

GARWOOD WATER CO-OPERATIVE WATER SYSTEM CONSTRUCTION PLANS

GARWOOD
KOOTENAI COUNTY, IDAHO

ENGINEER



J-U-B ENGINEERS, INC.

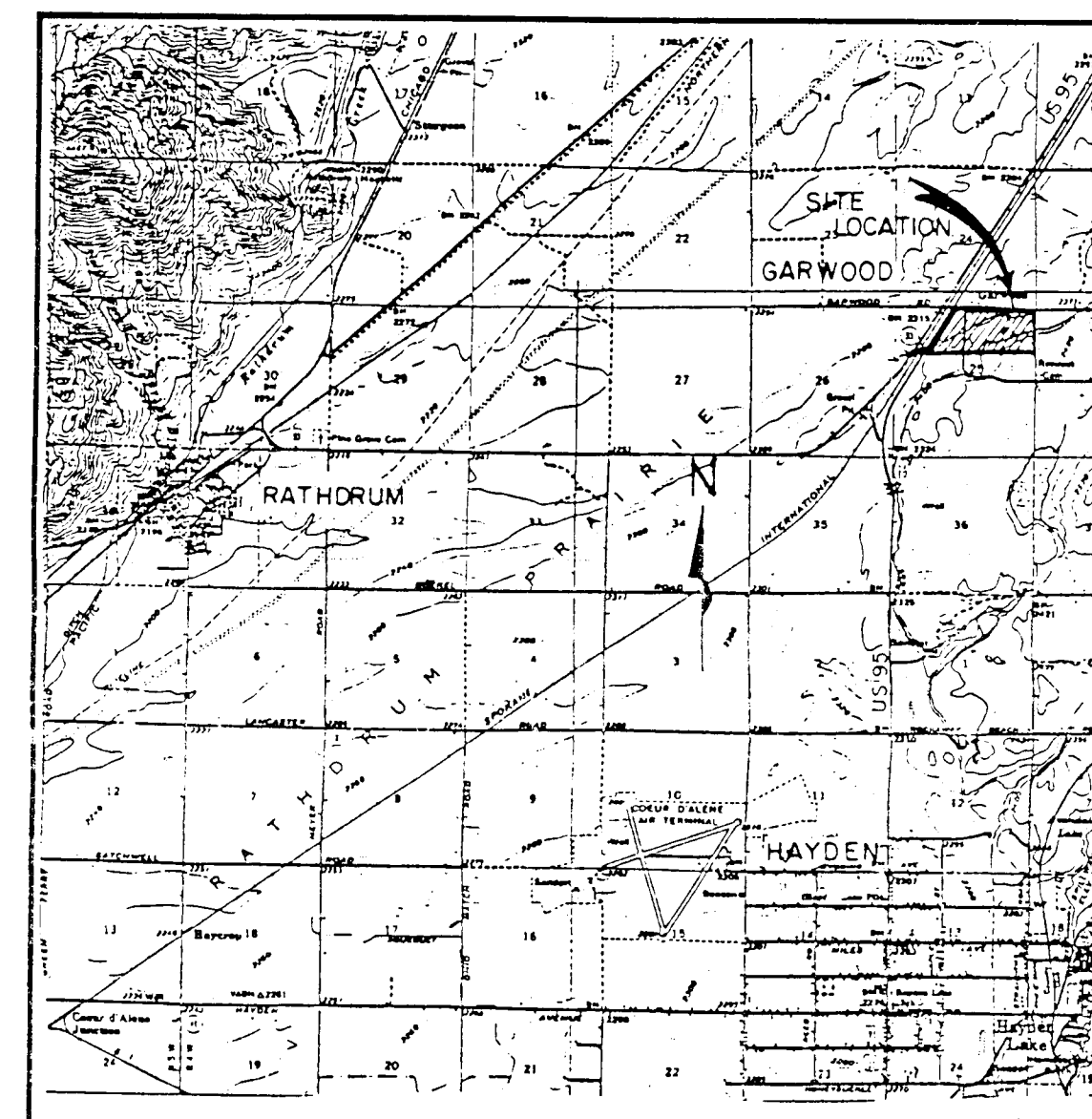
2005 Ironwood Parkway, Suite 201 Coeur d'Alene, Idaho 83814
Telephone (208) 67-1574

OWNER

GARWOOD WATER CO-OPERATIVE
GARWOOD, IDAHO

Project Funded By:

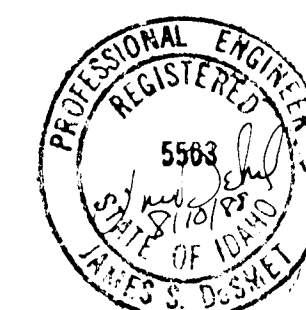
FARMERS HOME ADMINISTRATION



VICINITY MAP

INDEX OF SHEETS

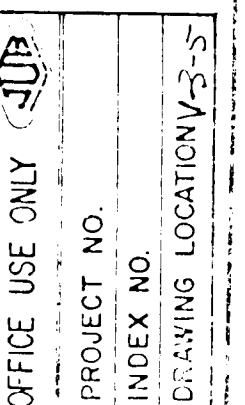
1. COVER SHEET
2. LAYOUT PLAN
3. LAYOUT PLAN
4. PUMP HOUSE PLAN
5. RESERVOIR SITE & DETAILS
6. RESERVOIR DETAILS
7. RESERVOIR DETAILS
8. RESERVOIR DETAILS
9. CONSTRUCTION DETAILS
10. ELECTRICAL PLANS

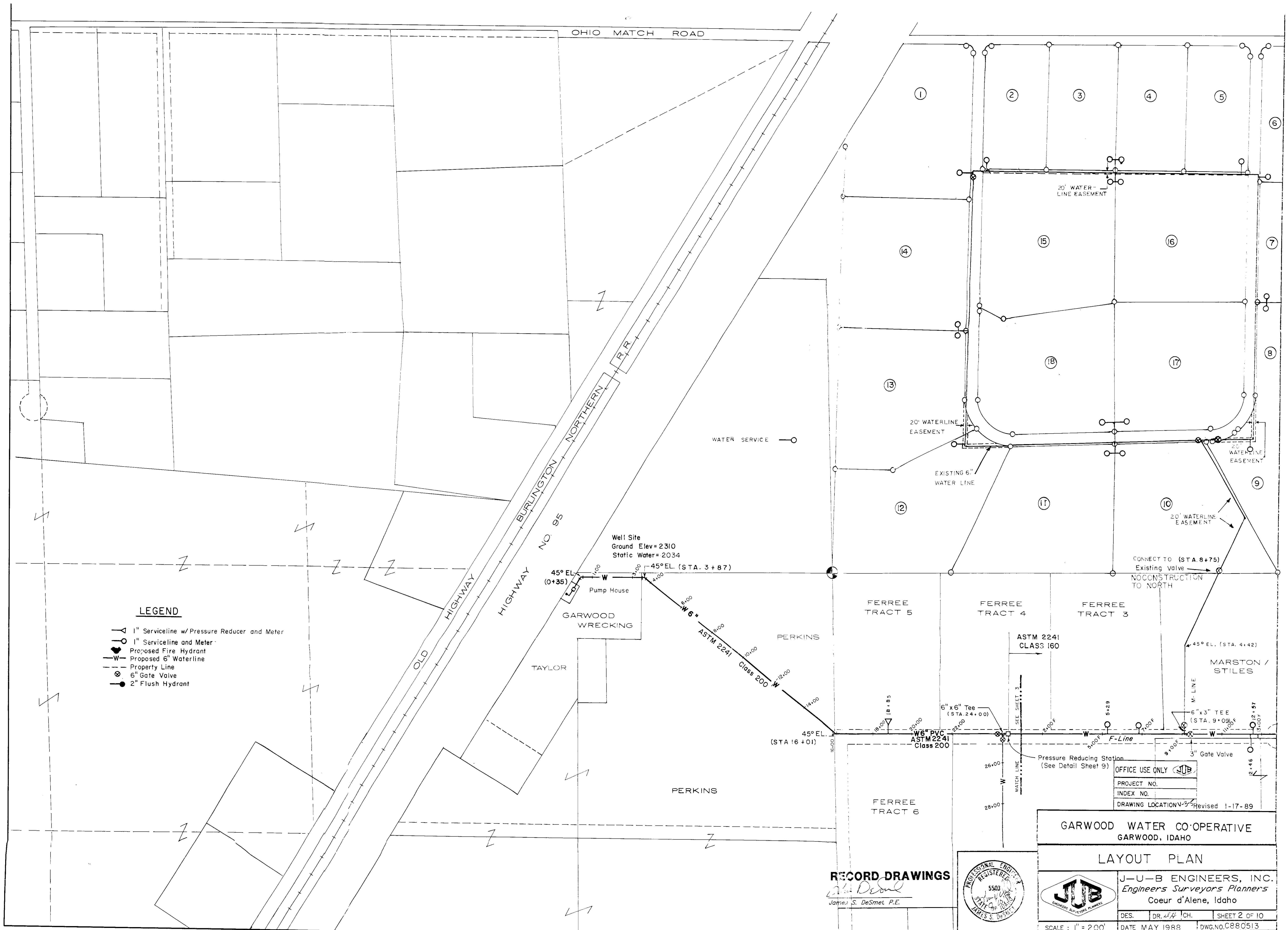


RECORD DRAWINGS

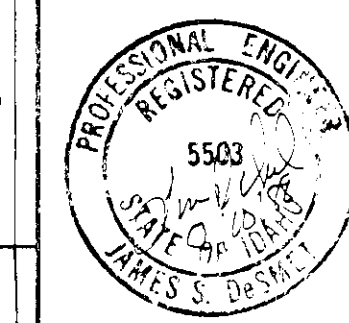
James S. DeSmet, P.E.
James S. DeSmet, P.E.

Revised 11-9-88

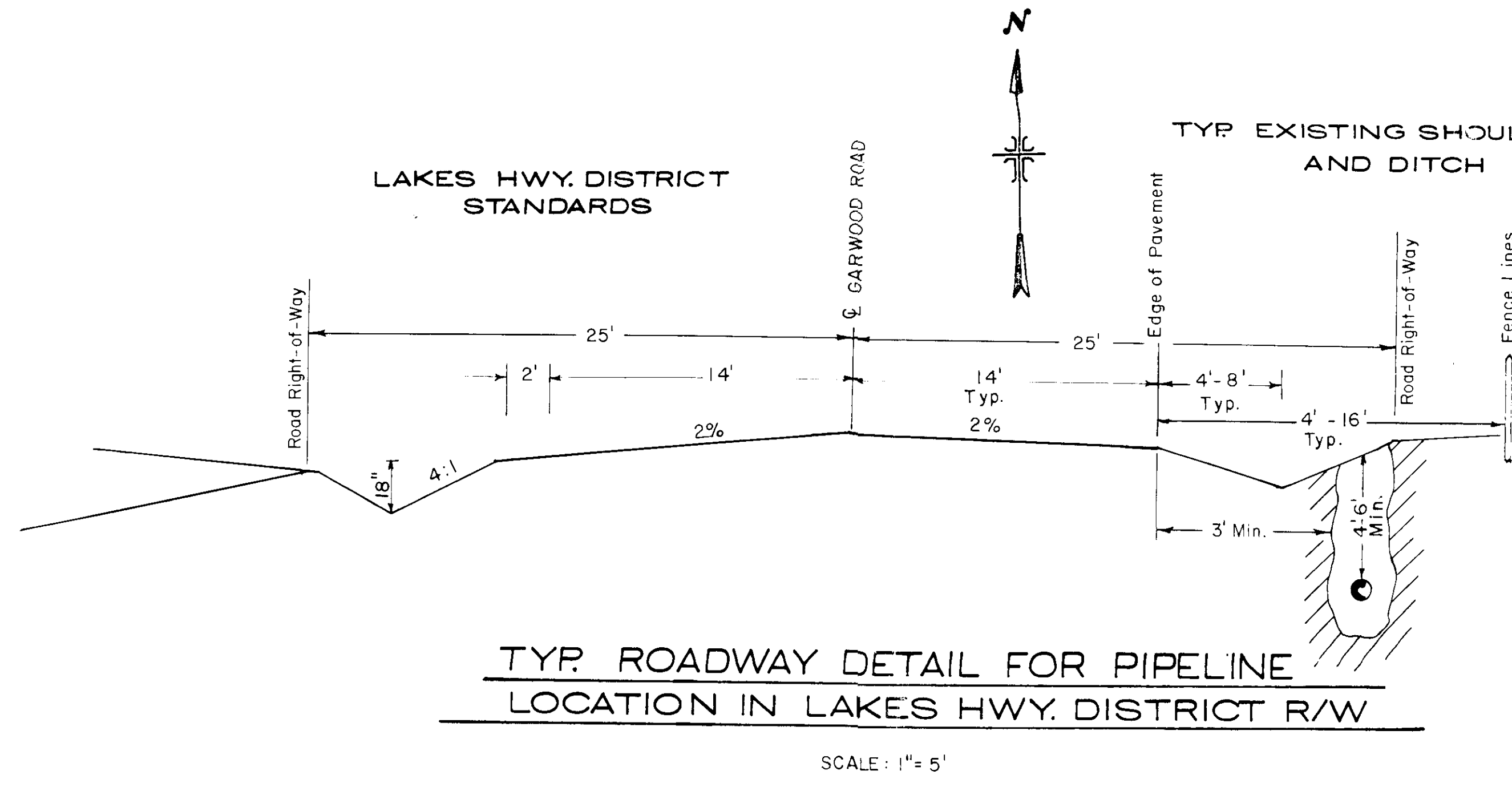
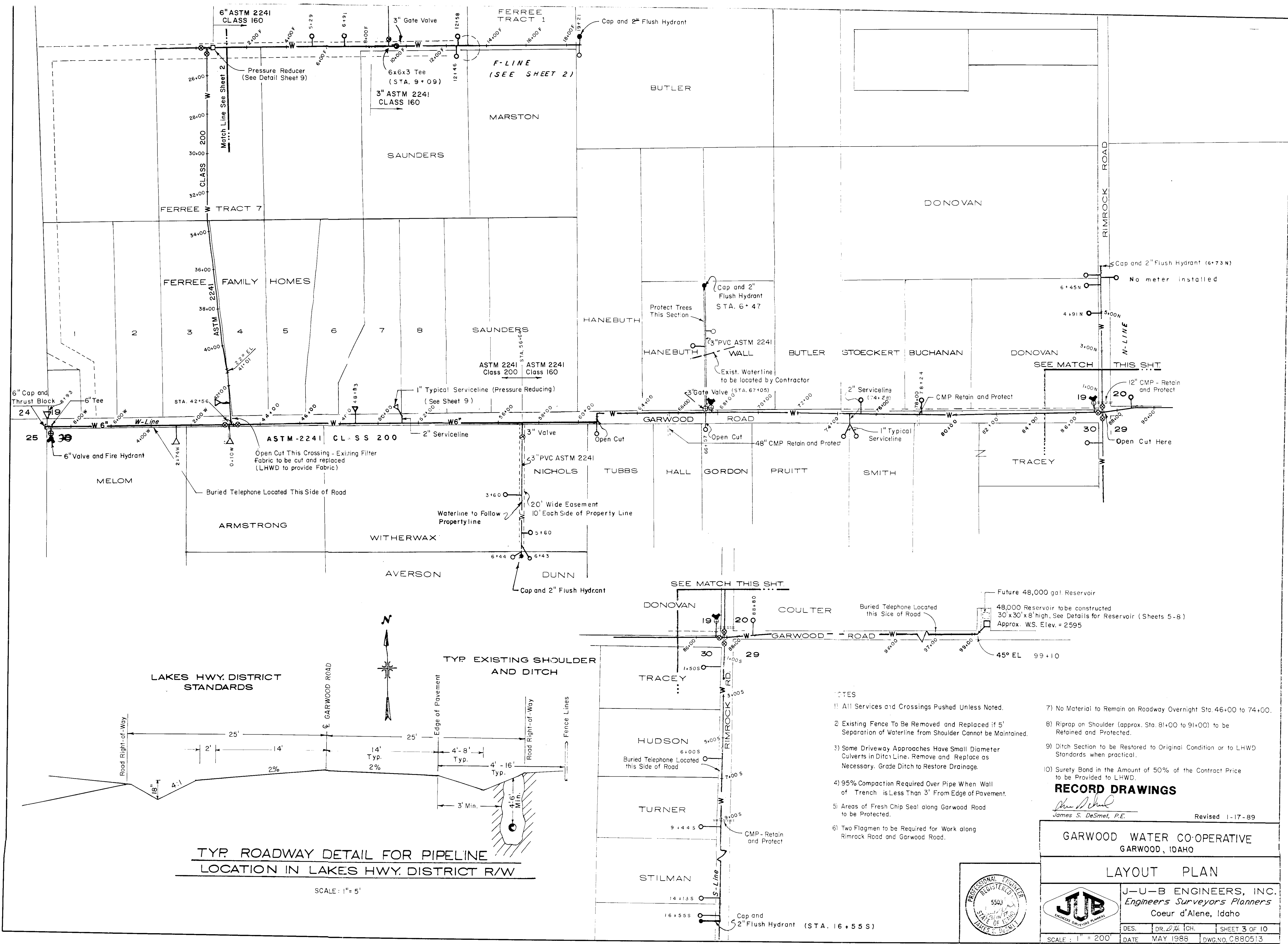




RECORD DRAWINGS
James S. DeSmet, P.E.



GARWOOD WATER CO-OPERATIVE GARWOOD, IDAHO			
LAYOUT PLAN			
J-U-B ENGINEERS, INC. Engineers Surveyors Planners Coeur d'Alene, Idaho			
DES.	DR. JH	CH.	SHEET 2 OF 10
DATE MAY 1988		DWG. NO. C280513	

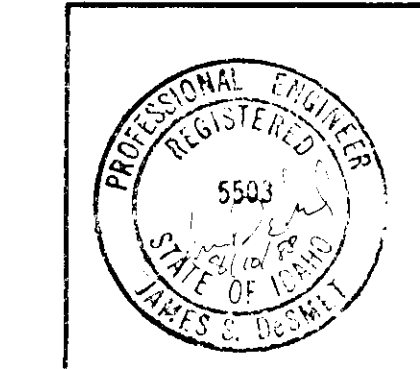


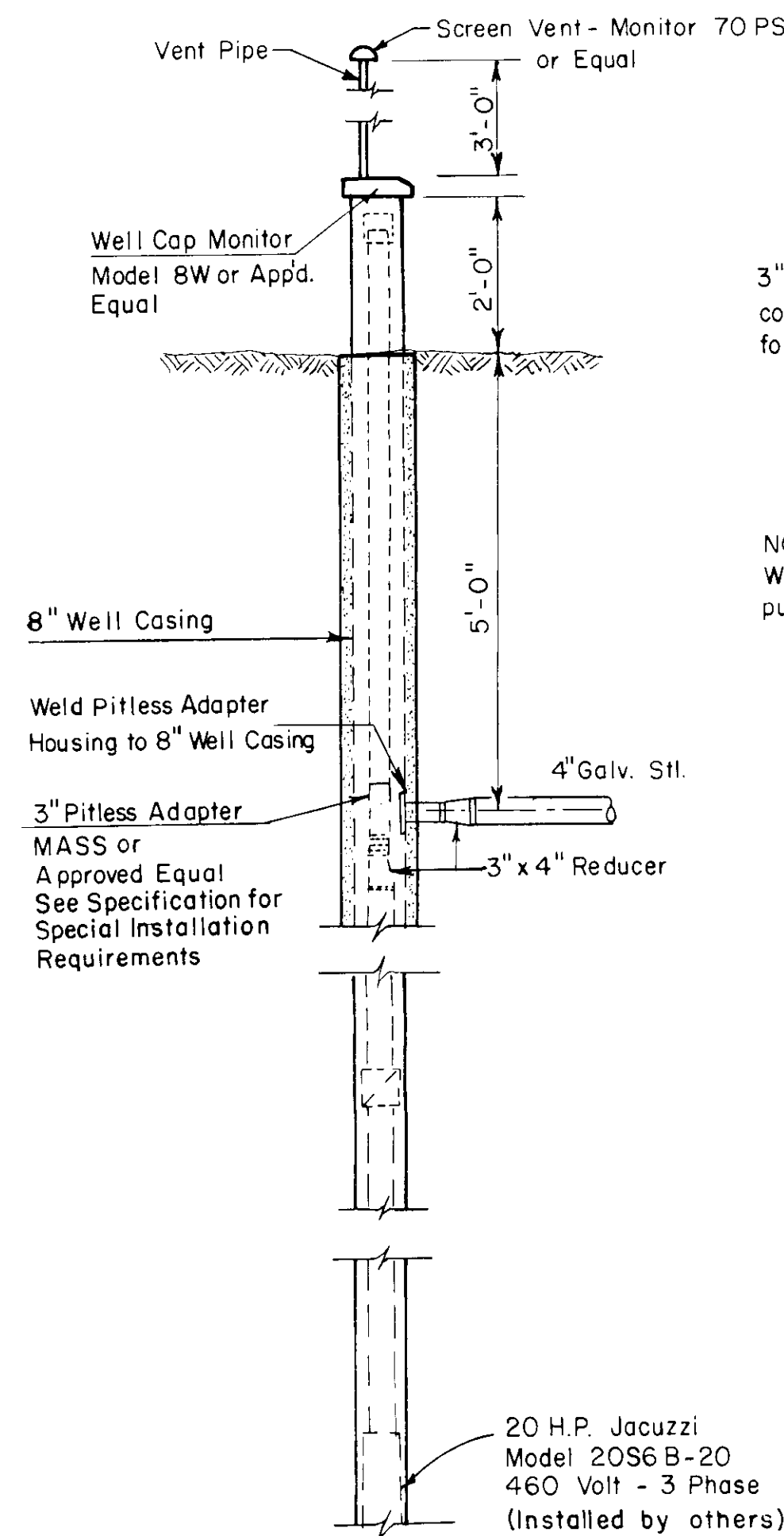
- NOTES
- 1) All Services and Crossings Pushed Unless Noted.
 - 2) Existing Fence To Be Removed and Replaced if 5' Separation of Waterline from Shoulder Cannot be Maintained.
 - 3) Some Driveway Approaches Have Small Diameter Culverts in Ditch Line. Remove and Replace as Necessary. Grade Ditch to Restore Drainage.
 - 4) 95% Compaction Required Over Pipe When Wall of Trench is Less Than 3' From Edge of Pavement.
 - 5) Areas of Fresh Chip Seal along Garwood Road to be Protected.
 - 6) Two Flagmen to be Required for Work along Rimrock Road and Garwood Road.
 - 7) No Material to Remain on Roadway Overnight Sta. 46+00 to 74+00.
 - 8) Riprap on Shoulder (approx. Sta. 81+00 to 91+00) to be Retained and Protected.
 - 9) Ditch Section to be Restored to Original Condition or to LHW Standards when practical.
 - 10) Surety Bond in the Amount of 50% of the Contract Price to be Provided to LHW.

RECORD DRAWINGS

James S. DeSmet, P.E. Revised 1-17-89

GARWOOD WATER CO-OPERATIVE GARWOOD, IDAHO	
LAYOUT PLAN	
J-U-B ENGINEERS, INC. Engineers Surveyors Planners Coeur d'Alene, Idaho	
DES. DR. 20/4 CH.	SHEET 3 OF 10
DATE MAY 1988	DWG. NO. C880513



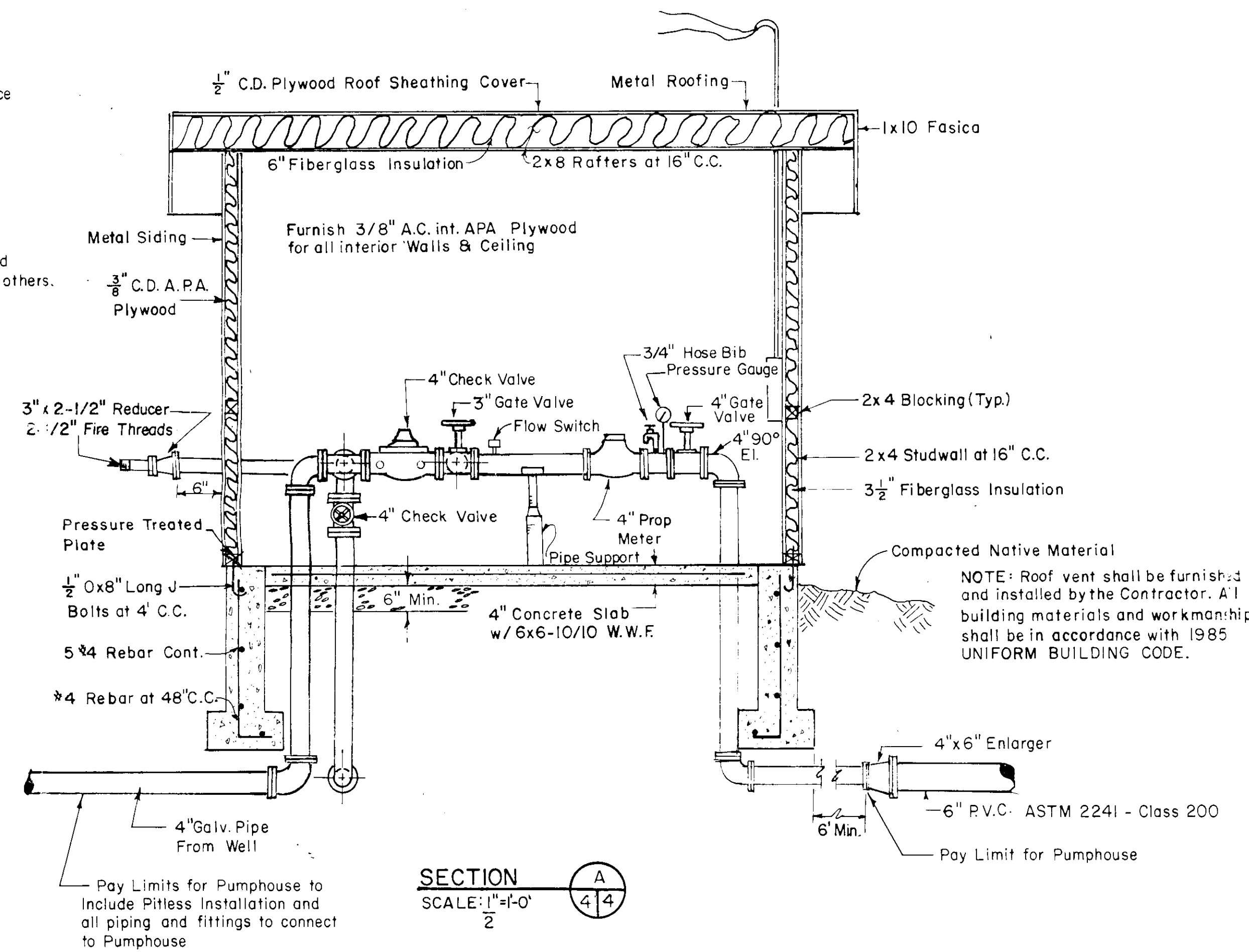


PUMP INSTALLATION DETAIL

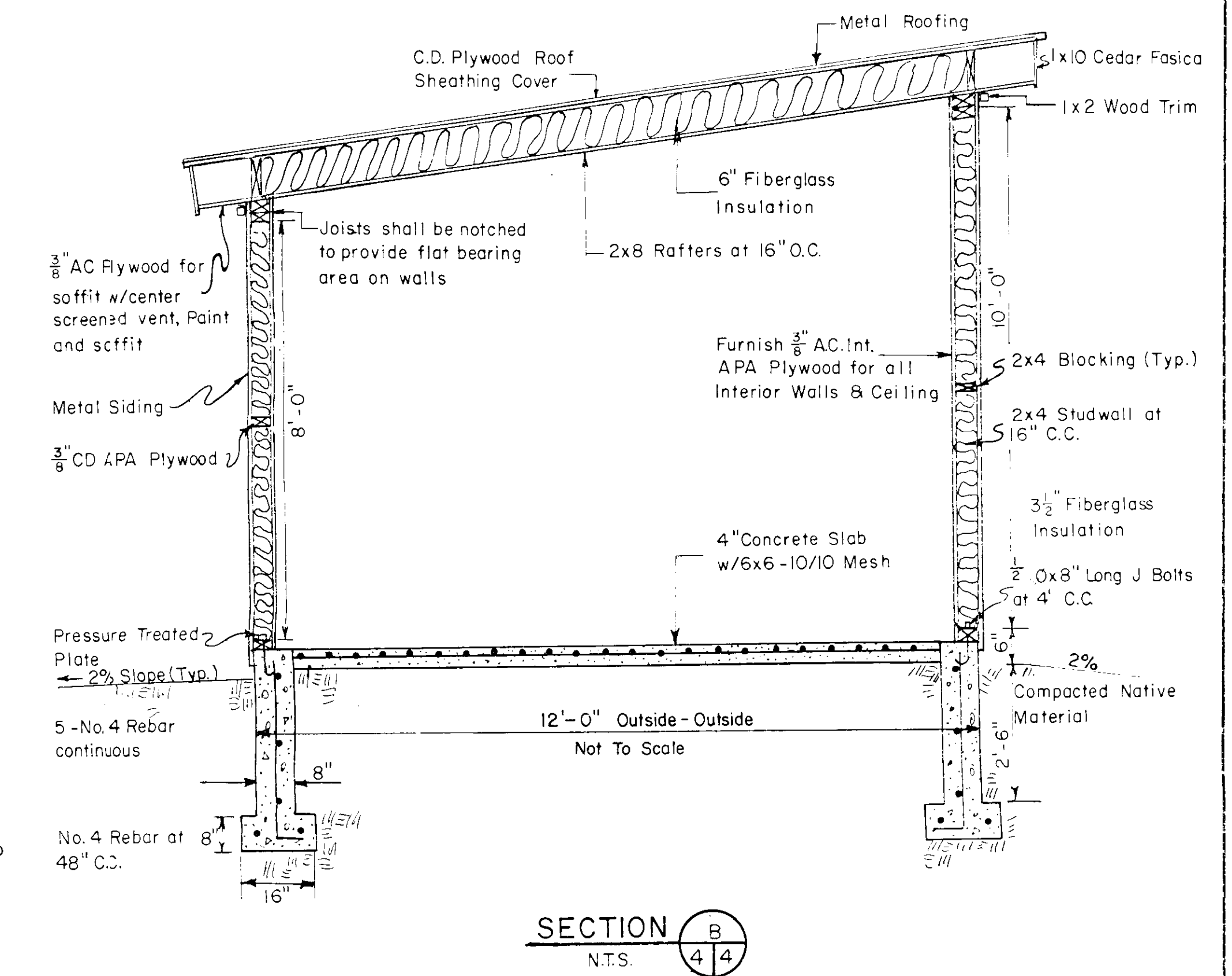
SCALE: 1/2" = 1'-0"

3" Galv. stl. pipe w/3" coupler. Leave in place for pump removal.

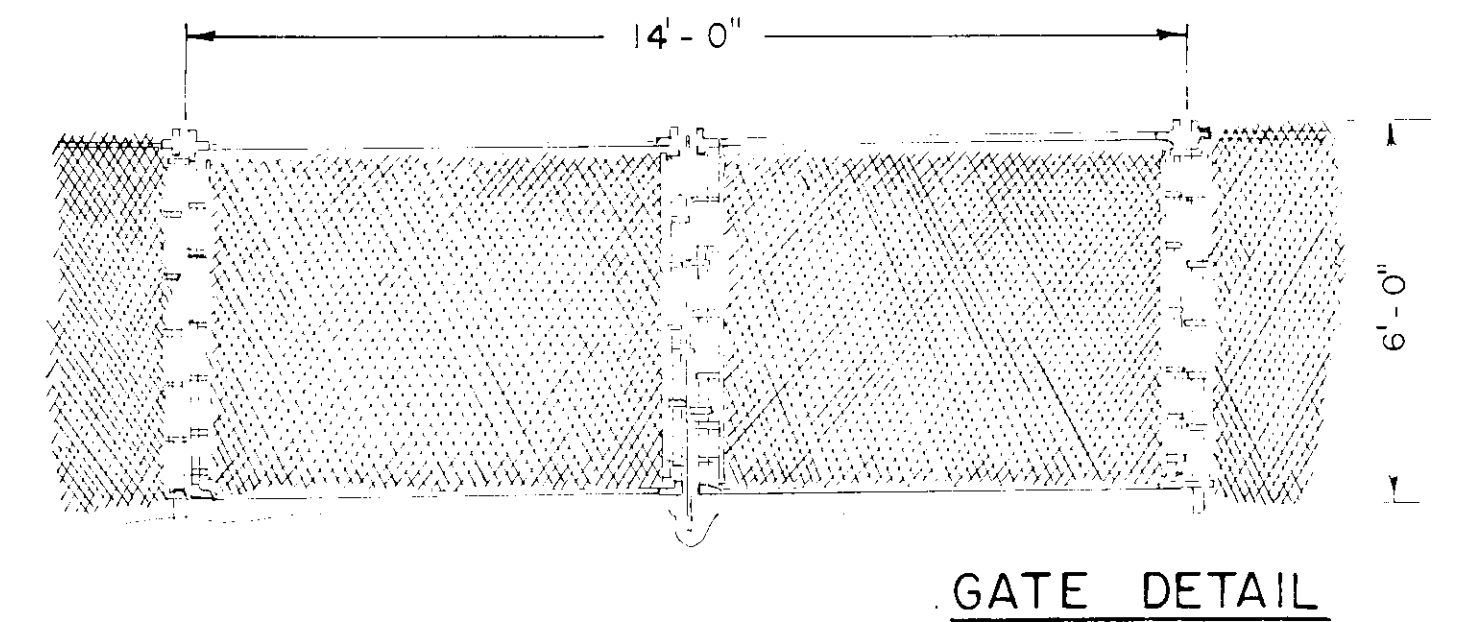
NOTE: Well construction and pump installation by others.



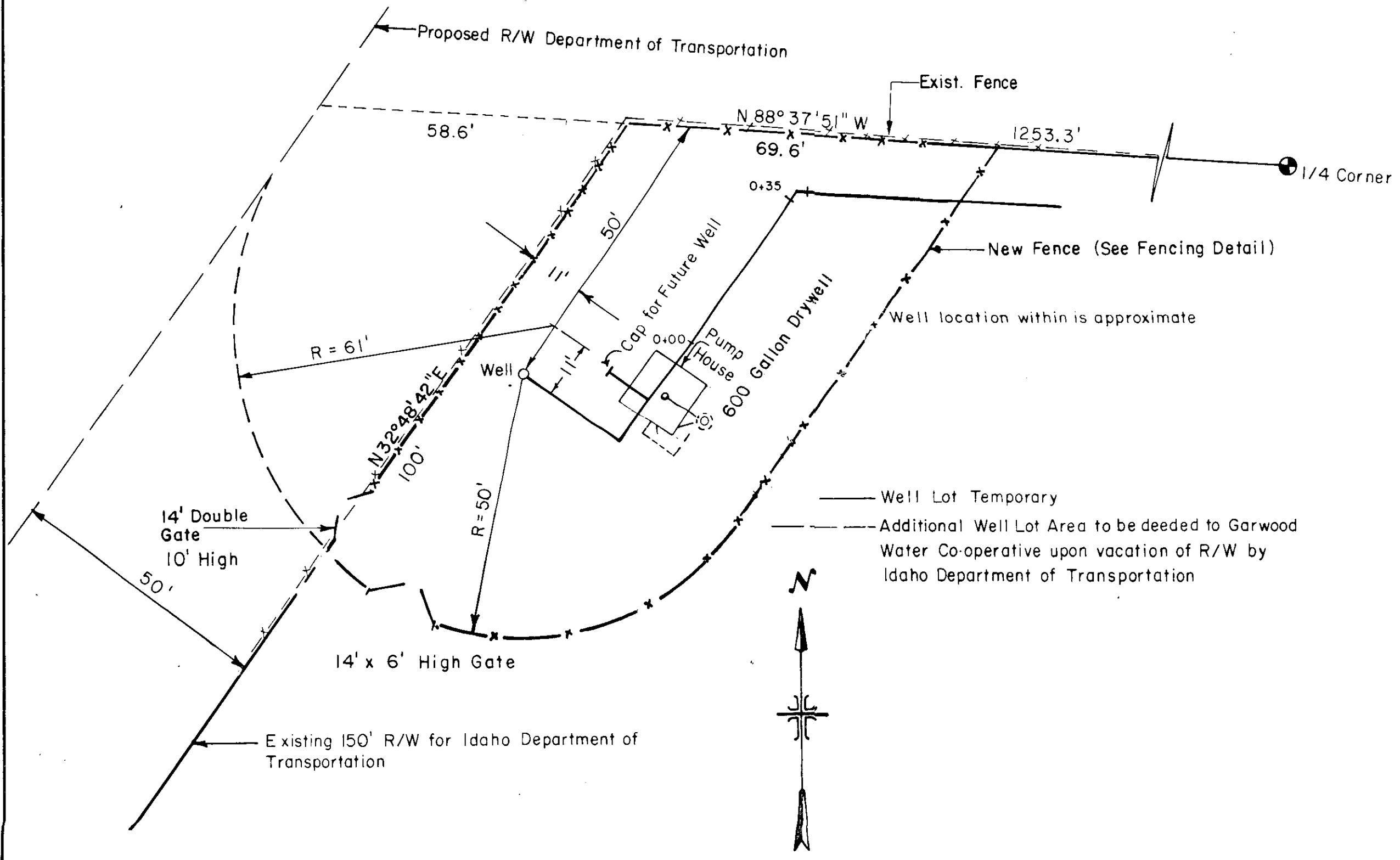
SECTION A
SCALE: 1" = 1'-0"



SECTION B
N.T.S.

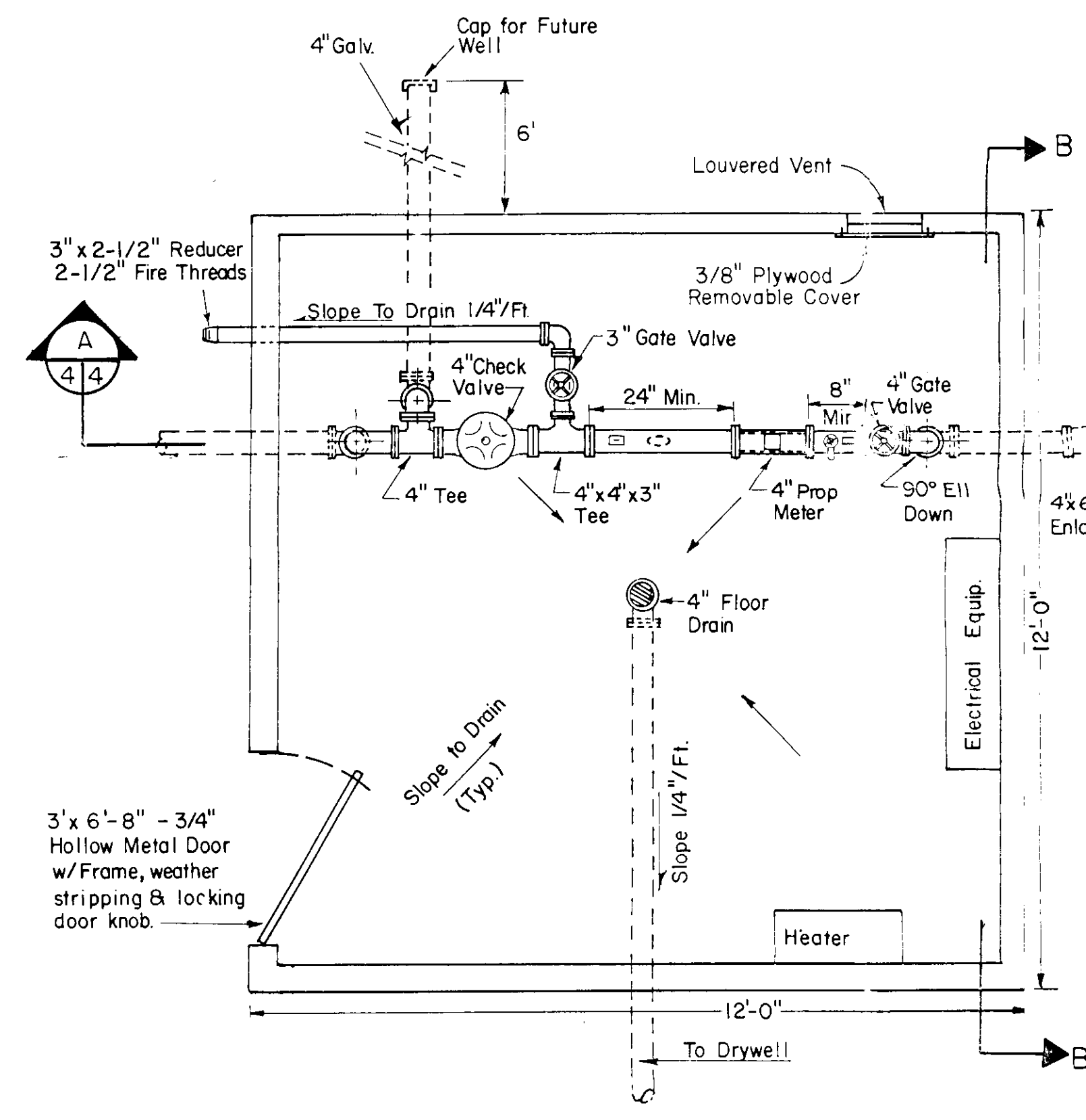


GATE DETAIL



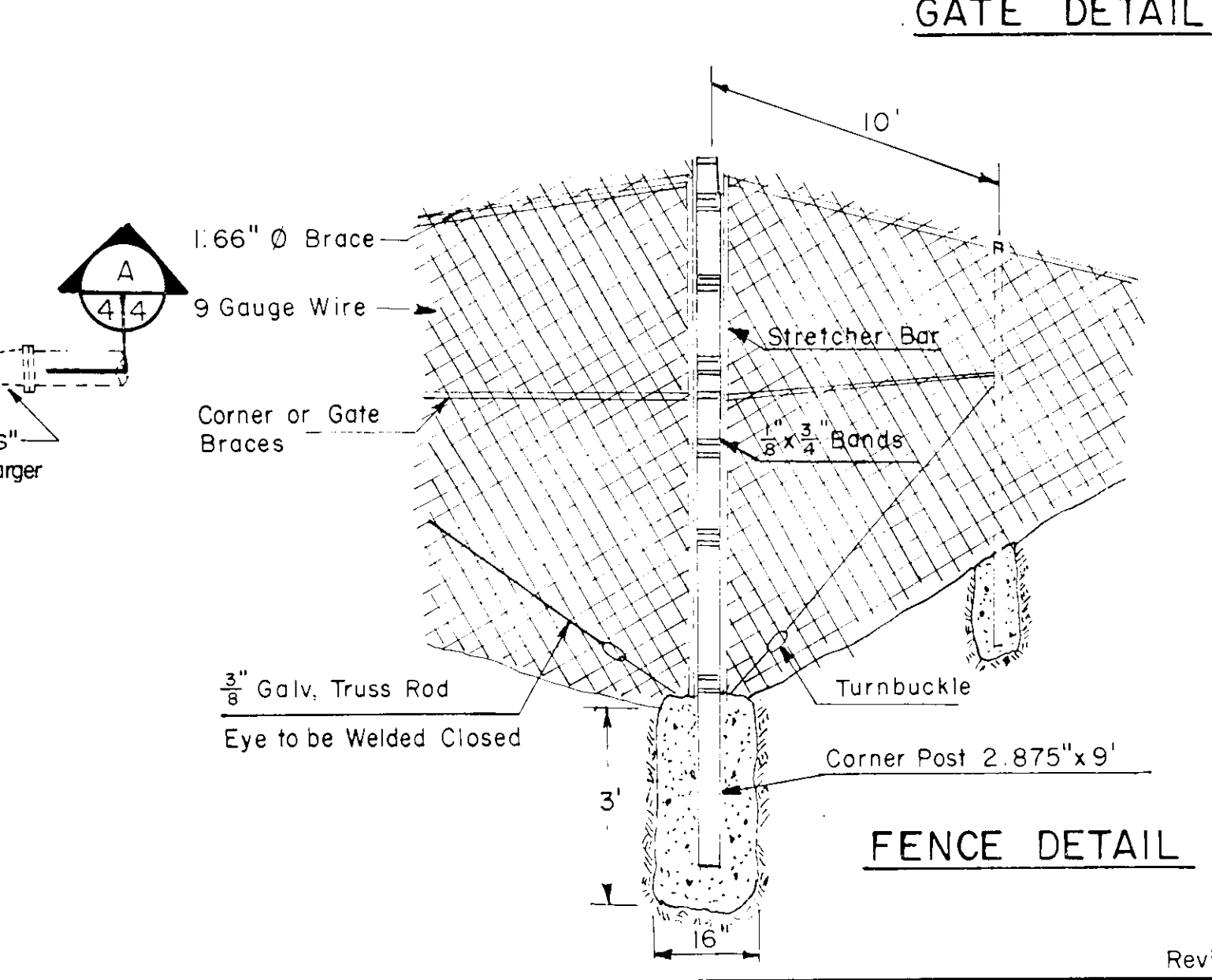
WELL LOT PLAN

SCALE: 1" = 20'



PUMP HOUSE PLAN

SCALE: 1/2" = 1'-0"

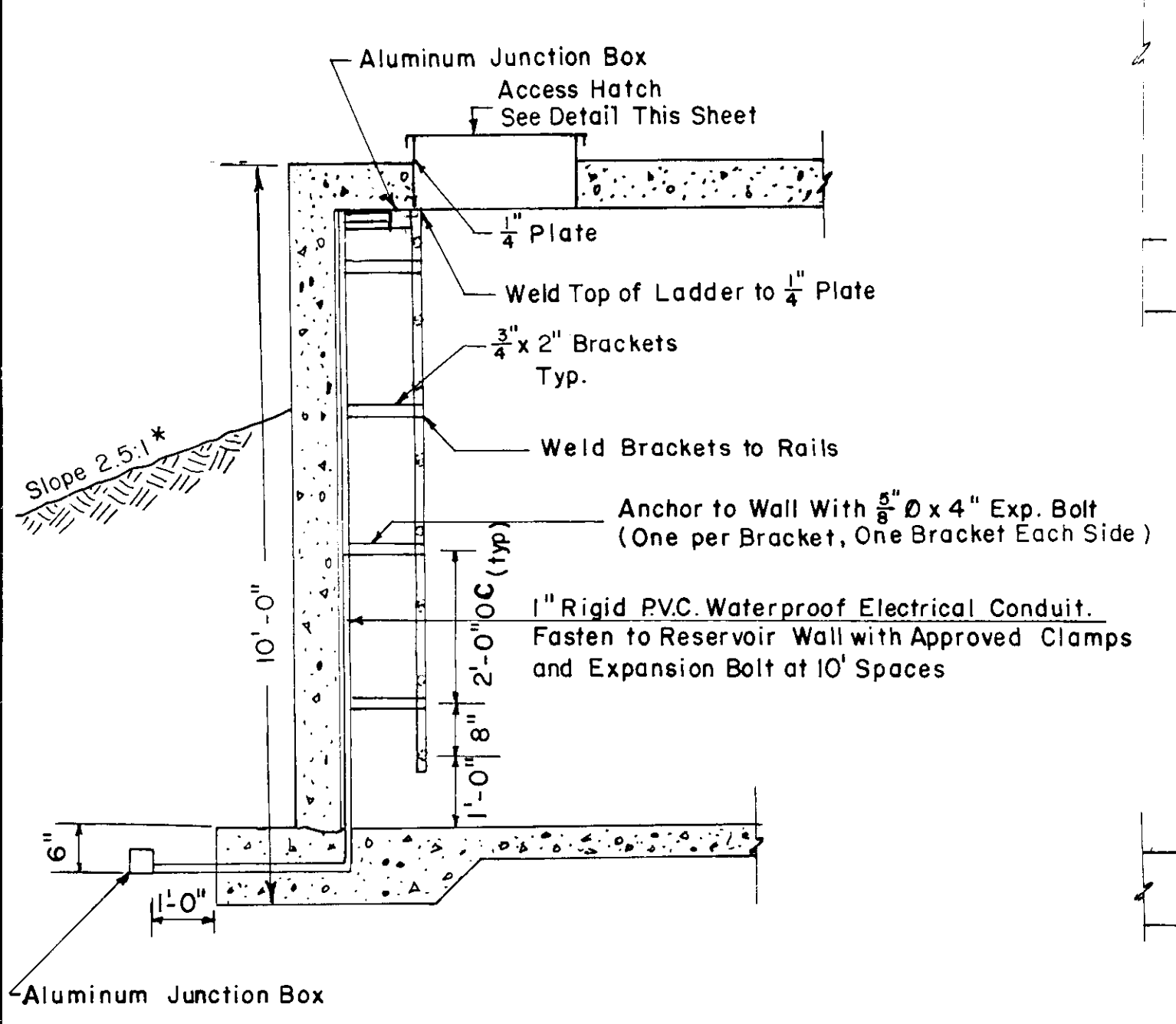


FENCE DETAIL

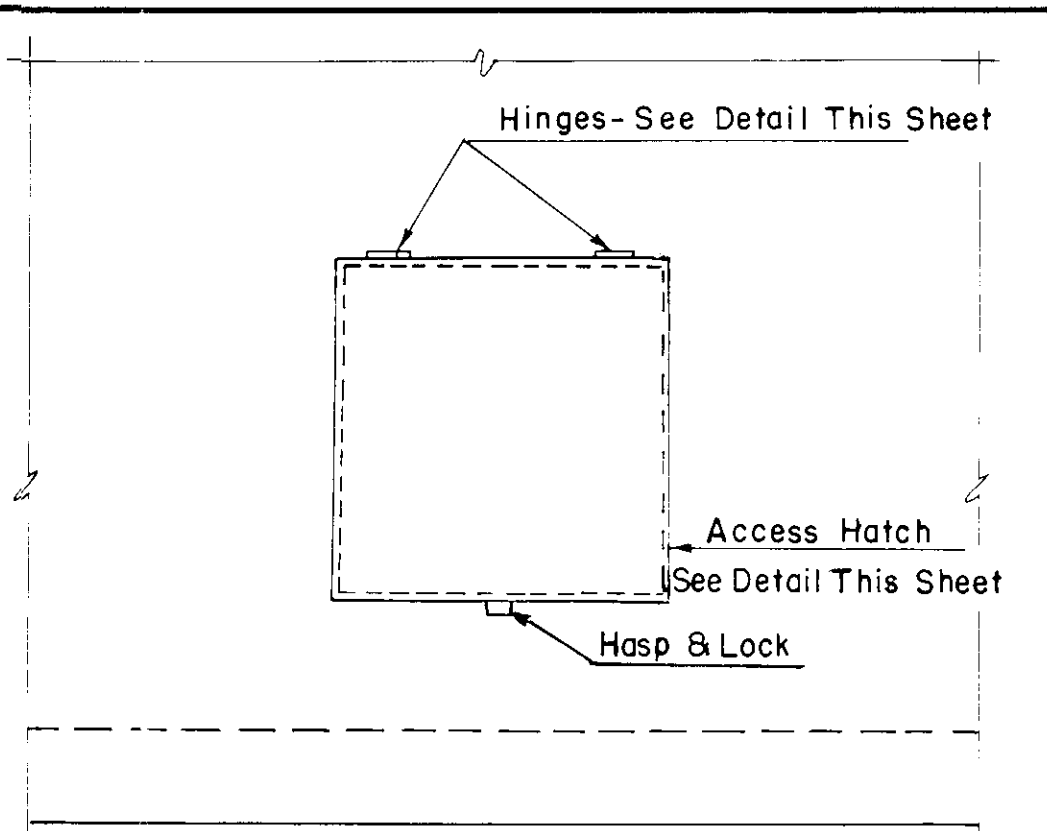
RECORD DRAWINGS
James S. DeSmet, P.E.

GARWOOD WATER CO-OPERATIVE GARWOOD, IDAHO	
PUMP HOUSE PLANS	
J-U-B ENGINEERS, INC. Engineers Surveyors Planners Coeur d'Alene, Idaho	
DES. DR. 074	CH. SHEET 4 OF 10
SCALE: As Shown	DATE MAY 1988 DWG. NO. C880513

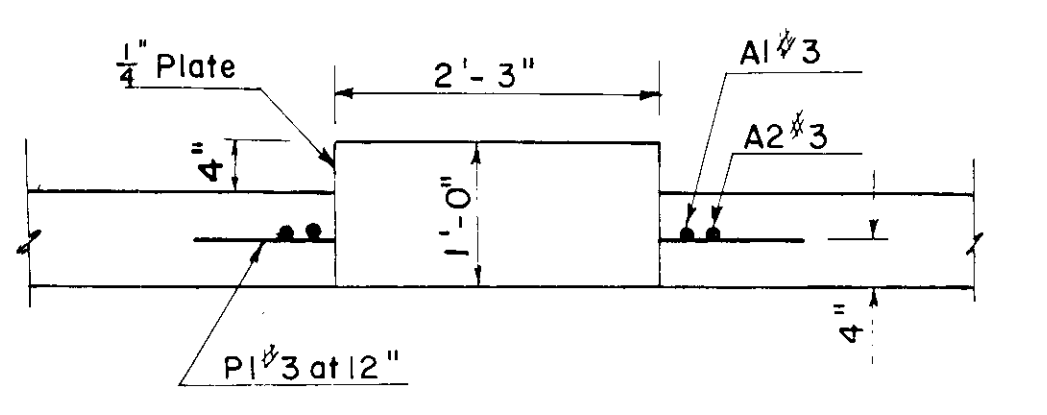
Slope 2.5:1 to Road or Existing Grade
(Typical All Sides) Seed Disturbed
Areas and Slopes of Reservoir



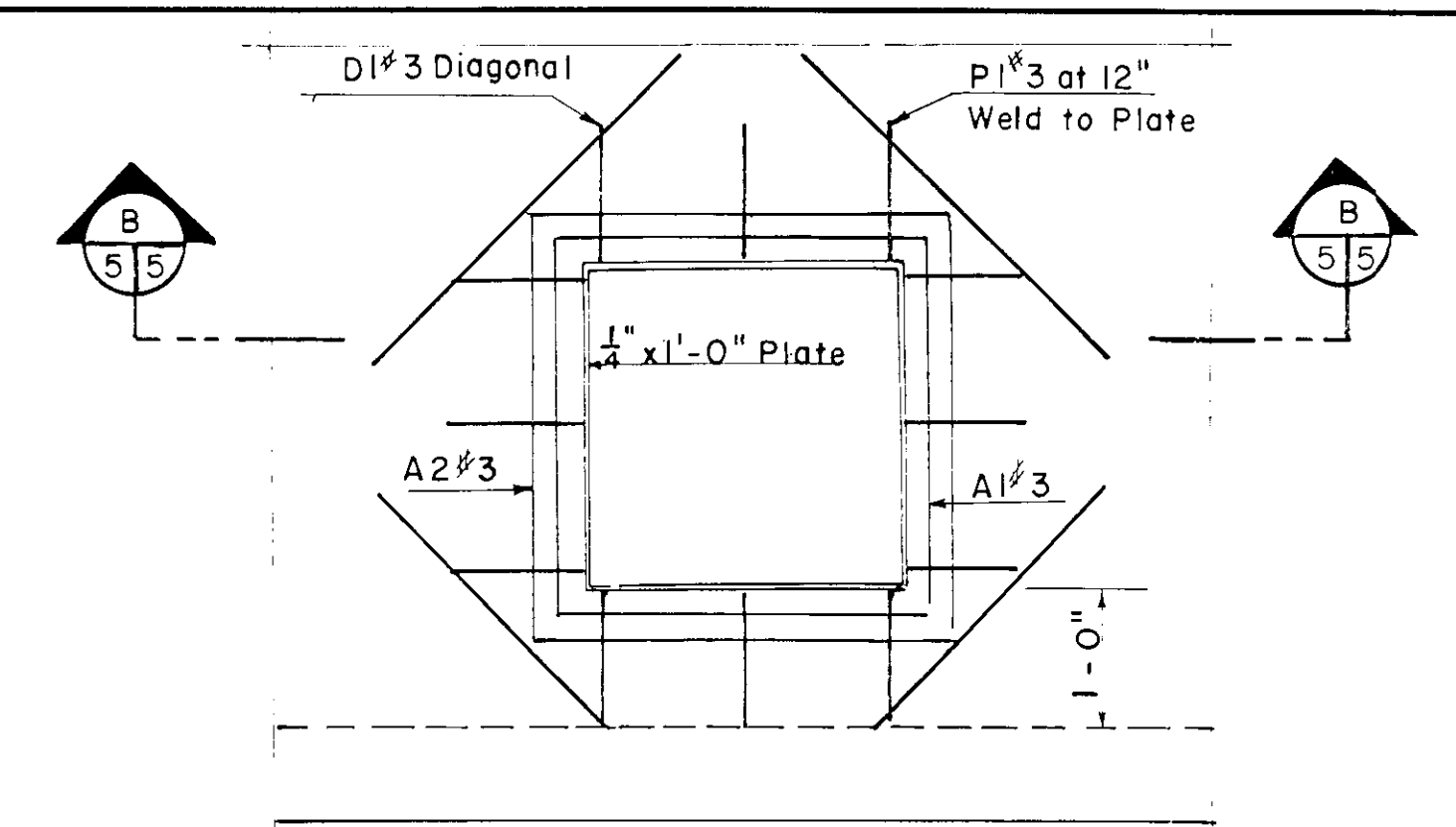
LADDER DETAILS
SCALE: $\frac{1}{2}$ " = 1'-0"



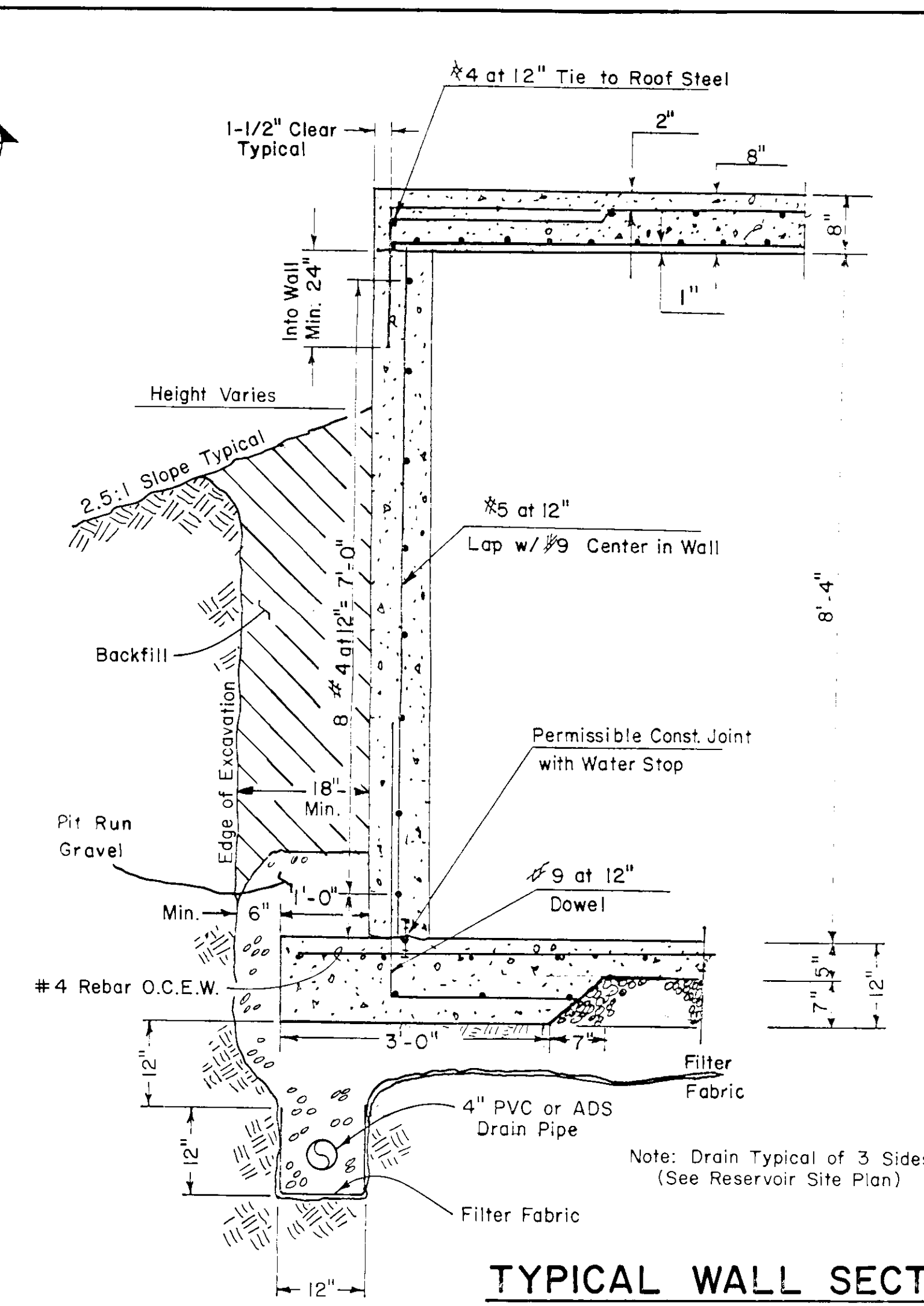
MANWAY DETAILS
SCALE: $\frac{3}{4}$ " = 1'-0"



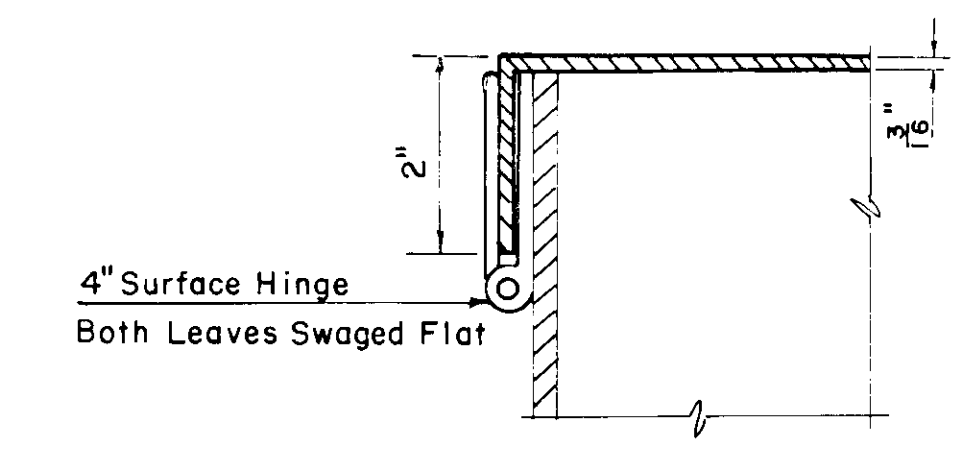
SECTION B
SCALE: $\frac{3}{4}$ " = 1'-0"



MANWAY REINFORCING DETAILS
SCALE: $\frac{3}{4}$ " = 1'-0"

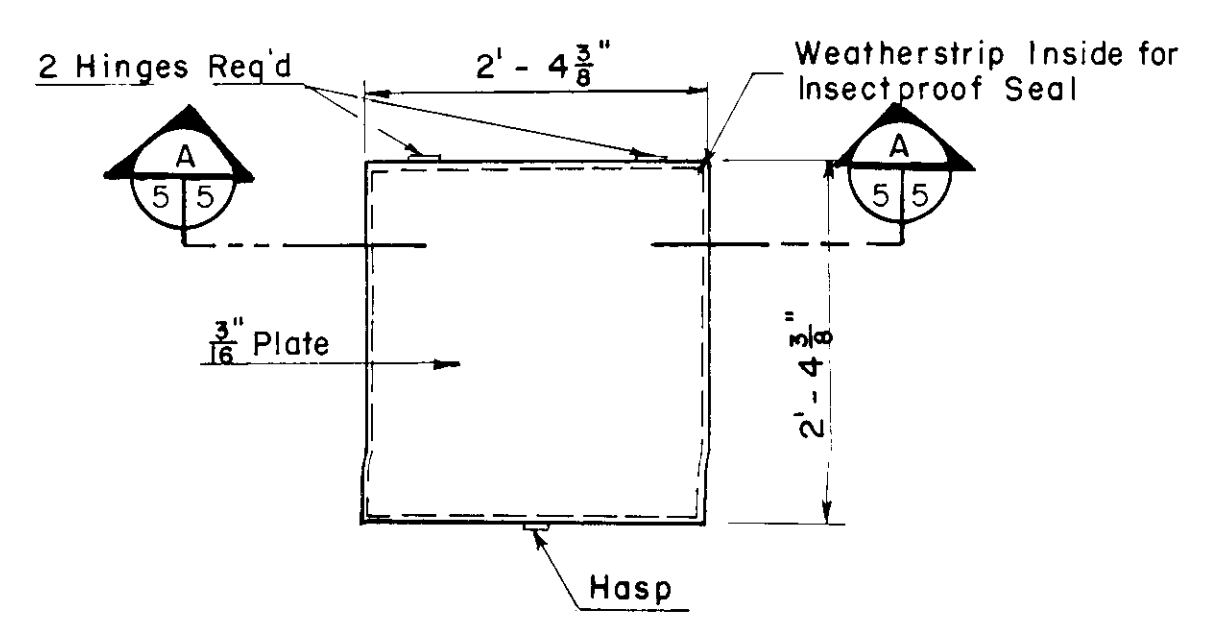


TYPICAL WALL SECTION
SCALE: $\frac{3}{4}$ " = 1'-0"

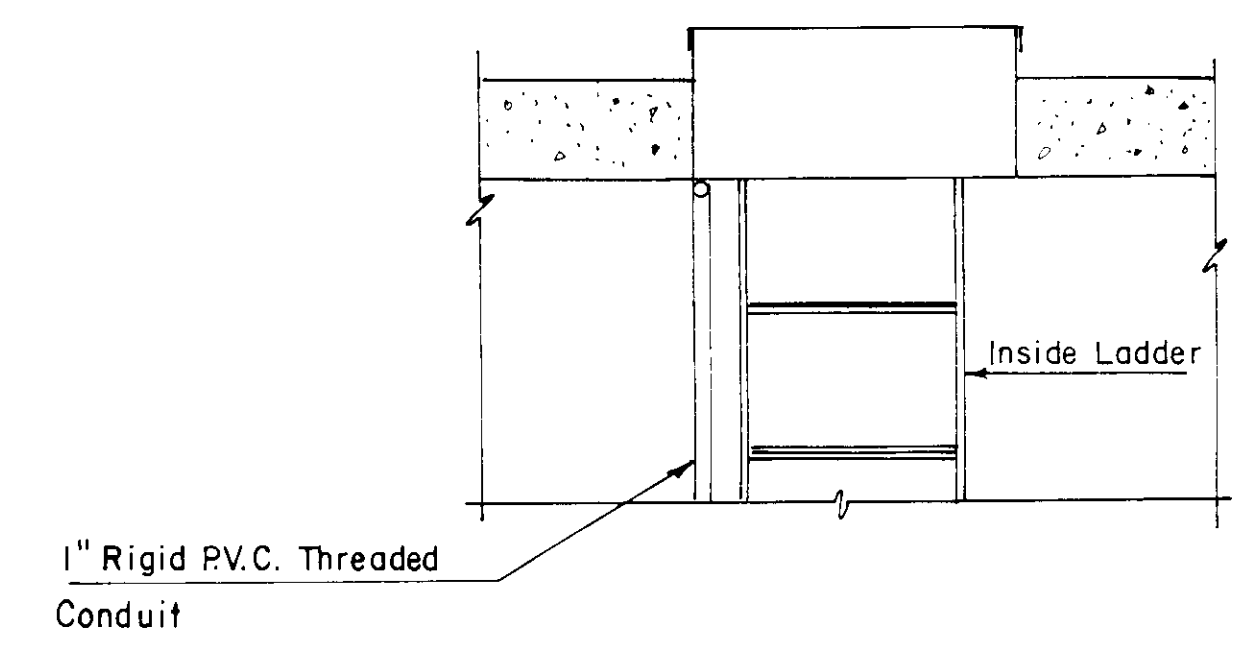


HINGE DETAIL
SCALE: 1" = 2"

REINFORCING BAR SCHEDULE		
Mark	Size	Sketch
A1	3	
P1	3	
A2	3	
D1	3	

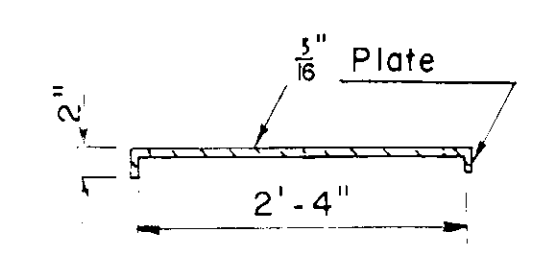


HATCH COVER
SCALE: $\frac{3}{4}$ " = 1'-0"

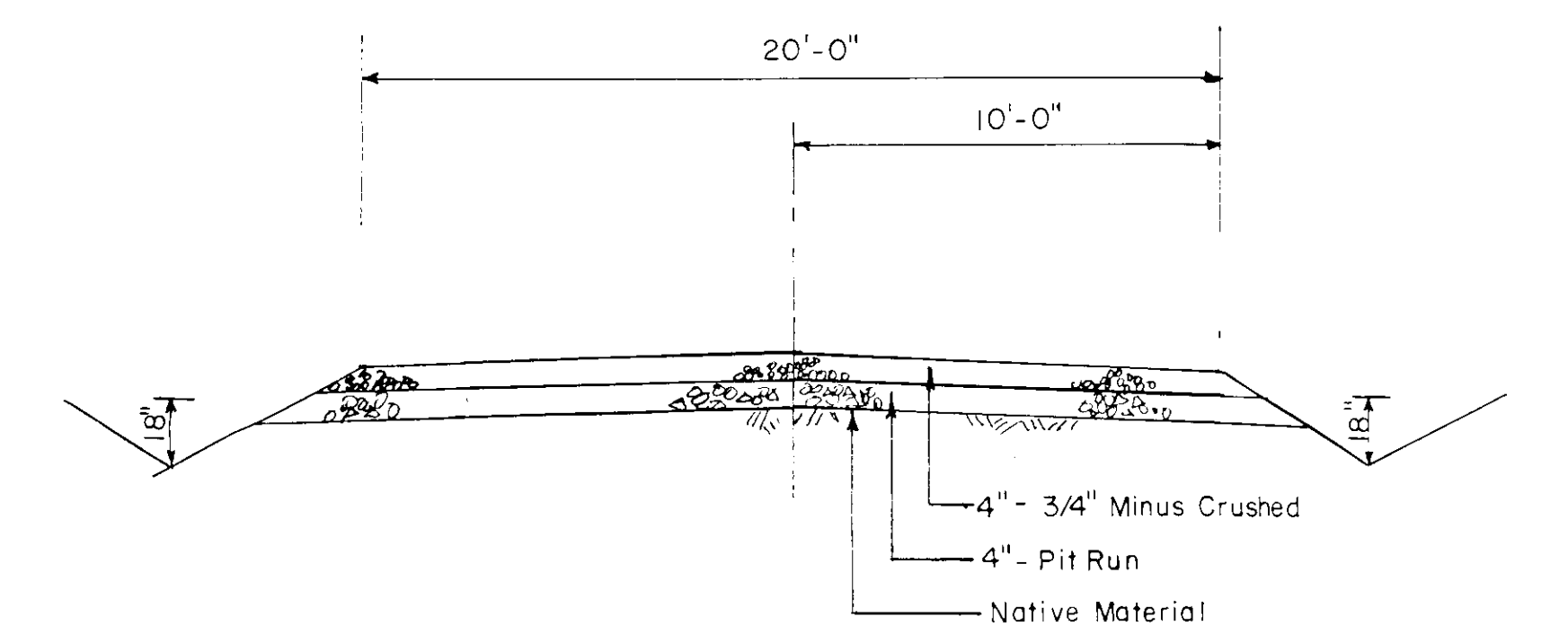


WATER LEVEL SENSOR DETAILS
SCALE: $\frac{3}{4}$ " = 1'-0"

NOTE:
Leave 72" Additional Makeup Sensor Wire
Tape Mercury Control Switches to 1" Rigid
PVC Pipe and Clamp Assembly to Ladder
with Stainless Steel Hose Clamps



SECTION A
SCALE: $\frac{3}{4}$ " = 1'-0"



ACCESS ROADBED SECTION

RECORD DRAWINGS

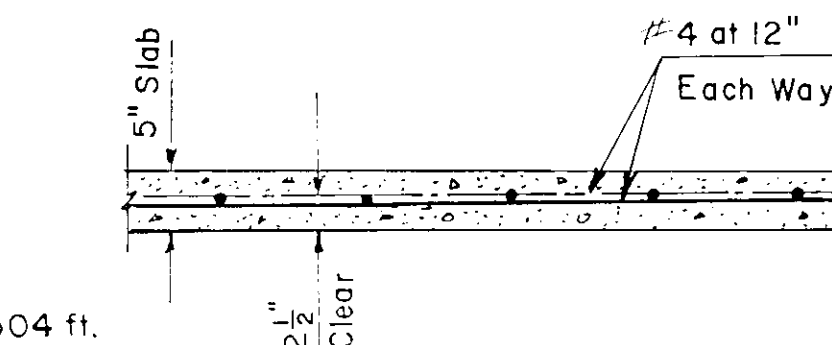
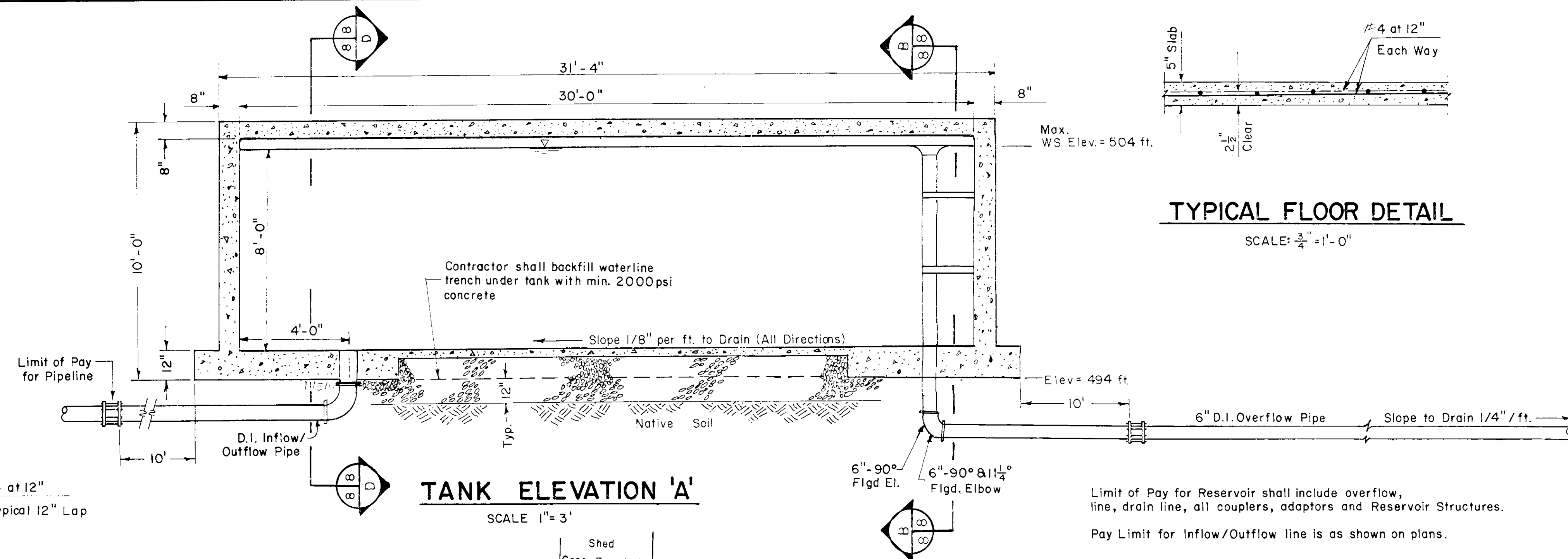
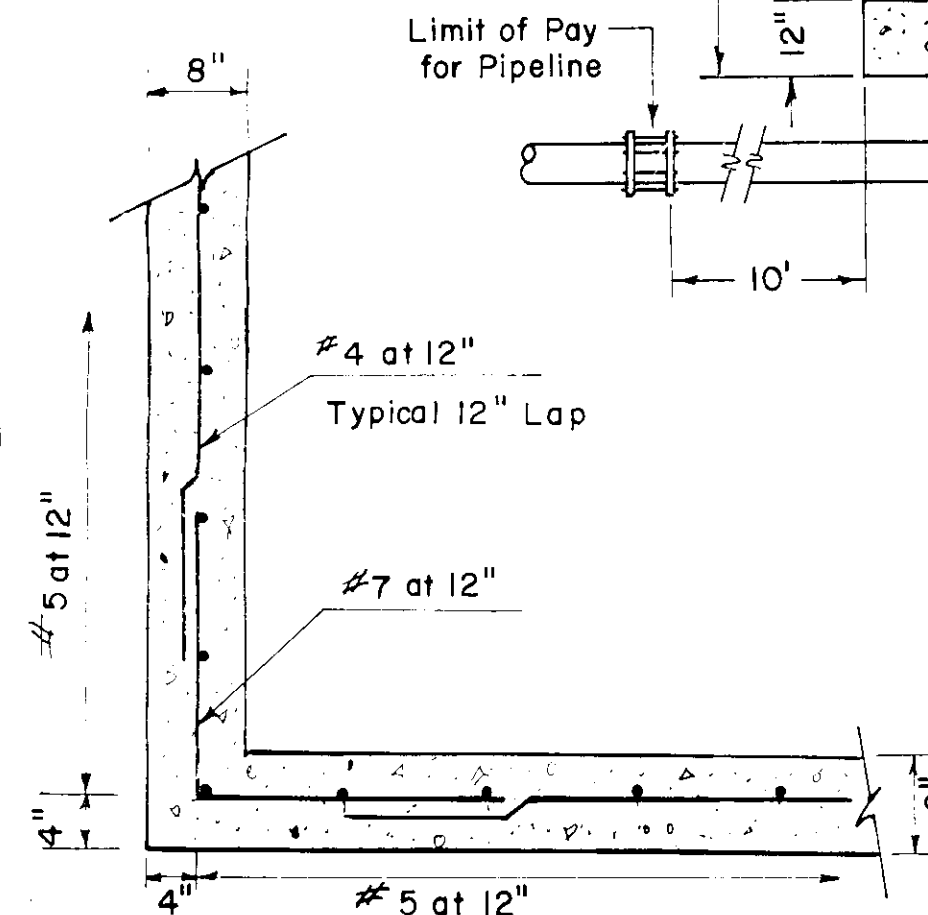
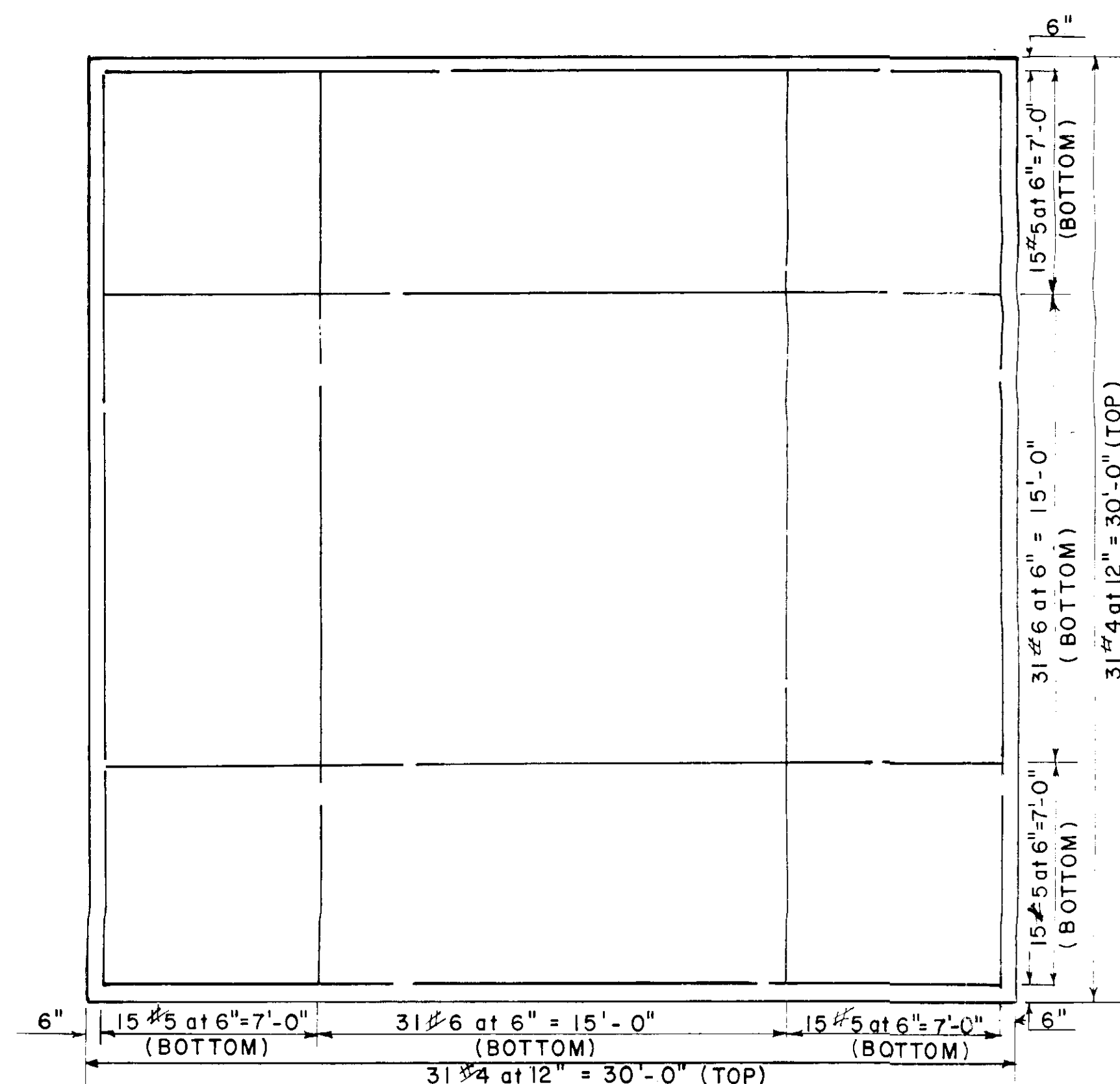
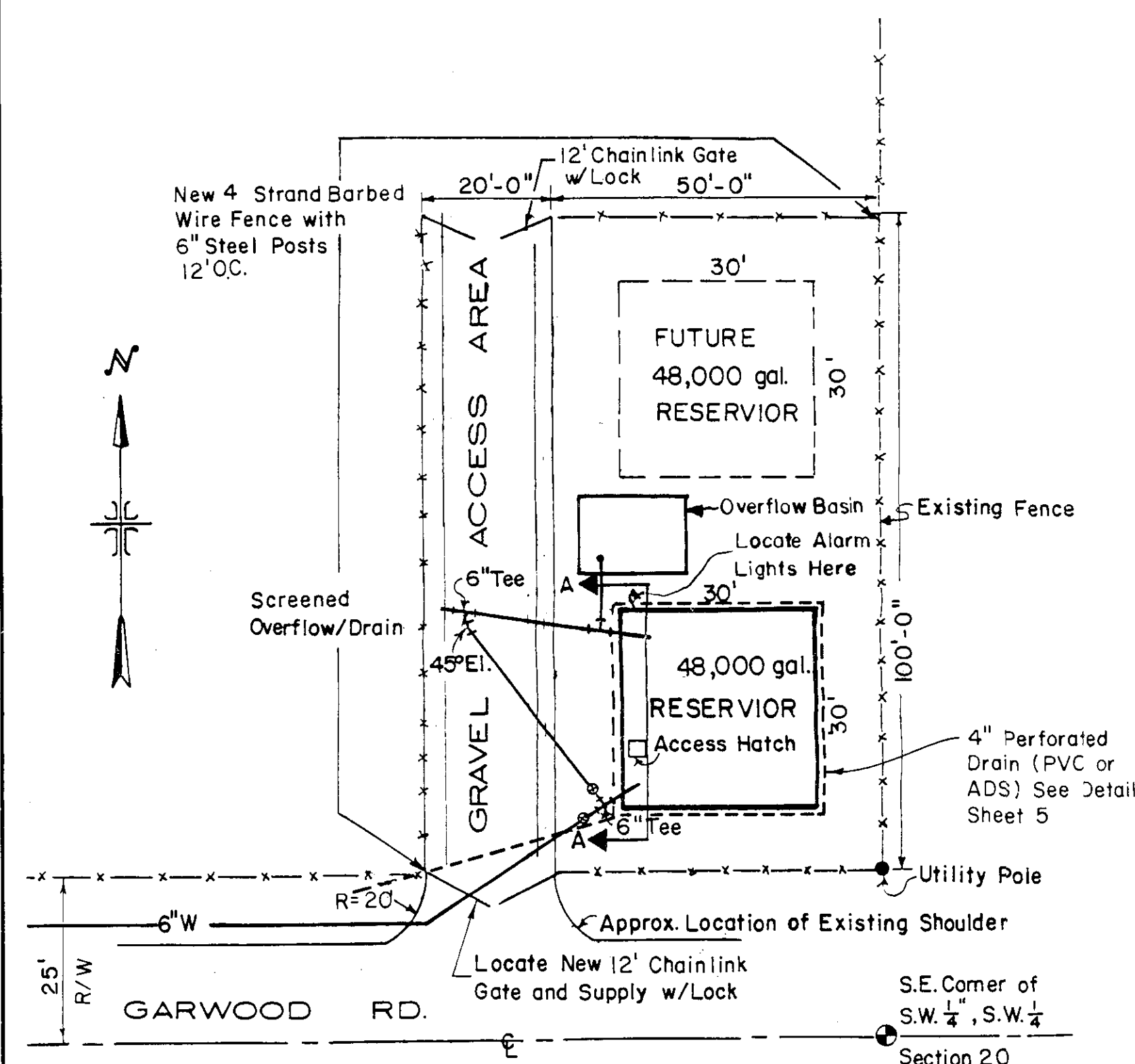
James S. DeSmet, P.E. Revised 10-12-88

GARWOOD WATER CO-OPERATIVE
GARWOOD, IDAHO

RESERVOIR SITE & DETAILS

J-U-B ENGINEERS, INC.
Engineers Surveyors Planners
Coeur d'Alene, Idaho

DES. DR. J.S. CH. SHEET 5 OF 10
SCALE: AS SHOWN DATE MAY 1988 DWG. NO. C880513



GENERAL NOTES

1. Materials, Construction, and Workmanship shall conform to the American Concrete Institute Standard A.C.I. - 318-71 unless otherwise noted.
2. Metal reinforcement shall conform to A.S.T.M. Specification A615, Grade 60 unless otherwise noted.
3. All metal reinforcement shall have a 2" minimum covering outside of bars unless otherwise noted.
4. Tank to be thoroughly coated inside with an AWWA approved coating. Coatings also to be applied to all exposed steel components inside reservoir.

DESIGN NOTES

Structure Design in Accordance with American Concrete Institute 318-71 "Building Code for Reinforced Concrete" and Portland Cement Association "Circular Concrete Tanks without Prestressing."

Roof Live Load = 60psf
Allowable Soil Bearing Value = 3,000 psf
Seismic Design - Zone 2
Unit Stresses
Concrete: $f_c = 3,000$ psi in 28 days
 $f_c = 1200$ psi
Metal Reinforcement $f_y = 60,000$ psi
Rough Dimensions (Interior) = 30' x 30' x 8' high
Volume Approx. 50,000 gal.

RECORD DRAWINGS

James S. DeSmet, P.E. Revised 10-12-88

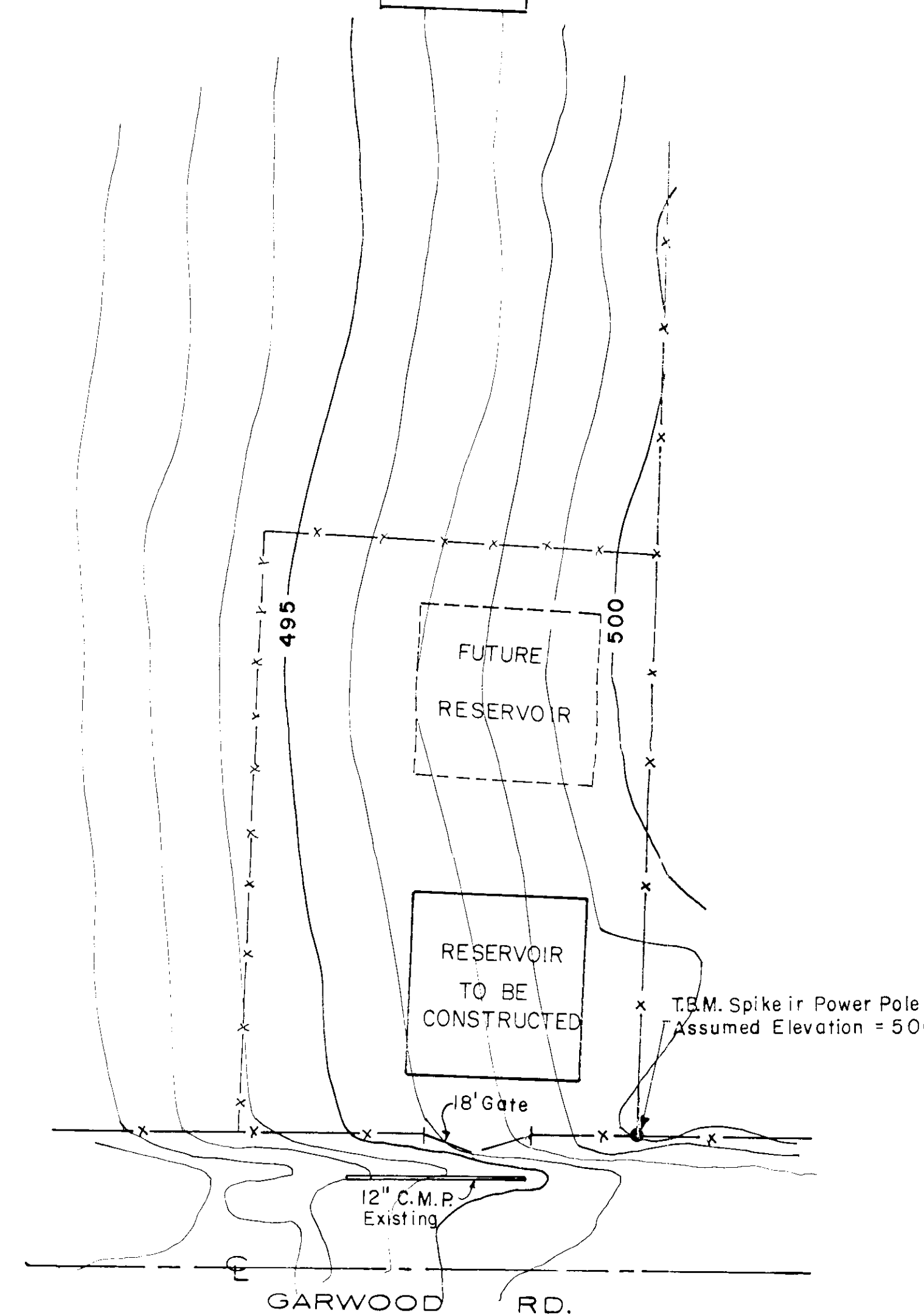
GARWOOD WATER CO-OPERATIVE
GARWOOD, IDAHO

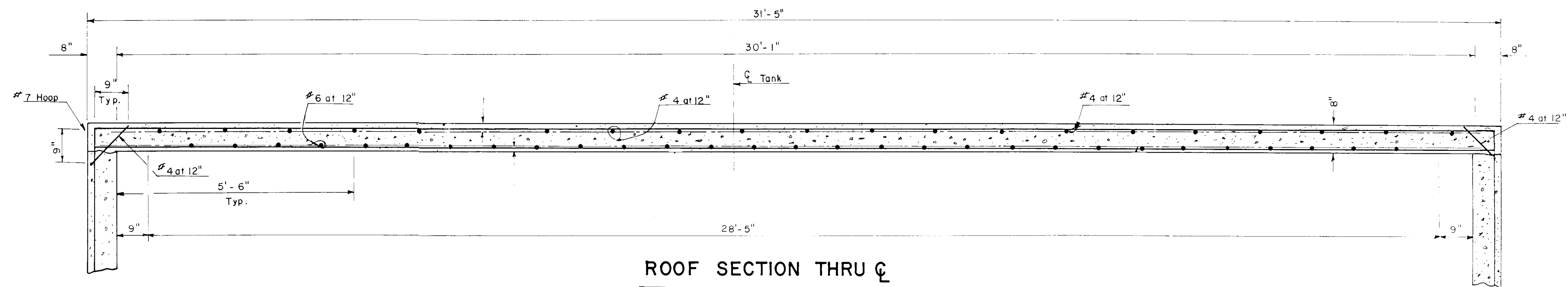
RESERVOIR DETAILS



J-U-B ENGINEERS, INC.
Engineers Surveyors Planners
Coeur d'Alene, Idaho

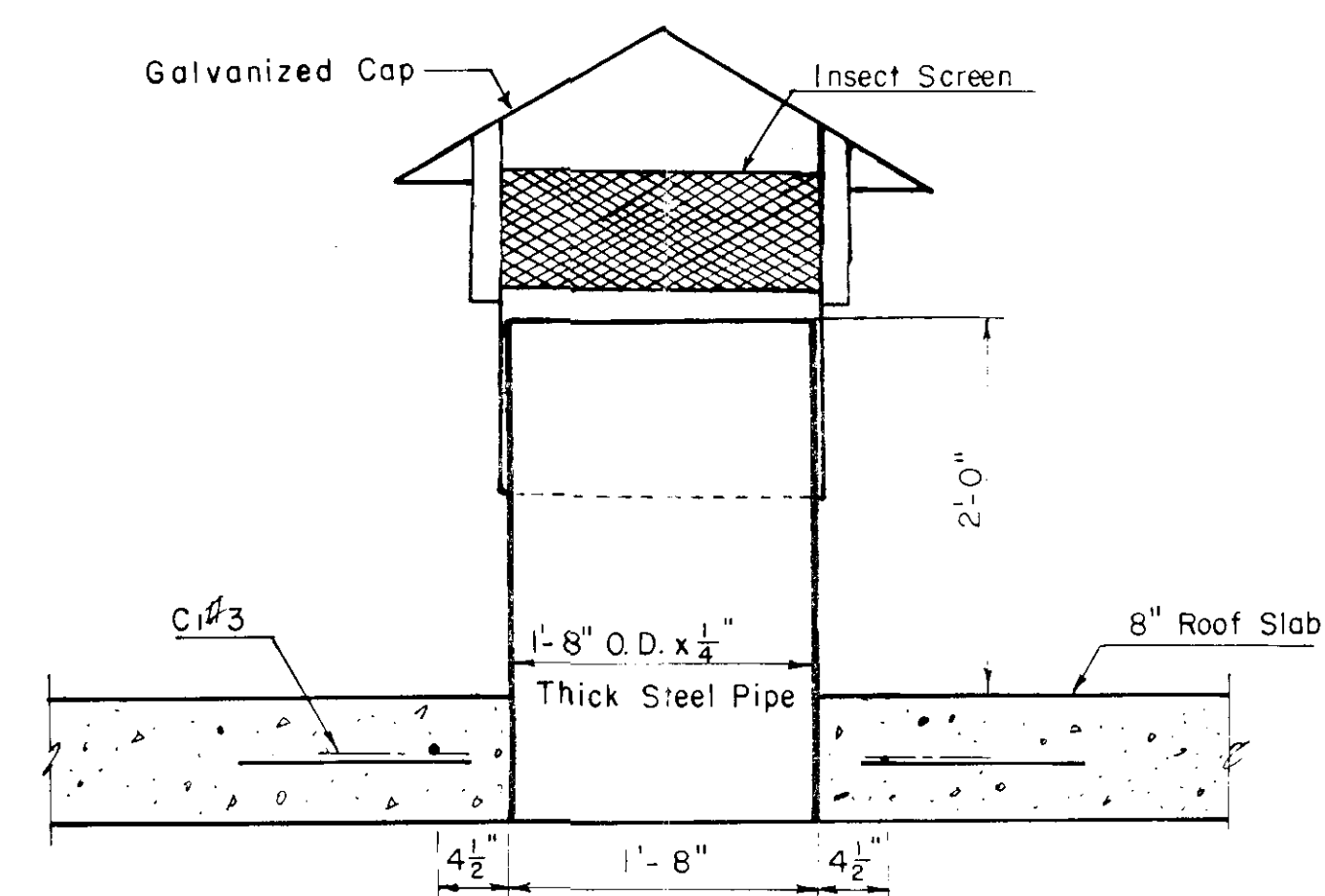
DES. DR. 08 CH SHEET 6 OF 10
SCALE: As Shown DATE MAY 1988 DWG. NO. C880513





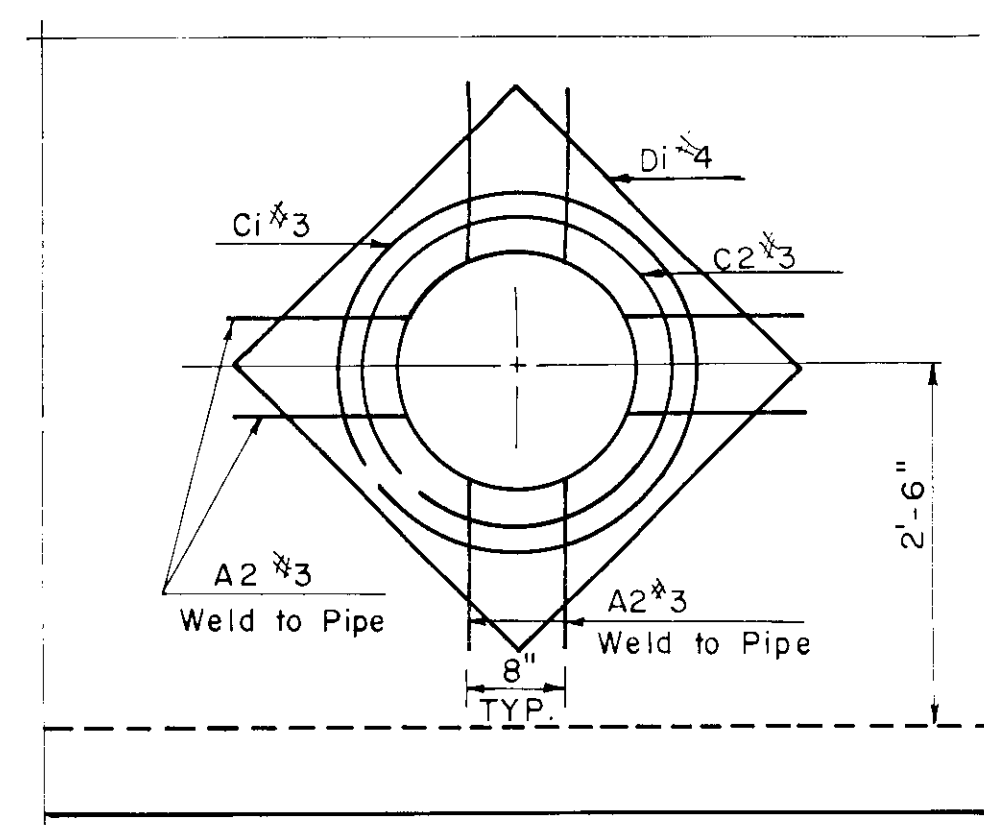
ROOF SECTION THRU CL

SCALE: $\frac{3}{4}$ " = 1'-0"



ROOF VENT SECTION

SCALE: 1" = 1'-0"



ROOF VENT REINFORCING DETAIL

SCALE: $\frac{3}{4}$ " = 1'-0"

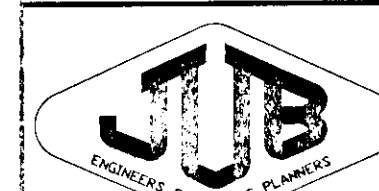
REINFORCING BAR SCHEDULE		
Mark	Size	Sketch
A1	3	1'-3"
A2	3	1'-3"
C1	3	2'-6"
C2	3	2'-1"
D1	4	2'-1"

RECORD DRAWINGS

Jim DeSmet
James S. DeSmet, P.E.

GARWOOD WATER CO-OPERATIVE
GARWOOD, IDAHO

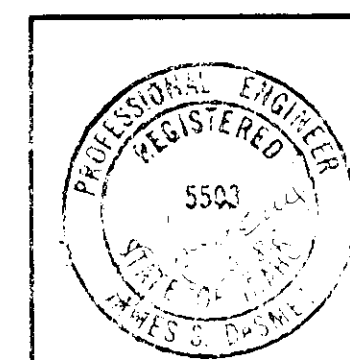
RESERVOIR DETAILS

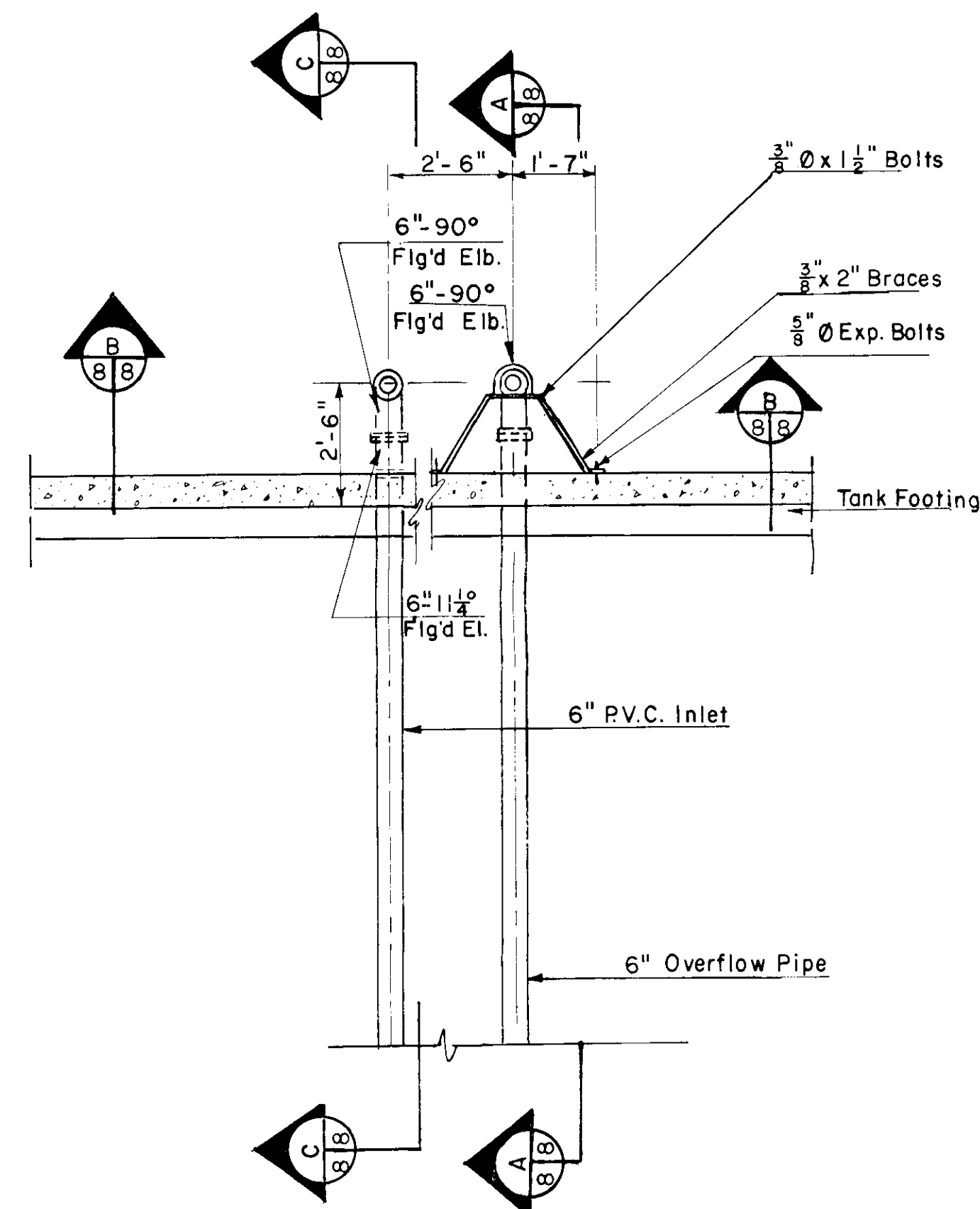


J-U-B ENGINEERS, INC.
Engineers Surveyors Planners
Coeur d'Alene, Idaho

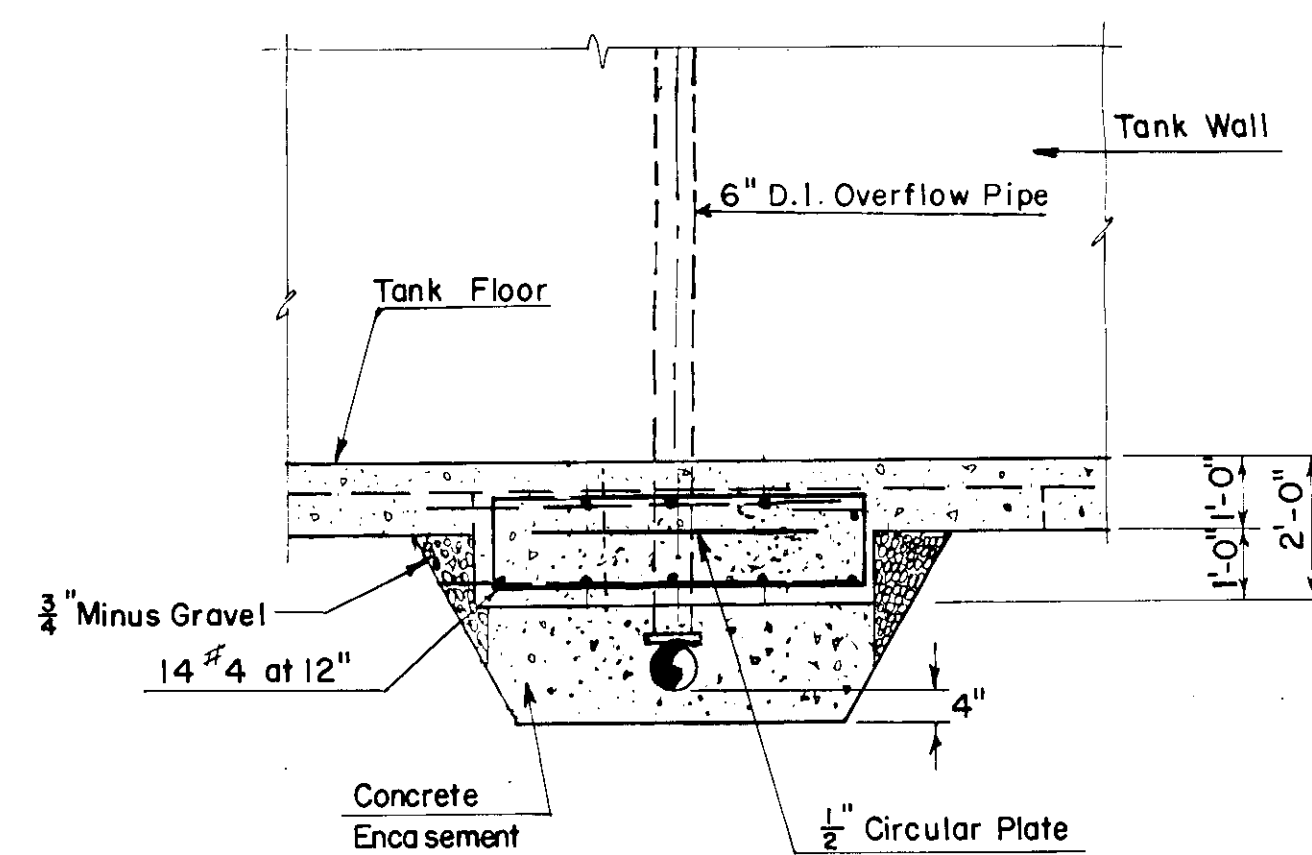
DES. DR. CH. SHEET 7 OF 10

SCALE: As Shown DATE MAY 1988 DWG. NO. C880513

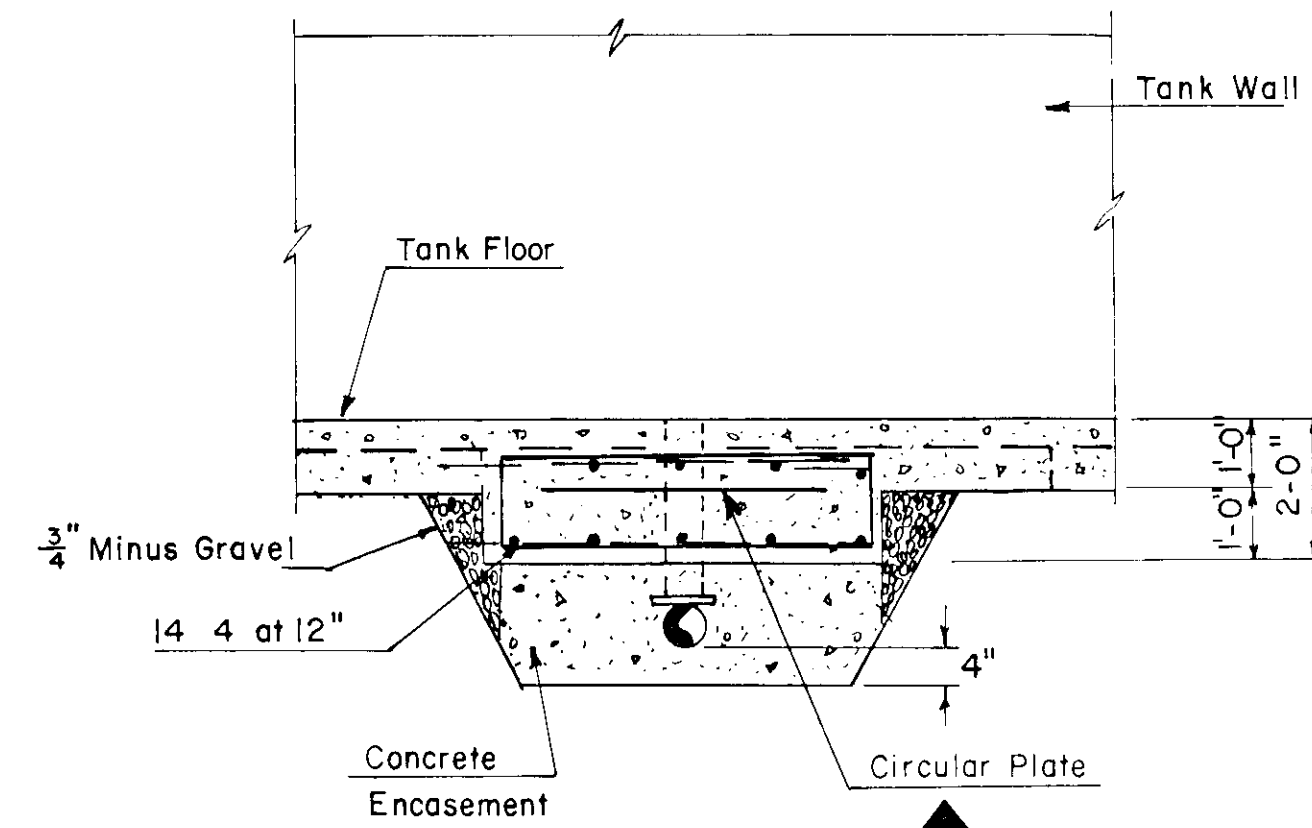




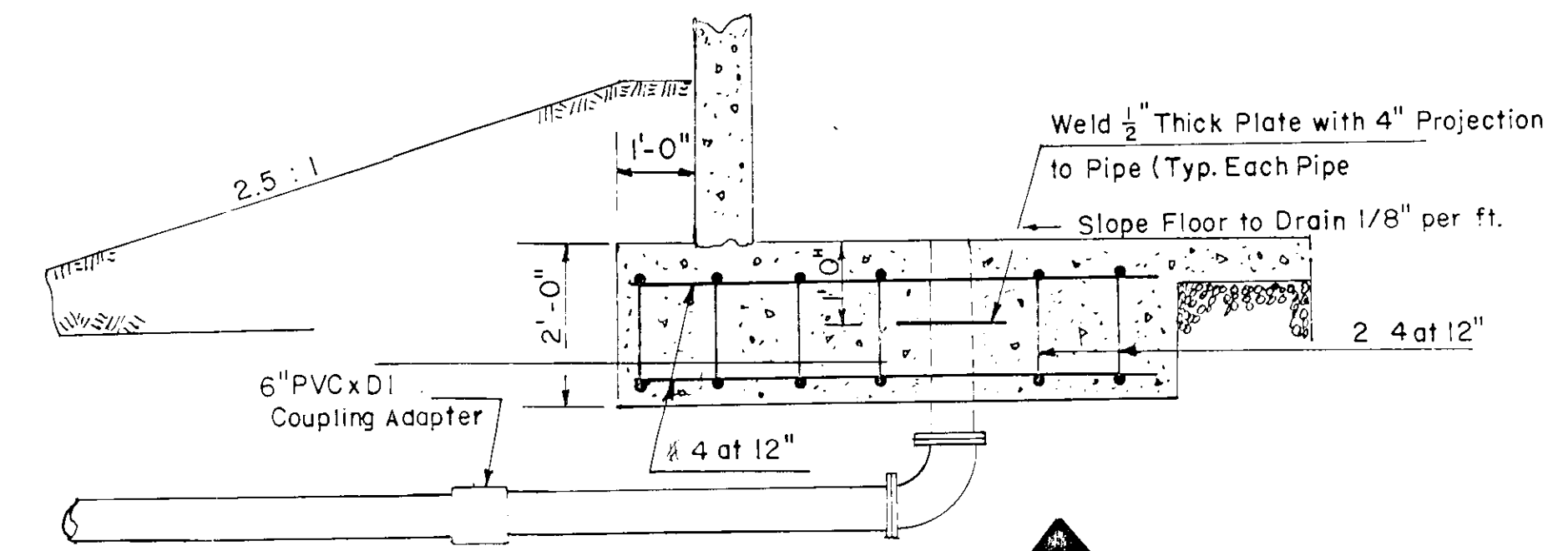
**INLET-OUTLET, & OVERFLOW
DETAILS**
SCALE: $\frac{3}{8}'' = 1'-0''$



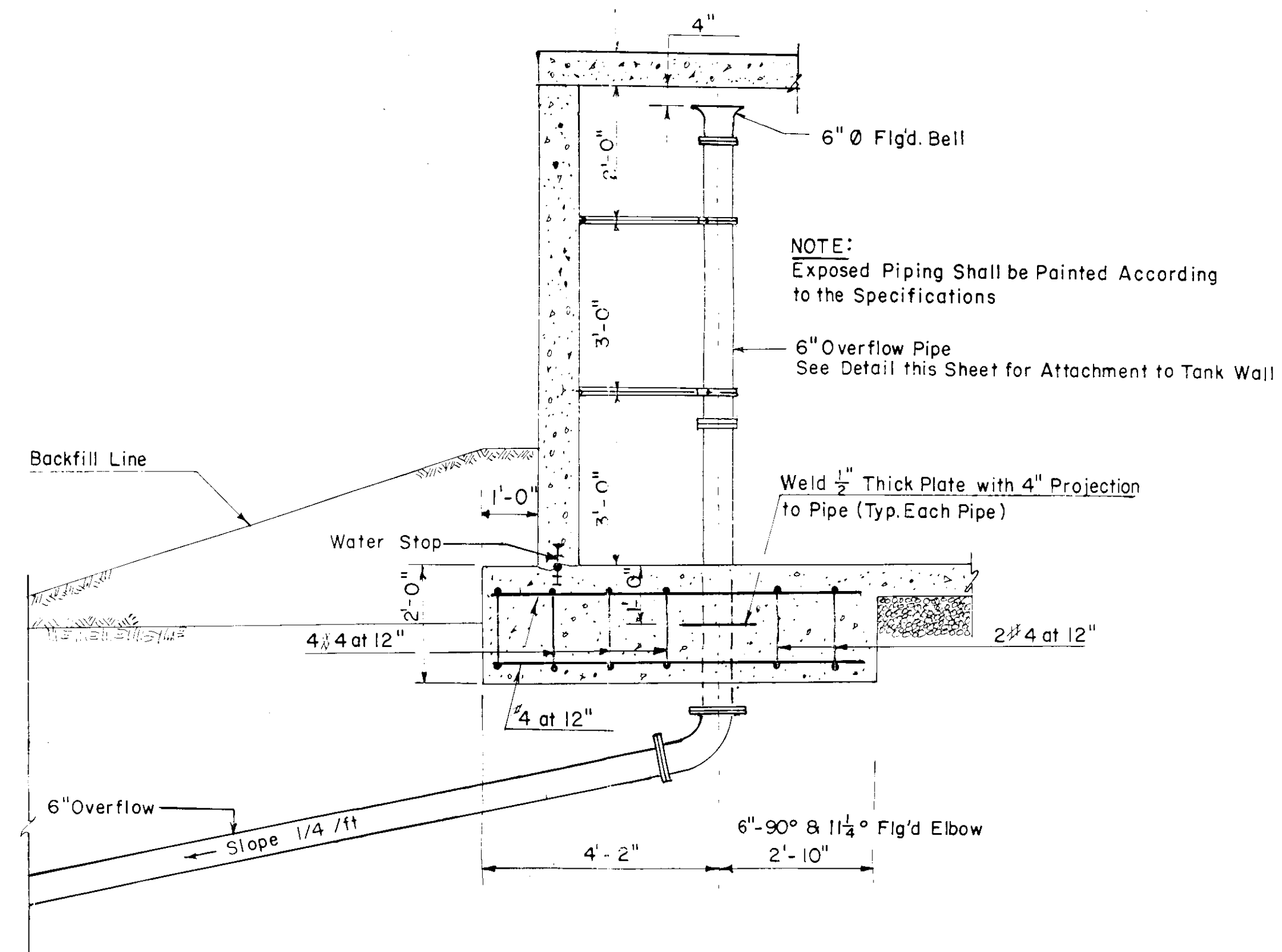
**SECTION B
OVERFLOW**
SCALE: $\frac{3}{8}'' = 1'-0''$



**SECTION D
INFLOW / OUTFLOW**
SCALE: $\frac{3}{8}'' = 1'-0''$

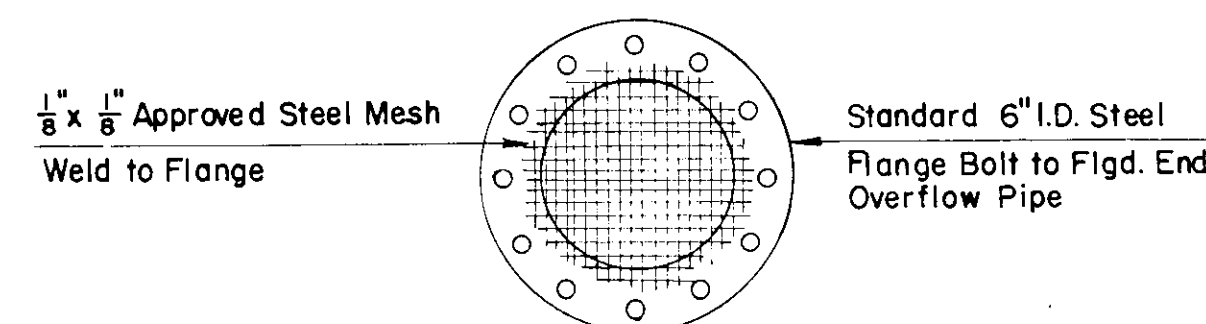


**SECTION C
INFLOW / OUTFLOW**
SCALE: $\frac{1}{2}'' = 1'-0''$



NOTES:
1. Footing Reinforcement Shall be Installed at the Pipe Section Entering the Tank.
2. Contractor Shall Backfill Waterline Trench Under Tank with a Minimum of 2,000 psi

**SECTION A
OVERFLOW PIPING**
SCALE: $\frac{1}{2}'' = 1'-0''$



OVERFLOW SCREEN DETAIL
SCALE: $\frac{1}{2}'' = 1'-0''$

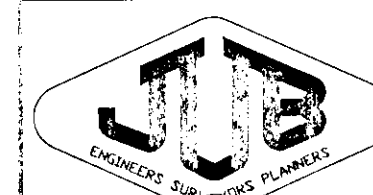
RECORD DRAWINGS

James S. DeSmet, P.E.
James S. DeSmet, P.E.

Revised 10-12-88

GARWOOD WATER CO-OPERATION
GARWOOD, IDAHO

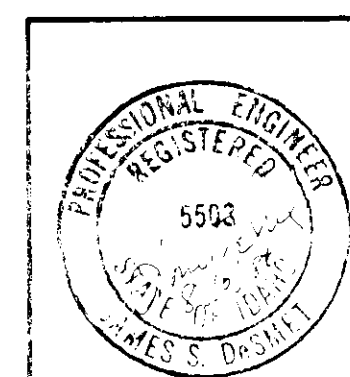
RESERVOIR DETAILS

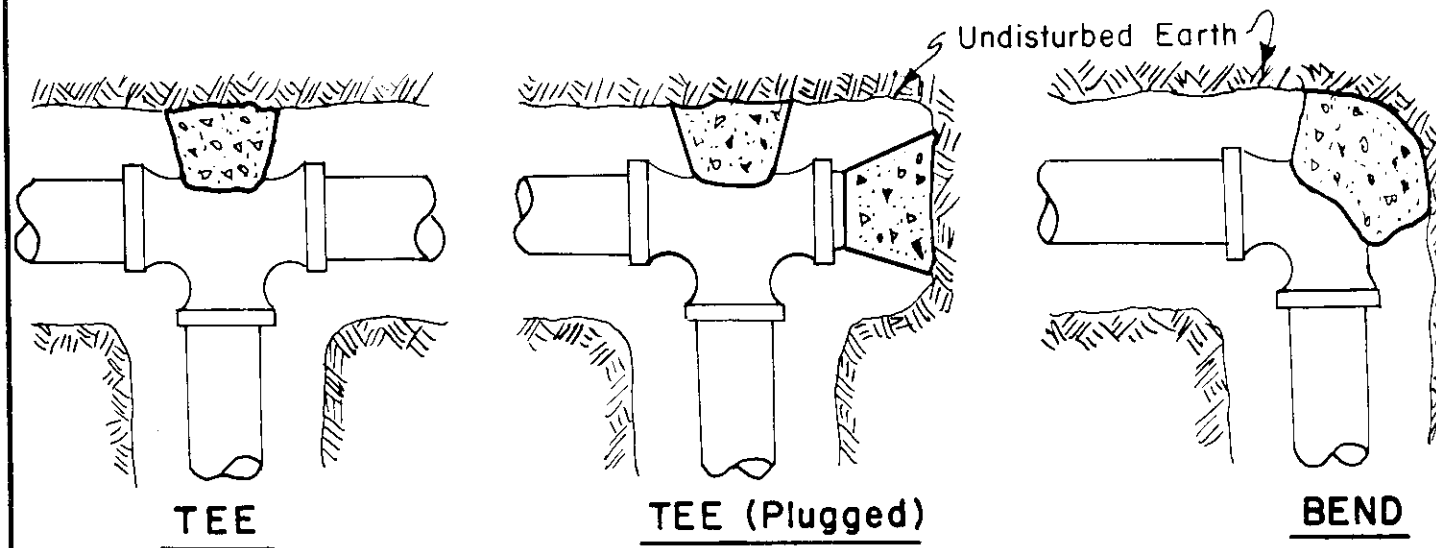
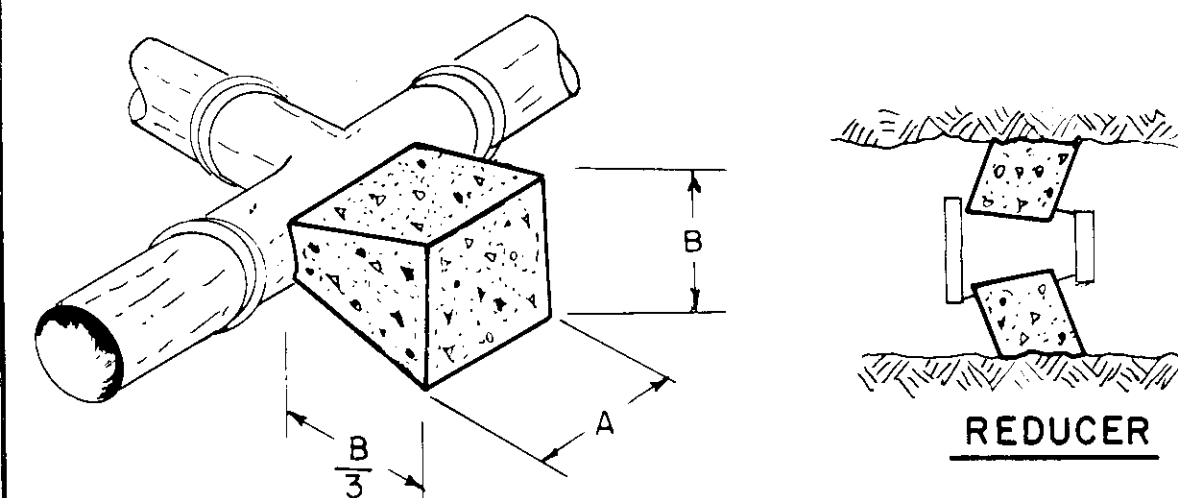
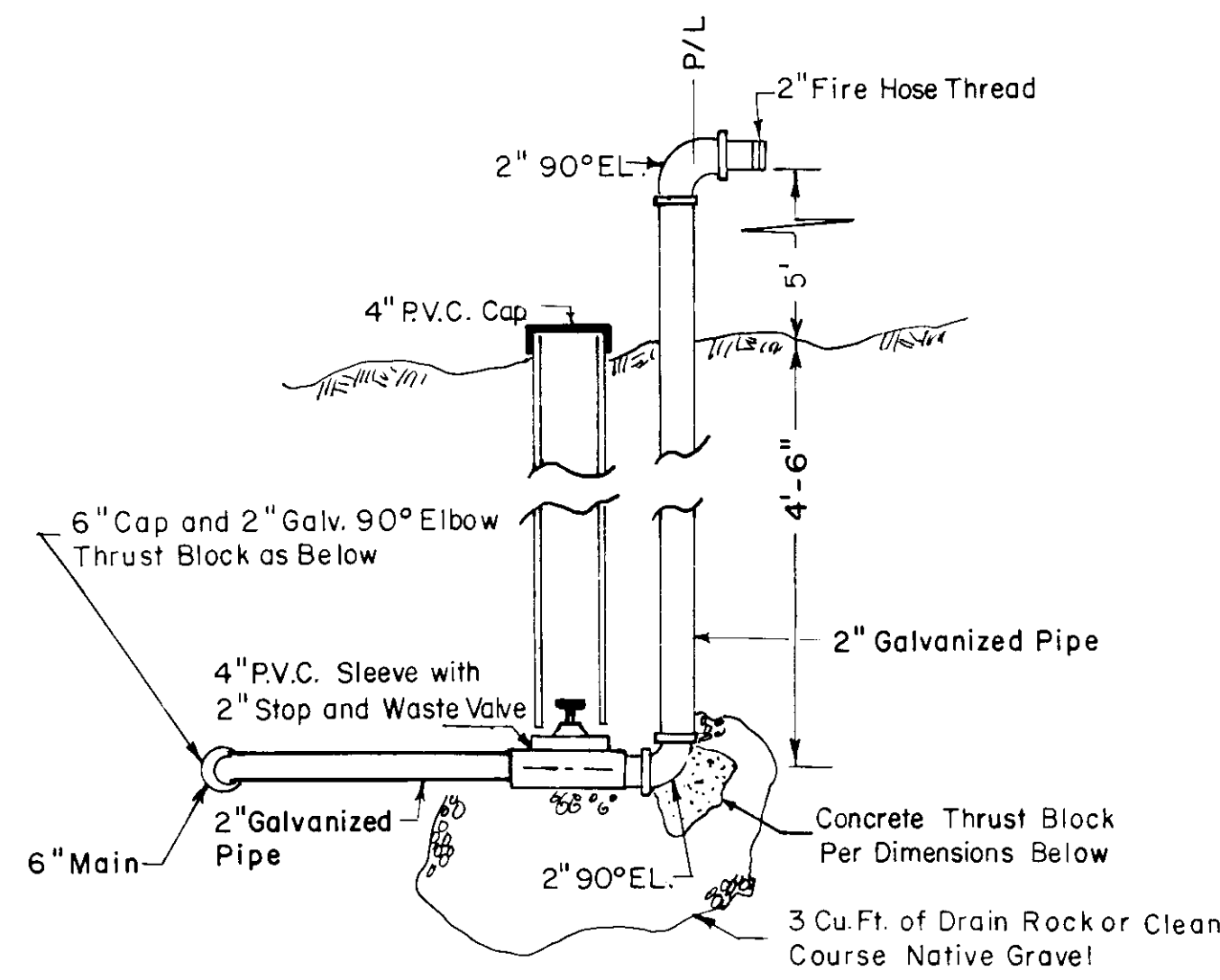


J-U-B ENGINEERS, INC.
Engineers Surveyors Planners
Coeur d'Alene, Idaho

DES. DR. CH. SHEET 8 OF 10

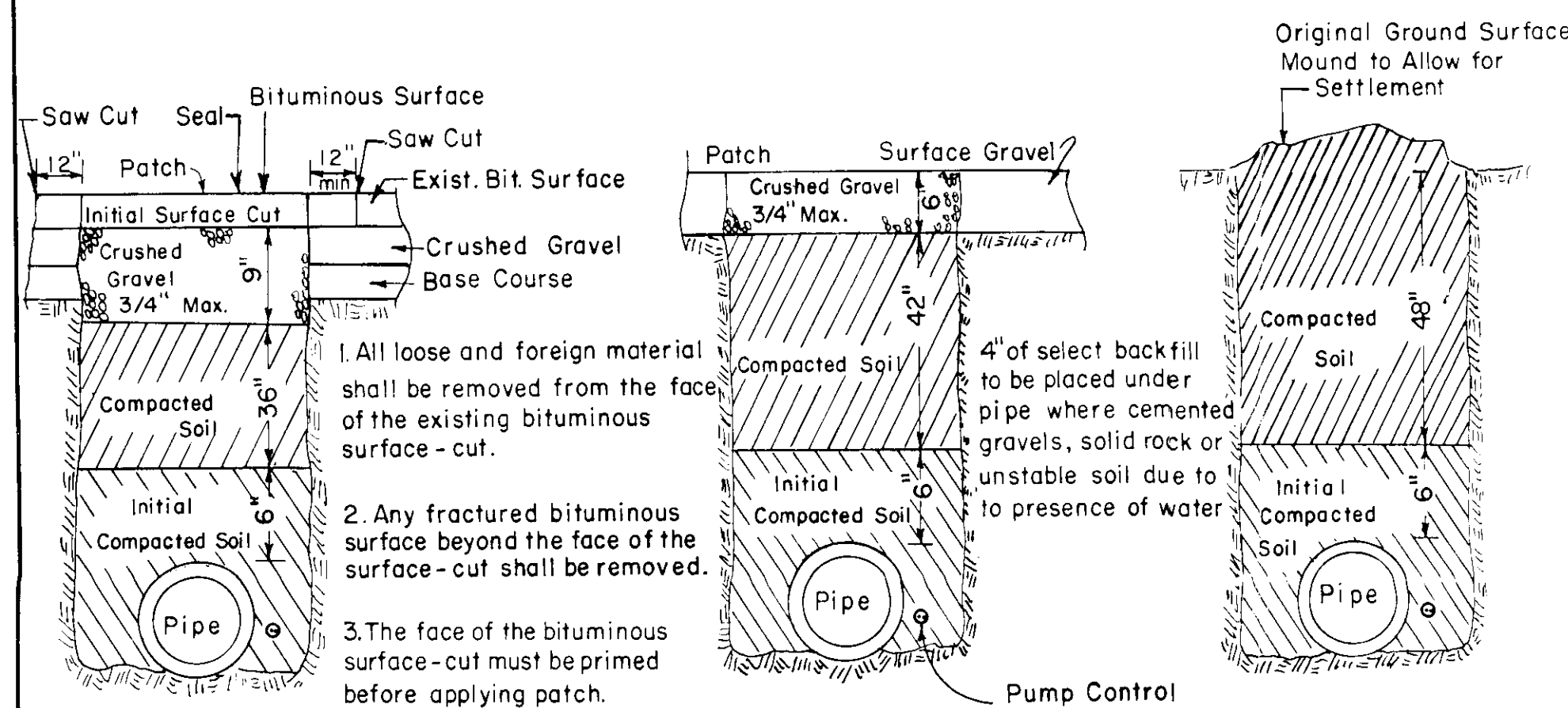
SCALE: AS SHOWN DATE: MAY 1988 DWG. NO. C880513



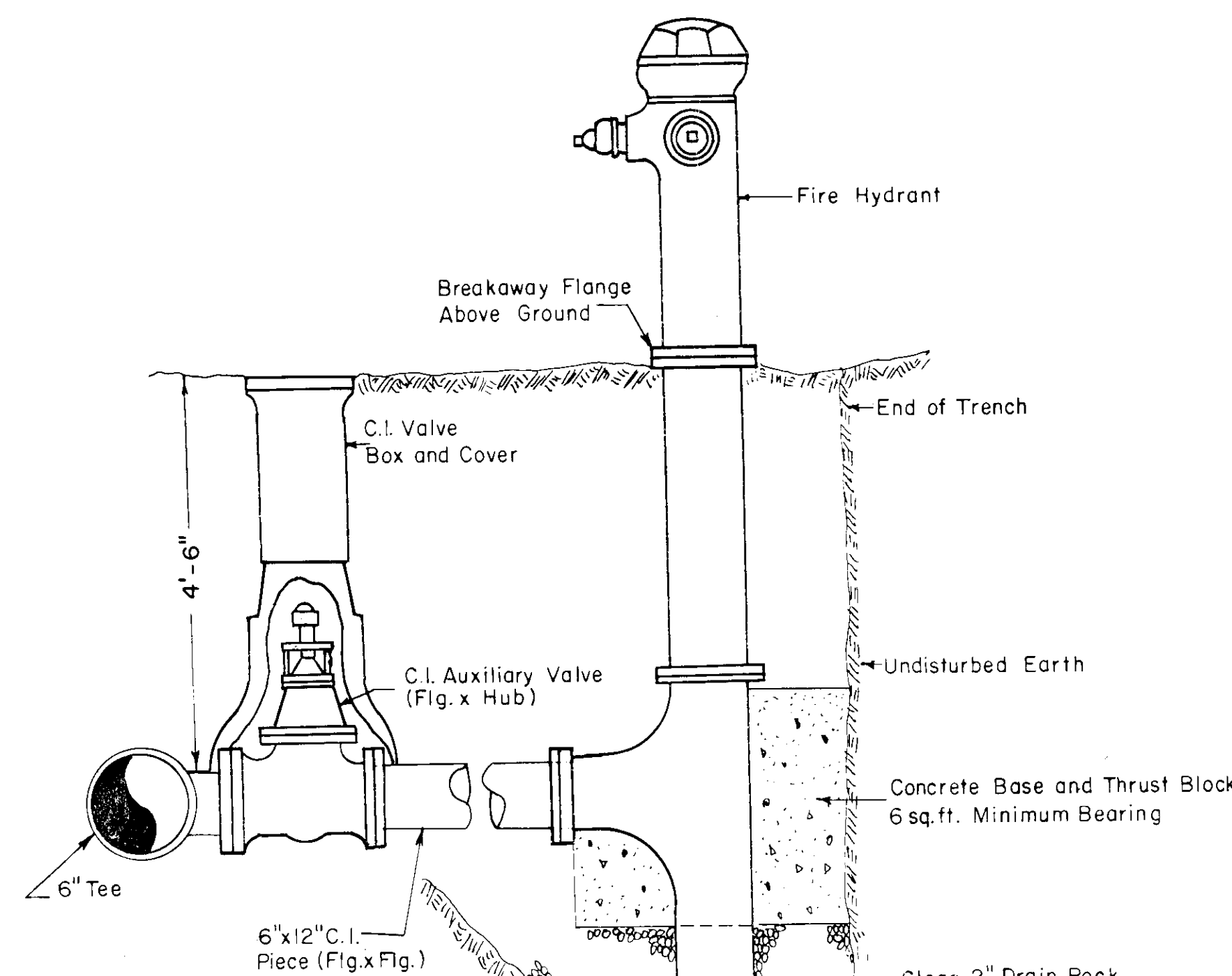


FITTING SIZES	TEES and PLUGS		90° BEND		45° BEND & WYES		REDUCERS & 22-1/2° BEND	
	A	B	A	B	A	B	A	B
4"	1'-7"	1'-2"	1'-9"	1'-6"	1'-8"	0'-10"	1'-7"	0'-6"
6"	2'-0"	1'-11"	2'-5"	2'-2"	1'-10"	1'-7"	1'-9"	0'-10"
8"	2'-8"	2'-6"	3'-2"	3'-0"	2'-5"	2'-1"	1'-9"	1'-6"
10"	3'-4"	3'-3"	4'-0"	3'-10"	3'-0"	2'-9"	2'-2"	1'-11"
12"	4'-0"	3'-10"	4'-8"	4'-6"	3'-3"	2'-7"	2'-7"	2'-3"
14"	5'-5"	3'-10"	6'-6"	4'-11"	4'-9"	3'-5"	3'-5"	2'-5"

THRUST BLOCKS
NOT TO SCALE

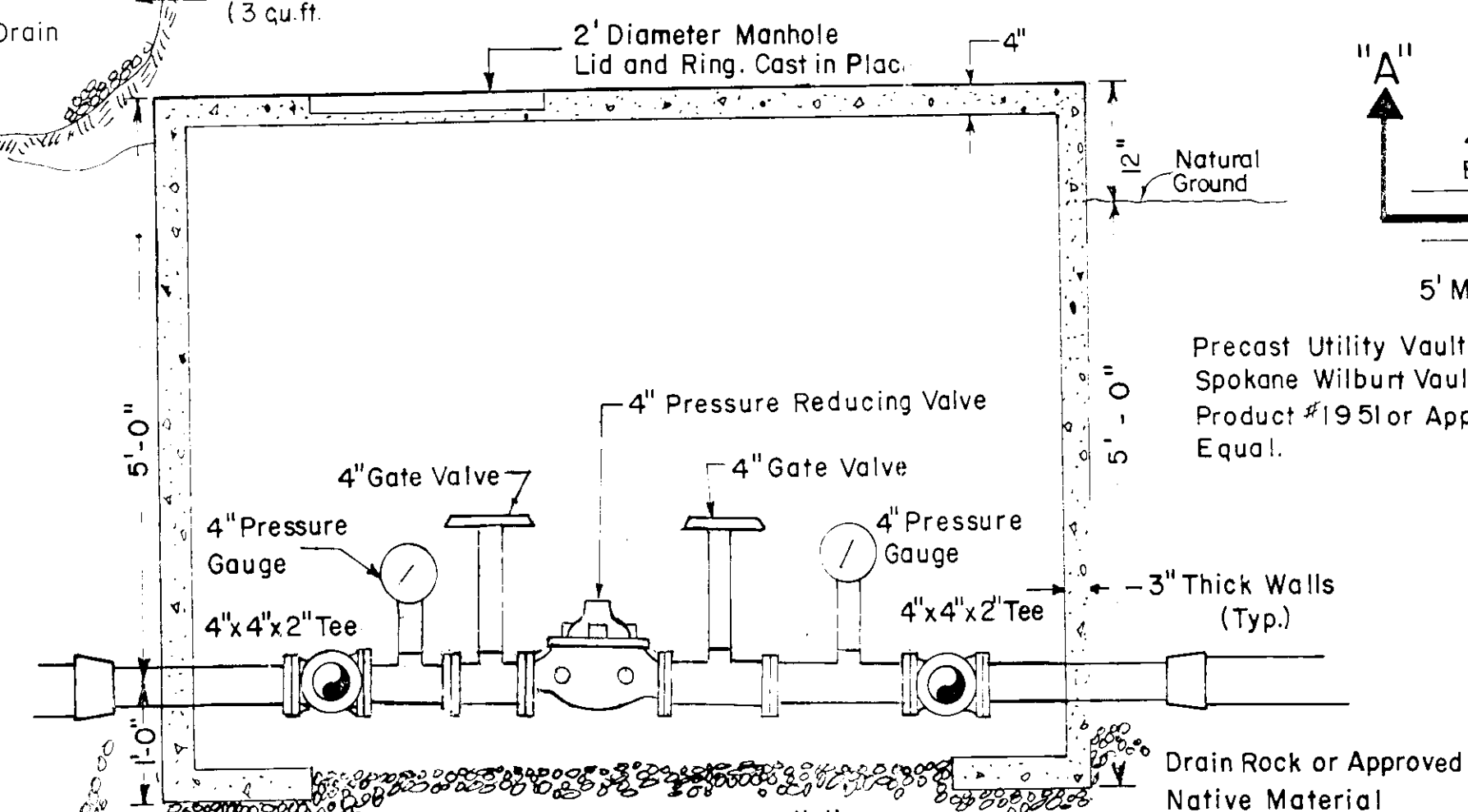


1. All loose and foreign material shall be removed from the face of the existing bituminous surface - cut.
2. Any fractured bituminous surface beyond the face of the surface-cut shall be removed.
3. The face of the bituminous surface-cut must be primed before applying patch.
4. Patch shall not overlap the existing bituminous surface.
5. The patch thickness shall be four inches or equal to the existing asphalt thickness whichever is greater.
6. Compaction to be 90% as determined by AASHTO T-99 except when wall of trench is less than 3 ft from edge of asphalt (then use 95% compaction).

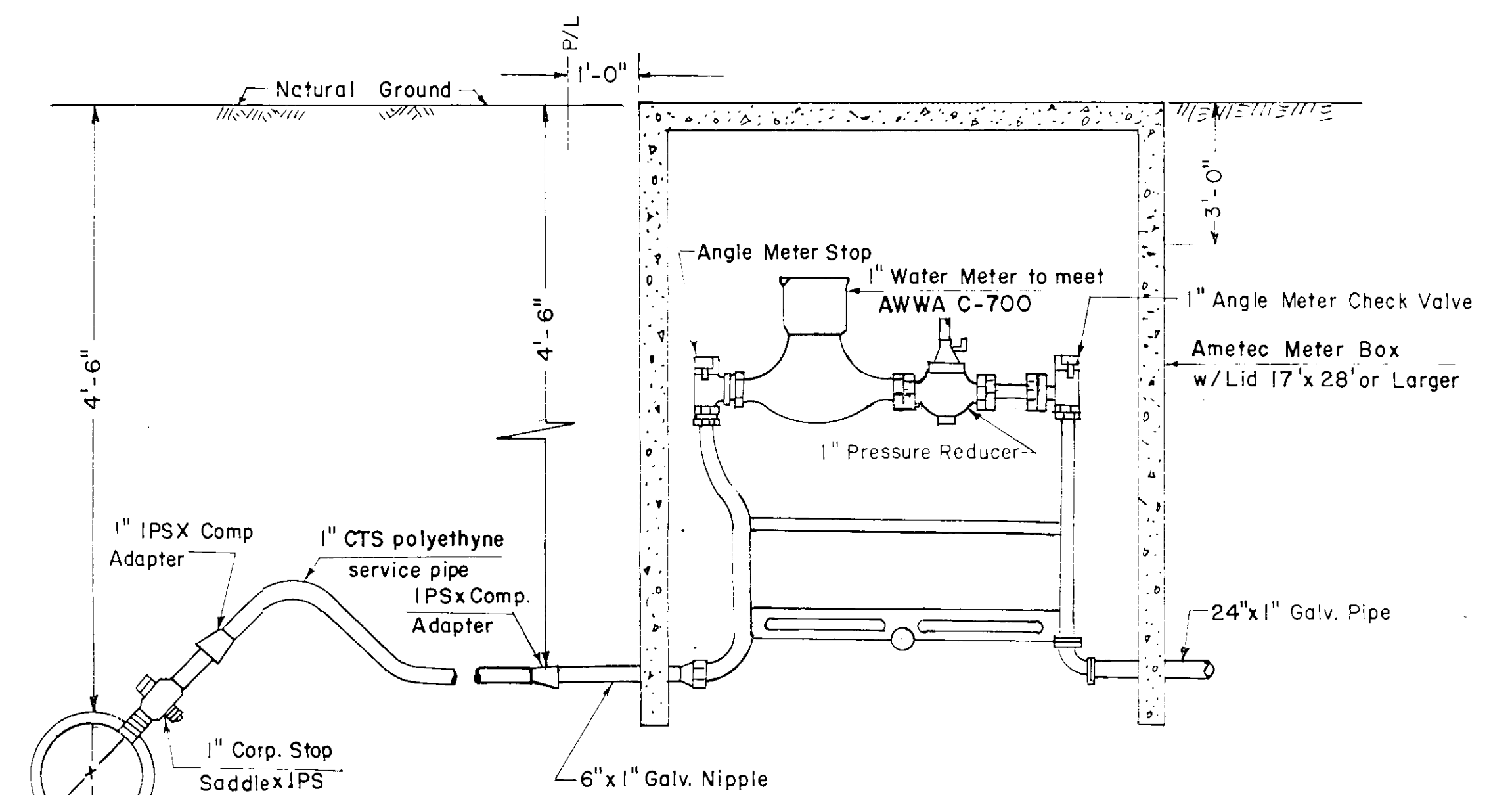


TYPICAL FIRE HYDRANT ASSEMBLY DETAIL
NOT TO SCALE

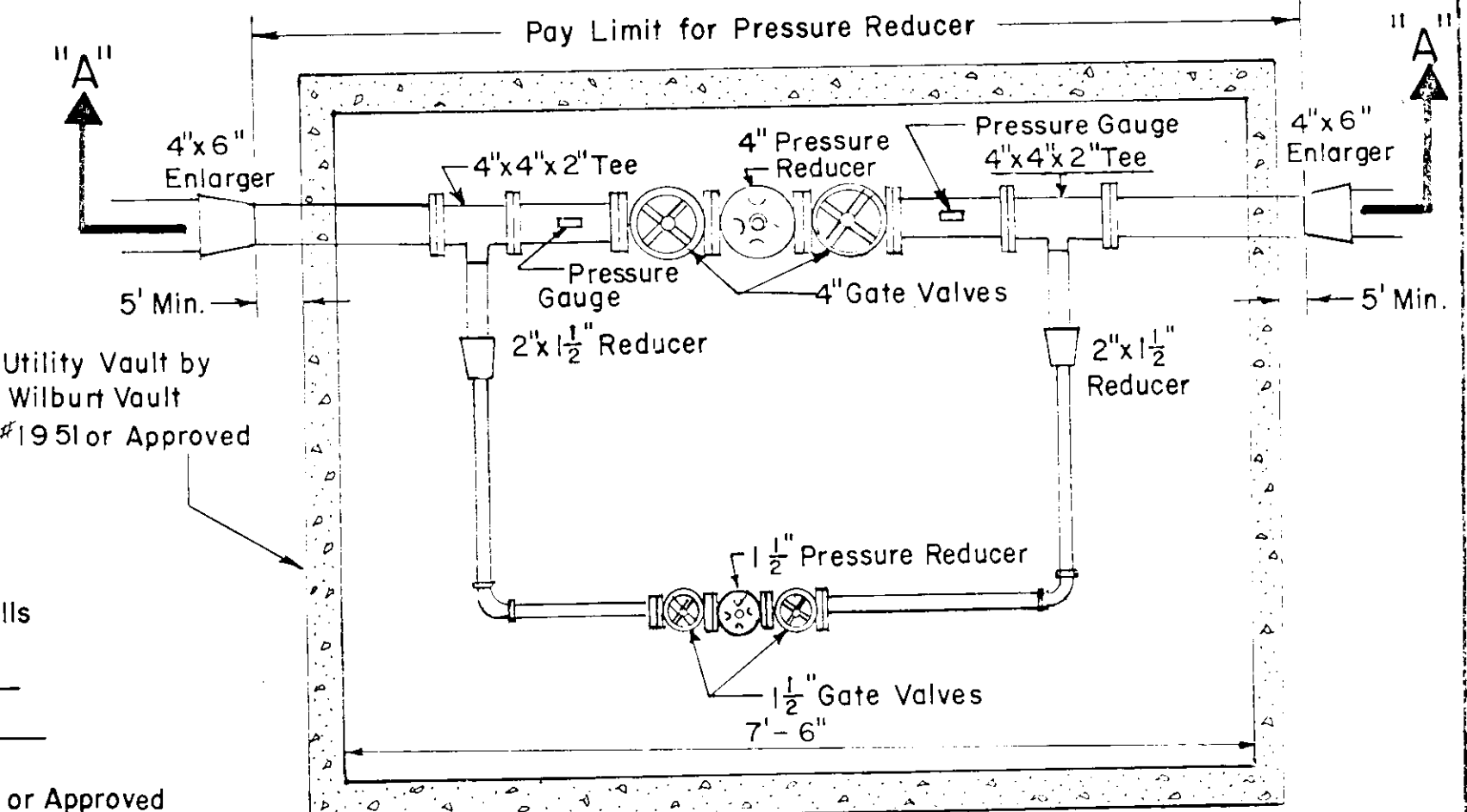
NOTE:
Fire Hydrant Installation is to be Inspected by Hayden Lake Fire Protection District before being Buried



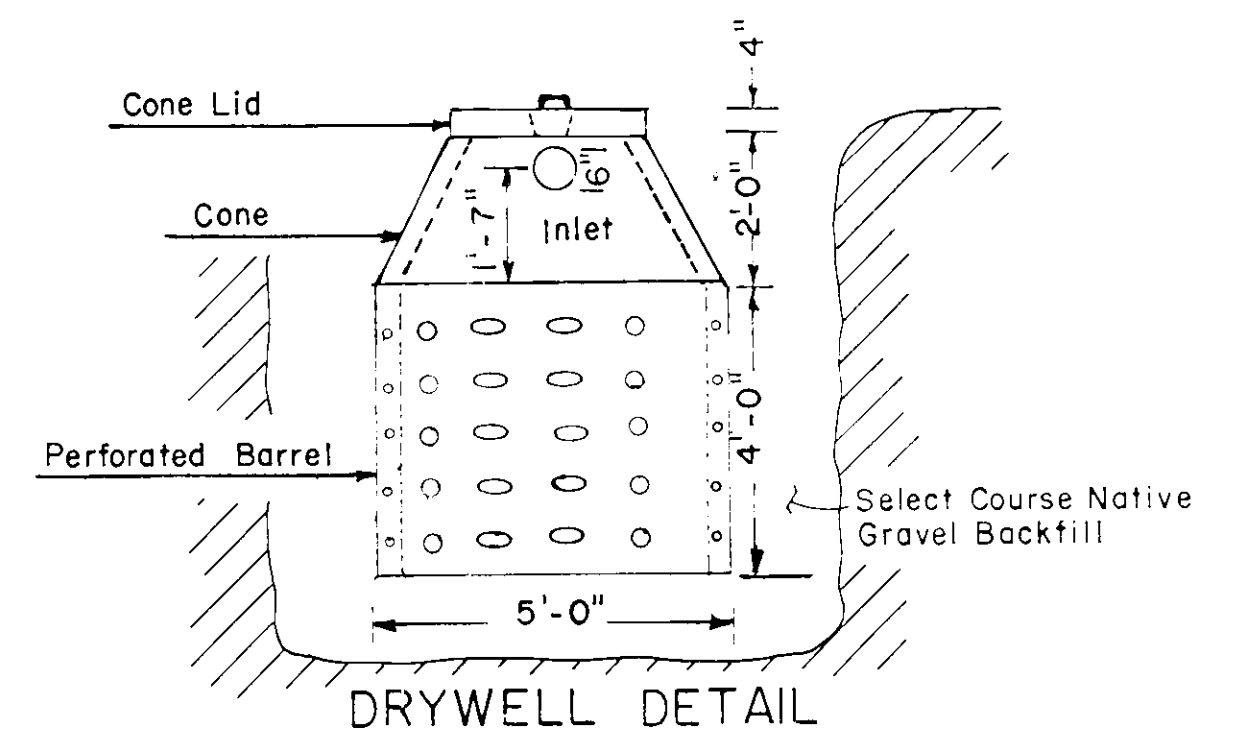
TYPICAL WATER SERVICE CONNECTION 1"
NOT TO SCALE



PRESSURE REDUCING WATER SERVICE CONNECTION 1"
NOT TO SCALE



PLAN VIEW
SCALE 3/4" = 1'



RECORD DRAWINGS

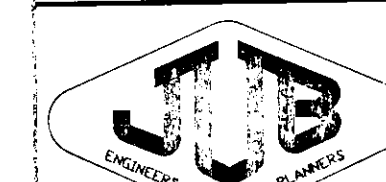
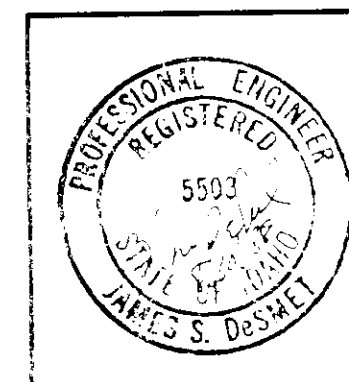
James S. DeSmet, P.E. Revised 10-13-88

GARWOOD WATER CO-OPERATIVE
GARWOOD, IDAHO

CONSTRUCTION DETAILS

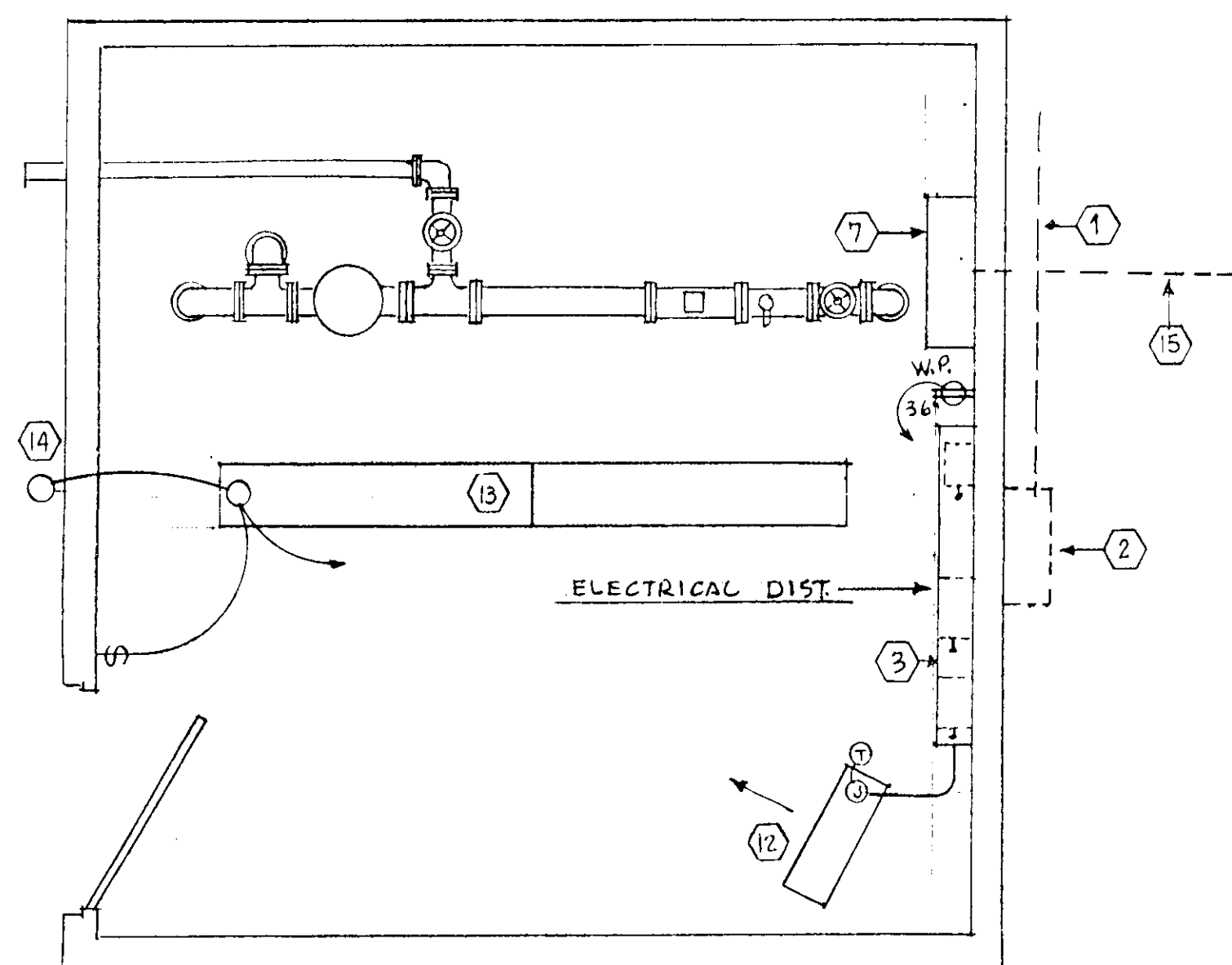
J-U-B ENGINEERS, INC.
Engineers Surveyors Planners
Coeur d'Alene, Idaho

DES. DR. CH. SHEET 9 OF 10
DATE MAY 1988 DWG. NO. C880513

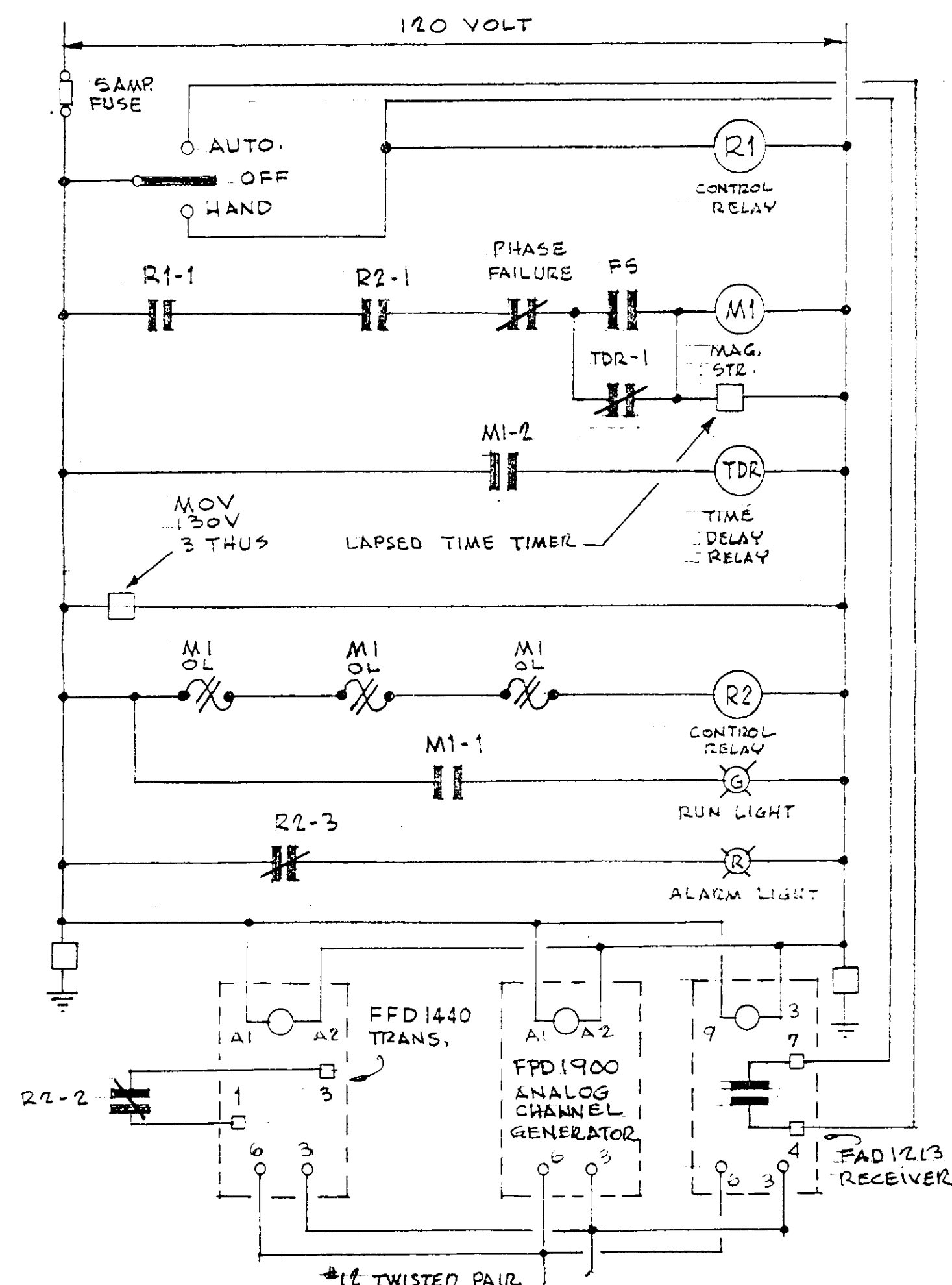


NOTES

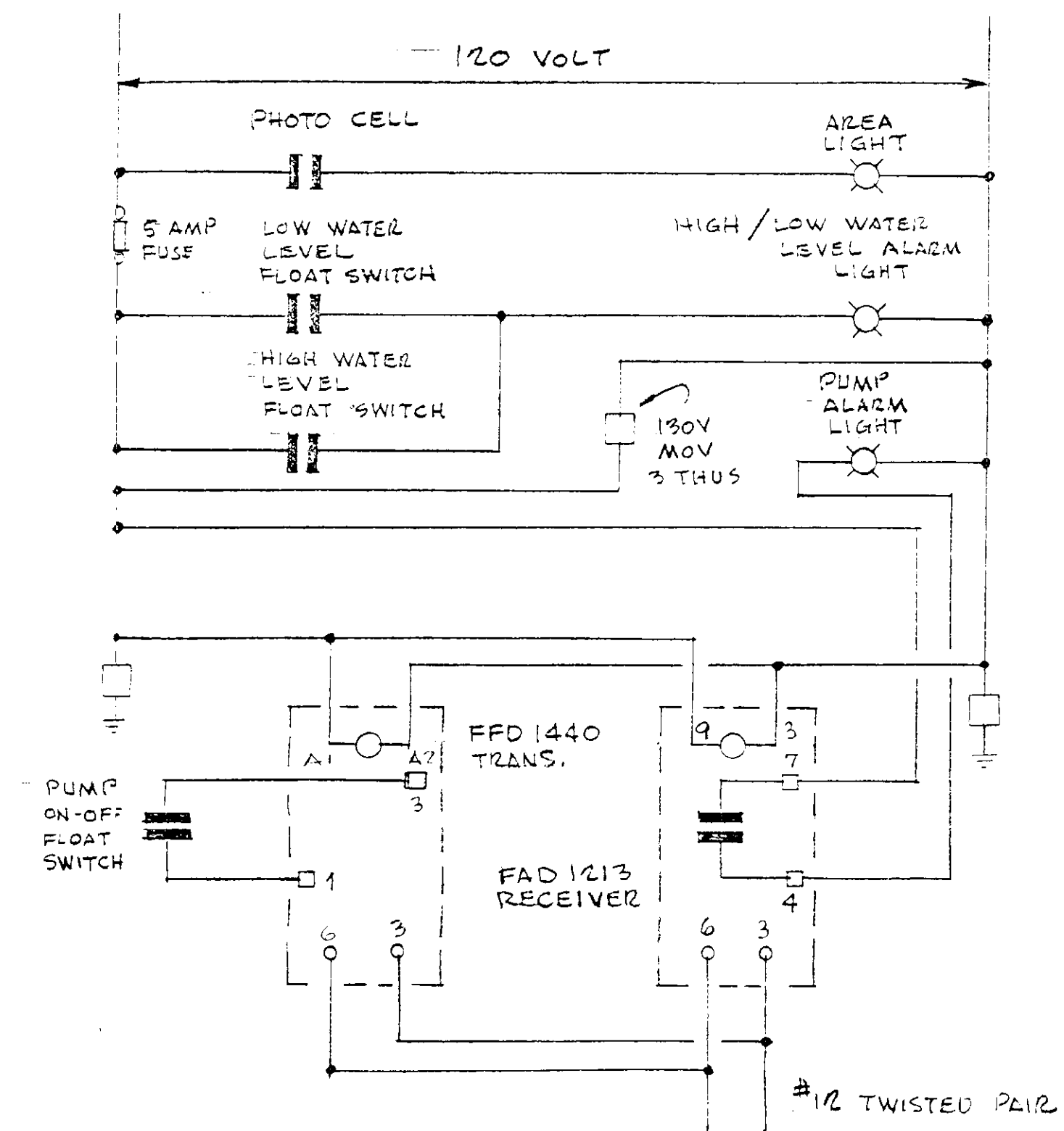
- 1 Disconnect existing meter can and relocate to wall of new pumphouse. Remove existing service conductors from existing service conduit. Extend existing three (3") inch diameter underground service conduit to connect to relocated meter can, in its new location. Pull new three (3) each #4 THW Aluminum service conductors from existing service pole to new electrical distribution, in the new pumphouse.
- 2 Relocated existing meter can.
- 3 48 inch long section of 6" x 6" wire gutter.
- 4 Relocate existing 60 ampere, 3-pole NEMA 3 fusible safety switch.
- 5 Furnish and install new size 2, 480 volt, 3-phase, 60 cycle, magnetic starter, with NEMA 12 enclosure. Square D Class 8536, Type SDA-1.
- 6 Furnish and install new 3 - #8 copper conductors in 3/4" PVC conduit from new starter to existing pump casing.
- 7 Furnish and install new 24" x 30" x 8" NEMA 12 pump control panel. The panel shall include the following:
 - A. Hand - OFF - Auto. selector switch (in cover).
 - B. Lapsed time meter with 10,000 hour range (in cover).
 - C. Control Relay R1 - 120 volt with 2 NO contacts, Square D Class 8501, Type R.
 - D. Control Relay R2 - 120 volt with 1 NO and 2 NC contacts, Square D Class 8501, Type R.
 - E. Time Delay Relay - 120 volt, with 1 NC contact, Square D Class 9050, Type JCK-15 (on delay). Range 1.8 - 180 seconds.
 - F. Phase Failure and Undervoltage Relay - Square D Class 8430, Type MPD.
 - G. Transmitter - Electromatic 4-channel monostable transmitter with four (4) each SPST contacts, Model FFD 1440.
 - H. Receiver - Electromatic 2-channel monostable receiver with two (2) each SPDT relays, Model FAD1213.
 - I. Pump Alarm Light (in cover) - Square D Class 9001, heavy-duty, water-tight NEMA 4, Red lens, 120 volt transformer, Type KPIR9.
 - J. Pump Run Light - Square D Class 9001, heavy-duty, water-tight, NEMA 4, Green lens, 120 volt transformer, Type KPIG9.
 - K. Analog - channel generator, Electromatic FPD1900.
 - L. Furnish and install three (3) each 130 volt surge arrestors. One line to ground, one neutral to ground and one line-to-line, on the 120 volt control circuit.
 - M. Furnish and install three (3) each line fillers, Electromatic Model PFC10. One line to ground, one neutral to ground and one line-to-line, on the 24-volt control circuit.
- 8 30 ampere, two-pole, fusible 600 volt, NEMA 1 safety switch. Square D Cat. No. H261.
- 9 5 KVA, 480 - 120/240 volt, 60-cycle, dry type transformer with two (2) each 5% FCBN taps. Square D Class 7410, Cat. No. 5540F.
- 10 Load Center - 120/240 volt, single phase, 3-wire, surface mounted type with four (4) each 20 ampere, single pole circuitbreakers and two (2) each single pole spaces. Square D Cat. No. Q06-12L100DS.
- 11 30 ampere, 3-pole, 600 volt, fusible NEMA 1 safety switch. Square D Cat. No. H361.
- 12 7.5 KW, 480 volt, 3-phase electric unit heater with 24 volt control transformer, support bracket, Model A6176 thermostat suspended below heater, Markel Cat. No. P3P5107GAL, rated at 25.6 MBH output and 700 CFM air delivery. Unit shall include magnetic contactor.
- 13 96" tandem industrial fluorescent fixture with four (4) each F40W lamps, high power factor ballast, 10% upright, baked enamel finished reflector, 12" chain suspension. Daybrite Cat. No. 8N4R.
- 14 Wall pack, cast-aluminum housing, polycarbonate lens with cutoff, 70 watt, HPS lamp, 120 volt high power factor ballast, bronze finish. Guardian Cat. No. 89 - 4232-HPF-BZ. Provide Tork Model 2102 photo cell control.
- 15 Furnish and install approximately 10,000 linear feet of 12 gauge twisted pair conductors, Cat. No. 9582 cable between the pumphouse control panel and the reservoir control panel. The cable shall be laid in the trench adjacent to the pipe.
- 16 30 ampere, 2-pole, 240 volt, fusible NEMA 3R safety switch. Fuse at 20 amperes. The meter mast and socket shall be mounted on 35 foot, butt-treated, Class 3, WRC service pole.
- 17 Furnish and install three (3) each enclosed mercury float switches in the new reservoir. One for pump on-off and one for low water level alarm and one for high level alarm.
- 18 Furnish and install 18" x 24" x 8" NEMA 12 reservoir control panel. This panel shall include the following:
 - A. Transmitter - Electromatic 4-channel, monostable transmitter with four (4) each SPST contacts, Model FFD1440.
 - B. Receiver - Electromatic 2-channel monostable receiver with two (2) each SPDT relays, Model FAD1213.
 - C. Furnish and install three (3) each 130 volt surge arrestors. One line to ground, one neutral to ground, and one line-to-line, on the 120 volt control circuit.
 - D. Furnish and install three (3) each line fillers, Electromatic Model PFC10. One line to ground, one neutral to ground, and one line-to-line, on the 24-volt control circuit.
- 19 Pump Alarm Light - die-cast aluminum box and fixture with red lexan globe, 100W A-19 lamp, Stonco Cat. No. VWXL-10A/VPRA-5.
- 20 Low Water/High Water Alarm Light - die-cast aluminum box and fixture with amber lexan globe, 100W A-19 lamp, Stonco Cat. No. VWXL-10A/VPRA-5.
- 21 Furnish and install area light, on new service pole, G.E. Cat. No. C6476522 with 70W HPS lamp, open acrylic refractor, steel mounting bracket. G.E. Cat. No. C4026600 photo-cell control.
- 22 Furnish and install 30-ampere, 3-pole solid neutral, 240 volt, fusible, NEMA 1 safety switch, Square D Cat. No. D211N. Fuse at 25 amp.



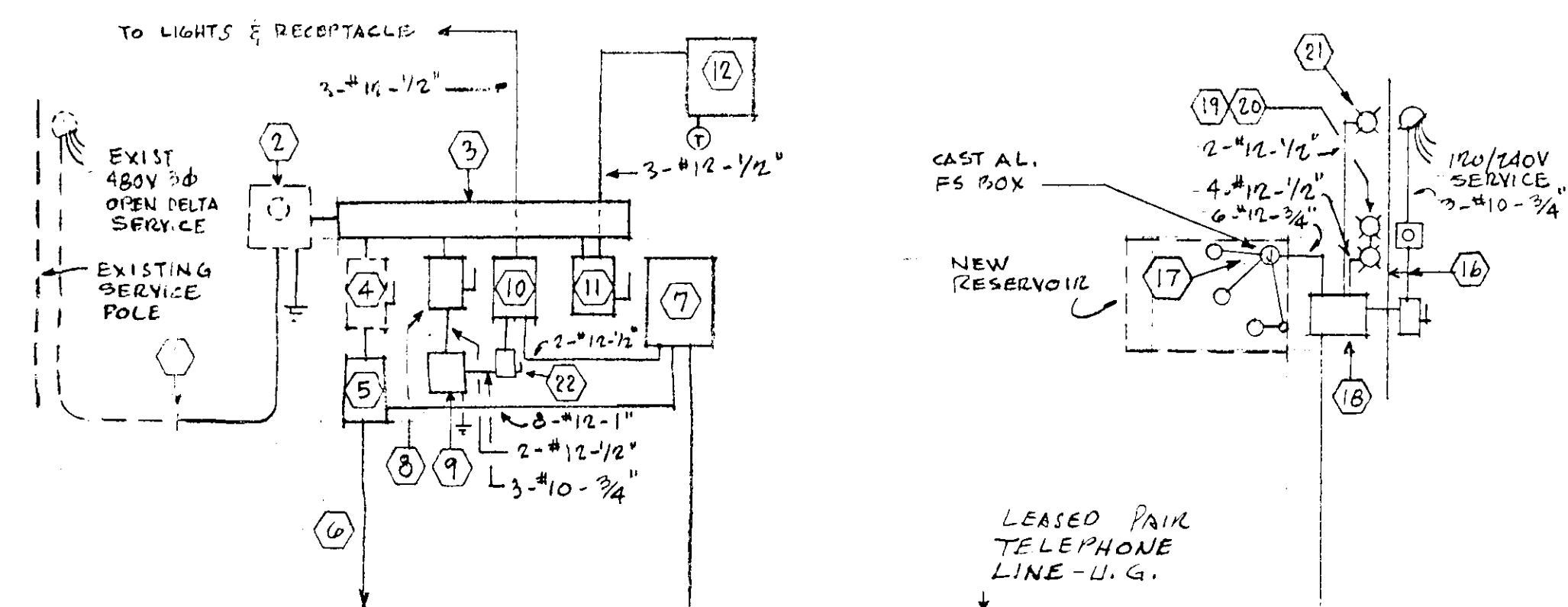
PUMPHOUSE PLAN
SCALE: 1/4" = 1'-0"



PUMPHOUSE CONTROL WIRING DIAGRAM



RESERVOIR CONTROL PANEL WIRING DIAGRAM



POWER RISER DIAGRAM

RECORD DRAWINGS

David J. Carpenter
David J. Carpenter

GARWOOD WATER CO-OPERATIVE
GARWOOD, IDAHO

ELECTRICAL PLANS



J-U-B ENGINEERS, INC.
Engineers Surveyors Planners
Coeur d'Alene, Idaho

DES. DR. CH. SHEET 10 OF 10

SCALE: NO SCALE DATE: SEPTEMBER, 1988 DWG. NO. C880513