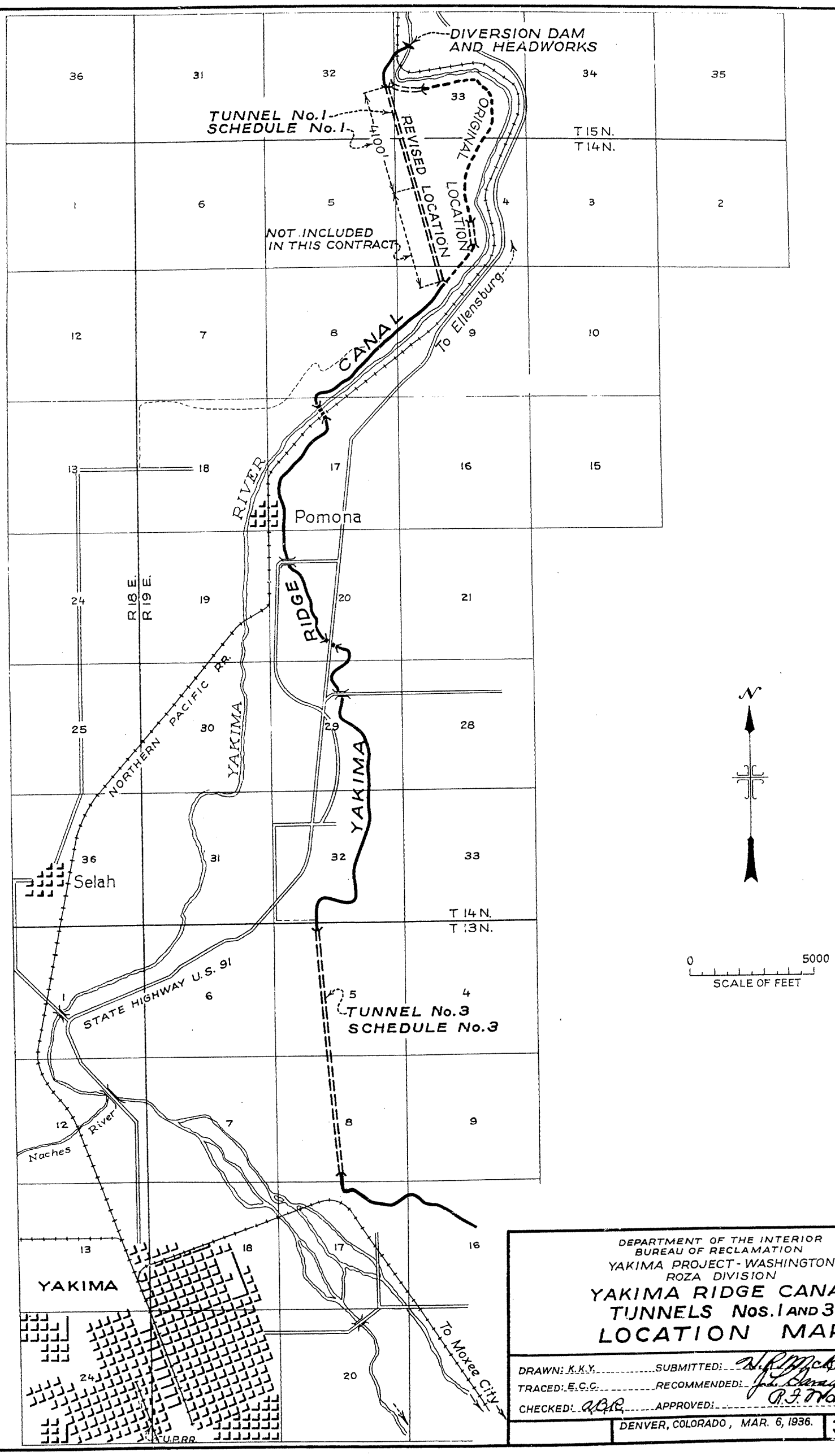
F-4. Tunnels No. 1 and No. 3

- 33-D-836 — Yakima Ridge Canal, Tunnels Nos. 1 and 3, Location Map
- 33-D-1127 — Yakima Ridge Canal, Tunnels Nos. 1 and 3, Section
- 33-D-1057 — Yakima Ridge Canal, Tunnel No. 3 - Sta. 618+50, Portal Structure — Transitions Bar Placing Diagram
- 33-D-1058 — Yakima Ridge Canal, Tunnel No. 3 - Sta. 618+50, Portal Structure – Transitions Bar Placing Diagram



DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT - WASHINGTON
ROZA DIVISION

YAKIMA RIDGE CANAL TUNNELS Nos. 1 AND 3 LOCATION MAP

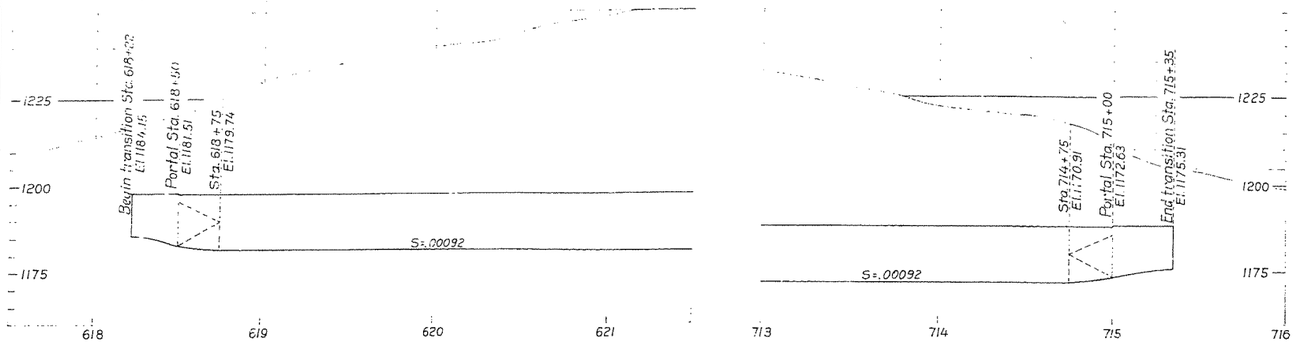
DRAWN: K.K.Y. SUBMITTED: W. R. McBirney
TRACED: E.C.C. RECOMMENDED: J. L. Savage
CHECKED: A.G.R. APPROVED: R. F. Walter

DENVER, COLORADO, MAR. 6, 1936. 33-D-836

Job No.

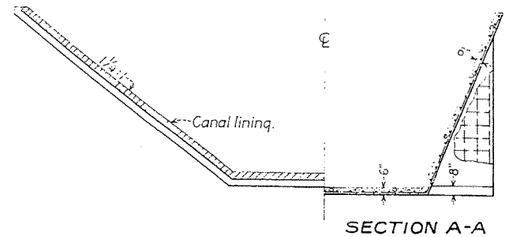
SPECIFICATIONS NO. 652

DRAWING NO. 4

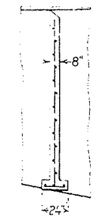


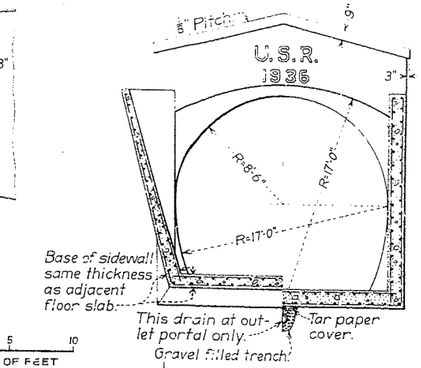
PROFILE OF INLET

PROFILE OF OUTLET

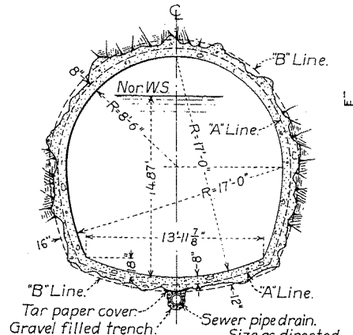


SECTION A-A

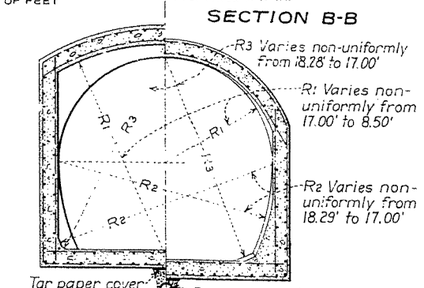




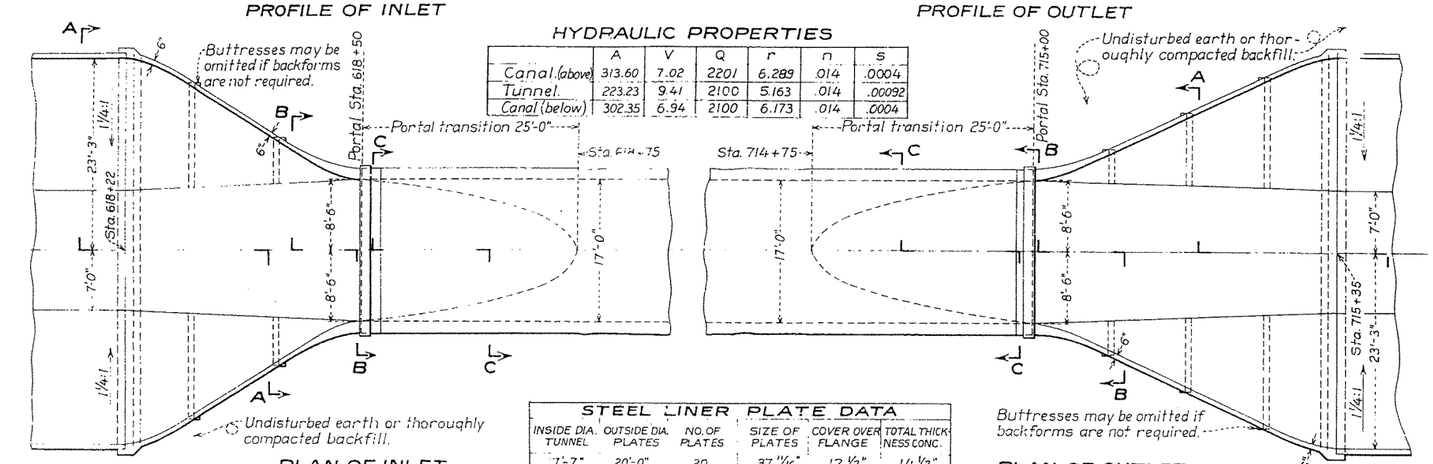
SECTION B-B



TYPE "A"
TUNNEL SECTION



SECTION C-C



PLAN OF INLET

HYDRAULIC PROPERTIES

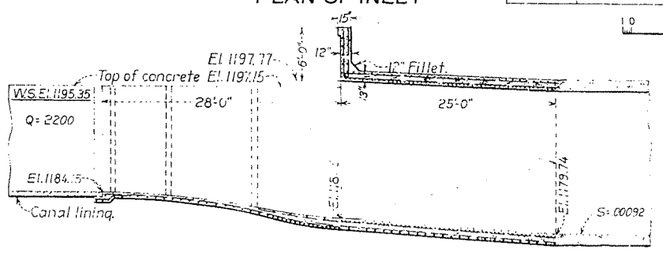
	A	V	Q	r	n	s
Canal (above)	313.60	7.02	2201	6.289	.014	.0004
Tunnel.	223.23	9.41	2100	5.163	.014	.00092
Canal (below)	302.35	6.94	2100	6.173	.014	.0004

STEEL LINER PLATE DATA

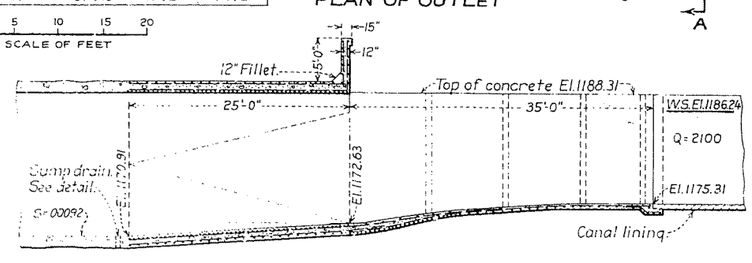
INSIDE DIA. TUNNEL	OUTSIDE DIA. PLATES	NO. OF PLATES	SIZE OF PLATES	COVER OVER FLANGE	TOTAL THICKNESS CONC.
17'-7"	20'-0"	20	37 7/16"	12 ½"	14 ½"

1 0 5 10 15 20
SCALE OF FEET

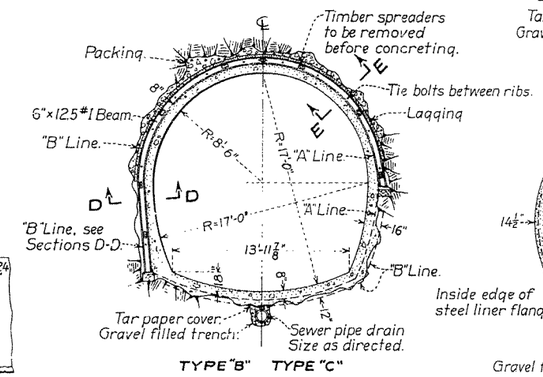
PLAN OF OUTLET



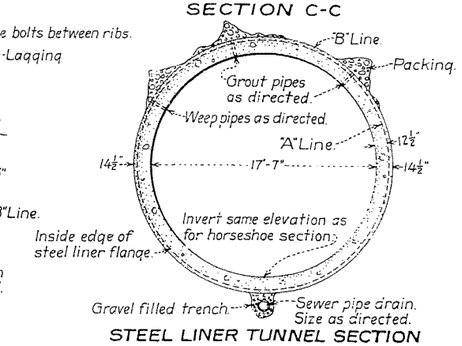
LONGITUDINAL SECTION OF INLET



LONGITUDINAL SECTION OF OUTLET



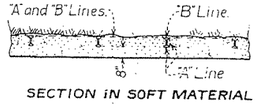
TYPE "B" TYPE "C"
TUNNEL SECTION



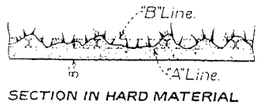
STEEL LINER TUNNEL SECTION

ESTIMATED QUANTITIES

Concrete, reinforced.....250 Cu.Yds.
Concrete tunnel lining.....28,000 Cu.Yds.
Reinforcement steel.....21,900 Lbs.



SECTION IN SOFT MATERIAL

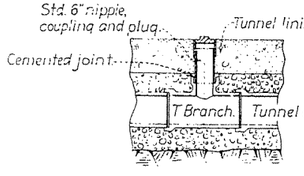


SECTION IN HARD MATERIAL

SECTIONS D-D

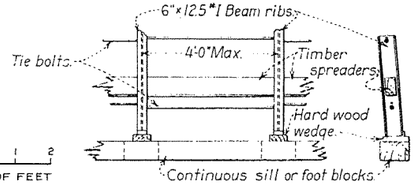
1 0 5 10
SCALE OF FEET

SECTION E-E



DETAIL OF SUMP DRAIN

1 0 1 2
SCALE OF FEET



DETAIL OF STEEL RIB FOOTINGS

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT - WASH.
ROZA DIVISION

YAKIMA RIDGE CANAL - STA. 618+22

TUNNEL NO. 3

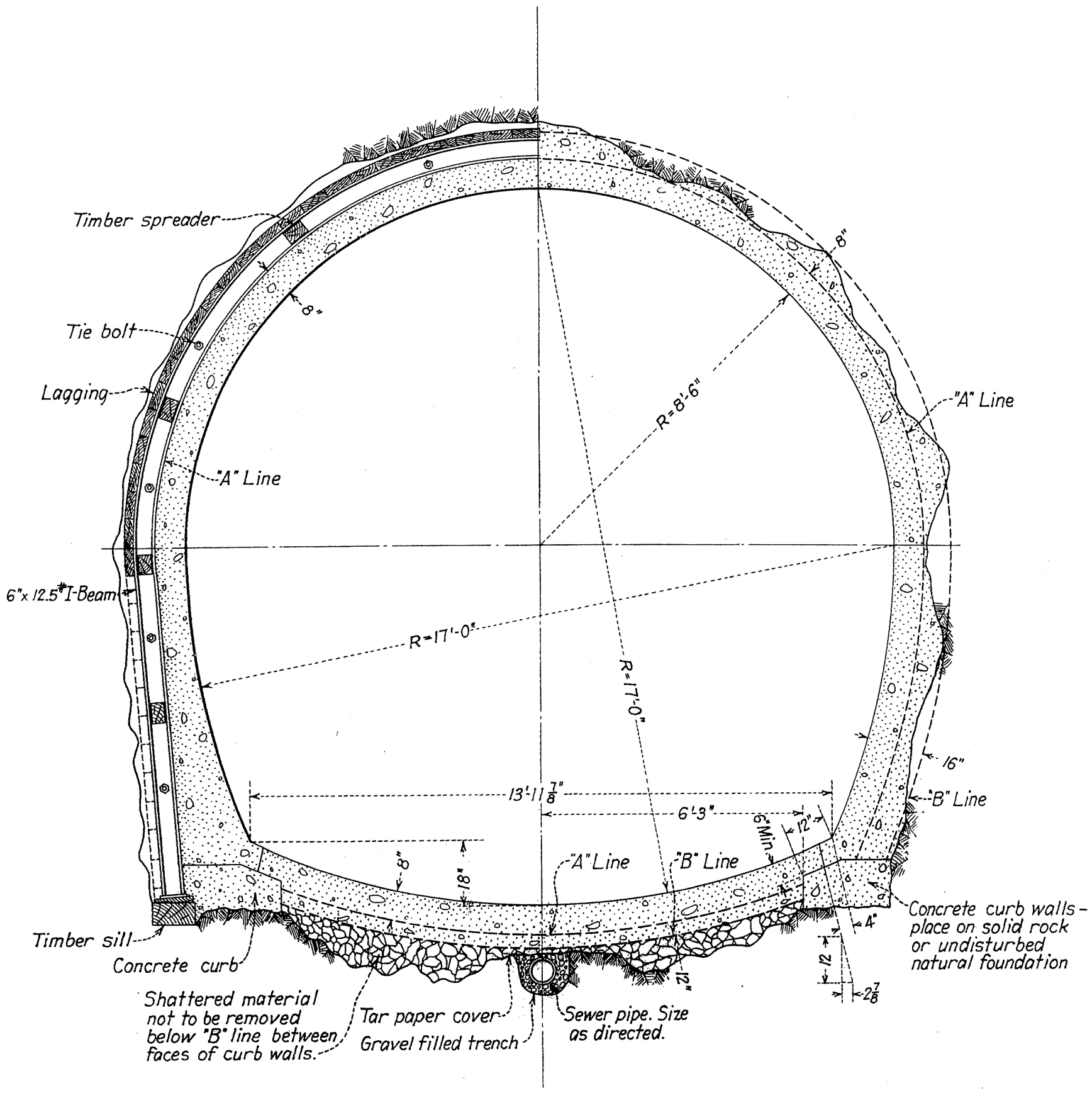
Rev. 3-9-36

DRAWN: J.H.K. SUBMITTED: R. L. McFarland
TRACED: C.E.W. RECOMMENDED: J. L. Savage
CHECKED: Laf APPROVED: R. J. Walter

27773 DENVER, COLO. NOV. 5, 1935. 33-D-833

21" × 36"

Job* 33-4-8



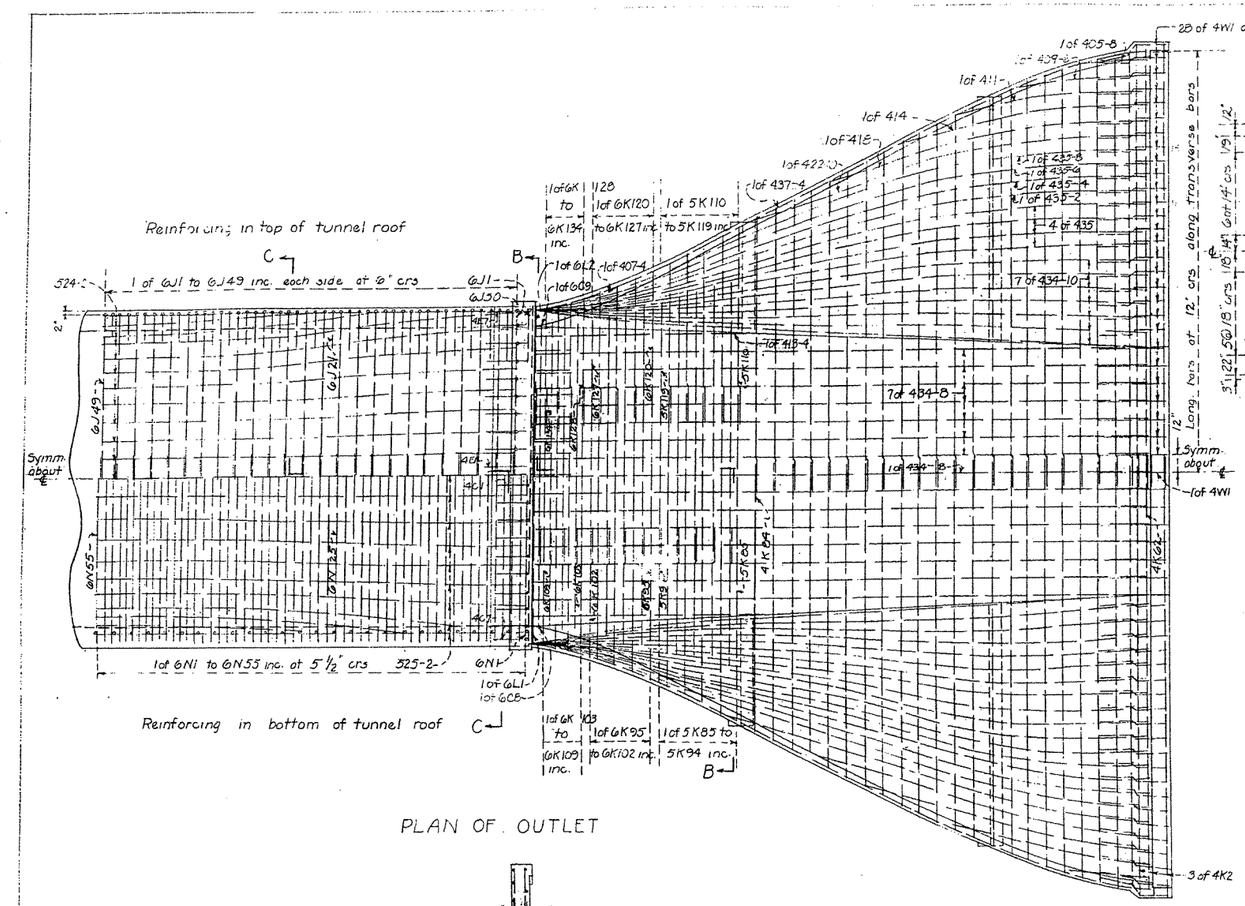
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT - WASHINGTON
ROZA DIVISION

YAKIMA RIDGE CANAL
TUNNELS No. 1 AND No. 3
SECTION

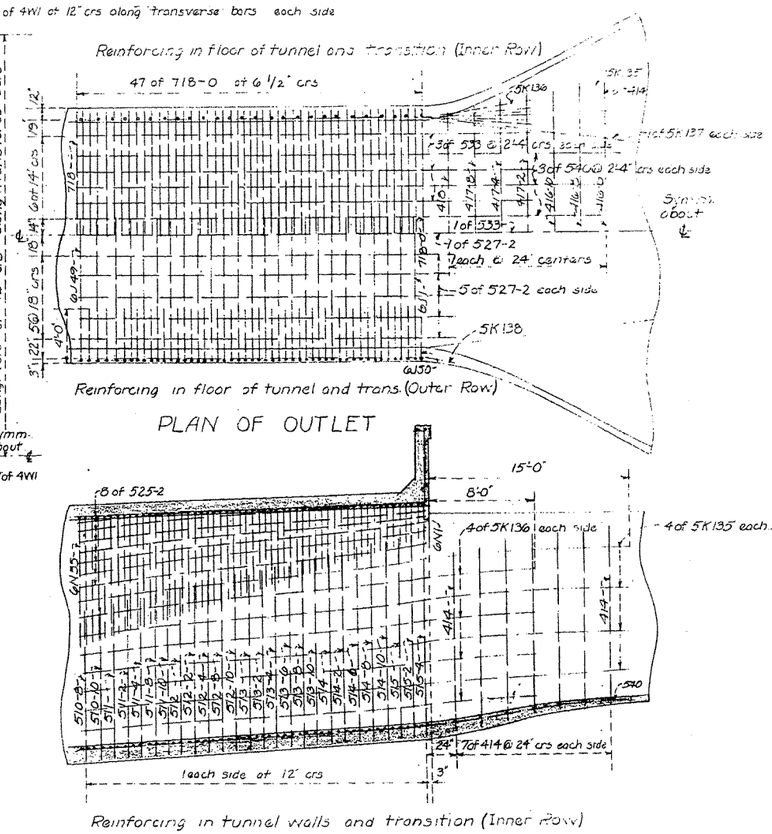
DRAWN: W.C.O. SUBMITTED: W. R. McSwiney
TRACED: S.M.E. RECOMMENDED: [illegible]
CHECKED: [illegible] APPROVED: [illegible]

DENVER, COLORADO. JULY 6, 1937. 33-D-1127

16" x 21"

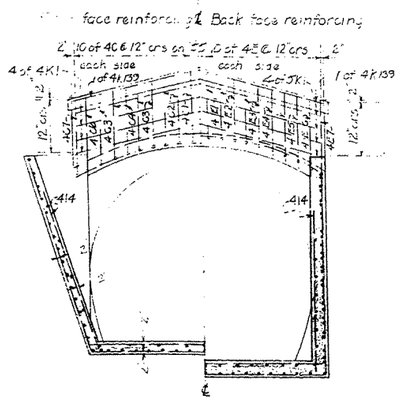


PLAN OF OUTLET

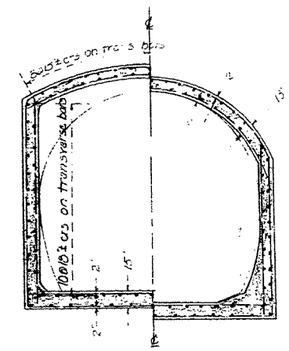


PLAN OF OUTLET

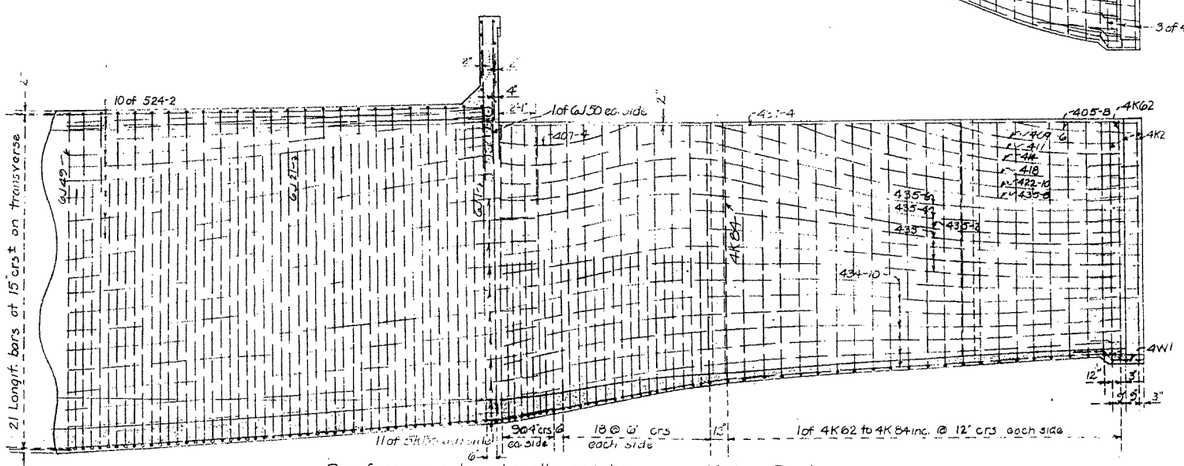
LONGITUDINAL SECTION OF OUTLET



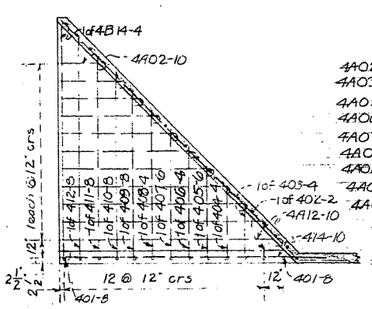
SECTION B-B



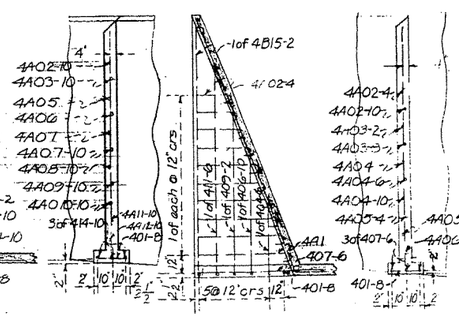
SECTION C-C



LONGITUDINAL SECTION OF OUTLET



Buttress No.4
2 Required



Buttress No.3
2 Required

NOTES

All reinforcement shall be placed so the centers of bars in the outer layers will be 2" from face of concrete unless shown otherwise.

Lap all bars 40 diameters at splices.

For details of structure see drawing 33-D-855

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT — WASH.
ROZA DIVISION
YAKIMA RIDGE CANAL—TUNNEL NO.3—Sta. 618+50
PORTAL STRUCTURE—TRANSITIONS
BAR PLACING DIAGRAM

DRAWN: C.J.M. SUBMITTED: [signature]
RECOMMENDED: [signature]
CHECKED: [signature] APPROVED: [signature]

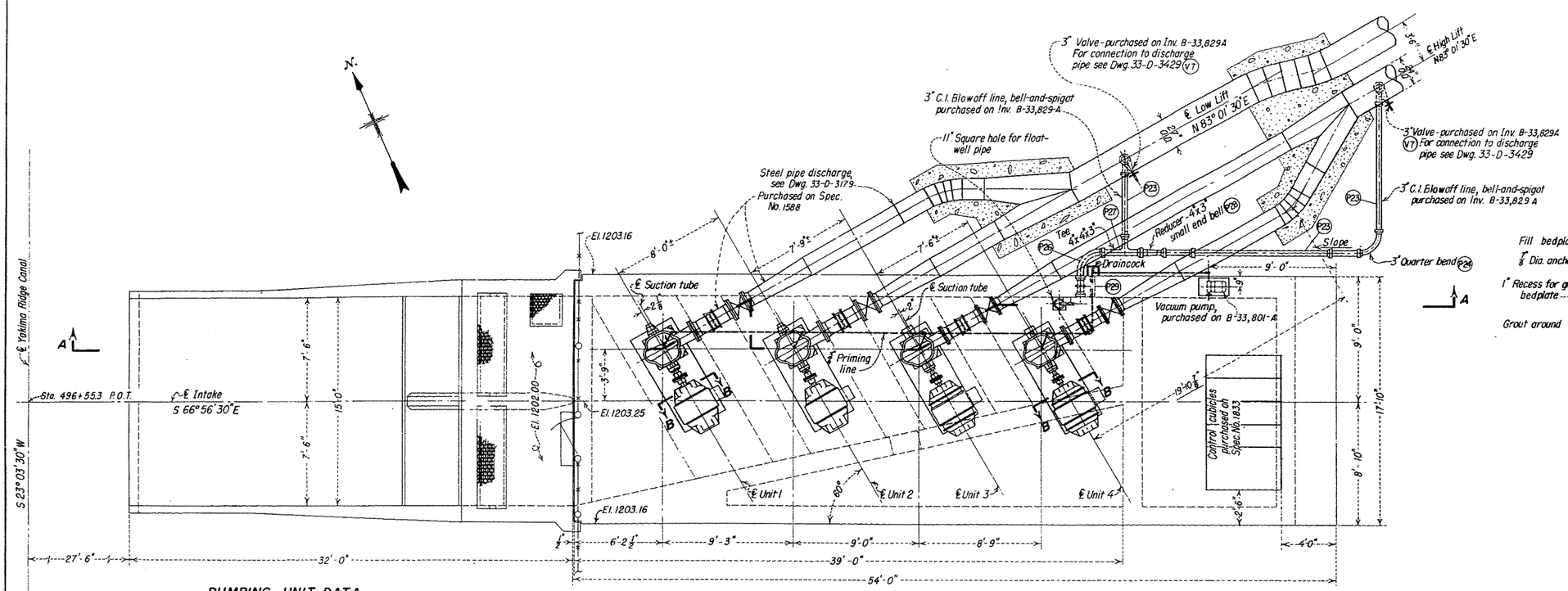
DENVER, COLO. JUNE 4, 1936 — Sheet 2 of 4 — 33-D-1058

33-4-8

MICROFILMED MAR 2 1959

F-5. Pumping Plants

- 33-D-3063 — Roza Division, Mile 7.2 Pumping Plant, Plan and Sections
- 33-D-3064 — Roza Division, Mile 16.8 Pumping Plant, Plan and Sections
- 33-D-3065 — Roza Division, Mile 22.5 Pumping Plant, Plan and Sections
- 33-D-3072 — Roza Division, Outdoor Pumping Plants, Area Numbers 1, 2, 3, 4, 8, 15, 16, Concrete Outline and Reinforcement



PUMPING UNIT DATA

	UNITS 1 & 2	UNITS 3 & 4
Specification No.	1257	1257
Spec. Item No.	1	8
Pump Capacity - c.f.s.	106	9.1
Total dynamic head - ft.	106	219
Rated H.P.	200	300
R.P.M. full load	1170	1760

REFERENCE DRAWINGS

LOCATION PLAN AND SECTIONS	33-D-3388
ELECTRICAL INSTALLATION	33-D-3287
FENCE	33-D-3504
CONCRETE OUTLINE AND DETAILS	33-D-3389
INTAKE STRUCTURE	33-D-3050
DISCHARGE PIPE MANIFOLDS	33-D-3179
WORTHINGTON PUMP & MCHY. CORP.-12-LC-3 PUMP	RY-84193
WORTHINGTON PUMP & MCHY. CORP.-10-LC-4 PUMP	RY-84203
MISCELLANEOUS STRUCTURAL STEEL	33-D-3430
FLOATWELLS AND SUCTION TUBES	33-D-3507
VACUUM PUMP TANK AND CABINET	33-D-3525
INTAKE STRUCTURE TRASHRACKS	33-D-3149
MISCELLANEOUS INSTALLATION DETAILS	33-D-3429

BILL OF MATERIAL 33-BM-3063

AREA 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT - WASHINGTON
ROZA DIVISION

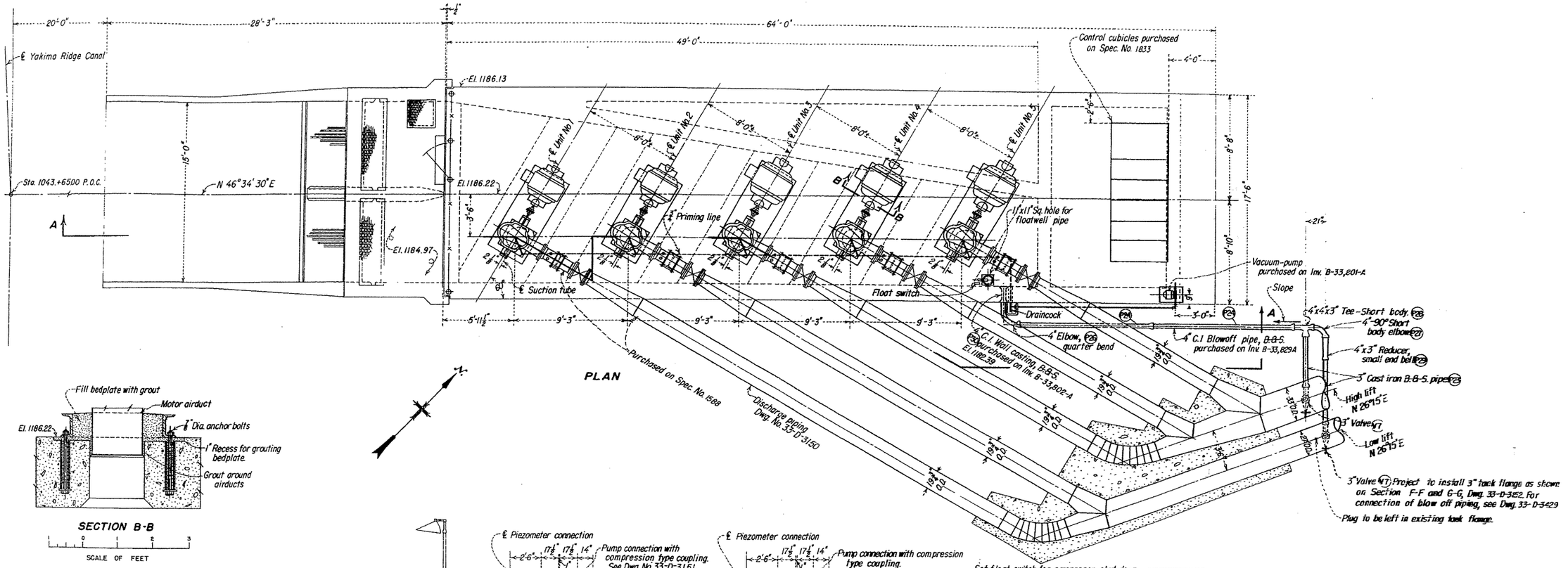
MILE 7.2 PUMPING PLANT
PLAN AND SECTIONS

DRAWN E.R. SUBMITTED R. Batten
TRACED L.E.F. RECOMMENDED J. R. Winter
CHECKED R. A. B. APPROVED W. H. Plumb

DENVER, COLORADO AUG. 12, 1946 33-D-3063

SIZE 23" x 36"

Job No. 33-3-9



REFERENCE DRAWINGS

VACUUM PUMP TANK & CABINET	33-D-3525
FLOATWELLS & SUCTION TUBES	33-D-3507
LOCATION PLAN & SECTION	33-D-3384
INTAKE STRUCTURE	33-D-3055
ELECTRICAL INSTALLATIONS	33-D-3288
CONCRETE OUTLINE & DETAILS	33-D-3385
DISCHARGE PIPE MANIFOLDS	33-D-3150
12-LC-3 VOLUTE PUMP - WORTHINGTON NO.	RY-84178
12-LC-3 VOLUTE PUMP - WORTHINGTON NO.	RY-84179
MISCELLANEOUS STRUCTURAL STEEL	33-D-3430
FENCE	33-D-3564
MISCELLANEOUS INSTALLATION DETAILS	33-D-3429
INTAKE STRUCTURE TRASHRACKS	33-D-3149
BILL OF MATERIAL	33-D-3064

AREA - 2

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT-WASHINGTON
ROZA DIVISION

MILE 16.8 PUMPING PLANT

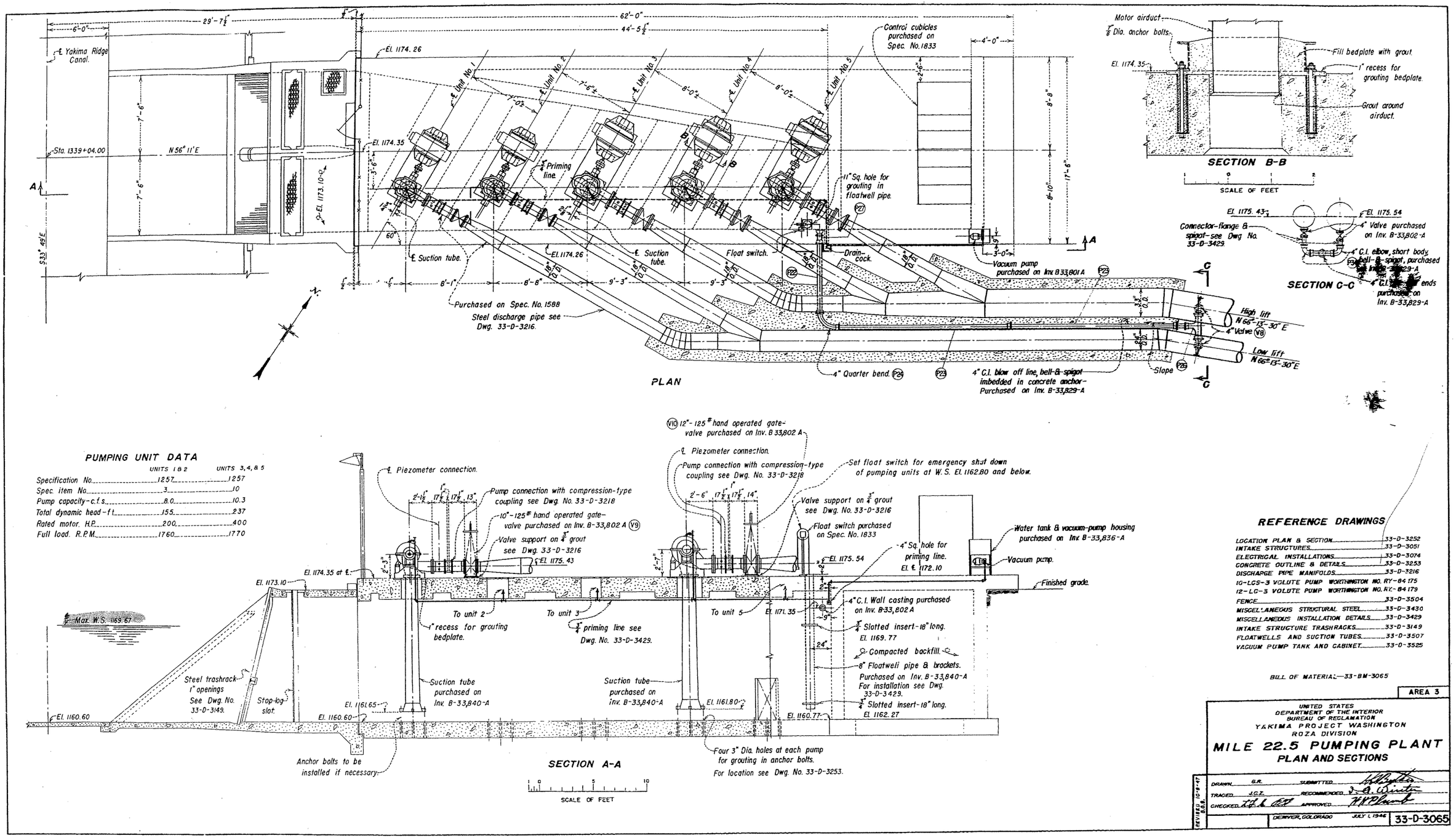
PLAN AND SECTIONS

DRAWN J.R.F. SUBMITTED
TRACED G.H.L. L.J.E. RECOMMENDED
CHECKED APPROVED
DENVER, COLORADO AUG. 8, 1946

33-D-3064

SIZE 21" x 34"

Job No. 33-3-10



PUMPING UNIT DATA

	UNITS 1 & 2	UNITS 3, 4, & 5
Specification No.	1257	1257
Spec. item No.	3	10
Pump capacity-c.f.s.	8.0	10.3
Total dynamic head-ft.	155	237
Rated motor. H.P.	200	400
Full load. R.P.M.	1760	1770

REFERENCE DRAWINGS

LOCATION PLAN & SECTION	33-D-3252
INTAKE STRUCTURES	33-D-3051
ELECTRICAL INSTALLATIONS	33-D-3074
CONCRETE OUTLINE & DETAILS	33-D-3253
DISCHARGE PIPE MANIFOLDS	33-D-3216
10-LCS-3 VOLUTE PUMP WORTHINGTON NO. RY-84.175	
12-LC-3 VOLUTE PUMP WORTHINGTON NO. RZ-84.179	
FENCE	33-D-3504
MISCELLANEOUS STRUCTURAL STEEL	33-D-3430
MISCELLANEOUS INSTALLATION DETAILS	33-D-3429
INTAKE STRUCTURE TRASHRACKS	33-D-3149
FLOATWELLS AND SUCTION TUBES	33-D-3507
VACUUM PUMP TANK AND CABINET	33-D-3525

BILL OF MATERIAL—33-BM-3065

AREA 3

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT WASHINGTON
ROZA DIVISION

MILE 22.5 PUMPING PLANT
PLAN AND SECTIONS

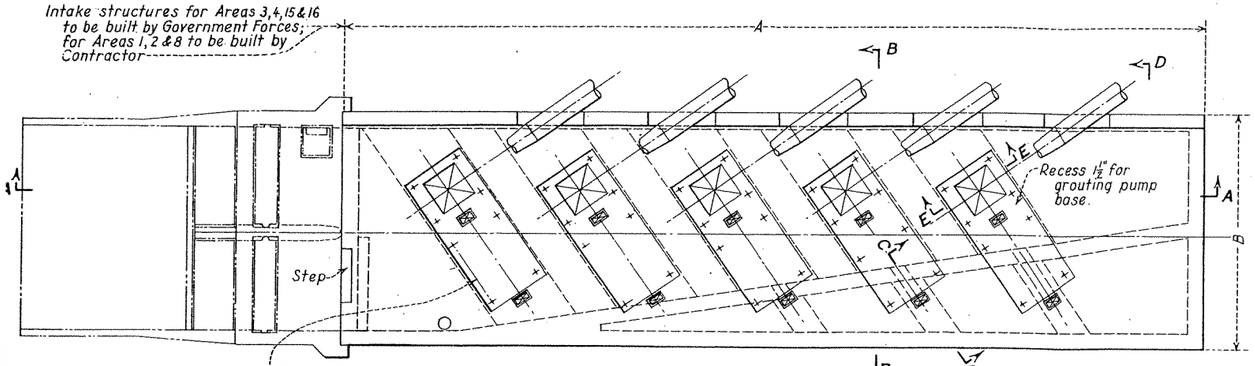
DRAWN G.R. SUBMITTED
TRACED J.C.Z. RECOMMENDED
CHECKED APPROVED

DENVER, COLORADO JULY 1, 1946

33-D-3065

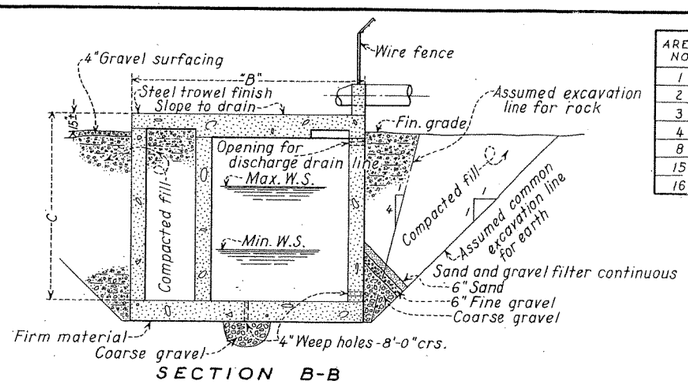
REVISED 10-9-47 D.S.B.

JOB NO. 33-3-8



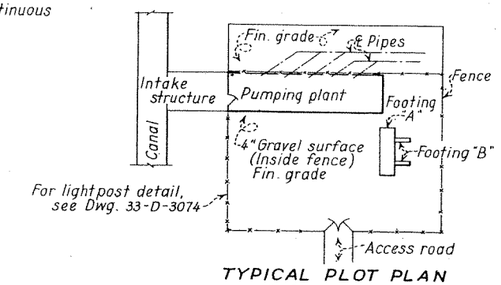
TYPICAL PLAN AREA NO'S 1, 2, 3, 8, 15 & 16

For number of units and approximate dimensions see table. Plants to be as shown or opposite hand as determined later.



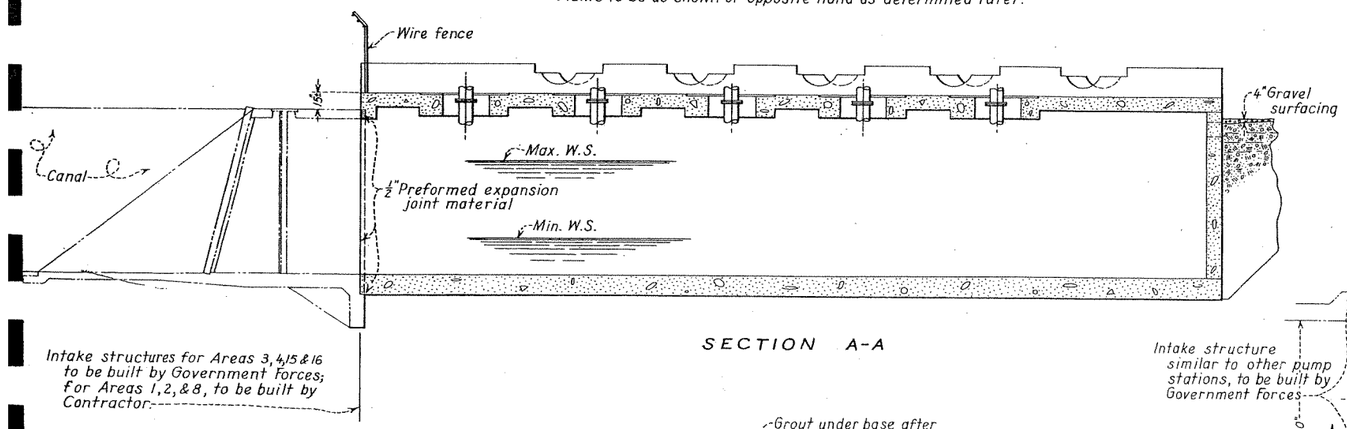
SECTION B-B

AREA NO	PLANT LOCATION MILE NO.	NUMBER OF UNITS	APPROXIMATE DIMENSIONS A	B	C	DWG. NO. INTAKE STRUCTURE
1	7.2	4	55'-0"	17'-4"	17'-3"	33-D-3050
2	16.8	5	64'-0"	17'-4"	14'-9"	33-D-3059
3	22.5	5	64'-0"	17'-4"	13'-9"	33-D-3051
4	24.0	2	13'-0"	26'-0"	13'-9"	33-D-3051
8	42.8	3	45'-0"	17'-4"	13'-7"	33-D-3060
15	78.8	6	75'-0"	20'-4"	10'-9"	33-D-3061
16	88.4	5	64'-0"	20'-4"	8'-3"	33-D-3062

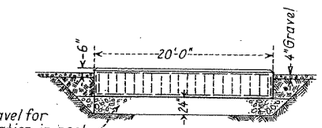


TYPICAL PLOT PLAN

SCALE OF FEET

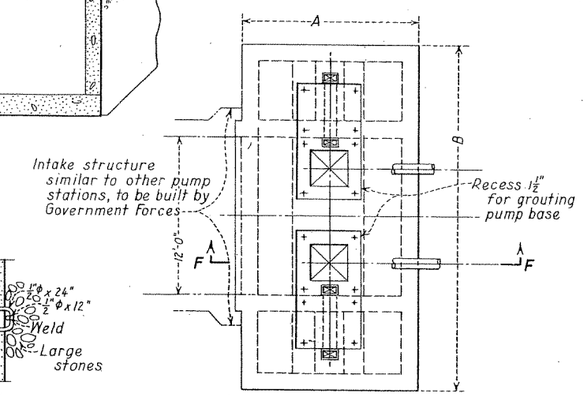


SECTION A-A

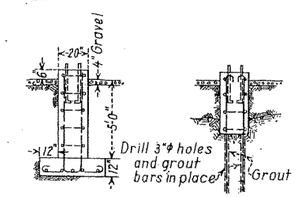


FOOTING "A"

SCALE OF FEET



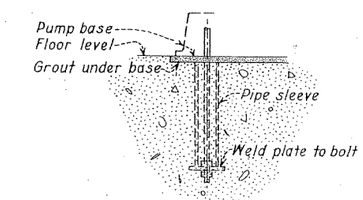
PLAN - AREA NO 4



EARTH ROCK

FOOTING "B"

SCALE OF FEET

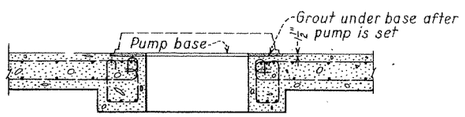


PUMP ANCHOR BOLT DETAIL

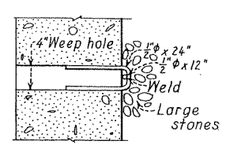
SCALE OF FEET

SCALE OF FEET

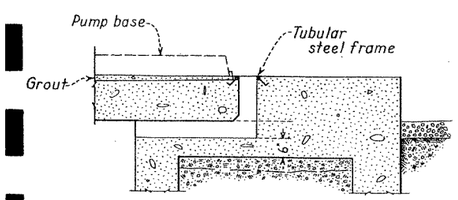
ENLARGED SECTIONS



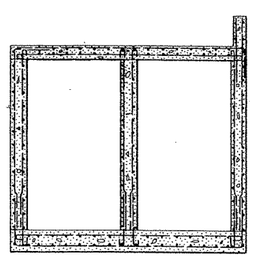
SECTION E-E



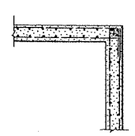
DETAIL OF WALL WEEP HOLE



SECTION C-C

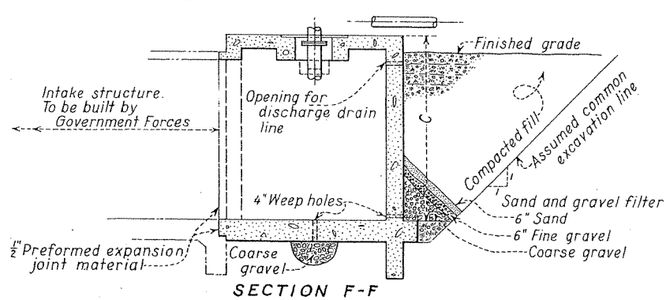


SECTION D-D



PLAN OF CORNER WALLS

TYPICAL REINFORCEMENT



SECTION F-F

REFERENCE DRAWINGS

GENERAL ARRANGEMENT, MILE 22.5 ..... 33-D-3054
TYPICAL ELECTRICAL INSTALLATION 33-D-3074

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT-WASHINGTON
ROZA DIVISION

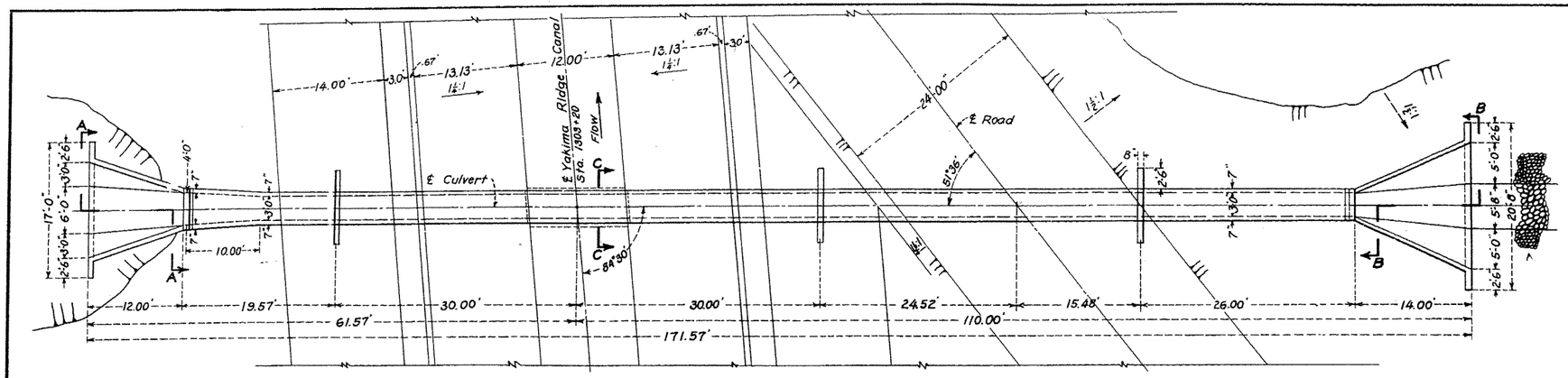
OUTDOOR PUMPING PLANTS
AREA NUMBERS 1, 2, 3, 4, 8, 15, 16
CONCRETE OUTLINE AND REINFORCEMENT

DRAWN N.N.R.-W.E.V. SUBMITTED
TRACED H.D.B. RECOMMENDED
CHECKED W.H.R. Ch. S.T. APPROVED Walter R. Young CHIEF ENGINEER

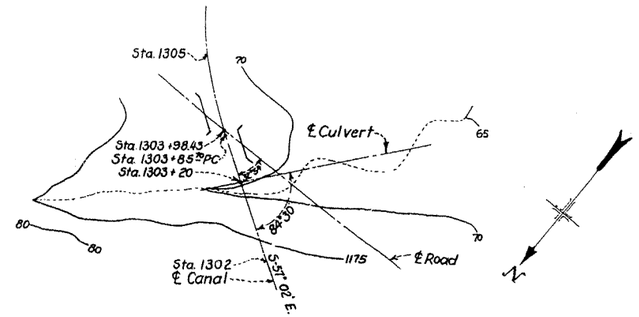
DENVER, COLORADO FEB. 19, 1946 | 33-D-3072

F-6. Miscellaneous Structures and Bridges

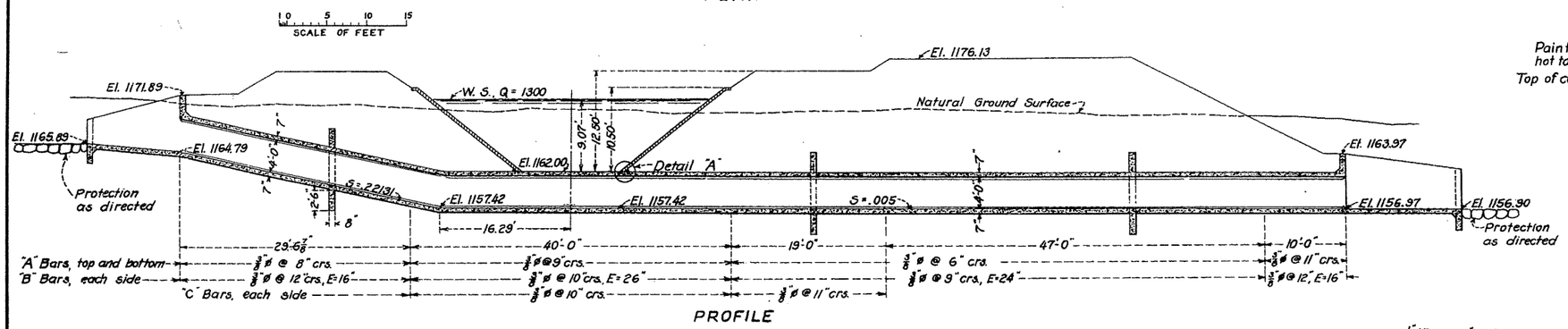
- 33-D-1143 — Roza Division, Yakima Ridge Canal – Sta. 1303+20, 3.0’x4.0’ Concrete Culvert
- 33-D-1144 — Roza Division, Yakima Ridge Canal – Sta. 1303+79.4, Highway Bridge, Plan — Section – Abutments
- 33-D-1145 — Roza Division, Yakima Ridge Canal – Sta. 1303+79.4, Highway Bridge, Structural Steel — Slab – Railing
- 33-D-1146 — Roza Division, Yakima Ridge Canal – Sta. 1349+30, Concrete Siphon



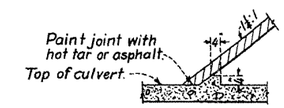
PLAN



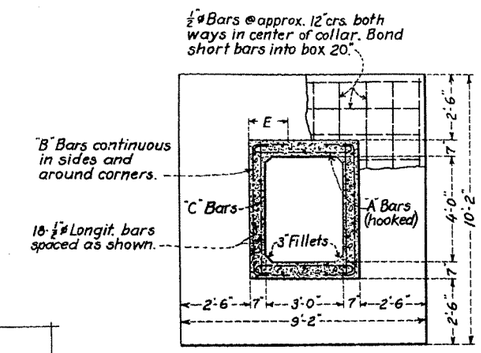
LOCATION PLAN



PROFILE

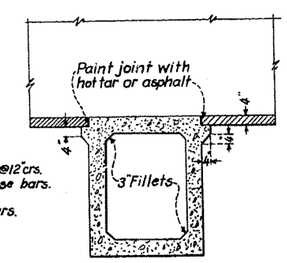


DETAIL "A"

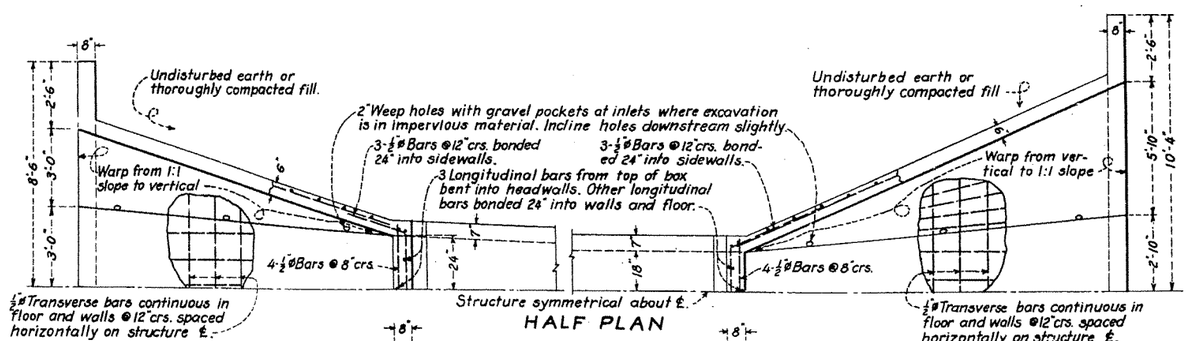


SECTION OF BARREL SHOWING COLLAR

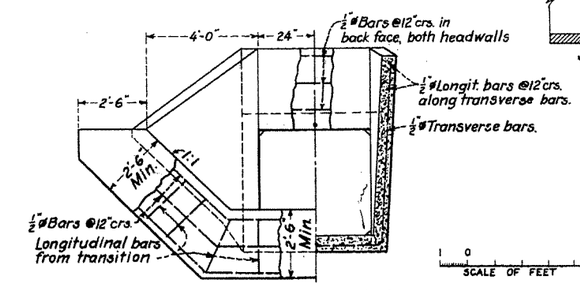
See Profile for size and spacing of transverse bars



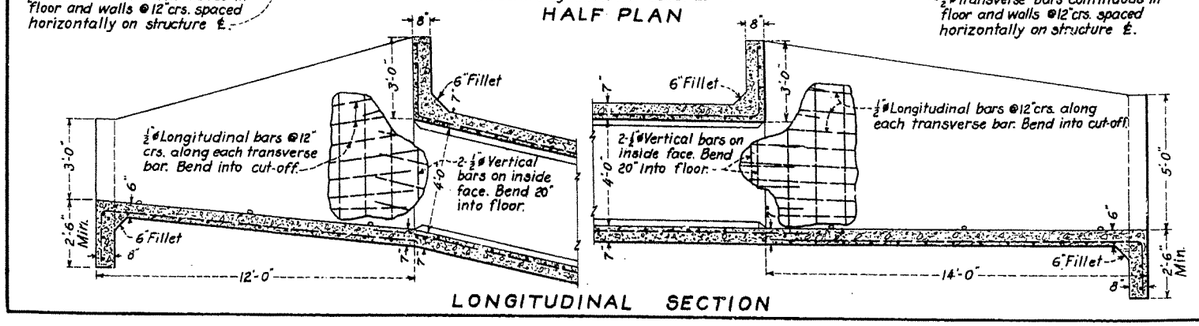
SECTION C-C



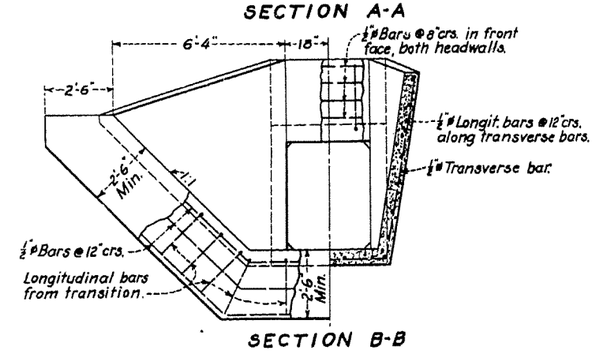
HALF PLAN



SECTION A-A



LONGITUDINAL SECTION



SECTION B-B

SCALE OF FEET

NOTES

All reinforcement shall be placed so that the centers of bars in the outer layer will be 2" from face of concrete, unless otherwise shown.

Lap all bars 40 diameters at splices. Stagger splices.

Thickness of concrete to vary uniformly between dimensions shown.

Hooks with bends of 180°, radii of 4 bar diameters and lengths of 16 bar diameters to be provided where shown.

ESTIMATED QUANTITIES

Concrete	59 Cu. Yds.
Reinforcement Steel	5000 Lbs.

THIS DWG. SUPERSEDES DWG. OF JUNE 7, 1937, SAME NUMBER

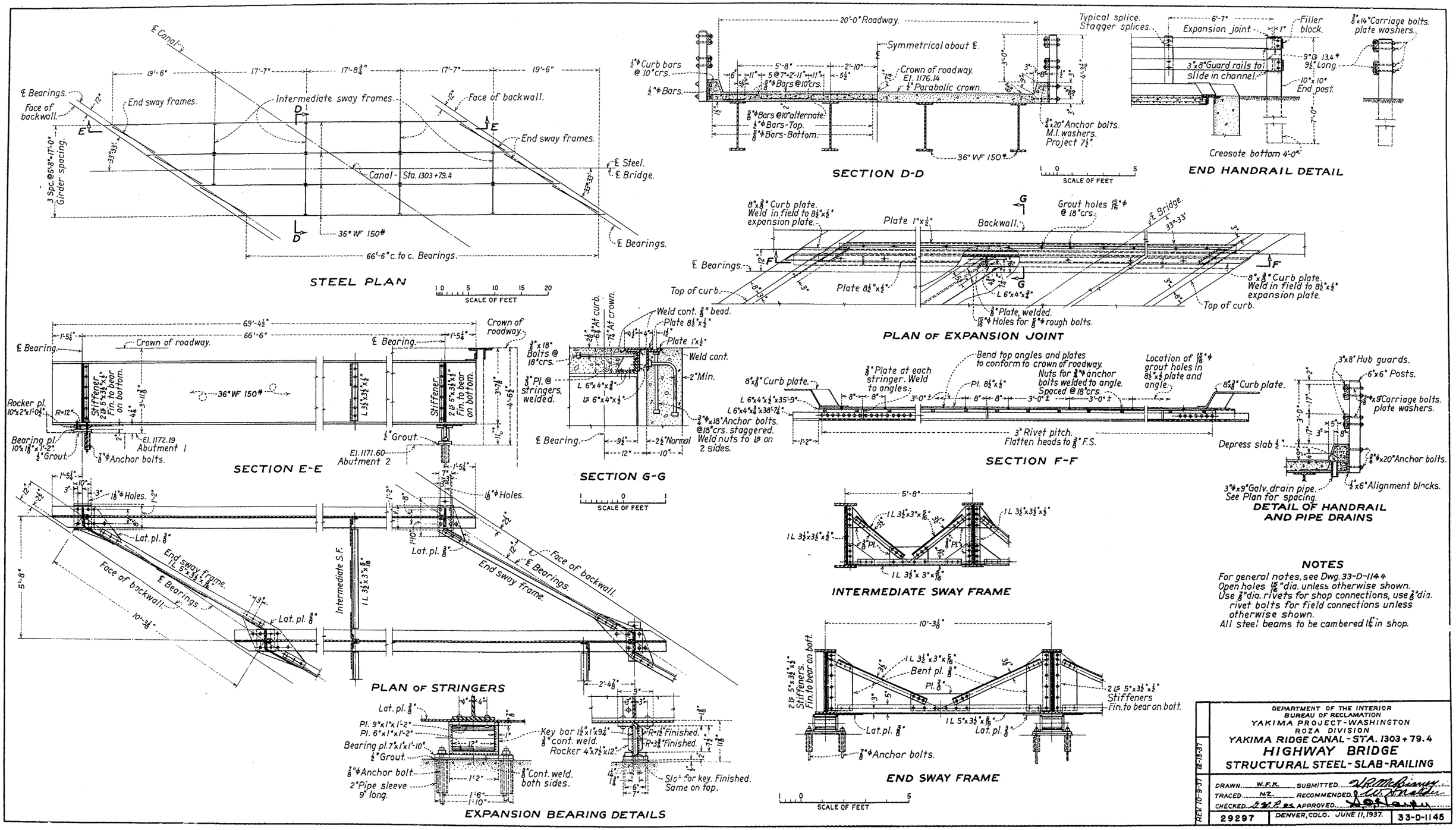
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT-WASHINGTON
ROZA DIVISION

YAKIMA RIDGE CANAL - STA. 1303+20
3.0'×4.0' CONCRETE CULVERT

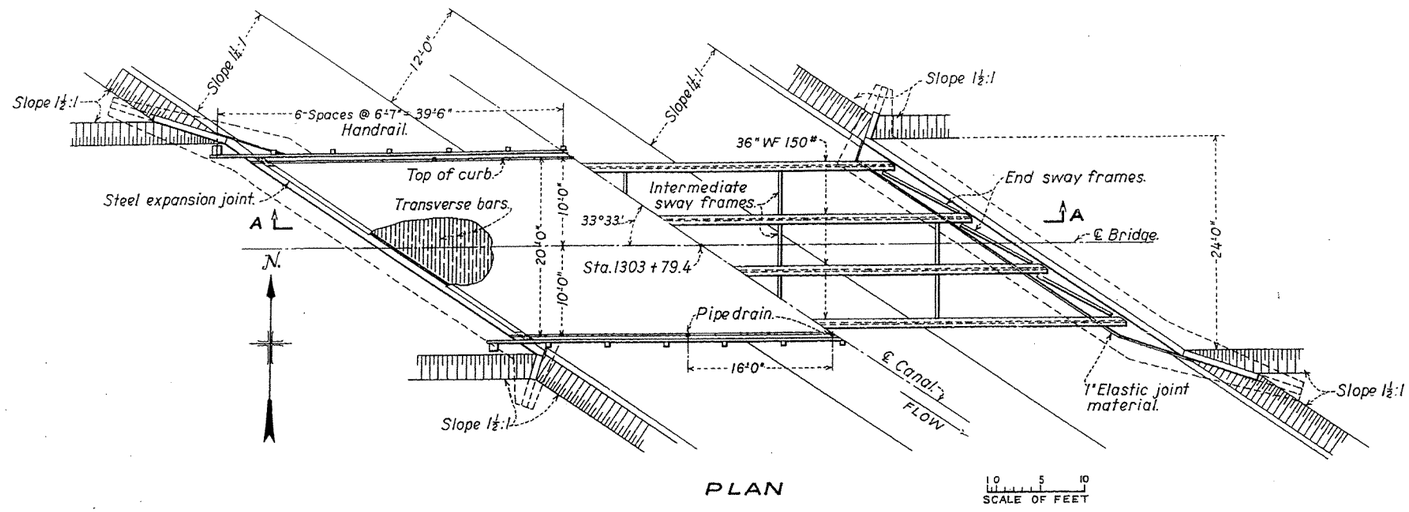
REVISED & REDRAWN

DRAWN: W.G.W.-C.R.L. SUBMITTED: H. W. Preace
TRACED: C.B.L. RECOMMENDED: [illegible]
CHECKED: H.H.E. APPROVED:

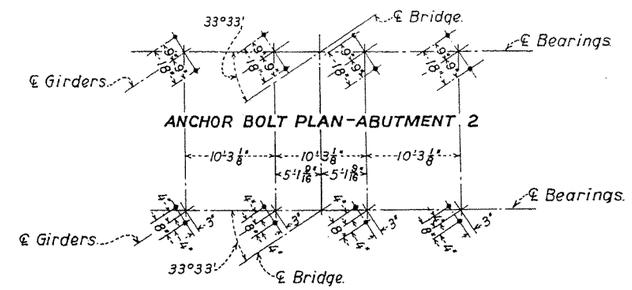
29295 | YAKIMA, WASH. FEB. 2, 1938. | 33-D-1143


STEEL PLAN
SECTION D-D
END HANDRAIL DETAIL
PLAN OF EXPANSION JOINT
SECTION E-E
SECTION G-G
SECTION F-F
DETAIL OF HANDRAIL AND PIPE DRAINS
PLAN OF STRINGERS
INTERMEDIATE SWAY FRAME
END SWAY FRAME
EXPANSION BEARING DETAILS
SCALE OF FEET
NOTES
For general notes, see Dwg. 33-D-1144
Open holes 15/16" dia. unless otherwise shown.
Use 7/8" dia. rivets for shop connections, use 7/8" dia. rivet bolts for field connections unless otherwise shown.
All steel beams to be cambered 1 1/4" in shop.
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT-WASHINGTON
ROZA DIVISION
YAKIMA RIDGE CANAL - STA. 1303 + 79.4
HIGHWAY BRIDGE
STRUCTURAL STEEL - SLAB - RAILING
DRAWN W.F.K.
TRACED N.Z.
CHECKED
SUBMITTED
RECOMMENDED
APPROVED
29297
DENVER, COLO. JUNE 11, 1937.
33-D-1145
REV. 10-9-37
12-13-37

33-4-2

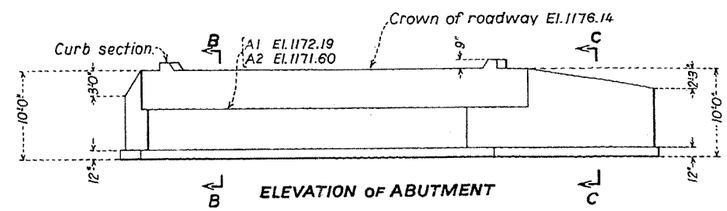


PLAN

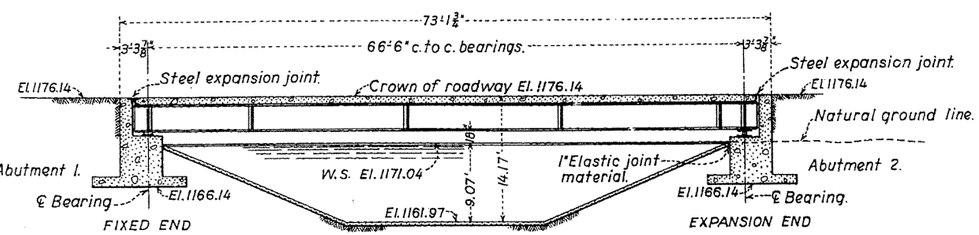


ANCHOR BOLT PLAN-ABUTMENT 2

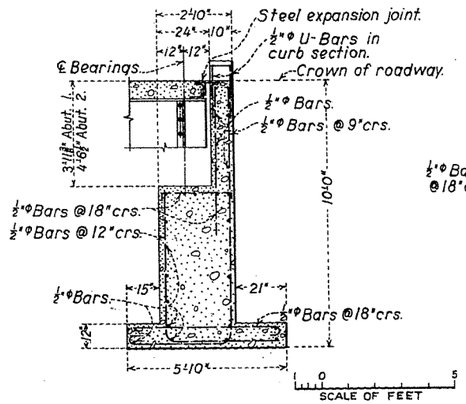
ANCHOR BOLT PLAN-ABUTMENT 1



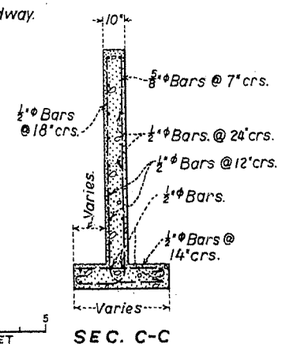
ELEVATION OF ABUTMENT



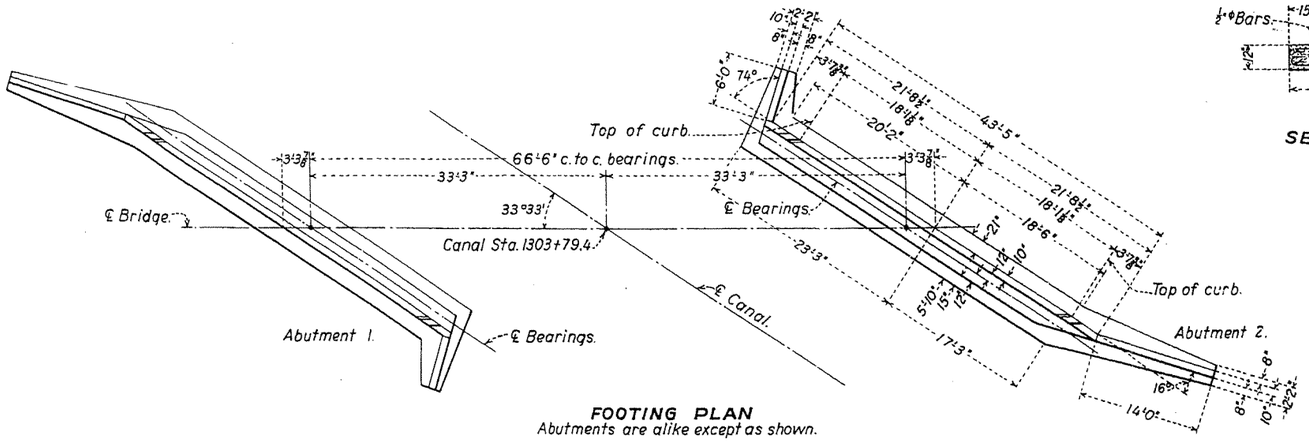
SECTION A-A



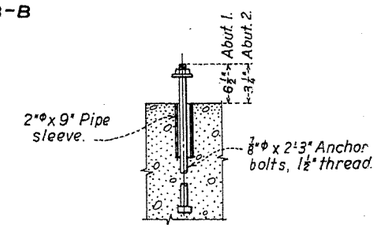
SECTION B-B



SEC. C-C



FOOTING PLAN
Abutments are alike except as shown.



ANCHOR BOLT SETTING

ESTIMATED QUANTITIES

Concrete	122	Cu. Yds.
Reinforcement steel	15 900	Lbs.
Structural steel	53 800	Lbs.
Lumber	1 200	F.B.M.

NOTES

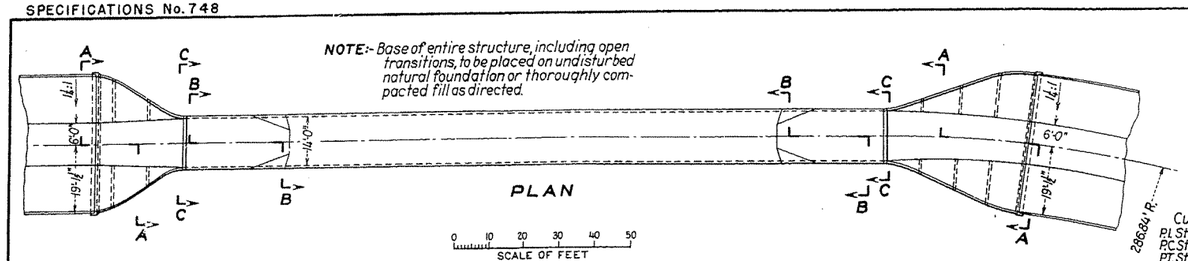
Concrete to have a minimum compressive strength of 3000 lbs. per sq. inch. at 28 days.
Design based on two lanes of H-15 ton trucks in accordance with "Standard Specifications for Highway Bridges" The American Association of State Highway Officials 1935 Edition.
All reinforcement to be placed so that the centers of bars in the outer layer will be 2" from face of concrete unless otherwise shown.
All dimensions to reinforcement bars are to center line of bars.
Railing timbers to be Douglas Fir, surfaced four sides and painted white.

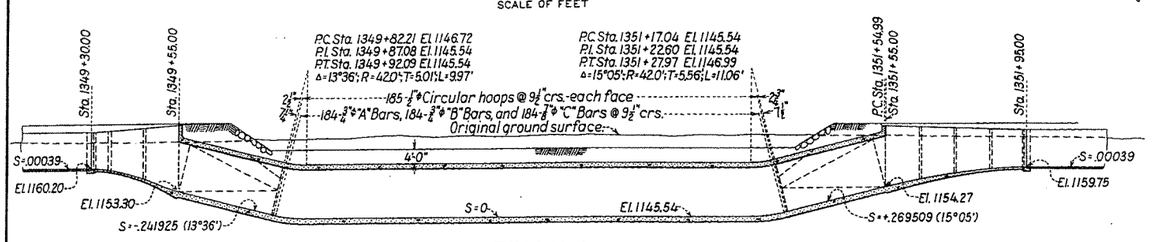
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT-WASHINGTON
ROZA DIVISION
YAKIMA RIDGE CANAL - STA. 1303+79.4
HIGHWAY BRIDGE
PLAN - SECTION - ABUTMENTS

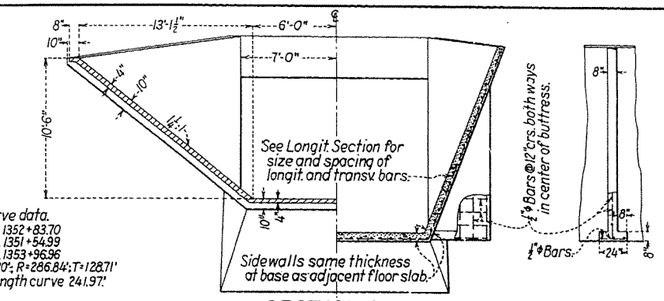
REV. 10-9-37
DRAWN: W.E.K. SUBMITTED: W. P. McBirney
TRACED: H.A.R. RECOMMENDED: W. W. Walker
CHECKED: A.K.P. APPROVED: [illegible]

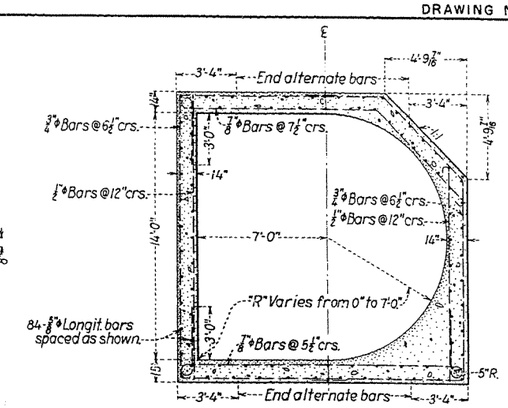
29296 | DENVER, COLO. JUNE 8, 1937 | 33-D-1144

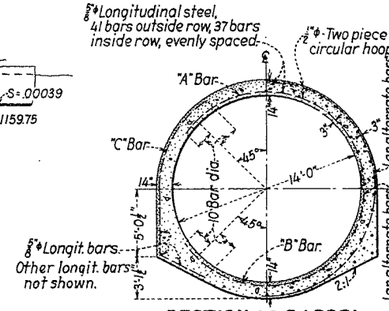
JOB NO. 33-4-2

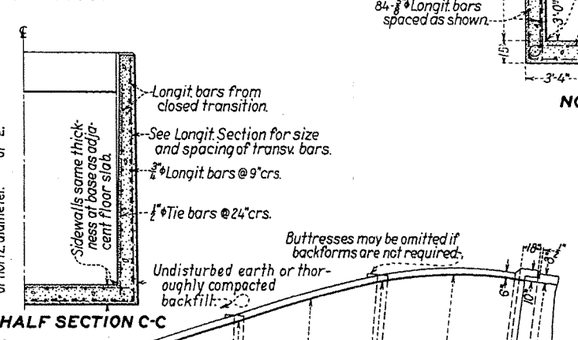










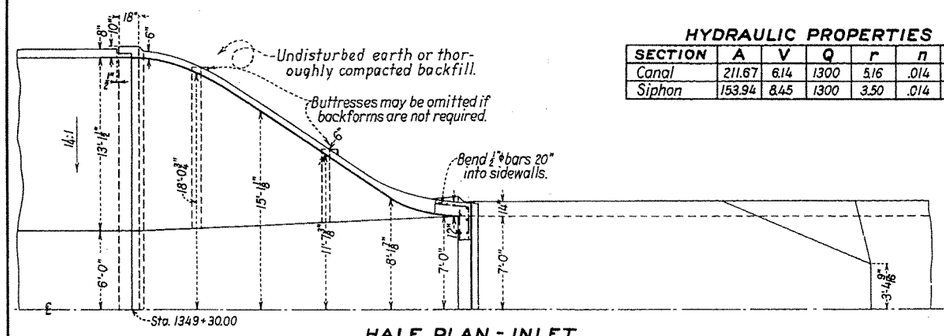


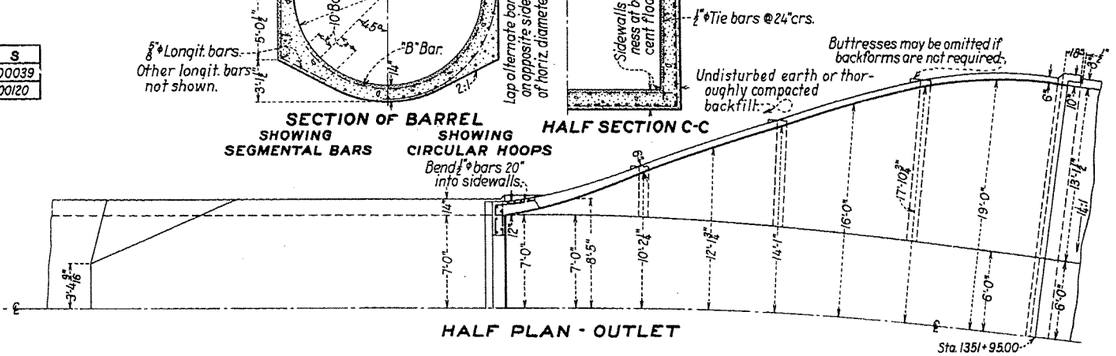
HYDRAULIC PROPERTIES

SECTION	A	V	Q	r	n	s
Canal	211.67	6.14	1300	5.16	.014	.00039
Siphon	153.94	8.45	1300	3.50	.014	.00120

ESTIMATED QUANTITIES

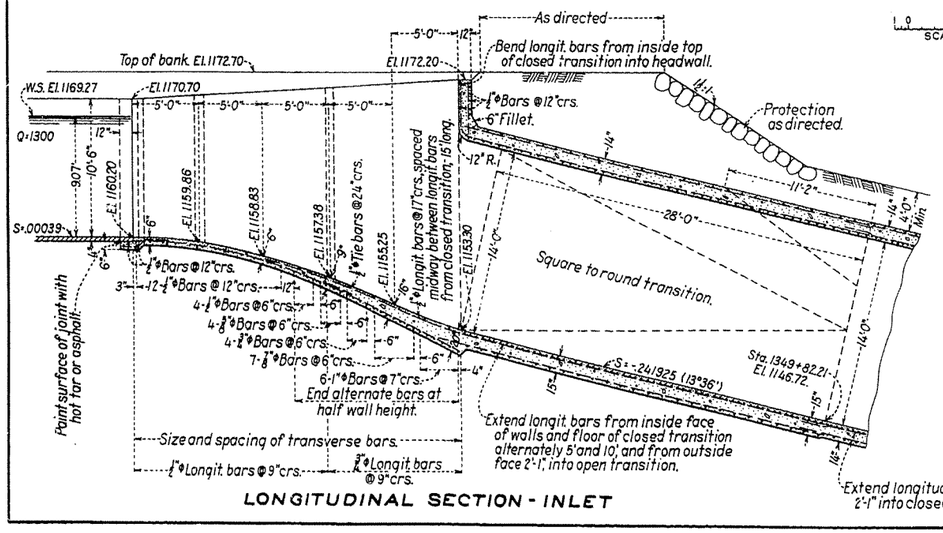
Concrete ..... 622 Cu. Yds.
Reinforcement steel ..... 114,000 Lbs.

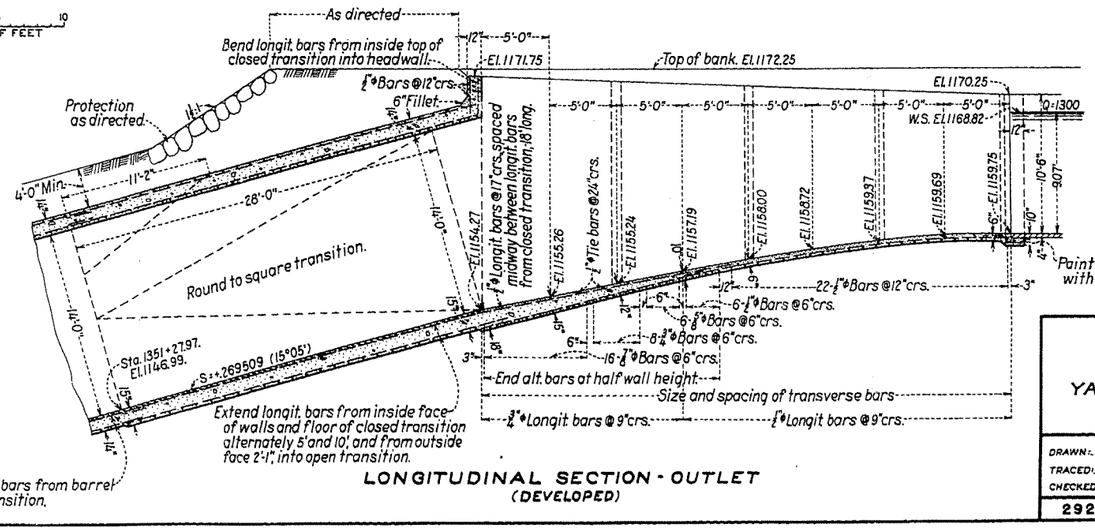




NOTES

All reinforcement shall be placed so that the centers of bars in the outer layer will be 2" from face of concrete unless otherwise shown.
Lap all bars 40 diameters at splices.
Hooks with 180° bends, radii of 4 bar diameters, and lengths of 16 bar diameters to be provided where shown.
Space transverse reinforcement in barrel along longitudinal bars and on longer arc of curves.
Thickness of concrete to vary uniformly between dimension shown.
Stations, elevations, and radii, shown on profile refer to invert of barrel unless otherwise noted.
Segmental bars to be placed midway between circular hoops.
Back fill along siphon barrel as directed.





DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT-WASHINGTON
ROZA DIVISION

YAKIMA RIDGE CANAL - STA. 1349+30
CONCRETE SIPHON

DRAWN: L.H.E. SUBMITTED: W. R. McKinney
TRACED: P.N.H. RECOMMENDED: [illegible]
CHECKED: [illegible] APPROVED: [illegible]

29298 | DENVER, COLORADO, JUNE 24, 1937 | 33-D-1146