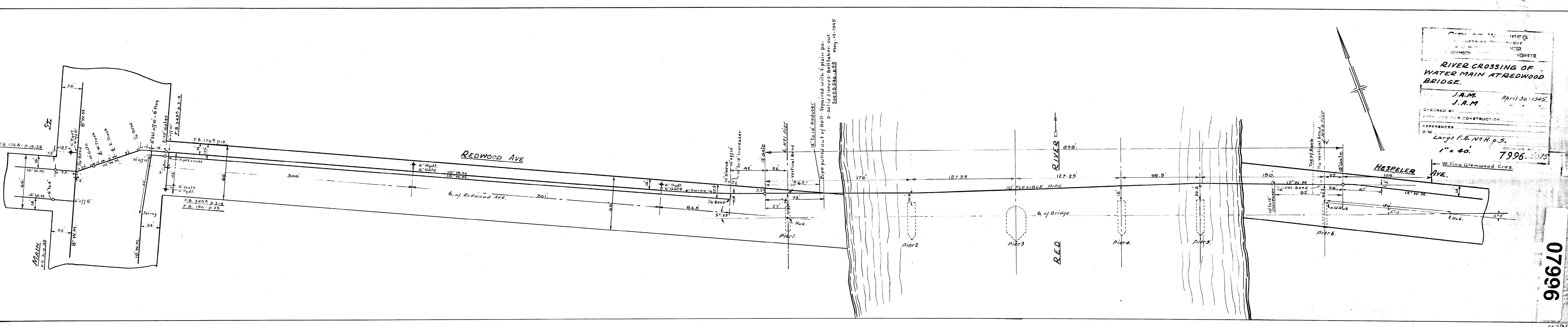


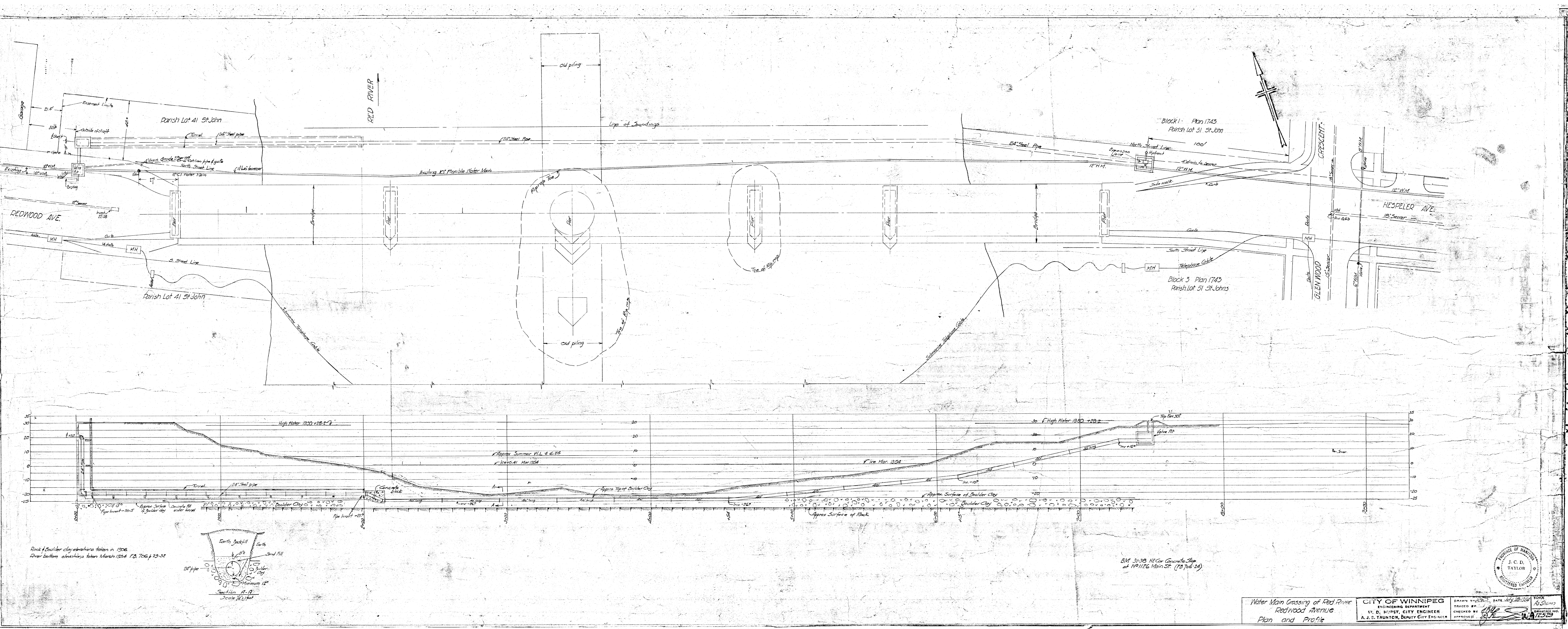
CIVIL ENGINEER
 RIVER CROSSING OF
 WATER MAIN AT REDWOOD
 BRIDGE.
 J.A.M. April 30, 1945.
 J.N.M.
 CHECKED BY
 APPROVED FOR CONSTRUCTION
 REFERENCED
 Large R.B. VEH. p. 5.
 W. Line Glenwood Cres.
 7996-2075



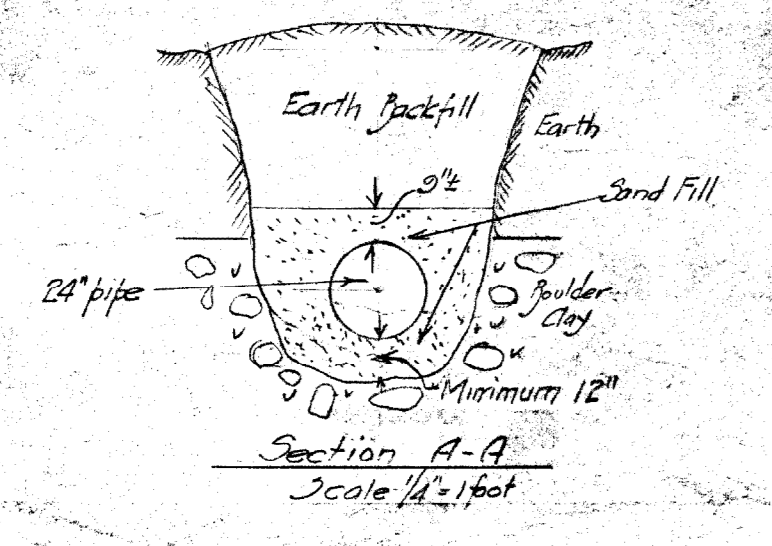
E. base Redwood
 Pipe pulled out of Bell - repaired with 3. plain pc.
 E. side of bridge. All taken on
 12.12.1945

96670

1946

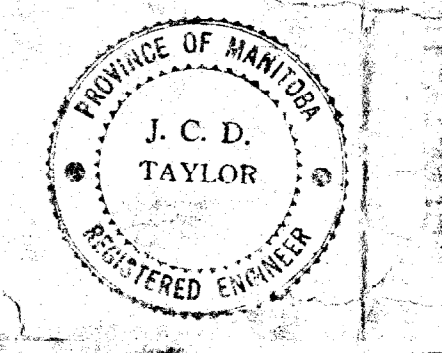


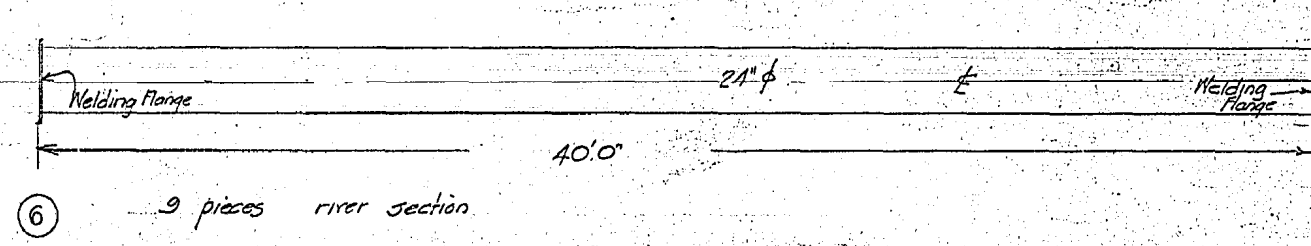
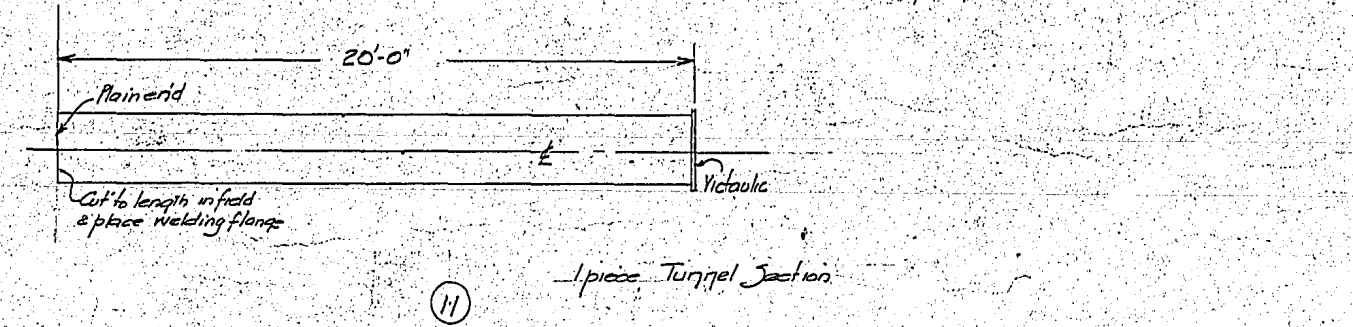
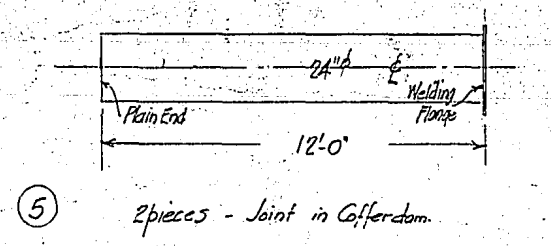
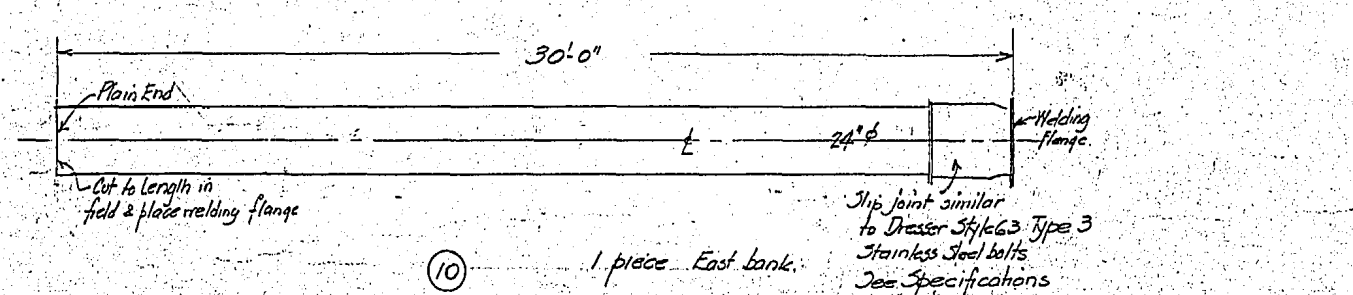
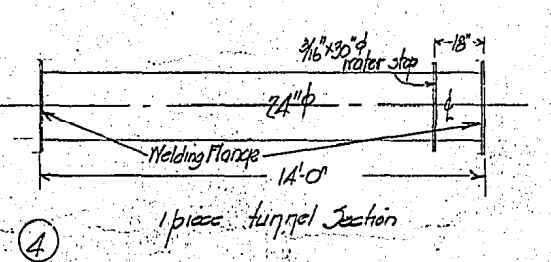
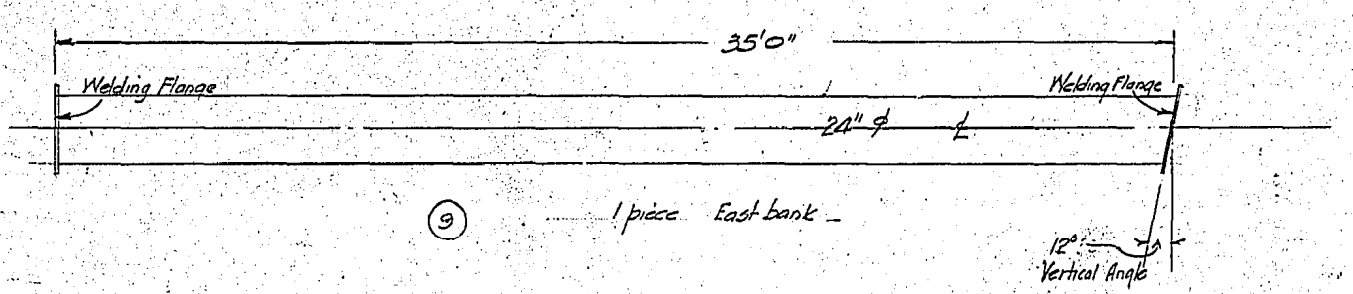
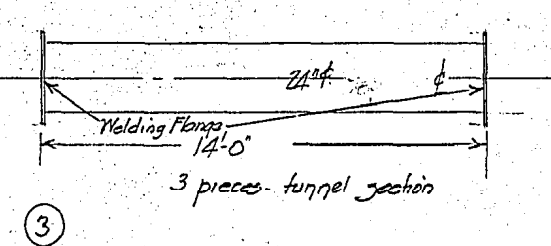
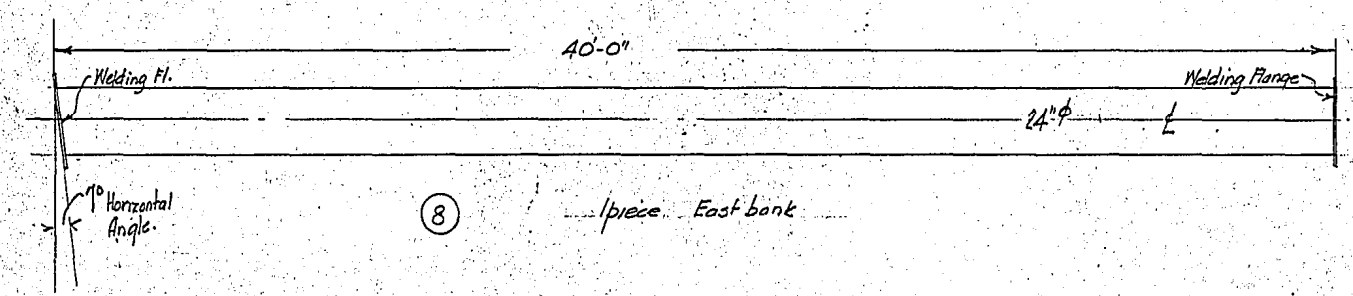
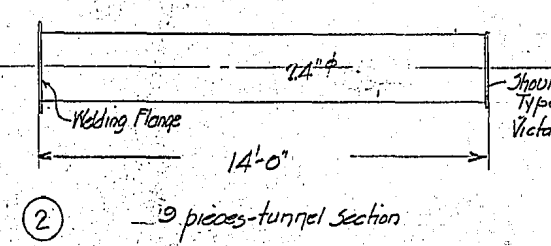
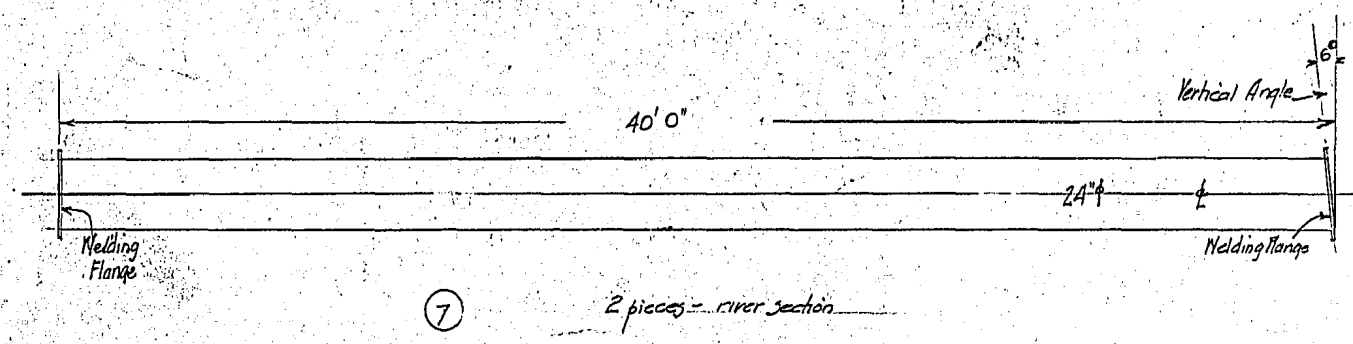
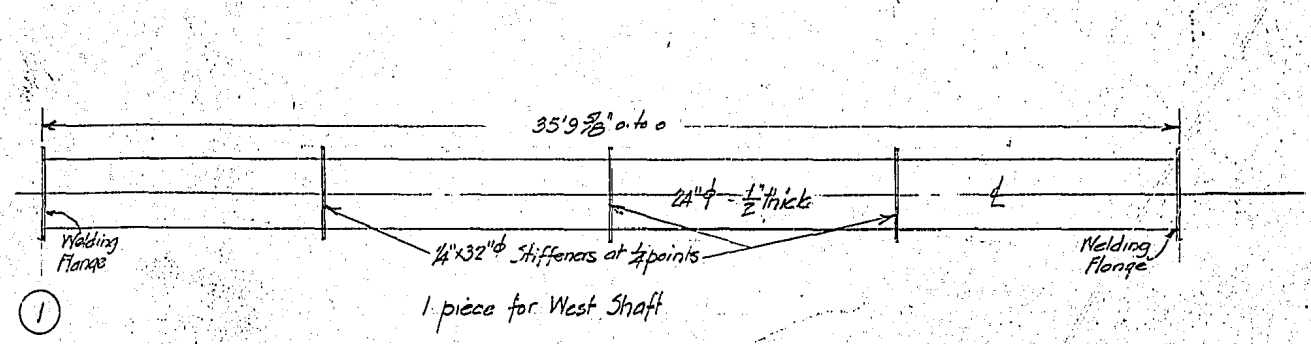
Rock & Boulder elevations taken in 1906
 River bottom elevations taken March 1934 P.S. 706 p 23-25



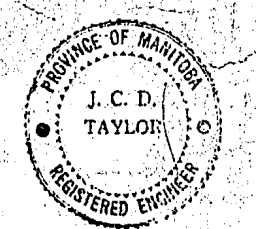
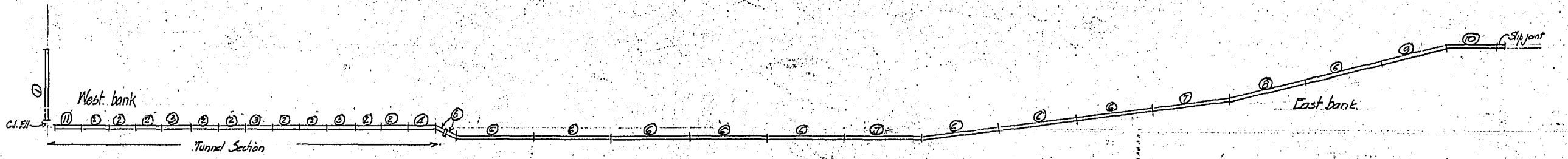
B.M. 3130 NE Cor. Granite Shop
 at 191126 Main St. (P.S. 706-25)

Water Main Crossing of Red River Redwood Avenue Plan and Profile	CITY OF WINNIPEG ENGINEERING DEPARTMENT ST. D. HUSST, CITY ENGINEER A. J. S. TAUNTON, DEPUTY CITY ENGINEER	DRAWN BY: [Signature] CHECKED BY: [Signature] APPROVED BY: [Signature] DATE: [Date] SCALE: [Scale]
--	--	--



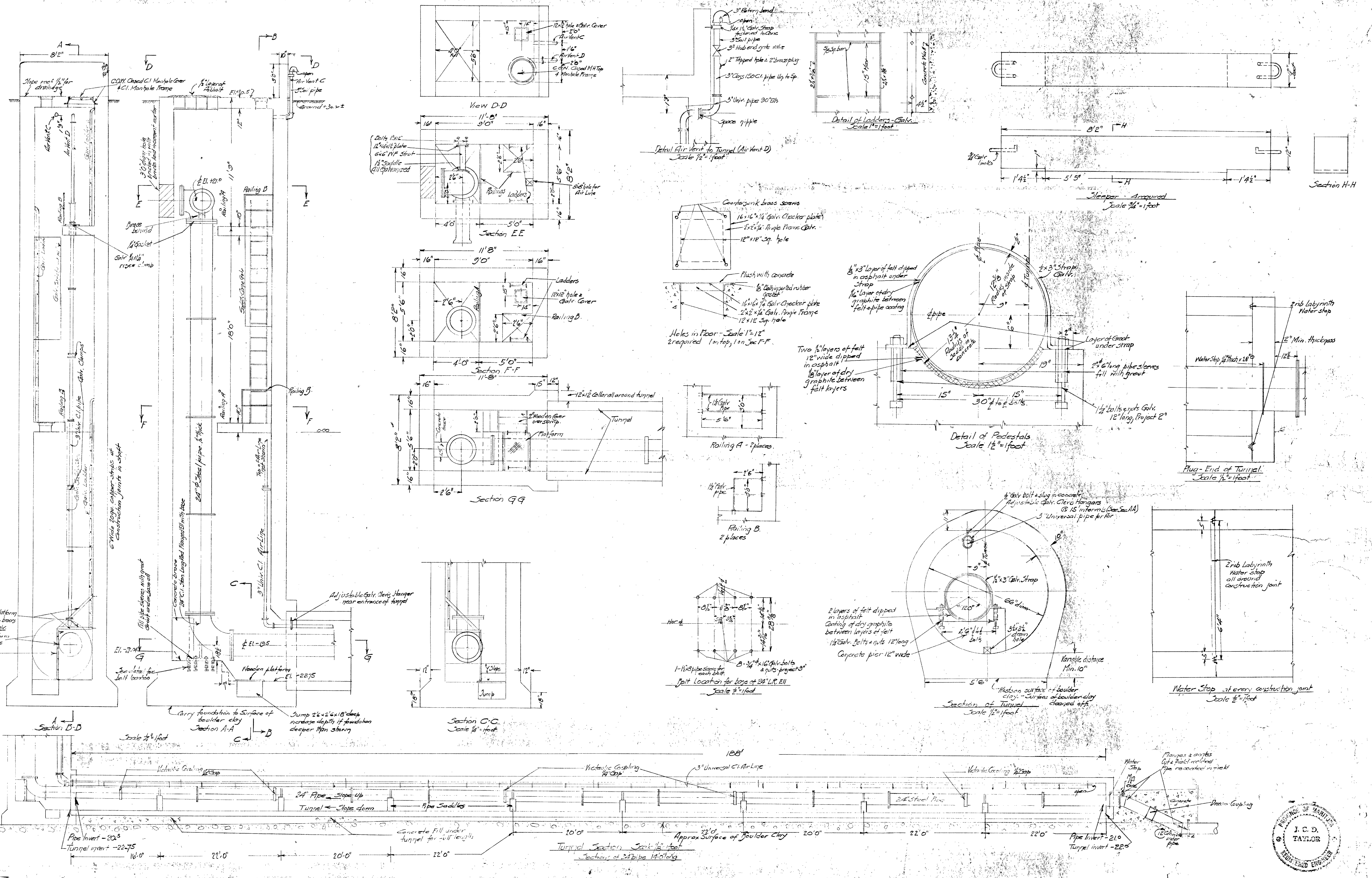


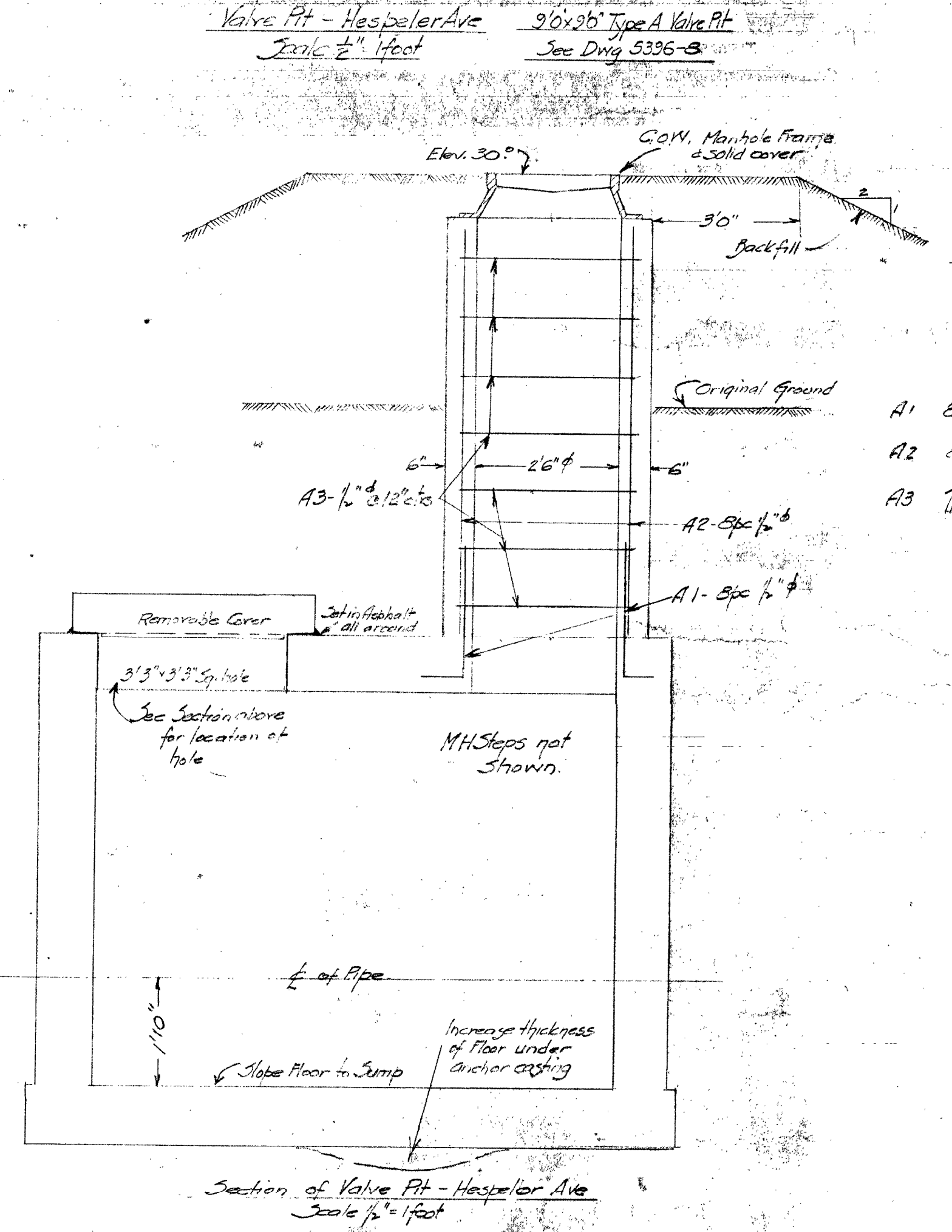
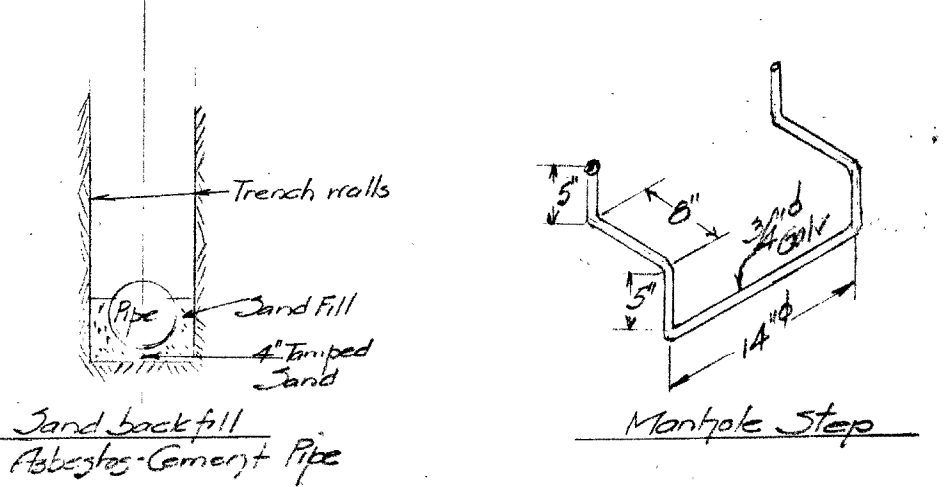
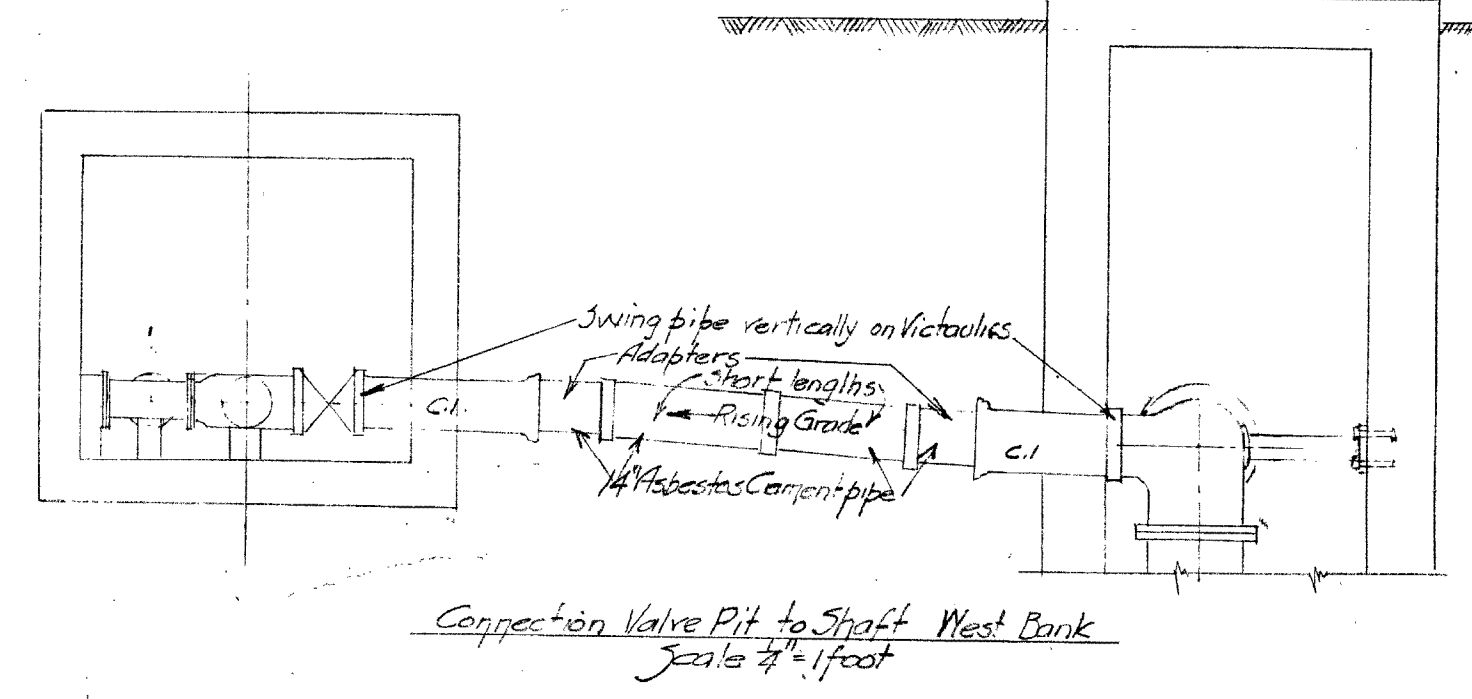
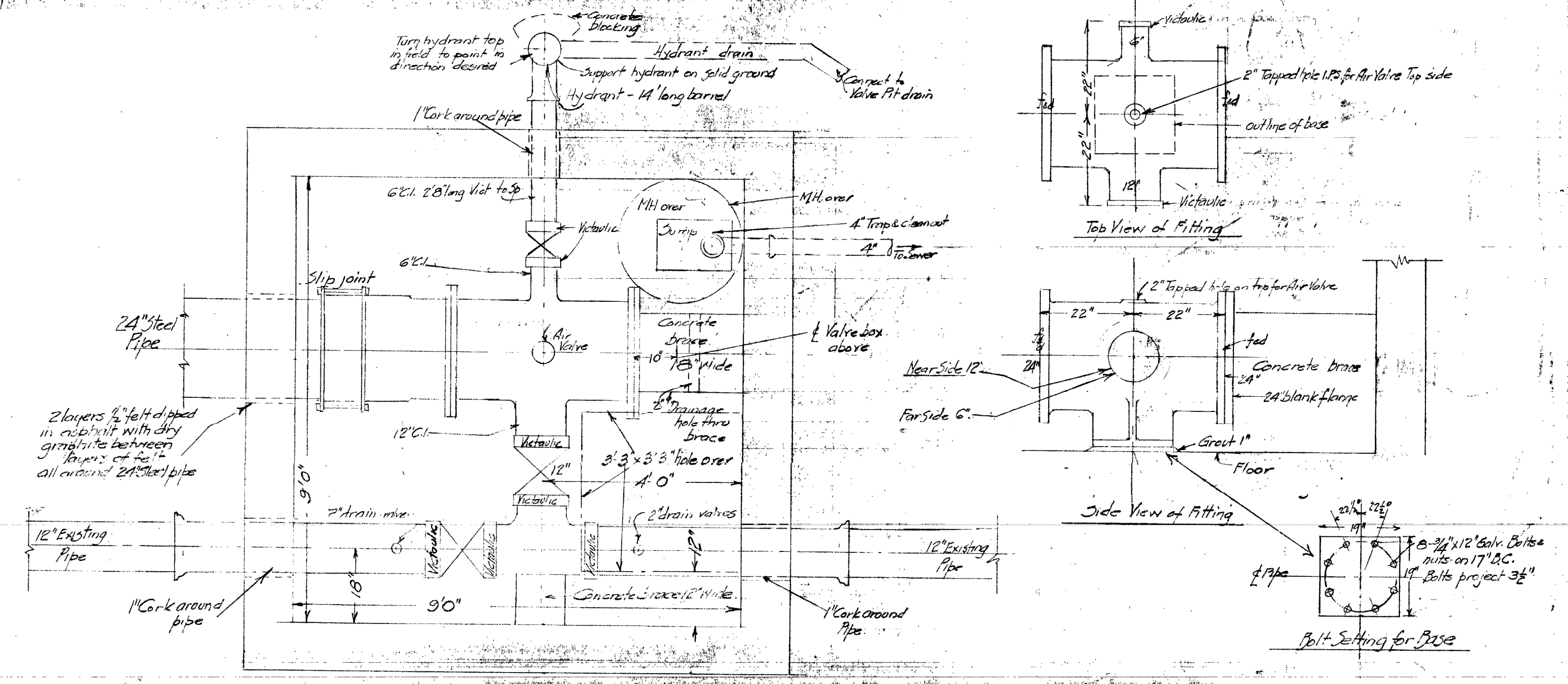
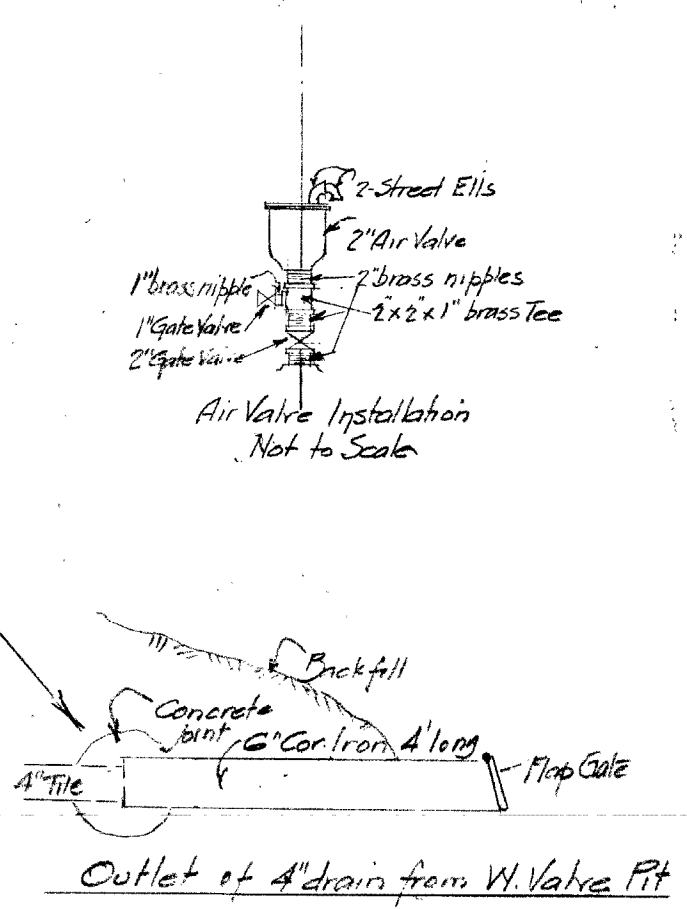
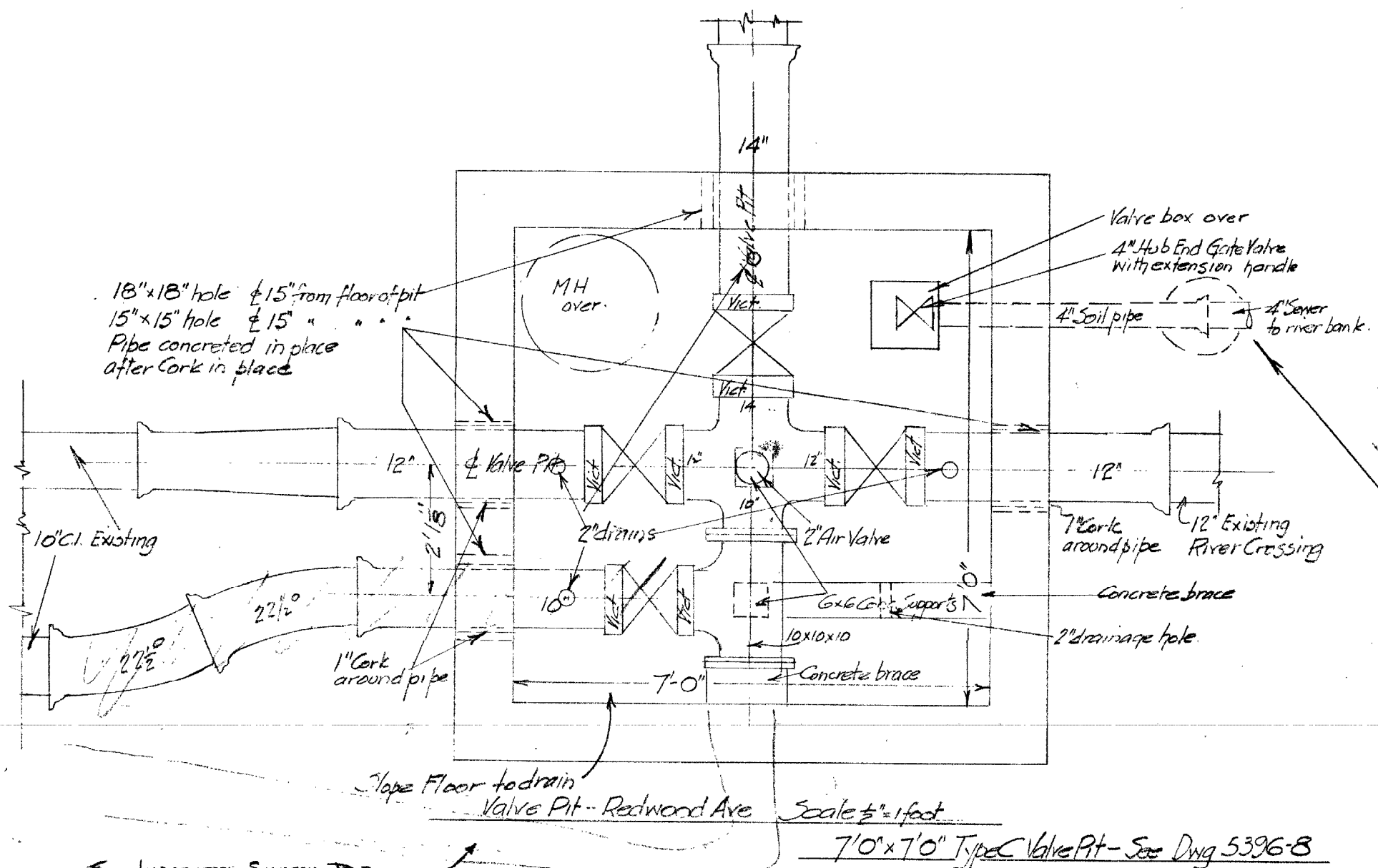
Pipes: Steel pipe not less than 0.3125 inches thick, except piece ① which is spiral welded not less than 0.5 inches thick. See Specifications.
 Pipe coating - see specifications.
 4 spare welding flanges 24"



Water Main Crossing of Red River
 Redwood Avenue
 Steel Pipe Details

CITY OF WINNIPEG		DATE: July 22, 1954	SCALE: 1/4" = 20'
ENGINEERING DEPARTMENT		DRAWN BY: [Signature]	DRAWING NO.: 12030
W. B. HURST, CITY ENGINEER		CHECKED BY: [Signature]	
A. J. S. TAUNTON, DEPUTY CITY ENGINEER		APPROVED: [Signature]	





Material West Side of River	Material Valve Pit East Side of River
1pc 12"x12" x 10' CI Tee 1pc 12"x12" x 10' CI Tee 1pc 12"x12" x 10' CI Tee	6" Hydrant 1 required Length of Barrel 14'0"
Special Pipe - Class C-CI 1pc 14" diam. 1pc 12" diam. 1pc 10" diam.	1pc 6" CI Class C pipe 2'8" long Vict. Shoulder type to spigot
Victaulic Couplings 4-12" diam. All shoulder type 2-12" diam. All shoulder type 2-10" diam. All shoulder type	Victaulic Couplings 2-6" Shoulder type 5-12" Shoulder type
Gate Valves 1-14" Victaulic Ends 1-12" " " 1-10" " " 1-4" Bell stock	1pc 6" CI Class C pipe 0'8" long Vict. Shoulder type to Flange Fed 1pc 12" CI Class C pipe 0'0" long " " " " 1only 6" Gate Valve with 2" Sp. operating nut Victaulic 2- 12" " " " " Victaulic
10"x10"x10' CI Tee Flange, Flange, Victaulic Shoulder Type Flanges 2x2	3- Extension Valve stems length to suit
Blank Flange 10" - required Fed	1only 24"x24"x12"x6" Special Flanged Casting - See detail
1pc 12" CI Class C pipe 1'6" long Flange Fed to plain See detail	1only 24" blank CI Flange Fed
2pc 12" Class C-CI pipe 5'0" long Bell to Victaulic Shoulder type	1only 20" CI Class C pipe 1'6" long Flange Fed to plain See detail 1only 12"x12"x12' Class D Tee CI. 3 Ends Victaulic-Shoulder type
2pc 2" bands CI - 10" diam Class C - B.S. - 2 required	2pc 12" Class C-CI pipe 5'0" long Bell to Victaulic Shoulder type
Solid Sleeves CI - 2-12" diam required	3 only Extension valve boxes - extend to B'
2" Air Valve 1 required	5 only 2" brass nipples 2 1/2" long
2" brass Gate Valves B required, threaded ends, rising stem	3 - 2" brass gate valves, threaded ends, rising stem
2" short brass nipples 2 1/2" long 6 required	1 only 2" Air Valve
4" Soil pipe 5 1/2" ft.	1 - 4" P trap CI for Hydrant
Valve stems for Valves 5 required	1 - 4" trap, Yelement, brass female & brass plug - for drain
14" CI x 2 1/2" CI pipe 2'-6" long required Bell to Victaulic Shoulder type	1 pc 4" Soil pipe 5' long
24" blank Flange 1 required Fed	2- 2" Castel. 1/8" both used rubber Bell & Sleeve (ster)
24" Stan CI. Flanged 30" Ell with 14" 1/2" outlet Vict.	4 Street Ells brass Size to fit top of Air Valves 6- 2" brass plugs 2- 2x2x1" brass tees 2- 1" Gate Valves, brass, threaded ends, rising stems 2- 1" brass nipples 2 1/2" long
14" Reduc. Cement Adapters Class 150 - 2 required	
14" " Pipe Class 150 2-Short lengths required	
14" Couplings & Flanges for Abt. Cent. Class 150 - 3 required	
24" C.I. Long Radius Stan Flanged 90" Ell with CI base (see) required	
60' of 4" sewer pipe	
Gaskets 2-10' x 1-24" 1/8" both used rubber	

Date	Rev	Revision	Appr	By	CHK
Dec 18 54	1	24" x 36" Valve Pit - revised			

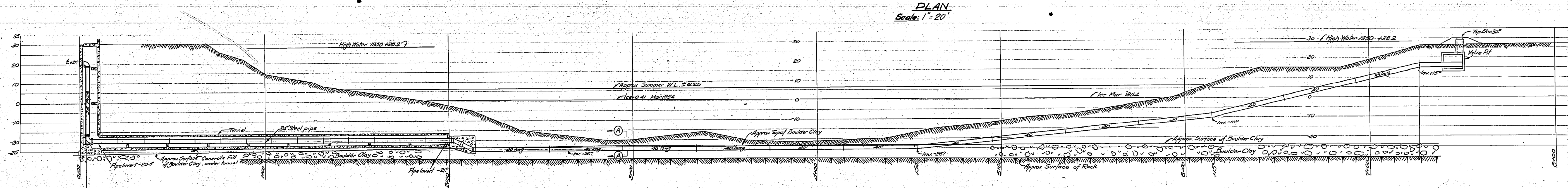
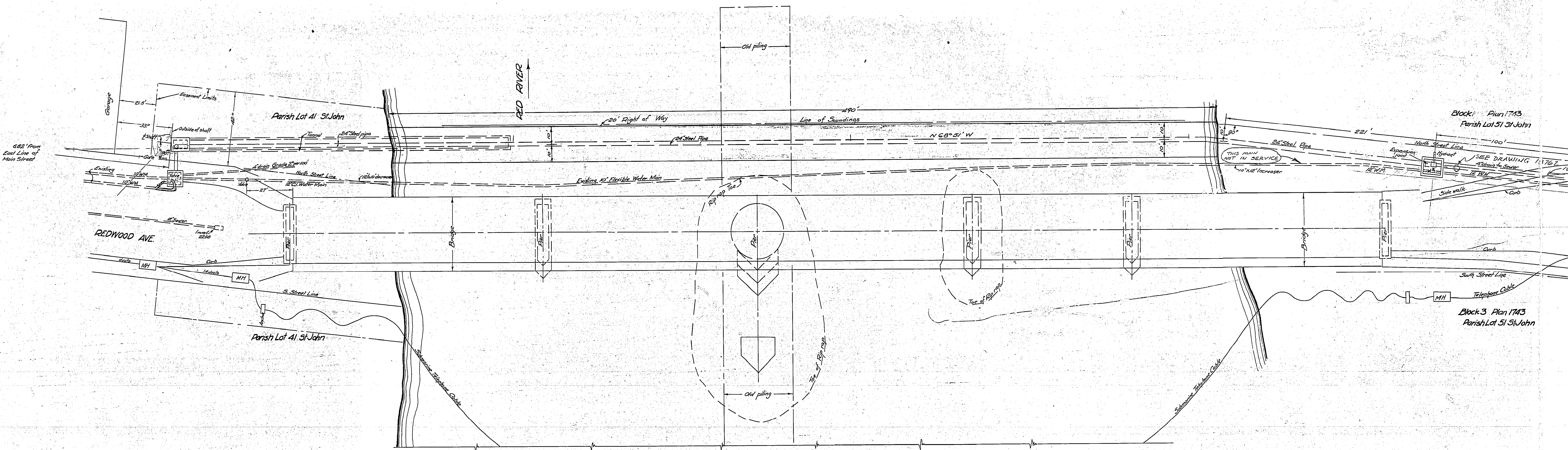
REDWOOD BRIDGE RIVER CROSSING
Water Main Crossing of Red River
Redwood Avenue
Valve Pits

CITY OF WINNIPEG
ENGINEERING DEPARTMENT
W. D. HURST, CITY ENGINEER
A. J. S. TAUNTON, DEPUTY CITY ENGINEER

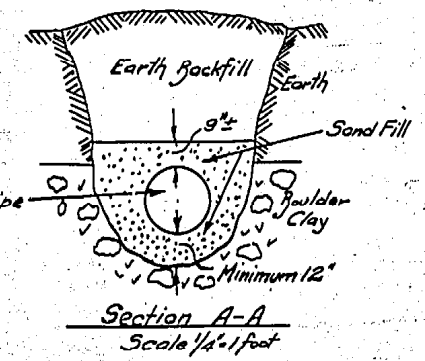
DRAWN BY: [Signature]
DATE: [Date]
TRACED BY: [Signature]
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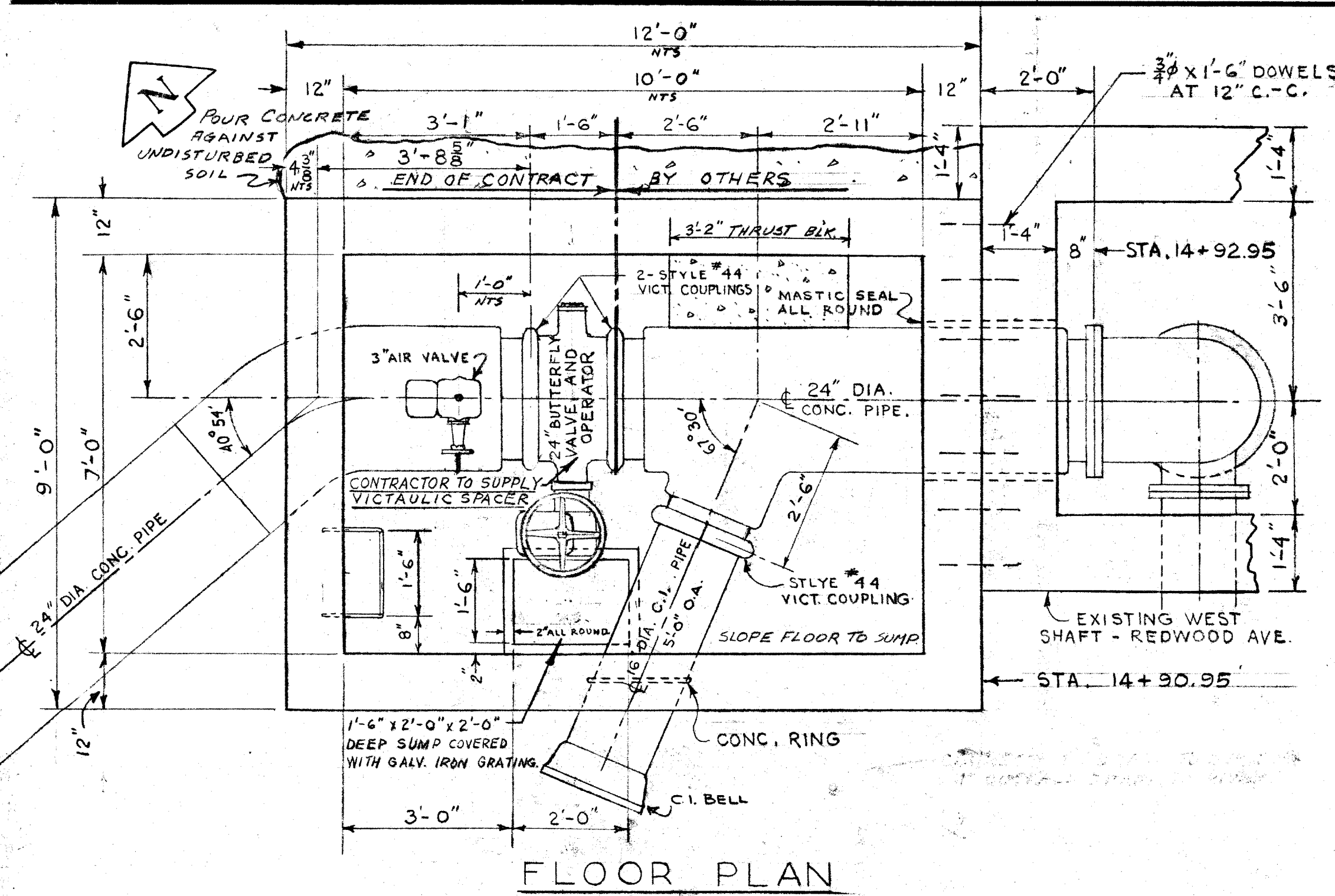
SCALE: AS SHOWN
DRAWING NO.: WA 12532



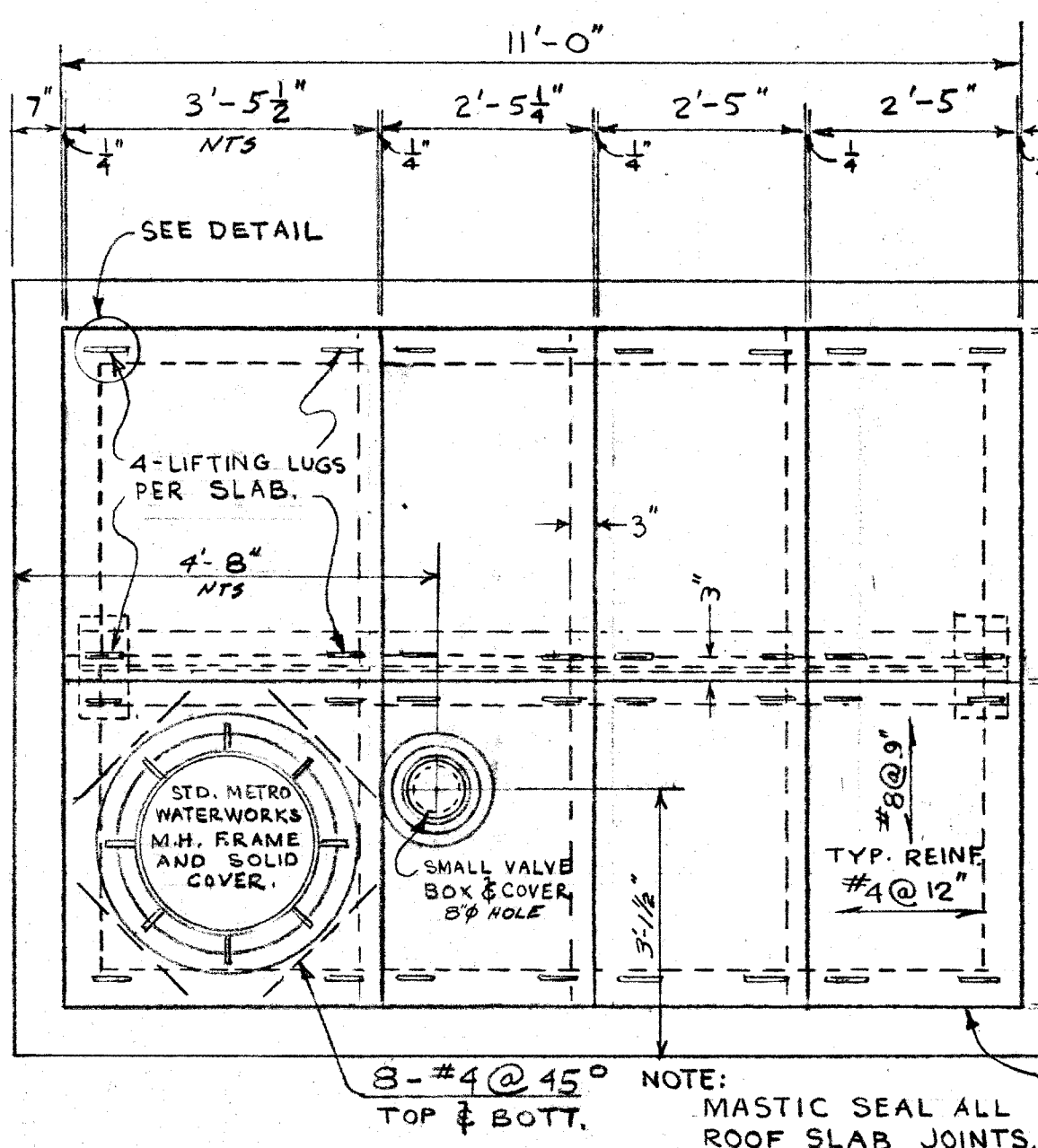


Rock & Boulder clay elevations taken in 1900
River bottom elevations taken March 1954
Elevations shown are City Datum
City Datum 6.00' Con. Geodetic EL 727.57 (1929 Adjustment)

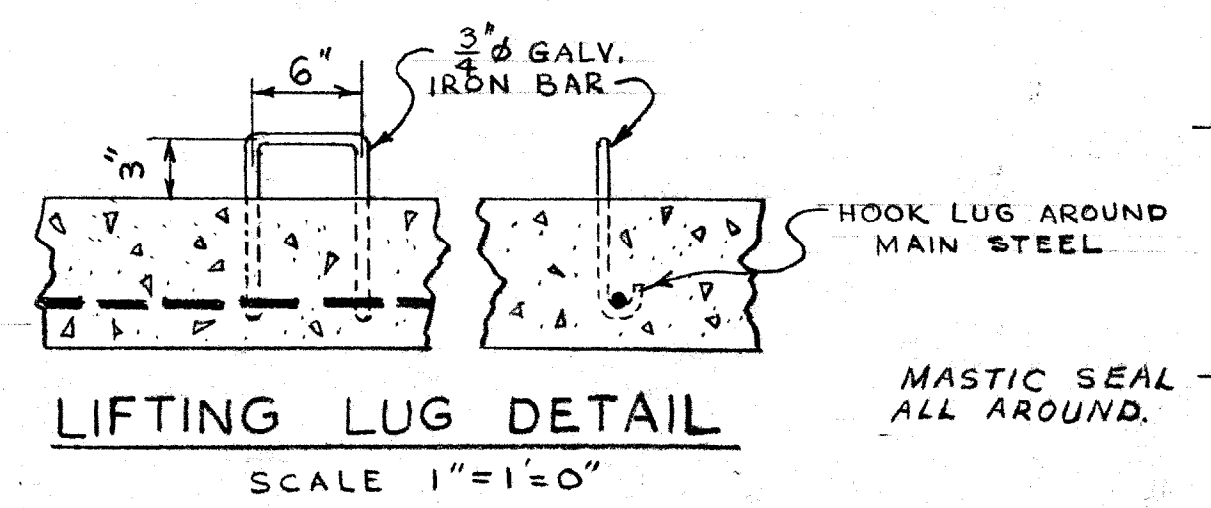




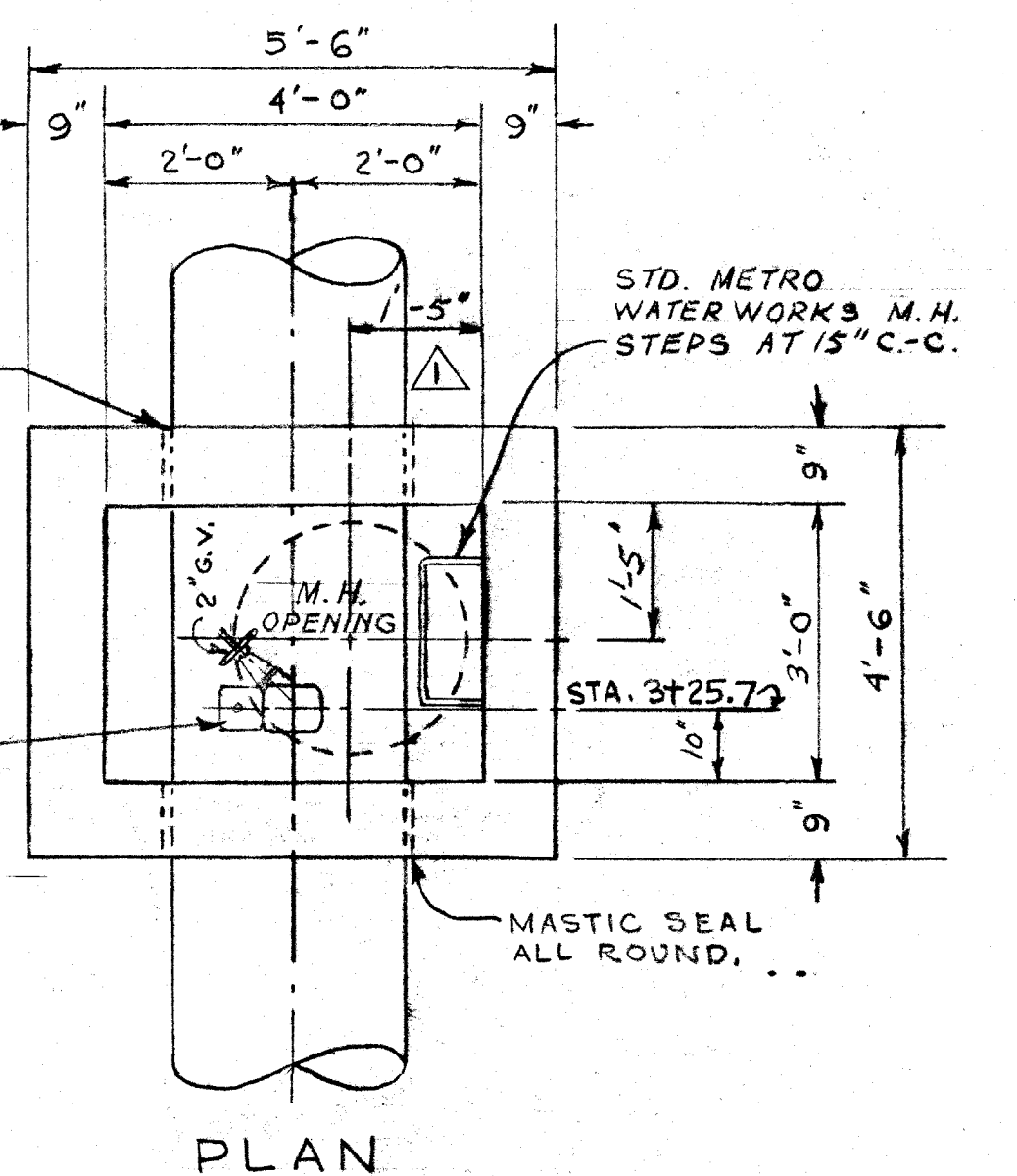
FLOOR PLAN



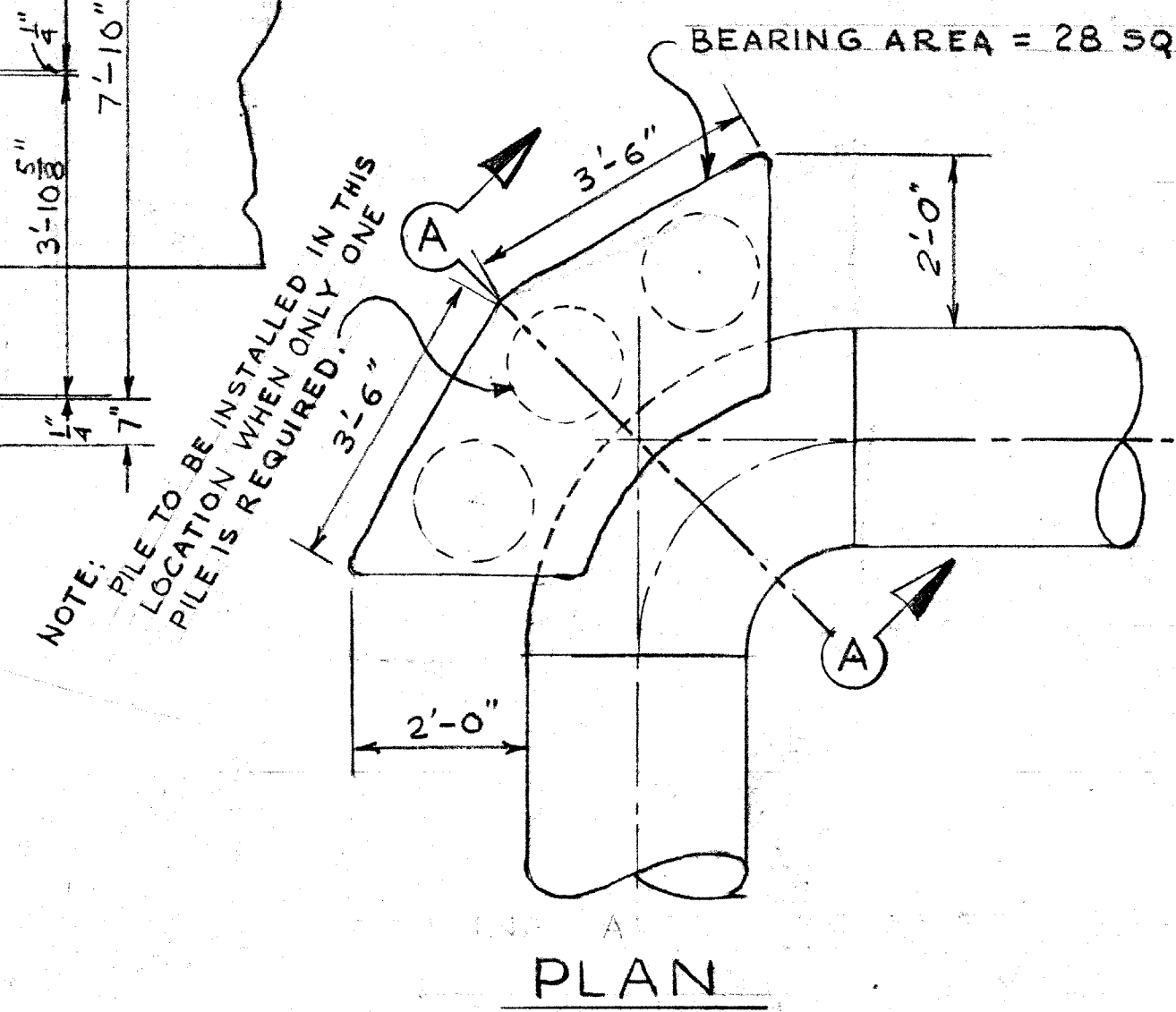
ROOF PLAN



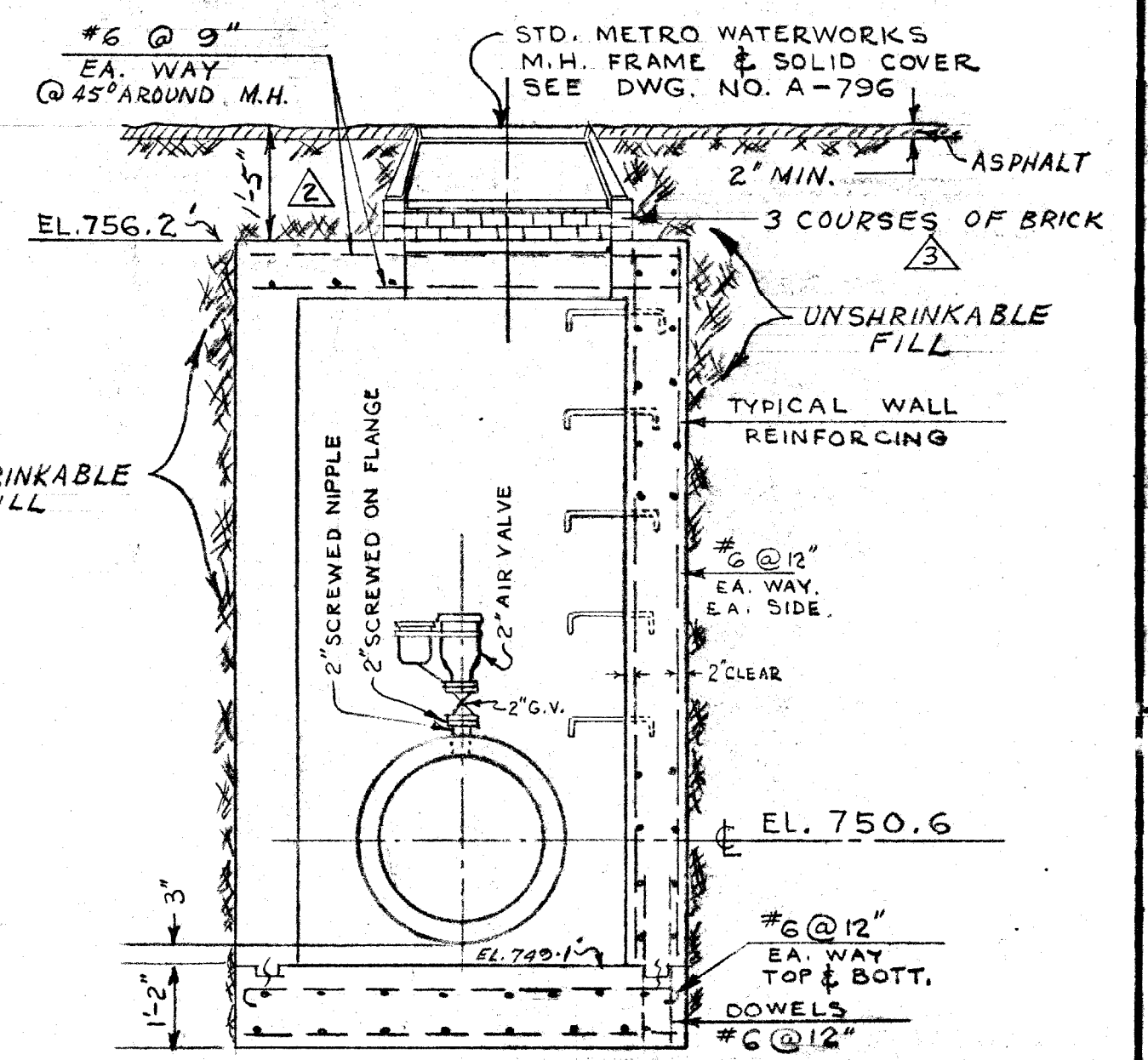
LIFTING LUG DETAIL
SCALE 1"=1'-0"



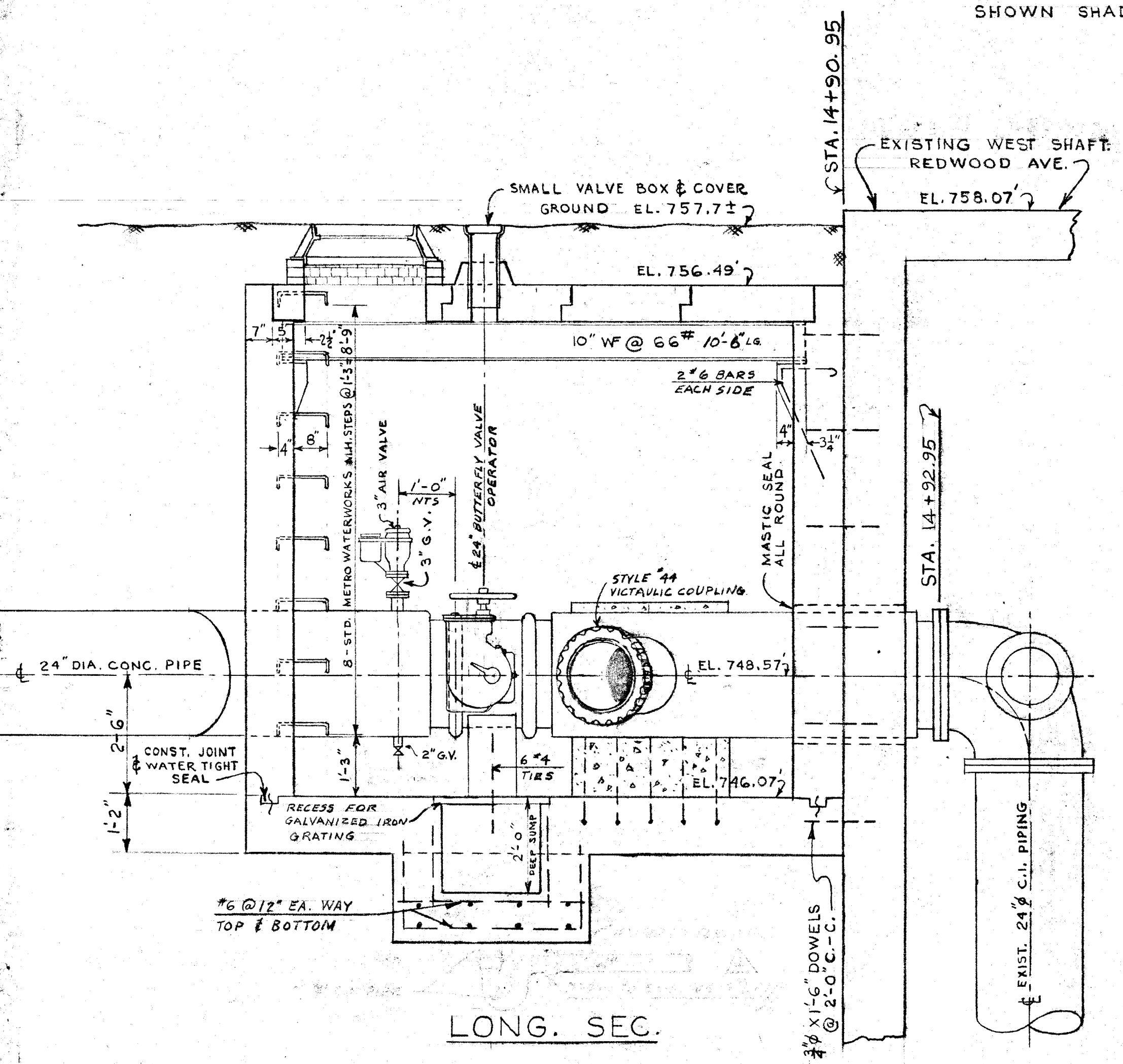
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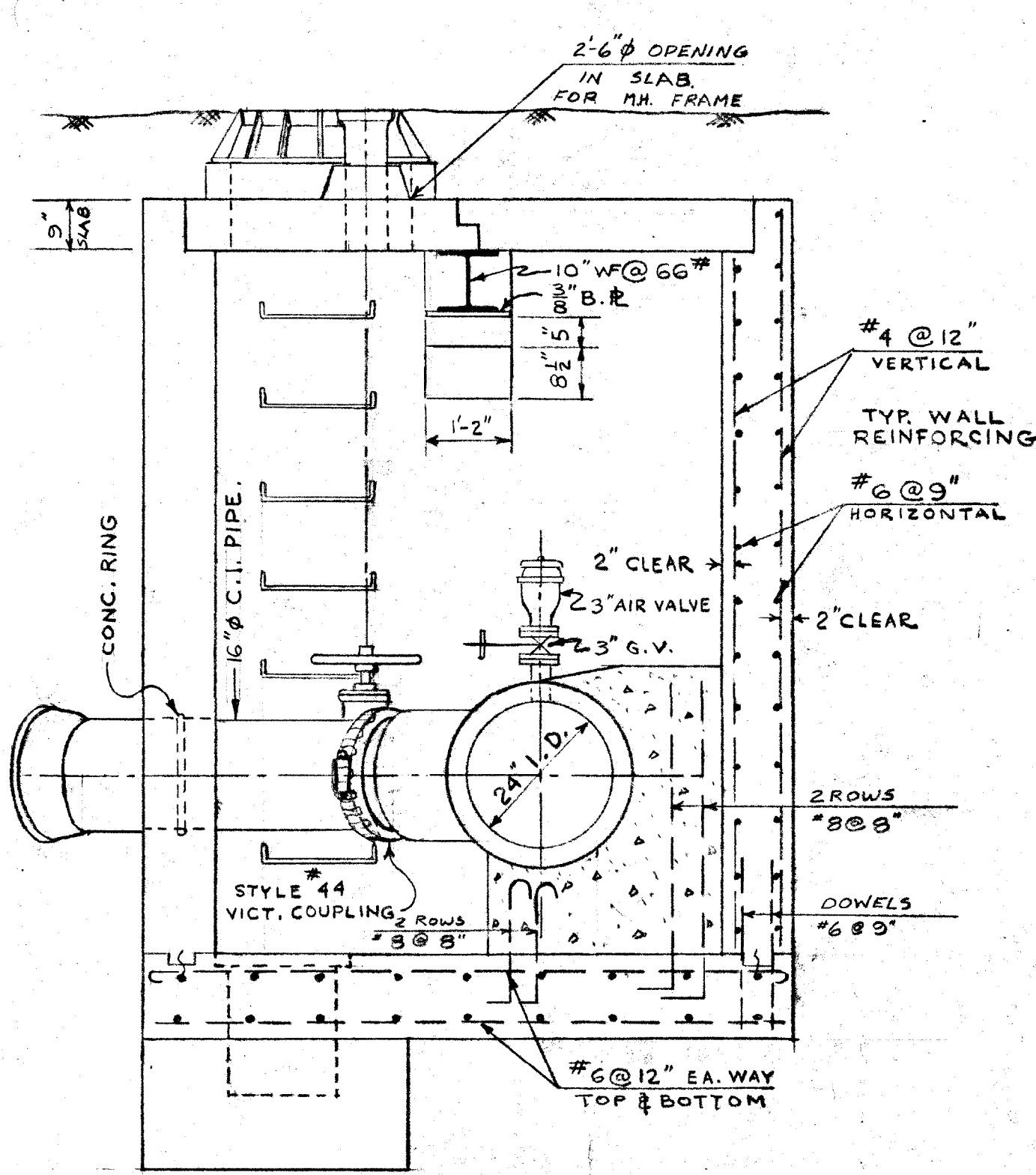
PLAN



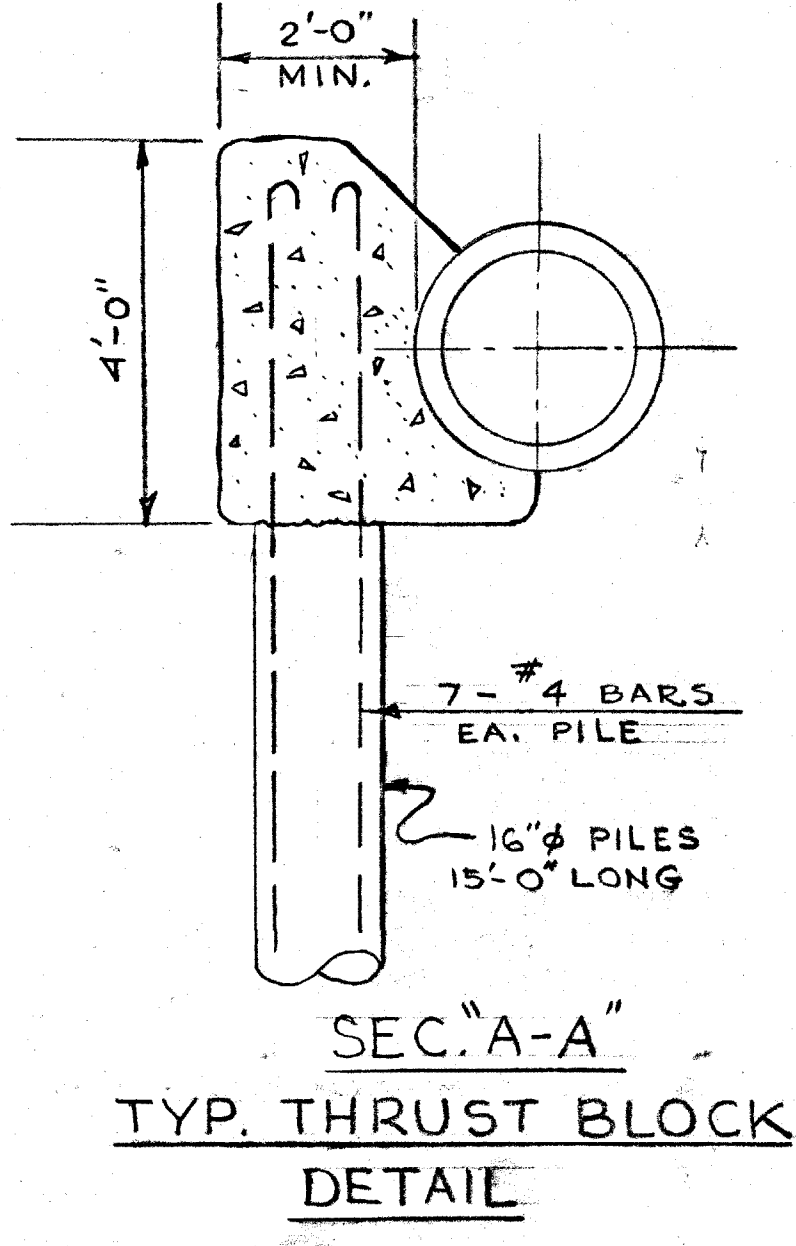
X-SEC.
AIR VALVE CHAMBER
AT REDWOOD AVE & CHARLES ST.
STA. 3+48.70



LONG. SEC.



X-SEC.

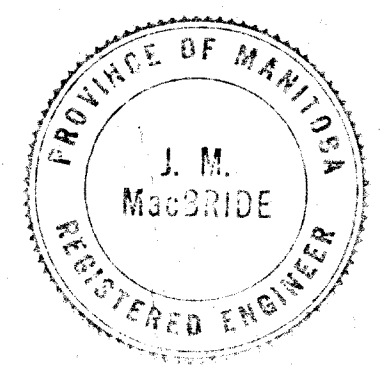


SEC. A-A
TYP. THRUST BLOCK
DETAIL

NOTE:
EXISTING WEST SHAFT
SHOWN SHADED.

VALVE CHAMBER
AT REDWOOD AVE & RED RIVER
STA. 14+90.95

REVISED AS BUILT
FEB. 1, 1962

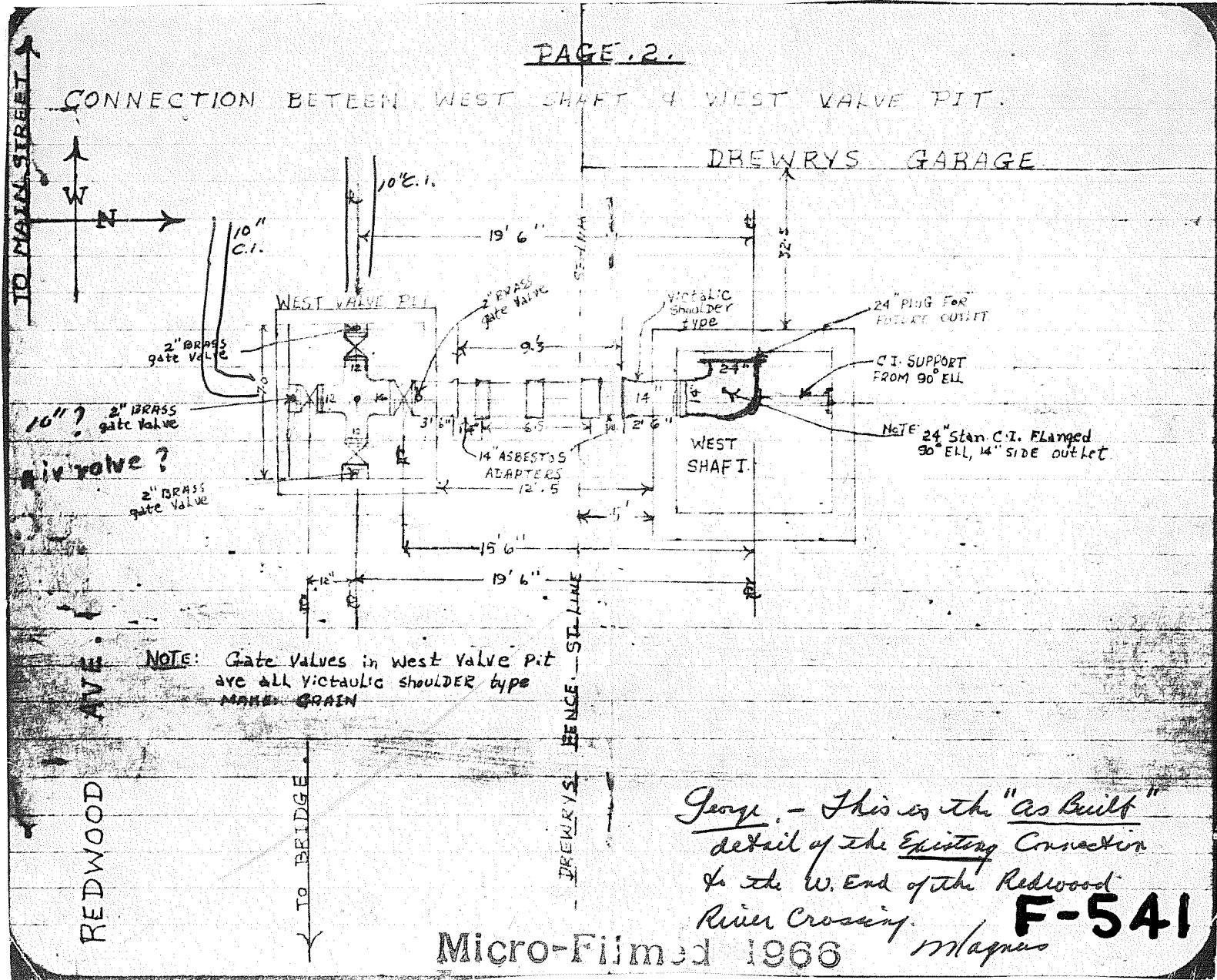


REVISIONS				THE METROPOLITAN CORPORATION OF GREATER WINNIPEG WATERWORKS BRANCH		
NO.	DESCRIPTION	DATE	BY	KILDONAN FEEDERMAIN EXTENSION VALVE CHAMBER AT WEST SHAFT, AIR VALVE CHAMBER AT STA. 3+48.70 REDWOOD AVE. AT RED RIVER		
1	DIMENSIONS TO LOCATE M.H. OF AIR VALVE CHAMBER ADDED	3 MAR. 61	S.K.	APPROVED BY: [Signature] DESIGNED BY: J.M. McBRIDE DRAWN BY: H. BUXMAN DATE: 24 FEB 61 SCALES: 1/2"=1'-0" & AS NOTED D-885		
2	3" CLEARANCE TO TOP OF STREET CHANGED TO 1'-5" CLEARANCE	9 MAR. 61	S.K.			
3	BLOCKS ADDED TO M.H. ENTRANCE UNSHRINKABLE FILL NOTED ADDED	3 MAR. 61	S.K.			
4	TITLE CHANGED	23.05.19	K.T.			

D-0885

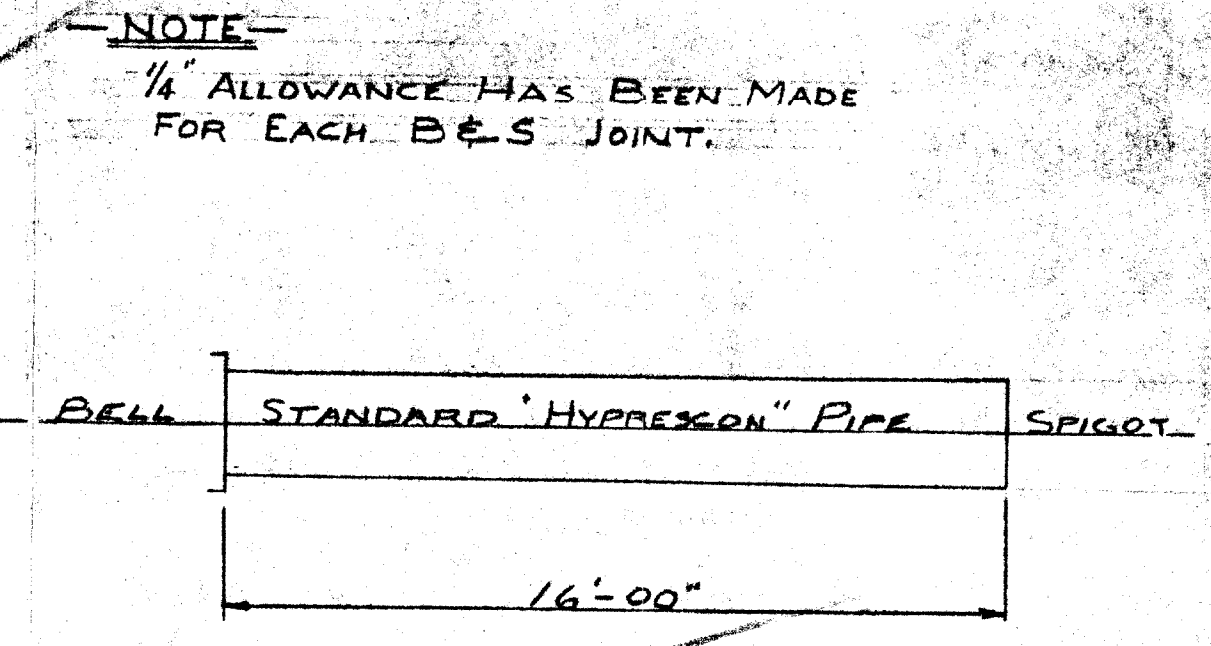
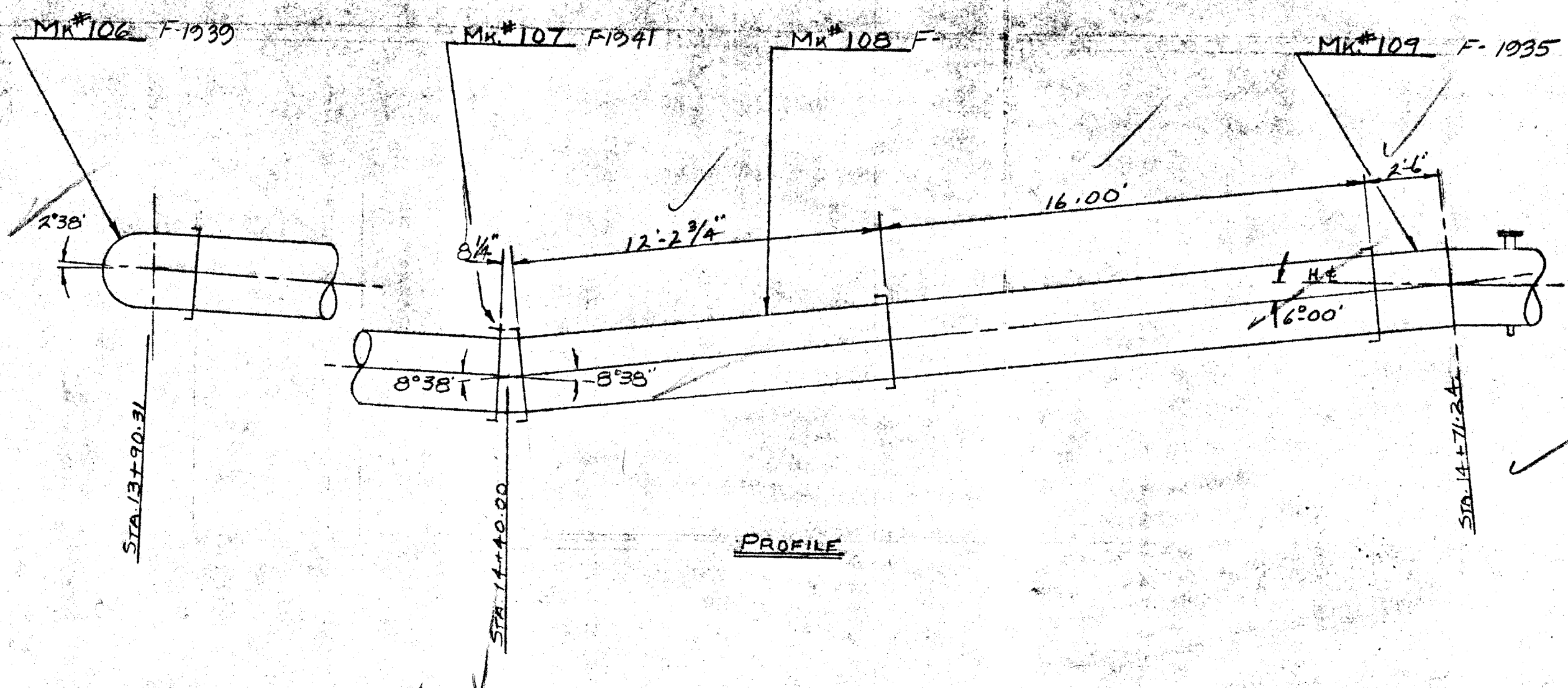
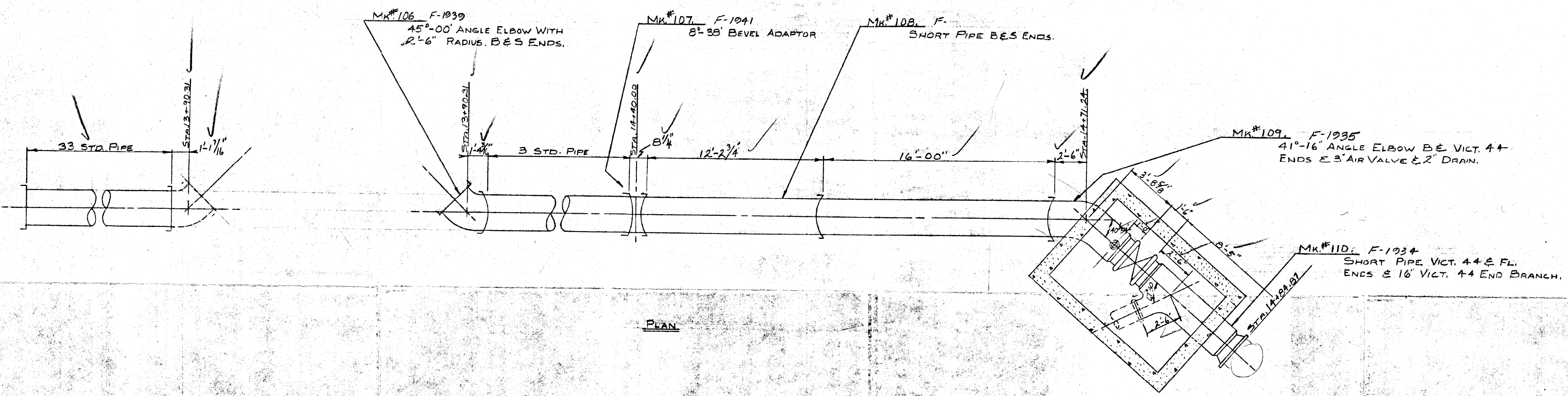
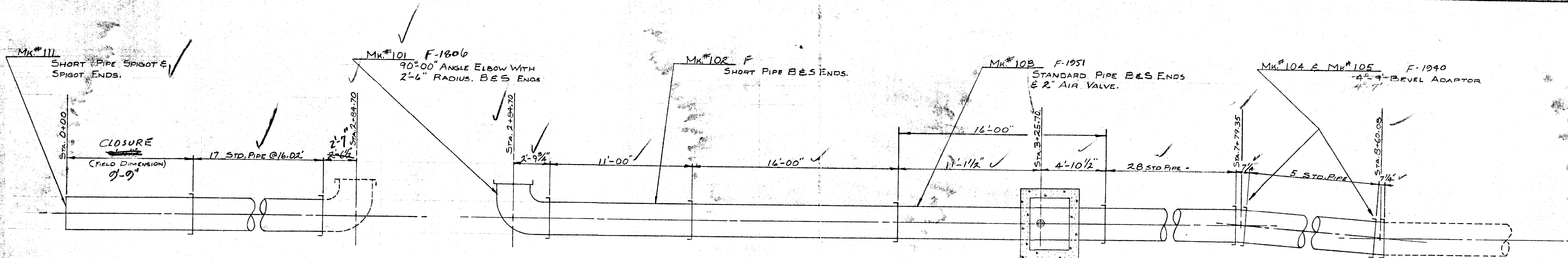
Feb 1965

CONNECTION BETWEEN WEST SHAFT & WEST VALVE PIT.



NOTE: Gate Valves in West Valve Pit are all victaulic shoulder type MAKE GRAIN

George - This is the "As Built" detail of the Existing Connection to the W. End of the Redwood River Crossing. **F-541** M. Agnes



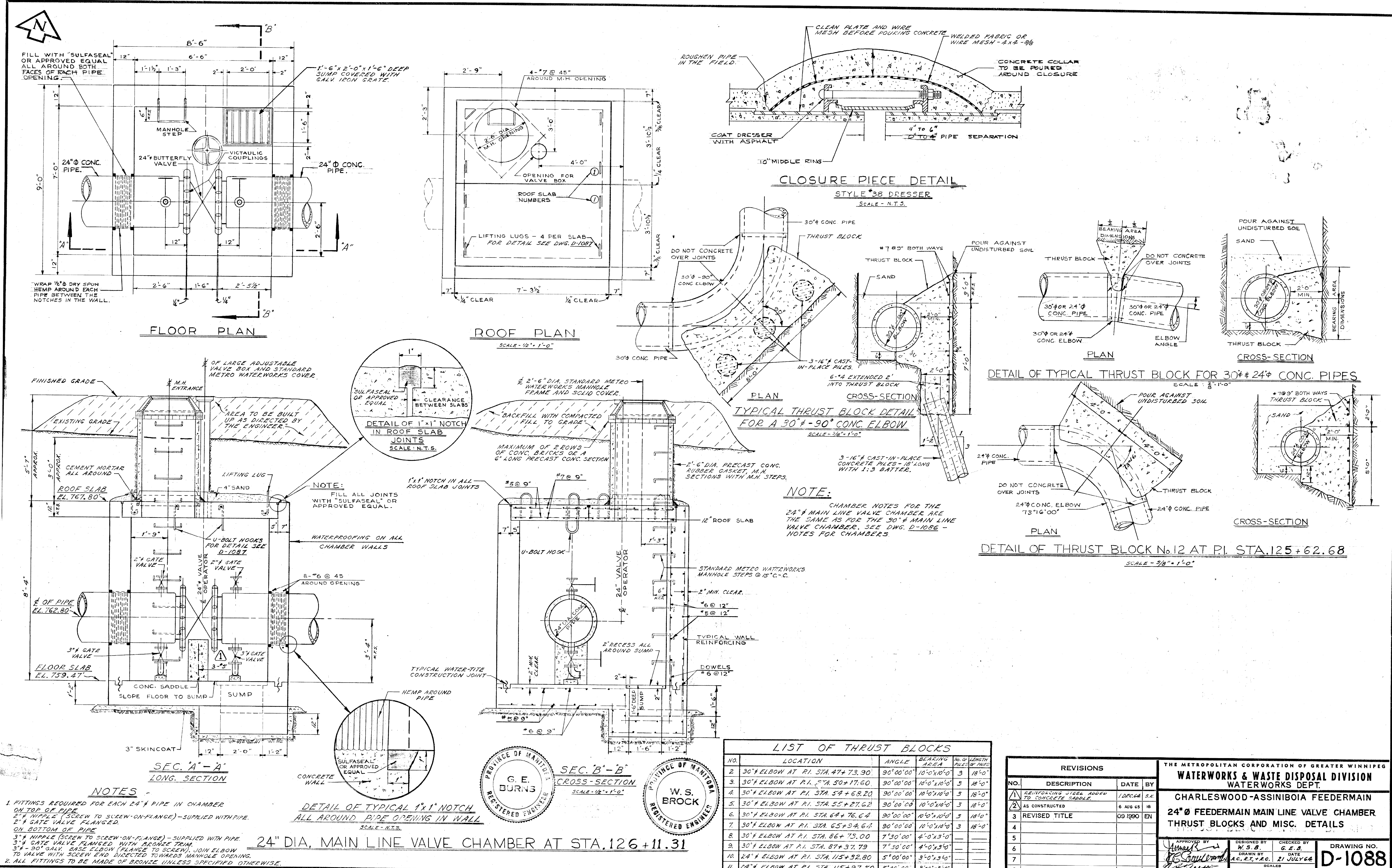
NOTE
 1/4" ALLOWANCE HAS BEEN MADE FOR EACH B&S JOINT.

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
 WATERWORKS AND WASTE DISPOSAL DIVISION
 APPROVED MAR 17 1961
 J. S. [Signature] DIRECTOR

8'-5"
 1'-6"
 9'-11 1/8" from face of Manhole

LOCATION
 FROM A POINT EAST OF CHARLES AND MOUNTAIN TO REDWOOD BRIDGE.

Job # 479	
PRESSURE PIPE LTD.	
24" DIA. LAYOUT OF KILDONAN FEEDER MAIN EXTENSION WINNIPEG	
SCALE: 1/4" = 1'-0"	MAR. 13/61
DRN. CND. SS.	DWG. T-4101
F-2102	FILE 2105



LIST OF THRUST BLOCKS

NO.	LOCATION	ANGLE	BEARING AREA	NO. OF PILES	LENGTH
1.	30" ELBOW AT P.I. STA. 47+73.90	90°00'00"	10'-0" x 10'-0"	3	18'-0"
2.	30" ELBOW AT P.I. STA. 50+17.60	90°00'00"	10'-0" x 10'-0"	3	18'-0"
3.	30" ELBOW AT P.I. STA. 54+68.20	90°00'00"	10'-0" x 10'-0"	3	18'-0"
4.	30" ELBOW AT P.I. STA. 55+27.62	90°00'00"	10'-0" x 10'-0"	3	18'-0"
5.	30" ELBOW AT P.I. STA. 64+76.64	90°00'00"	10'-0" x 10'-0"	3	18'-0"
6.	30" ELBOW AT P.I. STA. 65+54.67	90°00'00"	10'-0" x 10'-0"	3	18'-0"
7.	30" ELBOW AT P.I. STA. 86+73.00	7'30'00"	4'-0" x 3'-0"	---	---
8.	30" ELBOW AT P.I. STA. 87+37.79	7'50'00"	4'-0" x 3'-0"	---	---
9.	24" ELBOW AT P.I. STA. 115+92.80	5°00'00"	3'-0" x 3'-0"	---	---
10.	24" ELBOW AT P.I. STA. 115+97.50	5°00'00"	3'-0" x 3'-0"	---	---

REVISIONS

NO.	DESCRIPTION	DATE	BY
1.	REINFORCING STEEL ADDED TO CONCRETE SADDLE	1/20/64	S.K.
2.	AS CONSTRUCTED	6 AUG 65	IB
3.	REVISED TITLE	09 1990	EN
4.			
5.			
6.			
7.			
8.			

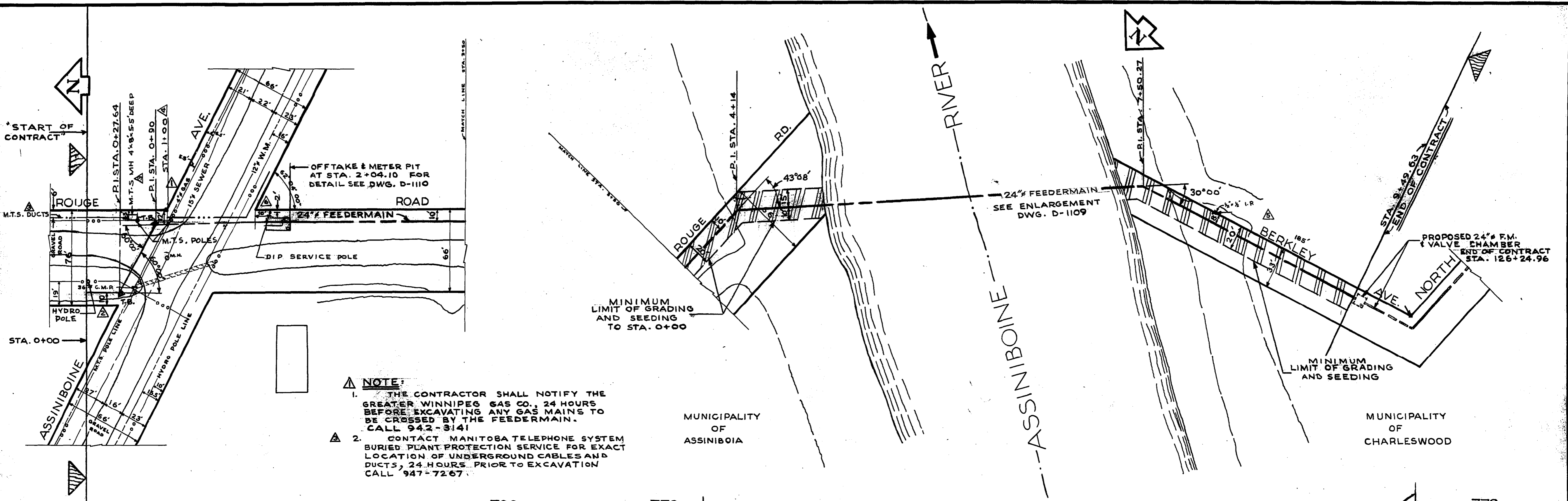
THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
WATERWORKS & WASTE DISPOSAL DIVISION
 WATERWORKS DEPT.
CHARLESWOOD-ASSINIBOIA FEEDERMAIN
24" Ø FEEDERMAIN MAIN LINE VALVE CHAMBER
THRUST BLOCKS AND MISC. DETAILS

APPROVED BY: *[Signature]* CHIEF ENGINEER
 DESIGNED BY: W.S.B. G.E.B.
 DRAWN BY: A.C.R.T. & R.C. DATE: 21 JULY 64
 SCALES: AS NOTED

DRAWING NO. **D-1088**

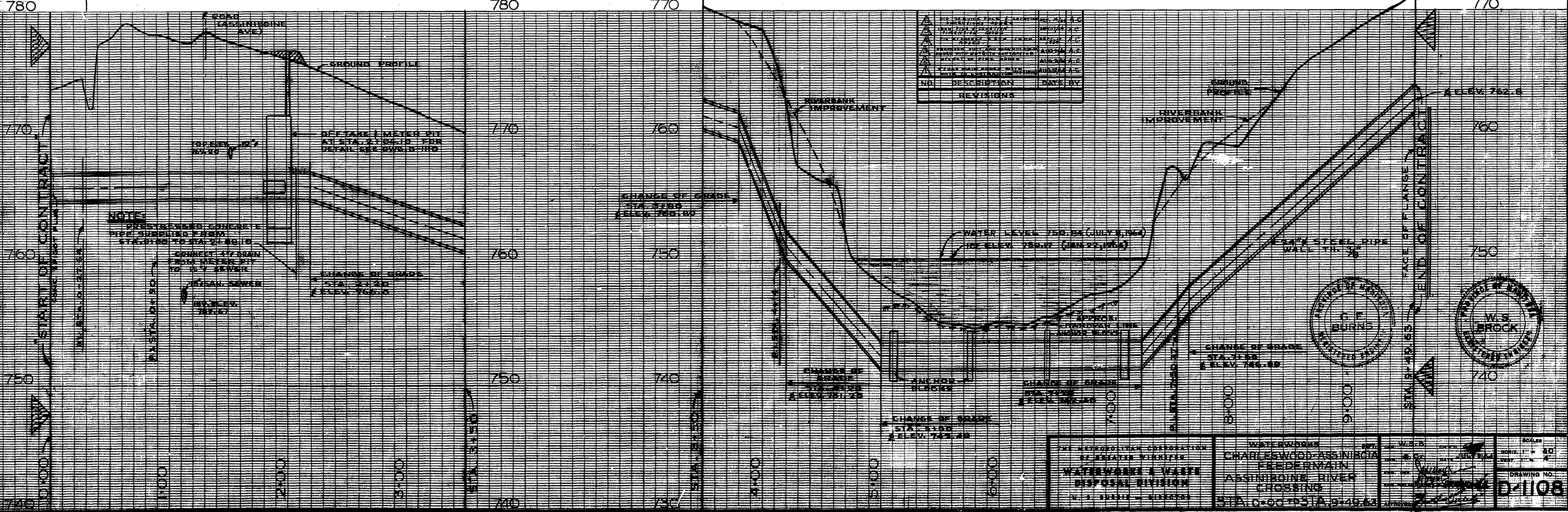
City of Winnipeg
 W002830

D-1088



NOTE:

1. THE CONTRACTOR SHALL NOTIFY THE GREATER WINNIPEG GAS CO. 24 HOURS BEFORE EXCAVATING ANY GAS MAINS TO BE CROSSED BY THE FEEDERMAIN. CALL 942-3141.
2. CONTACT MANITOBA TELEPHONE SYSTEM BURIED PLANT PROTECTION SERVICE FOR EXACT LOCATION OF UNDERGROUND CABLES AND DUCTS, 24 HOURS PRIOR TO EXCAVATION CALL 947-7267.



THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
 WATERWORKS & WASTE DISPOSAL DIVISION
 W. J. BROWN - SUPERVISOR

CHARLESWOOD-ASSINIBOIA FEEDERMAIN
 ASSINIBOINE RIVER CROSSING
 STA. 0+00 TO STA. 126+24.96

SCALE
 HORIZ. 1" = 80'
 VERT. 1" = 4'

DRAWING NO.
D-1108

MUNICIPALITY OF ASSINIBOIA

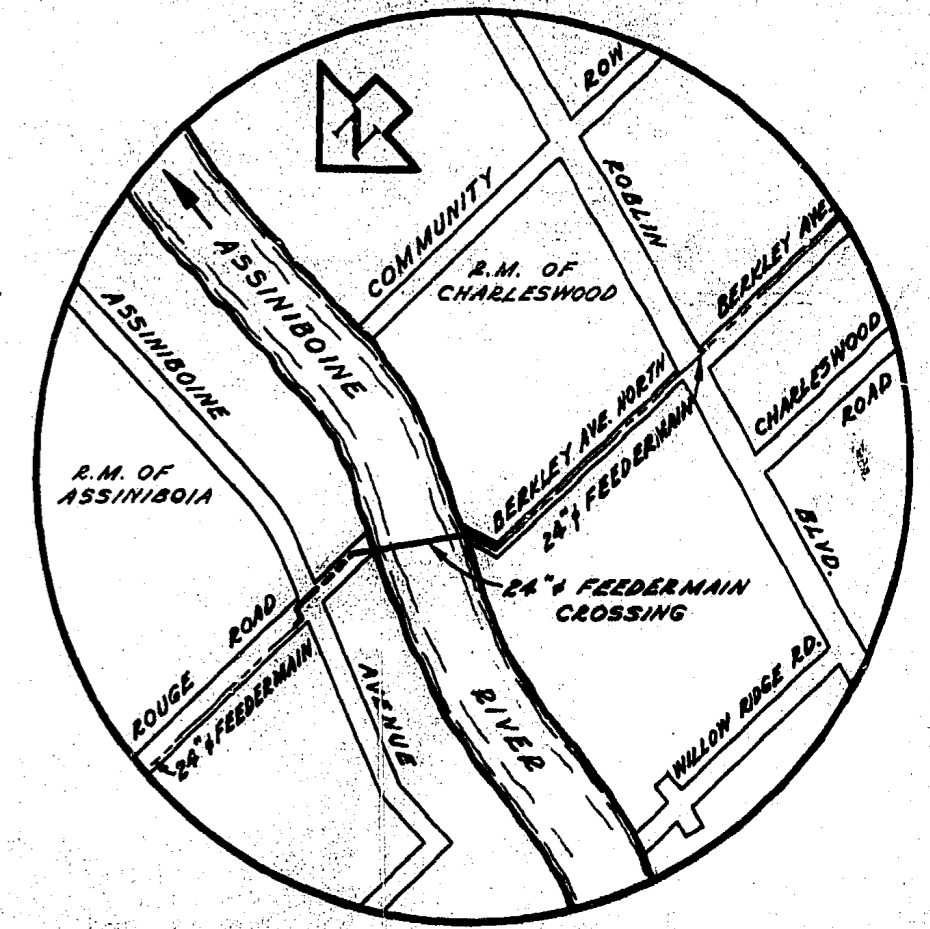
MUNICIPALITY OF CHARLESWOOD

Deposited in the Winnipeg Land Titles Office this 15th day of September AD. 1964 at 12:38 P.M. as Railway Deposit No 830.

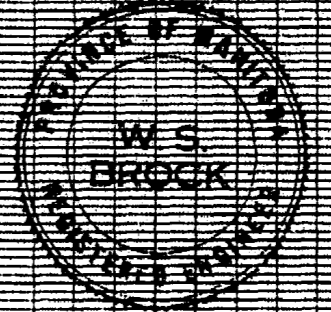
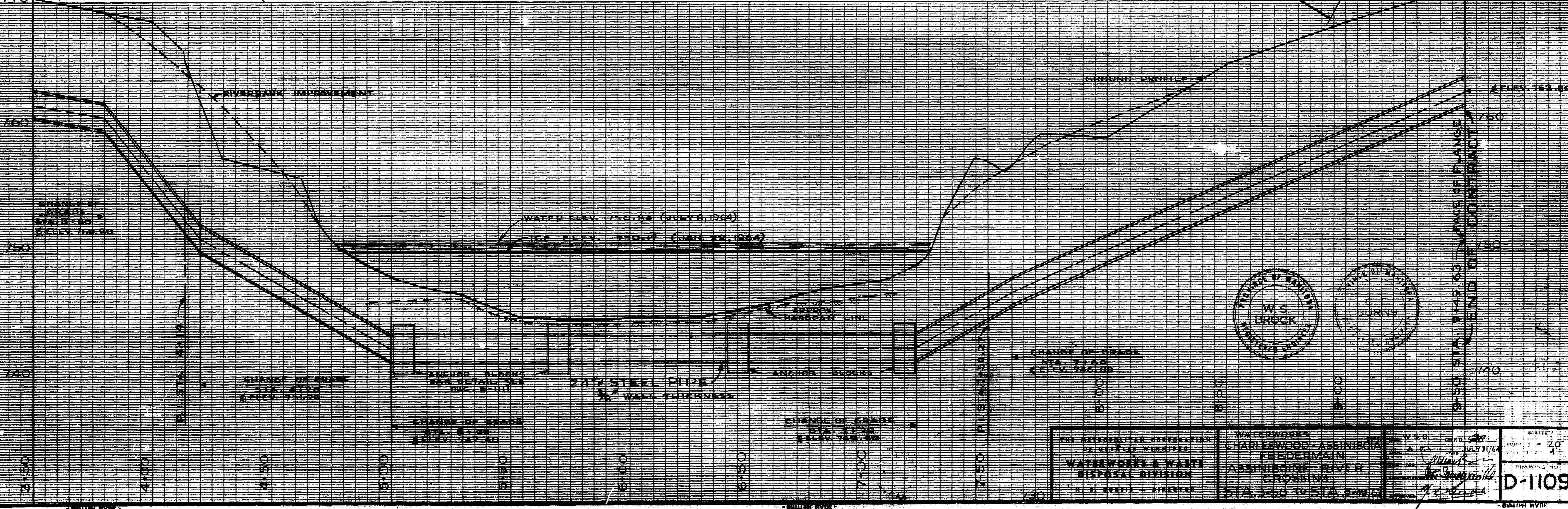
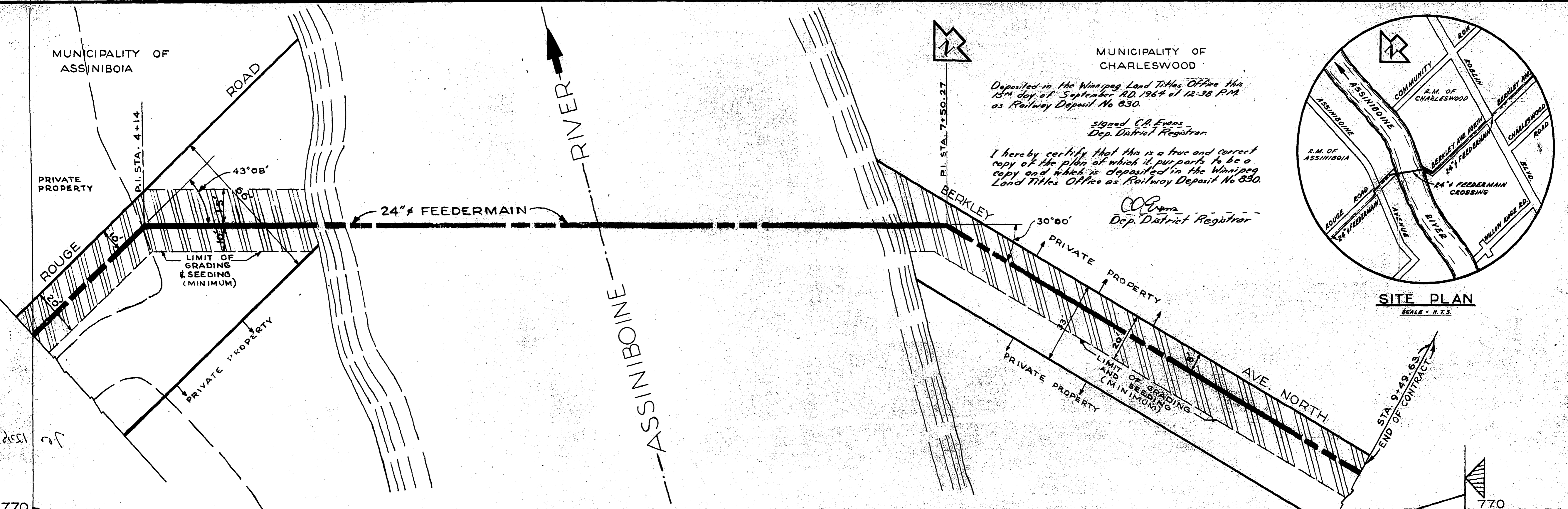
Signed C.A. Evans - Dep. District Registrar

I hereby certify that this is a true and correct copy of the plan of which it purports to be a copy and which is deposited in the Winnipeg Land Titles Office as Railway Deposit No 830.

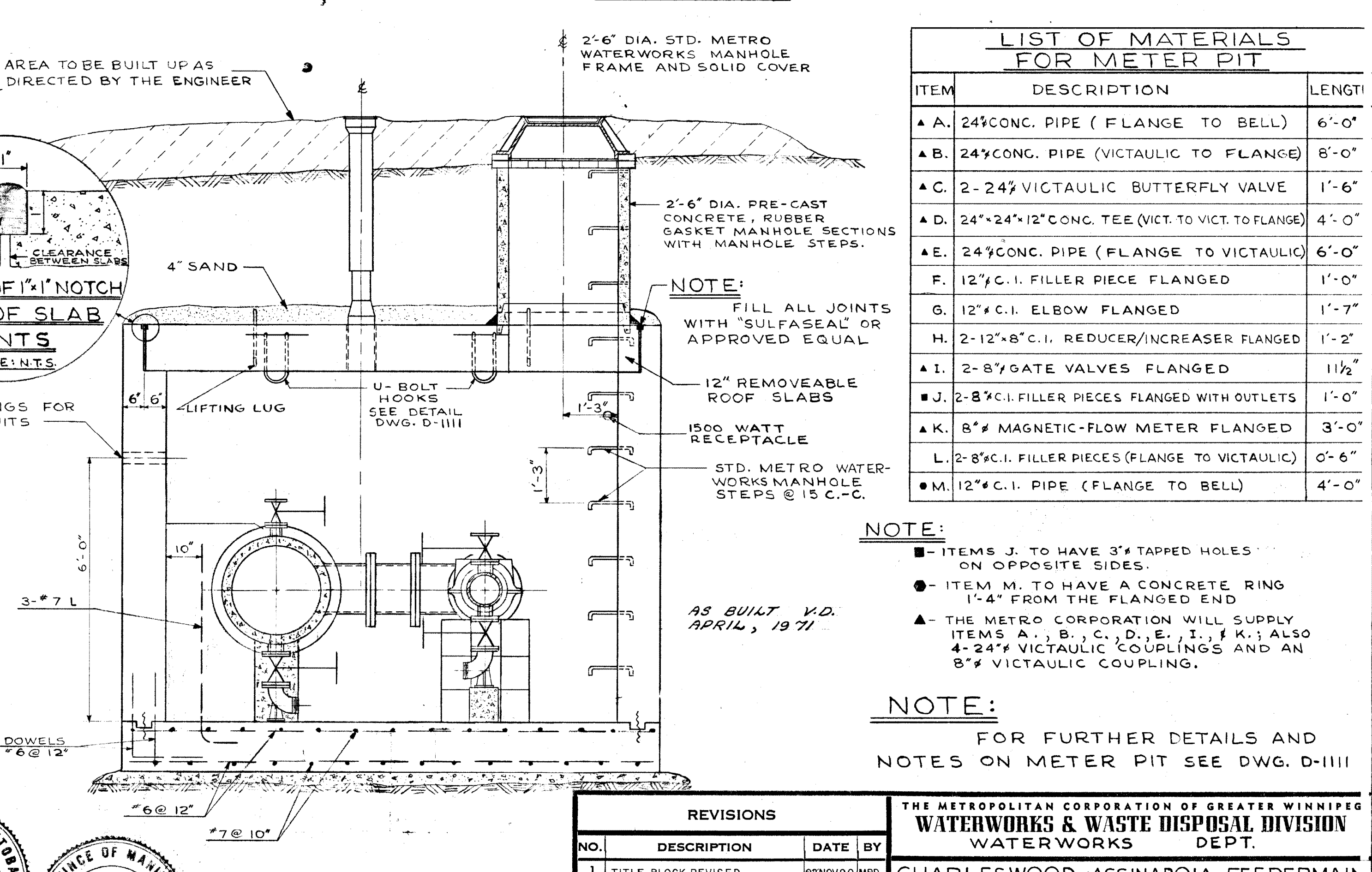
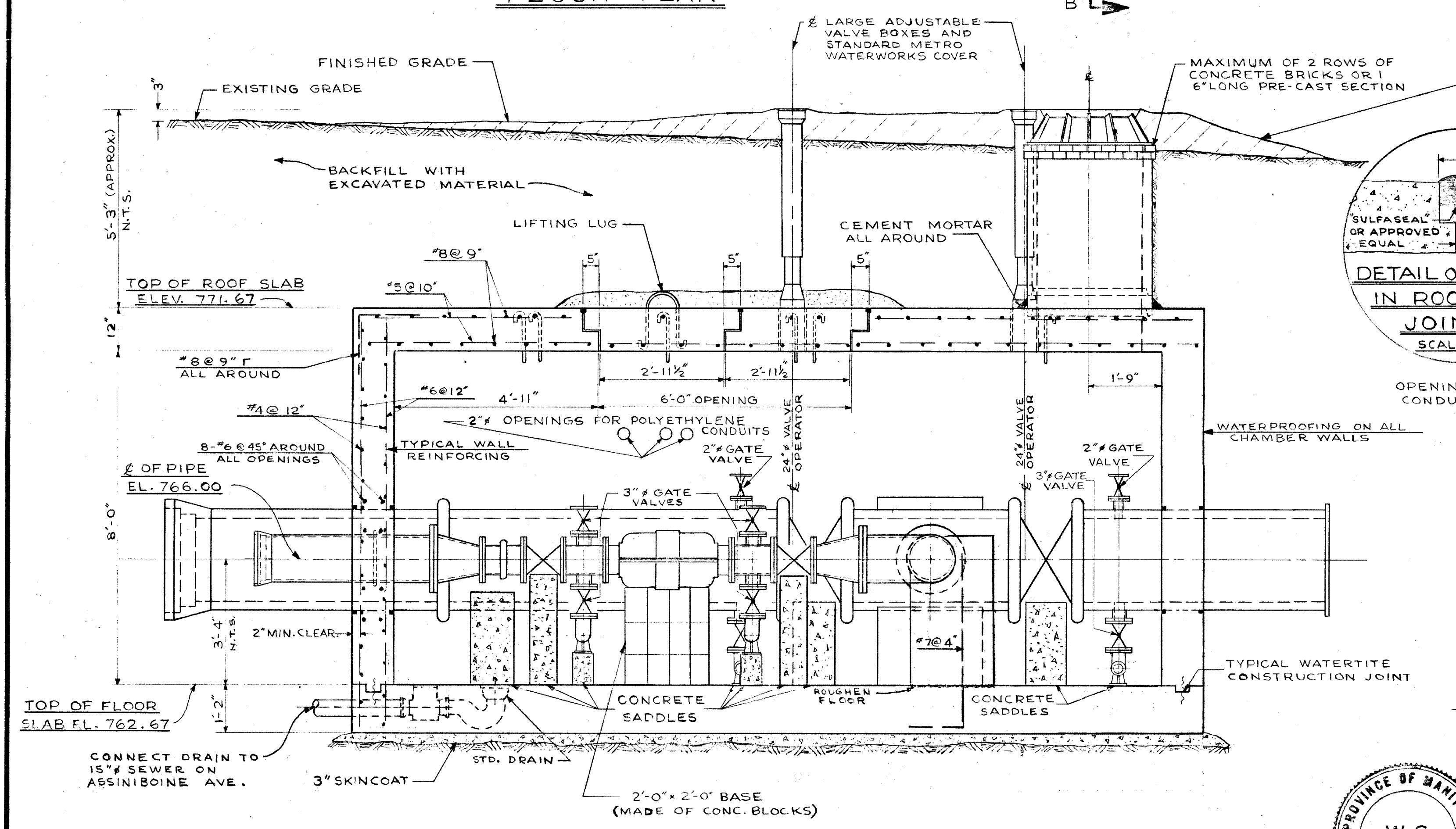
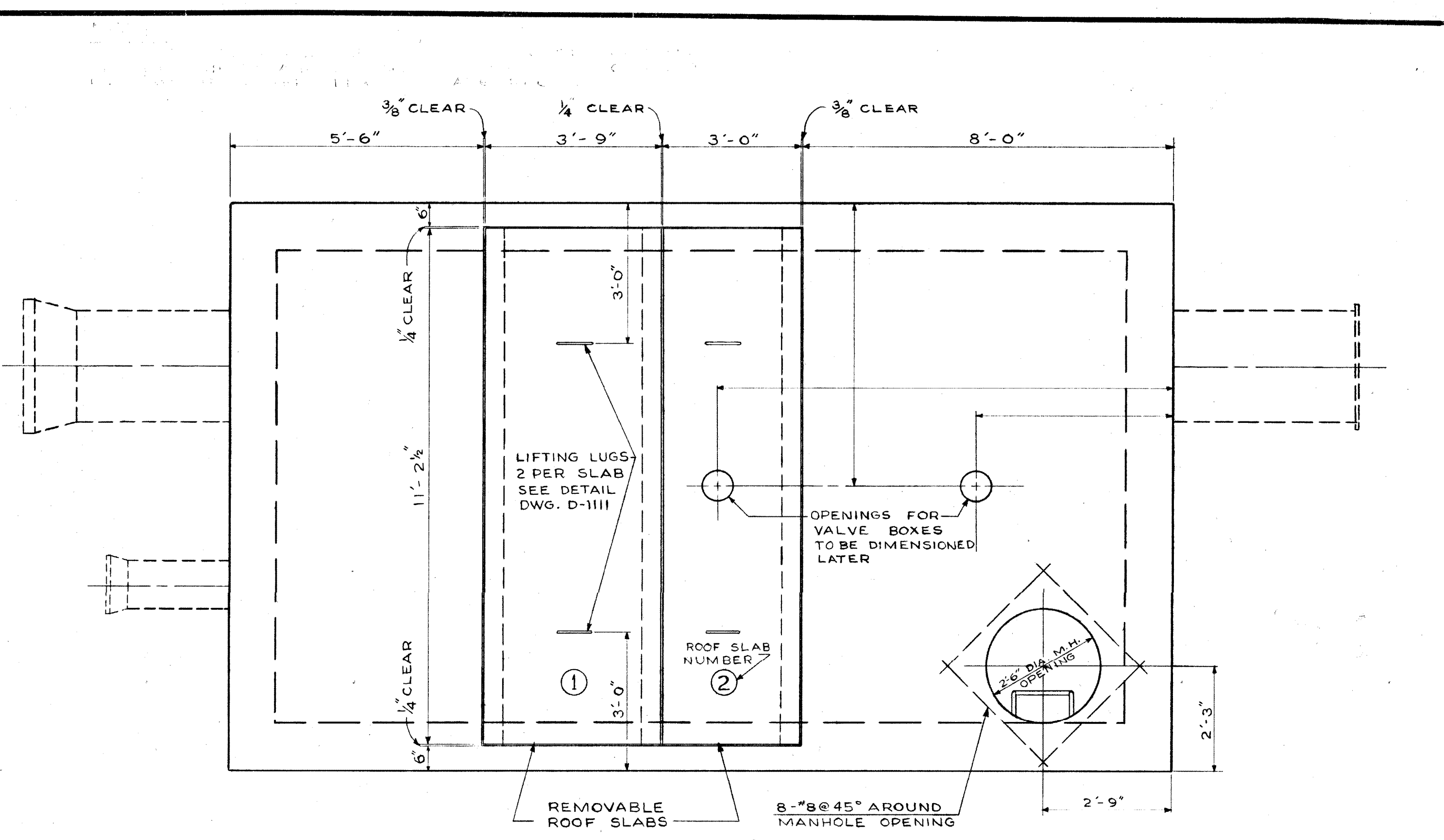
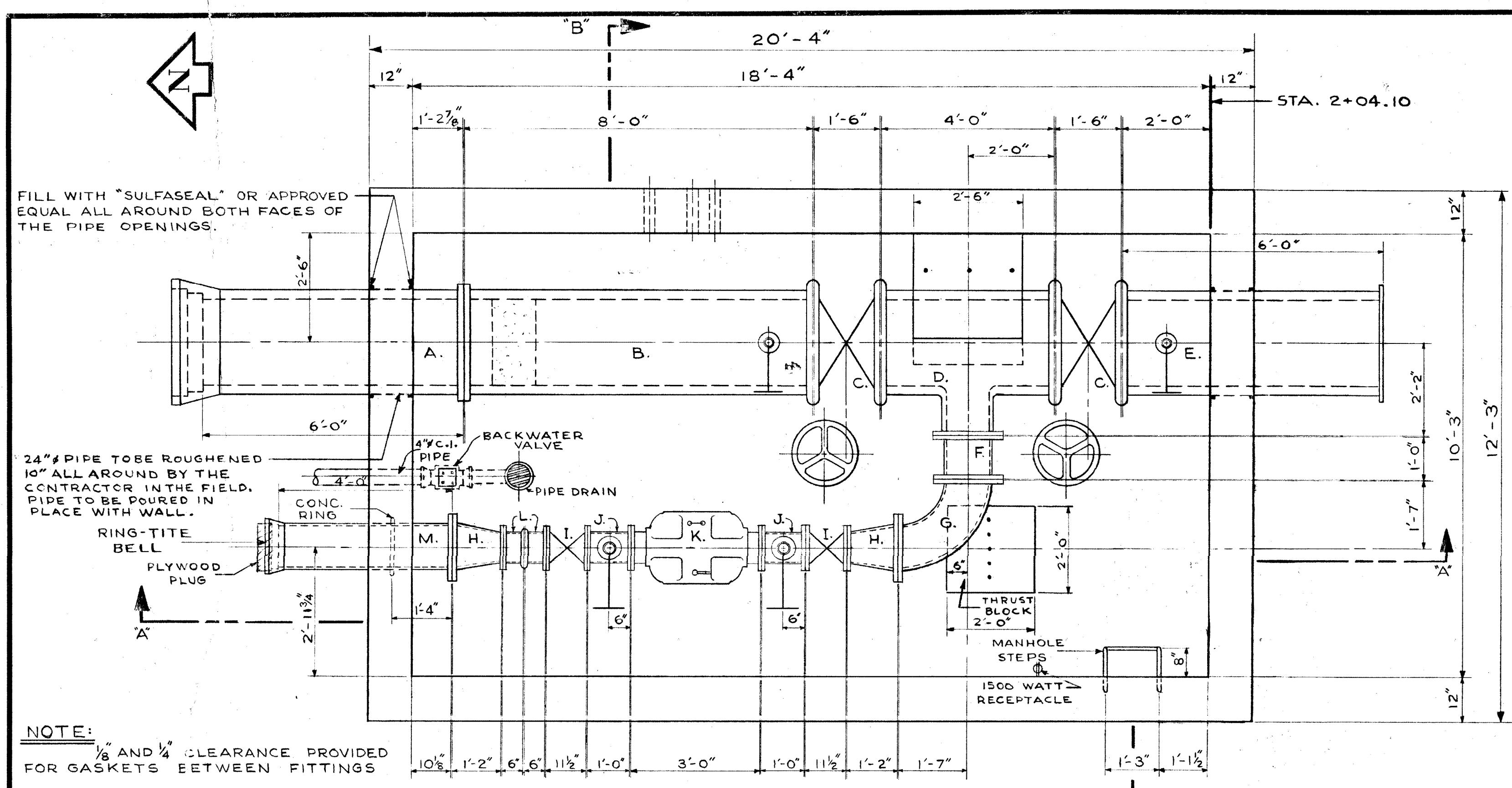
C.A. Evans - Dep. District Registrar



SITE PLAN
SCALE - N.T.S.



THE METROPOLITAN CORPORATION OF THE CITY OF WINNIPEG WATERWORKS & WASTE DISPOSAL DIVISION W. H. WORTH - ENGINEER	WATERWORKS CHARLESWOOD-ASSINIBOIA FEEDERMAIN ASSINIBOINE RIVER CROSSING STA. 9+50 TO STA. 9+80	DATE: JULY 31/64 DRAWING NO.: D-1109
	SCALE: 1" = 20' SHEET 1 OF 4	



LIST OF MATERIALS FOR METER PIT

ITEM	DESCRIPTION	LENGTH
A.	24" CONC. PIPE (FLANGE TO BELL)	6'-0"
B.	24" CONC. PIPE (VICTAULIC TO FLANGE)	8'-0"
C.	2-24" VICTAULIC BUTTERFLY VALVE	1'-6"
D.	24" x 24" x 12" CONC. TEE (VICT. TO VICT. TO FLANGE)	4'-0"
E.	24" CONC. PIPE (FLANGE TO VICTAULIC)	6'-0"
F.	12" C.I. FILLER PIECE FLANGED	1'-0"
G.	12" C.I. ELBOW FLANGED	1'-7"
H.	2-12" x 8" C.I. REDUCER/INCREASER FLANGED	1'-2"
I.	2-8" GATE VALVES FLANGED	11 1/2"
J.	2-8" C.I. FILLER PIECES FLANGED WITH OUTLETS	1'-0"
K.	8" # MAGNETIC-FLOW METER FLANGED	3'-0"
L.	2-8" C.I. FILLER PIECES (FLANGE TO VICTAULIC)	0'-6"
M.	12" C.I. PIPE (FLANGE TO BELL)	4'-0"

NOTE:

- ITEMS J. TO HAVE 3/4" TAPPED HOLES ON OPPOSITE SIDES
- ITEM M. TO HAVE A CONCRETE RING 1'-4" FROM THE FLANGED END
- THE METRO CORPORATION WILL SUPPLY ITEMS A., B., C., D., E., I., J., K., L. ALSO 4-24" VICTAULIC COUPLINGS AND AN 8" VICTAULIC COUPLING.

NOTE:

FOR FURTHER DETAILS AND NOTES ON METER PIT SEE DWG. D-1111

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	TITLE BLOCK REVISED	02NOV90	MBD
2			
3			
4			
5			
6			
7			
8			

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
WATERWORKS & WASTE DISPOSAL DIVISION
WATERWORKS DEPT.

CHARLESWOOD-ASSINABOIA FEEDERMAIN RIVER CROSSING
METER PIT - ROUGE ROAD AT ASSINIBOINE AVENUE
STA. 2+04.10

APPROVED BY: *[Signature]*
DESIGNED BY: W. S. B.
DRAWN BY: A. C.
CHECKED BY: *[Signature]*
DATE: JULY 31/71

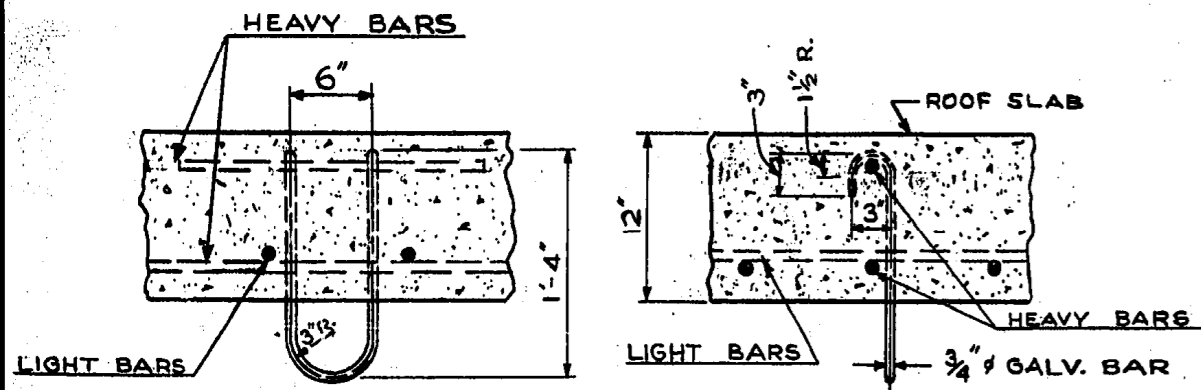
DRAWING NO. **D-1110**

SCALE: AS NOTED

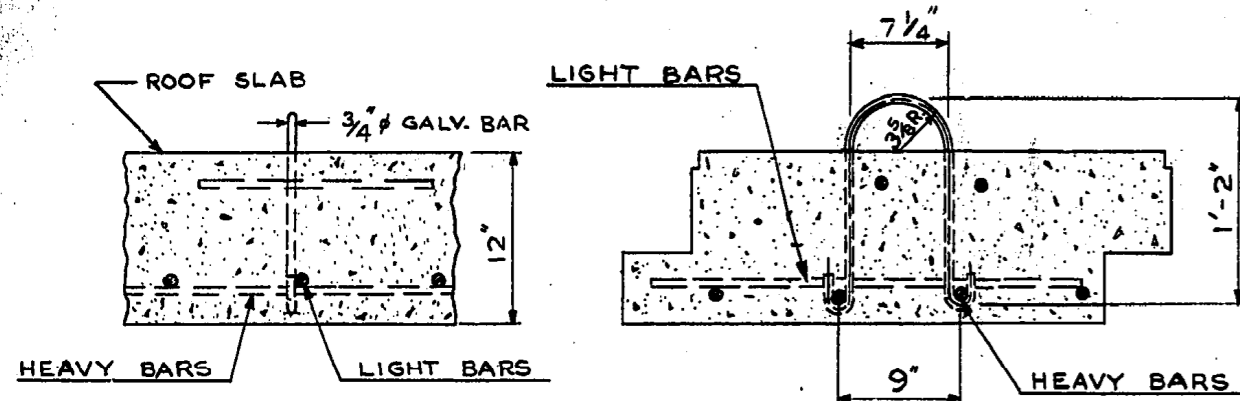
PROVINCE OF MANITOBA
W. S. BROCK
REGISTERED ENGINEER

PROVINCE OF MANITOBA
G. E. BURNS
REGISTERED ENGINEER

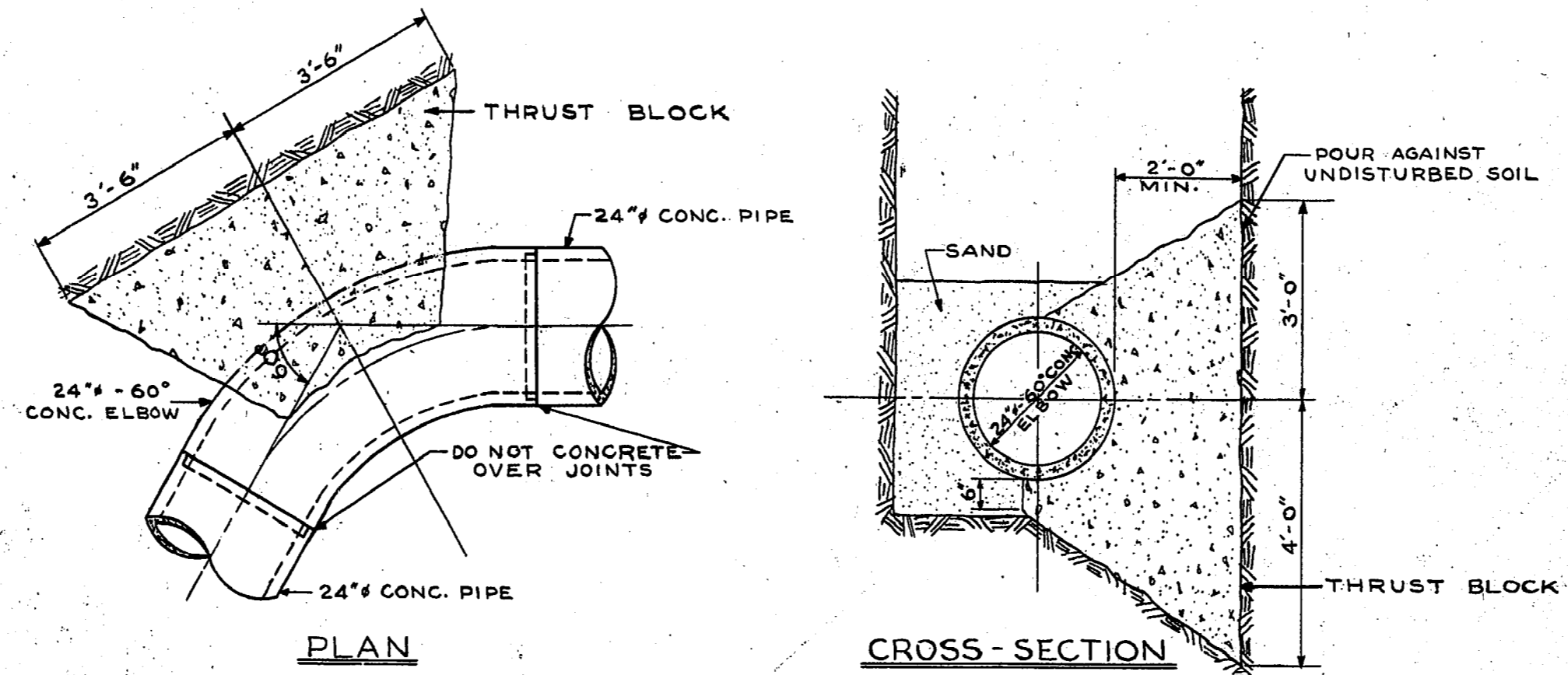
DETAIL OF METER PIT AT STA. 204.1
SCALE: 1/2" = 1'-0"



CROSS-SECTION LONG-SECTION
 DETAIL OF U-BOLT HOOK
 SCALE: 1" = 1'-0"



CROSS-SECTION LONG-SECTION
 DETAIL OF LIFTING LUG
 SCALE: 1" = 1'-0"



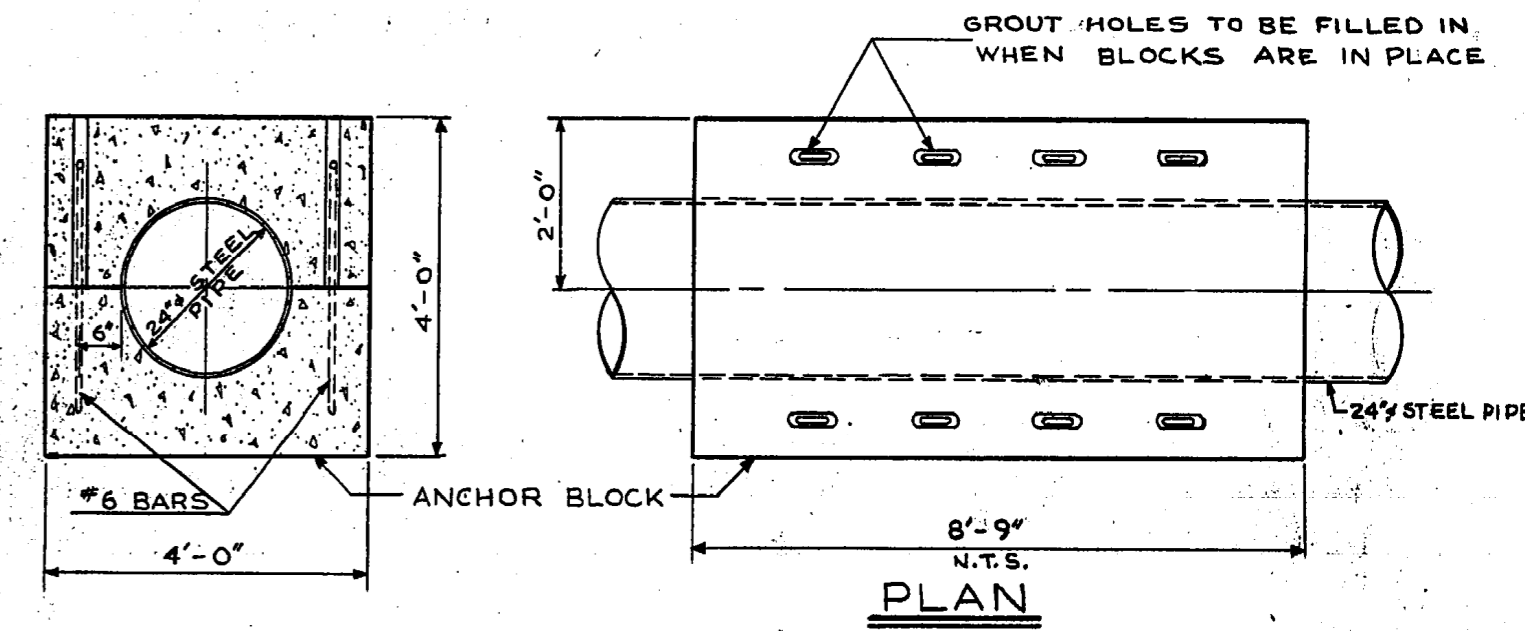
PLAN CROSS-SECTION
 DETAIL OF THRUST BLOCKS NOS. 1 & 2
 FOR 24" CONC. PIPE - 60° ELBOW
 SCALE: 1/2" = 1'-0"

LIST OF THRUST BLOCKS FOR 24" CONC. PIPE			
NO.	LOCATION	ANGLE	BEARING AREA
1	60° ELBOW AT P.I. STA.	60° 00' 00"	7'-0" x 7'-0"
2	60° ELBOW AT P.I. STA.	60° 00' 00"	7'-0" x 7'-0"
3	END OF CONTRACT STA. 9+49.63		7'-0" x 7'-0"

LIST OF ANCHOR BLOCKS FOR 24" STEEL PIPE		
NO.	LOCATION	LENGTH
1	STA. 5+05	8'-9"
2	STA. 5+70	8'-9"
3	STA. 6+45	8'-9"
4	STA. 7+15	8'-9"

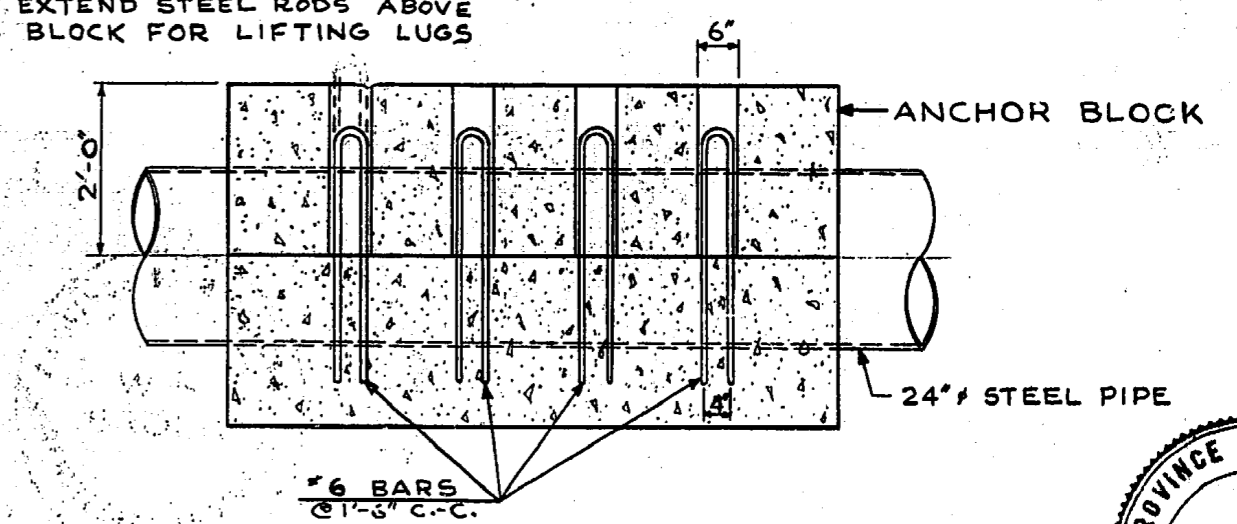
NOTES: (REFERING TO METER PIT AT STA. 2+04.10 - SEE DWG. D-1110)

- ALL PRECAST CHAMBER SLABS ARE TO BE NUMBERED ON THE UNDERSIDE IN THE ORDER BY WHICH THEY CAN BE REMOVED, CAST IN TYPICAL HOUSE NUMBERS.
- PLACE BUILDING PAPER BETWEEN VALVES AND CONCRETE SADDLES, BETWEEN ELBOWS AND CONCRETE SADDLES AND BETWEEN CONCRETE BASE AND METER.
- ALL EXTERIOR AND INTERIOR CORNERS, INCLUDING PRECAST SLABS, TO BE CHAMFERED AS SPECIFIED IN THE SPECIFICATIONS.
- THE VICTAULIC COUPLINGS TO BE STYLE # 44.
- FITTINGS REQUIRED FOR EACH 8" C.I. SHORT WITH 3" OUTLETS.
 ON TOP OF 8" SHORT:
 3" NIPPLE (SCREW TO SCREW-ON-FLANGE)
 3" C.I. GATE VALVE FLANGED WITH BRONZE TRIM
 ON BOTTOM OF 8" SHORT:
 3" NIPPLE (SCREW TO SCREW-ON-FLANGE)
 3" GATE VALVE FLANGED WITH BRONZE TRIM
 3" - 90° GALV. BASE ELBOW (FLANGE TO SCREW)-DIRECT ELBOW TOWARDS MANHOLE OPENING.
- FITTINGS REQUIRED FOR ITEMS B. AND E.
 ON TOP OF 24" PIPE:
 2" NIPPLE (SCREW TO SCREW-ON-FLANGE) - SUPPLIED WITH PIPE.
 2" C.I. GATE VALVE FLANGED WITH BRONZE TRIM
 ON BOTTOM OF 24" PIPE:
 3" NIPPLE (SCREW TO SCREW-ON-FLANGE) - SUPPLIED WITH PIPE.
 3" C.I. GATE VALVE FLANGED WITH BRONZE TRIM
 3" - 90° GALV. BASE ELBOW (FLANGE TO SCREW) - DIRECT ELBOW TOWARDS MANHOLE OPENING.
- ALL FITTINGS TO BE MADE OF BRONZE UNLESS SPECIFIED OTHERWISE.
- SEE DWG. C-480 FOR ELECTRICAL REQUIREMENTS.



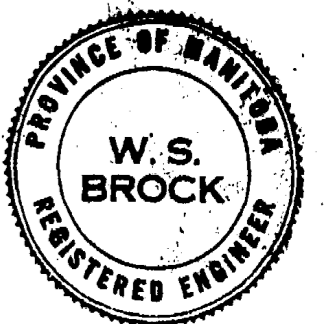
CROSS-SECTION

OPTIONAL - EXTEND STEEL RODS ABOVE BLOCK FOR LIFTING LUGS



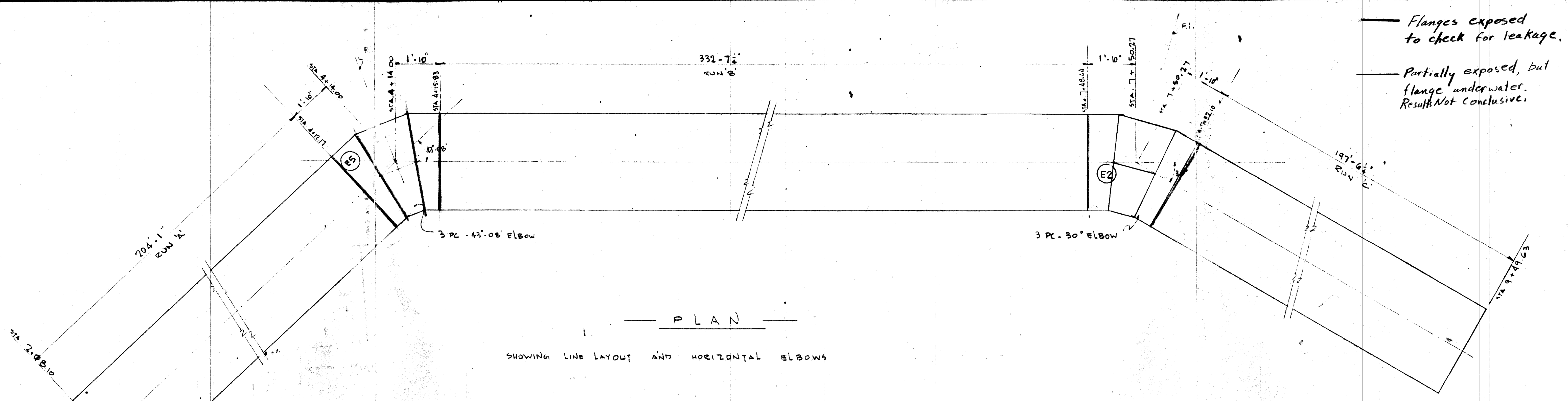
LONG-SECTION

TYPICAL
 DETAIL OF ANCHOR BLOCKS
 - FOR 24" STEEL PIPE
 SCALE: 1/2" = 1'-0"

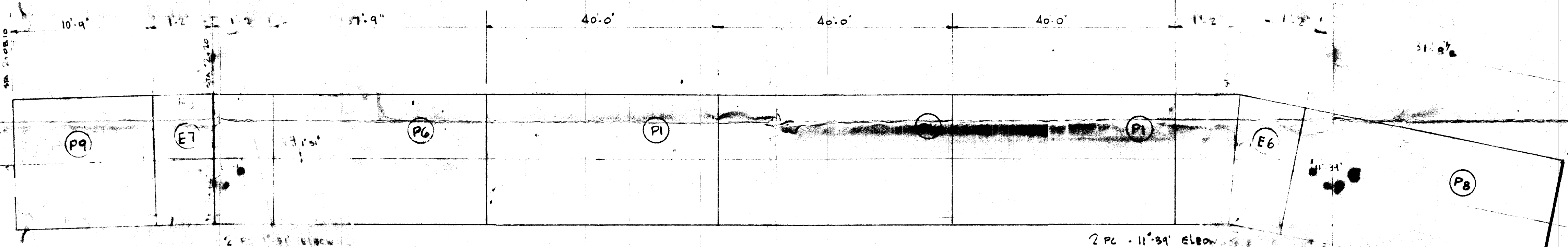


THE METROPOLITAN CORPORATION OF GREATER WINNIPEG WATERWORKS & WASTE DISPOSAL DIVISION N. S. BUBBIS - DIRECTOR	WATERWORKS CHARLESWOOD - ASSINIBOIA FEEDERMAIN ASSINIBOINE RIVER CROSSING THRUST AND ANCHOR BLOCKS & MISCELLANEOUS DETAILS	DEPT. W.S.B. DRN. A.C. ENG. DES. [Signature] ENG. WATER [Signature]	CH'KD. [Signature] DATE JULY 31/64 APPROVED [Signature]	SCALE HORIZ. 1" = AS VERT. 1" = NOTED DRAWING NO. D-1111
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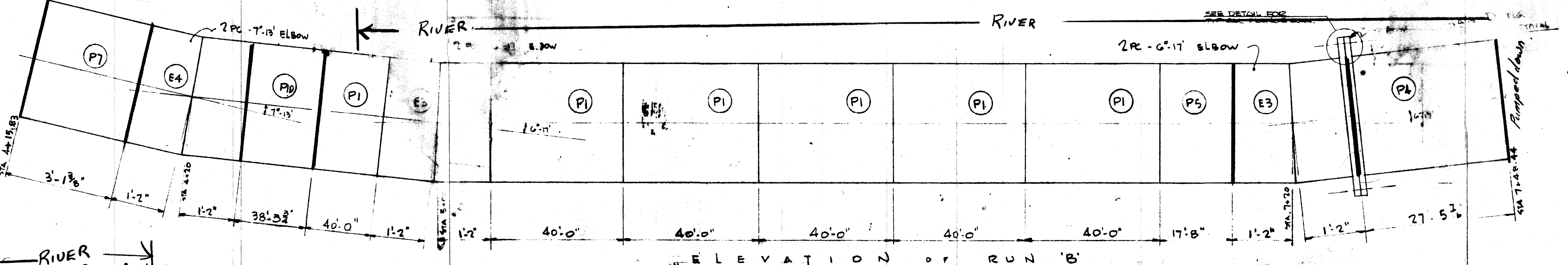
Flanges exposed to check for leakage.
 Partially exposed, but flange underwater. Result: Not Conclusive.



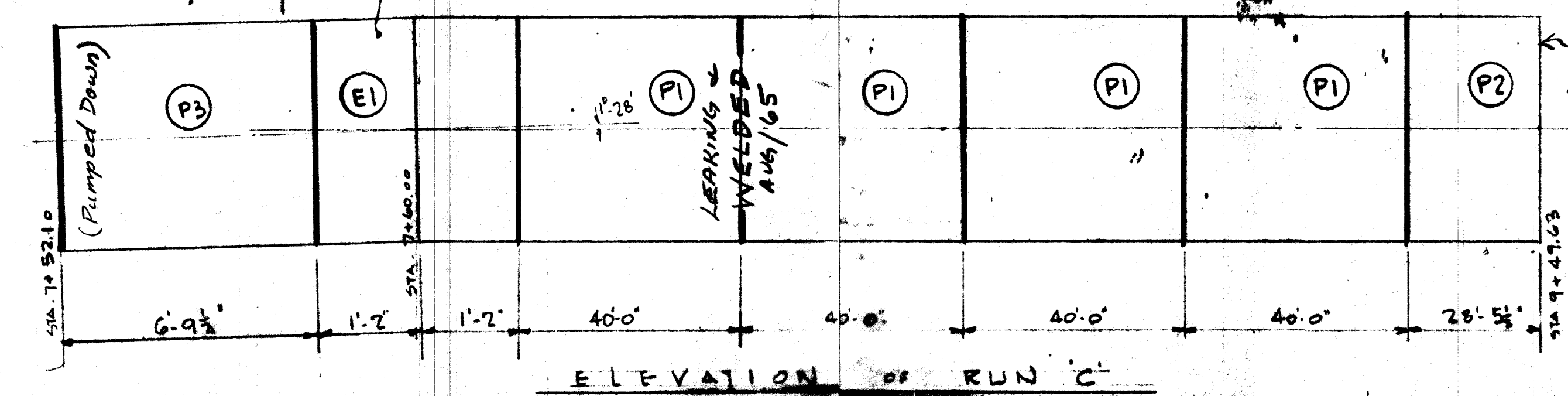
PLAN
 SHOWING LINE LAYOUT AND HORIZONTAL ELBOWS



ELEVATION OF RUN 'A'



ELEVATION OF RUN 'B'



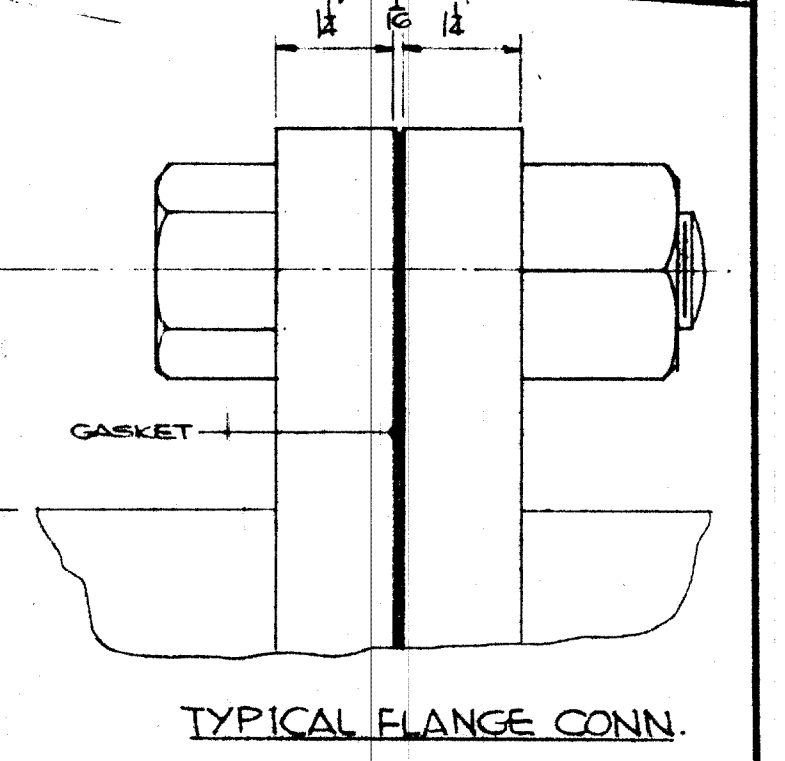
ELEVATION OF RUN 'C'

Connections made by Borger, was leaking. Bolts tightened by Borger & found to be not leaking with line pressure. March/65.

ALL PIPE TO BE 24\"/>

SEE ALSO ARMCO ORWA W-51-M-83

APPROVED FOR CONSTRUCTION
 Date OCT 21 1964
 Approval of this drawing covers only the general design and arrangement of material or equipment and does not in any way relieve the Contractor of any liability or responsibility for the satisfactory operation of this installation.



B	10/24/64	P7 - REV'D FROM 3'-0\"/>			
NO.	DATE	DESCRIPTION OF REVISION	MK	CHK.	APP'D.
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METRO WINNIPEG WATERWORKS DIV.					
CHARLESWOOD - ASSINIBOIA FEEDER MAIN					
24\"/>					
DATE AUG 31 DRAWN MK CHECKED GT APPROVED SCALE DO NOT					
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7183 / 64B					