

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

I-70-1(24)02

FHWA REGION	STATE	PROJECT	1/11
5	OHIO	I-70-1(24)02	

PRE-70-(2.83)(2.90)
PREBLE COUNTY

PRE-70-(2.83)(2.90)

JEFFERSON & JACKSON TOWNSHIPS PREBLE COUNTY

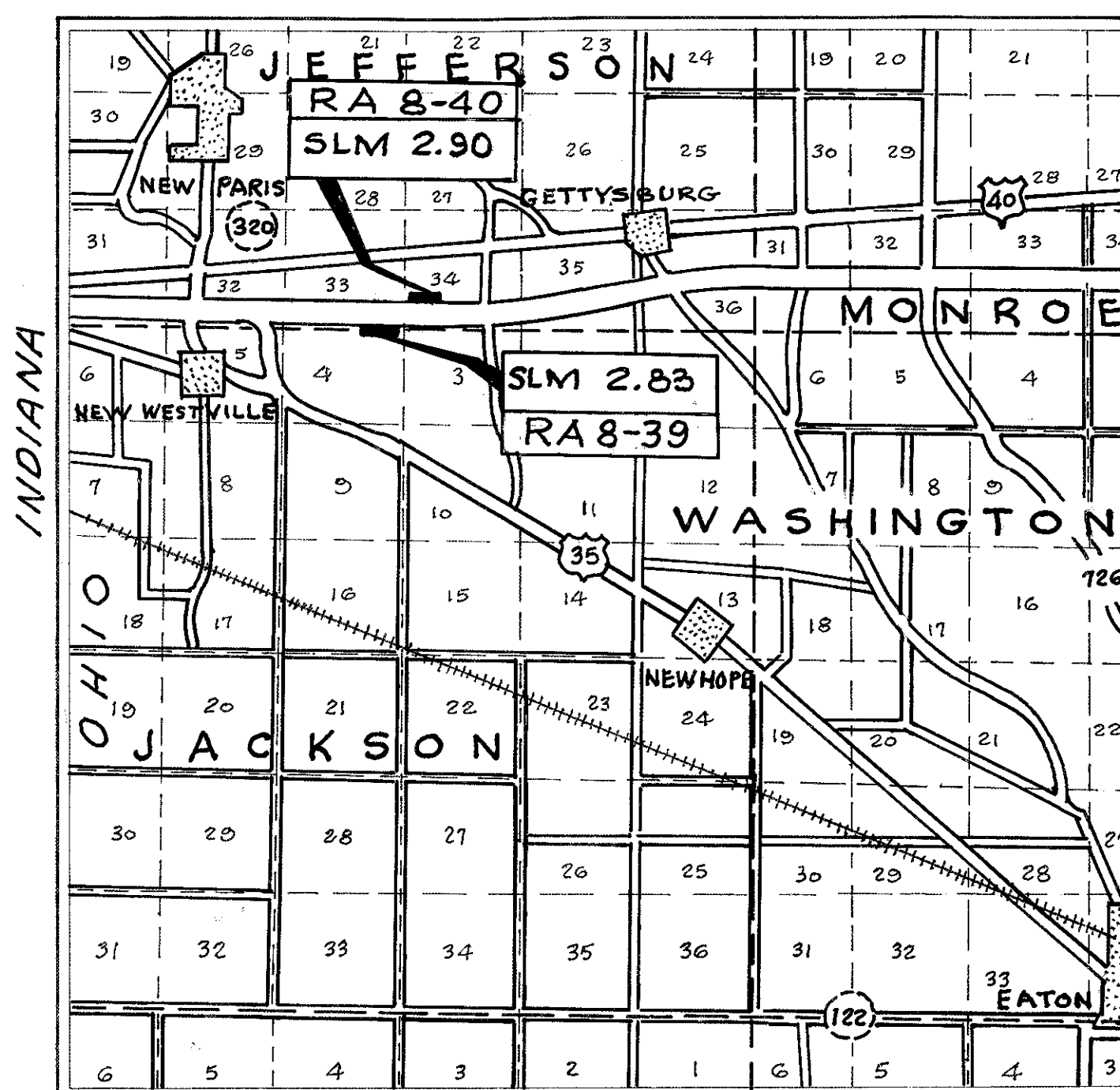
PROPOSED SEWAGE AND WATER WORK

CONVENTIONAL SIGNS

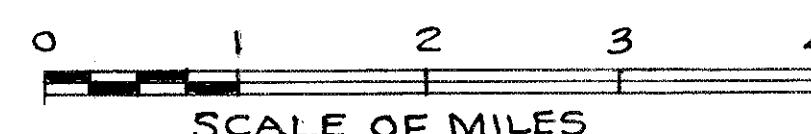
County Line	-----	Limited Access (only)	-----LA
Township Line	-----	Right of Way (only)	-----RW
Section Line	-----	Limited Access & Right of Way	-----LA&RW
Corporation Line	----- or -----	Existing Right of Way	-----
Fence Line (existing)	-x-x- (proposed)	Property Line	----- (in existing fence) -x-x-
Center Line	----- 352 (proposed) 353	Railroad	-----
Trees	⊙, Stumps ⊙, (to be removed) ⊗	Guardrail (existing)	----- (proposed) -----
Utility Poles: Telephone ⊕, Power ⊕, Light ⊕			

INDEX OF SHEETS

Title Sheet	1
General Notes	2-3-4
General Summary	4
Schematic for Rest Areas Water Systems	5
Water Wells and Submersible Pump Controls	6
Water Systems Hypochlorinators	7
Reservoir Assembly	8
Reservoir and Pressure Tank Pump Control Diagram	9
Plan and Profile - Sewage Chlorinators Layouts	10
Sewage Chlorinators Assembly Details	11
Schematic Plans	9



LOCATION MAP



LINE DATA

NET LENGTH OF PROJECT	0.00 L.F. OR 0.000 MILE
BEGIN WORK	STA. 137+00
END WORK	STA. 170+00
NET LENGTH OF WORK	3300.00 L.F. OR 0.625 MILE

Portion to be improved	-----
State Roads	=====
Other Roads	-----

SCALES

Plan	0 20 40
Profile: Horizontal	0 5 10
Profile: Vertical	0 5 10

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS	
F-1	6-1-72
FACI-1	4-20-71
FACI-2	4-20-71
MC-4	6-13-69

Plan Prepared By: _____

SEAL

1973 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation including changes and supplemental specifications listed in the proposal shall govern this improvement.

The right of way for this improvement will be provided by the State of Ohio.

I hereby approve these plans and declare that the making of this improvement will not require the closing of the highway to traffic, and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Approved: R. F. Bervis
Date: 1/8/73 District Deputy Director of Transportation

Approved: _____
Date: _____ Engineer, Bureau Of Bridges

Approved: E. J. Schaff
Date: 1-16-73 Engineer, Bureau Of Roadway Design

Approved: William E. Shell
Date: 2-16-73 Assistant Deputy Director for Highway Design

Approved: _____
Date: _____ Assistant Deputy Director for Real Estate

Approved: William Bunkley
Date: 2-20-73 Assistant Deputy Director for Program Development

Approved: William W. Baker
Date: 2-20-73 Chief Engineer, Division of Highways

Approved: R. M. Muehl
Date: 2-21-73 Deputy Director, Division of Highways

Approved: William P. McKenna
Date: 2-21-73 Assistant Director, Department of Transportation

Approved: Philip D. Doolittle
Date: 2/21/73 Director, Department of Transportation

SUPPLEMENTAL SPECIFICATIONS
814 1-1-69

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____

DIVISION ENGINEER

DATE

Project: _____
Date of Letting: 19____, Contract No. _____

CALC. JAL DATE 1/30/73
CHK. P.H. DATE 1/31/73

GENERAL NOTES

I-70-1(24)02

FHWA REGION	STATE	PROJECT	
5	OHIO	I-70-1(24)02	2 11

PREBLE COUNTY
PRE - 70 - (2.83)(2.90)

RESTORATION NOTE

Surfaces over trenching, floors, concrete walks etc. disturbed by construction under this contract shall be restored to their original condition or better at the contractors' expense and to the satisfaction of the Project Engineer. Cost for this work shall be included in the contract bid items of which it is a part, except sodding Item GGO, which has been provided for trenched and excavated areas.

TESTING INSTALLATION

Before acceptance by the State of Ohio, the performance of those systems shall be tested in the presence of the Project Engineer and perform satisfactorily for at least one week without malfunctions. If malfunctions are found in the systems, these shall be rectified and the testing shall be renewed to extend at least one week from the renewal time.

ESTIMATED QUANTITIES

Specific locations and usage of estimated quantities set up on this plan to be used "as directed by the Engineer" shall be made a matter of record by incorporation into the final change order governing completion of this project. Estimated quantities of materials shall not be ordered for delivery to the project unless authorized by the Engineer.

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS

The contractor shall furnish, erect, maintain and subsequently remove Federal Aid Construction Identification Signs at each of the following locations:-

1. Station 170+00 LT. } See Schematic Plans - Sheet No. 9
2. Station 137+00 RT. }

Sign details shall be as specified on Std. Drawing FACI-1 Code N-55(1)-120(2)

The signs shall be erected in accordance with Std. Drawing FACI-2. Additional requirements will be in accordance with notes in the proposal.

ELEVATION DATUM

All elevations are based on U.S.G.S. datum.

If elevations of existing facilities are found to be different than those shown on the plans, proposed elevations, dependent upon these, may be adjusted accordingly, as directed by the Engineer.

SUBMERSIBLE PUMPS, PRESSURE TANKS & APPURTENANCES REMOVED AS PER PLAN

The existing two submersible pumps (including drop pipes, pressure tanks, and electrical control boxes) shall be removed and disposed of by the contractor. The work shall be performed in accordance with the applicable provisions of Item 202. Payment will be made at the contract price bid Lump Sum for "Item 202-Submersible Pumps, Pressure Tanks and Appurtenances Removed as per plan" which price and payment shall constitute full compensation for the furnishing of all labor, materials, tools, equipment and incidental expense to complete this item of work.

SHOP DRAWINGS OF ALL APPARATUS AND EQUIPMENT PROPOSED TO BE FURNISHED

(a) Shop drawings of all apparatus and equipment proposed to be furnished by the contractor shall be submitted to conform to the requirements as specified under Item 625 Electrical Equipment 625.04 Working Plans.

(b) Paragraph (a) herein, above shall also apply to Electrical Shop Drawings specified under General Notes.

ITEM 604-FLAPGATE Wall Mounted

The 6" Flap Gate is to be wall mounted Arma Model 10-C, or Brown and Brown Type M-4, or Neenah R-5050 Type SF or approved equal. The gate shall be fitted with brass hinge bolts, nuts and bushings.

Payment for Item 604-6" Flap Gate, wall mounted shall include furnishing and installing bolts, nuts, bushings, hinge bars and gate, complete in place on the proposed wall. (Two (2) Required)

WELL LIQUID LEVEL CONTROLS SPECIFICATION SUPPLEMENT

1. ELECTRODE SUSPENSION

- Well electrode suspension wires shall be grouped together by means of Thomas and Betts' nylon ty-raps, self-locking cable ties Fig. No. TY-523 MX Through TY-528 MX as required or of like kind and quality as manufactured by Panduit Corporation or an approved equal. Cable ties shall be equally spaced on 10'-0" centers throughout entire length of suspension wires located in well.
- Porcelain insulators of sufficient weight shall be securely affixed to the suspension wire of each electrode to act as a counter-weight to cause suspension wires to hang taut in well.
- Suspension wires shall be in free suspension in well and shall not be secured to drop pipe to permit easy removal for inspection of electrodes periodically.

2. SUBMERSIBLE ELECTRICAL PUMP CABLE INSTALLATION

- Submersible electrical pump cable shall be securely fastened to drop pipe with Myers stainless steel strap clamps Fig. No. 8708A2 and Myers rubber cable sleeves Fig. No. 13575A or of like kind and quality as manufactured by Crane Company or Deming Company or Approved Equal. They shall be spaced 20'-0" center to center.
- Cable shall also be secured to drop pipe, halfway between each clamp with Nylon TY-raps, as specified in above item.
1. Electrode Suspension, Paragraph (a) Stainless steel clamps and cable sleeves of like kind & quality, as specified in paragraph (a) above, shall be as manufactured by "Deming" or an approved equal.

3. SPARE ELECTRODES

- The contractor shall furnish to the owner four (4) spare electrodes for each submersible well level control. Electrodes shall be B/W controller corp., Fig. No. E-IP Shielded (Assembly complete with shield) or approved equal.
- Contractor shall present the owner with a letter of transmittal at time of delivery and owner shall acknowledge receipt of same by letter.

4. TYPE SW SUSPENSION WIRE

- The contractor shall furnish and install type SW suspension wire with B/W electrodes as recommended by B/W Controller Corp. Wire shall be single conductor 18 gauge, 41 strand, copper with 4/64" vinyl insulation.
- Approved suspension wire of like kind and quality shall be as manufactured by General Electric, Anaconda, Phelps-Dodge or approved equal as supplied by other cable manufacturers.

COLD WATER PIPING INSULATION

- Exposed piping shall be insulated with 3/4" thick Johns-Manville Flame Safe GVB Fiber-glass pipe insulation.
- Longitudinal jacket laps and butt strips shall be smoothly secured with Benjamin Foster 85-20 Adhesive.
- Fittings up to 4" shall be insulated with Johns-Manville No. 375 insulating and finishing cement to a thickness equal to the adjoining pipe insulation. All exposed fittings shall have an additional finish of Johns-Manville A-2070 Asbestos Cloth adhered and coated with Benjamin Foster 30-35.
- Insulation shall not be applied until the general construction has progressed sufficiently to insure against physical or moisture damage to the insulation. All damaged insulation shall be replaced.
- Materials meeting the Johns-Manville specifications above, or of like kind and quality Owens-Corning Fiberglas, Gustin-Bacon Division, Armstrong Corp. Co., Pittsburgh Plate Glass Industries or approved equal, will be acceptable.
- Cold water pipes which are installed underground or buried under the floor slab shall not require insulation.

WATER WORK

The water items shall be done in accordance with the applicable provisions of Item 814 - Water Mains and Service Branches, but payment shall be included in the contract price bid "Item Special" for the appropriate work item.

ELECTRICAL AND MECHANICAL EQUIPMENT REQUIREMENT

- (1) Manufacturers' warranties or guarantees on all electrical and mechanical equipment shall be consistent with those provided in customary trade practice.
- (2) Contractors' warranties or guarantees shall provide for satisfactory in-service operation of the mechanical and electrical equipment and related components for a period not to exceed 6 months following project acceptance.

ELECTRICAL SHOP DRAWINGS

NOTE: Contractor shall submit for approval, prior to installation eight (8) sets of complete, applicable, accurate shop drawings, complete wiring, diagrams and descriptive literature of all equipment and their component parts which constitute the make-up of an equipment unit. This shall include items such as individual motors, controls, pumps, blowers, and/or electrical enclosures or housings or electrical safety devices constituting an individual piece of equipment sold as a package unit.

The electrical wiring diagrams shall be submitted in the following manner:

- One (1) drawing shall be presented in the form of an actual "wiring diagram" which shall include all of the devices in the system and show their physical relation to each other. All poles, terminals, coils, etc. shall be shown in their proper places on each device.
- The drawing described in paragraph (a) above shall be supplemented by the addition of one (1) "line diagram" or sometimes referred to as a "schematic diagram" which is a representation of the system showing everything in the simplest form. All control devices are shown between vertical lines which represent the source of control power, and circuits are shown connected as directly as possible from one of these lines to the other. This shall show the effect that opens or closes various contacts or devices in the circuit.

A copy of each of the above drawings shall be placed in the control panel of each individual system required or shown on the drawings for ready reference for maintenance. This shall be in addition to the operations manuals which shall also include the above specified drawings.

ITEM SPECIAL-SEWAGE CHLORINE CONTACT TANK AND HYPOCHLORINATOR

HOUSING UNIT. See note for description of work and method of payment. - sheet No. 11.

FIELD OFFICE

The Contractor shall provide a suitable field office having a minimum of 150 Sq. Ft. of floor space and in addition to the requirements of Item 619, he shall provide and maintain sanitary provisions as per 107.06. All the above is included in the lump sum price bid for Item 619-Field Office.

CONNECTIONS TO EXISTING PIPES (DRAINAGE)

At the place where the plans provide for proposed conduit pipe to be connected to existing pipes, it shall be the responsibility of the Contractor to locate the existing pipe, both as to the line and grade before he starts to lay the proposed pipe. The cost of this operation shall be included in the Unit Bid Price for the pertinent 603 conduit items.

UNDERGROUND UTILITIES

The location of the underground utilities shown on the plans have been obtained by diligent field checks. It is believed that they are essentially correct, but the State of Ohio makes no guarantee as to their accuracy completeness.

ELECTRICAL WORK

The electrical work items shall be done in accordance with the applicable provisions of Item 625 - Electrical Equipment, but payment shall be included in the contract price bid "Item Special" for the appropriate work item.

CALC. J.P.W. DATE 1/30/73
CHK. D.W.B. DATE 1/31/73

REST AREA WATER SYSTEM NOTES

I-70-1(24)02

FHWA REGION	STATE	PROJECT	3 11
5	OHIO	I-70-1(24)02	

PREBLE COUNTY
PRE-70-(2.83)(2.90)

1. PRESSURE PNEUMATIC TANK, WELL PUMP CONTROLS AND RESERVOIR PUMP CONTROLS

- (a) Furnish and install one (1) A.S.M.E. approved, hot dipped galvanized steel, vertical, hydro-pneumatic pressure tank as manufactured by Patterson-Kelley. Tank shall be vertically mounted, size shall be 36 inches in diameter by 72 inches in height with a capacity of not less than approximately 315 Gal.
- (b) Tank shall be constructed in accordance with "The State of Ohio Rules for Construction of Unfired Pressure Vessels" and shall be indelibly stamped or labeled as having been tested for a design of 75 p.s.i. working pressure and 150 p.s.i. test pressure.
- (c) Tank shall be equipped with tappings as indicated on the plans. The tank shall be supported by four (4) angle steel leg supports with base plate foot for each leg; legs shall be welded to tank. The tank shall have one (1) 11 inch x 15 inch manhole. Furnish and install one (1) 36 inch diameter flexible free floating barrier inside tank for air separation.
- (d) Tank shall have provisions for installation of two (2) gauge glasses of not less than 24 inches in length and located so that gauge glasses overlap four (4) inches. Furnish and install gauge glasses with shut-off cocks at each end. Cocks shall have ball checks to prevent loss of water in case of glass breakage.
- (e) Furnish and install one (1) Marsh Type No. 1 Pressure, 3/4 inch dia. gauge, 0 to 160 p.s.i. pressure reading with Marsh Type 38 Pig Tail Syphon and Marsh Type 1900 Tee Handle Cock as shown on the plans. Items as manufactured by Moeller, Marshalltown or the H. O. Trerice Co., Inc. or approved equal will be acceptable.
- (f) Acamson, Westerman, Hamilton Welding Co. or approved equal tanks meeting capacity and other specification requirements above may be submitted for approval at contractor's option.
- (g) Provide and install one 1 inch (1") pressure relief valve, factory set at 75 p.s.i., Myers Fig. No. 6430 B-12, or of like kind and quality as manufactured by Lunkenheimer, Crane, Norgren, or approved equal.
- (h) Well pump control shall be operated from B/W Type 12-560 cord-grip electrode holder with two E-1P electrodes suspended in well on SW wire. Lower electrode to be located so that well pump will be stopped when water level is twelve inches (12") above top of pump, and upper electrode to be located so that pump is started when water level reaches high level specified on Water Well Assembly Detail Sheet. Well pump control shall include a relay "LH" to operate from the well electrodes as described above, in conjunction with a relay "RH" to control the pump motor from two level electrodes in the reservoir. Electrodes at reservoir are included in the electrode assembly described under sub-section (i), but they should be connected so that a high water level in the reservoir will stop the well pump, and a lower level will allow the well pump to restart (except on low level at well). Components and schematic of this control equipment are detailed on drawing RRA-7 (Sheet No. 6).
- (i) Reservoir pump control shall be operated from two electrodes of a four-electrode B/W Type 12-569 electrode holder, with four Type E-1P-Shielded electrodes suspended on SW wire in the reservoir. Two of these electrodes shall be connected into circuit for the well pump, as described under sub-section (h). Upper electrode shall be set at a seven-foot (7'-0") level, and lower electrode at a six (6'-0") level. One of the remaining two electrodes shall be set at a thirteen-inch (13") level, and the other at a seventeen-inch (17") level. They shall be connected into the control circuit of the reservoir pumps so that by means of a B/W Type 2-LH relay, pumping will be stopped when water level falls to 13", and will not be allowed to start until water rises to the 17" level. Provided that the water level in the reservoir is above 17", control of the reservoir pump system shall be a duplex-type, with alternator, operated from two Square D Class 9013-Type ASG-8 heavy duty pressure switches on the output waterline from the pressure tank. One pressure switch shall operate one or the other of the two pump motors, alternately, if the pressure is between 40 and 60 p.s.i. The second pressure switch shall run both motors, simultaneously, when pressure falls to 25 p.s.i., and until it rises to 45 p.s.i. The duplex pump control must be equipped with a double-pole, double-throw relay, to provide power to the level control unit from either pump motor power line. Schematic diagram of the equipment described is shown on drawing SHEETS 8 and 9.
- (j) Pressure switches shall be Square D as specified in paragraph (i), or of like kind and quality as manufactured by General Electric, Allen Bradley Co., Honeywell Inc. or approved equal. Pressure switches shall be factory set for pressures indicated in paragraph (i) above.

2. VALVES, HOSE BIBBS, AND UNIONS

- (a-1) Alternate valve materials are indicated in Sub-Paragraph (g) below.
- (a-2) Gate valves 3/4 inches and smaller shall be bronze, screwed type, taper solid wedge disc, rising stem, union bonnet, 125 lb. SWP (Steam Working Pressure), Wm. Powell Co. Fig. 2700S, conforming to ASTM B 62, Kennedy Fig. No. 525, Crane Fig. 428-UB or approved equal.
- (b) Gate valves 1 through 2-1/2 inches shall be bronze, screwed type, taper double wedge disc, rising stem, union bonnet, 125 lb. SWP, Wm. Powell Co. Fig. 2700, conforming to ASTM B 62, Fairbanks U-0253, Crane 430-UB or approved equal.
- (c) Globe Valves 2-1/2 inches and smaller shall be bronze, screwed type, regrindable bronze disk, rising stem, union bonnet, 200 lb. SWP, Wm. Powell Co. Fig. 110, conforming to ASTM B 61, Kennedy Fig. No. 750, Crane Fig. No. 70 or approved equal.
- (d) Swing Check valves 2-1/2 inches and smaller shall be bronze, screwed type, renewable bronze disc, Y-design, 200 lb. SWP, Wm. Powell Co. Fig. 560-Y, conforming to ASTM B 61, Kennedy Fig. No. 144, Crane Fig. No. 36 or approved equal.
- (e) All low-point drain gate valves above ground (2-1/2 inches and smaller) shall be bronze, screwed type, rising stem, solid wedge, male hose thread outlet with chain and cap, 200 lb. non-shock cold water, Wm. Powell Co. Fig. 502 HS, conforming to ASTM B 62.
- (f) Straightway cocks 2 inches and smaller (for drain lines on low points underground) shall be bronze, screwed type, flat heat, 150 lb. W.O.G., Wm. Powell Co. Fig. 947.
- (g) Valves, as manufactured by Crane, Lunkenheimer, Kennedy, Walworth or Fairbanks, or approved equal will be accepted.
- (h) Furnish and install James B. Clow and Sons Fig. F-4660 enlarged base for 2 inch stop, Fig. F-4615 screw type service box, with Fig. 393 box extension 30-42 inches, complete with stationary rod and ring guide and Fig. F-4620 combination key. Items mentioned in this sub-paragraph, by Mueller, Alabama Pipe Co., Kennedy, Walworth, or Darling will be accepted.
- (i) No sweat valves shall be used on any piping system required in this section.
- (j) Adapters for all screwed valves in copper lines shall be used.
- (k) Unions: See paragraph (l) of these notes below. Provide Dielectric unions at all connections between dissimilar metals. Unions shall be all-bronze, ground joint, cast type.
- (l) Provide a union in piping connections to each valve, device or item of equipment, and elsewhere as required to make-up or disconnect piping. Each union shall be so installed as to permit the removal of parts and equipment for inspection or cleaning, and shall be installed in a position which will permit the valve, device or part to be removed without disconnecting any piping except unions. Use bronze unions in copper lines. Unions shall be downstream of valves.
- (m) Provide one inch (1") shock absorbers where shown on plans. Shock Absorbers shall be Zorn Size No. 100 or of like kind and quality as manufactured by Josam, Wade or approved Equal.

Tubular gauge glasses shall be Ernst Gage Co. Pyrex clear Figure C, with a recommended working pressure for tubular gauge glasses of 340 PSI up to 30 inches in length. Equal Cocks and gauge glasses shall be as manufactured by Babcock & Wilcox, Lunkenheimer, Wm. Powell Co., H.O. Trerice or Reed Cromex Corp.

These settings shall be factory set at pressure designated here-in.

With Name Enclosures one on the tank and one

3. IDENTIFICATION NAMEPLATES

- (a) Furnish and install laminated plastic nameplates, black face with letters engraved into the white background, minimum 1/4" high letters. Plates shall be secured to all equipment with screws.
- (b) This contractor shall provide the nameplates as specified in the above for all items of electrical equipment and controls furnished by this contractor, also all equipment and controls pertaining to the plumbing and heating contract.
- (c) Controls or equipment nameplates shall clearly identify each item to prevent operator of questioning its purpose.
- (d) Examples of items to receive nameplates are as follows:

Safety Disconnect Switches
Well Pump Controls
Starters

Reservoir Pump Controls
Panels
Hypochlorinator

4. PRESSURE TANK INSULATION

PRESSURE PNEUMATIC TANKS

- (a) The domestic water pressure pneumatic tanks shall be insulated with 1-1/2 inch thick Johns-Manville Thermobestos or 814 Spin-Glass Block tightly butted edges, joints broken (staggered) and secured with No. 14 or No. 16 gauge galvanized annealed steel wire.
- (b) Over the insulation hexagonal mesh wire shall be tightly stretched into place and secured.
- (c) Finish with Johns-Manville No. 301 Cement applied in a 1/4 inch coat trowled to a smooth finish.
- (d) Apply one additional cover of Johns-Manville GVC Glass Cloth adhered with Benjamin Foster Adhesive No. 30-36.
- (e) Materials meeting the Johns-Manville specifications above of like kind and quality as manufactured by Owens-Corning Fiberglas, Gustin-Bacon Division, Armstrong Corp., Pittsburgh Plate Glass Industries or approved equal will be accepted.

5. MULTI-STAGE CENTRIFUGAL PUMPS AND MOTORS

Furnish and install two (2) multi-stage, vertical, centrifugal pumps. Pumps shall operate at 3500 R.P.M., capacity shall be 2300 G.P.H. at 60 P.S.I. with a suction lift of 25 feet, have a 2 inch (2") diameter inlet and 1 1/2" diameter discharge openings, and shall have three stages. Pump motors shall be 2 H.P., 1 Phase, 60 Hertz, 240 Volts A.C., capacitor type with built-in overload protection.

"ITEM SPECIAL - PRESSURE PNEUMATIC WATER SYSTEM AND WATER RESERVOIR"

METHOD OF MEASUREMENT:

THE "ITEM SPECIAL - PRESSURE PNEUMATIC WATER SYSTEM AND WATER RESERVOIR," AND ALL APPURTENANCES AS DETAILED AND SPECIFIED ON THE PLANS SHALL BE CONSIDERED AS ONE UNIT. THE NUMBER OF UNITS TO BE PAID FOR SHALL BE THE NUMBER OF EACH UNIT, LISTED AND ESTIMATED SEPARATELY, COMPLETE AND ACCEPTED, IN PLACE.

BASIS OF PAYMENT:

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL - PRESSURE PNEUMATIC WATER SYSTEM AND WATER RESERVOIR," WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL EXCAVATION, BACKFILLING AND TRENCHING; FOR FURNISHING, HAULING, PREPARING, PLACING AND INSTALLING THE

REST AREA WATER RESERVOIR TANK AND APPURTENANCES DETAILED ON SHEET NO. 8, COPPER PIPING, FITTINGS AND CONNECTIONS, GATE AND CHECK VALVES, GAUGES, UNIONS, PRESSURE SWITCHES, LIQUID LEVEL CONTROLS, PNEUMATIC PRESSURE TANKS, CENTRIFUGAL PUMPS AND MOTORS, IDENTIFICATION NAMEPLATES, ASSEMBLIES; AND FURNISHING ALL MATERIALS, LABOR, TOOLS AND EQUIPMENT. THIS ITEM, IN ADDITION, SHALL INCLUDE ALL ELECTRICAL DEVICES, CONDUIT, CONTROL BOXES, AND WIRING, WHETHER SHOWN OR NOT, IN ORDER TO MAKE THE SYSTEM COMPLETELY WORKABLE. MATERIALS NOT SHOWN BUT REQUIRED FOR THE OPERATION OF THIS WORK SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AND NO ADDITIONAL PAYMENT SHALL BE ALLOWED.

ESTIMATED QUANTITIES

ITEM SPECIAL - PRESSURE PNEUMATIC WATER SYSTEM AND WATER RESERVOIR
2 EACH QUANTITIES CARRIED TO GENERAL SUMMARY SHEET NO. 4.

SODDING

and 0.03 Tons Fertilizer
All existing sod areas disturbed in the actual trenched areas and the installation area of the storage tanks, shall be sodded. 360 Sq. Yds. of sod has been designated for this purpose on the General Summary. The final quantity of sod and where used shall be as directed by the Project Engineer. None of the sod shall be ordered until requested by the Engineer.

BACKFILLING TRENCHES

The backfill shall consist of existing soil placed in layers not to exceed four (4") inches in thickness and compacted with mechanical tampers. The compaction for soil shall be 95% of maximum laboratory dry weight as required by Item 203.

PAYMENT: - Payment for the above shall be included under "Item Special - Pressure Pneumatic Water System and Water Reservoir."

OHIO DEPARTMENT OF TRANSPORTATION-DESIGN SERVICES		
REVISIONS	REST AREA PRESSURE WATER SYSTEM	SHEET NO. 1
	DRAWN BY - H.W. BAKER	DATE 1-23-69

GENERAL SUMMARY

ITEM	SHEET NO.						QUANT.	UNIT	Description	CODE TYPE YO 22
	2	3	6	7	9	10				
REST AREAS										
Special			Lump				Lump	(Rest Area No. 39) Water Well Assembly		
Special			Lump				Lump	(Rest Area NO. 40) Water Well Assembly		
Special				2			2	Each	Water System Hypochlorinator	
Special		2					2	Each	Pressure pneumatic water system and water reservoir	
Special						2	2	Each	Sewage chlorine contact tank and hypochlorinator housing unit	
Special					2		2	Each	Domestic Hot Water System	
202	Lump						Lump	Submersible pumps, pressure tanks, and appurtenances removed as per plan		
602						0.2	0.2	Cu.Yds	Masonry, Concrete	
603						14	14	Lin. Ft.	6" Conduit Type C Cast Iron Pipe A.S.A. A-21.6 A.S.A. CLASS 22 As per plan	
603						82	82	Lin. Ft.	6" Conduit Type C 706.08 with 706.12 Joints	
604						2	2	Each	6" Flap Gate Wall Mounted	
607						80	80	Lin. Ft.	Fence Type CL (42" Wide)	
202						50	50	Lin. Ft.	Fence (CL) Removed	
202						Lump	Lump	6" Flap Gate and Headwall structure Removed as per plan		
660		360					360	Sq.Yds.	Sodding	
659		0.03					0.03	Tons	Commercial Fertilizer (12-12-12)	
619	Lump						Lump	Lump	Field Office	
623							Lump	Lump	Construction Layout Stakes	
614							Lump	Lump	Maintaining Traffic	

GENERAL NOTES (CONT.)

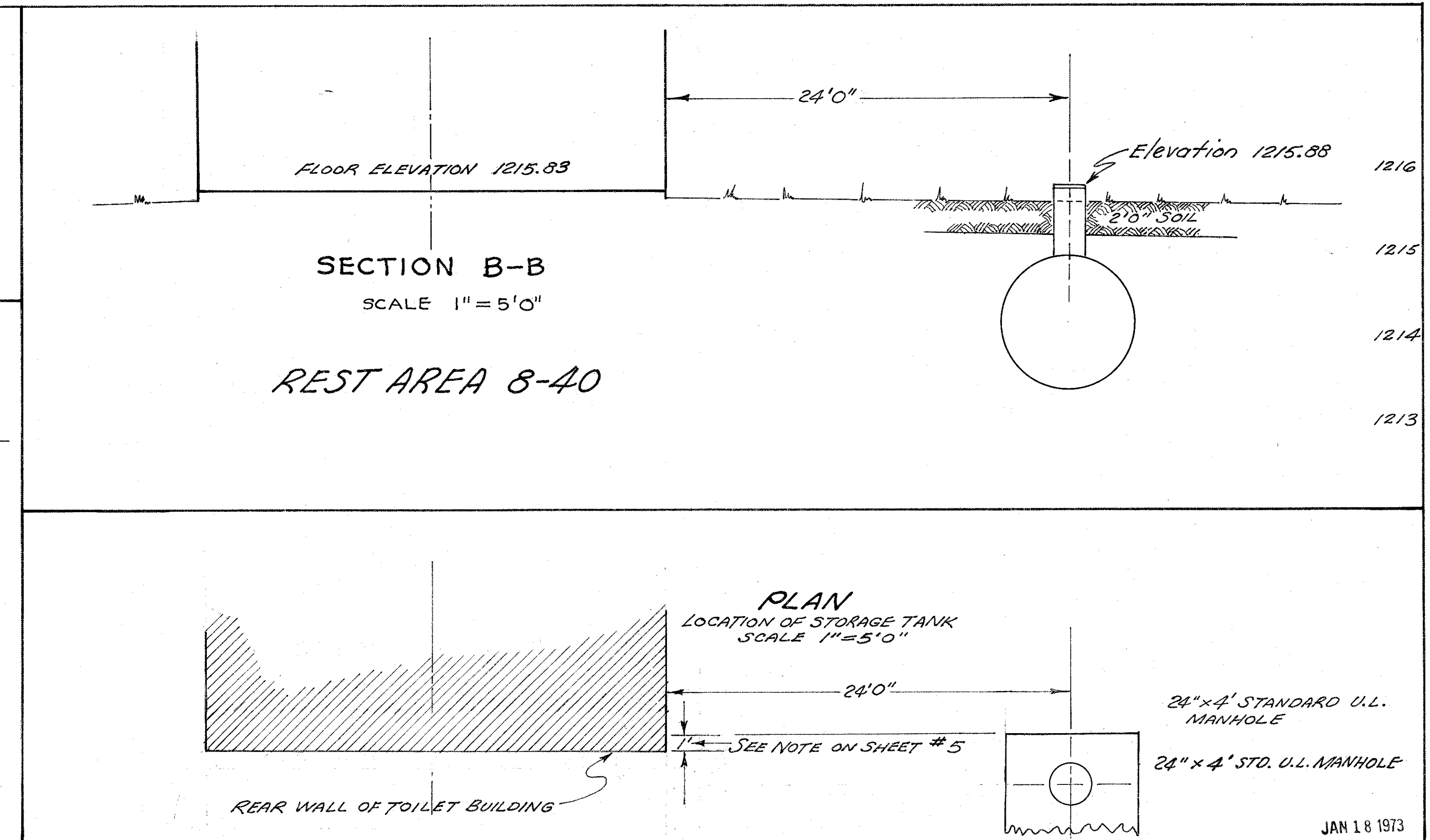
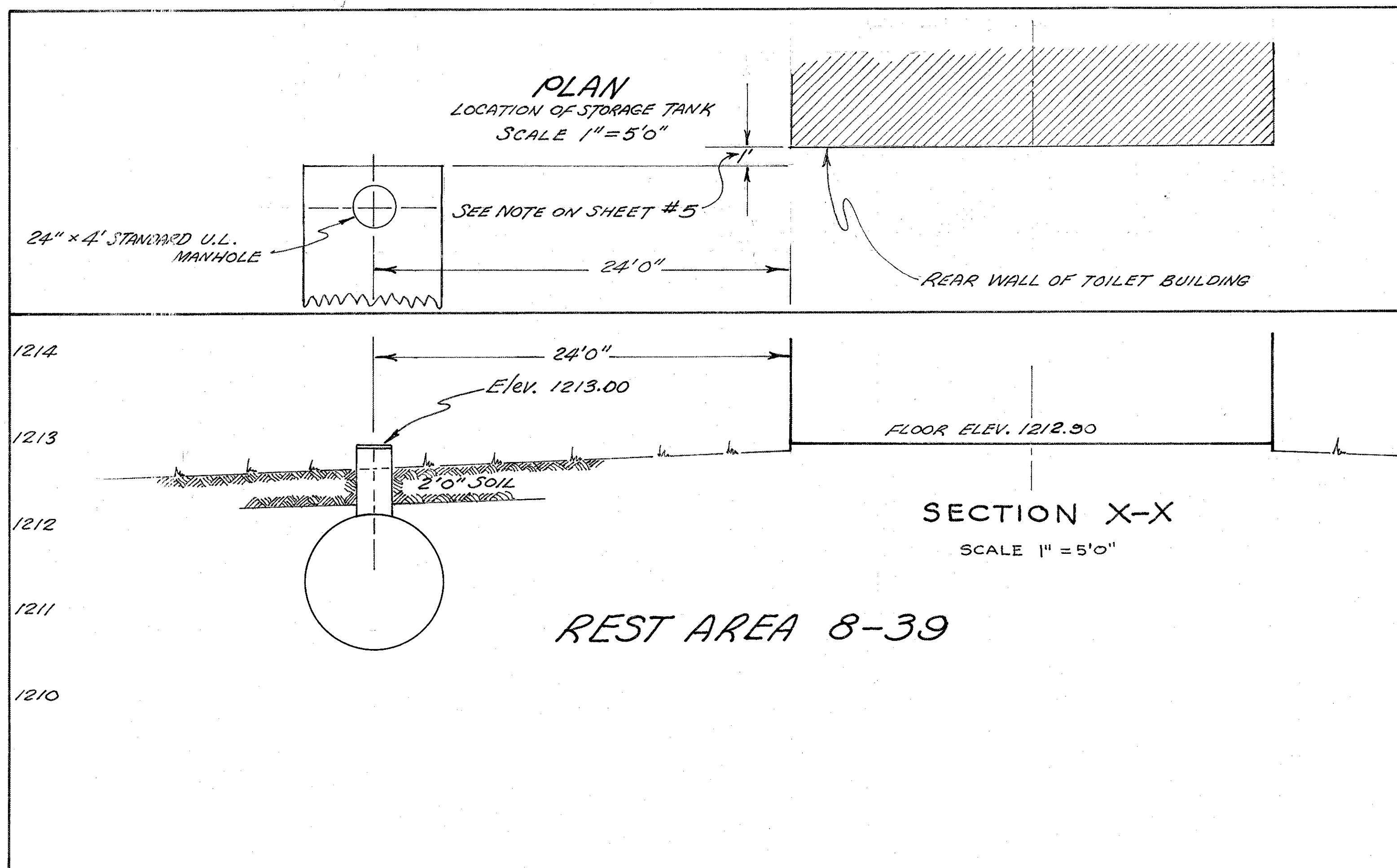
FHWA REGION 5 I-70-1(24)02 4 11
 PRE-70-(2.83)(2.90)
 PREBLE COUNTY

SEQUENCE OF OPERATIONS

In order to reduce the shutdown of the Rest Areas to the minimum time, the following work schedule shall be observed: -

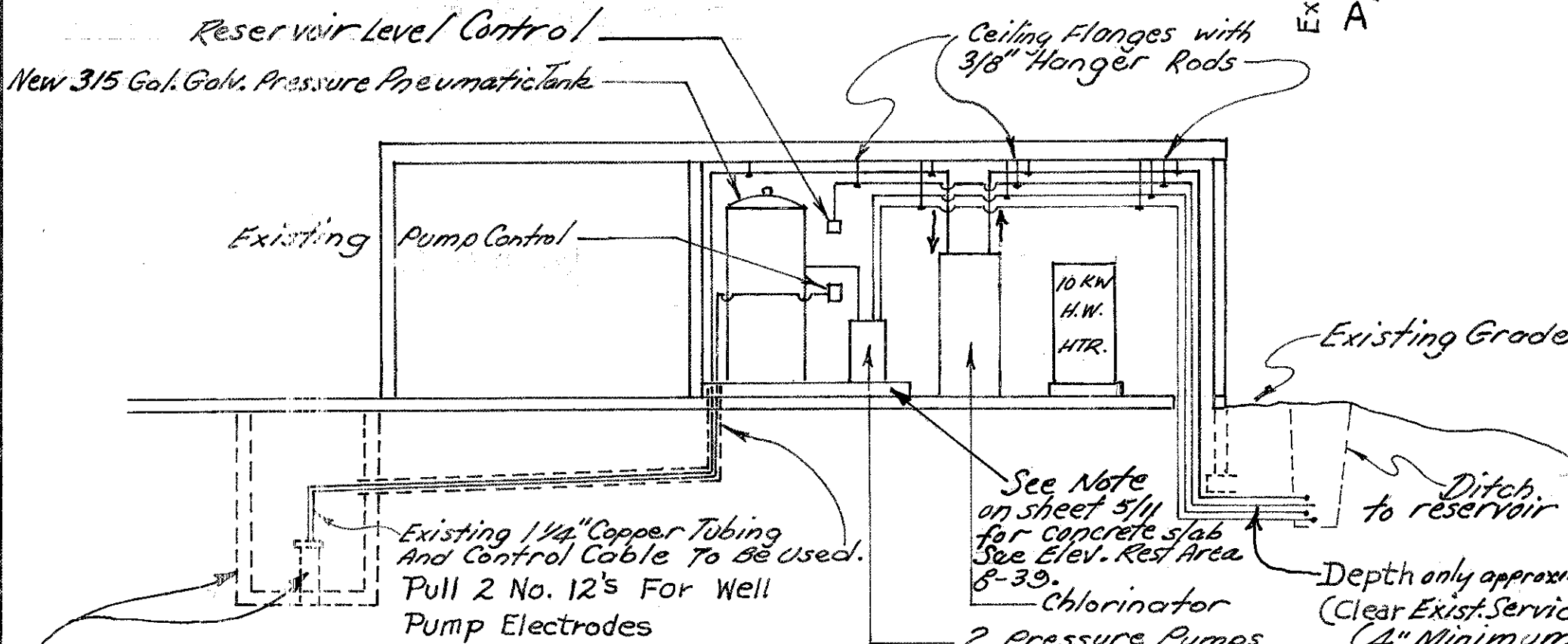
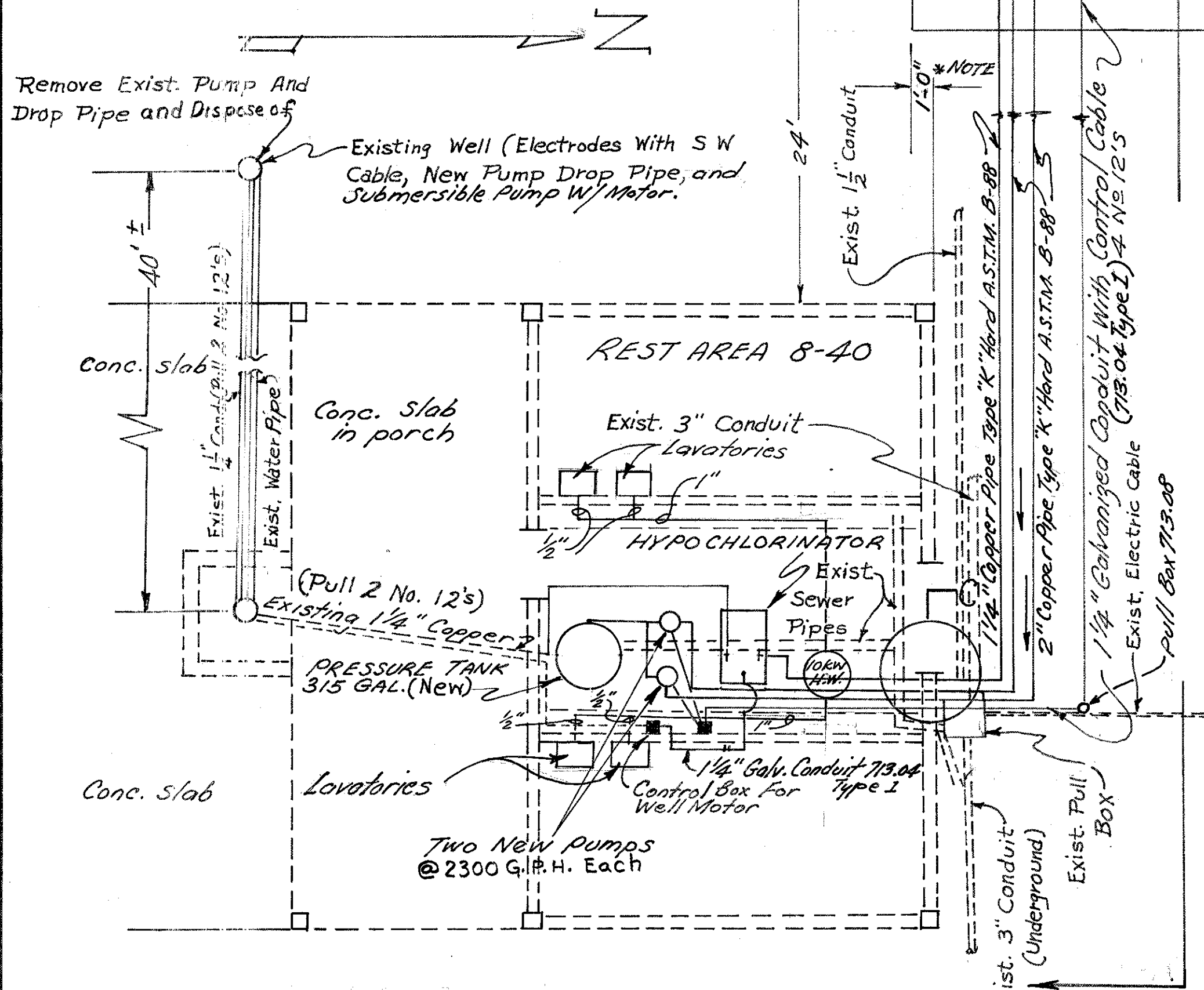
1. Installation of storage tanks.
2. Installation of water piping and electric conduits from storage tanks to a point above the existing concrete floors in the rest room buildings, as shown on the plans.
3. Rest Area 8-39 Installation of new submersible pump and connecting water piping and electrical conduits to a point above the existing floor in the rest room building as shown on the plans. Existing submersible pump and drop pipe shall be removed and disposed of.
4. Backfill all ditches and area above storage tank. See Restoration Note. Protective barricades to be provided at all times while ditches are open.
5. Installation of pressure pumps, hypochlorinators, electrical boxes, all water piping and electrical conduit to complete the installation except for the final cross-overs from the existing water piping and electrical conduits to the new system.
6. Installation of new 315 gallon pressure pneumatic tanks and the actual cross-overs of all existing or new water piping and electrical conduits and all new electrical conductor cables required for electrical power and control wiring conduit, and control devices shown or required to place the complete water system, including its related parts, in a safe factory and acceptable operable condition.
7. Rest Area 8-40 Installation of new submersible pump. Existing submersible pump and drop pipe shall be removed and disposed of and shall be replaced by a new pump and new 1 1/2 galv. drop pipe and reconnected to the existing electrical control cable.
8. The Contractor shall so schedule his operations that no period of interruption to the electrical and water services used for both drinking and sanitary purposes will exceed Four(4) Hours, and the number of separate interruptions in each Rest Area shall not exceed Six(6). Furthermore, the periods of interruptions shall not occur between the hours of 12:00 Noon and 8:00 P.M. .

CALC. J.P.L. DATE 1/30/73
 CHK. D.H.S. DATE 1/31/73



ESTIMATING INFORMATION ONLY NORTH REST AREA 8-40

- 625 Conduit, 1 1/2" Rigid Ferrous Metal, Type I 140 Lin. Ft.
- 625 No. 12 AWG, 600 Volt Distribution Cable 700 Lin. Ft.
- 1 1/2" Copper Tubing, Type "K" Hard 121 Lin. Ft.
- 1 1/2" Copper Tubing, Type "K" Hard 10 Lin. Ft.
- 2" Copper Tubing, Type "K" Hard 164 Lin. Ft.
- 625 Pull Box Type 713.08 1 Each.



ELEVATION SECTION A-A
REST AREA 8-40 (NORTH REST AREA)
NOT TO SCALE

NOTE:--
SECTIONS B-B AND X-X SHOWN ON SHEET NO. 4

PIPE HANGERS
Pipe hangers for pipe 2" and under shall be spaced on the runs of copper pipe to prevent excessive stresses in operation due to too great unsupported lengths, shock or possible resonance with imposed vibrations.
The piping shall be hung with adjustable malleable iron ring hangers, copper plated Grinnell CT-115 or like kind and quality as manufactured by Elcen Co., Fee and Mason Co., or approved equal, including ceiling flange and 3/8" Hanger Rod, threaded.

1 1/2" Copper Pipe Type "K" Hard
A.S.T.M. B-88 (from chlorinator)

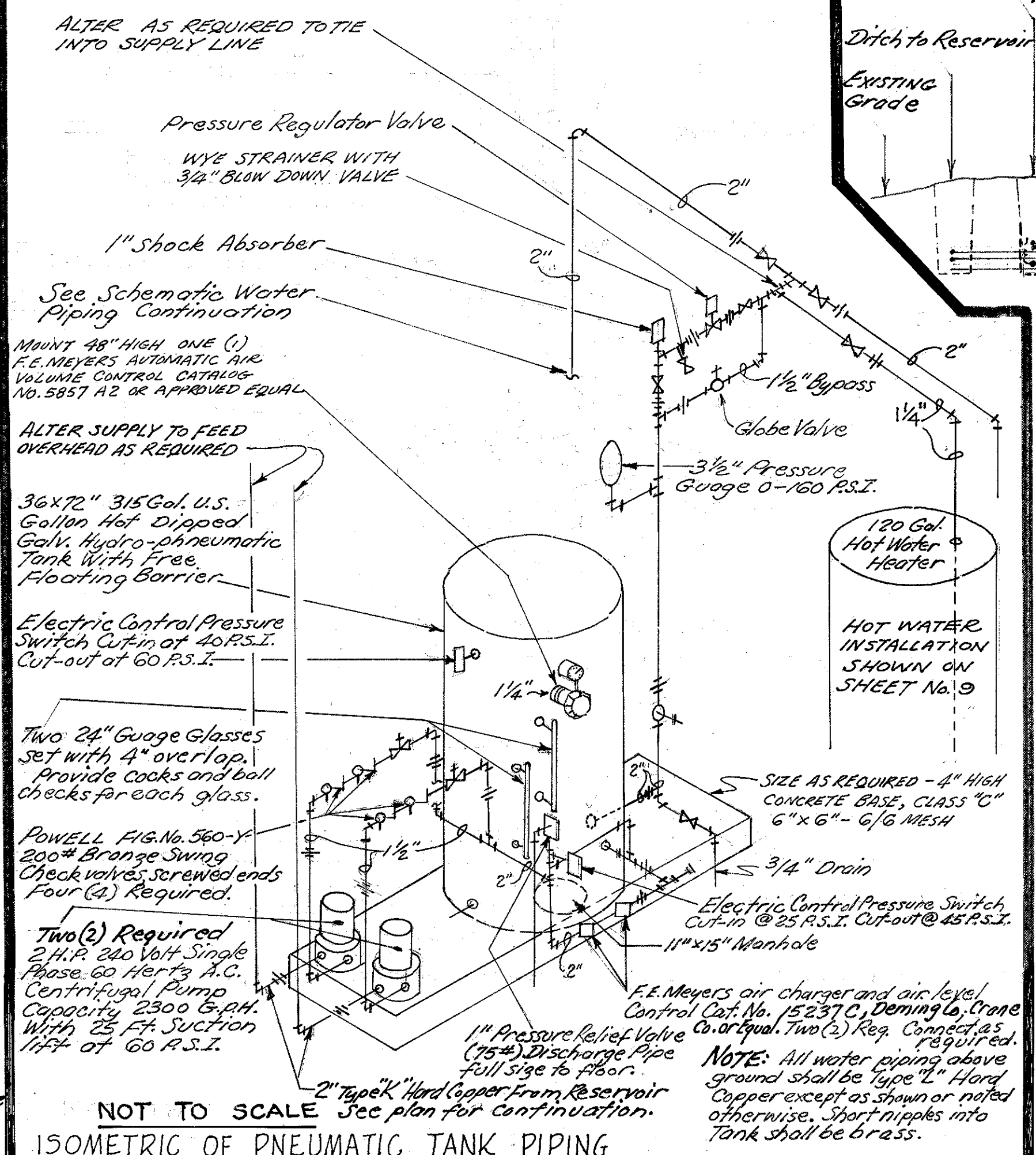
***NOTE**

This Distance May Be Changed At The Direction Of The Engineer To Avoid Any Conflict With Underground Utility Lines.

Included For Payment In The Pertinent Items Special

TWO (2) COMPLETE SYSTEMS REQUIRED

NOTE:--SEE SHEET NO 9 FOR HOT WATER HEATER SYSTEM AND NOTES.



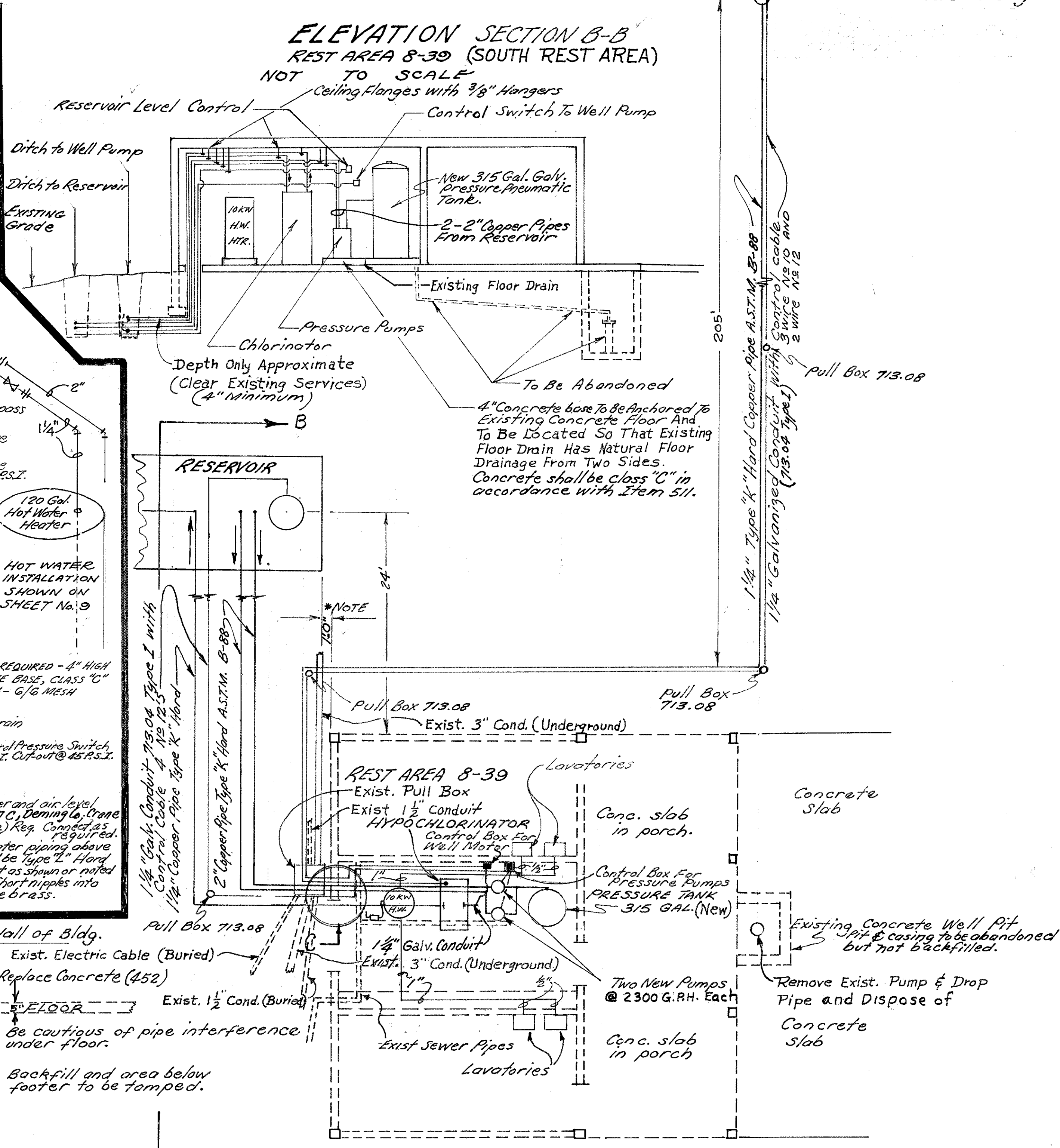
ISOMETRIC OF PNEUMATIC TANK PIPING

ESTIMATING INFORMATION ONLY REST AREA 8-39

- 625 Conduit, 1 1/2" Rigid Ferrous Metal Type I 450 Lin. Ft.
- 1 1/2" Copper Tubing Type "K" Hard 373 Lin. Ft.
- 1 1/2" Copper Tubing Type "K" Hard 10 Lin. Ft.
- 2" Copper Tubing Type "K" Hard 160 Lin. Ft.
- 625 No. 12 AWG, 600 Volt Dist. Cable 920 Lin. Ft.
- 625 No. 10 AWG, 600 Volt Dist. Cable 987 Lin. Ft.
- 625 Pull Box Type 713.08 4 Each

F.H.W.A. REGION	STATE	PROJECT	5 11
5	OHIO	I-70-1(24)02	

PREBLE COUNTY
PRE-70-(2.83)(2.90)



DETAIL "C" SHOWING PIPE EXIT FROM BUILDING

Note: Existing Underground Utilities Are Only Approximately Correct. The Contractor Shall Ascertain Their Locations In The Field Before Proceeding With Further Trenching And Construction. Adjustments In Proposed Locations Of Proposed Items Shall be Made as Necessary Cost of This Work Shall be Included In The Respective Bid Items.

CALC. J.A.W. DATE 1/30/73
 CHK. D.H.G. DATE 1/31/73

I-70-1(24)02

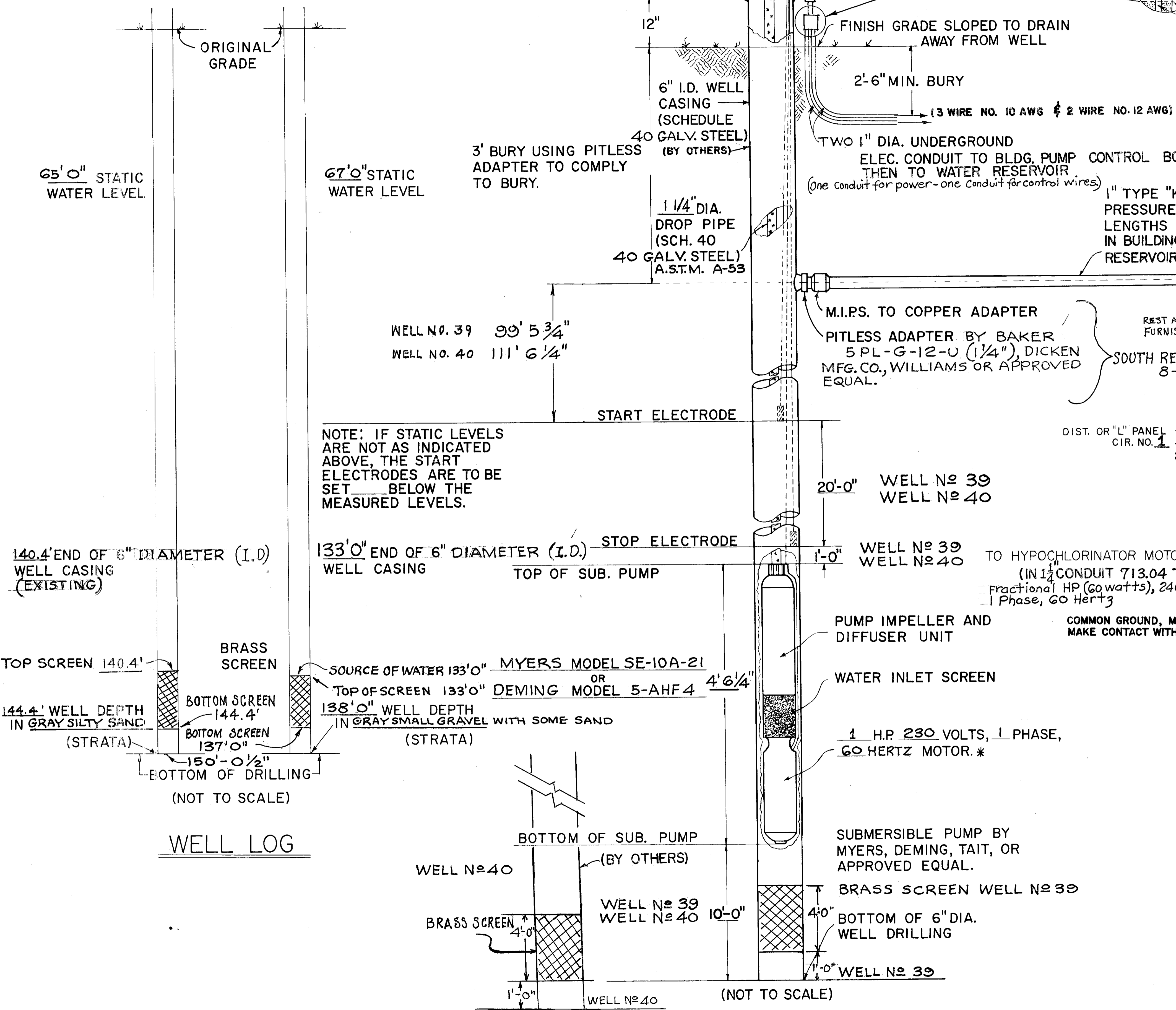
FHWA REGION	STATE	PROJECT	6
5	OHIO	I-70-1(24)02	11

PREBLE COUNTY
 PRE-70-(2.83)(2.90)

NO. 40 R.A.WELL NO. 39 R.A.WELL (NEW WELL) EXISTING
 FIELD RATE 20 G.P.M. FIELD RATE 30 G.P.M.

NOTE: WATER TIGHT CAP FOR 6" CASING, INTEGRAL ELECTRICAL JUNCTION BOX
 BAKER MFG. CO., MONITOR NO. C8PS6, DICKEN MFG. CO., WILLIAMS,
 OR APPROVED EQUAL.
 (Rest Area 8-39 only)

Appleton, Craze - Hinds, Or approved equal.
 Threaded Unilet Type Fpcc - 100
 Size with blank water tight cover.



ITEM SPECIAL-REST AREA WATER WELL ASSEMBLY

THIS ITEM SHALL CONSIST OF FURNISHING ALL MATERIAL AND PERFORMING ALL WORK NECESSARY TO COMPLETE IN ALL DETAILS THE INSTALLATION OF THE WATER WELL ASSEMBLY, AS DETAILED AND SPECIFIED ON THE PLANS, INCLUDING ALTERATION OF THE EXISTING 6" I.D. GALVANIZED WELL CASING, FURNISHING THE PITLESS ADAPTER, SUBMERSIBLE PUMP AND MOTOR, NECESSARY DROP PIPE CONNECTIONS OR EXTENSIONS, VALVES, COPPER PIPE FROM WELL TO WATER RESERVOIR, ELECTRICAL CONDUIT AND WIRING TO CONTROL PANEL AND WATER RESERVOIR, LIQUID LEVEL CONTROLS, CABLES, PULL BOXES AND EXCAVATIONS, TRENCHING, BACKFILLING AND RESURFACING.

BASIS OF PAYMENT:

THE ACCEPTED WORK, IN PLACE, IN SATISFACTORY OPERATING CONDITION, AND COMPLETE IN ALL DETAILS AS SPECIFIED, SHALL BE INCLUDED FOR PAYMENT IN THE CONTRACT UNIT PRICE BID LUMP SUM "ITEM SPECIAL-REST AREA WATER WELL ASSEMBLY (NO. 39) AND ITEM SPECIAL-REST AREA WATER WELL ASSEMBLY (NO. 40), WHICH PRICE & PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR THE FURNISHING OF ALL LABOR, MATERIAL, TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK IN PLACE.

NOTE: CONTRACTOR SHALL SUBMIT FOR APPROVAL PRIOR TO INSTALLATION, SHOP DRAWINGS AND COMPLETE WIRING DIAGRAMS OF THE FOLLOWING: **

SUBMERSIBLE WELL PUMP.
 PITLESS ADAPTER ASSEMBLY. (SEE NOTE 8)
 WATER-TIGHT CAP WITH INTEGRAL JUNCTION BOX. (SEE NOTE 8)
 ALL REQUIRED PUMP CONTROLS.

SOUTH REST AREA ONLY 8-39

REST AREA WATER WELL ASSEMBLY

DIST. OR "L" PANEL CIR. NO. 1

240V. 1PH.

COMMON GROUND, MUST MAKE CONTACT WITH LIQUID.

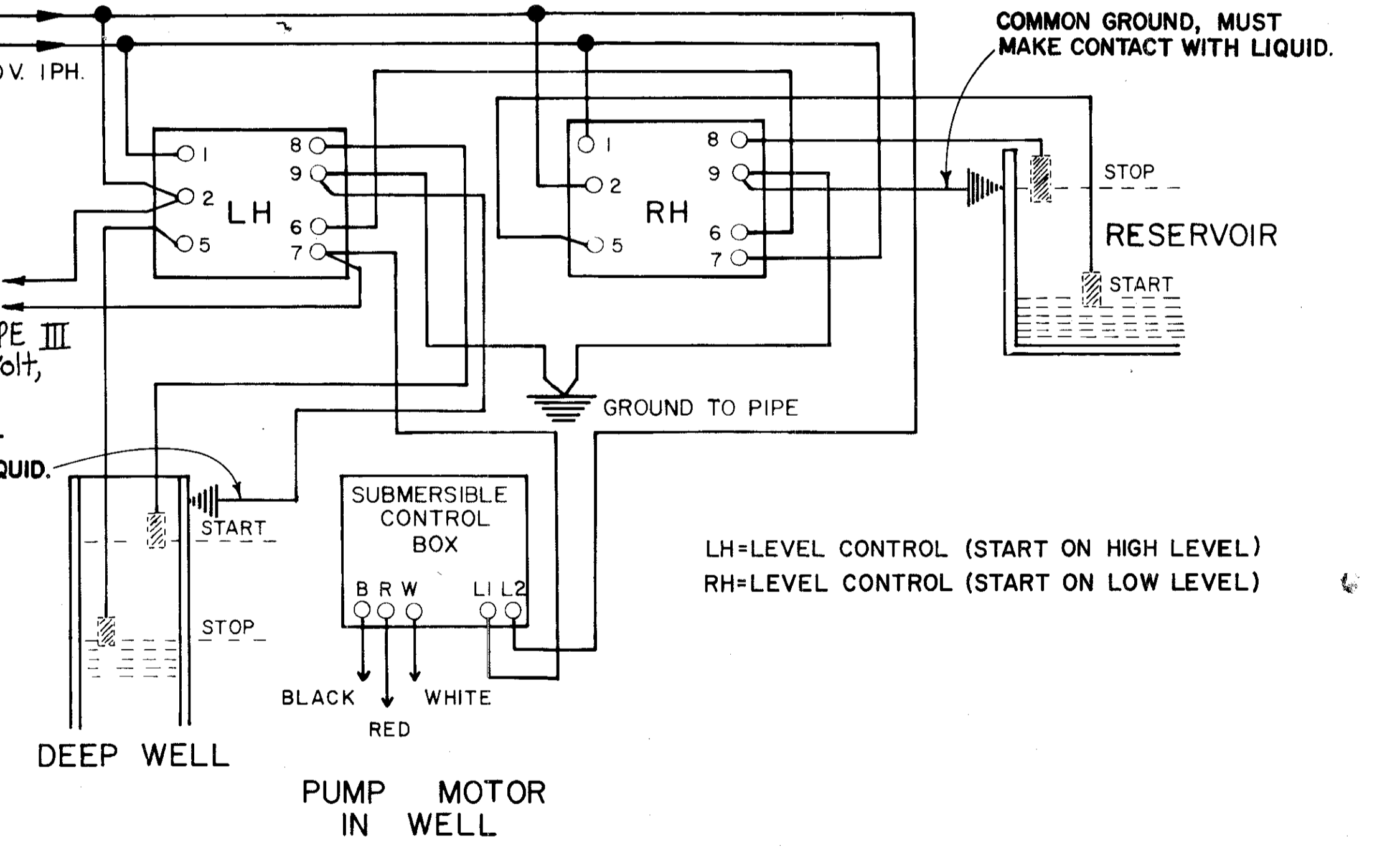
STOP

RESERVOIR

START

GROUND TO PIPE

LH=LEVEL CONTROL (START ON HIGH LEVEL)
 RH=LEVEL CONTROL (START ON LOW LEVEL)



SCHEMATIC FOR WELL PUMP CONTROL (2-REQ'D.)

* NOTE: WELL PUMPS OVER 1 H.P. REQUIRE A MAGNETIC STARTER IN THIS CIRCUIT. WIRING DIAGRAM SHALL BE FURNISHED UPON REQUEST.

** REFER TO GENERAL NOTE CONCERNING ELECTRICAL SHOP DRAWINGS. CONTRACTOR SHALL COMPLY AS TO SPECIFICATIONS.

OHIO DEPARTMENT OF TRANSPORTATION - DESIGN SERVICES		
REVISIONS	WATER WELL ASSEMBLY DETAIL	SHEET NO.
6-6-69	2 REQ'D. EXCEPT SEE NOTE	RRR
8-29-69		7
DRAWN BY - H.W. BAKER		DATE
		3-1-69

CALC. J.R.W. DATE 1/30/73
 CHK. D.W.G. DATE 1/31/73

I-70-1(24)02

FHWA REGION	STATE	PROJECT
5	OHIO	I-70-1(24)02

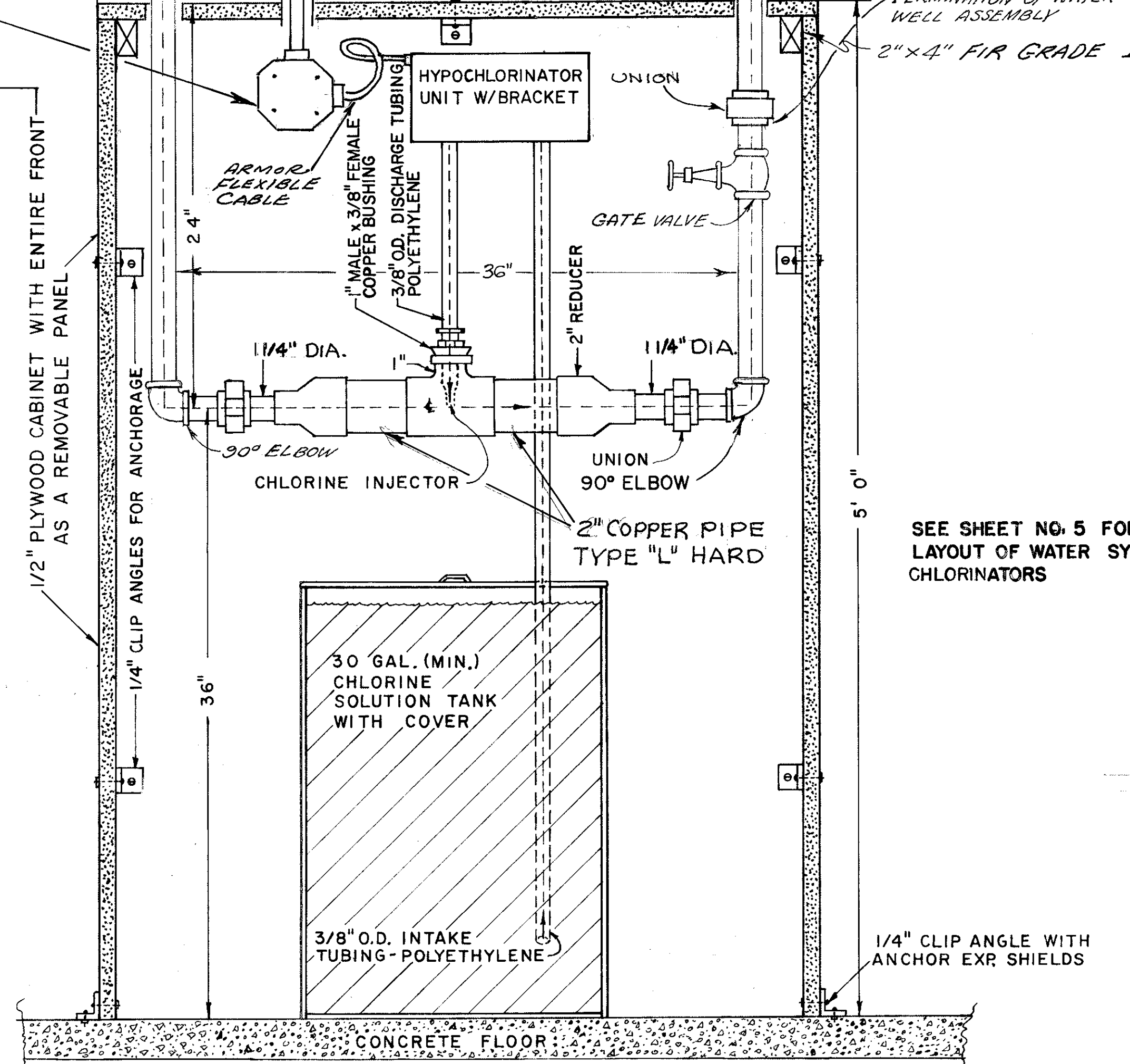
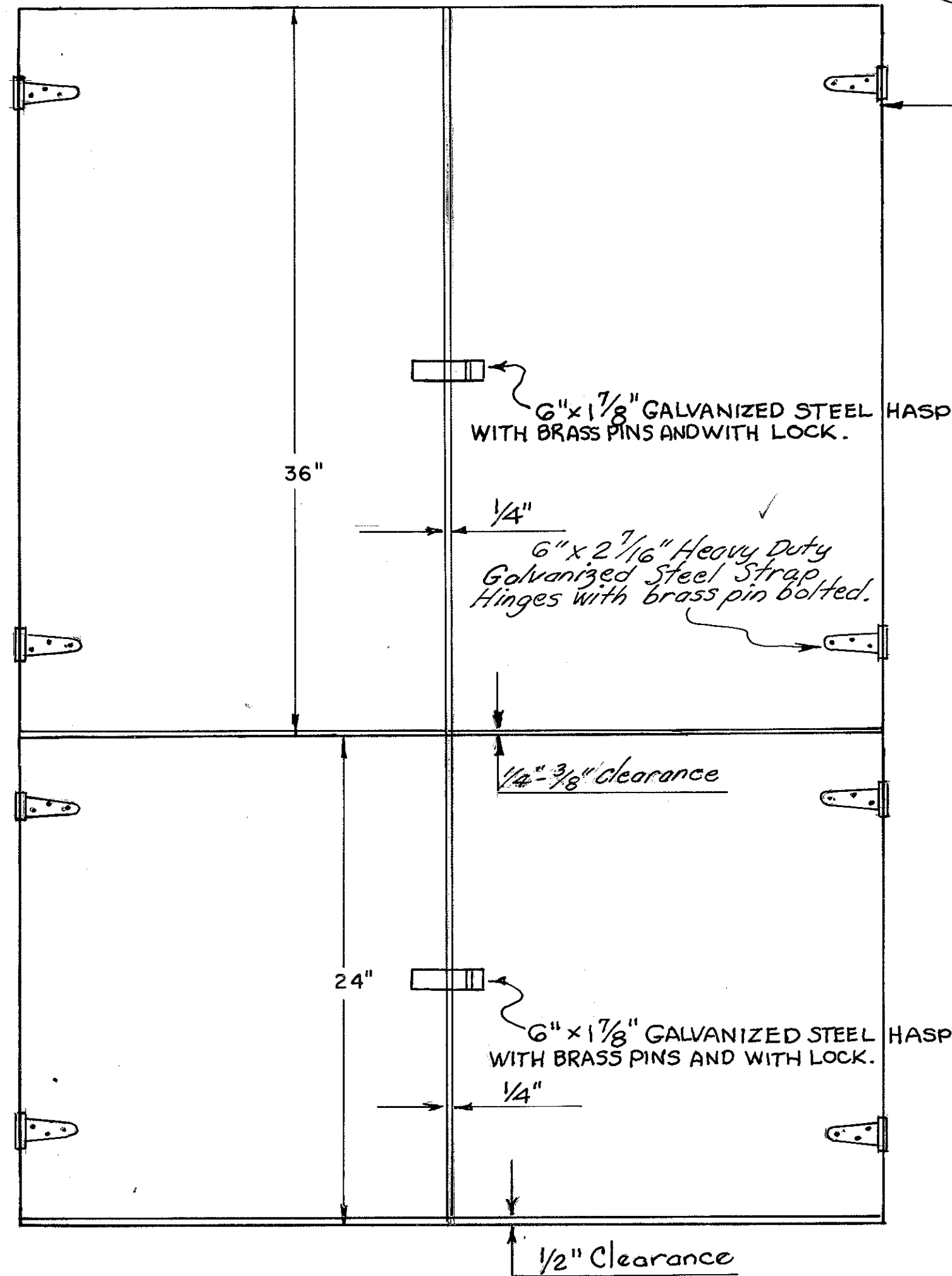
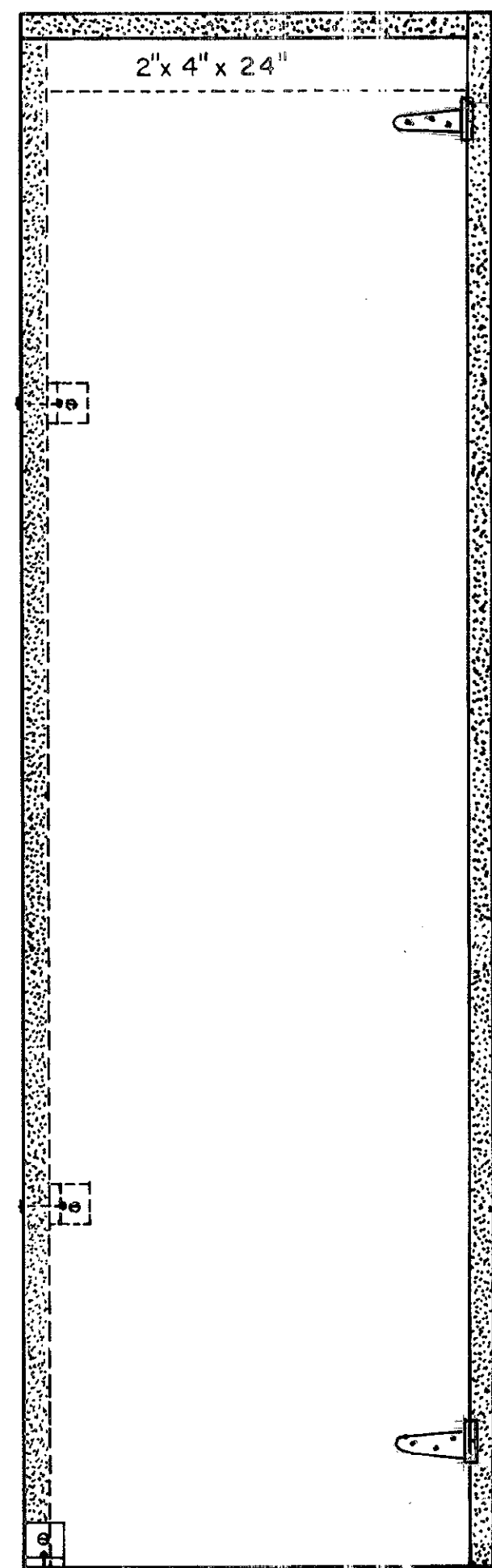
7
11

PREBLE COUNTY
 PRE-70-(2.83)(2.90)

SIDE VIEW

FRONT VIEW

WATER SYSTEM HYPOCHLORINATOR
 (NOT TO SCALE)



ITEM SPECIAL: WATER SYSTEM HYPOCHLORINATOR
 HYPOCHLORINATOR EQUIPMENT:

THIS WILL INCLUDE A SOLUTION FEED PUMP OF APPROVED POSITIVE DISPLACEMENT TYPE DESIGNED FOR FEEDING SODIUM OR CALCIUM HYPOCHLORITE OR SIMILAR SOLUTIONS. THE UNIT SHALL BE ACID OR ALKALI RESISTANT AND ALL PARTS WHICH COME IN CONTACT WITH THE PUMPED SOLUTION SHALL BE CHEMICALLY RESISTANT PLASTIC OR SYNTHETIC RUBBER. THE MACHINE SHALL BE CAPABLE OF PUMPING SOLUTION AGAINST PRESSURES UP TO 30 P.S.I. AT THE RATE OF 2 TO 20 GALLONS PER DAY. A BRACKET MOUNTING FOR THE HYPOCHLORINATOR SHALL BE INCLUDED.

THE CHLORINE SOLUTION TANK SHALL BE MADE OF VIRGIN POLYETHYLENE OR APPROVED EQUAL. IT SHALL BE MOLDED IN ONE PIECE WITH NO JOINTS, WELDS, OR SEAMS, NON-TOXIC, PERMANENTLY AND COMPLETELY NON-CORROSIVE. THE SOLUTION TANK SHALL BE THE OPEN HEAD CYLINDRICAL TYPE HAVING A VOLUME OF 30 GALLONS MINIMUM. IT SHALL BE EQUIPPED WITH A LID AND HOSE CONNECTORS. THE SOLUTION TANK SHALL BE SELF-SUPPORTING WHEN FILLED WITH LIQUID AND THE NATURAL TRANSLUCENT TANK WALLS WILL PERMIT EASY INSPECTION OF CONTENTS AT ALL TIMES.

THE UNIT SHALL BE LOCATED AS SHOWN ON THE PLANS AND BE CONNECTED BETWEEN THE WELL PUMP AND THE WATER RESERVOIR AND SHALL BE WIRED TO OPERATE SIMULTANEOUSLY WITH THE WELL PUMP. THE UNIT SHALL BE COMPLETE WITH FRACTIONAL H.P. (60 WATTS) 240 VOLT 60 HERTZ SINGLE PHASE A.C. ELECTRIC MOTOR, PLASTIC TUBING, INSTRUCTION BOOK, SPARE PARTS, AND SPECIAL TOOLS.

THE HYPOCHLORINATOR SHALL BE AS MANUFACTURED BY AER-O-FLO MODEL 45-EP OR WALLACE & TIERNAN SERIES 94-100 OR APPROVED EQUAL.

THE HYPOCHLORINATOR UNIT: SOLUTION FEED PUMP, CHLORINE INJECTOR, CHLORINE SOLUTION TANK, AND WATER LINES, SHALL BE PROTECTED BY A WOODEN CABINET. A PLYWOOD CABINET SHALL BE CONSTRUCTED 25" DEEP X 42" WIDE X 60" HIGH OF 1/2" DOUGLAS FIR PLYWOOD, BB EXTERIOR GRADE, AND BEAR A GRADE & TRADE MARK OF THE AMERICAN PLYWOOD ASSOCIATION. THE ENTIRE FRONT OF THE CABINET SHALL BE A REMOVABLE PANEL.

CARE SHALL BE TAKEN TO ADJUST THE CHLORINE INJECTOR SO THAT IT PROTRUDES TO THE CENTER OF THE WATER LINE.

METHOD OF MEASUREMENT:

THE WATER SYSTEM HYPOCHLORINATOR UNIT AND ALL APPURTENANCES AS SPECIFIED SHALL BE CONSIDERED AS ONE UNIT. THE NUMBER OF UNITS TO BE PAID FOR SHALL BE THE NUMBER OF EACH UNIT, LISTED AND ESTIMATED SEPARATELY, COMPLETE AND ACCEPTED.

SECTION

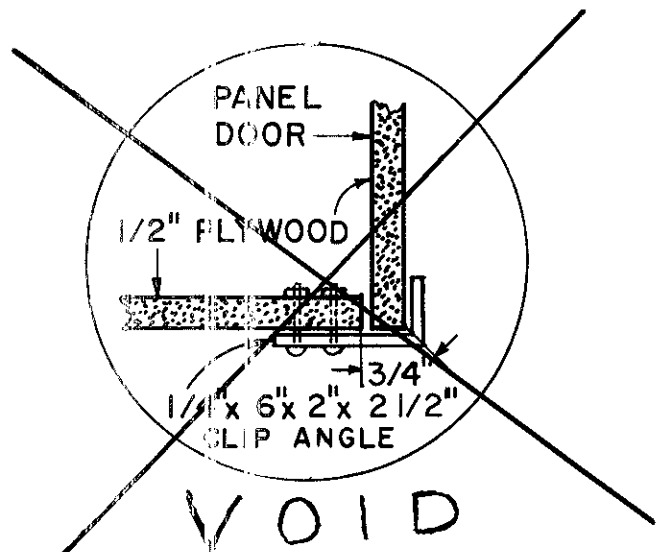
NOTE:—

M.I.P.S. TO COPPER ADAPTERS SHALL BE ADJACENT TO ALL VALVES, UNIONS AND SIGHT FLOW INDICATOR. (SEE GENERAL NOTE SECTION 15, ITEMS NO 11 & 12 - DOMESTIC COLD WATER SERVICE)

BASIS OF PAYMENT:

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH ITEM SPECIAL WATER SYSTEM HYPOCHLORINATOR WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING, HAULING AND INSTALLING HYPOCHLORINATOR HOUSING UNIT, FEED PUMP, CHLORINE SOLUTION TANK, COPPER PIPE AND FITTINGS, VALVE AND APPURTENANCES, AND FOR ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM, INCLUDING ALL ELECTRICAL DEVICES, CONDUIT, AND WIRING REQUIRED FOR SERVICE TO AND OPERATION OF THE WATER SYSTEM HYPOCHLORINATOR UNIT.

ESTIMATED QUANTITIES: ITEM SPECIAL WATER SYSTEM HYPOCHLORINATOR 2 EACH - CARRIED TO GENERAL SUMMARY SHEET NO 4



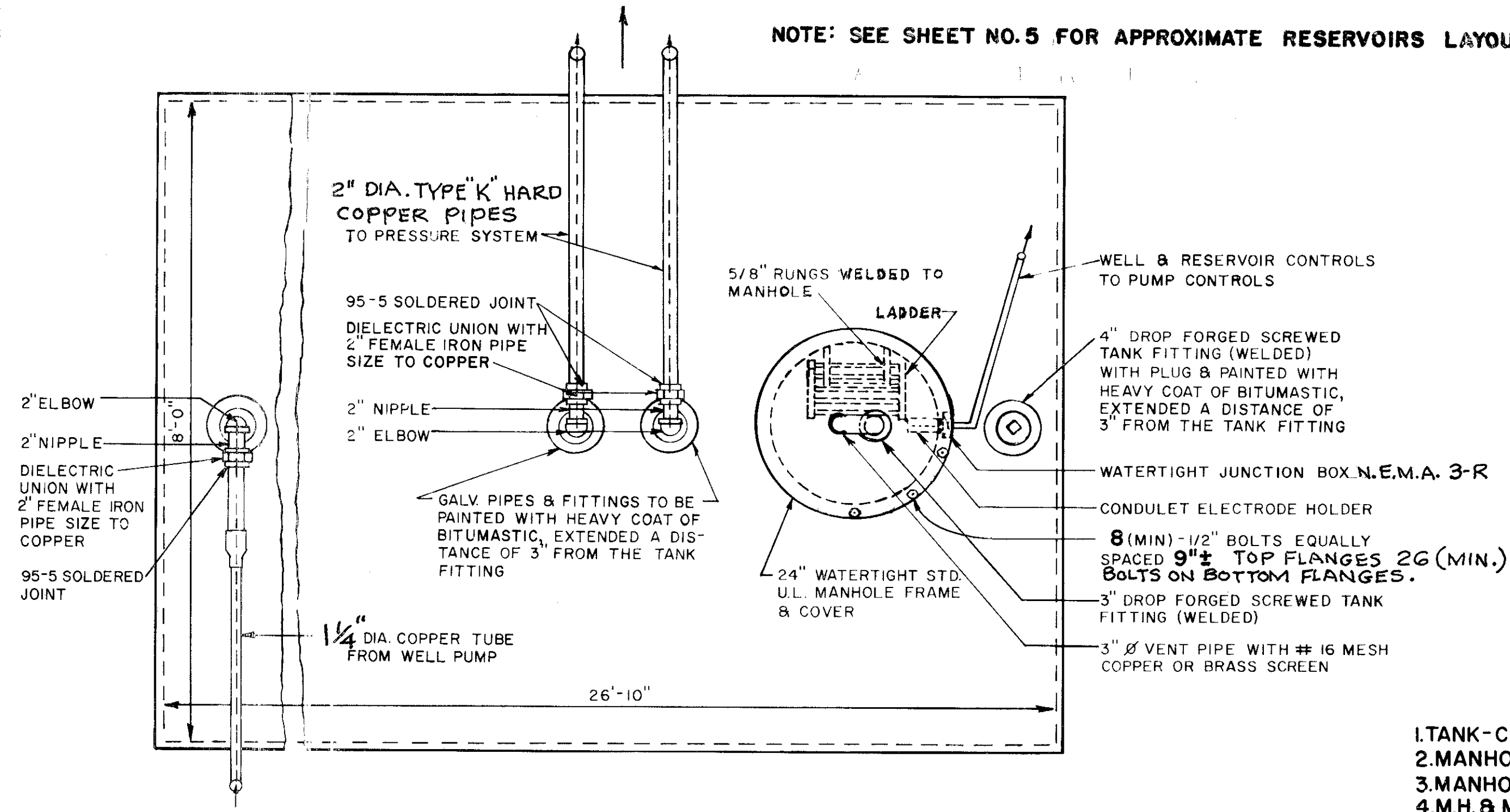
OHIO DEPARTMENT OF TRANSPORTATION - DESIGN SERVICES		
REVISIONS 11-15-68 6-3-69 8-25-69	WATER SYSTEM HYPOCHLORINATOR 2 REQ'D.	SHEET NO. RRA 11
DRAWN BY - H.W. BAKER		DATE 10-25-68

WATER SYSTEMS HYPOCHLORINATOR

JAN 18 1973

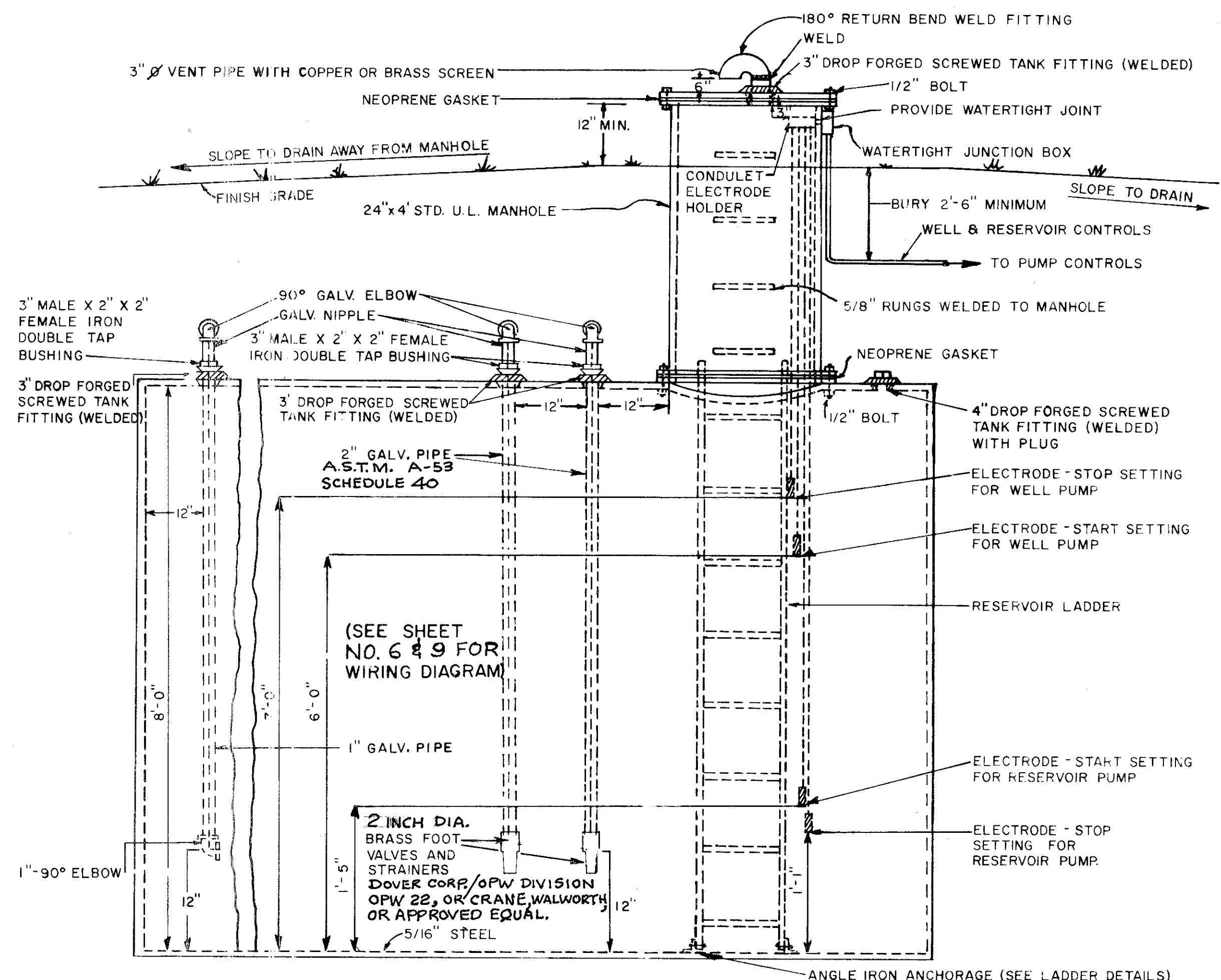
PREBLE COUNTY
PRE-70-(2.83)(2.90)

NOTE: SEE SHEET NO.5 FOR APPROXIMATE RESERVOIRS LAYOUTS

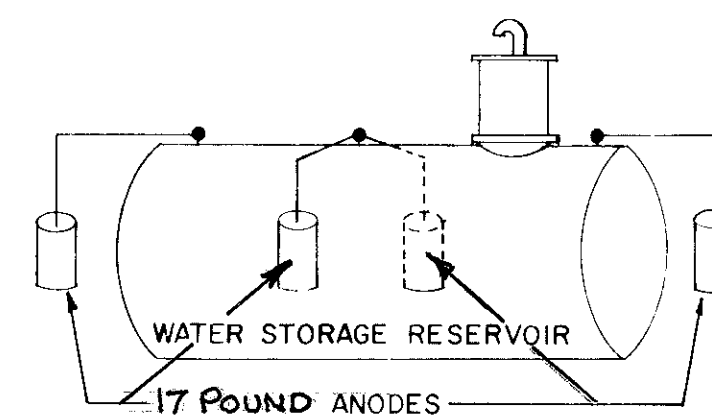


FROM WELL SUBM. PUMP (SHEET NO. 5 & SHEET NO. 6)

TOP VIEW OF METAL WATER RESERVOIR
(NOT TO SCALE)



ELEVATION OF METAL WATER RESERVOIR
(NOT TO SCALE)

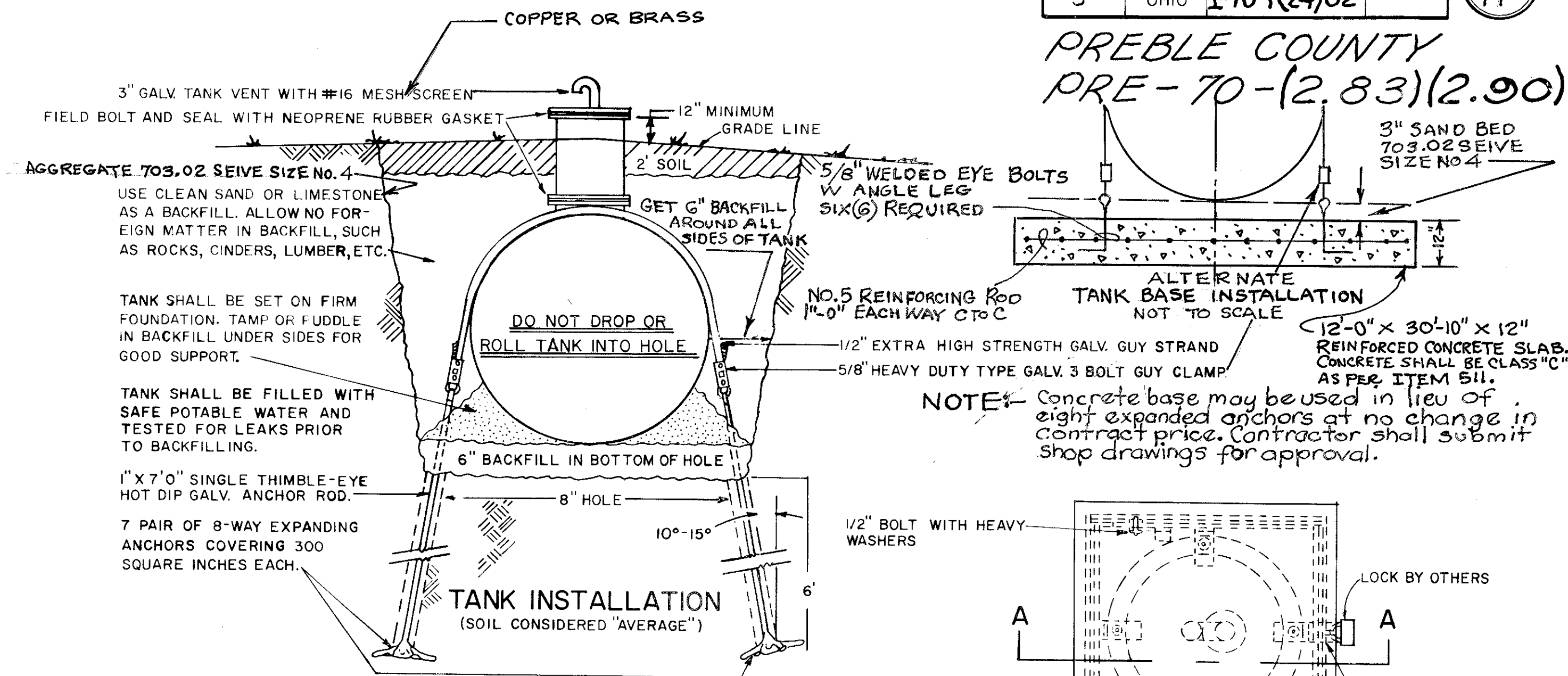


MAGNESIUM ANODES

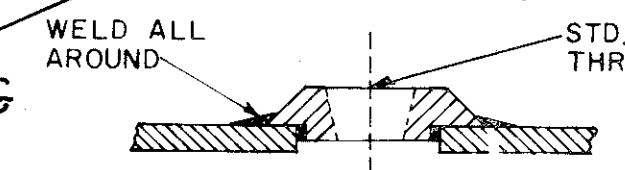
PLACE MAGNESIUM ANODES AS FAR AWAY FROM THE TANK AS THE EXCAVATION WILL ALLOW. BRAZE OR SOLDER THE ANODE WIRE TO THE TOP OF THE TANK. PAINT THE CONNECTION WITH TAR. WET DOWN THE ANODE WITH 5 GALLONS OF WATER, PRIOR TO BACKFILLING AROUND THE ANODE UNIT OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

WATER RESERVOIR NOTES

1. TANK - COMMERCIAL HOT ROLLED STEEL 5/16" STOCK. (10,000 GAL.)
2. MANHOLE - 24"x4" STANDARD U.L. 5/16" STOCK.
3. MANHOLE COVER - 24" STD. U.L. 5/16" STOCK.
4. M.H. & M.H. COVER - BOTH TO BE FIELD BOLTED AND SEALED WITH NEOPRENE RUBBER GASKET.
5. TANK FITTINGS - FIVE DROP FORGED SCREWED T.F. (WELDED) INSTALLED AS SHOWN ON PLAN.
6. MAGNESIUM ANODES - TANK TO BE EQUIPPED WITH FOUR INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, 17 POUNDS EACH.
7. TANK COATING - ONE OUTSIDE COAT OF ASPHALTUM AND INSIDE OF TANK THOROUGHLY COATED WITH FOUR (4) COATS OF BAKED ON PHENOLIC EPOXY LINING APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. INSIDE OF TANK TO BE SANDBLASTED TO WHITE METAL PRIOR TO COATING.
8. MANHOLE COVER PROTECTOR - TO BE CONSTRUCTED OF 3/16" COMMERCIAL HOT ROLLED STEEL & PAINTED WITH ONE COAT OF ASPHALTUM INSIDE & OUTSIDE.

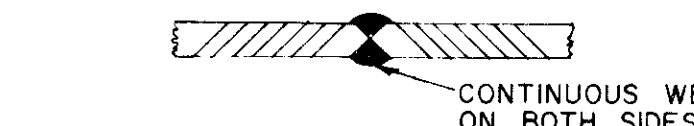


A.S.T.M. D-2823-69, GROUP 2, WITHOUT ASBESTOS, KOPPERS No. 50 OR APPROVED EQUALS.

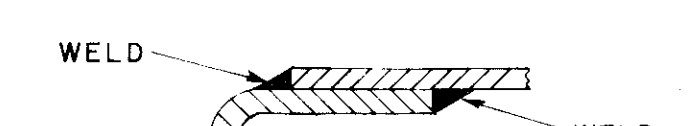


- FOUR FITTINGS REQUIRED:
- 1- FOR TANK VENT PIPE - SIZE 3"
 - 1- FOR CONNECTION TO WELL - SIZE 3"
 - 2- FOR CONNECTION TO PRESSURE PUMP - SIZE 3"
 - 1- FOR TANK FITTING WITH PLUG - SIZE 4"

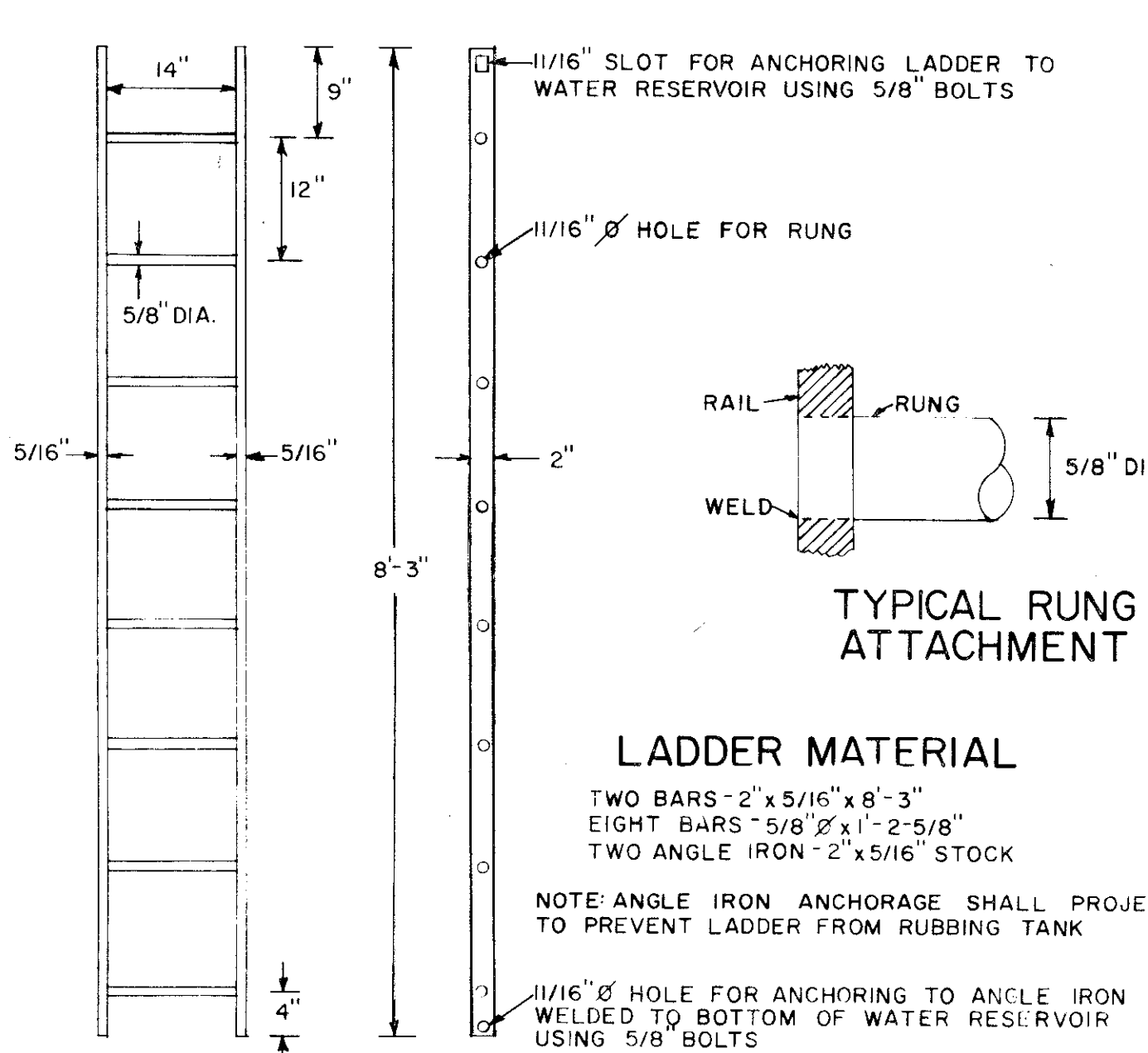
DROP FORGED SCREWED TANK FITTINGS (WELDED)



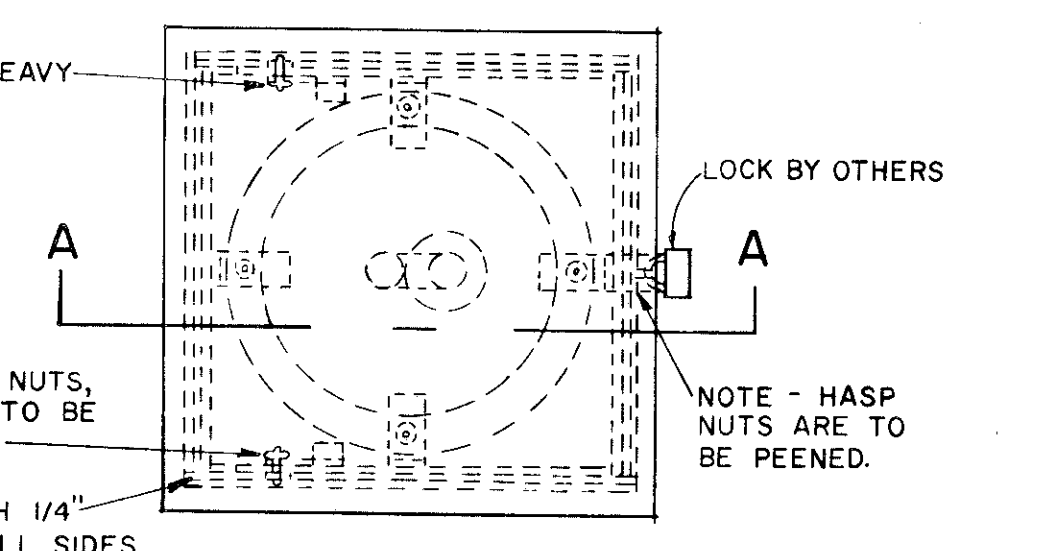
TYPICAL SEAM & GIRTH JOINT



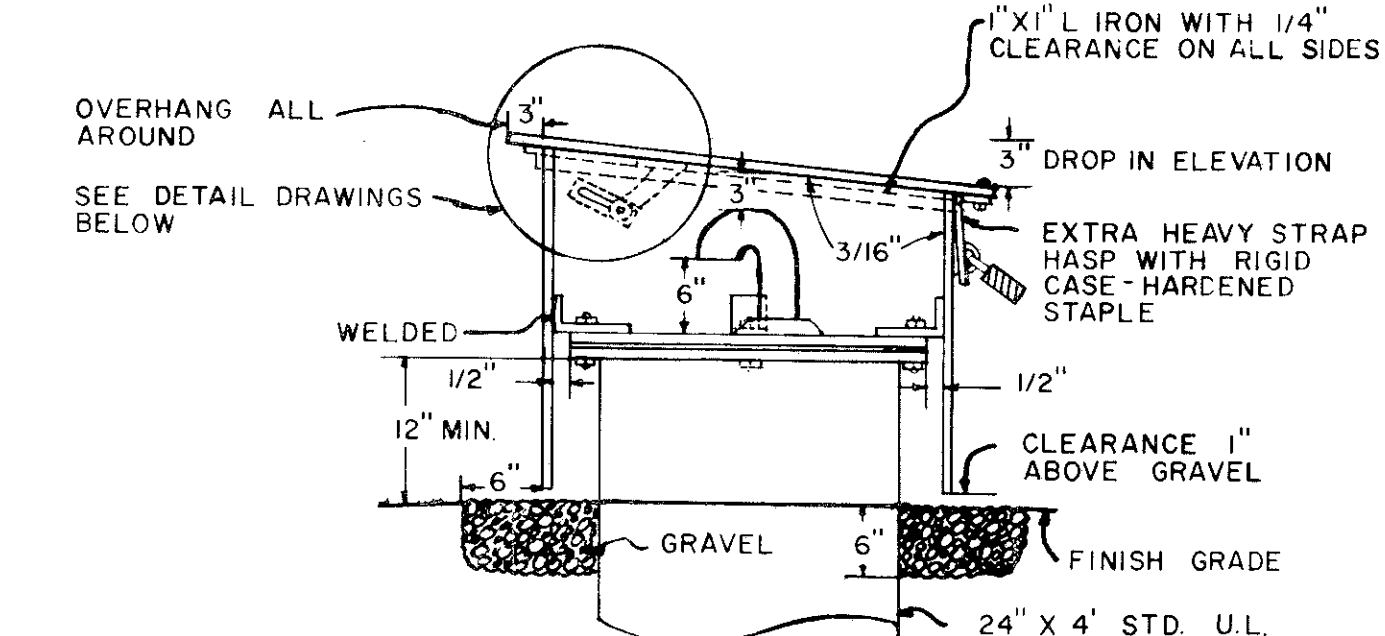
TYPICAL HEAD JOINT



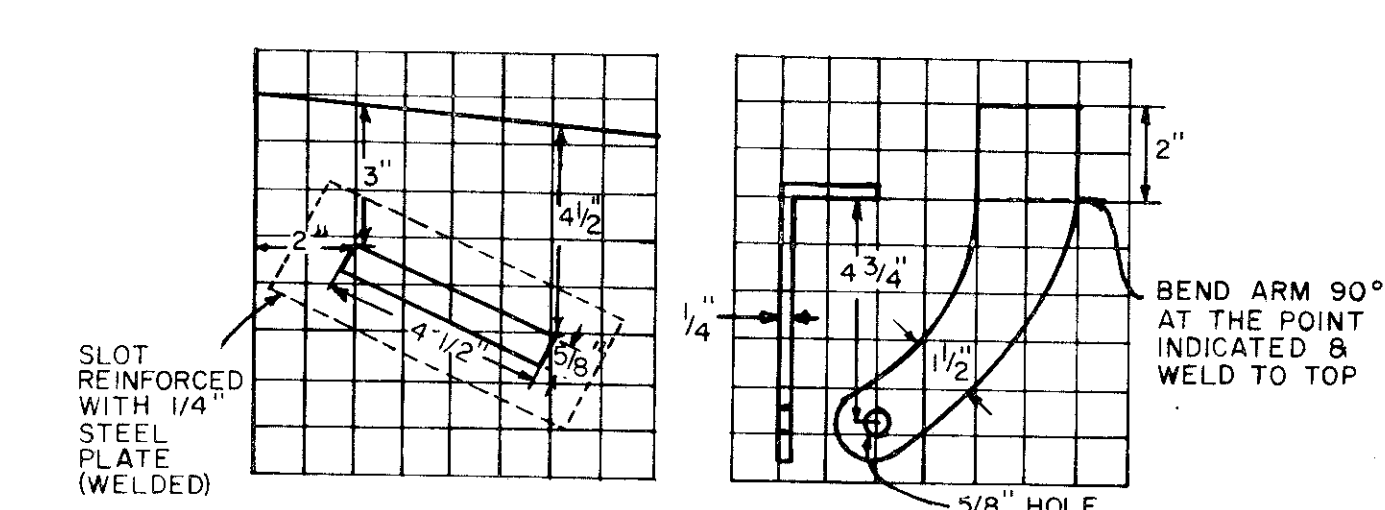
RESERVOIR LADDER DETAILS



MANHOLE COVER PROTECTOR PLAN



SECTION A-A



NOTE: ALL OF THE WORK AND EQUIPMENT DETAILED ON THIS SHEET SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR "ITEM SPECIAL - PRESSURE PNEUMATIC WATER SYSTEM AND WATER RESERVOIR"

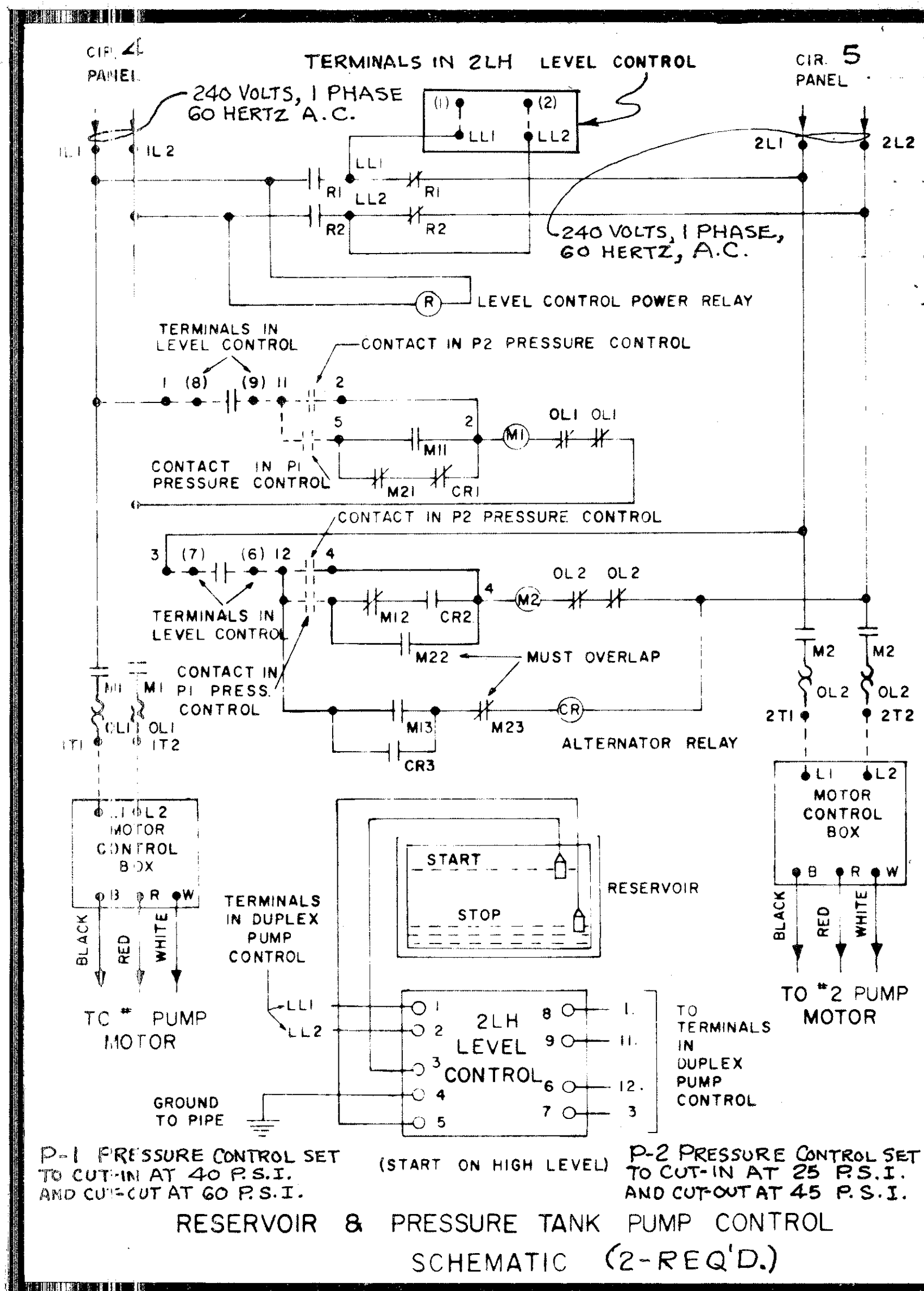
RESERVOIR AND PRESSURE TANK PUMP CONTROL SYSTEM "SCHEMATIC" SHOWN ON SHEET NO. 9.

OHIO DEPARTMENT OF TRANSPORTATION - DESIGN SERVICES		
DESIGN SERVICES		
REVISIONS 8-22-68 9-5-68 10-30-68 1-20-69 8-25-69	REST AREA RESERVOIR ASSEMBLY 2 REQ'D.	SHEET NO. RRA 8
DRAWN BY: D.C. EDSALL & H.W. BAKER		DATE: 5-7-68

F.H.W.A. REGION	STATE	PROJECT
5.	OHIO	I-70-1(24)02

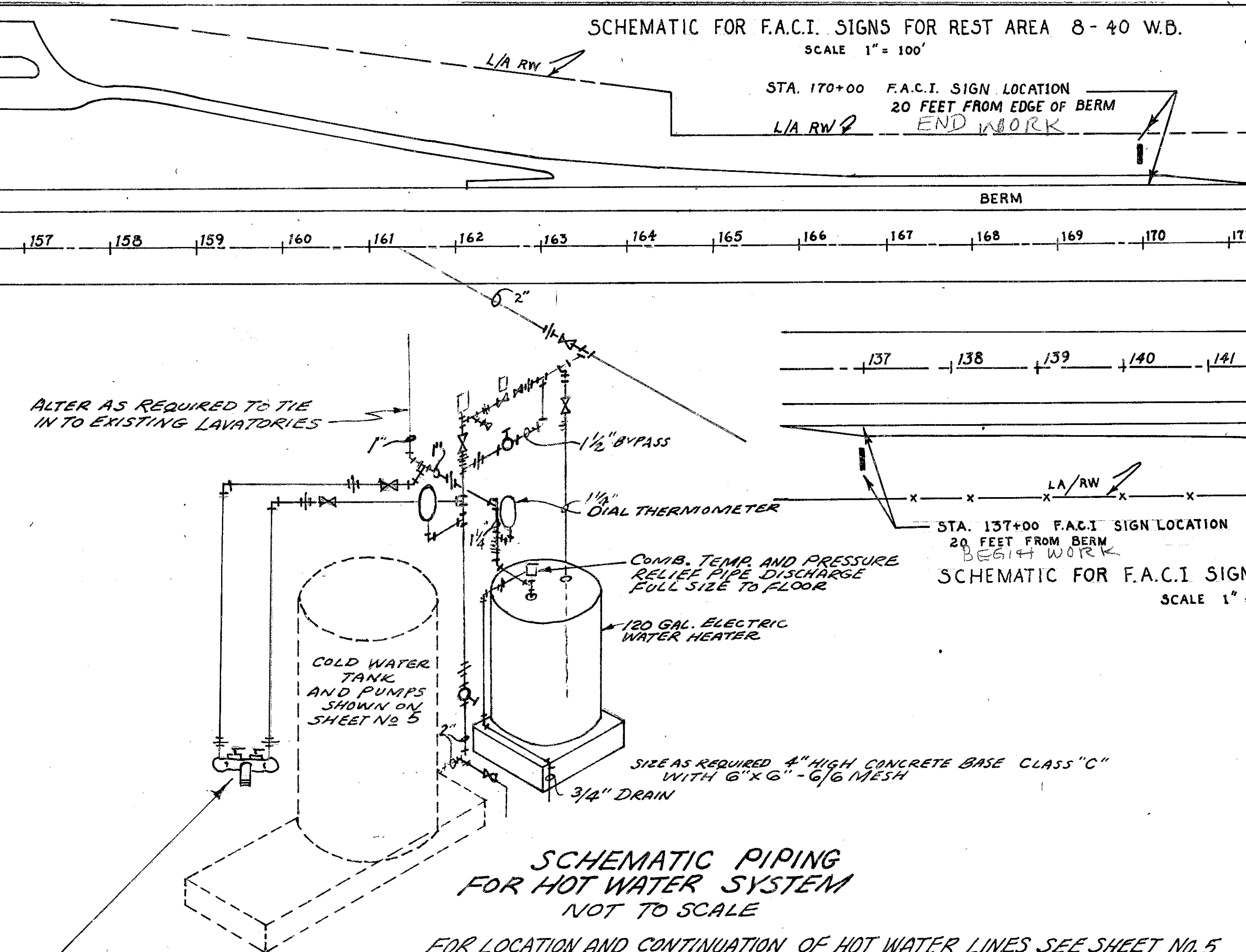
PREBLE COUNTY
PRE-70-(2.83)(2.90)

CALC. J.A.W. DATE 1/30/73
CHK. D.M.L. DATE 1/31/73



ALTER AS REQUIRED TO TIE IN TO EXISTING LAVATORIES

ROUGH BRASS LAUNDRY TRAY FAUCET WITH 5" SWINGING HOSE AND SPOUT, RENEWABLE SEATS, INDEX LEVER HANDLES 1/2" SPS, FOR SUPPLY FROM CEILING - INLETS ON 3/4" CENTERS "CRANE CO. CRESTMONT FIG. 8-3750" OR OF LIKE KIND AND QUALITY AS MANUFACTURED BY AMERICAN STANDARD, KOHLER, CHICAGO FAUCET CO., CENTRAL BRASS MFG. CO. AND ELTER PLUMBING WARE DIV. NO. REQUIRED 2. ONE FOR EACH REST AREA.



NOTES - HOT WATER SYSTEM

ITEM SPECIAL - DOMESTIC HOT WATER SYSTEM

METHOD OF MEASUREMENT
The "Item Special-Domestic Hot Water System" and all appurtenances as detailed and specified on the plans shall be considered as one unit.
The number of units to be paid for shall be the number of each unit listed and estimated separately, complete and accepted.

BASIS OF PAYMENT
The work included in this item shall be paid for at the contract unit bid for each "Item Special Domestic Hot Water System" which price and payment shall constitute full compensation for furnishing, preparing, placing and installing 120 Gal. Electric Hot Water as detailed on Sheet No. 9, copper piping and fittings, connections, gauges, valves, thermometers, concrete base, tank and pipe insulation, and appurtenances and for the furnishing of all labor, equipment, tools, materials and incidentals necessary to complete this item.
This item, in addition, shall include all electrical devices, conduit, control boxes and wiring whether shown or not, in order to make the system completely workable. Materials not shown but required for the operation of this work shall be furnished and installed by the Contractor and no additional payment shall be allowed.

ESTIMATED QUANTITIES

"Item Special Domestic Hot Water System" Two (2) Each
Quantities carried to General Summary Sheet No. 4

ELECTRIC HOT WATER HEATER

- (a) Furnish and install one (1) A.O. Smith Corp., 120 Gallon deluxe model Penn-120 Permaglass electric hot water heater, Vertical type, with upper and lower elements of 5000 Watts each, Wired for 240 Volt, Single Phase, 60 Hertz and for simultaneous operation with two single-throw thermostats.
- (b) Heater must have magnesium anode rod, glass lined tank, thick blanket fiberglass insulation and over temperature reset protector which automatically cuts off the electrical current if excessive water temperature situations occur. Warranty shall be 10 years in conformance with A.S.A. Standards.
- (c) Electric hot water heaters, as manufactured by Ruud Manufacturing Co., Lochinvar, or Wagoner Corp. may be used at the Contractor's option, or approved equal.
- (d) Provide and install as shown on the plans Watts Type No. 40XL self-closing pressure and temperature (ASME) Rated-AGA (listed) relief valve and Watts No. 288 A vacuum relief valve, 1 inch size. Valves by A.W. Cash, Mc Donnell and Miller, Crane Co., or Mueller Brass Co. or approved equal will be accepted.

WATER PRESSURE RELIEF VALVE

- (a) Provide and install one Watts No. 174 series, ASME water pressure relief valve with pressure range 30-160 lbs., factory set at 75 lbs. pressure relief, or like kind and quality as manufactured by A.W. Cash, Mc Donnell and Miller, or Crane Co. or approved equal.

THERMOMETERS

- (a) Provide and install Trerice Catalog No. L 80300R dial thermometer with brass separable socket with scale range of 30 degrees F. to 240 degrees F., 3/4 inch National pipe thread, or like kind and quality as manufactured by Albert A. Weiss and Son Inc., Palmer Instrument Inc., United States Gauge, or Marsh Instrument Co. or approved equal.

INSULATION

Insulate hot water supply lines as per directions and specifications as outlined under "Cold Water Piping" on Sheet No. 2.

HOT WATER PIPING

From water heater, construct systems of hot water piping to all four existing lavatories. Two in each restroom. See building plan. Sheet No. 5

ELECTRICAL WIRING

All wiring, conduit, connections etc. and including a 2 Pole Circuit Breaker 60 Amp. Each and a Disconnect (2-60 Amp) Switch (Both units as manufactured by Square "D", GE, ITE, or Westinghouse) shall meet all requirements of Item 625.

CALC. JAL DATE 1/30/73
 CHK. D.W. DATE 1/31/73

I-70-1(24)02

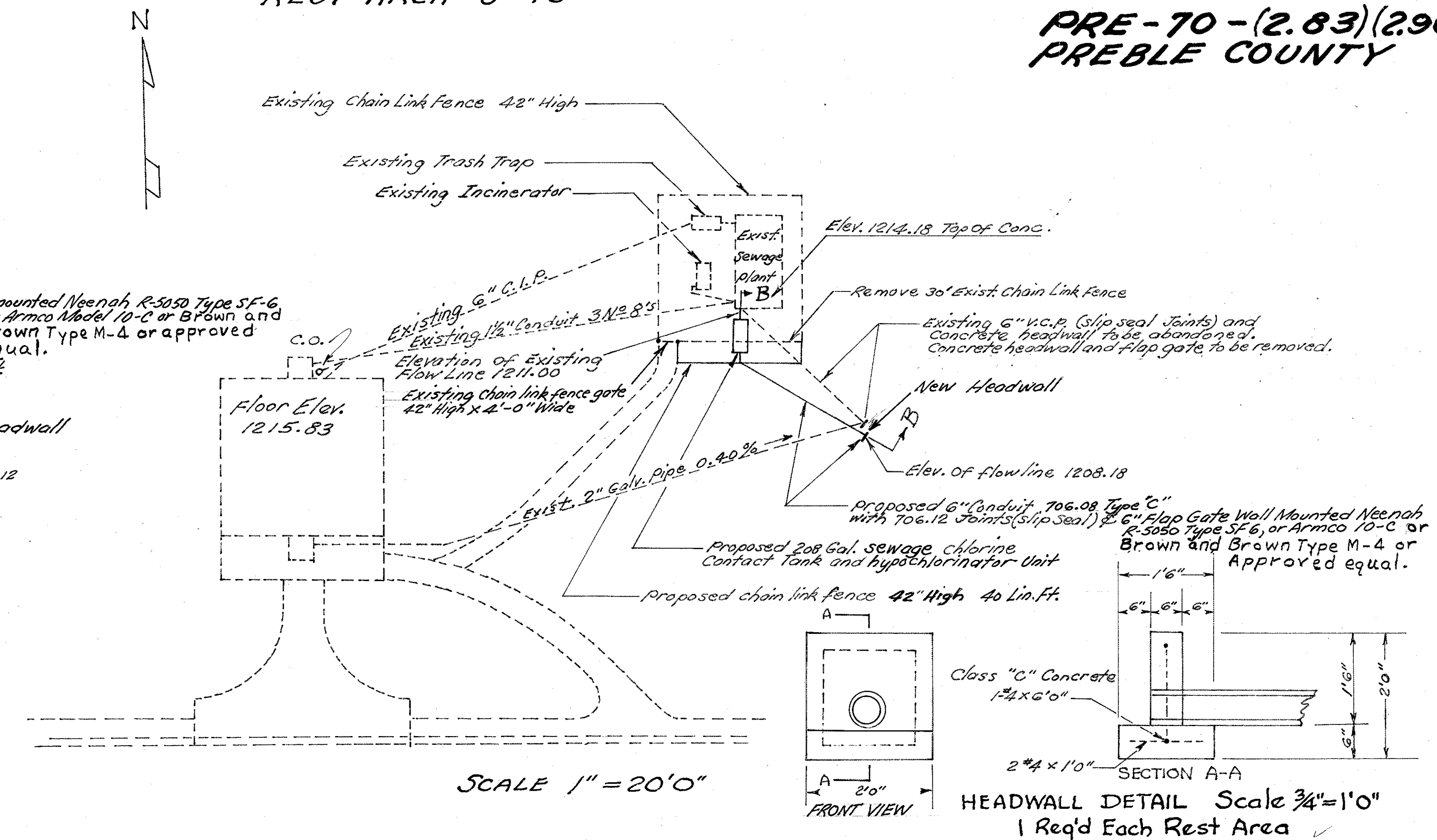
FHWA REGION 5

I-70-1(24)02

10
11

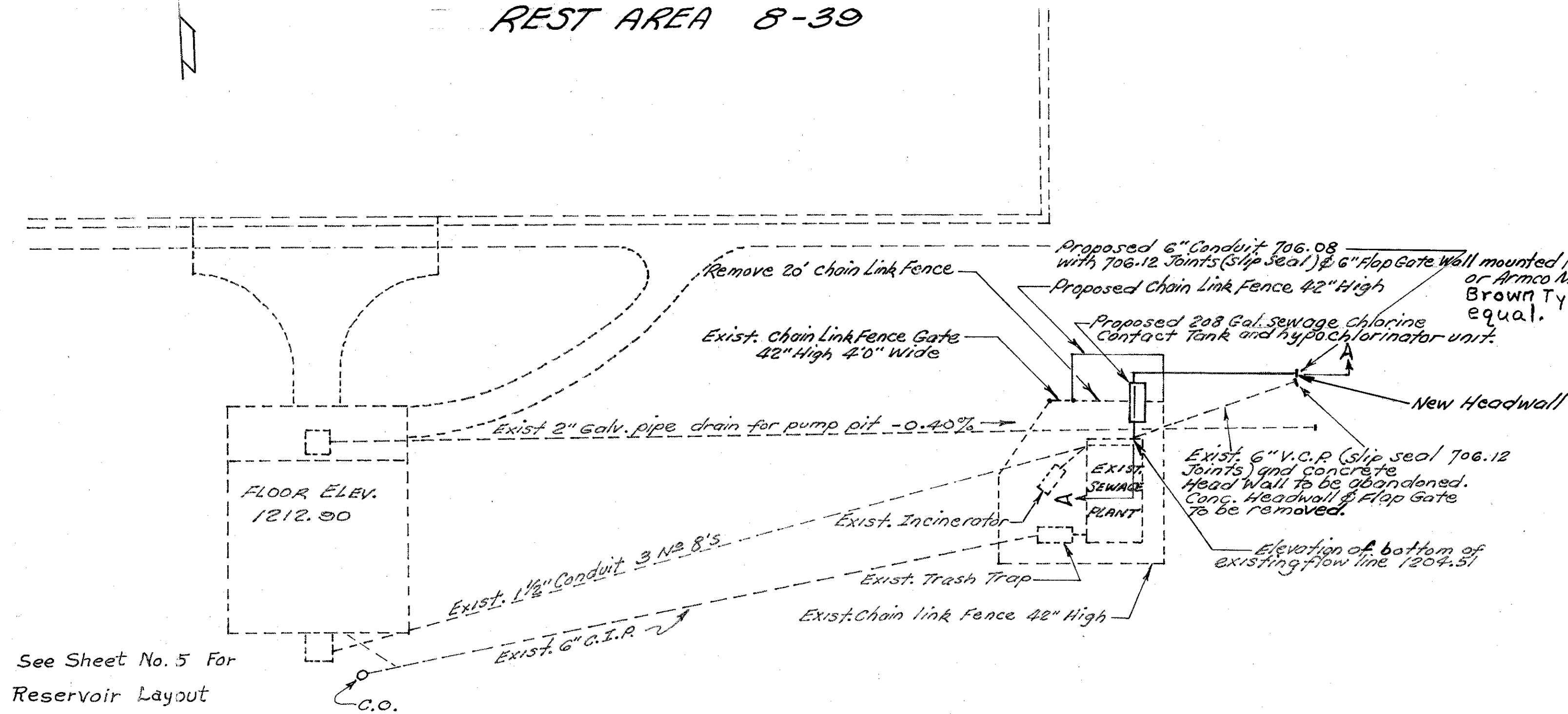
PRE-70-(2.83)(2.90)
 PREBLE COUNTY

REST AREA 8-40



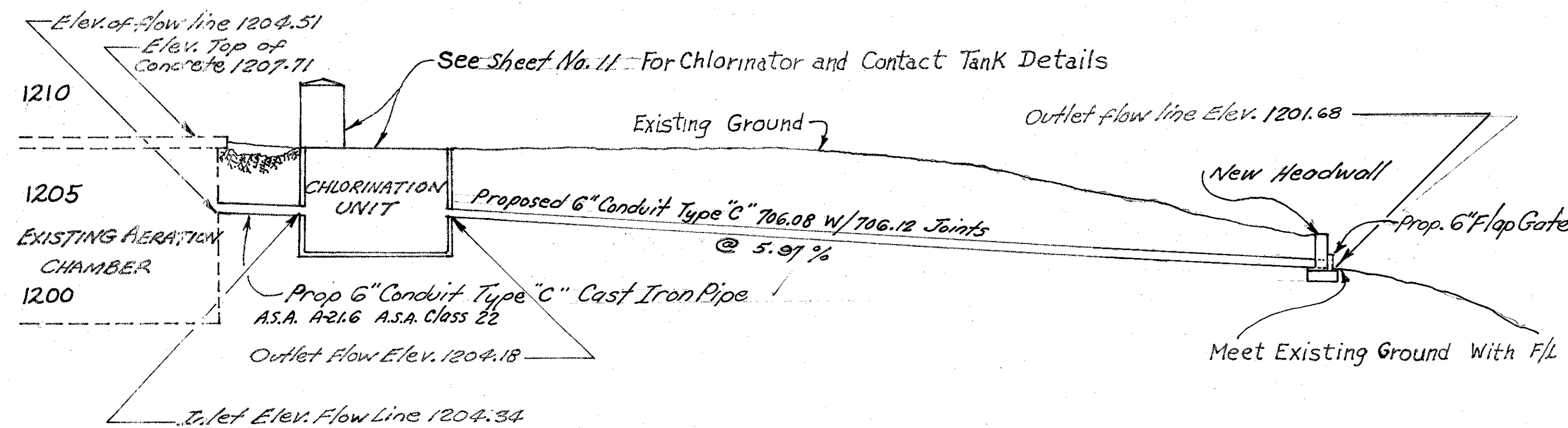
SCALE 1" = 20'0"

REST AREA 8-39



SCALE 1" = 20'0"

REST AREA 8-39

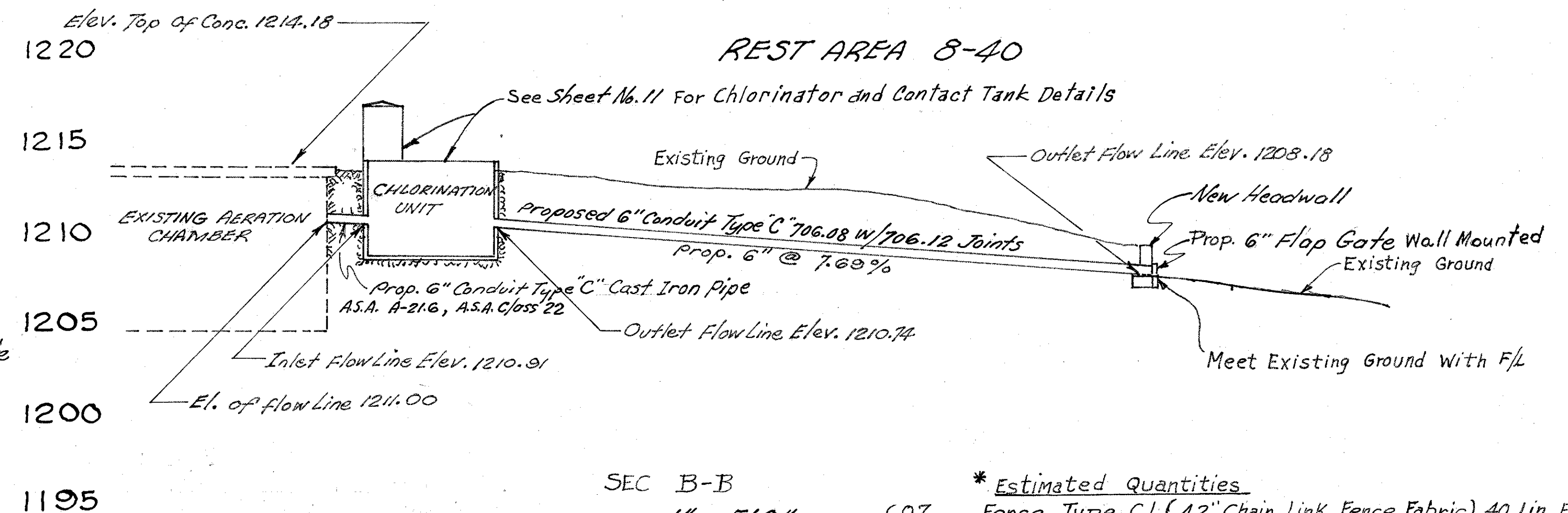


SEC A-A
 SCALE 1" = 5'0"
 (HORIZONTAL)

* Estimated Quantities

607	Fence, Type CL (42" Chain Link Fence Fabric)	40 Lin. Ft.	✓
603	6" Conduit Type "C" A.S.A. A-216 A.S.A. Class 22 As per plan	10 Lin. Ft.	✓
603	6" Conduit Type "C" 706.08 with 706.12 Joints	46 Lin. Ft.	✓
602	Masonry	0.1 Cu. Yds.	✓
604	6" Flap Gate Wall Mounted	1 Each	✓
# 202	6" Flap Gate and Headwall Struct. Removed	Lump	✓
# 202	Fence (CL) Removed	as per plan	20 Lin. Ft. ✓

REST AREA 8-40



SEC B-B
 SCALE 1" = 5'0"
 (HORIZONTAL)

* Estimated Quantities

607	Fence, Type CL (42" Chain Link Fence Fabric)	40 Lin. Ft.	✓
603	6" Conduit Type "C" A.S.A. A-216 A.S.A. Class 22 As per plan	4 Lin. Ft.	✓
603	6" Conduit, Type C 706.08 w/706.12 Joints	36 Lin. Ft.	✓
602	Masonry	0.1 Cu. Yd.	✓
604	6" Flap Gate, Wall mounted	1 Each	✓
# 202	6" Flap Gate and Headwall Struct. Removed	Lump	✓
# 202	Fence (C.L.) Removed	as per plan	30 Lin. Ft. ✓

NOTE:
 # Items to become property of Contractor and shall be removed and disposed of by the Contractor.
 * Quantities carried to General Summary-Sheet No. 4

I-70-1(24) 02

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	I-70-1(24) 02	

PRE-70-(2.83)(2.90)
PREBLE COUNTY

CALC. J.F.W. DATE 1/30/73
CHK. D.W.B. DATE 1/31/73

ITEM SPECIAL - SEWAGE CHLORINE CONTACT TANK AND HYPOCHLORINATOR HOUSING UNIT.

HYPOCHLORINATOR EQUIPMENT:
THIS SHALL INCLUDE A SOLUTION FEED PUMP OF APPROVED POSITIVE DISPLACEMENT TYPE DESIGNED FOR FEEDING SODIUM OR CALCIUM HYPOCHLORITE OR SIMILAR SOLUTION. THE UNIT SHALL BE ACID AND ALKALI RESISTANT AND ALL PARTS WHICH COME IN CONTACT WITH THE PUMPED SOLUTION SHALL BE CHEMICALLY RESISTANT PLASTIC OR SYNTHETIC RUBBER. THE MACHINE SHALL BE CAPABLE OF PUMPING SOLUTION AGAINST PRESSURES UP TO 50 POUNDS PRESSURE AT THE RATE OF 2 TO 20 GALLONS PER DAY.

THE HYPOCHLORINATOR UNIT SHALL BE COMPLETE WITH FRACTIONAL H.P. (60 WATTS), 240 VOLT, 60 HERTZ, SINGLE PHASE A. C. ELECTRIC MOTOR, PLASTIC TUBING, INSTRUCTION BOOK, SPARE PARTS, AND SPECIAL TOOLS. THE HYPOCHLORINATOR SHALL BE AS MANUFACTURED BY AER-O-FLO MODEL NO. 45 EP OR WALLACE AND TIERNAN MODEL NO. 94-100 OR APPROVED EQUAL.

THE UNIT SHALL INCLUDE A WEATHERPROOF HOUSING CONSTRUCTED OF 20 GAUGE STEEL, PHOSPHATIZED, WITH TWO COATS OF BAKED ENAMEL, OR OTHER APPROVED HOUSING. THE HOUSING SHALL BE LINED WITH 1" STYROFOAM AND EQUIPPED WITH HINGED COVER FOR EASY ACCESS. A 30 GALLON (MINIMUM) CHLORINE SOLUTION TANK OF POLYETHYLENE PLASTIC SHALL BE PROVIDED.

A BRACKET MOUNTING FOR THE HYPOCHLORINATOR SHALL BE INCLUDED. ONE UNIT SPACE HEATER OF ADEQUATE CAPACITY TO MAINTAIN TEMPERATURE ABOVE FREEZING SHALL BE SUPPLIED. THE UNIT HEATER SHALL BE COMPLETE WITH INTEGRAL THERMOSTAT CONTROL. ALL WIRING AND ELECTRICAL DEVICES REQUIRED INSIDE THE HOUSING SHALL BE INSTALLED COMPLETE. CONDUIT AND WIRING BETWEEN POWER SOURCE AND HYPOCHLORINATOR HOUSING SHALL BE PROVIDED BY THE CONTRACTOR. ALL ELECTRICAL EQUIPMENT AND CONTROL DEVICES SHALL BE DESIGNED FOR 240 VOLT, SINGLE PHASE 60 HERTZ A. C. SERVICE. THE HOUSING SHALL BE DESIGNED FOR EASY MOUNTING ON TOP OF THE CHLORINE CONTACT TANK.

THE CHLORINE SOLUTION TANK SHALL BE MADE OF VIRGIN POLYETHYLENE OR APPROVED EQUAL. IT SHALL BE MOLDED INTO ONE PIECE WITH NO JOINTS, WELDS, OR SEAMS; NON-TOXIC, PERMANENTLY AND COMPLETELY NON-CORROSIVE.

THE SOLUTION TANK SHALL BE THE OPEN HEAD CYLINDRICAL TYPE HAVING A VOLUME OF 30 GALLON MINIMUM. IT SHALL BE EQUIPPED WITH A LID AND HOSE CONNECTORS.

THE TANK SHALL BE SELF-SUPPORTING WHEN FILLED WITH LIQUID AND THE NATURAL TRANSLUCENT TANK WALLS WILL PERMIT INSPECTION OF CONTENTS AT ALL TIMES.

SEWAGE CHLORINE CONTACT TANK:

THE SEWAGE CHLORINE CONTACT TANK SHALL HAVE A CAPACITY OF 208 GALLONS, BASED ON 30 MINUTE RETENTION OF 24 HOUR DESIGN FLOW AND BE CONSTRUCTED OF CONCRETE OR STEEL. IT SHALL BE A DETACHED PART OF THE SEWAGE TREATMENT PLANT. THE SEWAGE CHLORINE CONTACT TANK SHALL BE COVERED WITH PENTACHLOROPHENOL PRESSURE TREATED BOARDS. THE BOARDS SHALL BE A MINIMUM SIZE OF 1" X 6" (NOMINAL) FREE OF HOLES, LARGE CRACKS OR LOOSE KNOTS. LUMBER MATERIAL AND GRADE NO. 1 COMMON SOUTHERN YELLOW PINE.

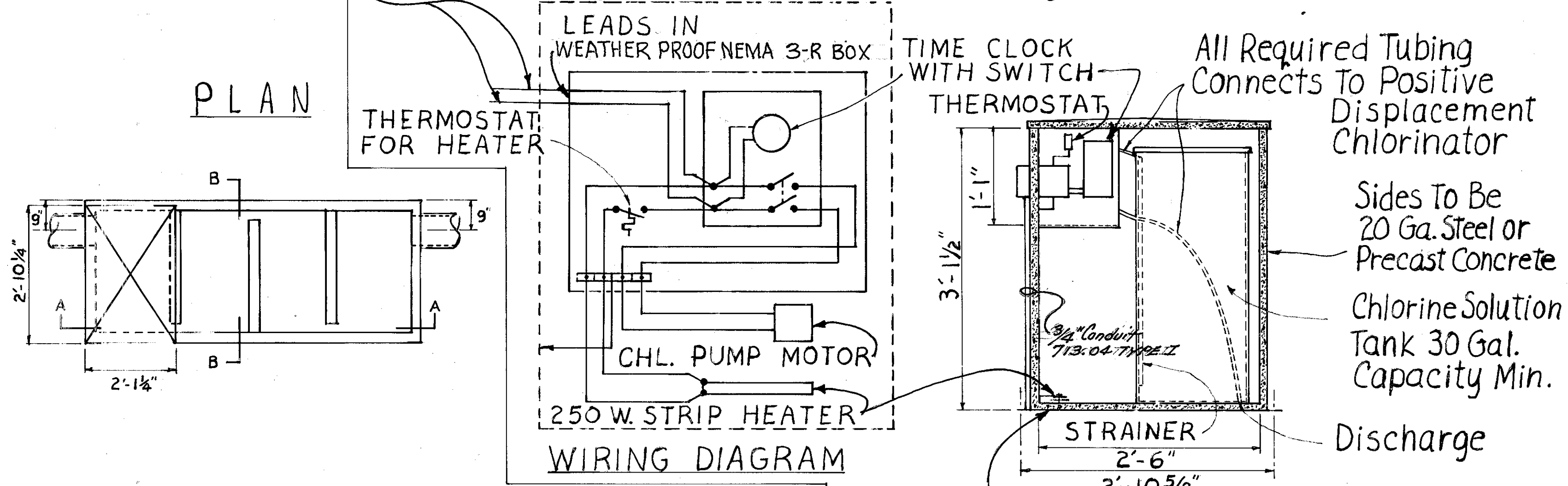
CONSTRUCTION METHODS

- (1) THE PRECAST CONCRETE TANK SHALL BE CONSTRUCTED OF 2 1/2" MINIMUM THICKNESS PRECAST CONCRETE WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I. AND SHALL BE DESIGNED WITH NECESSARY BAFFLES TO PREVENT DIRECT FLOW-THROUGH AND TO PROVIDE PROPER MIXING OF CHLORINE SOLUTION.
- (2) THE PREFAB STEEL TANK SHALL BE 1/4" STEEL PLATE JOINED BY ARC WELDING WITH FILLETS OF ADEQUATE SECTION FOR THE JOINT INVOLVED. WALLS SHALL BE CONTINUOUS, WATERTIGHT, AND SUPPORTED BY STRUCTURAL MEMBERS WHERE NECESSARY WITH NECESSARY BAFFLES TO PREVENT DIRECT FLOW-THROUGH AND TO PROVIDE PROPER MIXING OF CHLORINE SOLUTION.

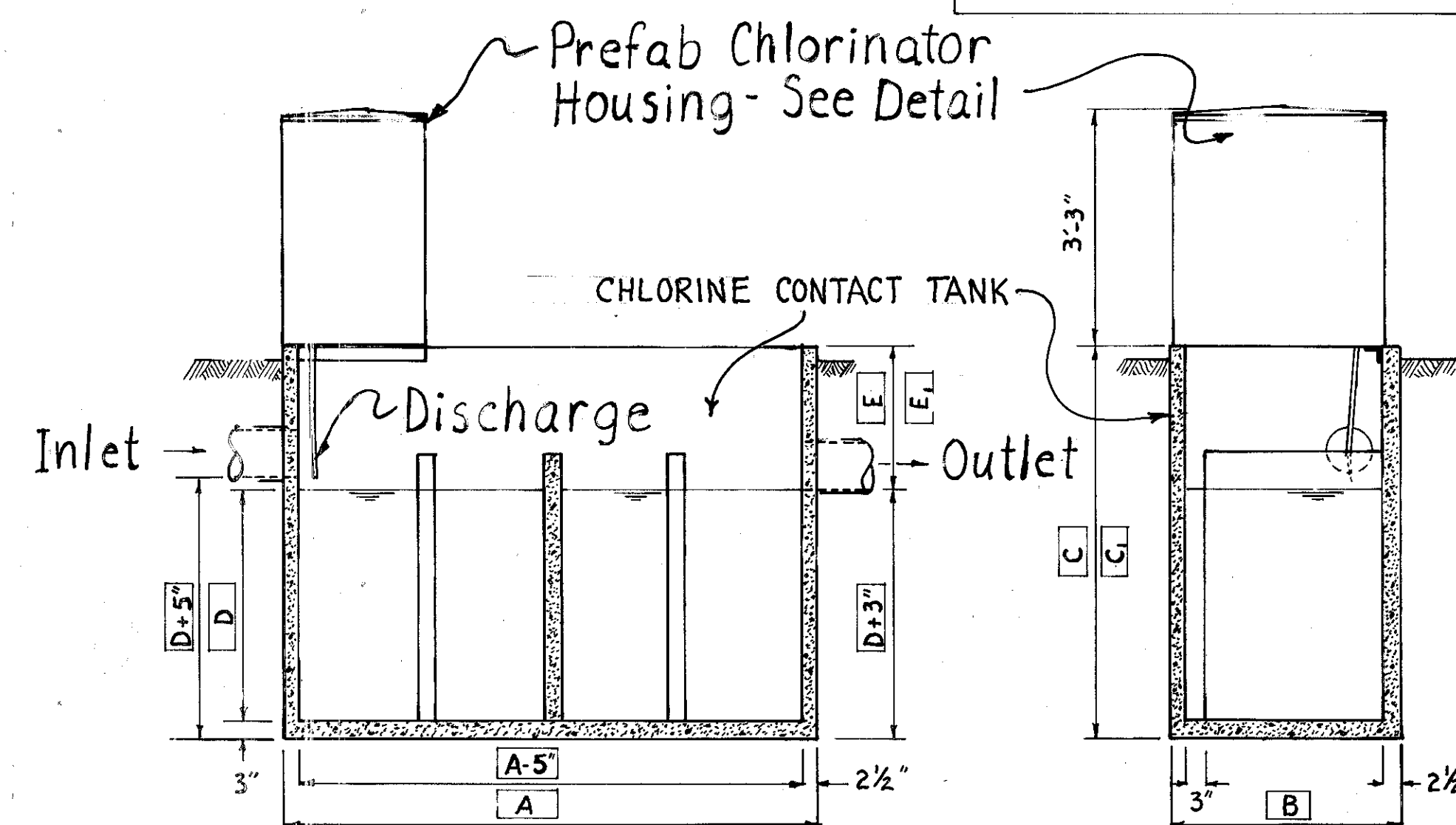
TWO COATS OF BITUMASTIC PAINT SHALL BE APPLIED TO ALL OUTSIDE SURFACES, TWO COATS OF RED OXIDE TO INSIDE SURFACE AND ANY SURFACE DAMAGED IN SHIPMENT SHALL BE RETOUCHE WITH THE SAME MATERIAL DURING INSTALLATION.

THE CHLORINE CONTACT TANK SHALL SIT ON VIRGIN SOIL OR IF ON FILL, THE FILL SHALL BE COMPACTED GRAVEL.

Leads in 1 1/4" Conduit to Sewage Plant Motor
3/4" Conduit 713.04 Type I from sewage plant to chlorinator housing. 2-REQ'D.



Bottom to Be 11 Gage Steel or Precast Concrete
PREFAB CHLORINATOR HOUSING DETAIL



SECTION A-A AND SECTION B-B

SEWAGE CHLORINE CONTACT TANK AND HYPOCHLORINATOR HOUSING UNIT
"NOT TO SCALE"

CONTACT TANK		DIMENSIONS						
VOL.-GAL.	TIME	A	B	C	C ₁	D	E	E ₁
208	30 MIN.	7'6"	3'2"	X	5'6"	19"	X	3'8"

ESTIMATED QUANTITIES
"Item Special - Sewage Chlorine Contact Tank and Hypochlorinator Housing Unit, Two (2) Each. Quantities Carried to General Summary Sheet No. 4"

"METHOD OF MEASUREMENT"
THE SEWAGE CHLORINE CONTACT TANK AND ALL APPURTENANCES AS DETAILED AND SPECIFIED SHALL BE CONSIDERED AS ONE UNIT. THE NUMBER OF UNITS TO BE PAID FOR SHALL BE THE NUMBER OF EACH UNIT, LISTED AND ESTIMATED SEPARATELY, COMPLETE AND ACCEPTED IN PLACE.

"BASIS OF PAYMENT"
THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH ITEM SPECIAL - SEWAGE CHLORINE CONTACT TANK AND HYPOCHLORINATOR HOUSING UNIT. WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL EXCAVATION AND BACKFILLING; FOR FURNISHING, HAULING, PLACING AND INSTALLING SEWAGE CONTACT TANK, HYPOCHLORINATOR HOUSING UNIT, ASSEMBLIES, APPURTENANCES, PIPING, CHLORINE PUMP AND MOTOR, STRIP HEATER AND CONTROLS; AND FOR ALL LABOR, EQUIPMENT, MATERIALS, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM INCLUDING ALL ELECTRICAL DEVICES, CONDUIT, AND WIRING REQUIRED FOR SERVICE TO AND THE OPERATION OF THE HYPOCHLORINATOR ASSEMBLY.

OHIO DEPARTMENT OF TRANSPORTATION - DESIGN SERVICES		
REVISIONS	CHLORINATOR ASSEMBLY DETAIL	SHEET NO. RRA 10
DRAWN BY - H.W.BAKER		DATE 7-1-68