FED. ROAD DIST. NO.	STATE	JOB NO.
8	COLO.	[redacted]

Rev. 8-3-33 A.J.S.
Rev. N.R.H. Sheet No. 2 Added Station Mark

COLORADO
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED
U. S. P. W. PROJECT N.R.H.-248-F AND N.R.M.-248-H
STATE HIGHWAY NO. 4
LAKE COUNTY

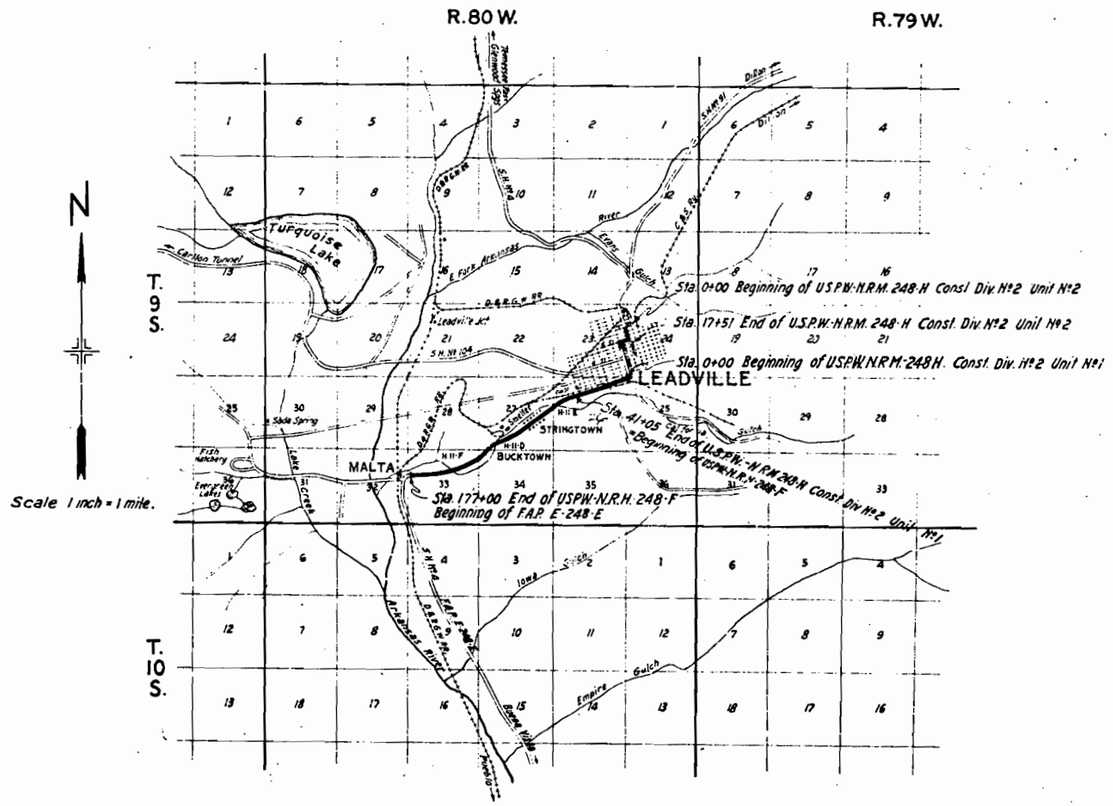
INDEX OF SHEETS

U.S.P.W.-N.R.M. 248-H CONST. DIV. Nº 2

SCALES

ON PLAN, 1 IN. = 100 FT.
ON PROFILE (1 IN. = 100 FT. HORIZONTAL; 1 IN. = 10 FT. VERTICAL)
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

GROSS LENGTH OF PROJECT	N.R.H.	13737.3 FT.	= 2.602 MI.
NET LENGTH OF PROJECT	N.R.M. Const. Div. Nº2 Unit Nº1	4057.8 FT.	= 0.7685 Mi.
	" " " " Nº2	1751.0 FT.	= 0.3315 Mi.
	" " " Total	5808.8 FT.	= 1.1000 Mi.

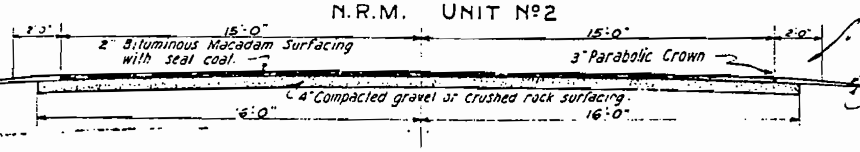


CONVENTIONAL SIGNS

Center Line of Improvement
Right of Way Line
Section Line
¼ Section Line
City Limit Line
Railroad Track
Pole Line
Fence

RECOMMENDED FOR APPROVAL 6/15/33
J. Mowry
ASSISTANT ENGINEER
APPROVED
Chas. O'Hile
STATE HIGHWAY ENGINEER
RECOMMENDED FOR APPROVAL
[redacted]
DIST. ENG. BUREAU PUBLIC ROADS
RECOMMENDED FOR APPROVAL
[redacted]
CHIEF ENG. BUREAU PUBLIC ROADS
APPROVED
[redacted]
DIRECTOR BUREAU PUBLIC ROADS

NRH 248 F



GENERAL NOTES

This Project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department adopted January 1, 1930.

All quantities on preliminary plans are to be considered approximate only.

All roadway excavations required to construct this Project are to be obtained as indicated on the plans. Quantities involved beyond the limits of the ditch as shown on the Typical Section, either noted on profile as "Borrow" or on Structure tabulation as "Embankment", are to be classified and paid for as "Unclassified Excavation". These quantities are to be staked as part of the original excavation at locations indicated on the plans. Slope stakes beyond the limits of the Typical Section as shown, are subject to change by the Engineer to fit Embankment requirements actually met in Construction.

Unless otherwise noted on the plan sheets and list of Structures, the inlet ends of all corrugated metal cross culverts are to be protected by dry rubble slope paving 1 ft. thick placed about the end of the pipe. The approximate yardage of slope paving required is shown in the list of structures.

All poles encroaching on construction are to be moved by the owner.

All curves are to be Superelevated as provided for by the Standard Superelevation sheet included with the plans.

The entire project is to be cleared for the full width of the right-of-way, and the entire cost thereof is to be included in the Lump Sum Bid for Clearing & Grubbing the Entire Project. Approximate location and character of Clearing & Grubbing required are indicated in notes on the plans.

The upper 6" of the subgrade over the entire project is to be covered with selected material, which is to be classified and paid for as unclassified excavation. This material is to be used to fill the interstices in the rocky subgrade, and to prepare the subgrade for the gravel surface course.

It is estimated that this material will be obtained approximately 1000' north of Sta. 115 and will be placed at the rate of approximately 60 cu. yds. per 100 linear ft. of roadway.

It is estimated that this operation involves the following quantities:

		N.R.M.	N.R.H.
13c	Unclassified Excavation	2 450 Cu. Yds.	8 250 Cu. Yds.
18a	Station-Yard Overhaul	32 000 Sta. Yds.	105000 Sta. Yds.
18b	Yd-Mile Overhaul	4 100 Yd. Mi.	4 600 Yd. Mi.

The detour for this project lies along the present travelled roadway, and where the new work and the present travelled roadway coincide, the Contractor shall, at his own expense, so prosecute construction that traffic can readily pass over the road. Also he shall maintain in safe condition, and at his own expense, all temporary approaches to, and crossings of, intersecting highways.

Except as limited by the special provisions, power equipment may be used on this project.

FENCING (N.R.M. Unit Nº1.)

LOCATION	SIDE	REMOVE LIN. FT.	BUILD LIN. FT.
16+80 - 17+05	X	225	
30+45 - 33+20	X	470	
	TOTALS	695	

R.O.W. MARKERS

N.R.M. 248-H LOCATION	SIDE	NO.	N.R.H. 248-F LOCATION	SIDE	NO.
0+00	R.&L.	2	114+60	R.&L.	2
3+75	"	4	127+70	"	2
33+50	"	4	155+30	"	2
36+45	"	2	177+00	"	2
8+20	"	2	65+40	"	2
23+348	"	4	70+00	"	4
			97+10	"	2
			100+00	"	4
NRM. 248-H. Total Unit Nº1		18	NRH. 248-F. Total		20

SUMMARY OF CONSTRUCTED QUANTITIES

NO.	ITEM	UNIT	N.R.H. 248-F Roadway	N.R.H. 248-F Bridges	N.R.M. 248-H. Road. Unit Nº1
10	Clear & Grubb the Entire Project	Lump Sum	(a) •		(b) •
11	Removing Structures	" "	(a) 6 struct's.		(b) str.
12a	Removing Fence	Lin. Ft.			695
13c	Unclassified Excavation	Cu. Yards	35732.8		91843
14a	Dry Rock " (Structural)	" "			
14b	" Common " "	" "	230.4	436.5	[illegible]
14c	Wet Rock Excavation "	" "			
14d	" Common "	" "	64.9	240.9	
18a	Station-Yard Overhaul	Sta.-Yards	138098.8		41578
18b	Yard-Mile Overhaul	Yard-mile	21410.2		306.6
30x	Gravel or Crushed Rock Surfacing	Ton	65943		2429
42b	Treated Bridge Timber	M.Ft.B.M.		1.132	
46a	Class "A" Concrete	Cu. Yards		132	
46b	Class "B" Concrete	" "		430.9	
47	Reinforcing Steel	Pounds		15,600	
48	Structural Steel	"		43,960	
53b	18" Corrugated Metal Culvert Pipe	Lineal-Ft.	102		284
53c	24" " " " "	" "	144		176
53d	30" " " " "	" "	390		
63a	Rip-Rap	Cu-Yards	352.1		
65	Dry Rubble Slope Paving	Sq-Yards	224		189
72	Wire Cable Guard Fence	Lineal-Ft.	600		
78	Project Markers	Each			1
79	Right-of-Way Markers	"	20		18
84	Removal of disused Bridges, Sta. 60+, 107+, & 143+	Lump Sum		•	
11c	Removing Buildings.	" "	•		•
11d	Removing Buildings.				
11e	Moving Fire Hydrant, Sta. 20+	Lump Sum " "			• •
	CONST. DIV. Nº2 BITUMINOUS SURFACING	UNIT Nº1			Unit Nº1
31t	Shoulder Surfacing	Cu. Yd.			312.4
38a	MC-1 Asphaltic Material	Gal.			5712
39a	Coarse Stone	Ton			905.25
39b	Key Rock	"			223.9
39c	Stone Chips	"			249.8
39d	Asphaltic Material 95+	"			74.1
	CONST. DIV. Nº2 BITUMINOUS SURFACING	UNIT Nº2			Unit Nº2
11a	Remove 3 Culverts	Lump Sum			•
11b	Remove 2 Structures Sta. 4+	" "			•
13c	Unclassified Excavation	Cu. Yd.			2777.2
14a	Dry Rock Excavation Structural	" "			
14b	" Common " " "	" "			140.1
14c	Wet Rock " " "	" "			
14d	" Common " " "	" "			
30x	Gravel or Crushed Rock Surfacing	Ton			1386.3
31t	Shoulder Surfacing	Cu. Yd.			230.1
38a	MC-1 Asphaltic Material	Gal.			3808
39a	Coarse Stone	Ton			613.2
39b	Key Rock	"			152.65
39c	Stone Chips	"			193.5
39d	Asphaltic Material 95+	"			47.95
53c	24" Corrugated Metal Culvert Pipe.	Lin. Ft.			297
78	Project Marker	Each			1
	Plant Mix Material	Ton			24.33

	Station	Item					
N.R.M. Quantities · Sta 0+00 to 41+	1+50	Remove 2 buildings					
	2+68	Remove Structure	1				
	3+50	Side Drain & Road App.			110.2	96	
	6+00	Cross Culvert, Outlet		07		126	
	10+35	Cross Culvert		15		24	
	10+40	Road Approach			352		
	10+85	Remove Conc. Foundation					
	14+75	Cross Culvert, Outlet		22		81	
	15+20	Remove buildings					
	18+70	Side drain.				10.4	
	20+00	Cross Culvert & outlet		5.9		30.1	
	20+50 - 24+00	Remove Platform					
	31+00 - 32+00	Remove 4 buildings					
	31+20	Approach			51.5		
	33+17	Cross-Culvert				10	
	32+10	Approach			44.0		
N.R.H Quantities – Sta 41+05 to 177+00	52+00	2 Side Drains & approaches				29.9	
	60+84½-61+15½	Bridge (See Summary)				1363	99.4
	66+25	Remove 2 buildings					
	67+00 - 68+00	" 4 "					
	68+00	Cross Culvert & Ditches		1.37		31	
	69+50	Remove 2 buildings & Road App.			11.3		
	70+00	Side Drain; approach			18.9	.64	
	71+20	" " "			18.4	138	
	71+90	Remove Structure	1				
	72+29	Side drain & Road App.	1			17.5	
	72+48	" " "				115	
	74+10 - 74+20	Road App. 91+Lt.			15.3		
	76+42	Side drain				25.1	
	76+55	Remove Structure	1				
	84+50	Side drain; approach, rem. struct.	1		21.6	10.8	
	88+50	Side drain: approach			126	88	
	89+90	" " "			28.5	13.8	
	91+30	" " "			17.0	76	
	92+40	Side drain; Approach; Rem. Struct.	1		28.1	12.6	
	93+90	" " "			16.2	12.1	
	98+00	Rip-rap					27.7
	103+10	Remove building					
	103+10	Side drain; Approach; Rem. Struct.	1		77.7	15.7	
	104+00	Rip-rap					33.6
	107+27 - 107+58	Bridge (See Summary)				199.7	75.8
	110+50 - 112+00	Remove 3 buildings					
	113+25	Cross Culvert		15.6		-	56
	114+40	Remove pig pen					
	118+50	Cross Culvert & outlet		19		151	
	120+00 - 130+00	Diversion ditch		1040			
	143+84½-144+15½	Bridge (See Summary)			100.5	66.7	
	165+67	Cross Culvert: ditch excavation		11.7	166		
	177+00	Approach			100		
N.R.M. Quantities Unit Nº1	19+55	Cross Culvert & outlet		17.8		19.0	
	20+00	Move Fire Hydrant					
	29+10	Road Approach			89.2		
	30+50	" "			8.7		
N.R.M. Quantities. Div Nº2 Unit Nº2	0+00	Project Marker; Rem. Culv. Place C.M.P. Appr.	1				
	0+25	Remove Culvert, Place C.M.P.	1			20.4	
	8+65	Extend present C.M.P.				22.4	
	8+80	Remove Culvert, Place C.M.P.	1			12.3	
	14+70	Cross Culvert				38.7	
	4+00	Remove 2 Gas Pumps					
	2+80	Relay 24×48 C.M.P.				26.9	
	3+25	" 24×42 "				19.4	
		N.R.M. TOTALS. Div. Nº2 Unit Nº2	3			140.1	
		N.R.M. TOTALS. Div. Nº1 Unit Nº1	1	444		*1400	
		N.R.H. TOTALS Div. Nº1	6	1469		*8669	3072

* Structural Excavation is estimated to be 50% Rock & 50% Common, each of whic

FINAL SUMMARY OF QUANT

Gravel Distribution

Book No.	Ticket No. From	Ticket No. To	Station No From	Station No To	Tonnage Book	Tonnage Total	Notes
1	F92401	F92421	8+—	17+00	501.10		
	G92421	H92450	69+—	81+—	773.40	1274.50	[illegible]
2	E92451	H92453	68+00	69+—	78.30		
	E92454	F92481	81+—	93+00	784.00		
	G92481	F92484	Smelter Rd. App.		80.40		
	G92484	H92500	93+00	100+—	446.20	1388.90	1387.9
3	E92751	H92800	100+—	124+—	1415.70	1415.70	1415.25
4	E92801	H92850	124+—	148+—	1427.45	1427.45	1421.05
5	E92881	H92900	148+—	172+—	1435.65	1435.65	1435.7
6	E92901	E92911	172+—	177+00	301.15		
	F92911	E92926	2+00	8+—	408.30		
	F92926	E92943	17+00	27+00	494.58		
	F92943	E92948	Low Spot	Fill Ins	56.25		
	F92945	H92950	45+—	47+—	158.25		
						1418.50	✓
7	E92951	E92989	27+00	45+—	1064.70		
	F92989	H93000	47+—	52+00	324.10	1388.80	✓
8	E37701	E37719	52+—	61+—	500.65		
	F37719	H37733	61+—	68+00	414.25		
	E37734	F37738	0+00	2+00	116.35		
	G37738	G37742	Low Spot	Fill Ins	113.85		
	H37742	E37745	Extra gravel bridges		65.20		
	F37745	G37747	Stock piles @ bridges		65.00		
						1275.30	
Total						11,024.80	

11,024.3

Fencing

Station From	Station To	Side	Remove Lin. Ft.	Reference Book.	Reference Page
16+80	17+05	Cross	225		
30+45	33+20	"	470		
Total			695	1	46

R.O.W Markers

Location	Side	No.	Location	Side	No.
0+00	R.&L.	2 ✓	65+40	R.&L.	2
3+75	"	4 ✓	70+00	"	4 ✓
	"		97+10	"	2
8+60	"	2 ✓	100+00	"	4
			113+73	"	2
23+34.6	"	4 ✓	127+70	"	2
			158+30	"	2 ✓
33+50	"	4	177+00	"	2 ✓
36+45	"	2			
*			Total		38

*Refer to Book 1, Page 40

Summary of Final Quantities

No.	Item	Unit	N.R.H. Roadway	N.R.H. Bridges	N.R.M.		
10	Clear & grub the entire project	Lump sum	•		•		
11	Removing structures	" "	•		•		
11c	Removing buildings 66+, 67+, 69+, 103+, 110+, 114+ from ROW	" "	•				
11d	Removing buildings 1+, 10+, 15+, 20+ & 31+ from ROW	" "			•		
11e	Moving fire hydrant, Sta. 20+	" "			•		
12a	Removing fence	Lin. ft.			695		
13c	Unclassified excavation	Cu. yd.	35732.8		91843		
14b	Dry common excavation structural	" "	230.4	4305.	140.0		
14d	Wet " " "	" "	66.9	240.9			
18a	Station-yard overhaul	Sta.-yd.	198088.8		41578		
18b	Yard-mile overhaul.	Yd-mile.	21670.2		3566		
30x	Crushed rock surfacing	Ton.	25943		2429		
42b	Treated bridge timber	M ft. B.M.		1.132			
46a	Class "A" concrete	Cu. yd.		132.0			
46b	" "B" "	" "		430.8			
47	Reinforcing steel	Pounds		15,460			
48	Structural "	"		43960			
53b	18" corrugated metal culvert pipe	Lin. ft.	102		284		
53c	24" " " " "	" "	144		176		
53d	30" " " " "	" "	390				
63a	Riprap	Cu. yd.	352.1				
65	Dry rubble slope paving	Sq. yd.	22.4		18.9		
72	Wire cable guard fence	Lin. ft.	600.0				
78	Project marker	Each			1		
79	Right of way markers	"	20		18		
84	Removal of disused bridges. 60+, 107+, & 143+	Lump sum.	•				

Unclassified excavation includes ditches, channel changes, borrow pits, plating pit and roadway cross-sections

	N R H		N.H.M.	
Roadway and channel changes	22,874.9	cu. yds.	~~61820~~	cu. yds.
Culvert outlets	42.9	" "	44.4	" "
Plating	11,941.3	" "	3,015.5	" "
Dyke 107+	260.1	" "		
Diversion ditch 120-130	104.0	" "		
Total	35,222.4	" "	11,246.9	" "
Borrow from N.R.M.	510.4			
	35,732.8			

List Of St

Location Of Structure	Description
0+00	Project marker and d
0+43	Side drain
1+50	Remove buildings
2+68	Remove structure
3+50	Side drain and road
6+00	Cross culvert and
10+35	" " "
10+40	Road approach
10+85	Remove concrete fr
14+75	Cross culvert and
15+20	Remove buildings
18+70	Side drain
19+55	Cross culvert and
20+00	Remove fire hydrant. Cross c
20+50 to 24+00	" platform
29+10	Road approaches
30+50	" "
31+00 to 32+00	Remove buildings
31+20	Road approach
32+10	" "
33+17	Cross culvert and
52+00	Side drains
60+84.6 to 61+15.3	Bridge (see summa
66+25	Remove buildings
67+00 to 68+00	" "
68+00	Cross culvert
69+15	Road approach
69+50	Remove buildings
70+00	Side drain and road
71+20	" " " "
71+90	Remove structure
72+29	Side drain and roa.
72+48	" " " "
74+10	"
74+80	"
76+47	" "
76+55	Remove structur
84+50	Side drain and road ap
88+50	" " " "
89+90	" " " "
91+30	" " " "
92+40	" " " "
93+90	" " " "
98+00	Riprap
103+10	Remove building
103+10	Side drain and road approa
104+00	Riprap
107+27.0 to 107+58.5	Bridge (see summar
110+50 to 112+20	Remove buildings
113+25	Cross culvert
114+40	Remove pigpen
118+50	Cross culvert and
143+84.5 to 144+15.2	Bridge (see summa
165+67	Cross culvert
120+00 to 130+00	Diversion Ditch

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NUM.	SHEET NO.	TOTAL SHEETS
3	COLO.	248-F	3	

Revised By NWD. 7-28-38 Changed Dr. & Seeded notes.
Revised Footings & Quantities as Constructed 5-18-38 R.S.S.

PLAN

SECTION D-D.
Typical for both Abutments. E. Abt. shown, W. Abt. similar except opposite grade slope.

SECTION F-F.

BEAM CLIP
12 Fixed End Type required.
12 Expansion End Type read.

PLATES 3/4"x10" STRUCTURAL STEEL, 12 REQD.
Furnish 3/4"x1'-2" Bolts and Clips as detailed showing Skewed Diaphram Connection.

ELEVATION EAST ABUTMENT

PLAN OF EAST AND WEST ABUTMENTS
Dimensions for East Abutment marked 'E.' West Abutment marked 'W.' Dimensions unmarked apply to both abutments.

ELEVATION OF WEST ABUTMENT.

SECTION B-B.

SECTION C-C.

HALF SECTION E-E.

SECTION AT CENTER LINE OF ROADWAY

DETAIL FOR PLACING BARS IN ROADWAY SLAB
⅝" MAIN BARS ONLY SHOWN.

BAR LIST FOR SUPERSTRUCTURE RMA.

MARK	SIZE	No	LENGTH	BENDING DIAGRAM (All dimensions are to ℄ of bars)
E1	⅝"	68	18'-4"	
E2	⅝"	68	23'-3"	
E3	⅝"	17	17'-11"	
E4	⅝"	17	23'-2"	
D1	½"	41	23'-8"	
H1	½"	52	6'-6"	
H2	½"	8	5'-4"	
H3	½"	2	4'-11"	
H4	½"	16	6'-8"	
H5	½"	8	5'-6"	
H6	½"	2	5'-1"	
H7	½"	20	2'-6"	

3107 Lin. ft. ⅝" ϕ Bars @ 1.043 Lbs. per Lin. Ft. = 3866 Lbs.
634 Lin. ft. ½" ϕ Bars @ 0.85 Lbs. per Lin. Ft. = 539 Lbs.
1216 Lin. ft. ½" ϕ Bars @ 0.668 Lbs. per Lin. Ft. = 812 Lbs.
1% Additional for Overrun = 53 Lbs.
TOTAL = 5270 LBS.

BAR LIST FOR TWO ABUTMENTS RMA.

MARK	SIZE	No	LENGTH	BENDING DIAGRAM (All dimensions are to ℄ of bars)
A1	⅝"	20	23'-0"	
A2	⅝"	36	4'-2"	

694 Lin. ft. ⅝" ϕ Bars @ 1.043 Lbs. per Lin. Ft. = 724 Lbs.
1% Additional for Overrun = 6 Lbs.
TOTAL = 730 LBS.

SUMMARY OF QUANTITIES FOR ENTIRE BRIDGE

ITEM No.	DESCRIPTION	UNIT	SUPER-STRUCTURE	TWO ABUTMENTS	RMA. TOTAL
14 a	Dry Rock Structural Excavation	Cu.Yd.			—
14 b	Dry Common " "	" "		199.7	199.7
14 c	Wet Rock " "	" "			—
14 d *	Wet Common " "	" "		75.8	75.8
42 b	Treated Bridge Timber	M.Ft.BM.		0.432	0.432
46 a	Class "A" Concrete	Cu.Yd.	29.5	18.5	48.0
46 b	Class "B" Concrete	Cu.Yd.	527.0	730	170.9
47	Reinforcing Steel (overrun incl.)	Lb.	5270	730	6000
48	Structural Steel, (overrun incl.)	Lb.	15388		15388
84	Removal of disused Bridge	L.S.			LUMP SUM
	Expansion Joint Mat'l. 3"x12"	Lin. Ft.	36		36

* For Excavation, Walls, etc. see Final Plans

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT.
ALL CONCRETE SHALL BE CLASS "A."
ALL EXPOSED SURFACES SHALL BE RUBBED FREE OF FORM MARKS.
ALL EXPOSED CORNERS, EXCEPT ON HANDRAILS, SHALL BE BEVELED TO A 2" FACE.
GIRDERS, FLOOR SLAB AND CURB SHALL BE POURED MONOLITHICALLY.
ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.
STRUCTURE IS DESIGNED FOR A ¾" CONCRETE WEARING SURFACE.
ALL REINFORCING BARS SHALL BE ROUND OR SQUARE, PLAIN OR DEFORMED AS SHOWN AND NOTED.
ALL REINFORCING BARS SHALL BE TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION.
SECONDARY BARS WHEN SPLICED SHALL BE GIVEN A LAP OF 30 DIAMETERS.
MAIN BARS SHALL NOT BE SPLICED.
SOUNDINGS AND DEPTH OF FOOTINGS SHOWN ARE ACCORDING TO THE BEST AVAILABLE DATA. IF ESSENTIALLY DIFFERENT CONDITIONS ARE ENCOUNTERED, THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.
ALL RIVETS TO BE ¾" ϕ
HOLES 13/16"
FORMS FOR CONCRETE SURFACES EXPOSED IN FINISHED WORK SHALL BE CONSTRUCTED OF SHIPLAP OR T&G. S-3-B.

L.L. = A.A.S.H.O. Aug. 1926. Class "A" (H15)
D.L. = Assumes 15 Lbs per Sq. Ft. Additional Wearing Surface. This includes ½" Monolithic Conc. Wearing Surface.

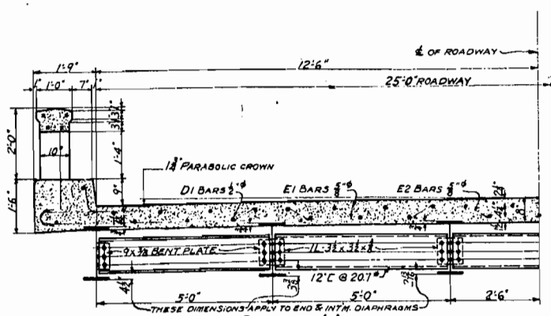
COLORADO
STATE HIGHWAY DEPARTMENT
ONE SPAN 27'-0" x 25'-0" ROADWAY CONCRETE T-BEAM BRIDGE ON CONCRETE GRAVITY ABUTMENTS
ACROSS CALIFORNIA GULCH
Sta. 107+27 TO 107+58.48
Near LEADVILLE Sec. 27 T. 9 S. R. 80 W.

Designed by A.L.C.	Approved by Rod Bailey
Made by A.L.C.	Bridge Engineer
Checked by R.M.A.	Date: Oct. 3rd., 1932

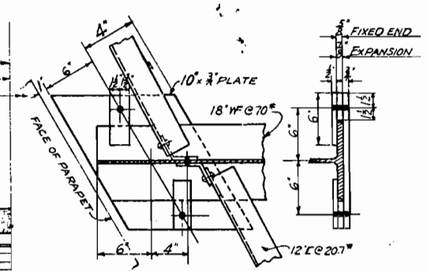
STRUCTURE NO. H-11-D.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	248-F	4	8

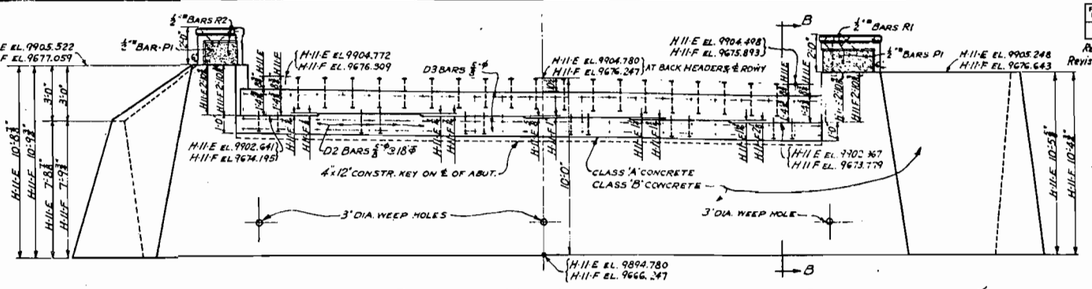
Revised by WND. 7-28-33 Changed Elev. Rs & Added Notes
Revised Quantities as Constructed 5-18-38 R.S.S.



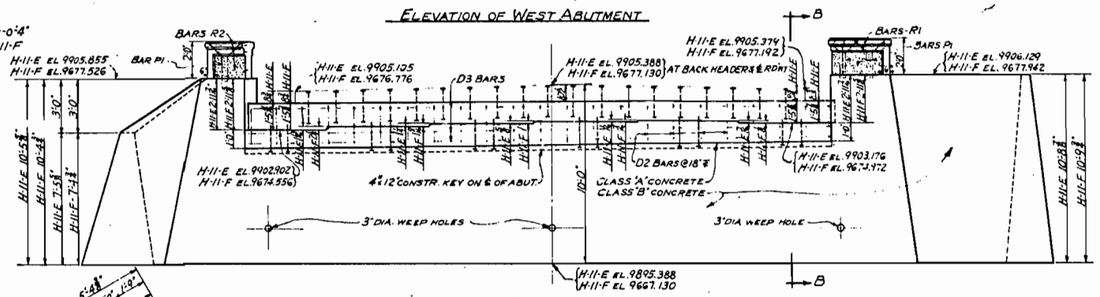
SECTION-AA



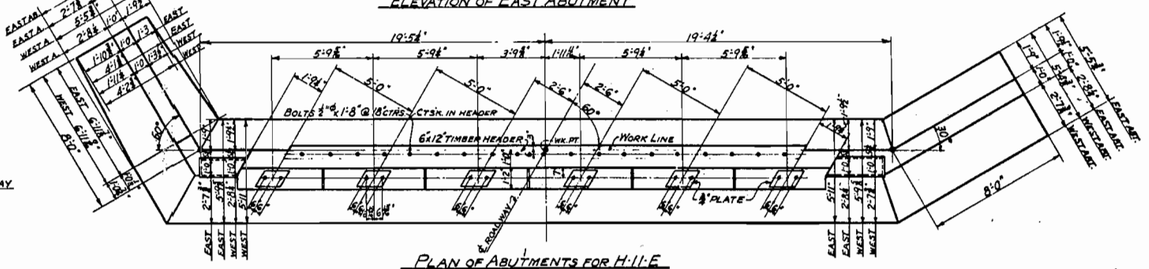
DETAIL AT BEAM BEARING
FURNISH 24 ANCHOR BOLTS ⅞"ø x 1'-4" & PLT. WASH. 4"x⅜"-0'4" FOR BRIDGE H-11-E & H-11-F



ELEVATION OF WEST ABUTMENT

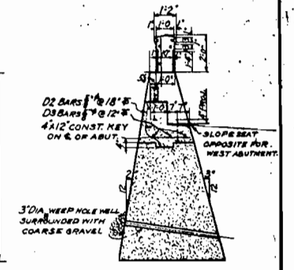


ELEVATION OF EAST ABUTMENT

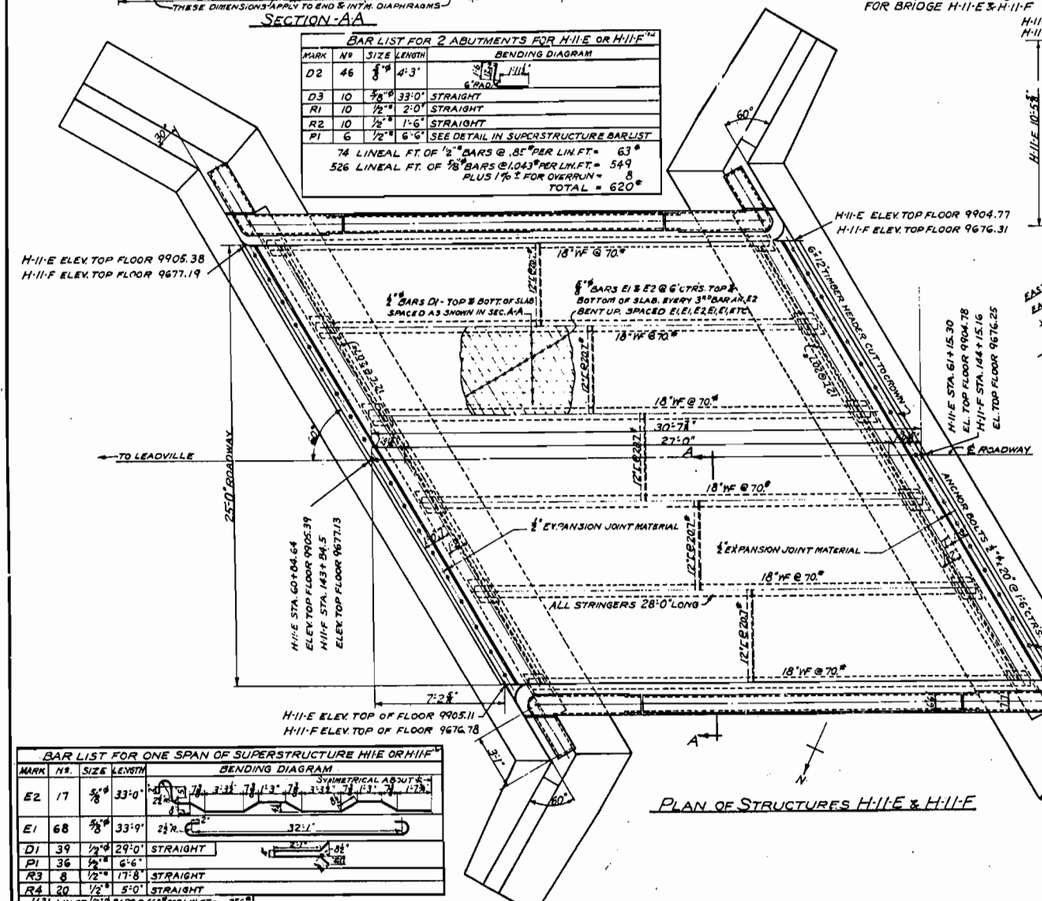


PLAN OF ABUTMENTS FOR H-11-E

PLAN OF ABUTMENTS FOR H-11-F



SECTION-BB



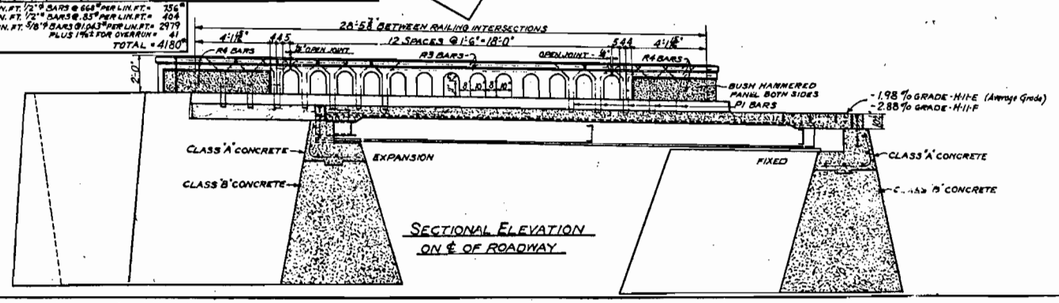
PLAN OF STRUCTURES H-11-E & H-11-F

BAR LIST FOR 2 ABUTMENTS FOR H-11-E OR H-11-F				
MARK	No	SIZE	LENGTH	BENDING DIAGRAM
D2	46	⅝"ø	4'-3"	6" RAD. FILL
D3	10	⅝"ø	33'-0"	STRAIGHT
R1	10	½"ø	2'-0"	STRAIGHT
R2	10	½"ø	1'-6"	STRAIGHT
P1	6	½"ø	6'-6"	SEE DETAIL IN SUPERSTRUCTURE BAR LIST

74 LINEAL FT. OF ½"ø BARS @ .85# PER LIN. FT. = 63#
526 LINEAL FT. OF ⅝"ø BARS @ 1.043# PER LIN. FT. = 549
PLUS 1% FOR OVERRUN = 8
TOTAL = 620#

BAR LIST FOR ONE SPAN OF SUPERSTRUCTURE H-11-E OR H-11-F				
MARK	No.	SIZE	LENGTH	BENDING DIAGRAM
E2	17	⅝"ø	33'-0"	SYMMETRICAL ABOUT ℄
E1	68	⅝"ø	33'-9"	32'-1"
D1	39	½"ø	29'-0"	STRAIGHT
P1	36	½"ø	6'-6"	
R3	8	½"ø	17'-8"	STRAIGHT
R4	20	½"ø	5'-0"	STRAIGHT

1131 LIN. FT. ½"ø BARS @ 668# PER LIN. FT. = 756#
475 LIN. FT. ½"ø BARS @ .85# PER LIN. FT. = 404
2856 LIN. FT. ⅝"ø BARS @ 1.043# PER LIN. FT. = 2979
PLUS 1% FOR OVERRUN = 41
TOTAL = 4180#



SECTIONAL ELEVATION ON ℄ OF ROADWAY

SUMMARY OF QUANTITIES FOR STRUCTURE H-11-E Sta 61+ ALL					
ITEM No.	DESCRIPTION	UNIT	SUPERSTR.	2 ABUTS.	TOTAL
14a	DRY ROCK STRUCTURAL EXCAVATION	CU.YD.			—
14b	DRY COMMON STRUCTURAL EXCAVATION	CU.YD.		136.3	136.3
14c	WET ROCK STRUCTURAL EXCAVATION	CU.YD.			—
14d	WET COMMON STRUCTURAL EXCAVATION	CU.YD.		99.4	99.4 *
42b	TREATED BRIDGE TIMBER	M.F.B.M.		0.350	0.350
46a	CLASS 'A' CONCRETE	CU.YD.	28	14	42
46b	CLASS 'B' CONCRETE	CU.YD.		130	130
47	REINFORCING STEEL (INCL. 1% OVERRUN)	LBS.	4180	620	4800
48	STRUCTURAL STEEL (INCL. 1% OVERRUN)	LBS.	14,016	770	14786
84	REMOVAL OF DISUSED BRIDGE	LUMP SUM			LUMP SUM
	EXPANSION JOINT MATERIAL ½"x12"	LIN. FT.		58	58

SUMMARY OF QUANTITIES FOR STRUCTURE H-11-F Sta 61+ ALL					
14a	DRY ROCK STRUCTURAL EXCAVATION	CU.YD.			—
14b	DRY COMMON STRUCTURAL EXCAVATION	CU.YD.		100.5	100.5
14c	WET ROCK STRUCTURAL EXCAVATION	CU.YD.			—
14d	WET COMMON STRUCTURAL EXCAVATION	CU.YD.		65.7	65.7 *
42b	TREATED BRIDGE TIMBER	M.F.B.M.		0.350	0.350
46a	CLASS 'A' CONCRETE	CU.YD.	28	14	42
46b	CLASS 'B' CONCRETE	CU.YD.		130	130
47	REINFORCING STEEL (INCL. 1% OVERRUN)	LBS.	4180	620	4800
48	STRUCTURAL STEEL (INCL. 1% OVERRUN)	LBS.	14016	770	14786
84	REMOVAL OF DISUSED BRIDGE	LUMP SUM			LUMP SUM
	EXPANSION JOINT MATERIAL ½"x12"	LIN. FT.		58	58

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JAN. 1, 1930.
ALL CONCRETE SHALL BE CLASS "A" AND CLASS "B".
ALL EXPOSED SURFACES SHALL BE RUBBED FREE OF FORM MARKS.
ALL EXPOSED CORNERS, EXCEPT ON HANDRAILS, SHALL BE BEVELED TO A 3" FACE.
GIRDERS, FLOOR SLAB AND CURB SHALL BE POURED MONOLITHICALLY.
ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.
STRUCTURE IS DESIGNED FOR A ¼" CONCRETE WEARING SURFACE.
ALL REINFORCING BARS SHALL BE ROUND OR SQUARE, PLAIN OR DEFORMED AS SHOWN AND NOTED.
ALL REINFORCING BARS SHALL BE TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION.
SECONDARY BARS WHEN SPLICED SHALL BE GIVEN A LAP OF 50 DIAMETERS.
MAIN BARS SHALL NOT BE SPLICED.
SOUNDINGS AND DEPTH OF FOOTINGS SHOWN ARE ACCORDING TO THE BEST AVAILABLE DATA. IF ESSENTIALLY DIFFERENT CONDITIONS ARE ENCOUNTERED, THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.
RIVETS - ¾"ø
HOLES - ¾"ø
FORMS FOR CONCRETE SURFACES EXPOSED IN FINISHED WORK SHALL BE CONSTRUCTED OF SHIPLAP OR T. & G. S-2-S

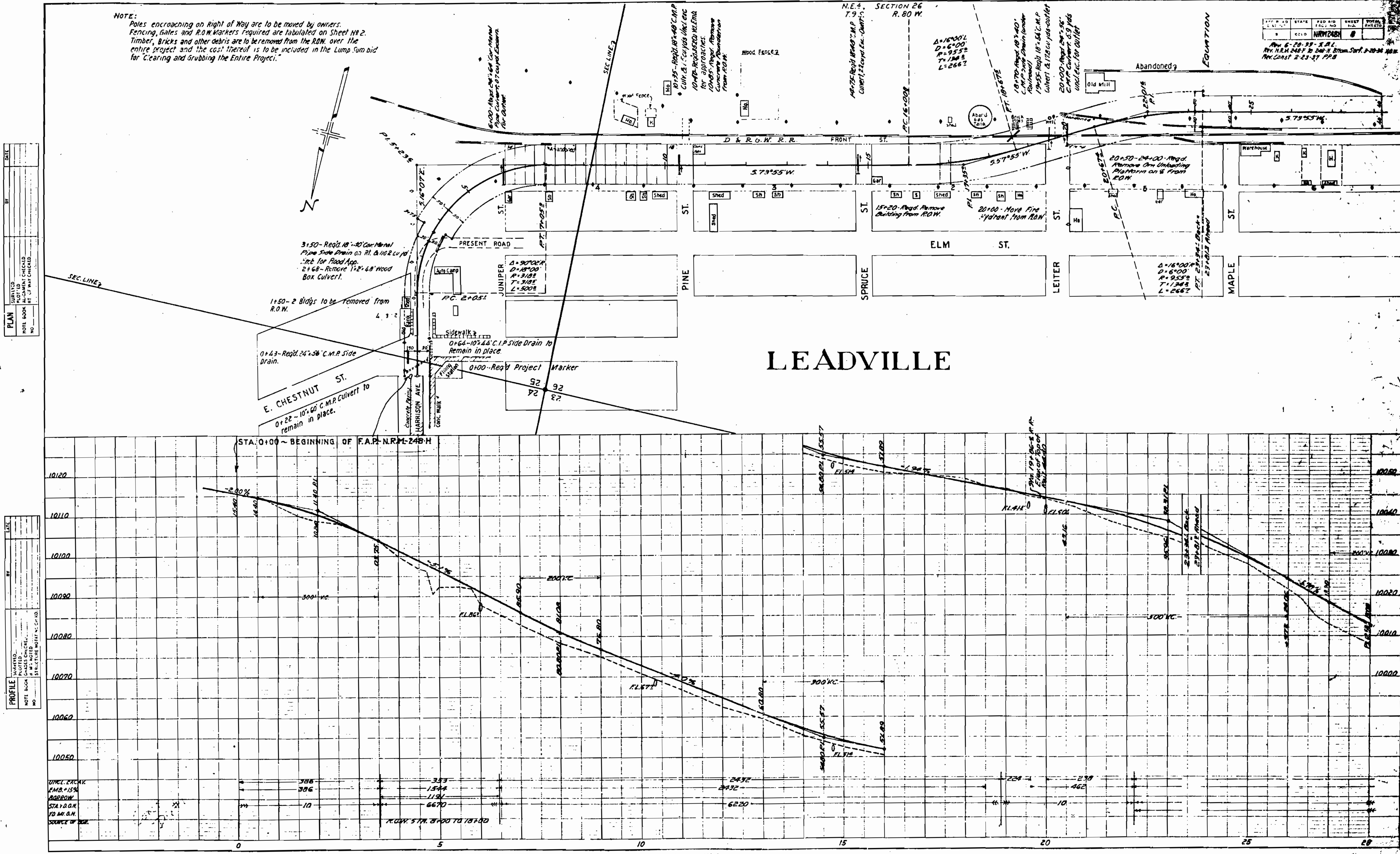
* H-11-E WATER LINE - SEE FINAL PLANS
* H-11-F WATER LINE - SEE FINAL PLANS

L. L. = A. A. S. H. O. AUGUST 1926. CLASS "A" (H-18)
D. L. ASSUMED AT 185 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE, THIS INCLUDES ½" MONOLITHIC CONCRETE WEAR. SURFACE.

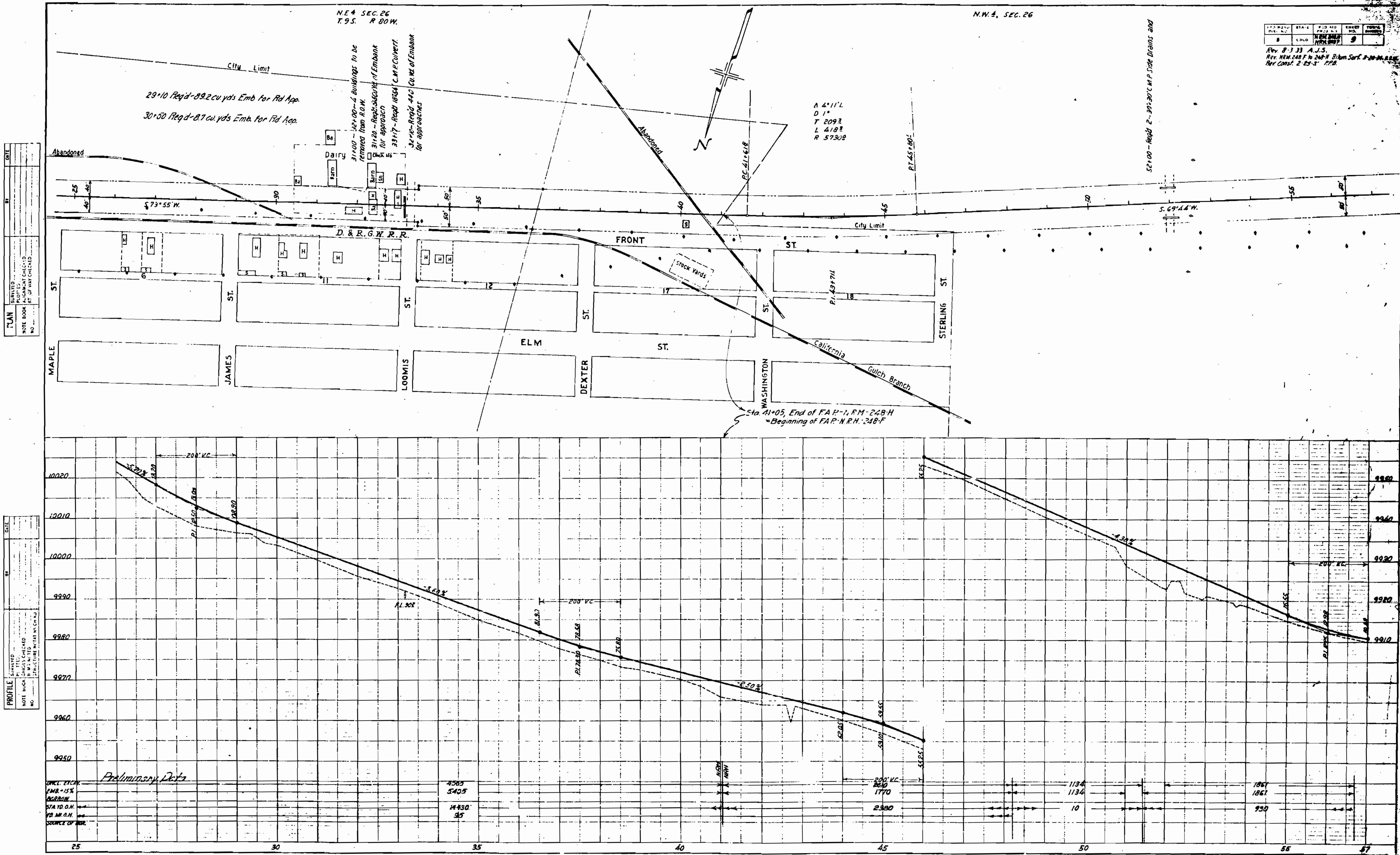
COLORADO
STATE HIGHWAY DEPARTMENT
27 FT. SPANS SKEWED BRIDGES
25 FT. ROADWAY CONCRETE I BEAM
CONCRETE GRAVITY ABUTMENTS
Across CALIFORNIA GULCH
Sta. SEE PLAN ABOVE
Near LEADVILLE Sec. 36 T. 9 S. R. 80 W

Designed by W.H.M.	Approved by Chas. D. Bailey
Made by W.H.M.	Bridge Engineer
Checked by A.L.C.	Date: Oct. 31 1932.

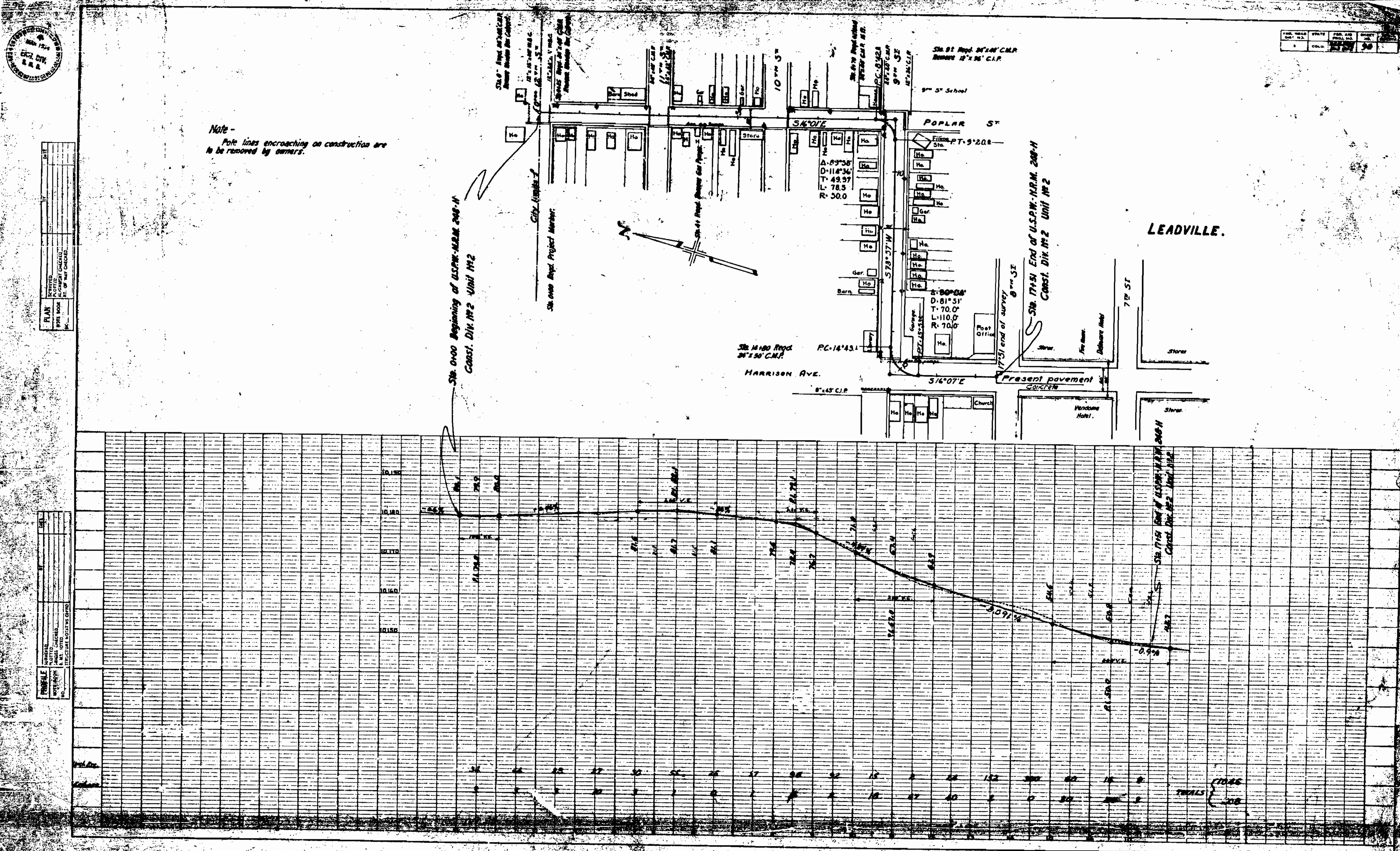
STRUCTURE NO. H-11-E & H-11-F



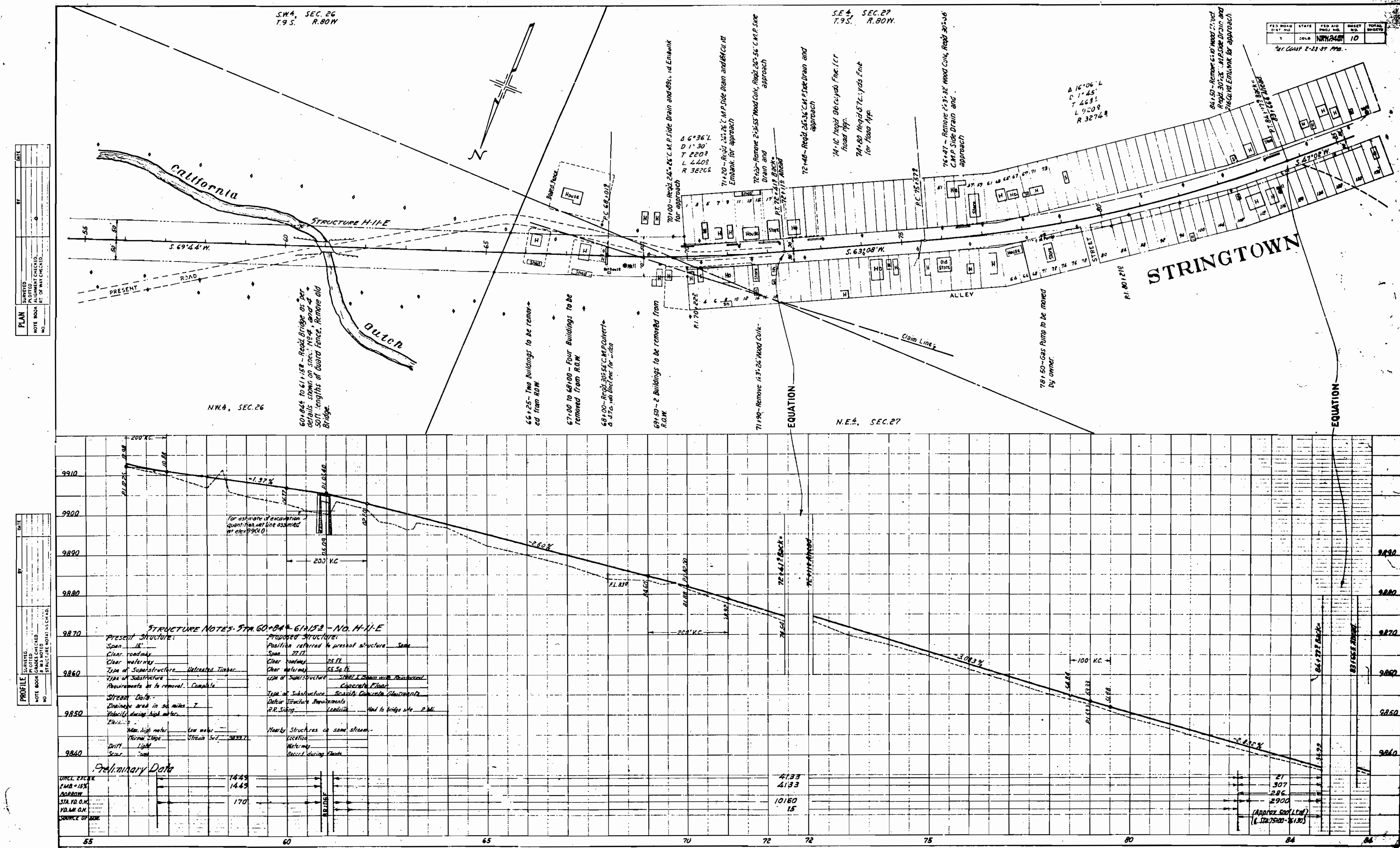
NOTE:
Poles encroaching on Right of Way are to be moved by owners.
Fencing, Gates and R.O.W. Markers required are tabulated on Sheet No. 2.
Timber, Bricks and other debris are to be removed from the R.O.W. over the entire project and the cost thereof is to be included in the Lump Sum bid for "Clearing and Grubbing the Entire Project."
N.E.¼ SECTION 26
T. 9 S. R. 80 W.
LEADVILLE
D & R.G.W. R.R.
FRONT ST.
ELM ST.
JUNIPER ST.
PINE ST.
SPRUCE ST.
LEITER ST.
MAPLE ST.
E. CHESTNUT ST.
HARRISON AVE.
PRESENT ROAD
SEC. LINE
Abandoned
EQUATION
Old Mill
Warehouse
Auto Camp
Sidewalk
Filling Station
S. 73°55' W.
S. 57°55' W.
S. 16°07' E.
P.C. 2+05±
0+00 - Req'd Project Marker
3+50 - Req'd. 18" - 40' Cor. Metal Pipe Side Drain on Rt. & 110.2 cu. yds. Exc. for Road App.
2+68 - Remove 1'×2'×48' Wood Box Culvert.
1+50 - 2 Bldgs to be removed from R.O.W.
0+43 - Req'd. 24"×56' C.M.P. Side Drain.
0+64 - 10"×46' C.I.P. Side Drain to Remain in place.
0+22 - 10"×60' C.M.P. Culvert to remain in place.
15+20 - Req'd. Remove Building from R.O.W.
20+00 - Move Fire Hydrant from R.O.W.
20+50 - 24+00 - Req'd. Remove Ore Unloading Platform on ℄ from R.O.W.
Δ = 90°02' R
D = 18°00'
R = 318±
T = 318±
L = 500±
Δ = 16°00' L
D = 6°00'
R = 955±
T = 134±
L = 266±
Δ = 16°00' R
D = 6°00'
R = 955±
T = 134±
L = 266±
PLAN
PROFILE
STA. 0+00 ~ BEGINNING OF F.A.P. N.R.M. 248-H
-2.00%
-5.1%
-4.0%
-1.94%
-5.9%
300' V.C.
200' V.C.
FL. 514
FL. 415
FL. 86
FL. 67
UNCL. EXCAV.
EMB. +15%
BORROW
STA. Y D.O.H.
TO M.I. O.H.
SOURCE OF BOR.
R.O.W. STA. 8+00 TO 18+00
10120
10110
10100
10090
10080
10070
10060
10050
0
5
10
15
20
25
28



N.E.¼ SEC. 26
T. 9 S. R 80 W.
N.W.¼ SEC. 26
Rev. 8-3-33 A.J.S.
Rev. NRM 248 F to 248-H Bitum. Surf.
Rev. Const. 2-25-3_ P.P.B.
COLO
9
City Limit
29+10 Req'd - 89.2 cu. yds Emb for Rd App.
30+50 Req'd - 8.7 cu. yds Emb. for Rd App.
31+00 — 32+00 — 4 Buildings to be removed from R.O.W.
31+20 — Req'd 345 Cu.Yd of Embank for approach
33+17 — Req'd 18"x54' C.M.P. Culvert
32+10 — Req'd 440 Cu.Yd. of Embank for approaches
52+00 — Req'd 2 - 30"x30' C.M.P. Side Drains and
Δ 4°11'L
D 1°
T 209.3
L 418.3
R 5730.0
P.C. 41+61.8
P.T. 45+80.1
P.I. 43+71.1
Abandoned
Dairy
Barn
S 73°55' W.
S. 69°44' W.
D. & R. G. W. R. R.
FRONT ST.
ELM ST.
Stock Yards
California Gulch Branch
MAPLE ST.
JAMES ST.
LOOMIS ST.
DEXTER ST.
WASHINGTON ST.
STERLING ST.
Sta. 41+05, End of F.A.P.-N.R.M.-248-H = Beginning of F.A.P.-N.R.H.-248-F
PLAN
NOTE BOOK NO.
PROFILE
200' V.C.
-5.70%
-3.60%
-2.50%
-4.30%
P.I. 30.8
P.I. 78.30
P.I. 72.30
10020
10010
10000
9990
9980
9970
9960
9950
9950
9940
9930
9920
9910
Preliminary Data
UNCL. EXCAV.
EMB. +15%
BORROW
STA. YD. O.H.
YD. MI. O.H.
SOURCE OF MAT.
4565
5405
14430
95
2610
1770
2380
1134
1134
10
1861
1861
930
25
30
35
40
45
50
55
57

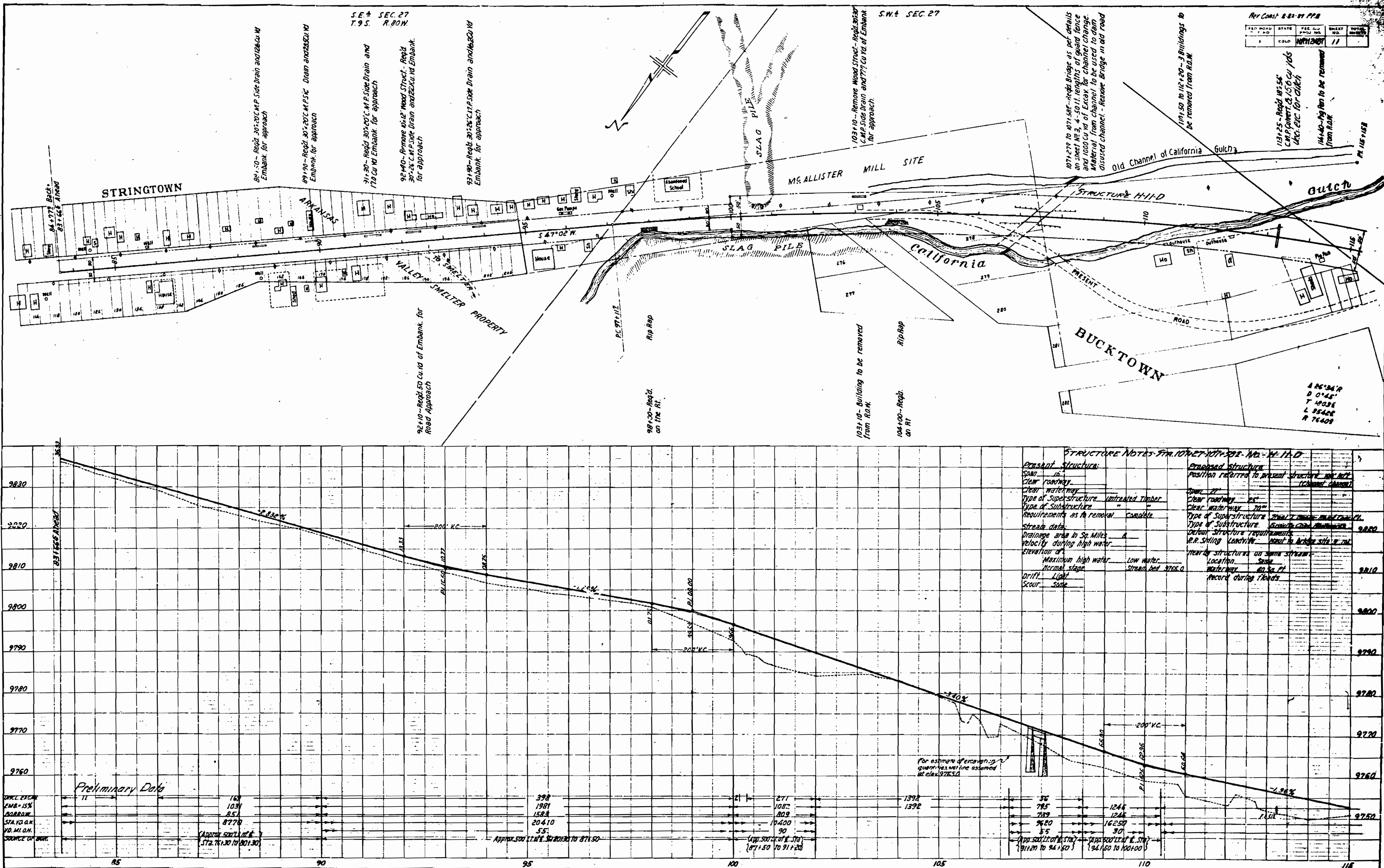


Note -
Pole lines encroaching on construction are to be removed by owners.
PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE
Sta. 0+00 Beginning of U.S.P.W.-N.R.M. 248-H
Const. Div. No 2 Unit No 2
City limits
Sta. 0+00 Reqd. Project Marker.
12th St.
11th St.
10th St.
9th St.
8th St
7th St
Poplar St.
Harrison Ave.
S16°01'E
S73°57'W
S16°07'E
Δ-89°58'
D-114°36'
T- 49.97
L- 78.5
R- 50.0
D-81°51'
T- 70.0'
L-110.0'
R- 70.0'
P.T.-9+20.8
P.C.-14+43.1
Sta. 14+80 Reqd. 24"x 50' C.M.P.
8"x 45' C.I.P.
Sta. 9.2 Reqd. 24"x 48' C.M.P. Remove 12"x 36' C.I.P.
9th St. School
Filling Sta.
Barn
Shed
Store
Gar.
Ho.
Garage
Library
Post Office
Church
Vendome Hotel.
Stores
Fire House
Delaware Hotel
17+51 end of survey
Sta. 17+51 End of U.S.P.W.-N.R.M. 248-H
Const. Div. No 2 Unit No 2
Present pavement
Concrete
LEADVILLE.
COLO.
98
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B. M.S. NOTED
STRUCTURE NOTATIONS CHECKED
NOTE BOOK
NO.
10,190
10,180
10,170
10,160
10,150
-0.091%
-0.9%
TOTALS
1046
208



S.W.¼, SEC. 26 T.9S. R.80W.
S.E.¼, SEC. 27 T.9S. R.80W.
N.W.¼, SEC. 26
N.E.¼, SEC. 27
California Gulch
STRUCTURE H-11-E
S. 69°44' W.
S. 63°08' W.
PRESENT ROAD
STRINGTOWN
ALLEY
STREET
Claim Line
EQUATION
Δ 6°36' L
D 1°30'
T 220.3
L 440.2
R 3820.6
Δ 16°06' L
D 1°45'
T 463.1
L 920.9
R 3274.1
60+84± to 61+15± – Req'd. Bridge as per details shown on sheet No. 4, and 4 50 ft. lengths of Guard Fence. Remove old Bridge.
66+25 – Two Buildings to be removed from R.O.W.
67+00 to 68+00 – Four Buildings to be removed from R.O.W.
69+50 – 2 Buildings to be removed from R.O.W.
78+50 – Gas Pump to be moved by owner.
STRUCTURE NOTES – STA. 60+84± – 61+15± – NO. H-11-E
Present Structure:
Span 16'
Clear roadway
Clear waterway
Type of Superstructure Untreated Timber
Type of Substructure
Requirements as to removal Complete
Stream Data:
Drainage area in sq. miles 7
Velocity during high water
Elevation:
Max. high water
Low water
Normal Stage
Stream Bed 9839.7
Drift Light
Scour None
Proposed Structure:
Position referred to present structure Same
Span 27 Ft.
Clear roadway 25 Ft.
Clear waterway 55 Sq. Ft.
Type of Superstructure Steel I Beam with Reinforced Concrete Floor
Type of Substructure Gravity Concrete Abutments
Detour Structure Requirements
R.R. Siding Leadville
Haul to bridge site 2 Mi.
Nearby Structures on same stream:
Location
Waterway
Record during Floods
Preliminary Data
For estimate of excavation quantities wet line assumed at elev. 9901.0
-1.37%
-2.60%
-3.083%
-2.835%
200' V.C.
100' V.C.
72+41.9 Back =
72+11.9 Ahead
84+72.9 Back =
83+66.8 Ahead
UNCL. EXCAV.
EMB. + 15%
BORROW
STA. YD. O.H.
YD. MI. O.H.
SOURCE OF BOR.
1449
1449
170
4133
4133
10160
15
21
307
286
2900
BRIDGE
(Approx. 500 Lin.ft. Sta. 75+00 – 76+30)
9910
9900
9890
9880
9870
9860
9850
9840
55
60
65
70
72
72
75
80
84
84
PLAN
PROFILE
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NOTE BOOK
GRADES CHECKED
B.M.'S NOTED
STRUCTURE NOTATIONS CHKD.
NO.
BY
DATE
COLO.
NRH 248
10

PLAN		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	ALIGNMENT CHECKED		
	RT OF WAY CHECKED		



PROFILE		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	GRADES CHECKED		
	B.M.'S NOTED		
	STRUCTURE NOTATIONS CH'KD		

PLATE 1 PLAN-PROFILE

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	NRTH 2487	12	

Per Const. 2 23 37 PMB.

N.E¼ SEC. 34 T. 9 S. R. 80 W.

N.E¼ SEC. 33 T. 9 S. R. 80 W.

California Gulch

Survey Line

118+50 - Regd. 18°-14' C.M.P. Culvert

Old Channel

P.I. 116+15.3

S. 87°-02' W.

PRESENT ROAD

COUNTY ROAD

S. 73°-36' W.

STRUCTURE H-11-F

120'-00"-130'-00" Regd. to Diverge Ditch 10A0 60 yds. Unclass. Exc.

Claim Line

P.T. 132+53.2

BUCKTOWN

L 26°-34' R
D 0°-45'
T 180.36
L 354.28
R 764.02

33 34 27 28

CLEAR & GRUBB:
124+00 to 133+00 ~ Pine Trees
133+00 " 145+00 ~ Sage Brush

143+84.6 to 144+15.8 ~ Regd. Bridge as per details on sheet No 4, 4-30 ft lengths of guard fence and 500 cu. yds. of Excav. to improve channel. Remove Bridge in old road.

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
BY
DATE
STRUCTURE NOTE

STRUCTURE NOTES - Sta. 143+84.6 - Angle 8° - No. H-11-F

Present Structure:
Span 17'
Clear roadway
Clear waterway
Type of Superstructure Untreated Timber
Type of Substructure Untreated Timber
Requirements as to removal Complete
Stream data:
Drainage area in sq. miles 8
Velocity during high water
Elevation of
Max. high water Low water
Normal stage Stream bed 9670.49
Drift Light
Scour Slight

Proposed Structure:
Position referred to present structure sat.
Span 27'
Clear roadway 24'
Clear waterway 13'
Type of Superstructure Steel I Beams with Reinforced Concrete Floor
Type of Substructure Concrete Cribs & Wingwalls
Detour Structure requirements
R.R. Siding Location Haul to bridge of miles
Nearby structures on same stream
Location
Waterway
Record during floods

Preliminary Data

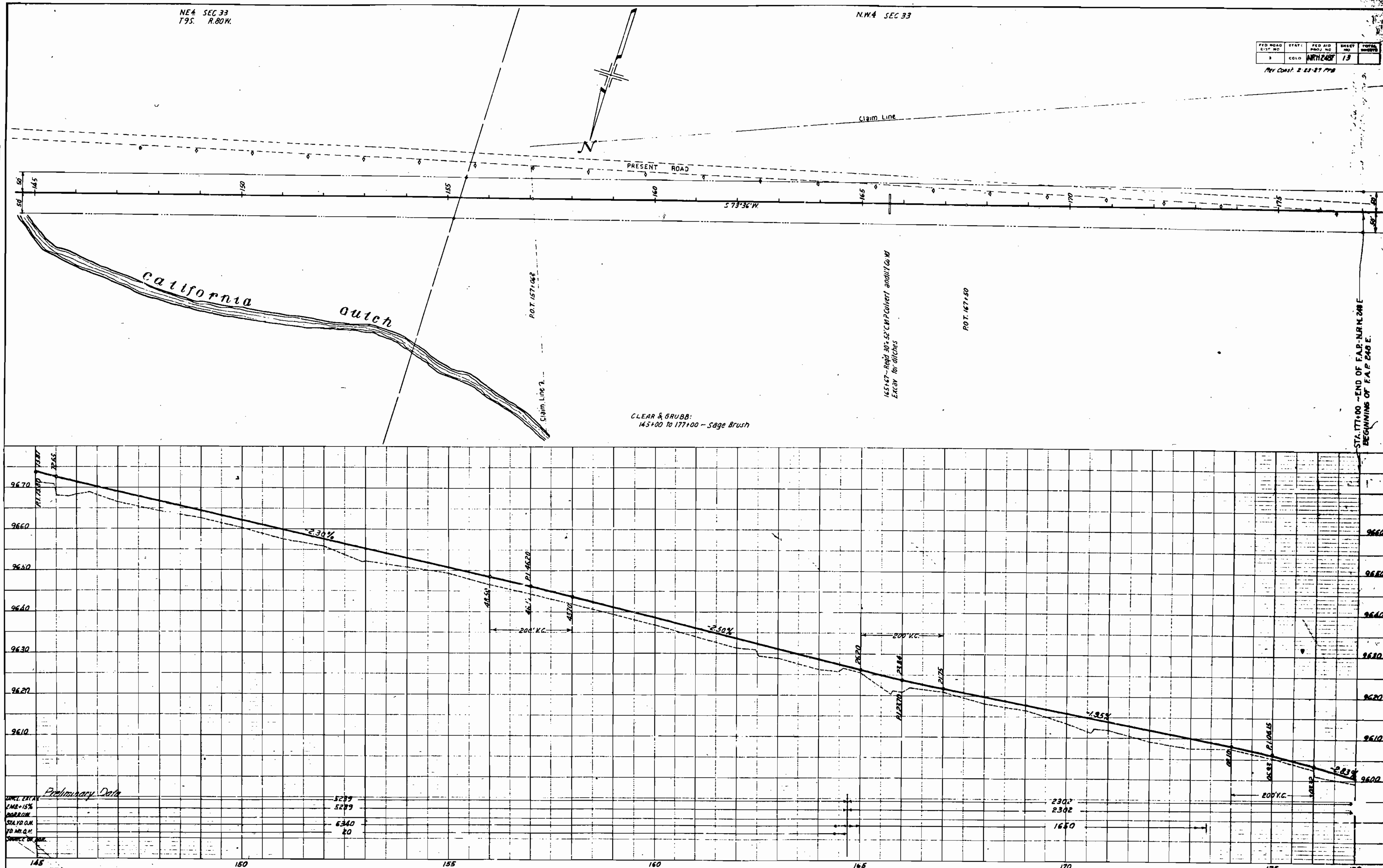
Unclass. Ex.	5673	4188
Emb. @ 15%	5673	4188
Borrow		
Sta. Yd. O.H.	15280	7930
Yd. Mi. O.H.	20	
Source of Mat.		

-7.96%
-2.50%
-2.88%
P.I. 143+00
P.I. 139+00
P.I. 134+33
P.I. 129+81
P.I. 125+43.0
P.I. 122+00
200' V.C.
200' V.C.
100' V.C.
F.I. 125.3
F.I. 128.81
F.I. 132.43
F.I. 135.97
F.I. 139.52
F.I. 142.96
F.I. 145.8
For estimate of excavation quantities, wet line assumed at elev. 9671.0

115 120 125 130 135 140 145

9750 9740 9730 9720 9710 9700 9690 9680 9670

PLATE 1 - PLAN, PROFILE & DETAILS OF STANDARD



NE¼ SEC 33
T9S. R.80W.
N.W¼ SEC 33
FED ROAD DIST NO | STATE | FED AID PROJ NO | SHEET NO | TOTAL SHEETS
3 | COLO | NRH 248 E | 13
Claim Line
PRESENT ROAD
S 73°36' W.
California Gulch
P.O.T. 157+06.8
P.O.T. 167+50
Claim Line 2
CLEAR & GRUBB: 145+00 To 177+00 ~ Sage Brush
STA. 177+00 ~ END OF F.A.P. NRH 248 E
BEGINNING OF F.A.P. 248 E.
PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT OF WAY CHECKED
NOTE BOOK
NO
BY
DATE
PROFILE
GRADES CHECKED
STRUCTURE NOTATIONS CHECKED
-2.30%
-2.50%
-1.95%
-2.83%
200' V.C.
P.I. 4620
9670
9660
9650
9640
9630
9620
9610
9600
Preliminary Data
UNCL. EXCAV
EMB+15%
BORROW
STA.YD.O.H.
TO MI. O.H.
SOURCE OF BOR.
5239
5239
6340
20
2302
2302
1650
145
150
155
160
165
170
175
177