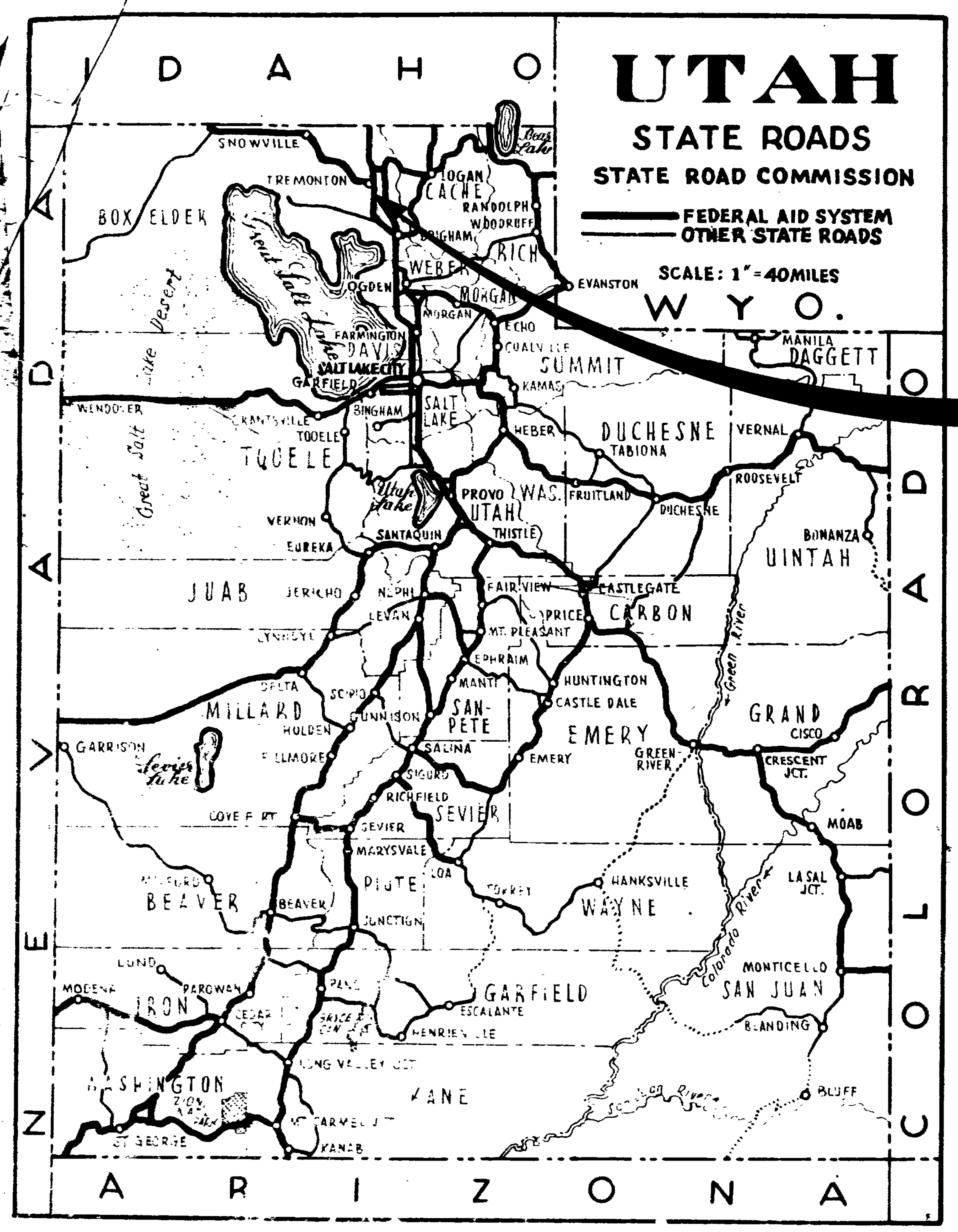
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	UTAH	I-80N-5(22)40 I-15-8(30)371		1	

REVISED 3/19/68
REVISED 3/22/68
REVISED 7/1/68
REVISED 7/3/68
REVISED 7/8/68



STATE OF UTAH
STATE ROAD COMMISSION

PLANS OF PROPOSED STATE ROAD

FEDERAL AID PROJECT

I-80N-5(22)40

ELWOOD TO WEST TREMONTON
BOX ELDER COUNTY
LENGTH 5.303 MILES

I-15-8(30)371

ELWOOD CONNECTION
BOX ELDER COUNTY
LENGTH 0.578 MILES

INDEX TO SHEETS I-80N-5(22)40

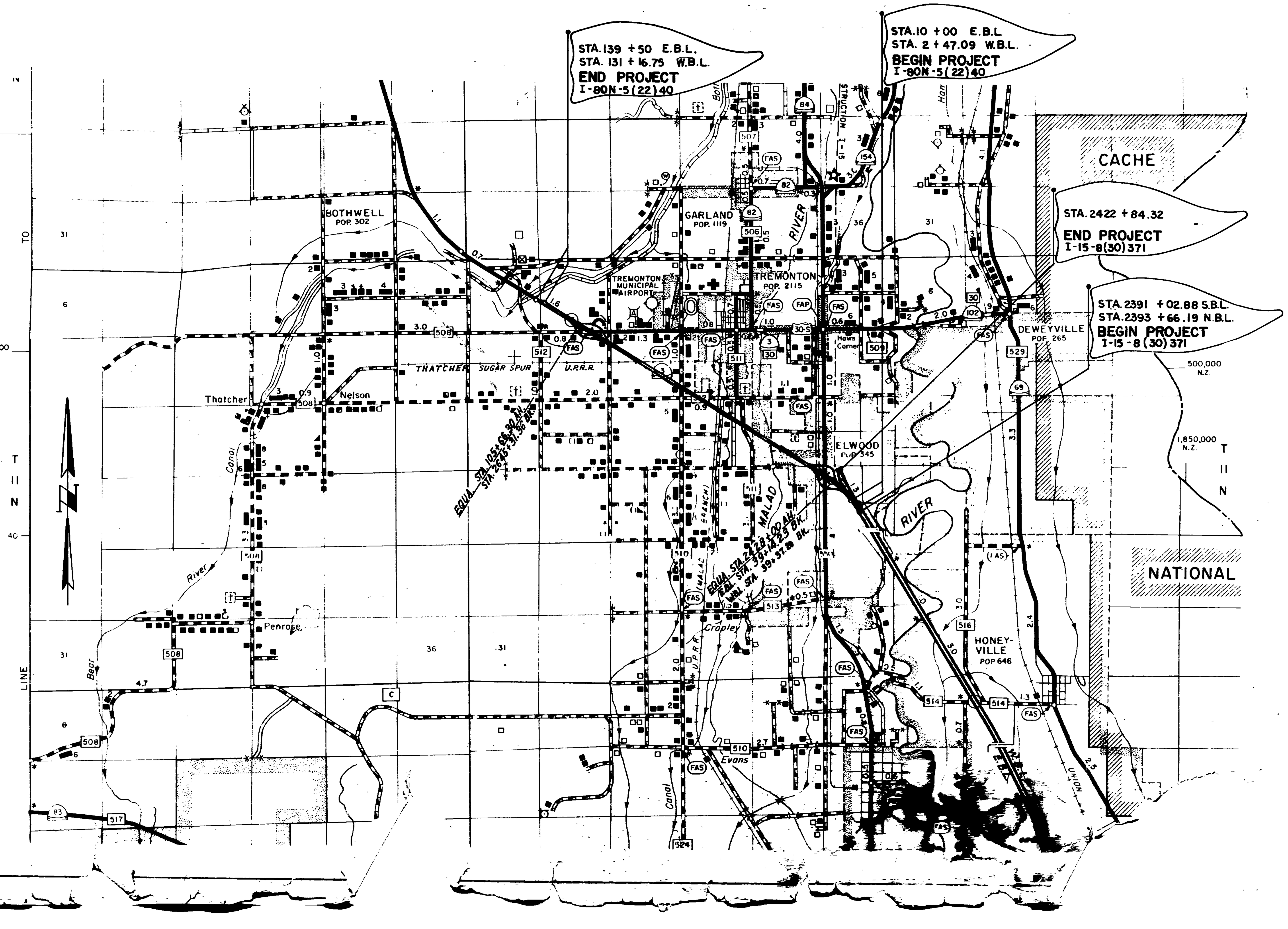
SHEET NO	DESCRIPTION	DRAWING NO	STATION
1	TITLE SHEET		
2-2D	TYPICAL SECTIONS & MATERIAL PROSPECTS & SETTLEMENT DEVICE INSTALLATION		
3-3B	SUMMARIES		
4-23	PLANS & PROFILES		
24-25	8'-0" x 8'-0" CONCRETE BOX	E-1571	24+60
	CATCH BASIN	V-750	
	CLEANOUT & JUNCTION BOX	V-777	
	INVERTED SIPHON	V-838	
	PARSHALL FLUME	V-853	

INDEX TO SHEETS I-15-8(30)371

SHT. NO.	DESCRIPTION	DRAWING NO.	STATION
1	TITLE SHEET		
2-2A	TYPICAL SECTIONS & MATERIAL PROSPECTS		
3	SUMMARIES		
4-5	PLANS & PROFILES		
13	CATCH BASIN	V-750	
14	CLEANOUT & JUNCTION BOX	V-777	

STANDARD DRAWINGS APPLICABLE TO THESE PROJECTS NOT INCLUDED IN PLANS

DESCRIPTION	DRAWING NO	DATE
REINFORCED CONCRETE CULVERT	605-20	5/4/66
REINFORCED CONCRETE CULVERT END SECTIONS	605-21	[illegible]
MEDIAN DROP INLET	620-1	2/7/68
DIVERSION BOX	650(1-3)	2/3/64
HAND SLIDE GATE	650-4	11/12/64
R/W FENCE & GATES	720-1	12/9/66
PROJECT MARKER, R/W MARKER, GUIDE POST & MAIL BOX POST	725-1	2/7/68
CONSTRUCTION IDENTIFICATION SIGNS	745-6	10/2/67
CONSTRUCTION SIGNING	745-1A	11/14/63
CONSTRUCTION SIGNING	745-1B-1C-1D	9/10/63
CONSTRUCTION SIGNING	745-1E	4/28/64
SUPERELEVATION & WIDENING	805-1A-1B	9/10/63



UTAH STATE DEPARTMENT OF HIGHWAYS

RECOMMENDED FOR APPROVAL FEB 1968

ENGINEER OF ROADWAY DESIGN

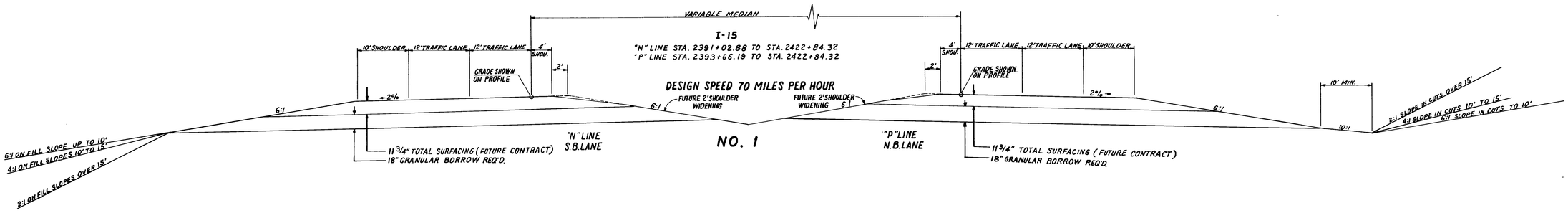
RECOMMENDED FOR APPROVAL FEB 1968

RECONSTR

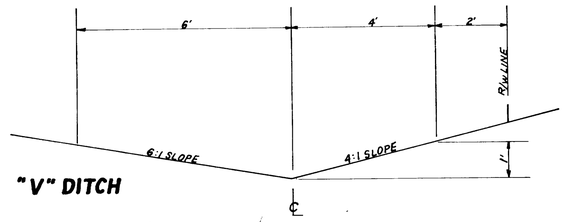
TYPICAL CROSS SECTION

FED ROAD DIST NO	STATE	PROJ NO.	FISCAL YEAR	SHEET NO	TOTAL SHEETS
UTAH	UTAH	I-15-8 (30)371		2	

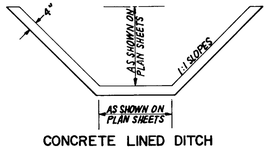
REVISED 3/19/68



APPLICATION	TYPE	AMOUNT FOR ESTIMATING PURPOSES ONLY
BORROW	UNTREATED PIT RUN	130 LBS. PER CU. FT.
GRANULAR BORROW (SURCHARGE)	UNTREATED PIT RUN	130 LBS. PER CU. FT.
GRAVEL BASE COURSE	UNTREATED 3/4" OR 1" MAX.	140 LBS. PER CU. FT.
BITUMINOUS AGGREGATE	BASE COURSE & SURFACE COURSE	145 LBS. PER CU. FT.
BITUMINOUS BASE COURSE	85/100 PENETRATION	4% BY WT. OF GRAVEL
BITUMINOUS SURFACE COURSE	85/100 PENETRATION	5% BY WT. OF GRAVEL
PLANT MIX BITUMINOUS SEAL COATS	60/70 PENETRATION	7% BY WT. OF GRAVEL
PRIME COAT	MC-250	.25 GAL. PER SQ. YD.
TACK COAT	RC-70 OR RC-250	.10 GAL. PER SQ. YD.



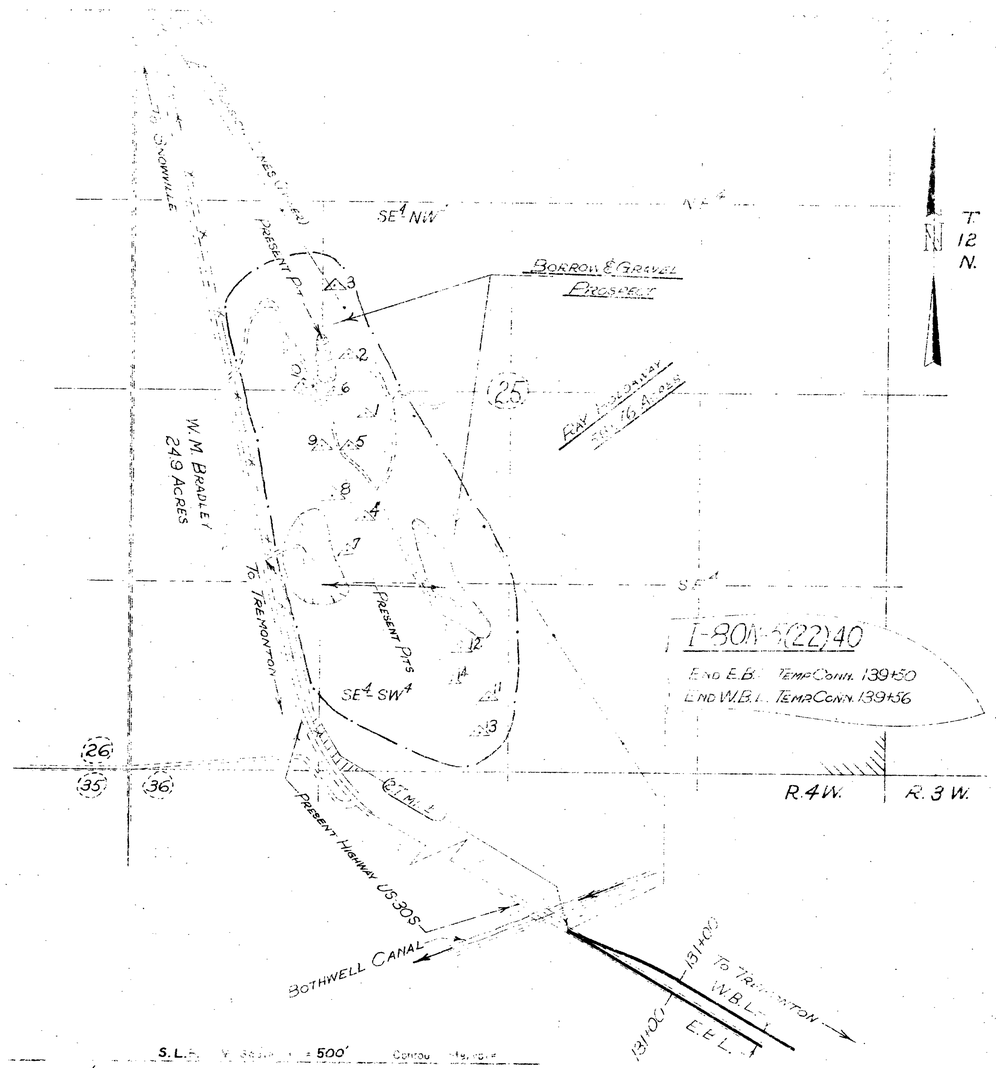
"V" DITCH



CONCRETE LINED DITCH

TO BE PLACED AS DIRECTED BY PROJECT ENGINEER.

REVISIONS
DATE BY DATE BY



I-15-8-(30)371 24

UTAH STATE DEPARTMENT of HIGHWAYS
MATERIALS SECTION

MATERIALS PROSPECTS AND TEST HOLES

PROJECT NO I-15-8-(30)371

PROJECT NAME ELWOOD CONNECTION

COUNTY Box Elder

DATE JUNE 26, 67 DRAWN BY R.N. GRIFFIN

DATA BY GRIFFIN AUTH.

FIELD BOOK: 02 SHEET NO. 1 OF 1

Topsoil or Fill | Clay | Silt | Sand | Gravel & Boulders | Solid Rock

Revision

GRAVEL

67-1-A	33	34	36	35	37	38	39	40	41	42	43	44	45	67-1-S-7	67-1-S-9	67-1-S-11	67-1-S-14
	1	1	2	3	4	7	7	9	10	11	11	14	14	2	3	4	7
(FEET)	3.5-5	5-9	0.8-9	1.5-8.5	2-11	3.5-5.5	5.5-9.5	5-6.5	2-6.5	2-7	7-10	1.5-4.5	6-8.5	0-0.8	0-1.5	0-2	1.5-3.5
%	45		45		26	17	10	30	63	32	26	10					42
%	55	100	55	100	74	83	90	70	37	68	74	90	100	100		100	58
%	33	93	36	80	61	51	79	57	22	33	32	46	28	85	100	74	44
%	30	31	4	40	23	31	40	9	12	34	30	22	23	53	78	59	22
%	100	100	100	100	100	100	100	100	100	100	90	100	100				
%	42	39	17	44	33	41	46	20	40	43	41	32	34				
%	36	16	10	26	24	31	31	9	27	33	31	27	29				
%	32	4	7	15	20	22	16	7	22	27	22	23	26				
%	18	2	4	11	13	4	4	5	19	11	13	12	20				
%	14	1	2	9	6	3	2	3	9	6	6	6	10				
	21.7	19.8	23.2	31.4	22.5	21.2	20.1	19.9	21.6	22.5	19.4	22.1	21.3	30.4	33.5	32.4	30.4
	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	8.6	3.6	8.8	N.P.
(INCH)	.001	.003	.001	.003	.001	.004	.002	.007	.002	.003	.001	.002	.003				
%	15.2	14.7	15.2	18.1	16.4	16.9	25.7	17.4	17.4	19.5	19.2	18.1	16.1				
%	98	95	96	96	96	75.0	92.0	97	94	95	94	89	100				
%	1.77	1.89	1.29	1.52	1.28	0.94	4.92	3.23	1.21	4.56	1.79	1.50	1.79				
	3350	2649	3563	3041	2700	2377	1531	1300	2190	2107	2800	3512	3204				
(.01 INCH)	14	13	16	15	15	12	15	25	14	16	16	12	14				
	284	241	268	215	242	249	324	314	306	215	199	287	284				
	356	383	382	392	418	313	467	416	500	353	461	304	372				

NOTE:
MAJOR PORTION OF MATERIAL COATED WITH $CaCO_3$ SOME Fe_2O_3 ALSO PRESENT.

BORROW

67-1-S	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	29	30	31	32	33	34	35
	1	1	2	2	3	3	4	4	7	7	7	9	9	9	10	11	11	11	14	14	14	14
(FEET)	3.5-5	5-9	0-0.8	0.8-9	0-1.5	1.5-8.5	0-2	2-11	0-1.5	1.5-3.5	3.5-5.5	5.5-9.5	0-1.5	1.5-6.5	6.5-8	0-2	2-7	7-10	0-1.5	1.5-4.5	4.5-6	6-8.5
100%																						
%	42	94	100	89		99	100	100	92	58	72	91	90	84		95	82	90	84	88	100	70
%	29	87	85	63	100	90	75	91	68	44	54	78	90	73		80	53	71	74	31	79	33
%	29	77	79	46	98	82	73	81	65	39	48	77	88	68		73	47	62	73	40	66	30
%	26	23	23	4	78	32	59	29	53	22	30	30	61	19	100	47	26	38	63	13	13	28
%	23	8	21	4	66	18	53	21	44	14	24	16	54	16	98	40	21	30	56	12	12	28
%	18	1	16	2	49	8	37	17	29	4	3	3	43	12	83	31	9	16	38	8	7	26
%	3	1	4.3	1	4.5	6	3.4	4	6.6	3	1	1	3.9	9	13	2.7	4	6	3.3	3	2	4
	N.P.	N.P.	30.4	N.P.	33.5	N.P.	32.4	N.P.	27.9	30.4	N.P.	N.P.	30.0	N.P.	17.7	30.9	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
	N.P.	N.P.	8.6	N.P.	3.6	N.P.	8.8	N.P.	5.9	N.P.	N.P.	N.P.	7.1	N.P.	N.P.	5.2	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
	0.0	0.0	0.2	0.0	0.4	0.0	0.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.32	0.0	0.0	0.30	0.0	0.0	0.0
(.01 IN)	140	17	5.7	13	12	33	6.1	9.3	8.0	37	60	17	3.3	46	8.7	8.7	2.3	6.0	10	2.1	1.9	3.1
	A-1-a(0)	A-1-a(0)	A-1-a(0)	A-4(1)	A-1-a(0)	A-4(2)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-1-a(0)	A-1-a(0)	A-4(0)	A-1-a(0)	A-2-4(0)	A-1-b(0)	A-1-a(0)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-1-a(0)	A-1-a(0)
(P.C.F)	139.5	95.2	108.6	96.2	103.7	128.4	112.8	129.3	110.0	104.5	113.2	104.7	107.7	92.0	93.5	113.8	114.0	122.5	116.0	112.2	108.7	119.0

S.L. Vertical Scale 1" = 500' Contour Interval

BORROW & GRAVEL

LOG of TEST PITS

Ground Line

B. & M. Scale 1" = Contour Interval =

Prospect No.

LOG of TEST HOLES

Ground Line

B. & M. Scale: 1" = Contour Interval =

Prospect No.

LOG of TEST HOLES

Ground Line

FED. ROAD PROJ. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
UTAH	UTAH	I-15-8(30)371		3	

REVISED 3/19/68

EARTHWORK

LANES OR LINE	FROM STATION	TO STATION	QUANTITIES				OVERHAUL	
			EMBANKMENT	EMBANKMENT X FACTOR 1.20	ROADWAY EXCAVATION	BORROW	CLASS "A"	CLASS "B"
			CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YD.	STATION YD	YD. MILE
"N" LINE	2391+02.88	2422+84.32	13.301	15961	6387	9574	17840	42
"P" LINE	2393+66.19	2422+84.32	31288	37545	28128	9417		
		TOTAL	44589	53506	34515	18991	17840	42
		USE			38000	21000	20000	100

WATERING

LANES OR LINE	EMBANKMENT X FACTOR	GRAVEL BASE COURSE	GRANULAR BORROW		LANES OR LINE TOTAL	WATER GALLONS PER CU.YD.
	CUBIC YARDS		TONS ÷	CU. YDS.	CU. YDS.	M. GAL.
"N" LINE	15961		19732	11243	27204	680
"P" LINE	37545		16715	9524	47069	1177
PRE COMPACTION				SUB TOTAL		1857
TOTAL 15,000 Cubic Yards x 25 Gal. per Cu. Yd. ÷ 1000 = M. Gallons →				TOTAL		375
				USE		2232
						2400

LINEAR SUMMARY

LANES OR LINE	FROM STATION	TO STATION	EQUATIONS and STRUCTURS over 20 ft	& PROJECT LIN FT.	LANES ROAD MILES
"N" LINE	2391+02.88	2422+84.32		3181.44	
"P" LINE	2393+66.19	2422+84.32		2918.13	
			ROADWAY LENGTH		
			AVERAGE ROADWAY LENGTH	3049.78	0.578
			PLUS MAJOR STRUCTURE LENGTH		
			PROJECT LENGTH	3049.78	0.578

SUBBASE COURSE MATERIALS

LANES OR LINE	TYP SECT NO.	LENGTH FEET				GRANULAR-BORROW		
			TYPE WIDTH	DEP	TON	TYPE WIDTH	DEP	TON
"N" LINE	1	3181.44				58.75	1.50	19731.7
"P" LINE	1	2918.13				58.75	1.50	16715.3
		SUB-TOTAL						36447.0
		TOTAL						36447
		USE						38300

"V" DITCH SUMMARY

LANES OR LINE	FROM STATION	TO STATION	DEPTH FEET	CUT SLOPES		PARALLEL LINEAR FEET LEFT	PARALLEL LINEAR FEET RIGHT	CUBIC YARD
"P" LINE	2400+30	2406+90	1	4:1	6:1		660	~~127.8~~ 135
							TOTAL	127.8
SMALL DITCH EXCAVATION							USE	150

FENCING SUMMARY

LANES OR LINE	FROM STATION	TO STATION	TYPE "B" LINEAR FEET LEFT	TYPE "B" LINEAR FEET RIGHT	CONNECTING TYPE "B"	CONNECTING TYPE	CONNECT TO
SUR. LINE	2389+40	2391+34.5		195	65		EXIST. N/A TO BEG. "P" LINE
"P" LINE	2393+66.2	2422+84.3		2918			BEG. "P" LINE TO EXIST. N/A
"N" LINE	2391+02.9	2398+17.5	715				EXIST. N/A TO BEG. I-80 N/A
"N" LINE	2412+00	2422+84	1084				BEG I-80 N/A TO EXIST. N/A
		SUB TOTAL	1799	3113	65		
		TOTAL	4977				
		USE	5000				METAL POST SHALL BE USE

MISCELLANEOUS SUMMARY

QUANTITY	UNIT	ITEM
	LUMP	MOBILIZATION
500	HOUR	FLAGGING
8	EACH	RIGHT OF WAY MARKERS
2300	CU. Yd.	STOCKPILED TOPSOIL

DRAINAGE SUMMARY

LINE or LANES and STATION	CROSSING ANGLE or SIDE DRAIN	HEIGHT of COVER	REINFORCED CONCRETE PIPE LINEAR FEET				CONCRETE PIPE END SECTIONS EACH				BITUMINOUS COATED CORRUGATED METAL PIPE (UNDERDRAIN) LIN. FT.		EXCAVATION FOR STRUCTURES	BACK FILL
		FEET	24"	30"	36"	42"	12"	24"	30"	36"	12"	18"	CUBIC YARD	CU. YD
"N" LINE														
2411+65	35°		166										37.6	28
2412+00	90°		88					1					20	12
"P" LINE														
2396+76	90°		52					1					12	8
2400+00	123°										76		17	10
2407+40	117°		174										39	16
		TOTAL	480					2			76'		* 125	* 74

* SEE SMALL STRUCTURES SUMMARY

SMALL STRUCTURES SUMMARY

LINE or LANES and STATION	LT.	RT.	CATCH BASIN DWG. NO.	CATCH BASIN DRWG NO.	JUNCTION BOX DWG. NO.	JUNCTION BOX LINE NO.	DIVERSION BOX DRWG NO.	DIVERSION BOX WALLS	EXCAVATION FOR STRUCTURES UNCLASSIFIED CUBIC YARD	BACK FILL CU. YD.	STRUCTURAL STEEL POUND	REINFORCING STEEL POUND	CONCRETE CLASS "A" CUBIC YARD
"N" LINE													
2412+12		RT.			V-777	12			14.0	4	474	356	3.8
"P" LINE													
2396+76	LT		V-750	3					7.0	4	310	225	1.6
2399+40		RT.			V-777	10			11.0	4	474	319	2.5
2407+68	LT.		V-750	2					6.0	4	310	188	1.5
2406+90		RT					630-1/33	SRUU 4Y	6.0	4	70	90	1.1
DRAINAGE SUMMARY									125	74			
								TOTAL	169	94	1638	1178	10.5
								USE	180	110	1700	1300	12

SUMMARY OF ITEMS

QUANTITY	UNIT	ITEM
	LUMP SUM	MOBILIZATION
500	HOUR	FLAGGING
38000	CU. YD.	ROADWAY EXCAVATION
180	CU. YD.	EXCAVATION FOR STRUCTURES
110	CU. YD.	BACK FILL
21000	CU. YD.	BORROW
38300	TON	GRANULAR BORROW
100	YD. MI.	OVERHAUL
2400	M. GAL.	WATERING
5000	LIN. FT.	RIGHT OF WAY FENCE TYPE "B" METAL POSTS
480	LIN. FT.	24" REINFORCED CONCRETE PIPE
2	EACH	24" CONCRETE PIPE END SECTION
76	LIN. FT.	12" BITUMINOUS COATED CORR. METAL PIPE (UNDERDRIAN) TYPE A
150	CU. YD.	SMALL DITCH EXCAVATION
8	EACH	RIGHT OF WAY MARKERS
1300	LB.	REINFORCING STEEL
1700	LB.	STRUCTURAL STEEL
12	CU. YD.	CLASS "A" CONCRETE
2300	CU. YD.	STOCKPILED TOPSOIL

REVISIONS
DATE | BY | DATE | BY

FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS
UTAH | UTAH | I-15-8(30)371 | | 4 |
REVISED 3/19/68
T. 1 S. R. 3 W. S.L.B.&M.
SW¼ NW¼ SEC. 24
NW¼ NW¼ SEC. 24
SE¼ NW¼ SEC. 24
STA. 2391+02.88 "N" LINE
BEGIN PROJECT
I-15-8(30)371
STA. 2393+66.19 "P" LINE
BEGIN PROJECT
I-15-8(30)371
STA. 2422+84.32 "N" LINE
STA. 2422+84.32 "P" LINE
END PROJECT
I-15-8(30)371
"N" LINE
Δ - 6°00' LT.
D - 1°00'
R - 5729.58'
T - 300.28'
L - 600.00'
P.I. - 2395+17.81
"M" LINE
Δ - 19°49' LT.
D - 1°30'
R - 3819.72'
T - 667.22'
L - 1321.11'
P.I. - 18+89.78
SURVEY LINE
Δ - 25°49' LT.
D - 2°00'
R - 2864.79'
T - 656.56'
L - 1290.82'
P.I. - 2409+30.20
"O" LINE
Δ - 25°49' LT.
D - 2°30'
R - 2291.83'
T - 525.25'
L - 1032.67'
P.I. - 15+52.85
"N" LINE
Δ - 36°10' RT.
D - 2°45'
R - 2083.48'
T - 680.32'
L - 1315.15'
P.I. - 2411+21.35
"P" LINE
Δ - 28°15' RT.
D - 2°30'
R - 2291.83'
T - 576.73'
L - 1130.00'
P.I. - 2416+99.56
44' LT. STA. 2391+34.53 SURVEY LINE
BEG. TRANSITION "M" LINE
P.C. 2392+17.53 "N" LINE
49' RT. STA. 4+00 "O" LINE
P.C. 2397+73.64 SURVEY LINE
P.T. 2398+17.53 "N" LINE
STA. 10+00 BEG. "M" LINE
P.C. 10+27.60 "O" LINE
P.C. 12+17.56 "M" LINE
STA. 13+50 "M" LINE END OF TRANSITION
STA. 17+38.67 "M" LINE BEG. 250' TAPER
STA. 19+88.07 "M" LINE END 250' TAPER
P.T. 20+60.27 "O" LINE
P.T. 2410+64.46 SURVEY LINE
P.T. STA. 25+38.67 "M" LINE
44' LT. STA. 2414+24.44 SURVEY LINE
P.C. STA. 12+72.39 BEG. "B" LINE
24' LT. STA. 25+38.67 "M" LINE
STA. 9+97.26 BEG. "A" LINE
46' RT. STA. 26+50 "O" LINE
P.C. STA. 10+79.93 "A" LINE
STA. 2412+12 "N" LINE
JCT. BOX (DWG. V-777 LINE 2)
STA. 2.47.09 BEGIN "O" LINE
P.C. 2404+41.09 "N" LINE
STA. 19+69.73 "O" LINE = STA. 2408+09.21 "N" LINE
STRUC. "O" LINE OVER "N" LINE
P.C. 2411+22.83 "P" LINE
PT. 2417+56.18 "N" LINE
PT. 2422+52.83 "P" LINE
CONSTRUCTION EASEMENT
IRRIGATION EASEMENT
HWG. R/W & N/A LINE
EXIST N/A LINE
40 ACRE LINE
GRADE TO DRAIN
"V" DITCH REQUIRED
E.B. LANES
W.B. LANES
"A" LINE
"B" LINE
"M" LINE
"N" LINE
"O" LINE
"P" LINE
N 31°42'30" W
N 57°31'30" W
N 29°47'30" W
N 01°32'30" W
BASE LINE I-15
20:1 TAPER
5" UNDERGROUND DRAIN
2396+76 "P" LINE 24"x52" R.C.P. 90° x-ING & ONE END SECT. ON RT. REQ'D CATCH BASIN ON LT. REQ'D. DWG. V-750, LINE 3
2399+40 "P" LINE CLEANOUT BOX REQ'D OUTSIDE N/A LINE (DWG. V-777, LINE 10)
STA. 2400+00 "P" LINE EXTEND EXISTING 12" BITUMINOUS COATED METAL PIPE UNDERDRAIN
2406+90 "P" LINE DIV. BOX (DWG. 650-1) A-B-2, SRUJ 2 FRAME, 1 GATE, 4 Y WING WALLS
2407+40 "P" LINE 24" R.C.P. RT.
2407+68 "P" LINE CATCH BASIN (DWG. V-750 LINE 2) 62' LT.
2390
2395
2400
2405
2410
2415
2420
NOTE:
FOR PROFILES "N" & "P"
LINES SEE SHEET No. 5
Sheet 21

FED. ROAD DIST. NO.	PROJ. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	I-15-8			5	

(30)371

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
UTAH	UTAH	I-80N-5(22)40		16	

NOTE:
CONTRACTORS RESPONSIBILITY TO CROSS RAILROAD.

NOTE:
FOR THATCHER SPUR PROFILE SEE SHEET NO. 13.

LINE STA.	○=SETTLEMENT PLATFORM NO.	DISTANCE LT & RT.	⬡=PIEZOMETER ELEVATION
MAIN 2582+60	1	32'	
MAIN 2583+60	2	32'	
MAIN 2584+60	3	32'	4305, 4250
MAIN 2587+05	4	32'	4295
MAIN 2588+00	5	32'	
MAIN 2589+00	6	32'	

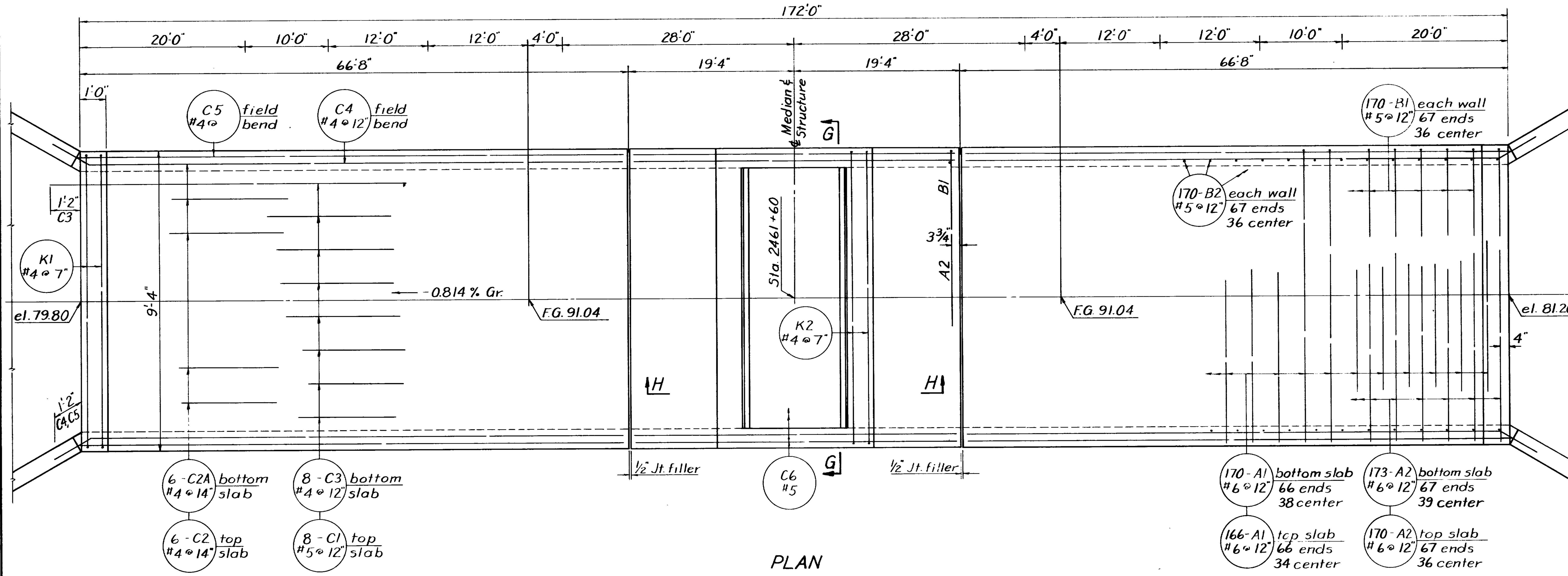
EMBANKMENT	90,602 CU. YDS.
EXCAVATION	86 CU. YDS.
BORROW	108,696 CU. YDS.
OVERHAUL STA. YDS.	
OVERHAUL YD. MI.	

293,944 CU. YDS.
0 CU. YDS.
382,733 CU. YDS.

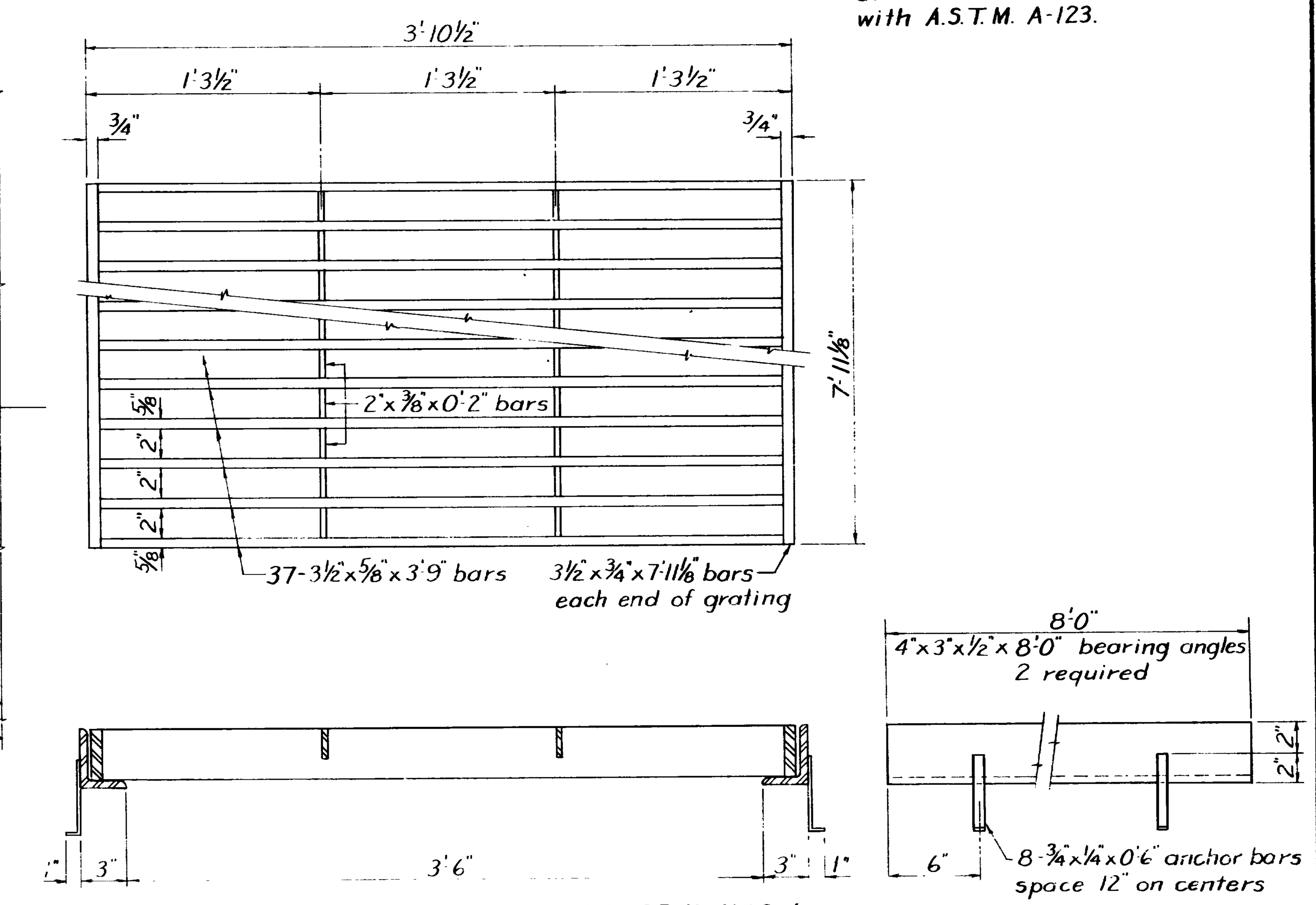
PLATE I PLAN PROFILE B P.N. STANDARD

FED. ROAD DIST. NO.
STATE
PROJ. NO.
FISCAL YEAR
SHEET NO.
TOTAL SHEETS
UTAH
I-80N-5(22)40
17
1/4 SECTION LINE
U.P.R.R. R/W LINE
NE 1/4 SW 1/4 SEC. 9
SW 1/4 NW 1/4 SEC. 9
NE 1/4 NE 1/4 SEC. 8
SE 1/4 NW 1/4 SEC. 9
NW 1/4 NW 1/4 SEC. 9
SMALL DITCH REQUIRED
1' BOT. 2' DEEP, 1:1.5 S.
SMALL DITCH REQ'D
1' BOT. 2' DEEP 1:1.5S
CONSTRUCTION EASEMENT
IRRIGATION EASEMENT
40 ACRE LINE
+13-4 X-ING FENCE
HIGHWAY R/W LINE, N/A
E.B. LANES
W.B. LANES
N 57° 31' 30" W
SURVEY LINE
GRADE TO DRAIN
"V" DITCH REQ'D.
+52-4 X-ING FENCE
+41-DITCH X-ING
FRONTAGE ROAD R/W LINE
N.57°31'30" W.
"K" LINE
Δ-123°56'
D-71°00'
R-80.70'
T-151.56'
L-174.55'
P.I.-8+47.82
"H" LINE
Δ-56°04' LT.
R-225.00
T-119.80
L-220.17
P.I.-5+63.75
P.T. STA. 8+70.81 END "K" LINE
STA. 4+25.51 "H" LINE
P.C. 6+96.26 "K" LINE
STA. 4+00 BEG. "H" LINE
P.C. 4+43.95 "H" LINE
STA. 0+00 BEG. "K" LINE IS - 145' LT.
STA. 2606+40 SUR. LINE
P.T. 6+64.12 "H" LINE IS 156.05' LT. STA. 2616+00.18 SUR. LINE
T.1 N. R.3 W. S.L.B.&M.
SMALL DITCH REQ'D
1' BOT. 2' DEEP 1:1.5S
CONSTRUCTION EASE.
R/W LINE - IRRIGATION EASEMENT
40:1 TAPER
E.B. LANE
W.B. LANE
2590
2595
2600
2605
2610
2615
2620
NOTE:
TEMPORARY COUNTY ROAD CROSSING SHALL MEET GRADE OF I-80N
NOTE:
CUL-DE-SAC TO BE CONSTRUCTED ON SURFACING CONTRACT.
NOTE:
FOR PROFILE "H" LINE SEE SHEET NO. 18
FOR PROFILE "K" LINE SEE SHEET NO. 18
SECTION LINE
EMBANKMENT
EXCAVATION
BORROW
OVERHAUL STA. YDS.
OVERHAUL YD. MI.
38,320 CU. YDS.
12 CU. YDS.
45,972 CU. YDS.
600' V.C.
400' V.C.
-3.90%
0.0%
(4318.50)
PLAN
PROFILE
2590 91 92 93 94 2595 96 97 98 99 2600 01 02 03 04 2605 06 07 08 09 2610 11 12 13 14 2615 16 17 18 19 2620

Grating and bearing angles shall be hot-dip galvanized after fabrication in accordance with A.S.T.M. A-123.



PLAN



DETAIL OF GRATING

Weight complete including bearing angles - 1447 lb.
3/16" continuous fillet weld all joints.

LOC.	MARK	SIZE	NO. BARS	L'GTH	TOTAL L'GTH			SKETCH
Slabs	A1	6	336	19'-6"	6,552'-0"			1'-4", 5", 5'-6", 5", 1'-4"; 10", 5", 7", 5'-3"; 9'-0"
	A1a	6	8	5'-7"	44'-8"			
	A2	6	343	9'-0"	3,087'-0"			
Walls	B1	5	340	14'-10"	5,043'-4"			10", 9'-2", 3'-0"
	B1a	5	6	12'-4"	74'-0"			10", 9'-6", 3'-0"
	B2	5	340	9'-2"	3,116'-8"			
	B2a	5	6	9'-6"	57'-0"			
						s		
Slabs	C1	5	8	169'-6"	1,356'-0"	1'-2"		s, 66'-4", 17'-3", 17'-3", s, 66'-4"
	C2	4	6	169'-2"	1,015'-0"	1'-0"		
	C2A	↕	6	173'-0"	1,038'-0"	L=66'-4"		
Walls	C3		8	175'-8"	1,405'-4"	67'-8"		1'-0", L, 38'-4", 1'-0", L
	C4		16	175'-8"	2,810'-8"	67'-8"		
	C5	4	12	175'-8"	2,108'-0"	L=67'-8"		
	C6	5	4	5'-8"	22'-8"			
						a	b	
Curbs	K1	4	4	11'-8"	46'-8"	9'-0"	1'-4"	b, a
	K2	4	4	10'-6"	42'-0"	9'-0"	0'-9"	

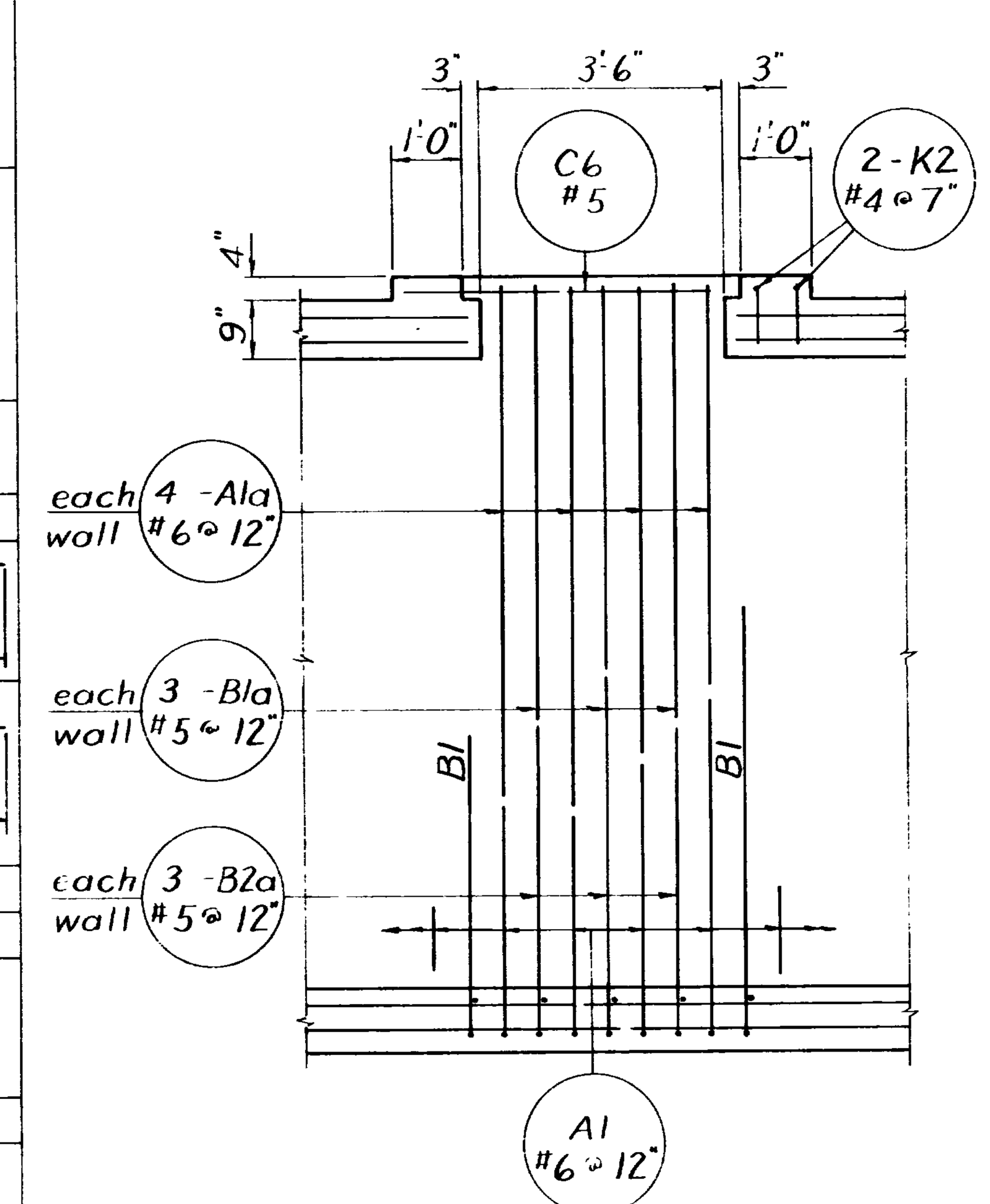
9,683'-8" of #6 bars @ 1.502 lb/ft = 14,544.9 lb.
9,669'-8" of #5 bars @ 1.043 lb/ft = 10,085.5 lb.
8,465'-8" of #4 bars @ 0.668 lb/ft = 5,655.1 lb.
Total Weight = 30,285.5 lb.

Unless otherwise shown, all dimensions are out to out of bars.

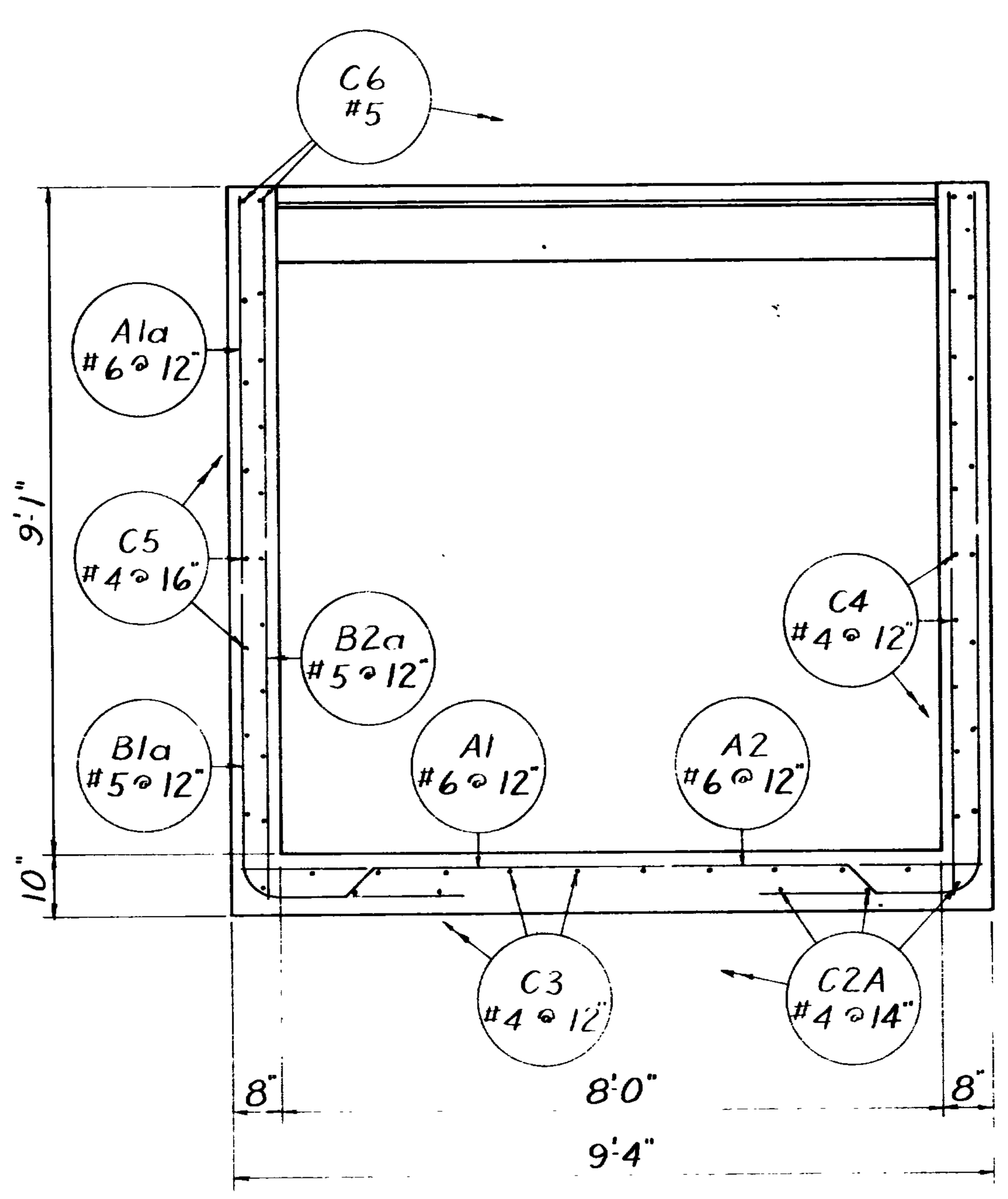
1/2" JOINT FILLER

2 pcs. 10" x 9'-4"
4 pcs. 8" x 8'-0"
2 pcs. 9" x 9'-4"

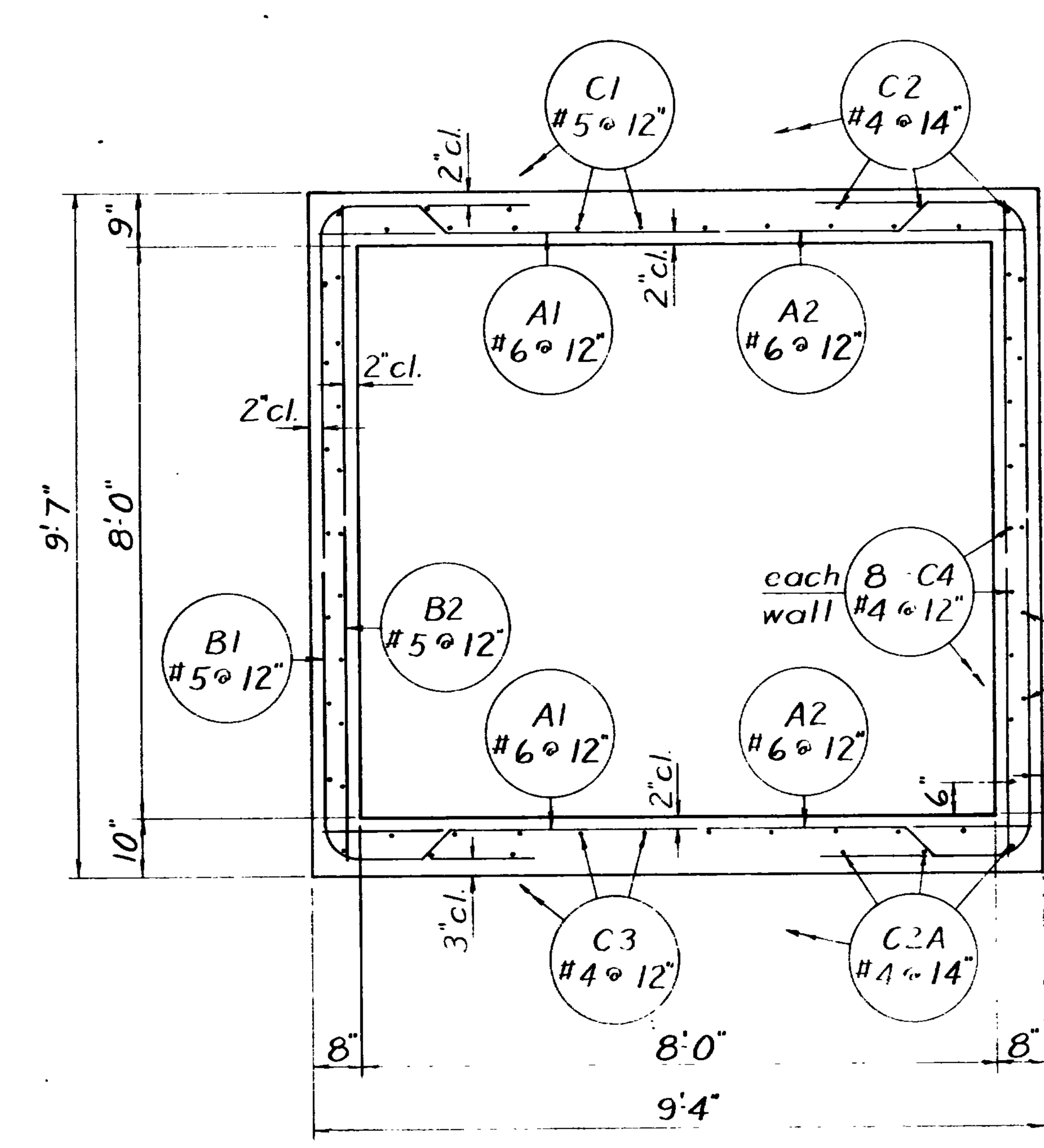
Joint filler shall be A.A.S.H.O. Designation M-153-54 Type III.



SECTION H-H



SECTION G-G



SECTION THRU BOX

GENERAL NOTES

Materials, construction, and workmanship shall be in accordance with the Utah Department of Highways Standard Specifications for Road and Bridge Construction, Interim Issue, March 1968 and supplements thereto which are in effect at the date of request for bids.

All reinforcing bars shall be intermediate grade billet steel conforming to A.A.S.H.O. designation M-31. Deformations shall conform to A.A.S.H.O. designation M-137.

All structural steel shall be structural carbon steel conforming to A.A.S.H.O. designation M-183 (A.S.T.M. A-36).

Type II cement (low alkali) required.

DESIGN DATA

The design is in accordance with the A.A.S.H.O. Specifications of 1965.

Loading: HS20-44 or Interstate Alternate
fc = 1200 p.s.i.
fs = 20,000 p.s.i. (reinforcing and structural steel)
n = 10

QUANTITIES

Excavation for Structures	90	cu. yd.
Class A Concrete (AE)	181	cu. yd.
Reinforcing Steel	31,924	lb.
Structural Steel	1,447	lb.
Backfill	137	cu. yd.

NO	BY	DATE	REMARKS
REVISIONS			

UTAH STATE DEPARTMENT OF HIGHWAYS
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

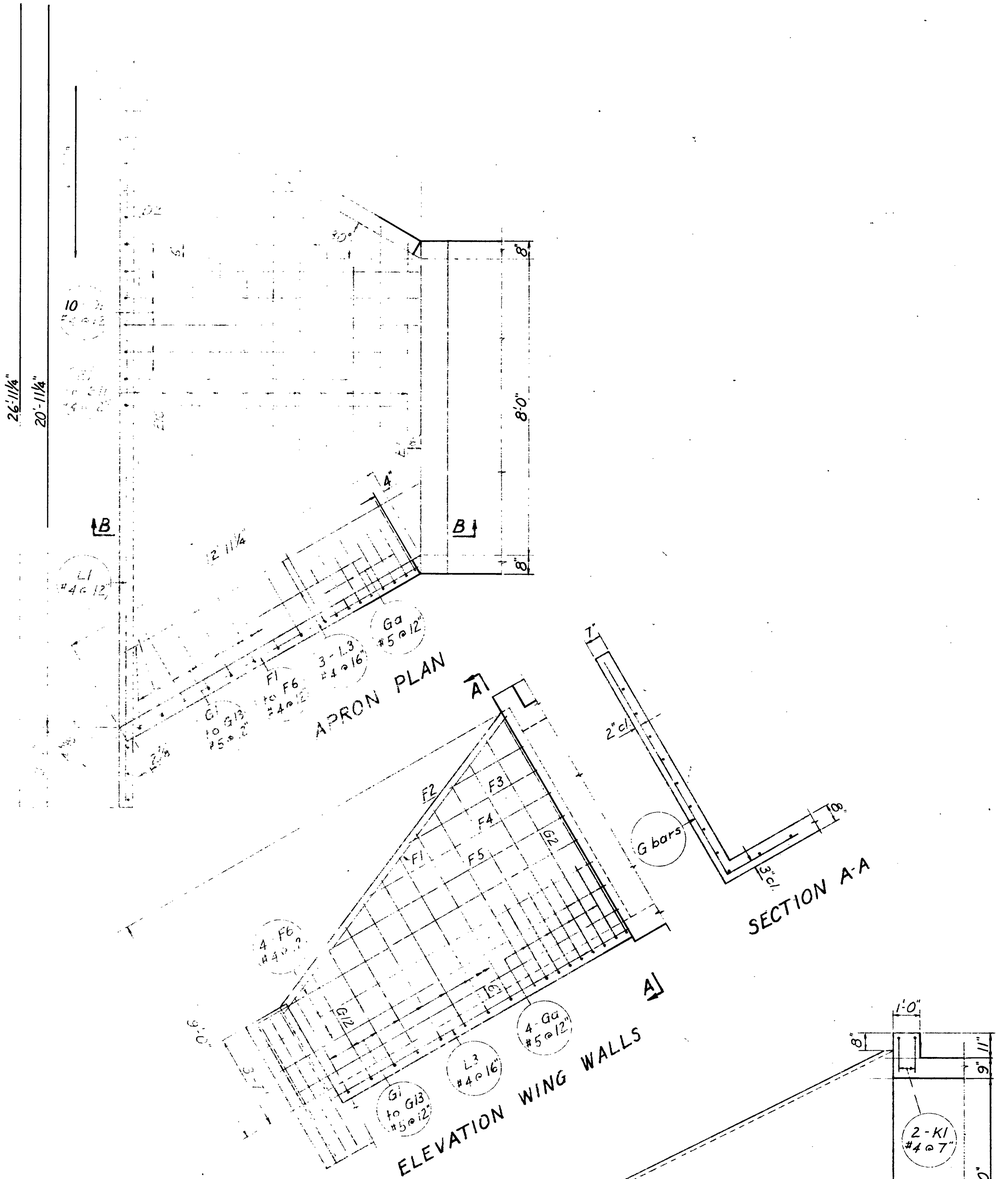
ELWOOD TO WEST TREMONTON
8'-0" x 8'-0" CATTLE PASS

DESIGN W.G.T.	CHECK	I-80N-5(22)40 PROJECT NUMBER
DRAWN W.G.T.	CHECK H.G.E.	
QUANT. W.G.T.	CHECK H.G.E.	2461+60 STATION
APPROVAL RECOMM. 4/2/68 DATE	W. S. Tolley GROUP LEADER	
APPROVED 4/4/68 DATE	A. E. Manson CHIEF STRUCTURAL ENGR	BOX ELDER COUNTY
BR NO	DRG NO E-1571	1 OF 2

20		261'-8"	
4			
		156'-8"	
4			
2	9'-6"		
	10'-8"		
	11'-10"		
	13'-0"		
	14'-2"		
	15'-4"	337'-4"	
	16'-6"		1 set (E1-E11) = 168'-8"
	17'-8"		
	18'-10"		
	20'-0"		
2	21'-2"		
4			
		161'-4"	
4			
16		242'-8"	
16		85'-4"	
4			
		500'-0"	
4			
6	26'-7"	159'-6"	
12		68'-0"	
12		151'-0"	

585'-4" of #5 bars @ 3.403 lbs/ft = 610.5 lb
1,538'-2" of #4 bars @ 0.668 lbs/ft = 1,027.5 lb
Total Weight = 1,638.0 lb

Unless otherwise shown, all dimensions are to center of bars.



UTAH STATE DEPARTMENT OF HIGHWAYS
SALT LAKE CITY, UTAH
STRUCTURES DIVISION
ELWOOD TO WEST TREMONTON
8'-0" x 8'-0" CATTLE PASS

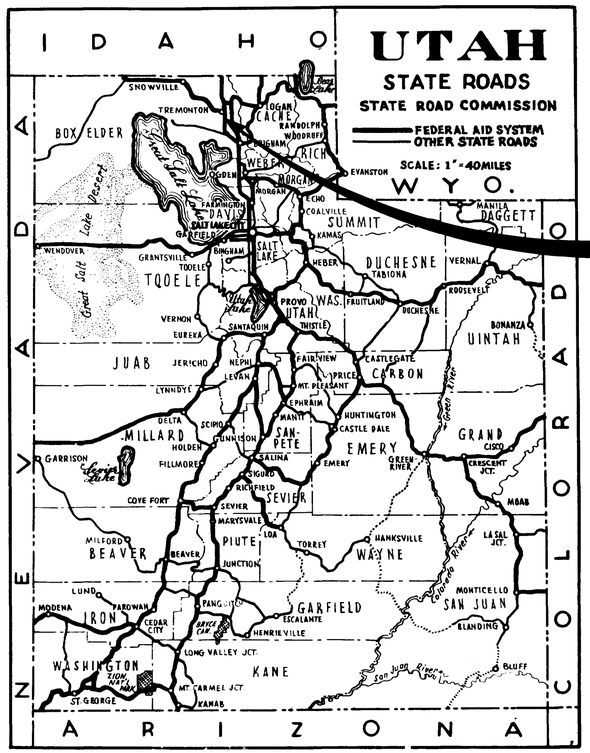
DESIGNED	W.G.T.		I-BON-5(22)40
DRAWN	W.G.T.	H.G.E.	PROJECT NUMBER
CHECKED	W.G.T.	H.G.E.	2461+60
APPROVED	4/2/48 W.J.J.		STATION
	4/1/60 R.E.M.		BOX ELDER
			COUNTY

E-1571 2 — 2

REVISIONS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	UTAH	I-80N-5 (22)40 I-15-8(30)371		1	

REVISED 3/19/68
REVISED 3/22/68
REVISED 7/1/68
REVISED 7/3/68
REVISED 7/8/68



STATE OF UTAH
STATE ROAD COMMISSION

PLANS OF PROPOSED STATE ROAD

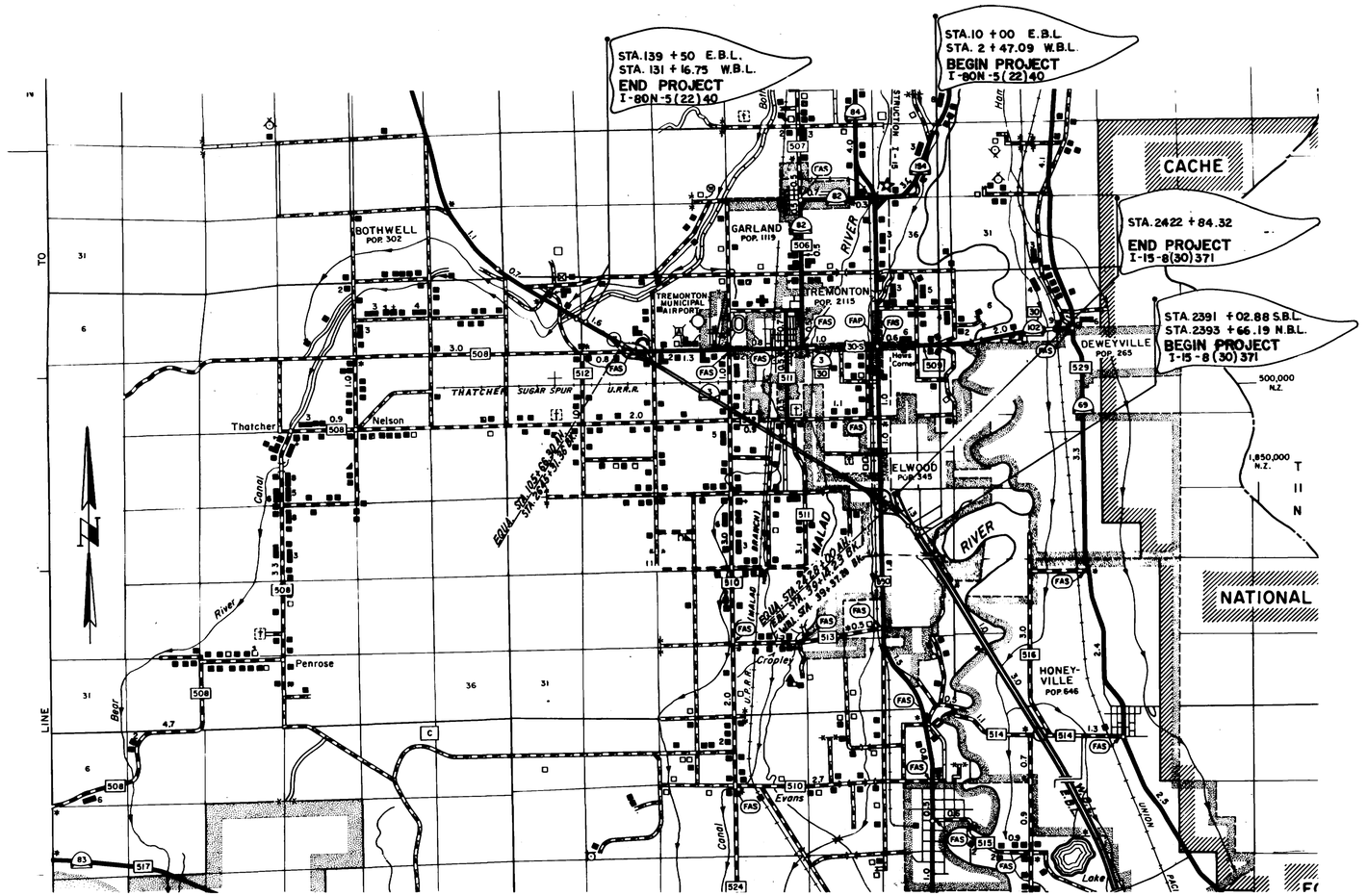
FEDERAL AID PROJECT

I-80N-5(22)40

ELWOOD TO WEST TREMONTON
BOX ELDER COUNTY
LENGTH 5.303 MILES

I-15-8(30)371

ELWOOD CONNECTION
BOX ELDER COUNTY
LENGTH 0.578 MILES



INDEX TO SHEETS I-80N-5(22)40

SHEET NO.	DESCRIPTION	DRAWING No.	STATION
1	TITLE SHEET		
2-2D	TYPICAL SECTIONS & MATERIAL PROSPECTS & SETTLEMENT DEVICE INSTILLATION		
3-3B	SUMMARIES		
4-23	PLANS & PROFILES		
24-25	8'-0" x 8'-0" CONCRETE BOX	E-157.1	3461+60
	CATCH BASIN	V-750	
	CLEANOUT & JUNCTION BOX	V-777	
	INVERTED SIPHON	V-838	
	PARSHALL FLUME	V-853	

INDEX TO SHEETS I-15-8(30)371

SHT. NO.	DESCRIPTION	DRAWING NO.	STATION
1	TITLE SHEET		
2-2A	TYPICAL SECTIONS & MATERIAL PROSPECTS		
3	SUMMARIES		
4-5	PLANS & PROFILES		
13	CATCH BASIN	V-750	
14	CLEANOUT & JUNCTION BOX	V-777	

STANDARD DRAWINGS APPLICABLE TO THESE PROJECTS NOT INCLUDED IN PLANS

DESCRIPTION	DRAWING NO.	DATE
REINFORCED CONCRETE CULVERT	605-20	5/4/66
REINFORCED CONCRETE CULVERT END SECTIONS	605-21	4/4/67
MEDIAN DROP INLET	620-1	2/7/68
DIVERSION BOX	650(1-3)	2/3/64
HAND SLIDE GATE	650-4	11/12/64
R/W FENCE & GATES	720-1	12/9/66
PROJECT MARKER, 1/4 MARKER, GUIDE POST & MAIL BOX POST	725-1	2/7/68
CONSTRUCTION IDENTIFICATION SIGNS	745-6	10/2/67
CONSTRUCTION SIGNING	745-1A	11/14/63
CONSTRUCTION SIGNING	745-1B-1C-1D	9/10/63
CONSTRUCTION SIGNING	745-1E	4/28/64
SUPERELEVATION & WIDENING	805-1A-1E	9/10/63

UTAH STATE DEPARTMENT OF HIGHWAYS

RECOMMENDED FOR APPROVAL FEB 1968

ENGINEER OF ROADWAY DESIGN

RECOMMENDED FOR APPROVAL FEB 1968

ENGINEER FOR RECONSTRUCTION

APPROVED FEB 1968

STATE HIGHWAY ENGINEER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

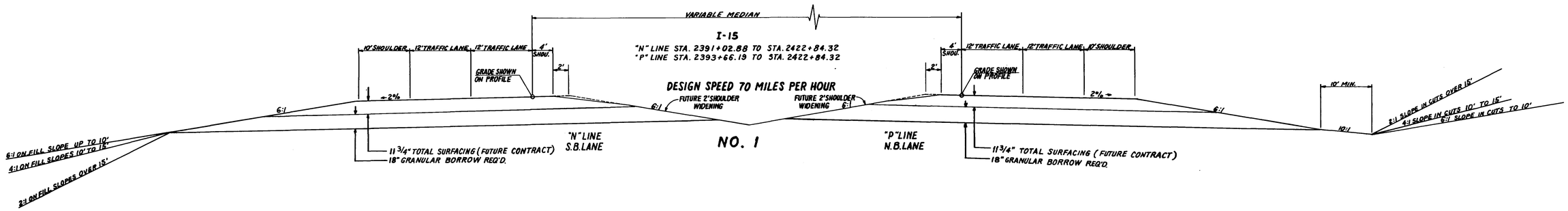
APPROVED

DIVISION ENGINEER DATE

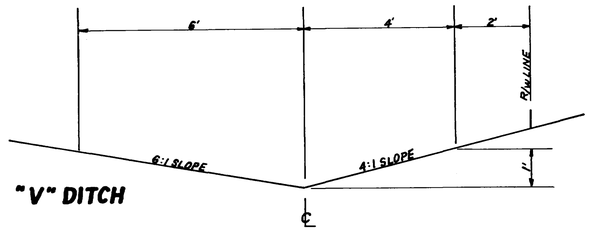
TYPICAL CROSS SECTION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
UTAH	UTAH	I-15-8 (30)371		2	

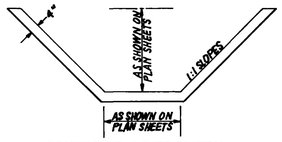
REVISED 3/19/68



APPLICATION	TYPE	AMOUNT FOR ESTIMATING PURPOSES ONLY
BORROW	UNTREATED PIT RUN	130 LBS. PER CU. FT.
GRANULAR BORROW (SURCHARGE)	UNTREATED PIT RUN	130 LBS. PER CU. FT.
GRAVEL BASE COURSE	UNTREATED 3/4" OR 1" MAX.	140 LBS. PER CU. FT.
BITUMINOUS AGGREGATE	BASE COURSE & SURFACE COURSE	145 LBS. PER CU. FT.
BITUMINOUS BASE COURSE	85/100 PENETRATION	4% BY WT. OF GRAVEL
BITUMINOUS SURFACE COURSE	85/100 PENETRATION	5% BY WT. OF GRAVEL
PLANT MIX BITUMINOUS SEAL COATS	60/70 PENETRATION	7% BY WT. OF GRAVEL
PRIME COAT	MC-250	.25 GAL. PER SQ. YD.
TACK COAT	RC-70 OR RC-250	.10 GAL. PER SQ. YD.



"V" DITCH



CONCRETE LINED DITCH

TO BE PLACED AS DIRECTED BY PROJECT ENGINEER.

NOTES

The format of these materials & prospects shall in no way be construed as [illegible] to "Division I, Section [illegible] 2 of Designated [illegible] Materials Sources [illegible] for Standard Specifications, 1960 Edition and Supplements."

LEGEND

Ground Water Table (G.W.T.) = ▼ , △ = Test Pit
Bottom of Test Hole = * , ◯ = Section No. , ⊙ = Test Hole
Section Line (℄) =
1/4 Section Line = — — — —
1/16 Section Line = — — — —
℄ Proposed Highway =
Prospect Boundary = —•—•—•—
Property Boundary = ////////////////////

Topsoil or Fill | Clay | Silt | Sand | Gravel & Boulders | Solid Rock

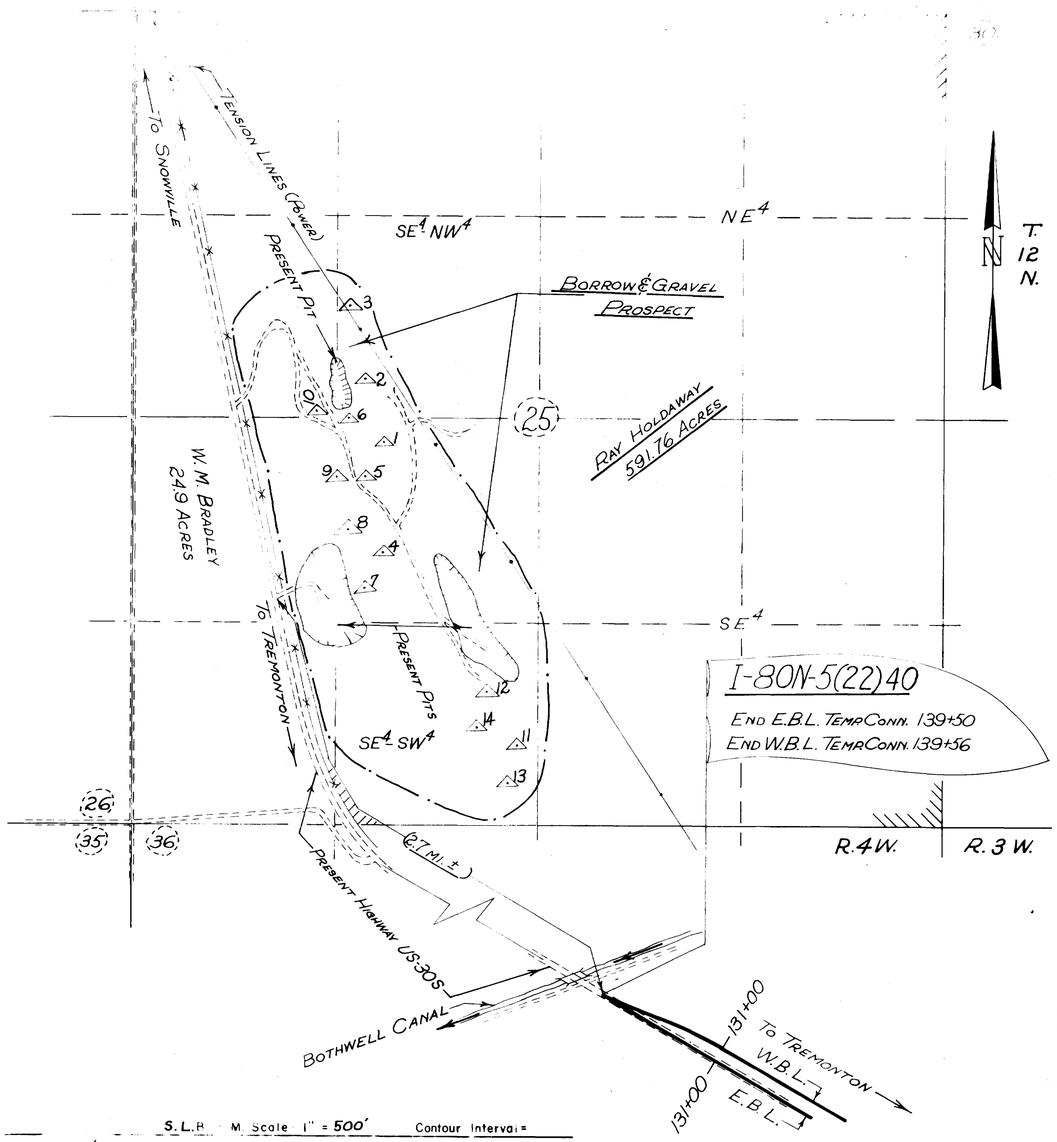
STATE	STATE	FEDERAL AID NO.	SHEET NO.	TOTAL SHEETS
UTAH	UTAH	I-15-8-(30)371	2A	

UTAH STATE DEPARTMENT of HIGHWAYS
MATERIALS SECTION

MATERIALS PROSPECTS AND TEST HOLES

PROJECT NO. I-15-8-(30)371
PROJECT NAME ELWOOD CONNECTION
COUNTY BOX ELDER
DATE JUNE 26, 67 DRAWN BY R.N. GRIFFIN
DATA BY GRIFFIN AUTH.
FIELD BOOK: 02/ SHEET NO. 1 OF 1

Revision



GRAVEL

67-1-A	33	34	36	35	37	38	39	40	41	42	43	44	45	67-1-S-	67-1-S-	67-1-S-	67-1-S-
Pit No.	1		2	3	4	7	7	9	10	11	11	14	14	2	3	4	7
(FEET)	3.5-5	5-9	08-9	1.5-8.5	2-11	3.5-5.5	5.5-9.5	1.5-6.5	2-6.5	2-7	7-10	1.5-4.5	6-8.5	0-0.8	0-1.5	0-2	1.5-3.5
%	45		45		26	17	10	30	63	32	26	10					42
%	55	100	55	100	74	83	90	70	37	68	74	90	100	100		100	—
%	33	93	36	80	61	51	79	57	22	53	52	46	28	85	100	74	44
%	30	34	4	40	23	31	40	9	12	34	30	22	23	53	78	59	22
%																	
%	100	100	100	100	100	100	100	100	100	100	100	100	100				
%	42	39	17	44	33	41	46	20	40	43	41	32	34				
%	36	16	10	26	24	31	31	9	27	35	31	27	29				
%	32	4	7	15	20	22	16	7	22	27	22	23	26				
%	18	2	4	11	13	4	4	5	18	11	13	12	20				
%	14	1	2	9	6	3	2	3	3	6	6	6	10				
	21.7	19.8	23.2	31.4	22.5	21.2	20.1	19.9	21.6	22.5	19.1	22.1	21.3	30.4	33.5	32.4	30.4
	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	8.6	3.6	8.8	N.P.
(INCH)	.001	.003	.001	.003	.004	.004	.002	.007	.002	.003	.001	.002	.003				
%	15.2	14.7	15.8	18.1	16.4	16.9	25.7	17.4	17.4	19.5	19.2	12.1	16.1				
%	98	95	96	96	96	75.0	92.0	97	94	95	84	99	100				
%	1.77	1.89	1.29	1.52	1.28	0.94	4.92	3.23	1.21	4.56	1.79	1.50	1.79				
	3350	2649	3563	3041	2700	2377	1531	1300	2190	2107	2800	3512	3204				
(.01 INCH)	14	13	16	15	15	12	15	25	14	16	16	18	14				
	284	211	268	215	242	249	374	314	306	225	199	207	284				
	356	383	382	392	418	313	467	416	500	353	461	304	372				

NOTE:
MAJOR PORTION OF MATERIAL COATED WITH $CaCO_3$ SOME FeO_2 ALSO PRESENT.

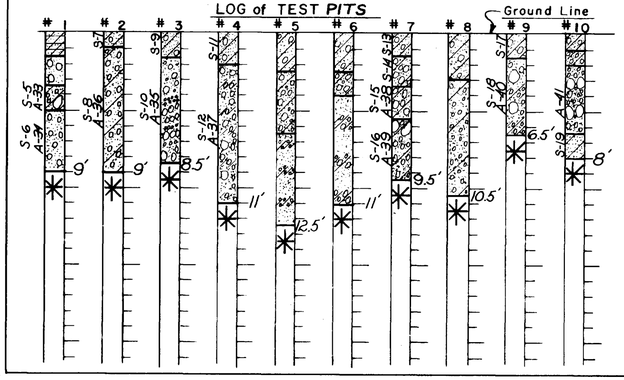
BORROW

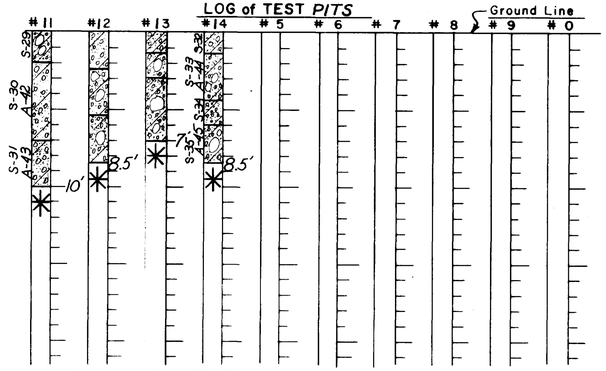
67-1-S	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	29	30	31	32	33	34	35
Pit	1		2	2	3	3	4	7		7	7	7	9	9	10	11	11	11	14	14	14	
(FEET)	3.5-5	5-9	0-0.8	08-9	0-1.5	1.5-8.5	0-2	2-11	0-1.5	1.5-3.5	3.5-5.5	5.5-9.5	0-1.5	1.5-6.5	6.5-8	0-2	2-7	7-10	0-1.5	1.5-4.5	4.5-6	6-8.5
100%																						
%	42	94	100	89		99	100	100	90	58	72	91	90	84		95	82	90	84	88	100	70
%	29	87	85	63	100	90	73	91	68	44	54	78	90	73		80	53	71	74	51	79	33
%	29	77	79	46	98	82	73	81	63	39	48	71	88	68		73	47	62	73	40	66	30
%	26	23	53	1	78	32	59	29	52	22	30	30	61	19	100	47	26	38	63	13	12	28
%	23	8	51	2	66	18	55	21	44	14	21	16	54	16	98	40	21	30	56	12	12	28
%	18	1	46	2	49	8	37	17	29	4	3	3	43	12	83	31	9	16	38	8	7	20
%	3		43	1	45	6	34	4	26	3	1	1	39	9	13	27	4	6	33	3	2	4
	N.P.	N.P.	30.4	N.P.	33.5	N.P.	32.4	N.P.	27.9	30.4	N.P.	N.P.	30.0	N.P.	17.7	30.9	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
	N.P.	N.P.	8.6	N.P.	3.6	N.P.	8.8	N.P.	3.9	N.P.	N.P.	N.P.	7.1	N.P.	N.P.	5.2	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
%	0.0	0.0	0.2	0.0	0.4	0.0	0.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.52	0.0	0.0	0.30	0.0	0.0	0.0
(0.1 IN)	140	17	5.7	13	12	55	6.7	93	8.9	37	60	17	33	46	8.7	8.7	23	60	10	21	19	31
	A-1-a(0)	A-1-a(0)	A-3(0)	A-1-a(0)	A-2(2)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-1-a(0)	A-1-a(0)	A-3(0)	A-1-a(0)	A-2-4(0)	A-1-b(0)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-1-a(0)
Dry Density (P.C.F.)	139.6	95.2	108.6	96.2	103.7	128.4	112.8	129.3	110.0	104.5	113.2	104.7	107.7	92.0	93.5	113.8	114.0	122.3	116.0	112.7	108.7	119.0

S. L. B. & M. Scale 1" = 500' Contour Interval =

Borrow & Gravel Prospect

LOG of TEST PITS

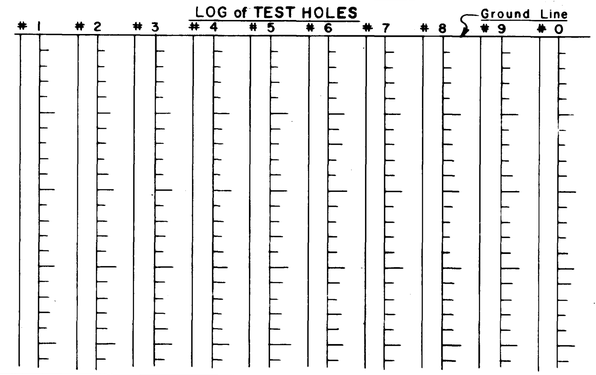




B. & M. Scale 1" = Contour Interval =

Prospect No.

LOG of TEST HOLES



B. & M. Scale: 1" = Contour Interval =

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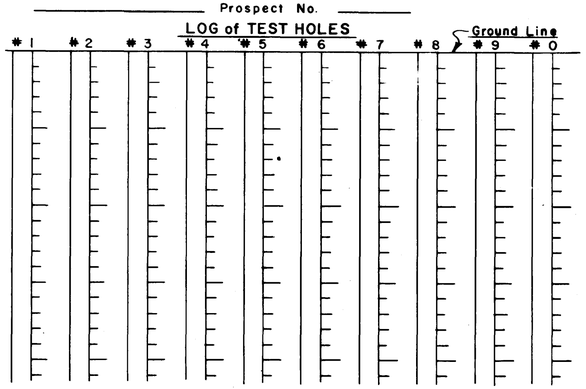


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
UTAH	UTAH	I-15-8(30)371		3	

REVISED 3/19/68 AS REV 6-10-70

EARTHWORK

LANES OR LINE	FROM STATION	TO STATION	QUANTITIES: EMBANKMENT (CUBIC YARD)	EMBANKMENT X FACTOR 1.20 (CUBIC YARD)	ROADWAY EXCAVATION (CUBIC YARD)	BORROW (CUBIC YD.)	OVERHAUL: CLASS "A" (STATION YD.)	CLASS "B" (YD. MILE)
"N" LINE	2391+02.88	2422+84.32	13,301	15961	6387	9574	17840	42
"P" LINE	2393+66.19	2422+84.32	31288	37545	28128	9417		
		TOTAL	44589	53506	34515	18991	17840	42
		USE			38000	21000	20000	100

WATERING

LANES OR LINE	EMBANKMENT X FACTOR (CUBIC YARDS)	GRAVEL BASE COURSE	GRANULAR BORROW (TONS)	GRANULAR BORROW (÷ CU. YDS.)	LANES OR LINE TOTAL (CU. YDS.)	WATER GALLONS PER CU. YD. (M. GAL.)
"N" LINE	15961		19732	11243	27204	680
"P" LINE	37545		16715	9524	47069	1177
					SUB TOTAL	1857
PRE COMPACTION TOTAL 15,000	Cubic Yards x 25 Gal. per Cu. Yd ÷ 1000 = M. Gallons →					375
					TOTAL	2232
					USE	2400

LINEAR SUMMARY

LANES OR LINE	FROM STATION	TO STATION	EQUATIONS and STRUCTURS over 20 ft	LANES & PROJECT (LIN FT.)	ROAD (MILES)
"N" LINE	2391+02.88	2422+84.32		3181.44	
"P" LINE	2393+66.19	2422+84.32		2918.13	
			ROADWAY LENGTH		
			AVERAGE ROADWAY LENGTH	3049.78	0.578
			PLUS MAJOR STRUCTURE LENGTH		
			PROJECT LENGTH	3049.78	0.578

SUBBASE COURSE MATERIALS

LANES OR LINE	TYP SECT NO.	LENGTH FEET	TYPE: WIDTH	DEP	TON	GRANULAR-BORROW TYPE: WIDTH	DEP	TON
"N" LINE	1	3181.44				58.75	1.50	19731.7
"P" LINE	1	2918.13				58.75	1.50	16715.3
	SUB-TOTAL							36447.0
	TOTAL							36447
	USE							38300

"V" DITCH SUMMARY

LANES OR LINE	FROM STATION	TO STATION	DEPTH (FEET)	CUT	SLOPES	PARALLEL LINEAR FEET: LEFT	RIGHT	CUBIC YARD
"P" LINE	2400+30	2406+90	1	4:1	6:1		660	127.8
							TOTAL	127.8
SMALL DITCH EXCAVATION							USE	150

FENCING SUMMARY

LANES OR LINE	FROM STATION	TO STATION	TYPE "B" LINEAR FEET: LEFT	RIGHT	CONNECTING: TYPE "B"	TYPE	CONNECT TO
SUR. LINE	~~2389+40~~	~~2391+34.5~~		~~195~~	65		EXIST. N/A TO BEG. "P" LINE
"P" LINE	~~2393+66.2~~	~~2422+84.3~~		~~2918~~			BEG. "P" LINE TO EXIST. N/A
"N" LINE	~~2391+02.9~~	~~2398+17.5~~	~~715~~				EXIST. N/A TO BEG. I-80 N/A
"N" LINE	~~2412+00~~	~~2422+84~~	~~1084~~				BEG I-80 N/A TO EXIST. N/A
		SUB-TOTAL	~~1799~~	~~3113~~	65		
		TOTAL	~~4977~~				
		USE	~~5000~~				METAL POST SHALL BE USE
AS CONST. "P" LINE	2388	2422+84		3324			
"N"	2412	2422+84	1090				
TOTALS			4414				

MISCELLANEOUS SUMMARY

QUANTITY	UNIT	ITEM
	LUMP	MOBILIZATION
500	HOUR	FLAGGING
8	EACH	RIGHT OF WAY MARKERS
2300	CU. Yd.	STOCKPILED TOPSOIL

DRAINAGE SUMMARY

LINE or LANES and STATION	CROSSING ANGLE or SIDE DRAIN	HEIGHT of COVER (FEET)	REINFORCED CONCRETE PIPE LINEAR FEET 24"	30"	36"	42"	CONCRETE PIPE END SECTIONS EACH 12"	24"	30"	36"	BITUMINOUS COATED CORRUGATED METAL PIPE (UNDERDRAIN) LIN. FT. 12"	18"	EXCAVATION FOR STRUCTURES CUBIC YARD	BACK FILL CU. YD.
"N" LINE														
~~2411+65~~	35°		~~166~~										37.6	28
2412+.0	90°		104					2 ~~1~~					20	12
"P" LINE														
~~2398~~+76	90°		~~52~~					~~1~~					12	8
2411+10	~~123°~~ 90°		104					2			76		17	10
2407+75	117°		158					1					39	16
		TOTAL	~~480~~ 366					~~2~~ 5			76'		* ~~125~~ 149	* 74

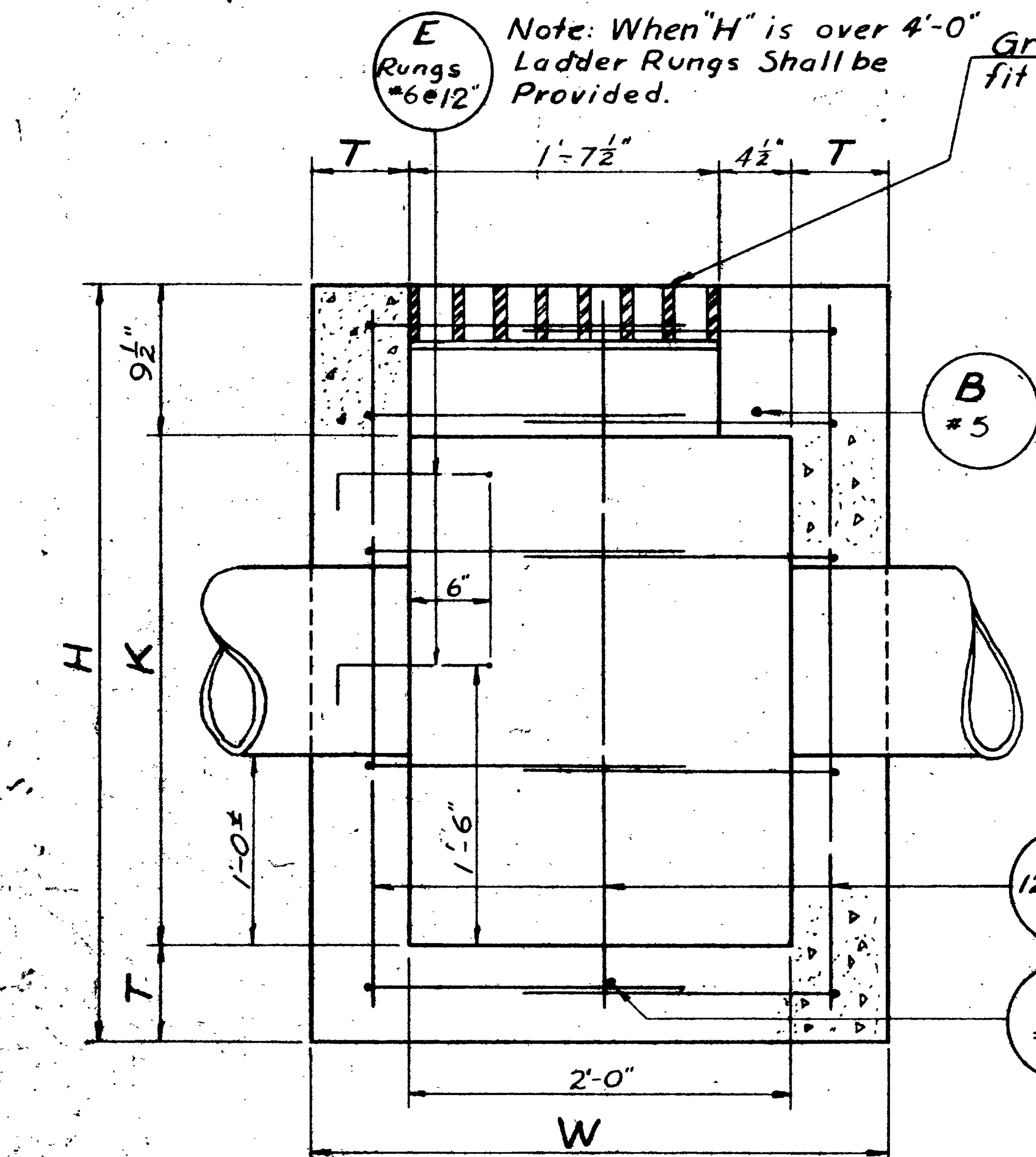
* SEE SMALL STRUCTURES SUMMARY

SMALL STRUCTURES SUMMARY

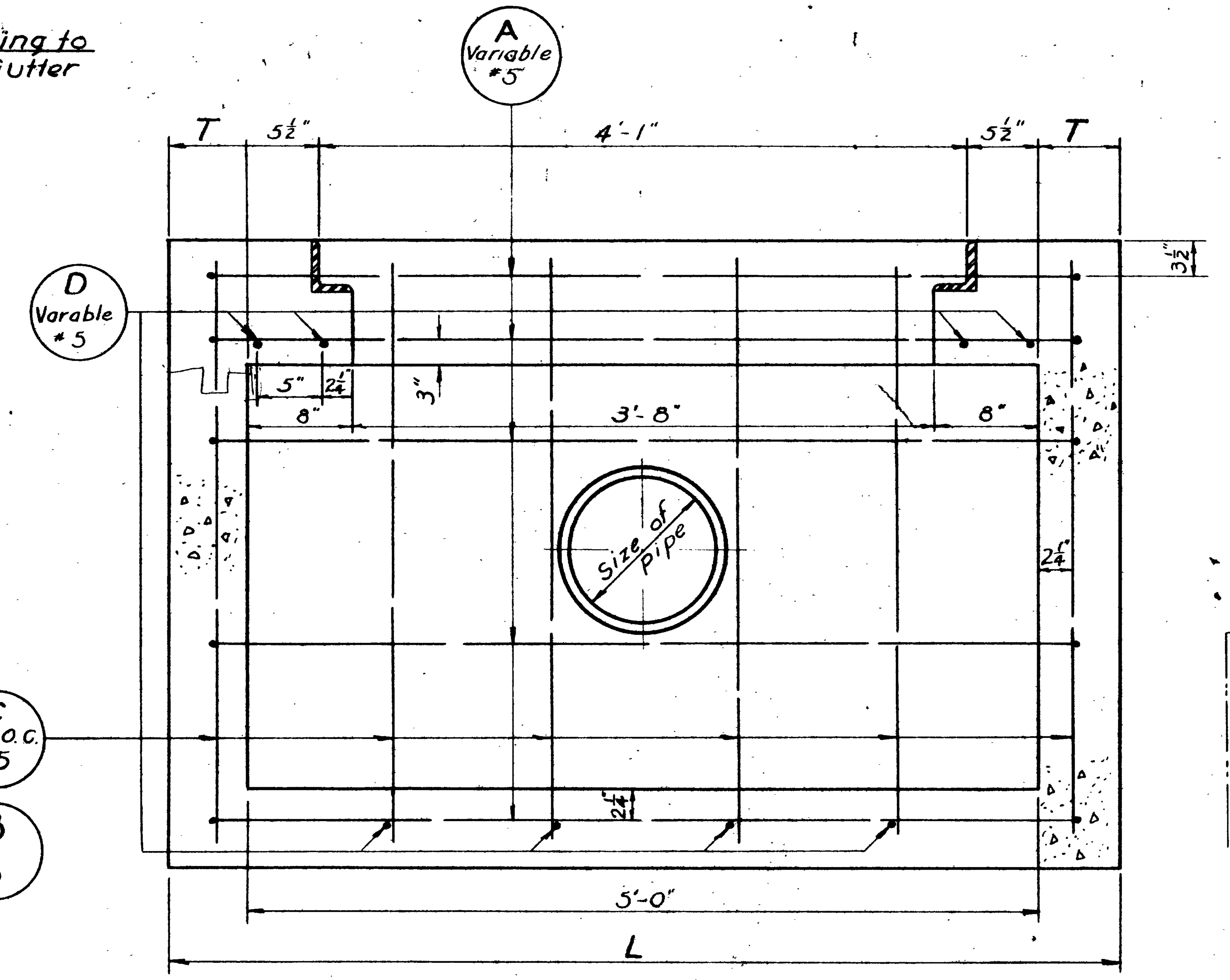
LINE or LANES and STATION	LT.	RT.	CATCH BASIN DWG. NO.	DRWG NO.	JUNCTION BOX DWG. NO.	LINE NO.	DIVERSION BOX DRWG NO.	WALLS	EXCAVATION FOR STRUCTURES UNCLASSIFIED CUBIC YARD	BACK FILL CU. YD.	STRUCTURAL STEEL POUND	REINFORCING STEEL POUND	CONCRETE CLASS "A" CUBIC YARD
"N" LINE													
~~2412~~+12		RT.			V-777	12			~~14.0~~	4	474	~~356~~	~~3.8~~
"P" LINE													
~~2395+76~~	LT		~~V-750~~	3					~~7.0~~	4	~~310~~	~~225~~	~~1.6~~
~~2398~~+40		RT.			V-777	10			~~11.0~~	4	474	319	2.5
2407+75	LT.		~~V-750~~	6					10± ~~6.0~~	4	310	272 ~~188~~	1.84 1.5
~~2406+90~~		RT					630-143	~~SR1114Y~~	~~6.0~~	4	70	90	1.1
DRAINAGE SUMMARY									~~125~~	160 ~~74~~			
								TOTAL	169	94	1638	~~1178~~	~~10.5~~
								USE	160 ~~180~~	166 ~~110~~	~~1700~~ 310	272 ~~1300~~	1.84 ~~12~~

SUMMARY OF ITEMS

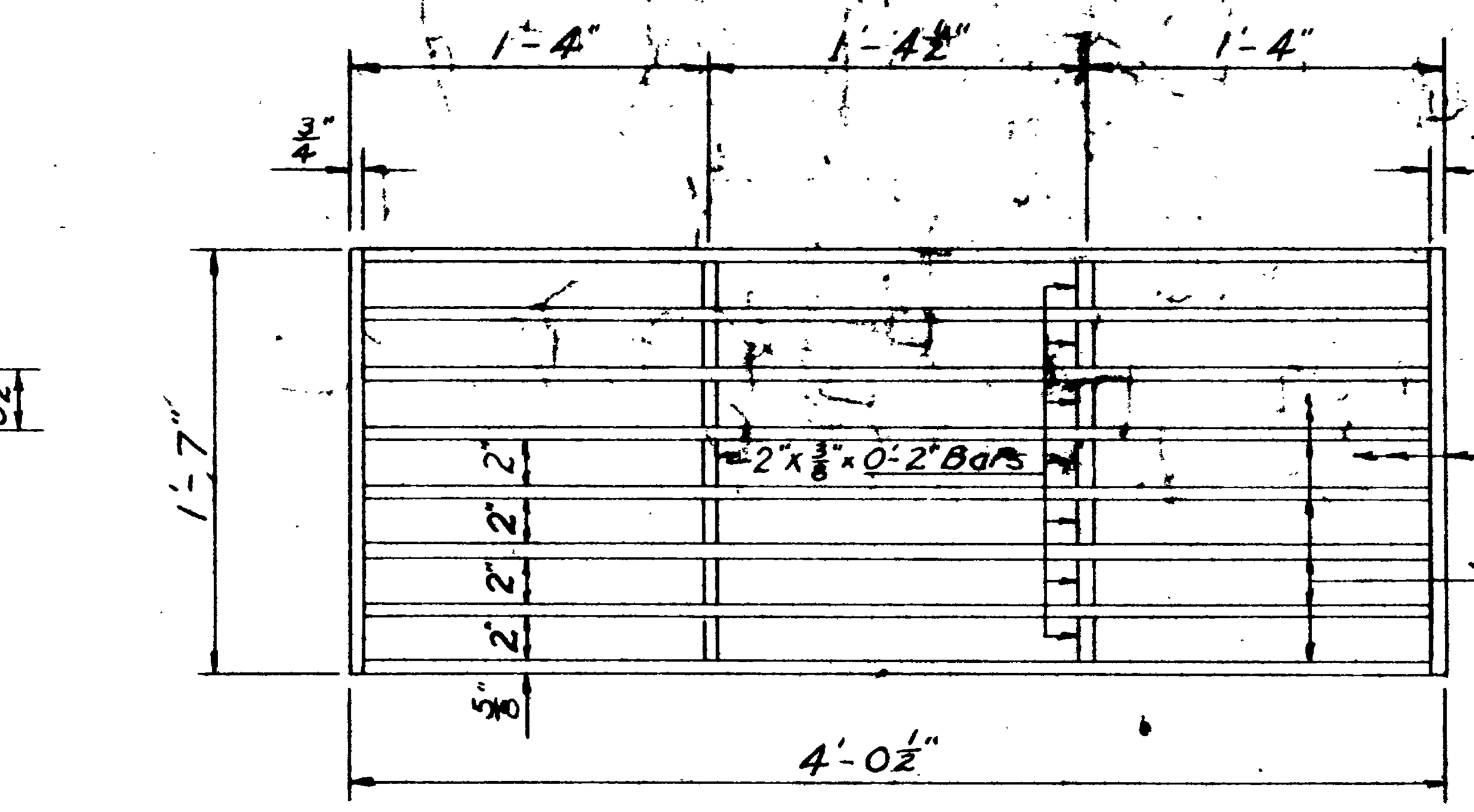
QUANTITY	UNIT	ITEM
	LUMP SUM	MOBILIZATION
500	HOUR	FLAGGING
38000	CU. YD.	ROADWAY EXCAVATION
180	CU. YD.	EXCAVATION FOR STRUCTURES
110	CU. YD.	BACK FILL
21000	CU. YD.	BORROW
38300	TON	GRANULAR BORROW
100	YD. MI.	OVERHAUL
2400	M. GAL	WATERING
4414 ~~5000~~	LIN. FT.	RIGHT OF WAY FENCE TYPE "B" METAL POSTS
366 ~~480~~	LIN. FT.	24" REINFORCED CONCRETE PIPE
5 ~~2~~	EACH	24" CONCRETE PIPE END SECTION
0 ~~76~~	LIN. FT.	12" BITUMINOUS COATED CORR. METAL PIPE (UNDERDRIAN) TYPE A
150	CU. YD.	SMALL DITCH EXCAVATION
7 ~~8~~	EACH	RIGHT OF WAY MARKERS
1300	LB.	REINFORCING STEEL
1700	LB.	STRUCTURAL STEEL
12	CU. YD.	CLASS "A" CONCRETE
2300	CU. YD.	STOCKPILED TOPSOIL



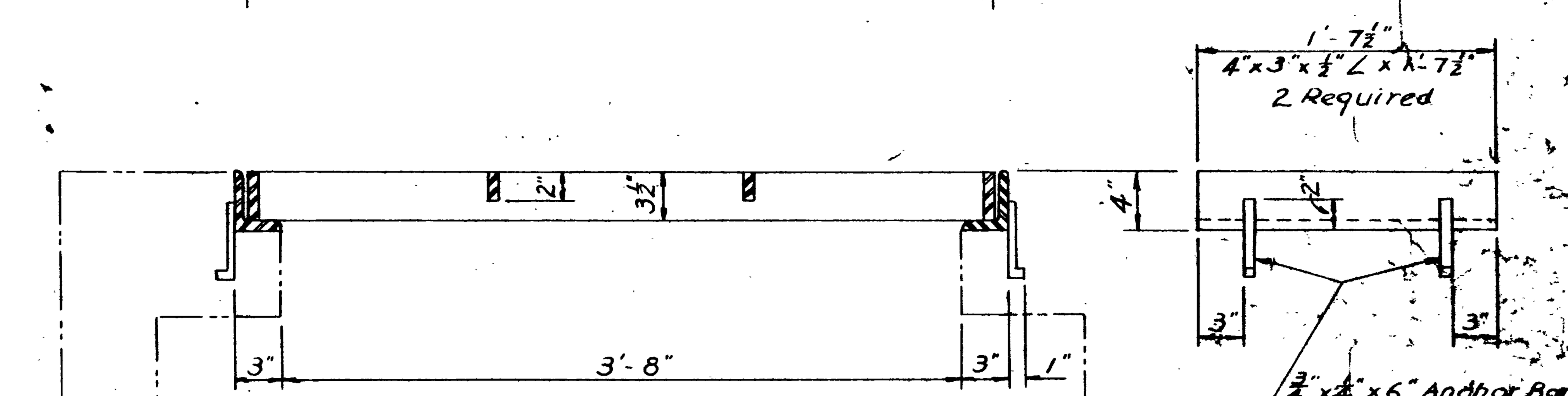
SECTION B-B



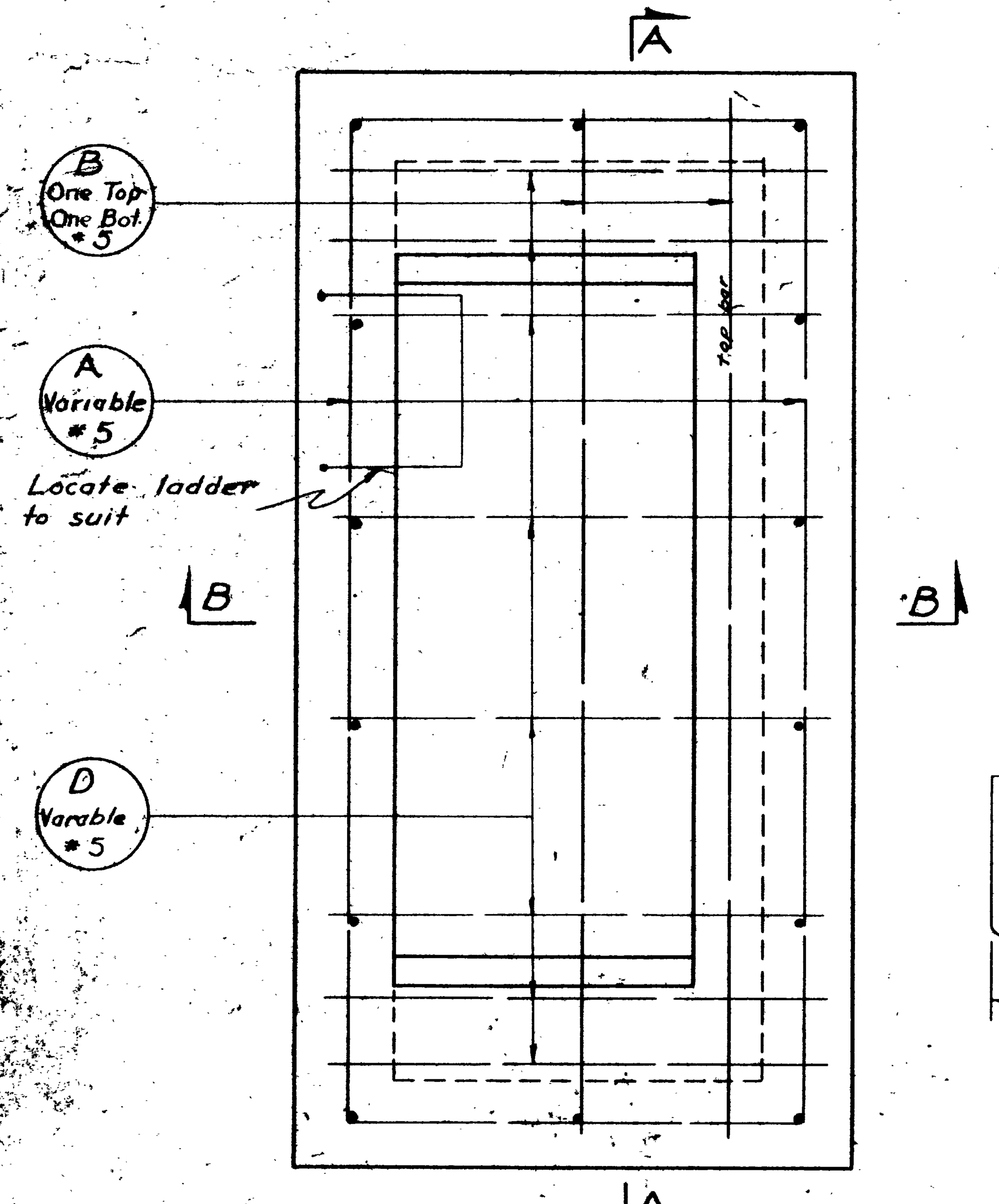
SECTION A-A



NOTE: Grating and Angles shall receive One Shop coat of Red Paint, A.A.S.H.O. Designation M-71-42 or M-72-51, and Two Field Coats of Aluminum Paint A.A.S.H.O. Designation M-69-52. All painting shall be in accordance with the State Standard Specifications for Road and Bridge Construction.

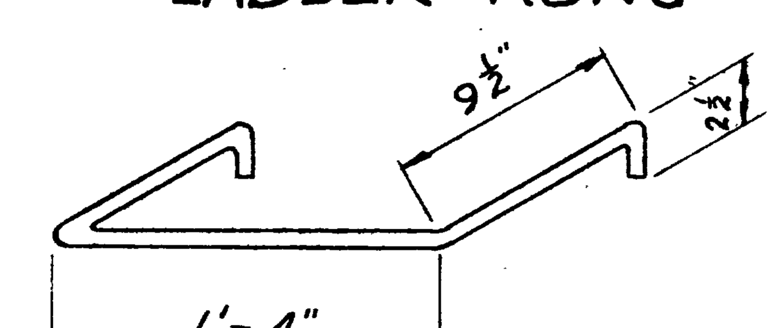


DETAIL OF GRATING
(Structural Steel)
1-Required per Catch Basin
Weight (complete with Bearing ∠s) 310 Lbs.
Weld all Joints



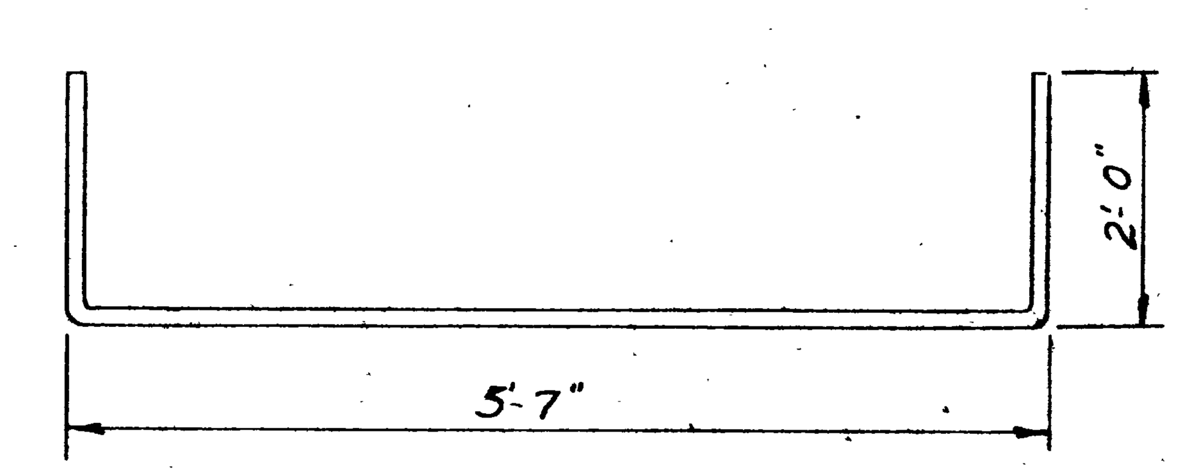
PLAN

DETAIL OF LADDER RUNG



"E" BAR - #6
Weight each - 5 Lbs.

DETAIL OF "A" BAR



"A" BAR - #5
Weight each - 10 Lbs.

Note: See "List of Structures" for Type of Unit, Size and Kind of Pipe, Stations and Units required.

SCHEDULE OF INSTALLATIONS
(See General Notes)

LINE	DIMENSIONS					REINFORCING STEEL										TOTAL QUANT.			
	H	L	W	K	T	"A" BARS NO.	"A" BARS L'GTH	"B" BARS NO.	"B" BARS L'GTH	"C" BARS NO.	"C" BARS L'GTH	"D" BARS NO.	"D" BARS L'GTH	"E" BARS NO.	"E" BARS L'GTH	REINF. STEEL LBS.	STRUCT. STEEL LBS.	CONC. C.U. YDS.	EXCAV. C.U. YDS.
1	3'-6"	6'-0"	3'-0"	2'-2½"	6"	10	9'-7"	2	5'-8"	14	3'-2"	8	2'-8"	0	3'-4"	181	310	1.4	5.2
2	4'-0"			2'-8½"		10					3'-8"			0		188		1.5	6.0
3	4'-6"			3'-2½"		12					4'-2"			2		225		1.7	6.7
4	5'-0"			3'-8½"		12					4'-8"			2		232		1.8	7.5
5	5'-6"			4'-2½"		14					5'-2"			3		265		2.0	8.2
6	6'-0"			4'-8½"		14					5'-8"			3		272		2.1	8.9
7	6'-6"			5'-2½"		16					6'-2"			4		305		2.3	9.7
8	7'-0"			5'-8½"		16					6'-8"			4		312		2.4	10.4
9	7'-6"			6'-2½"		18					7'-2"			5		344		2.6	11.2
10	8'-0"	6'-0"	3'-0"	6'-8½"	6"	18					7'-8"			5		352		2.7	11.9
11	8'-6"	6'-4"	3'-4"	7'-0½"	8"	20					8'-2"			6		384		3.9	14.1
12	9'-0"			7'-6½"		20					8'-8"			6		392		4.1	14.9
13	9'-6"			8'-0½"		22					9'-2"			7		424		4.3	15.7
14	10'-0"			8'-6½"		22					9'-8"			7		431		4.5	16.6
15	10'-6"			9'-0½"		24					10'-2"			8		464		4.7	17.4
16	11'-0"			9'-6½"		24					10'-8"			8		471		5.0	18.2
17	11'-6"			10'-0½"		26					11'-2"			9		503		5.1	19.0
18	12'-0"			10'-6½"		26					11'-8"			9		510		5.3	19.9
19	12'-6"			11'-0½"		28					12'-2"			10		543		5.5	20.7
20	13'-0"			11'-6½"		28					12'-8"			10		550		5.7	21.5
21	13'-6"			12'-0½"		30					13'-2"			11		582		5.9	22.3
22	14'-0"			12'-6½"		30					13'-8"			11		589		6.1	23.1
23	14'-6"			13'-0½"		32					14'-2"			12		622		6.4	24.0
24	15'-0"	6'-4"	3'-4"	13'-6½"	8"	32	9'-7"	2	5'-8"	14	14'-8"	8	2'-8"	12	3'-4"	629	310	6.6	24.8
25	16'-0"	6'-4"	3'-4"	14'-6½"	8"	34	9'-7"	2	5'-8"	14	15'-8"	8	2'-8"	13	3'-4"	669	310	7.0	26.6

DESIGN DATA

Live load: H15 + Impact in accordance with the A.A.S.H.O. Specifications of 1957.

fc = 1200 psi.; fs = 20,000.; fs = 18,000 psi (for Struct. Steel), n = 10

GENERAL NOTES

Materials, construction and workmanship shall be in accordance with the State Standard Specifications for Road and Bridge Construction, 1960 edition, and supplements thereto which are in effect at the date of request for bids.

All reinforcing steel shall be intermediate grade Standard A-305 reinforcing bars. All dimensions relating to reinforcing steel are to centers of bars. All reinforcing bars shall be #5 spaced at 12" O.C. unless otherwise specified.

Type II cement required.

For Type "A" Structures, pipe will enter at sides as shown on drawing. For Type "B" Structures, pipe will enter at ends.

Gratings and Bearing Angles will be paid for as Structural Steel.

Wall thickness "T" shall be 6" minimun.

A unit shall include Catch Basin, Bearing Angles and Grating complete.

Quantities shown are for one Catch Basin only. When more than one Unit is required the quantities are to be multiplied by the No. of Units required to obtain the total quantities.

Excavation for Structures does not include Excavation for pipe.

Concrete Class "A"

SHEET 1 OF

UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

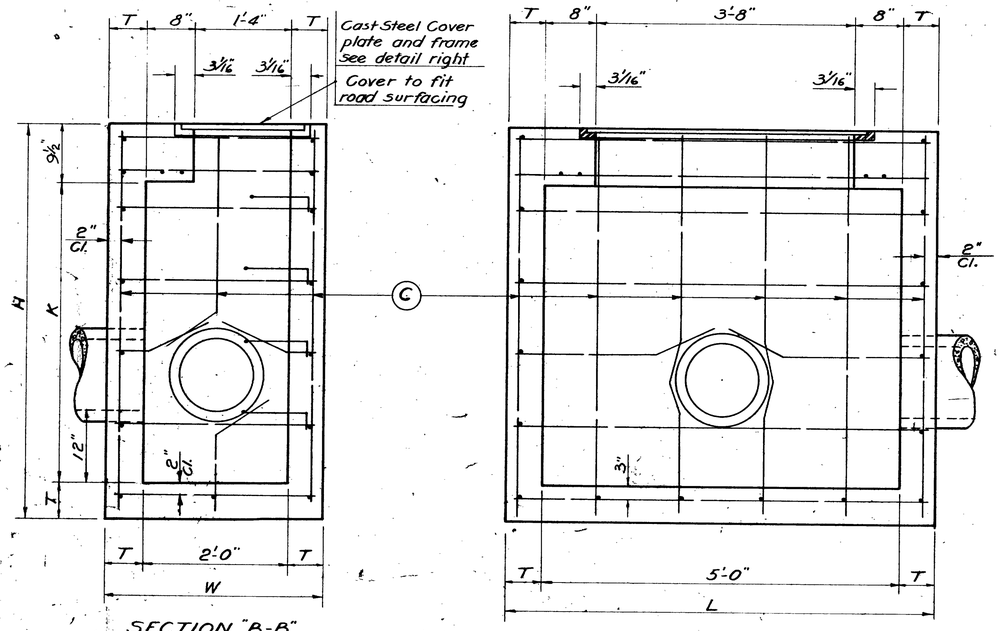
STANDARD CATCH BASIN

R.W.M.
J.H.B.
D.N.T.
C.W.T.

Conc. Quan. Revised By W.L.A. 10-26-67

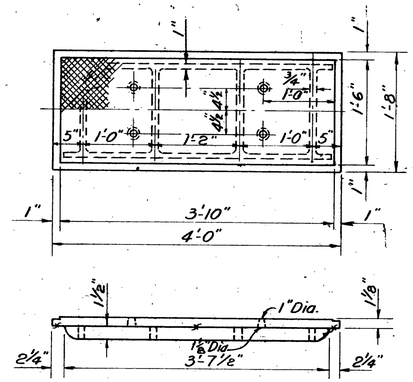
REVISIONS

4-9-63

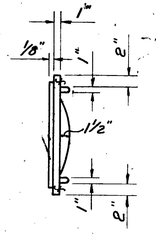


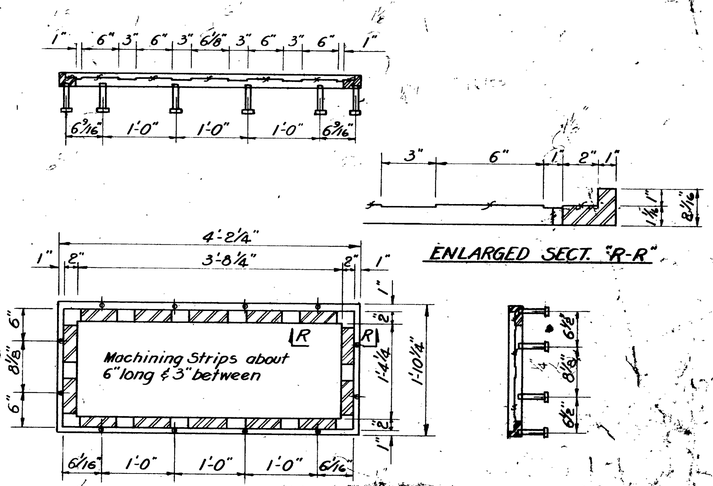
SECTION "B-B"

SECTION "A-A"



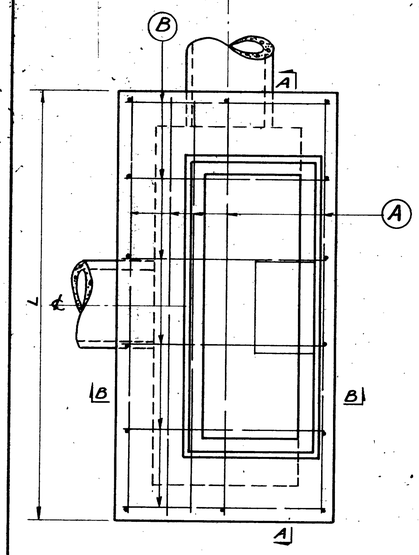
CAST IRON COVER
(WEIGHT 320 LBS.)



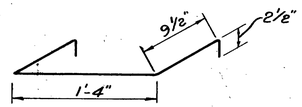


CAST [illegible]
(WEIGHT [illegible])

Note: See "List of Structures" for size and kind of pipe, stations and units required.



PLAN



LADDER RUNG DETAIL
BAR "D" #6

Length = 3'-4"
Weight each = 5 lbs.

When "H" is 4'-0" or over ladder rungs shall be provided.

SCHEDULE OF INSTALLATION

LINE	DIMENSIONS H	L	W	K	T	REINFORCING STEEL "A" BARS No.	"A" BARS L'GTH.	"B" BARS No.	"B" BARS L'GTH.	"C" BARS No.	"C" BARS L'GTH.	"D" BARS No.	"D" BARS L'GTH.	TOTAL QUANT. Reinf. Steel Lbs.	Struct. Steel Lbs.	Conc. Cu. Yds.	Excav. Cu. Yds.
1	3'-0"	6'-0"	3'-0"	1'-8½"	6	9	5'-8"	14	2'-8"	14	8'-9"	—	3'-4"	134	474	1.2	4.5
2	3'-6"	↓	↓	2'-2½"	↓	11	↓	16	↓	↓	3'-3"	—	↓	159	↓	1.3	5
3	4'-0"			2'-8½"		11		16			3'-9"	2		177		1.5	6
4	4'-6"			3'-2½"		13		18			4'-3"	3		207		1.6	6.5
5	5'-0"			3'-8½"		13		18			4'-9"	3		214		1.8	7.5
6	5'-6"			4'-2½"		15		20			5'-3"	4		244		1.9	8
7	6'-0"			4'-8½"		15		80			5'-9"	4		251		2.1	9
8	6'-6"			5'-2½"		17		82			6'-3"	5		281		2.2	9.5
9	7'-0"			5'-8½"		17		22			6'-9"	5		289		2.4	10.5
10	7'-6"	6'-0"	3'-0"	6'-2½"	6	19	5'-8"	24	2'-8"		7'-3"	6		319		2.5	11
11	8'-0"	6'-4"	3'-4"	6'-6½"	8	19	6'-0"	24	3'-0"		7'-9"	6		326		3.6	13
12	8'-6"	↓	↓	7'-0½"	↓	21	↓	26	↓	↓	8'-3"	7	↓	356	↓	3.8	14
13	9'-0"			7'-6½"		21		26			8'-9"	7		363		4.0	15
14	9'-6"			8'-0½"		23		28			9'-3"	8		393		4.2	15.5
15	10'-0"			8'-6½"		23		28			9'-9"	8		401		4.4	16.5
16	10'-6"			9'-0½"		25		30			10'-3"	9		431		4.6	17.5
17	11'-0"			9'-6½"		25		30			10'-9"	9		438		4.8	18
18	11'-6"			10'-0½"		27		32			11'-3"	10		468		5.0	19
19	12'-0"			10'-6½"		27		32			11'-9"	10		475		5.3	19.5
20	12'-6"			11'-0½"		29		34			12'-3"	11		505		5.5	20.5
21	13'-0"			11'-6½"		29		34			12'-9"	11		513		5.7	21.5
22	13'-6"			12'-0½"		31		36			13'-3"	12		543		5.9	22
23	14'-0"			12'-6½"		31		36			13'-9"	12		550		6.1	23
24	14'-6"			13'-0½"		33		38			14'-3"	13		580		6.3	23.5
25	15'-0"	↓	↓	13'-6½"	↓	33	↓	38	↓	↓	14'-9"	13	↓	587	↓	6.5	24.5
26	16'-0"	6'-4"	3'-4"	14'-6½"	8	35	6'-0"	40	3'-0"	14	15'-9"	14	3'-4"	625	474	6.9	26.5

GENERAL NOTES

Materials, construction and workmanship shall be in accordance with the State Standard Specifications for Road and Bridge Construction, 1960 edition and supplements thereto which are in effect at date of request for bids.

All reinforcing steel shall be intermediate grade Standard A-305 reinforcing bars.

Unless otherwise shown, all dimensions are Out to Out of bar. All reinforcing steel shall be #5 bars spaced 12" on centers. Type II cement required.(Low Alkali.) Concrete Class "A".

DESIGN DATA

H15-44 Loading in accordance with the A.A.S.H.O. Specifications of 1957.
Structural Steel f_s = 18,000 p.s.i. Reinforcing Steel f_s = 20,000 p.s.i.
Concrete f_c = 1200 p.s.i. n = 10

Payment for furnishing and placing Cover Plate and Frame will be paid for as Structural Steel.

All Structural Steel shall receive one shop coat of Red Paint A.A.S.H.O. Designation M 71-42 or M 72-51; also two field coats of Aluminum Paint A.A.S.H.O. Designation M 69-52.

A Unit shall include one Cast Iron Cover and Frame, [illegible] Cleanout Box complete.

Quantities shown are for one Cleanout Box only. When more than one Unit is required the Quantities are to be multiplied by the number of Units required to obtain the total Quantities.

Excavation for Structures does not include Excavation for Pipe.

Ductile iron will be accepted for either the Cover or Frame Fabrication.

REVISIONS
DATE BY

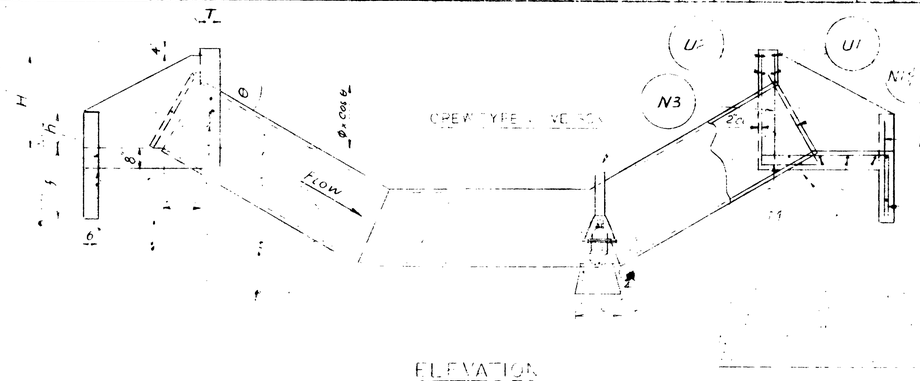
Revised May 25, 1961 R.I.
REVISED 12-10-62 B.M.

SHEET 1 OF 1 SHEETS

UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

STANDARD CLEANOUT & JUNCTION BOX WITH COVER PLATE & FRAME

DESIGNED BY W.G.K.
DRAWN BY R.L.S.
TRACED BY R.L.A.
CHECKED BY G.W.T.
SCALE
DATE



S C H E D U L E

LINE	Pipe Ø	A	B	C	E	f	H	h	K	L	T
1	12"	2'-1"	6'-9½"	0'-11¾"	1'-8¼"	1'-6"	1'-6"	0'-9⅜"	1'-9"	1'-1⅜"	0'-9"
2	15	3'-2	7'-8¼	1'-4⅛	2'-3⅞	1'-6	2'-0	0'-11½	2'-0	2'-8¼	0'-9
3	18	3'-5	7'-11¼	1'-4⅞	2'-3⅞	1'-6	2'-0	0'-11½	2'-3	2'-8¼	0'-9
4	21	3'-8	8'-11	1'-8½	2'-11½	1'-6	2'-6	1'-1½	2'-6	3'-5	0'-9
5	24	3'-11	9-2	1'-8½	2'-11½	1'-6	2'-6	1'-1½	2'-9	3'-5	0'-9
6	27	4'-2	12'-1¾	2'-0⅞	3'-7⅞	2'-6	3'-0	1'-4	3'-0	4'-1¾	0'-9
7	30	4'-5	12'-4¾	2'-0⅞	3'-7⅞	2'-6	3'-0	1'-4	3'-3	4'-1¾	0'-9
8	33	4'-8	13'-4½	2'-5¼	4'-2¾	2'-6	3'-6	1'-6⅛	3'-6	4'-10⅝	0'-9
9	36	4'-11	13'-7½	2'-5¼	4'-2¾	2'-6	3'-6	1'-6⅛	3'-9	4'-10⅝	0'-9
10	39	5'-2	14'-7¼	2'-9⅝	4'-10⅜	2'-6	4'-0	1'-8⅜	4'-0	5'-7⅜	1'-0
11	42	5'-5	14'-10¼	2'-9⅝	4'-10⅜	2'-6	4'-0	1'-8⅜	4'-3	5'-7⅜	1'-0
12	48	5'-11	16'-1¼	3'-2⅛	5'-5⅞	2'-6	4'-6	1'-10½	4'-9	6'-4⅛	1'-0
13	54	6'-5	17'-4	3'-6½	6'-1½	2'-6	5'-0	2'-0¾	5'-3	7'-0⅞	1'-0
14	60	6'-11	18'-9¾	4'-0⅜	6'-11⅝	2'-6	5'-8	2'-3⅝	5'-9	8'-0⅜	1'-0

LINE	D1		D2	D3	D4	D5	D1 to D5
	#4 bars						
	No.	L'GTH.	2 ea.				b
1	3	3'-2"	—	—	—	—	1'-1"
2	3	3'-10	2'-1"	—	—	—	1'-1
3	4	3'-10	2'-1"	—	—	—	1'-1
4	4	4'-5	3'-9	2'-1	—	—	1'-1
5	4	4'-5	3'-9	2'-1	—	—	1'-1
6	4	6'-1	4'-9	3'-1	—	—	2'-1
7	5	6'-1	4'-9	3'-1	—	—	2'-1
8	5	6'-8	4'-9	3'-1	—	—	2'-1
9	5	6'-8	4'-9	3'-1	—	—	2'-1
10	5	7'-7	6'-6	4'-9	3'-1	—	2'-1
11	6	7'-7	6'-6	4'-9	3'-1	—	2'-1
12	6	8'-3	6'-6	4'-9	3'-1	—	2'-1
13	7	8'-10	6'-6	4'-9	3'-1		2'-1
14	7	9'-8	8'-3	6'-6	4'-9	3'-1	2'-1

LINE	E	E2	E3	E4	E5	E6	F0		F1	F2	F3	F4
	#4 bars						#4 bars 120°		field bend #4 bars			
	one ea.						No.	L'GTH.	2 ea.			
1	[illegible]	—	—	—	—	—	2	3'-6"	3'-9"	—	—	—
2	3'-4	4'-4"	—	—	—	—	2	4'-3	4'-6	2'-9"	—	—
3	3'-7	4'-7		—	—	—	2	4'-3	4'-6	2'-9		—
4	3'-10	4'-10	—	—	—	—	2	4'-11	5'-3	2'-9	—	—
5	4'-1	5'-1	—	—	—	—	2	4'-11	5'-3	2'-9	—	—
6	4'-4	5'-4	6'-5"	—	—	—	4	5'-8	6'-1	2'-9	—	—
7	4'-7	5'-7	6'-8	—	—	—	4	5'-8	6'-1	2'-9	—	—
8	4'-10	5'-10	6'-11	7'-11	—	—	4	6'-5	6'-11	2'-9	—	—
9	5'-1	6'-1	7'-2	8'-2	—	—	4	6'-5	6'-11	2'-9		—
10	5'-4	6'-4	7'-5	8'-5	—	—	4	7'-5	8'-0	2'-9	6'-0	—
11	5'-7	6'-7	7'-8	8'-8	—	—	4	7'-5	8'-0	2'-9	6'-0	—
12	6'-1	7'-1	8'-2	9'-2	10'-3	—	4	8'-2	8'-10	2'-9	6'-0	—
13	6'-7	7'-7	8'-8	9'-8	10'-9	11'-9	6	8'-11	9'-7	2'-9	6'-0	
14	7'-1	8'-1	9'-2	10'-2	11'-3	12'-3	6	9'-10	10'-7	2'-9	6'-0	8'-4

LINE	G1	G2	G3	G4	G5	G6	G7	G8	G1 to G8
	#5 bars								
	2 ea.								b
1	2'-8"	2'-3"	—	—	—	—	—	—	0'-11"
2	3'-3	2'-10	—	—	—	—	—	—	1'-0
3	3'-5	3'-0	—	—	—	—	—	—	1'-2
4	4'-0	3'-7	3'-1"	—	—	—	—	—	1'-3
5	4'-2	3'-9	3'-3	—	—	—	—	—	1'-5
6	4'-9	4'-4	3'-10	3'-5"	—	—	—	—	1'-6
7	4'-11	4'-6	4'-0	3'-7	—	—	—	—	1'-8
8	5'-6	5'-1	4'-7	4'-2	—	—	—	—	1'-9
9	5'-8	5'-3	4'-9	4'-4	—	—	—	—	1'-11
10	6'-3	5'-10	5'-4	4'-11	4'-5	—	—	—	2'-0
11	6'-5	6'-0	5'-6	5'-1	4'-7	—	—	—	2'-2
12	7'-1	6'-8	6'-2	5'-9	5'-3	4'-10	—	—	2'-4
13	7'-7	7'-2	6'-8	6'-3	5'-9	5'-4	4'-10	—	2'-4
14	8'-3	7'-10	7'-4	6'-11	6'-5	6'-0	5'-6	5'-1"	2'-4

LINE	M1	N1	N2	N3	U1				U2			
	#5 bars	#4 bars equal 110° equal			#5 bars	No. ea. for θ ≦			#4 bars	No. ea. for θ ≦		
	4 ea.	2 ea.			L'GTH.	15°	30°	45°	L'GTH.	15°	30°	45°
1	4'-7"	2'-10"	1'-10"	2'-3"	2'-7"	1	1	2	2'-7"	1	2	2
2	5'-1	3'-0	2'-1	2'-9	2'-10	2	2	2	2'-10	2	2	2
3	5'-1	3'-4	2'-4	2'-9	3'-1	1	2	2	3'-1	2	2	2
4	5'-7	3'-8	2'-7	3'-3	3'-4	2	2	2	3'-4	2	2	2
5	5'-7	4'-0	2'-10	3'-3	3'-7	1	2	2	3'-7	2	2	2
6	6'-1	—	—	3'-9	3'-10	2	2	2	3'-10	2	2	3
7	6'-1	4'-8	3'-4	3'-9	4'-1	1	2	2	4'-1	1	2	2
8	6'-7	—	—	4'-3	4'-4	2	2	2	4'-4	2	2	3
9	6'-7	5'-2	3'-10	4'-3	4'-7	1	2	2	4-7	2	2	2
10	7'-1	—	—	4'-9	4'-10	2	2	3	4'-10	2	2	3
11	7'-1	5'-10	4'-4	4'-9	5'-1	1	2	2	5'-1	2	2	3
12	7'-7	6'-6	4'-10	5'-3	5'-7	1	2	3	5'-7	2	2	3
13	8'-1	7'-0	5'-4	5'-9	6'-1	2	2	3	6'-1	2	2	3
14	8'-9	7'-8	5'-10	6'-5	6'-7	2	2	3	6'-7	2	3	3

LINE	P1	P2	V	W	X		Y	Hanger bolt
	#4 bars		*Pipe [illegible] to 30" Ø: Use bar [illegible] × 1½; Pipe 33" to 60" Ø: Use bar ¼ × 2"				bar ⅝ Ø	
	2 ea.	4 ea.	[illegible]		No.	L'GTH.	1 ea.	
1	6'-4"	1'-10"	1'-2½	0'-11¾	2	0'-11½"	—	
2	7'-4	2'-0	1'-5½	1'-3¾	3	1'-2½	—	
3	7'-7	2'-0	1'-8½	1'-7¾	4	1'-5½	—	
4	8'-7	2'-2	1'-11½	1'-11¼	5	1'-8½		
5	8'-10	2'-2	2'-2½	1'-11¾	5	1'-11	—	
6	11'-9	3'-5	2'-5½	2'-3¾	6	2'-2½	—	
7	12'-0	3'-5	2'-8½	2'-7¾	7	2'-5½	—	2'-2
8	13'-0	3'-7	2'-11½	2'-11¾	8	2'-8	3'-0"	
9	13'-3	3'-7	3'-2½	2'-11¾	8	2'-11½	3'-0	
10	14'-3	3'-9	3'-5½	3'-3¾	9	3'-2	3'-4	
11	14'-6	3'-9	3'-8½	3'-7¾	10	3'-5½	3'-8	
12	15'-9	3'-11	4'-2½	3'-11¾	11	3'-11½	4'-0	
13	17.0	4'-1	4'-8½	4'-7¾	13	4'-5½	4'-8	
14	18.5	4'-4	5'-2½	4'-11¾	14	4'-11½	5'-0	

LINE	QUANTITIES							
	Concr.	Reinf. Steel						Struct. Steel
		C.M. Pipe for θ ≦			Concr. Pipe for θ ≦			
		15°	30°	45°	15°	30°	45°	
	Cu.yds.	Lbs.			Lbs.			Lbs.
1	0.51	74.5	76.2	78.9	68.3	70.0	72.	10.4
2	0.71	100.2	100.2	100.2	93.4	93.4	93.	14.2
3	0.75	102.5	105.7	105.7	94.9	98.1	98.1	[illegible]
4	1.0	129.5	129.5	129.5	121.2	121.2	121.2	23.6
5	1.0	129.1	132.7	132.7	120.0	123.9	123.[illegible]	26.1
6	1.6	—	—	—	166.8	166.[illegible]	169.4	32.2
7	1.7	177.7	184.7	184.7	167.0	174.0	174.0	38.9
8	2.0	—	—	—	195.1	195.1	196.0	63.5
9	2.1	205.6	210.4	210.4	193.5	198.3	198.3	67.9
10	2.7	—	—	—	241.7	241.7	250.0	79.3
11	2.8	259.3	264.6	268.[illegible]	245.7	251.0	254.4	91.5
12	3.4	298.0	303.7	307.5	282.8	288.6	292.3	110.4
13	4.0	360.7	371.1	371.1	344.2	344.2	354.6	140.2
14	4.9	423.4	427.8	434.7	405.4	409.8	416.7	163.4

ELEVATION

FRONT VIEW CMP

FRONT VIEW (CONCRETE PIPE)

PLAN VIEW

ELEVATION WING WALL

HANGER BAR 8" LONG
BAR SIZE SEE V-BARS

TRASH RACK DETAIL

NOTE

[illegible] TO THE GATE VALVE TO FORM A WATER TIGHT JOINT. A 2" ROUND STANDARD FLANGED FITTING SHALL ALSO BE PROVIDED ON THE DRAIN LINE PIPE TO INSURE THAT THE DRAIN CONNECTION TO THE GATE VALVE IS WATER TIGHT.

GENERAL NOTES

Materials, construction, and workmanship shall be in accordance with the State Standard Specifications for Road and Bridge Construction, 1960 edition, and supplements thereto which are in effect at the date of request for bids.

All reinforcing steel shall be intermediate grade A.A.S.H.O. designation M-31 and deformed per M-137.

Type II cement (low alkali) required.

Place [illegible] fill as far as practical before building headwalls. Cure concrete 14 days before backfilling.

DESIGN DATA

Design in accordance with the A.A.S.H.O. Specifications of 1957.

fc = 1200 p.s.i.
fs = 20,000 p.s.i.
n = 10

QUANTITIES

Quantities as shown in schedule are for one headwall only.

NOTE:
CUT D1 & E BARS AS REQUIRED.
PLACE [illegible] BAR AT 2'-[illegible] C.C.

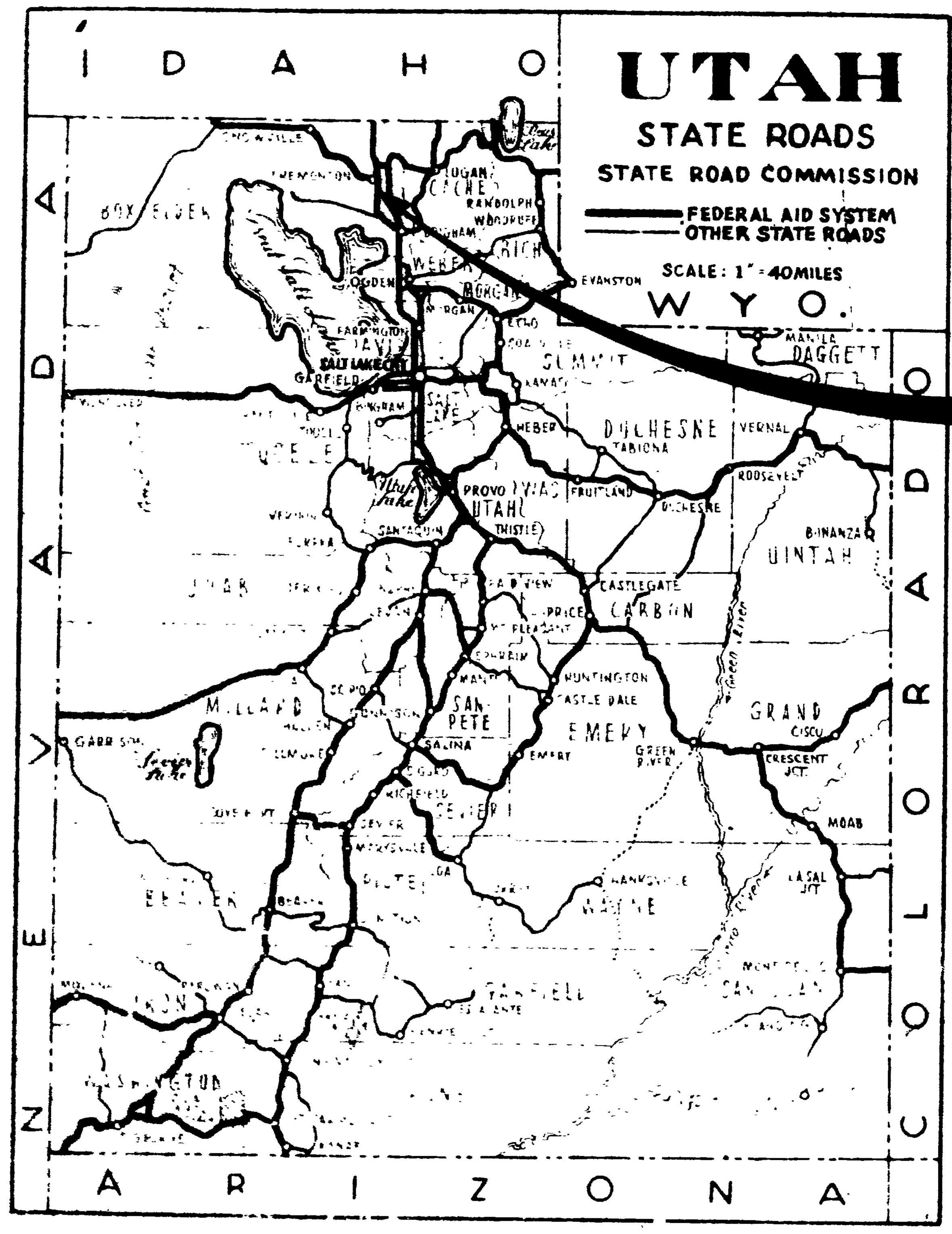
NO.	BY	DATE	REMARKS
			REV. 9-24-62 B.M.

REVISIONS

UTAH STATE DEPARTMENT OF HIGHWAYS
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

INVERTED SIPHON
STANDARD

DESIGNED BY H.E. CHECKED BY J.E.F.
DRAWN BY B.K.M. CHECKED BY B.K.M.
QUANTITIES BY H.E. CHECKED BY
APPROVAL RECOMMENDED BY [illegible] GROUP LEADER
APPROVED [illegible] DATE [illegible] CHIEF STRUCTURAL ENG'R
PROJECT NUMBER
STATION
COUNTY
BR NO
DRG. NO V-838
1 OF 1



STATE OF UTAH
STATE ROAD COMMISSION

PLANS OF PROPOSED STATE ROAD

FEDERAL AID PROJECT

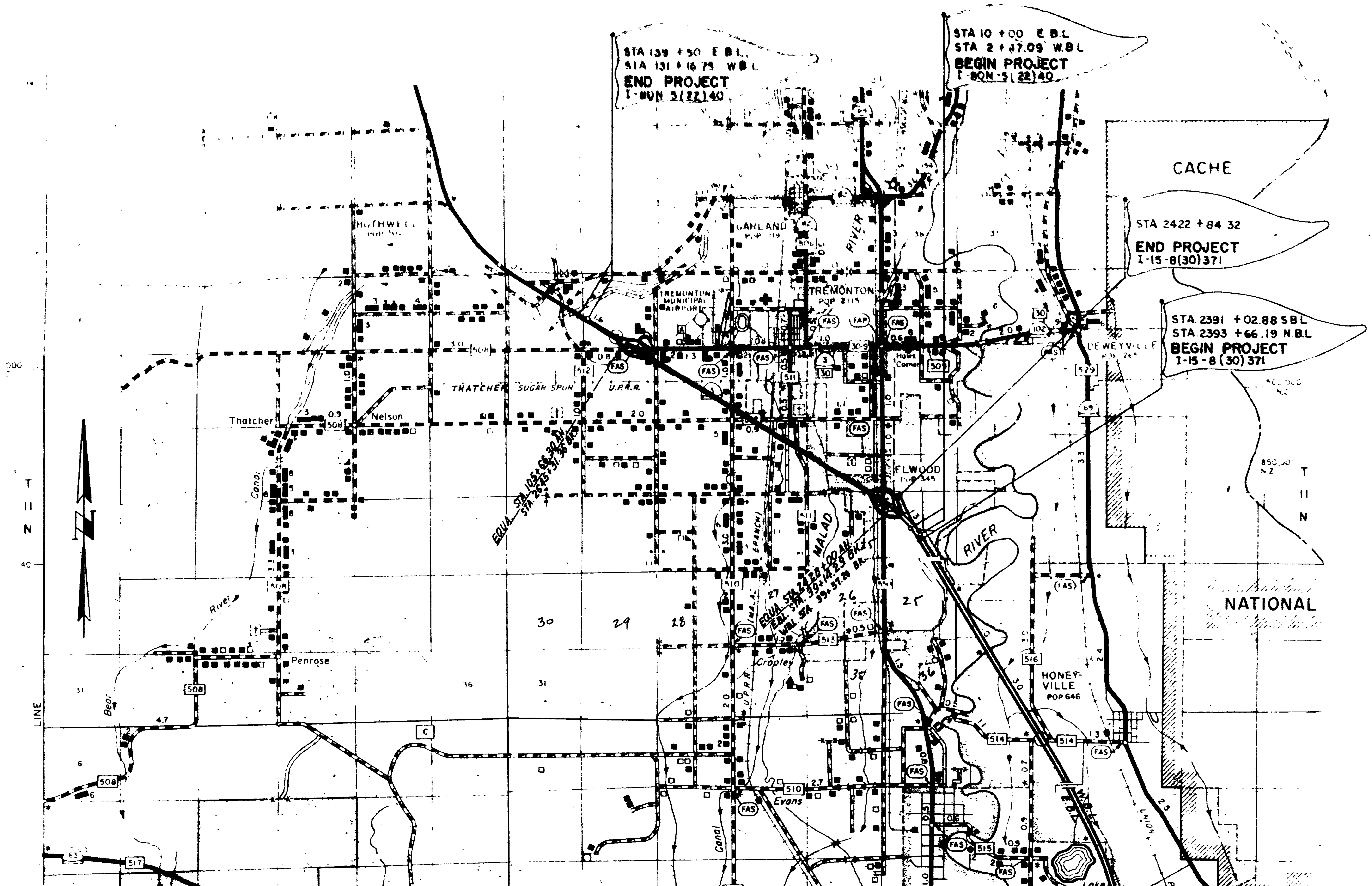
I-80N-5(22)40

Part I-84
Part I-15

ELWOOD TO WEST TREMONTON
BOX ELDER COUNTY
LENGTH 5.303 MILES

I-15-8(30)371

ELWOOD CONNECTION
BOX ELDER COUNTY
LENGTH 0.578 MILES



REVISED 3/14/68
REVISED 3/22/68
REVISED 7/ /68
REVISED 7/3/68
REVISED 7/8/68

INDEX TO SHEETS I-80N-5(22)40

SHT NO	DESCRIPTION	DRAWING NO	
1	TITLE SHEET		
2-2D	TYPICAL SECTIONS & MATERIAL PROSPECTS & SETTLEMENT DEVICE INSTALLATION		
3-3B	SUMMARIES		
4-23	PLANS & PROFILES		
24-25	8'-0" x 8'-0" CONCRETE BOX	[illegible]	[illegible]
	CATCH BASIN	V-750	
	CLEANOUT & JUNCTION BOX	V-777	
	INVERTED SIPHON	V-[illegible]	
	PARSHALL FLUME	V-[illegible]	

INDEX TO SHEETS I-15-8(30)371

SHT NO	DESCRIPTION	DRAWING NO	STATION
1	TITLE SHEET		
2-2A	TYPICAL SECTIONS & MATERIAL PROSPECTS		
3	SUMMARIES		
4-5	PLANS & PROFILES		
13	CATCH BASIN	V-750	
14	CLEANOUT & JUNCTION BOX	V-777	

STANDARD DRAWINGS APPLICABLE TO THESE PROJECTS NOT INCLUDED IN PLANS

DESCRIPTION	DRAWING NO	DATE
REINFORCED CONCRETE CULVERT	805-20	5/4/59
REINFORCED CONCRETE CULVERT END SECTIONS	805-21	4/4/67
MEDIAN DROP INLET	820-1	2/7/68
DIVERSION BOX	850(1-3)	2/3/64
HAND SLIDE GATE	850-4	11/12/64
R/W FENCE & GATES	720-1	12/9/66
PROJECT MARKER, R/W MARKER, GUIDE POST & MAIL BOX POST	725-1	2/7/68
CONSTRUCTION IDENTIFICATION SIGNS	745-6	10/2/67
CONSTRUCTION SIGNING	745-1A	11/14/63
CONSTRUCTION SIGNING	745-1B-1C-1D	9/10/63
CONSTRUCTION SIGNING	745-1E	4/28/64
SUPERELEVATION & WIDENING	805-1A 1B	9/10/63

UTAH STATE DEPARTMENT OF HIGHWAYS

RECOMMENDED FOR APPROVAL FEB 1968

[signature]
ENGINEER OF ROADWAY DESIGN

RECOMMENDED FOR APPROVAL FEB 1968

[signature]
ENGINEER FOR PRECONSTRUCTION

APPROVED FEB 1968

STATE HIGHWAY ENGINEER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

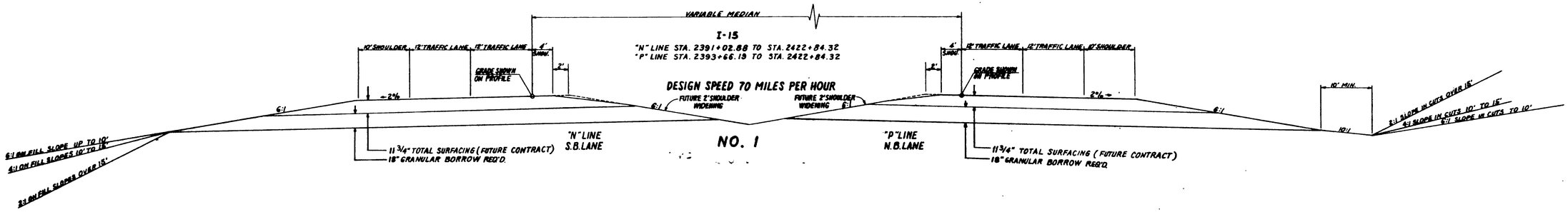
APPROVED

DIVISION ENGINEER DATE

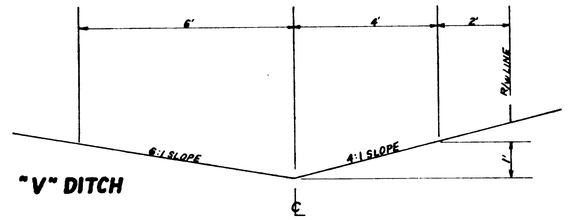
TYPICAL CROSS SECTION

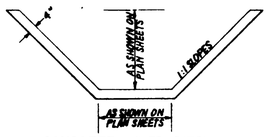
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
UTAH	UTAH	I-15-8 (20)371		2	

REVISED 3/19/68



APPLICATION	TYPE	AMOUNT FOR ESTIMATING PURPOSES ONLY
BORROW	UNTREATED PIT RUN	130 LBS. PER CU. FT.
GRANULAR BORROW (SURCHARGE)	UNTREATED PIT RUN	130 LBS. PER CU. FT.
GRAVEL BASE COURSE	UNTREATED 3/4" OR 1" MAX.	140 LBS. PER CU. FT.
BITUMINOUS AGGREGATE	BASE COURSE & SURFACE COURSE	145 LBS. PER CU. FT.
BITUMINOUS BASE COURSE	85/100 PENETRATION	4% BY WT. OF GRAVEL
BITUMINOUS SURFACE COURSE	85/100 PENETRATION	5% BY WT. OF GRAVEL
PLANT MIX BITUMINOUS SEAL COATS	60/70 PENETRATION	7% BY WT. OF GRAVEL
PRIME COAT	MC-250	.25 GAL. PER SQ. YD.
TACK COAT	RC-70 OR RC-250	.10 GAL. PER SQ. YD.





CONCRETE LINED DITCH

TO BE PLACED AS DIRECTED BY PROJECT ENGINEER.

REVISIONS

DATE	BY	DATE	BY

LEGEND

Topsoil or Fill | Clay | Silt | Sand | Gravel & Boulders | Solid Rock

I-15-8-(30)371 2A

STATE DEPARTMENT of HIGHWAYS
MATERIALS SECTION

MATERIALS PROSPECTS AND TEST HOLES

PROJECT NO. I-15-8-(30)371

PROJECT NAME ELWOOD CONNECTION

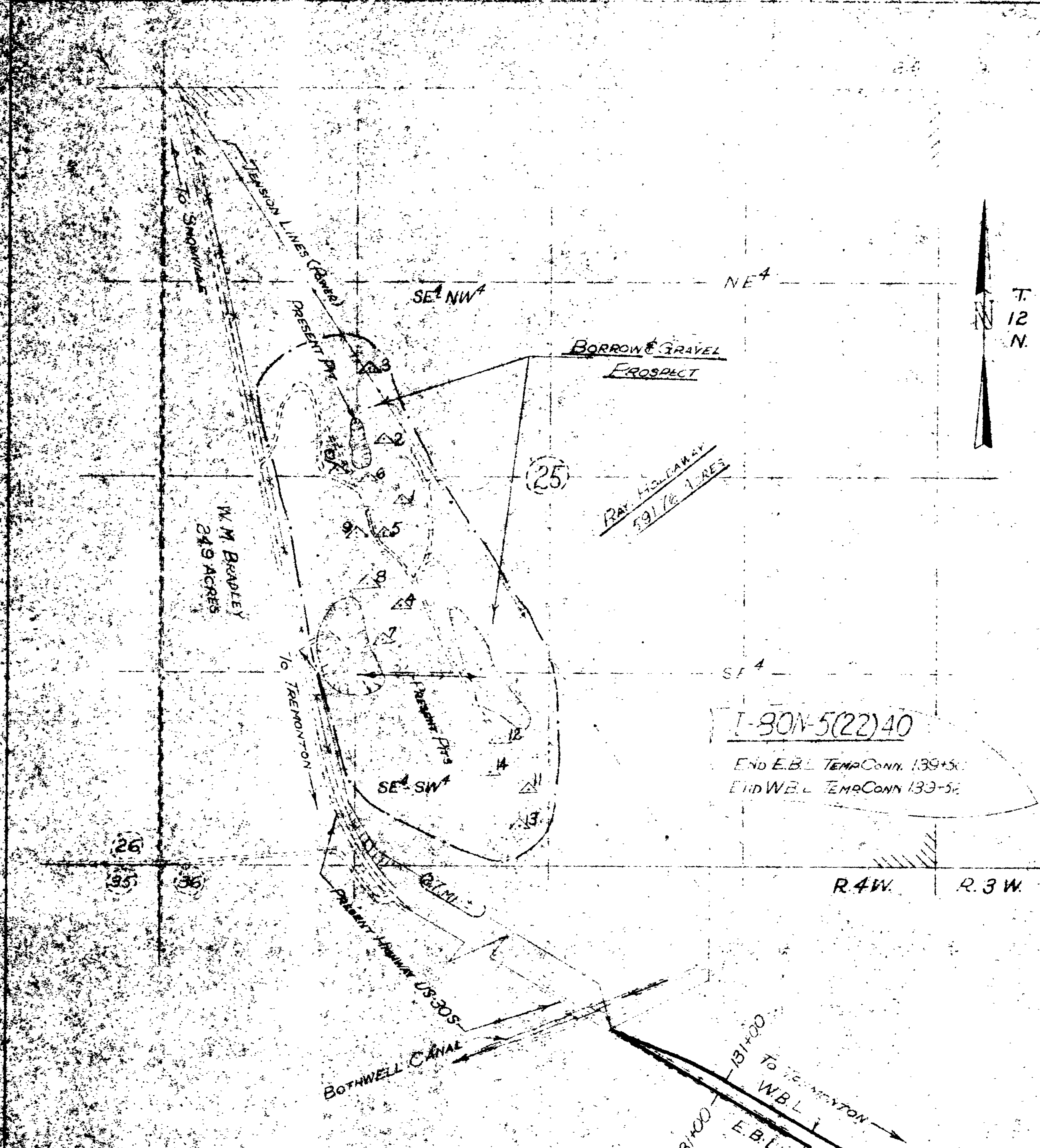
COUNTY: BOX ELDER

DATE JUNE 26, 67 DRAWN BY R. N. GRIFFIN

DATA BY GRIFFIN

FIELD BOOK: 02/ SHEET NO. 1 OF 1

Revision



GRAVEL

67-1-A-	33	34	36	35	37	38	39	40	41	42	43	44	45	67-1-S-7	67-1-S-9	67-1-S-11	67-1-S-14
	1	1	2	3	4	7	7	9	10	11	11	14	14	2	3	4	7
(Feet)	3.5-5	5-9	0.8-9	1.5-3.5	2-11	3.5-5.5	5.5-9.5	1.5-6.5	2-6.5	2-7	7-10	1.5-4.5	6-8.5	0-0.8	0-1.5	0-2	1.5-3.5
%	45		45		26	17	10	30	63	32	26	10					42
%	55	100	55	100	74	83	90	70	37	68	74	90	100	100		100	—
%	33	93	36	80	61	51	79	57	22	53	52	46	28	85	100	74	44
%	30	34	4	40	23	31	40	9	12	34	30	22	23	53	78	59	22
%	100	100	100	100	100	100	100	100	100	100	100	100	100				
%	42	39	17	44	33	41	46	20	40	43	41	32	34				
%	36	16	10	26	24	31	31	9	27	35	31	27	29				
%	38	4	7	15	20	22	16	7	22	27	22	23	26				
%	18	2	4	11	13	4	4	5	18	11	13	12	20				
%	14	1	2	9	6	3	2	3	3	6	6	6	10				
	21.7	19.8	23.2	31.4	22.5	21.2	20.1	19.9	21.6	22.5	19.4	22.1	21.3	30.4	33.5	32.4	30.4
	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	8.6	3.6	8.8	N.P.
(Inch)	.001	.003	.001	.003	.004	.004	.002	.007	.002	.003	.001	.002	.003				
%	15.2	14.7	15.8	18.1	16.4	16.9	25.[illegible]	17.4	17.4	19.5	19.2	12.[illegible]	16.1				
%	98	95	96	96	96	75.0	92.0	97	94	95	94	99	100				
%	1.77	1.89	1.29	1.52	1.28	0.94	4.92	3.23	1.21	4.56	1.79	1.50	1.79				
	3350	2649	3563	3041	2700	2377	1531	1300	2490	2107	2800	3512	3204				
(.01 Inch)	14	13	16	15	15	12	15	25	14	16	16	12	14				
	284	211	268	215	242	249	374	314	306	215	199	207	284				
	356	383	382	392	418	313	467	416	500	353	461	304	372				

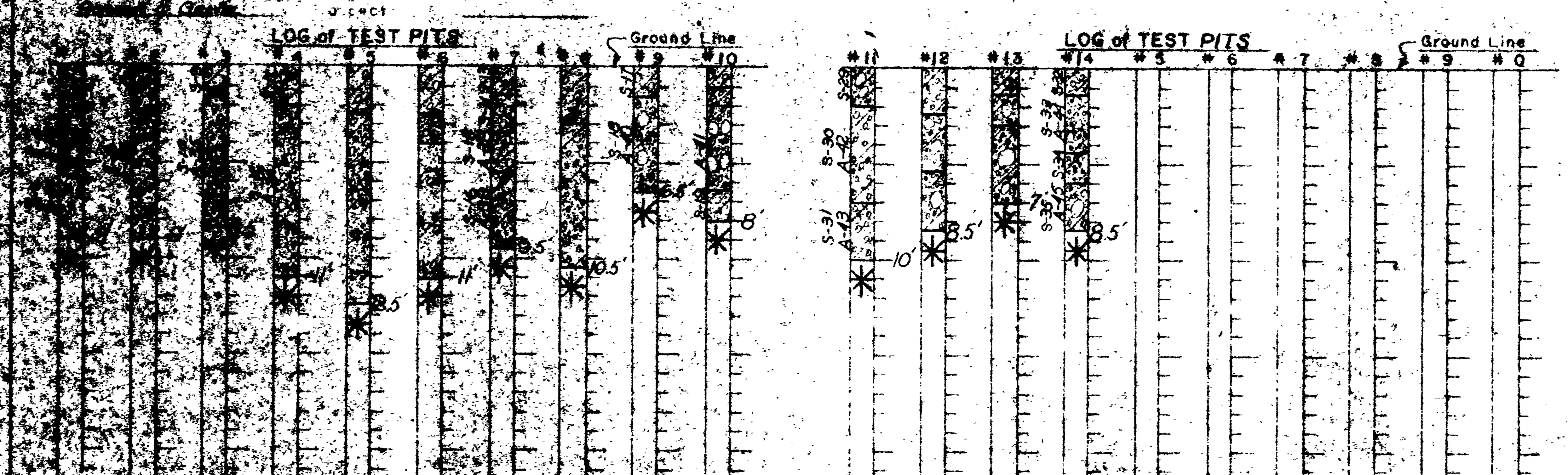
Note: Major portion of material coated with $CaCO_3$ some FeO_2 also present.

BORROW

67-1-S	5	6	7	8	9	10	11	12	3	14	15	16	17	18	19	29	30	31	32	33	34	35
	1	1	2	2	3	3	4	4	7	7	7	7	9	9	10	11	11	11	14	14	14	14
(Feet)	3.5-5	5-9	0-0.8	0.8-9	0-1.5	1.5-8.5	0-2	2-11	0-1.5	1.5-3.5	3.5-5.5	5.5-9.5	0-1.5	1.5-6.5	6.5-8	0-2	2-7	7-10	0-1.5	1.5-4.5	4.5-6	6-8.5
100%																						
%	42	94	100	89		99	100	100	90	58	72	91	90	84		95	82	90	84	88	100	70
%	29	87	85	63	100	90	75	91	68	44	[illegible]	78	90	73		80	53	71	74	31	79	33
%	29	77	79	46	98	82	73	81	65	39	[illegible]	71	88	68		73	47	62	73	40	66	30
%	26	23	53	4	78	32	59	29	52	22	30	30	61	19	100	47	26	38	63	13	12	28
%	23	8	51	2	66	18	55	24	44	14	24	16	54	16	98	40	21	30	56	12	12	28
%	18	1	46	2	49	8	37	17	29	4	3	3	43	12	83	31	9	16	38	8	7	20
%	3	1	43	1	45	6	34	7	26	3	1	1	39	9	13	27	4	6	33	3	2	4
	N.P.	N.P.	30.4	N.P.	33.5	N.P.	32.4	N.P.	27.9	30.4	N.P.	N.P.	30.0	N.P.	17.7	30.9	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
	N.P.	N.P.	8.6	N.P.	3.6	N.P.	8.8	N.P.	5.9	N.P.	N.P.	N.P.	7.1	N.P.	N.P.	5.2	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
%	0.0	0.0	0.2	0.0	0.4	0.0	0.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.32	0.0	0.0	0.30	0.0	0.0	0.0
(0.1 in)	140	17	3.7	13	12	35	6.7	9.3	3.0	37	60	17	3.3	46	8.7	8.7	23	60	10	21	19	91
	A-1-a(0)	A-1-a(0)	A-4(1)	A-1-a(0)	A-4(2)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-1-a(0)	A-1-a(0)	A-4(1)	A-1-a(0)	A-2-4(0)	A-1-b(0)	A-1-a(0)	A-1-a(0)	A-2-4(0)	A-1-a(0)	A-1-a(0)	A-1-a(0)
Dry Density (PCF)	139.6	95.2	108.6	96.2	103.7	128.1	112.8	129.3	110.0	104.5	113.2	104.7	107.7	92.0	93.5	113.8	114.0	122.5	116.0	112.7	108.7	113.0

S.L.B. & M. Scale 1" = 500' Contour Interval =

LOG of TEST PITS



B & M Scale 1" = Contour Interval =

Prospect No

LOG of TEST HOLES

#1 #2 #3 #4 #5 #6 #7 #8 #9 #0 Ground Line

B & M Scale 1" = Contour Interval =

Prospect No.

LOG of TEST HOLES

#1 #2 #3 #4 #5 #6 #7 #8 #9 #0 Ground Line

UTAH	UTAH	I-15-8(30)371	3

REVISED 3/19/68

EARTHWORK

LANES OR LINE	FROM STATION	TO STATION	QUANTITIES: EMBANKMENT	EMBANKMENT X FACTOR 1.20	ROADWAY EXCAVATION	BORROW	OVERHAUL: CLASS "A"	CLASS "B"
			CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YD.	STATION YD.	YD MILE
"N" LINE	2391+02.88	2422+84.32	13,301	15961	6387	9574	~~17840~~	~~42~~
"P" LINE	2393+66.19	2422+84.32	31288	37545	28128	9417		
		TOTAL	44589	53506	34515	18991	~~17840~~	~~42~~
		USE			38000	21000	0 ~~20000~~	0 ~~100~~

LINE	STA.	STA.	EMBANK.	REPLACE TOPSOIL	Emb.+Tpsoil x 1.2635694	EXCAV.	BORROW	REFERENCE
N	2390	2422+84.3	12,435.5	743.9	16653.1	43.3	16,609.8	Bk. 8 - 40
P	2393+66	2422+84	32,981.9	7304.2	50,904.3	2537.2	48367.1	8 - 40
TOTALS			45,417.4	8048.1	57,557.4	2580.5	64976.9	8 - 40

WATERING

LANES OR LINE	EMBANKMENT X FACTOR	GRAVEL BASE COURSE	GRANULAR BORROW		LANES OR LINE TOTAL	WATER GALLONS PER CU. YD.
	CUBIC YARDS		TONS	÷ CU. YDS.	CU. YDS.	M. GAL.
"N" LINE	15961		19732	11243	27204	680
"P" LINE	37545		16715	9524	47069	1177
					SUB TOTAL	~~1857~~
PRE COMPACTION TOTAL 15,000	Cubic Yards x 25 Gal. per Cu. Yd ÷ 1000 = M. Gallons →					~~375~~
					TOTAL	~~2232~~ 787
	Book #8 Page 41				USE	~~2400~~

LINEAR SUMMARY

LANES OR LINE	FROM STATION	TO STATION	EQUATIONS and STRUCTURS over 20 ft	LANES & PROJECT LIN FT.	ROAD MILES
"N" LINE	2391+02.88	2422+84.32		3181.44	
"P" LINE	2393+66.19	2422+84.32		2918.13	
			ROADWAY LENGTH		
			AVERAGE ROADWAY LENGTH	3049.78	0.578
			PLUS MAJOR STRUCTURE LENGTH		
			PROJECT LENGTH	3049.78	0.578

SUBBASE COURSE MATERIALS

LANES OR LINE	TYP SECT NO.	LENGTH FEET	TYPE WIDTH	DEP	TON	GRANULAR BORROW TYPE WIDTH	DEP	TON
"N" LINE	1	3181.44				58.75	1.50	~~19731.7~~
"P" LINE	1	2918.13				58.75	1.50	~~16715.3~~
		SUB-TOTAL						36447.0
		TOTAL						~~36447~~
		USE						0 ~~38300~~

"V" DITCH SUMMARY

LANES OR LINE	FROM STATION	TO STATION	DEPTH FEET	CUT	SLOPES	PARALLEL LINEAR FEET LEFT	RIGHT	CUBIC YARD
"P" LINE	~~2400+30~~ 2407	~~2406+90~~ 2415+50	1	4:1	6:1		850 ~~660~~	135.2 ~~127.8~~
							TOTAL	127.8
	SMALL DITCH EXCAVATION						USE	150

Bk 6 - 19

FENCING SUMMARY

LANES OR LINE	FROM STATION	TO STATION	TYPE "B" LINEAR FEET LEFT	RIGHT	CONNECTING TYPE "B"	TYPE	CONNECT TO
SUR. LINE	2389+40	2391+34.5		195	65		EXIST. N/A TO BEG. "P" LINE
"P" LINE	2393+66.2	2422+84.3		2918			BEG. "P" LINE TO EXIST. N/A
"N" LINE	2391+02.9	2398+17.5	715				EXIST. N/A TO BEG. I-80 N/A
"N" LINE	2412+00	2422+84	1084				BEG I-80 N/A TO EXIST. N/A
		SUB TOTAL	1799	3113	65		
		TOTAL	~~4977~~				
		USE	~~5000~~				METAL POST SHALL BE USE
"P" LINE	2388	2422+84		3324			Bk 6 25
"N" "	2412	2422+84	1090				6 25
TOTALS			4414				

MISCELLANEOUS SUMMARY

QUANTITY	UNIT	ITEM	
•	LUMP	MOBILIZATION	Book 6 - 7
~~500~~ 428	HOUR	FLAGGING	Bk. 8 - 42
7 ~~8~~	EACH	RIGHT OF WAY MARKERS	Bk. 6 10
~~2300~~ 8048.1	CU. Yd.	STOCKPILED TOPSOIL	Bk 8 2/39

DRAINAGE SUMMARY

LINE or LANES and STATION	CROSSING ANGLE or SIDE DRAIN	HEIGHT of COVER FEET	REINFORCED CONCRETE PIPE LINEAR FEET 24"	30"	36"	42"	CONCRETE PIPE END SECTIONS EACH 12"	24"	30"	36"	BITUMINOUS COATED CORRUGATED METAL PIPE (UNDERDRAIN) LIN. FT. 12"	18"	EXCAVATION FOR STRUCTURES CUBIC YARD	BACK FILL CU. YD	
"N" LINE															
~~2411+65~~	35°		~~166~~										~~37.6~~	~~28~~	
2412+~~00~~ 10	90°		184 ~~88~~					2 ~~1~~					~~20~~ 33.9	46.2 ~~12~~	Bk6 - P.16
"P" LINE															
~~2396+76~~	90°		~~52~~					~~1~~					~~12~~	~~8~~	
2411+10 ~~2400+00~~	~~123°~~ 90		104					2			~~76~~		~~17~~ 47.6	46.2 ~~10~~	Bk 6 - 17
2407+~~40~~ 75	117°		138 ~~174~~					1					~~39~~ 71.5	70.2 ~~16~~	6 15
TOTAL			~~480~~ 366					~~2~~ 5			~~76~~		* ~~125~~ 153.0	* ~~74~~	

* SEE SMALL STRUCTURES SUMMARY

SMALL STRUCTURES SUMMARY

LINE or LANES and STATION	LT.	RT.	CATCH BASIN DWG. NO.	DRWG NO.	JUNCTION BOX DWG. NO.	LINE NO.	DIVERSION BOX DRWG NO.	WALLS	EXCAVATION FOR STRUCTURES UNCLASSIFIED CUBIC YARD	BACK FILL CU. YD.	STRUCTURAL STEEL POUND	REINFORCING STEEL POUND	CONCRETE CLASS "A" CUBIC YARD
"N" LINE													
~~2412+12~~		RT.			~~V-777~~	~~12~~			~~14.0~~	~~4~~	~~474~~	~~356~~	~~3.8~~
"P" LINE													
~~2396+76~~	LT		~~V-750~~	~~3~~					~~7.0~~	~~4~~	~~310~~	~~225~~	~~1.6~~
~~2399+40~~		RT.			~~V-777~~	~~10~~			~~11.0~~	~~4~~	~~474~~	~~319~~	~~2.5~~
2407+~~68~~ 75	LT.		V-750	~~2~~ 6					10.4 ~~6.0~~	~~4~~	310	272 ~~188~~	2.1 ~~1.5~~
~~2406+90~~		RT.					~~630-1163~~	SRUU 4Y	~~6.0~~	4	~~70~~	~~90~~	~~1.1~~
DRAINAGE SUMMARY									153.0 125	162.6 ~~74~~			
								TOTAL	~~169~~	~~94~~	~~1638~~ 310	~~1178~~	~~10.5~~
								USE	163.4 ~~180~~	162.6 ~~110~~	~~1700~~ 310	272 1300	2.1 ~~12~~

Bk 6 - P-15

SUMMARY OF ITEMS

QUANTITY	UNIT	ITEM
•	LUMP SUM	MOBILIZATION
428 ~~500~~	HOUR	FLAGGING
2580.5 ~~38000~~	CU. YD.	ROADWAY EXCAVATION
163.4 ~~180~~	CU. YD.	EXCAVATION FOR STRUCTURES
162.6 ~~110~~	CU. YD.	BACK FILL
64976.9 ~~21000~~	CU. YD.	BORROW
0 ~~38300~~	TON	GRANULAR BORROW
0 ~~100~~	YD. MI.	OVERHAUL
787 ~~2400~~	M. GAL.	WATERING
4414 ~~5000~~	LIN. FT.	RIGHT OF WAY FENCE TYPE "B" METAL POSTS
366 ~~480~~	LIN. FT.	24" REINFORCED CONCRETE PIPE
5 ~~2~~	EACH	24" CONCRETE PIPE END SECTION
0 ~~76~~	LIN. FT.	12" BITUMINOUS COATED CORR. METAL PIPE (UNDERDRIAN) TYPE A
135.2 ~~150~~	CU. YD.	SMALL DITCH EXCAVATION
7 ~~8~~	EACH	RIGHT OF WAY MARKERS
272 ~~1300~~	LB.	REINFORCING STEEL
310 ~~1700~~	LB.	STRUCTURAL STEEL
2.1 ~~12~~	CU. YD.	CLASS "A" CONCRETE
8048.1 ~~2300~~	CU. YD.	STOCKPILED TOPSOIL

I hereby certify the above quantities to be correct.

C.M. [illegible]
Res. Engineer

REVISIONS | DATE | BY | DATE | BY

UTAH UTAH I-15-8(30)371 4
REVISED 3/19/68
T 1 S S.L. R 3 W B&M
SW¼ NW¼ SEC. 24
SE¼ NW¼ SEC. 24
NW¼ NW¼ SEC. 24
STA. 2391+02.88 "N" LINE BEGIN PROJECT I-15-8(30)371
STA. 2393+66.19 "P" LINE BEGIN PROJECT I-15-8(30)371
STA 2422+84.32 "N" LINE
STA 2422+84.32 "P" LINE
END PROJECT I-15-8(30)371
"N" LINE Δ-6°00' LT D-1°00' R-5729.58' T-300.28' L-600.00' P.I.-2395+17.81
"M" LINE Δ-19°49' LT D-1°30' R-3819.72' T-687.22' L-1321.11' P.I.-18+89.78
SURVEY LINE Δ-25°49' LT D-2°00' R-2864.79' T-656.56' L-1290.82' P.I.-2409+30.20
"O" LINE Δ-25°49' LT D-2°30' R-2291.83' T-525.25' L-1032.67' P.I.-15+52.85
"N" LINE Δ-36°10' RT D-2°45' R-2083.48' T-680.32' L-1315.15' P.I.-2411+21.35
"P" LINE Δ-28°15' RT D-2°30' R-2291.83' T-576.73' L-1130.00 P.I.-2416+99.56
44' LT STA. 2391+34.53 SURVEY LINE
BEG. TRANSITION "M" LINE
P.C. 2392+17.53 "N" LINE
41' RT STA. 4+00 "O" LINE
P.C. 2397+73.84 SURVEY LINE
P.T. 2398+17.53 "N" LINE
STA. 10+00 BEG. "N" LINE
P.C. 10+27.60 "O" LINE
P.C. 12+17.56 "M" LINE
STA. 13+50 "M" LINE END OF TRANSITION
STA. 17+38.67 "M" LINE BEG. 250 TAPER
STA. 19+88.07 "M" LINE END 250 TAPER
P.T. 20+60.27 "O" LINE
P.T. 2410+64.46 SURVEY LINE
STA. 19+69.73 "O" LINE = STA. 2408+04.21 "N" LINE STRUC. "O" LINE OVER "N" LINE
STA 2412+12 "N" LINE JCT. BOX (DWG. V-277 LINE 2)
STA. 9+97.26 BEG. "A" LINE 46' RT. STA. 26+50 "O" LINE
P.C. STA. 10+79.93 "A" LINE
P.C. 2411+22.83 "P" LINE
PT 2417+56.18 N LINE
PT 2422+52.83 "P" LINE
CONSTRUCTION EASEMENT
IRRIGATION EASEMENT
HWG. R/W / N/A LINE
EXIST N/A LINE
GRADE TO DRAIN
E.B. LANES
W.B. LANES
N 31°42'30" W
N 29°47'30" W
N 57°31'30" W
N 01°32'30" W
BASE LINE I-15
40 ACRE LINE
"V" DITCH REQUIRED
R/W Mkr. 4279.77
R/W Mkr. 4280.86
R/W Mkr. 4281.35
R/W Mkr. 4283.15
R/W Mkr. Elev. 4283.27
R/W Mkr. Elev. 4285.46
NOTE: FOR PROFILES "N" & "P" LINES SEE SHEET No. 5

I-15-8
(30)371
5
EMBANKMENT
EXCAVATION
BORROW
OVERHAUL STA. YDS.
OVERHAUL YD. MILES
13,301 CU. YDS.
6,387 CU. YDS.
9,574 CU. YDS.
17,890
42
+0.42%
+0.22%
+0.42%
"N" LINE
-1.25%
0.00%
VARIABLE
PROFILE OF EXCATION TO BE REMOVED BETWEEN "P" & "O" LINES
TYPICAL SECTION - EXC. BETWEEN "P" & "O" LINES
FROM STA. 2402+93 TO AHEAD STA. - "P" LINE
31,288 CU. YDS.
28,189 CU. YDS.
9,410 CU. YDS.
+2.00%
-0.74%
+0.40%
"P" LINE

NOTE:
CONTRACTORS RESPONSIBILITY TO CROSS RAILROAD.

NOTE:
FOR THATCHER SPUR PROFILE SEE SHEET NO. 13.

LINE STA.	○=SETTLEMENT PLATFORM NO.	DISTANCE LT & RT.	⬡=PIEZOMETER ELEVATION
MAIN 2582+60	1	32'	
MAIN 2583+60	2	32'	
MAIN 2584+60	3	32'	4305, 4250
MAIN 2587+05	4	32'	4245
MAIN 2588+00	5	32'	
MAIN 2589+00	6	32'	

EMBANKMENT	90,602	CU. YDS.
EXCAVATION	46	CU. YDS.
BORROW	108,636	CU. YDS.
OVERHAUL STA. YDS.	223,944	CU. YDS.
OVERHAUL YD. MI.	2	CU. YDS.
	382,738	CU. YDS.

NOTE:
LEAVE SUBGRADE LOW TO ACCOMMODATE REMOVAL OF SURCHARGE ON FUTURE CONTRACT


UTAH
I-80N-5(22)40
17
"H" LINE
"K" LINE
SEC. 9
SEC. 8
NE¼ NE¼
NE¼ SW¼
SE¼ NW¼
NW¼ NW¼
SW¼ NW¼
¼ SECTION LINE
40 ACRE LINE
SMALL DITCH REQUIRED
SMALL DITCH REQ'D
1' BOT. 2' DEEP 1:1.5
CONSTRUCTION EASEMENT
IRRIGATION EASEMENT
HIGHWAY R/W LINE
FRONTAGE ROAD R/W LINE
E.B. LANES
W.B. LANES
SURVEY LINE
N 57° 31' 30" W
"V" DITCH REQ'D
16:1 TAPER
E.B. LANE
W.B. LANE
H/W LINE
IRRIGATION EASEMENT
T.1 N. R.3 W. S.L.B.&M.
NOTE:
FOR PROFILE "H" LINE SEE SHEET NO. 18
FOR PROFILE "K" LINE SEE SHEET NO. 18
NOTE:
TEMPORARY COUNTY ROAD CROSSING SHALL MEET GRADE OF I-80N
NOTE:
CUL-DE-SAC TO BE CONSTRUCTED ON SURFACING CONTRACT.
EMBANKMENT
EXCAVATION
38,320 CU. YDS.
12 CU. YDS.
43,972 CU. YDS.
600' V.C.
100' V.C.
0.0%
(4318.50)
4340
4330
4320
4310
4300
4290
2590
2595
2600
2605
2610
2615
2620
91
92
93
94
96
97
98
99
01
02
03
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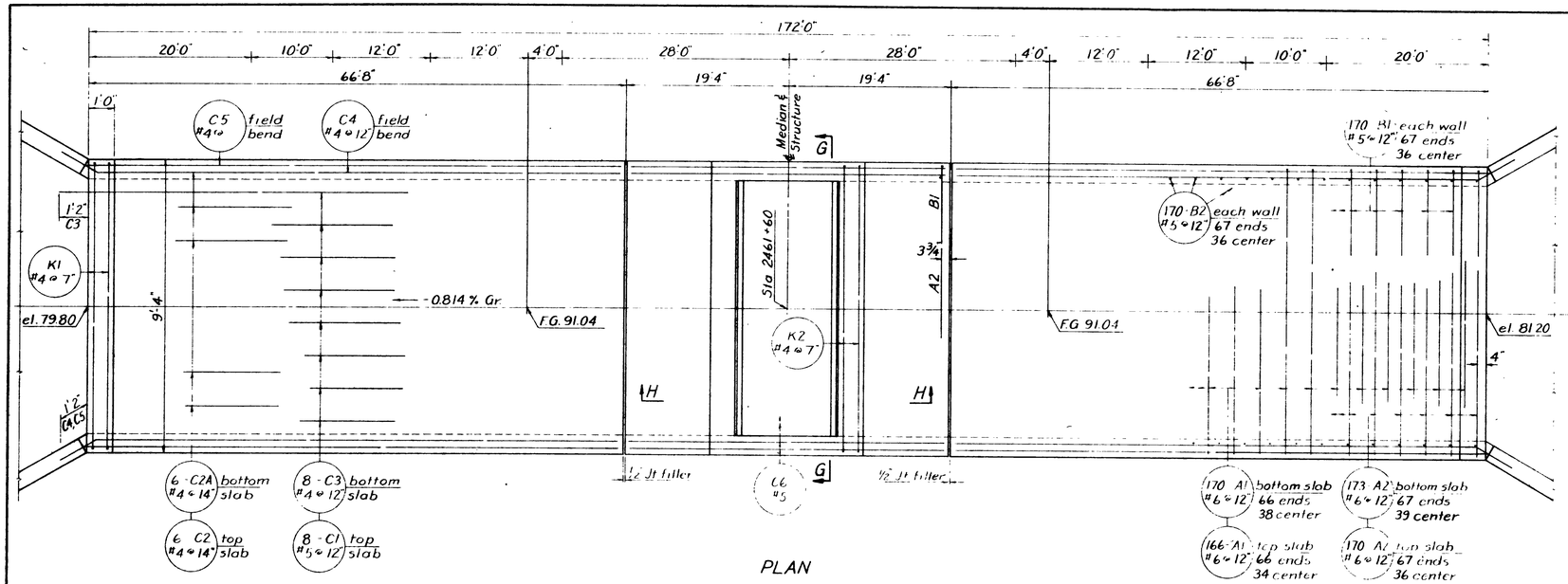
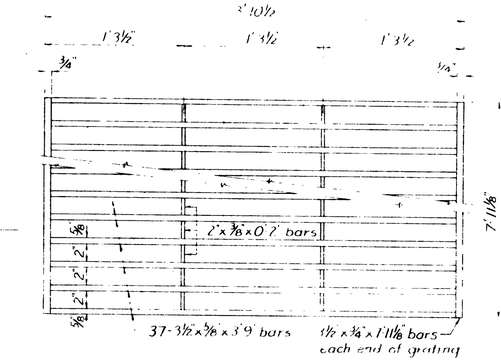
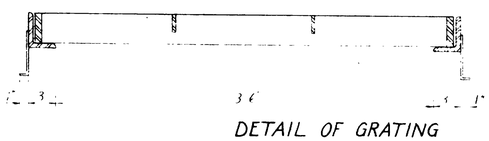
19
PLAN
PROFILE
PLATE 1 PLAN PROFILE B P R STANDARD

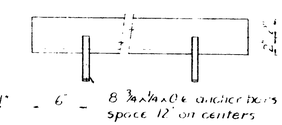


PLAN

Grating and bearing angles shall be hot dip galvanized after fabrication in accordance with A S T M A-123.







DETAIL OF GRATING

Weight complete including bearing angles 1447 lb.
3/16" continuous fillet weld all joints

LOC.	MARK	SIZE	NO BARS	L'GTH	TOTAL L'GTH	SKETCH
Slabs	A1	6	336	19'-6"	6,552'-0"	10" 5" 7" 1'-4" 5" 5'-6" 5" 1'-4" 5'-3" 9'-0"
	A1a	6	8	5'-7"	44'-8"	
	A2	6	343	9'-0"	3,087'-0"	
Walls	B1	5	340	14'-10"	5,043'-4"	10" 9'-2" 3'-0"
	B1a	5	6	12'-4"	74'-0"	10" 9'-6" 3'-0"
	B2	5	340	9'-2"	3,116'-8"	
	B2a	5	6	9'-6"	57'-0"	
Slabs	C1	5	8	169'-6"	1,356'-0"	1'-2" 3 66'-4" 17'-3" 17'-3" 3 66'-4"
	C2	4	6	169'-2"	1,015'-0"	1'-0"
	C2A		6	173'-0"	1,038'-0"	L 66'-4"
Walls	C3		8	175'-8"	1,405'-4"	67'-8" 1'-0" L 38'-4" 1'-0" L
	C4		16	175'-8"	2,810'-8"	67'-8"
	C5	4	12	175'-8"	2,108'-0"	L 67'-8"
	C6	5	4	5'-8"	22'-8"	
Curbs	K1	4	4	11'-8"	46'-8"	a 9'-0" b 1'-4"
	K2	4	4	10'-6"	42'-0"	a 9'-0" b 0'-9"

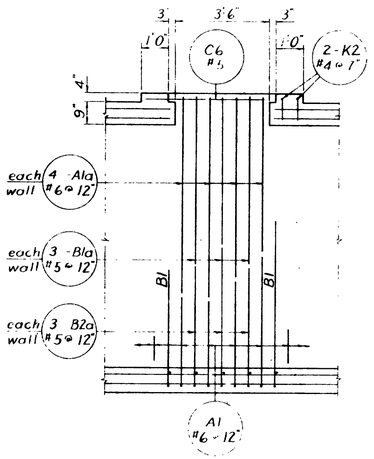
9,683'-8" of #6 bars @ 1.502 lb/ft = 14,544.9 lb.
9,669'-8" of #5 bars @ 1.043 lb/ft = 10,085.5 lb
8,465'-8" of #4 bars @ 0.668 lb/ft = 5,655.1 lb
Total Weight = 30,285.5 lb

Unless otherwise shown, all dimensions are out to out of bars

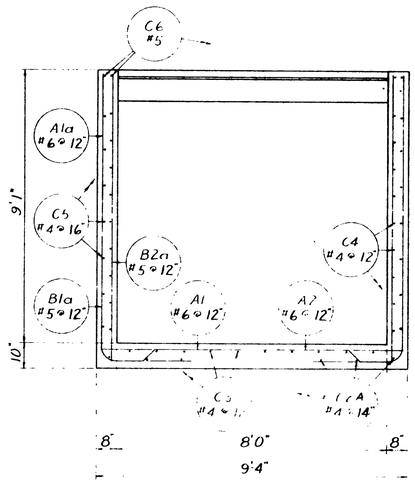
½" JOINT FILLER

2 pcs 10" x 9'-4"
4 pcs 8" x 8'-0"
2 pcs 9" x 9'-4"

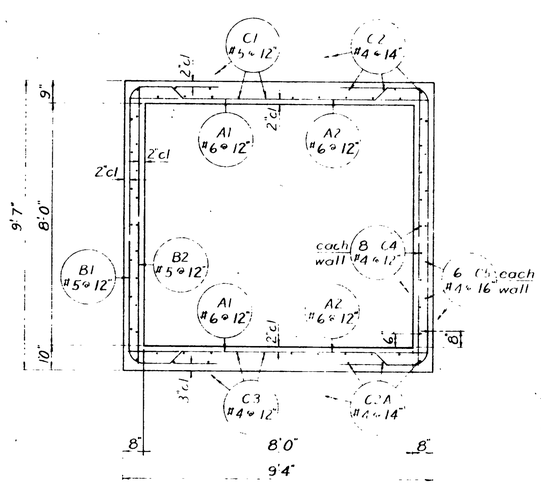
Joint filler shall be A A S H O Designation M 153 54 Type III



SECTION H-H



SECTION G-G



SECTION THRU BOX

GENERAL NOTES

Materials, construction and workmanship shall be in accordance with the Utah Department of Highways Standard Specifications for Road and Bridge Construction, Interim Issue, March 1968 and supplements thereto which are in effect at the date of request for bids

All reinforcing bars shall be intermediate grade billet steel conforming to A A S H O designation M 31 Deformations shall conform to A A S H O designation M 137.

All structural steel shall be structural carbon steel conforming to A A S H O designation M 183 (A S T M A 36)

Type II cement (low alkali) required

DESIGN DATA

The design is in accordance with the A A S H O Specifications of 1965

Loading H S 20-44 or Interstate Alternate
f'c 1200 p s i
fs 20,000 p s i (reinforcing and structural steel)
n 10

QUANTITIES

Excavation for Structures	90	cu yd
Class A Concrete (AE)	181	cu yd
Reinforcing Steel	31,924	lb.
Structural Steel	1,447	lb
Backfill	137	cu yd

NO	BY	DATE	REMARKS

REVISIONS

UTAH STATE DEPARTMENT OF HIGHWAYS
SALT LAKE CITY UTAH
STRUCTURES DIVISION

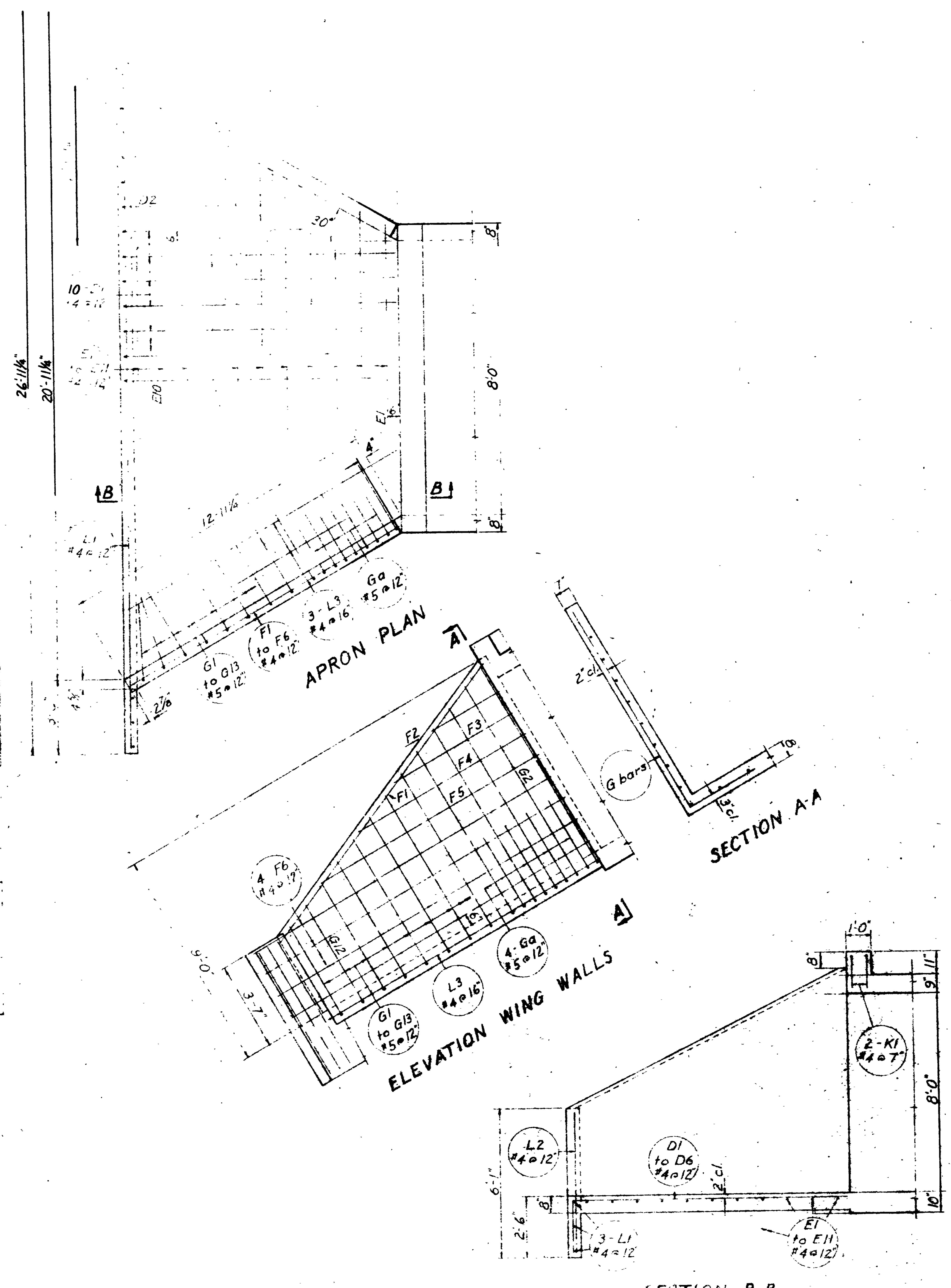
ELWOOD TO WEST TREMONTON 8'-0" x 8'-0" CATTLE PASS

DESIGN W.G.T.	CHECK	I-80N-5(22)40	PROJECT NUMBER
DRAWN W.G.T.	CHECK H.G.E.	2461+60	STATION
QUANT W.G.T.	CHECK H.G.E.	BOX ELDER	COUNTY
APPROVAL RECOMM 4/2/68 DATE	W. J. Tilby GROUP LEADER		
APPROVED 4/4/68 DATE	A. E. Mason CHIEF STRUCTURAL ENG'R		
BR NO	DRG NO E-1571	1 OF 2	

[illegible]	[illegible]	[illegible]	20	[illegible]	261'8"	
			4	[illegible]		
				9	156'8"	
				6		
			4	4-4		
Aprons	E1		2	9'6"		
	E2			10'8"		
	E3			11'10"		
	E4			13'0"		
	E5			14'2"		
	E6			15'4"	337'4"	1 set (E1-E11): 168'8"
	E7			16'6"		
	E8			17'8"		
	E9			18'10"		
	E10			20'0"		
	E11	4	2	21'2"		
Wing Walls	F1	4	4	13'8"		
	F2			3'2"		
	F3			5'6"	161'4"	1 set (F1-F5): 40'4"
	F4			7'10"		
	F5		4	10'2"		
	F6	4	16	15'2"	242'8"	2'-7 (20°)
Wing Walls	Ga	5	16	5'4"	85'4"	a 2'0 h 3'4
	G1	5	4	12'3"		a 3'0 h 9'3"
	G2			11'9"		8'9"
	G3			11'4"		8'4"
	G4			10'11"		7'11"
	G5			10'6"		7'6"
	G6			10'1"		7'1"
	G7			9'7"	500'0"	6'7"
	G8			9'2"		6'2"
	G9			8'9"		5'9"
	G10			8'4"		5'4"
	G11			7'11"		4'11" 1 set (G1-G13): 125'0"
	G12			7'5"		4'5"
	G13	5	4	7'0"		a 3'0 h 4'0
Extns & W W Ftgs	L1	4	6	26'7"	159'6"	
	L2	4	12	5'8"	68'0"	
	L3	4	12	12'7"	151'0"	

585'4" of #5 bars @ 1.043 lb/ft 610.5 lb.
1,538'2" of #4 bars @ 0.668 lb/ft 1,027.5 lb.
Total Weight 1,638.0 lb

Unless otherwise shown, all dimensions are out to out of bars.

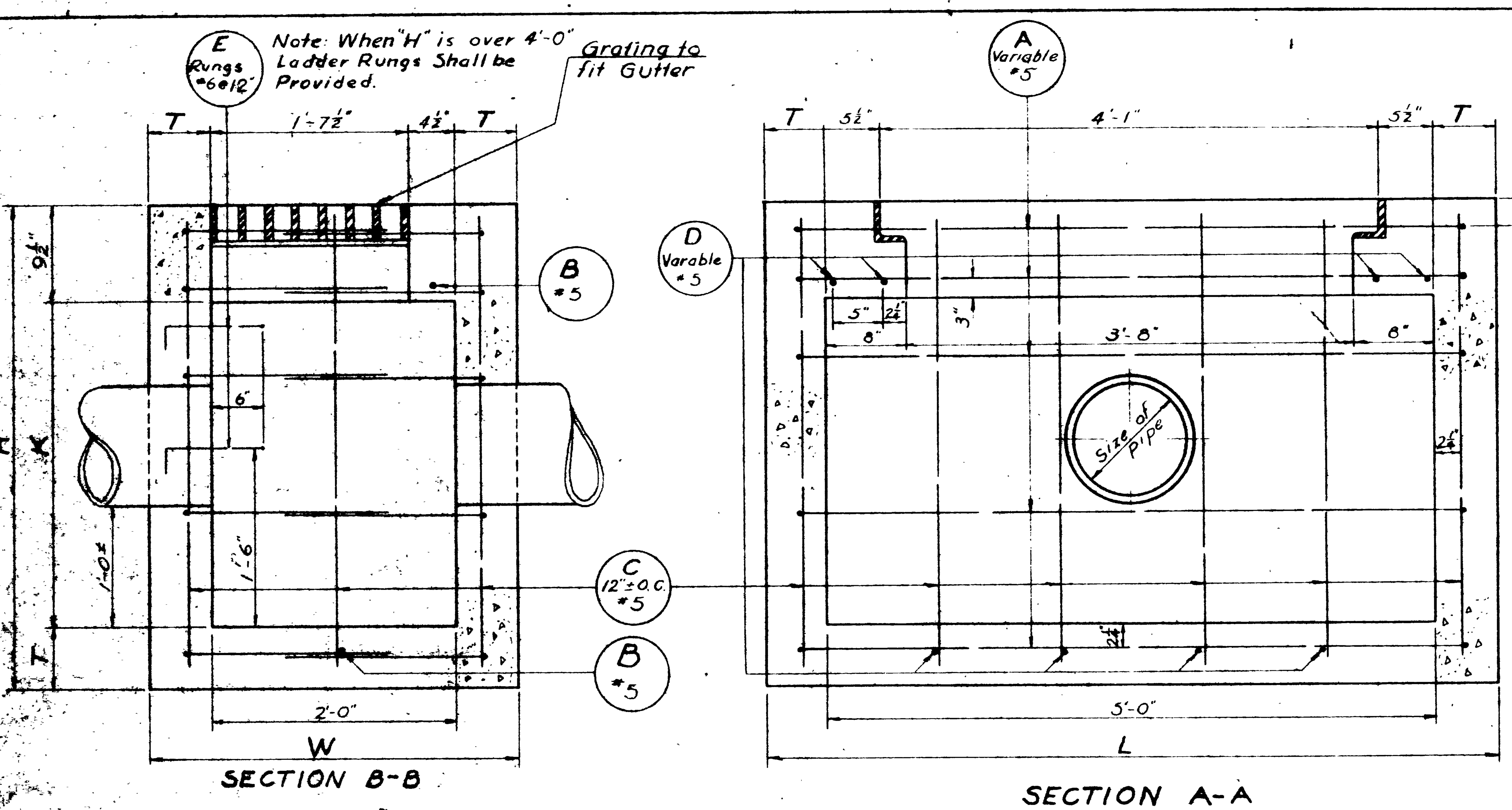


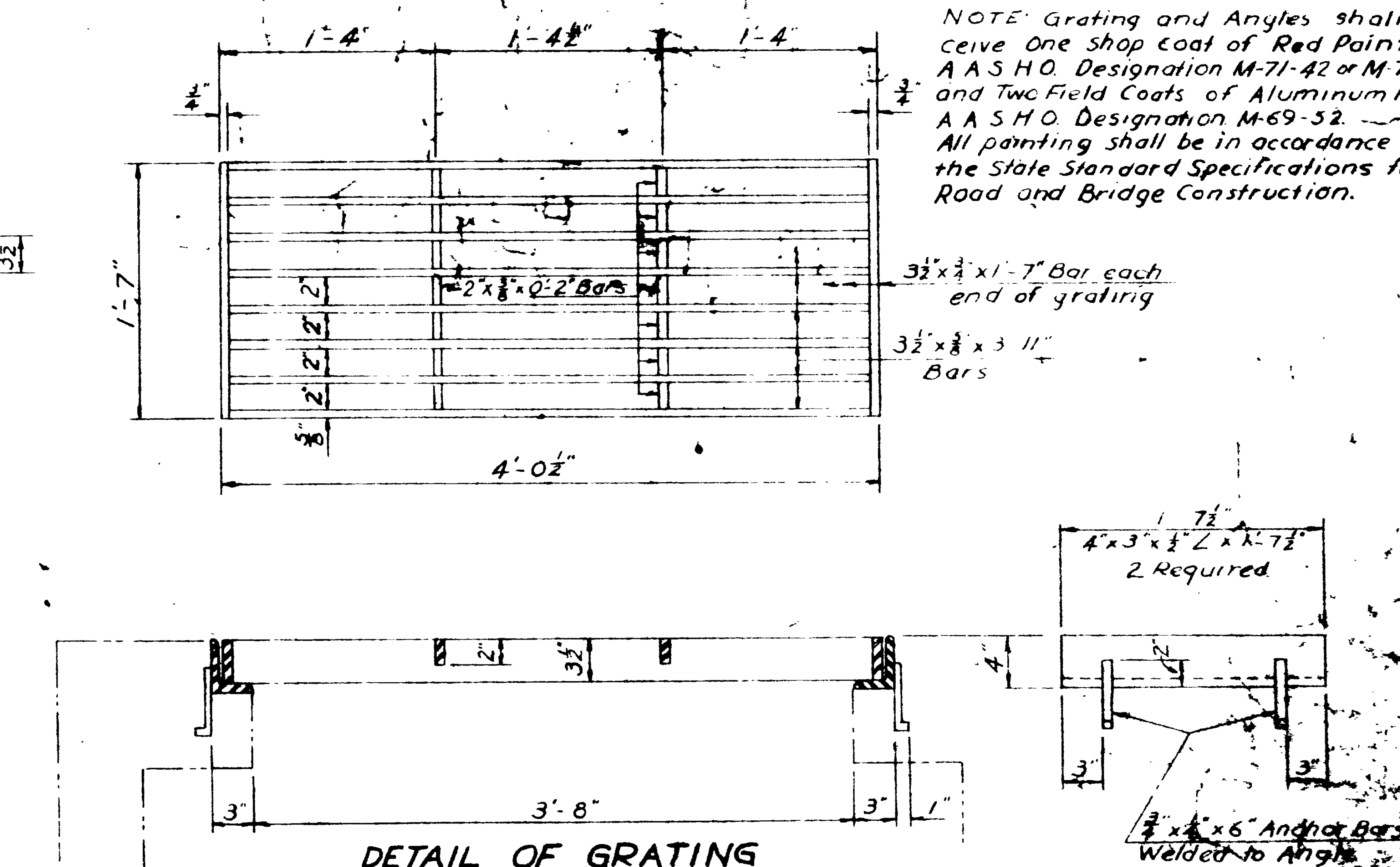
REVISIONS

UTAH STATE DEPARTMENT OF HIGHWAYS
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

ELWOOD TO WEST TREMONTON
8'0" x 8'0" CATTLE PASS

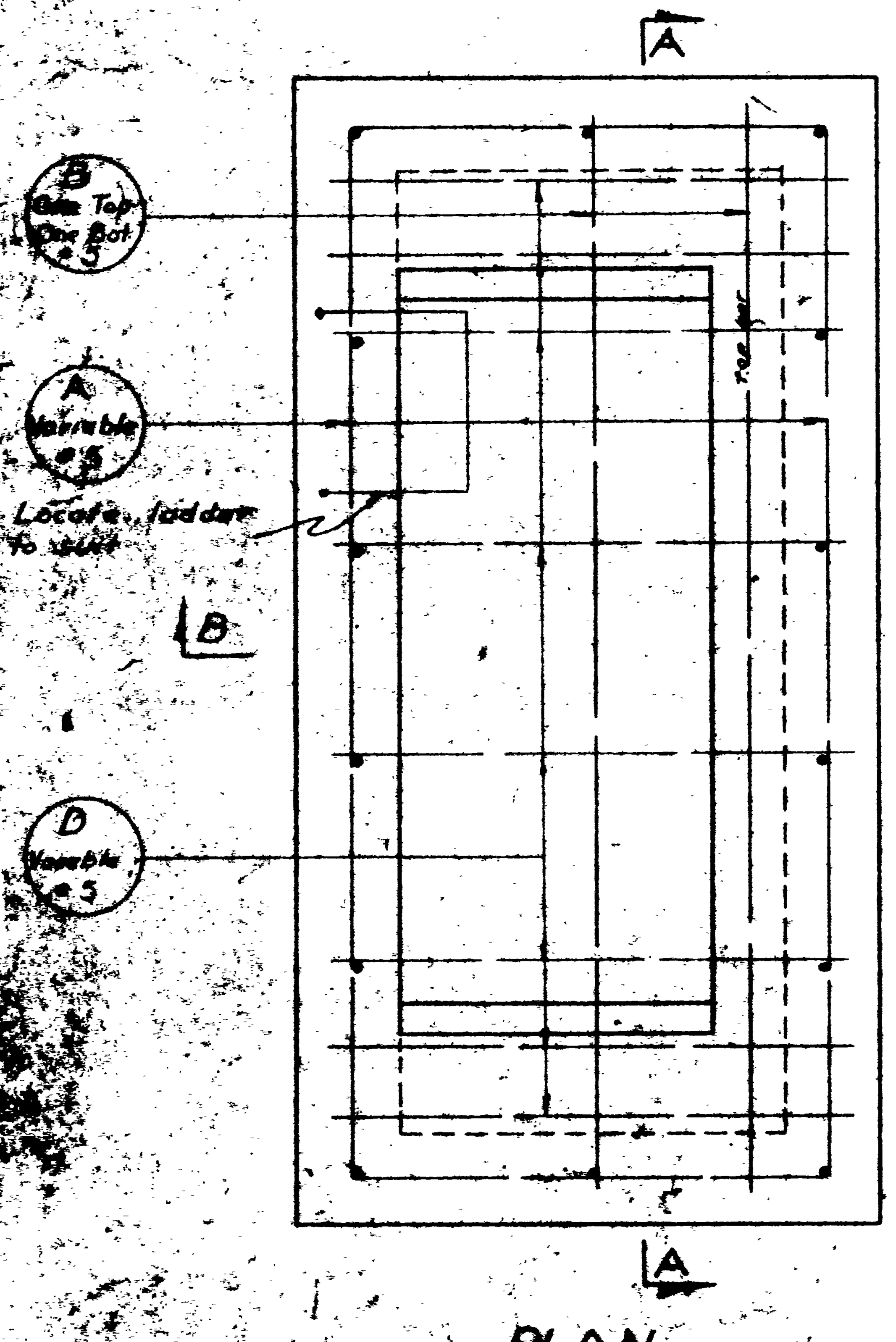
DESIGNED BY
DRAWN BY
QUANTITIES
APPROVAL RECOMMENDED
APPROVED
5(22)40
BOX ELDER
BR. NO.
E-1571
2 OF 2

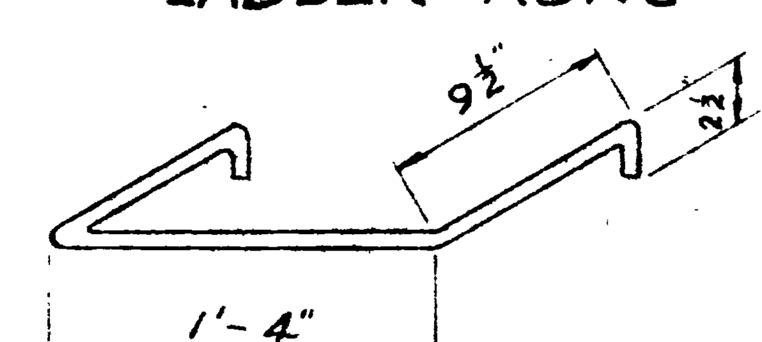




NOTE: Grating and Angles shall receive One Shop Coat of Red Paint, A.A.S.H.O. Designation M-71-42 or M-72-51, and Two Field Coats of Aluminum Paint A.A.S.H.O. Designation M-69-52. All painting shall be in accordance with the State Standard Specifications for Road and Bridge Construction.

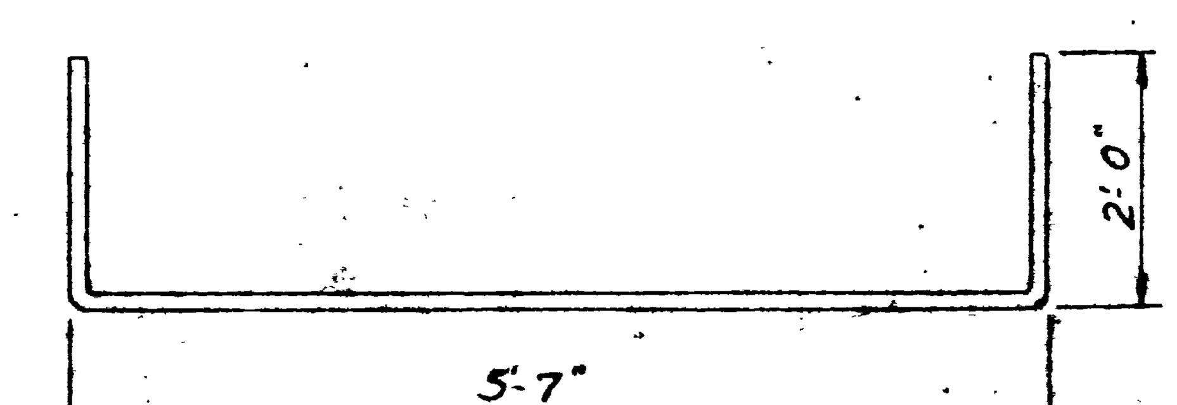
DETAIL OF GRATING
(Structural Steel)
1-Required per Catch Basin
Weight (complete with Bearing ∠s) 310 Lbs.
Weld all Joints





DETAIL OF LADDER RUNG

"E" BAR - #6
Weight each - 5 Lbs.



DETAIL OF "A" BAR

"A" BAR - #5
Weight each - 10 Lbs.

Note: See "List of Structures" for Type of Unit, Size and Kind of Pipe, Stations and Units required.

DESIGN DATA

Live load H15 + Impact in accordance with the A.A.S.H.O. Specifications of 1957.
fc - 1200 psi; fs - 20,000.; fs - 18,000 psi (for Struct. Steel), n = 10

GENERAL NOTES

Materials construction and workmanship shall be in accordance with the State Standard Specifications for Road and Bridge Construction 1960 edition, and supplemental [illegible] to which are in effect at the date of request [illegible].

All reinforcing steel shall be intermediate [illegible] A-305 reinforcing bars. All dimensions relating [illegible] steel are to centers of bars. All reinforcing bars shall be #5 spaced at 12" O.C. unless otherwise specified.

Type II cement required.

For Type "A" Structures pipe will enter at sides [illegible] on drawing. For Type "B" Structures, pipe will [illegible] ends.

Gratings and Bearing Angles will be paid for [illegible] Structural Steel.

Wall thickness "T" shall be 6" minimum.

A unit shall include Catch Basin, Bearing Angles and Grating complete.

Quantities shown are for one Catch Basin only. When more than one Unit is required the quantities given [illegible] be multiplied by the No. of Units required to obtain the total quantities.

Excavation for Structures does not include Excavation for pipe.

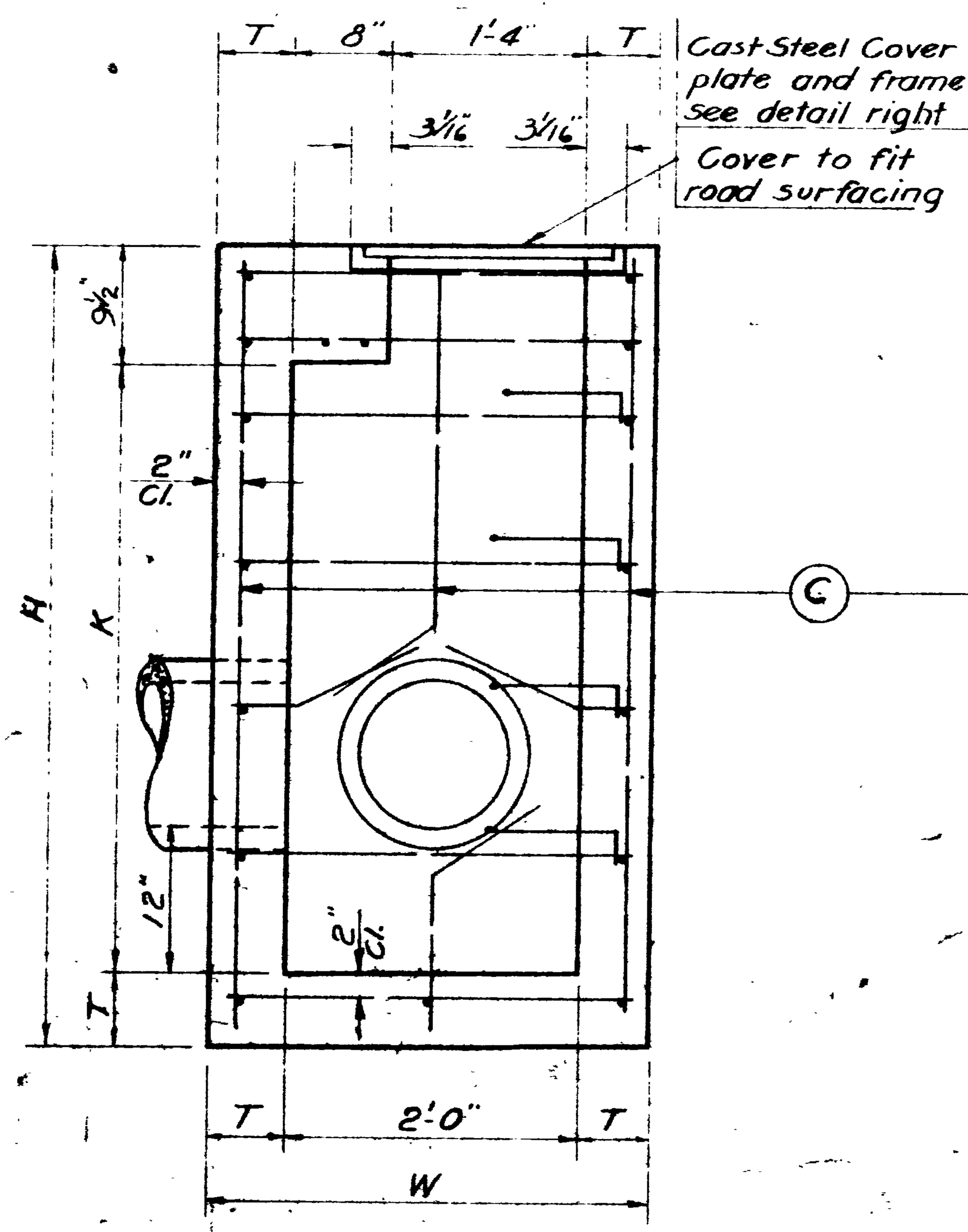
Concrete Class "A"

SCHEDULE OF INSTALLATIONS
(See General Notes)

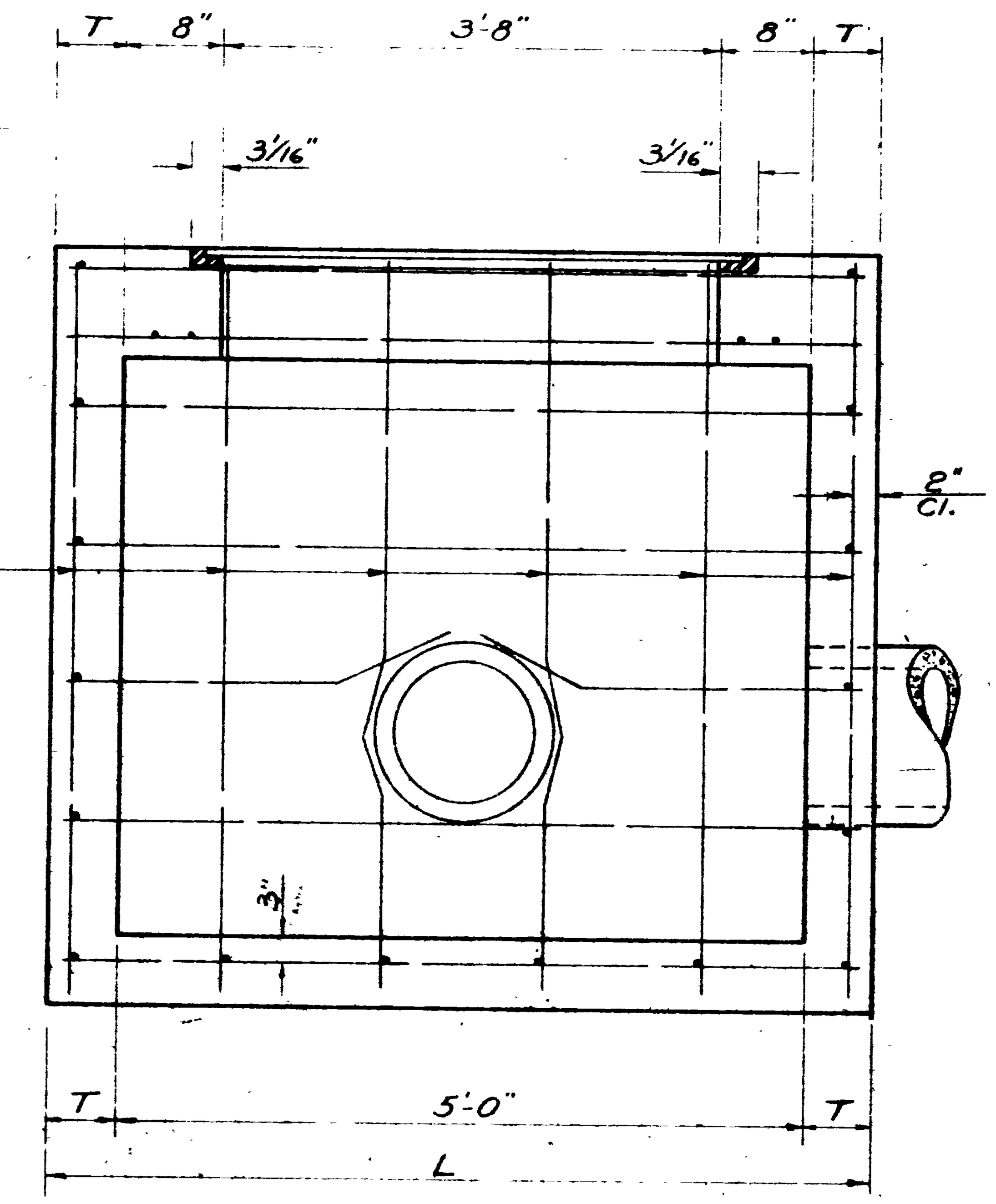
LINE	DIMENSIONS H	L	W	K	T	REINFORCING STEEL "A" BARS No.	"A" BARS L'GTH	"B" BARS No.	"B" BARS L'GTH	"C" BARS No.	"C" BARS L'GTH	"D" BARS No.	"D" BARS L'GTH	"E" BARS No.	"E" BARS L'GTH	TOTAL QUANT. REINF. STEEL LBS.	STRUCT. STEEL LBS.	CONC. CU. YDS.	EXCAV. CU. YDS.
1	3'-6"	6'-0"	3'-0"	2'-2½"	6"	10	9'-7"	2	5'-8"	14	3'-2"	8	2'-8"	0	3'-4"	181	310	1.4	5.2
2	4'-0"			2'-8½"		10					3'-8"			0		188		1.5	6.0
3	4'-6"			3'-2½"		12					4'-2"			2		225		1.7	6.7
4	5'-0"			3'-8½"		12					4'-8"			2		232		1.8	7.5
5	5'-6"			4'-2½"		14					5'-2"			3		265		2.0	8.2
6	6'-0"			4'-8½"		14					5'-8"			3		272		2.1	8.9
7	6'-6"			5'-2½"		16					6'-2"			4		305		2.3	9.7
8	7'-0"			5'-8½"		16					6'-8"			4		312		2.4	10.4
9	7'-6"			6'-2½"		18					7'-2"			5		344		2.6	11.2
10	8'-0"	6'-0"	3'-0"	6'-8½"	6"	18					7'-8"			5		352		2.7	11.9
11	8'-6"	6'-4"	3'-4"	7'-0½"	8"	20					8'-2"			6		384		3.9	14.1
12	9'-0"			7'-6½"		20					8'-8"			6		392		4.1	14.9
13	9'-6"			8'-0½"		22					9'-2"			7		424		4.3	15.7
14	10'-0"			8'-6½"		22					9'-8"			7		431		4.5	16.6
15	10'-6"			9'-0½"		24					10'-2"			8		464		4.7	17.4
16	11'-0"			9'-6½"		24					10'-8"			8		471		5.0	18.2
17	11'-6"			10'-0½"		26					11'-2"			9		509		5.1	19.0
18	12'-0"			10'-6½"		26					11'-8"			9		[illegible]		5.3	19.9
19	12'-6"			11'-0½"		28					12'-2"			10		543		5.5	20.7
20	13'-0"			11'-6½"		28					12'-8"			10		550		5.7	21.5
21	13'-6"			12'-0½"		30					13'-2"			11		582		5.9	[illegible]
22	14'-0"			12'-6½"		30					13'-8"			11		[illegible]		6.1	[illegible]
23	14'-6"			13'-0½"		32					14'-2"			12		622		6.4	24.0
24	15'-0"	6'-4"	3'-4"	13'-6½"	8"	32	9'-7"	2	5'-8"	14	14'-8"	8	2'-8"	12	3'-4"	629	310	6.6	[illegible]
25	16'-0"	6'-4"	3'-4"	14'-6½"	8"	34	9'-7"	2	5'-8"	14	[illegible]	[illegible]	[illegible]	13	3'-4"	669	310	7.0	[illegible]

UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

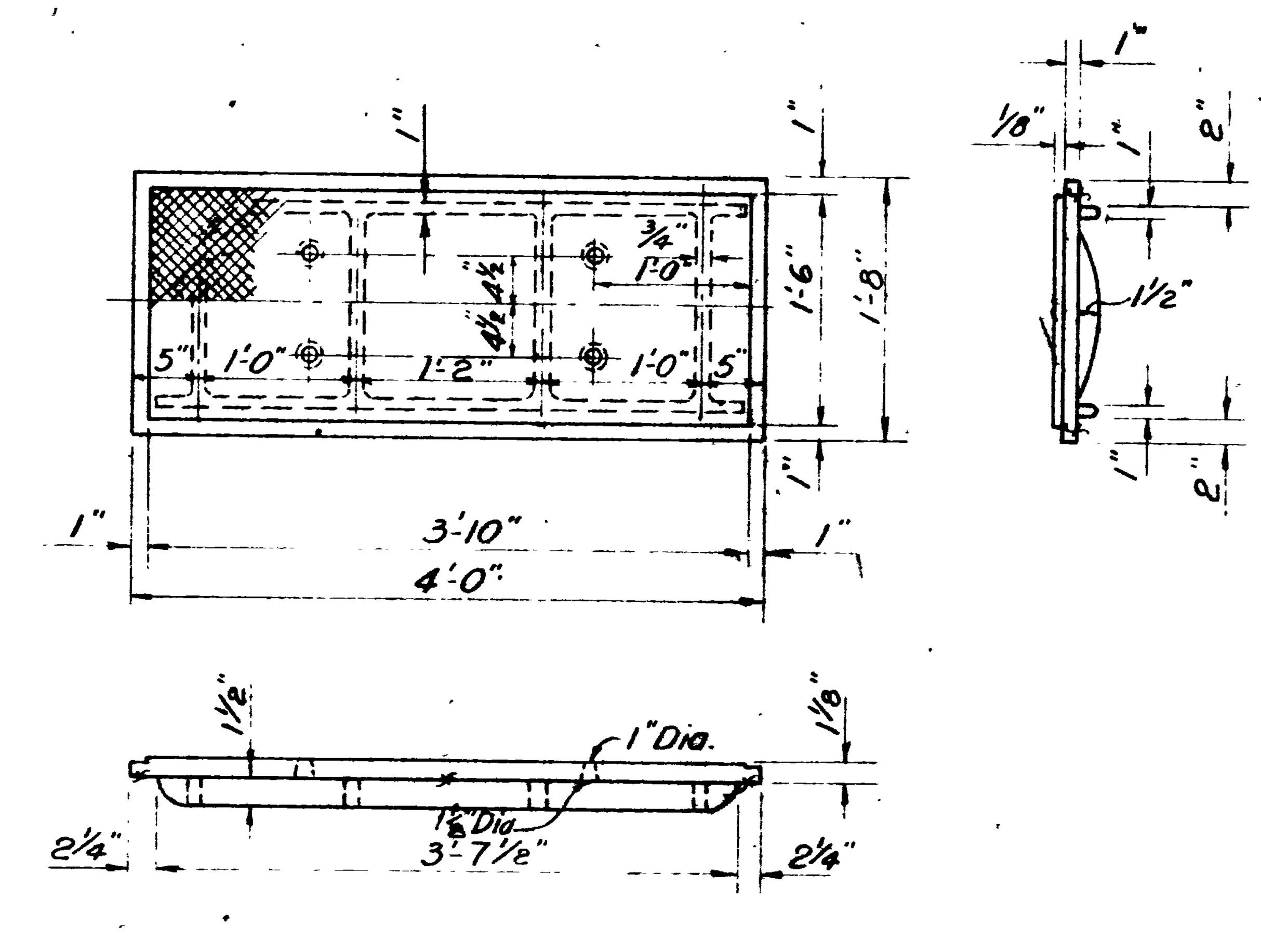
STANDARD CATCH BASIN



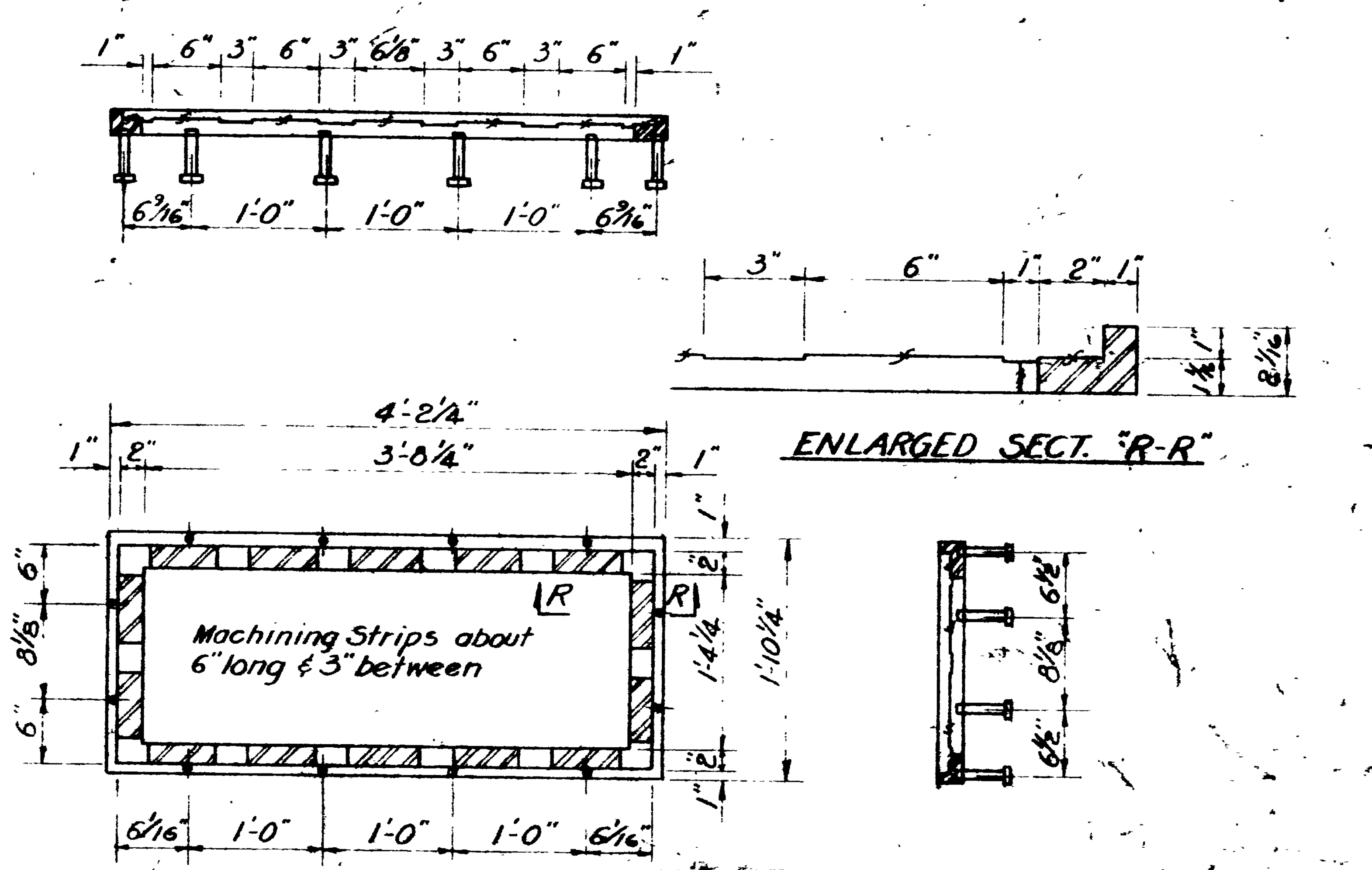
SECTION "B-B"



SECTION "A-A"



CAST IRON COVER
(WEIGHT 320 LBS.)



CAST [illegible]

Note: See "List of Structures" for size and kind of pipe, stations and units required.

GENERAL NOTES

Materials, construction and workmanship shall be in accordance with the State Standard Specifications for Road and Bridge Construction, 1960 edition and supplements thereto which are in effect at date of request for bids.

All reinforcing steel shall be intermediate grade Standard A-305 reinforcing bars.

Unless otherwise shown, all dimensions are [illegible] Out [illegible]. All reinforcing steel shall be #5 bars spaced 12" on centers. Type II cement required. (Low Alkali.) Concrete Class "A".

DESIGN DATA

H 15-44 Loading in accordance with the A.A.S.H.O. Specifications of 1957.
Structural Steel f_s = 18,000 p.s.i. Reinforcing Steel f_s = 20,000 p.s.i.
Concrete f_c = 1200 p.s.i. n = 10

Payment for furnishing and placing Cover Plate and Frame will be paid for as Structural Steel.

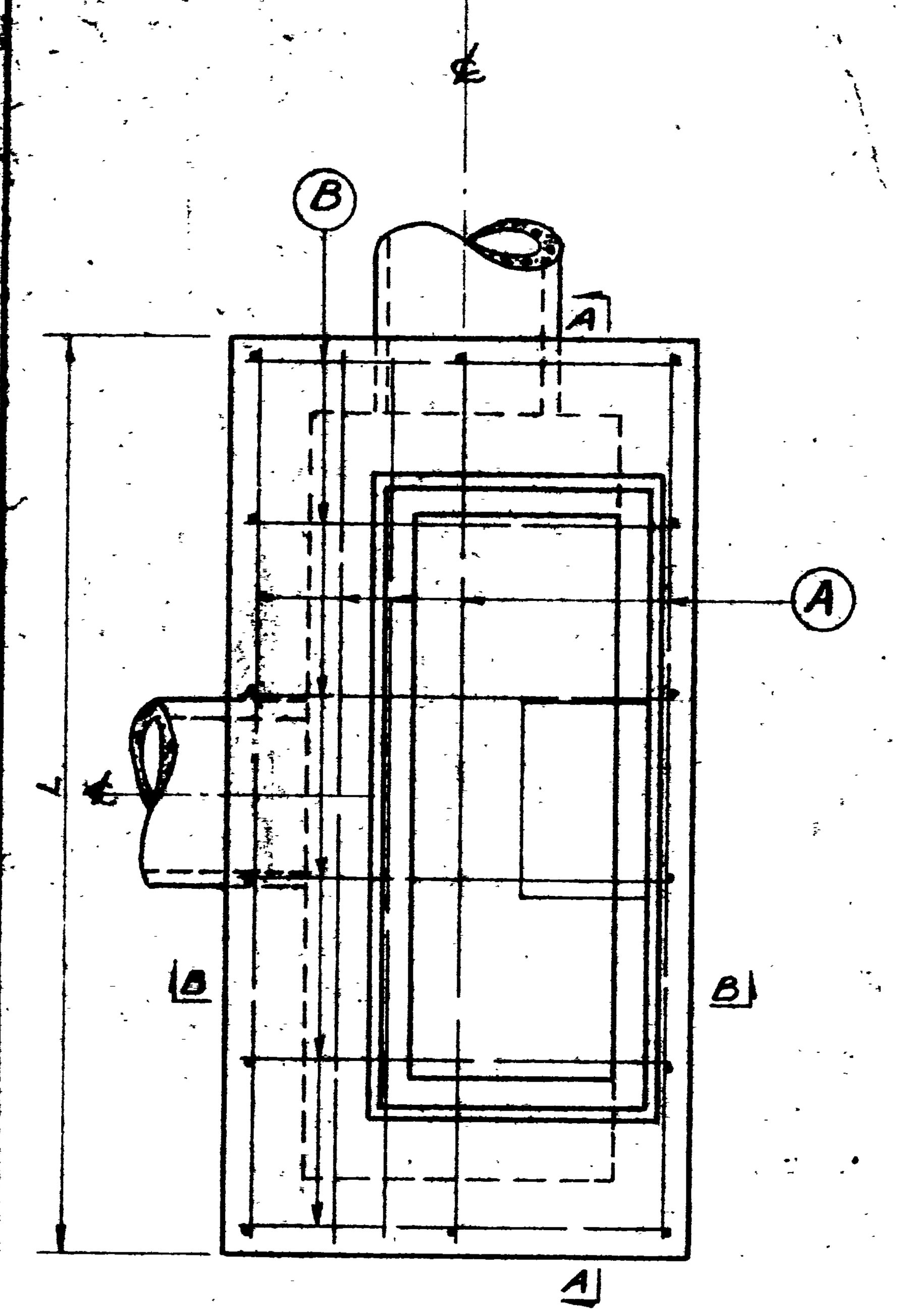
All Structural Steel shall receive one shop coat of Red Paint A.A.S.H.O. Designation M 71-42 or M 72-51; also two field coats of Aluminum Paint A.A.S.H.O. Designation M 69-52.

A Unit shall include one Cast Iron Cover and Frame, and Cleanout Box complete.

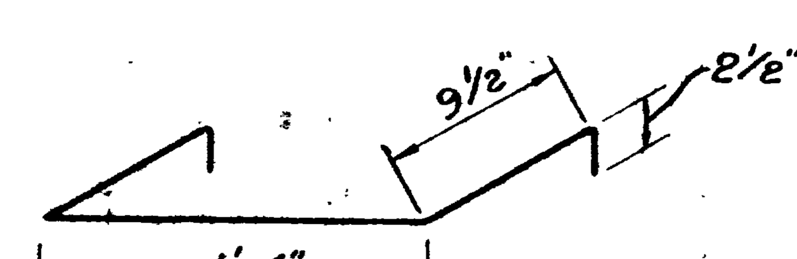
Quantities shown are for one Cleanout Box only. When more than one Unit is required the Quantities are to be multiplied by the number of Units required to obtain the total Quantities.

Excavation for Structures does not include Excavation for Pipe.

Ductile iron will be accepted for either the Cover or Frame Fabrication.



PLAN



LADDER RUNG DETAIL
BAR "D" #6
Length = 3'-4"
Weight each = 5 lbs.

When "H" is 4'-0" or over ladder rungs shall be provided.

SCHEDULE OF INSTALLATION

LINE	DIMENSIONS H	L	W	K	T	REINFORCING STEEL "A" BARS No.	"A" BARS L'GTH	"B" BARS No.	"B" BARS L'GTH	"C" BARS No.	"C" BARS L'GTH	"D" BARS No.	"D" BARS L'GTH	TOTAL QUANT. Reinf. Steel Lbs.	Struct. Steel Lbs.	Conc. Cu. Yds.	Excav. Cu. Yds.
1	3'-0"	6'-0"	3'-0"	1'-8½	6	9	5'-8"	14	2'-8"	14	2'-9"	—	3'-4"	134	474	1.2	4.5
2	3'-6"			2'-2½		11		16			3'-3"	—		159		1.3	5
3	4'-0"			2'-8½		11		16			3'-9"	2		177		1.5	6
4	4'-6"			3'-2½		13		18			4'-3"	3		207		1.6	6.5
5	5'-0"			3'-8½		13		18			4'-9"	3		[illegible]		1.8	7.5
6	5'-6"			4'-2½		15		20			5'-3"	4		244		1.9	8
7	6'-0"			4'-8½		15		20			5'-9"	4		251		2.1	9
8	6'-6"			5'-2½		17		22			6'-3"	5		281		2.2	9.5
9	7'-0"			5'-8½		17		22			6'-9"	5		289		2.4	10.5
10	7'-6"	6'-0"	3'-0"	6'-2½	6	19	5'-8"	24	2'-8"		7'-3"	6		319		2.5	11
11	8'-0"	6'-4"	3'-4"	6'-6½	8	19	6'-0"	24	3'-0"		7'-9"	6		326		3.6	13
12	8'-6"			7'-0½		21		26			8'-3"	7		356		3.8	14
13	9'-0"			7'-6½		21		26			8'-9"	7		363		4.0	15
14	9'-6"			8'-0½		23		28			9'-3"	8		393		4.2	15.5
15	10'-0"			8'-6½		23		28			9'-9"	8		401		4.4	16.5
16	10'-6"			9'-0½		25		30			10'-3"	9		431		4.6	17.5
17	11'-0"			9'-6½		25		30			10'-9"	9		438		4.8	18
18	11'-6"			10'-0½		27		32			11'-3"	10		468		5.0	19
19	12'-0"			10'-6½		27		32			11'-9"	10		475		5.3	19.5
20	12'-6"			11'-0½		29		34			12'-3"	11		505		5.5	20.5
21	13'-0"			11'-6½		29		34			12'-9"	11		513		5.7	21.5
22	13'-6"			12'-0½		31		36			13'-3"	12		543		5.9	22
23	14'-0"			12'-6½		31		36			13'-9"	12		550		6.1	23
24	14'-6"			13'-0½		33		38			14'-3"	13		580		6.3	23.5
25	15'-0"			13'-6½		33		38			14'-9"	13		587		6.5	24.5
26	16'-0"	6'-4"	3'-4"	14'-6½	8	35	6'-8"	40	3'-0"	14	15'-9"	14	3'-4"	625	474	6.9	26.5

Revised May [illegible] 1961 R.I.
REVISED 12-18-62 B.M.

SHEET 1 OF 1 SHEETS

UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

STANDARD CLEANOUT & JUNCTION BOX WITH COVER PLATE & FRAME

DESIGNED BY W.G. [illegible]
CHECKED BY [illegible]

S C H E D U L E

LINE	Pipe Ø	A	B	C	E	f	H	h	K	L	T	D1 No.	D1 L'GTH.	D2 (2 ea.)	D3 (2 ea.)	D4 (2 ea.)	D5 (2 ea.)	D1 to D5 b
1	12"	2'-1"	6'-8⅜"	0'-11¾"	1'-8¾"	1'-6"	1'-6"	0'-9⅝"	1'-9	1'-11⅛	0'-9"	3	3'-2"	—	—	—	—	1'-1"
2	15	3'-2	7'-8¼	1'-4⅞	2'-3⅞	1'-6	2'-0	0'-11½	2'-0	2'-8¼	0'-9	3	3'-10	2'-1"	—	—	—	1'-1
3	18	3'-5	7'-11¼	1'-4⅞	2'-3⅞	1'-6	2'-0	0'-11½	2'-3	2'-8¼	0'-9	4	3'-10	2'-1"	—	—	—	1'-1
4	21	3'-8	8'-11	1'-8½	2'-11½	1'-6	2'-6	1'-1½	2'-6	3'-5	0'-9	4	4'-5	3'-9	2'-1"	—	—	1'-1
5	24	3'-11	9'-2	1'-8½	2'-11½	1'-6	2'-6	1'-1½	2'-9	3'-5	0'-9	4	4'-5	3'-9	2'-1	—	—	1'-1
6	27	4'-2	12'-1⅜	2'-0⅞	3'-7⅞	2'-6	3'-0	1'-4	3'-0	4'-1⅜	0'-9	4	6'-1	4'-9	3'-1	—	—	2'-1
7	30	4'-5	12'-4⅜	2'-0⅞	3'-7⅞	2'-6	3'-0	1'-4	3'-3	4'-1⅜	0'-9	5	6'-1	4'-9	3'-1	—	—	2'-1
8	33	4'-8	13'-4⅜	2'-5⅞	4'-2⅞	2'-6	3'-6	1'-6⅞	3'-6	4'-10⅝	0'-9	5	6'-8	4'-9	3'-1	—	—	2'-1
9	36	4'-11	13'-7⅜	2'-5⅞	4'-2⅞	2'-6	3'-6	1'-6⅞	3'-9	4'-10⅝	0'-9	5	6'-8	4'-9	3'-1	—	—	2'-1
10	39	5'-2	14'-7⅜	2'-9⅝	4'-10⅝	2'-6	4'-0	1'-8⅝	4'-0	5'-7⅜	1'-0	5	7'-7	6'-6	4'-9	3'-1"	—	2'-1
11	42	5'-5	14'-10⅜	2'-9⅝	4'-10⅝	2'-6	4'-0	1'-8⅝	4'-3	5'-7⅜	1'-0	6	7'-7	6'-6	4'-9	3'-1	—	2'-1
12	48	5'-11	16'-1⅜	3'-2⅜	5'-5⅜	2'-6	4'-6	1'-10⅜	4'-9	6'-4⅜	1'-0	6	8'-3	6'-6	4'-9	3'-1	—	2'-1
13	54	6'-5	17'-4	3'-6⅜	6'-1½	2'-6	5'-0	2'-0⅜	5'-3	7'-0⅜	1'-0	7	8'-10	6'-6	4'-9	3'-1	—	2'-1
14	60	6'-11	18'-9⅜	4'-0⅜	6'-11⅜	2'-6	3'-8	2'-3⅜	5'-9	8'-0⅜	1'-0	7	9'-8	8'-3	6'-6	4'-9	3'-1	2'-1

D1–D5: #4 bars. E–E6: #4 bars, one ea. F0: #4 bars, 120°, field bend. F1–F4: #4 bars, 2 ea. G1–G8: #5 bars, 2 ea.

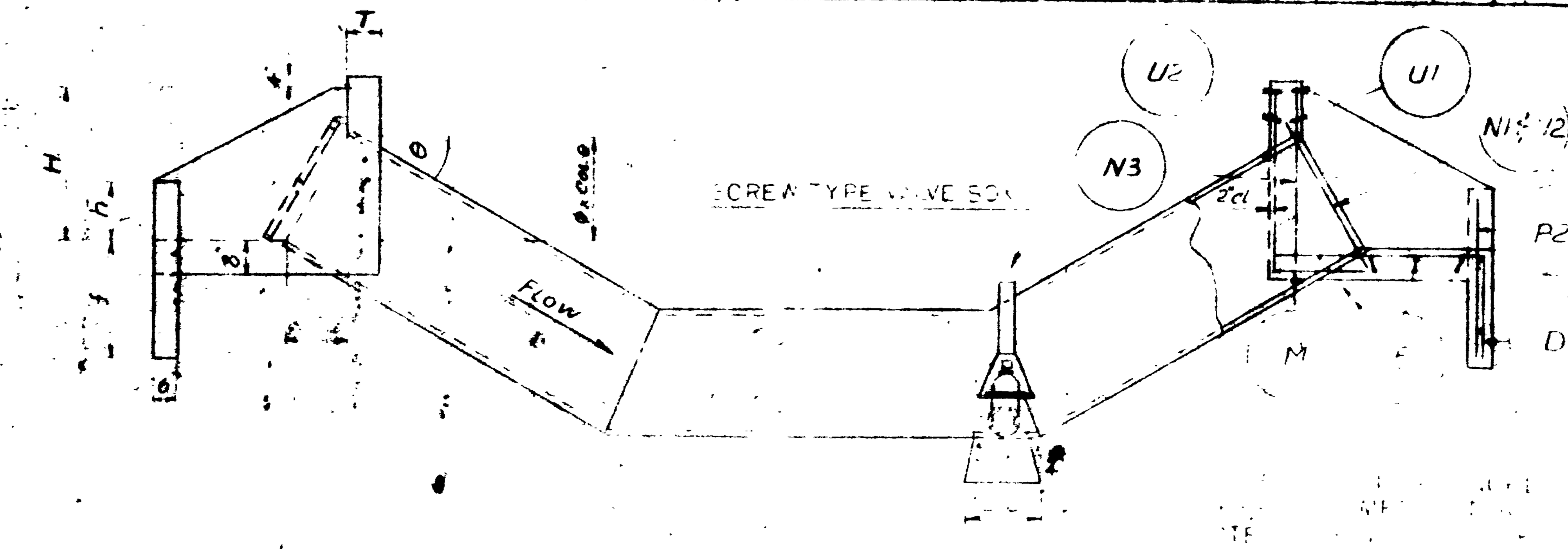
LINE	E	E2	E3	E4	E5	E6	F0 No.	F0 L'GTH.	F1	F2	F3	F4	G1	G2	G3	G4	G5	G6	G7	G8	G1 to G8 b
1	3'-[illegible]	—	—	—	—	—	2	3'-6"	3'-9"	—	—	—	2'-8"	2'-3"	—	—	—	—	—	—	0'-11"
2	3'-4	4'-4"	—	—	—	—	2	4'-3	4'-6	2'-9"	—	—	3'-3	2'-10	—	—	—	—	—	—	1'-0
3	3'-7	4'-7	—	—	—	—	2	4'-3	4'-6	2'-9			3'-5	3'-0	—	—	—	—	—	—	1'-2
4	3'-10	4'-10	—	—	—	—	2	4'-11	5'-3	2'-9	—	—	4'-0	3'-7	3'-1"	—	—	—	—	—	1'-3
5	4'-1	5'-1	—	—	—	—	2	4'-11	5'-3	2'-9	—	—	4'-2	3'-9	3'-3	—	—	—	—	—	1'-5
6	4'-4	5'-4	6'-5"	—	—	—	4	5'-8	6'-1	2'-9	—	—	4'-9	4'-4	3'-10	3'-5	—	—	—	—	1'-6
7	4'-7	5'-7	6'-8	—	—	—	4	5'-8	6'-1	2'-9	—	—	4'-11	4'-6	4'-0	3'-7	—	—	—	—	1'-8
8	4'-10	5'-10	6'-11	7'-11	—	—	4	6'-5	6'-11	2'-9	—	—	5'-0	5'-1	4'-7	4'-2	—	—	—	—	1'-9
9	5'-1	6'-1	7'-2	8'-2	—	—	4	6'-5	6'-11	2'-9		—	5'-8	5'-3	4'-9	4'-4	—	—	—	—	1'-11
10	5'-4	6'-4	7'-5	8'-5	—	—	4	7'-5	8'-0	2'-9	6'-0	—	6'-3	5'-10	5'-4	4'-11	4'-5	—	—	—	2'-0
11	5'-7	6'-7	7'-8	8'-8	—	—	4	7'-5	8'-0	2'-9	6'-0	—	6'-5	6'-0	5'-6	5'-1	4'-7	—	—	—	2'-2
12	6'-1	7'-1	8'-2	9'-2	10'-3	—	4	8'-2	8'-10	2'-9	6'-0	—	7'-1	6'-8	6'-2	5'-9	5'-3	4'-10	—	—	2'-4
13	6'-7	7'-7	8'-8	9'-8	10'-9	11'-9	6	8'-11	9'-7	2'-9	6'-0	—	7'-7	7'-2	6'-8	6'-3	5'-9	5'-4	4'-10	—	2'-4
14	7'-1	8'-1	9'-2	10'-2	11'-3	12'-3	6	9'-10	10'-7	2'-9	6'-0	8'-4	8'-3	7'-10	7'-4	6'-11	6'-5	6'-0	5'-6	5'-1"	2'-4

M1: #5 bars, 4 ea. N1 (equal, 110°), N2, N3: #4 bars, 2 ea. U1: #5 bars, No. ea. for θ ≤. U2: #4 bars, No. ea. for θ ≤. P1 (2 ea.), P2 (4 ea.): #4 bars. V, W: Pipe [illegible] Ø: Use bar [illegible]; Pipe 33" to 60" Ø: Use bar ¼ x 2"; 2 ea. Y: bar ½ Ø, 1 ea. Hanger bolt: 2 ea.

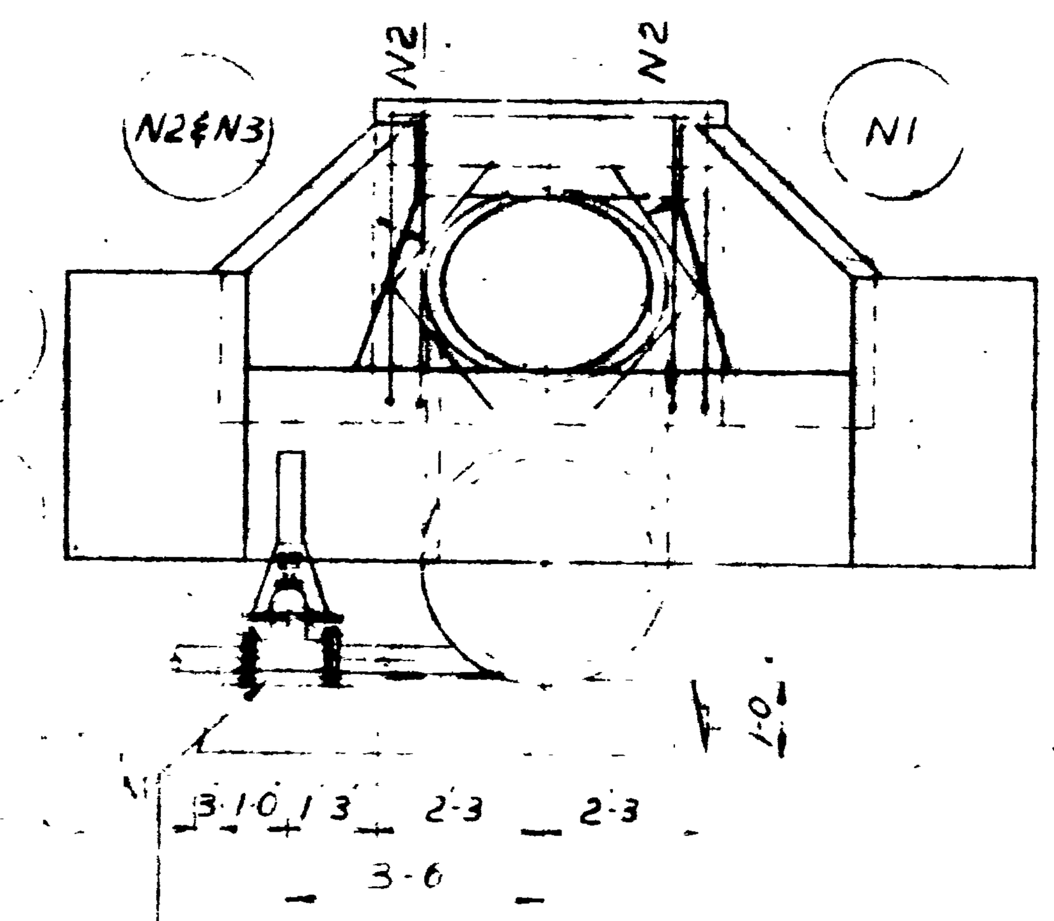
LINE	M1	N1	N2	N3	U1 L'GTH.	U1 15°	U1 30°	U1 45°	U2 L'GTH.	U2 15°	U2 30°	U2 45°	P1	P2	V	W	X No.	X L'GTH.	Y
1	4'-7"	2'-10"	1'-10"	2'-3"	2'-7"	1	1	2	2'-7"	1	2	2	6'-4	1'-10"	1'-2½	0'-11¼	2	0'-11½	—
2	5'-1	3'-0	2'-1	2'-9	2'-10	2	2	2	2'-10	2	2	2	7'-4	2'-0	1'-5⅜	1'-3¾	3	1'-2½	—
3	5'-1	3'-4	2'-4	2'-9	3'-1	1	2	2	3'-1	2	2	2	7'-7	2'-0	1'-8½	1'-7¾	4	1'-5½	—
4	5'-7	3'-8	2'-7	3'-3	3'-4	2	2	2	3'-4	2	2	2	8'-7	2'-2	1'-11½	1'-11¾	5	1'-8½	—
5	5'-7	4'-0	2'-10	3'-3	3'-7	1	2	2	3'-7	2	2	2	8'-10	2'-2	2'-2½	1'-11¾	5	1'-11[illegible]	—
6	6'-1	—	—	3'-9	3'-10	2	2	2	3'-10	2	2	3	11'-9	3'-5	2'-5½	2'-3¾	6	2'-2[illegible]	—
7	6'-1	4'-8	3'-4	3'-9	4'-1	1	2	2	4'-1	1	2	2	12'-0	3'-5	2'-8⅜	2'-7¾	7	2'-5½	—
8	6'-7	—	—	4'-3	4'-4	2	2	2	4'-4	2	2	3	13'-0	3'-7	2'-11½	2'-11¾	8	2'-8[illegible]	3'-0"
9	6'-7	5'-2	3'-10	4'-3	4'-7	1	2	2	4'-7	2	2	2	13'-3	3'-7	3'-2½	2'-11¾	8	2'-11½	3'-0
10	7'-1	—	—	4'-9	4'-10	2	2	3	4'-10	2	2	3	14'-3	3'-9	3'-5½	3'-3¾	9	3'-2[illegible]	3'-4
11	7'-1	5'-10	4'-4	4'-9	5'-1	1	2	2	5'-1	2	2	3	14'-6	3'-9	3'-8½	3'-7¾	10	3'-5½	3'-8
12	7'-7	6'-6	4'-10	5'-3	5'-7	1	2	3	5'-7	2	2	3	15'-9	3'-11	4'-2½	3'-11¾	11	3'-11½	4'-0
13	8'-1	7'-0	5'-4	5'-9	6'-1	2	2	3	6'-1	2	2	3	17'-0	4'-1	4'-8½	4'-7¾	13	4'-5½	4'-8
14	8'-9	7'-8	5'-10	6'-5	6'-7	2	2	3	6'-7	2	3	3	18'-5	4'-4	5'-2½	4'-11¾	14	4'-11½	5'-0

QUANTITIES

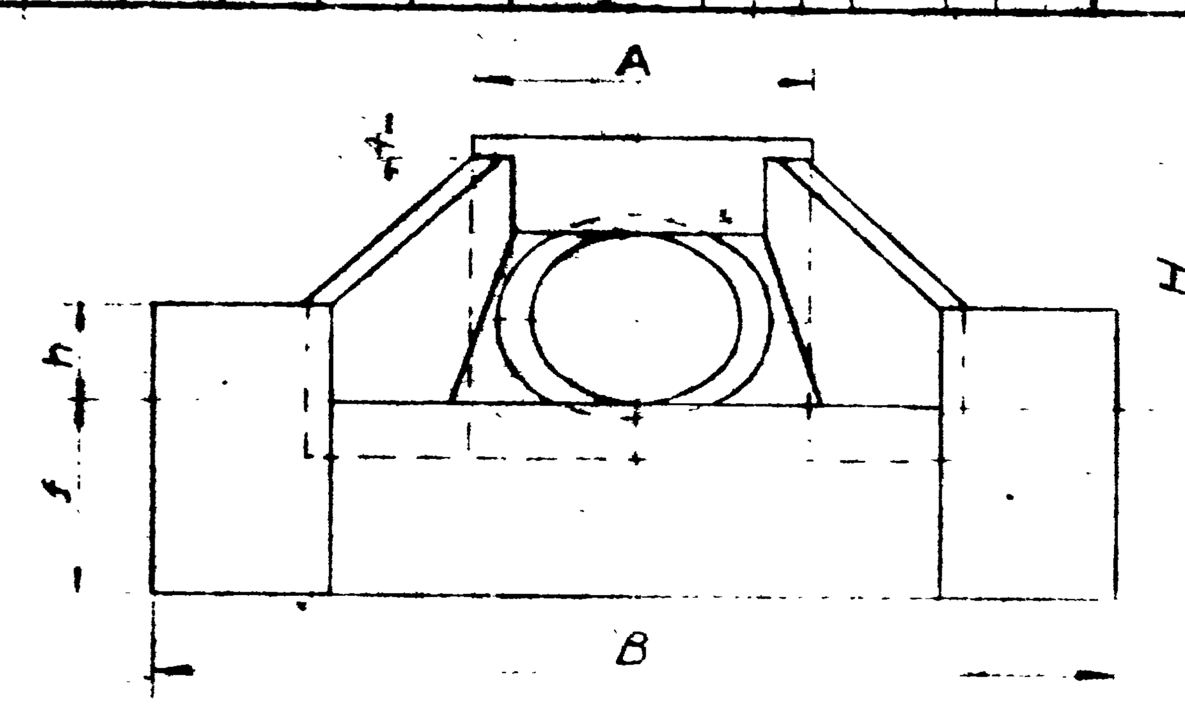
LINE	Concr. (Cu yds)	Reinf. Steel C.M. Pipe for θ ≤ 15° (Lbs.)	C.M. Pipe 30°	C.M. Pipe 45°	Conc. pipe for θ ≤ 15° (Lbs.)	Conc. pipe 30°	Conc. pipe 45°	Struct. Steel (Lbs.)
1	0.51	74.5	76.2	78.9	68.3	70.0	72.7	10.4
2	0.71	100.2	100.2	100.2	93.4	93.4	93.4	14.2
3	0.75	102.5	105.7	105.7	94.9	98.1	98.1	18.7
4	1.0	129.5	129.5	129.5	121.2	121.2	121.2	23.8
5	1.0	129.1	132.7	132.7	120.0	123.8	123.8	26.1
6	1.6	—	—	—	166.8	[illegible]	169.4	32.2
7	1.7	177.7	184.7	184.7	167.0	174.0	174.0	38.9
8	2.0	—	—	—	195.1	195.1	196.0	63.5
9	2.1	205.6	210.4	210.4	193.5	198.3	198.3	67.9
10	2.7	—	—	—	241.7	241.7	250.0	79.3
11	2.8	259.3	264.6	268.0	245.7	251.0	254.4	91.5
12	3.4	298.0	303.7	307.5	282.8	288.6	292.3	110.4
13	4.0	360.7	371.1	371.1	344.8	344.2	354.6	140.2
14	4.9	423.4	427.8	434.7	405.4	409.8	416.7	[illegible]



ELEVATION



FRONT VIEW CMP



FRONT VIEW (CONCRETE PIPE)

NOTE

... CONNECTED TO THE GATE VALVE ... A 12" ROUND STANDARD FLANGED ... BE PROVIDED ON THE DRAIN LINE PIPE TO INSURE THAT THE ... CONNECTION TO THE GATE VALVE IS WATER TIGHT.

GENERAL NOTES

Materials, construction, and workmanship shall be in accordance with the State Standard Specifications for Road and Bridge Construction, 1960 edition, and supplements thereto which are in effect at the date of request for bids.

All reinforcing steel shall be intermediate grade A.A.S.H.O. ... M 31 and deformed per M-137.

Type II cement (low alkali) required.

Place ... fill as far as practical before building ... concrete 14 days before backfilling.

DESIGN DATA

Design in accordance with the A.A.S.H.O. Specifications of 1957.

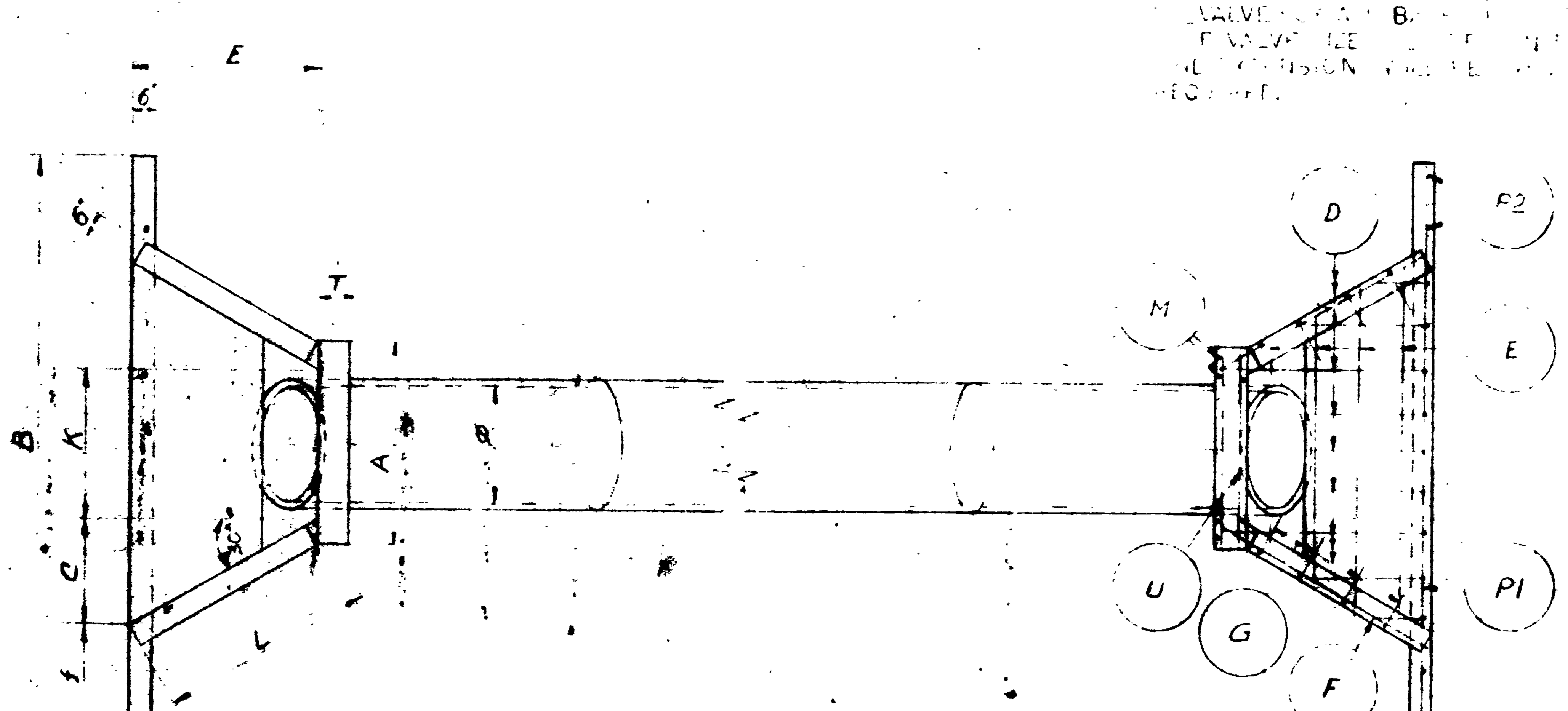
f_c = 1200 p.s.i.

f_s = 20,000 p.s.i.

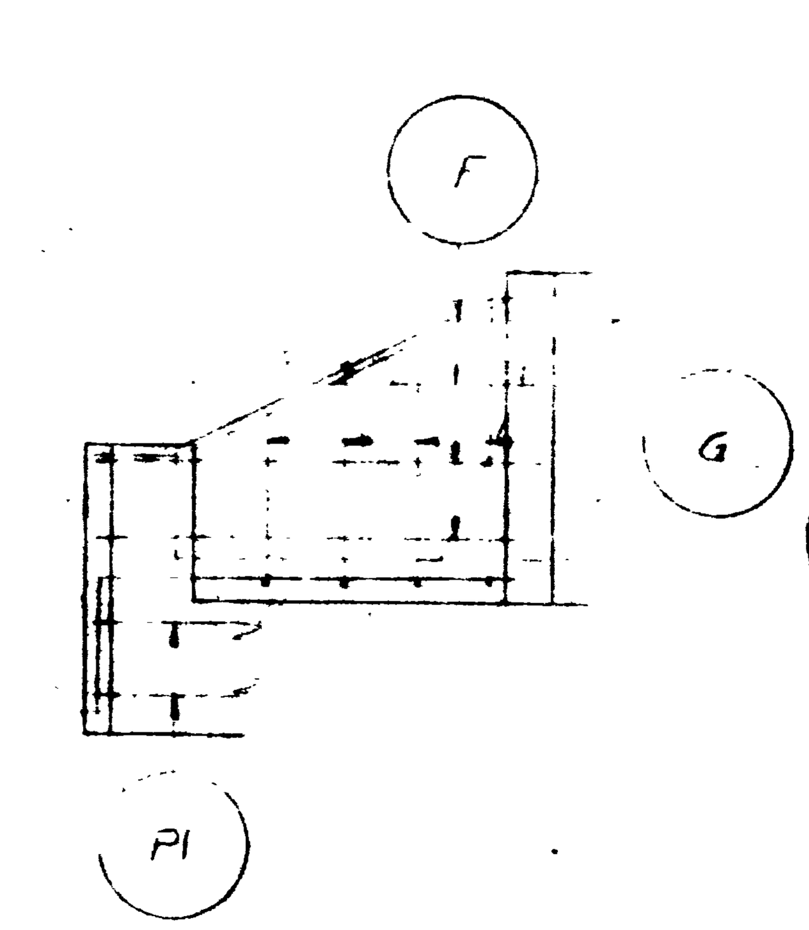
n = 10

QUANTITIES

Quantities as shown in schedule are for one headwall only.

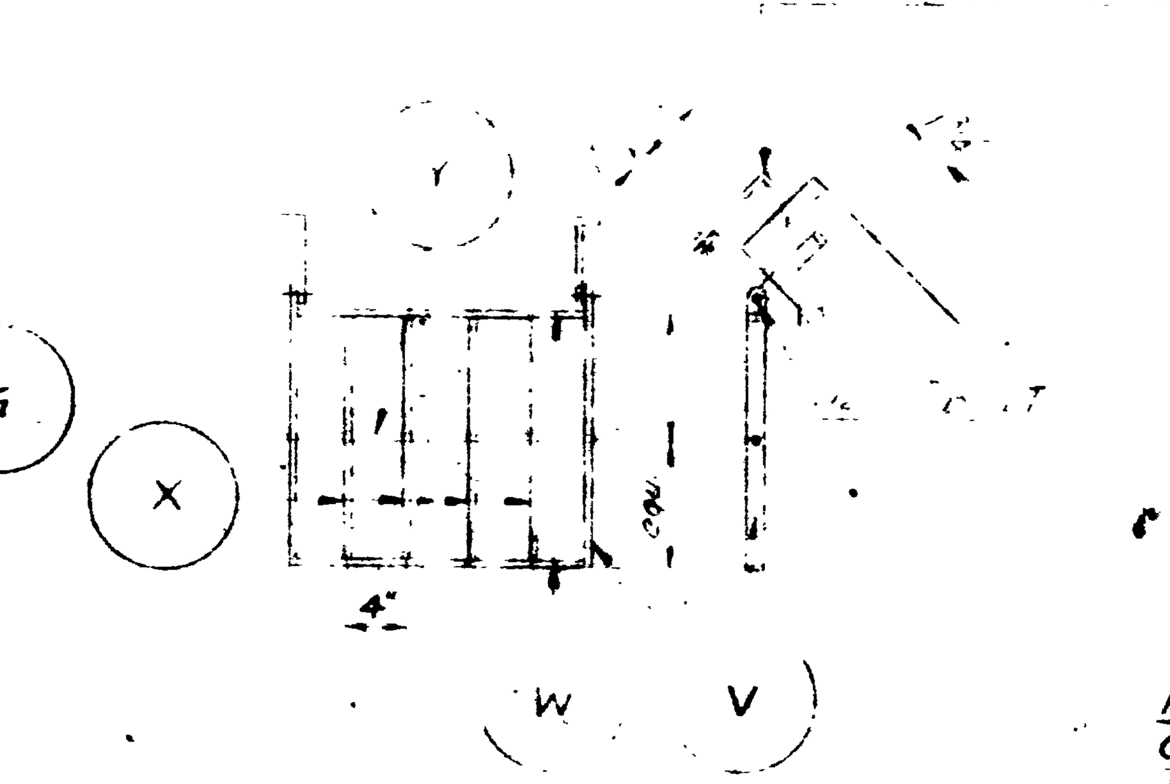


PLAN VIEW



ELEVATION WING WALL

HANGER BAR 8" LONG
BAR SIZE SEE V-BARS



TRASH RACK DETAILS

NOTE:
CUT D1 & E BARS AS REQUIRED.
PLACE F BARS AT 12" TO 1'-6" C.C.

NO.	BY	DATE	REMARKS
			REV. 9-24-62 B.M.

REVISIONS

UTAH STATE DEPARTMENT OF HIGHWAYS
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

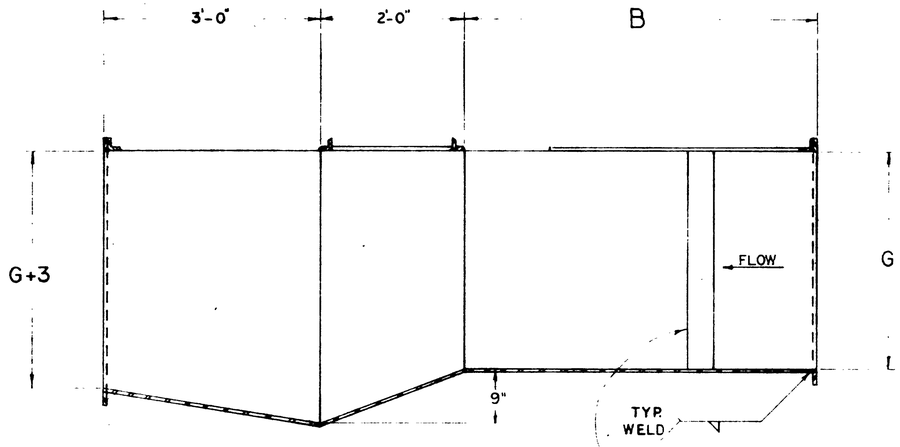
INVERTED SIPHON
STANDARD

DESIGNED BY H.E.E. — CHECKED BY H.E.P.
DRAWN BY B.K.M. — CHECKED BY B.K.M.
QUANTITIES BY H.E.E. — CHECKED BY
APPROVAL RECOMMENDED BY [illegible] — GROUP LEADER
APPROVED March 1962 — CHIEF STRUCTURAL ENG'R.

PROJECT NUMBER
STATION
COUNTY

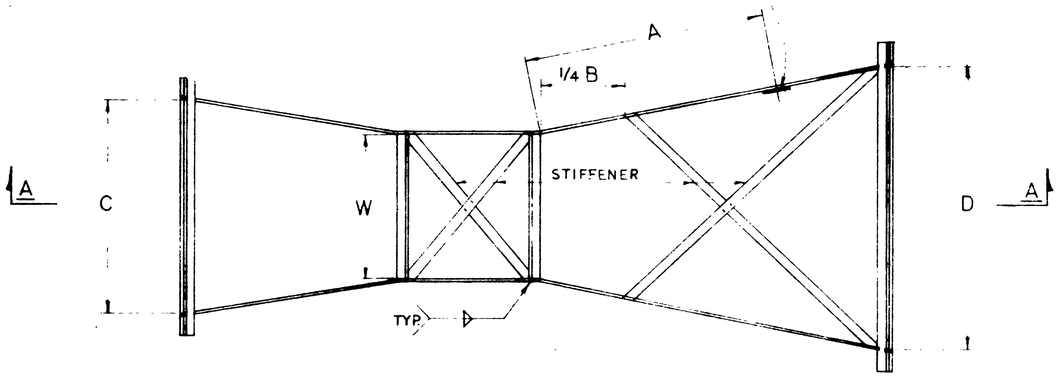
DRG. NO. V-838

1 of 1



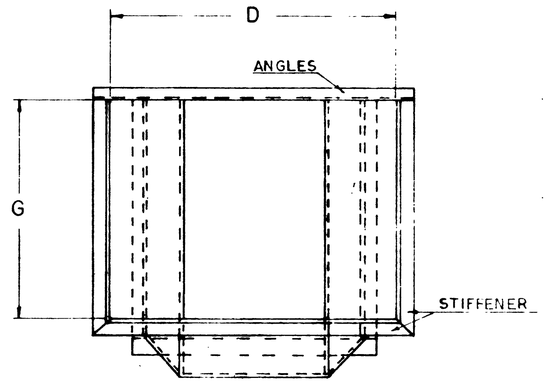
PORCELAIN ENAMEL IRON GAGE LEOPOLD & STEVENS, STYLE "A" OR EQUIVALENT.

SECTION A-A



PLAN

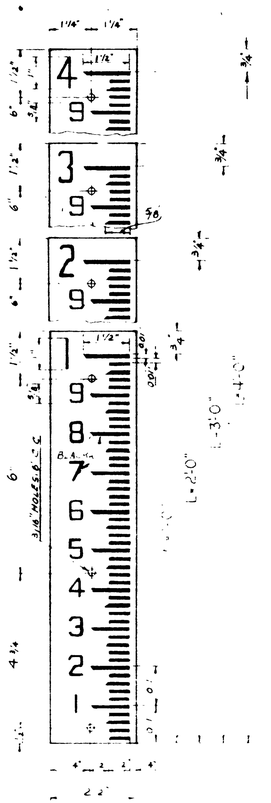
NOTES:
1 - FLOOR AT INLET TO BE LEVEL IN ALL DIRECTIONS.
2 - ALL CONNECTIONS TO BE WELDED.
3 - DIMENSIONS FOR SIZE AND MATERIAL SEE SCHEDULE.
4 - COMMERCIAL PREFABRICATED PARSHALL FLUMES MAY BE USED IN LIEU OF THE ABOVE IF APPROVED BY THE ENGINEER.



ELEVATION

SCHEDULE

LINE	W	G	B	C	D	STIFFENER	ANGLES	STEEL PLATES	A
1	12"	12"	4'-4 7/8"	2'-0"	2'-9 1/4"	2" x 3/16"	2" x 2" x 3/16"	1/8"	3'-0"
2	12"	15"							
3	12"	18"							
4	12"	21"							
5	12"	24"							
6	12"	30"	4'-4 7/8"	2'-0"	2'-9 1/4"	2" x 3/16"	2" x 2" x 3/16"	1/8"	
7	24"	15"	4'-10 7/8"	3'-0"	3'-11 1/2"	2" x 1/4"	2" x 2" x 1/4"	3/16"	3'-4"
8	24"	18"							
9	24"	24"							
10	24"	30"							
11	24"	36"	4'-10 7/8"	3'-0"	3'-11 1/2"	2" x 1/4"	2" x 2" x 1/4"	3/16"	
12	36"	18"	5'-4 3/4"	4'-0"	5'-1 7/8"	2" x 5/16"	2" x 2" x 5/16"	3/16"	3'-8"
13	36"	24"							
14	36"	30"							
15	36"	36"							
16	36"	42"	5'-4 3/4"	4'-0"	5'-1 7/8"	2" x 5/16"	2" x 2" x 5/16"	3/16"	
17	48"	24"	5'-10 5/8"	5'-0"	6'-4 1/4"	2" x 3/8"	2" x 2" x 3/8"	1/4"	4'-0"
18	48"	30"							
19	48"	36"							
20	48"	42"							
21	48"	48"	5'-10 5/8"	5'-0"	6'-4 1/4"	2" x 3/8"	2" x 2" x 3/8"	1/4"	
22	60"	30"	6'-4 1/2"	6'-0"	7'-6 5/8"	3" x 3/8"	3" x 3" x 3/8"	5/16"	4'-4"
23	60"	36"							
24	60"	42"							
25	60"	48"							
26	60"	54"	6'-4 1/2"	6'-0"	7'-6 5/8"	3" x 3/8"	3" x 3" x 3/8"	5/16"	



NOTES

GAGES TO BE MADE OF NO.18 GAGE (U.S. STANDARD) MILD STEEL PLATE AND TO BE COVERED WITH A VITREOUS ENAMEL WITH A MINIMUM THICKNESS OF 12 MILS ON NUMERAL SIDE & 3 MILS ON THE REVERSE SIDE & ON EDGES WHERE PLATE HAS BEEN CUT, PUNCHED OR DRILLED.

ALL CUTTING AND PUNCHING OF THE PLATES SHALL BE COMPLETED BEFORE THE VITREOUS ENAMEL IS APPLIED.

THE FACE OF THE GAGE SHALL BE WHITE AND ALL NUMERALS AND GRADUATIONS SHALL BE BLACK. GRADUATIONS SHALL BE SHARP AND ACCURATE TO THE DIMENSIONS SHOWN.

THE "L" LENGTH SHALL BE AS GIVEN IN THE SCHEDULE. IN CASE A GREATER LENGTH THAN 4'-0" IS REQUIRED, THE DETAILS SHALL BE SIMILAR TO DETAILS SHOWN FOR SHORTER LENGTHS.

GENERAL NOTES

MATERIALS, CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE STATE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1963 EDITION AND SUPPLEMENTS THERETO WHICH ARE IN EFFECT AT THE DATE OF "REQUEST FOR BIDS".

ALL STRUCTURAL STEEL TO HAVE ONE SHOP COAT OF RED PRIMER.

NO	BY	DATE	REMARKS
REVISIONS			

UTAH STATE DEPARTMENT OF HIGHWAYS
SALT LAKE CITY, UTAH
DESIGN DIVISION

PARSHALL MEASURING FLUME STANDARD

DESIGNED B H M	CHECKED B	PROJECT NUMBER
QUANTITIES BY B K M	CHECKED BY	
APPROVED RECOMMENDED BY	GROUP LEADER	STATION
APPROVED	DATE	COUNTY

BS V-853 1 of 1