Adjust Manhole	Each			8	8	-0	100%	8	8	-0	100%
10	210	Adjust Valve Box	Each			13	19	+6	146%	13	19	+6	146%
4	212	Seeding (Native)	Lb.	86	147					86	147	+61	171%
4	212	Fertilizer	Lb.	1230	2,130					1230	2,130	+900	173%
4	212	Soil Preparation (Native)	Acres	4.1	7.1					4.1	7.1	+3	173%
4	213	Mulching (Hydraulic)	Ton	3.0	4.98					3.0	4.98	+1.98	166%
(DELETED BY W.D. #927)	217	Soil Sterilization	Sq. Yd.	1362	0					1362	0	-1362	0%
(Form 27)	304	Aggregate Base Course (Class 6) (Haul)	Ton	16,651	20,511.25					16,651	20,511.25	+3860.25	123%
(Form 27)	403	Hot Bituminous Pavement (Patching)	Ton	10	49.40					10	49.40	+39.40	494%
(Form 27)	403	Hot Bituminous Pavement (Grading EX) (Haul & Asphalt)	Ton	14,653	12,023.25					14,653	12,023.25	-2629.75	82%
(305b)	411	Emulsified Asphalt (CSS-1)	Gal.	6,068	3,844					6,068	3,844	-2,224	63%
(305b)	411	Liquid Asphaltic Material (MC-70)	Gal.	10,587	0					10,587	0	-10,587	0%
12	412	Concrete Pavement (6 Inch)	Sq. Yd.	343	381					343	381	+38	111%
8	506	Plastic Filter Cloth	Sq. Yd.	160	160					160	160	-0	100%
10	507	Concrete Slope & Ditch Paving	Cu. Yd.	4	10.72					4	10.72	+6.72	268%
10	601	Concrete Class 'A' (Miscellaneous)	Cu. Yd.	11	14.06					11	14.06	+3.06	128%
10	603	Reinforcing Steel	Lb.	586	695					586	695	+109	119%
10	603	12 Inch Corrugated Steel Pipe	Lin. Ft.	6	6					6	6	-0	100%
10	603	15 Inch Corrugated Steel Pipe	Lin. Ft.	16	20					16	20	+4	125%
(DELETED BY W.D. #927)	603	24 Inch Corrugated Steel Pipe	Lin. Ft.	66	0					66	0	-66	0%

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED
 NO REVISIONS REVISED 6/1/82 VOID

FEDERAL ROAD DISTRICT NO. VIII COLORADO DIVISION PROJ. NO. FCU 034-1(21) SHEET NO. 6 TOTAL SHEETS 24

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PLAN ROADWAY	AS CONSTRUCTED ROADWAY	PLAN UTILITIES	AS CONSTRUCTED UTILITIES	PROJECT TOTALS	AS CONST. PROJ. TOTALS	DIFF. +/-	% PLAN
10	603	48 INCH CORRUGATED STEEL PIPE	LIN. FT.	120	120			120	120	±0	100%
10	604	INLET TYPE R L5 (5 FOOT)	EACH	6	7			6	7	+1	117%
10	604	INLET TYPE R L10 (5 FOOT)	EACH	1	1			1	1	±0	100%
10	604	MANHOLE SLAB BASE (5 FOOT)	EACH	2	4			2	4	+2	200%
(FORM 105) #1038	604	MANHOLE SLAB BASE (10 FOOT)	EACH	1	0			1	0	-1	0%
(FORM 105) #1038	604	12 INCH REINFORCED CONCRETE PIPE SEWER	LIN. FT.	4	0			4	0	-4	0%
10	604	18 INCH REINFORCED CONCRETE PIPE SEWER	LIN. FT.	394	316			394	316	-78	80%
10	604	24 INCH REINFORCED CONCRETE PIPE SEWER	LIN. FT.	518	502			518	502	-16	97%
8	605	6 INCH NON-PERFORATED PIPE UNDERDRAIN	LIN. FT.	7	7			7	7	±0	100%
8	605	6 INCH PERFORATED PIPE UNDERDRAIN	LIN. FT.	550	550			550	550	±0	100%
12	608	CONCRETE SIDEWALK	SQ. YD.	3,036	2,920			3,036	2,920	-116	96%
(FORM 87)	608	BITUMINOUS BIKEWAY	TON	508	612.65			508	612.65	+104.65	121%
13	609	CURB TYPE 2 (SECTION B)	LIN. FT.	764	738			764	738	-26	97%
13	609	CURB AND GUTTER TYPE 2 (SECTION I-B)	LIN. FT.	215	165			215	165	-50	77%
13	609	CURB AND GUTTER TYPE 2 (SECTION II-B)	LIN. FT.	11,908	12,132			11,908	12,132	+224	102%
13	609	GUTTER TYPE 2 (6 FOOT)	LIN. FT.	124	96			124	96	-28	77%
13	609	CURB TYPE 6 (SECTION M) C.M.D. 1769	LIN. FT.	0	1,101			0	1,101	+1,101	-
13	609	CURB TYPE 4 (SECTION B)	LIN. FT.	4,676	4,781			4,676	4,781	+105	102%
DELETED BY (WD. 8327)	610	MEDIAN COVER MATERIAL	TON	963	0			963	0	-963	0%
15	613	2 INCH ELECTRICAL CONDUIT	LIN. FT.	660	751			660	751	+91	114%
15	613	3 INCH ELECTRICAL CONDUIT	LIN. FT.	290	388			290	388	+98	134%
(FORM 7s)	614	FLAGGING	HOURLY	2,000	3,061			2,000	3,061	+1,061	153%
(FORM 7s)	614	TRAFFIC CONTROL SUPERVISION	DAY	80	89			80	89	+9	111%
15	614	TRAFFIC SIGNAL FACE (8-8-8)	EACH	8	8			8	8	±0	100%
15	614	TRAFFIC SIGNAL FACE (12-8-8)	EACH	6	6			6	6	±0	100%
15	614	TRAFFIC SIGNAL CONTROLLER CABINET	EACH	1	1			1	1	±0	100%
15	614	LOOP DETECTOR WIRE	LIN. FT.	1,300	1,226			1,300	1,226	-74	94%
15	614	TRAFFIC SIGNAL VEHICLE DETECTOR AMPLIFIER (LOOP TYPE)	EACH	1	1			1	1	±0	100%
13	614	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH	28	18			28	18	-10	64%

STRUCTURE QUANTITIES

AS CONSTRUCTED
 NO REVISIONS
 REVISIONS: 6/1/82 VOID

FEDERAL ROAD DISTRICT NO. VIII
 DIVISION COLORADO
 PROJ. NO. FCU 034-1(21)
 SHEET NO. 9
 TOTAL SHEETS 24

INDEX	BOOK PAGE SHEET	LOCATION	REMOVAL OF STRUCTURE EACH	UNCLASSIFIED EXCAVATION		STRUCTURE EXCAVATION		STRUCTURE BACKFILL		AGGREGATE BASE COURSE		HOT BITUMINOUS PAVEMENT		CONCRETE		REINFORCING STEEL		CORRUGATED STEEL PIPE		OVER CULV.		INLETS TYPE "R"	END SECTION	DESCRIPTION
				CUBIC YARD	EMB.	CUBIC YARD	CUBIC YARD	CUBIC YARD	CL. 1	CL. 2	TON	TON	CL. A	CL. B	CL. C	CL. D	CL. E	CL. F	CL. G	CL. H	CL. I			
2	22	106	209+																					1-ADJUST VALVE BOX
2	24	43	209+96 to 214+09			246	265	70	76	122	132													1-SLAB BASE MANHOLE (H-S)
2	28	106	213+00																					1-ADJUST MANHOLE
2	30	120	214+16																					1-ADJUST MANHOLE
2	30	35	214+17			18	10	67	67	3	5													1-12" SLIDE HEADGATE 1-TRASH GUARD SPECIAL 1-3" VALVE AND VALVE BOX 3" X 20' GALVANIZED PIPE (STANDARD) 0.31 C.Y. - CONC. SLOPE & DITCH PAVING
2	37	99	214+17			67	69	8	8															1-RESET MAILBOX 1-ADJUST VALVE BOX
2	39		214+26																					1-RESET MAILBOX 1-ADJUST VALVE BOX
2	314	106	214+																					1-RESET MAILBOX
2	41	74A	215+ to 216+																					1-RESET MAILBOX
2	41	96	215+																					
2	44	50	215+98.5																					
2	44	50	216+00																					
2	47		216+ Lt.			8				6														
2	48	83	216+60																					
2	46		216+94																					
2	42	106	217																					1-ADJUST MANHOLE
2	50	5	217+84																					1-SLAB BASE MANHOLE (H-S)
2	51	38	217+15																					1-ADJUST VALVE BOX 1-ADJUST MANHOLE
2	52	106	219+																					1-ADJUST MANHOLE
2	56		221+80																					1-ADJUST MANHOLE
2	53	106	222+																					1-ADJUST MANHOLE
2	57	50	222+98.55																					1-ADJUST MANHOLE
2	60	106	223+																					1-ADJUST VALVE BOX
2	61		223+80																					0-RESET MAILBOX
2	62		224+																					1-ADJUST VALVE BOX
2	63	83	224+78																					1-ADJUST MANHOLE
2	64	104	224-47 to 225+																					1-REMOVE CONC. FOOTING

* PIPE PAY QUANTITIES INCLUDE THE FOLLOWING ELBOWS:
 1-90° 18" RCP, 1-90° 15" VCP, 1-90° 6" VCP AND 1-3" GALVANIZED PIPE.

STRUCTURE QUANTITIES

FEDERAL ROAD DISTRICT NO. VIII
 DIVISION COLORADO
 PROJ. NO. FCJ 034-1(21)
 SHEET NO. 10
 TOTAL SHEETS 24

AS CONSTRUCTED
 NO REVISIONS
 REVISED 6-11-82
 VOID

INDEX	BOOK PAGE	LOCATION	REMOVAL OF STRUCTURE EACH	UNCLASSIFIED EXCAVATION		STRUCTURE EXCAVATION		STRUCTURE BACKFILL		AGGREGATE BASE COURSE		HOT BITUMINOUS PAVEMENT		CONCRETE MISC.		REINFORCING STEEL		REINFORCED CONCRETE PIPE SEWER		CORRUGATED STEEL PIPE		OVER CULV		INLETS TYPE "R"	END SECTION E A C H	MISCELLANEOUS
				CUBIC YARD	EXCAV. DITCH EMB.	CUBIC YARD	CUBIC YARD	CL 1	CL 2	CUBIC YARD	TON	TON	CL. A	LB.	CL. A	LB.	LINEAR FEET	FEET	12" 15" 18" 24"	12" 15" 24" 48"	L5' L10'					
		226+13																								
		228+35																								
2	68 29	228+																								
2	71 20	228+95	1																							
2	74	229+				12																				
2	77 106	229+51																								
		230+																								
		234+81																								
3	9	235+																								
3	11	235+90																								
		237+98																								
3	13 5	238+62																								
3	15 5	238+64																								
3	18 5	238+95																								
3	20 5	239+18																								
3	22 19	239+20																								
3	22 19	239+45																								
3	19 19	239+	1																							
3	24	240+15																								
3	25	240+20																								
3	27 19	240+79																								
3	32 02	240+80																								
3	28 87	242+ TO 243+	3																							
		242+07																								
3	31 3499	243+																								
3	33 12	243+28																								
3	34 3	241+12 TO 243+25	1																							
3	39 12	240+46 TO 243+25	1																							
		TOTALS	25	0	169	1045	239	360							1408	695			316502	6	20	0	120	7	1	
		TOTALS	14	38	765	975	242	288							11	586			394518	5	16	66	120	6	1	

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(Deleted by 105-1028)

▲ See scale books (DOH Form 87)

SUMMARY OF EARTHWORK QUANTITIES

INDEX	PROJECT TOTALS
BOOK PAGE SHEET	CU. YD.
10	43,326
	765
	44,091
FOR INFORMATION ONLY	
COMPACTION (AASHTO T 180)	
Embankment (Net)	48,326
Base of Cuts and Fills (Estimated)	11,522
Structure Quantities as Embankment	765
Total	53,613
ROADWAY QUANTITIES BALANCE	
EXCAVATION	
Roadway (From Computer)	12,536
From Undesignated Source	48,119
Total	60,655
EMBANKMENT NET	
Roadway (From Computer)	43,326
Total	43,326
EMBANKMENT x FACTOR (1.40)	
Roadway (From Computer)	60,655
Total	60,655
WETTING	
Compaction (Estimated)	M. GAL. 1,391
Total	1,391

BASE COURSE & SURFACE COURSE PLAN

(Form 87's)

STATION TO STATION	SOURCE	QUANTITY - TONS					
		AGGREGATE BASE COURSE CLASS 6		HOT BITUMINOUS PAVEMENT		PAVEMENT	
		FINAL	FINAL	FINAL	FINAL	FINAL	FINAL
163+26 to 177+00 (Approach to Project)	UNDESIGNATED	738	56	645	536		
177+00 to 217+42		8,650	405	3,113	2,628		
217+42 to 223+90		1,387	65	481	401		
223+90 to 234+60		1,145	107	754	629		
234+60 to 243+83.13		988	180	639	533		
223+ to 229+ (Front Road)		431	149		149		
185+ to 242+ (Bike Path)		458			*		
For Irregularities		2,337	2092	555			
From Structure Quantities		517					
PROJECT TOTALS		16,651	3,004	6,187	5,338	5,462	3,618.25

* 508 Tons Bituminous Bikeway
 It is estimated that 48 Tons of Hot Bituminous Pavement (Patching) will be required.

It is estimated that 10,587 Gals. of Liquid Asphaltic Material (MC-70) and 5068 Gals of Emulsified Asphalt (CSS-1) will be required for this project.

Note: Stabilization based on the following -

OVERLAY: 18" EDLA 140(20 Year)
 Deflection 1.58
 Critical Factor 1.5
 SN Avg. 1.21

WIDENING: 18" EDLA 140(20 Year)
 Regional Factor 0.75
 Serviceability Index 2.5
 Borrow R 50
 WSN (Borrow) 2.17

STRENGTH COEFFICIENTS:
 Hot Bit. Pymt. 0.44
 Base Course 0.12

FEDERAL ROAD DISTRICT NO.	VIII	DIVISION	COLORADO	PROJ. NO.	FCU 034-1(21)	SHEET NO.	11	TOTAL SHEETS	24
NO REVISIONS		AS CONSTRUCTED		REVISED	6-11-82	VOID			

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.
VIII	COLORADO	FCU 034-1(21)	12
NO REVISIONS <input type="checkbox"/> REVISED <input checked="" type="checkbox"/> 6/11/82 VOID <input type="checkbox"/>			
AS CONSTRUCTED			

—TABULATION OF CONCRETE SIDEWALK—

STATION TO STATION	SIDE	CONCRETE SIDEWALK	
		SQ. YD.	NO. SECTIONS (6")
185+63.70 TO 198+57.6	LT.	353	705
198+57.6 TO 195+42.5	LT.	200	5
195+42.5 TO 199+04.6	LT.	661	473
199+04.6 TO 207+30.4	LT.	314	268
207+30.4 TO 212+84.4	LT.	151	180
212+84.4 TO 215+88.84	LT.	305	136
215+88.84 TO 221+99.70	LT.	59	49
221+99.70 TO 222+90.85	LT.	27	86
222+90.85 TO 224+54.5	LT.	29	0
224+54.5 TO 225+41.19	LT.	6	7
225+41.19 TO 225+97.94	LT.	30	24
225+97.94 TO 227+52	LT.	107	70
227+52 TO 228+44	LT.	55	85
228+44 TO 229+35.34	LT.	282	256
229+35.34 TO 234+60	LT.	164	153
234+60 TO 237+90.87	LT.	37	35
237+90.87 TO 238+79.73	LT.	6	5
238+79.73 TO 239+21.14	LT.	17	3
239+21.14 TO 239+99.59	LT.	17	48
239+99.59 TO 240+55.60	LT.	54	130
240+55.60 TO 243+55	LT.	87	0
243+55 TO 247+55	RT.	6	0
* 185+05	RT.	4.5	0
* 198+56.5	RT.	4.5	0
* 199+00	RT.	4.5	0
* 200+25.5	RT.	6.5	0
* 200+70	RT.	6.5	0
* 200+81.5	RT.	6.5	0
* 201+25	RT.	6.5	0
* 207+00	RT.	9	0
* 207+94.5	RT.	9	0
* 216+50	RT.	9	0
* 217+29.5	RT.	9	0
229+70	LT.	20	8
234+60	LT.	7	5
234+95	LT.	7	5
237+90	LT.	29	29
243+	LT.		
PROJECT TOTALS		3036	2920

* HANDICAP RAMPS ON BIKE PATH

—CONCRETE PAVEMENT—

STATION	SIDE	DRIVEWAY (6") & SIDEWALK TRANS.		CROSSSPAN SECTIONS (6")
		SQ. YD.	NO. SECTIONS	
191+30	LT.	26	20	
198+25	LT.	26	20	
195+36	LT.	26	12	
195+36 TO 198+81	LT.	18	20	
198+81 TO 212+41.5	LT.	13	23	
212+41.5 TO 213+00	LT.	—	19	
213+00 TO 216+00	LT.	21	19	
216+00 TO 219+03	LT.	21	20	
219+03 TO 221+80.79	LT.	24	11	
221+80.79 TO 223+80.85	LT.	24	11	
223+80.85 TO 224+30.91	LT.	18	11	
224+30.91 TO 225+27.70	LT.	18	11	
225+27.70 TO 226+18.17	LT.	18	11	
226+18.17 TO 227+72	LT.	18	13	
227+72 TO 228+55	LT.	18	24	
228+55 TO 229+15	LT.	18	11	
229+15 TO 238+95.89	LT.	26	19	
238+95.89 TO 239+45.35	LT.	18	50	
239+45.35 TO 240+15	LT.	23	6	
240+15 TO 242+07	RT.	—	6	
242+07 TO 198+85	RT.	—	6	
198+85 TO 200+55	RT.	—	6	
200+55 TO 201+10	RT.	7	6	
201+10 TO 234+81	LT.	—	6	
—		319	381	24
PROJECT TOTALS				0

— MEDIAN COVER MATERIAL & SOIL STERILIZATION

STATION TO STATION	COVER SFTONS	MEDIAN COVER MATERIAL	SOIL STERILIZATION	
			SQ. YDS.	NO. SECTIONS
219+42 TO 222+52	74	1,135		
222+52 TO 229+00	229	1,653		
229+00 TO 237+69	241	731		
237+69 TO 237+69	261		911	
237+69 TO 243+17	67		344	
243+17 TO 229+14 (FR. RD)	69		107	
229+14 TO 229+14	22			
207+ (ISLANDS)				
235+ TO 237+		725		
238+ TO 343+		1,414		
PROJECT TOTALS	963	6,258	1,362	0

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TABULATION OF CURB & GUTTER

Altd by MCR #1769 L. 10.14

Page # 46 of 85 # 29

STATION TO STATION	SIDE	CURB & GUTTER		CURB		GUTTER		CURB				
		TYPE 2 SECTION I B		TYPE 2 SECTION B		TYPE 2 (W=6')						
		LINEAR FEET	PLAN	LINEAR FEET	PLAN	LINEAR FEET	PLAN					
183+70 to 184+45	Lt	118	119									
185+15 to 207+30*	Lt	2320	2339									
207+78* to 222+90*	Lt	1602	1577									
223+30 to 229+35	Fr. Rd.	628	628									
229+70* to 234+60	Lt	550	549									
234+95 to 237+90	Lt	344	384									
238+25* to 240+65	Lt	266	274									
241+05* to 243+55	Lt	265	272									
177+00* to 177+70*	Rt	117	88									
178+00* to 184+20	Rt	699	700									
184+80 to 198+65	Rt	1,424	1,664									
198+98 to 200+35	Rt	153										
200+65 to 200+90	Rt	30										
201+25 to 207+30*	Rt	631	620									
207+80* to 216+76	Rt	930	862									
216+75 to 225+52	Median	693		1,166								
216+55 to 224+06	Rt		864									
222+42 to 222+52	Median			1,032								
223+44 to 229+00	Median			1,124	1,112							
229+96 to 237+69.71	Median			1,560	1,553							
238+42 to 243+17	Median			960	950							
223+51 to 229+14	Fr. Rd. Med	1,140	1,192									
234+65 to 234+60.54	Bank Lot			464	484							
237+69 to 235+40	Bank Lot			300	254							
237+95 to 237+50*	Lt											
184+ to 198+85 (Rd. Appr.)	Rt.							280				
184+ to 200+55 (Rd. Appr.)	Rt.							317				
201+10 (Rd. Appr.)	Rt.							29				
229+14 (Rd. Appr.)	Lt.							28				
240+75 (Rd. Appr.)	Lt.							39				
207+ (Islands)	Lt.	215	165					184				
185+ to 182+	Rt.							320				
PROJECT TOTALS		215	1,908	12,132	4,676	4,781	764	738	124	96	184	1101

* Connect to existing Curb and Gutter

SCHEDULE OF CONSTRUCTION TRAFFIC SIGNS

SIGN CODE	LEGEND	DIMENSIONS	PANEL SIZE		OTHER	266 #
			A	B		
XW 20-1	ROAD/CONST (DIST)	48" x 48"	10	6		11, 46 & 117
XW 20-7a	FLAGGER SYMBOL	48" x 48"	4	4		11, 46 & 117
IW 4-2(R)	LANE TRANSITION - RT.	48" x 48"	4	4		11, 46 & 117
IW 4-2(L)	LANE TRANSITION - LT.	48" x 48"	4	4		11, 46 & 117
XW 20-5(-)	LANE/CLOSED (DIST)	48" x 48"	4	4		11, 46 & 117
BE/PREPARED TO STOP		36" x 36"	2	2		11, 117
BARRICADE			20	10		46, 117
SW 20-1	ROAD/CONST. / AHEAD	36" x 36"	6	6		11, 46, 117
G-20-2	END/CONST.	48" x 48"	2	2		11, 117
G-20-1	ROAD/CONST/NEXT MI	48" x 48"	2	2		11, 117
VERTICAL PANEL			80	126		11, 46, 53, 117
TRAFFIC CONE		28"	120	120		11, 46, 117
PROJECT TOTALS			28	18	26	26

θ All W20-5 Advance Warning Signs to be Furnished with interchangeable Plaques Reading "Right" & "Left" at no Additional Expense.

REMOVAL OF CURB & GUTTER

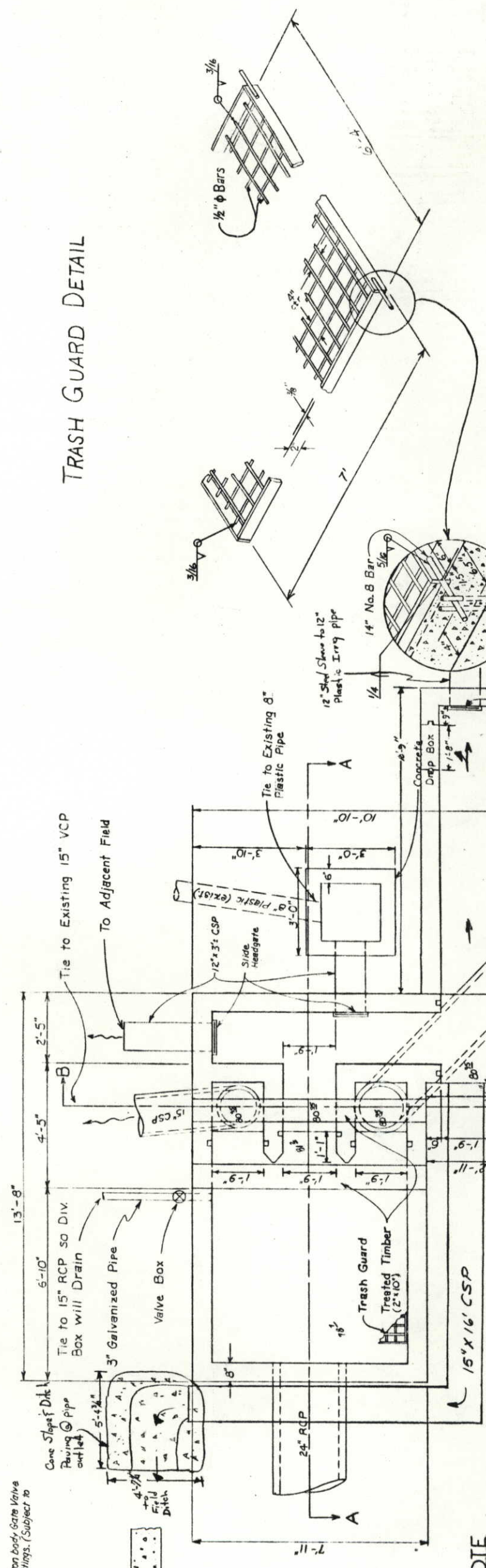
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STATION	SIDE	REMOVAL OF CURB		REMOVAL OF CURB & GUTTER		REMARKS	266 #
		LINEAR FEET	PLAN	LINEAR FEET	PLAN		
215+80 to 215+30	Lt			22	23	E Side 30th Ave	44
215+80 to 216-08	Rt			4	4	W Side 37th Ave. Ct.	68
229+38 to 230-00	Lt			15	15	W Side 37th Ave. Ct.	44
235+10 to 235+48	Rt	40		18	18	E Side 37th Ave. Ct.	44
223+80 to 224+00	Rt			20	20	Planter in Parking Lot	44
235+14 to 237+78	Lt	264		273	273		5
237+80 to 216+	Lt			12	13	Planter in E. Side of Park Lot	5
237+86	Lt			40	48	40th St. S. Side 216+	54
238+25 to 238+95	Lt			30	40	W. Side 36th Ave	3
240+60	Lt			32	30	E Side 36th Ave.	3
241+05	Lt			41	43	Car Wash	84
243+33	Lt			25	30	W. Side 35th Ave. Ct.	3
PROJECT TOTALS		316	0	206	693		44

FEDERAL ROAD DISTRICT NO.	VIII	DIVISION	COLORADO	PROJ. NO.	FCU 034-1(21)	SHEET NO.	14	TOTAL SHEETS	24
NO REVISIONS <input type="checkbox"/> REVISED <input checked="" type="checkbox"/> 11 82 VOID <input type="checkbox"/>									
AS CONSTRUCTED									

DIVISION BOX DETAIL
 Lt. Sta. 214 + 17

PLAN VIEW



TRASH GUARD DETAIL

VALVE BOX DETAIL

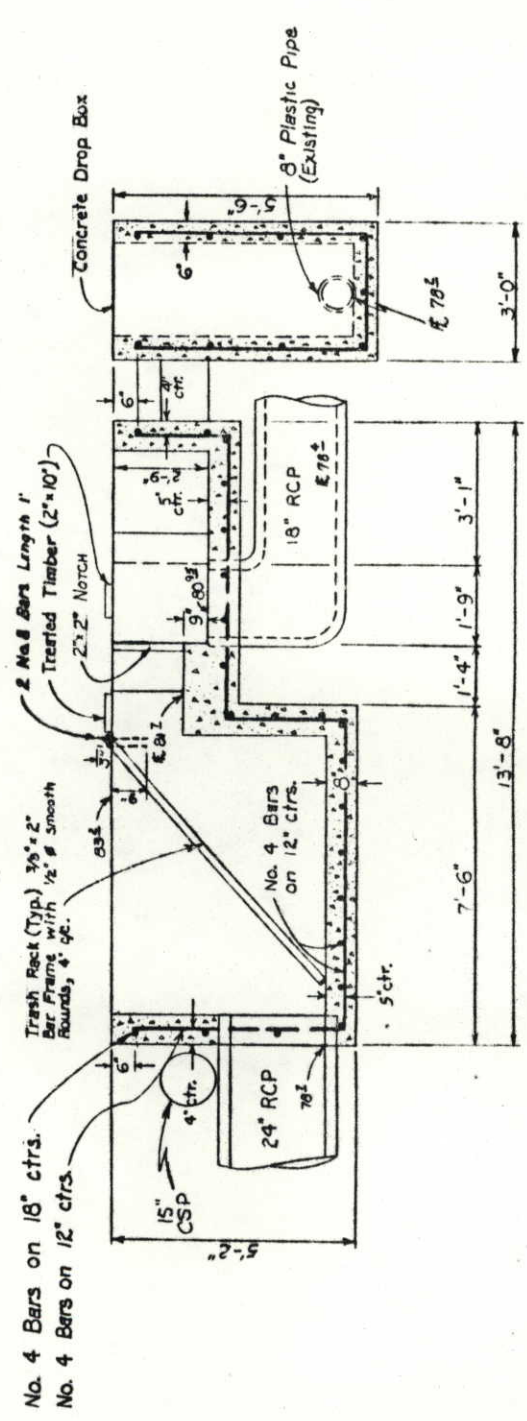
NOTE

All exposed corners on concrete shall be chamfered 3/4\"/>

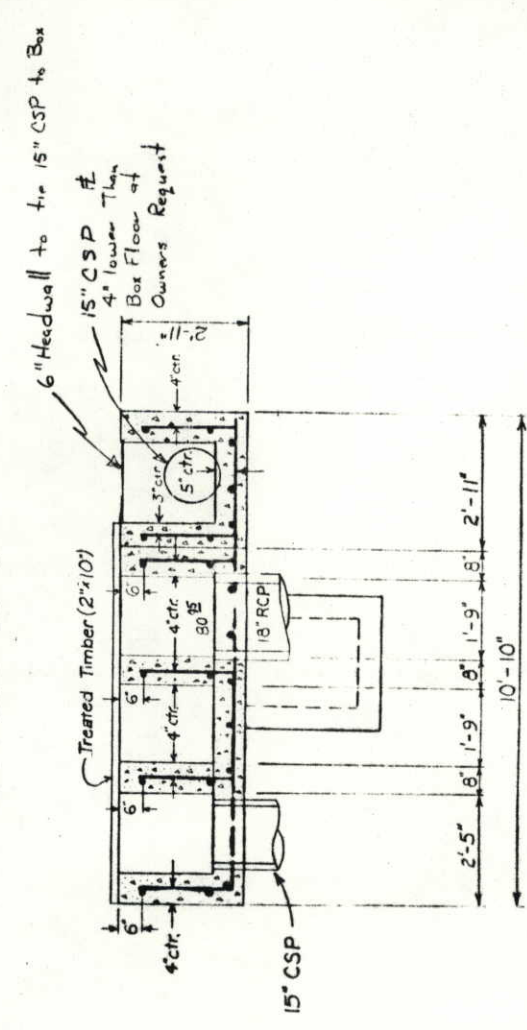
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NOTE: It is Estimated that 264 lbs of Steel will be required for the Trash Guard

SECTION A-A



SECTION B-B



TRAFFIC SIGNAL PLAN

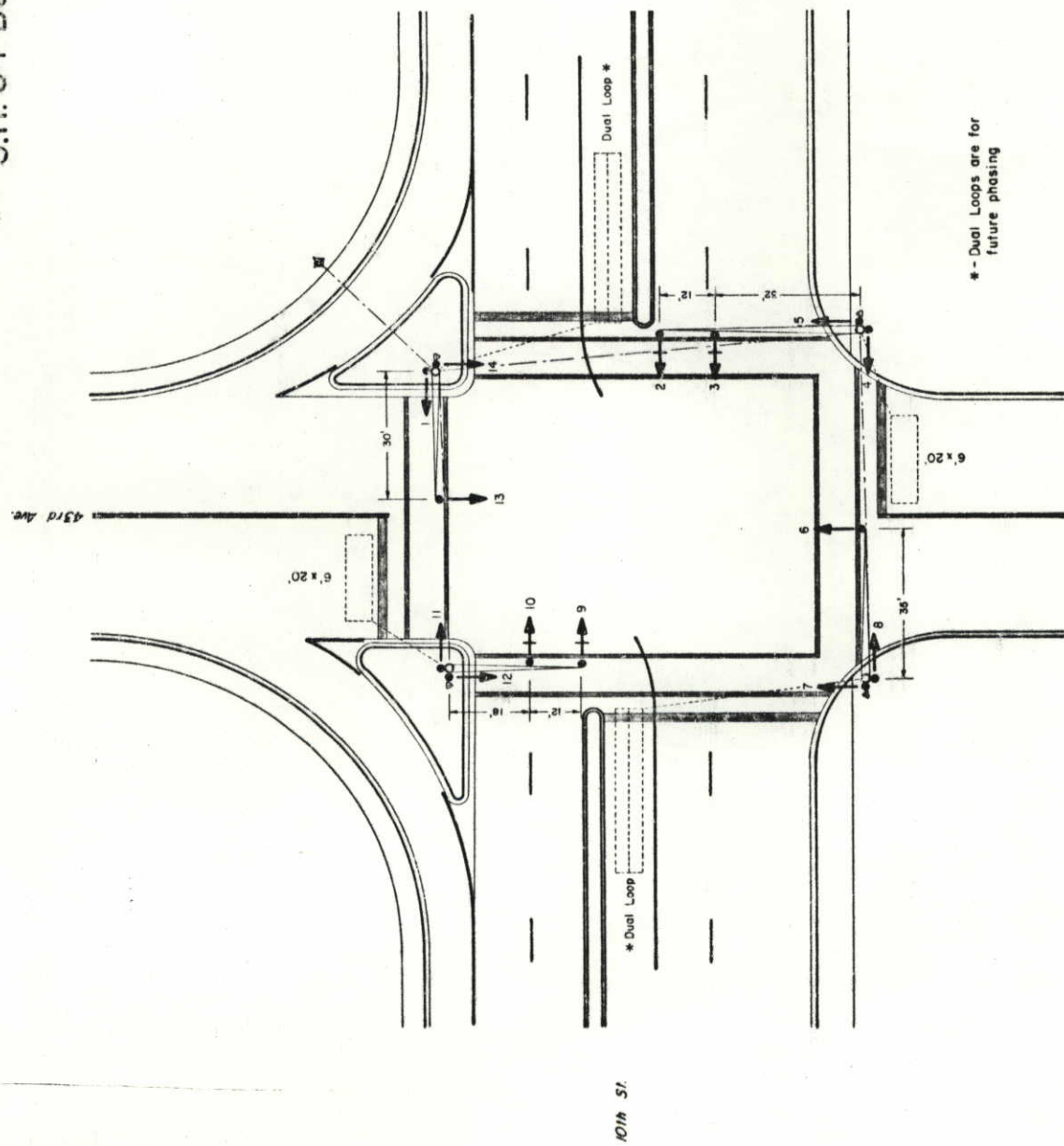
S.H. 34 Bus. (10th St.) & 43rd Ave.

- Greeley -

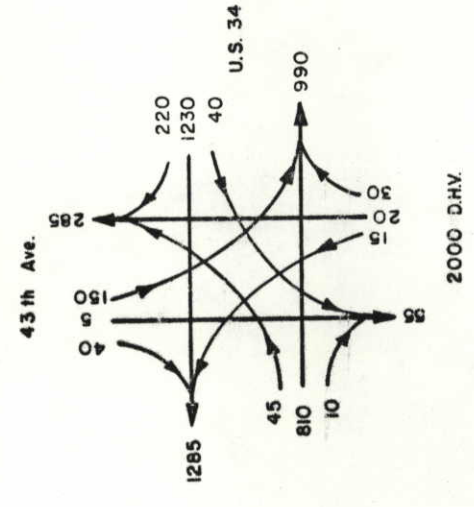
SECTION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XXXI	COLORADO	FCU 034-1(21)	15	24
NO REVISIONS <input type="checkbox"/> AS CONSTRUCTED				
NO REVISIONS <input type="checkbox"/> REVISED <input checked="" type="checkbox"/> G-11-92 VOID				

NOTES

1. Traffic signal interval time settings shall be made by thumb wheel switches only.
2. The controller shall include 4 pedestrian push buttons.
3. No sectional poles will be allowed.



43rd AVE. TURNING MOVEMENTS

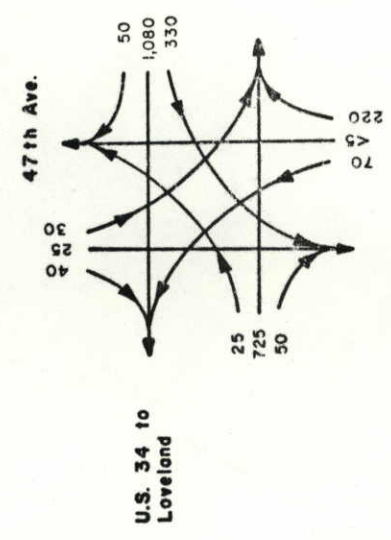


LIST OF MATERIALS

ITEM NO.	ITEM	UNIT	QUANTITY	266#
202	REM TRAF SIG FACE	EACH	8	53
202	REM TRAF SIG POLE	EACH	2	53
202	REN TRAF SIG CONTROL & CAB	EACH	1	53
210	RES TRAF SIG FACE	EACH	6	47
210	RES TRAF SIG POLE	EACH	3	47
613	2 IN ELEC CONDUIT	LIN. FT.	751,666	27,29,30,42,43
614	3 IN ELEC CONDUIT	LIN. FT.	336,290	25,27,29,34,42,48
614	TRAF SIG (8-8-8)	EACH	8	54
614	TRAF SIG (12-8-8)	EACH	6	54
614	TRAF SIG CONTROL CABINET	EACH	1	51
614	LOOP DETECTOR WIRE	LIN. FT.	122,506	104
614	DETECTOR AMP (LOOP)	EACH	1	103
614	SIG POLE S (1)	EACH	4	37,54
614	CONTROLLER (S-S) (S-A) (2)	EACH	1	54
FA04	FORCE ACCOUNT Furnish and install electrical service connections from power source to controller.	F.A.	1	

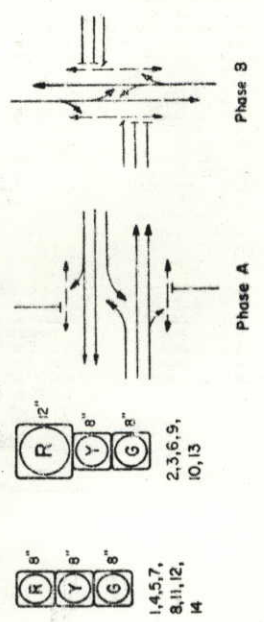
Book #1 Page #65

47th AVE. TURNING MOVEMENTS



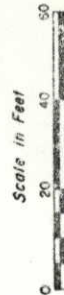
2000 D.H.V.

SIGNAL FACES SIGNAL PHASING



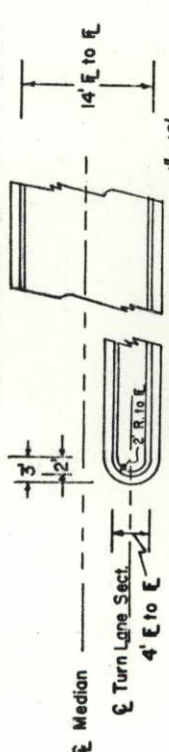
LEGEND

- Traffic Signal Pole with Mast Arm
- Traffic Signal Span Wire Pole
- Pedestal Pole
- Traffic Signal Face
- Traffic Signal Face with Backplate
- Pedestrian Signal Face
- Controller and Cabinet
- Electrical Conduit and Pull Box
- Vehicle Loop Detector
- Pedestrian Push Button
- Luminaire



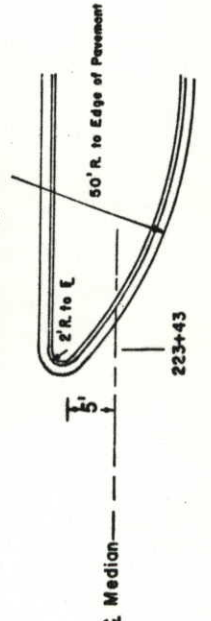
EXISTING CONDITIONS

**DETAIL CURB & GUTTER—
MEDIAN NOSE ENDS**

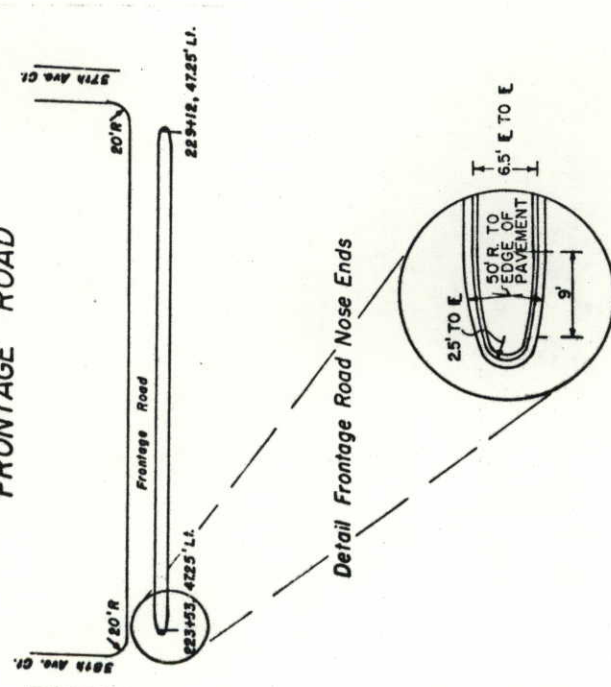


CURB & GUTTER RADIUS POINTS FOR MEDIAN NOSE ENDS	
217+44, 5' Rt.	229+98, 5' Rt.
222+50, 5' Lt.	237+67, 5' Lt.
223+43, 5' Lt.*	238+47, 5' Rt.
228+98, 5' Lt.	243+15, 5' Lt.

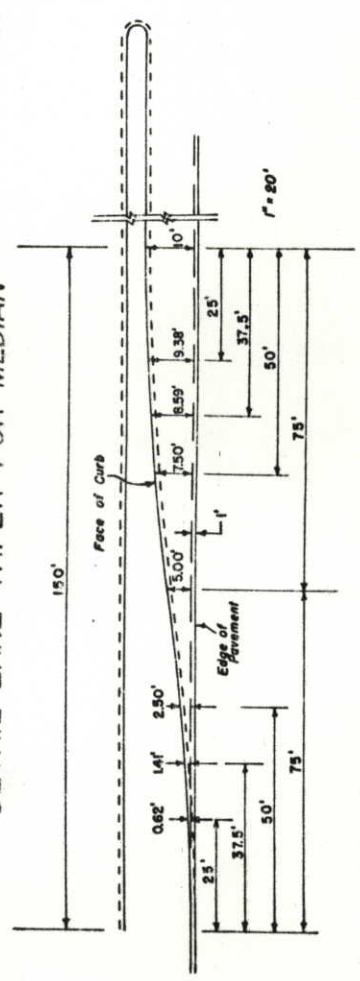
*Detail Sta. 223+43, 5' Lt.



**DETAIL CURB & GUTTER—
FRONTAGE ROAD**



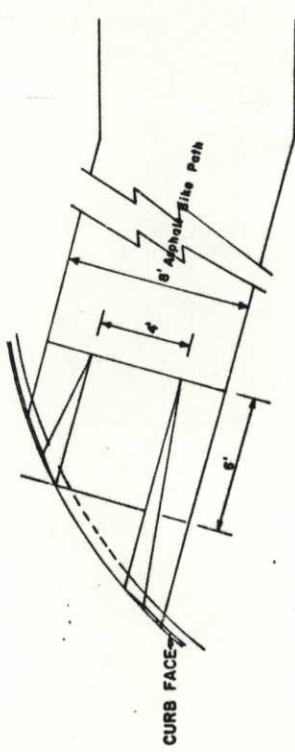
DETAIL LANE TAPER FOR MEDIAN



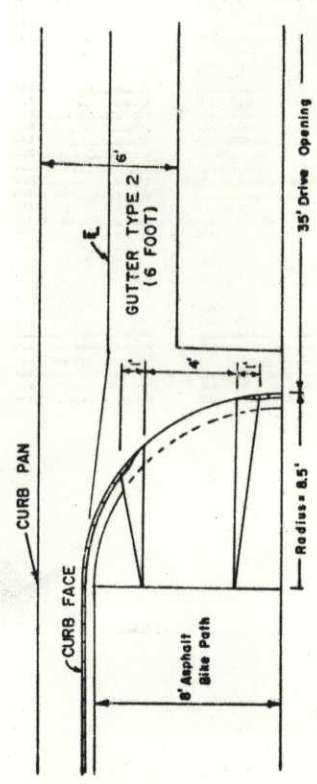
Offsets are measured from a Base Line parallel to the Edge of Pavement to the Face of Curb.

**DETAIL CURB RAMPS—
FOR THE HANDICAPPED ALONG BICYCLE PATH**

STA. 198+ Rt.
 STA. 200+ Rt.
 STA. 201+ Rt.

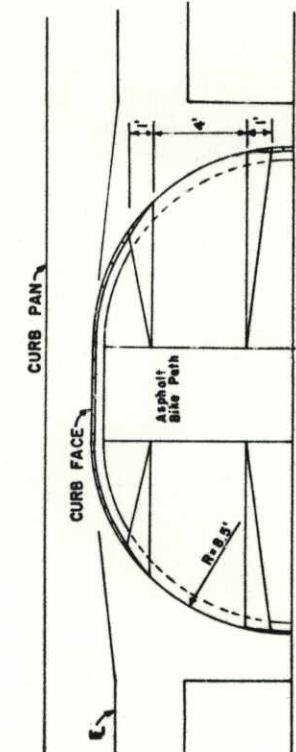


STA. 185+ Rt.

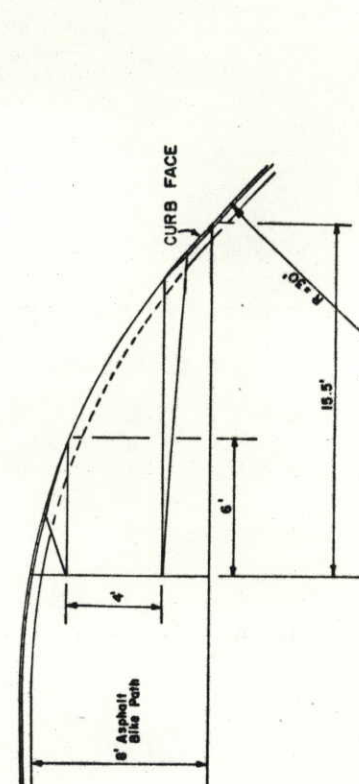


Cost of Ramp Will Be Included In Bid Price of Concrete Sidewalk. May Be Poured Monolithically.

STA. 200+ Rt



STA. 207+ Rt.
 STA. 216+ Rt.
 STA. 217+ Rt.



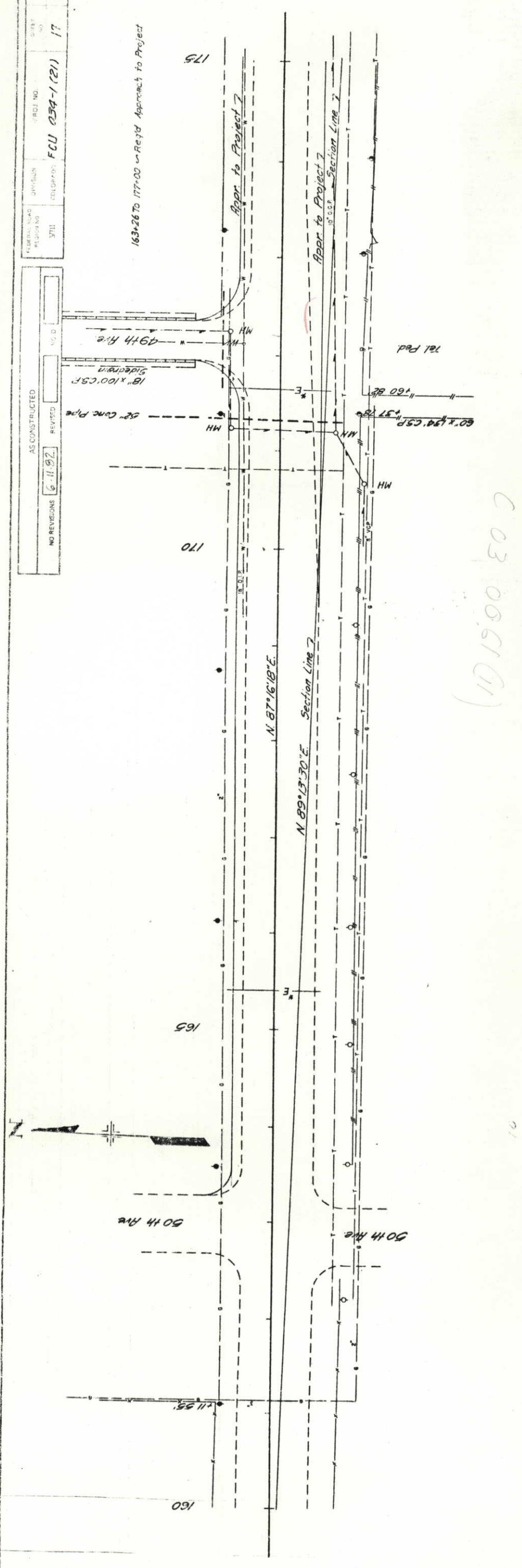
DATE	
BY	
CHECKED	
APPROVED	
DESIGNED	
BY	
DATE	

NO.	
DATE	
BY	
CHECKED	
APPROVED	
DESIGNED	
BY	
DATE	

NO REVISIONS	6-11-92
AS CONSTRUCTED	
REVISED	
BY	
DATE	

FEDERAL ROAD DISTRICT	VIETNAM
PROJECT NO.	FCU 034-1(21)
DATE	17
SCALE	2A

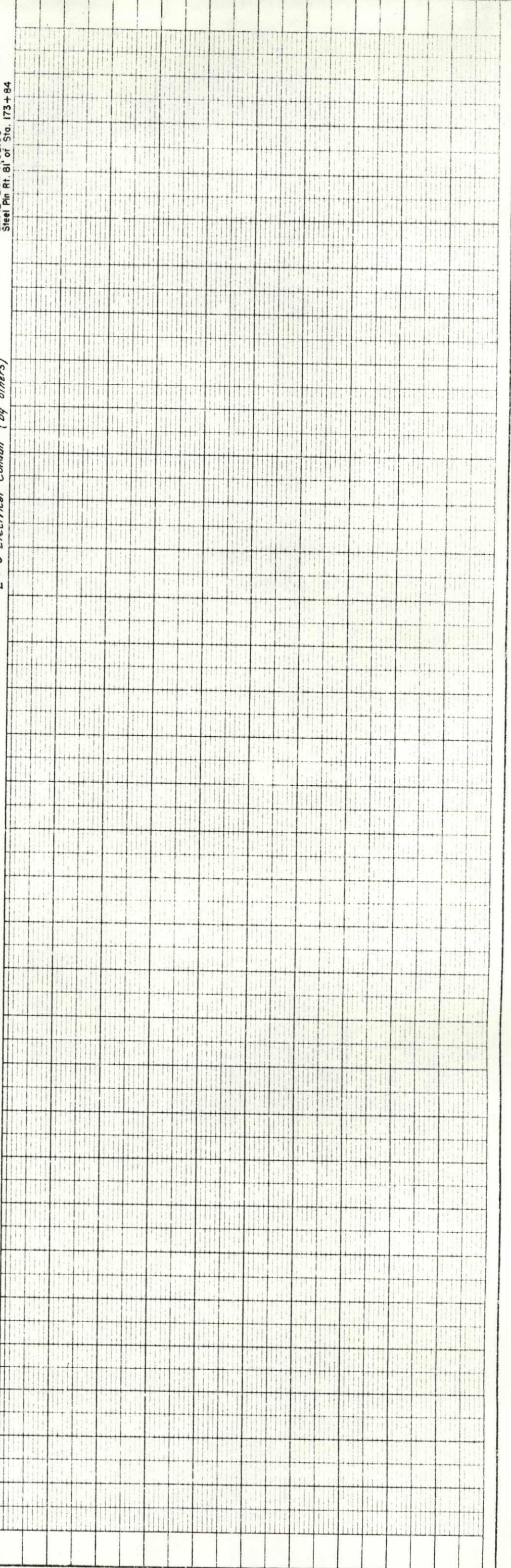
163+26 TO 177+00 - Revid Approach to Project

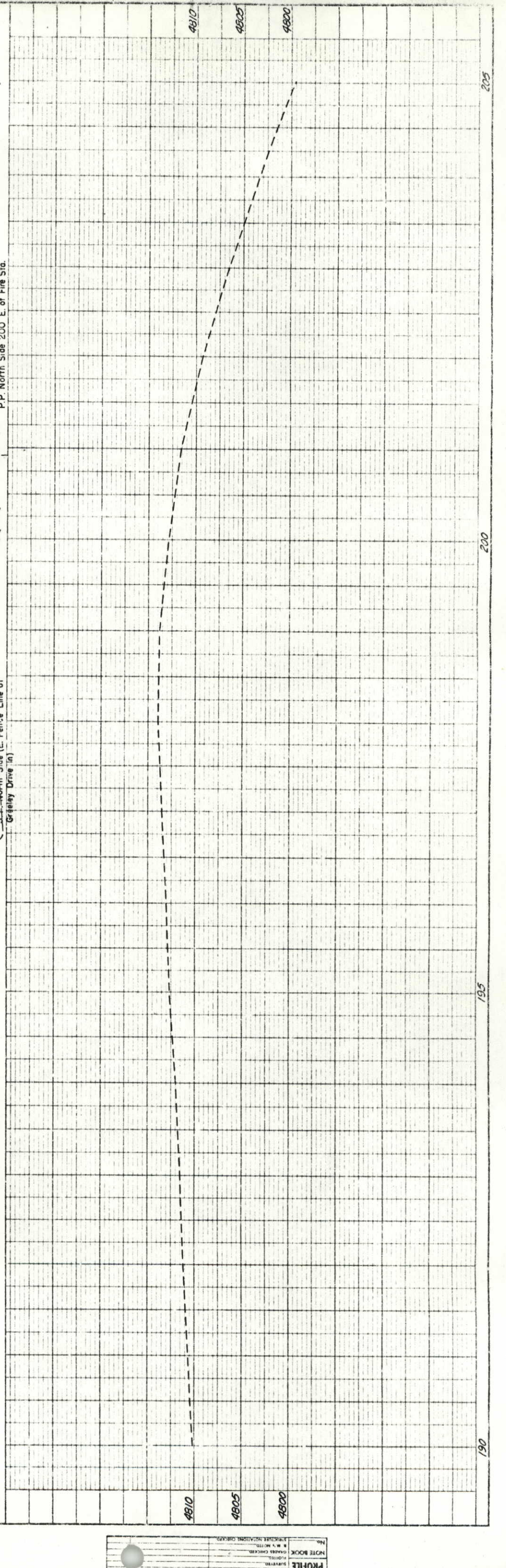
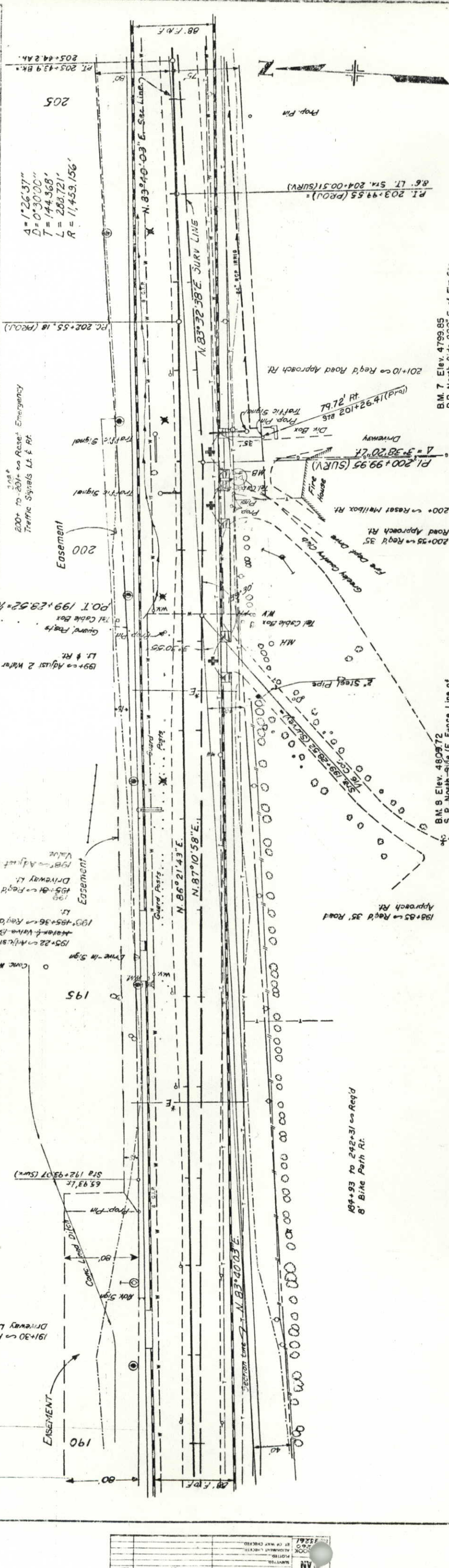


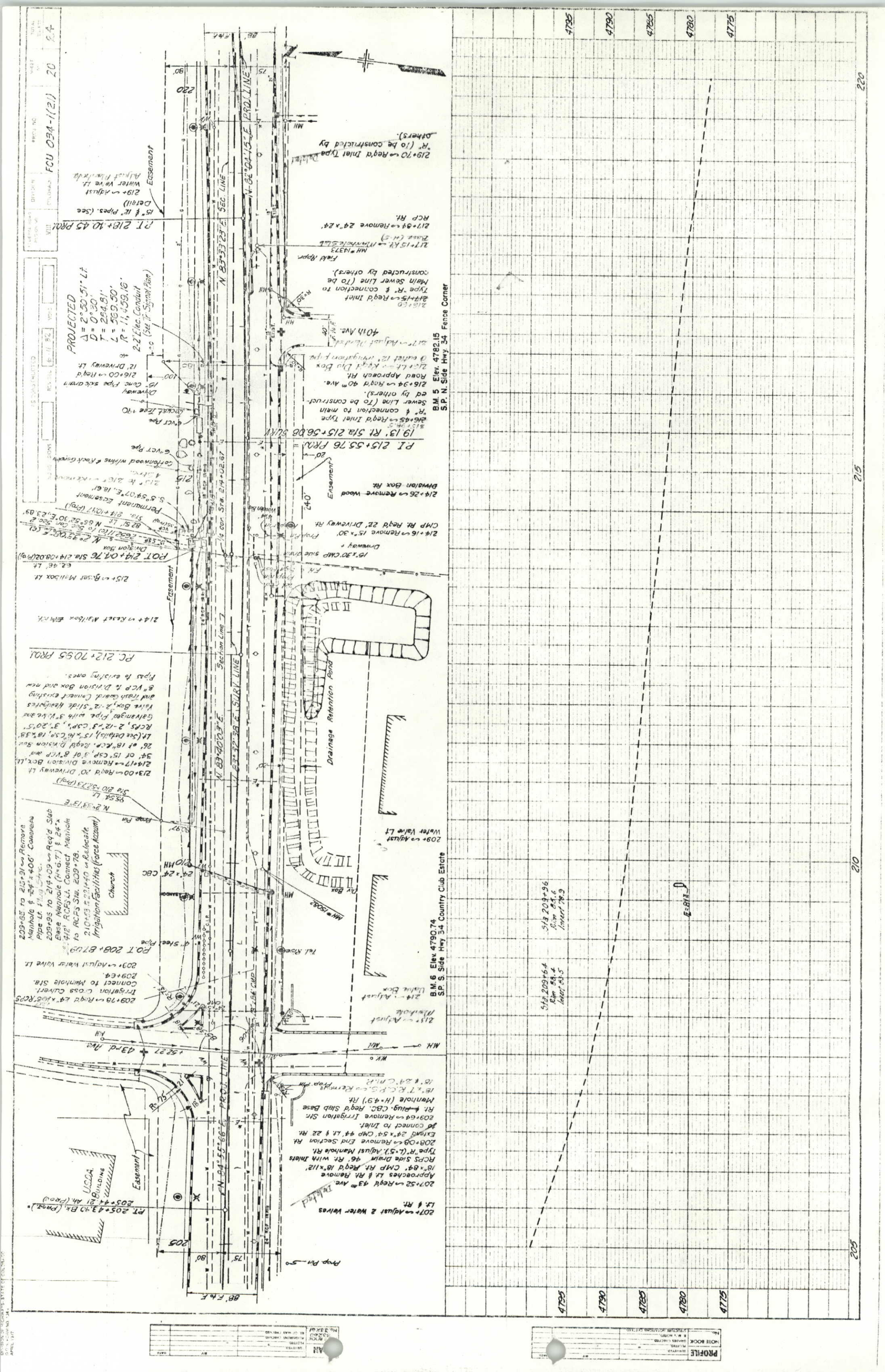
(101500507)

*E - 3" Electrical Conduit (by others)

BM. 12 Elev. 4792.65
Steel Pin Rt. Bl. of Sta. 173+84







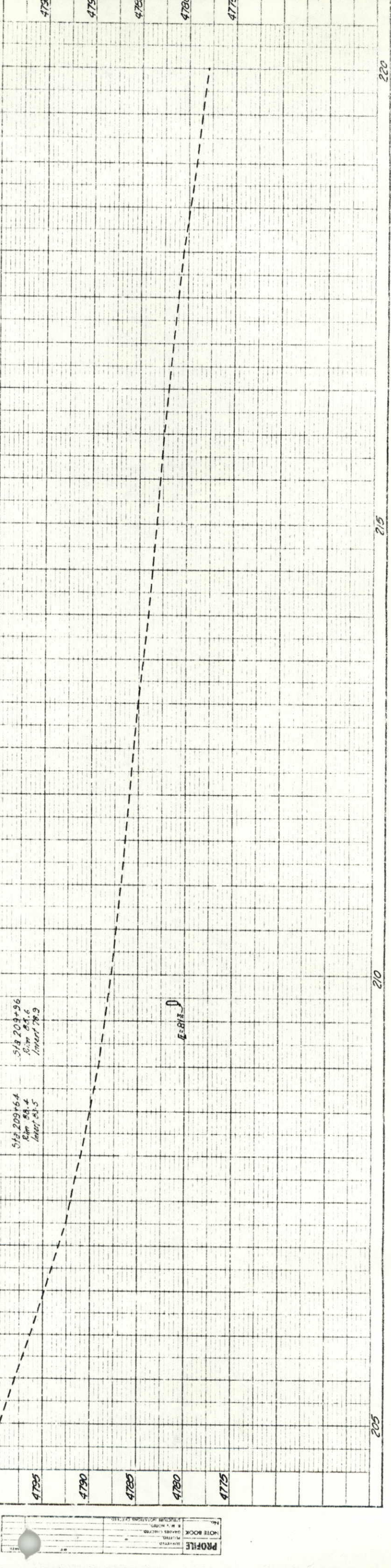
PROJECTED
 $\Delta = 2^{\circ}50'51''$ LT
 $D = 0^{\circ}30'$
 $T = 294.81'$
 $L = 569.50'$
 $R = 11,459.16'$
 2-2" Lic. Conduit
 (See "Signal Plan")

209+65 to 210+91 Remove
 Manhole & 24" x 40" Concrete
 Pipe Lt. Plug Struc.
 209+95 to 214+09 Reg'd Slab
 Base Manhole (4'6.7') & 24" x
 412" RCPs Lt. Connect Manhole
 to RCPs Str. 209+78.
 210+53 to 214+10 Relocate
 Irrigation Facilities (Force Account)

207+52 Reg'd 43" Ave.
 Approaches Lt & Rt Remove
 18" x 84" CMP Rt. Reg'd 18" x 112"
 RCPs Side Drain 46" Rt. with Inlets
 Type "R" (L-5). Adjust Manhole Rt.
 208+09 Remove End Section Rt.
 Extend 24" x 54" CMP 44" Lt & 22" Rt.
 209+64 Remove Irrigation Str.
 Rt. Plug. CBC. Reg'd Slab Base
 Manhole (H=4.9') Rt.
 18" x 72" R.C.P.S. Remove Top Mn.
 18" x 24" C.M.P.

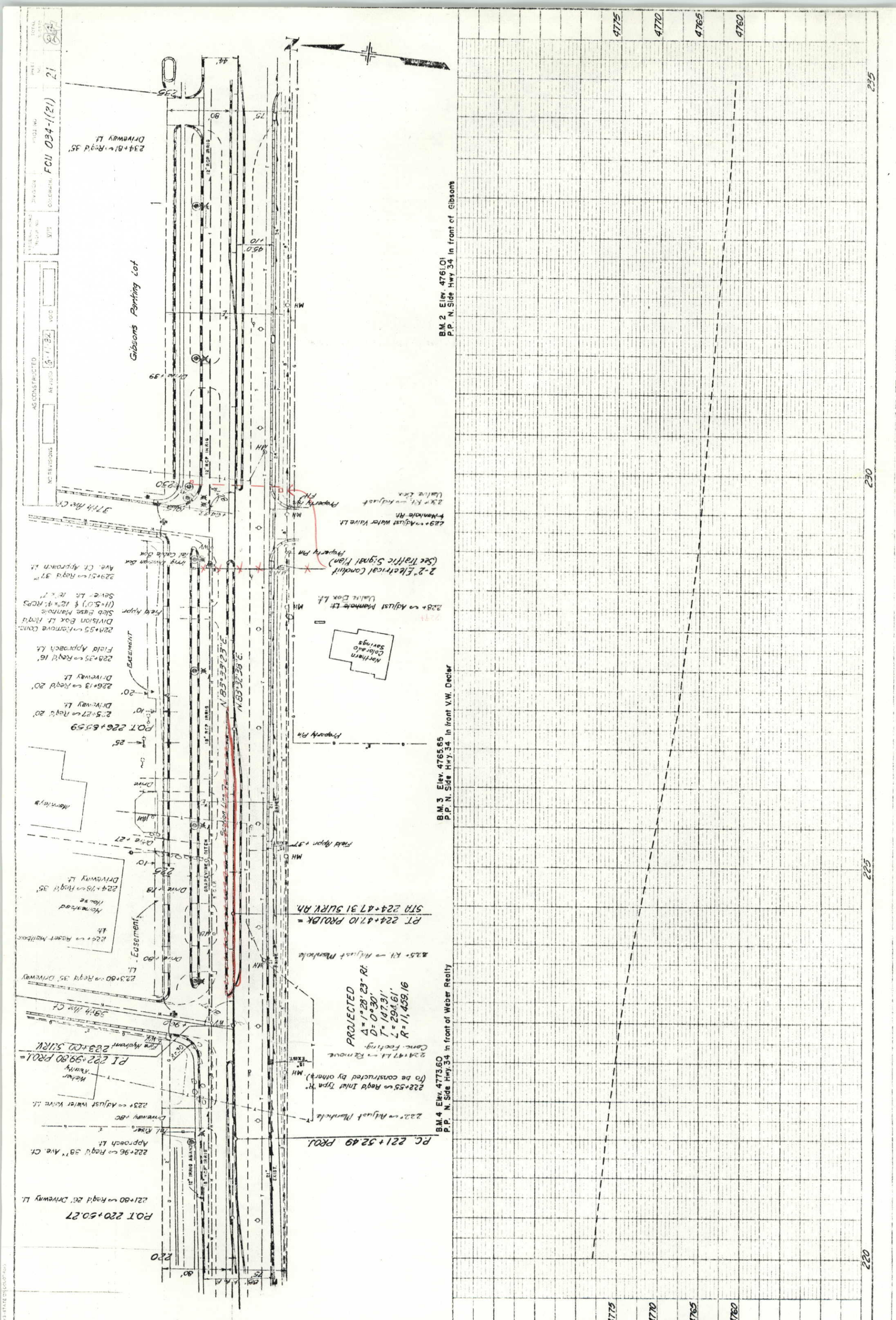
207+52 Reg'd 43" Ave.
 Approaches Lt & Rt Remove
 18" x 84" CMP Rt. Reg'd 18" x 112"
 RCPs Side Drain 46" Rt. with Inlets
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 Manhole (H=4.9') Rt.
 18" x 72" R.C.P.S. Remove Top Mn.
 18" x 24" C.M.P.



4795
 4790
 4785
 4780
 4775

PROFILE
 DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 APPROVED BY: _____



PROJECT NO. FCU 034-1(21)
 SHEET NO. 21
 DATE: 5.1.34
 AS CONSTRUCTED
 NO REVISIONS

TOTAL STATIONING: 235
 TOTAL AREA: 1.34
 NO REVISIONS

DIVISION OF HIGHWAYS STATE OF COLORADO
 DATE: 1934

B.M. 2 Elev. 4761.01
 P.P. N. Side Hwy 34 in front of Gibsons

B.M. 3 Elev. 4765.65
 P.P. N. Side Hwy. 34 in front V.W. Decker

B.M. 4 Elev. 4773.60
 P.P. N. Side Hwy. 34 in front of Weber Realty

PROJECTED
 $\Delta = 1^{\circ}28'23" R$
 $D = 0^{\circ}30'$
 $T = 147.31'$
 $L = 294.61'$
 $R = 11,459.16'$

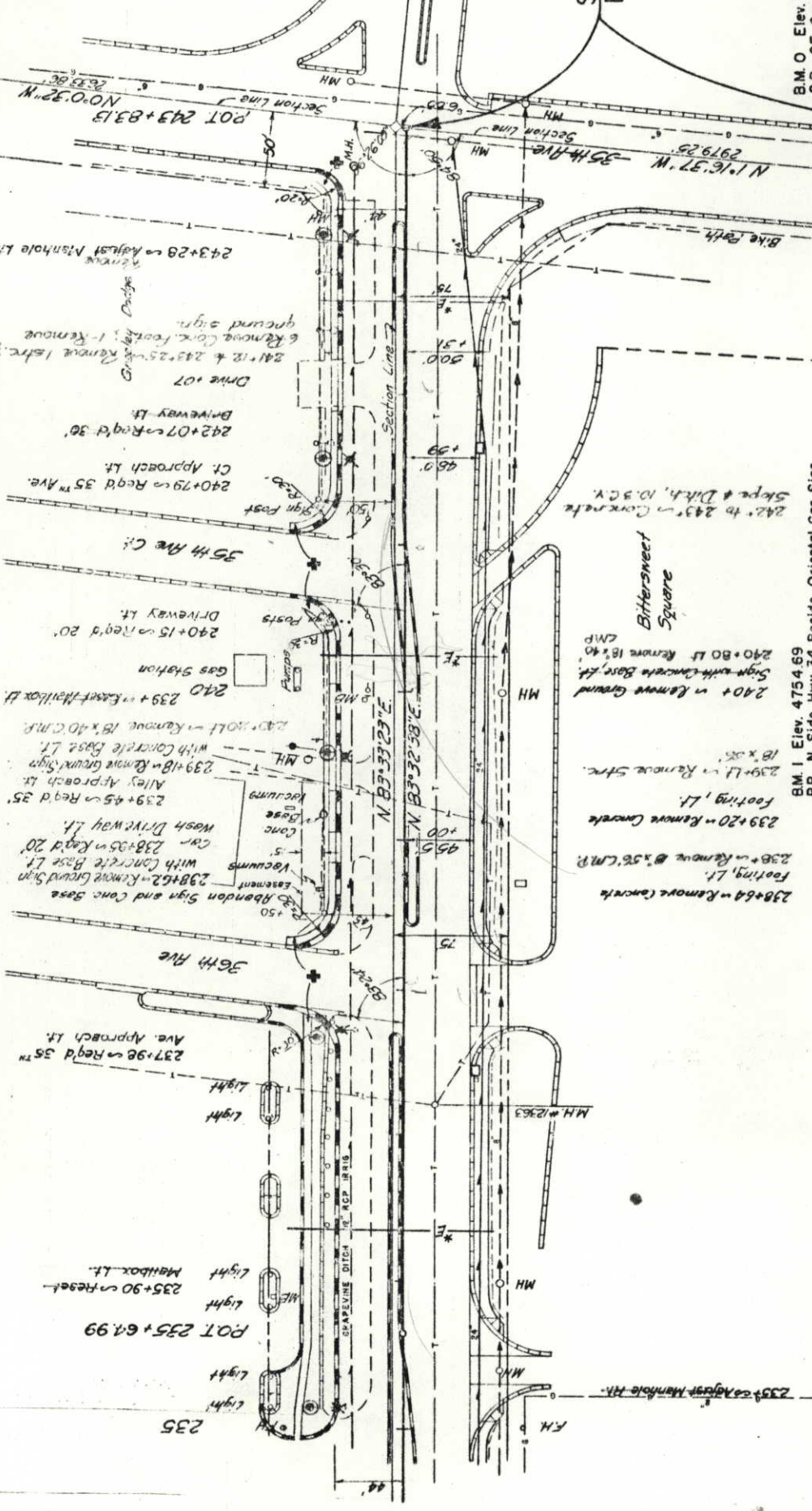
4775
4770
4765
4760

4775
4770
4765
4760

235
230
225
220

DATE	BY	CHECKED	APPROVED

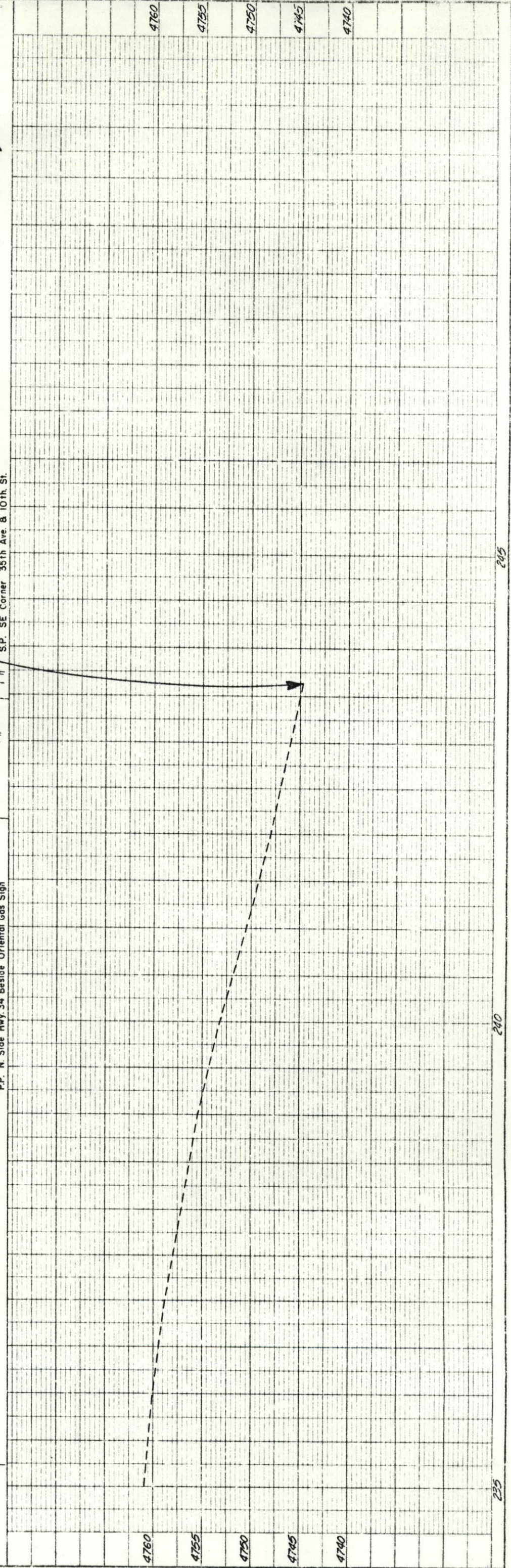
AS CONSTRUCTED
NO REVISIONS
REVISED 11/82
VIII
DIVISION
COLORADO
PROJECT NO.
FCU 034-1(21)
SHEET
22
TOTAL SHEETS
24



STA. 243+83.13
END FCU 034-1(21)

B.M. O Elev. 4743.31
S.P. SE Corner 35th Ave. & 10th St.

BM I Elev. 4754.69
P.P. N. Side Hwy. 34 Beside Oriental Gas Sign



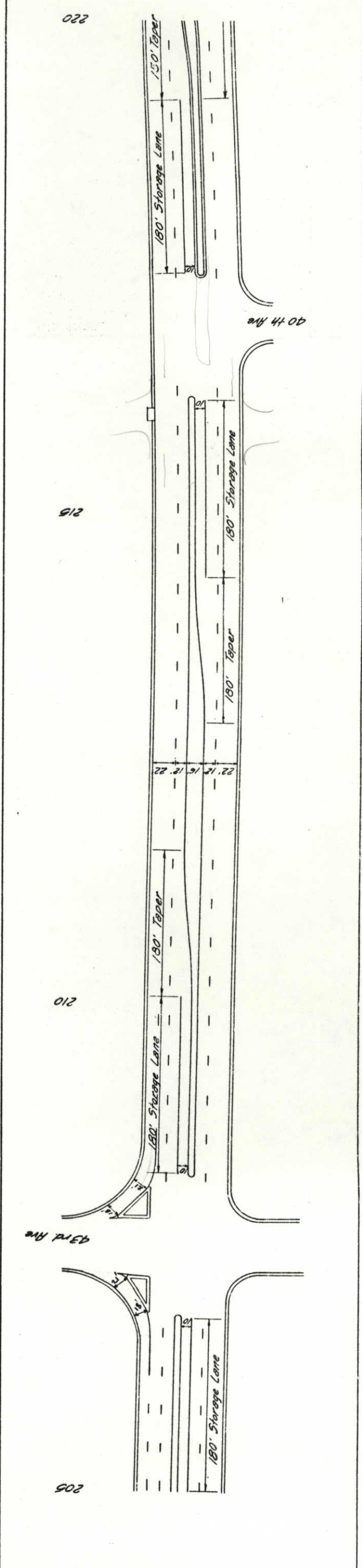
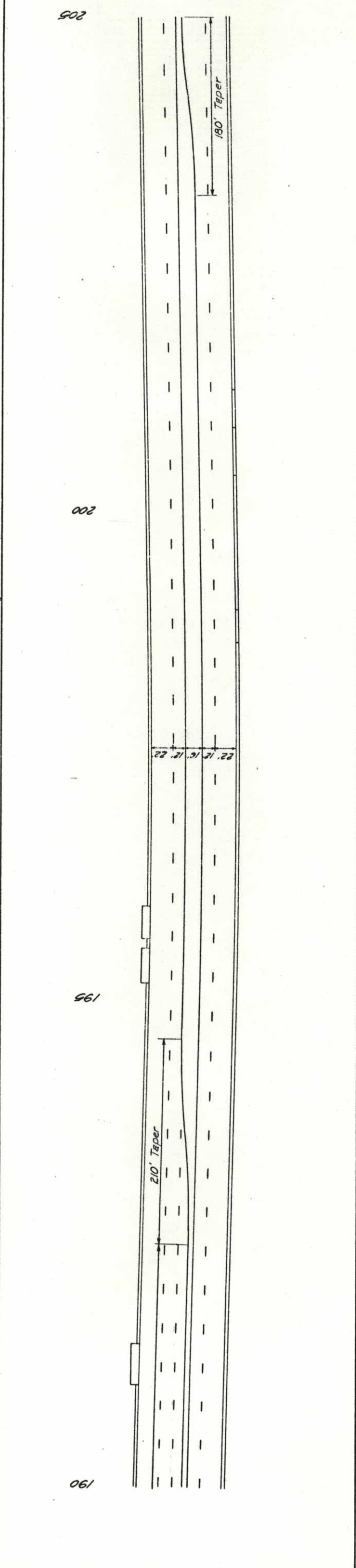
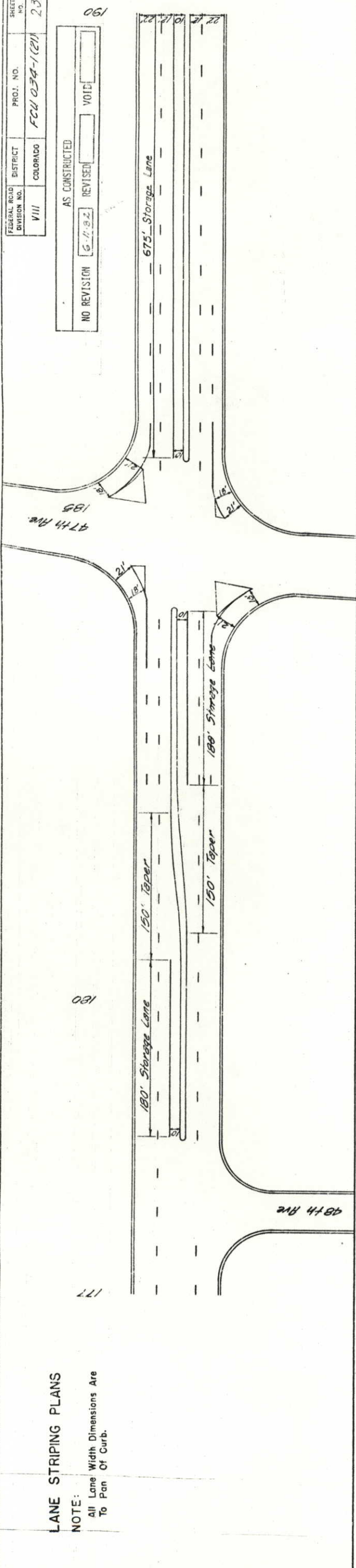
NO. 33261
33260
ALIGNMENT CHECKED
BY
DATE

PROFILE
DRAWN
CHECKED
DATE
NO. 33261

FEDERAL ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	FCU 034-1(21)	23	24

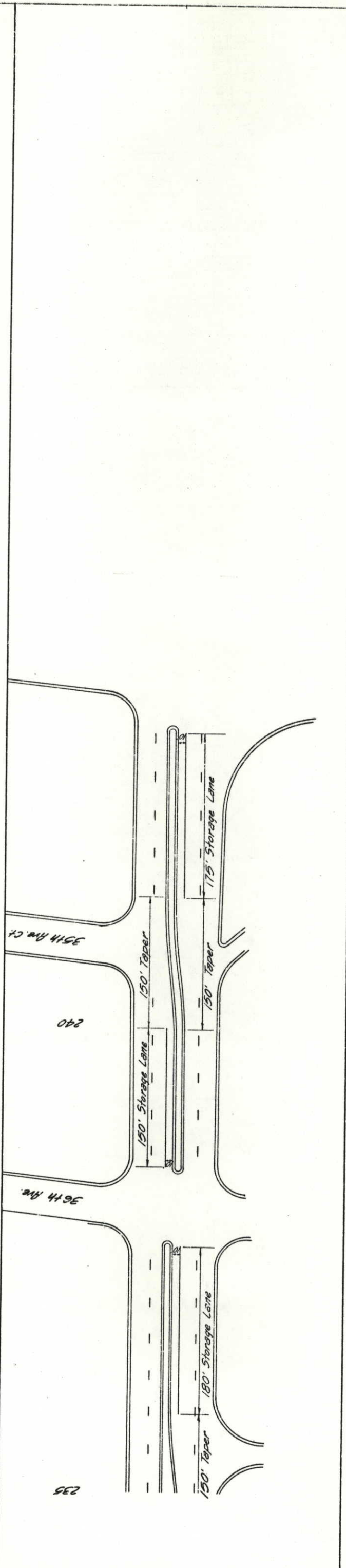
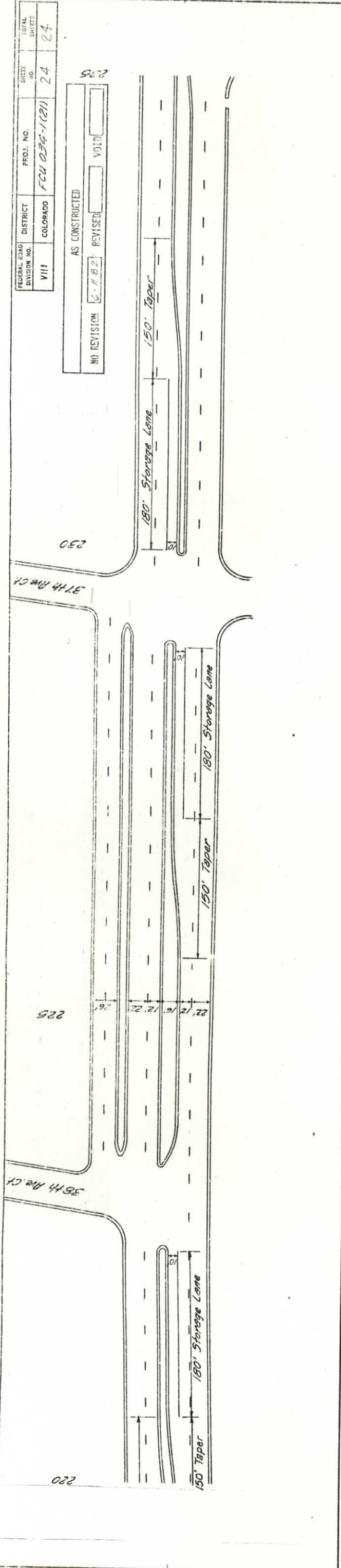
NO REVISION 5-11-32
 AS CONSTRUCTED REVISED VOIC

LANE STRIPING PLANS
 NOTE:
 All Lane Width Dimensions Are To Pan Of Curb.



FEDERAL ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	FCU 034-1(21)	24	24

NO REVISION # 82
 AS CONSTRUCTED VOID



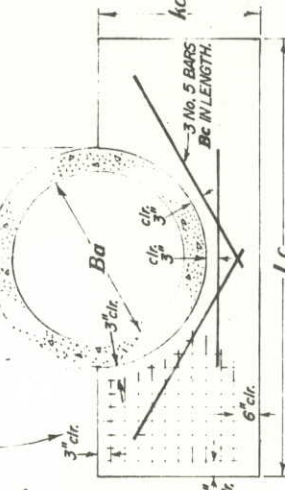
STANDARD M-601-KB

(OCTOBER 28, 1980)

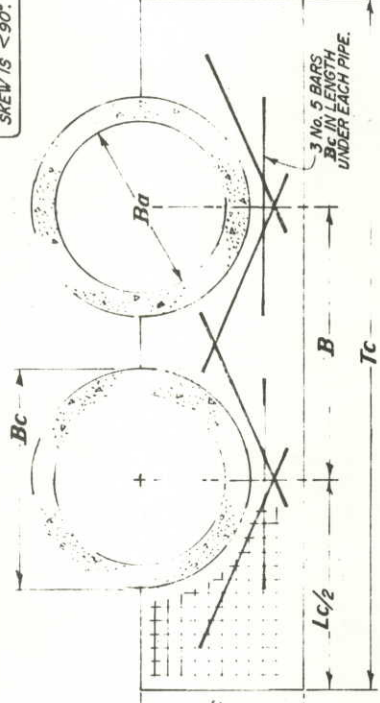
FEDERAL ROAD REGION NO.	VIII	DIVISION	COLORADO	PROJ. NO.		SHEET NO.		TOTAL SHEETS	
REVISIONS									

REINFORCED CONCRETE HEADWALL CLEARANCES SHOWN ARE TYPICAL FOR ALL WALLS ON THIS SHEET.

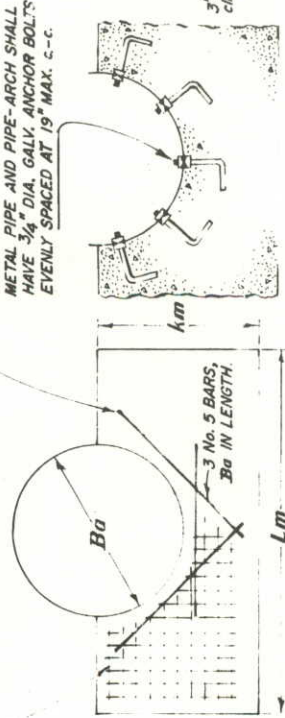
SKIEW FACTOR	ADJUST L, B, T, NO. 5 BAR LENGTHS, AND QUANTITIES WHEN SKIEW IS < 90°
90	1.000
85	1.004
80	1.015
75	1.035
70	1.064
65	1.103
60	1.155
55	1.221
50	1.305
45	1.414
40	1.556
35	1.743
30	2.000



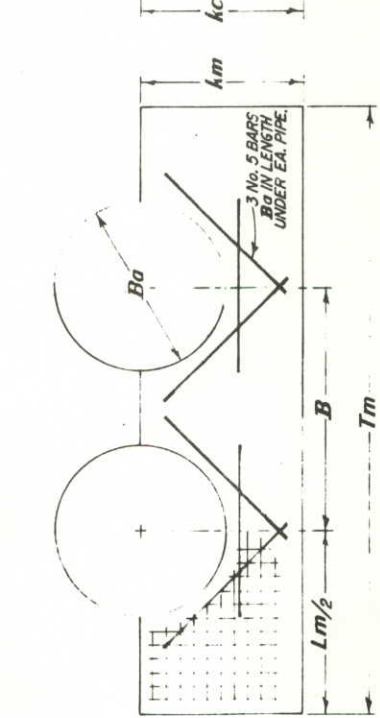
SINGLE RCP



DOUBLE RCP



SINGLE CMP



DOUBLE CMP

STEEL QUANTITIES ON THIS SHEET ARE BASED ON WWF AS SHOWN AT 95 LB./100 SQ. FT. PLUS NO. 5 BARS AT 1.04 LB./LIN. FT.

GENERAL NOTES

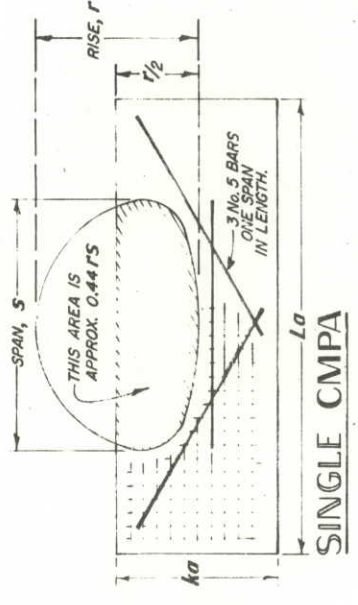
ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.

CONCRETE SHALL BE CLASS A OR B.

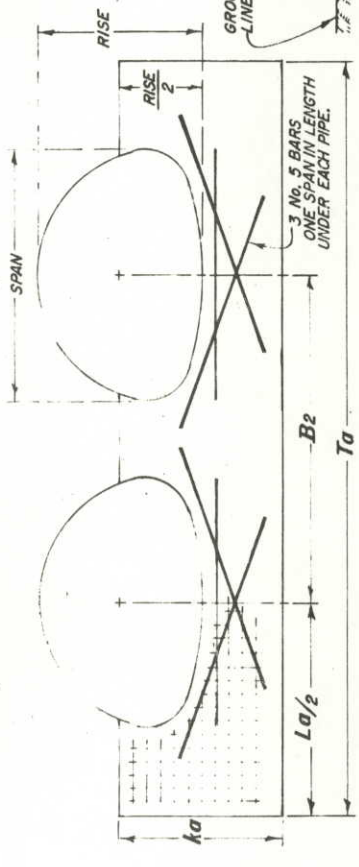
EXPOSED CORNERS ON CONCRETE SHALL BE CHAMFERED 3/4".

IF A PRECAST HEADWALL IS USED, A PERMANENT EPOXY BOND, APPROVED BY THE DIVISION, WILL BE REQUIRED BETWEEN PIPE AND HEADWALL.

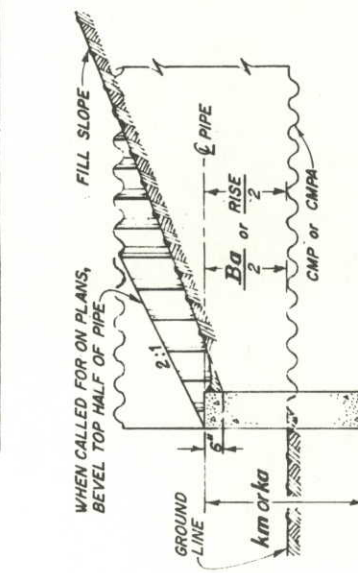
HEADWALL SHALL BE PERPENDICULAR TO THE CULVERT CENTERLINE UNLESS OTHERWISE SPECIFIED. TABULATED DIMENSIONS AND QUANTITIES MUST BE ADJUSTED FOR SKEWED INSTALLATIONS.



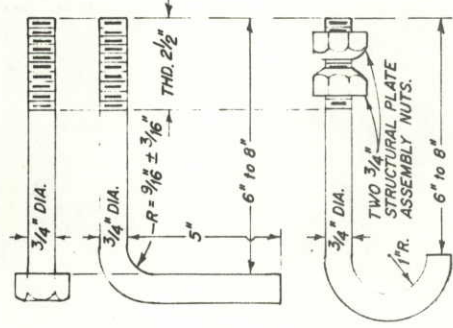
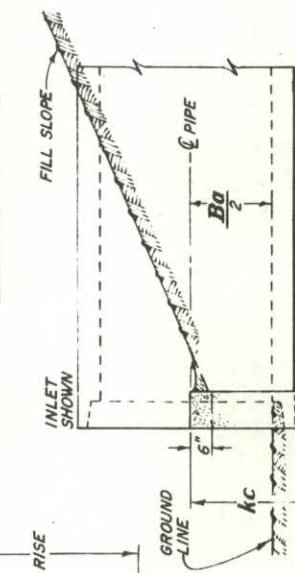
SINGLE CMPA



DOUBLE CMPA



SIDE VIEWS



TYPICAL GALVANIZED ANCHOR BOLTS

FOR USE WITH CORRUGATED METAL PIPE ONLY.

HEADWALL ANCHORAGE SHALL CONFORM TO AASHTO M 167 AND SHALL BE INCLUDED IN THE BID PRICE PER LINEAR FOOT OF PIPE.

HEADWALL FOR CORRUGATED METAL PIPE-ARCH

RANGE OF EQUIV. DIAMS.	RANGE OF SPANS	RANGE OF RISES	SINGLE		DOUBLE	
			CONC.	STEEL	CONC.	STEEL
36-42	39-47	30-36	36	94	71	165
42-48	48-59	31-41	41	118	89	207
54-60	60-71	40-51	51	142	107	249
60-75	72-83	44-59	69	166	119	285
72-81	84-95	63-72	72	190	131	321
84-90	96-107	69-76	76	214	143	357
93-99	108-119	75-80	80	238	155	393
102-108	120-131	81-83	83	262	167	429
108-117	132-143	84-91	91	286	179	465
117-126	144-154	87-100	100	308	190	498

NOTE: EACH LINE OF THE PIPE-ARCH TABLE ABOVE DESCRIBES A SINGLE HEADWALL THAT WILL ACCOMMODATE SEVERAL SIZES OF PIPE-ARCH. THE CONCRETE QUANTITIES IN THIS TABLE ARE BASED ON DEDUCTION OF CONCRETE FROM THE HEADWALL OF THE MEDIAN SIZE PIPE IN THE RANGE OF EQUIVALENT DIAMETERS SHOWN.

NOM. DIA.	CORRUGATED METAL				REINFORCED CONCRETE			
	CMP		RCP		CMP		RCP	
36	44	36	81	99	56	137	155	155
42	51	42	94	114	63	157	177	177
48	58	48	108	130	72	180	202	202
54	65	54	121	146	81	202	227	227
60	72	60	134	161	90	224	251	251
66	79	66	148	177	99	247	276	276
72	86	72	161	193	108	269	301	301
78	93	78	175	208	114	289	322	322
84	100	84	188	224	120	308	344	344
90	107	90	202	240	126	328	366	366
96	114	96	215	255	132	347	387	387
102	121	102	228	271	138	366	409	409
108	128	108	242	287	144	386	431	431

HEADWALL FOR ROUND PIPE

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

TYPE "S" SADDLE HEADWALL FOR PIPE CULVERT

DESIGNED BY D.B.B.
MADE BY J.P.B.
CHECKED BY D.L.H.
DATE: 10-28-80

APPROVED BY *[Signature]*
STATE DESIGN ENGINEER

STANDARD M-604-S

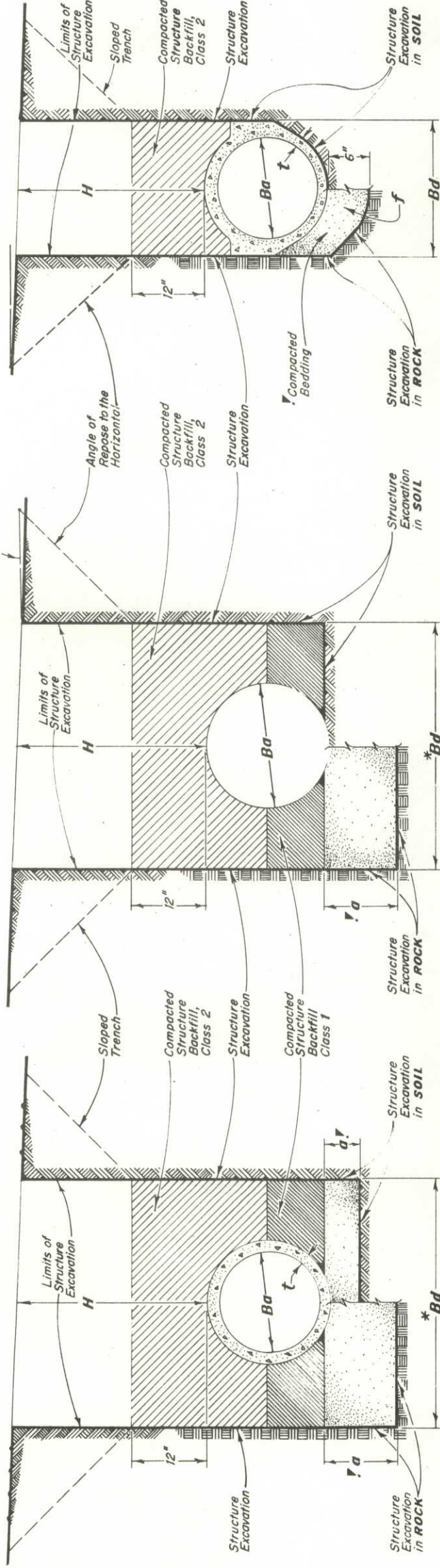
(JANUARY, 1980)

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

CAST-IN-PLACE

FLEXIBLE PIPE

RIGID PIPE



LEGEND

- H = Height of fill over top of pipe.
- Ba = Inside diameter of pipe.
- *Bd = Trench width.
- t = Wall thickness of pipe.
- f = Material replacing rock excavation for Cast in Place Concrete Pipe, sufficiently compacted to allow operation of the pipe machine and provide a smooth firm surface.
- a = Loose granular bedding, as follows:
 - I.R. OF PIPE a IN SOIL
 - 6" - 27" 3"
 - 30" - 60" 4"
 - 66" or > 6"

* TRENCH WIDTHS

- CSP, RCP & NRCP: $Bd = Ba + 3'$
- Clay & Cast Iron: $Bd = Ba + 3'$
- Standard Buckler Widths, (No Side Curfers)

Bedding Material for SOIL shall be Structure Backfill Class 2.
Bedding Material for ROCK shall be Structure Backfill Class 1.

GENERAL NOTES

- All work shall be done in accordance with the Standard Specifications applicable to the project.
- Minimum cover for prefabricated pipe shall be 2 feet.
- Changes in design criteria will require compensating change in pipe design.
- When pipe sewer is to be extended or replaced with pipe of different material, the connections shall conform to the detail shown on plans or be approved.
- Spacing for multiple pipe sewer installations shall conform to the details shown on M Standard Excavation and Backfill for Structures.

CAST-IN-PLACE NON-REINFORCED CONCRETE

Ba in.	Bd ft.	t in.	H ft.
24	2.75	3.0	50
27	3.00	3.0	50
30	3.25	3.0	50
33	3.50	3.5	50
36	3.75	3.5	45
42	4.25	4.0	40
48	5.00	5.0	35
54	5.75	5.5	30
60	6.25	6.0	25
66	6.75	6.5	20
72	7.50	7.0	16
78	8.00	7.5	13
84	8.50	8.0	10

CLAY - STANDARD STRENGTH - EXTRA STRENGTH

Ba in.	Bd ft.	H ft.	MINIMUM AVERAGE STRENGTH lbs./L ft.
6	2.5	8	2000
8	2.5	14	1400
10	2.5	16	1600
12	3.0	18	1800
15	3.0	20	2000
18	3.5	22	2200
21	3.5	24	2400
24	4.0	26	2600
27	4.5	28	2800
30	4.5	30	3000
33	5.0	32	3200
36	5.5	34	3400
39	6.0	36	3600

CAST IRON

Ba in.	Bd ft.	STD. D-LOAD	EXTRA HVY.
12	2.5	8	25
14	3.0	7	15
16	3.0	9	21
18	3.5	8	15
20	3.5	9	19
24	4.0	9	18
30	4.5	10	20
36	5.5	9	16
42	6.0	10	17
48	6.5	10	18

STEEL - 2 3/8" x 1/2" CORRUGATIONS

Ba in.	Bd ft.	H ABOVE TOP OF PIPE IN FEET	THICKNESS IN INCHES
12-48	4-7	1-15	.064
		16-20	.064
		21-25	.064
		26-30	.064
		31-35	.064
		36-40	.064
54	7.50	.079	.079
60	8.00	.079	.079
66	8.50	.079	.079
72	9.00	.079	.079
78	9.50	.079	.079
84	10.00	.079	.079

NON-REINFORCED CONCRETE

Ba in.	Bd ft.	CLASS 2 MINIMUM STRENGTH lbs./L ft.	CLASS 3 MINIMUM STRENGTH lbs./L ft.	H
6	3.50	2000	2400	38
8	3.50	2000	2400	40+
10	4.00	2000	2400	25
12	4.00	2250	2600	19
15	4.25	2600	2900	22
18	4.50	3000	3300	24
21	4.75	3300	3850	24
24	5.00	3600	4400	24

REINFORCED CONCRETE

Ba in.	Bd ft.	PIPE CLASS	LOAD
12	4.00	II	18
15	4.25	III	25
18	4.50	IV	37
21	4.75	V	40+
24	5.00	II	18
27	5.25	III	25
30	5.50	IV	37
33	5.75	V	40+
36	6.00	II	18
39	6.25	III	25
42	6.50	IV	37
45	6.75	V	40+
48	7.00	II	18
51	7.25	III	25
54	7.50	IV	37
57	7.75	V	40+
60	8.00	II	18
63	8.25	III	25
66	8.50	IV	37
69	8.75	V	40+
72	9.00	II	18
75	9.25	III	25
78	9.50	IV	37
81	9.75	V	40+
84	10.00	II	18
87	10.25	III	25
90	10.50	IV	37
93	10.75	V	40+
96	11.00	II	18
99	11.25	III	25
102	11.50	IV	37
105	11.75	V	40+
108	12.00	II	18

CIP PIPE DESIGN CRITERIA:

Minimum Cover = 2.5 ft.
Load Coeff. $C_d = \frac{1}{1.6} - \frac{2k_p}{H}$
Soil Weight = 100 lb. per cu. ft.
CONCRETE:
 $f'_c = 3250$ psi = Compressive Strength, 28 days.
 $A f'_c = 1300$ psi = Stress at Design Load, Compression.
.082 f'c = 300 psi = Stress at Design Load, Tension.

CLAY PIPE DESIGN CRITERIA:

Safety Factor = 1.50
Soil Weight = 115 lb. per cu. ft.

C.I. PIPE DESIGN CRITERIA:

Safety Factor = 2.50
Soil Weight = 115 lb. per cu. ft.
Strength = Load lbs. per ft. of laying length
D = Nominal I.D. of Pipe in feet

NRCP DESIGN CRITERIA:

Safety Factor = 1.50
Soil Weight = 120 lb. per cu. ft.

RCP DESIGN CRITERIA:

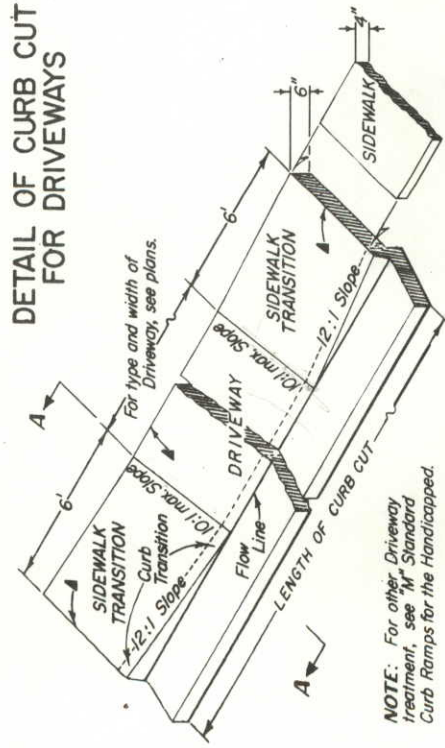
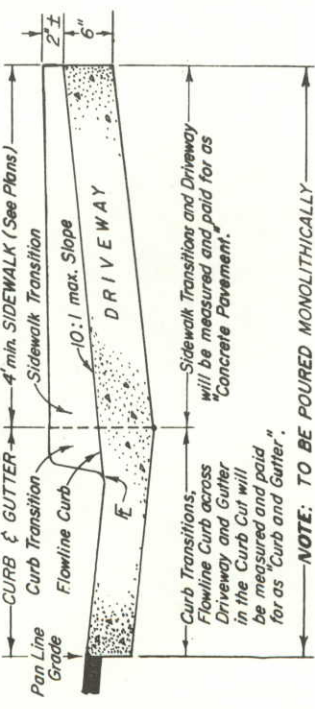
Safety Factor = 1.33 on Ult.
Soil Weight = 120 lb. per cu. ft.
Load Coeff. = 1.9
Bedding = Class B (modified)
NOTE: Where trench widths cause transition to embankment condition, fill heights for projected pipe (Standard M-603-RC) are shown.

DESIGNED BY M.R.H. Approved by J.R.B. Staff Design Engineer
MADE BY J.R.B. Checked by O.L.S. Date: October 26, 1973

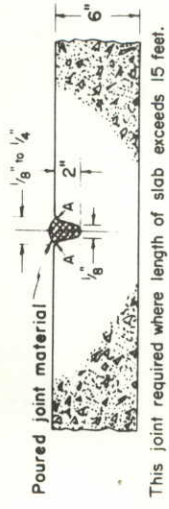
STANDARD CURBS AND GUTTERS

STANDARD M-609-A
(JANUARY, 1980)

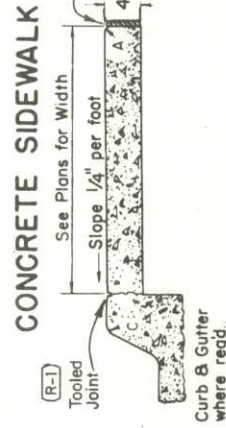
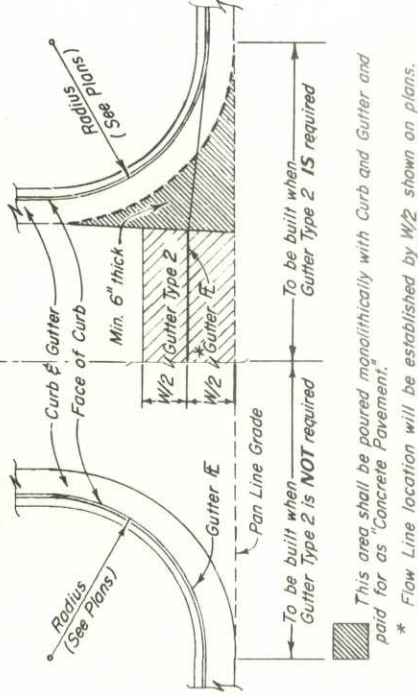
FED. ROAD DIST. NO.	DIVISION	PROJECT NO.	SHEET NO.
VIII	COLO.		



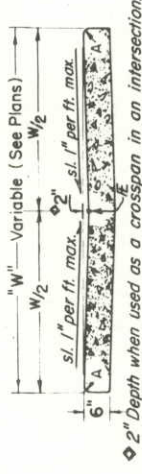
TRANSVERSE CONTRACTION JOINT FOR CONCRETE PAVEMENT (DRIVEWAYS)



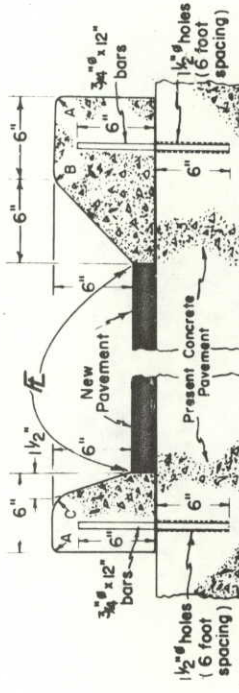
CONSTRUCTION OF CONCRETE GUTTERS AT INTERSECTIONS



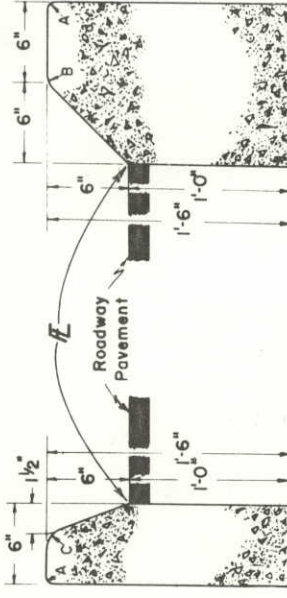
GUTTER Type 2



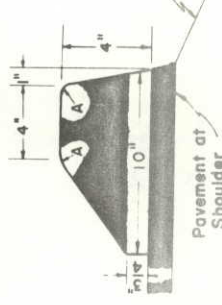
CURB Type 4 (6" Mountable) (Section M)



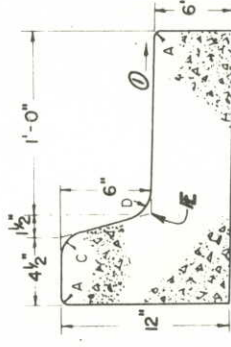
CURB Type 2 (6" Barrier) (Section B)



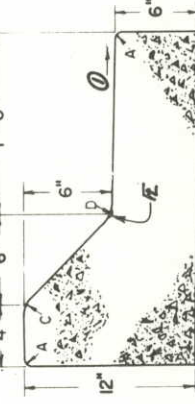
CURB Type 6 (4" Mountable) (Section M)



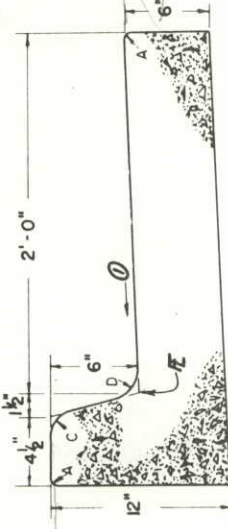
CURB AND GUTTER Type 2 (6" Barrier - 1' Gutter) (Section IB)



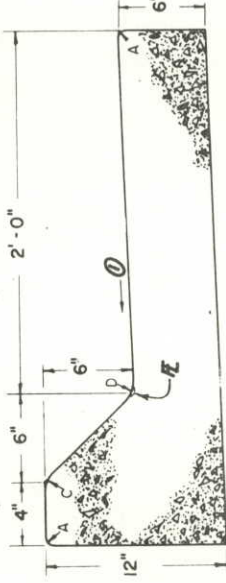
CURB AND GUTTER Type 2 (6" Mountable - 1' Gutter) (Section IM)



CURB AND GUTTER Type 2 (6" Barrier - 2' Gutter) (Section IB)



CURB AND GUTTER Type 2 (6" Mountable - 2' Gutter) (Section IM)



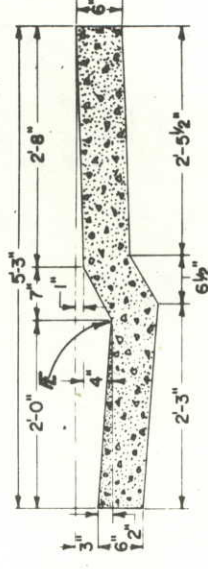
GENERAL NOTES

- All work shall be done in accordance with the Standard Specifications applicable to the project.
- On Curves 3 degrees and sharper, Curbs and/or Gutters are to be placed on the Arc of the Curve unless otherwise noted on plans. A maximum chord length of 10 feet may be used when the degree of curve is less than 3 degrees.
- Expansion Joints shall be installed when abutting concrete or a fixed structure. Expansion Joint material shall be 1/2" thick and shall extend the full depth of contact surface. Concrete shall be Class A or B.

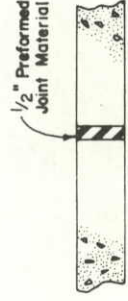
LEGEND FOR RADII

A	= 1/8"
B	= 1"
C	= 1/2"
D	= 1/2" to 2"

CURB AND GUTTER (Type 2) (4" Mountable with Sidewalk) (Section MS)



SIDEWALK EXPANSION JOINT



Note: Expansion Joints shall be placed in the Sidewalk at intervals of not more than 100 ft.

GENERAL NOTES (Continued)

- Gutter Cross Slopes shall be 1/2"/ft. when draining away from Curb and 1"/ft. when draining toward Curb.
- Profile Grade of Curbs and Gutters shall be located at the Flow Line.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

CURBS AND GUTTERS

Designed by 1603
Checked by 1603
Staff Design Eng.
Date: July 1, 1989
Approved by 1603

