

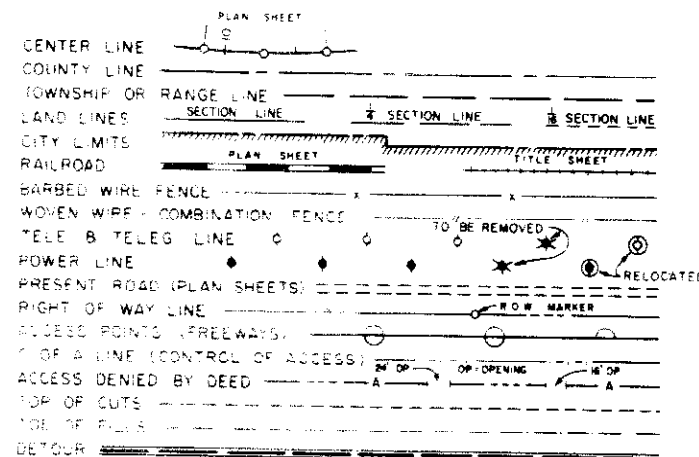
AS CONSTRUCTED
REVISED DATE 7-9-71

STATE DEPARTMENT OF HIGHWAYS DIVISION OF HIGHWAYS—STATE OF COLORADO

R.O.W. Sta 580+00 to Sta 607+00 Purchased on F 287-1(2)

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO	RF 287-1(4)	1

CONVENTIONAL SIGNS



PLAN AND PROFILE OF ~~PROPOSED~~ COMPLETED FEDERAL AID PROJECT NO. RF 287-1(4) STATE HIGHWAY NO. 287 BACA COUNTY

SCALES OF ORIGINAL DRAWINGS

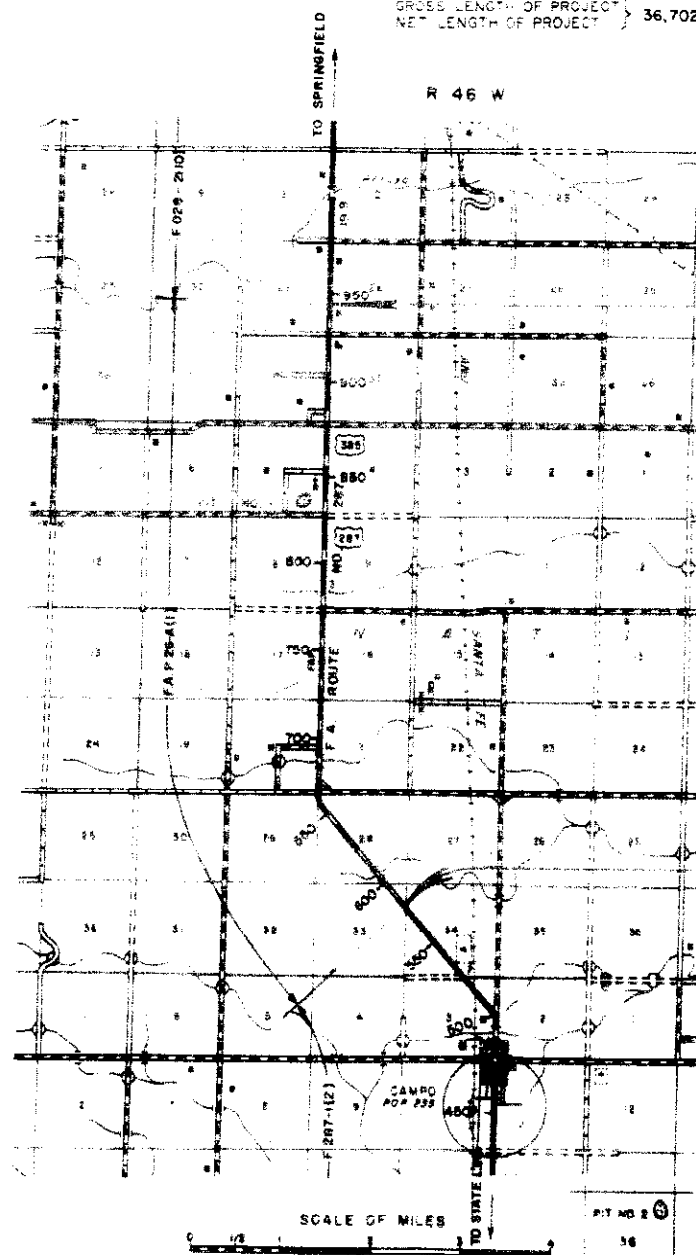
ON PLAN 1" = 100 FT
ON PROFILE 1" = 100 FT HORIZONTAL
1" = 10 FT VERTICAL
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
GROSS LENGTH OF PROJECT 36,702.2 FT = 6.951 MI
NET LENGTH OF PROJECT

INDEX OF SHEETS

SHEET NO.	DESCRIPTION	DATE
1	SKETCH MAP AND TITLE PAGE, TABULATION OF LENGTH AND DESIGN DATA	
2	TYPICAL SECTIONS AND GENERAL NOTES	
3-4	SUMMARY OF APPROXIMATE QUANTITIES	
5	STRUCTURE QUANTITIES	
6	SURFACING PLAN, SUMMARY OF EARTHWORK QUANTITIES, DETAILS OF TIMBER HEADER	
7	PIT SHEET	
7A	M-603-CA CONCRETE AND METAL END SECTIONS (SPECIAL)	
7B	M-603-M METAL CULVERT PIPE 1120 LOADING (SPECIAL)	
8-20	PLAN AND PROFILE SHEETS	
21-25	STRUCTURE CROSS SECTIONS	
M-203-A	SUPERELEVATION AND WIDENING OF CURVES - CROWNED HIGHWAYS	7-26-68
M-203-B	APPROACH ROADS, FLARING, CUT SLOPE TREATMENT, BRIDGE AND CREST WIDENING	8-28-69
M-203-C	DITCH TYPES	7-23-68
M-206-A	EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	9-23-70
M-612-C	DELINEATORS (2 SHEETS)	7-11-68
M-614-1C	STANDARD CONSTRUCTION IDENTIFICATION SIGNS (2 SHEETS)	9-26-70
M-614-1B	TRAFFIC SIGNING FOR HIGHWAY CONSTRUCTION (3 SHEETS)	12-24-68
M-614-A	TIMBER BARRICADES	4-23-68
S-614-2A	TYPICAL PAVEMENT MARKINGS	7-10-68

TABULATION OF LENGTH AND DESIGN DATA

STATION	ROADWAY	
580+00	END RF 287-1(4)	7,447.2
607+00	END F 028-2(10)	29,255.0
947+00	END RF 287-1(4)	
947+00	END F 028-2(10)	
947+50	END F 028-2(10)	
TOTAL		36,702.2
SUMMARY	Lin. Ft.	Miles
ROADWAY	36,702.2	6.951
TOTAL GROSS & NET LENGTH	36,702.2	6.951
DESIGN DATA		
Minimum Degree of Curve	2° 00'	
Maximum Grade	2.5 %	
Minimum S.S.D. Horizontal	7900'	
Minimum S.S.D. Vertical	480'	
Maximum Design Speed	60 M.P.H.	
ADT	2900	
DAY	948	



T 32 S

T 33 S

T 34 S

STA. 947+00 END RF 287-1(4) =
STA. 947+00 END F 028-2(10) =
STA. 947+00 ON F A P 26-A(1)

STA. 580+00 BEGIN RF 287-1(4) =
STA. 580+00 END F 287-1(2)

INACTIVE 7/20/71

SEP 7 1971

SEE SPECIAL PROVISIONS FOR
NOTICE TO BIDDERS

AS CONSTRUCTED
APPROVED
DATE 9-20-71

APPROVED
By *Chas E. Shumate* 9-30-70
DEPUTY CHIEF ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DATE

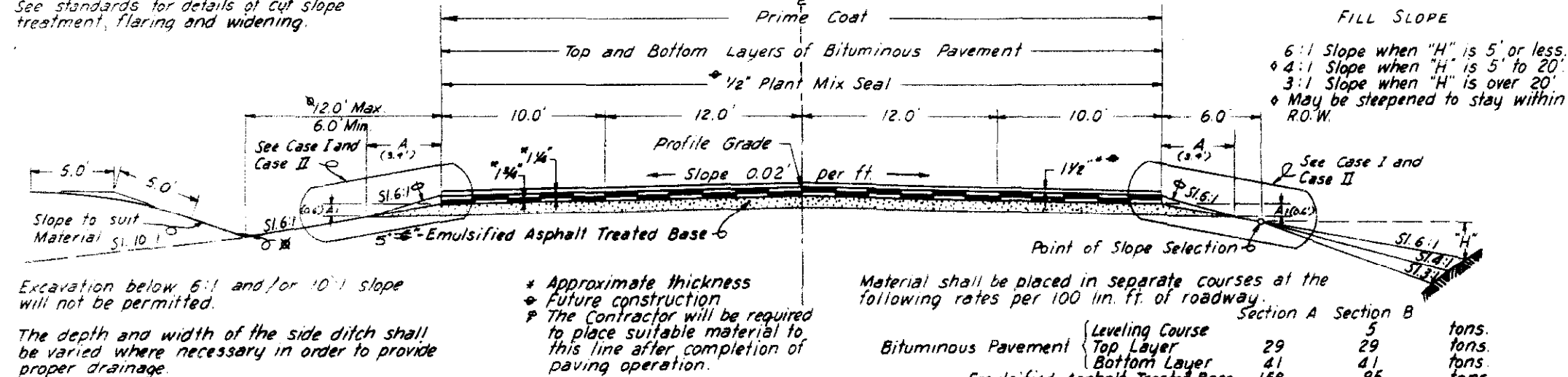
PROJECT STARTED NOV 8, 1970
PROJECT COMPLETED JULY 9, 1971
CONTRACTOR HERRIN-STRONG, INC.
RESIDENT ENGINEER N. V. FRANKIE

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	COLORADO	RF 287-1(4)	2	33

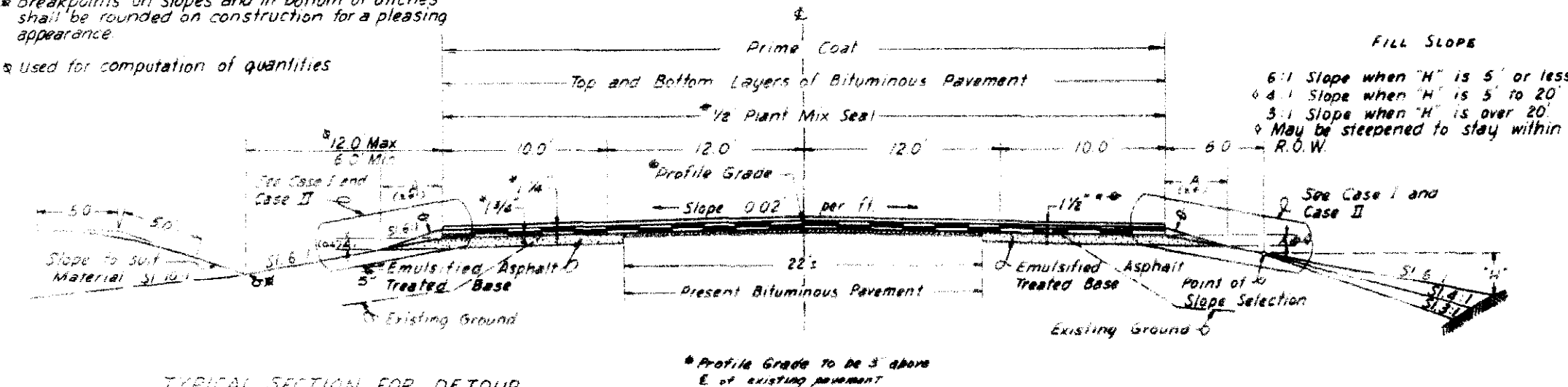
TYPICAL SECTION A

STA. 600+00 TO 613+00

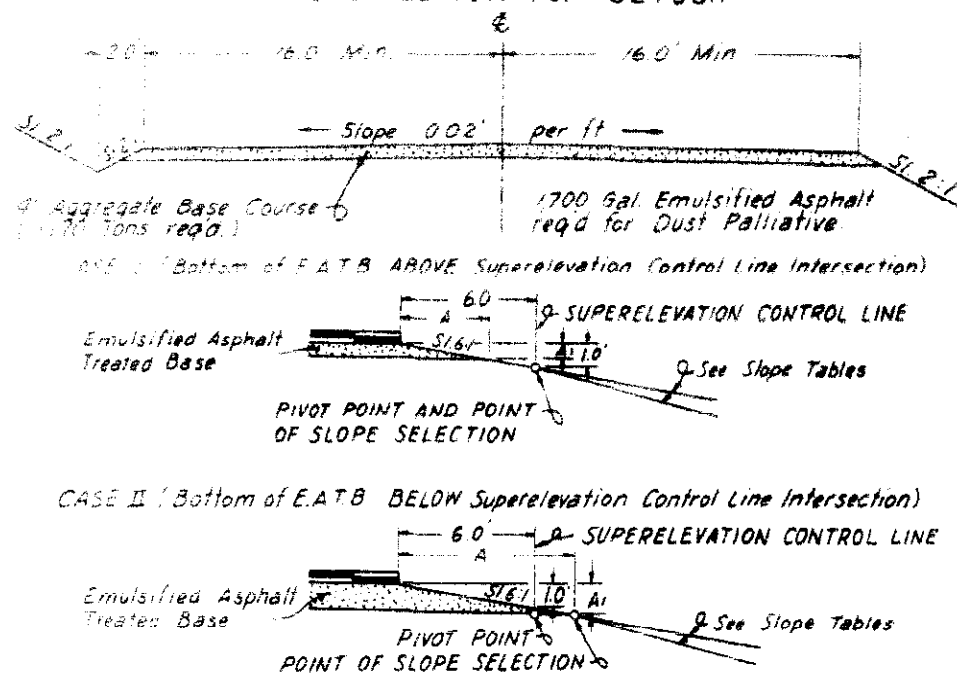
Note:
See standards for details of cut slope treatment, flaring and widening.



TYPICAL SECTION B



TYPICAL SECTION FOR DETOUR



GENERAL NOTES

For preliminary plan quantities of bituminous materials the following rates of application per sq. Yd. were used:
Prime Coat (Diluted CSS-1) - 0.10 gal. between E.A.T.B. and H.B.P.
0.10 gal. between Exist. Pav. and H.B.P.

Tack Coat CSS-1 @ 0.05 gal. between Top and Bottom Layer H.B.P.

Rates of application shall be as determined by the Engineer at the time of application.

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' out from edge of shoulder or to the Right of Way line, whichever is less. Field entrances shall be paved 4' out from edge of shoulder.

Any layer of Bituminous Pavement that is to have a succeeding layer placed thereon shall be completed full width before succeeding layer is placed.

Depth of Moisture-Density control for this project shall be as follows:

Bases of cuts 6 inches.

Bases of fills 6 inches.

Full depth of embankment.

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.

It is estimated that 2000 hours of flagging for controlling traffic will be required for this project.

Diluted emulsified asphalt shall be used as a Dust Palliative where required. Locations shall be as ordered. Type 100 shall be used.

Guard Posts, Signs and/or Delineators will be removed by State forces.

It is estimated that 341 gallons of pavement marking paint will be required for this project. This quantity includes the following:

FINAL QUANTITIES		
White Paint	330 Gals.	250 Gals.
Yellow Paint	11 Gals.	20 Gals.

The type of compaction for structure back-fill (Class A) shall be standard.

Flexible conduits on this project with helical corrugations joined by dimpled connecting bands shall use a sealing compound or gasket with the connecting band.

Ski type device at least 30 feet in length and short ski or shoe shall be furnished with each Bituminous paver equipped with an automatic control system.

The Engineer will establish all terminal points for No passing zones on the project.

Materials removed and not used on project will be salvaged for Maintenance.

* Reference for Pavement Marking Paint is Field Book No. 4, Pg. 40.

AS CONSTRUCTED
R.L. 7-9-71

SUMMARY OF APPROXIMATE QUANTITIES

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	COLORADO	RF 287-1(4)	3	33

CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	REFERENCE	PROJECT TOTALS	FINAL TOTALS	DIFF.
202	Removal of Structure	Each	Plans Sheet No.5	5	9	+4
202	Removal of Headwall	Each	Plans Sheet No.5	3	3	0
202	Removal of Bridge	Each	Plans Sheet No.5	2	2	0
202	Plug Culvert	Each	Plans Sheet No.5	1	1	0
203	Unclassified Excavation	Cu. Yd.	Plans Sheet No.6	8,000	4,568	-3,432
203	Borrow	Cu. Yd.	Plans Sheet No.6	86,000	109,183	+23,183
203	Stripping	Cu. Yd.	Plans Sheet No.7	29,000	18,722	-1,278
203	Embankment (Standard)	Cu. Yd.	Plans Sheet No.6	113,000	111,995	-1,005
204	Haul	Yd. Mi.	Plans Sheet No.6	234,000	346,131	+112,131
204	Haul	Ton Mi.	Plans Sheet No.6	667,300	580,583	-86,717
206	Structure Excavation (haul)	Cu. Yd.	Plans Sheet No.5	540	537	-3
206	Structure Backfill (Class 3) Haul	Cu. Yd.	Plans Sheet No.5	460	458	-2
					445	-15
208	Warning	M/Gal	DOR Form No. 7 (Three Books)	5040	2,429	-2,611
210	Reset Mailbox Structure	Each	Field Book No. 8, Pg. 35	3	3	0
210	Reset Fence	Lin Ft.	Plans Sheet No.5	1,000	1,000	0
401	Hot Bituminous Pavement (Type 1) (Class 1)	Ton	DOR Form 87 (Three Books)	7,457	70,075.0	+62,618
402	Hot Bituminous Pavement (Type 2) (Hydrated Lime)	Ton	DOR Form 87 (Ten Books)	360	27,983.0	+27,623
403	Hot Bituminous Pavement (Type 3)	Ton	DOR Form 42	5,150	5,445	+295
404	Emulsified Asphalt (CSS-1)	Gal	DOR Form 43	404,500	188,194	-216,306
405	Galvanized Corrugated Steel Pipe	Lin Ft.	Plans Sheet No.5	282	281	-1
406	36 inch Corrugated Steel Pipe	Lin Ft.	Plans Sheet No.5	240	240	0
407	30 inch Corrugated Steel Pipe	Lin Ft.	Plans Sheet No.5	436	436	0
408	24 inch Corrugated Steel Pipe	Lin Ft.	Plans Sheet No.5	29	28	-1
409	18 inch Corrugated Steel Pipe	Lin Ft.	Plans Sheet No.5	140	140	0
410	12 inch Corrugated Steel Pipe	Lin Ft.	Plans Sheet No.5	146	146	0
601	30 inch Steel End Section	Each	Plans Sheet No.5	14	14	0
602	48 inch Steel End Section	Each	Plans Sheet No.5	2	2	0
603	36 inch Steel End Section	Each	Plans Sheet No.5	4	4	0
604	24 inch Steel End Section	Each	Plans Sheet No.5	30	30	0
605	Grading	Hour	DOR Form No. 7 (Three Books)	1,340	1,655	+315
606	Pavement Marking Paint	Gal.	Plans Sheet No.2	241	241	0
620	Field Laboratory	Each	Field Book No. 8, Pg. 33	1	1	0
621	Sanitary Facility	Each	Field Book No. 8, Pg. 33	1	1	0
622	Maintenance of Detours	L.S.	Field Book No. 3, Pg. 27	1	1	0
623	Mobilization	L.S.	Estimates	1	1	0

AS CONSTRUCTED
REVISED DATE 7-9-71

SUMMARY OF APPROXIMATE QUANTITIES

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	COLORADO	RF 287-1(4)	4	33

CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	REFERENCE	PROJECT TOTALS	FINAL TOTALS	DIFF
	FORCE ACCOUNT W.O. No. 15605 Place 6" of earth in bottom of Stockpass and Furnish and install timber header	Lump Sum	DOH Form No. 10 (2 Sheets)	\$ 112.00	\$ 144.95	+ \$ 32.95
	RIGHT OF WAY (Non-Federal Aid) Right of Way (Easements)	Lump Sum	ROW Form No. 50 (1-8-70)	.	.	
	STATE FORCES Furnishing and Installing Identification Sign	Each	Field Book No. 3, Pg 7 and Field Book No. 8, Pg 29	2	2	
	Signing (Non-Federal Aid)	Lump Sum	Field Book No. 8, Pg 32	.	.	
	SALVAGE MATERIAL Salvage of Timber	Lump Sum	DOH Form No. 92 (4-21-71)	.	.	
	FORCE ACCOUNT W.O. No. 15602 Opening and Closing Pit No. 1, Maintaining Haul Road, and Lowering Grade		DOH Form No. 10 (Opening Pit 3 Sheets, Closing Pit 8 Sheets, Maint. Haul Rd. 18 Sheets, Lowering Gr. 3 Sheets)	\$ 1,636.00	\$ 7,392.04	- \$ 243.96
	FORCE ACCOUNT W.O. 15619 Reforming Original Drainage on Pit No. 2		DOH Form No. 10 (3 Sheets)	\$ 1,620.00	\$ 287.46	- \$ 332.54

CONSTRUCTED

STRUCTURE QUANTITIES

DIVISION	PROJECT
COLORADO	NO. 20

LOCATION	REMOVAL OF STRUCTURE	UNCLASSIFIED EXCAVATION			STRUCTURE EXCAVATION		STRUCTURE BACKFILL		E A T B		HOT BITUMINOUS PAVEMENT GRADING	CONCRETE	REINFORCING STEEL	REFERENCE		CORRUGATED STEEL PIPE						OVER CULV	STEEL END SECTION				NOTES AND REMARKS	
		CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CL. 3	CL. 3	CL. 3	CL. 3	CL. 3				CL. 3	CL. 3	CL. 3	LINEAR FEET						CL. 3	CL. 3	CL. 3	CL. 3		
																	18	24	30	48	84							FT
EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
580+00														3	7												Identification Sign (State)	
580+20			11						14	4				3	9													
580+100			11						14	4				3	11													
580+1000+														3	13												Maintenance of Detour.	
600+1000+														3	15												Reset 100 Fence	
603+1000+														3	17												Reset 100 Fence	
603+55					120	127								3	19												Removal of Bridge, 2nd Arch, 11' High, 11' Thick and furnish and install 11' High, 11' Thick arches.	
607+1000+														3	21													
607+75	2		75		12	15			100	55				3	23	160												
607+1000+		636												3	25	160												
607+1000+		520												3	27												Maintenance of Detour.	
607+30					75	73								3	29												Removal of Bridge, 2nd Arch, Steel Pipe Arch	
607+55			35		4	8			14	8				3	31	50												
607+75			7						14	8				3	33													
607+1000+														3	35												Maintenance of Detour.	
607+1000+					13	7								3	37													
607+1000+									60	30				3	39													
607+1000+					16	8								3	41													
607+1000+				17	16	13								3	43												Removal of Bridge, 2nd Arch, 11' High, 11' Thick and furnish and install 11' High, 11' Thick arches.	
607+1000+					16	9			14	8				3	45													
607+1000+					16	9			14	8				3	47													
607+1000+					16	9			14	8				3	49													
607+1000+					16	9			14	8				3	51													
607+1000+					16	9			14	8				3	53													
607+1000+					16	9			14	8				3	55													
607+1000+					16	9			14	8				3	57													
607+1000+					16	9			14	8				3	59													
607+1000+					16	9			14	8				3	61													
607+1000+					16	9			14	8				3	63													
607+1000+					16	9			14	8				3	65													
607+1000+					16	9			14	8				3	67													
607+1000+					16	9			14	8				3	69													
607+1000+					16	9			14	8				3	71													
607+1000+					16	9			14	8				3	73													
607+1000+					16	9			14	8				3	75													
607+1000+					16	9			14	8				3	77													
607+1000+					16	9			14	8				3	79													
607+1000+					16	9			14	8				3	81													
607+1000+					16	9			14	8				3	83													
607+1000+					16	9			14	8				3	85													
607+1000+					16	9			14	8				3	87													
607+1000+					16	9			14	8				3	89													
607+1000+					16	9			14	8				3	91													
607+1000+					16	9			14	8				3	93													
607+1000+					16	9			14	8				3	95													
607+1000+					16	9			14	8				3	97													
607+1000+					16	9			14	8				3	99													
607+1000+					16	9			14	8				3	101													
607+1000+					16	9			14	8				3	103													
607+1000+					16	9			14	8				3	105													
607+1000+					16	9			14	8				3	107													
607+1000+					16	9			14	8				3	109													
607+1000+					16	9			14	8				3	111													
607+1000+					16	9			14	8				3	113													
607+1000+					16	9			14	8				3	115													

DUCTED
7-9-71

SURFACING PLAN

STATION TO STATION	SOURCE	TONS USED						HAUL - TON MILE						HAUL-TON MI.
		E. A. T. B.		HOT BITUMINOUS PAVEMENT				E. A. T. B.		HOT BITUMINOUS PAVEMENT				AGGREGATE FOR H.B.P.
		CLASS 7		BOTTOM LAYER		TOP LAYER		CLASS 7		BOTTOM LAYER		TOP LAYER		
580+00-600+50	PIT #2	1,743	1,319.10	841	905.75	595	607.40	12,285	9,297	5,928	1,009	4,194	677	FINAL
600+50-613+00		1,975	1,911.20	513	687.75	363	420.20	14,537	14,068	3,776	981	2,672	600	
613+00-634+47.2		3,525	2,805.00	1,700	1,751.65	1,203	1,201.50	27,798	22,081	13,582	3,595	9,470	2,329	
634+47.2-674+00		3,089	4,112.00	802	1,533.40	567	672.35	26,101	34,746	6,777	3,858	4,791	1,692	
674+00-947+00		23,205	20,010.20	11,193	11,688.75	7,917	8,519.35	260,353	224,514	125,586	61,787	88,828	45,033	
5 TONS/STA H.B.P. & Trng				1,835	*					18,955	*			
LIST OF STRUCTURES		490	*	265	*			5,020	*	2,737	*			
10% CORR. TARES		3,854	*					34,103	*					
PIT #2 - 531+40													154,516	
TOTALS		37,381	30,157	17,149	16,547	10,645	11,420	380,153	304,706	177,141	71,030	109,955	50,331	154,516

1. INFLATION BASED ON
2. FEDERAL A-185
3. REGIONAL FACTOR
4. CERVILLEABILITY INDEX
5. HOT BITUMINOUS PAVEMENT
6. EMULSIFIED ASPHALT TREATED BASE
7. BORROW (PIT NO. 1)
8. BORROW (ROGERS PIT)

152
1.0
25
0.25 (R_f = 71)
0.25 (R_f = 97)
R = 56
R = 10 (Sample No 3893 Refers To Rogers Pit, Mistakenly Marked Taylor Pit)

NOTE: Surfacing Plan above computed for Ten-Mile as follows:
E.A.T.B. - From Pit No. 2 To Project
H.B.P. - Aggregate From Pit No. 2 To Sta 531+40 (Not P and Location); H.B.P. From Sta 531+40 To Project

* Included in Quantities Above
** See Appendix for Computations

REFERENCE

1. IBM Earthwork Run 3, Minor Excav.
2. IBM Earthwork Run 3, Major Excav.
3. Included in 2
4. Plan Sheets No 21 Thru 30
5. IBM Earthwork Run 3, Major Embank.
6. IBM Earthwork Run 3, Minor Embank.
7. Accumulated Data of Mass from IBM Runs 2 and 4.
8. Plan Quantity (No Field Changes or Plan Errors)

SUMMARY OF EARTHWORK QUANTITIES

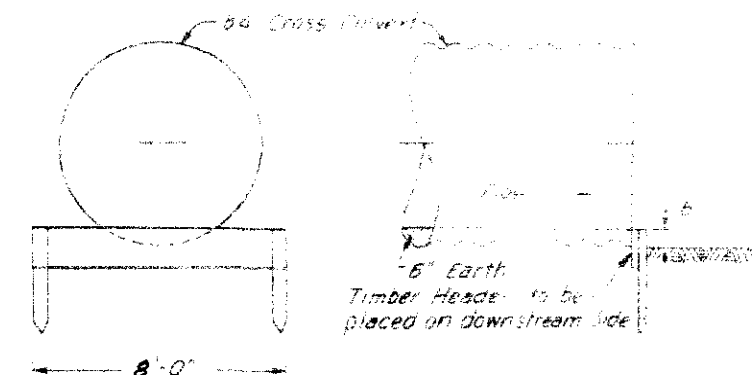
UNCLASSIFIED EXCAVATION	CU. YD.	CU. YD.
1. ROADWAY (FROM ELECTRONIC COMPUTER)	6,018	3,855
2. STRUCTURE QUANTITIES AS EXCAV. <i>Sheet 5</i>	536	—
EST. FOR CUT SLOPE TREATMENT	500	713
3. STRUCTURE QUANTITIES AS DITCH EXCAV.	100	—
TOTAL	7,154	4,568
BORROW		
4. FROM PITS TOTAL <i>See Sheet 21-30</i>	55,256	109,183
EMBANKMENTS (STANDARD)		
(MOISTURE AND DENSITY CONTROL)		
5. STRUCTURE QUANTITIES AS EMB. <i>Sheet 5</i>	486	—
6. EMBANKMENT (NET)	73,019	72,239
8. BASE OF CUTS AND FILLS	39,270	39,270
TOTAL	112,289	111,995
HAUL		
7. FROM MASS DIAGRAM TOTAL	233,925	546,131

ROADWAY QUANTITIES BALANCE
(FOR INFORMATION ONLY)

EXCAVATION	6,018
UNCLASSIFIED	—
BORROW	15,256
TOTAL	21,274
EMBANKMENT ROADWAY FROM ELECTRONIC COMPUTER	112,289
EMBANKMENT F FACTOR	111,995

DETAILS OF TIMBER HEAVY

STA 603+55



Quantities (per 1000 HEAVY)
1 - 2" x 12" x 8' Misc Treated Timber Header
2 - 2" x 4" x 2-6' Misc Treated Timber Stakes

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	RF 287-1(4)	1	4

ROGERS PIT

Owner: J.D. Rodgers, Springfield, Colo.

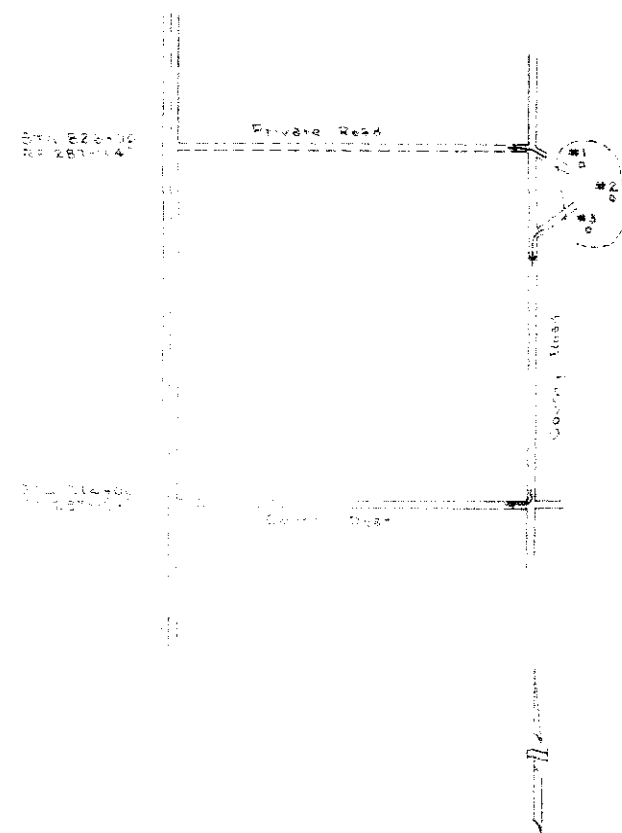
Location: As Shown on Sketch

Use: Borrow

Quantity Used: 90,684 Cu Yds. (Reference Plan Sheets 25-30)

Stripping: None

Haul Distance: 1.155 Mi. via private road to Sta. 826+00 (Field Bk 4, Pg. 57)
1.900 Mi. via County road to Sta. 774+00 (Field Bk 4, Pg. 57)



NOT TO SCALE

PIT NO. 2

Owner: State Board of Land Commissioners;
1845 Sherman St., Denver, Colo. 80203
Location: Part of the E. 1/4 Sec. 36, T. 34 S., R. 96 W.

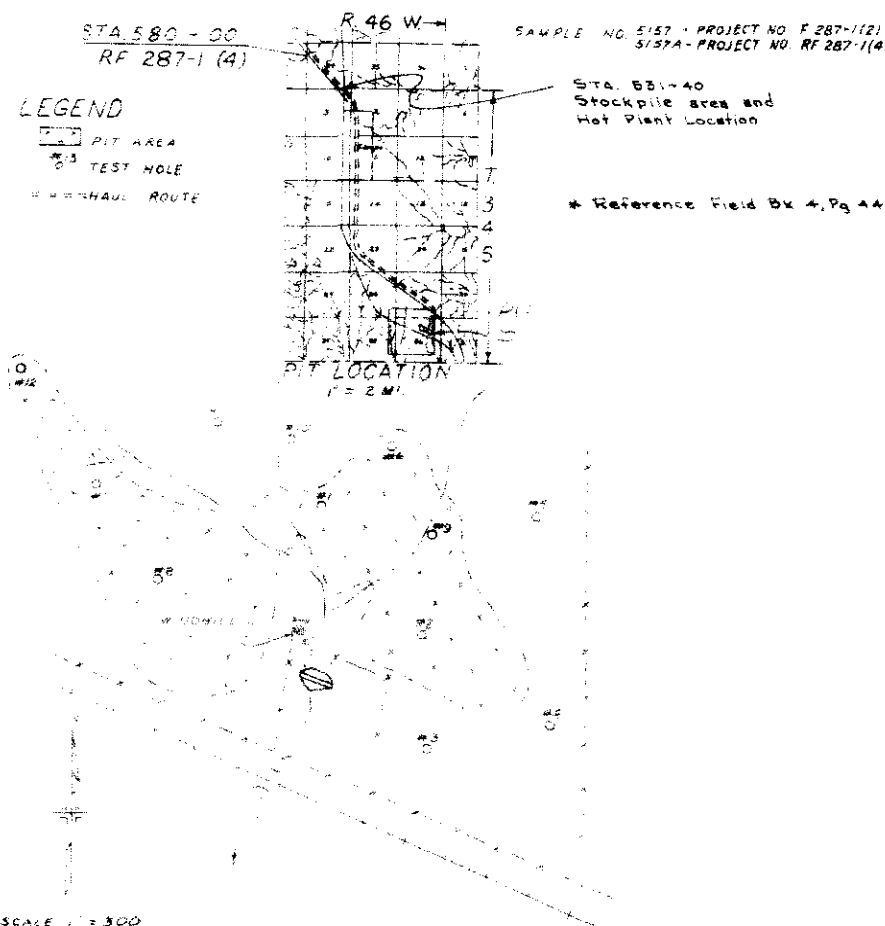
Use: Base Course and Bituminous Pavement

Quantity Available: 121,000 Cu Yds.

Stripping: Remove Overburden - 10,000 Cu Yds. *
Replace Overburden - 10,000 Cu Yds. *
FINAL 9,361 Cu Yds. *

Haul Distance: 6.854 Miles to Sta. 580+00

6.934 Miles From Pit to Sta. 581+40 (Reference Field Bk 4, Pg. 57)
0.920 Miles From Sta. 581+40 to Sta. 580+00 (Reference Field Bk 4, Pg. 57)



SCALE: 1" = 300'

PIT No. 1

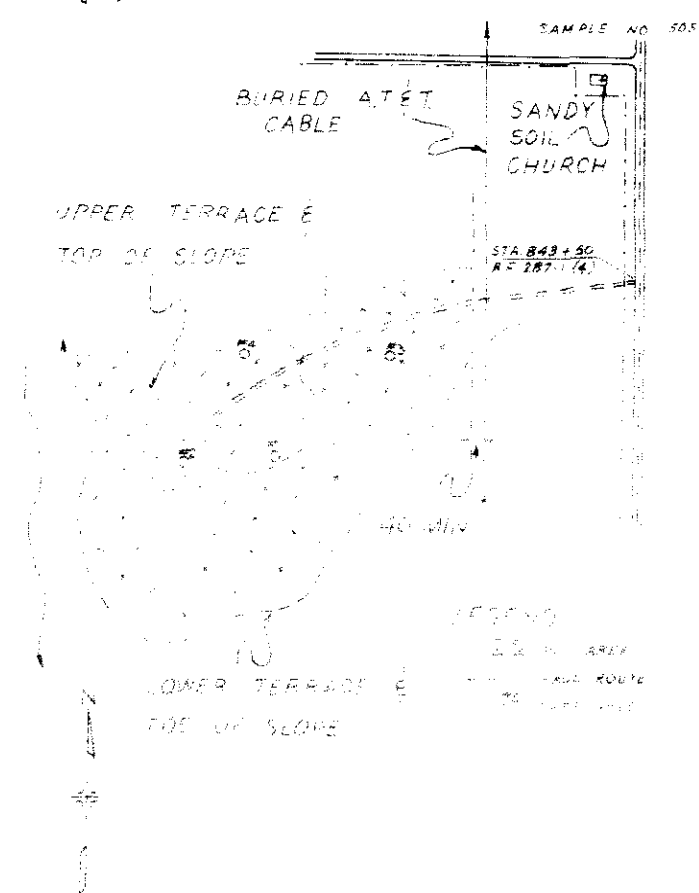
Owner: James L. and Millie Nidey
Springfield, Colorado 81073
Location: Part of the S.E. 1/4 Sec. 5, T. 33 S., R. 96 W.

Use: Borrow

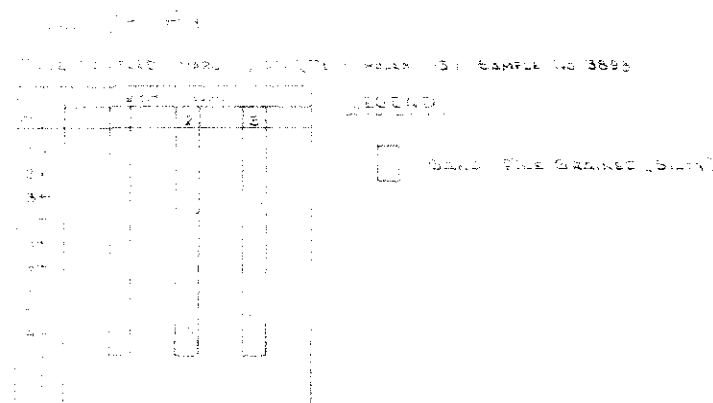
Quantity Available: 185,000 Cu Yds. *
FINAL 18,498 Cu Yds. (Reference Plan Sheets 21-24)

Stripping: None

Haul Distance: 0.265 Miles to Sta. 843+50
0.155 Miles to Sta. 844+00 (Field Bk 4, Pg. 57)



SCALE: 1" = 300'



NOT TO SCALE

DATE SAMPLED: JANUARY 14, 1970 (Test Holes 1-10)
August 25, 1970 (Test Holes 11 & 12)

TEST NO.	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

LEGEND:

- SILT (SANDY)
- SAND WELL GRADED (GRAVELLY)
- SAND-FINE GRAINED (CLAYEY)
- SAND-FINE TO MEDIUM GRAINED (SILTY CLAYEY)
- SAND-FINE TO MEDIUM GRAINED, SOME GRAVEL, SLIGHTLY SILTY

Depth of Water Table unknown

DATE SAMPLED: August 25, 1970

TEST NO.	1	2	3	4
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

LEGEND:

- TOPOSOIL
- SAND-FINE GRAINED (CLAYEY)

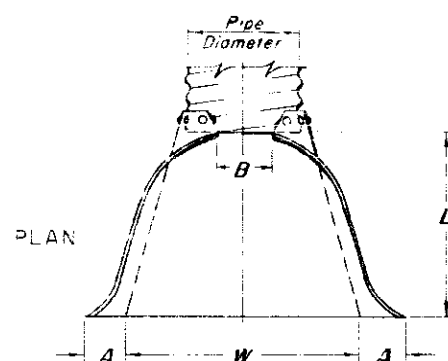
Depth of Water Table unknown

STANDARD M-603-CA (SPECIAL)

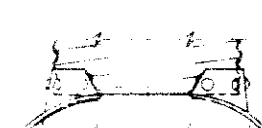
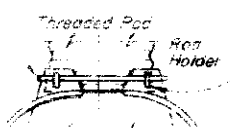
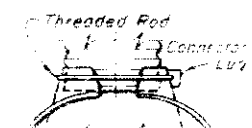
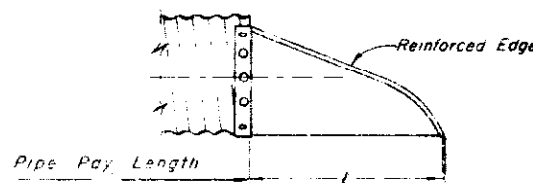
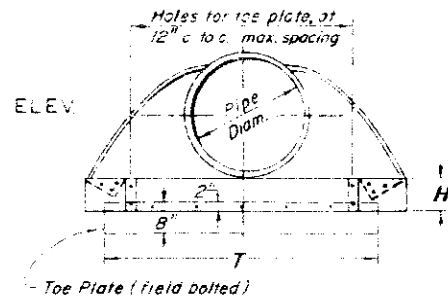
(NOVEMBER 10, 1967)

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	RF 287-14	7	11

REVISIONS			
(R-1)	4-19-68	Welding - Conc Arch. Ellipt. - Gen. Notes	M.R.H.
(R-2)	7-23-68	Dept. Name	M.R.H.
(R-3)	2-29-70	Special this project only	D.H.H.



PIPE DIAM. in.	GAGE	D I M E N S I O N S					
		A (1"±) in.	B (1 1/2"±) in.	H (1"±) in.	L (1 1/2"±) in.	W (2"±) in.	T in.
12	16	6	6	6	21	24	34
15	16	7	8	6	26	30	40
18	16	8	10	6	31	36	46
21	16	9	12	6	36	42	52
24	16	10	13	6	41	48	58
30	14	12	16	8	51	60	70
36	14	14	19	9	60	72	84
42	12	16	22	11	69	84	106
48	12	18	27	12	78	90	112
54	12	18	30	12	84	102	124
60	12	18	33	12	87	114	136
66	12	18	36	12	87	120	142
72	12	18	39	12	87	126	148
78	12	18	42	12	87	132	154
84	12	18	45	12	87	138	160



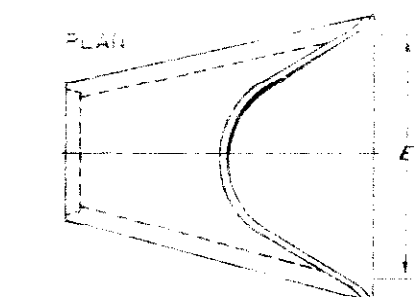
NOTE: Type 3 connections shall consist of an end section shop attached to a minimum 2 ft. of pipe with galvanized rivets or bolts, or by welding.

TYPE 1
For 12" thru 24" pipe with Annular corrugations. Not to be used on helically formed pipe.

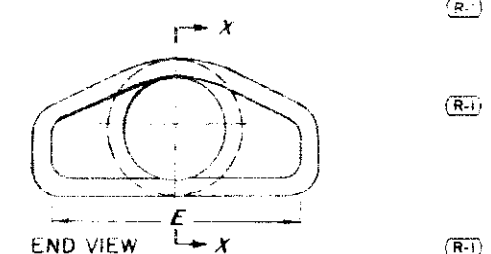
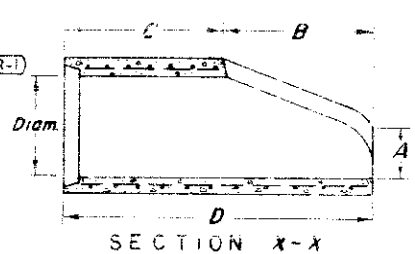
TYPE 2
For 30" thru 36" pipe with Annular corrugations. Not to be used on helically formed pipe.

TYPE 3
For 42" thru 84" pipe with Annular corrugations, and all sizes of pipe with Helical corrugations.

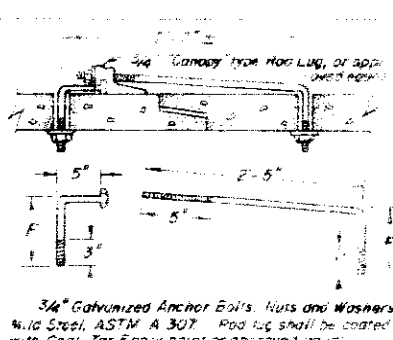
TYPICAL CONNECTIONS END SECTION AND CONNECTION DETAILS FOR ROUND CORRUGATED STEEL PIPE CULVERTS



PIPE DIAM. in.	D I M E N S I O N S				
	A in.	B in.	C in.	D in.	E in.
12	5 1/2	23	49	72	24
15	7	26	47	73	29
18	11 1/2	26	48	74	36
24	12	43	54	97	48
30	17	53	43	96	60
36	18	60	37	97	71
42	24	61	36	97	78
48	28	70	28	98	84
54	27	65	35	100	90
60	36	58	40	98	95
72	34 1/2	75	21	96	108



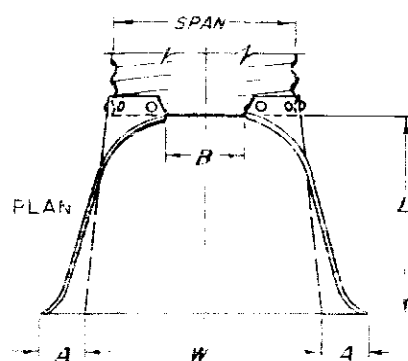
END SECTION FOR REINFORCED CONCRETE CIRCULAR PIPE



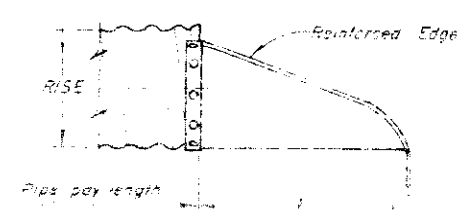
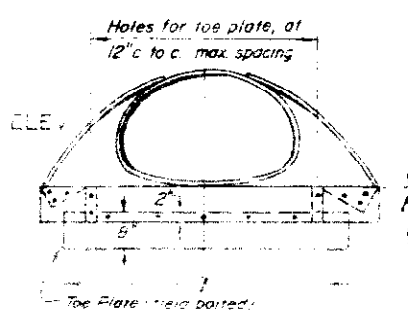
PIPE DIAMETER	F
24" - 30"	5"
36" - 42"	6"
48" - 60"	7"
72" - 84"	8"

CONCRETE JOINT FASTENER

NOTE: This assembly, or approved equivalent, shall be used for joining sections where shown on plans.

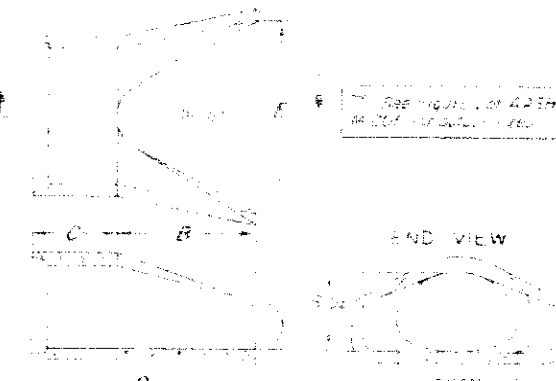


PIPE ARCH SPAN - RISE in. in.	GAGE	D I M E N S I O N S					
		A (1"±) in.	B (Max.) in.	H (1"±) in.	L (1 1/2"±) in.	W (2"±) in.	T in.
18 x 11	16	7	9	6	19	30	40
22 x 13	16	7	10	6	23	36	46
25 x 15	16	8	12	6	28	42	52
29 x 18	16	9	14	6	32	48	58
36 x 22	14	10	16	6	39	60	70
43 x 27	14	12	18	8	46	75	85
50 x 31	12	13	21	9	53	85	103
58 x 36	12	18	26	12	63	90	108
65 x 40	12	15	30	12	70	102	120
72 x 44	12	18	33	12	77	114	132
85 x 53	12	18	39	12	77	138	155



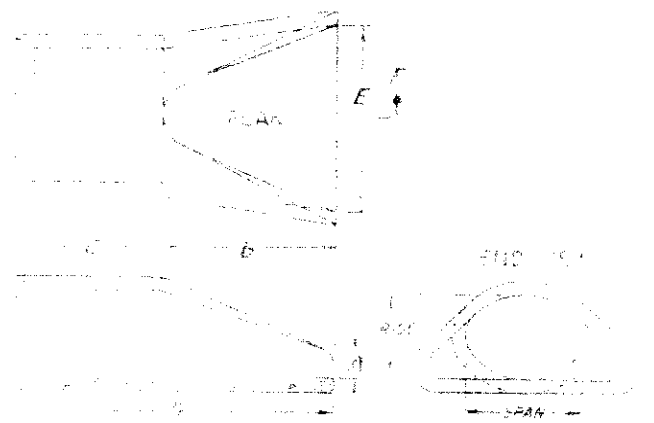
NOTE: For all sizes of pipe with Annular or Helical corrugations, the toe plate shall be attached to a minimum 2 ft. of pipe with galvanized rivets or bolts, or by welding.

END SECTION AND CONNECTION DETAIL FOR CORRUGATED STEEL PIPE ARCH CULVERT



EQUIVALENT CIRCULAR DIAM. (Inches)	SPAN	RISE	D I M E N S I O N S (Inches)				
			A	B	C	D	E
24	20	18	3 1/2	38	33	72	46
30	22	20	4 1/2	50	41	96	60
36	27	27	11 1/2	60	36	96	72
42	30	30	15 3/4	60	36	96	75
48	36	36	25	60	36	96	84
54	40	40	25 1/2	60	36	96	90
60	48	48	30	60	36	96	96
72	54	54	30	60	36	96	120

END SECTION FOR REINFORCED CONCRETE ARCH PIPE



EQUIVALENT CIRCULAR DIAM. (Inches)	SPAN	RISE	D I M E N S I O N S (Inches)				
			A	B	C	D	E
24	20	18	3 1/2	38	33	72	46
30	22	20	4 1/2	50	41	96	60
36	27	27	11 1/2	60	36	96	72
42	30	30	15 3/4	60	36	96	75
48	36	36	25	60	36	96	84
54	40	40	25 1/2	60	36	96	90
60	48	48	30	60	36	96	96

END SECTION FOR REINFORCED CONCRETE ELLIPTICAL PIPE

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
CONCRETE AND METAL
END SECTIONS

Designed by: M.R.H. Approved by: M.R.H.
Made by: J.R.B. State Design Engineer
Checked by: R.S.M. Date: November 10, 1967

STANDARD M-603-M(SPECIAL)

(MARCH 20, 1967)

REVISIONS	DATE	BY	REASON
(1) 4-5-68	Added notes		
(2) 7-23-66	Dept. Name & No.		
(3) 8-29-70	Special this project only		

FILL HEIGHT AND GAGE TABLES FOR METAL CULVERT PIPE (RIVETED, WELDED OR HELICAL FABRICATION)

TABLE I
CORRUGATED STEEL PIPE
(2" x 1/2") OR (2-2/3" x 1/2") CORRUGATIONS

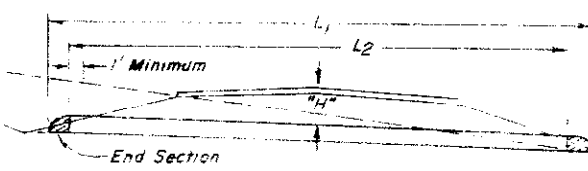
PIPE SIZE (B ₀) Inches	AREA (Sq Ft.)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET															
		1 to 10	10+ to 15	15+ to 20	20+ to 25	25+ to 30	30+ to 35	35+ to 40	40+ to 45	45+ to 50	50+ to 55	55+ to 60	60+ to 70	70+ to 80	80+ to 90	90+ to 100	
		G A G E															
12	0.8	16	16	16	16	16	16	16	16	16	16	16	16	16	14	12	
15	1.2	16	16	16	16	16	16	16	16	16	16	16	16	14	12	10	
18	1.8	16	16	16	16	16	16	16	16	16	14	14	12	12	10	8	
24	3.1	16	16	16	16	16	14	12	10	10	8	----- See General Note.					
30	4.9	16	16	16	16	14	14	12	12	10	8						
36	7.1	16	16	16	16	14	12	10	8								
42	9.6	16	16	16	16	14	14	12	10	8							
48	12.6	15	16	16	16	14	14	12	10	8							
54	15.9	14	14	14	14	14	12	12	10	8							
60	19.6	12	12	12	12	12	12	10	10	8							
66	23.8	12	12	12	12	10	10	10	8								
72	28.3	10	10	10	10	8											
78	33.0	8	8	8	8												
84	35.0	8	8	8													

--- See General Note.

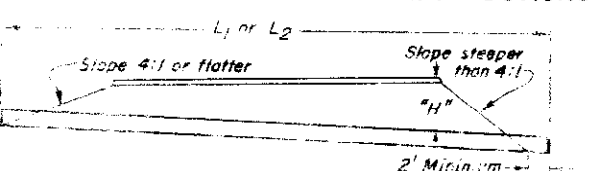
TABLE II
CORRUGATED STEEL PIPE ARCH
(2" x 1/2") OR (2-2/3" x 1/2") CORRUGATIONS

PIPE SIZE (B ₀) Span-Rise (Inches)	AREA (Sq. Ft.)	CORNER RADIUS (Inches)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET									
			1.5 to 7	7 to 8	8 to 9	9 to 10	10 to 12	12 to 13				
18 x 11	1.1	3 1/2	16	16	16	16	16	16				
22 x 13	1.6	4	16	16	16	16	16	16				
25 x 16	2.2	4	16	16	16	16	16	16				
29 x 18	2.8	4 1/2	16	16	16	16	16	16				
36 x 22	4.4	5	16	16	16	16	16	16				
43 x 27	6.4	5 1/2	16	16	16	16	16	16				
50 x 31	8.7	6	14	14	14	14	14	14				
58 x 36	11.4	7	12	12	12	12	12	12				
65 x 40	14.3	8	12	12	12	12	12	12				
72 x 44	17.6	9	10	10	10	10	10	10				
(R-3) 85 x 53	25.3	11	10	10	10	10	10	10				

METAL CULVERT WITH END SECTIONS



METAL CULVERT WITHOUT END SECTION



"H" = Maximum height of fill over top of Culvert including pavement.
L₁ = Length of Culvert to be measured when placed in accordance with Section 617.
L₂ = Length of pipe to be measured when placed in accordance with Section 603.
(R-1) Length of extension, when placed in accordance with Section 617, shall be the actual number of feet of new culvert required.

TABLE III
CORRUGATED STEEL PIPE
RIVETED OR HELICAL FABRICATION
3" x 1" CORRUGATIONS

PIPE SIZE (B ₀)		HEIGHT OF FILL OVER TOP OF PIPE IN FEET																	
Inches	AREA (Sq. Ft.)	1 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 70	70 to 80					
		10	15	20	25	30	35	40	45	50	55	60	70	80					
GAGE																			
36	7.1	16	16	16	16	16	14	12	12	12	12	10	8						
42	9.6	16	16	16	16	14	14	12	12	12	12	8							
48	12.6	16	16	16	14	14	12	12	12	10	8								
54	15.9	16	16	16	14	14	12	12	10	8									
60	19.6	16	16	16	14	12	12	12	10										
66	23.8	16	16	14	12	12	10												
72	28.3	16	16	14	12	12	10												
78	33.0	16	16	14	12	10	8												
84	38.0	14	14	12	12														
90	44.0	14	14	12	12														
96	50.3	12	12	12	10														
102	57.0	12	12	12	12														
108	64.0	12	12	12	10														
114	70.9	10	10	10	8														
120	78.6	10	10	10	8														

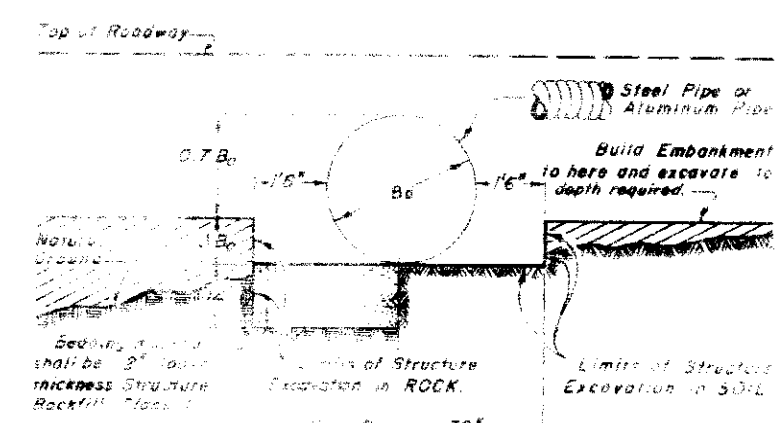
TABLE IV
CORRUGATED STEEL PIPE
SPOT WELDED OR BOLTED (1/2" ASTM A 325 BOLTS) FABRICATION
3" x 1" CORRUGATIONS

PIPE SIZE (B ₀) Inches		AREA (Sq. Ft.)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET																	
			1 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 70	70 to 80	80 to 90	90 to 100			
			10	15	20	25	30	35	40	45	50	55	60	70	80	90	100			
			GAGE																	
36	7.1		16	16	16	16	16	16	16	14	14	12	12	12	12	10	10			
42	9.6		16	16	16	16	16	16	16	14	14	12	12	12	10	8				
48	12.6		16	16	16	16	16	14	14	14	12	12	12	10	8					
54	15.9		16	16	16	16	16	14	14	12	12	10	10							
60	19.6		16	16	16	16	14	14	12	12	10	8								
66	23.8		16	16	16	14	14	12	12	10	8									
72	28.3		16	16	16	14	14	12	12	10										
78	33.0		16	16	16	14	12	12	10	8										
84	38.0		14	14	14	14	12	12	10											
90	44.0		14	14	14	14	12	12	10											
96	50.3		12	12	12	12	12	10	8											
102	57.0		12	12	12	12	12	10	8											
108	64.0		12	12	12	12	12	10												
114	70.9		10	10	10	10	10	8												
120	78.6		10	10	10	10	10													

TABLE V
CORRUGATED STEEL PIPE ARCH
3" x 1" CORRUGATIONS

PIPE SIZE (B ₀) Span-Rise (Inches)	AREA (Sq. Ft.)	CORNER RADIUS (Inches)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET									
			1.5 to 7	7 to 8	8 to 9	9 to 10	10 to 12	12 to 14	14 to 15			
43 x 27	6.4	3 1/2	16	16	16	16	16	16	16			
50 x 31	8.7	4	16	16	16	16	16	16	16			
58 x 36	11.4	4 1/2	16	16	16	16	16	16	16			
65 x 40	14.3	5	16	16	16	16	16	16	16			
72 x 44	17.6	5 1/2	16	16	16	16	16	16	16			
73 x 55	22.0	6	16	16	16	16	16	16	16			
81 x 59	26.0	6 1/2	16	16	16	16	16	16	16			
87 x 63	31.0	7	14	14	14	14	14	14	14			
91 x 67	35.0	7 1/2	14	14	14	14	14	14	14			
103 x 71	41.0	8	12	12	12	12	12	12	12			

INSTALLATION OF METAL CULVERT PIPE



NOTE: Symbols and dimensions shall conform to the details shown in the Standards for Excavation and Backfill for Structures.</

30984

SOIL SURVEY - PRELIMINARY
SAMPLE NO. A-554
PROJECT NO. RF 287-1(4)

30984

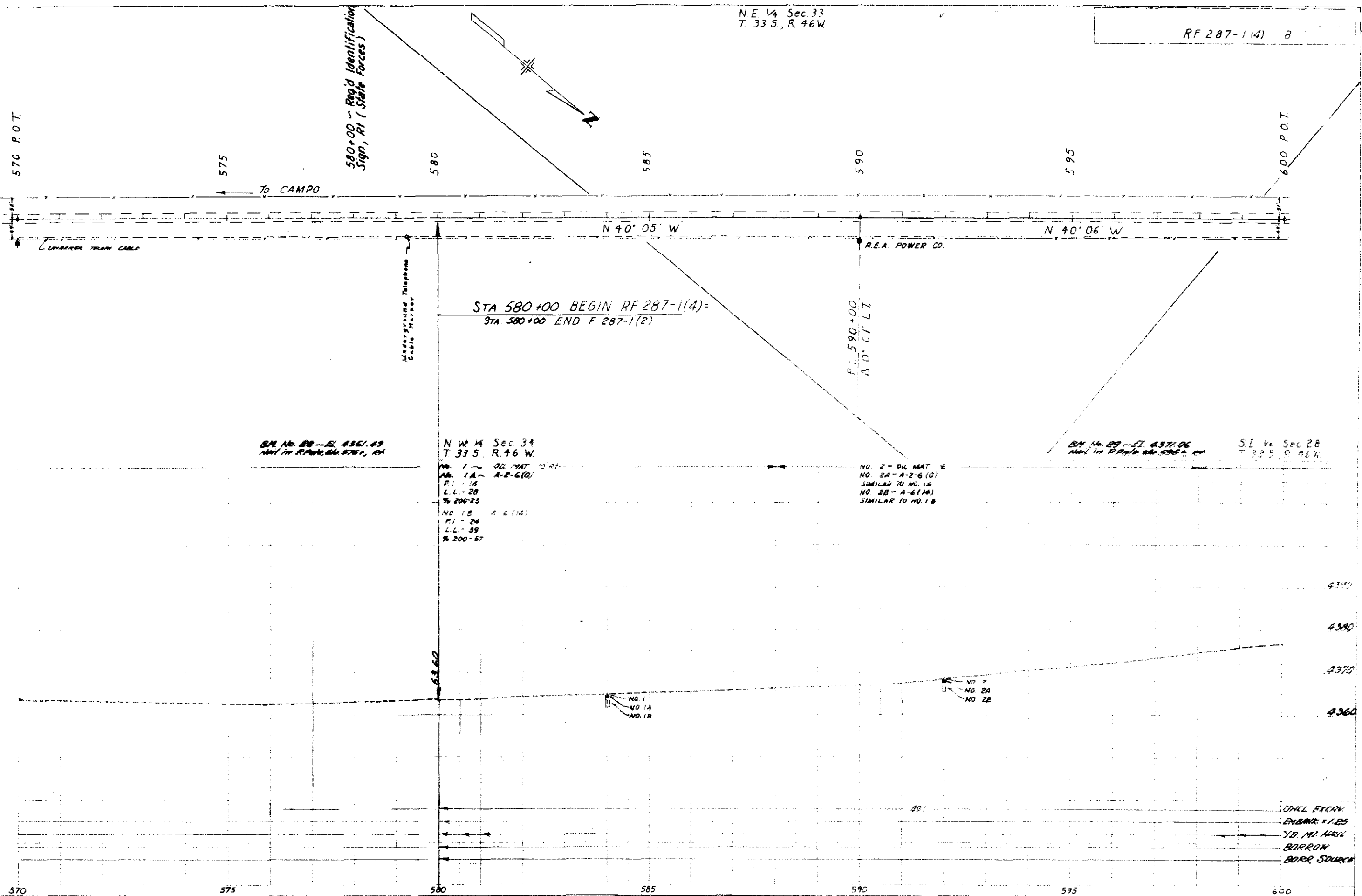
4350

4380

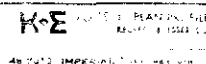
4370

4360

4350

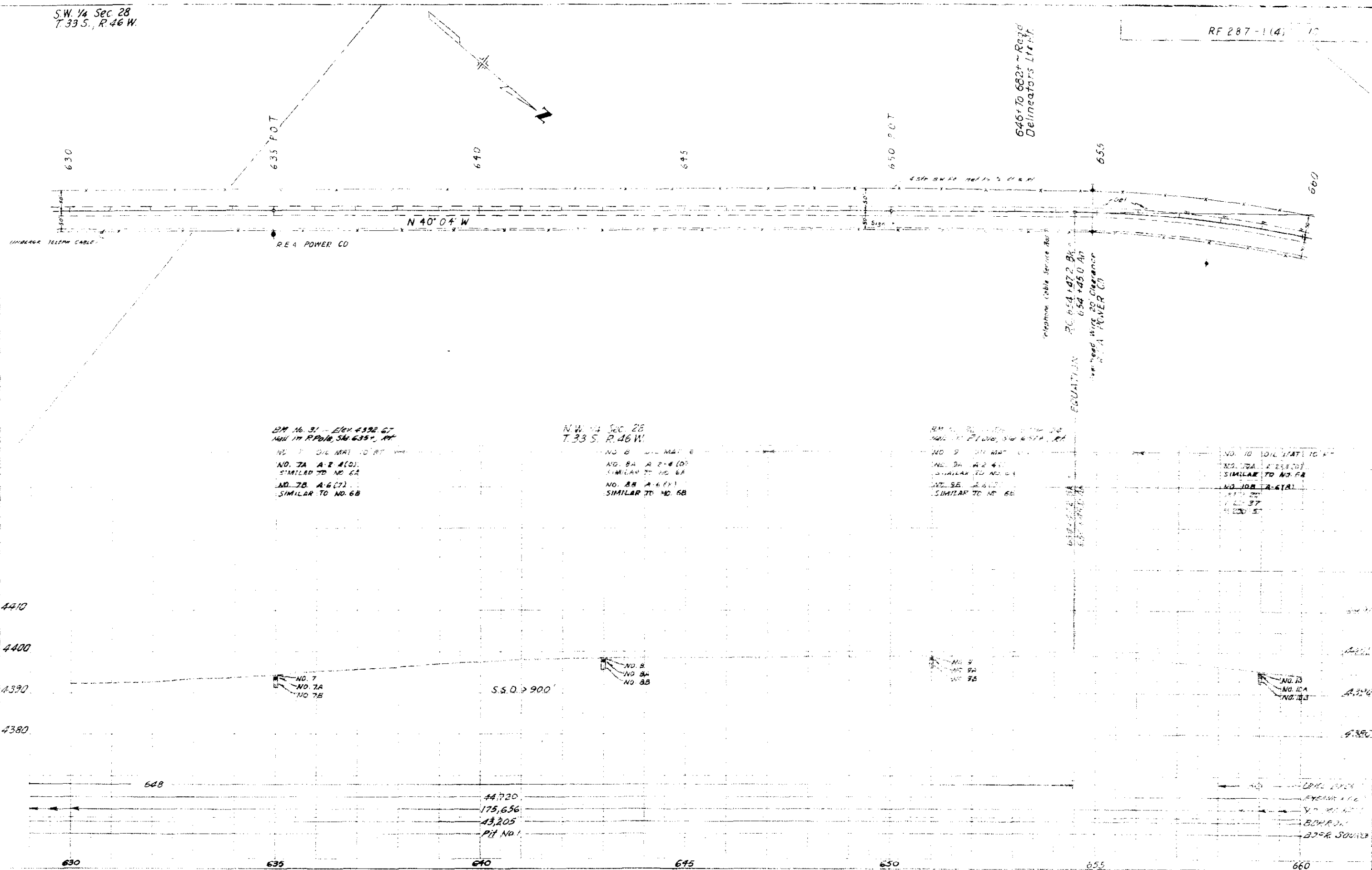


S.W. 1/4 Sec. 28
T. 33 S. R. 46 W.



S.W. 1/4 Sec. 28
T.33 S., R.46 W.

RF 287-1(4) 10



BM No. 31 - Elev 4392.67
Nail in P.P. 1/8, Sta. 635+10, R.H.

NO. 7 - ONE NAIL TO RT
NO. 7A - A-2 A(0)
SIMILAR TO NO. 6A
NO. 7B - A-6 (7)
SIMILAR TO NO. 6B

N.W. 1/4 Sec. 28
T.33 S., R.46 W.

NO. 8 - ONE NAIL TO
NO. 8A - A-2 A(0)
SIMILAR TO NO. 6A
NO. 8B - A-6 (7)
SIMILAR TO NO. 6B

BM No. 32 - Elev 4392.67
Nail in P.P. 1/8, Sta. 655+10, R.H.

NO. 9 - ONE NAIL TO
NO. 9A - A-2 A(0)
SIMILAR TO NO. 6A
NO. 9B - A-6 (7)
SIMILAR TO NO. 6B

NO. 10 - ONE NAIL TO
NO. 10A - A-2 A(0)
SIMILAR TO NO. 6A
NO. 10B - A-6 (7)
SIMILAR TO NO. 6B

S.S.D. > 900'

NO. 8
NO. 8A
NO. 8B

NO. 9
NO. 9A
NO. 9B

NO. 10
NO. 10A
NO. 10B

44720
175,656
43,205
PIT NO. 1

NO. 10
NO. 10A
NO. 10B
NO. 10C
NO. 10D
NO. 10E
NO. 10F
NO. 10G
NO. 10H
NO. 10I
NO. 10J
NO. 10K
NO. 10L
NO. 10M
NO. 10N
NO. 10O
NO. 10P
NO. 10Q
NO. 10R
NO. 10S
NO. 10T
NO. 10U
NO. 10V
NO. 10W
NO. 10X
NO. 10Y
NO. 10Z

K-E

IMPERIAL

N.E. 1/4 Sec 29
T. 33 S., R. 46 W.

S.E. 1/4 Sec. 20
T. 33 S., R. 46 W.

RF 287-1(4) 11

Pt. 664+98.9

667+75-Remove
24"x60" C.S.P. Lt. & Rt.
Req'd 24"x60" Side Drains
Road Appr's Lt. & Rt.

COUNTY ROAD

Tel. Cable Post

Tel. Cable Post



675+ to 684+
Req'd Detour Lt
(Detail 15 Sh + No 2)

680
Timber Piling Trestle
Str. No. P-26-D

680+30-Remove Timber
Piling Trestle, Req'd (2) 85"
x 53" x 84" Cross Culverts with
D.A. = 2.59 M.
Q25 = 320 cfs
timber to be salvaged

687+55-Req'd 18"x50" Side
drain & road appr Lt

689+00-Req'd Road
Approach

660

N. 40° 04' W

A 40° 23' 30" Rt.
D 2° 00'
L 1053.9
T 2019.7
R 2865.0
SS 2900'
DS 055'
70 MPH

667+ to 671+ - Remove 12
Side road & 24"x56"
C.S.P. Rt

Power Line Crossing 25' Clearance

Pt. 674+64.7

685

690

N.W. 1/4 Sec. 28
T. 33 S., R. 46 W.

B.M. No 33 - Elev. 4389.12
Nail in P Pole 71 Rt. Sta. 667+27

B.M. No 34 - Elev. 4389.92
Nail in P Pole 48 Rt. Sta. 674+29

S.W. 1/4 Sec. 21
T. 33 S., R. 46 W.

B.M. No 35 - Elev. 4387.85
Nail in top of 1200' S. Wing of 50' No. 2722

B.M. No 36 - Elev. 4387.85
Nail in top of 1200' S. Wing of 50' No. 2722

NO. 11 OIL MAT 2
NO. 11A A-6(B)
SIMILAR TO NO. 10B

NO. 12 OIL MAT 1
NO. 12A A-6(B)
SIMILAR TO NO. 10B

NO. 13 OIL MAT 1
NO. 13A A-6(B)
SIMILAR TO NO. 10B

NO. 11
NO. 11A

NO. 12
NO. 12A

NO. 13
NO. 13A

UNCL. EXPOSED
EMBANK. 11.25
10.00 M. HOLE
BORROW
BORR. SOURCE

660

665

670

675

680

685

690

S.E. 1/4 Sec. 20
T.33 S., R.46 W.

N.E. 1/4 Sec. 20
T.33 S., R.46 W.

RF 287-1(4) 12

690
POT 690+60.1
30"x58" C.S.P. with Conc. Hdwr

695

700

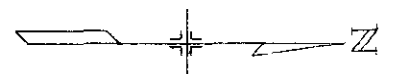
705

POT 708+43.7

710

715

720



Mountain Bell Buried Cable ?

REA POWER CO.

N. 0° 19' 30" E

691+08 ~ Plug
30"x58" C.S.P.

S.W. 1/4 Sec. 21
T.33 S., R.46 W.

B.M. No. 36 - Elev. 4402.02
Nail in P. Pole 51 Rt Sta 691+35

B.M. No. 37 - Elev. 4403.93
Nail in P. Pole 51 Rt Sta 698+05

B.M. No. 38 - Elev. 4407.76
Nail in P. Pole 51 Rt Sta 704+00

B.M. No. 39 - Elev. 4408.19
Nail in P. Pole 51 Rt Sta 711+25

B.M. No. 40 - Elev. 4408.76
Nail in P. Pole 51 Rt Sta 717+90

NO. 14A A-1-B(0)
SIMILAR TO NO. 13A
NO. 14B A-2-B(0)
SIMILAR TO NO. 13B

NO. 15A A-1-B(0)
SIMILAR TO NO. 13A
NO. 15B A-2-B(0)
SIMILAR TO NO. 13B

NO. 16A A-1-B(0)
SIMILAR TO NO. 13A
NO. 16B A-2-B(0)
SIMILAR TO NO. 13B

NO. 17A A-1-B(0)
SIMILAR TO NO. 13A
NO. 17B A-2-B(0)
SIMILAR TO NO. 13B

1420

1400

1380

1360

NO. 14A
NO. 14B
NO. 14C

NO. 15A
NO. 15B
NO. 15C

NO. 16A
NO. 16B
NO. 16C

NO. 17A
NO. 17B
NO. 17C

1420

1400

1380

1360

UNCL EXCAV
EMBANK MTS
10. M. HALL
BORROW
BORR. SOURCE

690

695

700

705

710

715

720

PLAN
3/27/74
3/27/74

PROFILE
3/27/74
3/27/74

N.E. 1/4 Sec 20
T33S, R46W

S. 1/4 Sec 17
T33S, R46W

NE 287-1(4) 13

N.E. 1/4 Sec 17
T33S, R46W

P.O.T. 748+33.0

750

745

740

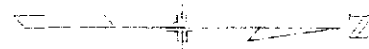
735

730

725

720

30'x54' C.S.P. with Conc. Hd. Lt.



N. 0° 20' 30" E

R.E.A. POWER CO.

Mountain Bell Buried Cable - 7

231+77 ~ Extend 30'x54'
C.S.P. 16' Lt and 6' Rt
(Internal Connecting Hand Lt)
with end sections.
G.A. 10.5 Sq Ft.
C.S. 260 cfs

2nd Cable Post

N.W. 1/4 Sec 21
T33S, R46W

B.M. No. 41 - Elev 4402.10
Nail in P. Pole 51 Rt. Sta. 724+40

B.M. No. 42 - Elev 4400.87
Nail in P. Pole 51 Rt. Sta. 731+05

B.M. No. 43 - Elev 4400.14
Nail in P. Pole 51 Rt. Sta. 737+35

S. 1/4 Sec 16
T33S, R46W

B.M. No. 44 - Elev 4402.83
Nail in P. Pole 51 Rt. Sta. 744+25

S. 1/4 Sec 15
T33S, R46W

NO. 18 DIL MAT 10 LT
NO. 18A 2 2x4 10
PI - 5
LS - 20
TS - 19
NO. 18B 1 2x4 10
MS - 12
LS - 25
TS - 200-45

NO. 19 DIL MAT 10 RT
NO. 19A 2 2x4 10
SIMILAR TO NO. 18A
NO. 19B 1 2x4 10
SIMILAR TO NO. 18B

NO. 20 DIL MAT 6
NO. 20A 2 2x4 10
SIMILAR TO NO. 18A
NO. 20B 1 2x4 10
SIMILAR TO NO. 18B

NO. 21 DIL MAT 10 LT
NO. 21A 2 2x4 10
SIMILAR TO NO. 18A
NO. 21B 1 2x4 10
SIMILAR TO NO. 18B

NO. 13
NO. 13A
NO. 13B

NO. 14
NO. 14A
NO. 14B

NO. 15
NO. 15A
NO. 15B

NO. 16
NO. 16A
NO. 16B

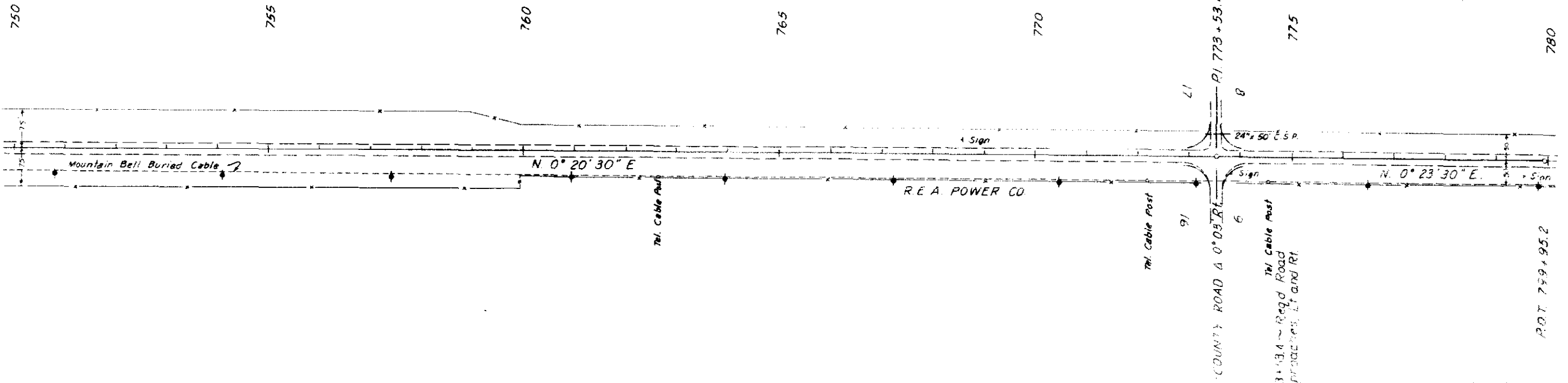
EMBEDDED
EMBANKMENT
NO. 17 HALL
BORROW
BORR SOURCE

STATE OF COLORADO
COUNTY OF SOUTHERN
PLAT 1-PLAN-PROFILE

N.E. 1/4 Sec. 17
T. 33 S., R. 46 W.

RF 287-1(4)

S.E. 1/4 Sec. 8
T. 33 S., R. 46 W.



B.M. No. 45 - Elev. 4402.20
Nail in P. Pole 51' Rt Sta 750+80

B.M. No. 46 - Elev. 4406.03
Nail in P. Pole 51' Rt Sta 757+40

B.M. No. 47 - Elev. 4402.18
Nail in P. Pole 51' Rt Sta 763+95

N.W. 1/4 Sec. 16
T. 33 S., R. 46 W.

B.M. No. 48 - Elev. 4399.75
ROW Marker 50' Rt Sta 773+53

S.E. 1/4 Sec. 8
T. 33 S., R. 46 W.
B.M. No. 49 - Elev. 4397.82
Nail in P. Pole 51' Rt Sta 779+95

NO. 22 OIL MAT. 10 FT.
NO. 22A A-1-b(0)
P.I. - 3
L.L. - 21
%200-70
NO. 22B A-6(1)
P.I. - 11
L.L. - 20
%200-43

NO. 23 OIL MAT. 10 FT.
NO. 23A A-1-b(0)
SIMILAR TO NO. 22A
NO. 23B A-6(1)
SIMILAR TO NO. 22B

NO. 24 OIL MAT. 10 FT.
NO. 24A A-1-b(0)
SIMILAR TO NO. 22A
NO. 24B A-6(1)
P.I. - 19
L.L. - 36
%200-70

NO. 24
NO. 24A
NO. 24B

NO. 23
NO. 23A
NO. 23B

NO. 22
NO. 22A
NO. 22B

1,649
21,200
35,752
79,551
PIT NO. 1

UNDER 1" CAN
EMBANK 1" 25
10 MI. HARD
BORROW
BORR SOURCE

PLAN
31224
31224

S.E. 1/4 Sec. 8
T.33 S., R.46 W.

N.E. 1/4 Sec. 8
T.33 S., R.46 W.

RF 287-1(4)	15
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780
30' x 58' C.S.P. with Conc. Hdwl.
48' x 58' C.S.P. with Conc. Hdwl.
30' x 58' C.S.P. with Conc. Hdwl.
780+ To 781+ Remove
& Reset Fence Lt. & Rt.

Mountain Bell Buried Cable

N. 0° 23' 30" E.
R.E.A. POWER CO.

807+68 - Reg'd Road
Approach, Lt.
P.O.T. 807+68.5

78+20 - Remove Headwall Lt.
Extend 30' x 58' C.S.P. 22' Lt. & 6' Rt.
Req'd end sections
78+35 - Remove Headwall Lt.
Extend 48' x 58' C.S.P. 22' Lt. & 6' Rt.
Req'd end sections
Ditches (W=30')
78+49 - Remove Headwall Lt.
Extend 30' x 58' C.S.P. 22' Lt. & 6' Rt.
Req'd end sections
Q₂₅ = 2.50 MI
Q₂₅ = 550 C.F.S.

B.M. No. 50 - Elev 4399.45
Nail in P. Pole 51' Rt Sta 786+43

S.W. 1/4 Sec. 9
T.33 S., R.46 W.

B.M. No. 51 - Elev 4399.89
Nail in P. Pole 51' Rt Sta 793+00

B.M. No. 52 - Elev 4403.08
Nail in P. Pole 51' Rt Sta 799+60

S.W. 1/4 Sec. 9
T.33 S., R.46 W.

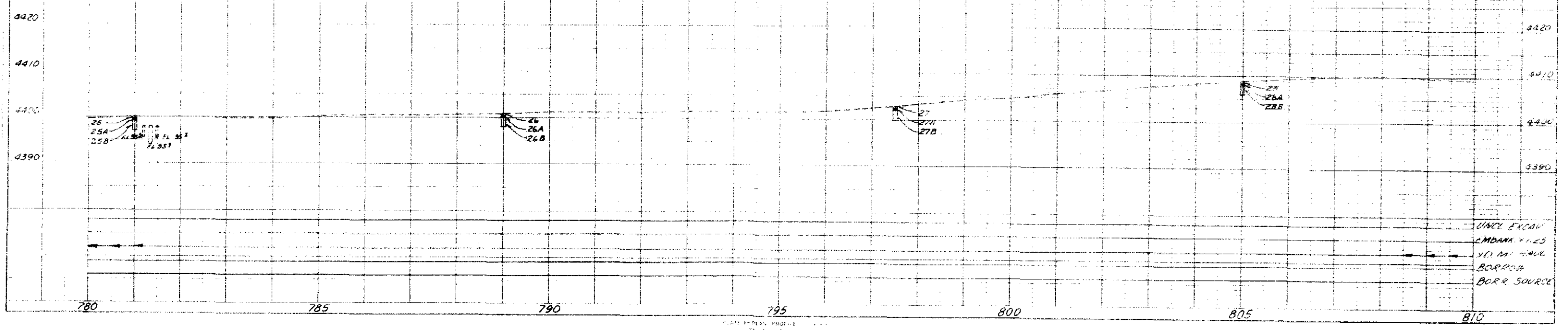
B.M. No. 53 - Elev 4407.64
Nail in P. Pole 51' Rt Sta 806+25

NO. 25 OIL MAT 10' RT.
NO. 25A A-1-B(1)
SIMILAR TO NO. 22A
NO. 25B A-6(12)
SIMILAR TO NO. 24B

NO. 26 OIL MAT 8'
NO. 26A A-1-B(1)
SIMILAR TO NO. 22A
NO. 26B A-6(12)
SIMILAR TO NO. 24B

NO. 27 OIL MAT 10' RT.
NO. 27A A-1-B(1)
SIMILAR TO NO. 22A
NO. 27B A-6(12)
SIMILAR TO NO. 24B

NO. 28 OIL MAT 10' RT.
NO. 28A A-1-B(1)
NO. 28B A-6(12)
NO. 28C A-6(12)
NO. 28D A-6(12)

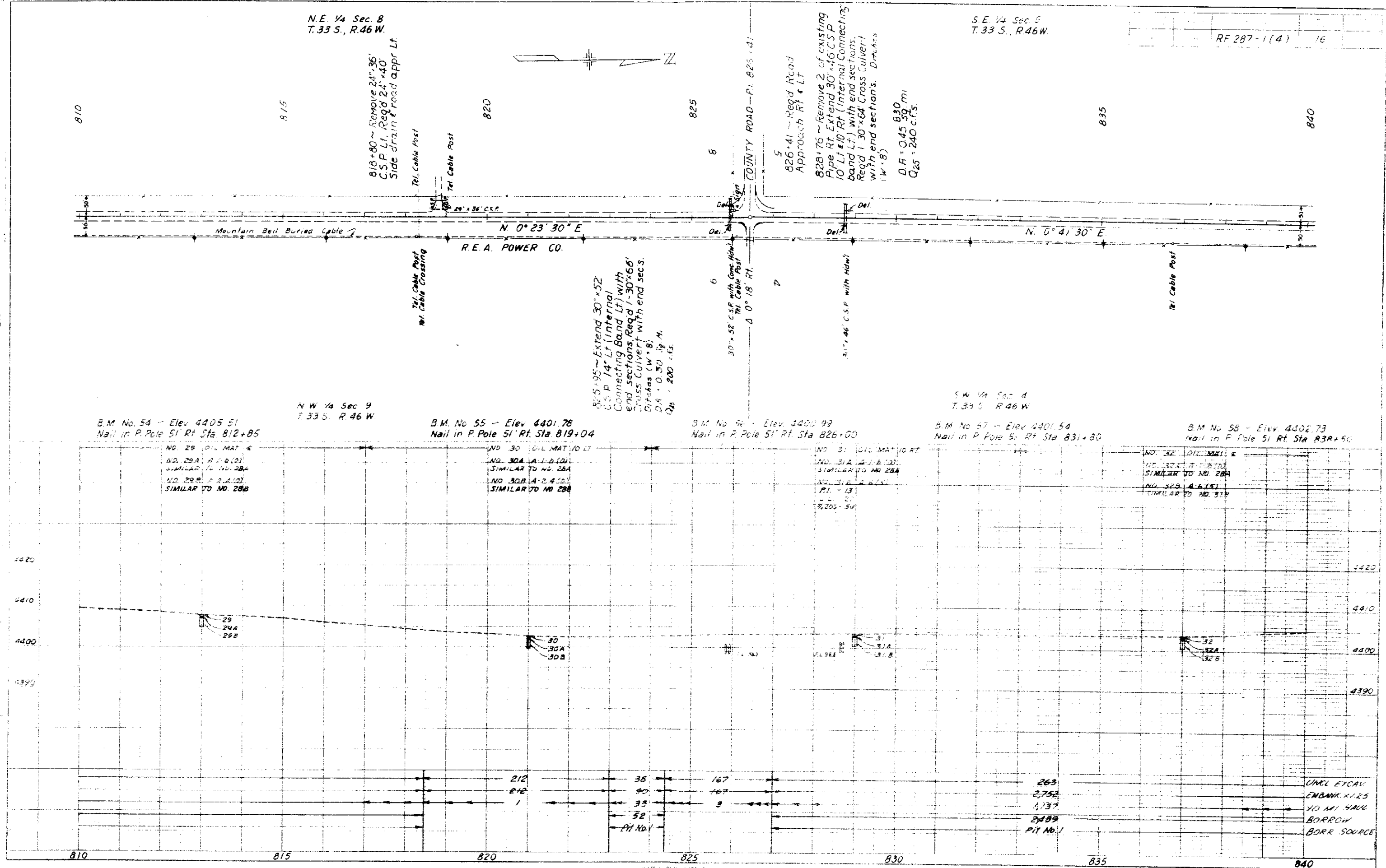


PLAN
31273
31274

N.E. 1/4 Sec. 8
T.33 S., R.46 W.

S.E. 1/4 Sec. 5
T.33 S., R.46 W.

RF 287-1(4) 16



S.E. 1/4 Sec. 5
T.33S, R.46W.

N.E. 1/4 Sec. 5
T.33S, R.46W.

RF 267-1(4) 17

840

845

850

P.O.T. 852+82.5

855

860

865

870

851+80 ~ Road 18'x50' Side
drain & road approach Lt.

30"x46" C.S.P. with 14'w/1
857+43 - Remove 2' of 30"x46"
C.S.P. Rt. Extend 30"x46" C.S.P.
18' Lt. & 16' Rt. (Internal Connect-
ing band Lt) with end sec's
DA = 0.25 Sq. M.
Q₂₅ = 180 cfs

N 0°41'30" E.
R.E.A. POWER CO.

Mountain Bell Buried Cable

7' Cable Service Box

S.W. 1/4 Sec. 4
T.33S, R.46W.
B.M. No. 59 - Elev. 4405.5
Nail in P. Pole 51 Rt. Sta. 845+10

B.M. No. 60 - Elev. 4406.93
R.O.W. Marker 50 Rt. Sta. 852+82.5

N.W. 1/4 Sec. 4
T.33S, R.46W.
B.M. No. 61 - Elev. 4407.02
Nail in P. Pole 51 Rt. Sta. 859+75

B.M. No. 62 - Elev. 4411.77
Nail in P. Pole 51 Rt. Sta. 866+65

NO. 33A DIL. MAT. 10' LT.
NO. 33A A-B (8)
SIMILAR TO NO. 33A
NO. 33B A-B (6)
SIMILAR TO NO. 31B

NO. 34 DIL. MAT. 10' LT.
NO. 34A A-B (2)
F. 19
LL - 19
12,200 - 77
NO. 34B A-B (12)
F. 20
LL - 37
12,200 - 70

NO. 35 DIL. MAT. 10' LT.
NO. 35A A-B (8)
SIMILAR TO NO. 34A
NO. 35B A-B (12)
SIMILAR TO NO. 34B

NO. 36 DIL. MAT. 10' LT.
NO. 36A A-B (8)
SIMILAR TO NO. 34A
NO. 36B A-B (12)
SIMILAR TO NO. 34B

NO. 33
NO. 33A
NO. 33B

NO. 34
NO. 34A
NO. 34B

NO. 35
NO. 35A
NO. 35B

NO. 36
NO. 36A
NO. 36B

ENRANK 11.65
3.33' H. 11.65
BORR 50.00

N.E. 1/4 Sec 5
T.33 S., R.46 W.

NOTED

S.E. 1/4 Sec 32
T.32 S., R.46 W.

RF 287-1(4)	18	33
-------------	----	----

Remove 2' Rt. and
Extend 30' x 52'
30' x 52' LT 66' Rt
Internal connecting band
LT with end sections.
Reg'd 1' 30" x 88' Cross
Culvert with end sec's
D.A. 0.15 Sq. Mi
Q₂₅ = 130 c.f.s.
Ditches (W=8')

Tel. Cable Post

879+25 ~ Reg'd Road Appr.
5
Lt. and Rt.

ROAD - Δ 0° 16' 11" - T.33 S.
T.32 S.

30" x 50" C.S.P. with Hdw'l

2E

880

Remove 2' Rt. and
Extend 30' x 50' C.S.P.
879+73 ~ 6' Rt. (Internal conn-
ecting band Lt.) with end sec's.
Reg'd 1' 30" x 72' Cross Culvert
with end sections. Inlet Ditch (W=8')

D.A. = 0.15 Sq. Mi.
Q₂₅ = 130 c.f.s.

885
884+80 ~ Reg'd 24' x 50'
Side drain and road
approach Lt.

R.E.A. POWER CO

N.E. 1/4 Sec 5
T.33 S., R.46 W.
S.M. No. 60 - Elev. 4409.93
Hwy. 14 P. Post 51' Rt. Sta 873+25

S.M. No. 60 - Elev. 4419.06
Hwy. 14 P. Post 51' Rt. Sta 879+50

S.M. No. 60 - Elev. 4409.34
Hwy. 14 P. Post 51' Rt. Sta 887+50

S.M. No. 60 - Elev. 4419.22
T.32 S., R.46 W.

S.M. No. 60 - Elev. 4419.22
Hwy. 14 P. Post 51' Rt. Sta 894+21

NO. 37
SIMILAR TO NO. 37 B

NO. 37 B
SIMILAR TO NO. 37 B
NO. 37 B
SIMILAR TO NO. 37 B

NO. 37 B
SIMILAR TO NO. 37 B
NO. 37 B
SIMILAR TO NO. 37 B

875

880

885

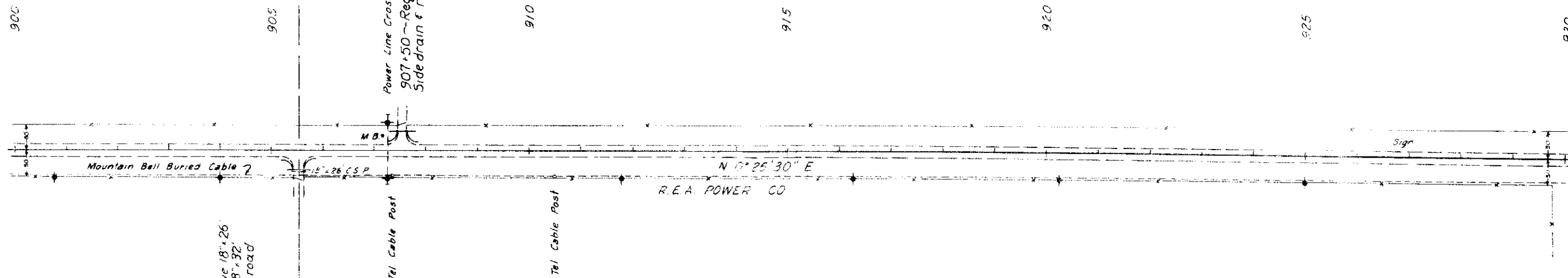
890

PLAN - PROFILE

S.E. 1/4 Sec. 32
T. 32 S., R. 46 W.

N.E. 1/4 Sec. 32
T. 32 S., R. 46 W.

RF 287-1(4) 19



S.E. 1/4 Sec. 32
T. 32 S., R. 46 W.
B.M. No. 67 - Elev. 4414.33
Nail in P. Pole 51 Rt Sta. 900+75

B.M. No. 68 - Elev. 4416.63
R.O.W. Marker 50 Rt Sta. 905+73

B.M. No. 69 - Elev. 4419.65
Nail in P. Pole 51 Rt Sta. 915+25

N.E. 1/4 Sec. 32
T. 32 S., R. 46 W.

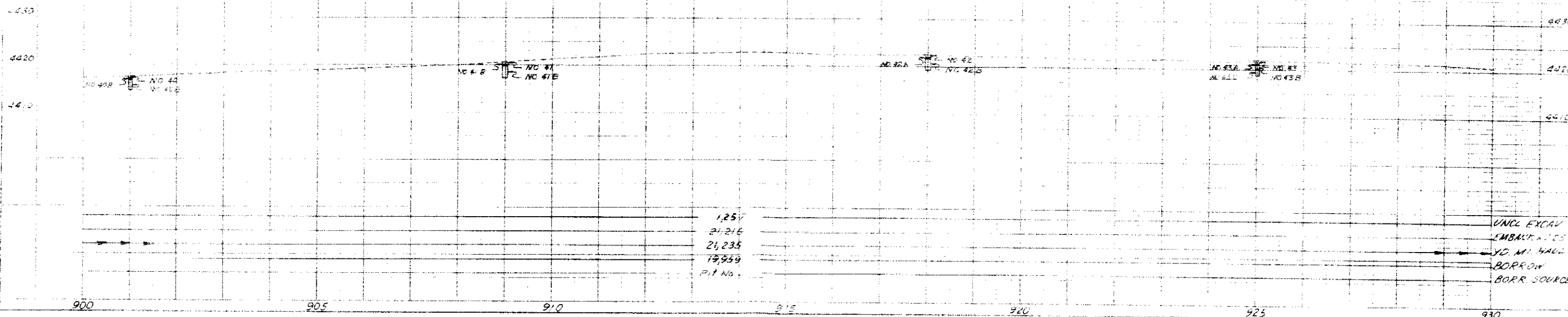
B.M. No. 70 - Elev. 4419.65
Nail in P. Pole 51 Rt Sta. 925+00

NO. 419 5' x 10'
SIMILAR TO NO. 349
NO. 420 2' x 10'
SIMILAR TO NO. 353

NO. 418 5' x 10'
SIMILAR TO NO. 350
NO. 419 2' x 10'
SIMILAR TO NO. 428

NO. 424 5' x 10'
SIMILAR TO NO. 349
NO. 425 5' x 10'
SIMILAR TO NO. 349
NO. 426 5' x 10'
SIMILAR TO NO. 349
NO. 427 5' x 10'
SIMILAR TO NO. 349
NO. 428 5' x 10'
SIMILAR TO NO. 349
NO. 429 5' x 10'
SIMILAR TO NO. 349
NO. 430 5' x 10'
SIMILAR TO NO. 349

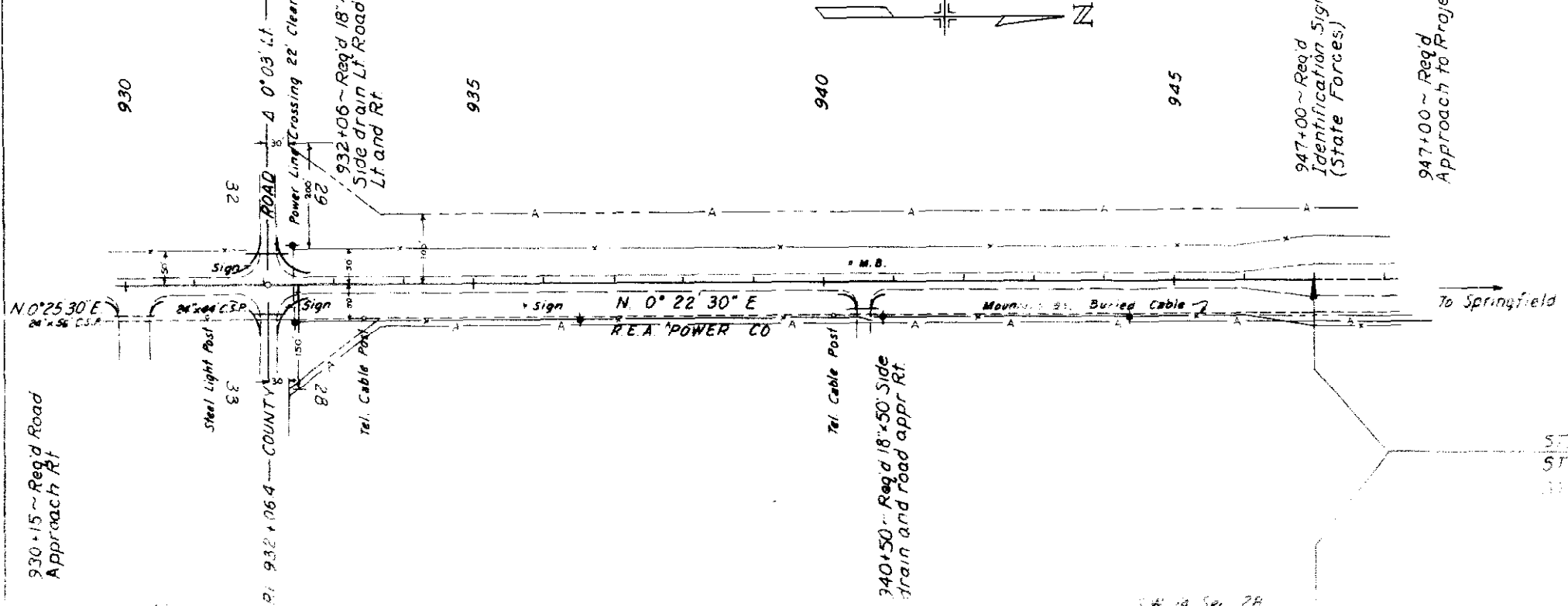
NO. 431 5' x 10'
SIMILAR TO NO. 349
NO. 432 5' x 10'
SIMILAR TO NO. 349
NO. 433 5' x 10'
SIMILAR TO NO. 349
NO. 434 5' x 10'
SIMILAR TO NO. 349
NO. 435 5' x 10'
SIMILAR TO NO. 349
NO. 436 5' x 10'
SIMILAR TO NO. 349
NO. 437 5' x 10'
SIMILAR TO NO. 349
NO. 438 5' x 10'
SIMILAR TO NO. 349
NO. 439 5' x 10'
SIMILAR TO NO. 349
NO. 440 5' x 10'
SIMILAR TO NO. 349



N.E. 1/4 Sec. 32
T. 32 S., R. 46 W.

S.E. 1/4 Sec. 29
T. 32 S., R. 46 W.

RF 287-1(4) 20



STA 947+00 End of RPT-11911
STA 947+00 End of RPT-11911
STA 947+00 End of RPT-11911

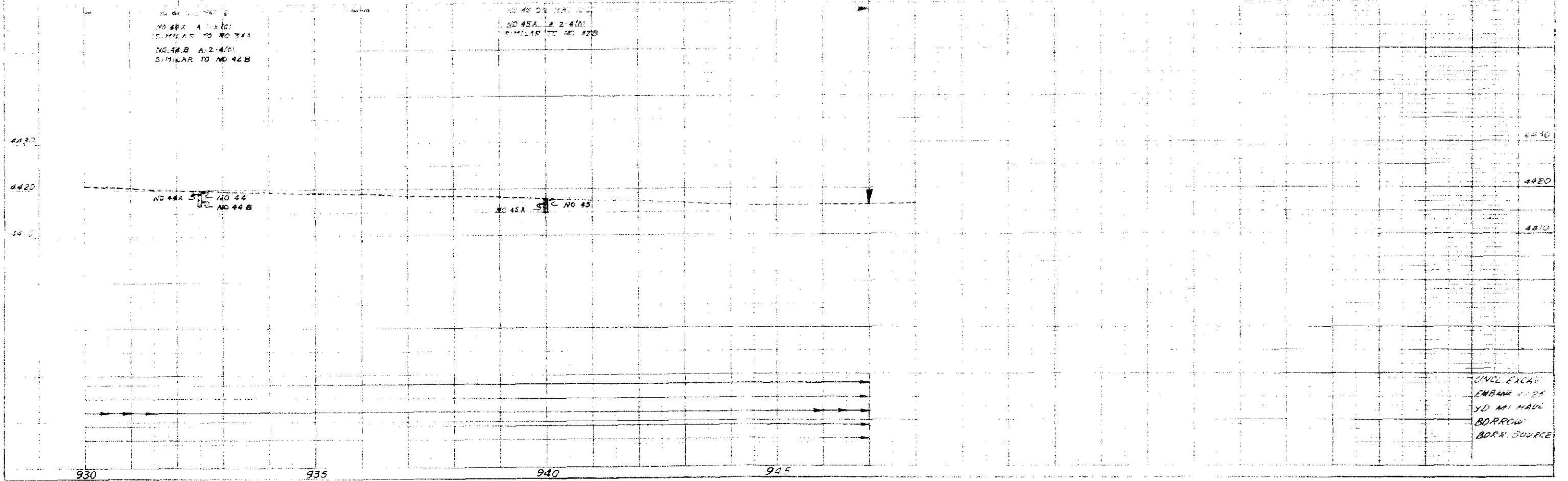
N.W. 1/4 Sec. 33
T. 32 S., R. 46 W.

B.M. No. 71 - Elev 4418.03
Nail in P. Pole 51 Rt Sta 932+37

B.M. No. 72 - Elev 4415.98
Nail in P. Pole 51 Rt Sta 940+85

S.W. 1/4 Sec. 28
T. 32 S., R. 46 W.

B.M. No. 73 - Elev 4414.32
Nail in P. Pole 51 Rt Sta 948+35

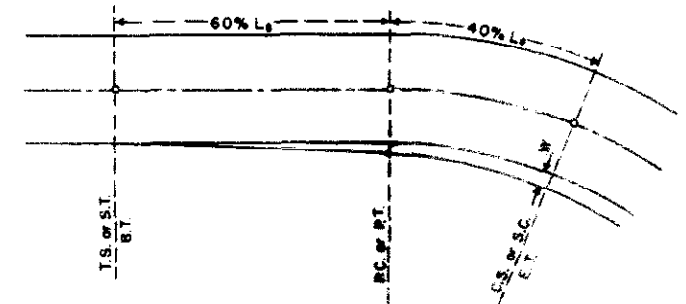
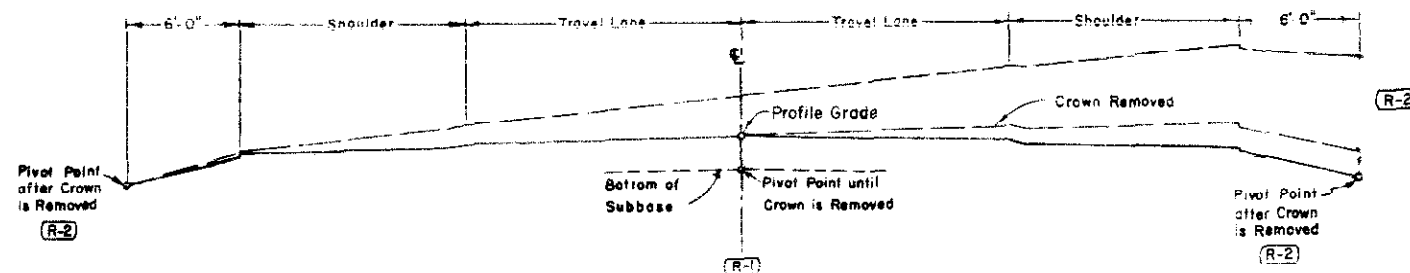


INCL EXCAV
EMBANK 1000
100 MI HAUL
BORROW
BORR SOURCE

STANDARD M-203-A

(JULY 1, 1965)

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		



PAVEMENT WIDENING

Pavement Width	20 Ft.	22 Ft.	24 Ft.
Degree of Curve			
0° - 3°	0 Ft.	0 Ft.	0 Ft.
4° - 6°	2.0 Ft.	0 Ft.	0 Ft.
7° - 10°	2.5 Ft.	0 Ft.	0 Ft.
11° - 17°	3.0 Ft.	2.0 Ft.	0 Ft.
18° - 21°	3.5 Ft.	2.5 Ft.	0 Ft.
22° - up	4.0 Ft.	3.0 Ft.	2.0 Ft.

Widening is to be on the inside edge of the pavement and the transition is to extend over the same transition length as the super-elevation.

REVISIONS

REVISIONS	DATE	BY
(R-1) 0-25-51 Supersedes Template		M.R.H.
(R-2) 7-30-58 Template, Rate Tables and Dept. Name		M.R.H.

NOTE: For obtaining smooth profiles on pavement edges, vertical curves can be inserted between the angular breaks at the beginning and the end of the super-elevation transition.

TABLE 2
SUPERELEVATION RATES FOR SPECIAL CASES E

Degree of Curve	30 M.P.H.			35 M.P.H.			40 M.P.H.			45 M.P.H.			50 M.P.H.			55 M.P.H.			60 M.P.H.			Degree of Curve
	Required Superelevation Rate Ft./Ft.	Minimum Length of Transition or Spiral		Required Superelevation Rate Ft./Ft.	Minimum Length of Transition or Spiral		Required Superelevation Rate Ft./Ft.	Minimum Length of Transition or Spiral		Required Superelevation Rate Ft./Ft.	Minimum Length of Transition or Spiral		Required Superelevation Rate Ft./Ft.	Minimum Length of Transition or Spiral		Required Superelevation Rate Ft./Ft.	Minimum Length of Transition or Spiral		Required Superelevation Rate Ft./Ft.	Minimum Length of Transition or Spiral		
0°15'	NC	NC	0	NC	NC	0	NC	NC	0	NC	NC	0	NC	NC	0	NC	NC	0	NC	NC	0	0°15'
0°30'	NC	NC	0	NC	NC	0	NC	NC	0	NC	NC	0	.020	.020	150'	.020	.020	200'	.020	.020	200'	0°30'
0°45'	NC	NC	0	NC	NC	0	.020	.020	150'	.020	.020	150'	.020	.020	150'	.020	.020	200'	.020	.020	200'	0°45'
1°00'	NC	NC	0	.020	.020	150'	.020	.020	150'	.020	.020	150'	.020	.020	150'	.021	.021	200'	.022	.022	200'	1°00'
1°15'	.020	.020	100'	.020	.020	150'	.020	.020	150'	.023	.024	150'	.027	.027	150'	.031	.031	200'	.034	.034	200'	1°15'
1°30'	.020	.020	100'	.020	.021	150'	.025	.027	150'	.030	.032	150'	.036	.036	150'	.041	.042	200'	.043	.044	200'	1°30'
1°45'	.020	.020	100'	.025	.026	150'	.030	.033	150'	.036	.038	150'	.043	.045	150'	.049	.052	200'	.057	.058	200'	1°45'
2°00'	.023	.024	100'	.029	.031	150'	.035	.038	150'	.042	.046	150'	.050	.054	150'	.057	.062	200'	.066	.070	200'	2°00'
2°15'																						2°15'
2°30'																						2°30'
2°45'																						2°45'
3°00'																						3°00'
3°15'																						3°15'
3°30'	.026	.027	100'	.033	.035	150'	.040	.045	150'	.048	.053	150'	.056	.063	150'	.064	.072	200'	.075	.081	250'	3°30'
4°	.029	.030	100'	.037	.040	150'	.044	.050	150'	.053	.060	150'	.062	.070	200'	.068	.079	200'	.076	.090	250'	4°
5°	.035	.038	100'	.044	.048	150'	.053	.060	150'	.062	.071	200'	.070	.083	200'	.077	.091	250'	.080	.099	300'	5°
6°	.041	.044	100'	.050	.056	150'	.060	.068	150'	.069	.080	200'	.076	.093	250'	.080	.098	250'			100	6°
7°	.046	.050	100'	.056	.063	150'	.066	.076	150'	.074	.088	200'	.079	.097	250'		.100	250'				7°
8°	.050	.055	100'	.061	.069	150'	.071	.084	200'	.078	.094	200'	.080	.097	250'							8°
9°	.054	.061	100'	.065	.075	150'	.074	.089	200'	.080	.097	250'										9°
10°	.056	.065	150'	.069	.081	150'		.093	200'	.080	.100	250'										10°
11°	.061	.070	150'	.072	.085	200'	.078	.096	200'													11°
12°	.065	.074	150'	.075	.089	200'	.080	.098	200'													12°
13°	.067	.078	150'	.077	.092	200'		.100	200'													13°
14°	.070	.082	150'	.078	.095	200'																
15°	.072	.085	150'	.079	.097	200'																
16°	.074	.087	150'	.080	.099	200'																
17°	.076	.090	150'		.100	200'																
18°	.077	.093	200'		.100	200'																
19°	.078	.095	200'																			
20°	.079	.096	200'																			
21°	.080	.098	200'																			
22°	.080	.099	200'																			
23°	.080	.099	200'																			
24°		.100	200'																			
25°		.100	200'																			

Table 2 data may be used for City Streets & Interchanges.
NC=Normal Crown section.

DEPARTMENT OF HIGHWAY
STATE OF COLORADO
DIVISION OF HIGHWAY

R-2

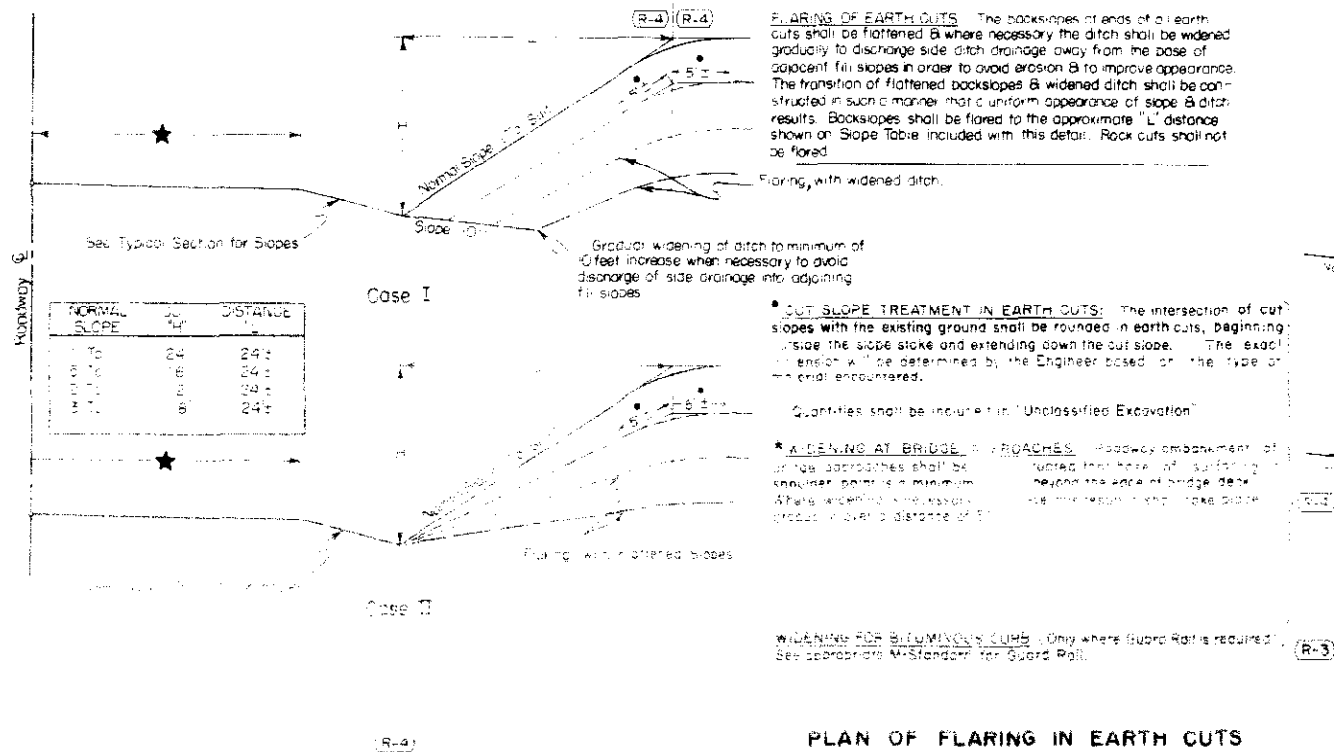
SUPERELEVATION &

STANDARD SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT & WIDENING AT BRIDGES AND AT CREST OF GRADES

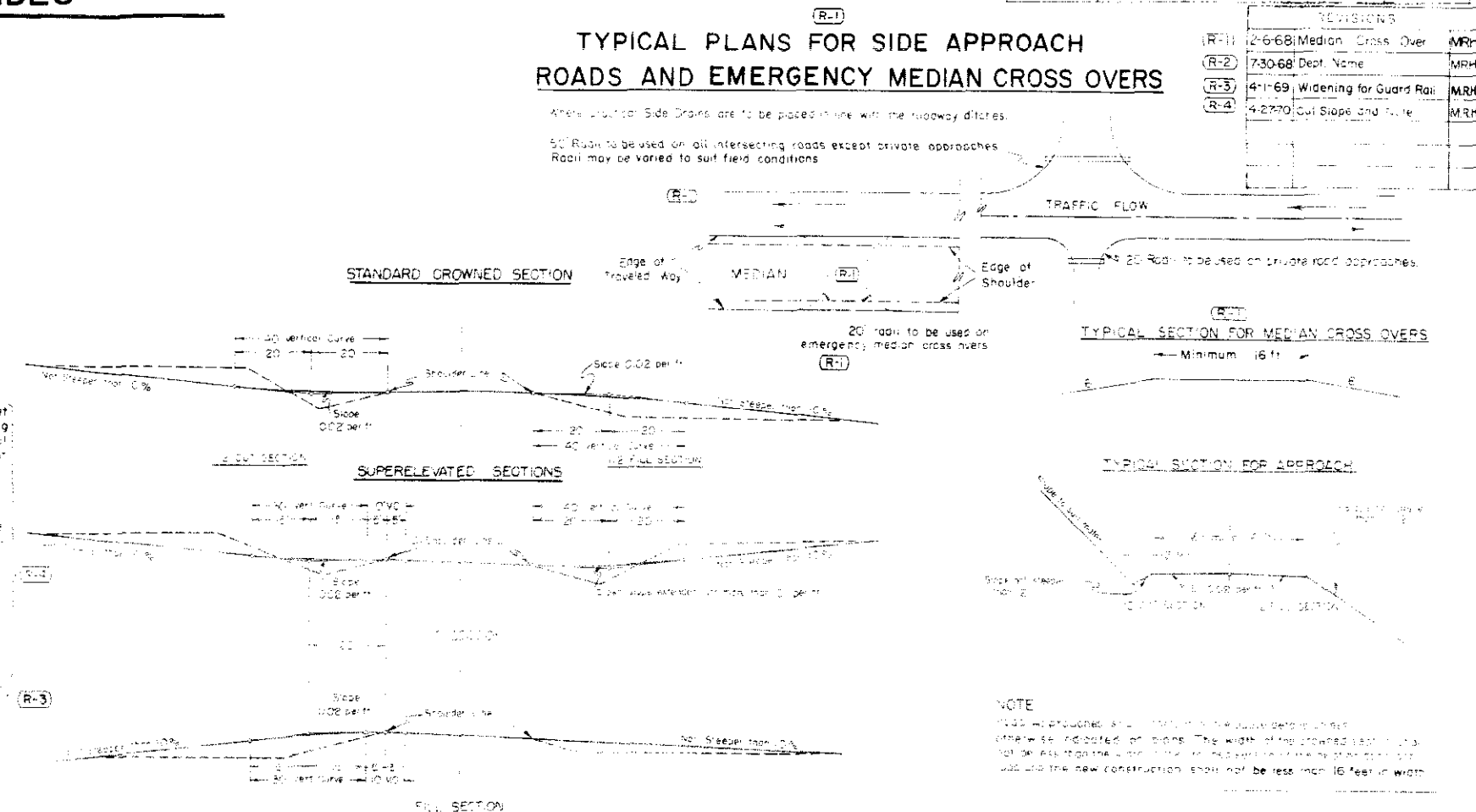
STANDARD M-203-B
(JULY 1, 1965)

FED. ROAD RES. NO.	DIVISION	PROJECT NO.	SHEET NO.
5	COLORADO		

GENERAL DETAILS FOR FLARING OF EARTH CUTS, CUT SLOPE TREATMENT & WIDENING AT BRIDGES

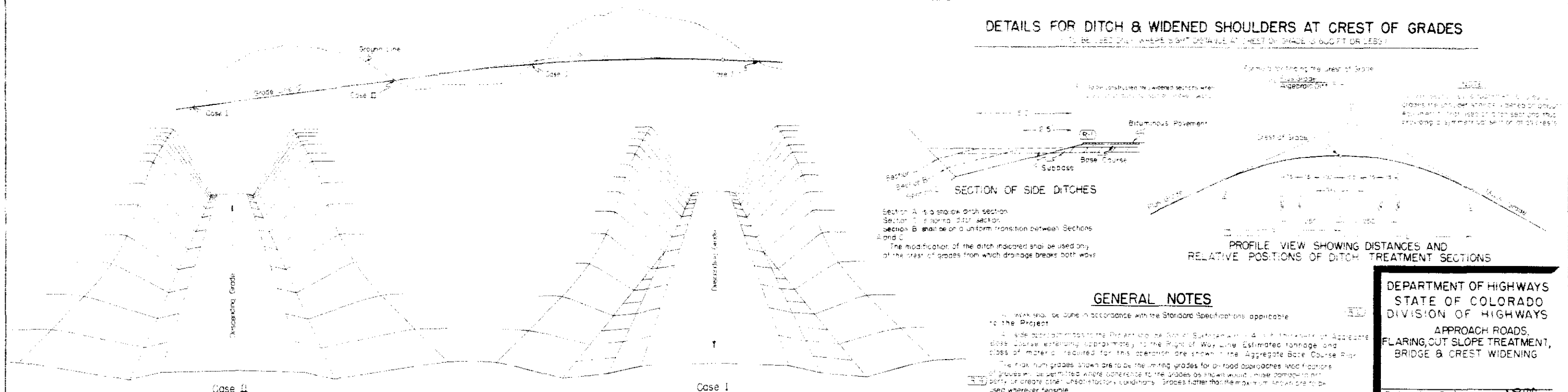


PLAN OF FLARING IN EARTH CUTS



DETAILS FOR DITCH & WIDENED SHOULDERS AT CREST OF GRADES

(TO BE USED ONLY WHERE DISTANCE AT CREST OF GRADE IS 500 FT OR LESS)



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
APPROACH ROADS,
FLARING, CUT SLOPE TREATMENT,
BRIDGE & CREST WIDENING

Designed by A-E
Made by S.M.B.-3
Checked by C.R.B.

Approved by [Signature]
Staff Design Engr.
Date: 10-14-65

STATE ROAD R.E. NO.	DIVISION	PROJECT NO.	SHEET NO.
9.	COLO.		

TYPICAL SECTIONS for DRAINAGE, IRRIGATION DITCHES and CHANNEL CHANGES

TYPICAL SECTIONS *for* DRAINAGE, IRRIGATION DITCHES *and* CHANNEL CHANGES

Appendix 1: *Use of Integration Ditches & Channel Changes*

For Car Sections

GENERAL NOTES

6. All work shall be done in accordance with the Standard Specifications applicable to the Project.

All ditches are to be constructed to lines and grades as stated by the Engineer using the ditch section shown on plans or as ordered by the Engineer.

CONTOUR INTERCEPTING DITCHES: Ditches are to be laid out along the ground contour on a grade of not over 1% (Type of soil shall govern the grade.)

Ends of ditches are to be lined up so that concentration of flow from a higher contour ditch into one of lower contour is, as far as possible avoided. The use of a deeper ditch is recommended where this condition is encountered.

The following horizontal spacing of ditches is recommended

4% to 6%	Approximately	70	Centers
6% to 10%	Approximately	60	Centers
20% to 4:1 Slope	Approximately	55	Centers
30% to 1-1/2:1 Slope	Approximately	50	Centers

Where ditch checks are required the intervening ditch between one set of ditch checks shall not exceed a grade of 1.0%. Details of checks will be shown on plans when required.

REVIEWS

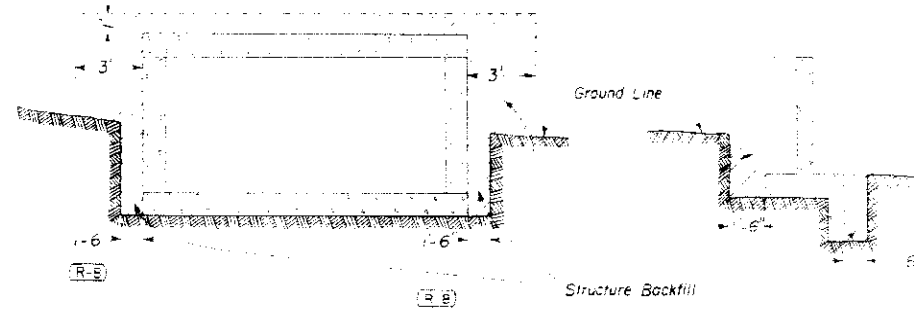
DATE: 10/15/55 TIME: 10:00 AM

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

DITCH TYPES

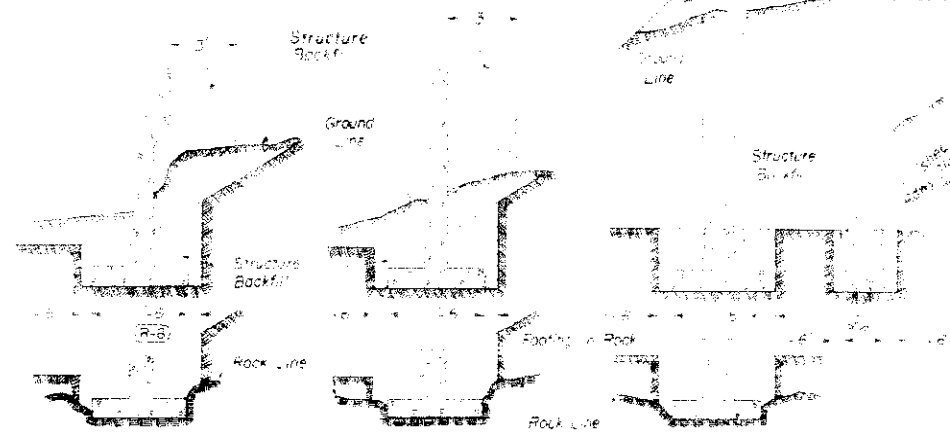
Designed by C.G.M.	Approved by <i>P.E. Olson</i>
Made by C.G.M.	Staff Design Engr
Checked by	Date: July 1, 1965

CONCRETE BOX CULVERTS & WINGWALLS

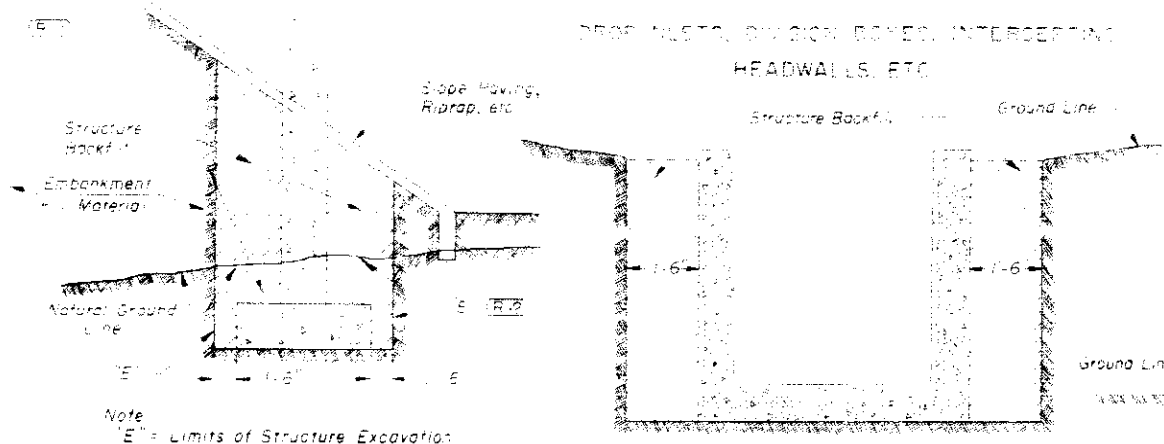


PIERS, ABUTMENTS, RETAINING WALLS ETC.

All material that is to be compacted shall be placed in horizontal layers not more than 8 inches in depth and compacted before the next layer is placed. For Arches, Pipe Frames and Box Culverts the fill shall be brought up uniformly on both sides of the center of structure to avoid stresses in the structure caused by unsymmetrical loading.



DROP NISLS, DIVISION BOXES, INTERCEPTING HEADWALLS, ETC.



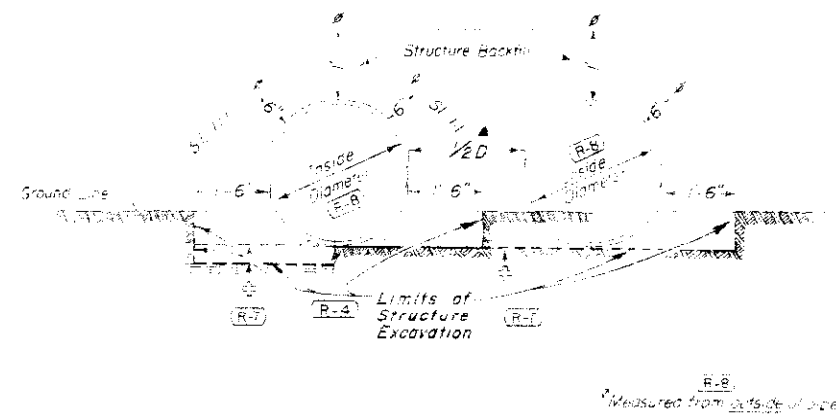
Note: "E" Limits of Structure Excavation.

STANDARD M-206-A

(JULY 1, 1965)
(SHEET 1 OF 2 SHEETS)

REVISION	DATE	BY	CHKD.	APP'D.
1-2	12-1-65	REF		
3-2	12-1-65	REF		
4-25-66	4-25-66	Class 2 Box Culverts		
3-17-67	3-17-67	Conduit, Underdrains		
4-26-68	4-26-68	Limit Str. Excavation		
7-25-68	7-25-68	Dep. Name		
68	68	Limit Str. Excavation		
9-25-70	9-25-70	Dimensions of Pipe		

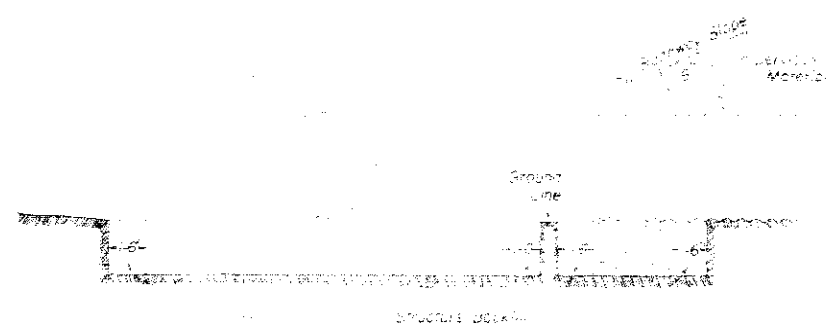
CIRCULAR CONDUIT



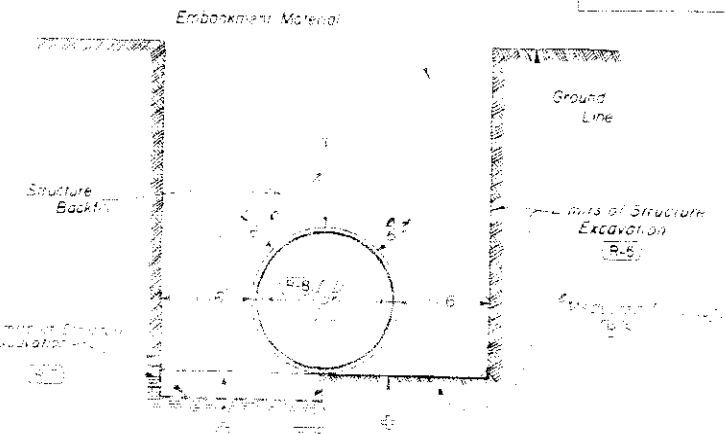
ELLIPTICAL OR ARCH CONDUIT



HEADWALLS AND END OF CULVERTS



SIPHONS OR CONDUIT IN TRENCH



NOTES

- When the conduits are more than 12" in diameter they shall be spaced so that the center-to-center distance is not less than 2 feet from the side of the trench, whichever is less. Minimum spacing shall be not less than 1 foot between conduits of 12" or less diameter.
- When the conduits are more than 12" in diameter they shall be spaced so that the center-to-center distance is not less than 2 feet from the side of the trench, whichever is less. Minimum spacing shall be not less than 1 foot between conduits of 12" or less diameter.

GENERAL NOTES

- When the conduits are more than 12" in diameter they shall be spaced so that the center-to-center distance is not less than 2 feet from the side of the trench, whichever is less. Minimum spacing shall be not less than 1 foot between conduits of 12" or less diameter.
- When the conduits are more than 12" in diameter they shall be spaced so that the center-to-center distance is not less than 2 feet from the side of the trench, whichever is less. Minimum spacing shall be not less than 1 foot between conduits of 12" or less diameter.

TRENCH FOR PIPE UNDERDRAIN



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

EXCAVATION AND
BACKFILL
FOR STRUCTURES

Designed by REF | Approved by S. J. J. J.
Made by CME | Staff Design Eng.
Checked by LEC | Date

STANDARD M-206-A

(SHEET 2)

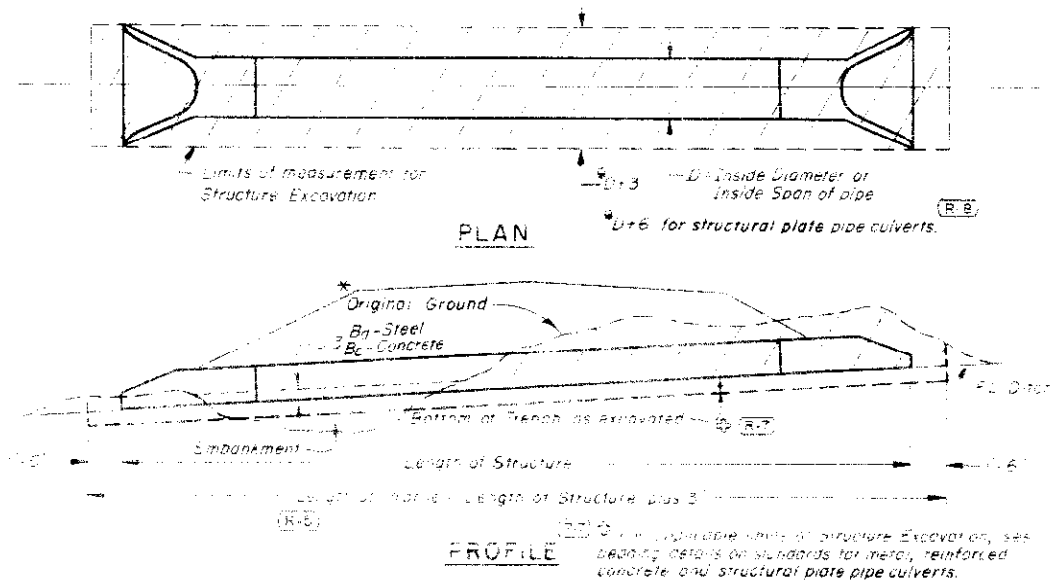
(JULY 1, 1965)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	SHEET
9	COLORADO			1

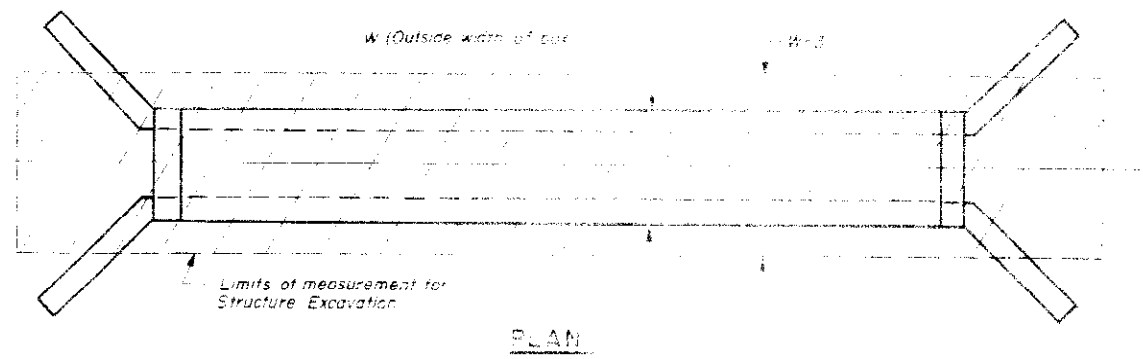
REVISIONS

(R-1)	3-17-67	I.D. on Pipe Culvert Spacing D.M.R.	
(R-5)	4-26-68	Structure Excavation in Fill	M.R.H.
(R-6)	7-23-68	Dept. Name & Detail	V.P.N.
(R-7)	11-1-68	Limit Str. Excavation	M.R.H.
(R-8)	8-23-70	Re-define "D" for Pipe Culvert	V.P.N.

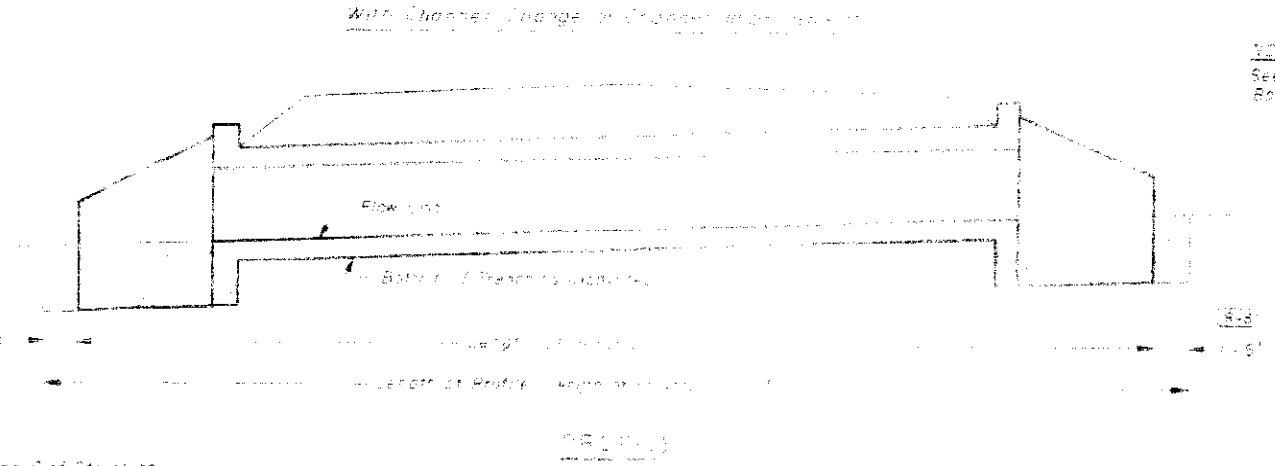
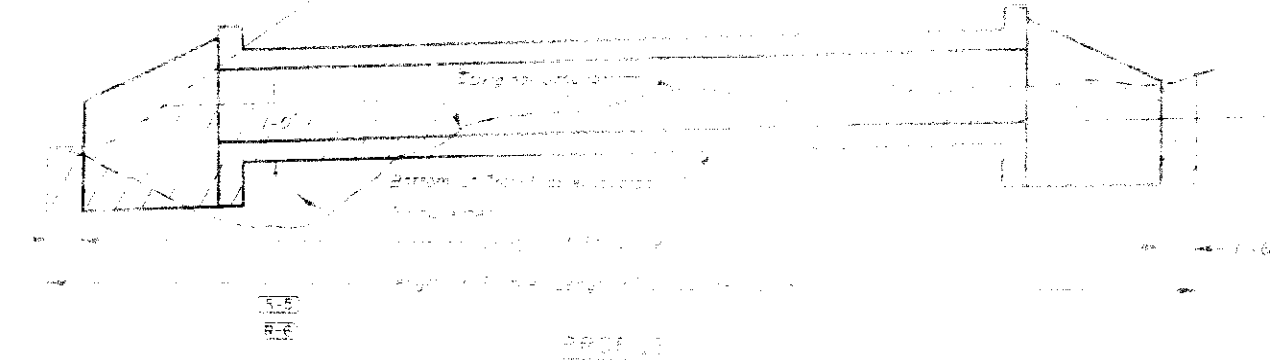
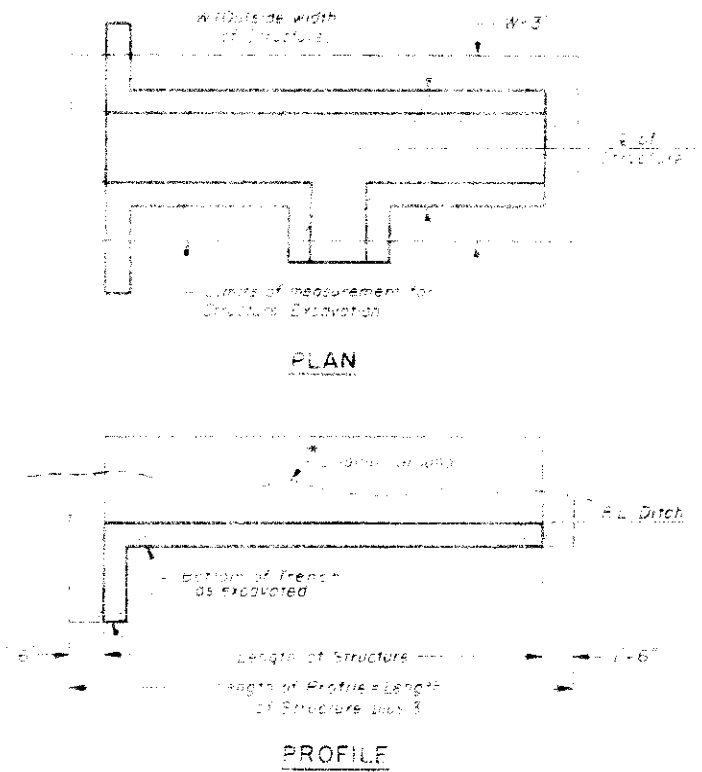
STRUCTURE EXCAVATION MEASUREMENT FOR PIPE CULVERTS



STRUCTURE EXCAVATION MEASUREMENT FOR CONCRETE BOX CULVERTS



STRUCTURE EXCAVATION MEASUREMENT FOR DIVERSION OR DIVISION BOXES



NOTE:
See Sheet 1 for General Notes and Backfilling Details.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
EXCAVATION AND
BACKFILL
FOR STRUCTURES

Designed by M.R.H. Approved by J.C. Sullivan
Made by H.P.H. State Design Office
Checked by Date July 1, 1965

STANDARD M-612-C

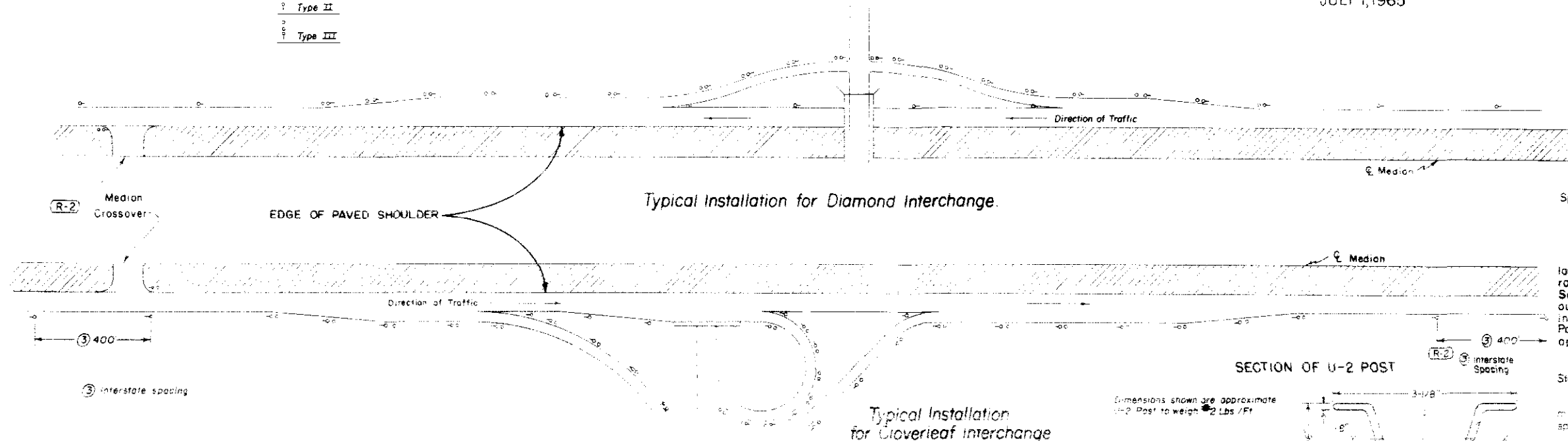
(SHEET 1 OF 2 SHEETS)

JULY 1, 1965

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		

REVISIONS			
(R-2)	1-9-68	Median Crossover, Gen'l. Note	M.R.H.
(R-3)	7-11-68	Division Name	M.R.H.

Type I
Type II
Type III



GENERAL NOTES

All work shall be done in accordance with the Standard Specifications applicable to the project.

See tabulation in plans for delineator post requirements.

Spacing between Posts on acceleration and deceleration lanes and on relatively straight portions of interchange ramps shall be 100' on Interstate and 200' on Primary and Secondary Projects. Spacing between Posts on the outside of interchange ramp curves shall be as indicated in table for the appropriate degree of curve with a 24' min. spacing. Post spacing in advance and beyond curve shall not apply to ramp curves.

Posts shall meet requirements of Par. 4.5 of U.S. Dept. of Commerce Commercial Standard 184-51. Acceptable material includes re-rolled railroad rails.

When normal delineator spacing falls on a road approach or crossroad, move delineator either direction a distance not to exceed 1/4 normal spacing.

Type, location and spacing of delineators for tunnels and snow sheds shall be as directed by the Engineer.

Delineator Posts are not to be placed along Frontage Roads.

Color of Posts shall be Interstate Green.

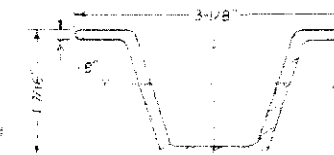
(R-2) Delineators will not be required on tangents for Primary and Secondary roadways.

Dimensions shown are approximate
U-2 Post to weigh 2 Lbs./Ft.

Alternate post acceptable if section modulus is at least 0.200 in³ about X-X axis or at least 0.250 in³ about Y-Y axis.

* A min. tolerance of minus 3 1/2 % of the weight of any one post will be allowed.

SECTION OF U-2 POST



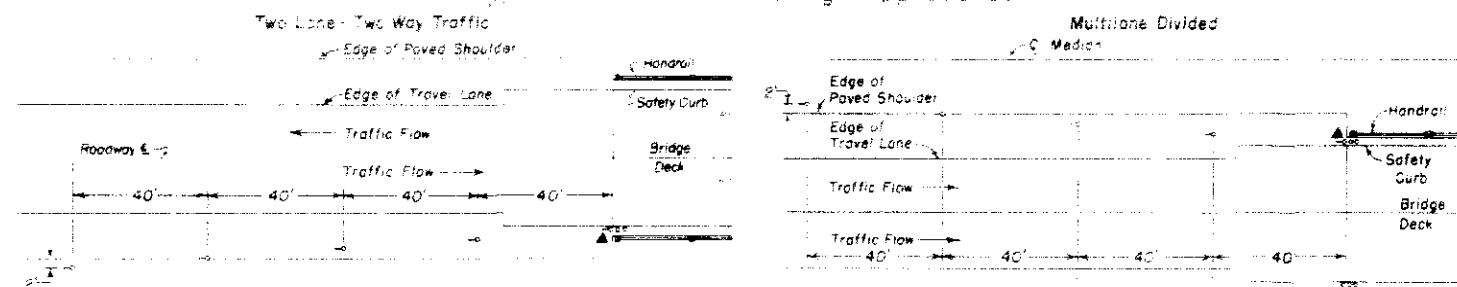
SPACING FOR DELINEATOR POSTS ON HORIZONTAL CURVES

DEGREE OF CURVE	RADIUS	SPACING IN ADVANCE OF AND BEYOND CURVE			DEGREE OF CURVE	RADIUS	SPACING IN ADVANCE OF AND BEYOND CURVE				
		SPACING ON CURVE	FIRST SPACE	SECOND SPACE			THIRD SPACE	SPACING ON CURVE	FIRST SPACE	SECOND SPACE	THIRD SPACE
		FEET	FEET	FEET			FEET	FEET	FEET	FEET	FEET
0°30'	4400.0	200	200	200	200	8°00'	716.3	42	94	156	200
1°00'	5730.0	151	200	200	200	8°30'	674.7	50	90	150	200
1°30'	5820.0	123	200	200	200	9°00'	636.7	48	86	144	200
2°00'	2865.0	106	191	200	200	9°30'	603.2	47	85	141	200
2°30'	2292.0	95	171	200	200	10°00'	573.0	46	83	136	200
3°00'	910.0	86	155	200	200	10°30'	545.7	45	81	135	200
3°30'	1637.1	80	144	200	200	11°00'	520.9	43	77	129	200
4°00'	432.5	74	133	200	200	11°30'	498.3	42	76	126	200
4°30'	273.3	70	126	200	200	12°00'	477.5	41	74	123	200
5°00'	146.0	66	119	198	200	12°30'	458.0	40	72	120	200
5°30'	104.8	63	113	89	200	8°00'	318.3	33	59	99	98
6°00'	95.0	60	108	80	200	2°00'	272.9	30	54	90	180
6°30'	88.5	58	104	74	200	25°00'	229.2	27	49	81	62
7°00'	81.8	55	99	65	200	30°00'	181.0	24	43	72	144
7°30'	76.4	53	95	58	200						

1st - 2nd R-50 1st SPACE = 85 2nd SPACE = 35 3rd SPACE = 65
NO SPACES TO EXCEED 200 FT

On a third space on Secondary and Primary Routes and double the distance on the curve and in advance of and beyond curve. For curves less than 2 degrees on Interstate through roadways use Interstate tangent spacing.

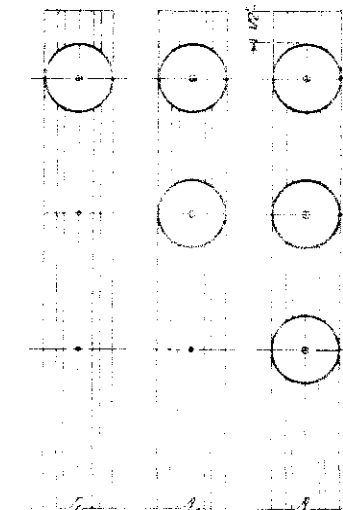
Typical Installation at Bridge Approaches



Where curb to curb width of bridge is equal to or greater than roadway width plus usable shoulder width, use this delineator only and omit all others.
Note: Where guard rail is present, place delineators outside of guard rail and at height which will permit clear view of all three Delineator buttons.

When approach slab has curb, place Type III delineator immediately behind curb.

3/16" dia. Blind Rivet
hole: 3/64" dia.

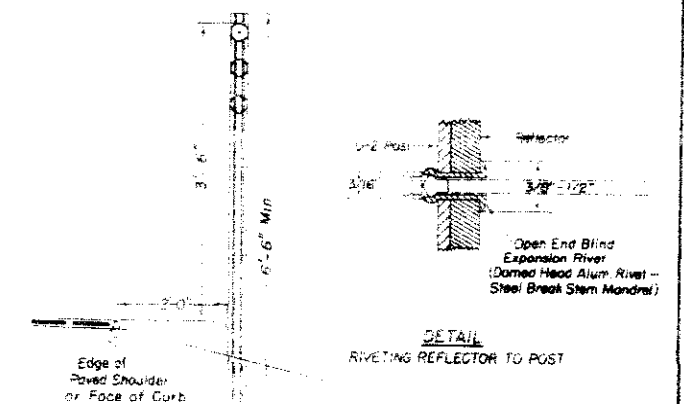


TYPE I
1-3/4" dia.
Crystal
Reflector
on U-2 Post

TYPE II
2-3/4" dia.
Yellow
Reflector
on U-2 Post

TYPE III
3-3/4" dia.
Yellow
Reflector
on U-2 Post

Min. 3 holes in all posts required as shown



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

DELINEATORS

Designed by CKM
Made by WNC
Checked by LEO

Approved by [Signature]
Staff Design Engr.
Date: July 1, 1965

STANDARD M-612-C

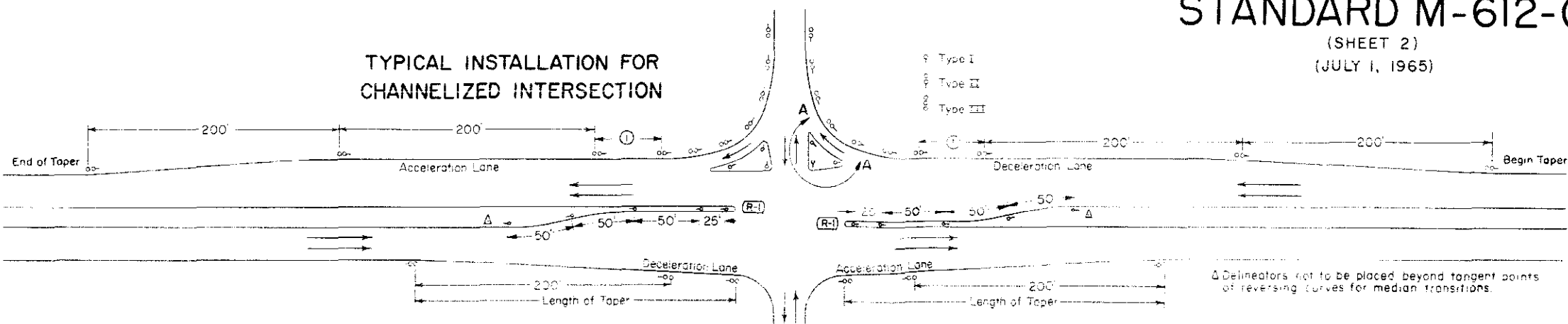
(SHEET 2)

(JULY 1, 1965)

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		

REVISIONS			
(R-1)	5-4-67	Median and Island Delineators	M.R.H.
(R-2)	1-9-68	Median Crossover	M.R.H.
(R-3)	7-11-68	Division Name	M.R.H.

TYPICAL INSTALLATION FOR CHANNELIZED INTERSECTION



GENERAL NOTES

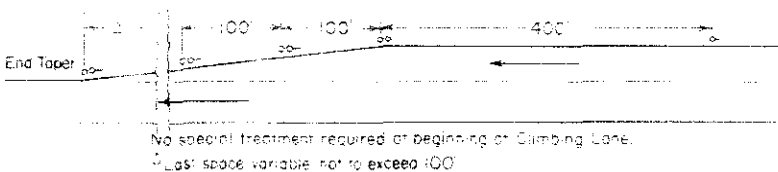
For Radii greater than 200 Feet, use spacing from Table included on Sheet 1 of this Standard.

For additional General Notes, see Sheet 1 of this Standard.

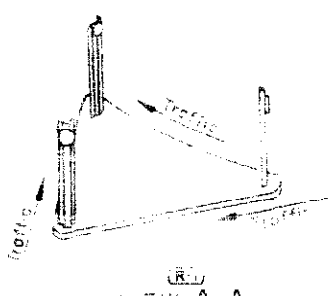
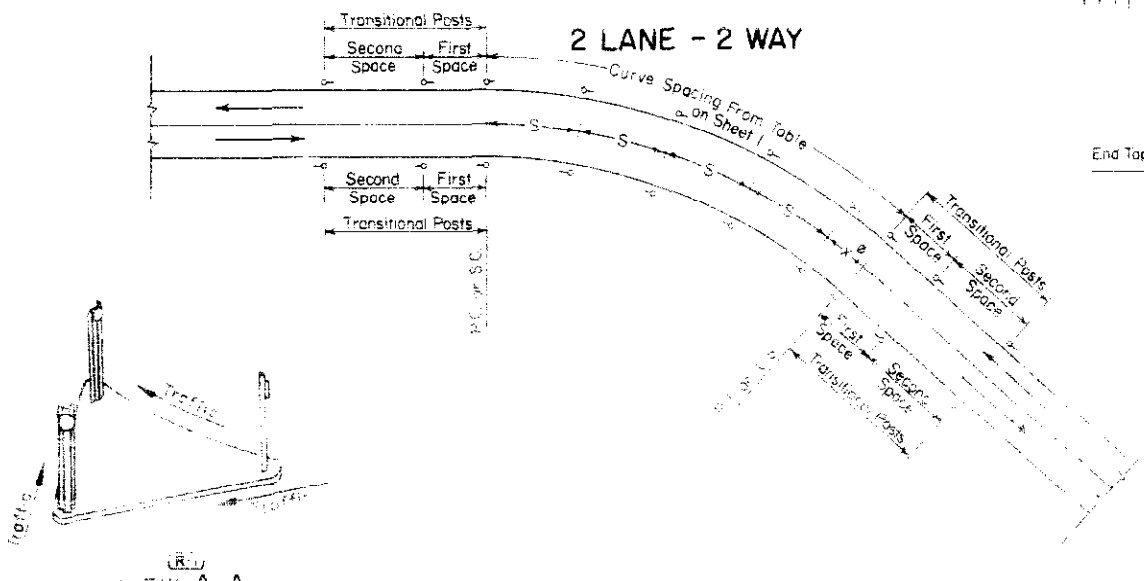
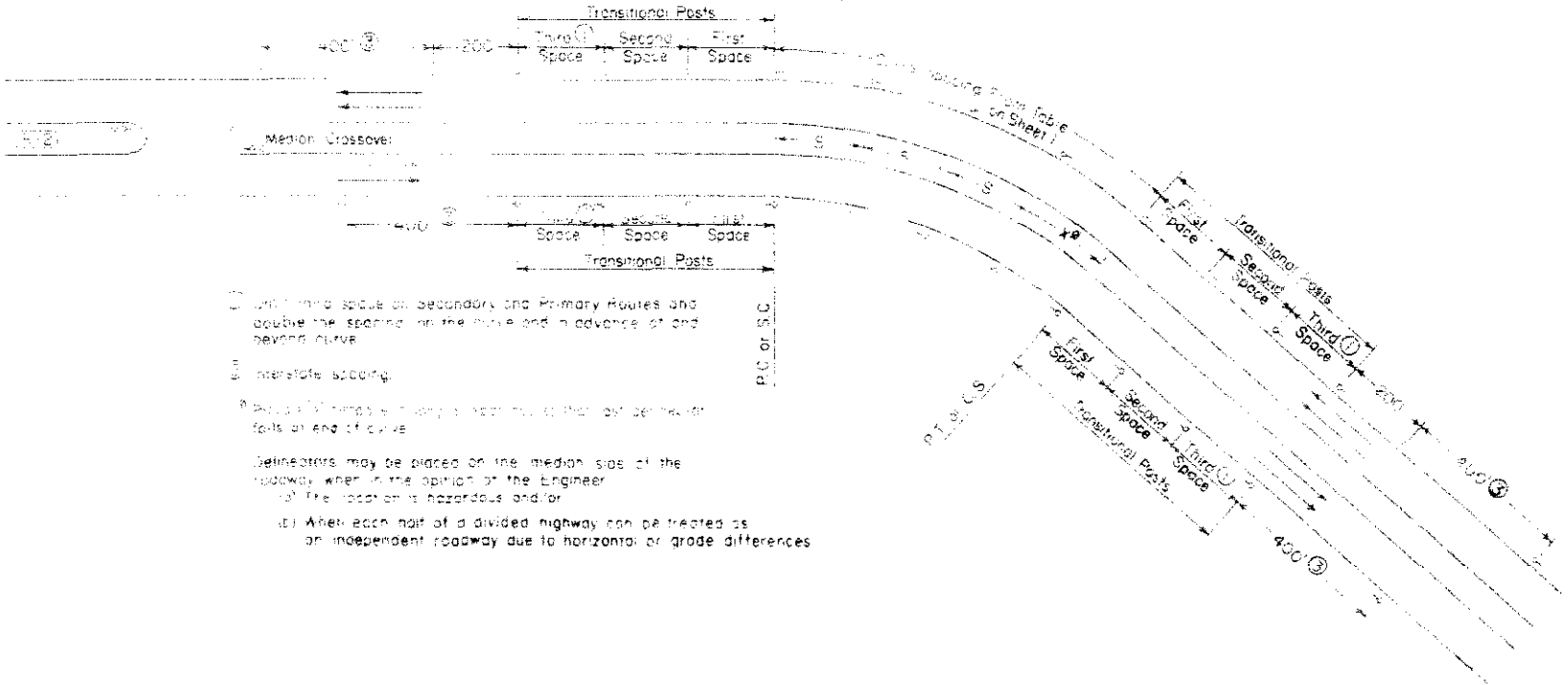
Place face of button at 90° to C of roadway.

Lengths of speed change lanes including tapers shall be as shown on plans.

TYPICAL INSTALLATION FOR CLIMBING LANE TRANSITION



4 LANE DIVIDED (INTERSTATE)



VIEW A-A

- 1. Use third space on Secondary and Primary Routes and double the spacing on the curve and in advance of and beyond curve.
- 2. Interstate spacing.
- 3. Place 1/2 mile warning sign 1/2 mile before the hazard.
- 4. Delineators may be placed on the median side of the roadway when in the opinion of the Engineer:
 - (a) The location is hazardous and/or
 - (b) When each half of a divided highway can be treated as an independent roadway due to horizontal or grade differences.

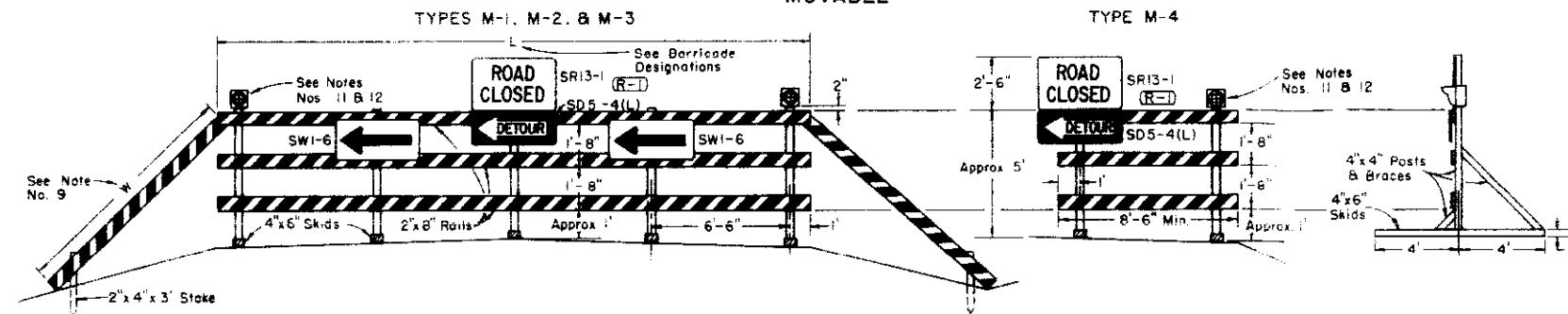
DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

DELINEATORS

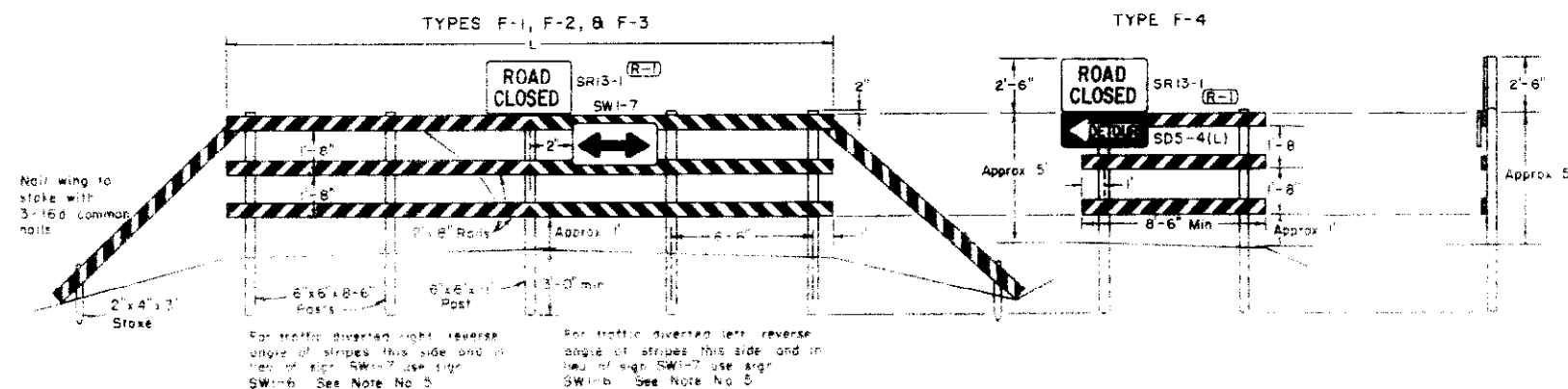
Designed by C.K.M. Approved by J.E. Osborn
Made by T.E.F. Staff Design Engr.
Checked by W.C.G. Date: July 1, 1965

CLASS I BARRICADES (3 RAILS)

MOVABLE

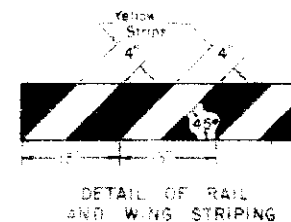
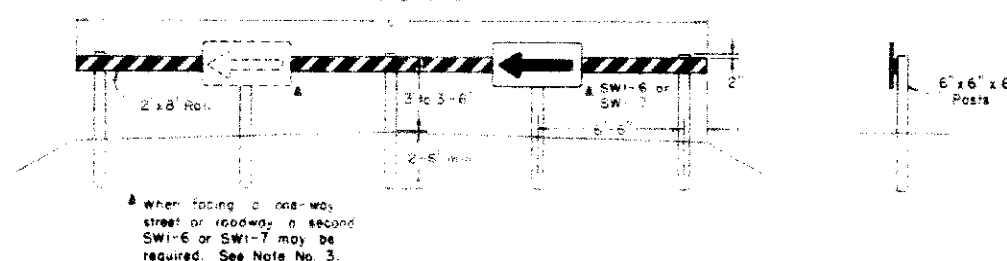


FIXED

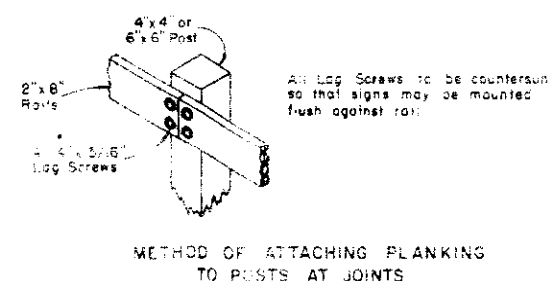


CLASS II BARRICADE (1 RAIL)

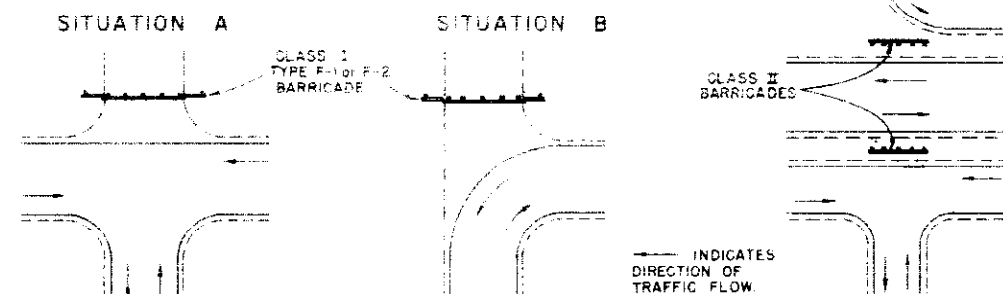
FIXED
TYPE F-6



REAR VIEW OF BARRICADE
SHOWING WING ATTACHED
(See Note No. 9)



METHOD OF ATTACHING PLANKING
TO POSTS AT JOINTS



STANDARD M-614-A

(JULY 1, 1965)

FEDERAL ROAD REGION NO.	DISTRICT	PROJECT NO.	NO.
9	COLORADO		

REVISIONS			
Rev.	Date	Rev. Dept. Name & Code No.	JLS
1-15-68			
4-23-69			

GENERAL NOTES

- All work shall be done in accordance with the Standard Specifications applicable to the Project.
- All signs and sign materials shall conform to the standards set forth in the "Manual on Uniform Traffic Control Devices for All Classes of Streets and Highways" published by the Division of Highways and this standard.
- The various types and combinations of approved Signs and Beacons for Barricades required for each project shall be governed by field conditions and subject to approval by the Engineer. All traffic controls shall be placed for best visibility and legibility and maintained in good condition at all times. Oversigning is to be avoided.
- Painting shall conform with Subsection 508.08 of the Standard Specifications. All skids, braces, and posts shall be painted with 2 coats of "Exterior Black Paint." Planking and wings on all barricades shall be painted with 2 coats of "Exterior Black Paint" on all sides before adding reflective strips. Reflective strips shall be "cut from smooth surface yellow reflective sheeting" of a type approved by the Division.
- Each barricade rail shall be striped on the face side only with reflective yellow strips slanting downward at a 45° angle toward the side to which traffic is to turn or pass. See "DETAIL OF RAIL AND WING STRIPING."
- When barricades are designated on plans the portion of the posts below ground line shall either be dipped in or painted with hot creosote oil. The portion of the post above ground line shall be painted with 2 coats of "Exterior Black Paint."
- All skids, braces, and posts shall be nailed together with No. 20d nails. All screws, bolts, nuts, and washers shall be galvanized or cadmium plated. Skids (bases) of movable barricades shall be weighted where necessary to provide stability.
- All timber shall be Standard Grade or Better, S4S, Douglas Fir or Larch, as described in the 1965 Standard Grading Rules published by the Western Wood Products Association, and shall conform to paragraph 123c for the rails and paragraphs 122c and 125c for the posts.
- Detachable extension wings for bypassing of construction equipment are permitted. "W" is variable length shall be adequate to provide closing of borrow pit and/or shoulder as required.
- Alternate materials or other reflective elements on Traffic signs or Barricades will be permitted only after approval of such material by the Division in writing.
- A Flashing Beacon for use on Barricades is a section of a standard traffic signal head or a similar type device having a yellow lens in the face, which is illuminated by intermittent flashes. Where commercial power is not available, the beacon may be adapted to operate from storage batteries. Each signal unit lens shall have a visible diameter of not less than 8 inches. Each unit complete shall be of such design as to render the lens when illuminated clearly visible to traffic facing the signal at all distances up to 1000 feet under all atmospheric conditions except dense fog. The color of the yellow lens for caution shall be in accordance with Technical Report No. 1 of the Institute of Traffic Engineers. All beacon flashers shall be equipped with filters for suppression of radio interference. The illuminating element in a flashing yellow beacon shall be flashed at a rate of not less than 50 times nor more than 60 times per minute. The illuminated period of each flash shall be not less than half and not more than two-thirds of the total cycle. The use of Flashing Beacons will be governed by field conditions. Flashing Beacons when warranted generally should be operated continuously throughout the 24 hours of the day. Warrant for Flashing Beacons may be found in Sec. 56 of the "Manual on Uniform Traffic Control Devices for Streets and Highways" published by the U.S. Department of Commerce, Bureau of Public Roads, June, 1961 (or latest revision).
- Flashers are portable, power-operated, lens directed, enclosed lights, illuminated by rapid intermittent flashes of short duration. Flashers may be used in connection with barricades when approved by the Engineer. An array of random flashers which tends to obscure rather than delineate the traveled way will not be permitted. The use of flashers on a job will be governed by Sec. 56 of the "Manual on Uniform Traffic Control Devices for Streets and Highways" published by the U.S. Department of Commerce, Bureau of Public Roads, June, 1961 (or latest revision). The color of the light emitted by a flasher shall be yellow.
- Flashing Beacons and Flashers, when used, shall be positioned above the top rail of the barricades to produce the most effective results.
- Barricades used as "Traffic Controls for Highway Construction" are not to be paid for separately.
- Barricades will be paid for separately when designated on plans as bid items.
- For additional general information on control of traffic through work areas refer to the "Manual on Uniform Traffic Control Devices for Streets and Highway", Part II, published by the U.S. Department of Commerce, Bureau of Public Roads, June, 1961 (or latest revision).

BARRICADE DESIGNATIONS					
Class	Type		Roadway Width	L	Description
	Movable	Fixed			
I	M-1	F-1	26'-34'	26'	Barricade complete with SR13-1 sign and SW1-6 or SW1-7 signs as required
I	M-2	F-2	35'-44'	41'	Barricade complete with SR13-1 sign and SW1-6 or SW1-7 signs as required
I	M-3	F-3	variable	26'	Barricade (without extension wings) complete with SR13-1 sign and SW1-6 or SW1-7 signs as required
I	M-4	F-4	Variable	variable 5'-6' min	Wing Barricade (signs only as appropriate)
II	-	F-5	variable	26'	Barricade complete with appropriate signs

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

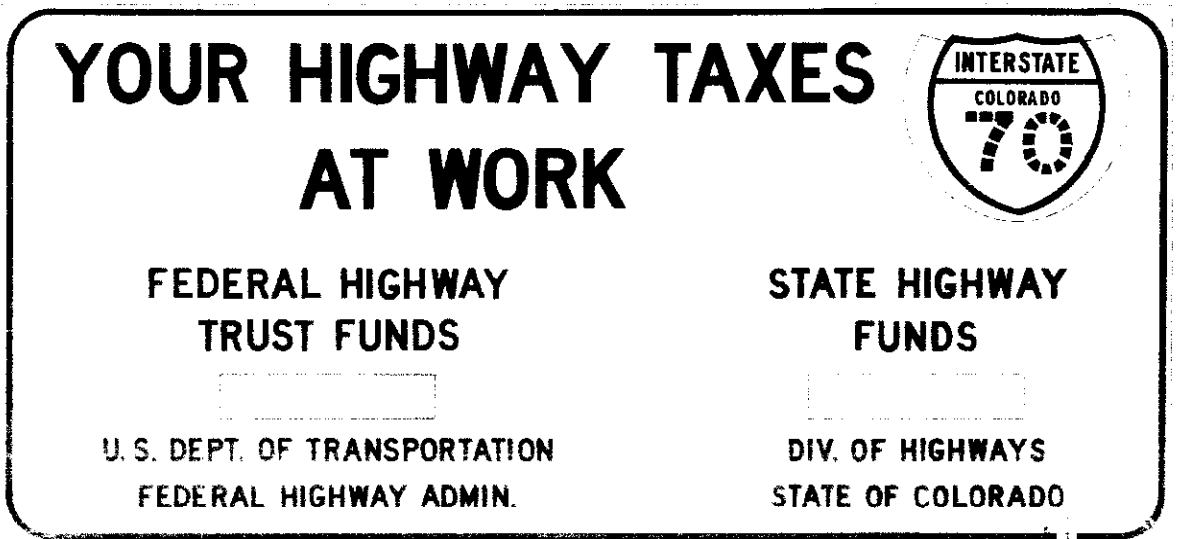
TIMBER
BARRICADES

Designed By: D.R.W.
Made By: JLS
Checked By: JB
Approved By: JLS
Date: JULY 1, 1965

STANDARD M-614-IC

JULY 5, 1968
(SHEET 1 OF 2 SHEETS)

FEDERAL AREA PROJECT NO.	DISTRICT	PROJECT NO.	SHEET NO.
COLORADO			
REV. DATA			
(R-1)	7-26-68	Rev. Legend and Text	
(R-2)	5-20-68	Rev. Letter Placement	
(R-3)	9-25-70	Rev. Legend	



ALTERNATE LEGEND
FEDERAL
FUNDS

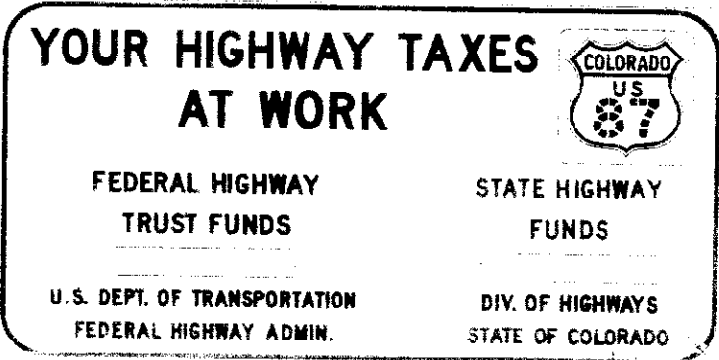
FABRICATION DETAILS



"AMOUNT OF FUNDS"
PLAQUE DETAILS

\$ 0,000,000

\$ 0,000,000

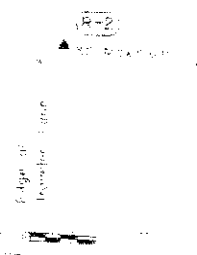


ALTERNATE LEGEND
FEDERAL
FUNDS

GENERAL NOTES

1. These signs shall be fabricated and installed to state order.
2. All work and materials shall conform with the specifications of the Project.
3. Signs are to be placed facing traffic approaching the Project. They shall be installed at a location where they will not obstruct or detract from the effectiveness of other official signs.
4. The letter placement may be reduced to a minimum of 1/2 inch above the inside edge where necessary to fit into openings.
5. When these signs are used in conjunction with other signs, the words "HIGHWAY" and "TRUST" in lines 1 and 2 shall be deleted and the words "FEDERAL" and "FUNDS" shall be used in accordance with the spacing as shown under "Alternate Legend".
6. Sign panels shall be fabricated with 3/4" plywood.
7. Route Marker plaques and "Amount of Funds" plaques shall be 1/2 inch thick with 0.080" min. thickness.
8. Signs shall have a screen processed black legend and border on a plain white background. "Amount of Funds" plaques shall have a screen processed black legend on a plain white background.
9. Route Marker plaques shall be clear and indicated in the road color background.
10. Backing zeos shall be 3/16" x 3/16" x 1/2" (Shank) zeos with 1/2" x 1/2" x 1/2" (Shank) zeos. Backing zeos shall be of 6061-T6 alloy weighing 2.33 lbs. per sq. ft. and shall be 1/2" x 1/2" x 1/2" (Shank) zeos.
11. Each timber post shall be provided with two 2" diameter holes through the neutral axis, one at 6" and one at 18" above the ground level. The inside portion of each 2" diameter hole shall be painted white.
12. Posts shall be fastened to backing zeos with 1/2" x 1/2" x 1/2" (Shank) zeos.
13. Backing zeos shall be fastened to posts with 1/2" x 1/2" x 1/2" (Shank) zeos.
14. Route Marker plaques and "Amount of Funds" plaques shall be fastened to the sign panels with 1/2" x 1/2" x 1/2" (Shank) zeos.
15. Exposed lockbolt fastener heads and wood screw heads on the face of the sign shall be capped or painted to match the background color.
16. The undergird portion of each timber post shall be treated with preservative.
17. Where a local governmental agency is shown as contributing to the project, its name should be included centrally below the "Amount of Funds" plaque.
18. It may be necessary to change "DEPT" to "DIV" on existing signs.

INSTALLATION DATA

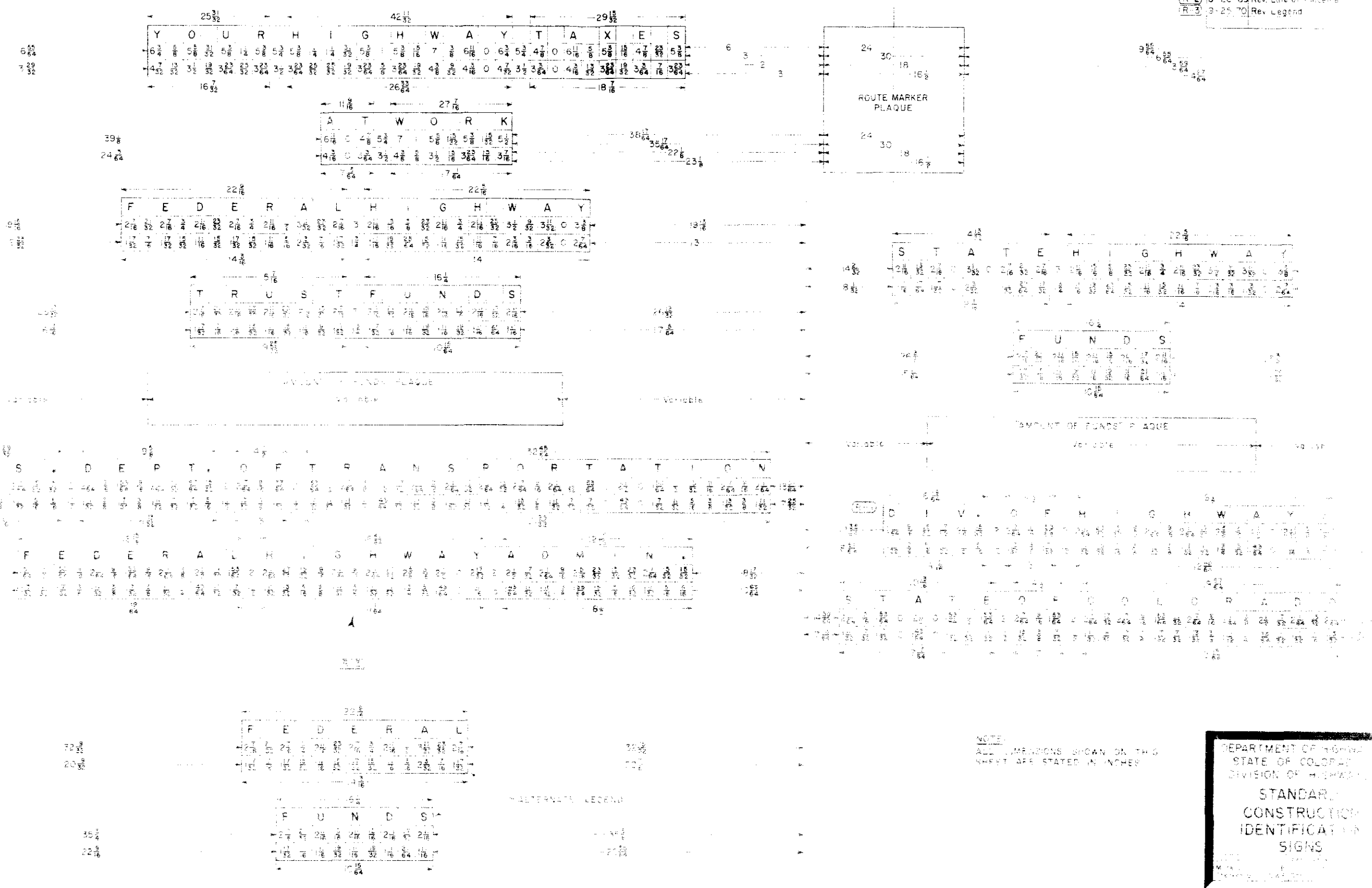


DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
STANDARD
CONSTRUCTION
IDENTIFICATION
SIGNS

STANDARD M-614-IC

JULY 5, 1968
(SHEET 2 OF 2 SHEETS)

FILE NO.	DISTRICT	PROJECT NO.	DATE
COLORADO			
REVISIONS			
R-1	7-26-68	Rev. Legend	
R-2	5-20-69	Rev. Letter Placement	
R-3	3-25-70	Rev. Legend	



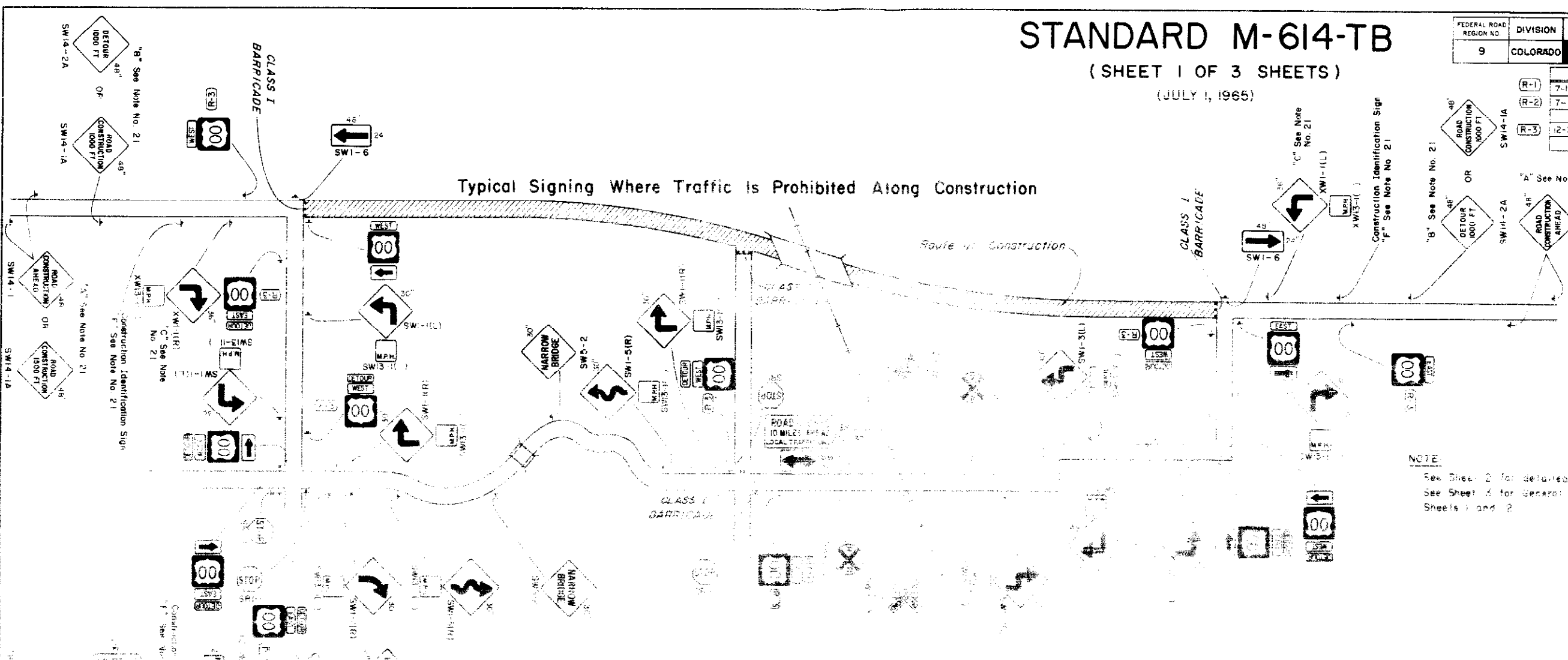
STANDARD M-614-TB

(SHEET 1 OF 3 SHEETS)

(JULY 1, 1965)

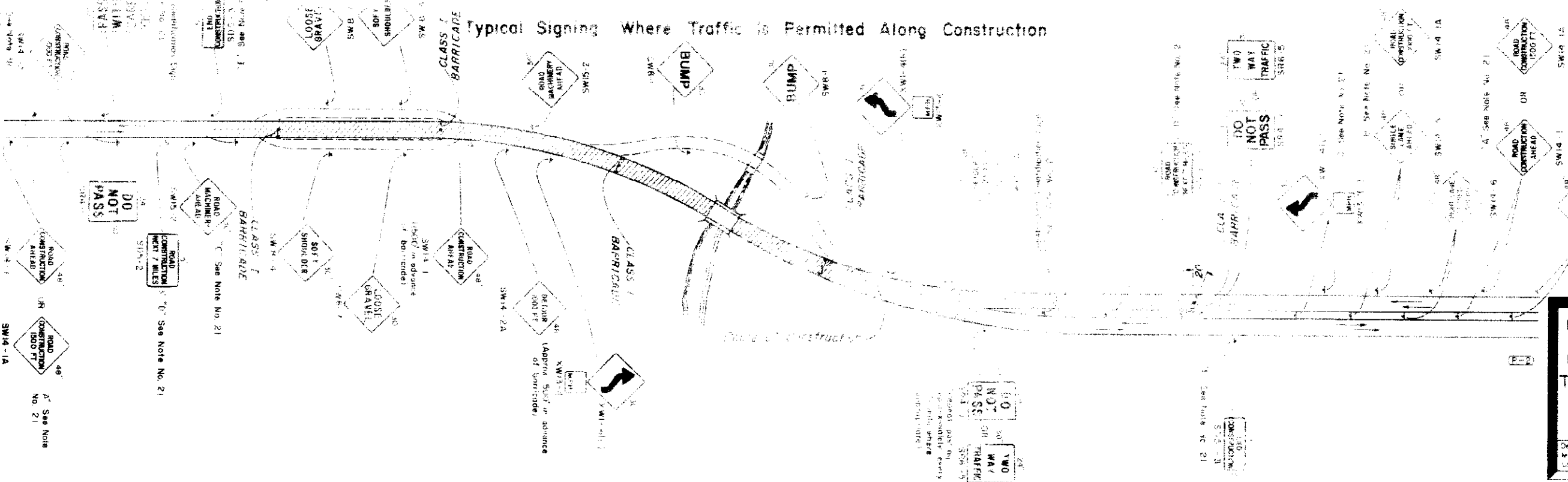
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		
REVISIONS			
(R-1)	7-12-67	Note 23	G.W.F.
(R-2)	7-8-68	Rev Break-away Placement	G.W.F.
(R-3)	12-24-68	Rev U.S. Shields	J.L.S.

Typical Signing Where Traffic Is Prohibited Along Construction



NOTE:
See Sheet 2 for detailed drawings of signs.
See Sheet 3 for General Notes applicable to Sheets 1 and 2.

Typical Signing Where Traffic Is Permitted Along Construction



Sign Placement

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
TRAFFIC SIGNING
FOR HIGHWAY
CONSTRUCTION

Designed By: D.R.W.
Made By: J.L.S.
Checked By: J.L.S.

Approved By: [Signature]
Traffic Engineer
Date: August 5, 1965

STANDARD M-614-TB

(SHEET 2 OF 3 SHEETS)

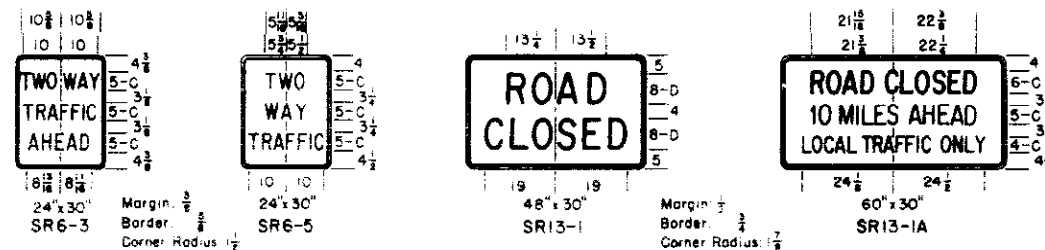
(JULY 1, 1965)

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		

REVISIONS			
REV.	DATE	REVISION	BY
(R-1)	7-12-67		M.R.H.
(R-2)	7-8-68	Rev. Code No. & Dept. Name	G.W.F.
(R-3)	12-24-68	Added Notes	J.L.S.

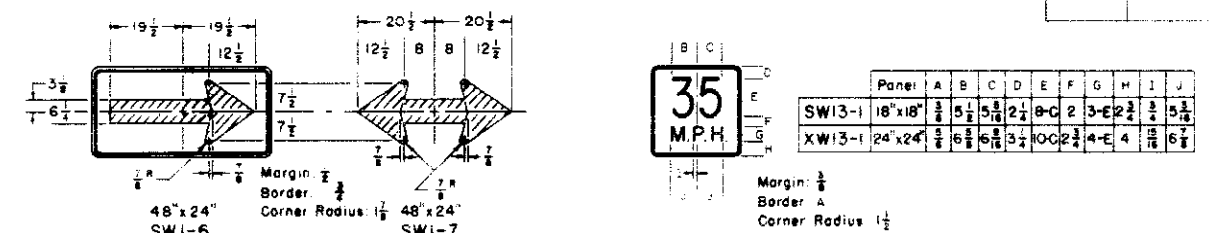
REGULATORY SIGNS

See Note No. 9



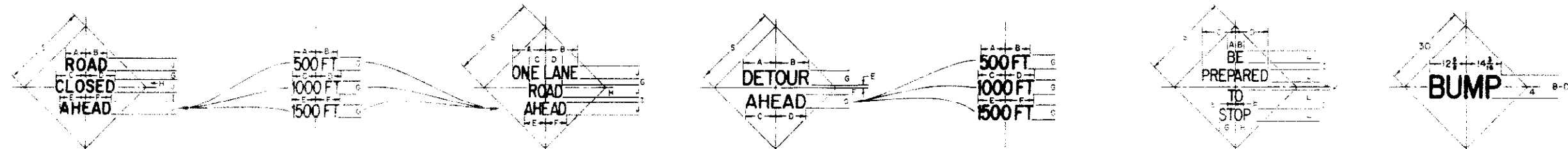
WARNING SIGNS

See Note No. 10

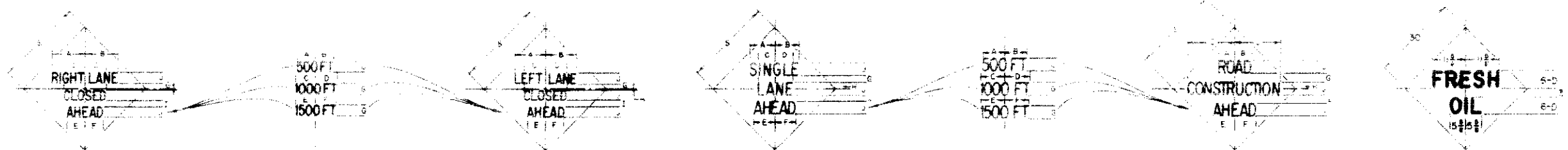


WARNING SIGNS

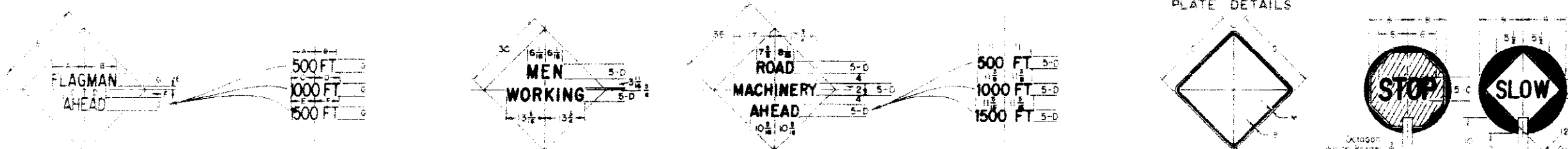
See Note No. 10



SW14-3	SW14-4A	SW14-4	SW14-2	SW14-2A	SW14-7B
48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"
CW14-3	CW14-4A	CW14-4	CW14-2	CW14-2A	CW14-7B
36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"



SW14-6	SW14-6A	SW14-6B	SW14-5	SW14-5A	SW14-1
48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"
CW14-6	CW14-6A	CW14-6B	CW14-5	CW14-5A	CW14-1
36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"



SW14-7	SW14-7A	SW15-1	SW15-2	SW15-2A
48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"	48" x 24" 1/8" 1/8" 1/2"
CW14-7	CW14-7A	CW15-1	CW15-2	CW15-2A
36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"	36" x 24" 1/8" 1/8" 1/2"

GUIDE SIGNS

See Note No. 11

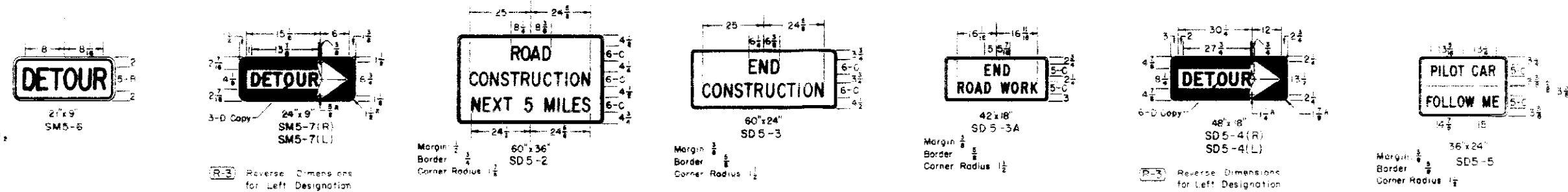
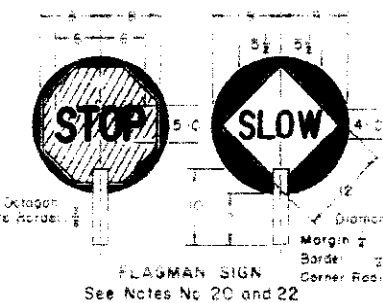
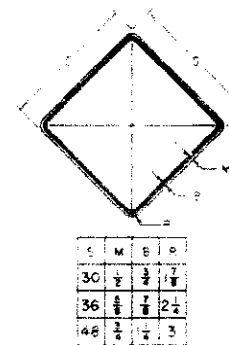


PLATE DETAILS



NOTES

SEE SHEET 1 FOR TYPICAL SIGNING AND SIGN PLACEMENT
SEE SHEET 3 FOR GENERAL NOTES APPLICABLE TO SHEETS 1 AND 2

ALL DIMENSIONS THAT ARE NOT LABELED ARE IN INCHES

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
TRAFFIC SIGNING
FOR HIGHWAY
CONSTRUCTION

Designed By: C.R.W.
Made By: K.B.C.
Checked By: J.B.

Approved By: [Signature]
Traffic Engineer
Date: AUGUST 9, 1965

STANDARD M-614-TB

(SHEET 3 OF 3 SHEETS)

1-11-1965

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		

REVISIONS			
R-1	7-12-67	Added Note 23	G.W.F.
R-2	7-18-68	Rev. Note 23 & Dept. Name -	
		Deleted Note	G.W.F.
R-3	2-24-68	Rev. Note No. 18	J.L.S.

GENERAL NOTES

- All work shall be done in accordance with (a) the Standard Specifications applicable to the Project, and (b) the "Manual on Uniform Traffic Control Devices for all Classes of Streets and Highways" published by the Department of Highways.
- Where traffic is maintained through or over any part of the Project, the Contractor will be required to mark all hazards within the limits of the Project (including connecting roads) with well-maintained Barricades, Warning, and Guide Signs. All Barricades and Signs shall be moved, added to, changed or removed as required during the progress of construction and removed entirely when the Project is completed.
- Where traffic is prohibited from the Project the Detour will be marked by the Department except that the Contractor shall provide, erect and maintain Barricades, complete, (when required) at the ends of the Project, and at the Detour and connecting roads. All U.S. or State Route Markers required for the Project will be furnished and installed by the Department. The location and positioning of Warning Signs, Barricades, and Regulatory Signs shall be as recommended by the appropriate District Engineering Forces of the Department.
- Work on the Project shall not be started until all required signs are in place and approved by the Engineer. Where speed control appears necessary such speed control shall be requested from the Engineer by the Contractor. Control of speed through a construction zone may be achieved by Advisory Speed plates in conjunction with Warning Signs (SW-3) for use with 50' Warning Signs and XW-3-H for use with 35' and 40' Warning Signs. The Advisory Speed plate is to be posted only on those locations where the safe speed is lower than the imposed Regulatory speed limit.
- All Signs and Barricades shall be placed for best visibility and legibility, maintained in good condition and kept clean and free of dirt at all times. Contractors' and Engineer's vehicles and equipment must be parked so that signs and barricades are visible to approaching traffic at all times.
- Where two identical signs are used for two facing directions, one sign shall be placed on each side of the roadway for a minimum distance of 75' to avoid a blurring effect.
- Examples for marking Projects, as shown on Sheet 1, are typical of signs required and are subject to alteration to fit actual conditions encountered in the field. Locations for control devices are to be marked by the Engineer. In all cases Warning Signs are to be placed well in advance of the hazard, the distance depending on topography and existing approach speeds. Additional markings and any special signs required for the guidance and protection of traffic will be placed as required on the Project at the Contractor's expense.
- Desirable sizes for signs are shown on Sheet 2 of this Standard. Larger or smaller signs shall be used where warranted. Detailed dimensions for signs normally used in connection with construction are shown on Sheet 2 of this Standard. For information on standard roadway signs not detailed on this Standard see the "Manual on Uniform Traffic Control Devices for all Classes of Streets and Highways" published by the Department of Highways.
- Signs with the prefix "R" in the sign code are Regulatory signs and as such impose legal compulsion or restrictions on drivers and should only be used as authorized by the Engineer.
- Signs with the prefix "W" in the sign code are Warning signs and are used to alert traffic to existing or potentially hazardous conditions.
- Signs with the prefix "D" or "M" in the sign code are Guide signs. Those with the prefix "D" convey general information and those with the prefix "M" are used for marking the traffic route.
- All signs shall be reflectorized unless otherwise specified on plans. Regulatory and Guide signs (unless otherwise specified) shall have a screen processed black legend and border on a white flexible reflective sheeting, non-exposed lens background. The back side of Regulatory and Guide signs shall be painted with two coats of "Exterior Sign White Paint." Warning signs shall have a screen processed black legend and border on a highway yellow flexible reflective sheeting, non-exposed lens background. The back side of Warning signs shall be painted with two coats of "Federal Yellow Synthetic Sign Enamel."
- Painting for wood surfaces shall conform with Sect. 508 of the Standard Specifications.
- Posts for regulatory, warning, and guide signs will normally be 4"x4" or 6"x6" and shall conform to the Standard Specifications for Untreated Timber - S4S. Timber shall conform to Construction grade, Paragraph 239 or 253 of Standard No. 18, Grading & Dressing Rules for West Coast Douglas Fir (1956) or Dense Structural 5B and 11 Structural 5B, Paragraph 284 or 285 of 1956 Grading Rules for Southern Pine. Posts shall be painted with one coat of "White Wood Primer" and one coat of "Outside White Paint."
- Sign panels furnished by the Contractor for use only during construction may be fabricated from plywood, aluminum, steel or other suitable material but shall be stable and durable enough to meet other requirements of this Standard.
- All material shall be sound and durable. Barricades, signs, symbols, and lettering shall be of good workmanship. Uneven lettering will not be accepted.
- Alternate methods of processing signs or the substitution of symbols or other reflecting elements for painted symbols will be permitted only after approval by the Department.
- lanterns and torches - Lanterns, with red globes, shall be used only in low speed urban areas. Open-flame torches shall not be used under any circumstances.
- Barricades, Flashing Beacons and Flashers - Refer to appropriate "M" Standard (Timber Barricades) for details.
- Flagman Sign - This sign shall have a black painted background on both sides to form a contrast for the octagonal Stop sign and the diamond Warning sign. The "STOP" sign shall be fabricated by reverse screen process using transparent red paint on smooth surface silver reflective sheeting. The "STOP" side of the Flagman Sign shall be black process paint on smooth surface yellow reflective sheeting. The side to be grooved on one side to indicate reading of sign is Flagman.
- Sign "A" - This is the first advance warning sign and shall be placed 1,500 feet ahead of Barricades or project terminal. Postings are required on both sides of the roadway on divided highways. Dual posting is required where warranted on two-lane, two-way highways. Sign "B" - This is the second advance warning sign and shall be placed 1,000 feet ahead of barricade or project terminal. Postings are required on both sides of the roadway on divided highways and singly on two-lane, two-way highways. Sign "C" - This is the third advance warning sign or closer where barricades are used and shall be placed 500 to 750 feet ahead of barricade or potentially hazardous condition. Postings are required on both sides of the roadway on divided highways and singly on two-lane, two-way highways. Sign "D" - SD-5-2 - This sign shall be placed to mark the beginning of a Project of more than 2 miles in length where traffic is maintained through the project. It shall be placed singly and near the beginning of construction. Sign "E" - SD-5-3 - This sign shall be placed to mark the end of the Project. It shall be placed singly and may be placed opposite barricade if desirable. Sign "F" - Other than identification signs shall be furnished and installed by the Department on all Federal-Aid and Forest Highway Projects where actual construction is in progress and visible to highway users. These signs should be located so as not to obscure or detract from the effectiveness of other official signs. Where two or more projects are contiguous the appropriate signs may be included in one set of signs. Refer to appropriate "M" Standard Identification Signs for sign details. Signs A through F shall be furnished, installed and maintained by the Department.
- When Flags are used in lieu of the Flagman Sign, they shall be a minimum of 18"x18", made of a good grade of bright red material, and fastened securely to a staff of approximately 8 foot length. The free edge should be weighted to insure that the flag will hang vertically, even in heavy winds.
- Each 4"x6" timber sign post shall be provided with two 2" diameter holes through the neutral axis normal to the roadway, one hole at 6" and one hole at 18" above the ground level. The 4"x4" timber posts shall not be provided with any type of break-away device. The inside portion of each 2" diameter hole shall be painted white. The underground portion of each timber post shall be treated with creosote.

R-2

R-2

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
TRAFFIC SIGNING
FOR HIGHWAY
CONSTRUCTION

Designed By D.R.W.
Made By J.L.S.
Checked By J.B.

Approved By *[Signature]*
Traffic Engineer
Date AUGUST 9, 1965

STANDARD S-614-29A

(AUG. 1, 1965)

REVISION	DATE	BY	REASON	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	10-67	Stopline B. Notes		COLO. DIV.			
2	7-1-68	Diag. edge line & Chevron A-bolts		COLO. DIV.			
3	1-68	Rev. Note Block		COLO. DIV.			

REVISIONS

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications applicable to the Project.

LANE LINES AND CENTER LINES

1. Broken white, 5 inches wide - 15 foot segments with 25 foot gaps
2. Solid white, 5 inches wide (if noted)

BARRIER LINES

1. Solid yellow, 5 inches wide
2. Apply parallel to and spaced 5 inches from other indicated line.

EDGE LINES

1. Parallel - Solid white, 3 inches wide
2. Diagonal - Solid white, 2 inches wide, spaced at intervals of 20-100'

CHANNELIZING LINES

1. Solid white, 10 inches wide

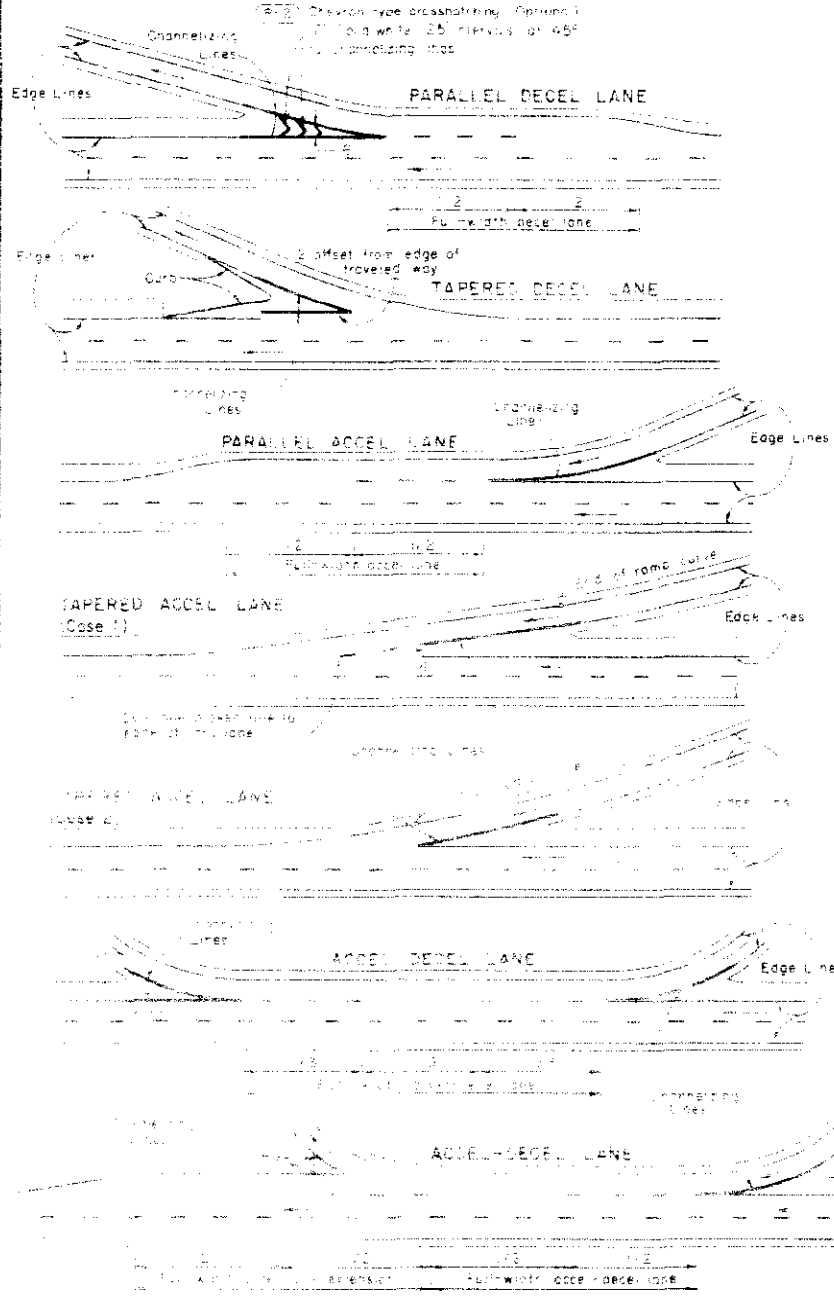
STOP LINES

1. Solid white, 24 inches wide
2. Shall extend across all approach lanes at locations indicated on plans
3. Located at the desired stopping point, not more than 20 feet nor less than 4 feet from the nearest edge of the intersecting traffic lane.

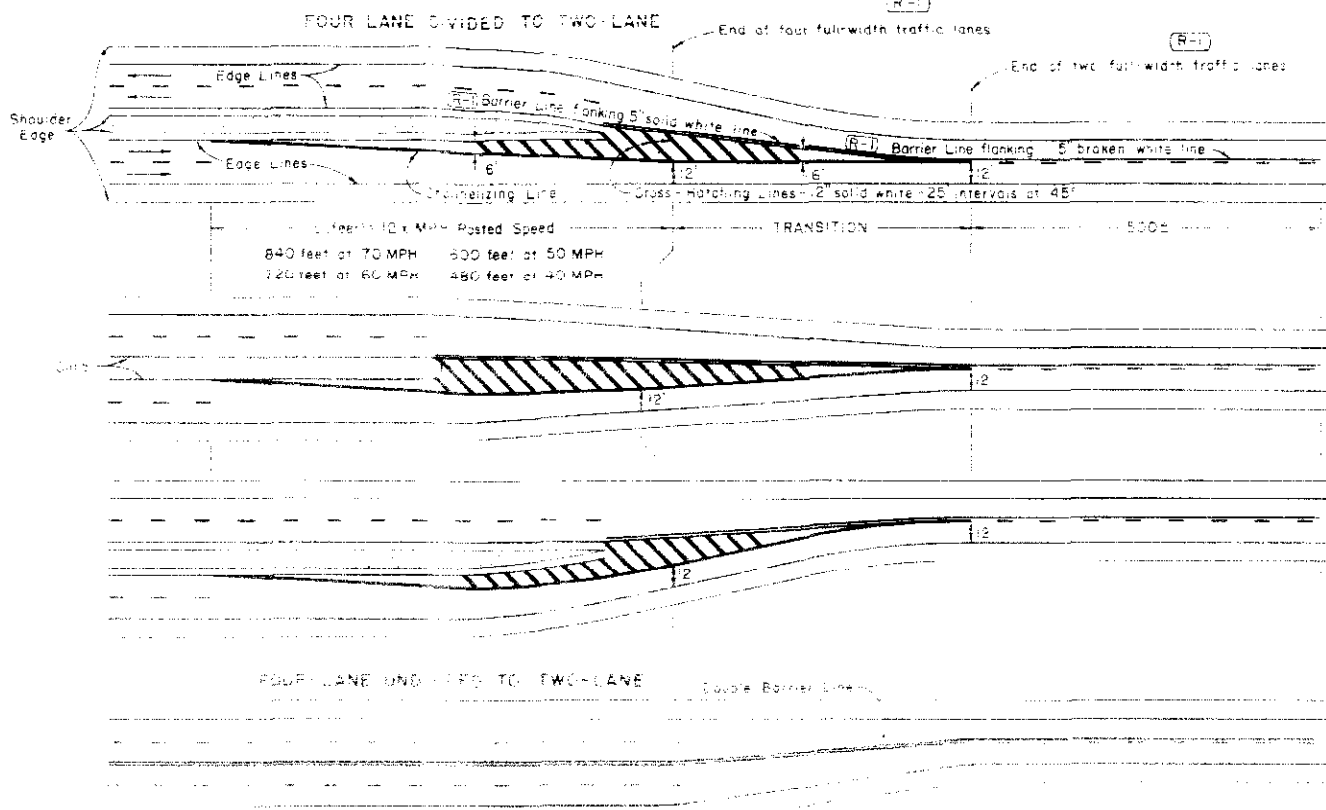
CROSSWALK LINES

1. Solid white, 2 inches wide - 15 foot segments with 25 foot gaps
2. Shall extend across the width of the crosswalk lines to 24 inches
3. Shall cross entire width of pavement
4. The width of pavement shall be determined by the width of the sidewalk or connected, however, in no case less than 6 feet

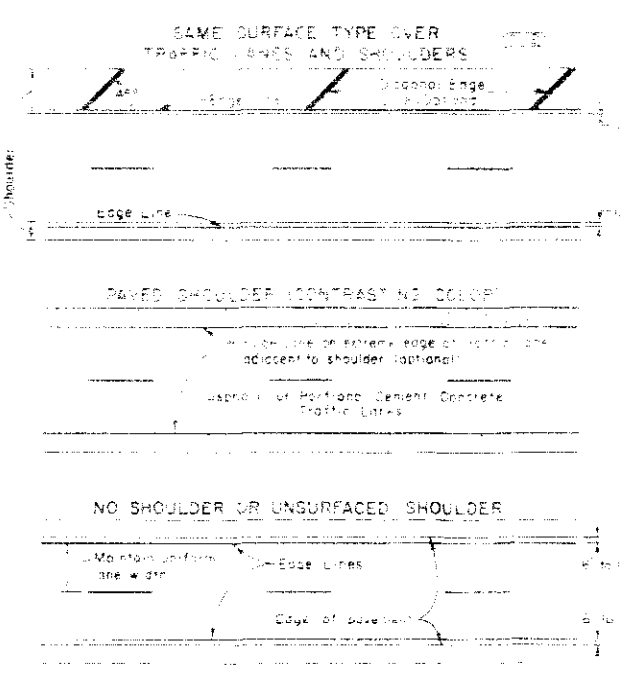
ENTRANCE AND EXIT RAMP MARKINGS



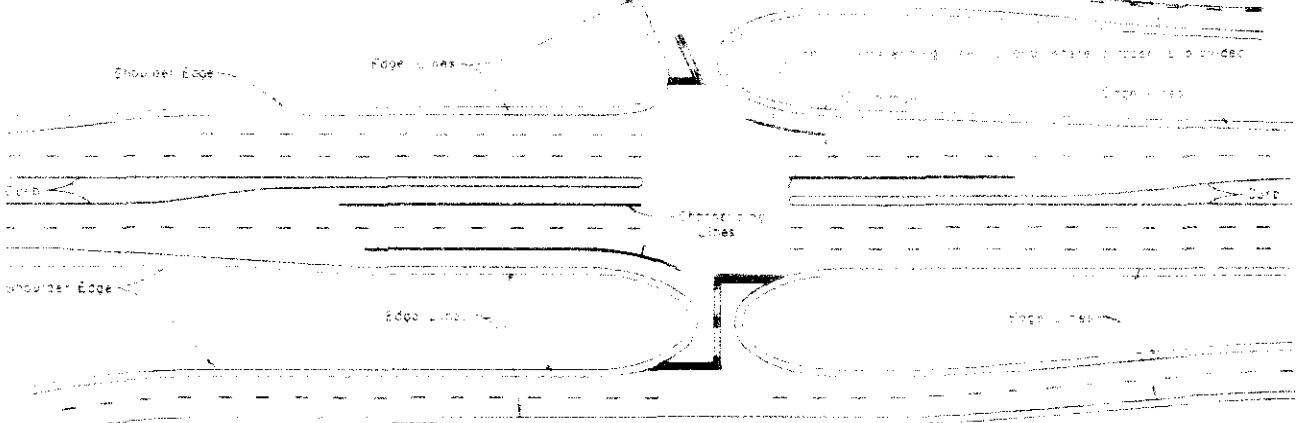
PAVEMENT WIDTH TRANSITION MARKINGS



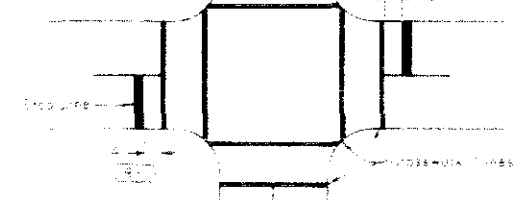
PAVEMENT EDGE LINE TYPICAL APPLICATIONS



INTERSECTION MARKINGS



CROSSWALK MARKINGS



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
TYPICAL
PAVEMENT
MARKINGS