



ADDENDUM NO. 2

DATE: January 29, 2026

PROJECT: Central Arkansas Water
Ozark Point Water Treatment Plant
Lime and ZOP Improvements
Little Rock, Arkansas

This Addendum forms a part of the Contract Documents and modifies the original documents provided to Bidders, as noted below. Acknowledged receipt of this Addendum in the space provided in the **Bid Form**. Failure to do so may subject the Bidder to disqualification.

Item No. 1. Advertisement for Bids

- a. Modify the date for the Bid Opening:

~~Tuesday, February 3, 2026 at 10:AM~~ **February 4, 2026 at 2:00PM**

- b. Modify the location for receiving bids and bid opening:

~~425 W. Capitol Avenue, Little Rock, AR 72201 (8th Floor)~~ **1 Executive Center Court, Little Rock, AR 72211**

Item No. 2. Instructions to Bidders

- a. Modify the date on the non-mandatory Prebid Walkthrough:

~~Tuesday, February 3, 2026 at 10:AM~~ **February 4, 2026 at 2:00PM**

- b. Modify the location for receiving bids and bid opening:

~~425 W. Capitol Avenue, Little Rock, AR 72201 (8th Floor)~~ **1 Executive Center Court, Little Rock, AR 72211**

Item No. 3. Contractor Questions Log

- a. Attachment 1 is the Contractor Question log with responses.
- b. Attachment 2 is the Geotechnical Report as requested within the Question log.
- c. Attachment 3 is the existing 1937 as-builts in which the retaining wall was installed. Engineer and Owner assume no responsibility for the accuracy or in-field conditions of the retaining wall. The as-builts have not been verified by Owner or Engineer.

**Continued Addendum No. 1 – Central Arkansas Water – Ozark Point Water Treatment Plant– Lime and ZOP
Improvements - Little Rock, AR**

Item No. 4. Sheet C-04

- a. Attachment 4 is the new issued Sheet C04

Item No. 5. Electrical and Instrumentation Sheets

- a. Attachment 5 is the new issued sheets of electrical and Instrumentation.

Item No. 6 Attachments

- a. Attachment 1: Contractor Question log with responses.
- b. Attachment 2: Geotechnical Reports.
- c. Attachment 3: 1937 Ozark Point Water Treatment Plant Asbuilts.
- d. Attachment 4: Reissued Electrical and Instrumentation Drawings.
- e. Attachment 5: Reissued Sheet C-04.

END OF ITEMS

All other provisions of the Contract Documents remain unchanged. Acknowledge receipt of this addendum on the Bid Form. Bids must be received at Crist Engineers, Inc., 1 Executive Center Court, Little Rock, Arkansas by 2:00 PM on February 4, 2026.



Trevor Voegelé, PE (Crist Engineers, Inc.)

1/30/26

Date



CRIST ENGINEERS PROJECT NO. 24045
CENTRAL ARKANSAS WATER
OZARK POINT WATER TREATMENT PLANT
LIME AND ZOP IMPROVEMENTS
RESPONSE TO QUESTIONS

Ref No.	Question	Contractor	Response
1	Is there a geotechnical report for this project? I see one referenced in the drawings.	Haren Construction (EB)	See Addendum No. 02
2	Spec section 015713 "Temporary Erosion and Sediment Control" is referenced in 010000-1.9B/015000-3.3F1/311000-3.6C but not provided. Please provide this spec section, if there are any requirements inside it that don't show up elsewhere in the specifications/drawings.	Haren Construction (EB)	No additional requirements.
3	Similarly, there is reference to "General Conditions" as a 22 page document in the Supplemental General Conditions-2.1. Please provide these if there are any requirements that do not show up elsewhere.	Haren Construction (EB)	No additional requirements.
4	099000-1.01A says that all surfaces described, whether new or existing, shall be painted. What existing work onsite is required to be painted?	Haren Construction (EB)	Any work resulting in damage to existing onsite shall be repaired.
5	Is AIS required for this project? I only see it mentioned in reference to the reinforcing steel (032000-2.01A)	Haren Construction (EB)	No AIS is required.
6	Will the concrete slab on grade need to have sealer or chemical hardener? Both are referenced in 033500, but I do not see it defined anywhere on the drawing set. I only see an epoxy coating on the room finish schedule on SHT 00-SZ-01	Haren Construction (EB)	Coatings as called on the plans are the only required coatings.
7	Spec section 037400 talks about concrete repair. Is the only concrete repair on the project that which is related to the demo/new work we are installing? Or is there existing concrete structures that will require repair as part of this scope?	Haren Construction (EB)	Only concrete repair required is for the demo work on the existing containment area as well as incidental concrete demolition within the project.
8	Dwg C-4 has guardrail required and references Dwg MZ-05, but Dwg MZ-05 is not in the plan set. Please provide this detail.	Haren Construction (EB)	See Addendum No. 02
9	Bid item 3 on the bid form seems to include asphalt paving, but there is not asphalt paving on this project, that I am able to find. Will there be asphalt paving required? If so, where is this required?	Haren Construction (EB)	Asphalt paving repair is for the roadway north of the lime containment area as called out in C4, See Addendum No. 02.
10	The concrete pads for the tanks seem to show an elevated concrete deck set on top of several concrete columns on the isometric view (00-M106), but they call out for a concrete pedestal on the structural drawings (00-S-301). Is it correct to assume that there is essentially a 6' concrete pad holding these tanks as shown in the structural drawings?	Haren Construction (EB)	The assumption is correct. A 6' pad will be holding these tanks as shown in the structural drawings.
11	Reference Drawings Y-1 and C-8: Please provide specifications for the 12" x 24" Insulated Pull Boxes for this project.	Haren Construction (TB)	Utilize the Specification 261340 for Boxes and ensure all exposed piping is heat traced.
12	Please confirm integration of the new chem feed systems into existing SCADA is to be completed by Owner.	Tolm Group (TR)	SCADA Integration will be performed by the owner.
13	Is the use of vibration equipment and sheet piles allowed for shoring of the excavations required for the new Lime Chem Buiding?	Tolm Group (TR)	Contractor assumes liability for any and all construction methods they utilize for the outlined project.
14	If vibration equipment/sheet piles are not allowed, is there an alternative laydown area? Access (the existing road) to the planned laydown area will likely be lost if excavations of the new lime chem building are sloped at a minimum 1:1.	Tolm Group (TR)	Primary laydown will be as established within the plans and specifications. Any additional laydown area will be designated by the owner on a conditional basis.
15	C-4 shows a Guard Rail with the reference to MZ-05. The documentation does not include a plan sheet MZ-05. Please provide details for this Guard Rail.	Tolm Group (TR)	Callout has been changed to 00-SZ-04, See new Sheet C-04

16	Will the lime storage silo be emptied by owner prior to demolition?	Tolm Group (TR)	The lime silo will be maintained for 6 months after substantial completion of the project. The lime silo will be ran empty but will not be cleaned.
17	Is the lime storage silo currently in use? If not, can this silo be demo'd within the original 305 contract days and prior to substantial completion?	Tolm Group (TR)	The lime silo is to remain in use for the 6 months after substantial completion.
18	it is believed that the owner will be performing systems integration, and there are no specifications regarding instrumentations or control work outside of the vendor equipment packages and scopes. Can you please clarify what the intent of bid item No. 8 - Instrumentations and Controls is for?	Tolm Group (TR)	Bid item No. 8 refers to the systems integration for Lime and ZOP as well as all conduit and instrumentation as identified in the plans. Integration of the systems to SCADA will be performed by owner.
19	Please confirm whether there will be any type of required special concrete coatings for the containment areas on the Lime and ZOP systems?	Tolm Group (TR)	No special coatings required.
20	Can you provide actual dimensions and weight, or cut sheets, for the lime storage silo to be demo'd from the existing roof?	Tolm Group (TR)	Tank is 30-feet tall by 12-feet diameter with a total volume of 128,000 lb lime. Additional appurtances extend the total height to approximately 40-feet
21	Please provide Geotech Report.	Tolm Group (TR)	See Addendum No. 02
22	(Sent Via Email.) Can the engineer ensure that the retaining wall located outside of structure 70 - Chemical Room can withstand the forces of a crane and heavy equipment that would be used to demolish the dry lime silo? (Image attached in email)	Tolm Group (TR)	The Engineer /Owner assumes no responsibility for integrity of existing structures. See AddendumNo. 02 for provided Asbuilts from 1937 plans. The accuracy of the asbuilts has not been field verified.
23	Please confirm whether the concrete equipment pedestals are solid concrete or if the pedestal is to be poured with walls and a top slab with the interior backfilled with gravel or sand. If the pedestals can be backfilled with gravel/sand, please confirm required reinforcement and slab/wall thickness details.	Tolm Group (TR)	The tank pedestals can be of solid concrete or interior backfilled with 12-inch minimum top slab and 8-inch minimum walls.
24	PVC conduit and PCS 90's for underground duct banks, please confirm this is correct?	Robert Bailey Electric (ET)	Correct
25	All above ground piping in buildings and outside intended to be GRS, please confirm this is correct?	Robert Bailey Electric (ET)	Correct
26	Duct bank to be flow fill 3" above conduits then existing backfill to finish grade, please confirm this is correct	Robert Bailey Electric (ET)	Correct
27	Specs have lighting protection system but not shown on plans. Is the intent to have lighting protection system?	Robert Bailey Electric (ET)	Only on new structure.
28	Are stainless steel strut, anchors, and hardware intended for use in all locations?	Robert Bailey Electric (ET)	Correct
29	GRC cast ferrous boxes intended for devices and lighting boxes?	Robert Bailey Electric (ET)	Correct
30	XHHW wire type intended for all areas, please confirm this is correct?	Robert Bailey Electric (ET)	Correct

October 29, 2025
Project No. A25184.00128

Central Arkansas Water
Attn: Ms. Elizabeth S. Heiles, P.E.
c/o Crist Engineers, Inc.
1 Executive Center Court
Little Rock, Arkansas 72211

**RESULTS of GEOTECHNICAL INVESTIGATION
LIME STORAGE and FEED BUILDING
OZARK POINT WATER TREATMENT PLANT
LITTLE ROCK, ARKANSAS**

INTRODUCTION

This report provides the final results of the geotechnical investigation performed for the proposed lime storage and feed building planned at the Ozark Point water treatment plant in Little Rock, Arkansas. These services were authorized on behalf of CAW by Mr. Jim Ferguson on May 25, 2025. Notice to proceed with the field studies was received on June 2, 2025. This study has been performed in general accordance with our proposal of March 7, 2025. An interim report was submitted on June 25, 2025. The results of the interim report are confirmed herein.

We understand that the project consists of design and construction of a new lime storage and feed building. The new building will have plan dimensions of approximately 31 ft by 33 feet. The building will include two (2) lime storage tanks as well as appurtenant equipment. The tanks will each be 20-ft tall with 12-ft diameters and individual tank capacities of 200,000 lbs of bulk feed solution. The structure will be built into a hillside with a bottom slab grade of El 495. The facility will have below-grade retaining walls up to about 12 ft deep on the north side and returning back to the south to match existing grades. Foundation loads are expected to be light.

The purposes of this study were to explore subsurface conditions at the project site and to develop recommendations to guide design and construction of foundations and below-grade walls. The results of the field and laboratory studies are discussed in the following report sections. Conclusions and recommendations are discussed in subsequent report sections



SUBSURFACE EXPLORATION

Subsurface conditions at the lime storage building site were explored by drilling one (1) sample boring (Boring 1) to a depth of 34 feet. The steepness of the existing slope and the presence of utilities precluded the drilling of a second planned boring. To obtain representative samples of the near-surface soils, one (1) hand-auger boring (B-2) was drilled to 3.5 ft. Two hand-auger soundings were taken east and west of B-2 in an attempt to define the depth to bedrock. In addition, an open excavation near the building site was observed. Pictures from that excavation are included in Appendix A. Additionally, the results of a 2018 study (Project No. 18-074) which include borings in the vicinity of the lime storage building have also been utilized. Relevant logs from the 2018 study are provided in Appendix B.

The site vicinity is shown on Plate 1. The approximate locations of borings performed for this study, as well as approximate locations of relevant borings performed for the prior study, are shown on the Plan of Borings, Plate 2. Boring logs, presenting descriptions of the subsurface strata encountered and results of field tests, are included as Plates 3 and 4. The approximate ground surface elevations, as inferred from the available topographic information provided by the Engineer, are also shown on the logs. It must be recognized that the elevations shown are approximate and actual elevations may vary. Keys to the terms and symbols used on the logs is presented as Plates 5 and 6.

The borings performed for this study were drilled with a track-mounted CME-55 rotary-drilling rig using a combination of dry-auger and rotary-wash drilling techniques. Samples were typically obtained using a 2-in.-diameter split-barrel sampler driven into the strata by blows of a 140-lb automatic hammer dropped 30 inches, in accordance with Standard Penetration Test (SPT) procedures. The number of blows required to drive the standard split-barrel sampler the final 12 in. of an 18-in. total drive, or portion thereof, is defined as the Standard Penetration Number (N). Recorded N-values are shown on the appropriate boring logs in the "Blows Per Ft" column.

Representative samples of the shale and sandstone bedrock were obtained using a 5-ft-long NQ-size double-tube core barrel with a diamond bit. For each core run, the percent recovery was determined as the ratio of recovery to total length of core run. Rock Quality Designation (RQD) was also determined for each core run as the sum of intact, sound rock core greater than 4-in. length divided by the total length of the run and expressed in percent. Both these values are presented in the right-hand columns of the log forms, opposite the corresponding core run. Photographs of the recovered rock cores are provided in Appendix C.



All samples were removed from sampling tools in the field, examined and visually classified by the field geologist. Samples were then placed in appropriate containers to prevent moisture loss and/or change in condition during transfer to our laboratory for further examination and testing.

The borings were advanced using dry-auger drilling procedures to the extent possible in order to facilitate groundwater observations. Observations regarding groundwater are noted in the lower-right portion of each log and are discussed in subsequent sections of this report.

LABORATORY TESTING

To evaluate pertinent physical and engineering characteristics of the subgrade and foundation soils, laboratory tests consisting of natural water content determinations and classification tests were performed on selected representative soil and weathered rock samples. A total of 5 natural water content determinations were performed to develop information on soil-water contents for each boring. The results of these tests are plotted on the logs as solid circles, in accordance with the scale and symbols shown in the legend located in the upper-right corner.

To verify field classification and to evaluate soil plasticity, 3 liquid and plastic (Atterberg) limit determinations and 2 sieve analyses were performed on selected representative samples. The Atterberg limits are plotted on the logs as small pluses inter-connected with a dashed line using the water content scale or are denoted as “non-plastic”. The percent of soil passing the No. 200 Sieve is noted in the "Minus No. 200" column on the log forms. Classification test results, as well as soil classification by the Unified Soil Classification System and AASHTO classification system, are summarized in Appendix D.

GENERAL SITE and SUBSURFACE CONDITIONS

Site Conditions

The lime storage project site is located at the existing Ozark Point water treatment plant in Little Rock, Arkansas. The site is a steeply sloping hillside with a short grass cover. Uphill, to the north, is an access road and basins. To the south of the site is another access road and several small buildings and equipment pads. Silty clay and shale fragments fill was present at the surface of the site. Site surface drainage is considered good.

Seismic Conditions

According to the Arkansas Building Authority (2005), the Pulaski County site is in Seismic Zone 1, i.e., the zone of least seismic potential in Arkansas. In light of the subsurface conditions encountered in the borings, a Seismic Site Class C (very dense soil and soft rock profile) is considered



fitting in accordance with the criteria of IBC 2021 and AWWA D100-11 criteria. The liquefaction potential of the predominantly cohesive soils and weathered rock encountered within the exploration depths of the borings is considered negligible.

Site Geology

The project site is in the mapped outcrop of the Pennsylvanian Period Jackfork Sandstone formation. The Jackfork Sandstone formation is comprised of thin- to massive-bedded fine- to coarse-grained quartzitic sandstone with subordinate silty sandstone and shale units. The sandstone sometimes occurs as discontinuous masses in the shale. The shale and sandstone units are typically moderately dipping to steep and quartz veins and inclusions are relatively common. The thickness of the formation varies from 3500 to 6000 feet. The Jackfork Sandstone rests conformably on the Stanley Shale.

Subsurface Conditions

Based on the results of the borings, the subsurface stratigraphy encountered in the borings may be generalized into three (3) primary soil and rock strata as follows.

- Stratum I: On-site fill comprised of soft to firm tan, maroon, reddish brown, and gray silty clay and loose brown fine sandy silt with variable amounts of shale and sandstone fragments extends to about 4- to 8-ft depth. The on-site fill has poor compaction and high compressibility. The depth, content, and compaction of the fill is likely to vary across the site.
- Stratum II: Low hardness maroon, gray, and reddish tan highly weathered shale and friable tan, reddish tan, and gray highly weathered fine-grained sandstone are present below the surficial fill and extend to 18-ft depth. The highly weathered shale and sandstone exhibit differential weathering with discontinuous silty fine seams. While the highly weathered shale and sandstone have poor rock quality, they exhibit high shear strength and low compressibility.
- Stratum III: The basal stratum encountered below 18-ft depth is moderately hard to hard gray, light tan, and reddish tan slightly weathered fine-grained sandstone with ferrous stains, healed fractures, and occasional clay seams. Rock core recovery values range from 42 to 88 percent and rock quality designation (RQD) values range from 7 to 33 percent. These RQD values are indicative of poor rock quality. The slightly weathered sandstone is generally well cemented, strong, and competent.

Groundwater was not encountered within the range of dry-auger drilling in June 2025. Shallow perched groundwater could be present in the surficial fill, particularly during wet seasons of the year. In addition, seasonal surface seeps or springs could be present as infiltrated surface water moves from areas of higher terrain to the lower terrain of the site. Groundwater levels will vary with seasonal precipitation and surface runoff and infiltration.



CONCLUSIONS and RECOMMENDATIONS

Foundation Design

Foundations for the new lime storage building must satisfy two (2) basic and independent design criteria. First, the maximum bearing pressure must not exceed the allowable bearing pressure based on an adequate factor of safety with respect to shear strength. Secondly, foundation movements resulting from consolidation, shrinking, or swelling of the supporting soils must be within tolerable limits for the structure. Construction factors such as foundation construction, excavation procedures, and surface and groundwater conditions must also be considered.

In view of the expected light foundation loads and the results of the borings, a mat foundation system and slab-on-grade floor slabs are considered suitable for the lime storage building. Recommendations for design of foundations and floor slabs for the new building are discussed in the following report sections.

Mat Foundation

The foundation loads of the lime storage building may be supported on a mat foundation system founded in the low hardness maroon, gray, and reddish tan highly weathered shale or friable tan, reddish tan, and gray highly weathered fine-grained sandstone (Stratum II). Foundation elements should bear at least 1 ft into the low hardness to moderately hard highly weathered shale and sandstone. A mat foundation supported in the low hardness to moderately hard highly weathered shale and sandstone as recommended may be sized with respect to a maximum net allowable bearing pressure of 8000 lbs per sq foot. The recommended bearing values include a minimum factor of safety of 3.0 with respect to the competence of the highly weathered shale and sandstone bearing stratum.

The depth to the recommended weathered sandstone and shale bearing stratum is estimated to be up to 4 ft below planned grade. However, additional undercut may be required to bear in suitable weathered shale and sandstone. The Geotechnical Engineer must observe all foundation excavations to verify suitable bearing. Any undercut of foundations should be backfilled with crushed stone aggregate base (ARDOT Class 7), flowable fill (minimum compressive strength 300 psi), or lean concrete, or an approved alternative. Post-construction settlement of mat foundations supported as recommended should be less than 0.5 inch.

Uplift resistance of the mat foundation will be provided by the weight of the structure and the foundation units. If needed, additional resistance to uplift can be developed by the use of grouted rock anchors. Anchor penetration through the overburden soils and any compacted fill zones should be neglected from uplift resistance consideration. For the weathered shale and sandstone, an



allowable grout to rock adhesion value of 30 lbs per sq in. may be assumed for the weathered shale and sandstone. Use of an increased grout adhesion value may be appropriate, if verified by the results of pullout load tests. A minimum anchor length of 10 ft is recommended.

Anchors may consist of minimum 60 kips per sq inch deformed bars grouted into drilled holes at least 3 inches in diameter. Where cementitious grout is used, it should have a minimum 28-day compressive strength of 4000 lbs per sq inch. Alternatively, high-strength rock anchors, such as those manufactured by Williams, may be utilized if approved by the Engineer. In this case, anchors must be installed in compliance with manufacturer's guidelines. High-strength anchor systems and grout must be installed in compliance with manufacturer's guidelines. Drill holes for all rock anchors must be properly cleaned and grout must be placed in hard contact with the bedrock.

Resistance to lateral forces will be provided by the passive resistance of the foundation soils and sliding resistance at the mat bottom. The passive resistance of the rock within the upper 1 ft should be neglected. Below 1-ft depth, an ultimate passive resistance value of 2000 lbs per sq ft may be assumed for the weathered sandstone and shale. Resistance to sliding may also be evaluated using an ultimate friction value ($\tan \delta$) of 0.35 for concrete on the recommended weathered sandstone and shale bearing strata. An appropriate factor of safety must be included in analysis of sliding.

For mats, a minimum mat bottom at 12 in. below lowest adjacent grade and underlain by at least 6 in. of crushed stone aggregate base (ARDOT Standard Specifications Section 303, Class 7 or an approved alternate) placed and compacted on suitable bearing strata, is recommended. With a minimum 6 in. of crushed stone base, a composite modulus of subgrade reaction (k_{mod}) value of 150 lbs per cubic in. may be used in mat design. Where the crushed stone base thickness is increased to 12 in., a k_{mod} value of 200 lbs per cubic in. is considered suitable.

All foundation excavations and undercuts must be observed by the Geotechnical Engineer to verify suitable bearing and adequate undercut.

Floor Slabs

The lime storage building floor slab will support two (2) tanks, pumps, and other heavy units. Consequently, some heavily-loaded floor areas are anticipated. Recommendations for modulus of subgrade reaction (k) values are provided in the preceding report section. Where moisture transmission through floor slabs is an operational or aesthetic concern, we recommend that the at-grade floor slab be supported on a minimum 4-in.-thick clean crushed stone layer placed on a properly prepared subgrade. The clean stone should be placed over the crushed stone base. The granular layer should be densified with vibrating equipment prior to floor slab construction. The clean stone layer may be considered part of the subbase below the floor slab in development of the



subgrade modulus. Impervious sheeting should be placed between the slab and the granular course to function as a vapor retarder.

Below-Grade Walls and Retaining Walls

The new lime building will include below-grade walls. In addition, the east side is expected to have an open area with a landscape retaining wall. Where there will be below-grade walls, these will typically be fixed at the top by inside corners, baffle walls, and/or upper-level concrete slabs. Consequently, below-grade walls for the lime building will be acted upon by at-rest lateral earth pressures. Where walls are free to rotate about the base, such as during construction or for landscape walls, active earth pressures will be mobilized. The below-grade walls are expected to be supported on a mat foundation as recommended above.

It is expected that the below-grade walls and retaining walls will be backfilled with clean crushed stone or low-plasticity select fill. For clean crushed stone, a gradation complying with ASTM D448 Size 57 stone or locally-available “C”-ballast is considered suitable. To minimize lateral earth pressure, clean crushed stone wall backfill should be placed in a zone extending from the back of the wall foundation to daylight on a 1-horizontal to 1-vertical (1H:1V) configuration. Where a retention system is utilized to retain temporary cuts, and is designed as a permanent structure, the clean stone backfill may be limited to backfilling to the retention system. Where excavations for below-grade elements are advanced into stable rock, the width of the clean stone backfill zone may be reduced to 6 ft back of the wall.

A summary of recommended equivalent fluid pressures is tabulated below for walls backfilled with either clean, crushed stone or low-plasticity select fill. This summary includes below-grade walls and landscape retaining walls. For the below-grade walls, the long-term design condition will be at-rest lateral earth pressure (restrained condition). For the cantilevered retaining walls, the active earth pressure (unrestrained condition) will control.

Table 2: Lateral Earth Pressures for Below-Grade Walls

Earth Pressure Condition	Free-draining crushed stone backfill, Equivalent Fluid Pressure, lbs per sq ft per ft depth	Low-plasticity select fill, lbs per sq ft per ft depth
At rest (restrained), drained	45	83
At rest (restrained), undrained	80	104
Active (unrestrained and rotating about wall base), drained	30	62



Earth Pressure Condition	Free-draining crushed stone backfill, Equivalent Fluid Pressure, lbs per sq ft per ft depth	Low-plasticity select fill, lbs per sq ft per ft depth
Active (unrestrained and rotating about wall base), undrained	75	93

Where backfilled with clean crushed stone as recommended above, lateral surcharge loads may be evaluated using earth pressure coefficients of 0.27 for the active condition and 0.43 for the at-rest condition for wall backfill. For low-plasticity select fill backfill, lateral surcharge loads may be evaluated using earth pressure coefficients of 0.50 for the active condition and 0.66 for the at-rest condition. Undrained conditions assume that the walls will be subject to full hydrostatic pressure. Drained conditions assume positive and continuous drainage of infiltrated water from the backfill. Where drainage cannot be assured, then undrained conditions should be assumed.

Crushed stone backfill should be placed in nominal 10- to 12-in.-thick lifts and densified by vibrating equipment or other suitable means. Crushed stone backfill must be separated from the on-site soils and weathered shale by a suitable filter fabric. A fabric such as Mirafi 140N or an approved equivalent is recommended.

Low-plasticity select backfill should be compacted to a minimum of 95 percent of the maximum dry density as determined by Standard Proctor (ASTM D698) methods. Approximately the top 12 in. of wall backfill should consist of low-permeability clayey soils compacted to the Standard Proctor density recommended above. This top layer should limit significant infiltration of surface water into backfill. The on-site silty clay fill is suitable for this use. Compaction within 5 ft of walls should be achieved with hand compaction equipment. Overcompaction of backfill soils can result in damage to walls.

To reduce lateral earth pressures and maintain proper drainage, a drainage system should be provided for backfill behind walls. Where backfilled with low-plasticity select fill, the zone behind walls extending at least 18 in. back of walls should be backfilled with clean, free-draining crushed stone fully encapsulated in filter fabric. To allow drainage of perched water from wall backfill, a perimeter drain consisting of a continuous, perforated PVC pipe wrapped in geotextile fabric should be provided within the granular course behind retaining walls. Weep holes should be included in retaining walls. Water should be discharged from backfill by a positive drainage system or a system of regularly-spaced, functioning weep holes.

It must be recognized that there will be some settlement of below-grade wall and retaining wall backfill. The magnitude of post-construction settlement can be reduced by utilizing clean



crushed stone backfill. Concrete flatwork and other architectural features constructed over wall backfill will be subject to variable amounts of post-construction settlement. Locating foundation elements in wall backfill should be avoided. Where necessary to place footings in wall backfill, special consideration must be given to the settlement potential. We recommend that this situation be evaluated by the Structural Engineer and the Geotechnical Engineer on a case-by-case basis.

Site Grading

The lime storage building will require cuts of up to 12 ft below existing grade. Any abandoned underground utilities or foundation elements in the new building area should be fully excavated and excavations backfilled with crushed stone aggregate base, flowable fill, or lean concrete, unless specifically accepted by the Engineer. The Geotechnical Engineer should observe all excavations to verify the subgrade conditions.

The on-site soils, free of organics and debris and with a maximum plasticity index (PI) of 18, are suitable for use as select fill, though water content will require adjustment for compaction. Imported borrow for select fill or backfill use should consist of an approved silty clay/shale fragment blend or low-plasticity clayey sand (SC), sandy clay (CL), or clayey gravel (GC) with a liquid limit less than 40 and a maximum plasticity index (PI) of 18 or an approved alternate. Fill and backfill should have a maximum particle size of about 3 in. and must be free of organic materials and debris. All select fill and backfill should have a maximum PI of 18, including shale fragment blends, and should be approved by the Geotechnical Engineer.

With the exception of below-grade wall backfill, recompacted soils, fill, and backfill should be compacted to at least 95 percent of the Modified Proctor (ASTM D1557) maximum dry density. Low-plasticity soils (clayey sand, sandy clay, or clayey gravel) should be compacted within a water content range of 2 percent below to 3 percent above the optimum value. Shale fragment blends should be watered as necessary to obtain a water content ranging from optimum to 3 percent above optimum during compaction. Fill and backfill should be placed in horizontal, nominal 6- to 8-in.-thick lifts. Each lift of fill or backfill should be properly compacted, tested and approved prior to placing subsequent lifts.

CONSTRUCTION CONSIDERATIONS

Positive surface and subsurface drainage should be established at the start of construction, maintained during the work, and incorporated into final design to prevent surface water ponding and subsequent saturation of subgrade soils. Density and water content of all earthwork should be



maintained until the foundations are completed. Subgrade soils that become saturated by ponding water or runoff should be excavated to suitable material.

Groundwater was not encountered within the range of dry-auger drilling in June 2025. Shallow perched groundwater could be encountered during the work, particularly during wet seasons. Limited seepage into shallow excavations can probably be controlled by ditching or via sump-and-pump methods. If seepage infiltration cannot be controlled, construction of French drains and/or the use of stone backfill (i.e., #57 stone) will be warranted. French drains and blanket drains should consist of clean filter stone (“C”-ballast or ASTM D448, Size 57) fully encapsulated by a filter fabric. A fabric such as Mirafi 140N or an approved equal is recommended. Granular backfill should be vented to positive discharge into storm lines or to daylight.

All foundation excavations and undercuts should be observed by the Geotechnical Engineer to verify suitable bearing and adequate undercut. Some overbreak of foundation excavations in rock, and particularly in weathered sandstone, should be anticipated. Clayey sand, sandy clay, or silty clay seams or layers encountered in foundation bottoms should be excavated to competent rock. The use of dental concrete is acceptable to mitigate deficient bearing surfaces. All overbreaks in foundation excavations should be backfilled with concrete.

Concrete should be placed in foundation excavations expeditiously following final clean up and approval to limit changes in foundation conditions. Foundation excavations should be clean and dry at the time of concrete placement. Where foundation excavations will be left open for extended periods, the bearing stratum should be protected with a thin layer of seal concrete.

Site grading for the lime storage building is expected to require cuts of up to 12 feet. A retention system is expected to be required to protect the excavation and minimize movements of the hillside north of the new building. Soldier piles, drilled shafts, or micropiles would be suitable for use as retention systems. Specific recommendations for a retention system can be considered when plans are developed.

Excavations will be advanced through the overburden soils and into the low hardness to moderately hard weathered sandstone and weathered shale. While the highly weathered shale and weathered sandstone can often be excavated with conventional heavy-duty equipment, rock excavation methods are expected to be required for more competent weathered sandstone units and weathered shale with interbedded sandstone seams and layers. Rock excavation methods such as hoerams, jackhammers, or blasting will be required to advance excavations into the competent, well cemented weathered sandstone and more resistant weathered shale or interbedded weathered shale



and sandstone. Narrow excavations could be particularly difficult to advance. Some overbreak of excavations in the weathered sandstone and weathered shale should be expected.

The potential for rock excavation should be anticipated. Contract documents should include a unit price for removal and disposal of materials and obstructions that cannot be excavated with conventional heavy-duty excavating equipment. The conventional heavy-duty excavating equipment may be defined as a Caterpillar D-7 bulldozer with single tooth ripper, a Caterpillar 312 track excavator equipped with rock teeth, or equipment of similar power and capability. Rock excavation volumes should be determined based on in-place measurements via cross sectioning. If excavation is to be unclassified, the Contractor must be responsible for assessing rock excavation requirements.

CLOSURE

Site preparation, grading work, and foundation construction should be monitored by the Engineer or a designated representative thereof. Subsurface conditions significantly at variance with those encountered in the borings should be brought to the attention of the Geotechnical Engineer. The conclusions and recommendations of this report should then be reviewed in light of the new information.

The following plates are attached and complete this final report.

Plate 1	Site Vicinity
Plate 2	Plan of Borings
Plates 3 and 4	Boring Logs
Plates 5 and 6	Keys to Terms and Symbols
Appendix A	Hydro-Vac Excavation Photographs
Appendix B	Relevant Previous Borings from 2018 Study
Appendix C	Rock Core Photographs
Appendix D	Laboratory Test Results

* * * * *

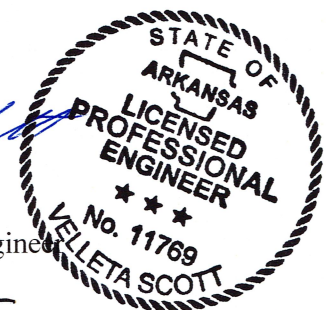


We appreciate the opportunity to be of service to you on this project. Should you have any questions regarding this report, or if we may be of additional assistance during final design or construction, please call on us.

Sincerely,

**UES PROFESSIONAL
SOLUTIONS 25, LLC**

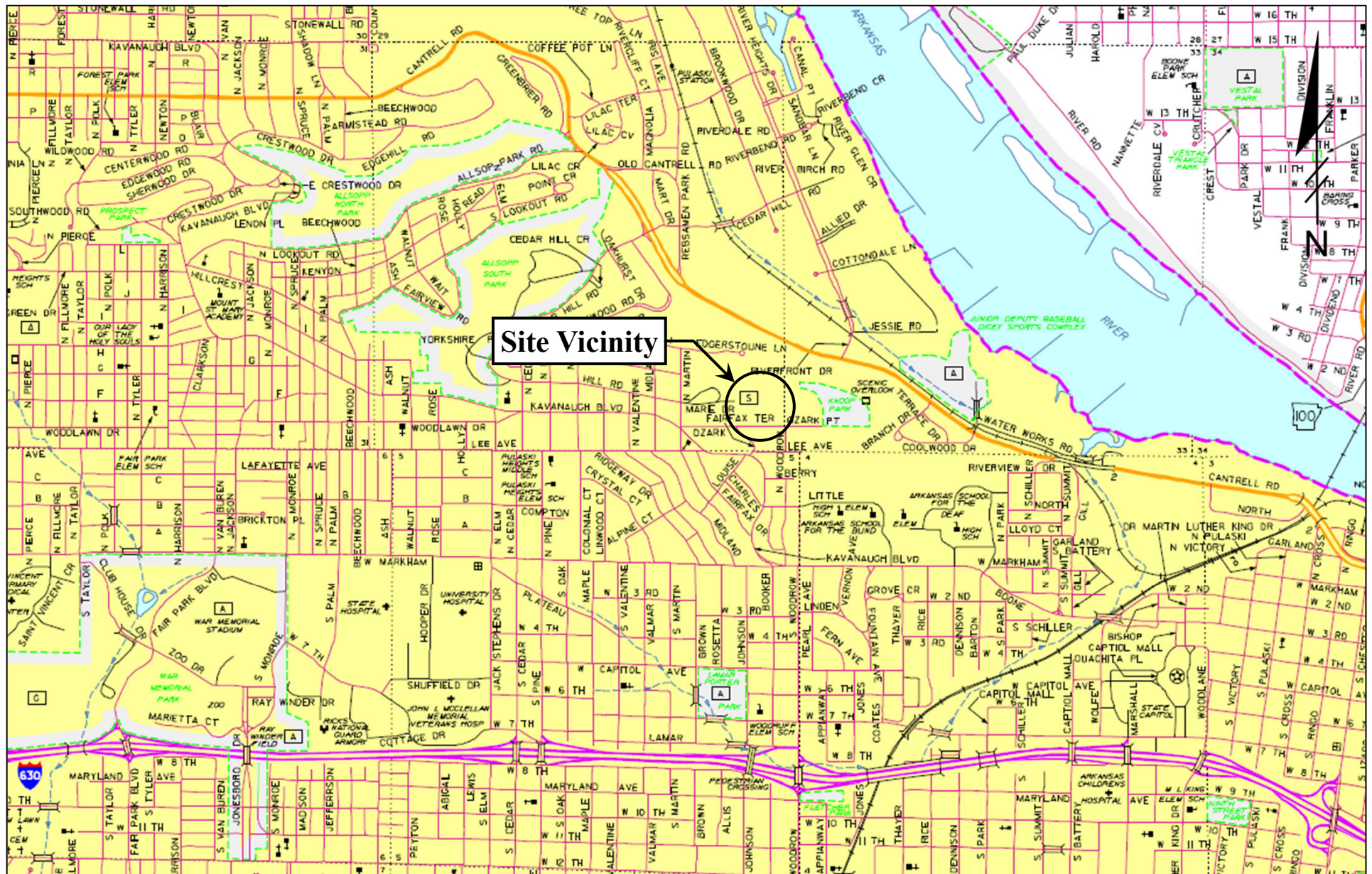
Velleta M. Scott, P.E.
Principal Geotechnical Engineer



Mark E. Wyatt, P.E.
Senior Principal Geotechnical Engineer

VMS/MEW:ms

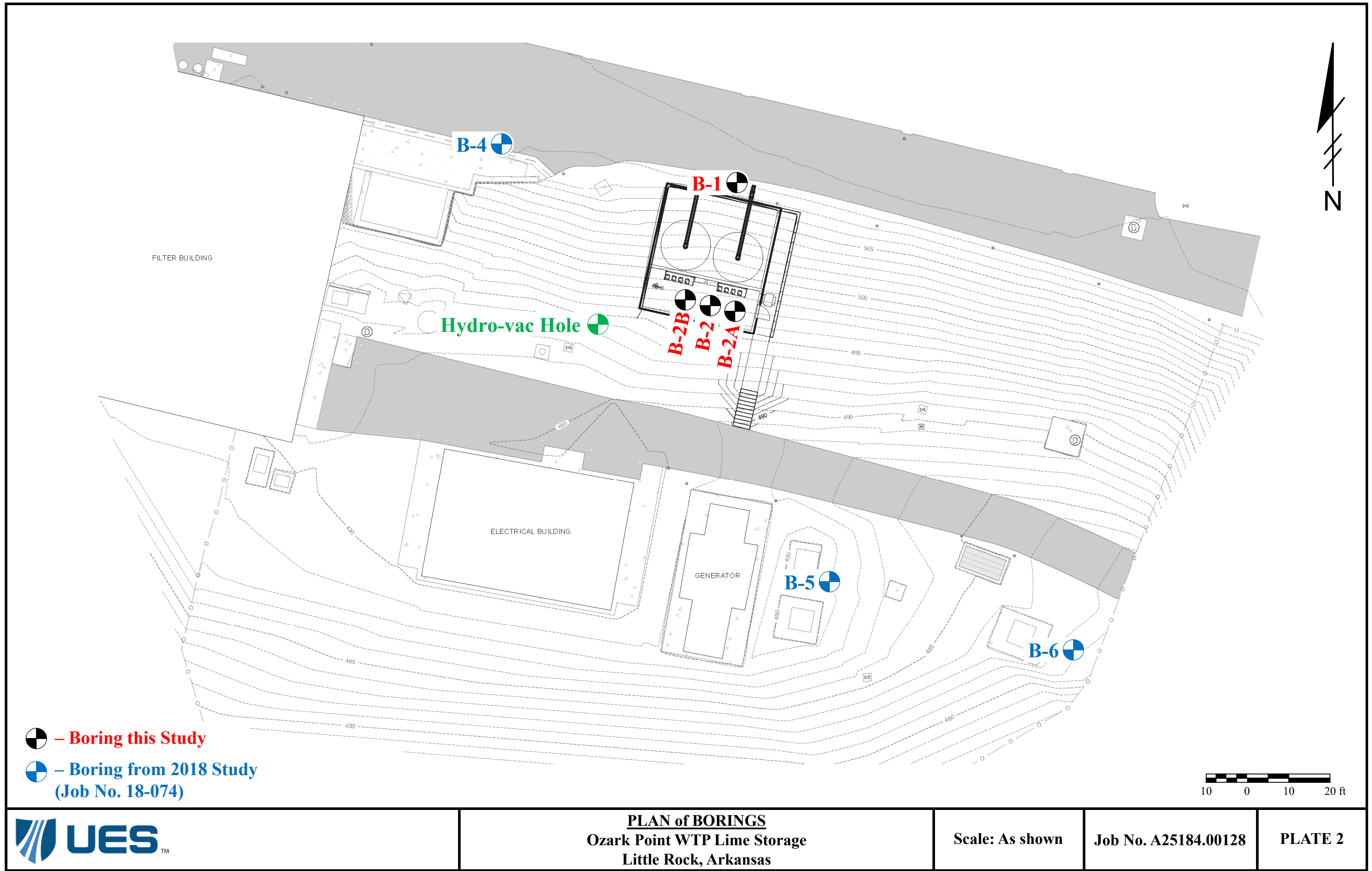
Copies submitted: Central Arkansas Water
c/o Crist Engineers, Inc.
Attn: Mr. Craig Johnson, P.E. (1-email)
Attn: Mr. Trevor Voegelé, P.E. (1-email)



SITE VICINITY MAP
Ozark Point WTP Lime Storage
Little Rock, Arkansas

Job No. A25184.00128

Plate 1



A25184.00128



LOG OF BORING NO. 1

Ozark Point WTP Lime Storage
Little Rock, Arkansas

TYPE: Auger to 18.5 ft /Wash

LOCATION: See Plate 2

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT										- No. 200 %	% Recovery	% RQD
						0.2 0.4 0.6 0.8 1.0 1.2 1.4												
						PLASTIC LIMIT WATER CONTENT LIQUID LIMIT												
			SURF. EL: 508±			+ ● +												
						10 20 30 40 50 60 70												
5			Loose brown fine sandy silt, slightly clayey w/occasional sandstone fragments (fill)	7														
			Very soft to soft tan, maroon, and gray silty clay w/numerous shale fragments (fill) - firm with sandstone fragments below 4 ft - soft, reddish brown and maroon below 6 ft	4													40	
				9														
				5														
10		Low hardness maroon, reddish tan, and gray highly weathered shale w/very close fine-grained sandstone partings and seams	46															
15		Friable tan, reddish tan, and gray highly weathered fine-grained sandstone w/silty fine sand seams	30															
20		Moderately hard to hard light tan and reddish tan slightly weathered fine-grained sandstone w/ferrous stains and very close rehealed fractures	50/2"															
25		- gray and reddish tan below 24 ft													88	33		
30		- with close clay-filled fractures below 29 ft													42	7		
35		Notes: 1. Drilled with CME-55													55	7		
COMPLETION DEPTH: 34.0 ft DATE: 6-13-25				DEPTH TO WATER IN BORING: Dry to 20 ft										DATE: 6/13/2025				

COMPLETION DEPTH: 34.0 ft
DATE: 6-13-25

DEPTH TO WATER
IN BORING: Dry to 20 ft

DATE: 6/13/2025



LOG OF BORING NO. 2

Ozark Point WTP Lime Storage

Little Rock, Arkansas

TYPE: Auger

LOCATION: See Plate 2

[illegible]

SOIL TYPES

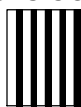
(SHOWN IN SYMBOLS COLUMN)



Gravel



Sand



Silt

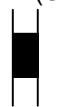


Clay

Predominant type shown heavy

SAMPLER TYPES

(SHOWN ON SAMPLES COLUMN)



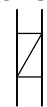
Shelby
Tube



Rock
Core



Split
Spoon



No
Recovery



Cutting

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE GRAINED SOILS (major portion retained on No. 200 sieve): Includes (1) Clean gravels and sands, and (2) silty or clayey gravels and sands. Condition is rated according to relative density, as determined by laboratory tests.

DESCRIPTIVE TERM

N-VALUE

RELATIVE DENSITY

VERY LOOSE

0-4

0-15%

LOOSE

4-10

15-35%

MEDIUM DENSE

10-30

35-65%

DENSE

30-50

65-85%

VERY DENSE

50 and above

85-100%

FINE GRAINED SOILS (major portion passing No. 200 sieve): Includes (1) Inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by unconfined compression tests.

DESCRIPTIVE TERM

UNCONFINED COMPRESSIVE STRENGTH TON/SQ. FT.

VERY SOFT

Less than 0.25

SOFT

0.25-0.50

FIRM

0.50-1.00

STIFF

1.00-2.00

VERY STIFF

2.00-4.00

HARD

4.00 and higher

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above, because of planes of weakness or cracks in the soil. The consistency ratings of such soils are based on penetrometer readings.

TERMS CHARACTERIZING SOIL STRUCTURE

SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance.

FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.

LAMINATED - composed of thin layers of varying color and texture.

INTERBEDDED - composed of alternate layers of different soil types.

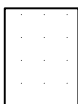
CALCAREOUS - containing appreciable quantities of calcium carbonate.

WELL GRADED - having a wide range in grain sizes and substantial amounts of all intermediate particle sizes.

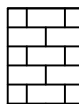
POORLY GRADED - predominantly of one grain size, or having a range of sizes with some intermediate sizes missing.

Terms used on this report for describing soils according to their texture or grain size distribution are in accordance with the UNIFIED SOIL CLASSIFICATION SYSTEM, as described in Technical Memorandum No.3-357, Waterways Experiment Station, March 1953

ROCK TYPES (SHOWN IN SYMBOLS COLUMN)



Sandstone



Limestone



Siltstone



Coal



Shale

Joint Characteristics –	<u>Spacing</u>		Degree of Weathering –	Fresh – No visible signs of decomposition or discoloration. Rings under hammer impact.
	Very Close	0.75 to 2.5 in.		
Bedding Characteristics –	Close	2.5 to 8 in.	Slightly Weathered – Slight discoloration inwards from open fractures, otherwise similar to fresh.	Moderately Weathered – Discoloration throughout. Weaker minerals such as feldspar decomposed. Strength somewhat less than fresh rock, but cores cannot be broken by hand or scraped by knife. Texture preserved.
	Moderately Close	8 to 24 in.		
Lithologic Characteristics –	Wide	2 to 6 ft	Highly Weathered – Most minerals somewhat decomposed. Specimens can be broken by hand with effort or shaved with knife. Core stones present in rock mass. Texture becoming indistinct but fabric	Completely Weathered – Minerals decomposed to soil but fabric and structure preserved (Saprolite). Specimens easily crumbled or penetrated.
	Very Wide	More than 6 ft		
Parting –	Very Thin	0.75 to 2.5 in.	Residual Soil – Advanced state of decomposition resulting in plastic soils. Rock fabric and structure completely destroyed. Large volume change.	Solid, contains no voids
	Thin	2.5 to 8 in.		
Seam –	Medium	8 to 24 in.	Vuggy (pitted)	Vesicular (igneous)
	Thick	2 to 6 ft		
Layer –	Massive	More than 6 ft	Porous	Cavities
	Clayey			
Stratum –	Shaly		Cavernous	Nonswelling
	Calcareous (limy)			
Hardness–	Siliceous		Swelling Properties –	Nonslaking
	Sandy (Arenaceous)			
Solution and Void Conditions –	Silty		Slaking Properties –	Slakes slowly on exposure
	Plastic Seams			
Texture –	Less than 1/16 inch		Rock Quality Designation (RQD) –	Slakes readily on exposure
	1/16 to 1/2 inch			
Structure –	1/2 to 12 inches		RQD (Percent)	Diagnostic Description
	Greater than 12 inches			
Bedding	Soft (S) – Reserved for plastic material alone.		Greater than 90	Excellent
	Friable (F) – Easily crumbled by hand, pulverized or reduced to powder and is too soft to be cut with a pocket knife.			
Fractures, scattered	Low Hardness (LH) – Can be gouged deeply or carved with a pocket knife.		75 – 90	Good
	Moderately Hard (MH) – Can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and scratch is readily visible after the powder has been blown away.			
Fractures, closely spaced	Hard (H) – Can be scratched with difficulty; scratch produces little powder and is often faintly visible; traces of the knife steel may be visible.		50 – 75	Fair
	Very hard (VH) – Cannot be scratched with a pocket knife. Knife steel marks left on surface.			
Brecciated (Sheared and Fragmented)			25 – 50	Poor
Joints			Less than 25	Very Poor
Slickensides				

APPENDIX A



HYDRO-VAC HOLE PHOTOS
Ozark Point WTP Lime Storage
Little Rock, Arkansas

Job No. A25184.00128

Plate

APPENDIX B



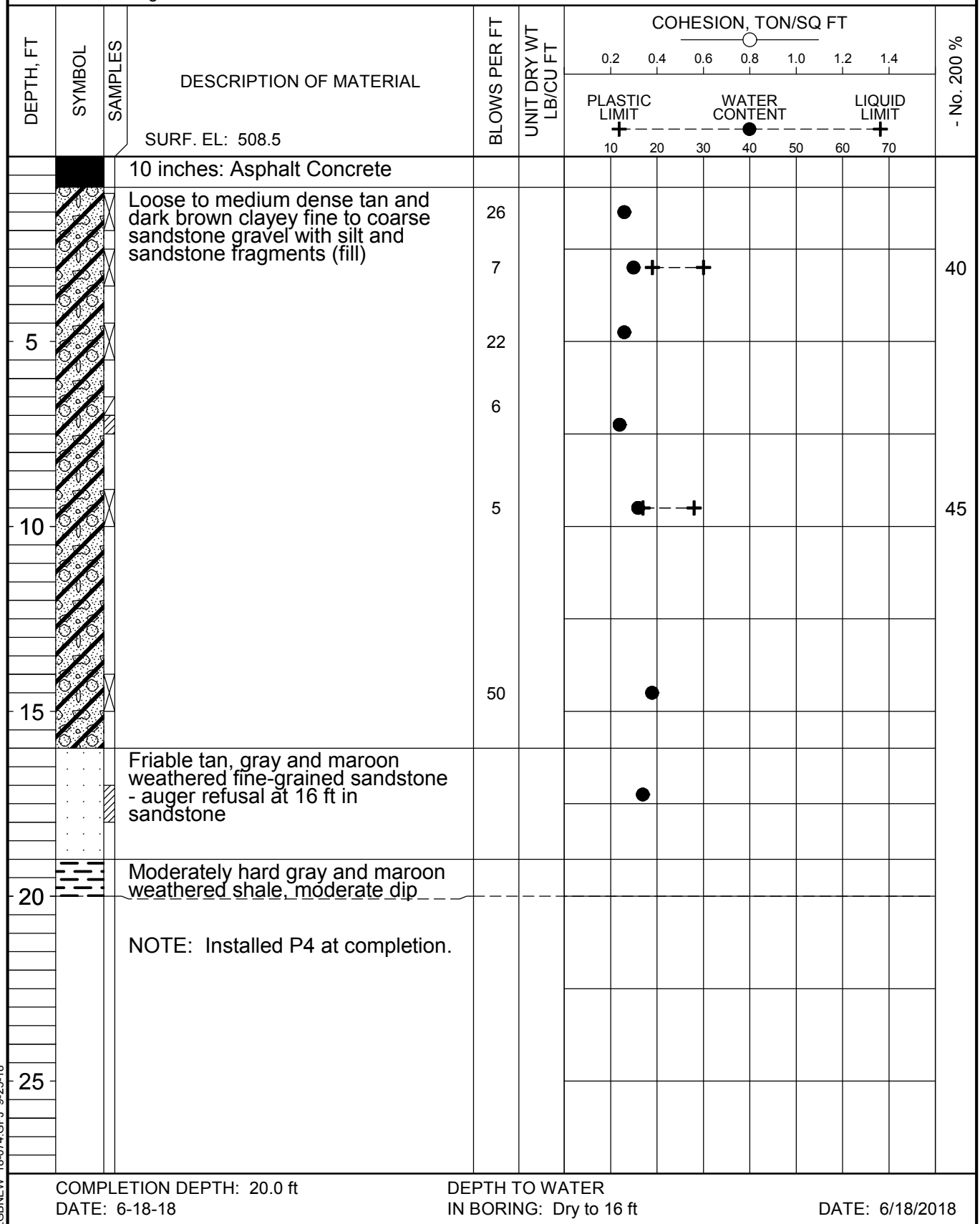
**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 4

Ozark Point WTP Improvements
Little Rock, Arkansas

TYPE: Auger to 16 ft /Wash

LOCATION: See Plate 2 - South Basin Wall



LGBNEW 18-074.GPJ 9-25-18



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 5

Ozark Point WTP Improvements
Little Rock, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - South Plant Area

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT							- No. 200 %
						0.2	0.4	0.6	0.8	1.0	1.2	1.4	
			SURF. EL: 486.3										
						PLASTIC LIMIT			WATER CONTENT			LIQUID LIMIT	
						10	20	30	40	50	60	70	
5			Stiff to very stiff brown fine sandy clay w/fine to coarse sandstone gravel w/silt and sandstone cobbles (fill)	26			●	+	+				49
			- stiff, brown below 4 ft	45		●							
			- reddish tan below 6 ft	16		●							
			- with more sandstone cobbles at 8 ft	12			●						
10			Very stiff tan clay w/maroon shale fragments	35			●	+	---	---	+		69
			Moderately hard gray and tan highly weathered shale w/occasional silty clay seams and layers	50/6"		●	+	---	+				
15			Moderately hard dark gray and maroon weathered shale	50/3"		●							
20			NOTE 1: CAW test pits near boring location shows sandstone cobbles and small boulders. NOTE 2: Backfilled with bentonite.										
25													

COMPLETION DEPTH: 19.0 ft
DATE: 6-14-18

DEPTH TO WATER
IN BORING: Dry

DATE: 6/14/2018

LGBNEW 18-074.GPJ 9-25-18



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 6

Ozark Point WTP Improvements

Little Rock, Arkansas

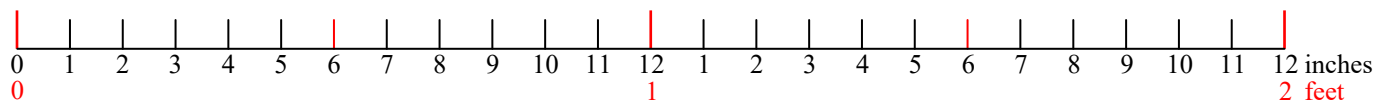
TYPE: Auger

LOCATION: See Plate 2 - Southeast Plant Area

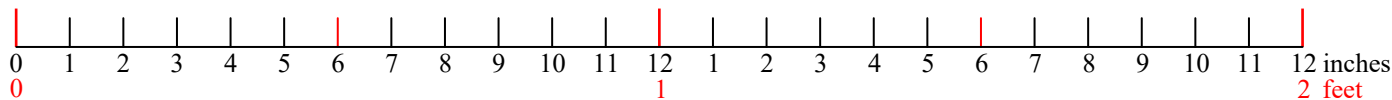
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APPENDIX C

B-1: Run 1 (22 to 24 ft), Run 2 (24 to 29 ft)



B-1: Run 3 (29 to 34 ft)



ROCK CORE PHOTOS
Ozark Point WTP Lime Storage
Little Rock, Arkansas

Job No. A25184.00128

Plate

APPENDIX D

SUMMARY of CLASSIFICATION TEST RESULTS

PROJECT: Ozark Point WTP Lime Storage

LOCATION: Little Rock, Arkansas

JOB NUMBER: A25184.00128

BORING No.	SAMPLE DEPTH (ft)	WATER CONTENT (%)	ATTERBERG LIMITS			PERCENT PASSING #200	USCS CLASS.	AASHTO CLASS.
			LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX			
1	2.5-3.5	18	34	17	17	40	GC	A-6
1	9-10	---	33	22	11	---	SHALE	
2	0.5-1.5	16	30	21	9	40	GC	A-4

P.W.A.-ARK-1106
CONTRACT NOS 6

WATER SUPPLY PROJECT

— WATER WORKS IMPROVEMENTS —

LITTLE ROCK, ARKANSAS

BURNS & MCDONNELL
ENGINEERING COMPANY
KANSAS CITY CINCINNATI

— 1937 —

R. E. OVERMAN
MAYOR

D. H. DAUGHERTY
H. T. (WILL) TERRY

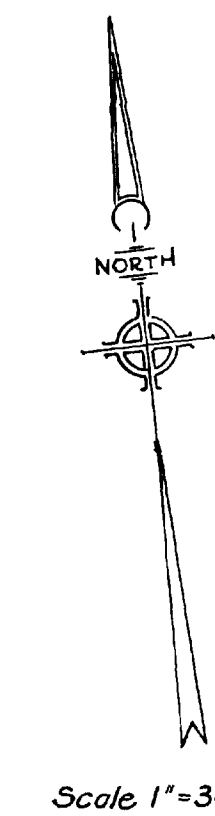
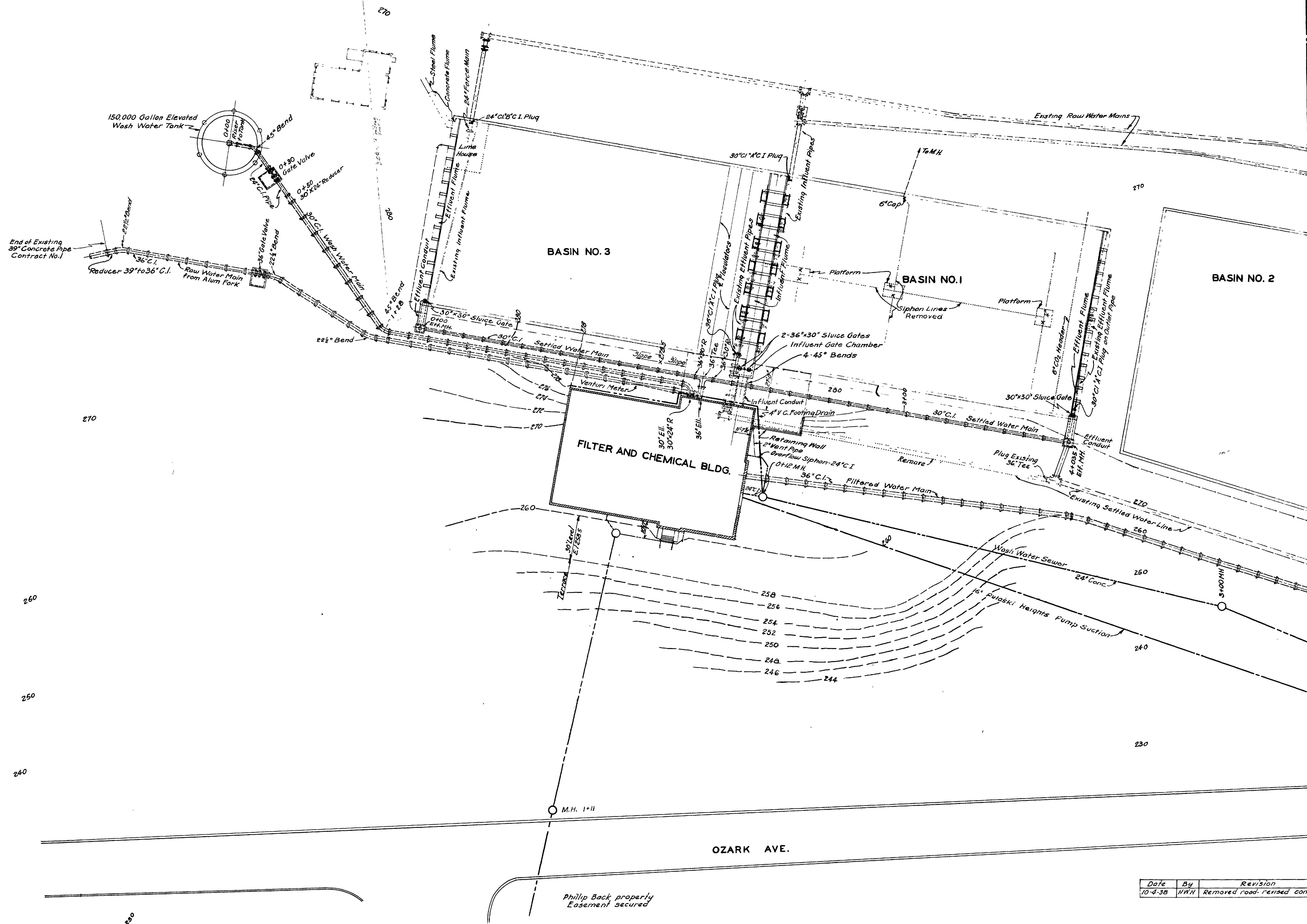
LIST OF DRAWINGS

NO. 1 GENERAL LAYOUT NO. 1
NO. 2 GENERAL LAYOUT NO. 2
NO. 3 SOUTH & WEST ELEVATIONS
NO. 4 NORTH & EAST ELEVATIONS
NO. 5 ARCHITECTURAL DETAILS NO. 1
NO. 6 INTERIOR ELEVATIONS & DETAILS
NO. 7 FLOOR PLANS, ELEVATIONS 262.0 & 280.0
NO. 8 FLOOR PLANS, ELEVATIONS 293.0 & 306.0
NO. 9 BUILDING SECTIONS
NO. 10 STAIR DETAILS

NO. 11 CONCRETE DETAILS NO. 1
NO. 12 CONCRETE DETAILS NO. 2
NO. 13 CONCRETE DETAILS NO. 3
NO. 14 CONCRETE DETAILS NO. 4
NO. 15 CONCRETE DETAILS NO. 5
NO. 16 CONCRETE DETAILS NO. 6
NO. 17 CONCRETE DETAILS NO. 7
NO. 18 CONCRETE DETAILS NO. 8
NO. 19 CONCRETE DETAILS NO. 9
NO. 20 CONCRETE DETAILS NO. 10

NO. 21 CONCRETE DETAILS NO. 11
NO. 22 MISCELLANEOUS PIPING
NO. 23 HEATING, LIGHTING & PLUMBING NO. 1
NO. 24 HEATING, LIGHTING & PLUMBING NO. 2
NO. 25 FLOCCULATOR DETAILS
NO. 26 BASIN FLUME DETAILS
NO. 27 MANHOLES
NO. 28 YARD PIPING & MISCELLANEOUS STRUCTURES
NO. 29 ROAD





LEGEND

- Solid Line - New Structure
- Hidden Line - New Structure
- Solid Line - Existing Structure
- Hidden Line - Existing Structure
- Solid Line } Existing Structure to be Removed
- Hidden Line }
- 240 Existing Contour
- New Contour

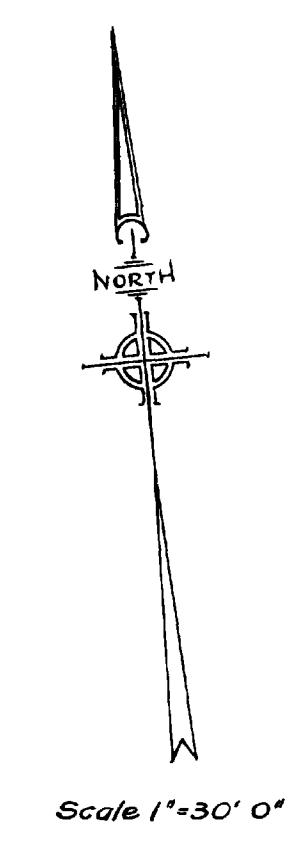
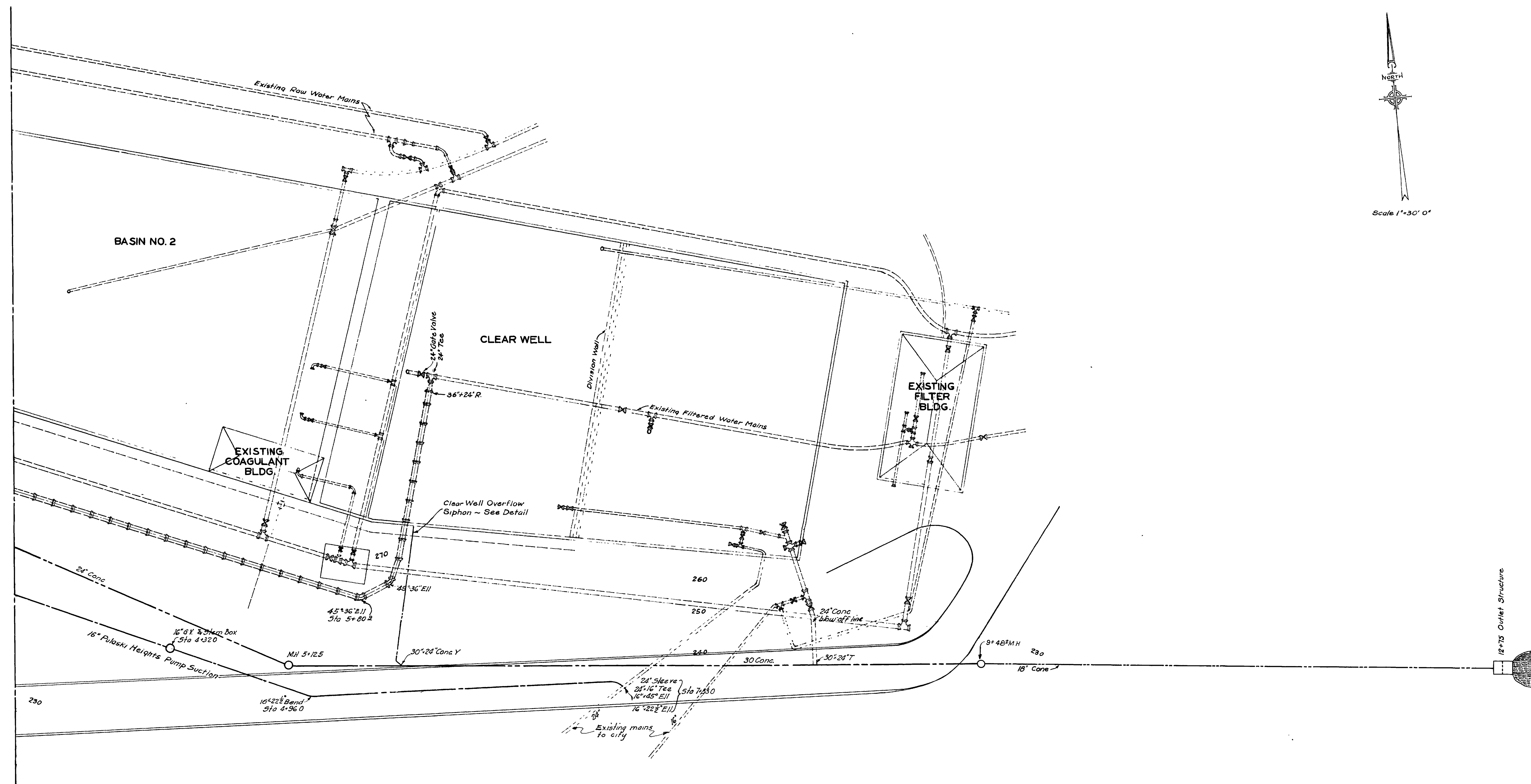
Date	By	Revision
10-4-38	NWH	Removed road, revised contours

WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS

General Layout No. 1
BURNS & McDONNELL ENGINEERING CO.
KANSAS CITY CINCINNATI

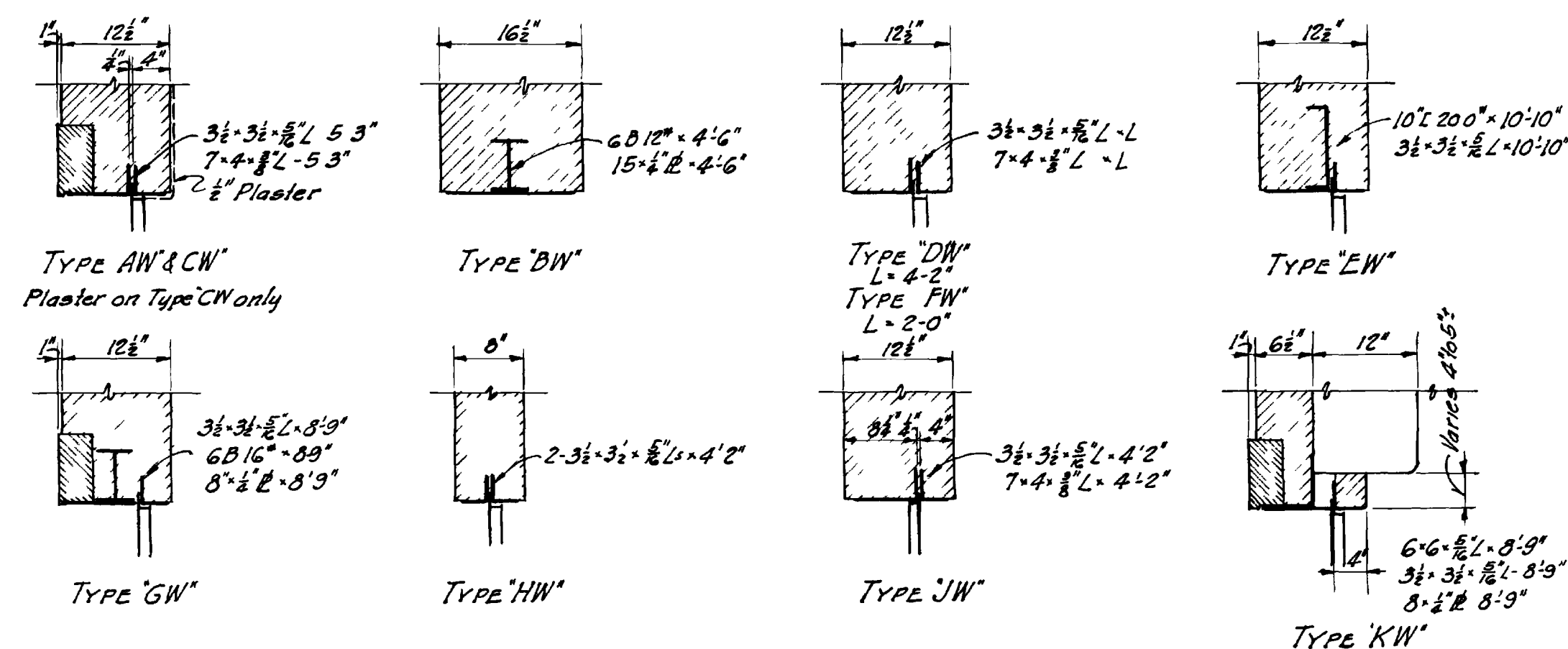
APR. 1937

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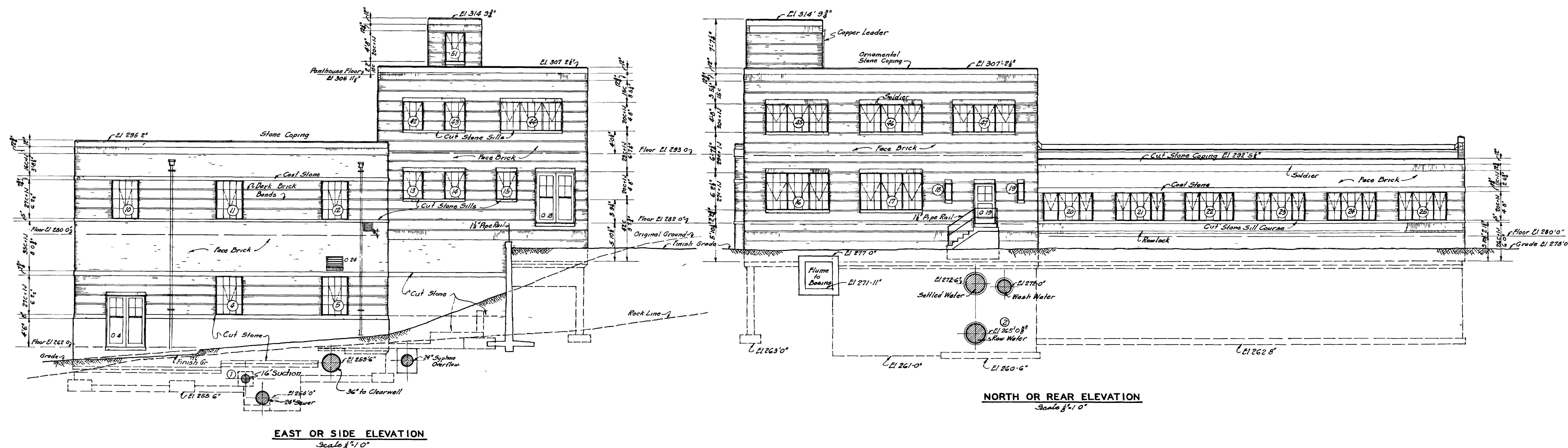


Date	By	Revision
10-4-38	HWH	Revised road & pipe layout

WATER WORKS IMPROVEMENTS
 WATER SUPPLY PROJECT
 LITTLE ROCK, ARKANSAS
General Layout No 2
 BURNS & McDONNELL ENGINEERING CO.
 KANSAS CITY CINCINNATI
 APR. 1937

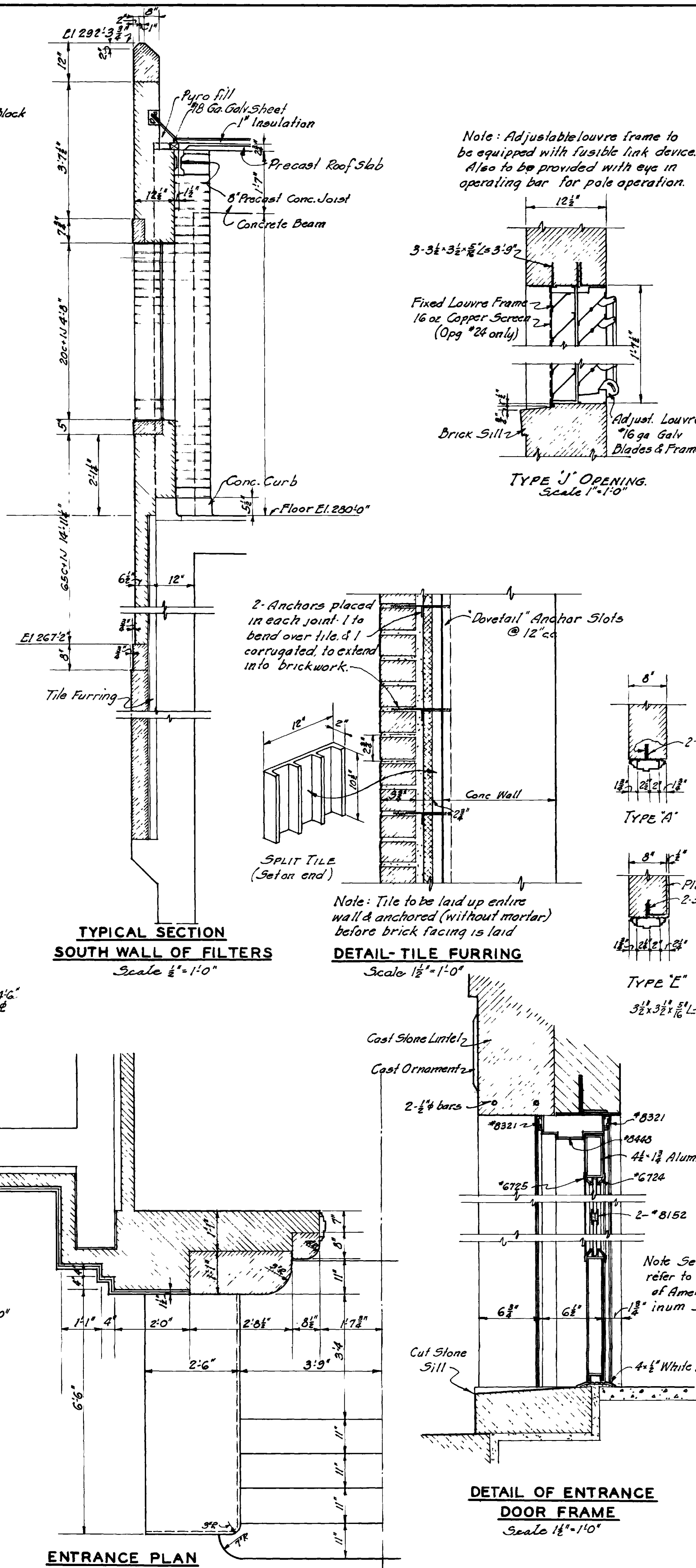
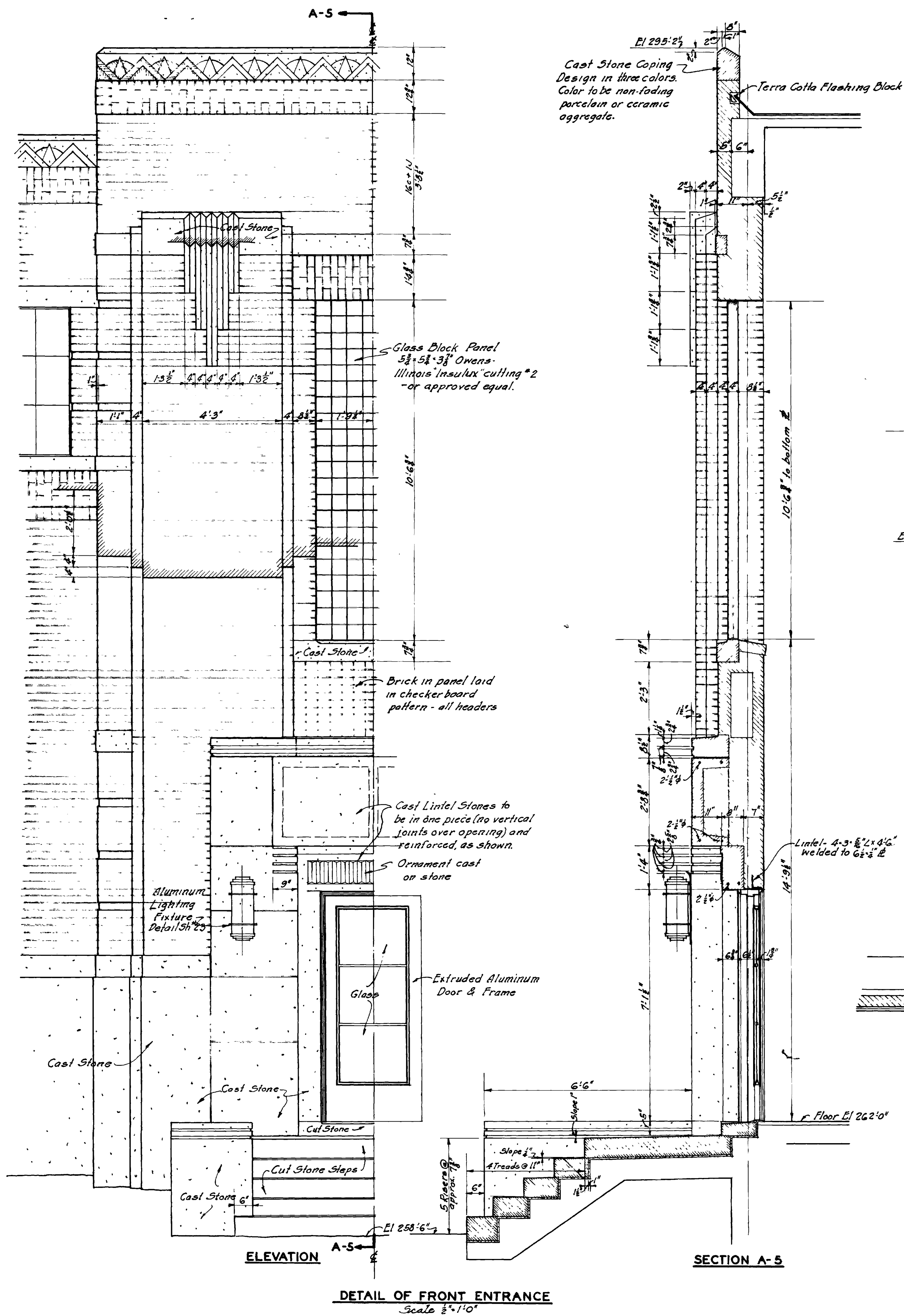


No	LOCATION	No. of Lights	No. of Ventil.	Type	Listed Elev.	REMARKS
1-5 Inc	Pump Room	4x4	1	AW	274 0 1/2	
6	Lobby	—	—	BW		Glass Block
7 1/2 Inc	Office	4x4	1	CW	285 3/4	
12	Chlorine Storage	4x4	1	AW	285 3/4	
13 1/2 Inc	Chem Feed Room	3x3	1	DW	290 5/8	
16 & 17	"	3x3	3	EW	290 5/8	
18 & 19	"	1x2	—	FW	290 5/8	
20-26 Inc	Filter Room	1 3/4 x 3 3/4	3	GW	287 2 1/4	
27 & 31	"	1 3/4 x 3 3/4	3	KW		
28 & 30 Inc	"	3x3	1	DW	"	
32-38 Inc	"	1 3/4 x 3 3/4	3	GW	"	
39 & 41 Inc	Chem Storage	3x3	3	EW	301 5/8	
42 & 43	"	3x3	1	DW	"	
44 & 49 Inc	"	3x3	3	EW	"	
50 & 51	Elevator Pent House	3x3	1	HW	"	
52 & 53	West Wall Chlorine Rm	3x3	—	HW	"	
54 & 55	Lobby to Filter Gallery	4x4	2	JW	287 1/8	Casement Sash

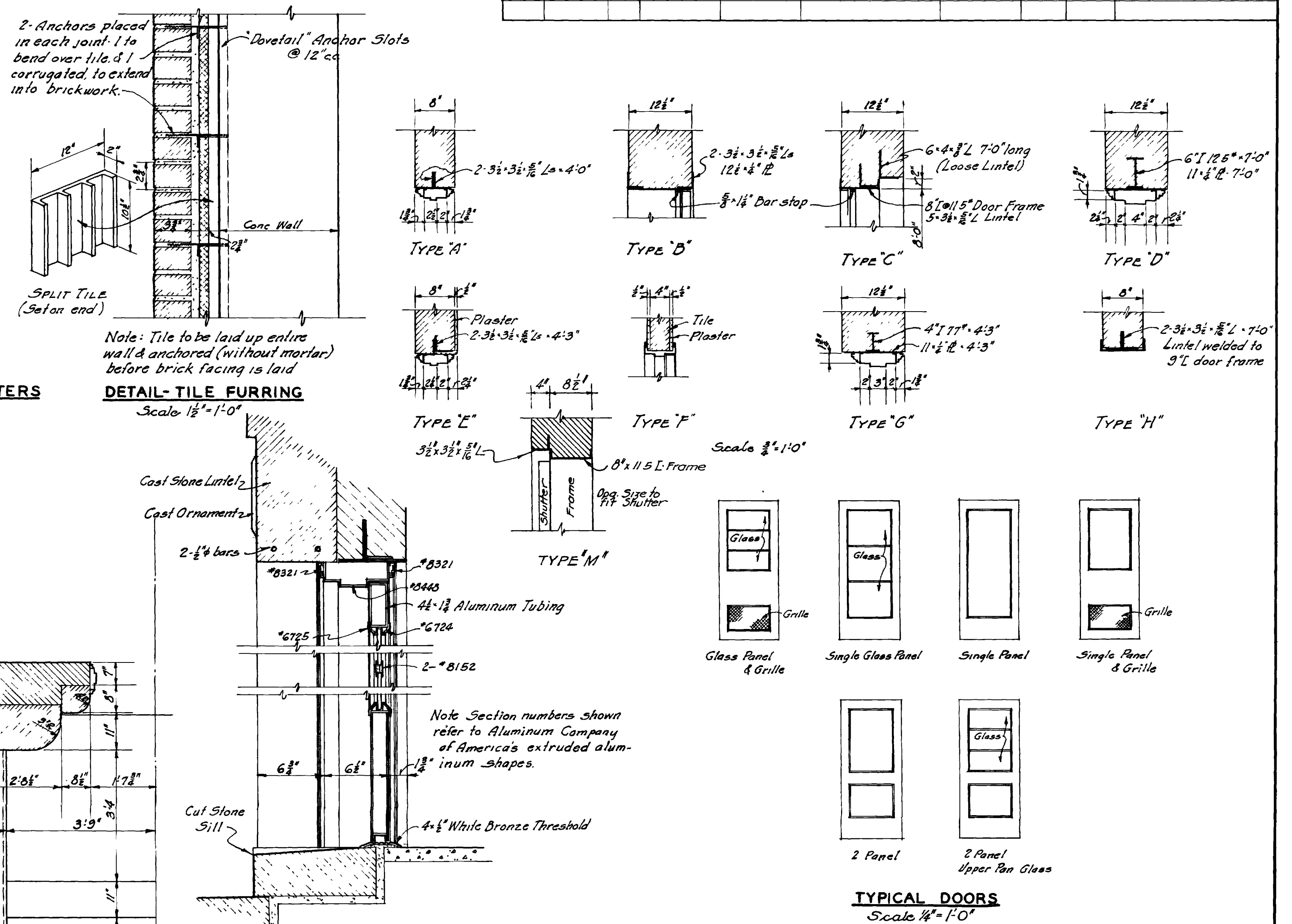


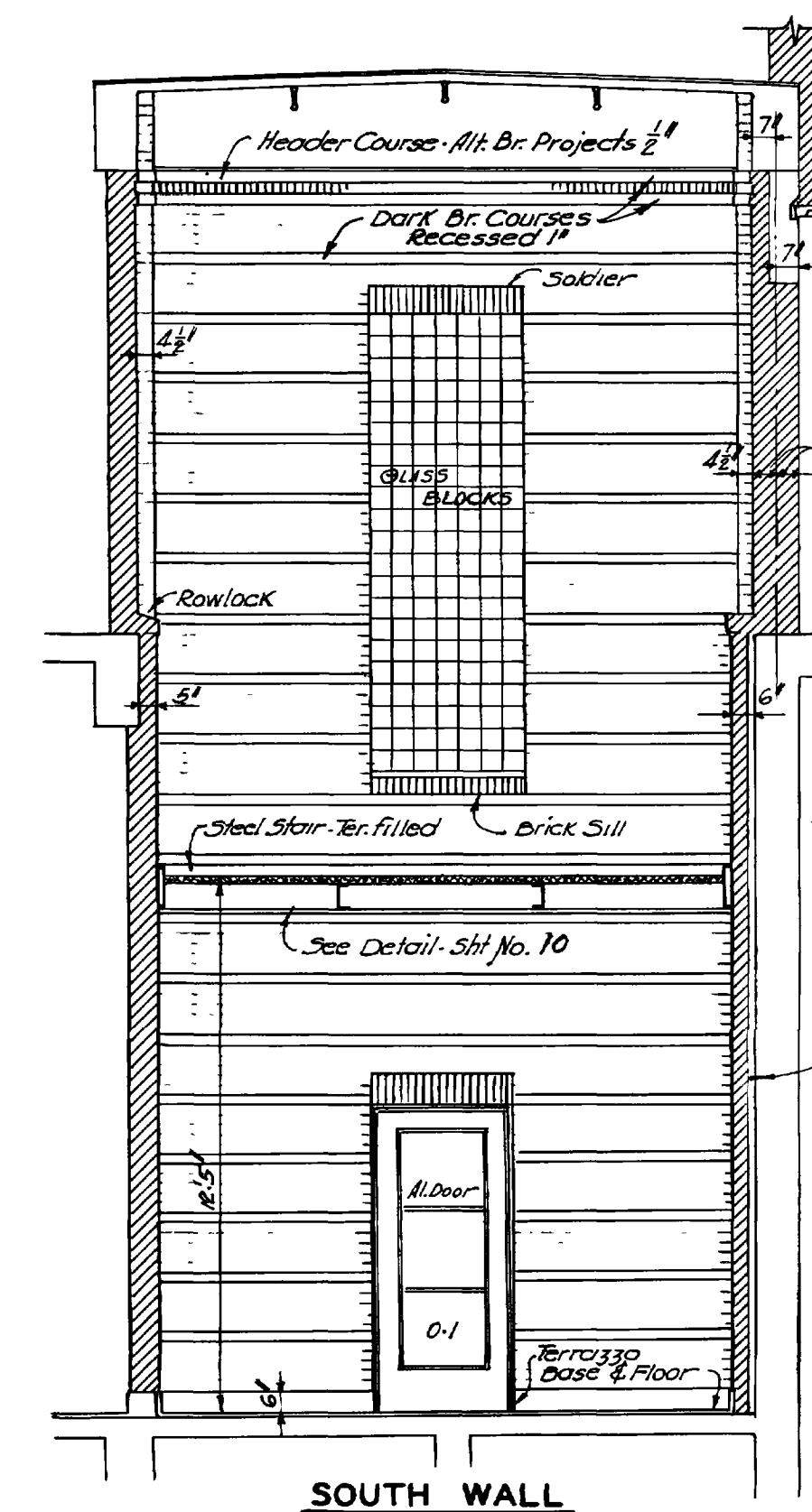
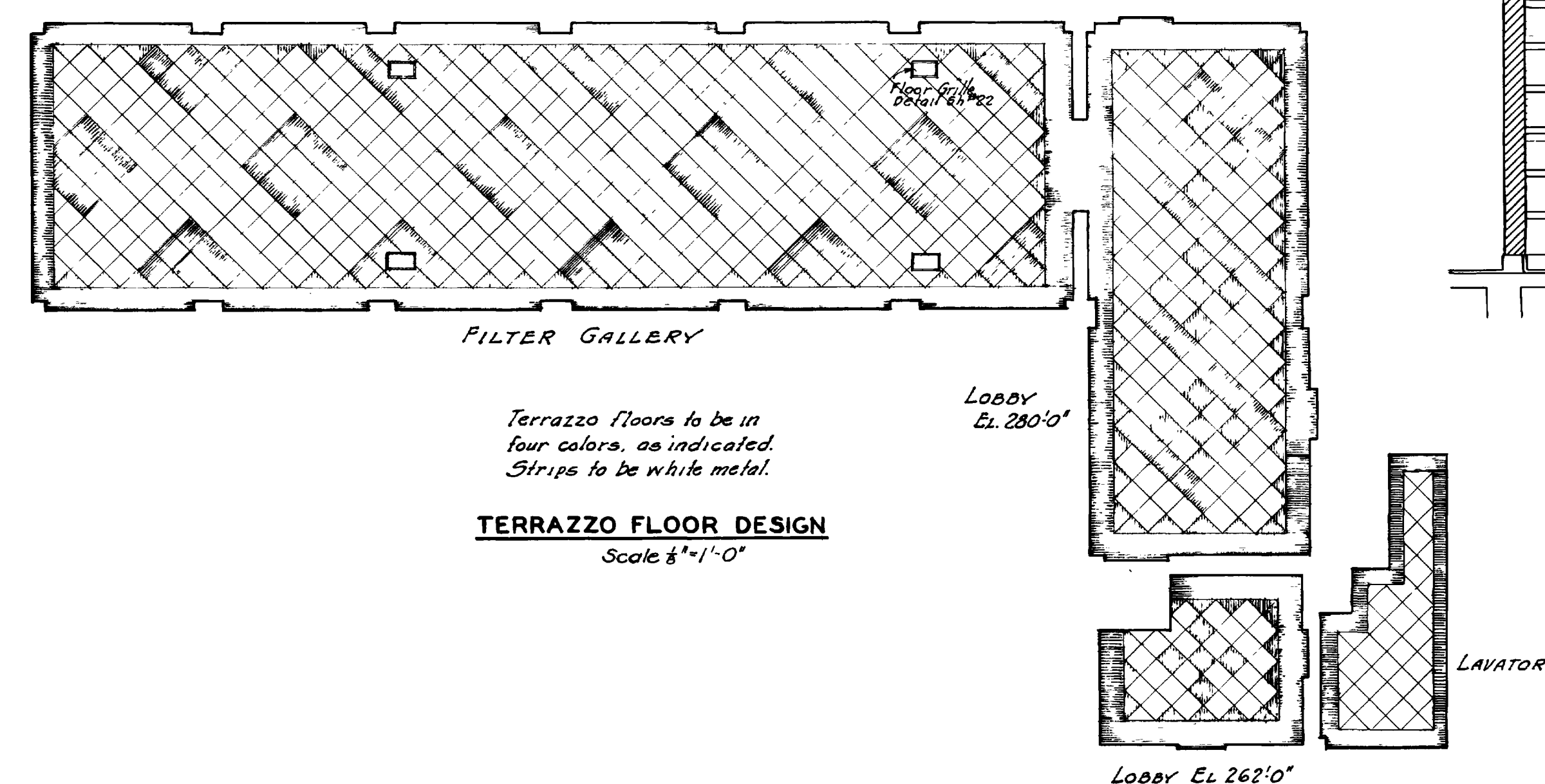
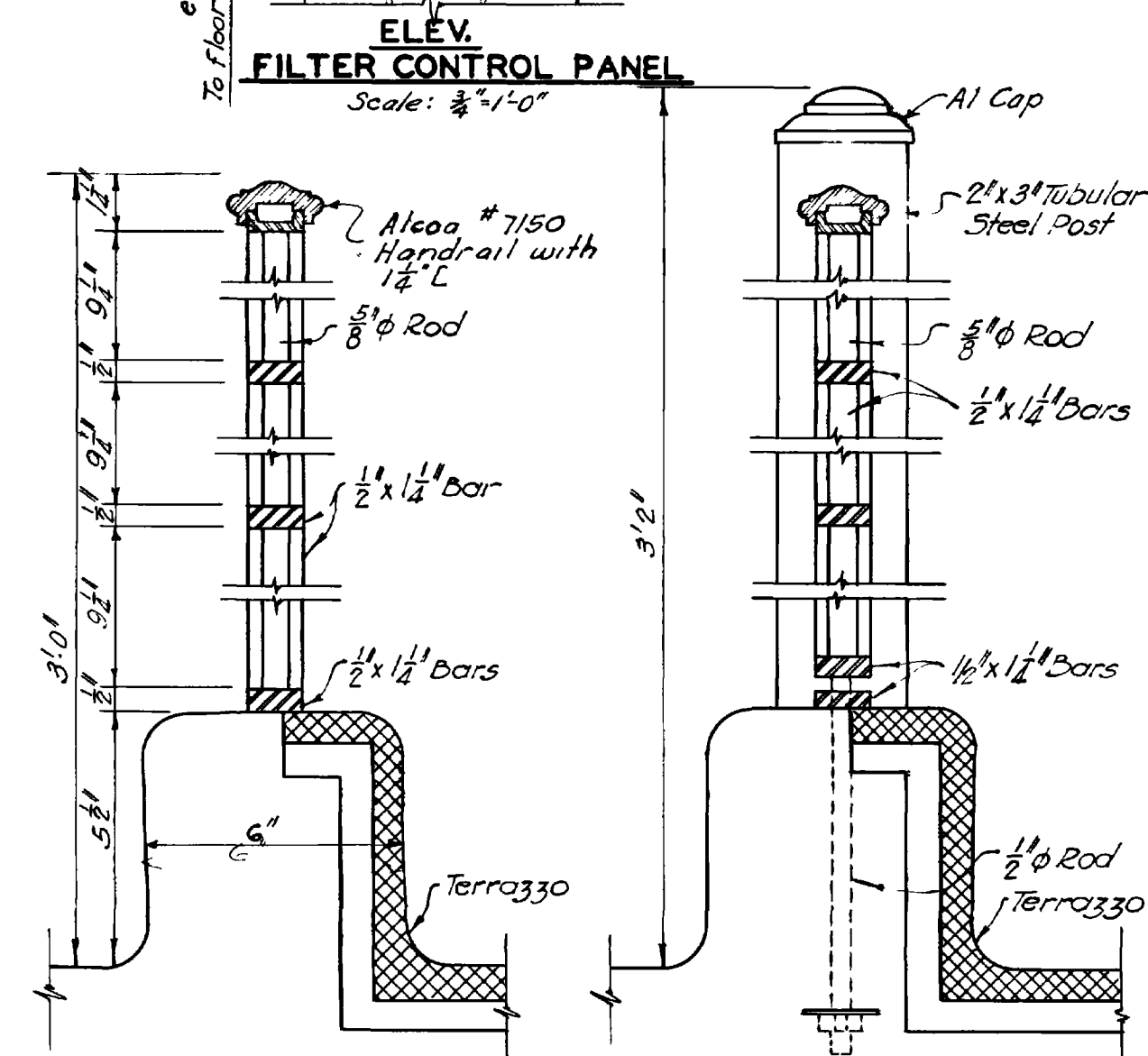
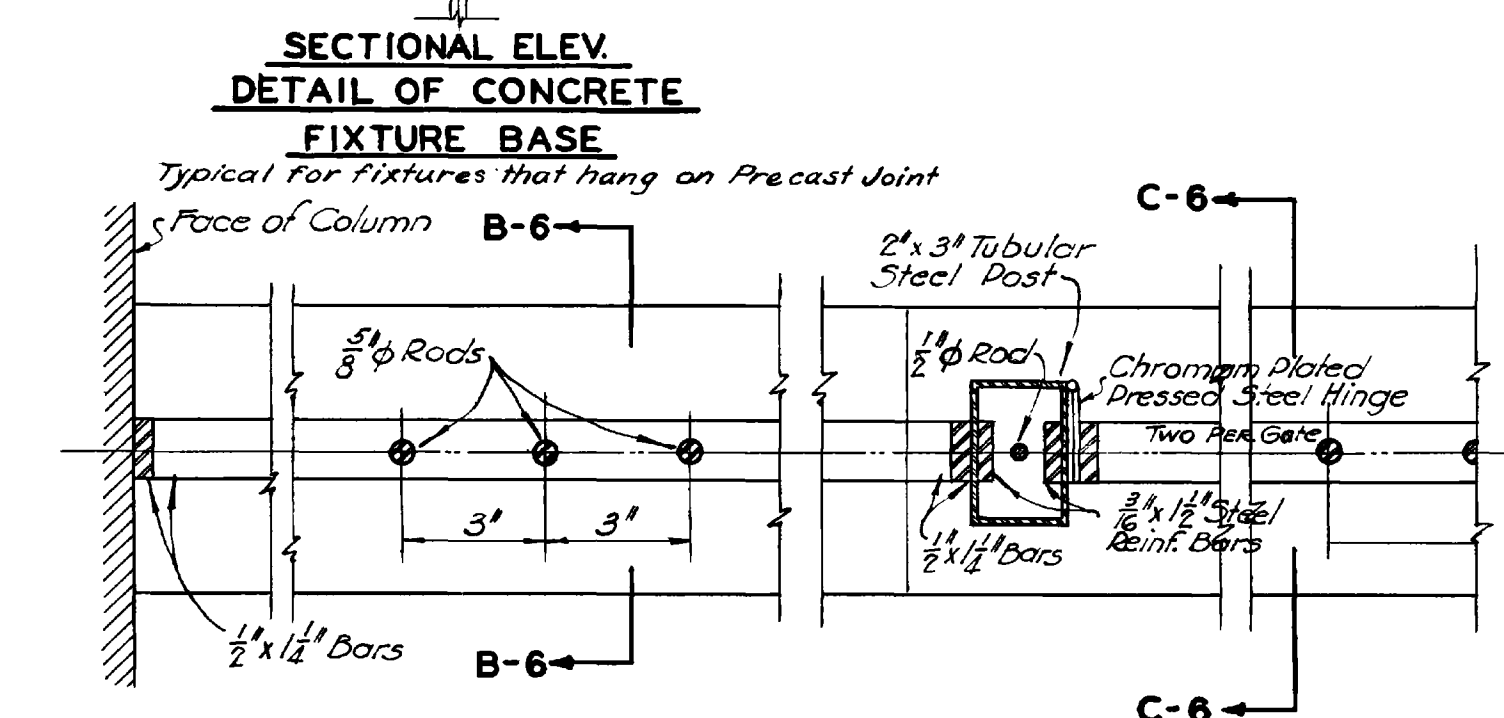
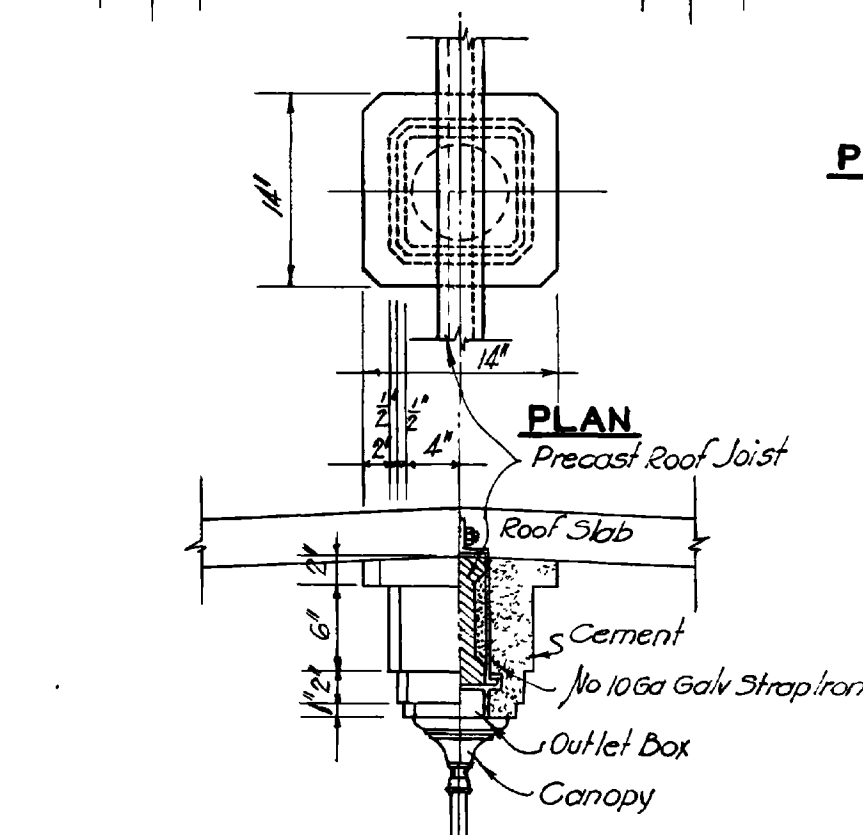
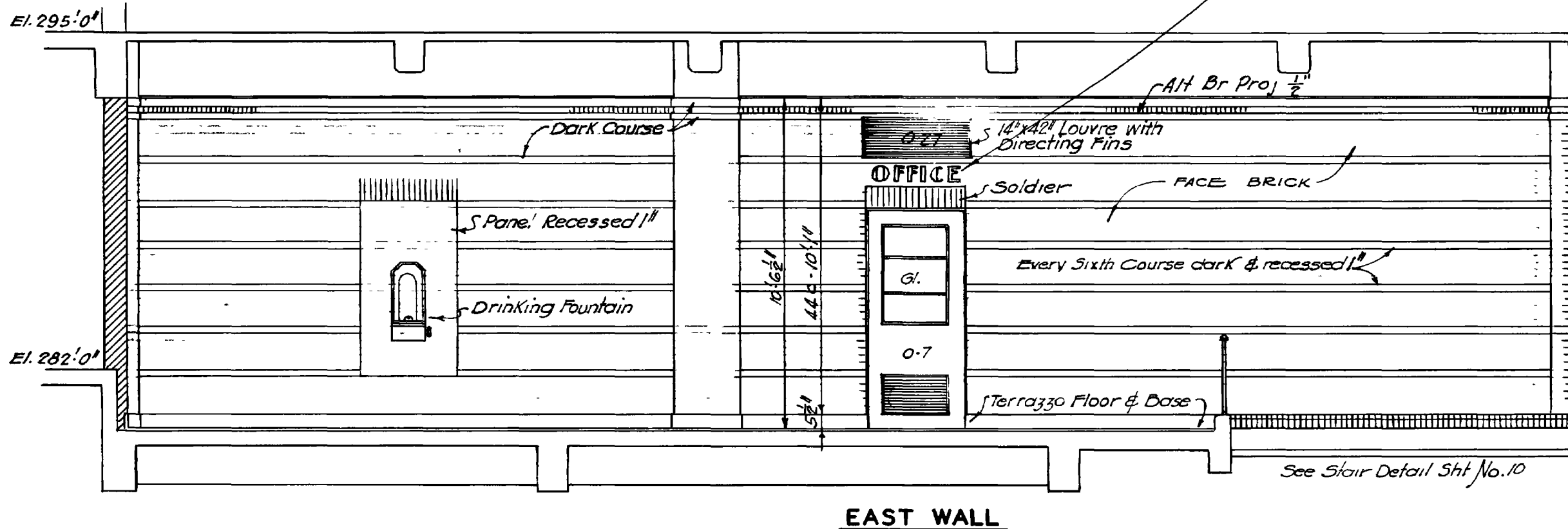
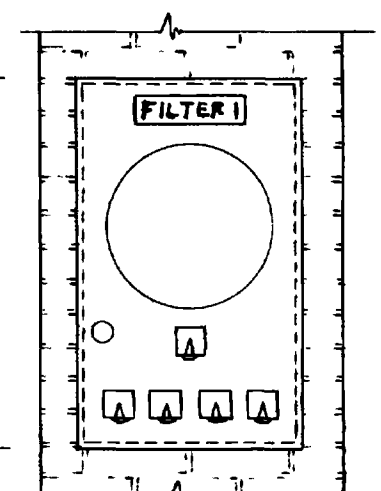
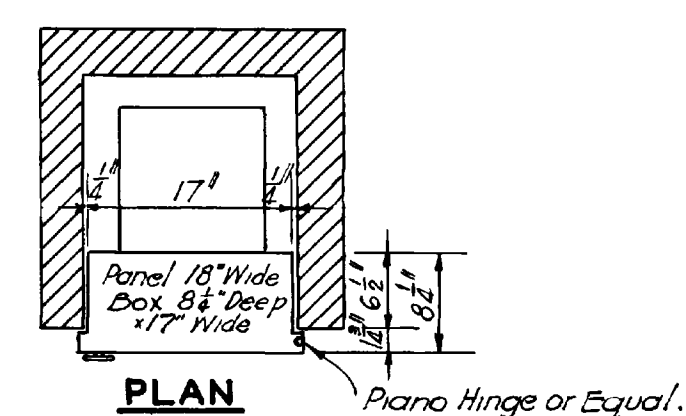
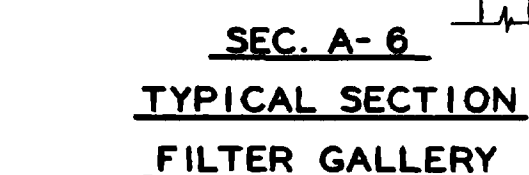
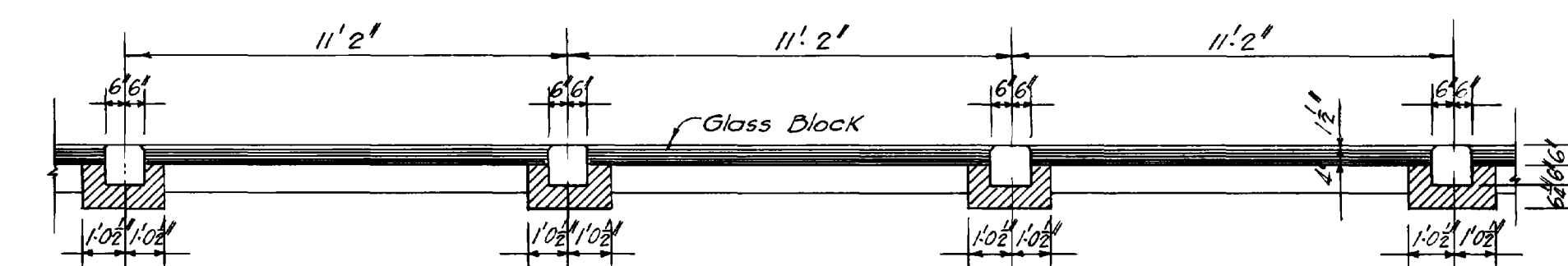
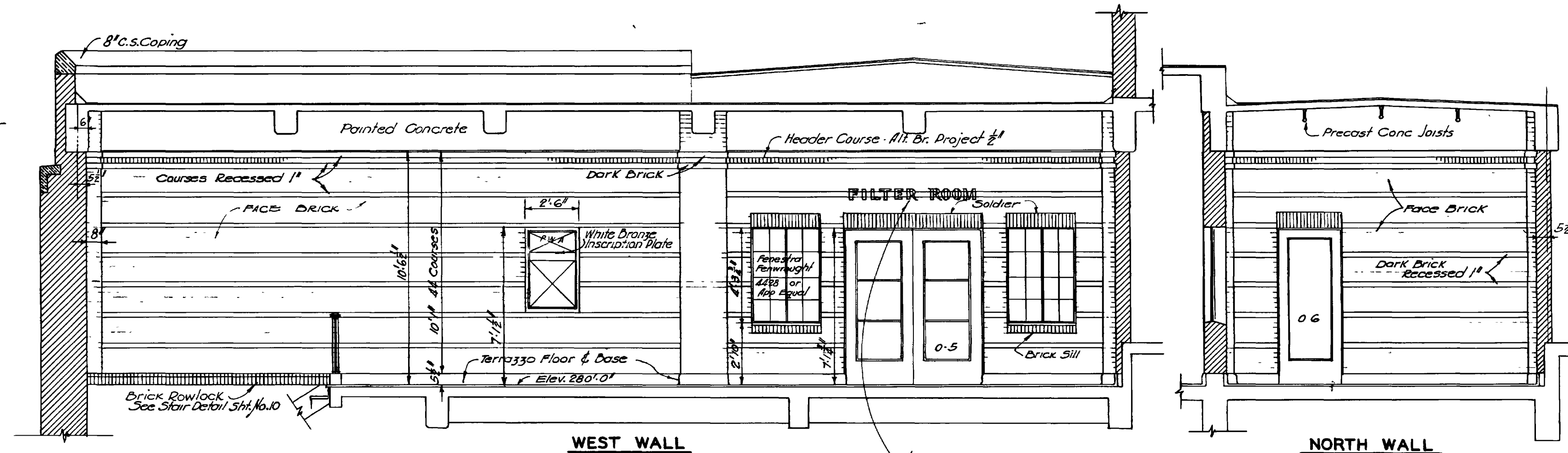
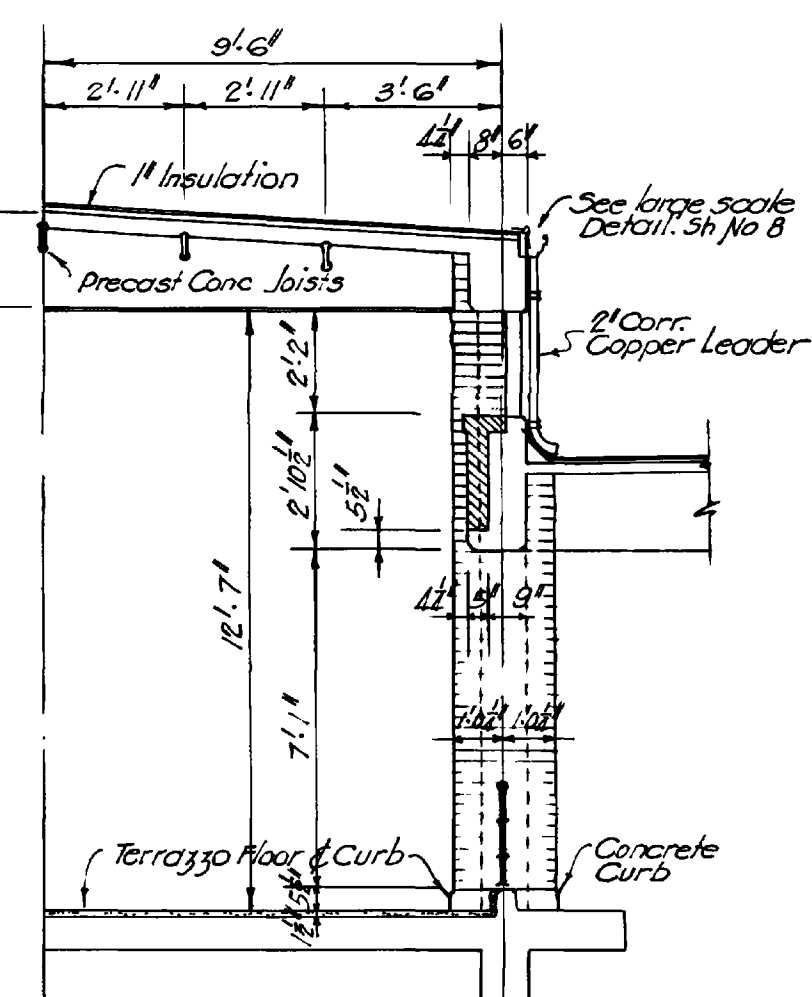
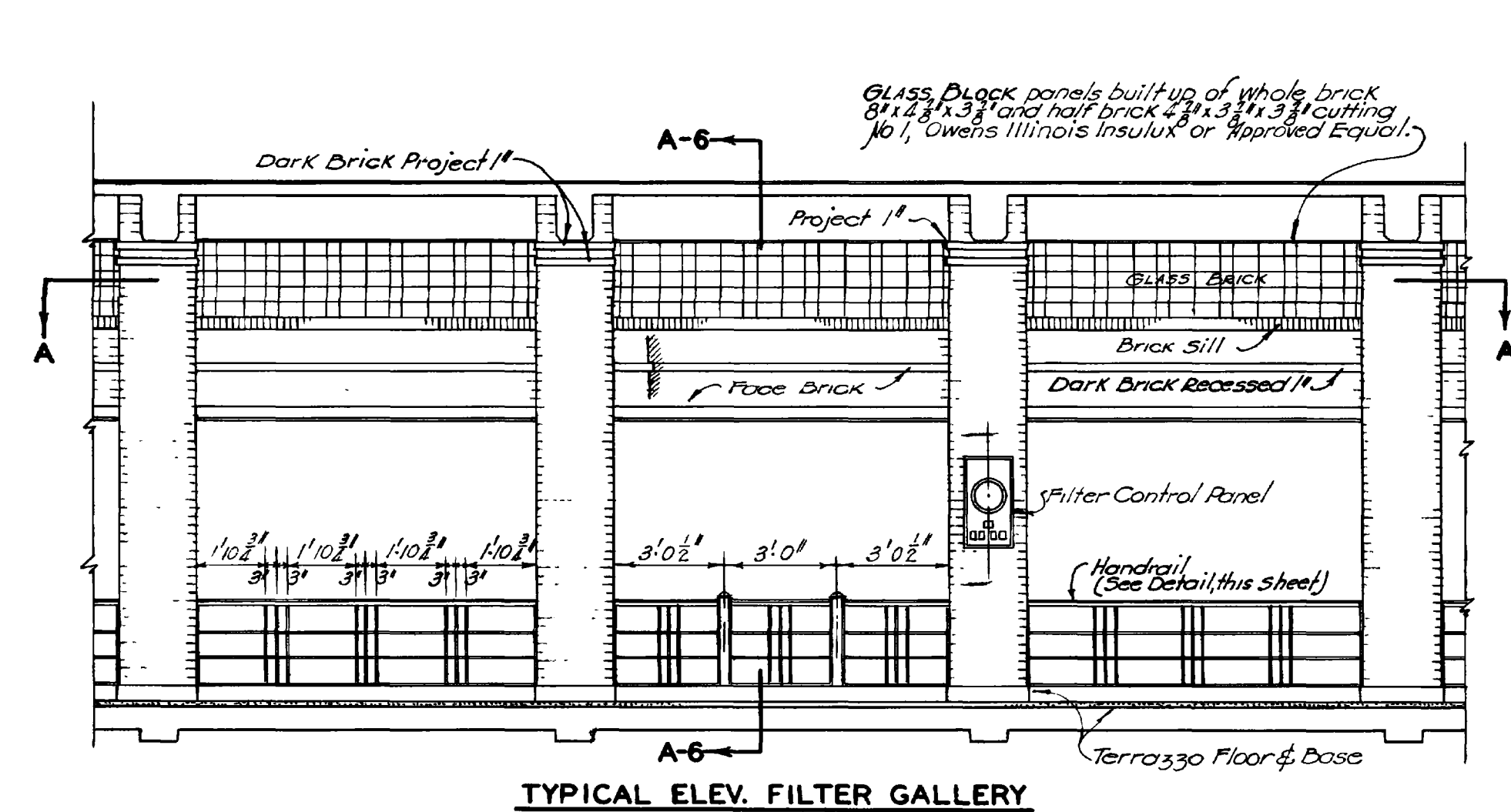
Date	By	Remarks
8 5 37	JKD	16" Suction added
9 22 37	JKD	Changed Elevation
10 4 38	HWH	Cast to cut stone bands not recessed

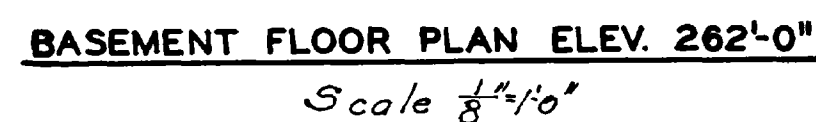
WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS
North & East Elevations
BURNS & MCDONNELL ENGINEERING CO
KANSAS CITY CINCINNATI
APR 1937



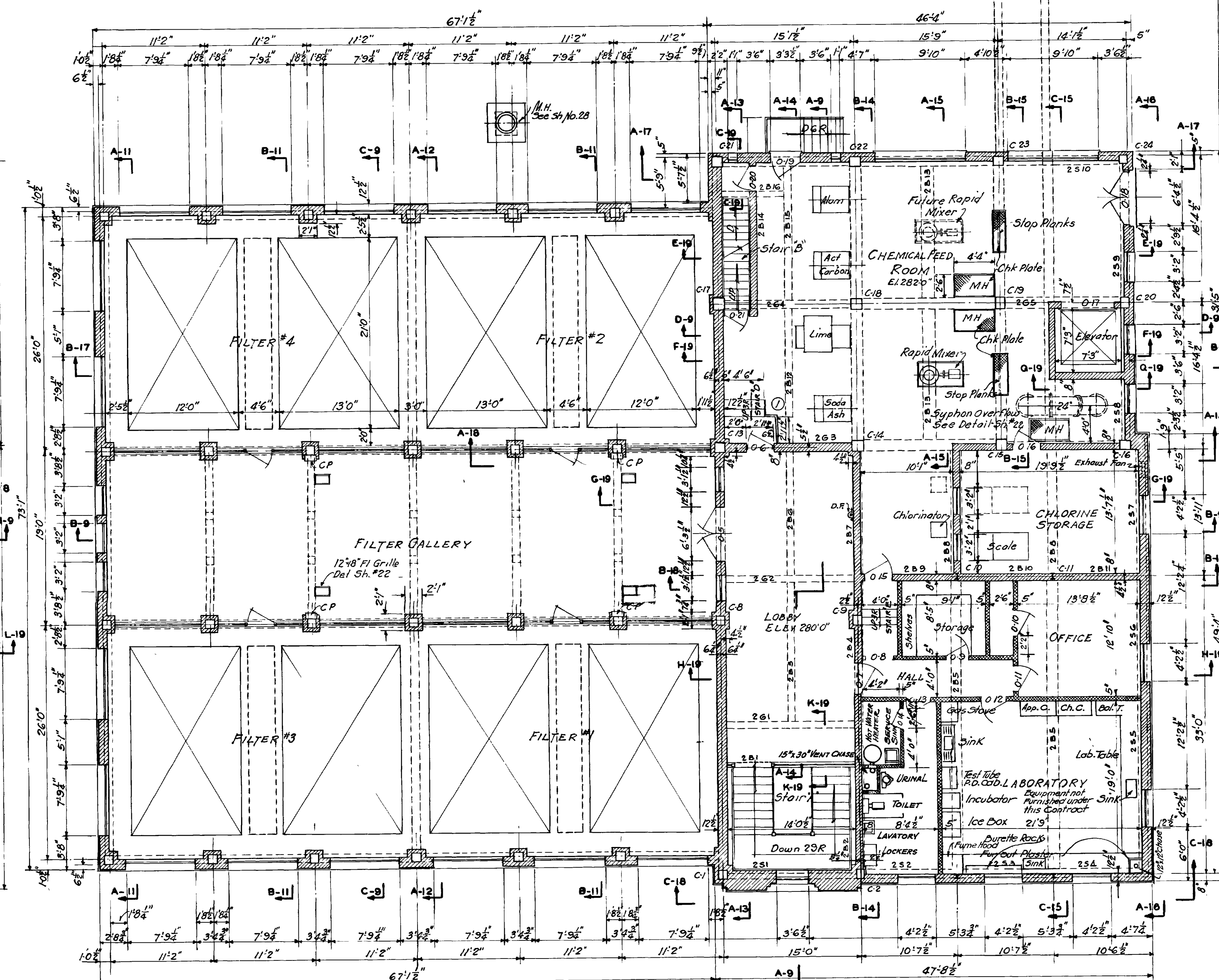
LINTEL & OPENING SCHEDULE									
OP.	DESCRIP.	QUNT.	SIZE	MAS. OP.	TYPE	FRAME	TYPE OP.	LINTEL ELEC.	REMARKS
0-1	Door	1	3'-7" x 2'	3'3" x 7'1 1/2"	Aluminum-Glass Pan	Extrud. Alum	—	269'1 1/2"	See Detail this sheet
0-2	"	1	2'-7" x 1 1/2"	2'11 1/2" x 7'1 1/2"	Hollow Met. Gl. Pan-Grille	Hol. Met.	A	269'3 1/2"	
0-3	Fire Door	1	3'-6" x 2'	3'0" x 6'3"	Type "A" Fire Door	Struct. I.	B	—	
0-4	Door	2	3'-8" x 1 1/2"	6'0" x 8'0"	Tubular Steel	"	C	270'2"	
0-5	"	2	3'-7" x 1 1/2"	6'3 1/2" x 7'1 1/2"	Hollow Metal-Single Panel-Simple Pane. Glass	Hol. Met.	D	281'1 1/2"	
0-6	"	1	2'-8" x 1 1/2"	2'11 1/2" x 7'1 1/2"	Hollow Metal-Single Pan.	"	A	281'1 1/2"	
0-7	"	1	3'-7" x 1 1/2"	3'3 1/2" x 7'1 1/2"	Hollow Metal-Glass Pan-Grille in Bottom	"	E	—	
0-8	Plast. Opg.	—	—	3'0" x 7'1 1/2"	—	—	—	—	
0-9	Door	1	2'-8" x 1 1/2"	—	Hollow Metal-Single Pan-Grille in Bottom	Hol. Met. Unit	F	—	
0-10	"	1	2'-8" x 1 1/2"	—	Hollow Metal-2 Panel	"	F	—	
0-11	"	1	2'-8" x 1 1/2"	—	Hollow Met. Glass Panel-Grille in Bottom	"	F	—	
0-12	"	1	2'-8" x 1 1/2"	—	"	"	F	—	
0-13	"	1	2'-8" x 1 1/2"	—	Hollow Metal-2 Panel	"	F	—	
0-14	"	1	2'-8" x 1 1/2"	—	"	"	F	—	
0-15	"	1	2'-8" x 1 1/2"	2'11 1/2" x 7'1 1/2"	"	Hol. Met.	E	—	
0-16	"	1	3'-7" x 1 1/2"	3'3 1/2" x 7'1 1/2"	"	"	A	289'1 1/2"	
0-17	Elev Gate	1	—	6'0" x 7'0"	Vertical Slide Elev. Door	Struct. I.	H	—	3'-3 1/2" x 7'-0" L Sill.
0-18	Door	2	3'-8" x 1 1/2"	6'0" x 8'3"	Tubular Steel	"	C	—	
0-19	"	1	2'-6" x 1 1/2"	3'3 1/2" x 6'9 1/2"	Hollow Metal-2 Panel-Upper Panel Glass	Hol. Met.	G	288'9 1/2"	
0-20	"	1	2'-6" x 1 1/2"	2'11 1/2" x 6'9 1/2"	Hollow Metal-2 Panel	"	A	288'9 1/2"	
0-21	"	1	2'-8" x 1 1/2"	2'11 1/2" x 7'1 1/2"	"	"	A	289'1 1/2"	
0-22	Elev Gate	1	—	6'0" x 7'0"	Vertical Slide Elev. Door	Struct. I.	H	—	3'-3 1/2" x 7'-0" L Sill.
0-23	Door	1	2'-8" x 1 1/2"	2'11 1/2" x 6'9 1/2"	Hollow Metal-2 Panel-Upper Panel Glass	Hol. Met.	A	312'9 1/2"	
0-24	Vent.	1	2'-0" x 1 1/2"	—	Horiz. Louvre Vent.	"	J	—	In Trans. Vault
0-25	"	1	2'-0" x 1 1/2"	—	"	"	J	—	"
0-26	Opg.	1	2'-0" x 58"	—	Switch in wall	—	K	—	" 1'-6" x 58" x 3'-0" x 58" x 3'-0"
0-27	Louvre Fr.	1	3'-0" x 1 1/2"	—	Adjustable Louvre	L	—	—	Heat. Opg. 2'-3" x 3'-0" x 2'-0" x 5'-0"
0-28	Exh. Fan	1	—	—	Autom. Shutter Exh. Fan	Structural	M	—	







FINISH SCHEDULE						
ROOM	FLOOR	WALLS	DADO	BASE	CEILING	TRIM
Pump Room	Conc	Brick	—	Conc	Conc.	—
Lobby: 262'0"	Ter.	Face Brick	—	Ter.	Plaster	—
Lobby: 280'0"	do	do	—	do	Conc. Painted	—
Jan. Ck.	Conc	Plaster	Point	Conc	Sus M.L. & P 10'0"	—
Toilet	Ter	do	do	Ter.	do 10'0"	Hot Met Win Sill
Laboratory	Lin	do	do	Hot Met.	do 10'0"	—
Office	Lin	do	do	do	do 10'0"	Hot Met Win Sill & Chair Ra.
Office Clo	do	do	do	do	do 10'0"	—
Storage	Conc.	do	do	do	do 11'3"	—
Hall	Lin	do	do	do	do 8'0"	—
Filter Gallery	Ter	Face Brick	—	Ter.	Conc. Painted	—
Filters	Conc	do	—	Conc.	Conc	—
Chem Feed Rm	do	Brick	—	do	do	—
Chlorine Storage	do	do	—	do	Precast Slab	—
Chem Storage	do	do	—	do	do	—



OPERATING FLOOR PLAN ELEV. 280'-0" & 282'-0"

Scale $\frac{1}{8}" = 1'0"$
See Sh #9 for Bldg. Sections

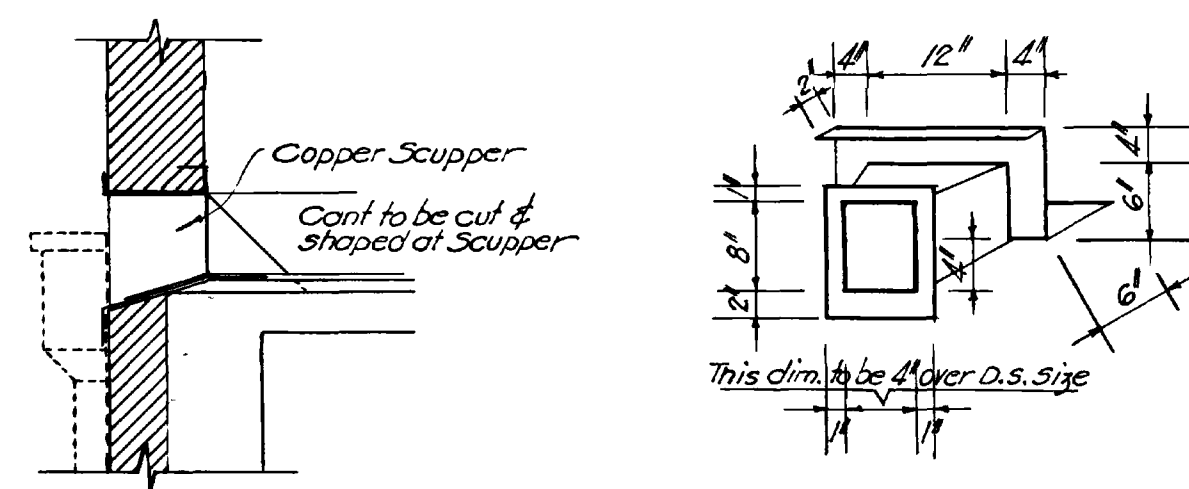
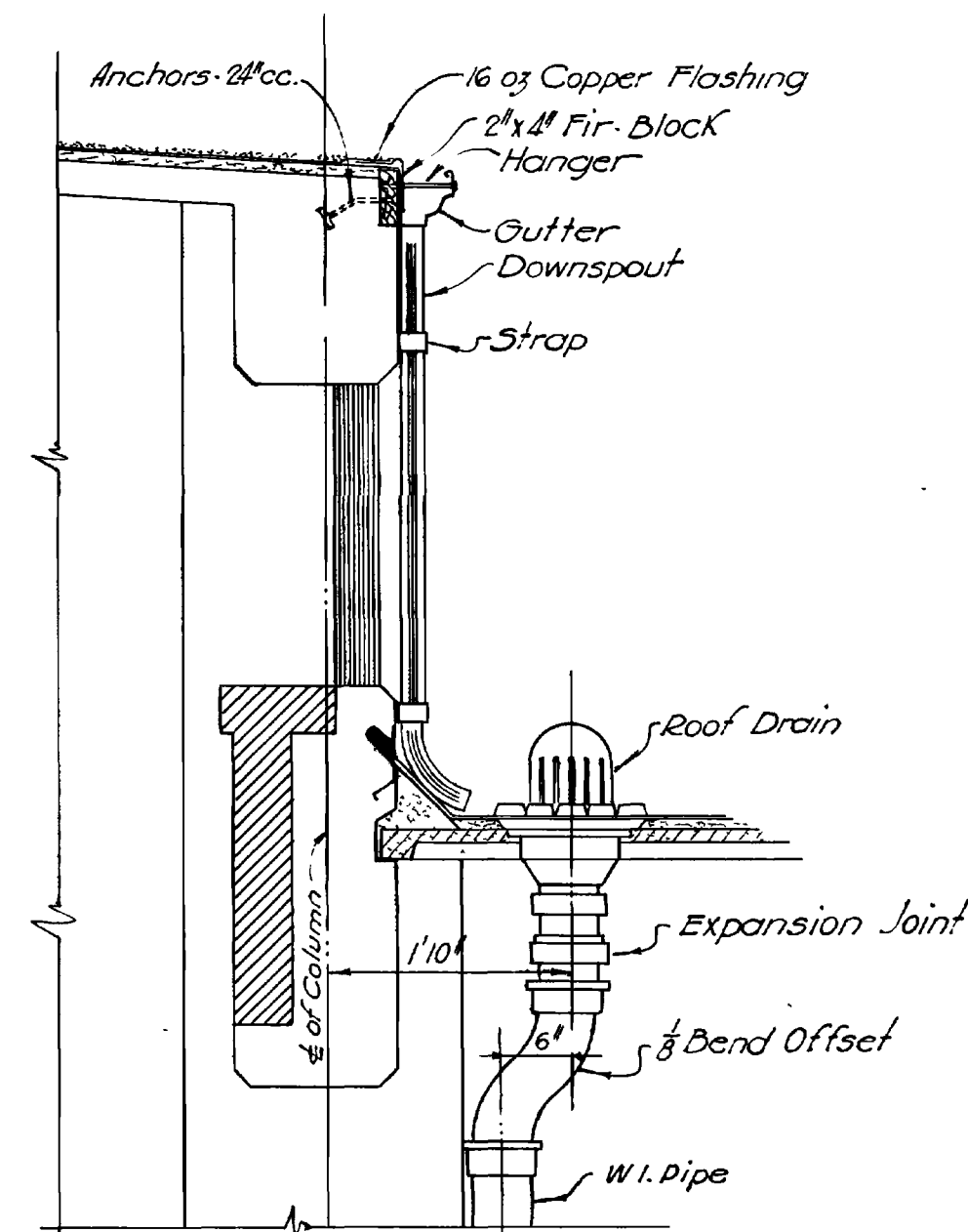
	Date	By	Remarks
①	9-2-37	J.K.D.	changed stair "D"
②	10-4-38	H.W.H.	Corrected Dimensions

WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS

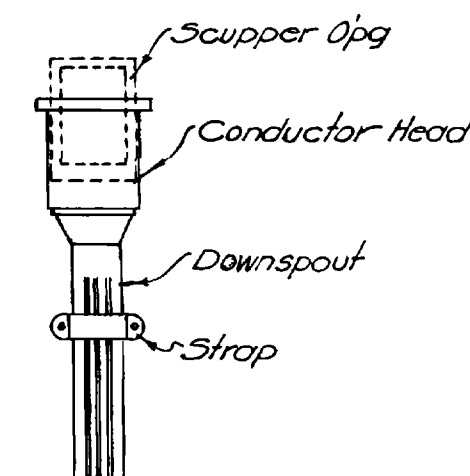
Floor Plans - Elev. 262.0 & 280.0

BURNS & McDONNELL ENGINEERING CO.
KANSAS CITY CINCINNATI

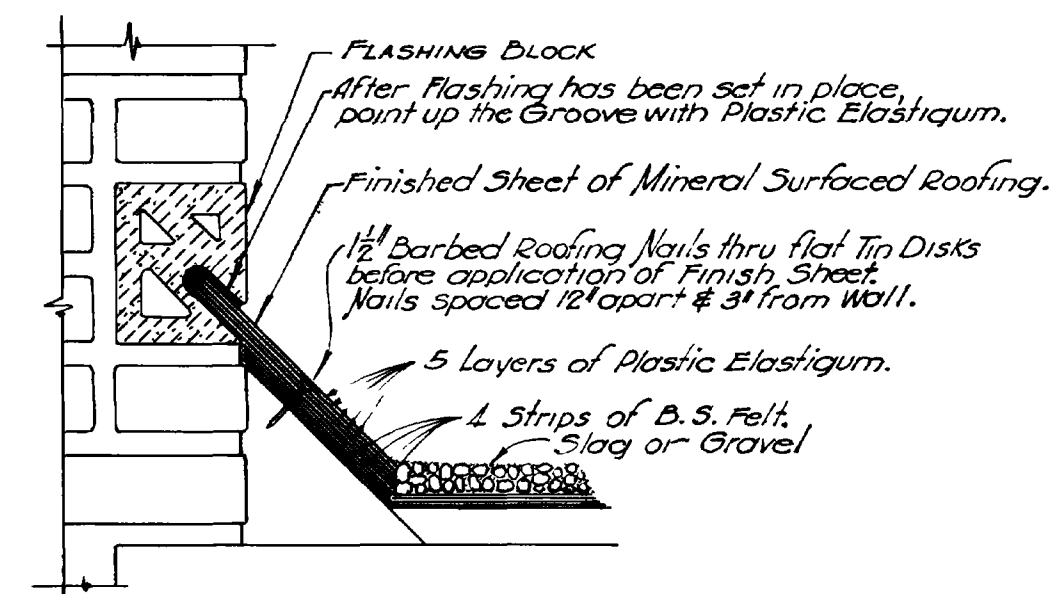
APR. 1937



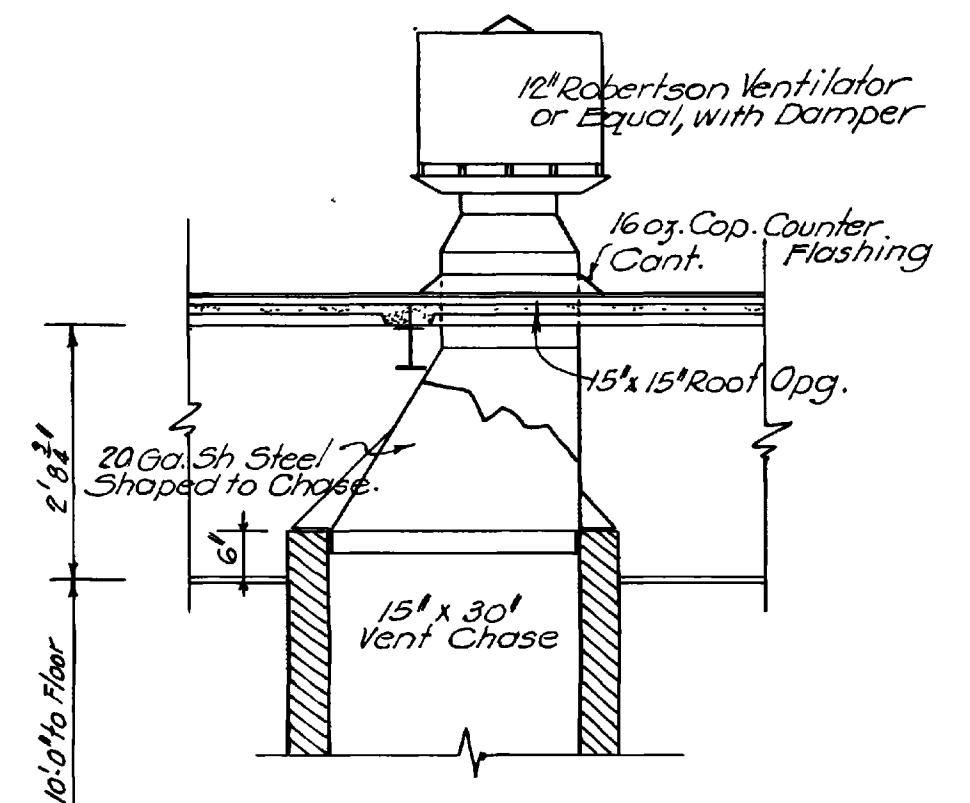
TYPICAL SCUPPER DETAILS



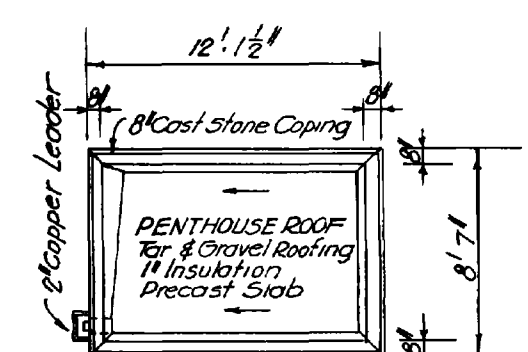
DETAIL OF LEADER



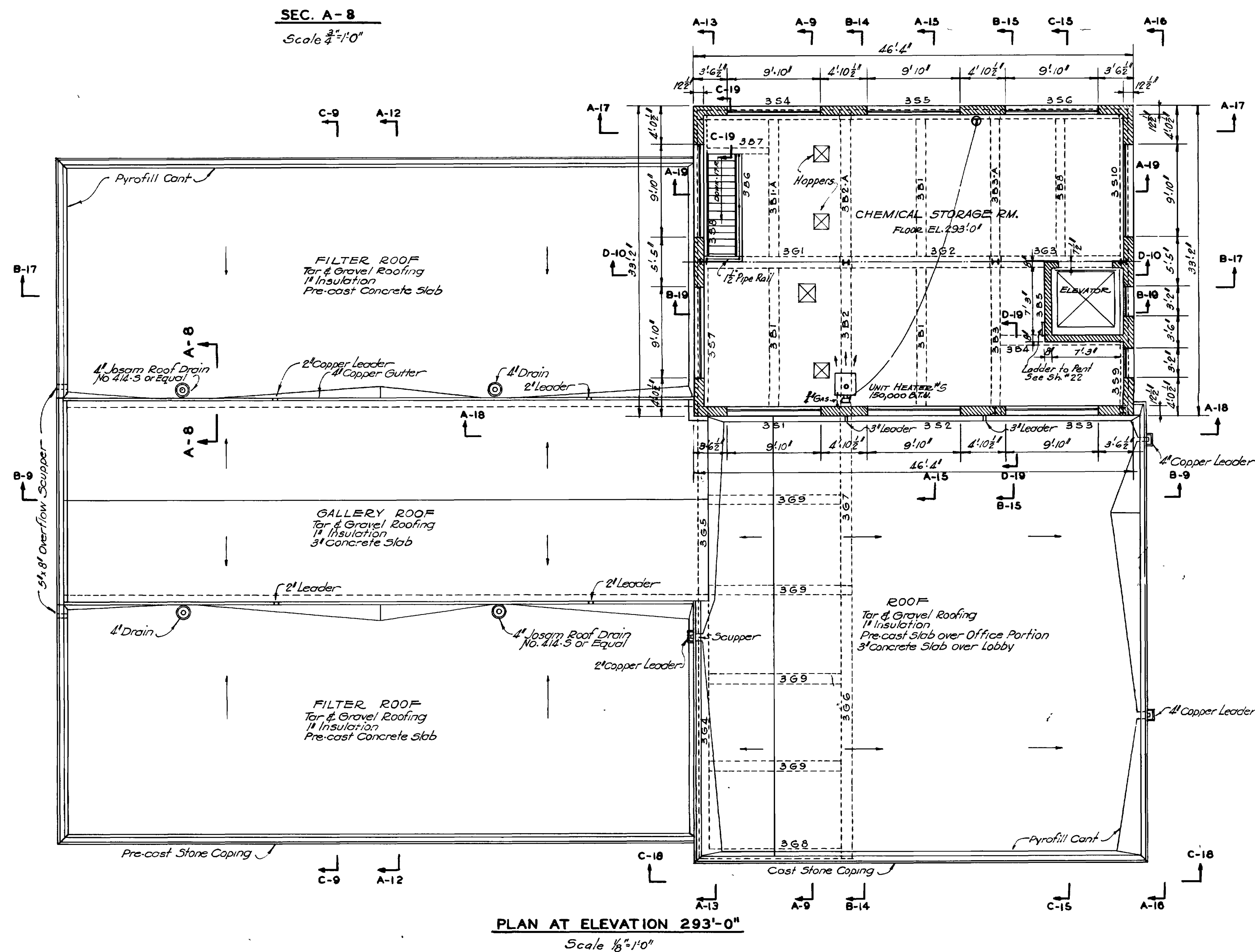
DETAILS OF TYPICAL FLASHING



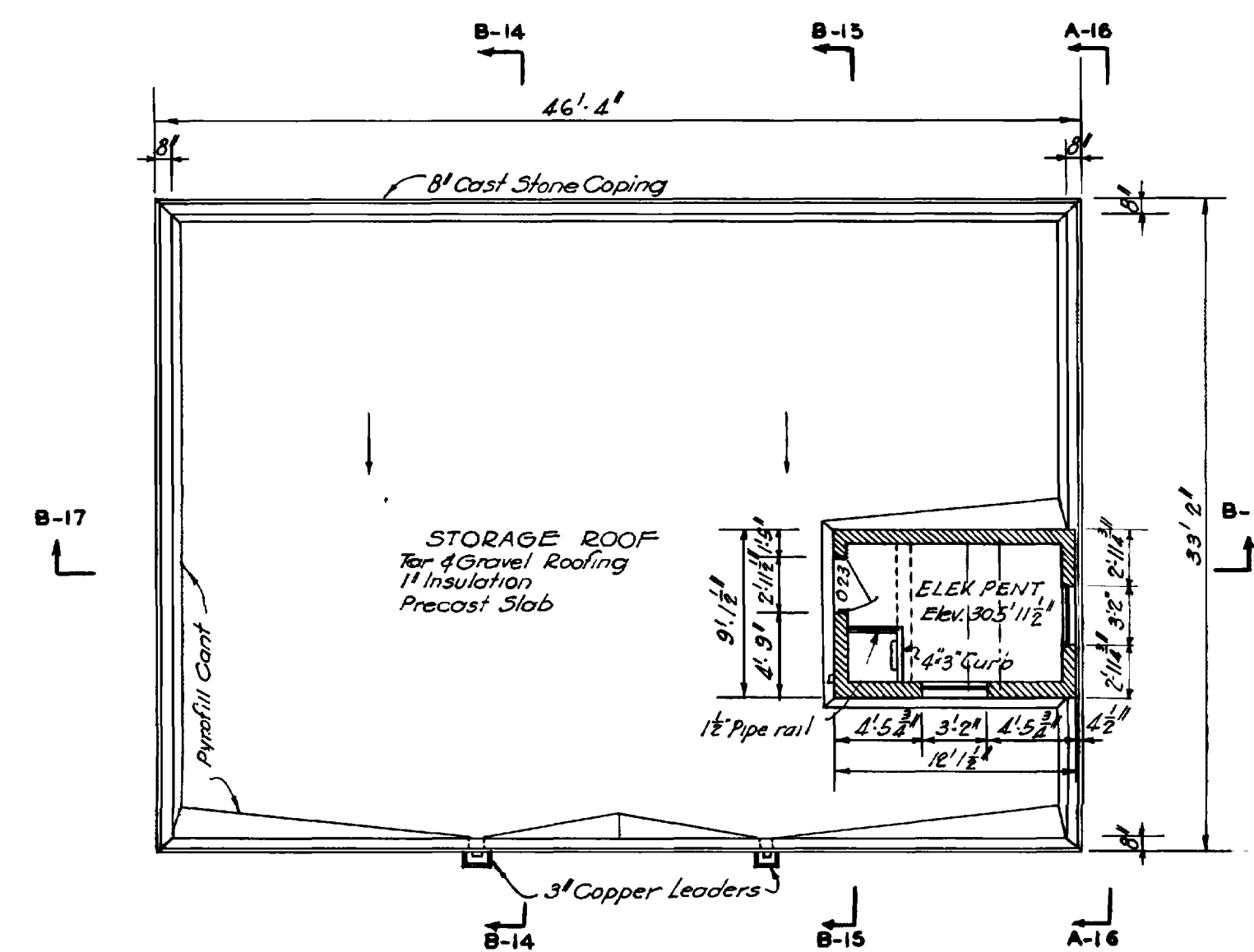
DETAILS OF CHASE VENT THRU ROOF
Scale 1/2"=1'-0"



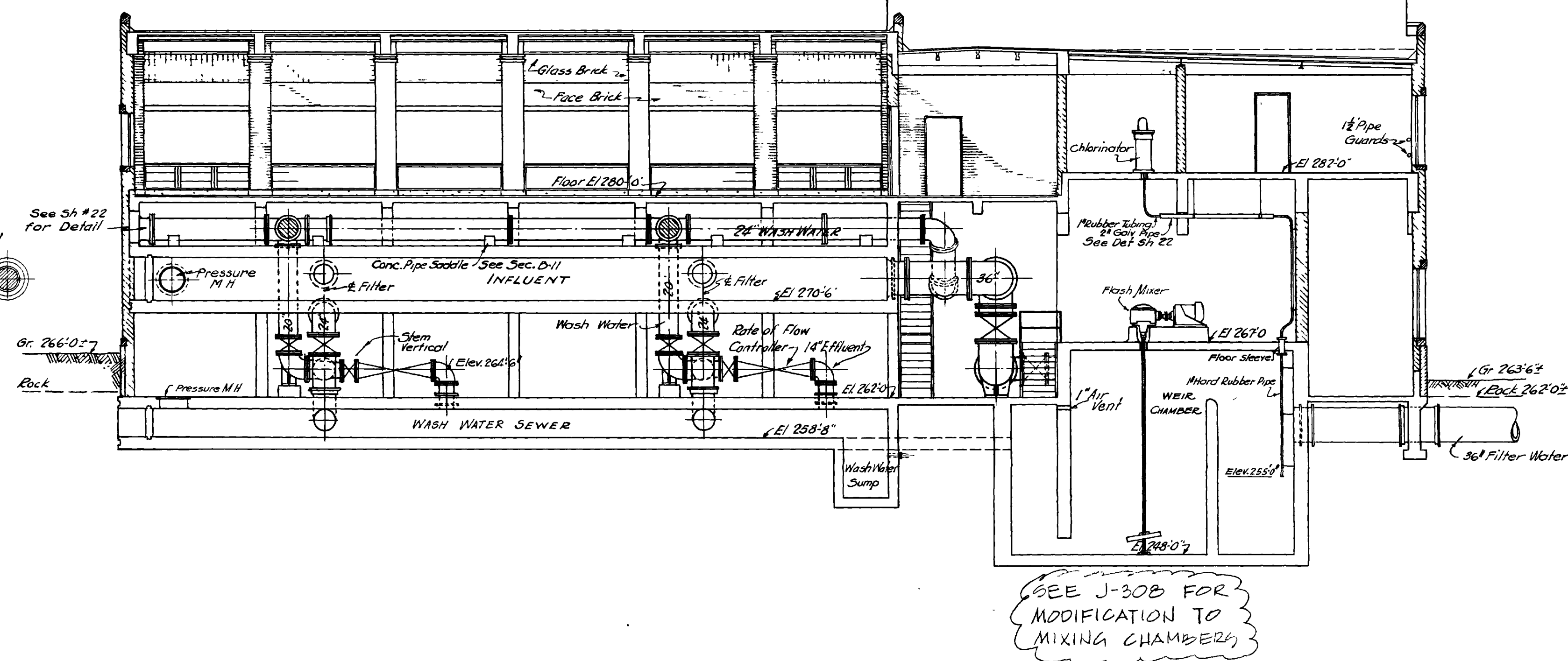
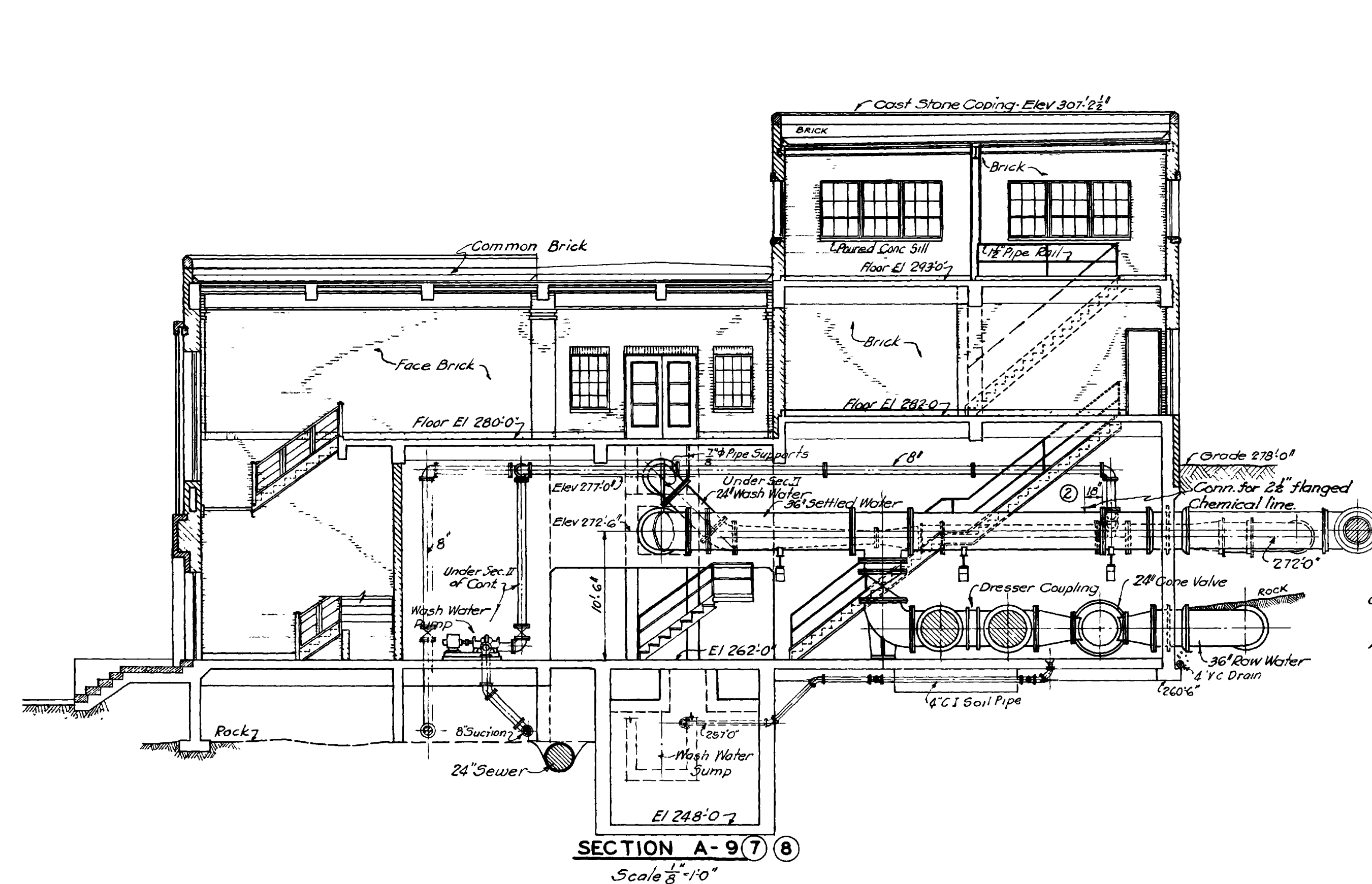
PLAN OF PENTHOUSE ROOF
Scale 1/8"=1'-0"



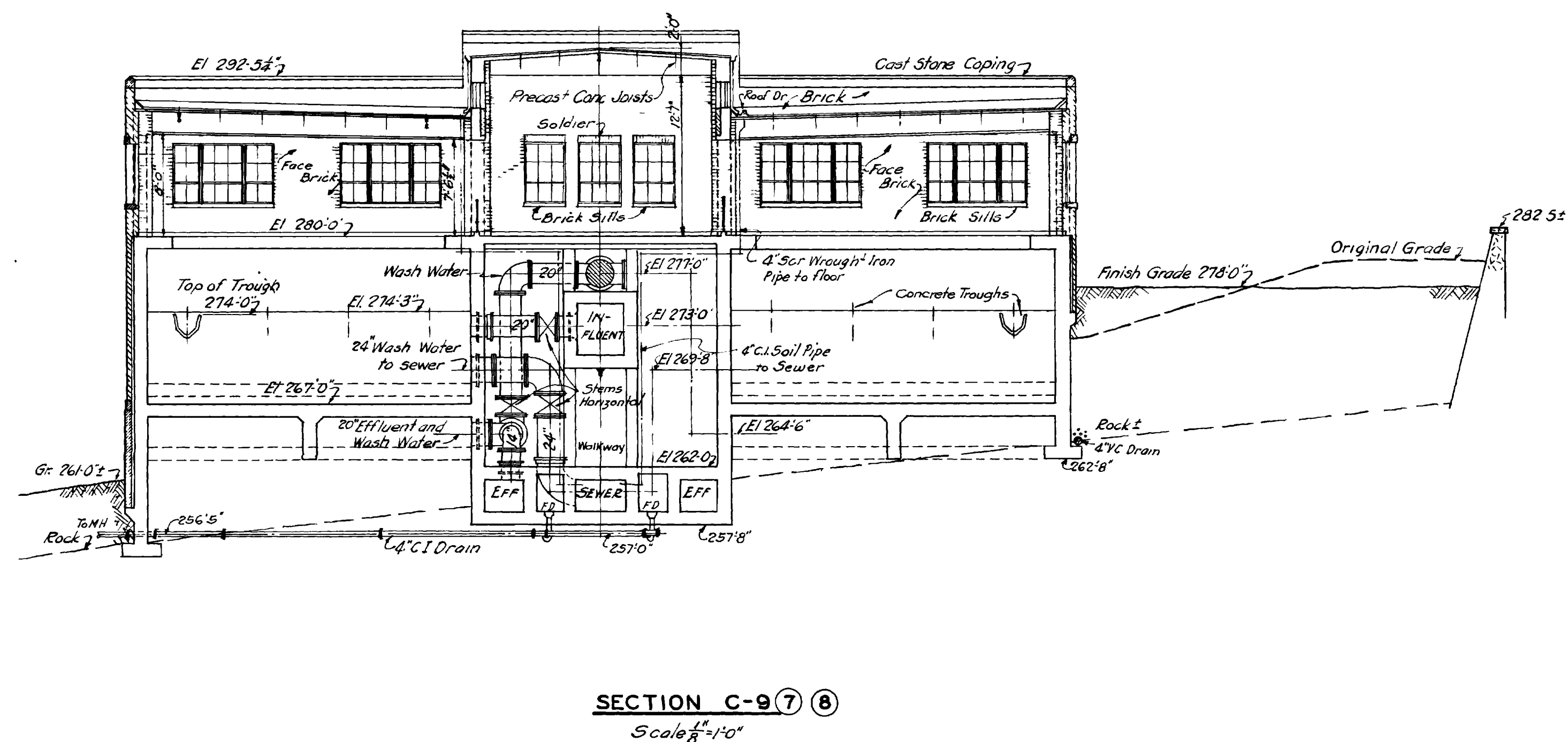
PLAN AT ELEVATION 293'-0"
Scale 1/8"=1'-0"



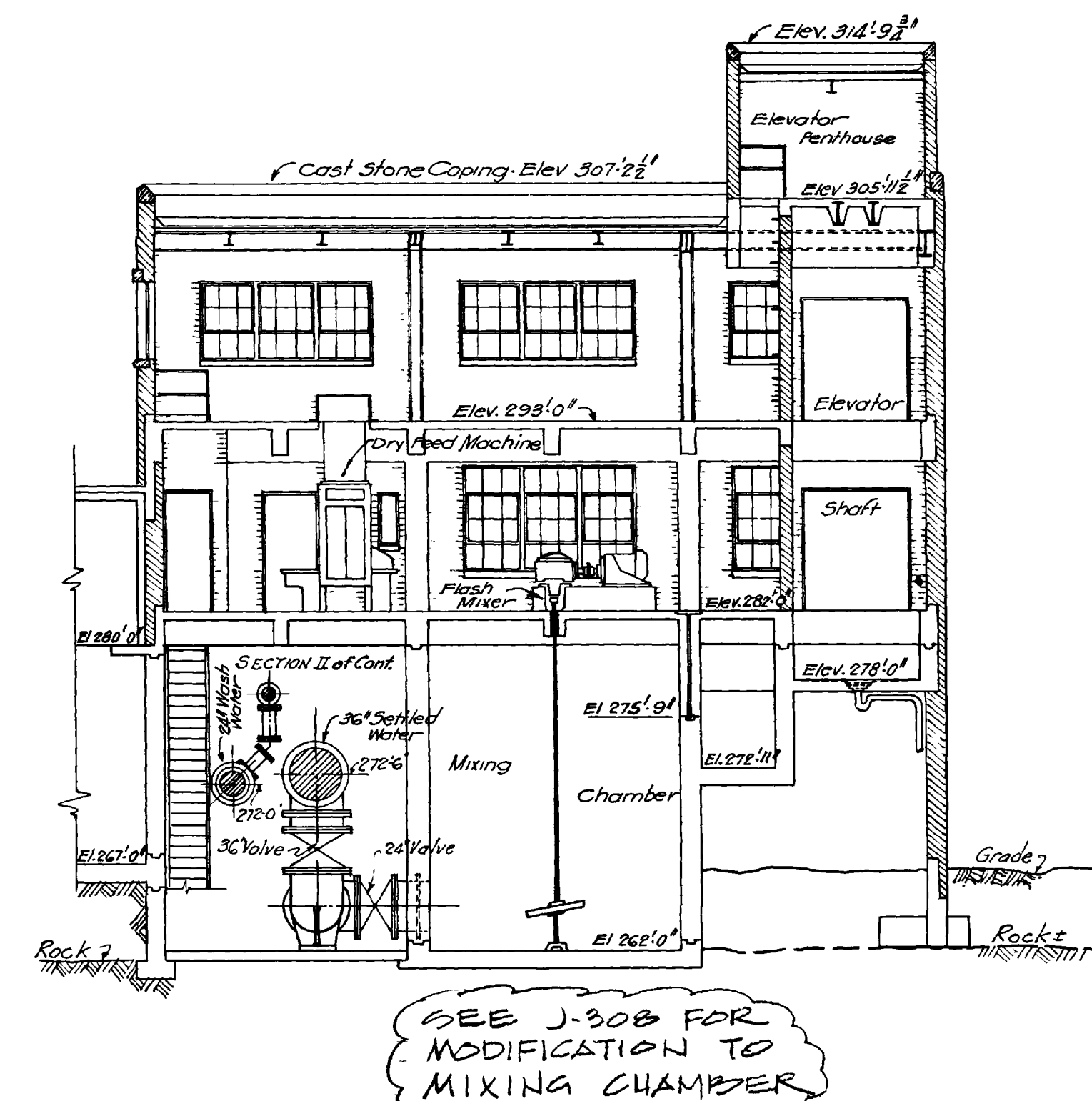
PLAN AT ELEVATION 306'-0"
Scale 1/8"=1'-0"



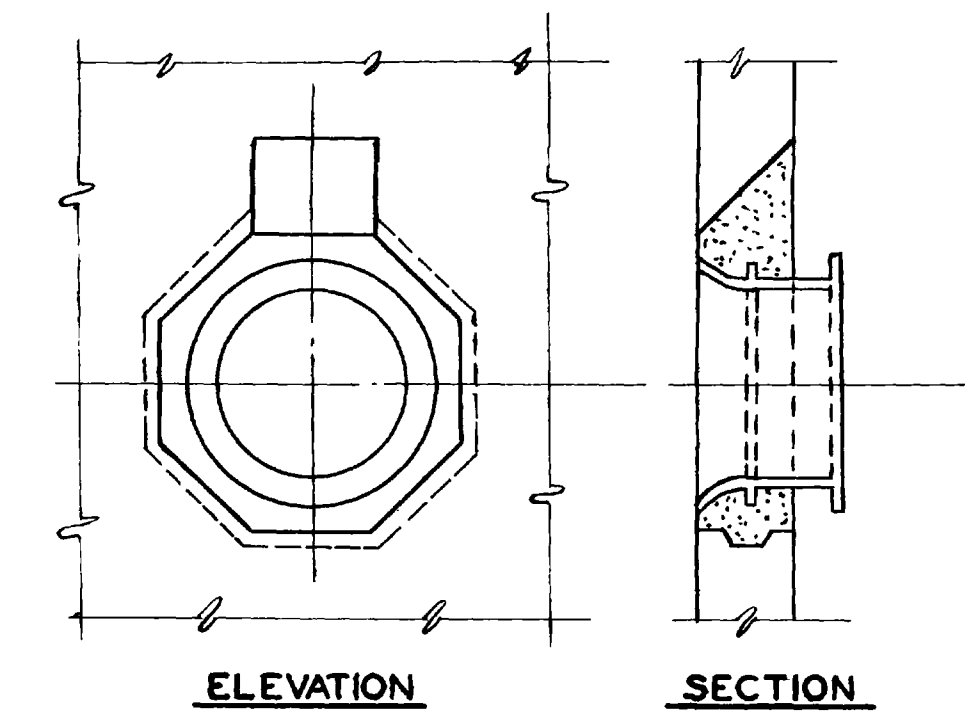
SECTION B-9(7) (8)
Scale 1/8"=1'-0"



SECTION C-9(7) (8)
Scale 1/8"=1'-0"



SECTION D-9(7) (8)
Scale 1/8"=1'-0"

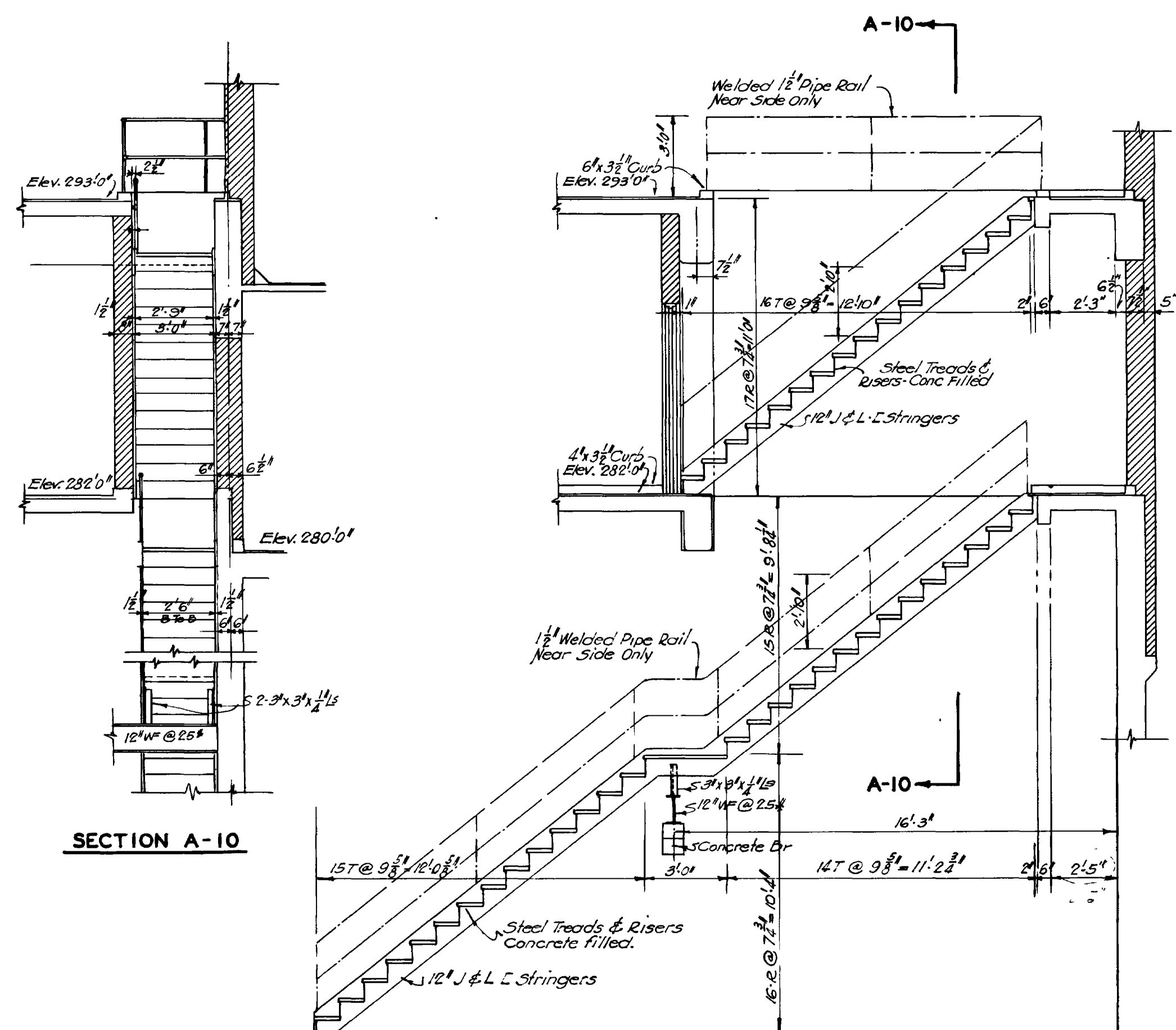


ELEVATION SECTION
① METHOD OF SEALING
PIPES INTO CONCRETE

Note: Wall castings to be cast monolithic with concrete where ever possible

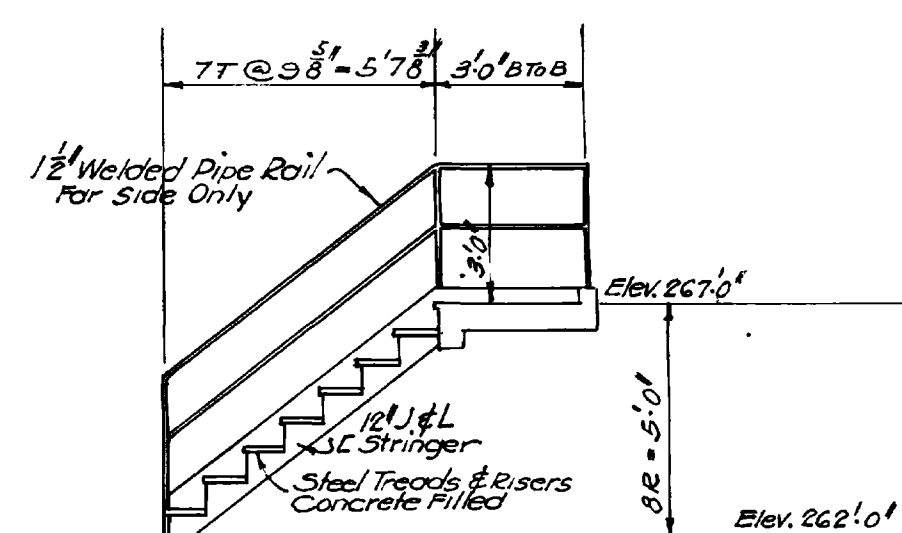
Date	By	Remarks
8-11-37	J.K.D.	Added detail of sealing pipe in conc
8-22-37	J.K.D.	Added conn to Chem. line

WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS
Building Sections
BURNS & McDONNELL ENGINEERING CO.
KANSAS CITY APR. 1937 CINCINNATI

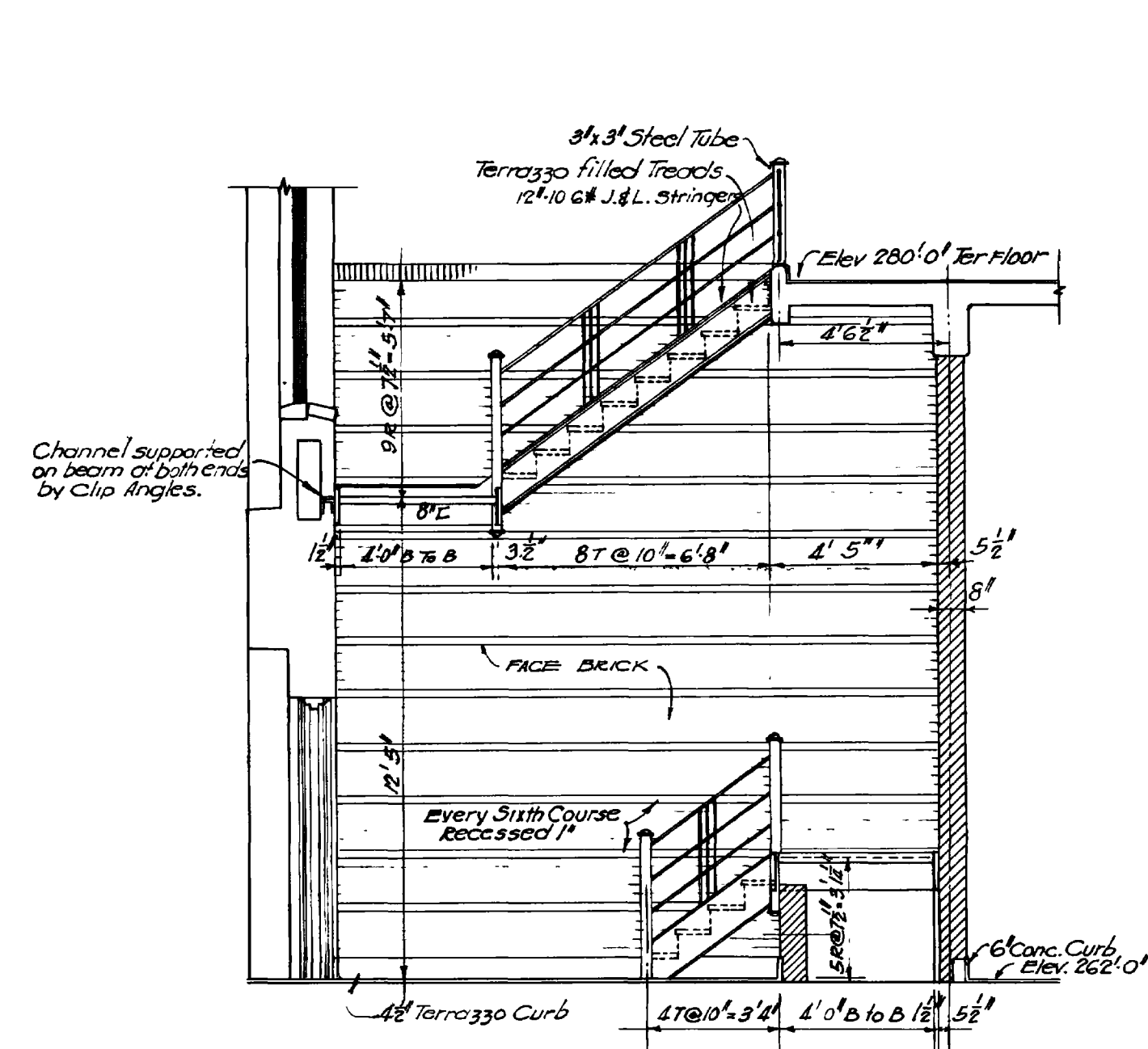


SECTION A-10

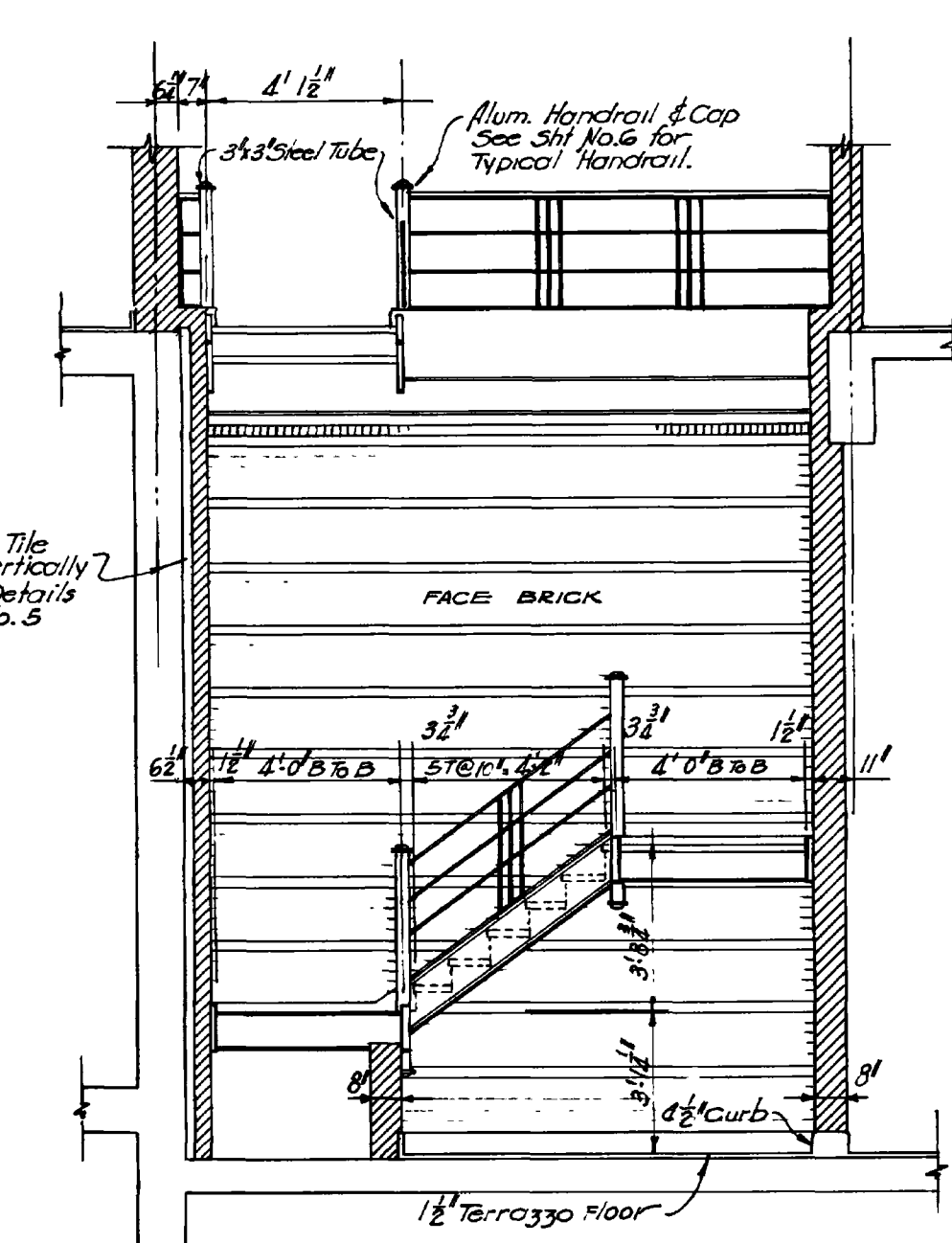
DETAIL STAIR "B"
Scale 1/4"=1'-0"



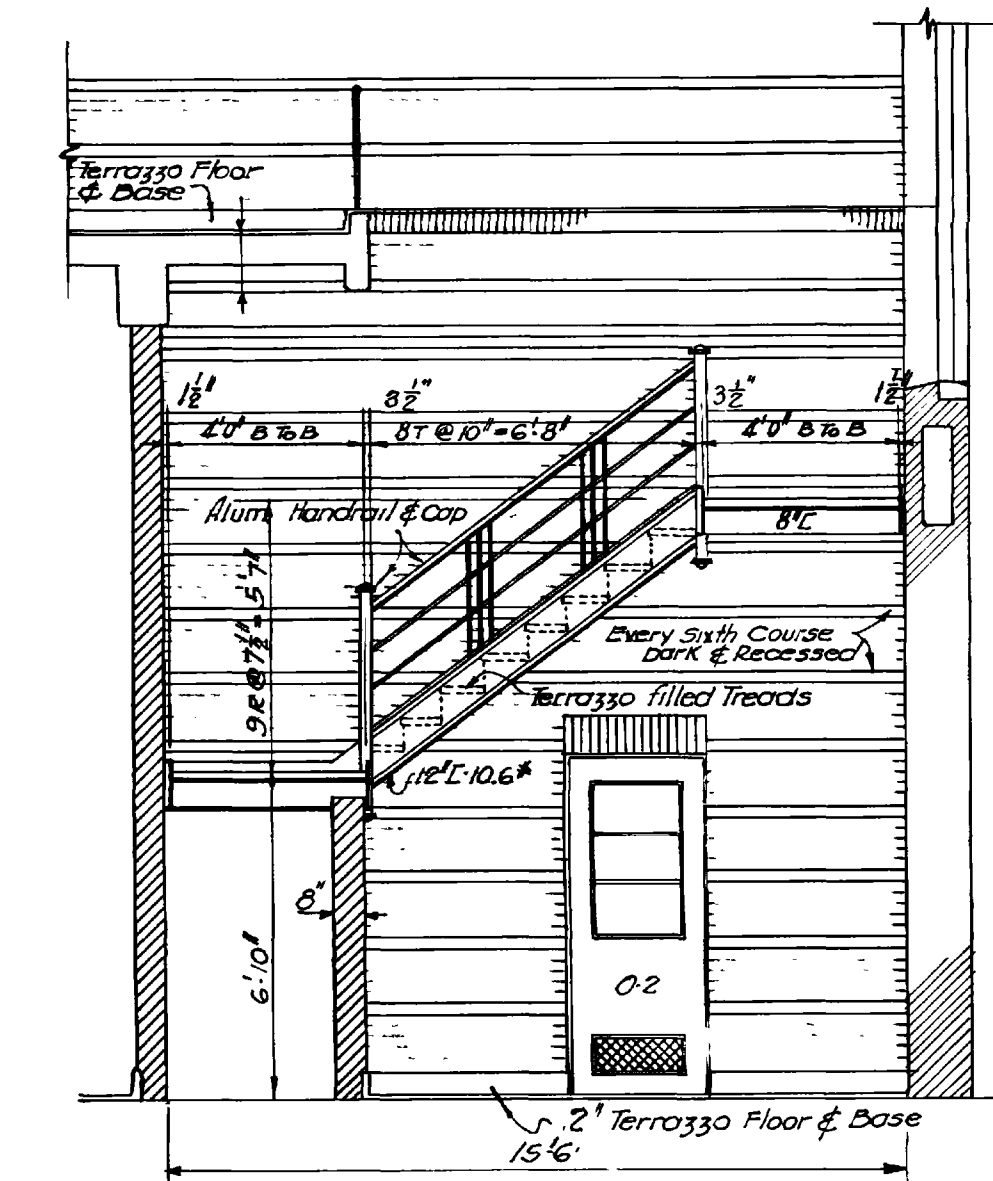
DETAIL STAIR "C"
Scale 1/4"=1'-0"



SECTION B-10
Scale 1/4"=1'-0"

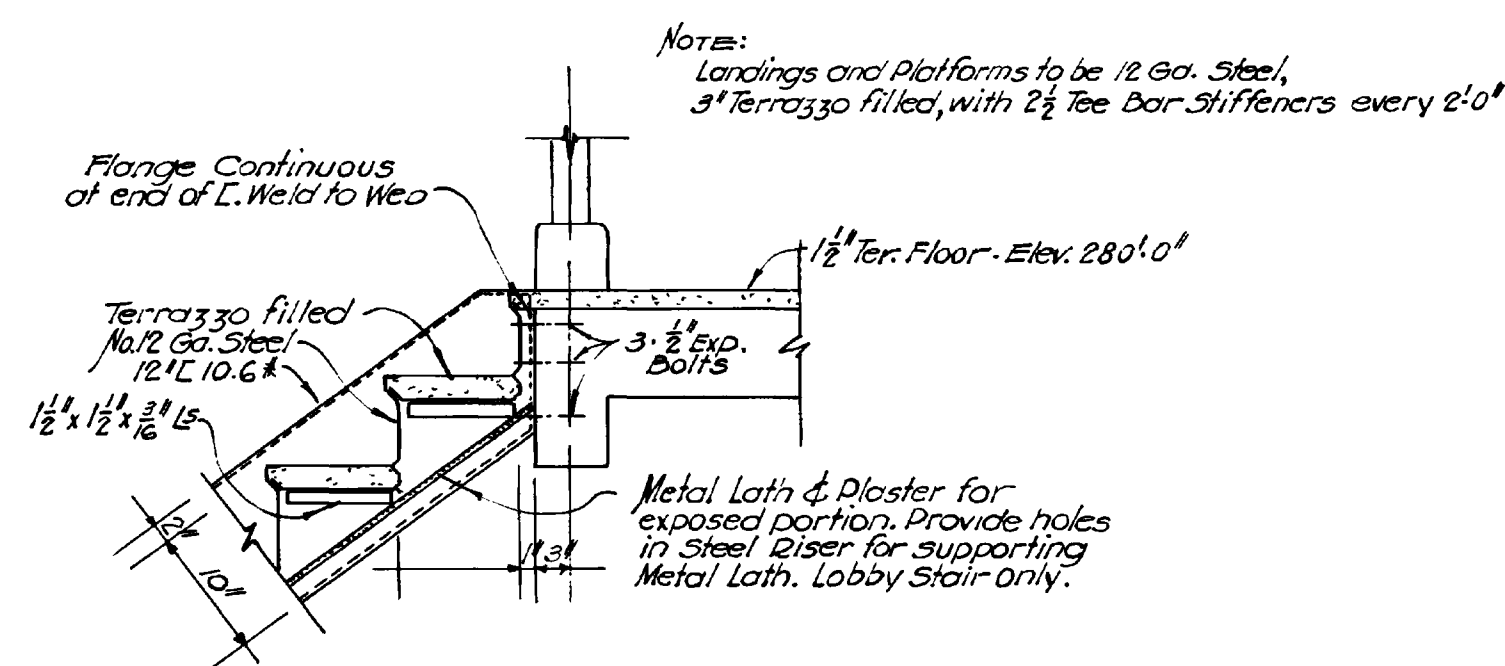


SECTION C-10
Scale 1/4"=1'-0"

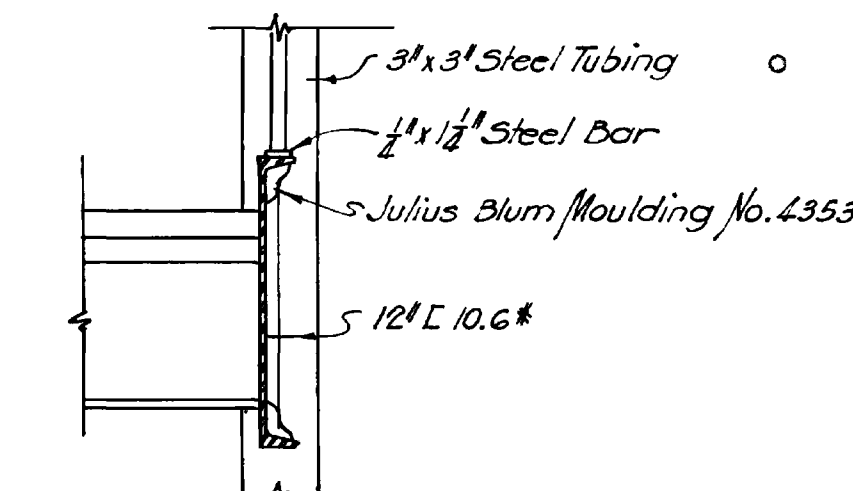


SECTION D-10
Scale 1/4"=1'-0"

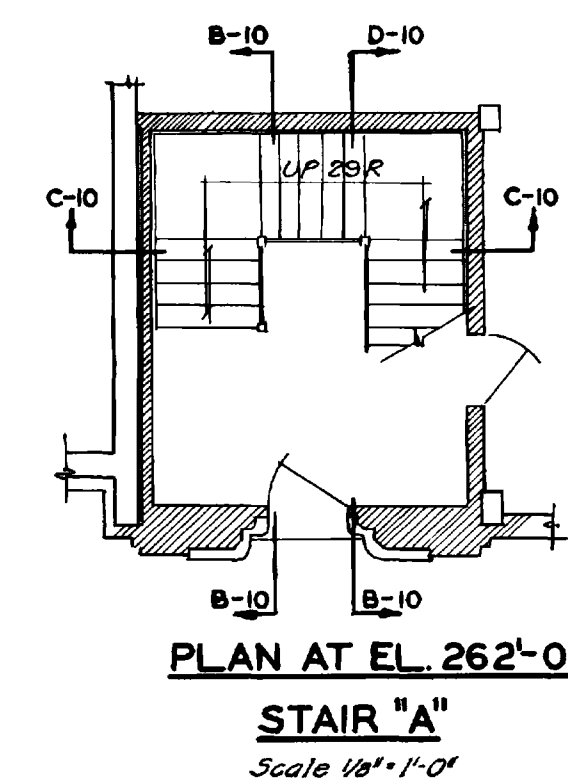
DETAIL OF STAIR "A"



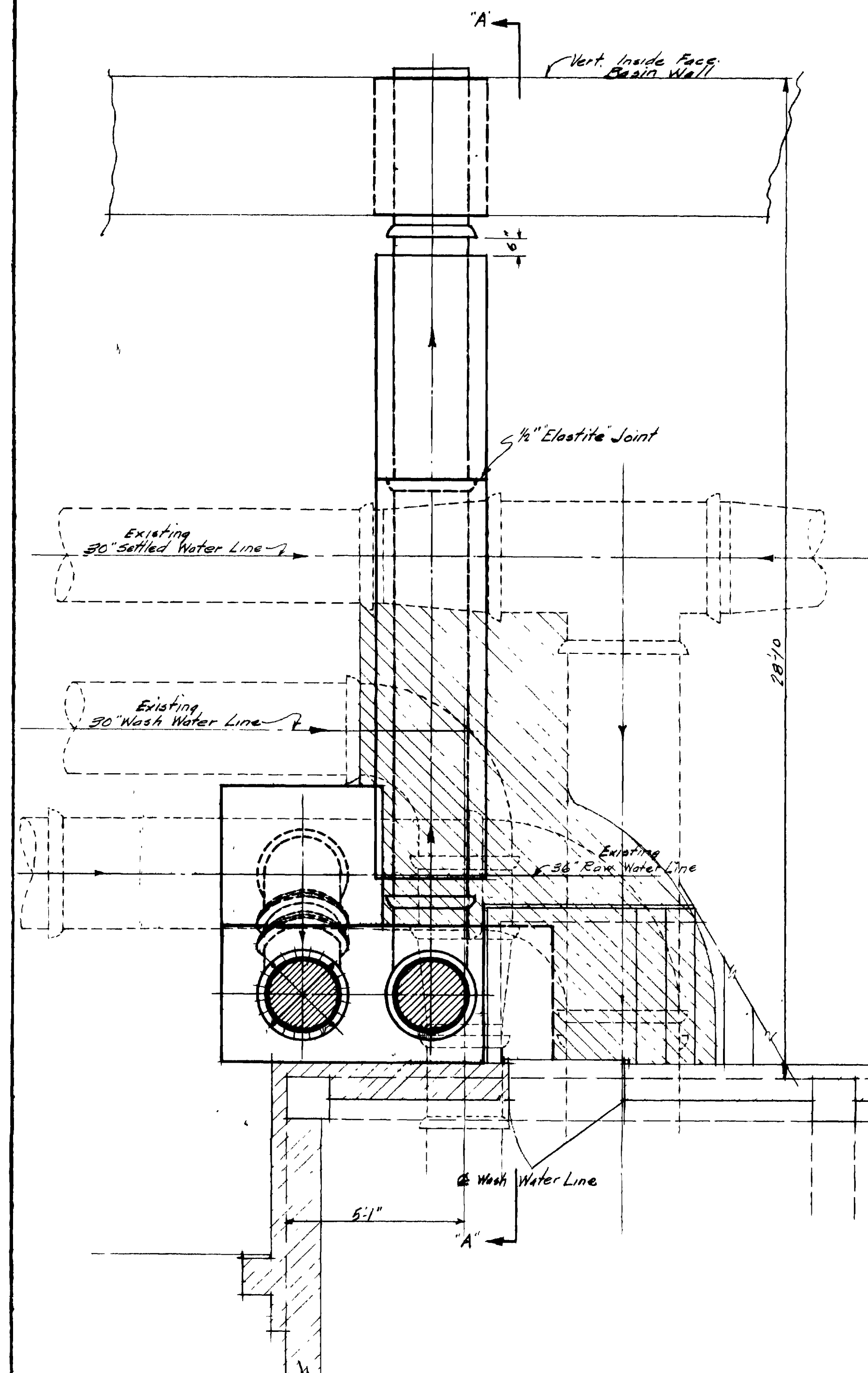
STAIR CONNECTION DETAIL
AT ELEV. 280'-0"
262'-0" SIMILAR
Scale 3/4"=1'-0"



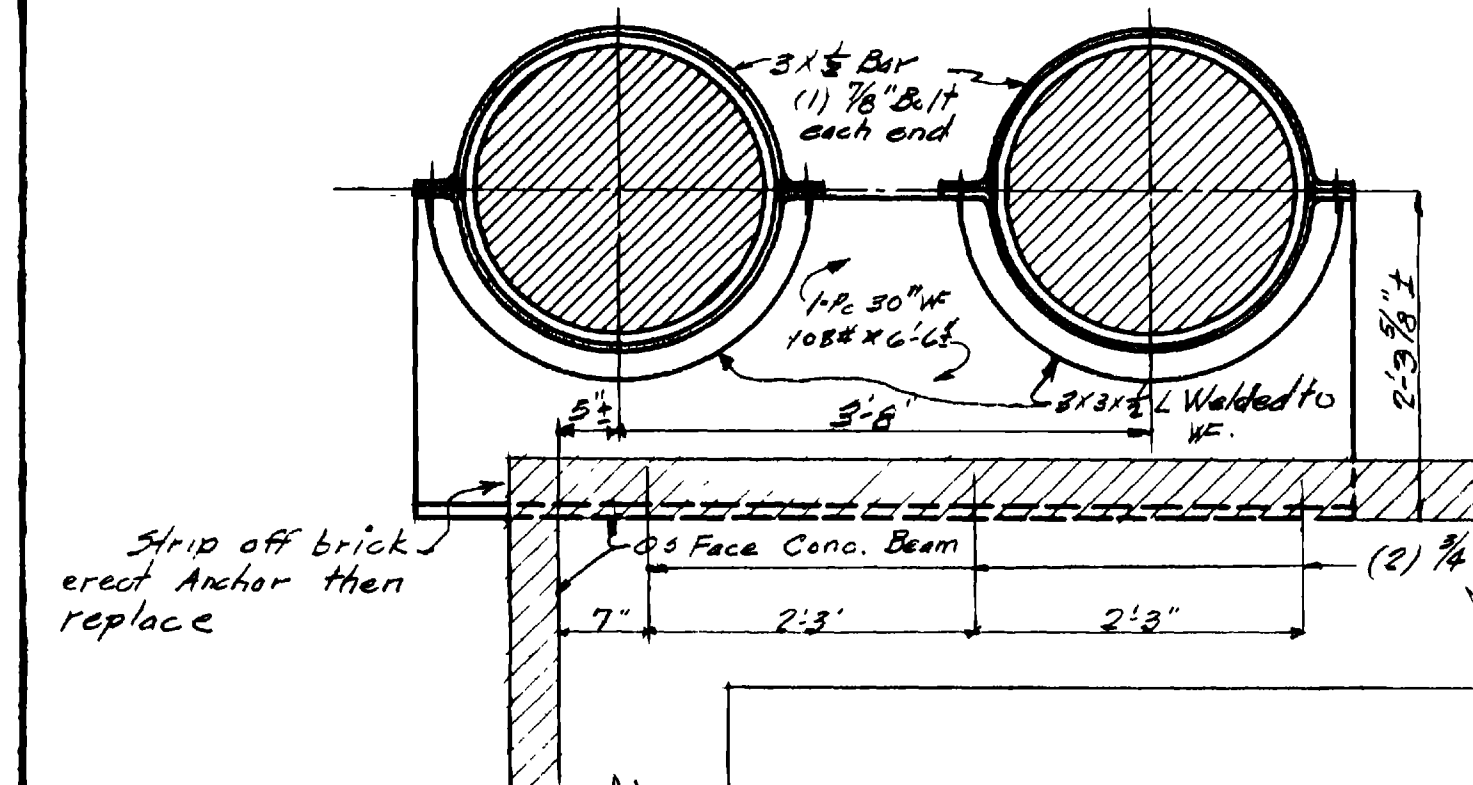
TYPICAL SECTION
STAIR STRINGER
Scale 1 1/2"=1'-0"



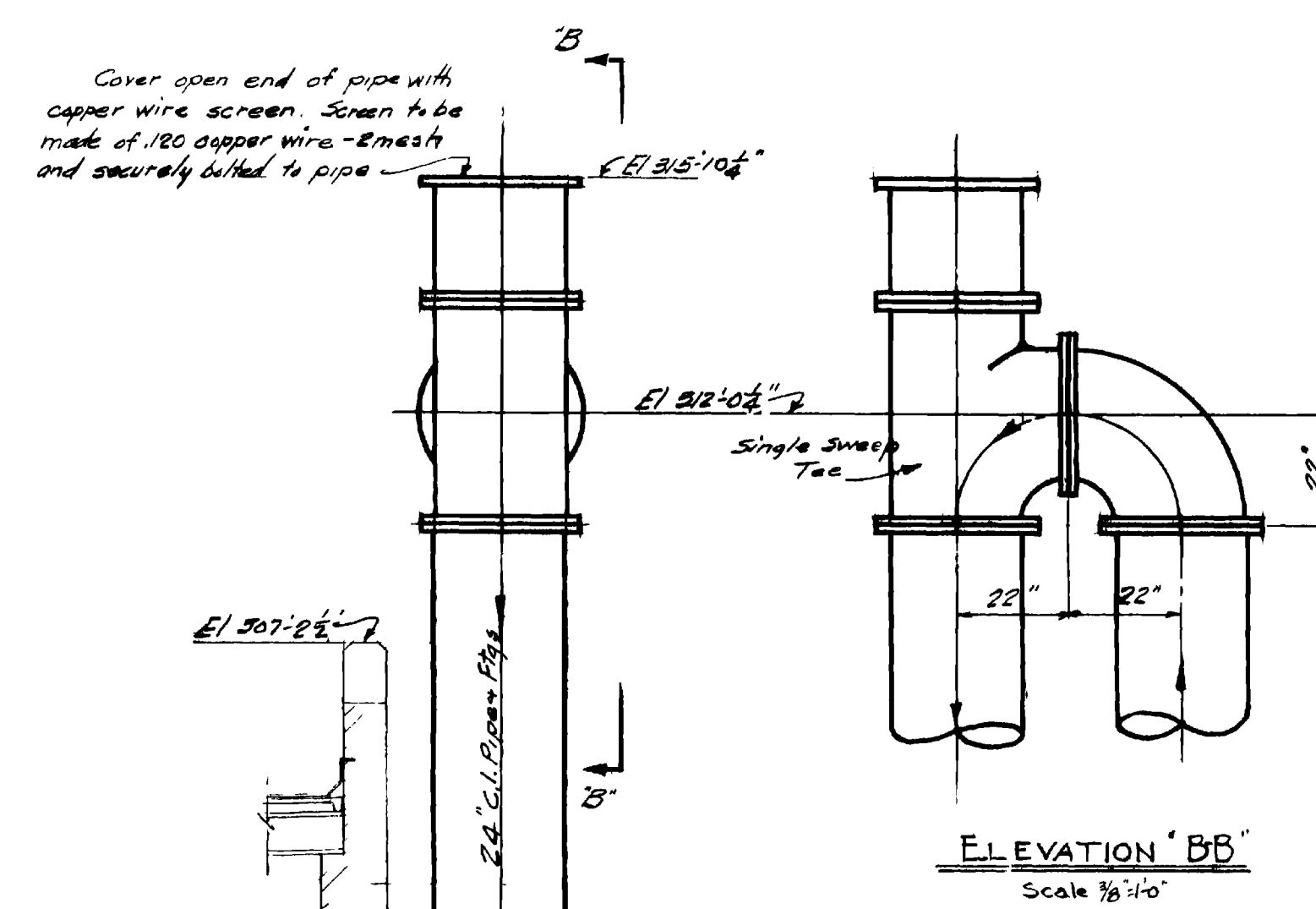
PLAN AT EL. 262'-0"
STAIR "A"
Scale 1/8"=1'-0"



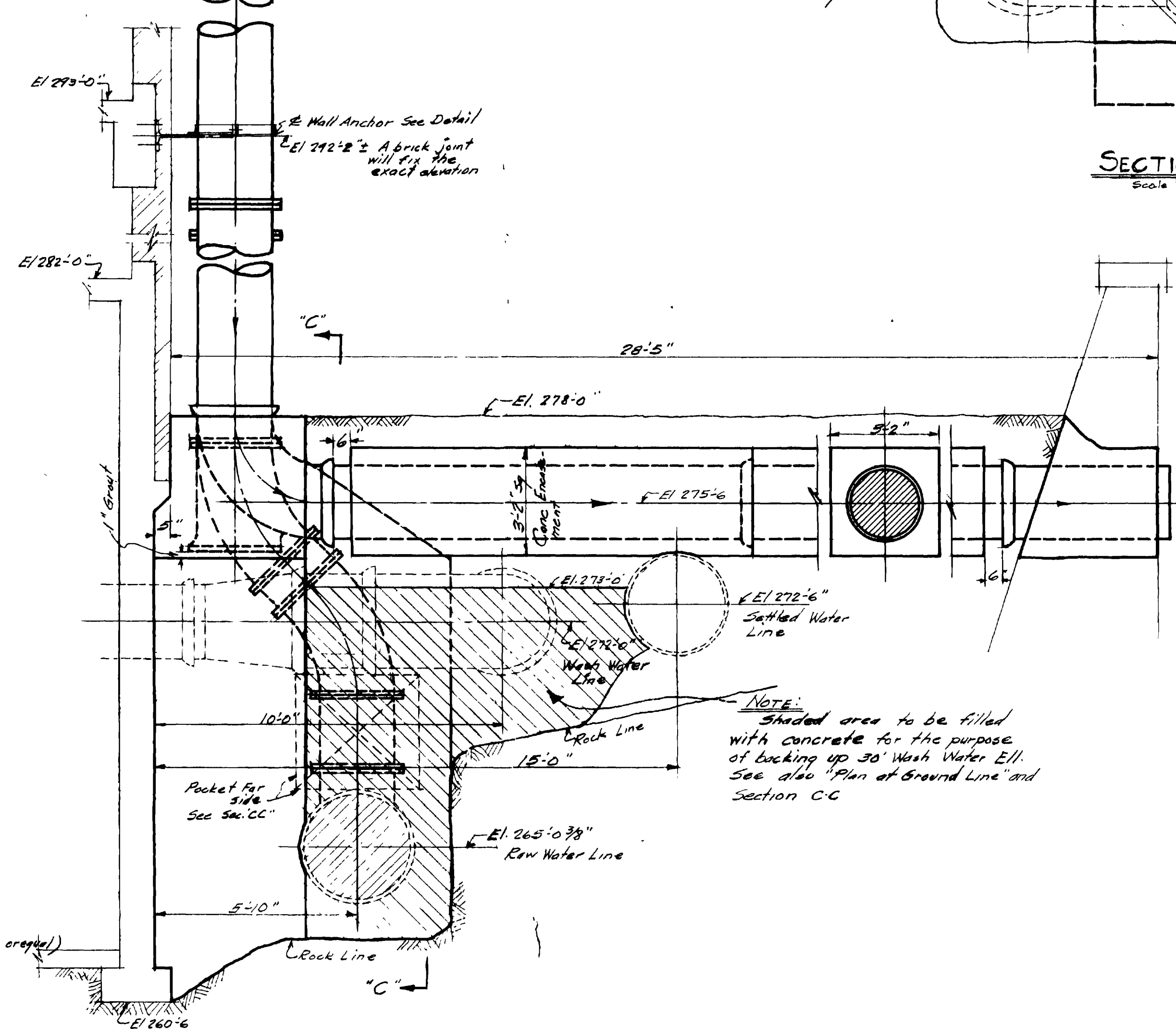
PLAN AT GROUND LINE
Scale 3/8" = 1'-0"



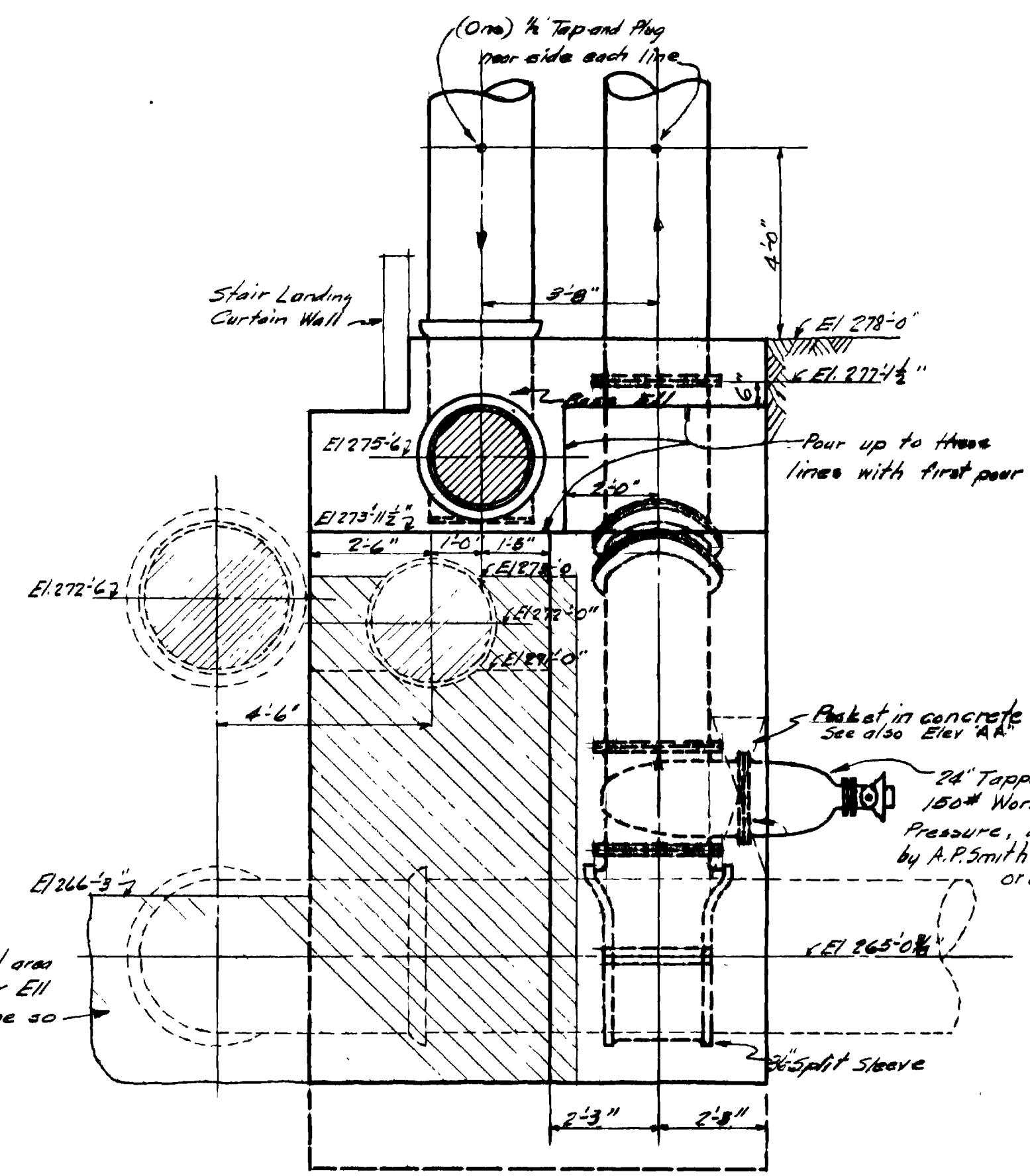
DETAIL OF WALL ANCHOR
Scale 3/4" = 1'-0"



ELEVATION BB
Scale 3/8" = 1'-0"



ELEVATION AA
Scale 3/8" = 1'-0"



SECTION C-C
Scale 3/8" = 1'-0"

NOTE:
As soon as the uptake and down-take lines have been completely installed, 36" gate valve in yard shall be closed and the raw water line dewatered to elevation 266'-6". Bonnet at 24" Tapping Valve, together with valve stem and valve discs, shall then be removed. The bonnet opening shall be covered with a 1" steel plate and all flange bolts replaced. Pocket in concrete shall then be filled.
Inside surface of 1" plate shall be painted as specified for sluice gates and pressure manholes ARTICLE VII-12

NOTE:
Shaded area to be filled with concrete for the purpose of backing up 30" Wash Water E/I. See also "Plan at Ground Line" and Section C-C

PRESSURE RELIEF ADDITION TO CONTRACT #5 - WATERWORKS IMPROVEMENTS DETAILED SPECIFICATIONS:

PART I - GENERAL CONSTRUCTION REQUIREMENTS:

- ### I-4 Removal of Existing Structures:
- (1) - Contractor shall remove section of south wall of Basin No. 3 for relief of discharge line as shown. Space around 24" relief line shall be filled to original lines with concrete to form a watertight wall.
 - (2) - Existing wash water line shall be supported as excavation progresses in a manner satisfactory to the Engineer. Concrete supports and backing block shall be constructed as shown.

PART II - EXCAVATION:

- ### II-1, II-2 (As per original specifications)
- ### II-3 MEASUREMENT OF EXCAVATION:
- Pay lines shall be as specified for pipe lines in open trench except for excavation required for foundation block supporting riser lines, in which case pay lines shall be as specified for structures.

- ### II-4 BLASTING
- Blasting will not be permitted.

- ### II-5, II-6, II-7 (As per original specifications)

PART III - PLAIN AND REINFORCED CONCRETE:

All concrete shall be Class 'A' as per original specifications.

PART IV - STRUCTURAL STEEL AND IRONWORK:

As per original specifications

PART V - PAINTING

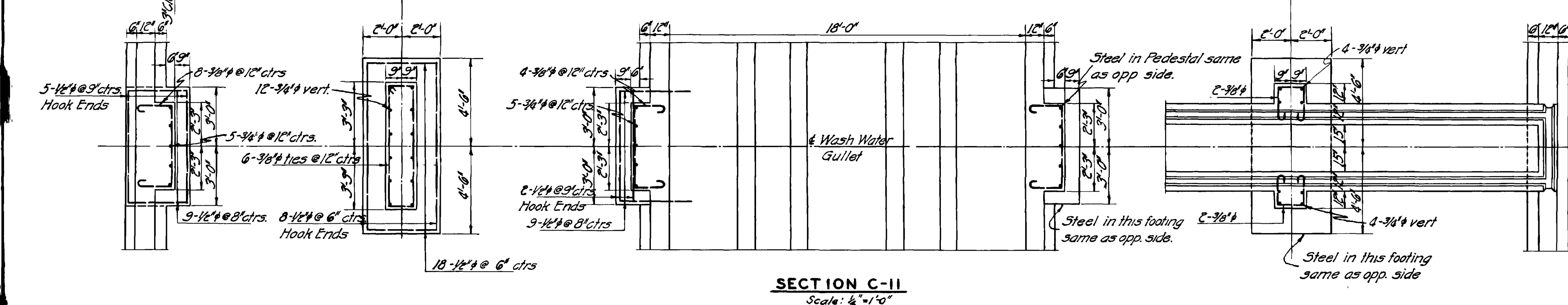
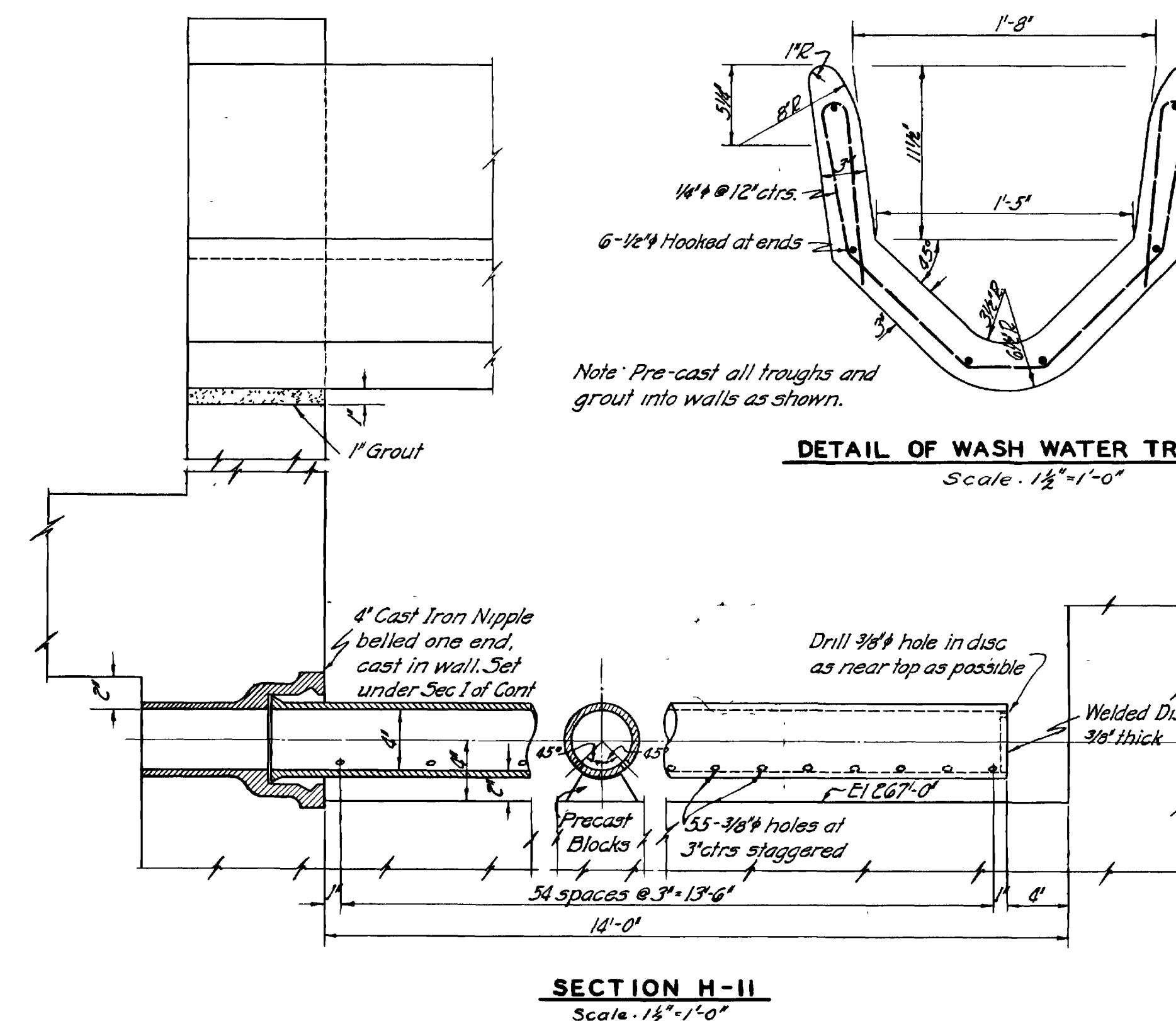
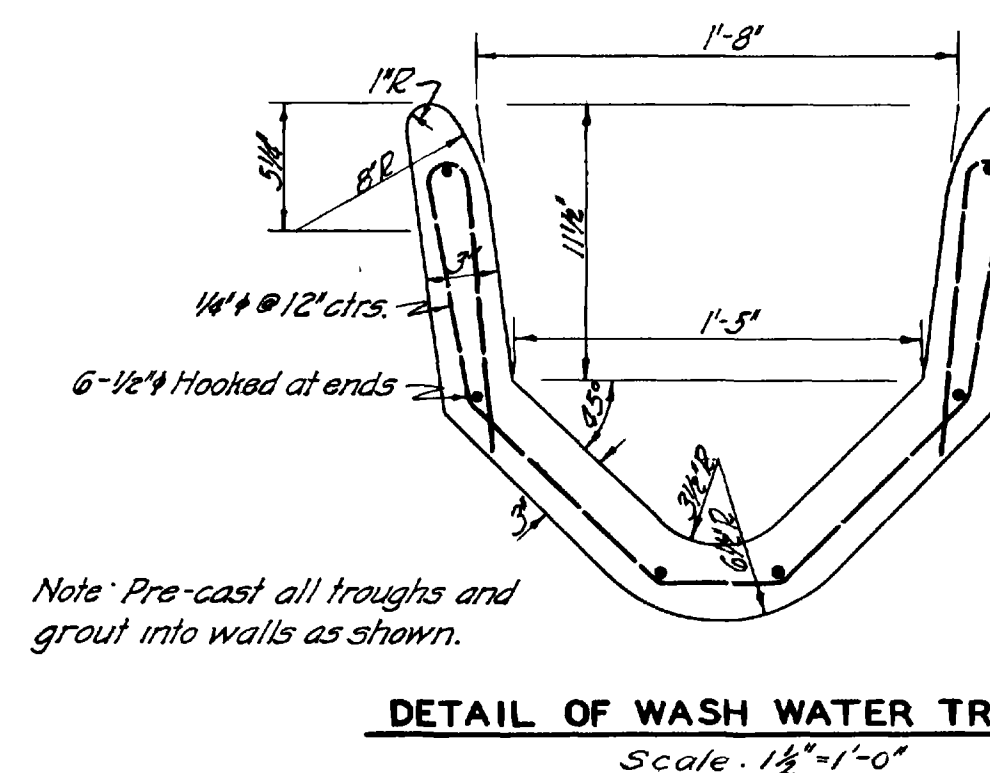
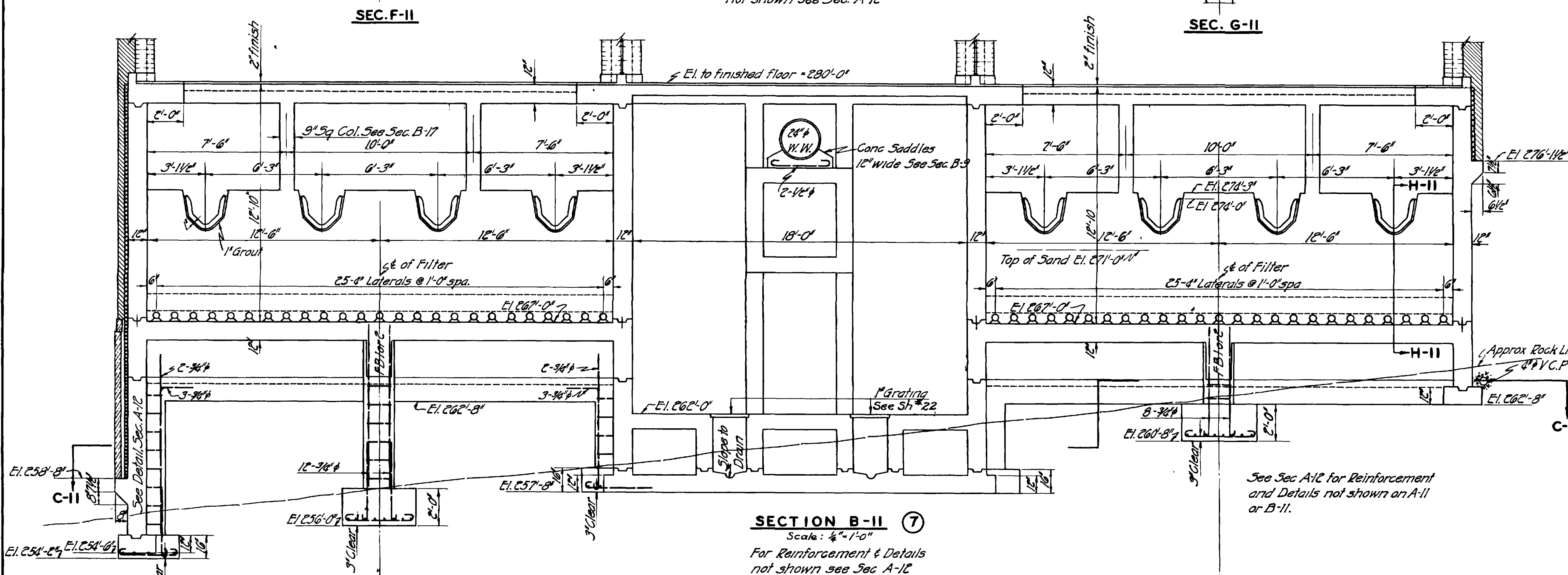
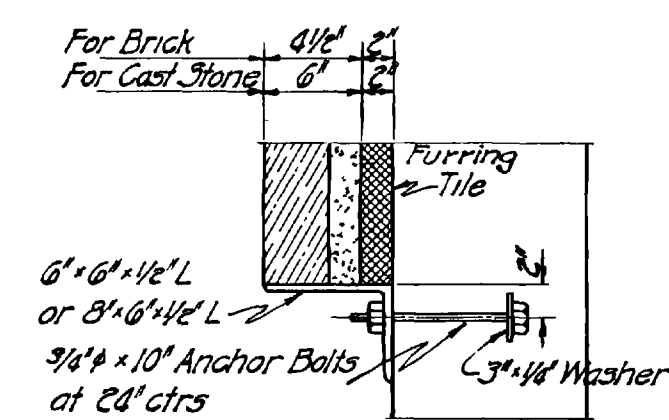
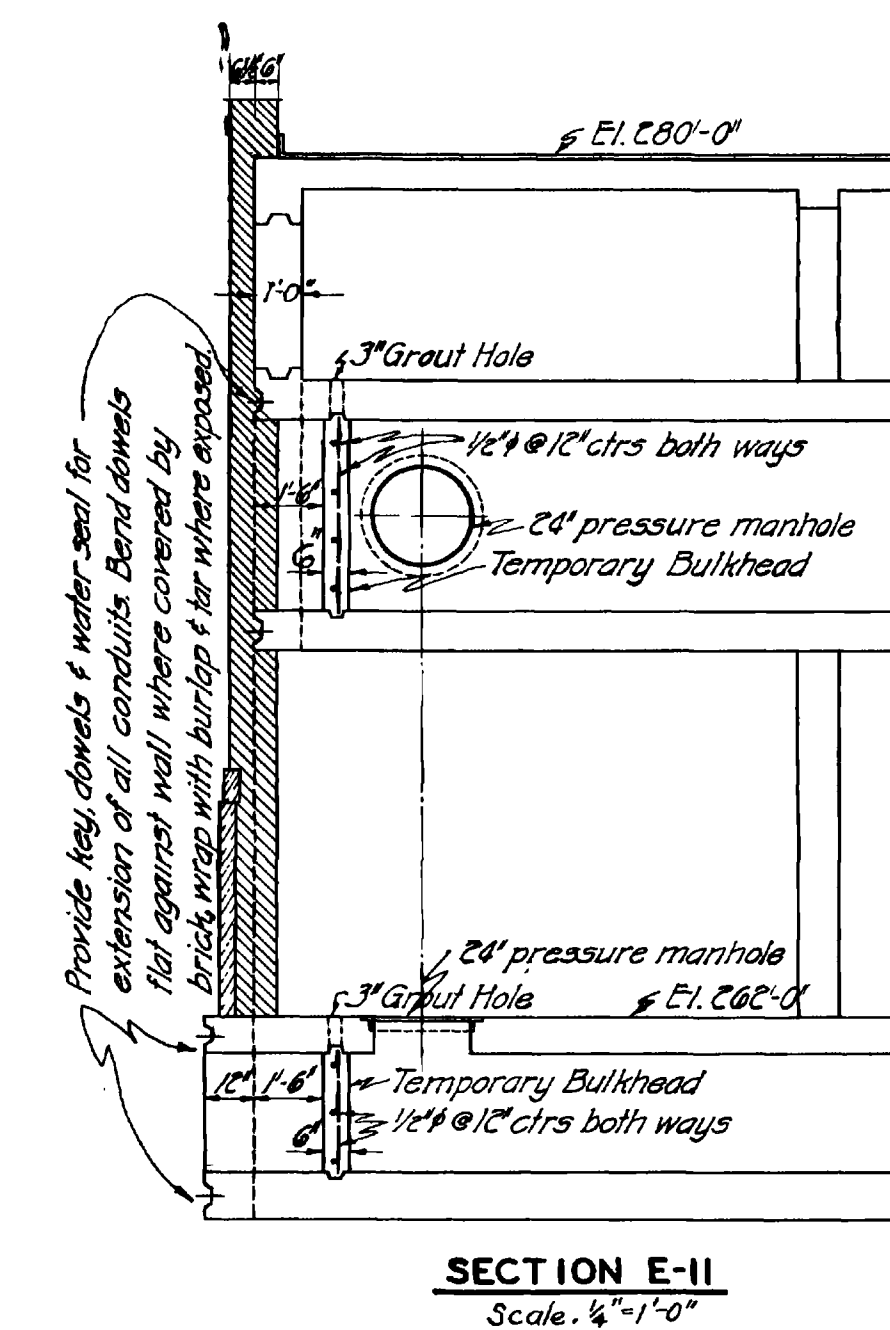
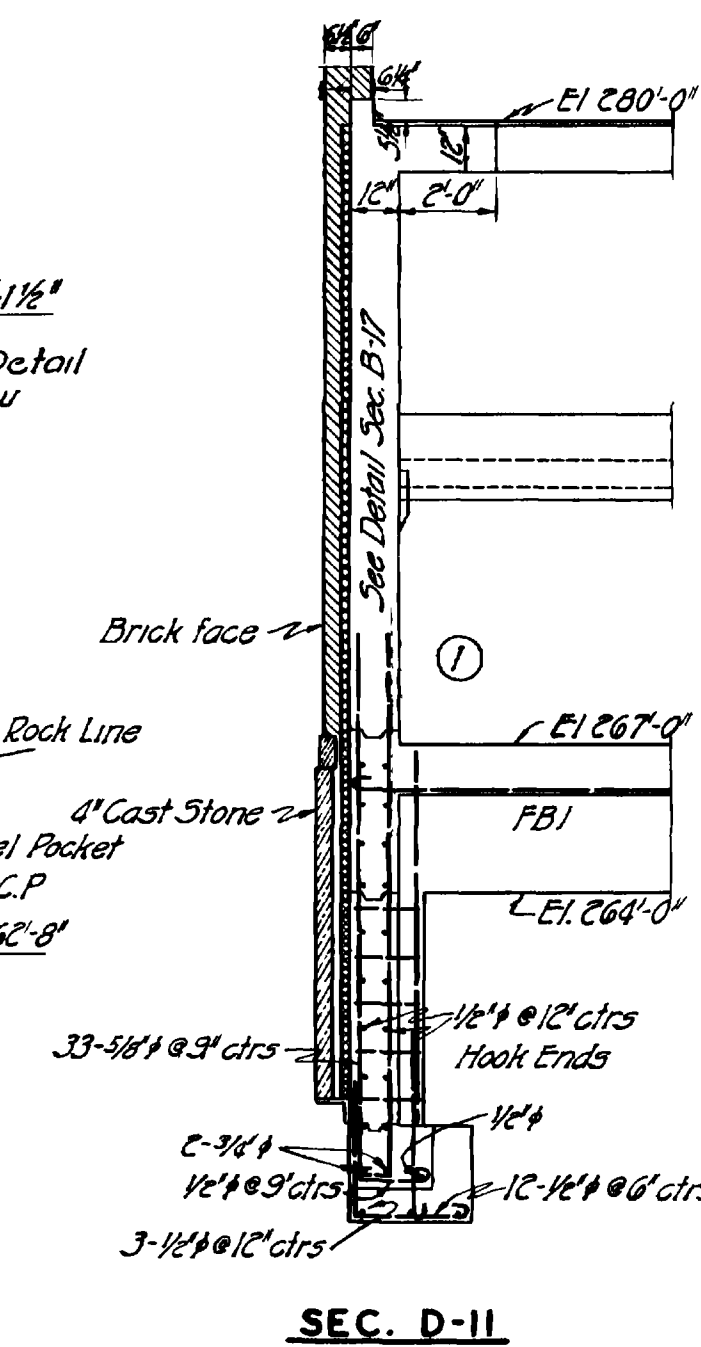
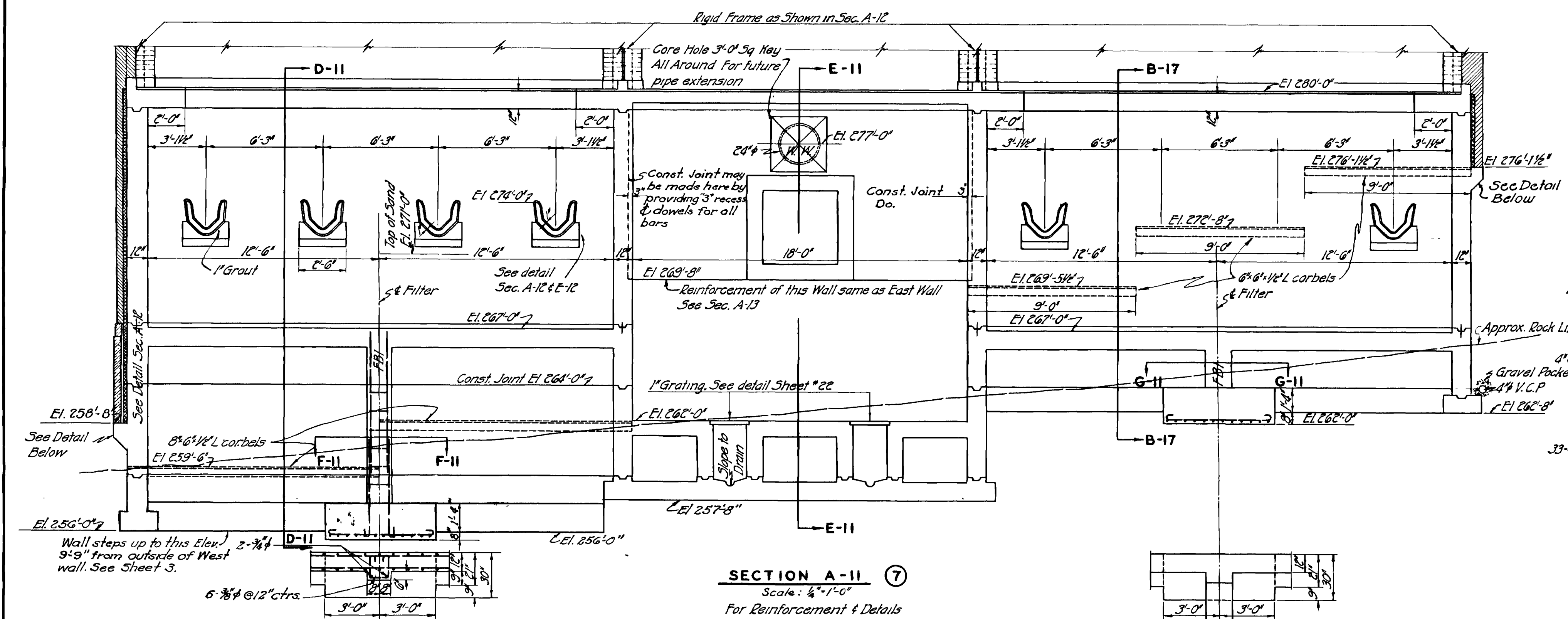
All exposed piping and structural steel shall be painted as specified under ARTICLE VII-2 for exposed structural steel.

PART VI - YARD PIPING

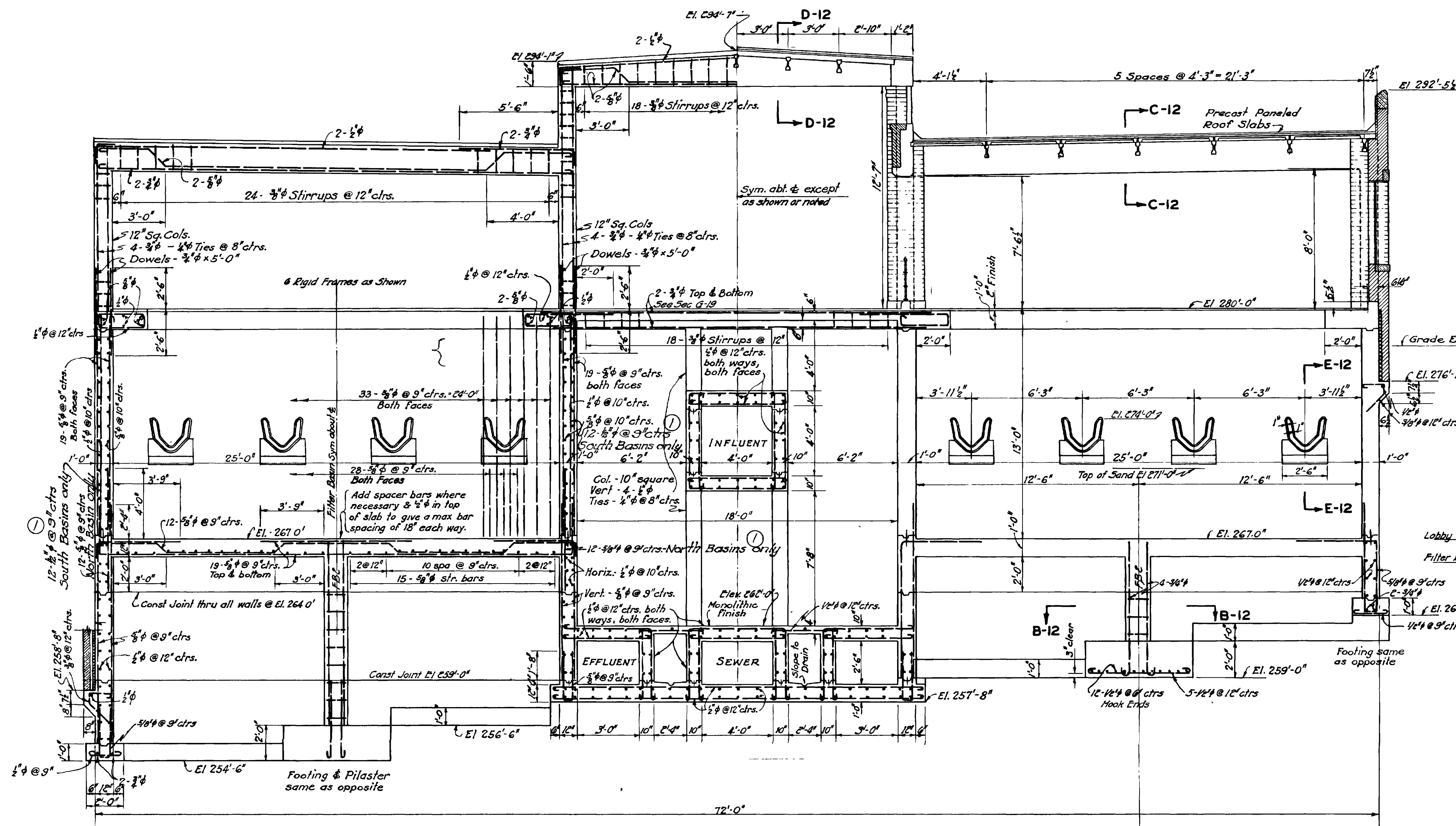
New pipe and fittings shall be furnished and installed as shown. All new pipe and fittings shall be Class 'B' Cast Iron and shall be as specified under ARTICLE VII-6.

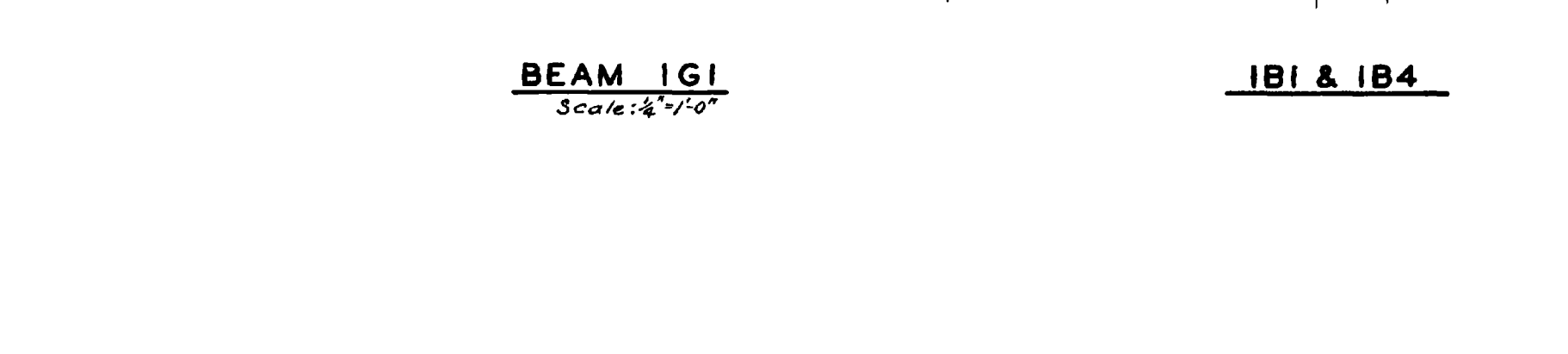
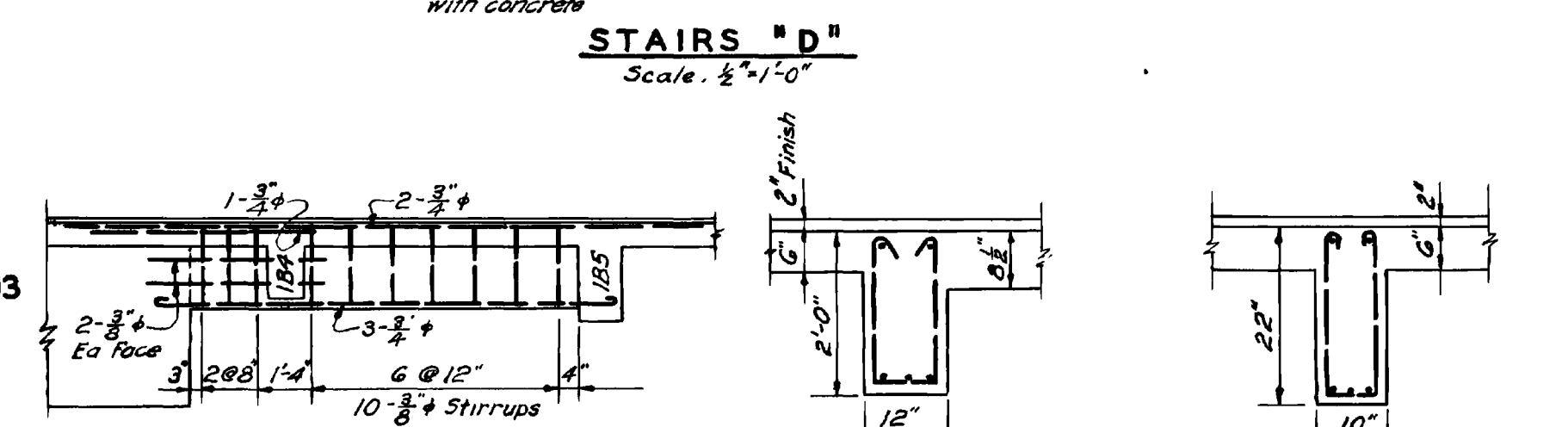
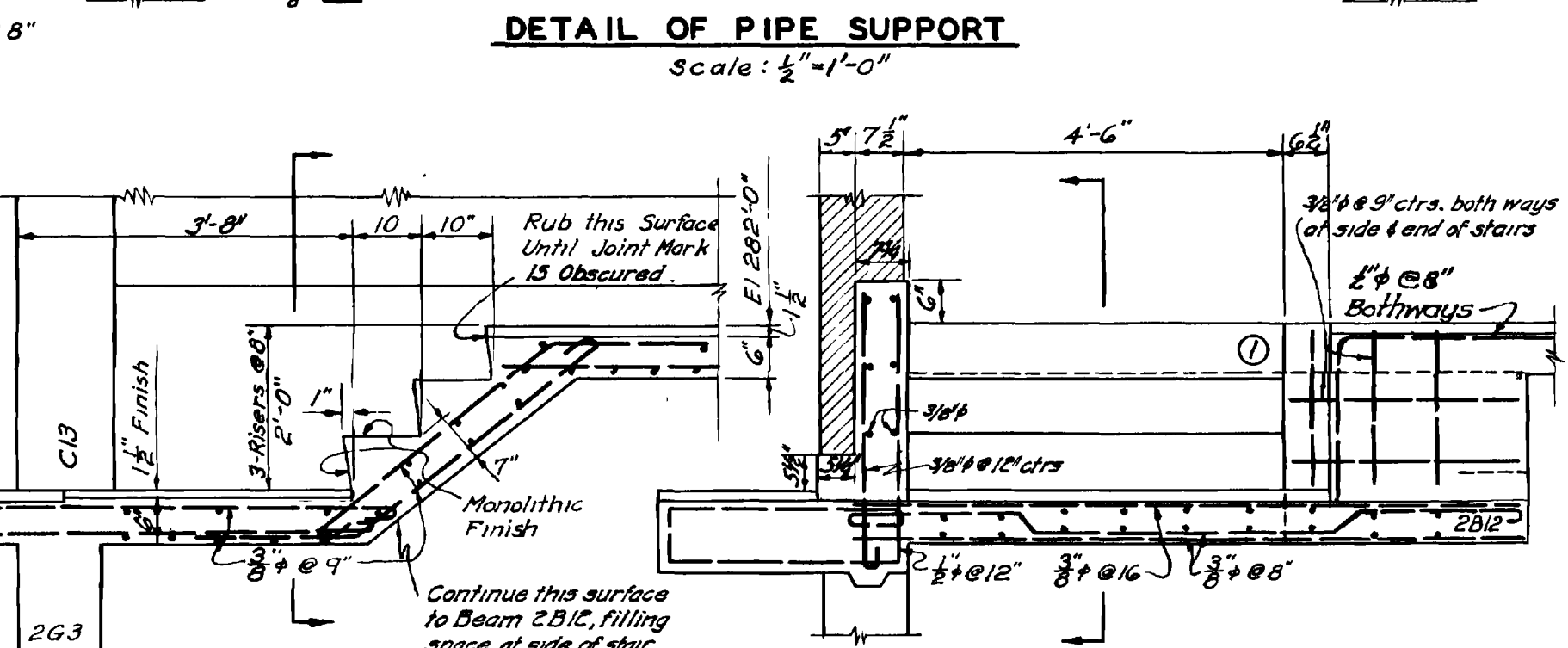
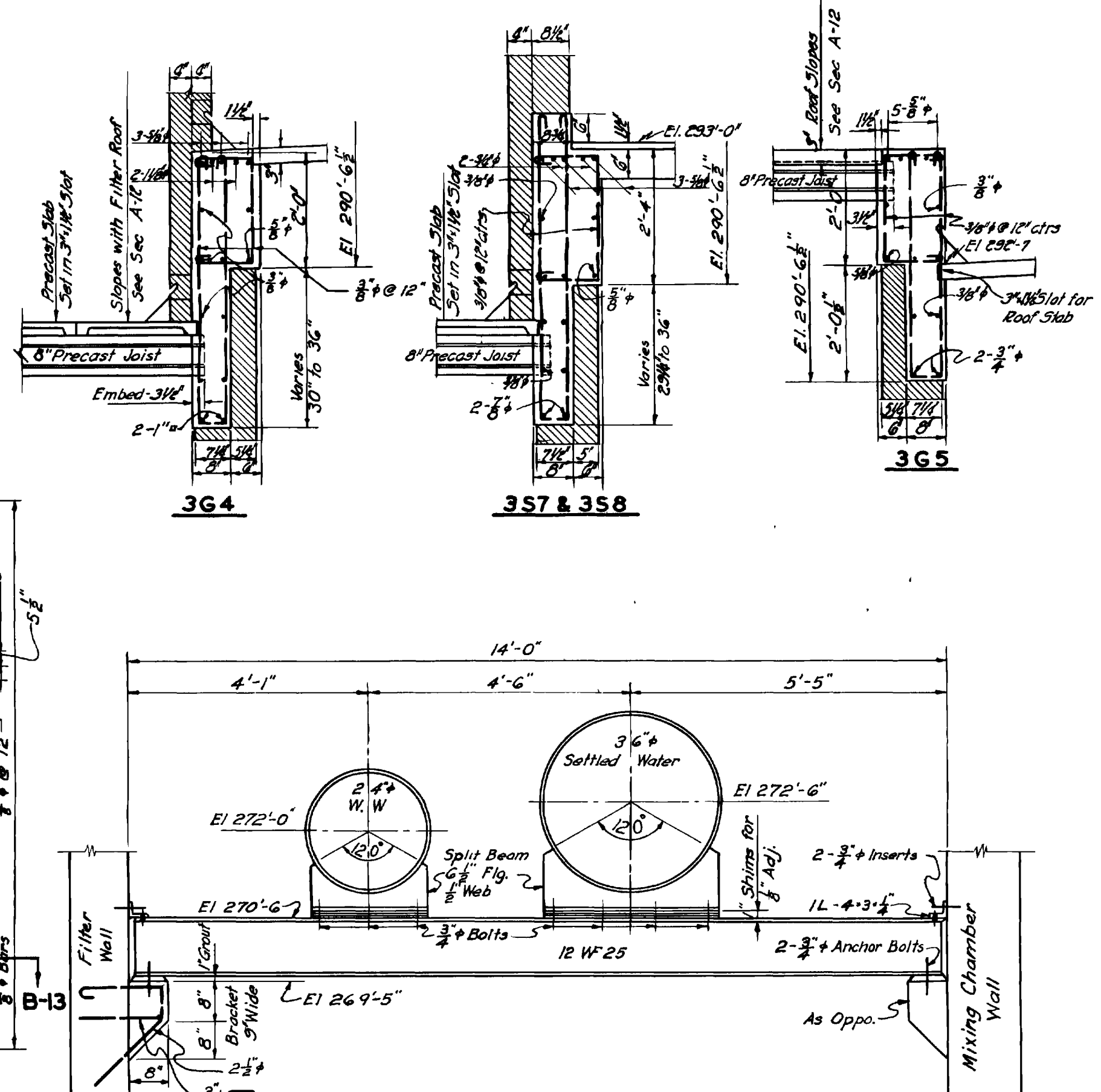
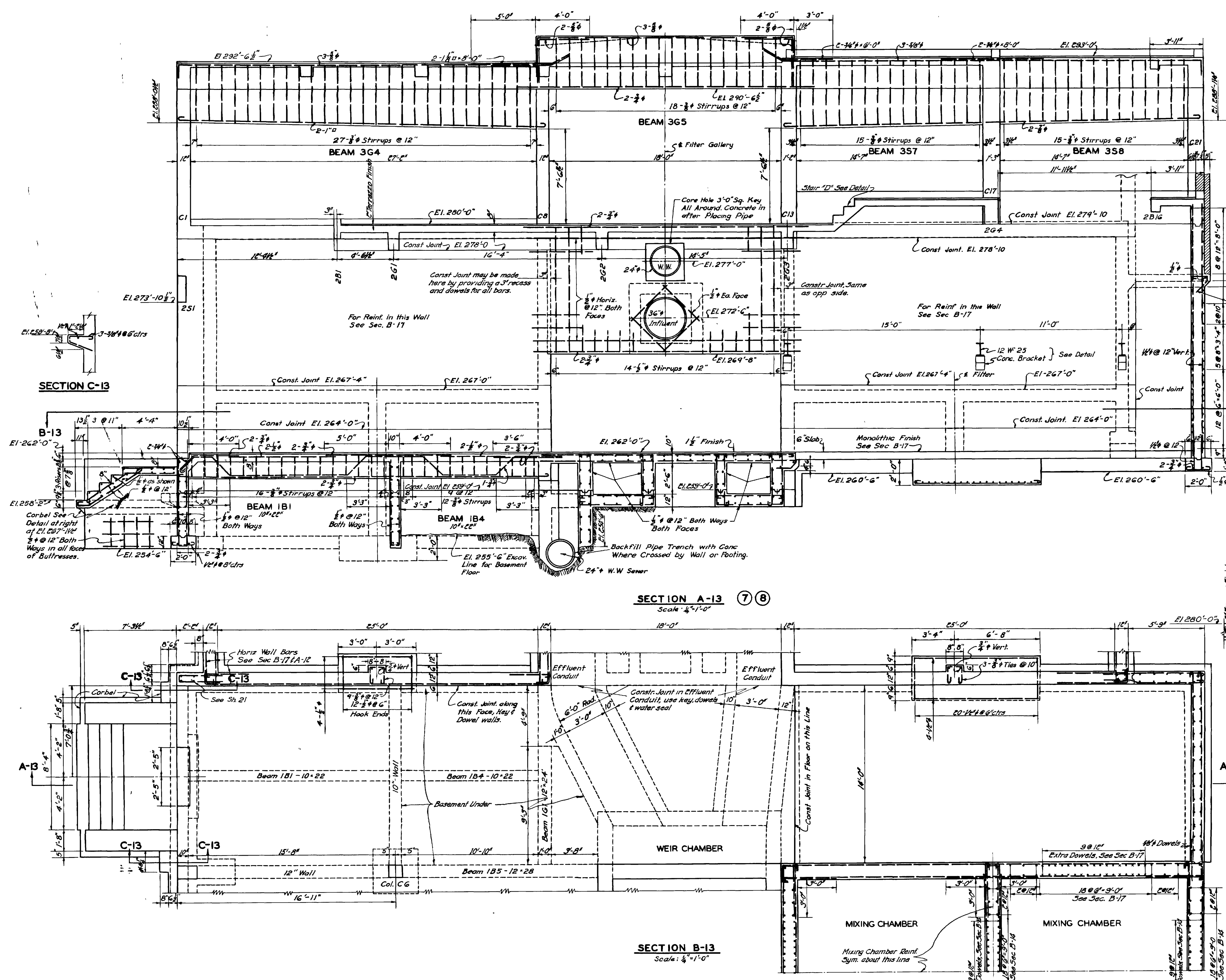
Pipe shall be laid and backfilled (where required) in accordance with ARTICLES VII-7 and VII-10.

Pipe shall be installed in the order indicated.



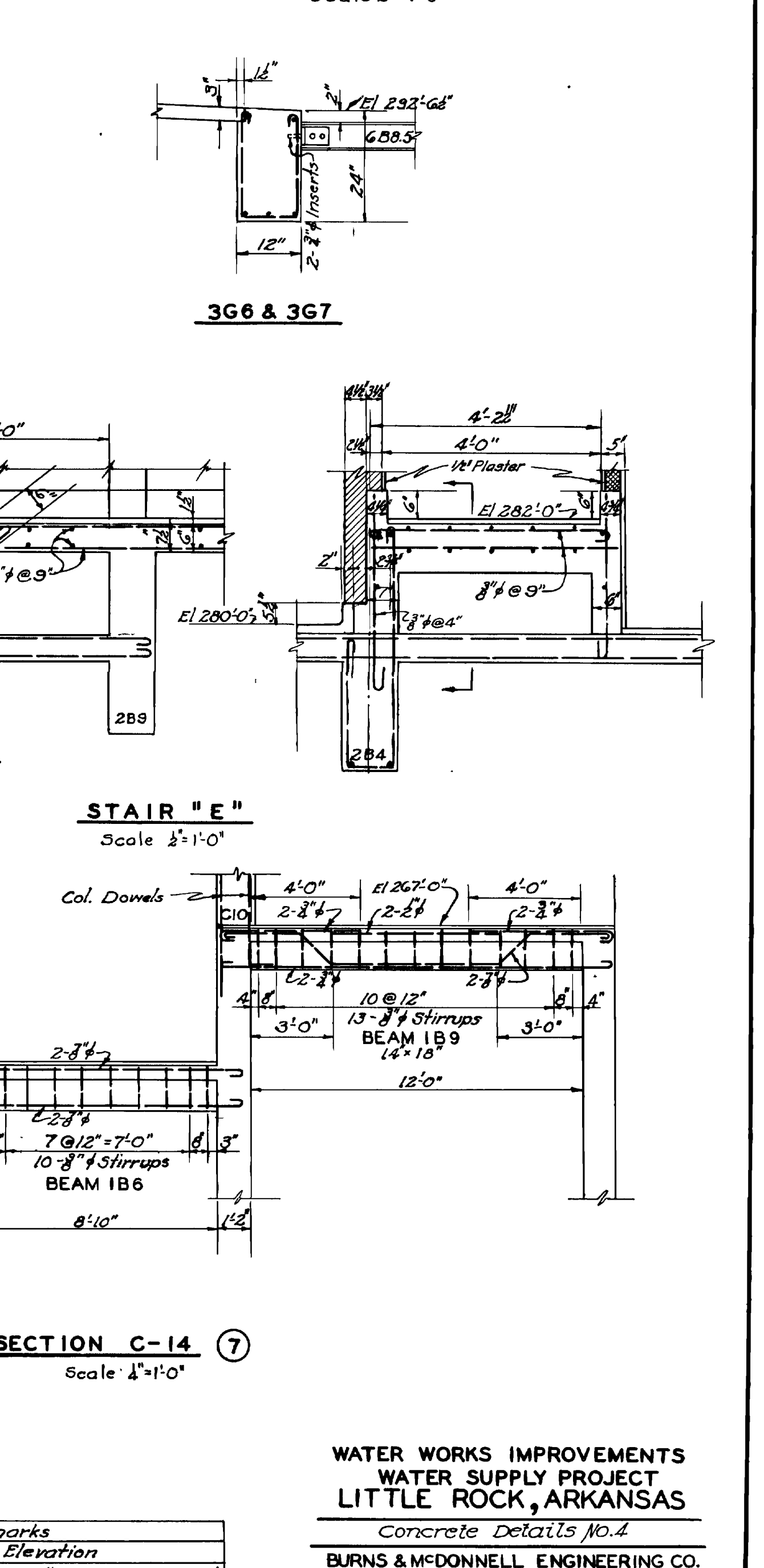
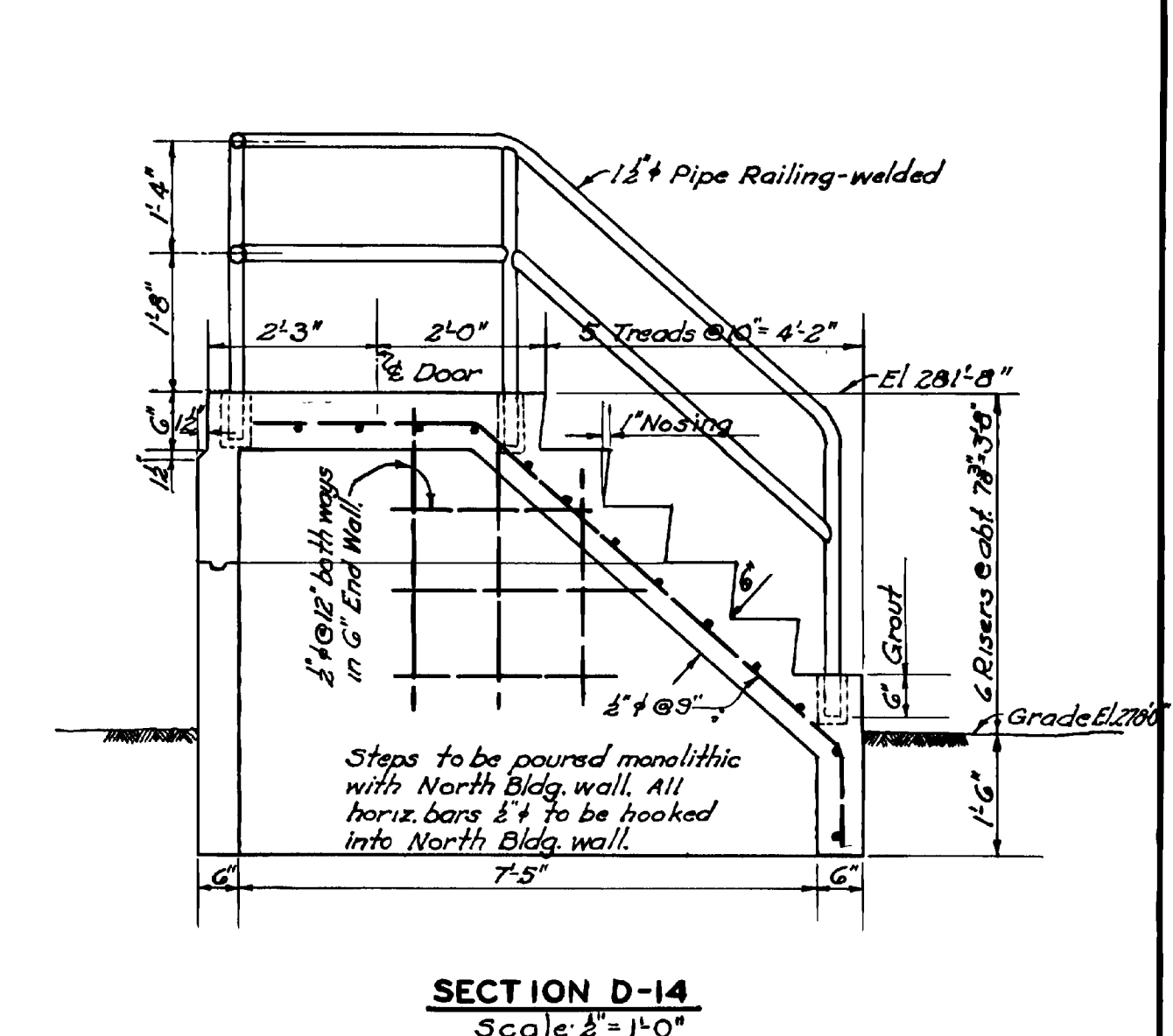
Date	By	Remarks
10-10-37	J.K.D	Bars taken out

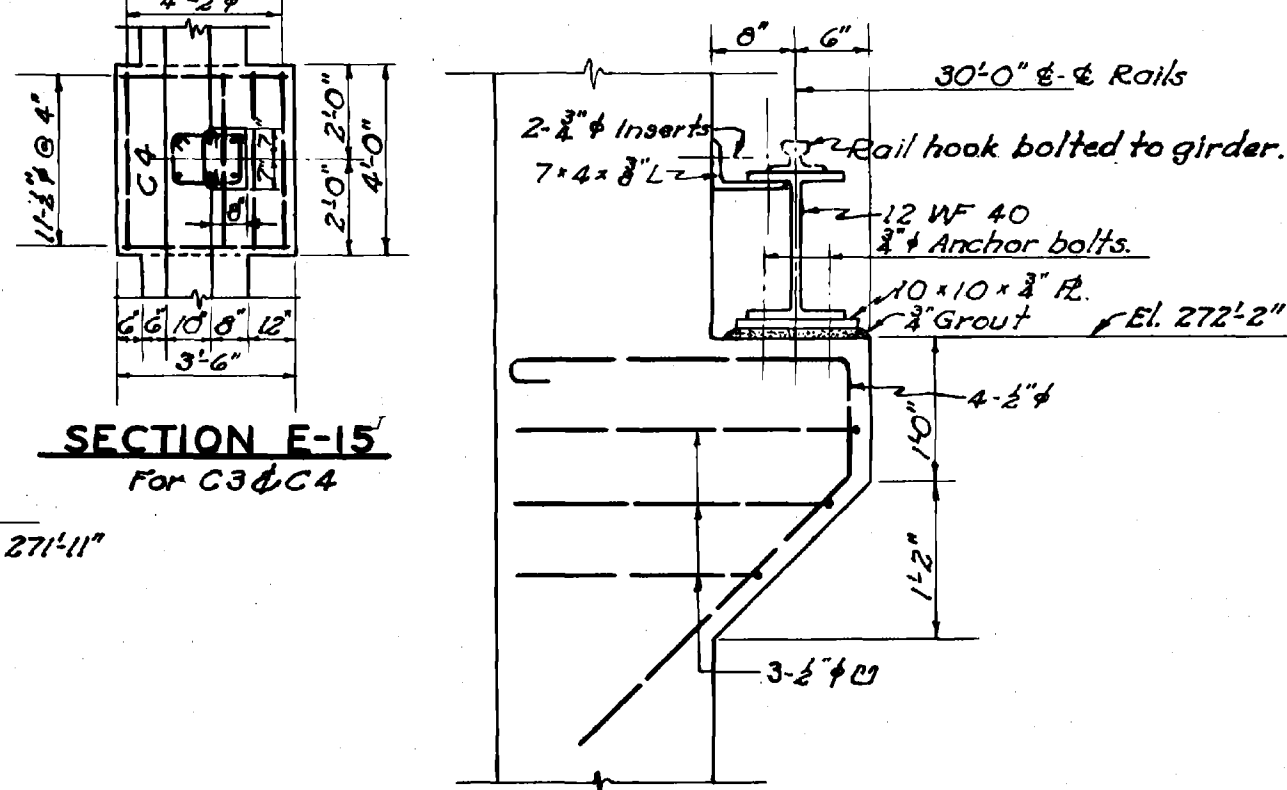
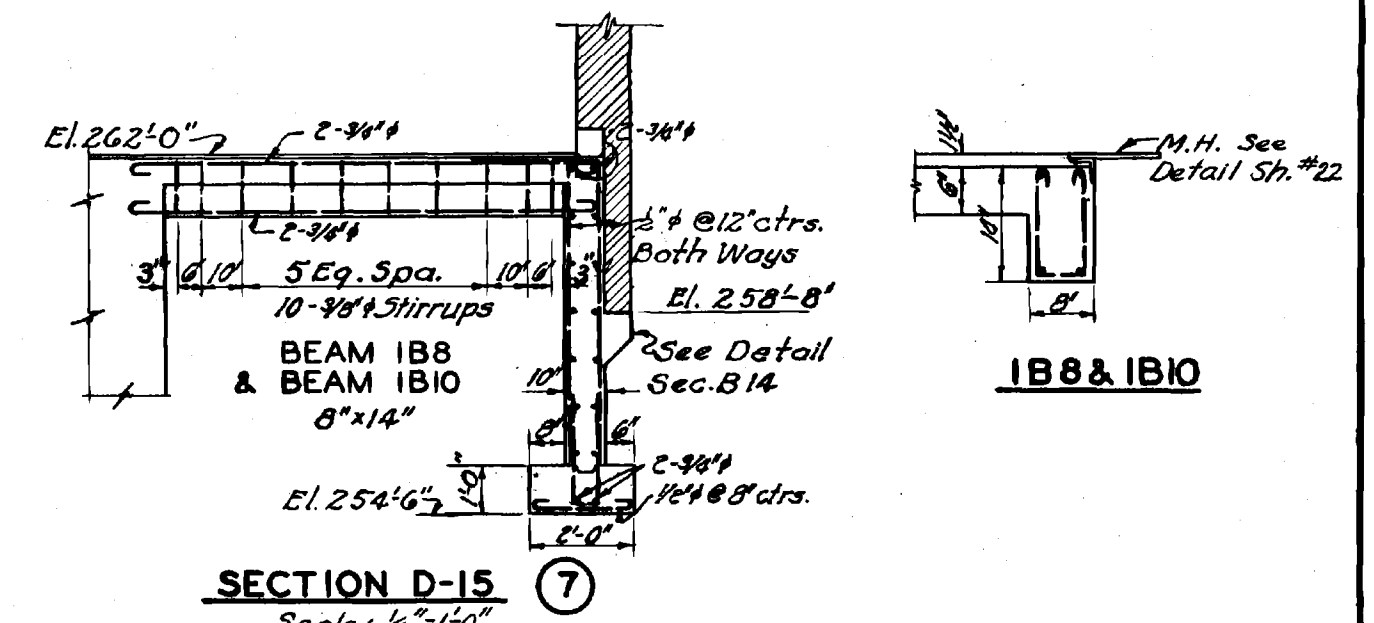
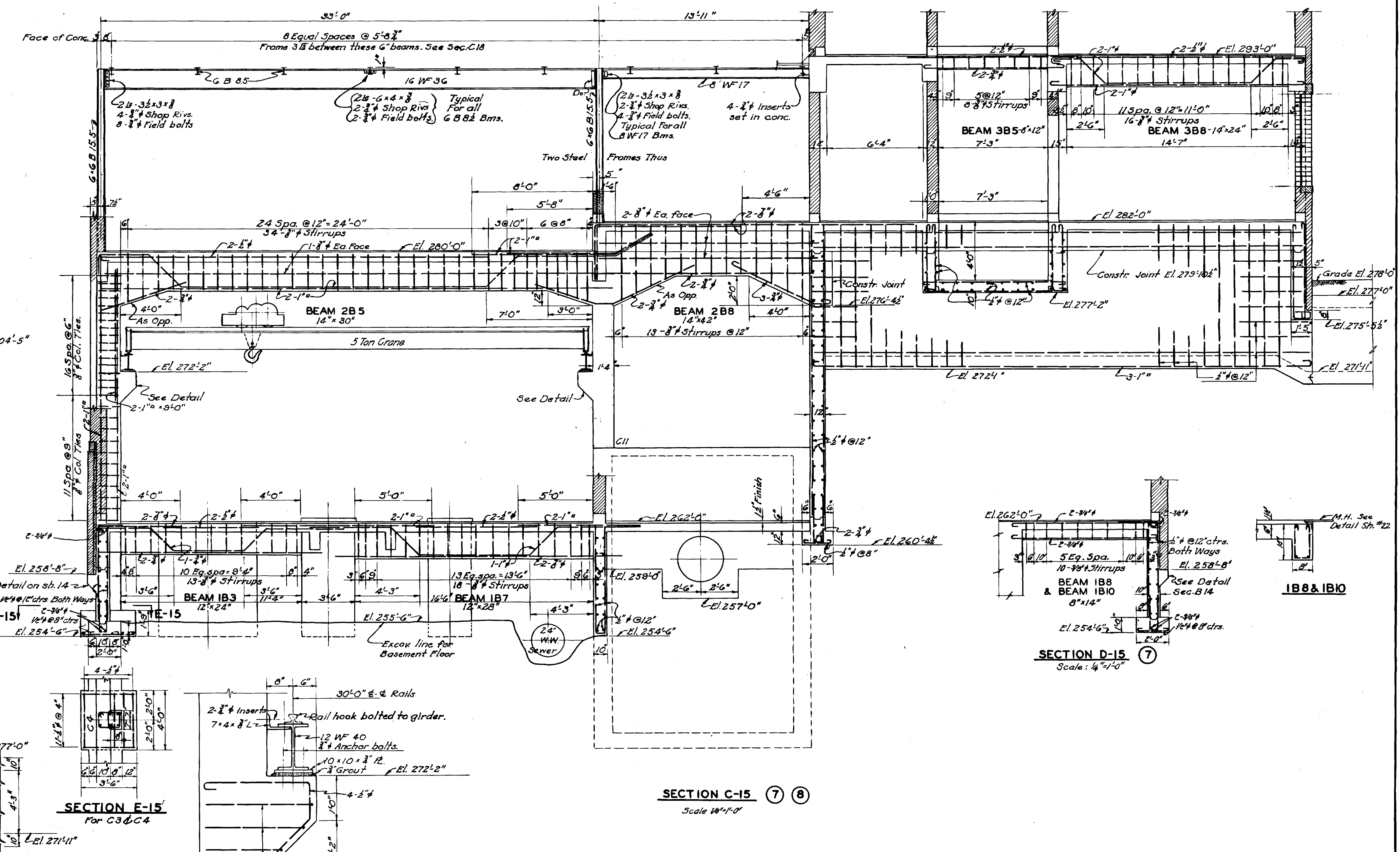
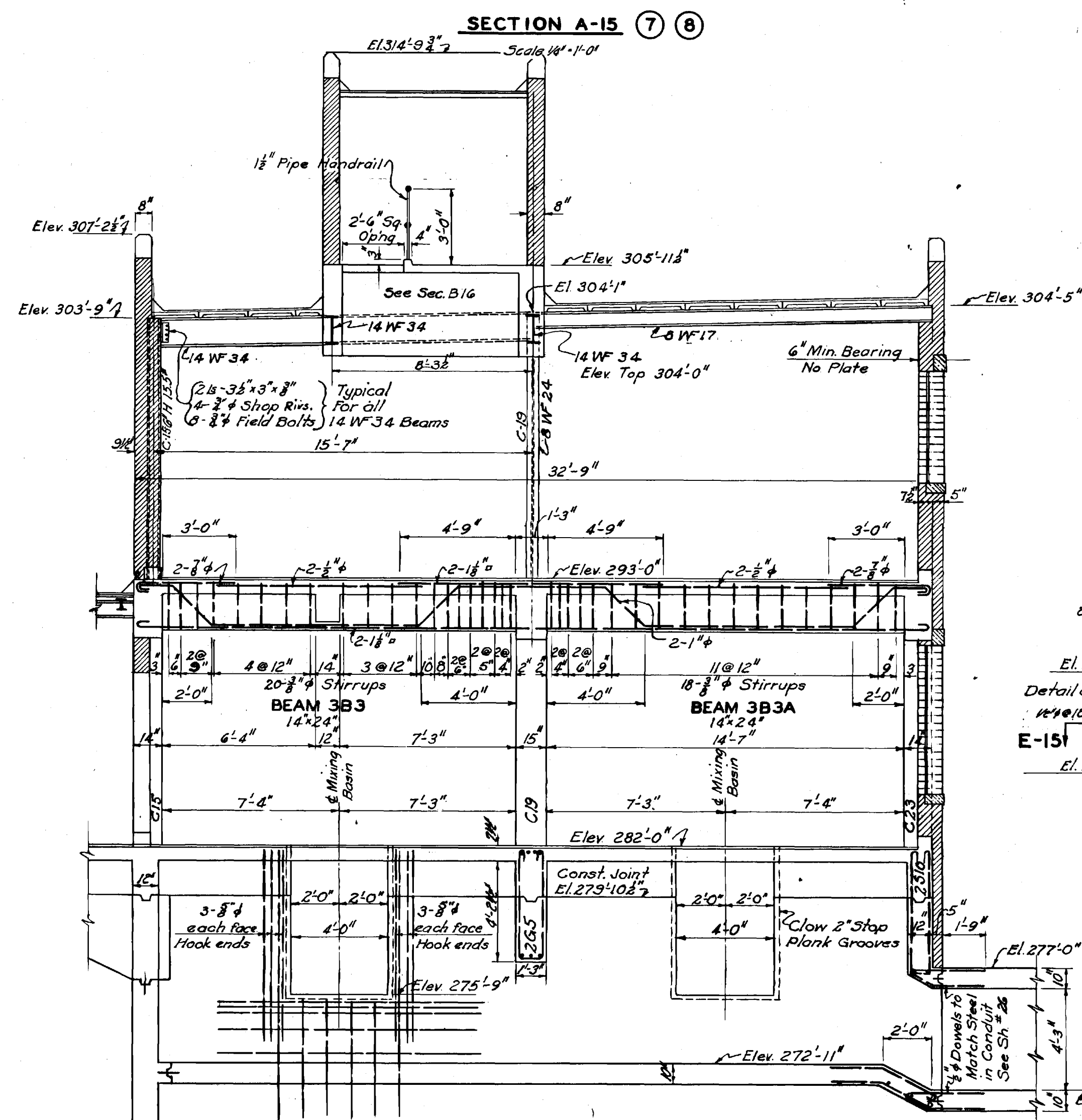
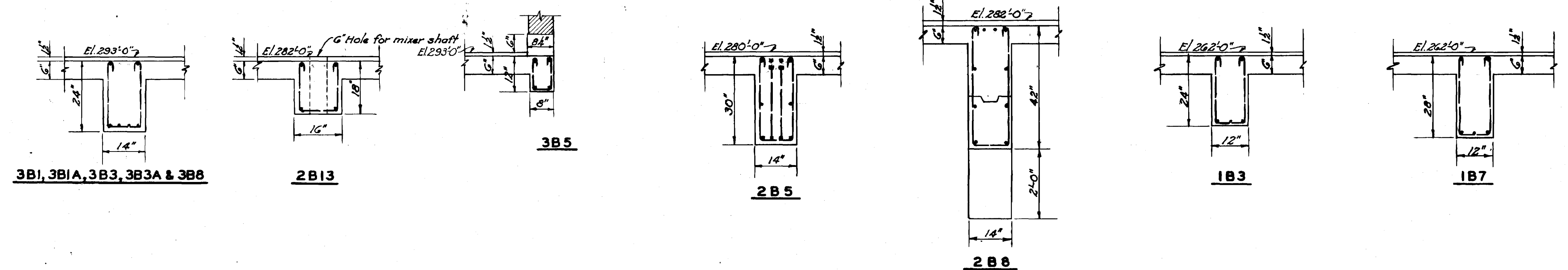
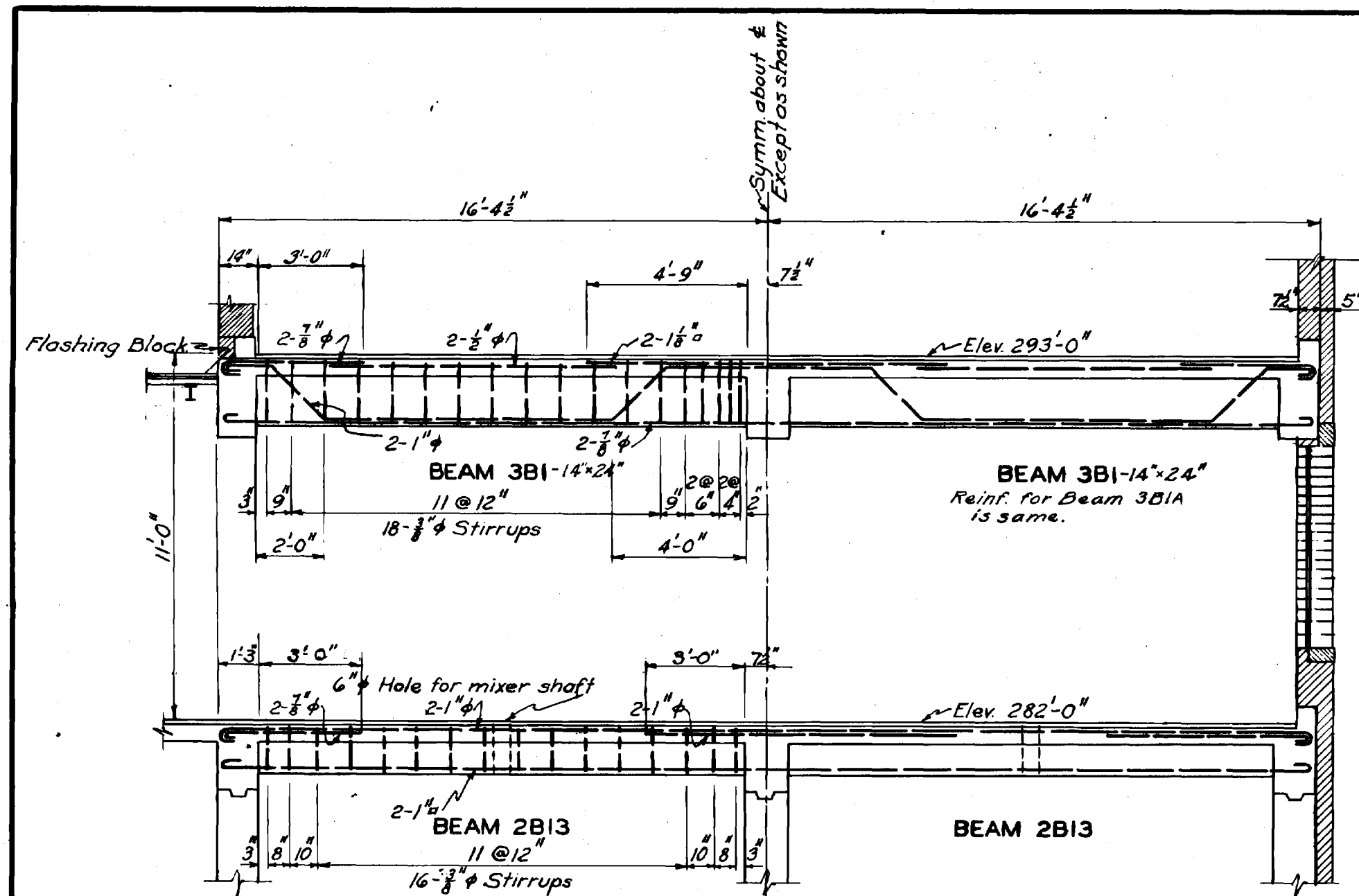


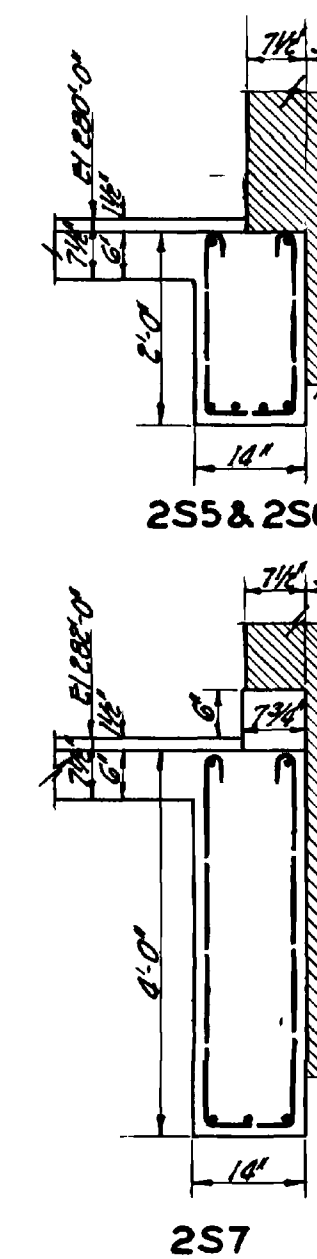
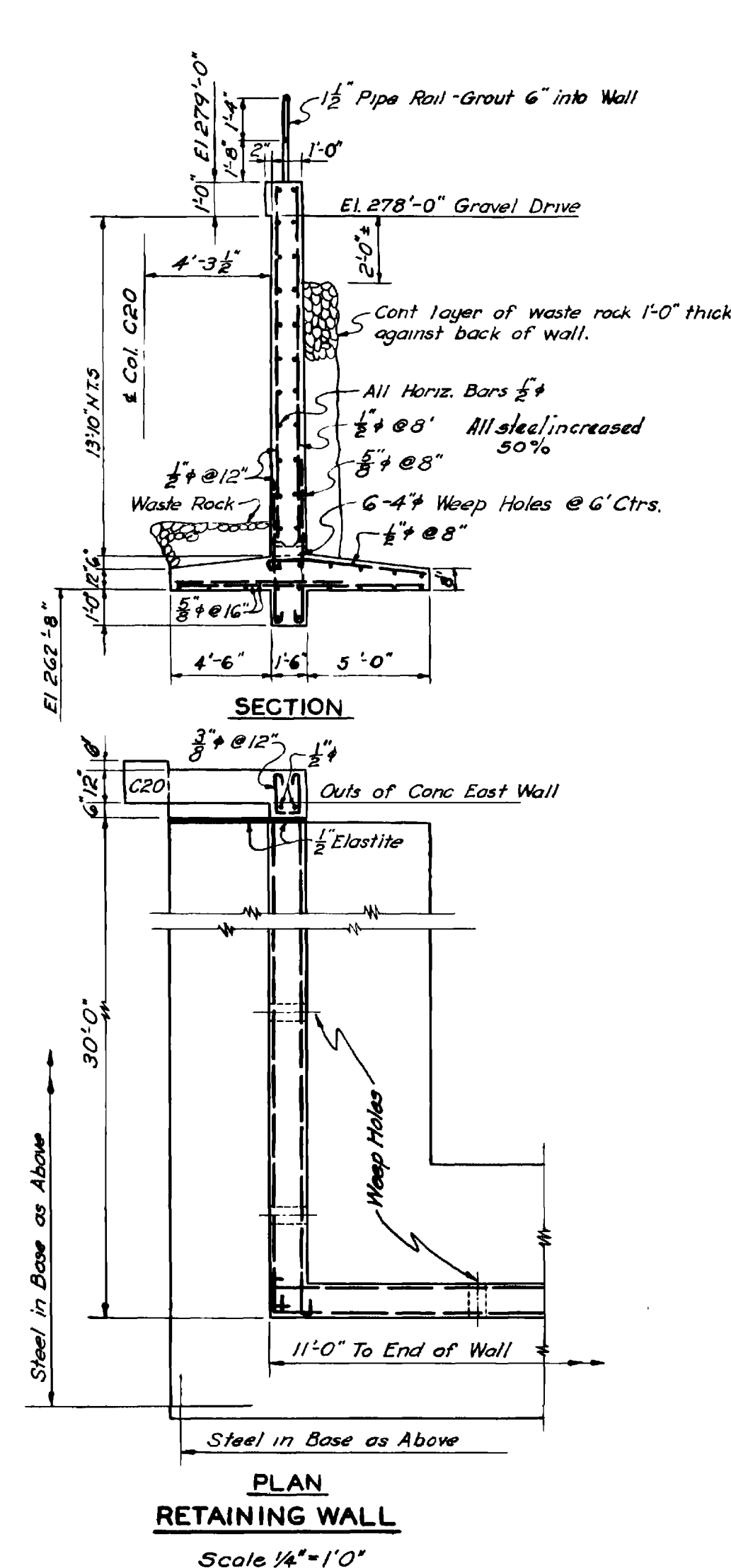
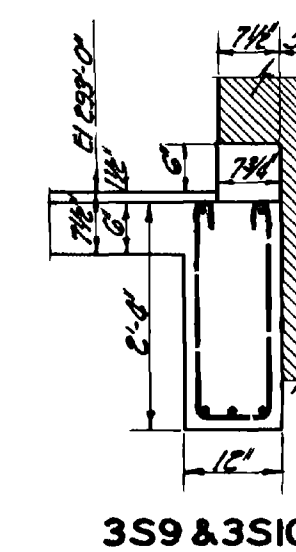
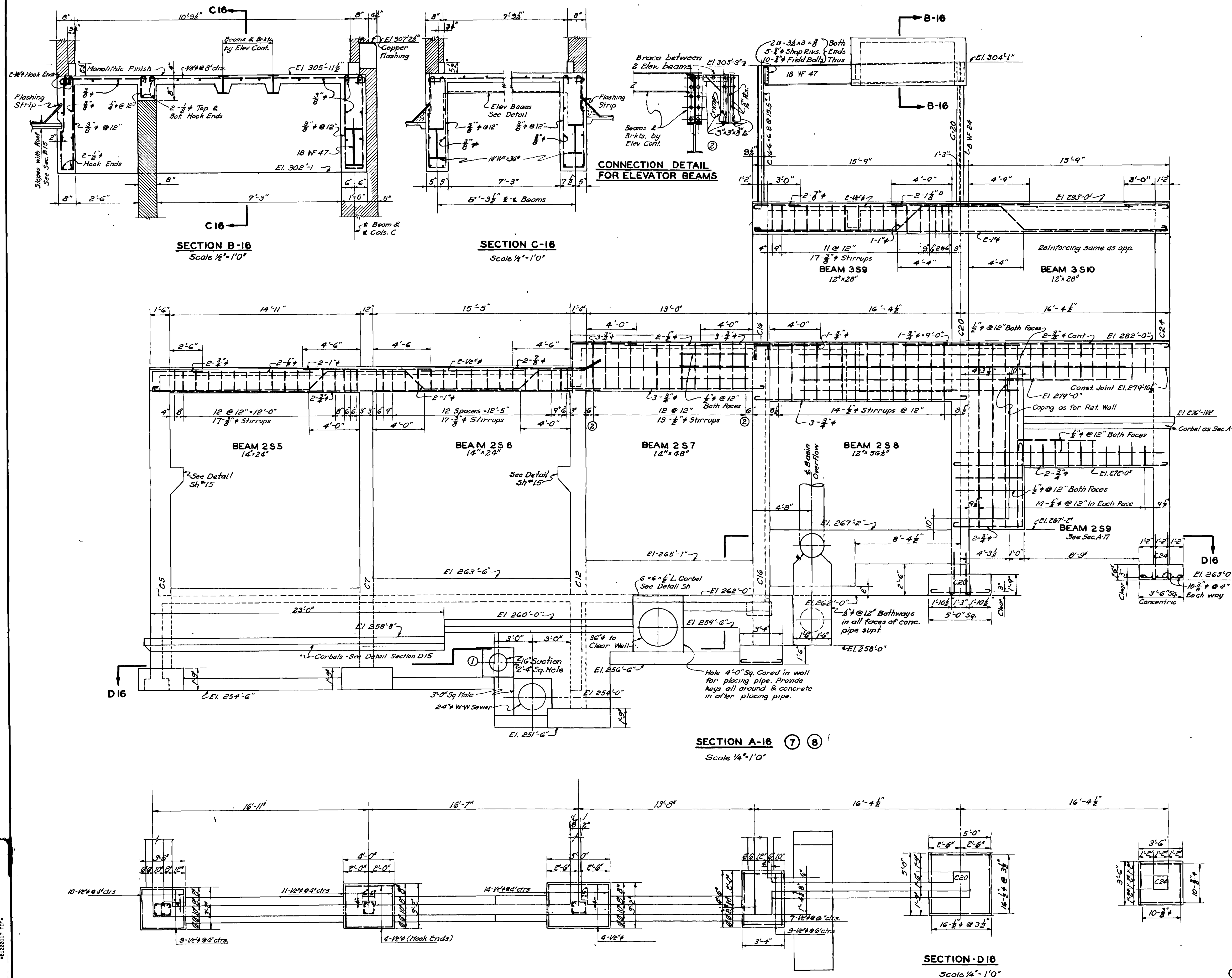


Date	By	Remarks
9/22/37	J.K.D.	Changed Stair "D"

WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS
Concrete Details No. 3
BURNS & MCDONNELL ENGINEERING CO.
KANSAS CITY APR. 1937 CINCINNATI



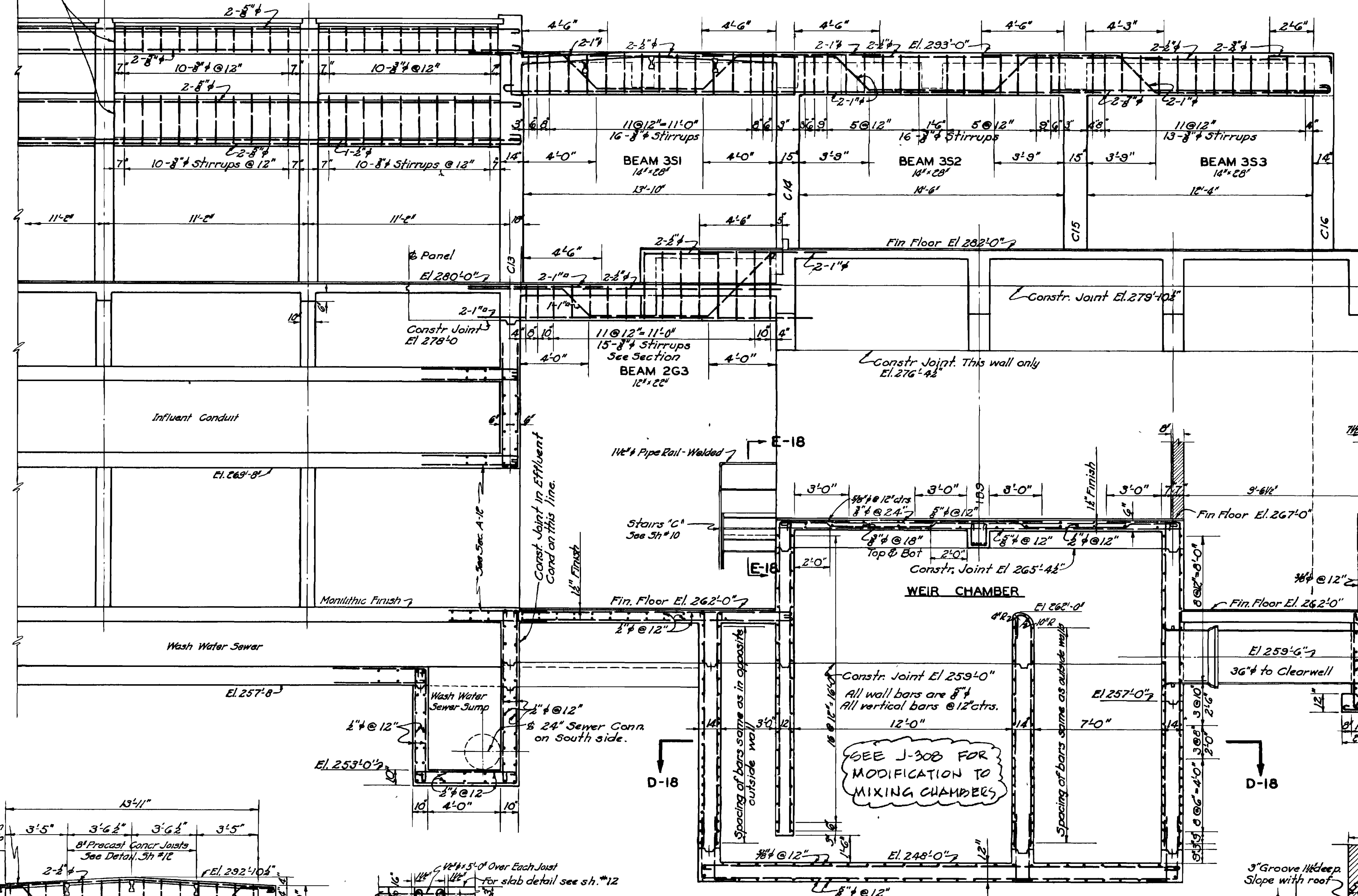




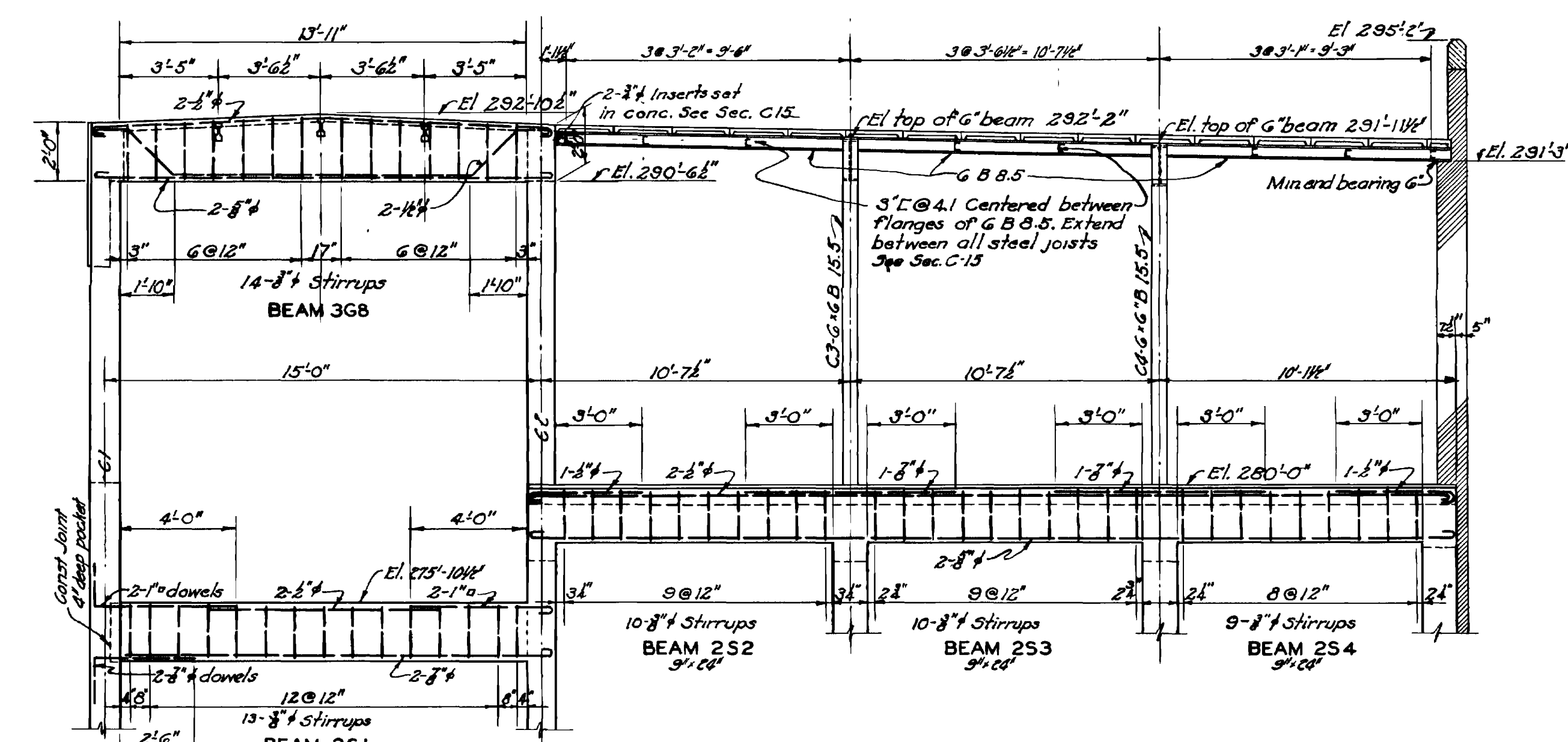
Date	By	Remarks
8-5-37	J.M.D.	Added 16" Suction
9-23-37	J.M.D.	Changed Dimension of Elev. Beams
10-4-38	H.W.H.	Revised retaining wall

WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS
Concrete Details No. 6
BURNS & McDONNELL ENGINEERING CO.
KANSAS CITY CINCINNATI
APR. 1937

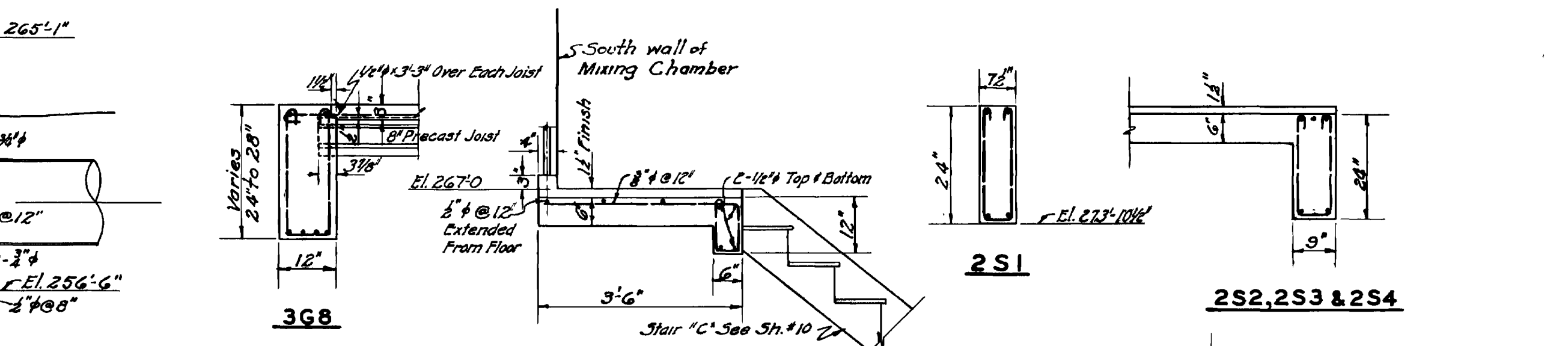
Const. Joint in Filter Gallery Spandrel Beams may be made at any column by providing 1/2" deep recess for beam & dowels for all bars.



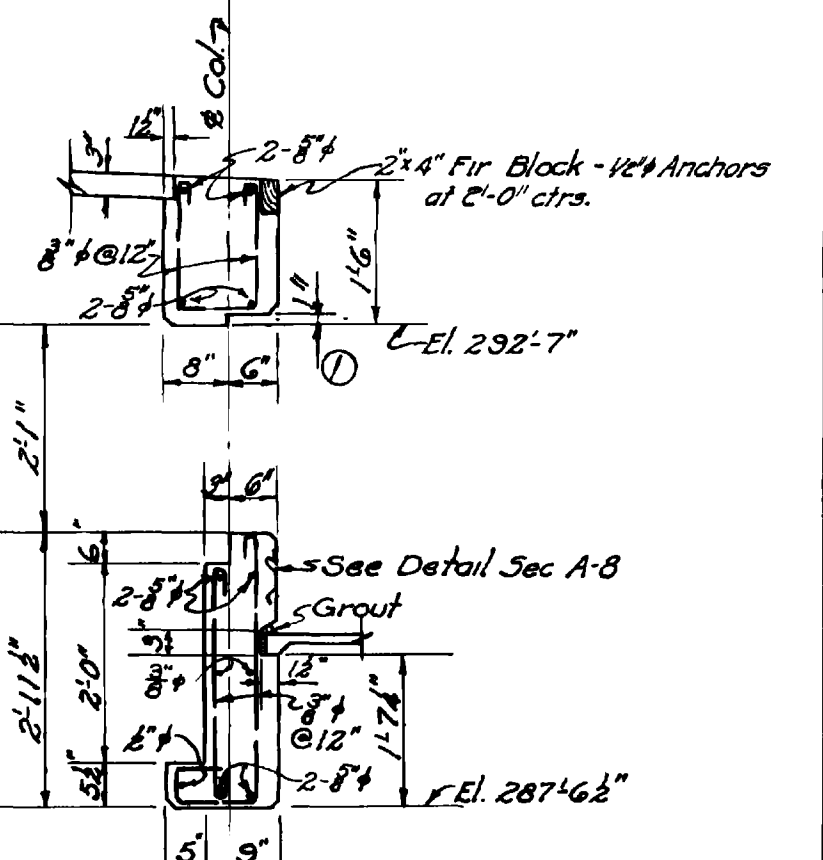
SECTION A-18 (7) (8)
Scale: 1/4" = 1'-0"



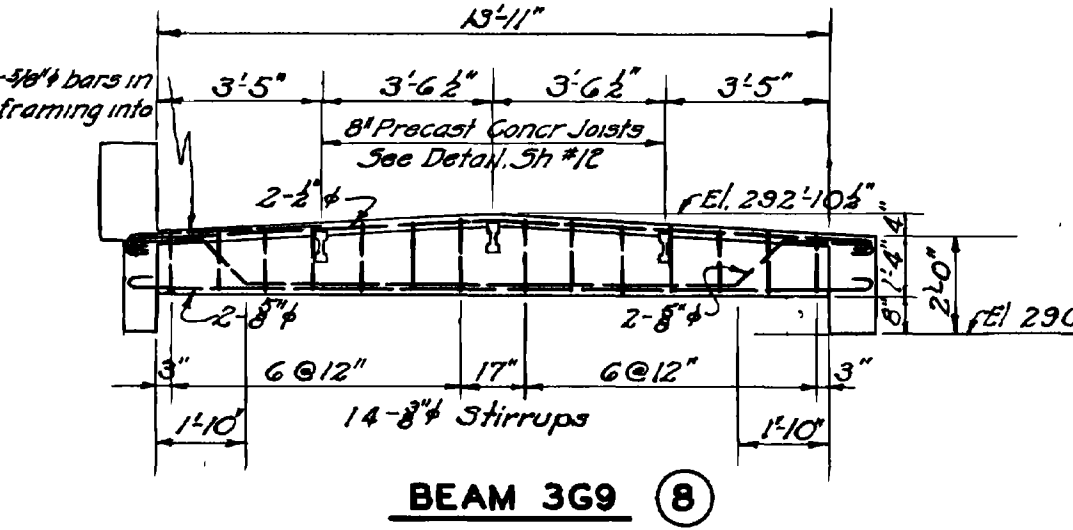
SECTION C-18 (7) (8)
Scale: 1/4" = 1'-0"



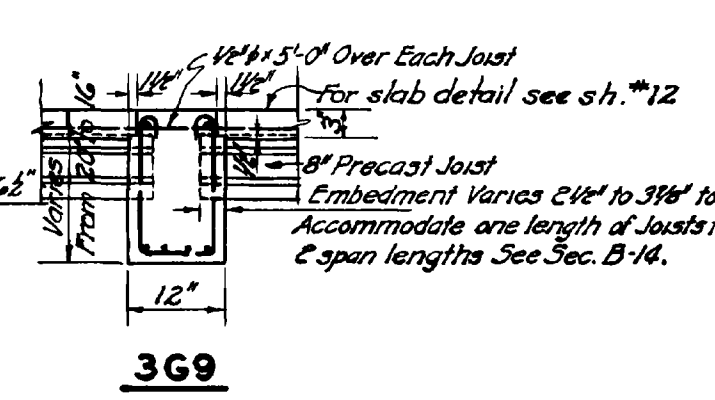
SECTION E-18



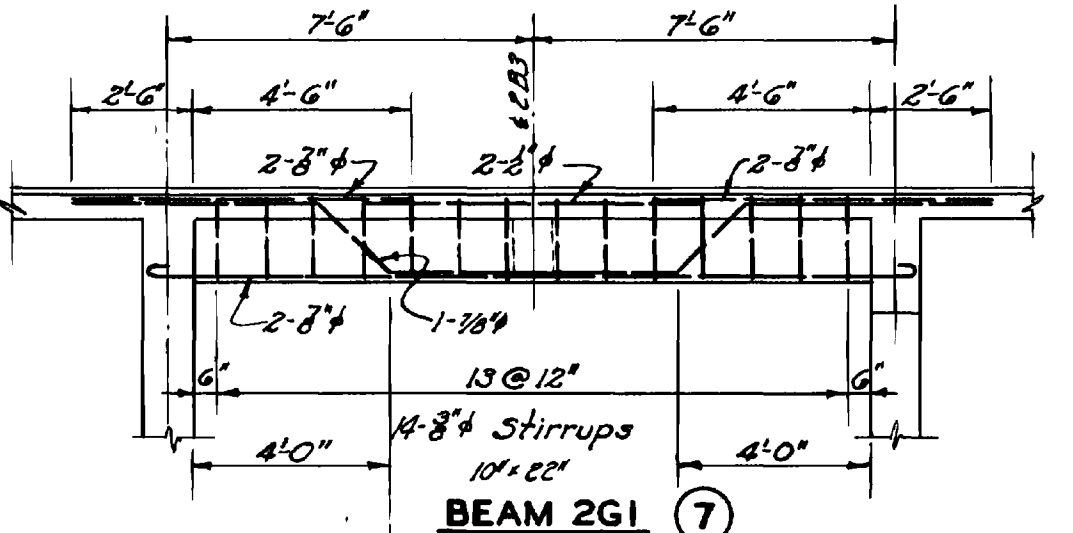
FILTER GALLERY SPANDREL BEAMS
Scale: 1/2" = 1'-0"



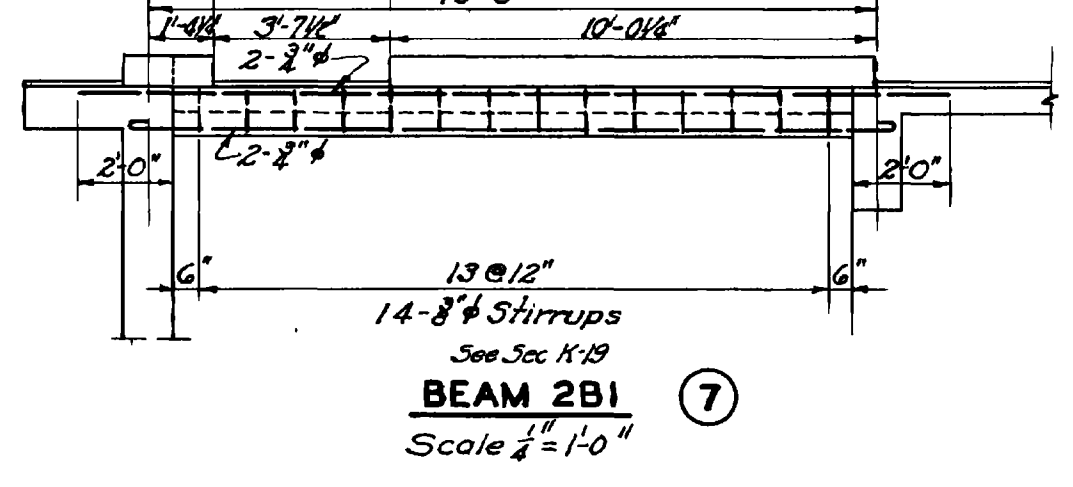
BEAM 3G9 (8)



3G9

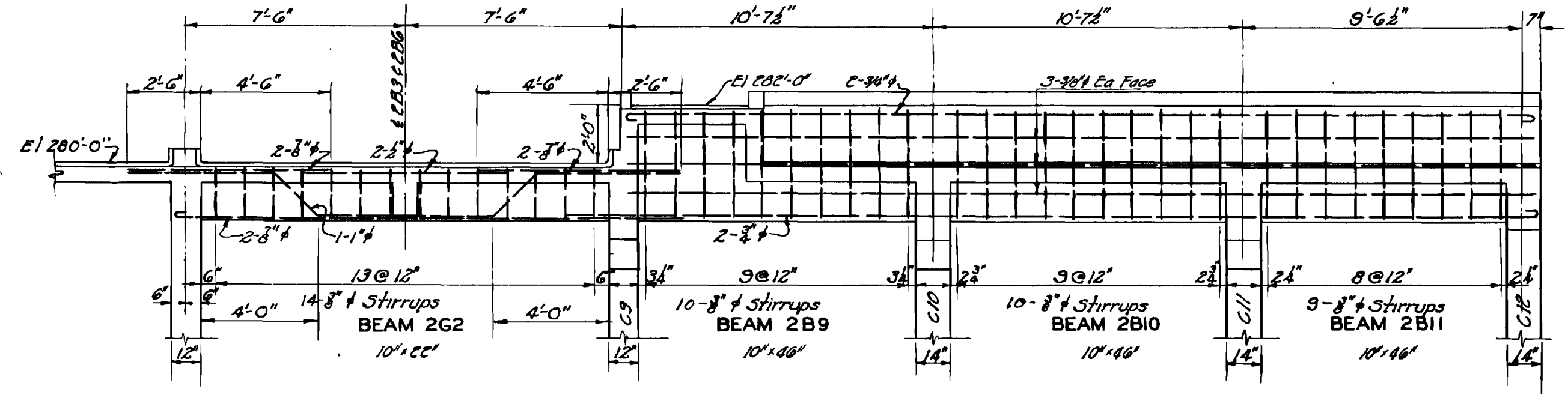


BEAM 2G1 (7)

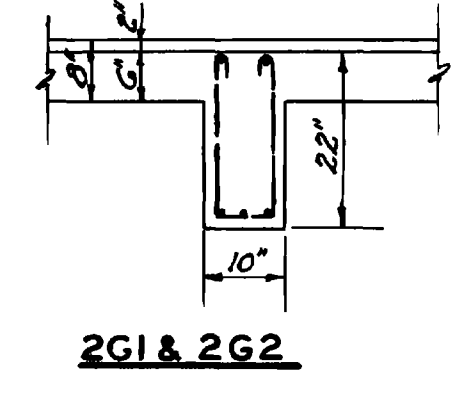


BEAM 2B1 (7)

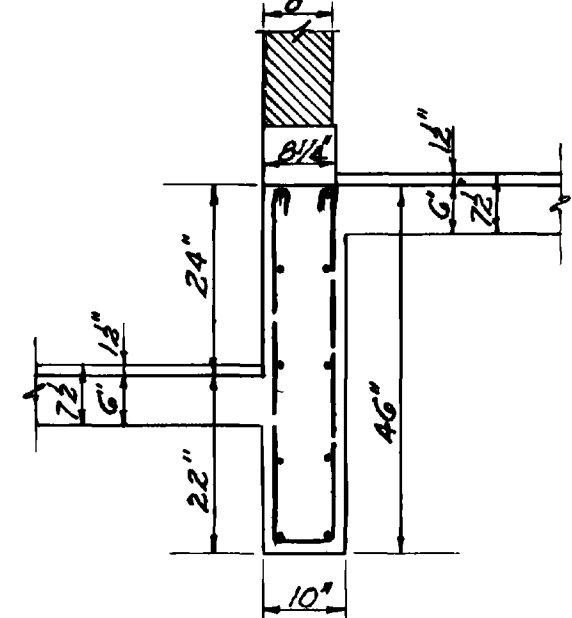
Scale: 1/4" = 1'-0"



SECTION B-18 (7)
Scale: 1/4" = 1'-0"



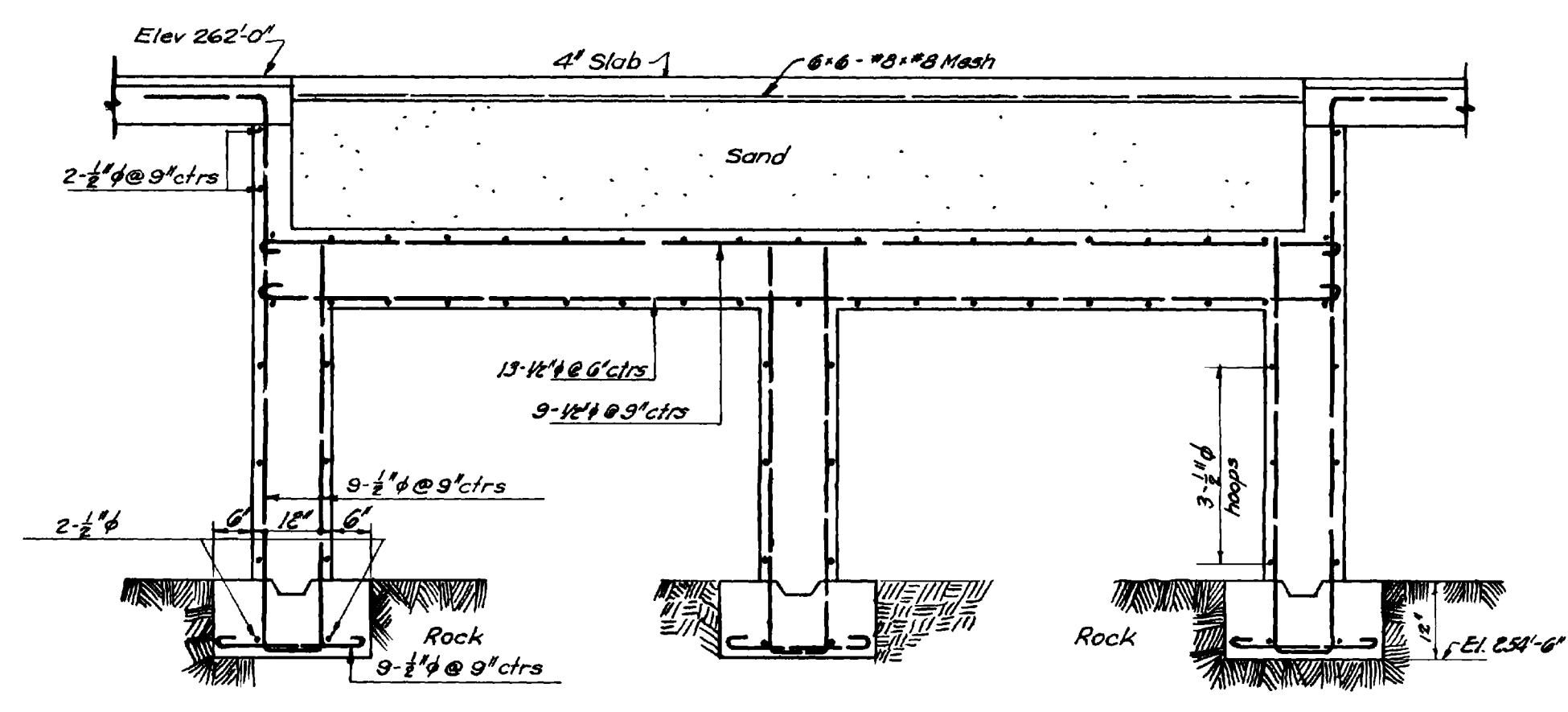
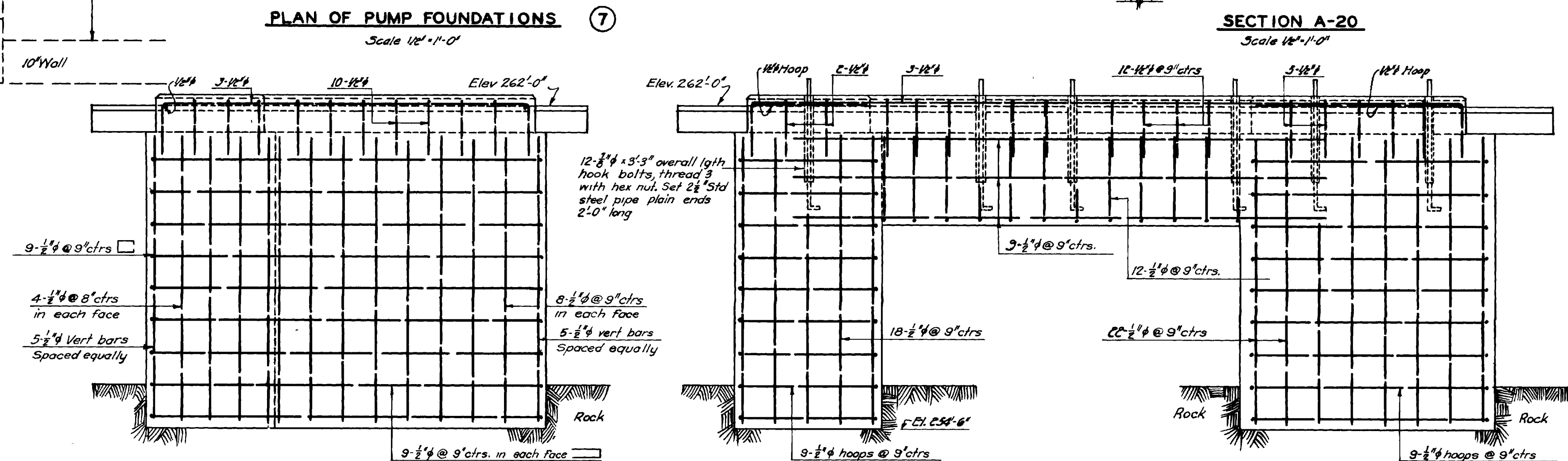
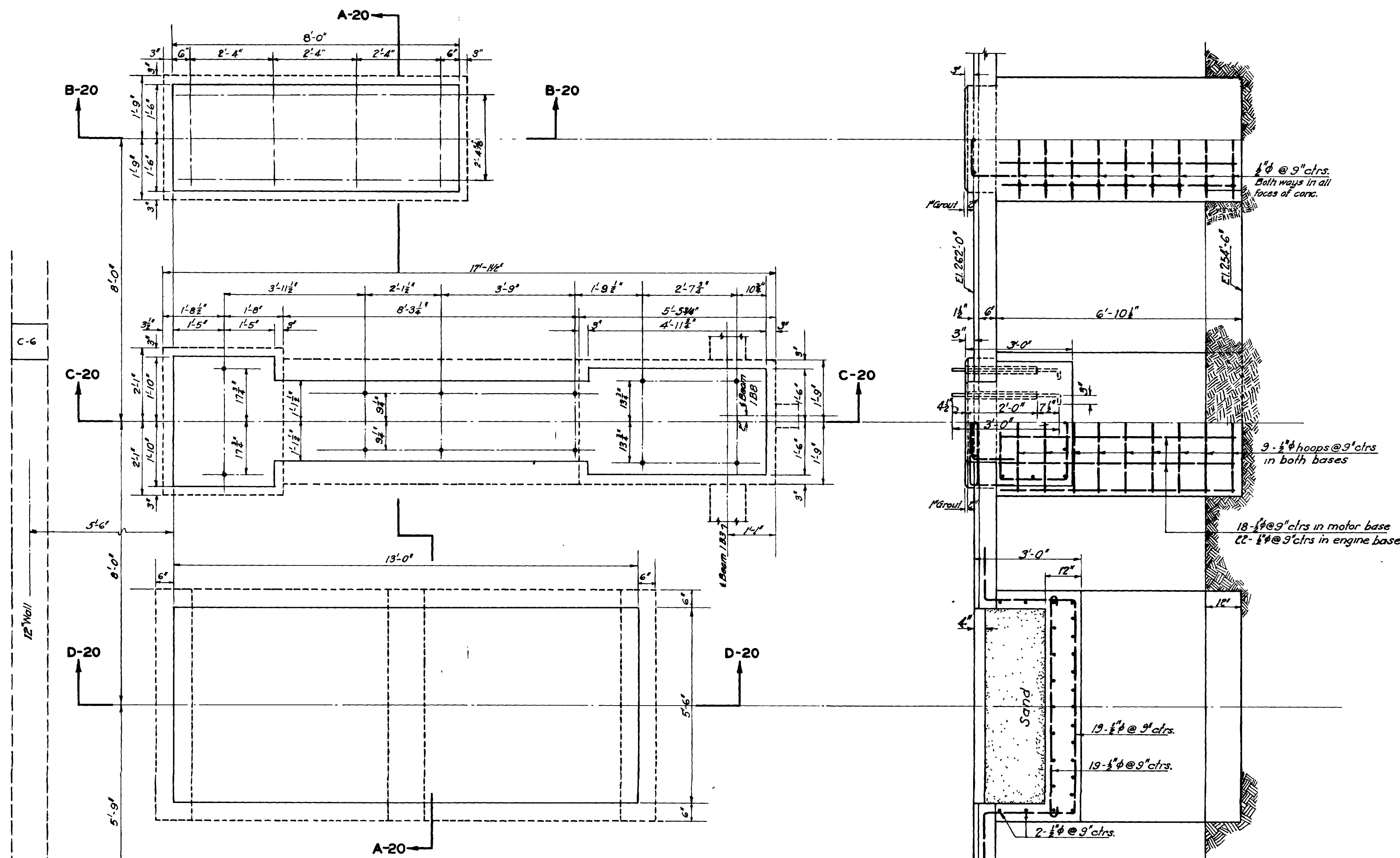
2G1 & 2G2

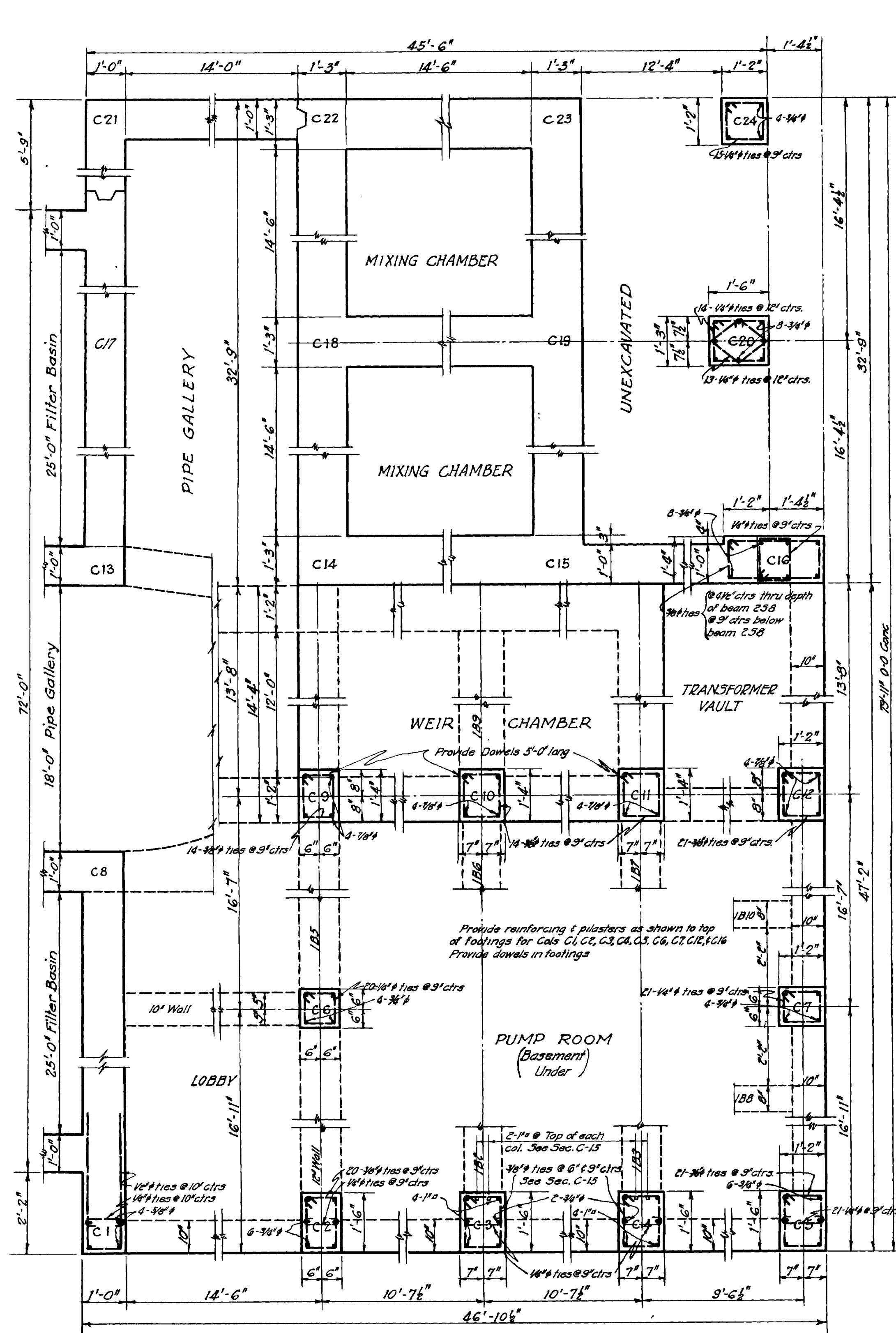


2B9, 2B10 & 2B11

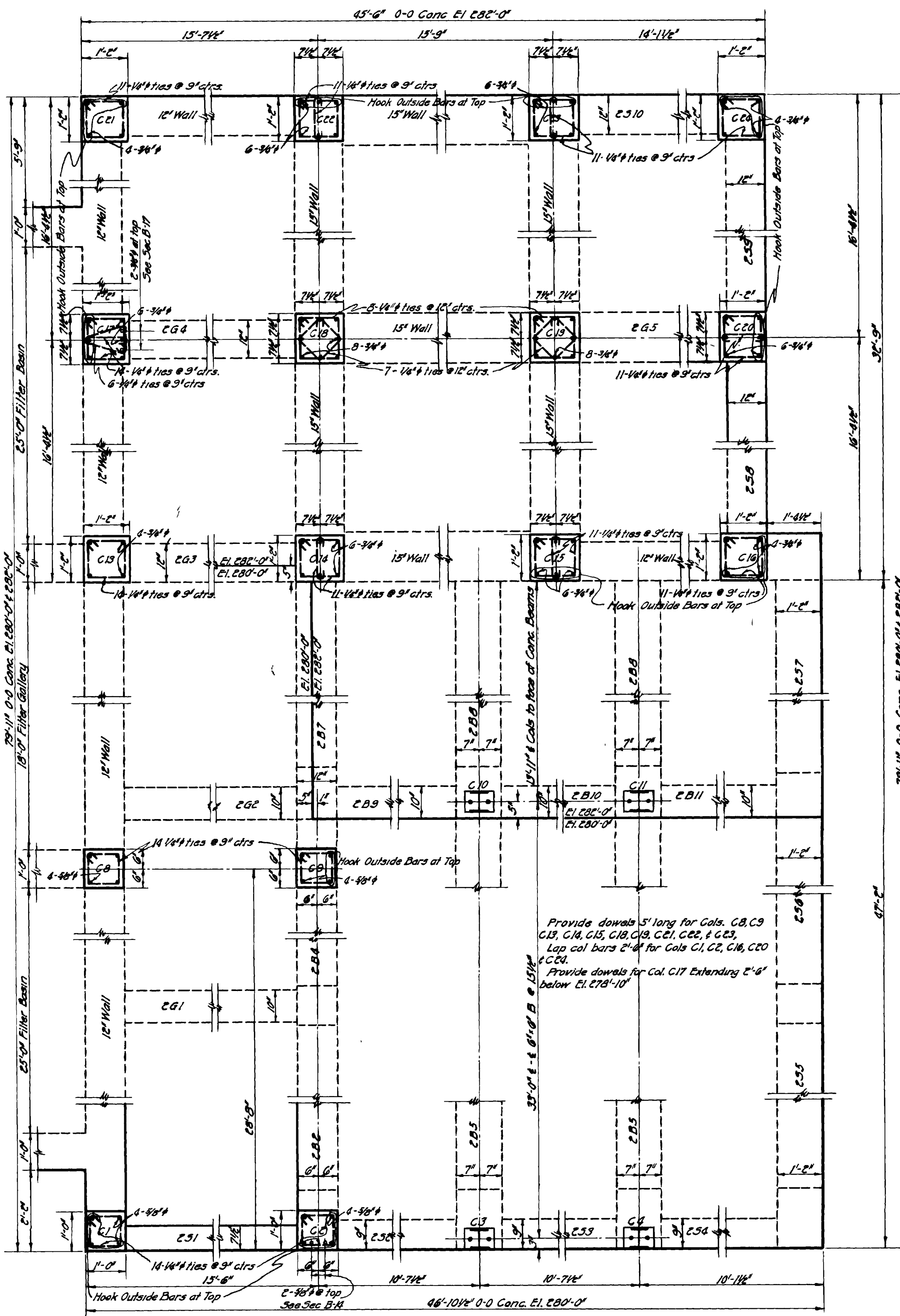
Date	By	Remarks
9-23-97	J.K.D.	Changed Filter Gal Beams

WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS
Concrete Details No. 8
BURNS & McDONNELL ENGINEERING CO.
KANSAS CITY CINCINNATI
APR. 1937

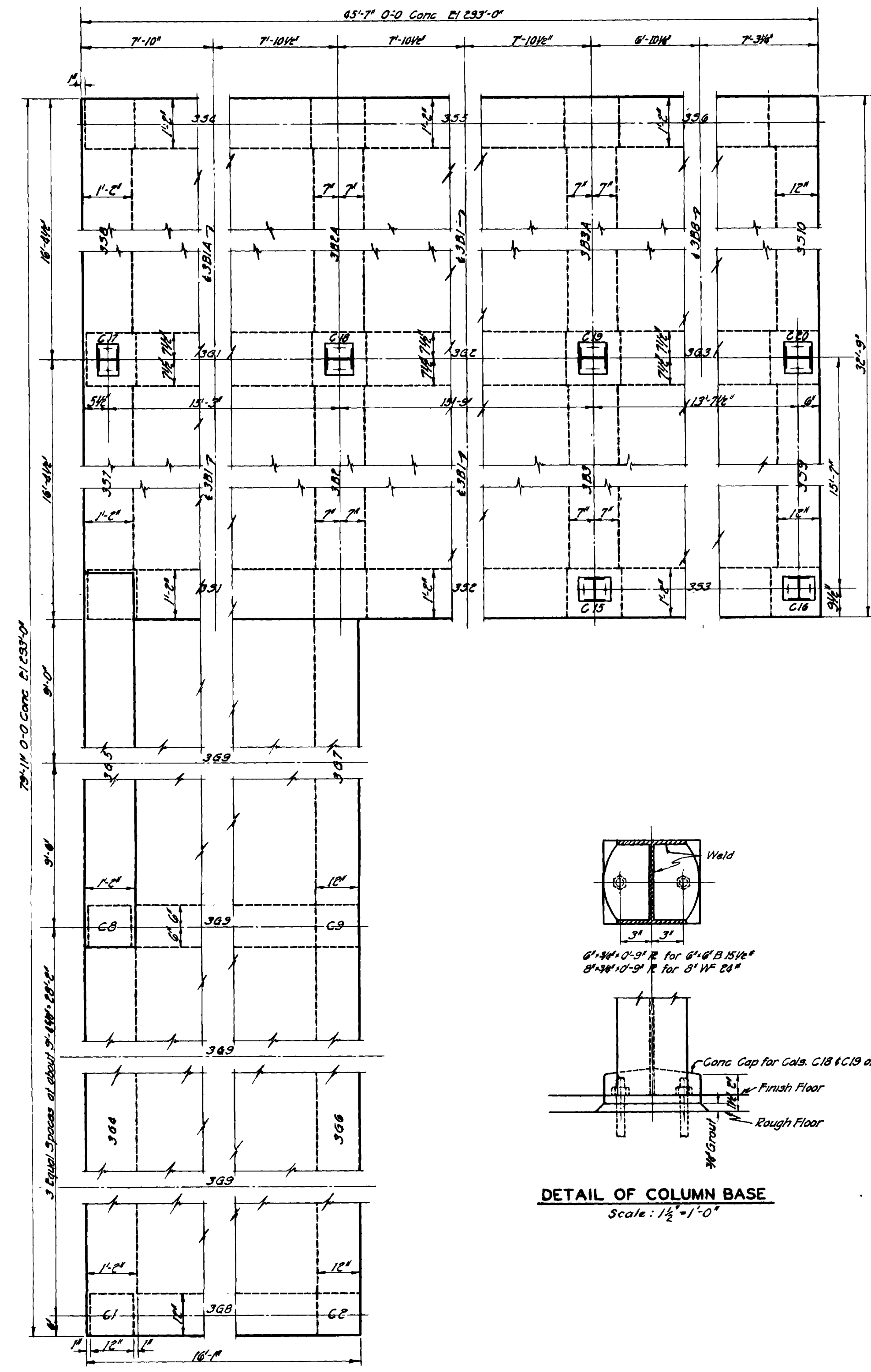




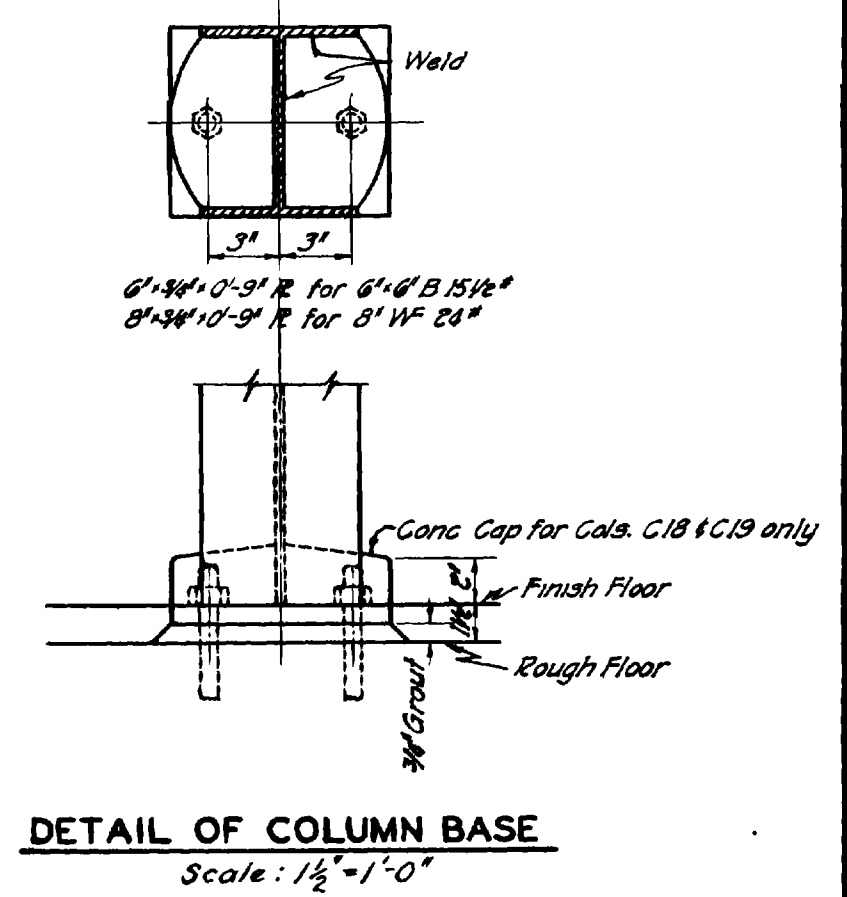
PLAN-ELEV. 262'-0"
Scale: 1/2"=1'-0"

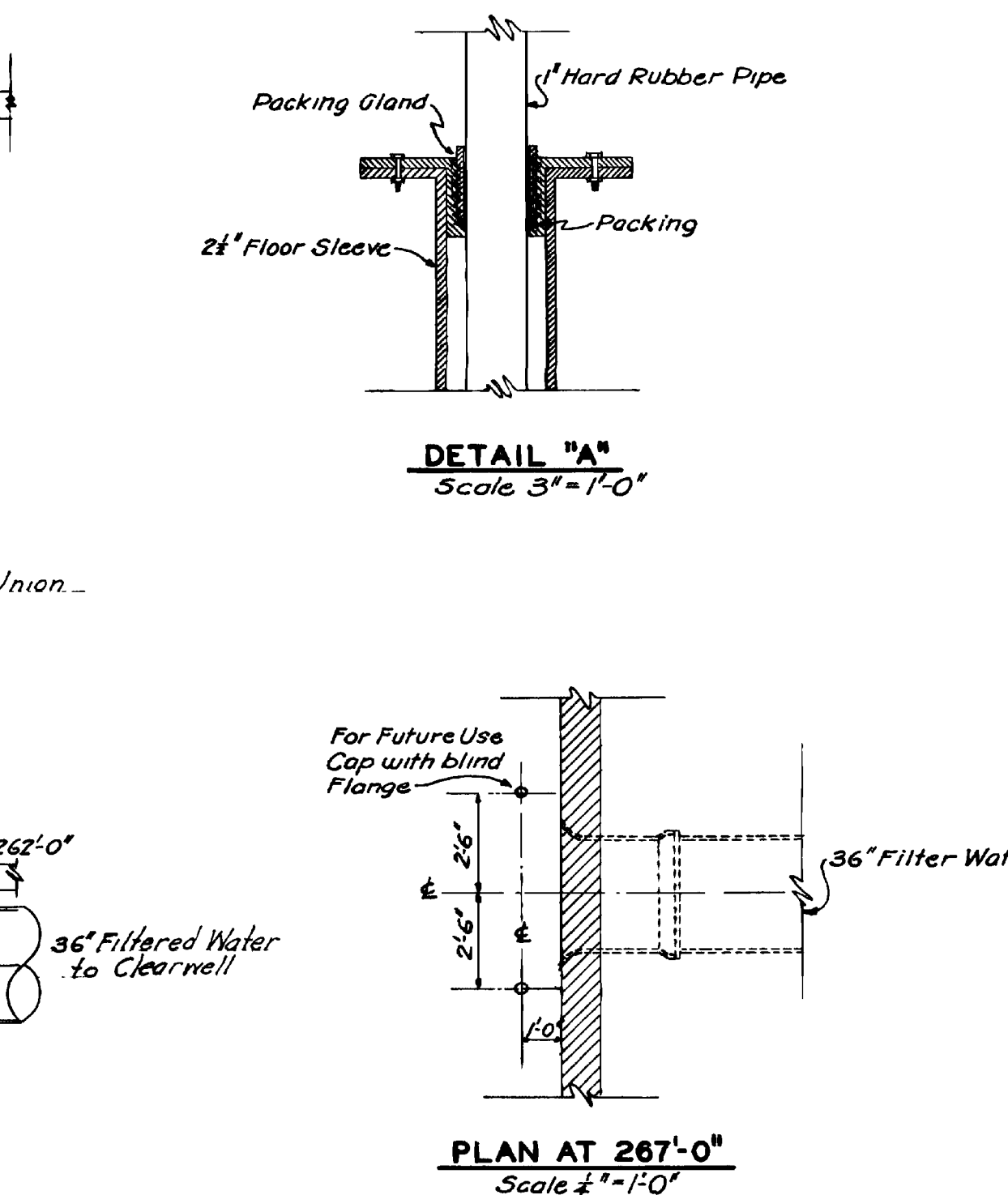
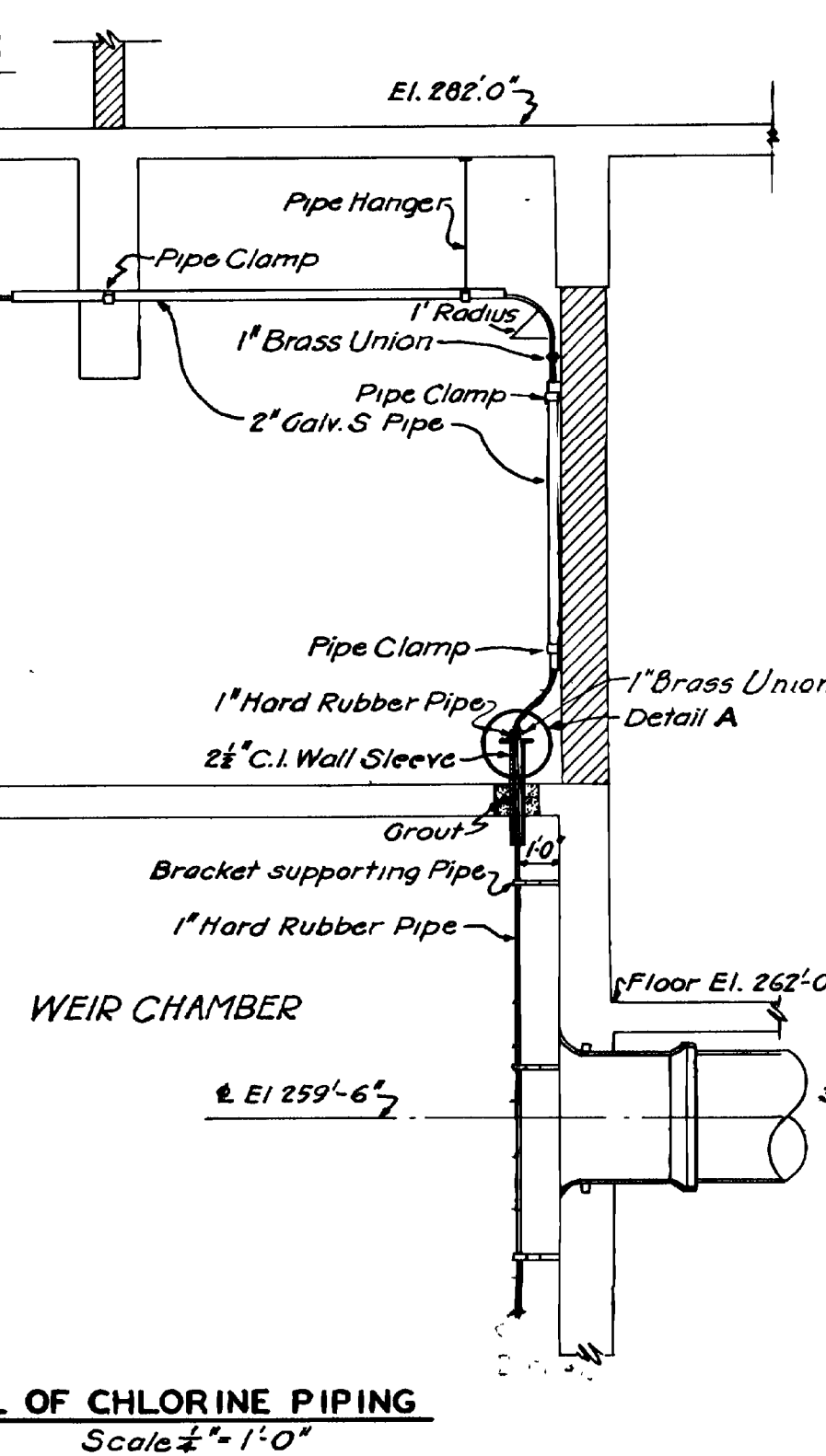
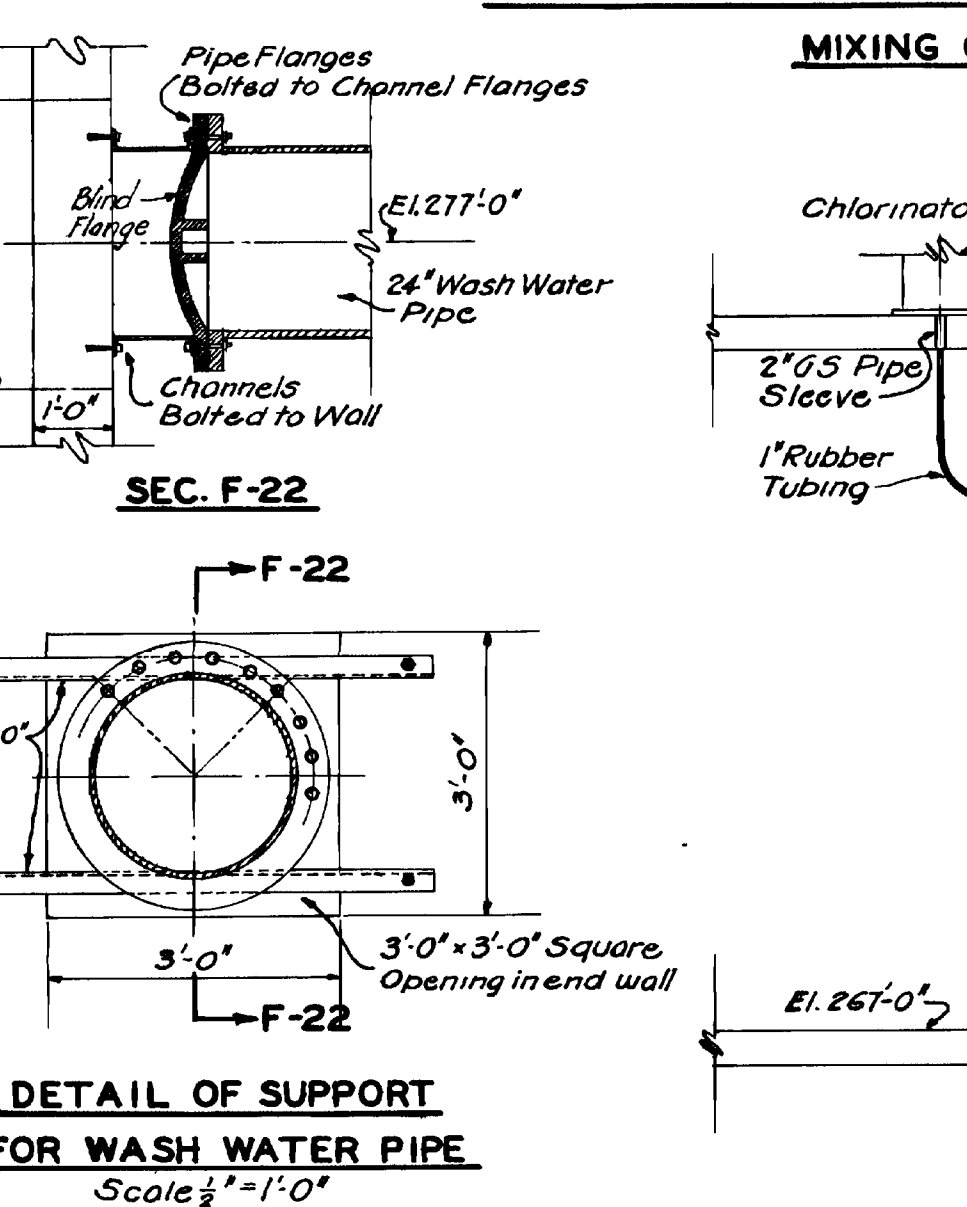
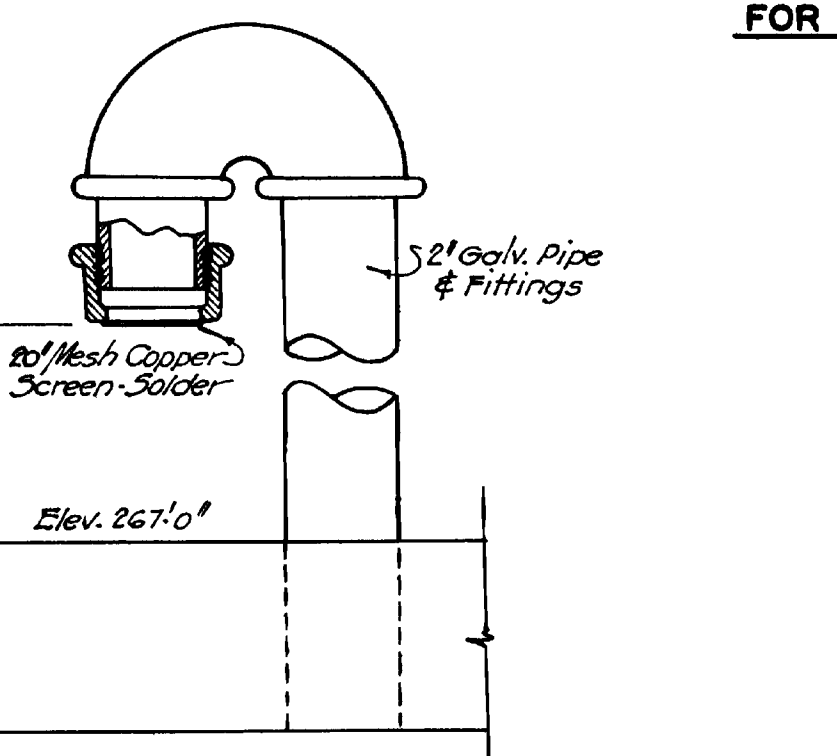
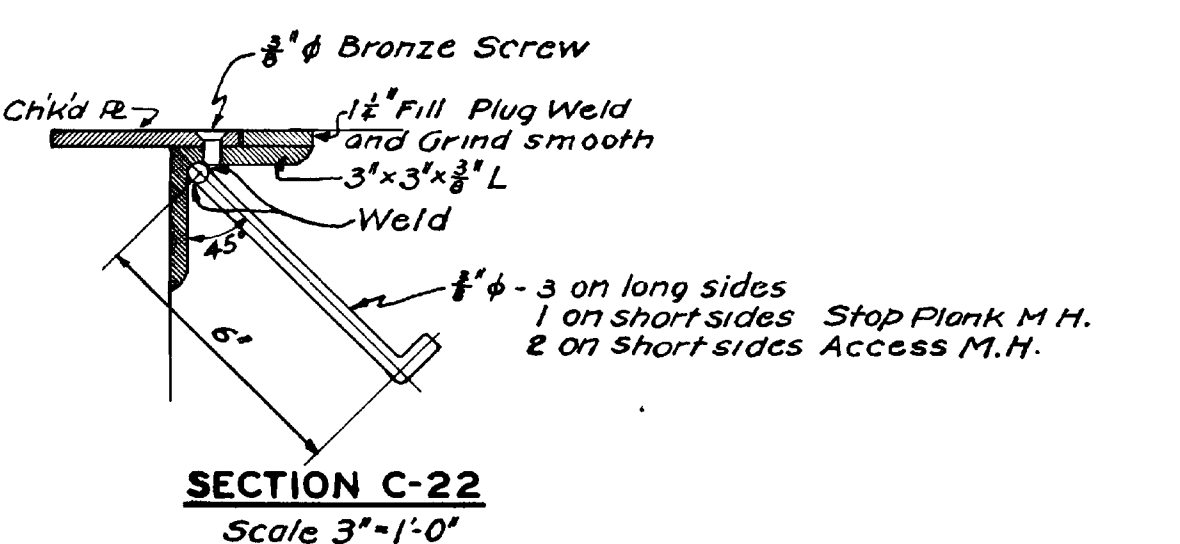
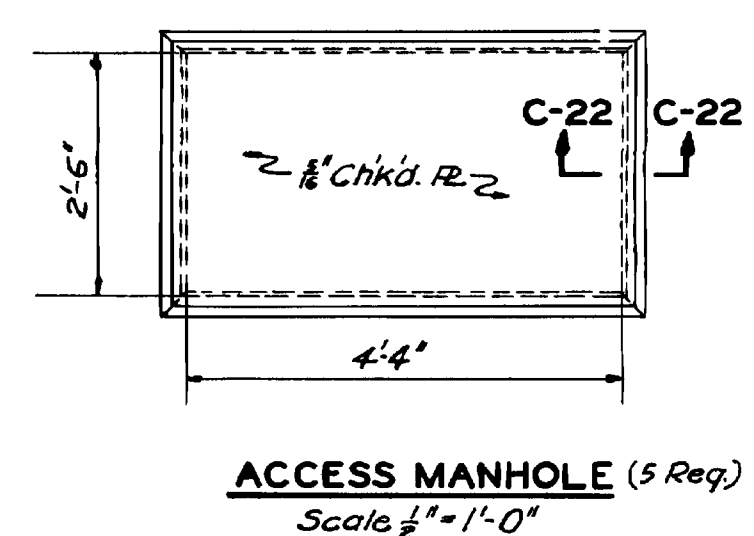
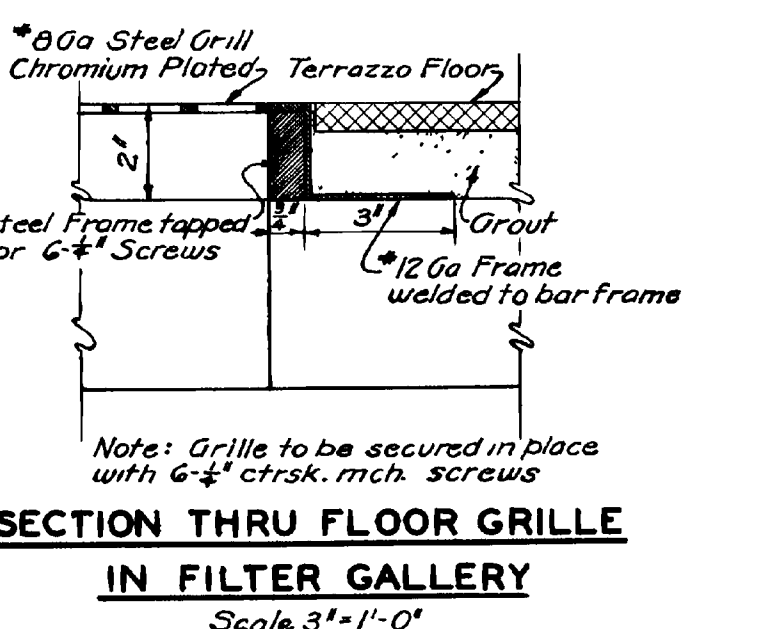
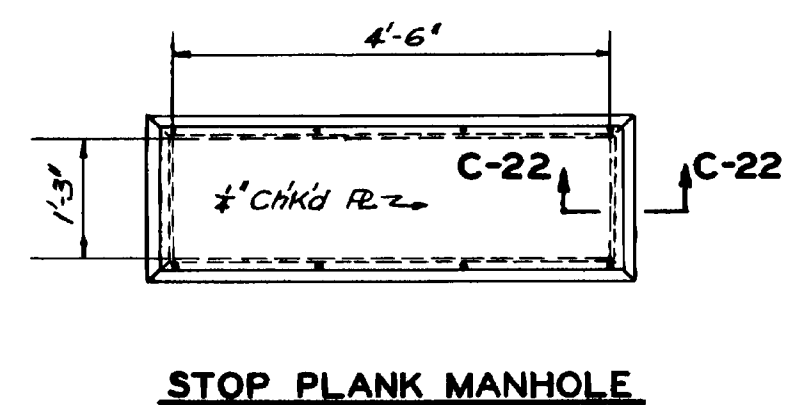
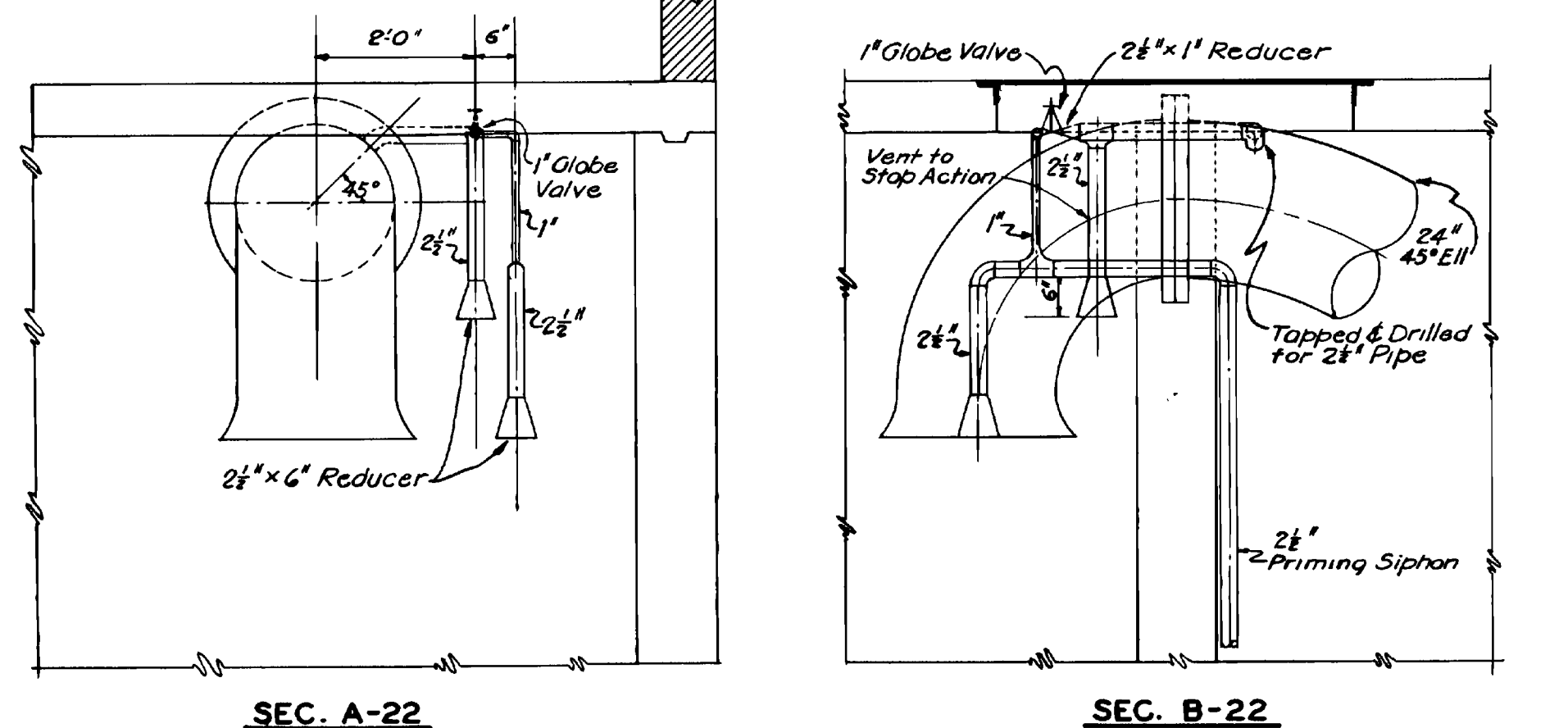
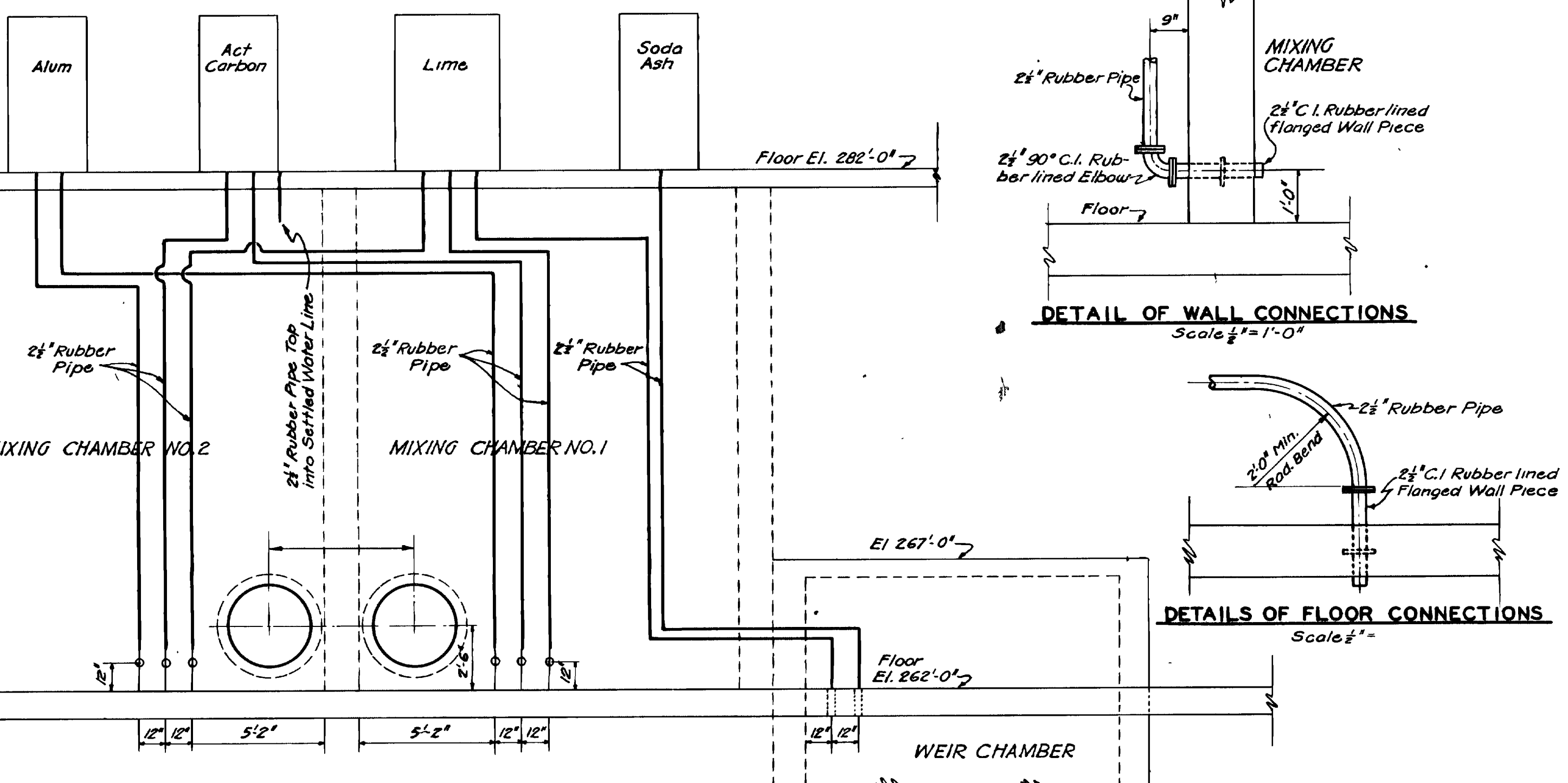
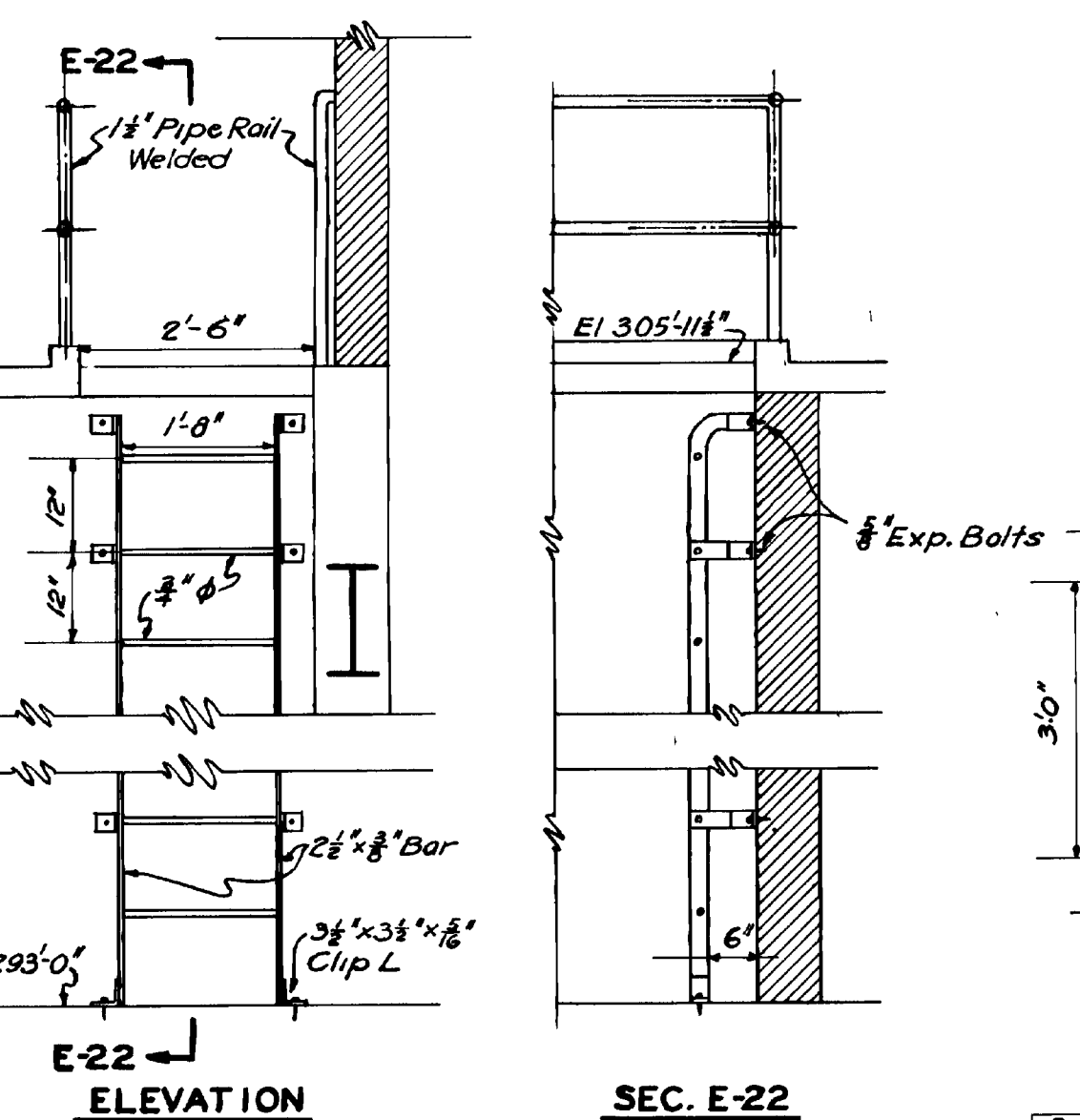
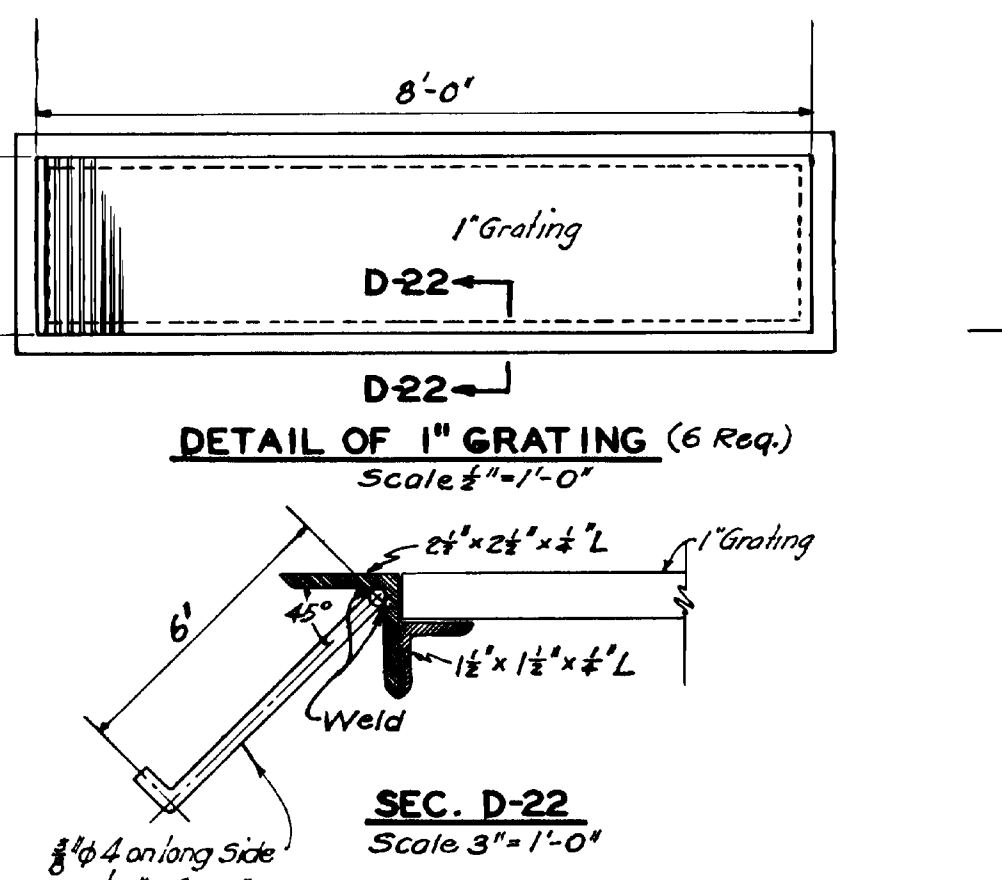
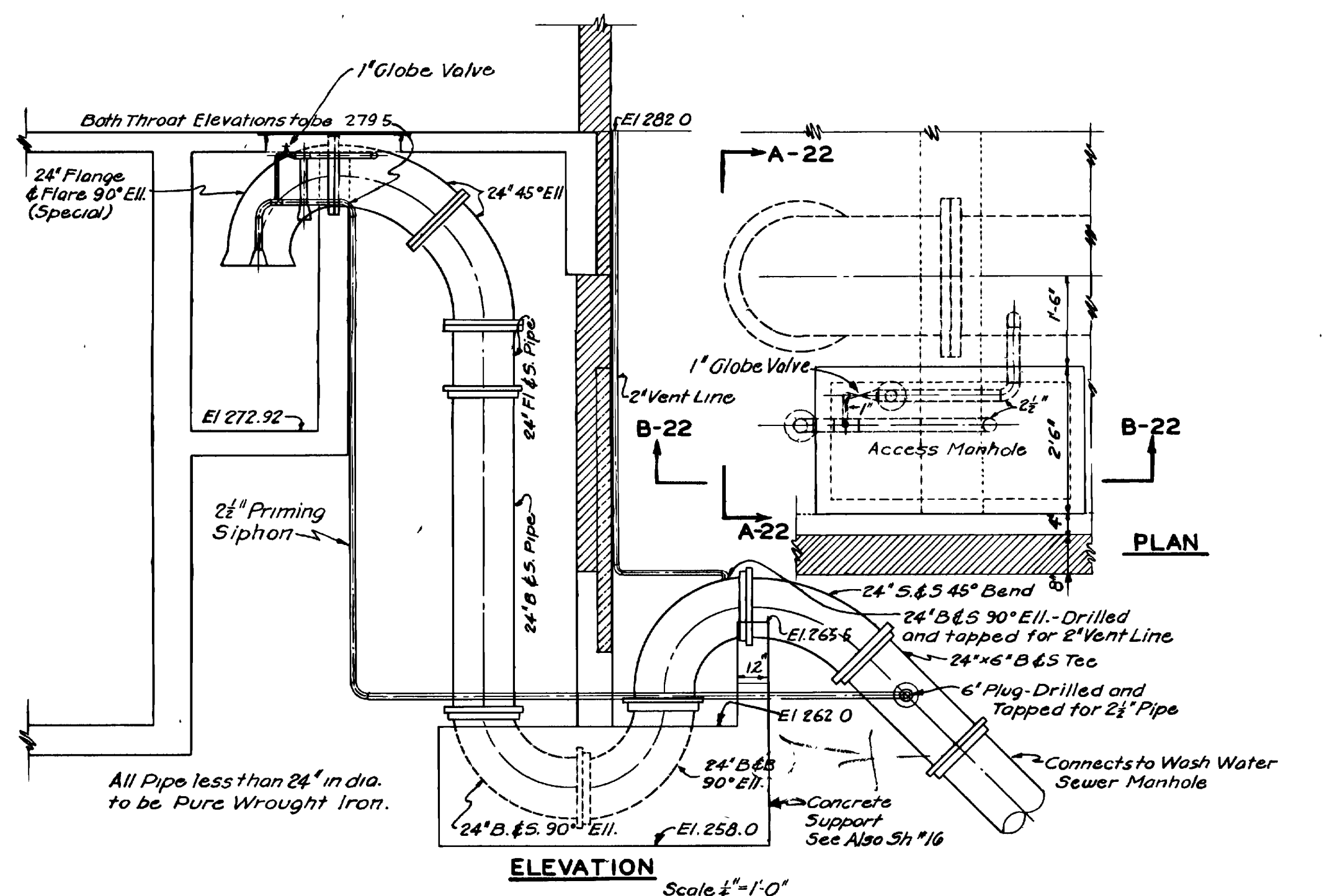


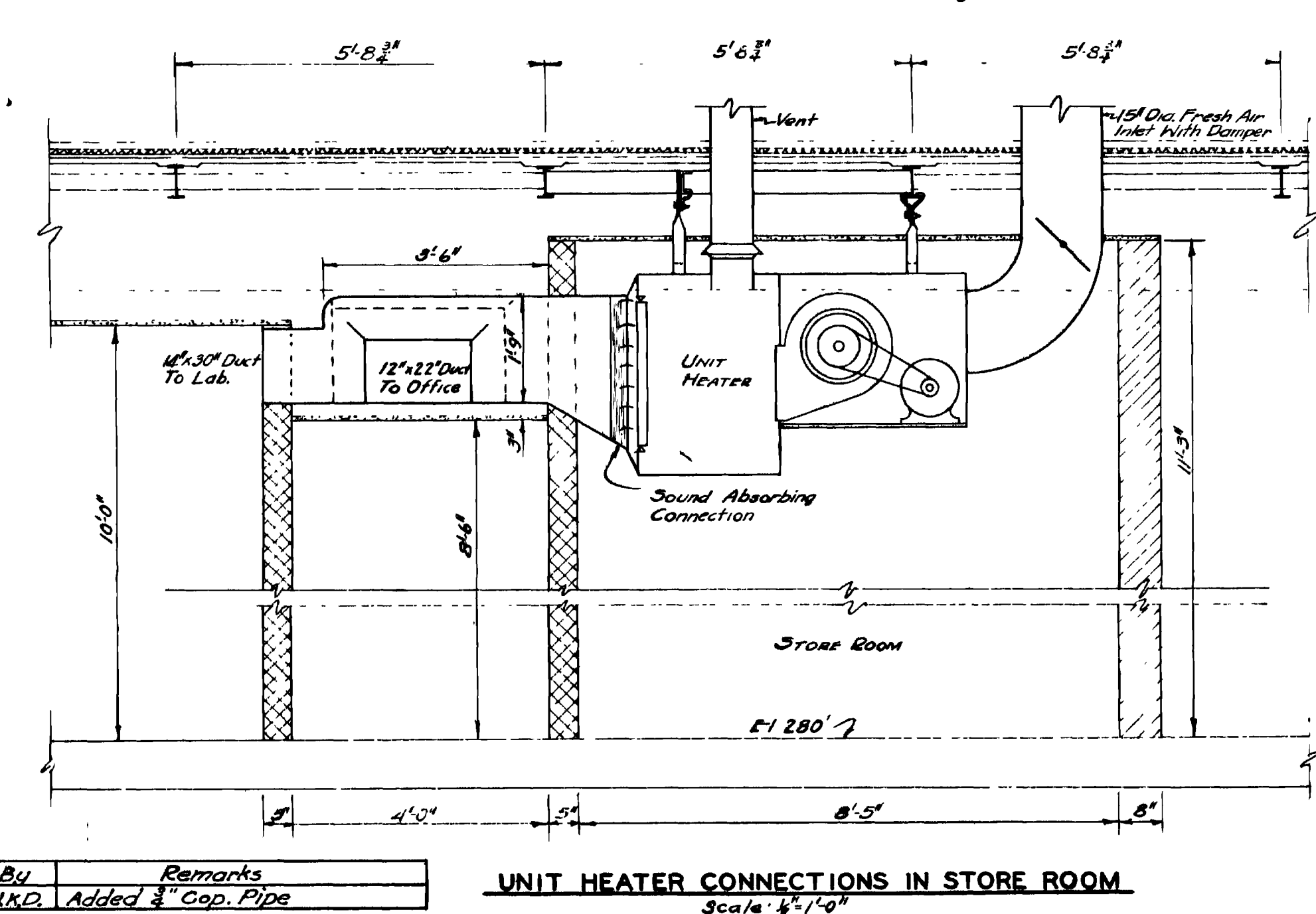
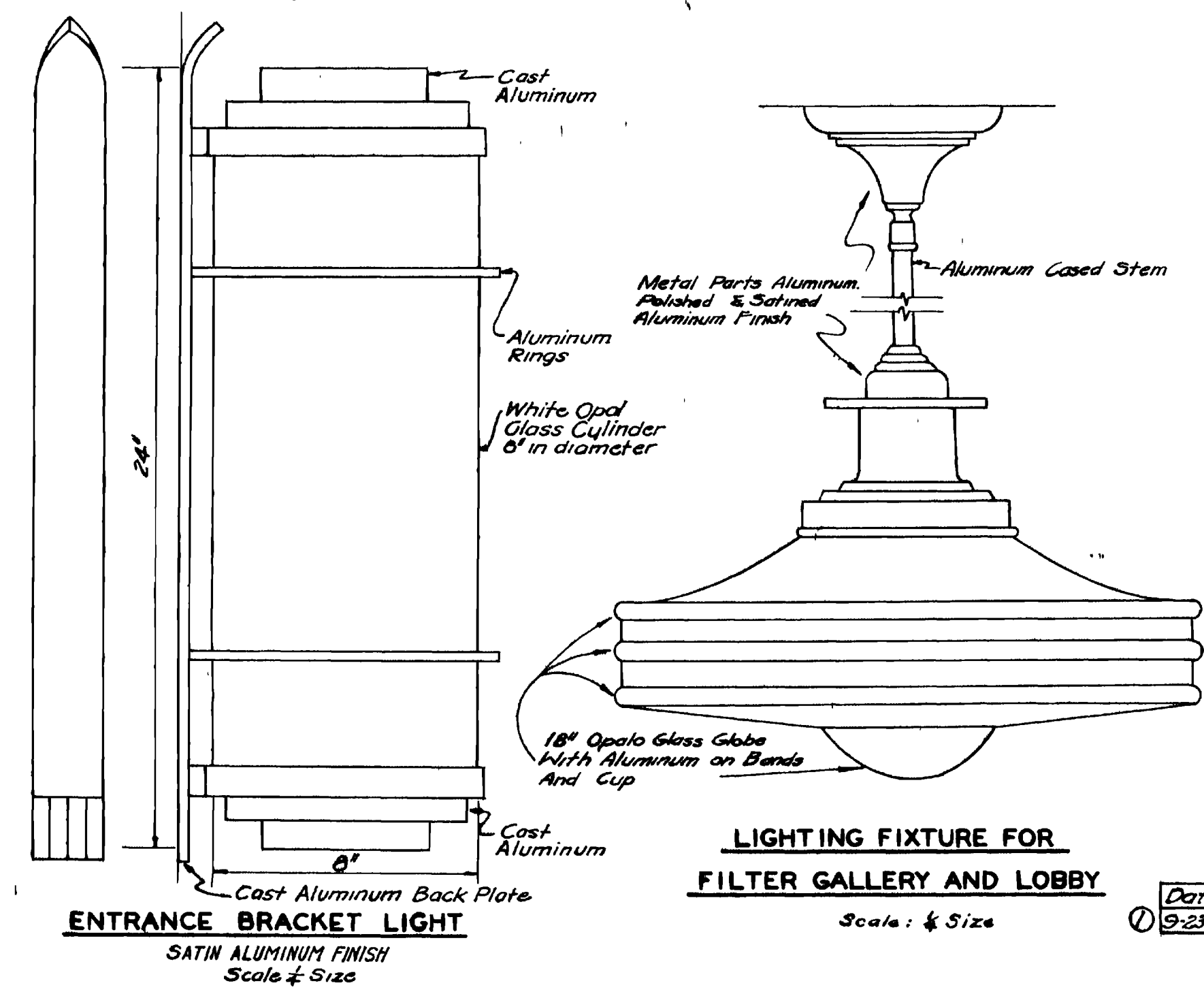
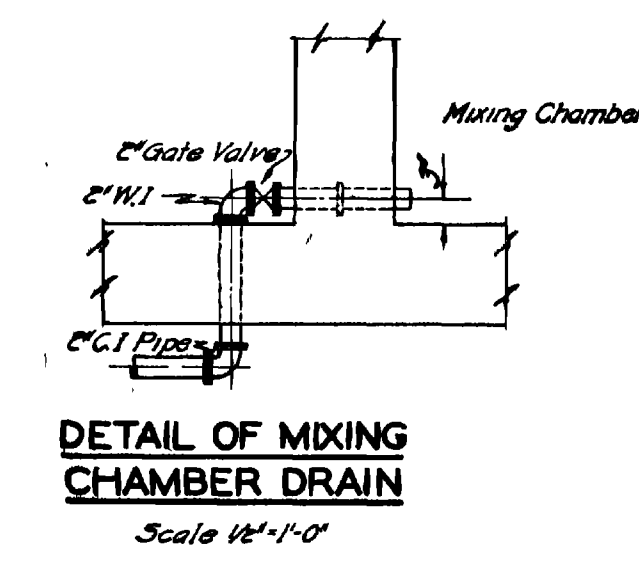
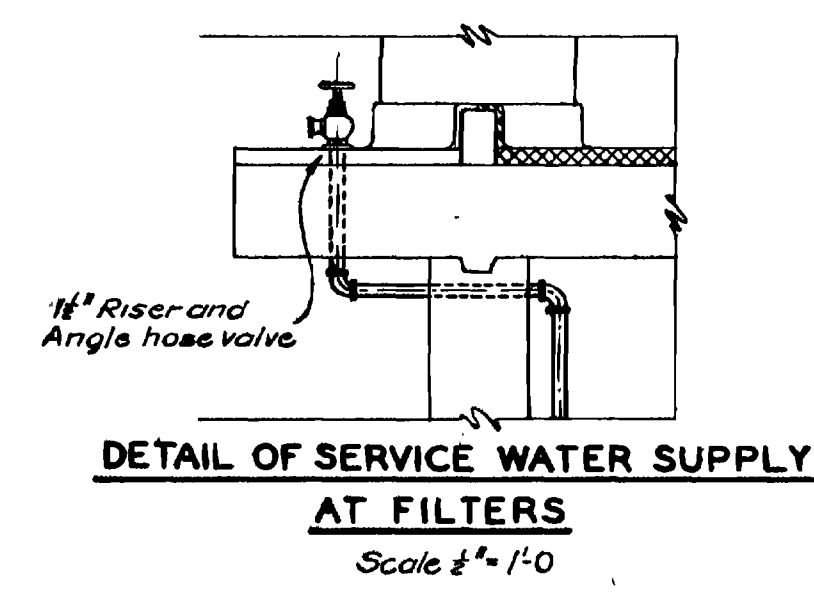
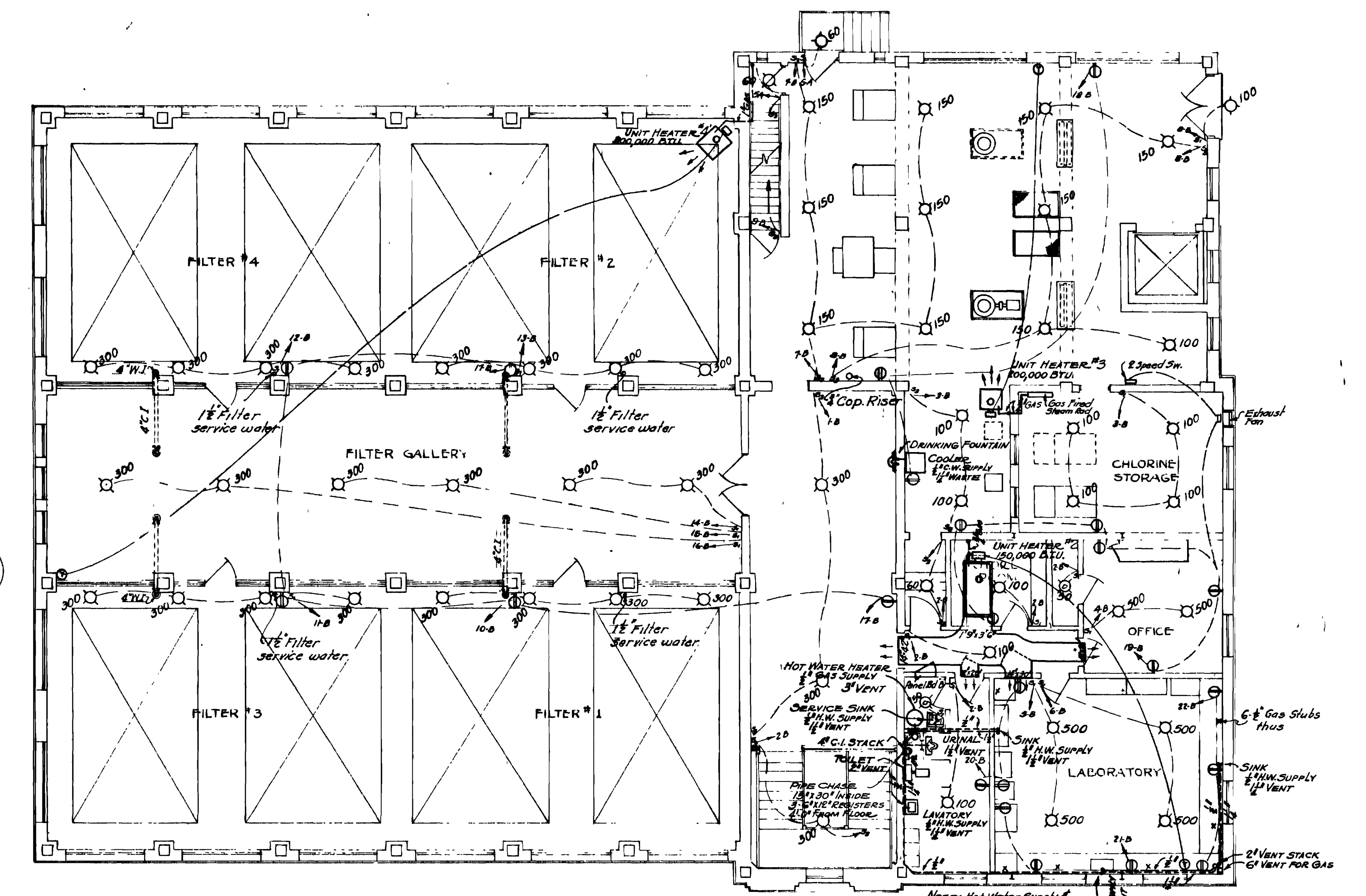
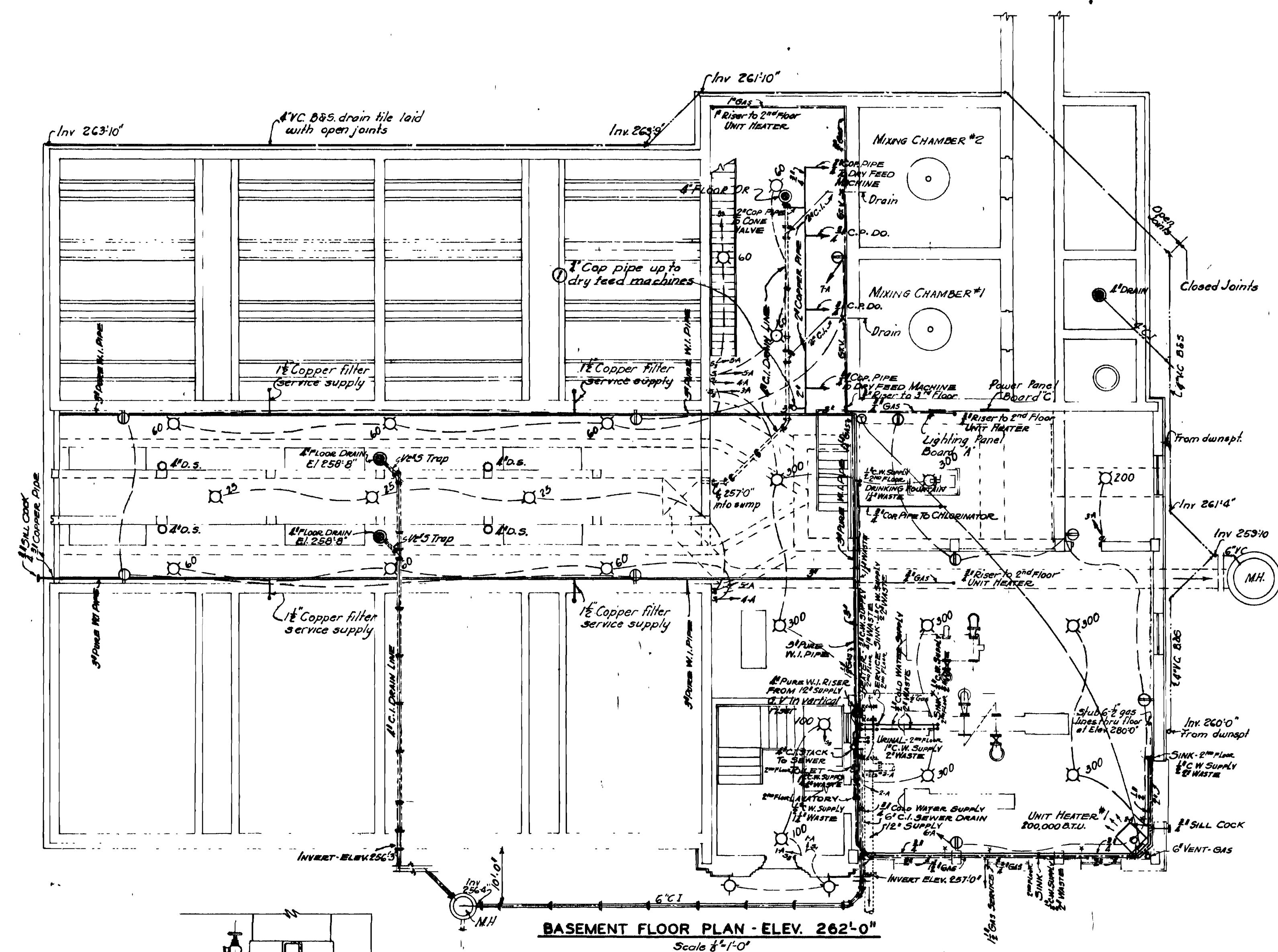
PLAN-ELEV. 282'-0"
Scale: 1/2"=1'-0"



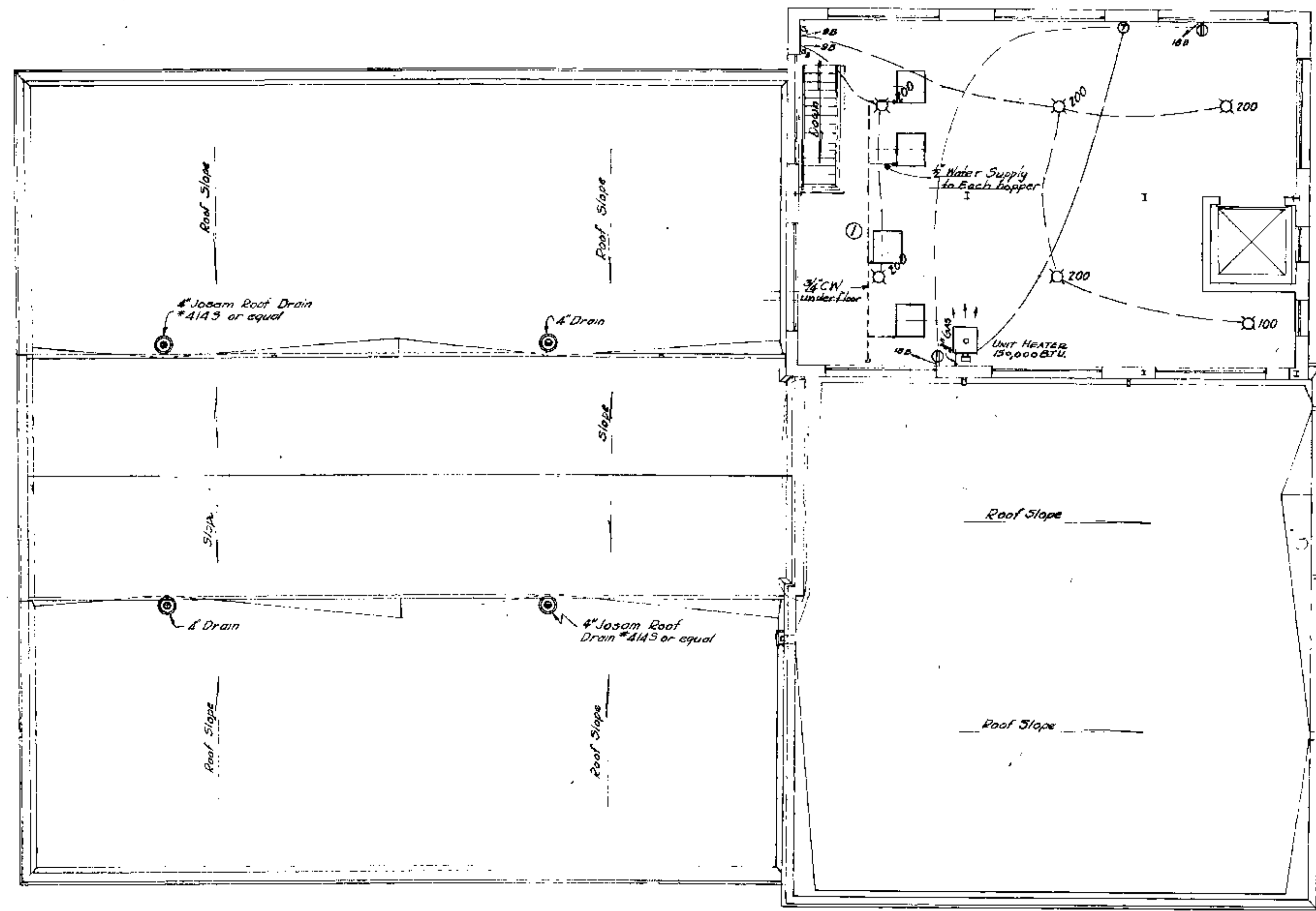
PLAN-ELEV. 293'-0"
Scale: 1/2"=1'-0"



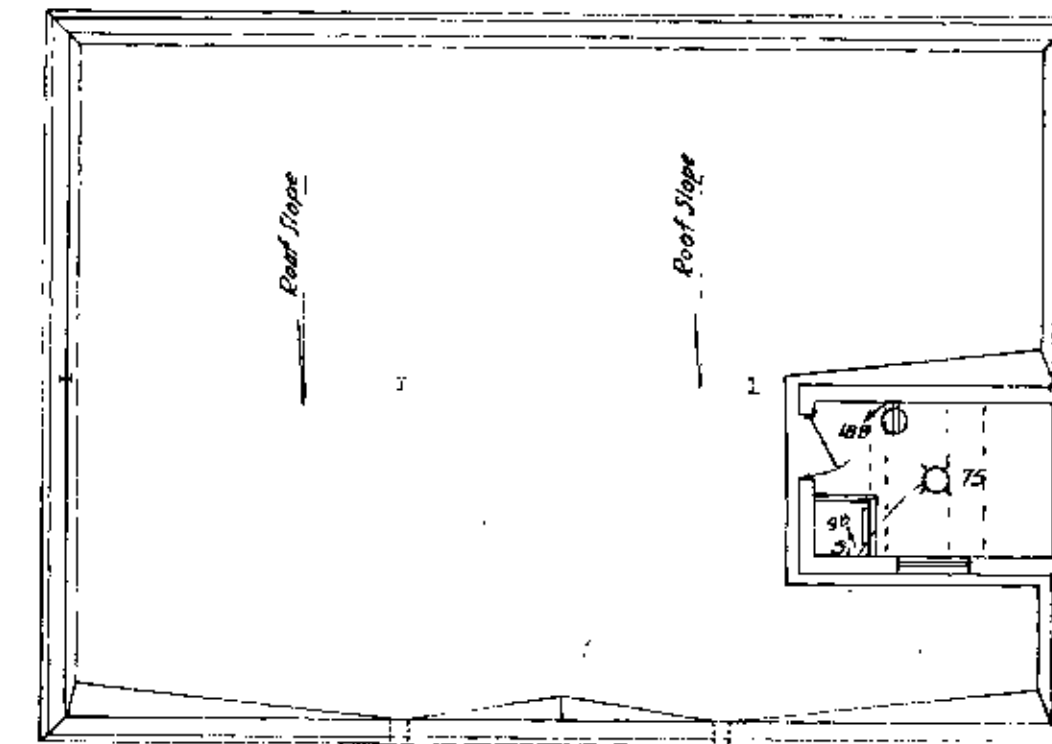




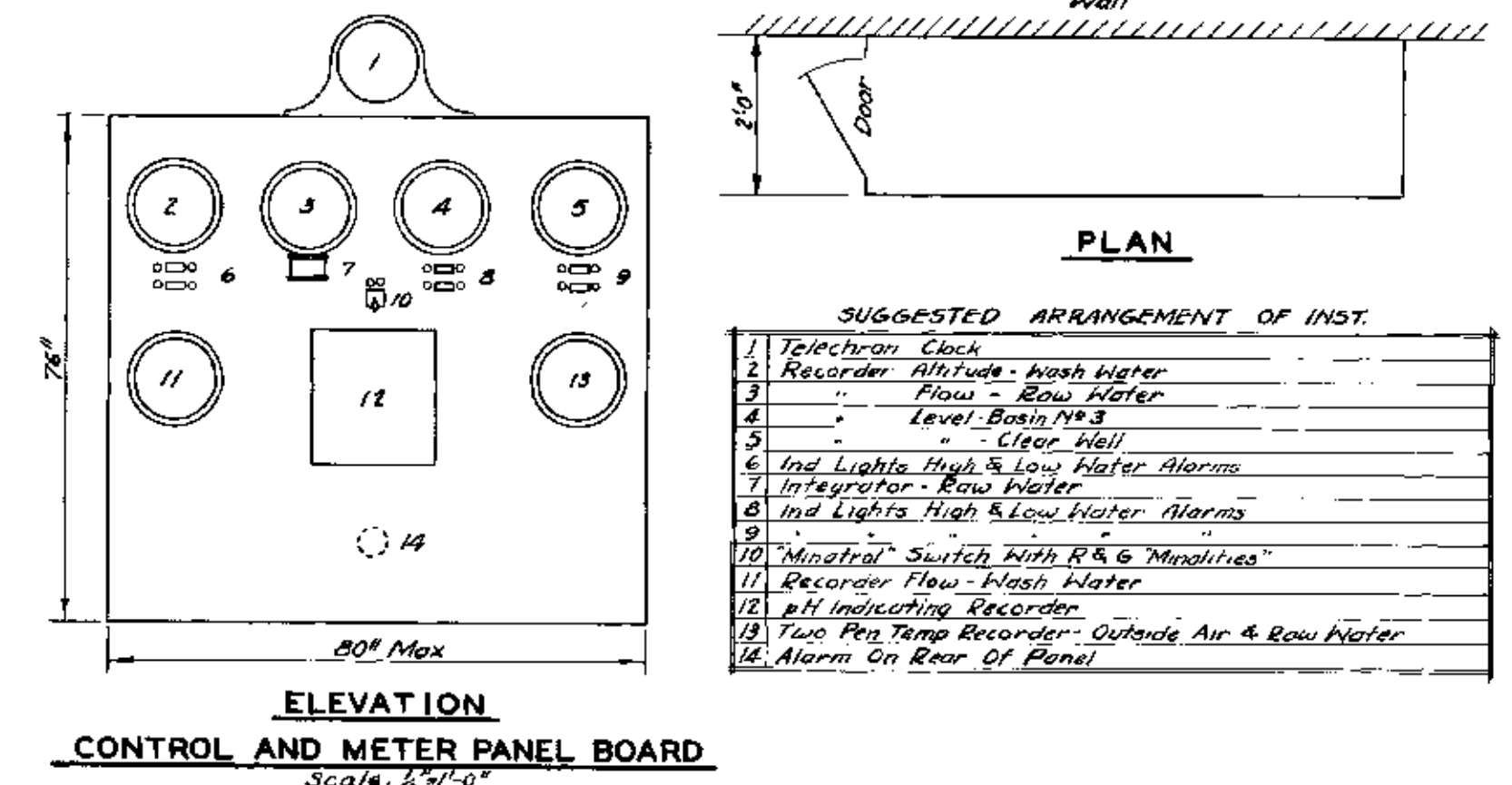
- LEGEND:**
- PLUMBING**
- Sanitary Sewer & Waste Lines
 - Cold Water Supply Lines
 - Hot Water Supply Lines
 - Vent Lines
 - Floor Drain Lines
 - Gas Service Lines
- LIGHTING**
- Ceiling Outlet
 - Drop Cord
 - Convenience Outlet
 - Thermostat
 - Single Pole Switch
 - Three Way Switch



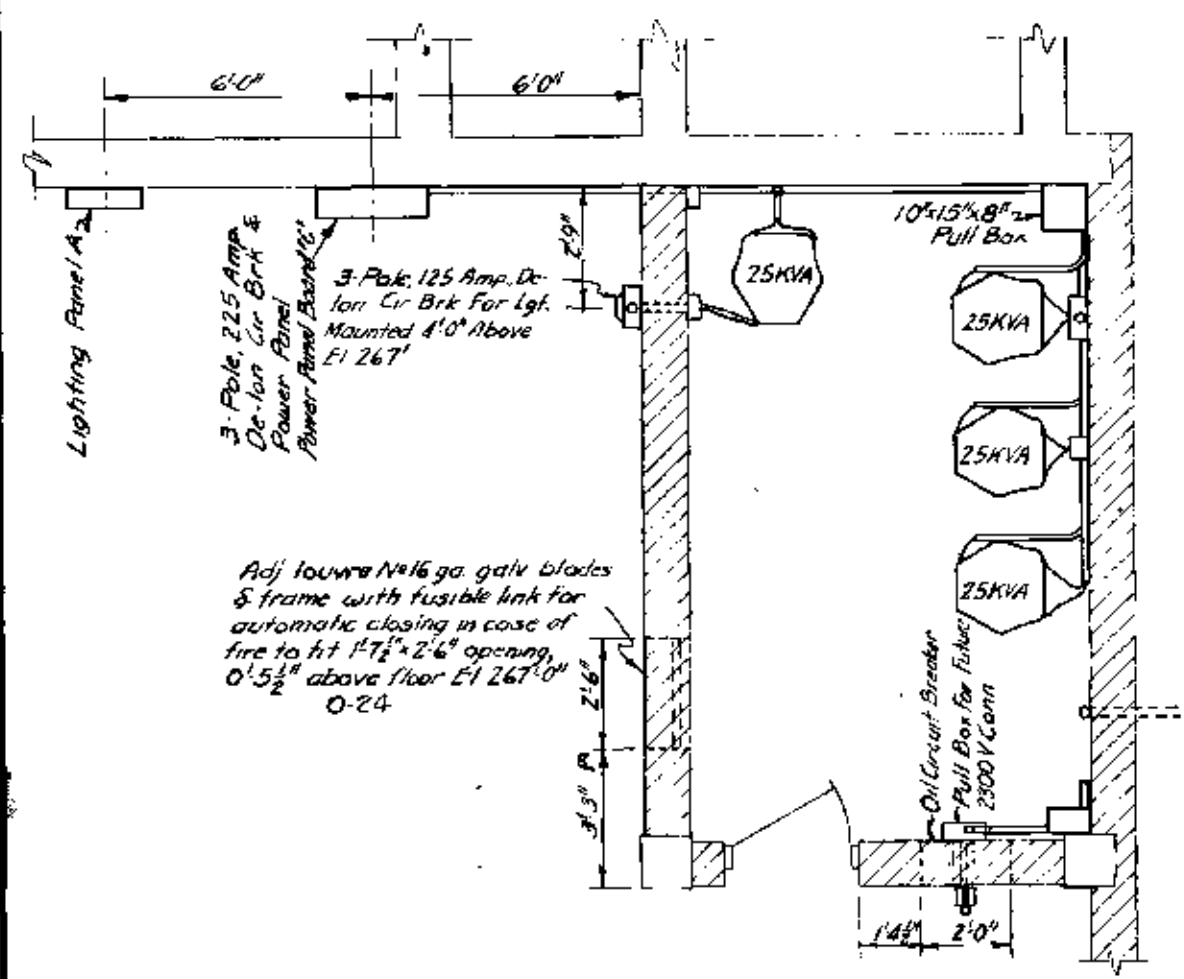
CHEMICAL STORAGE FLOOR ELEV. 293'-0"
Scale: 1/8" = 1'-0"



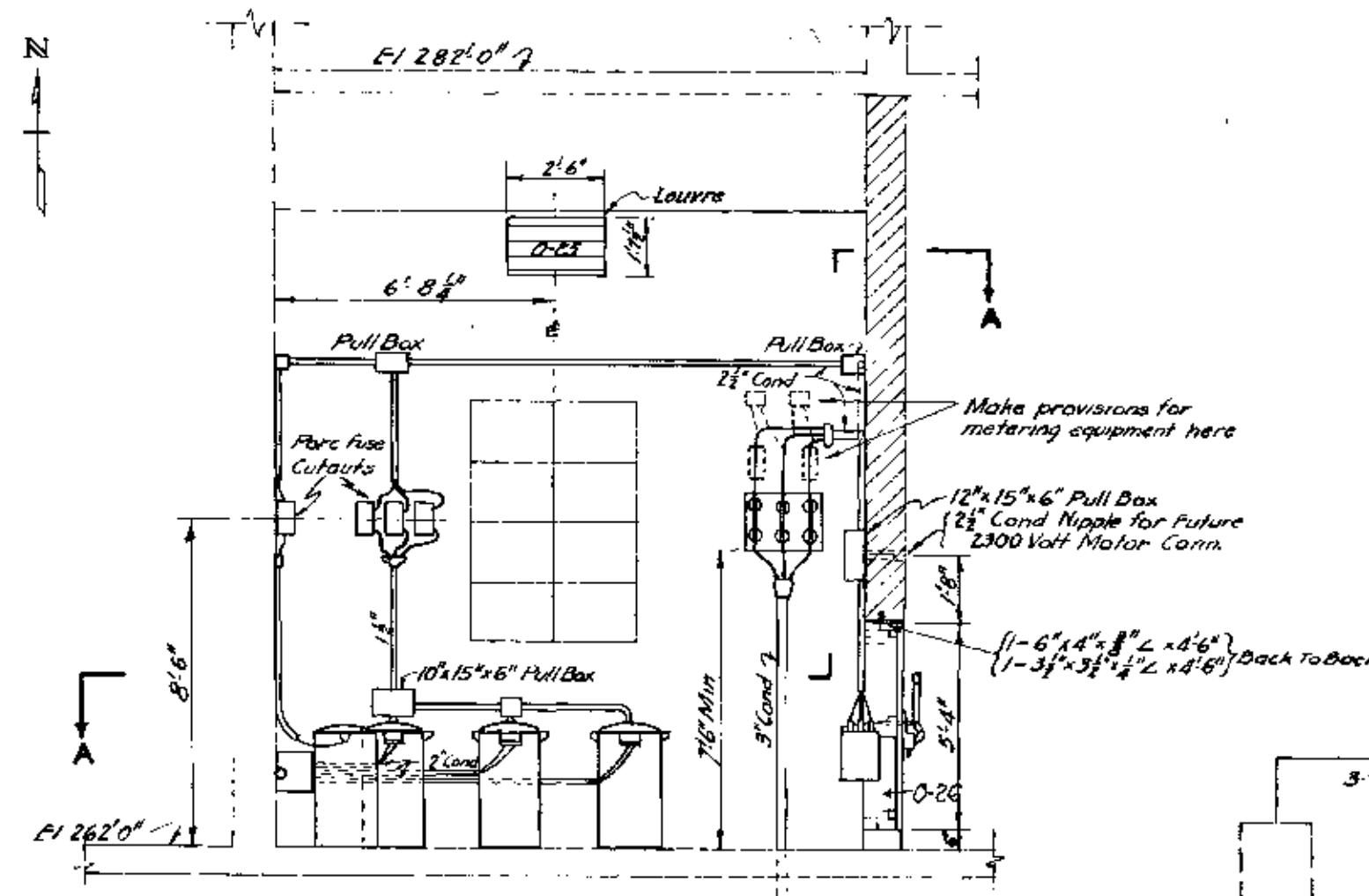
ELEVATOR PENTHOUSE ELEV. 305'-11 1/2"
Scale: 1/8" = 1'-0"



ELEVATION
CONTROL AND METER PANEL BOARD
Scale: 1/2" = 1'-0"



PLAN A-A
Scale: 1/4" = 1'-0"

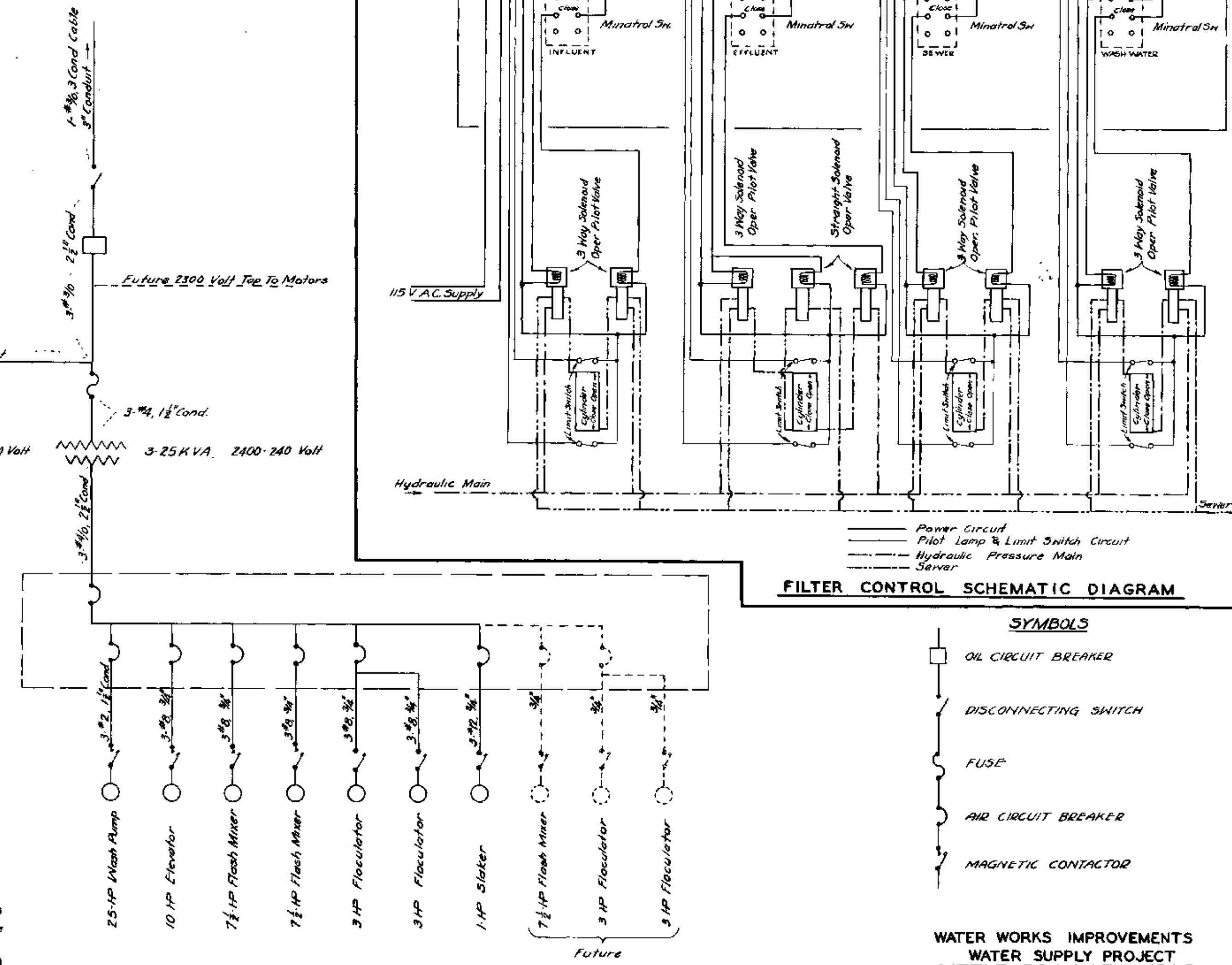


EAST ELEVATION
Scale: 1/4" = 1'-0"

Lighting Panel A
Above E1 267'-0"

Lighting Panel D
Above E1 280'-0"

Date	By	Remarks
9-23-37	JMD	Added Chemical Feeders



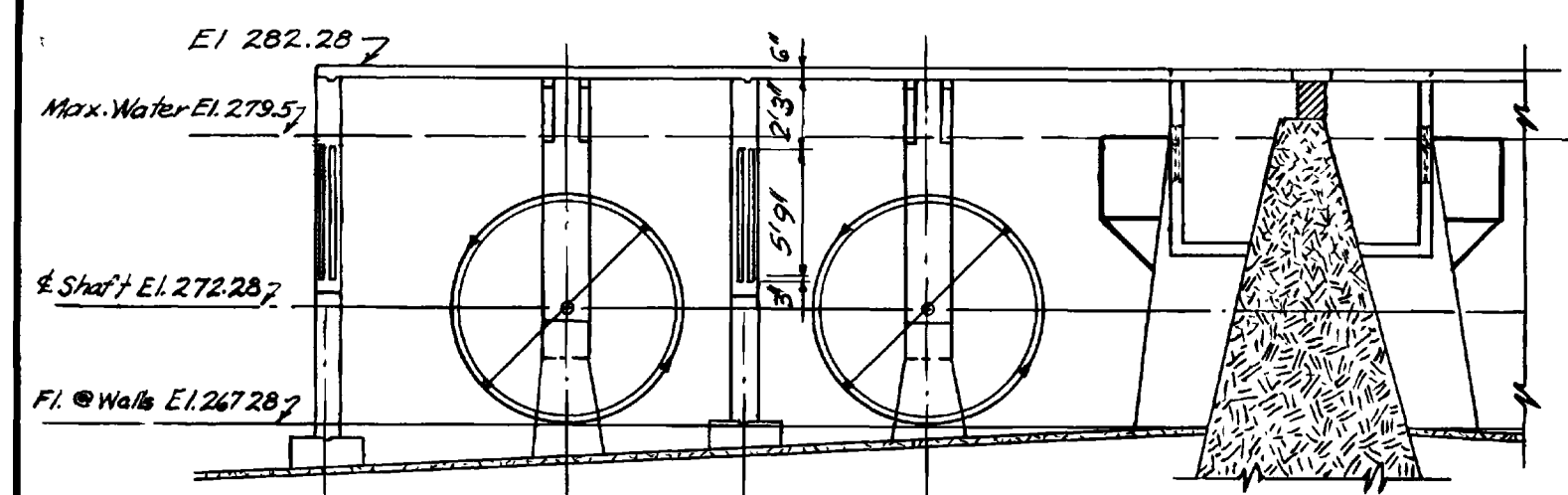
POWER WIRING SCHEMATIC DIAGRAM

FILTER CONTROL SCHEMATIC DIAGRAM

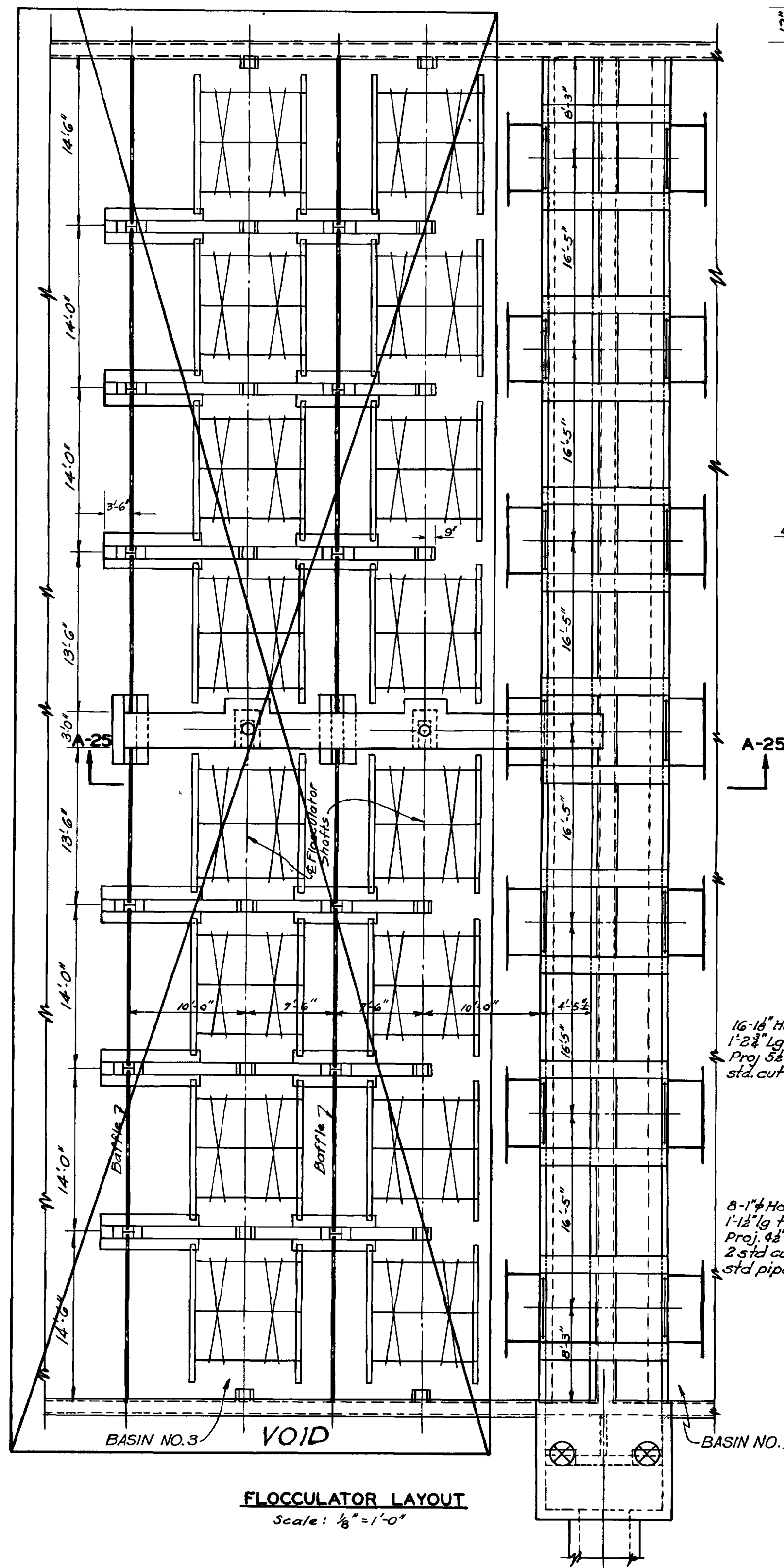
SYMBOLS

- OIL CIRCUIT BREAKER
- DISCONNECTING SWITCH
- FUSE
- AIR CIRCUIT BREAKER
- MAGNETIC CONTACTOR

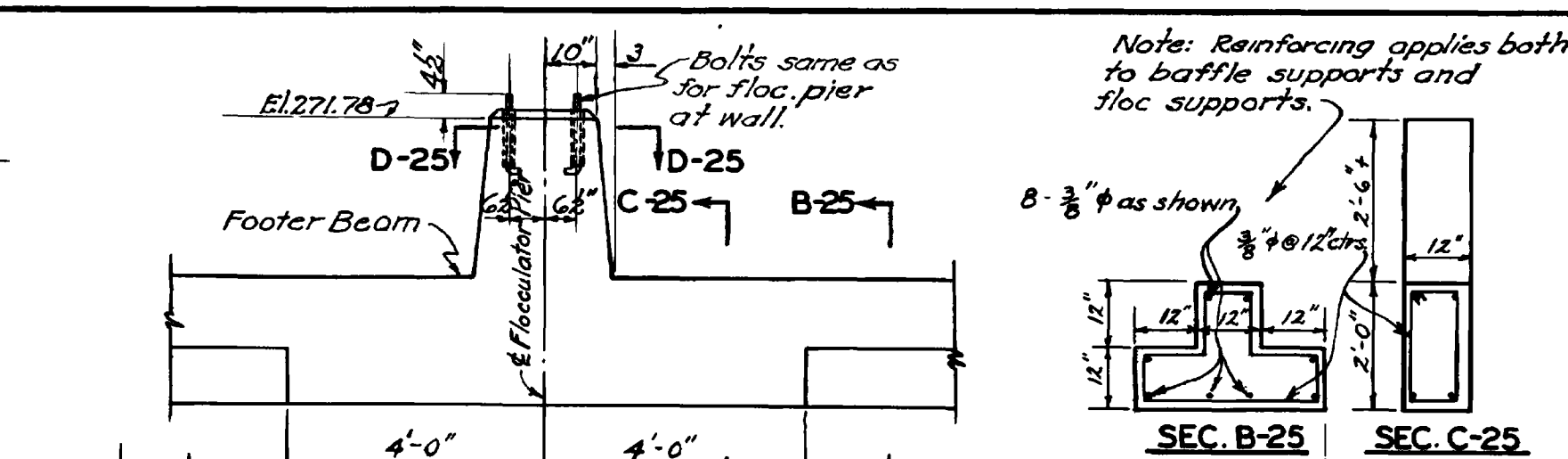
WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS
Heating, Lighting & Plumbing No. 2
BURNS & MCDONNELL ENGINEERING CO.
KANSAS CITY, MO.
APR. 1937



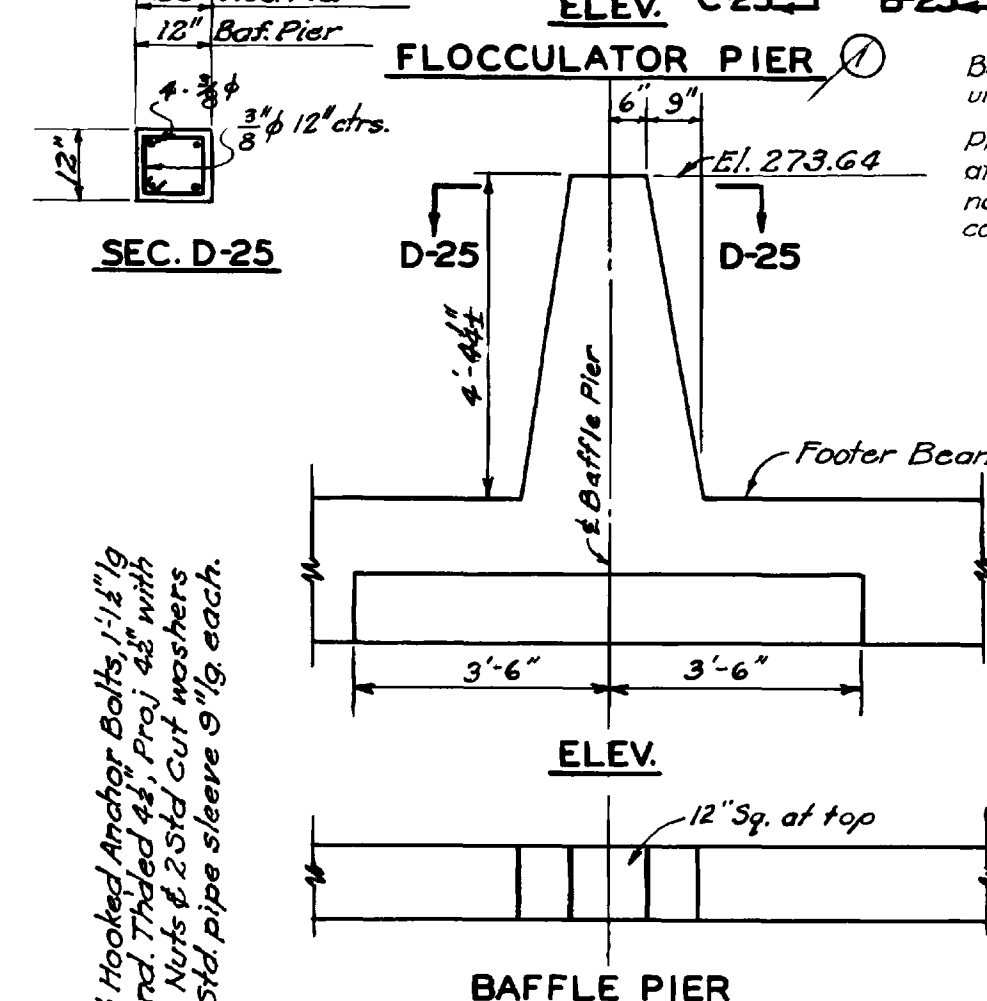
SECTION A-25



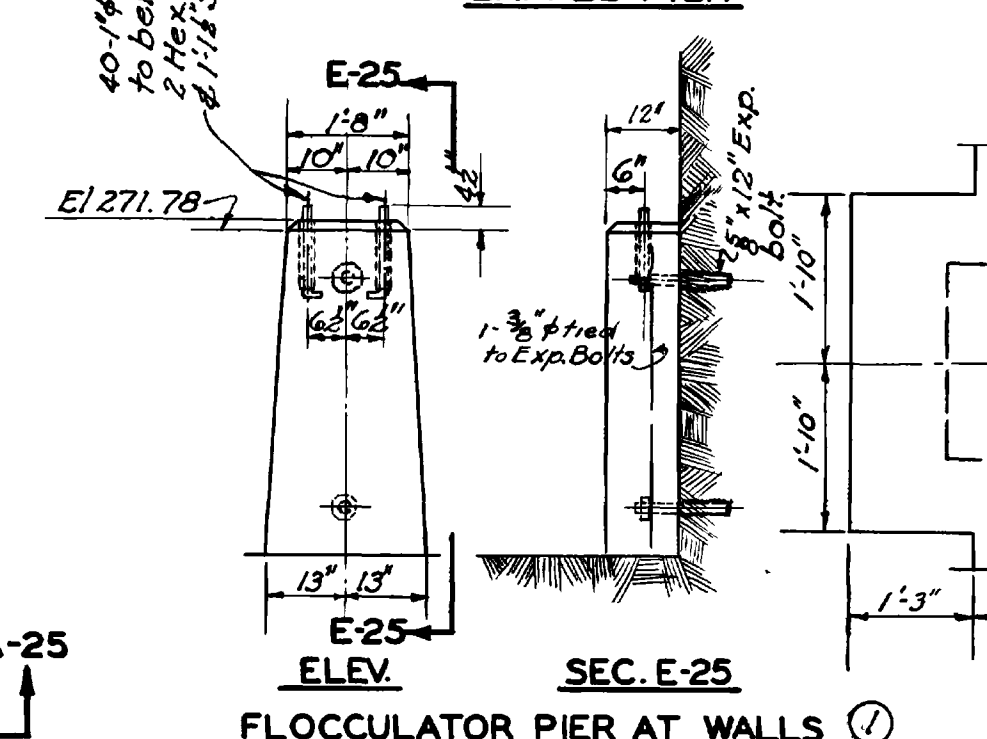
FLOCCULATOR LAYOUT
Scale: 1/8" = 1'-0"



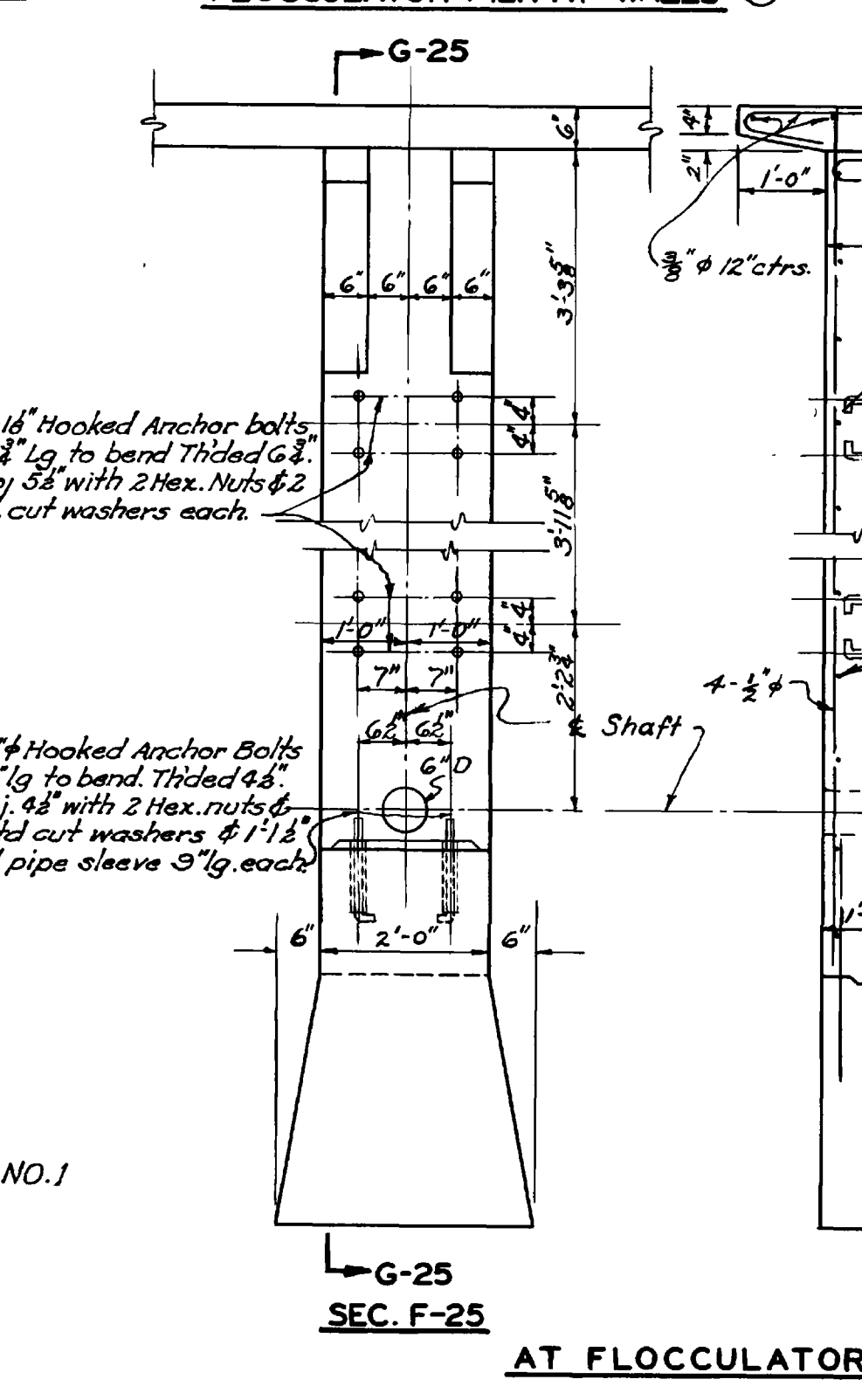
FLOCCULATOR PIER



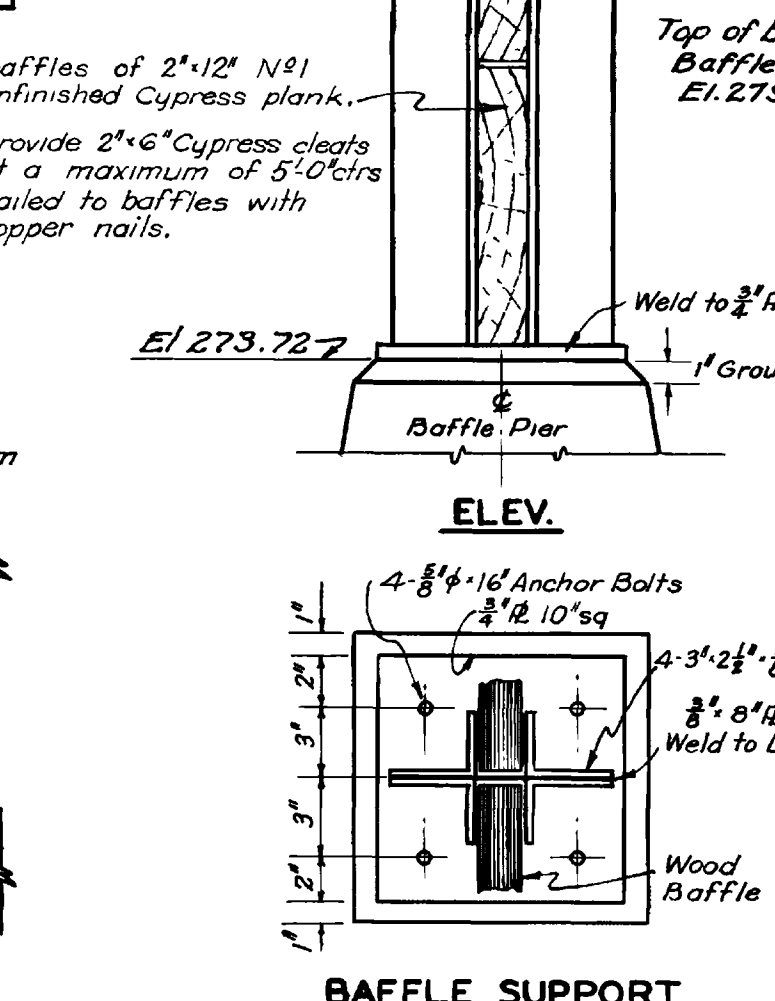
BAFFLE PIER



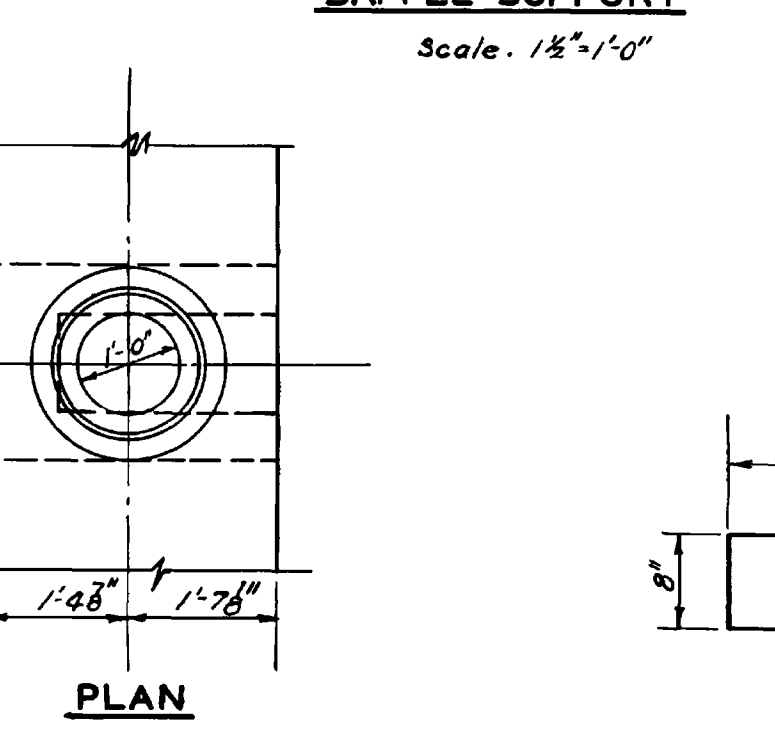
FLOCCULATOR PIER AT WALLS



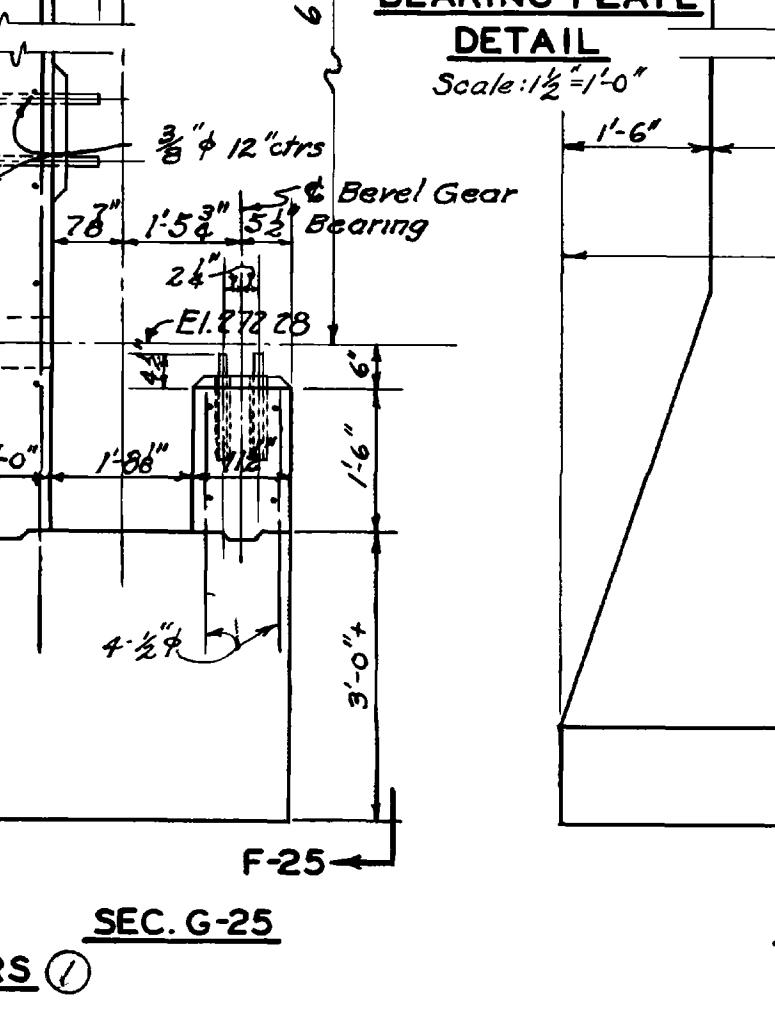
WALKWAY PIERS
Scale: 1/8" = 1'-0"



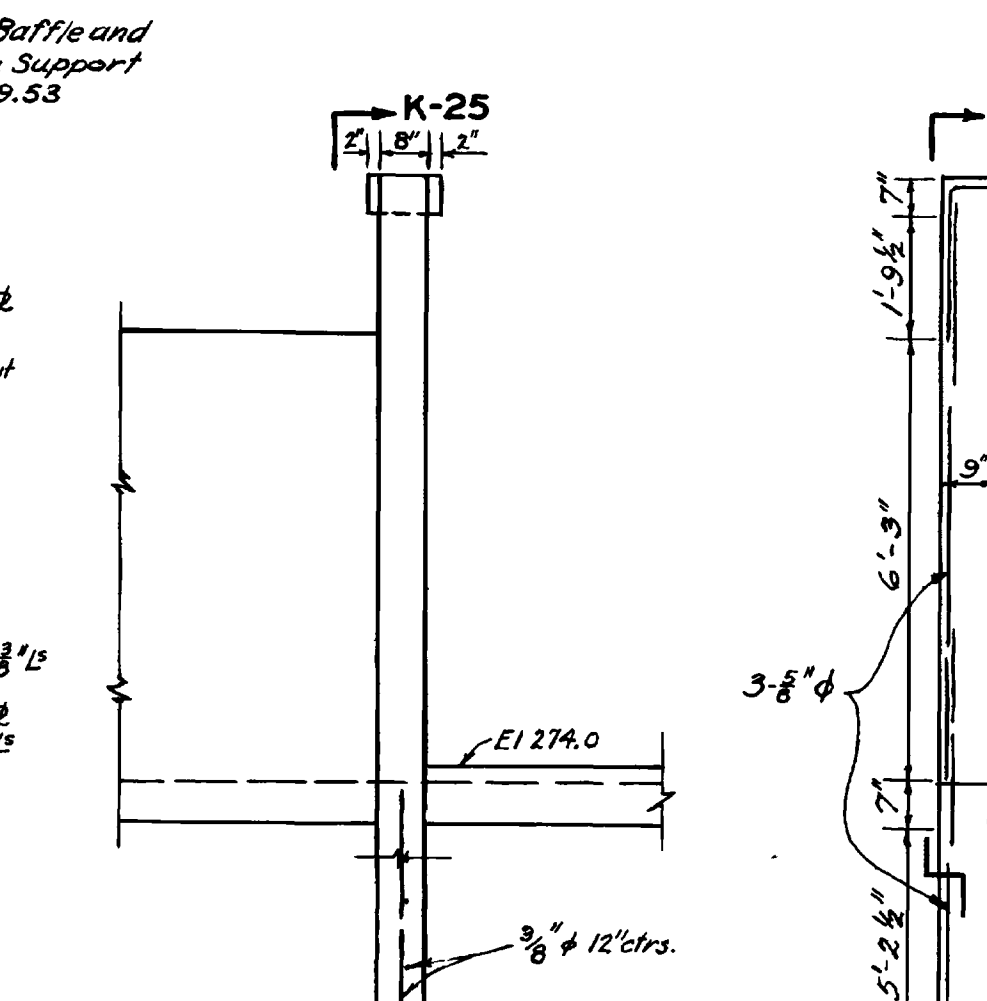
BAFFLE SUPPORT



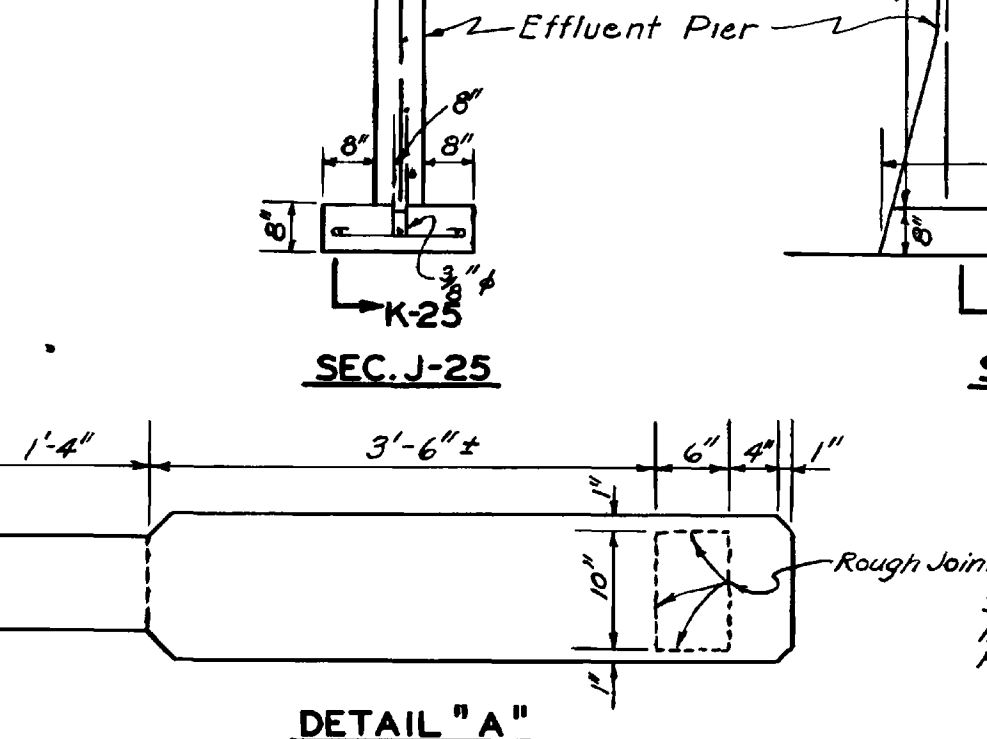
BEARING PLATE



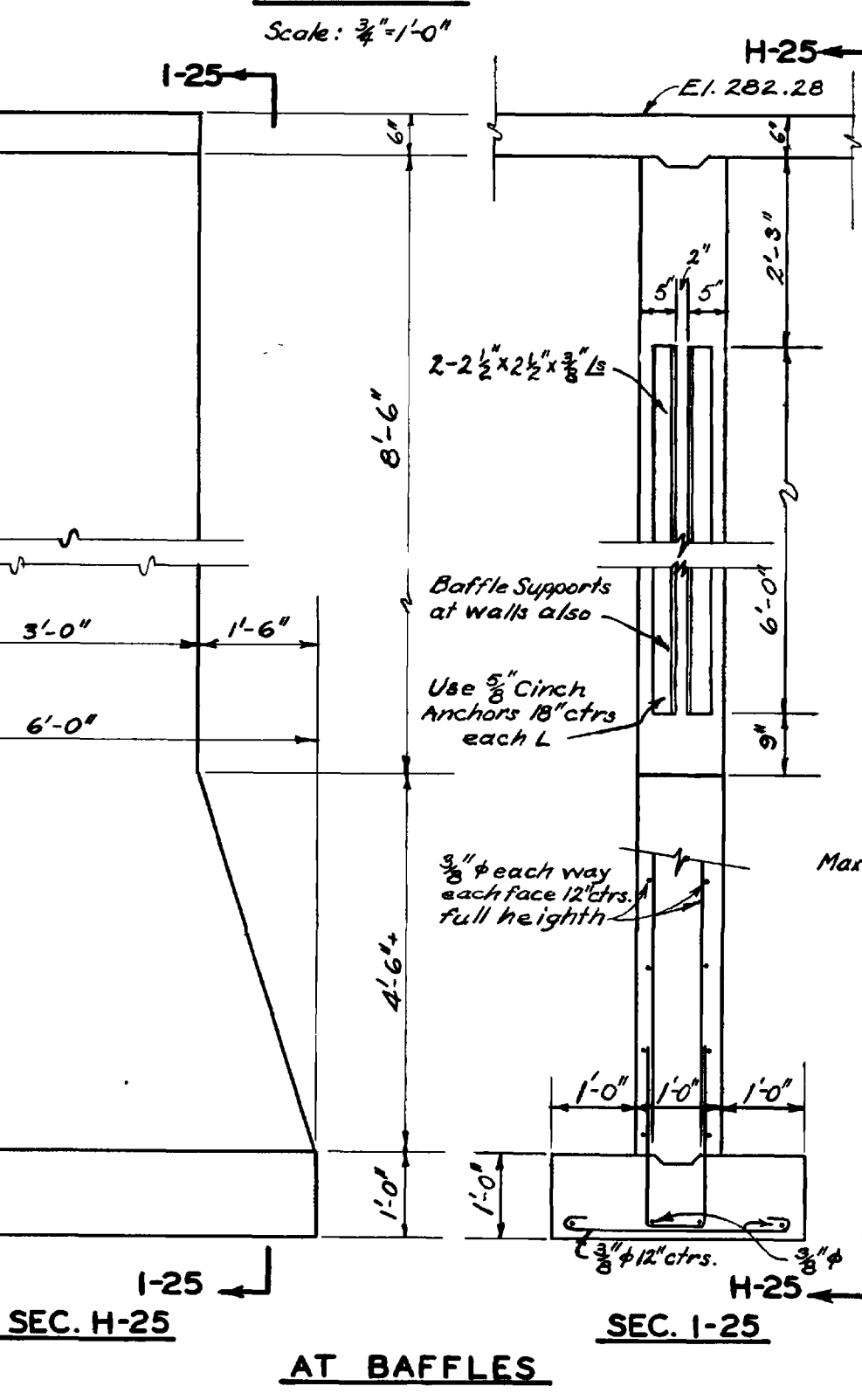
AT FLOCCULATORS



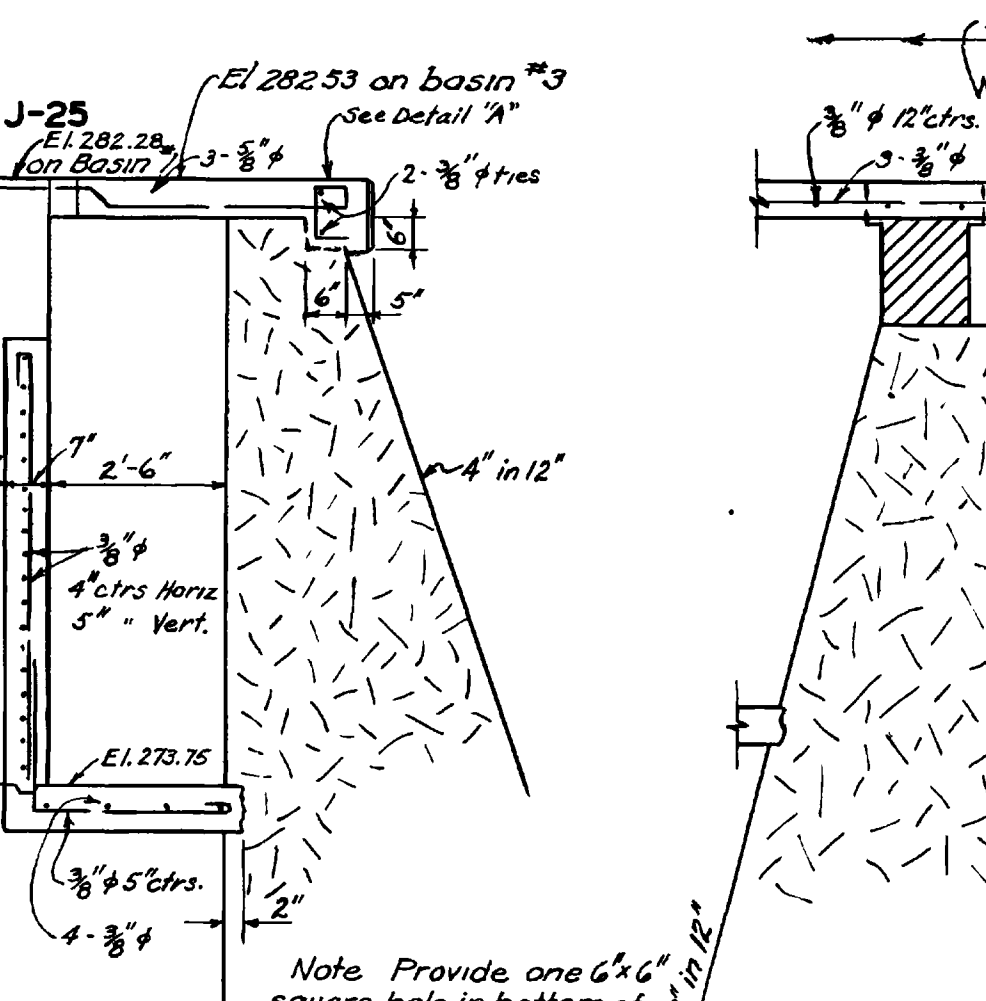
AT BAFFLES



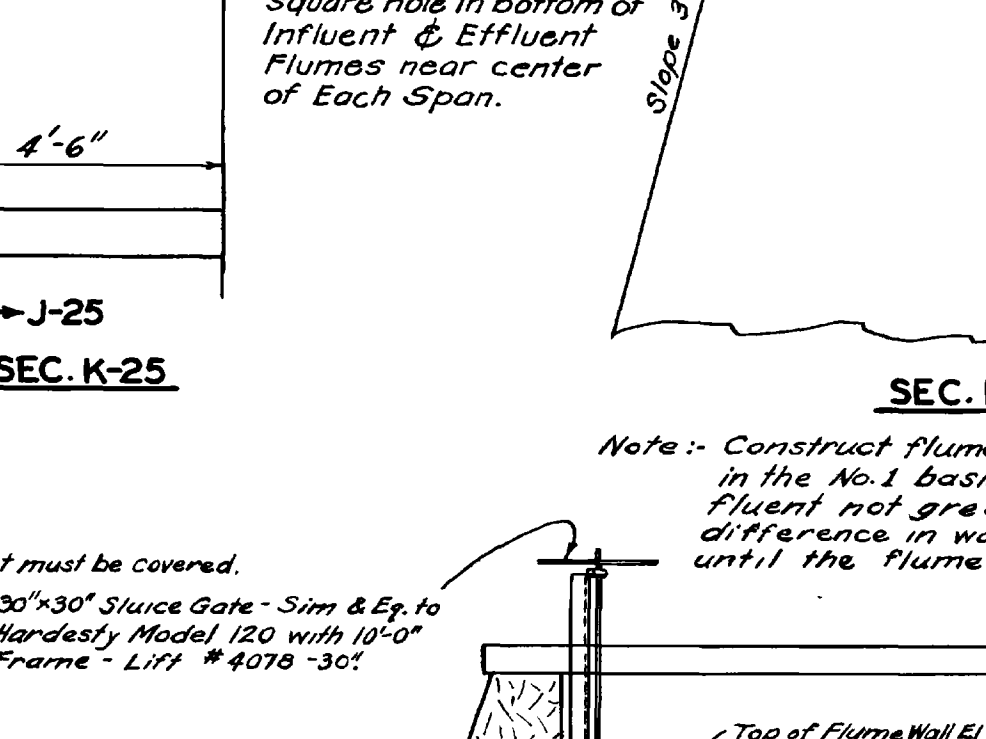
DETAIL 'A'



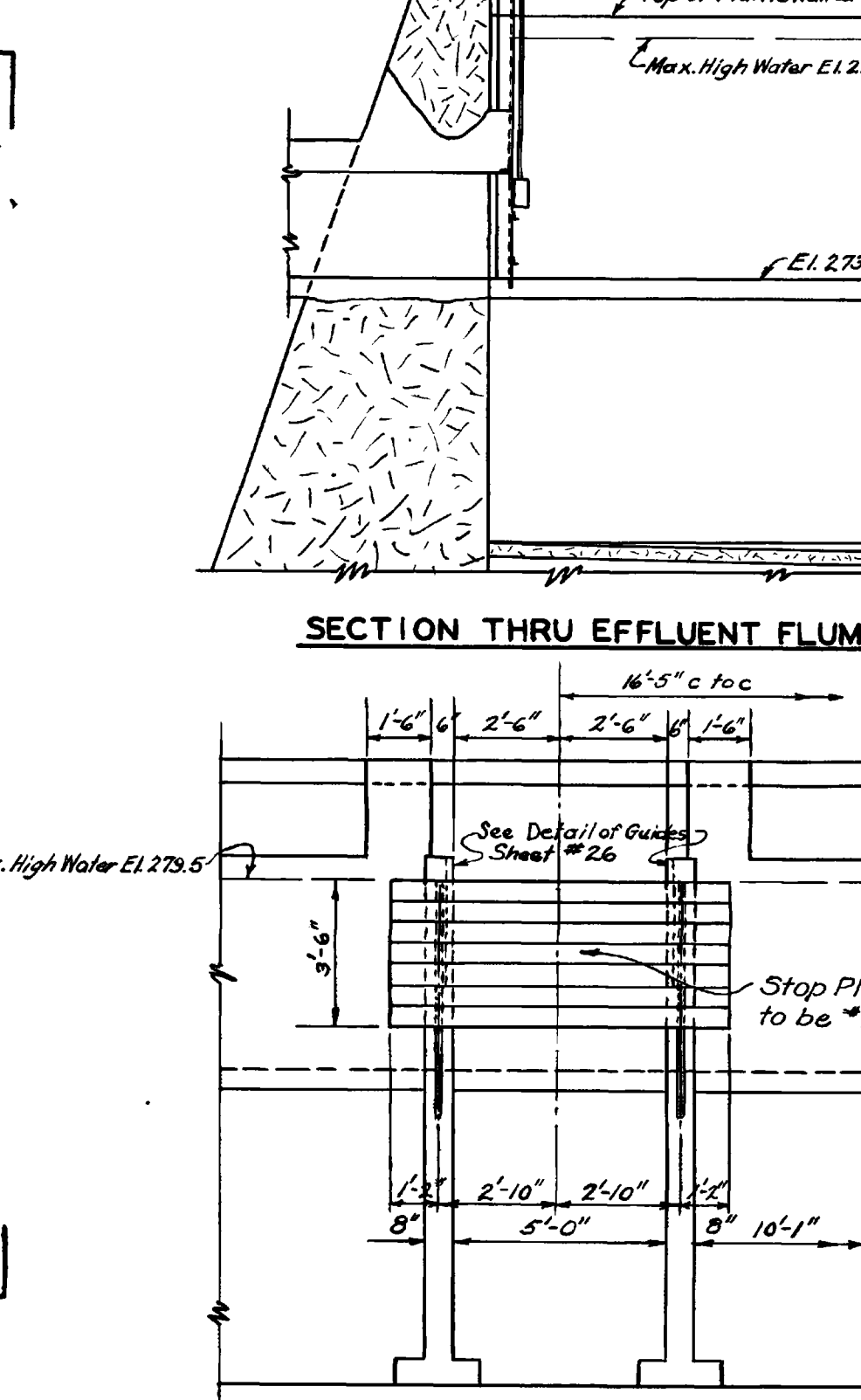
SECTION H-25



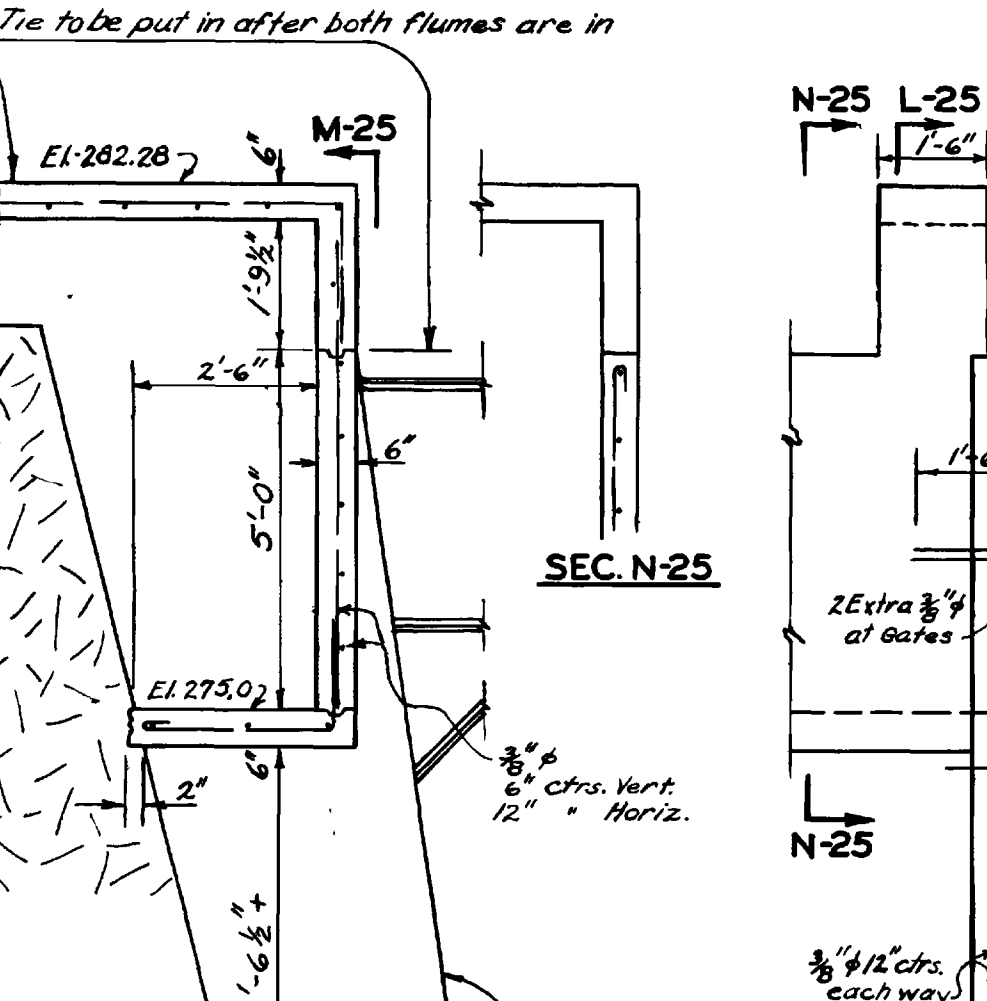
SECTION J-25



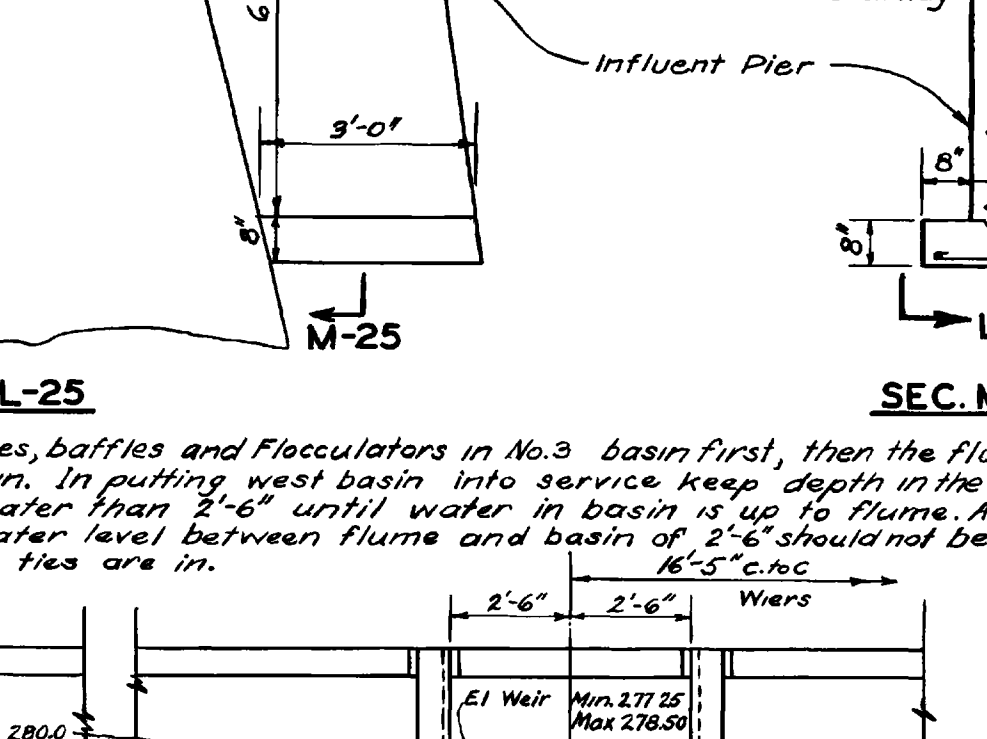
SECTION K-25



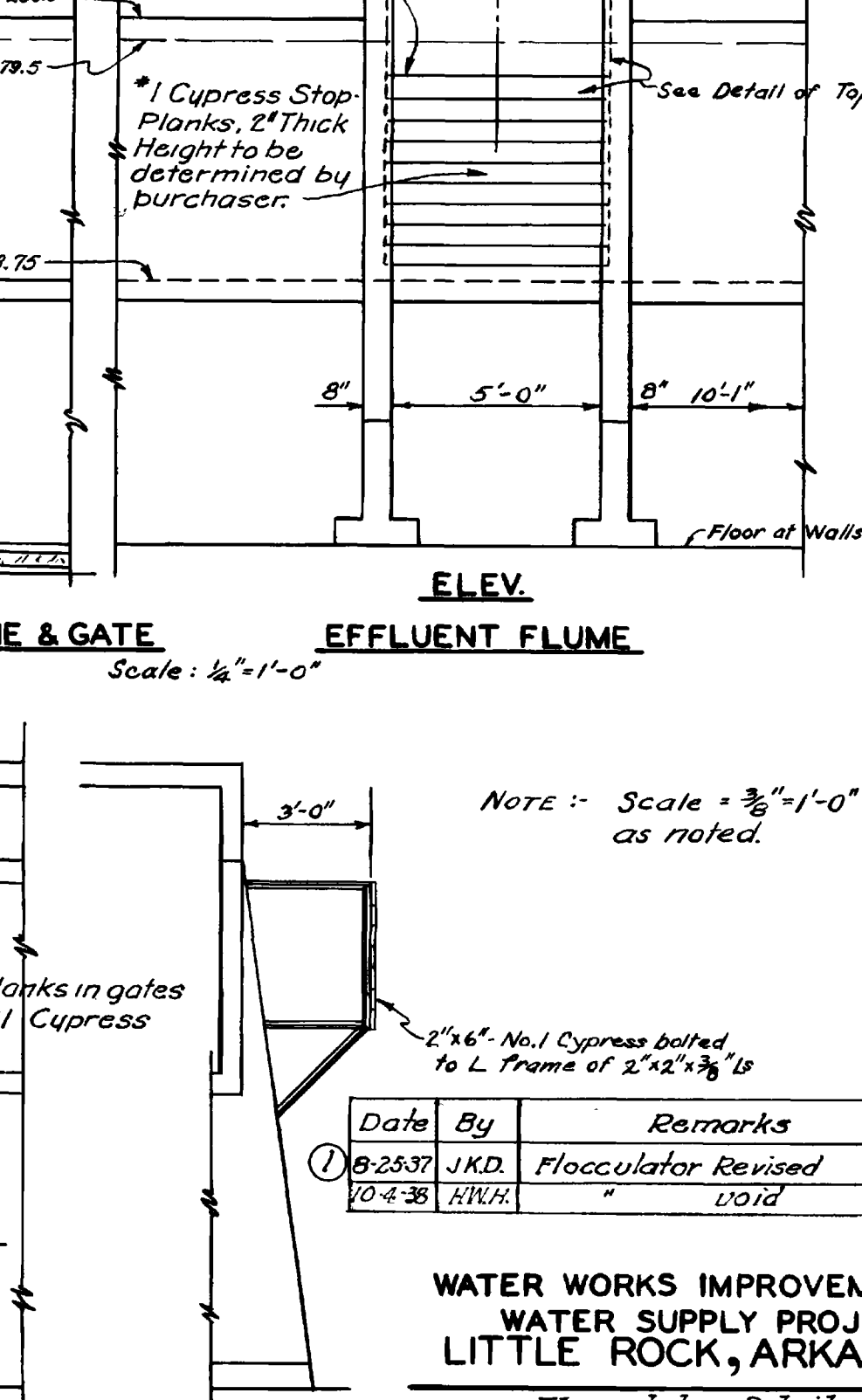
SECTION L-25



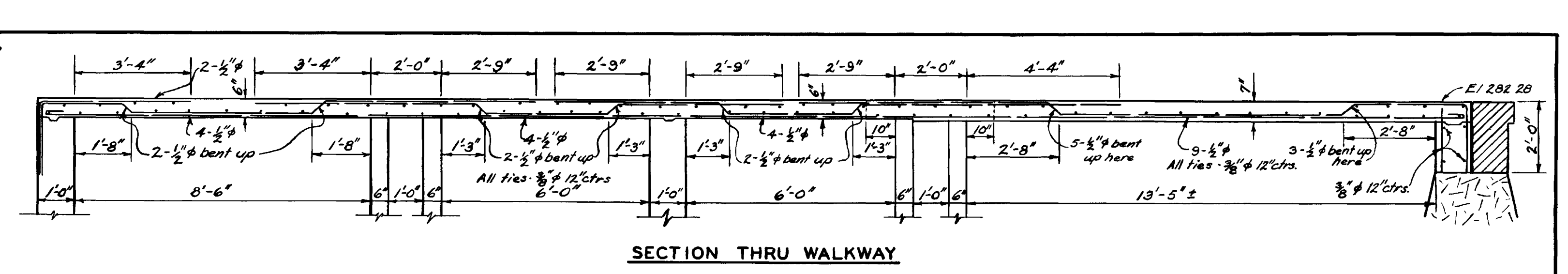
SECTION M-25



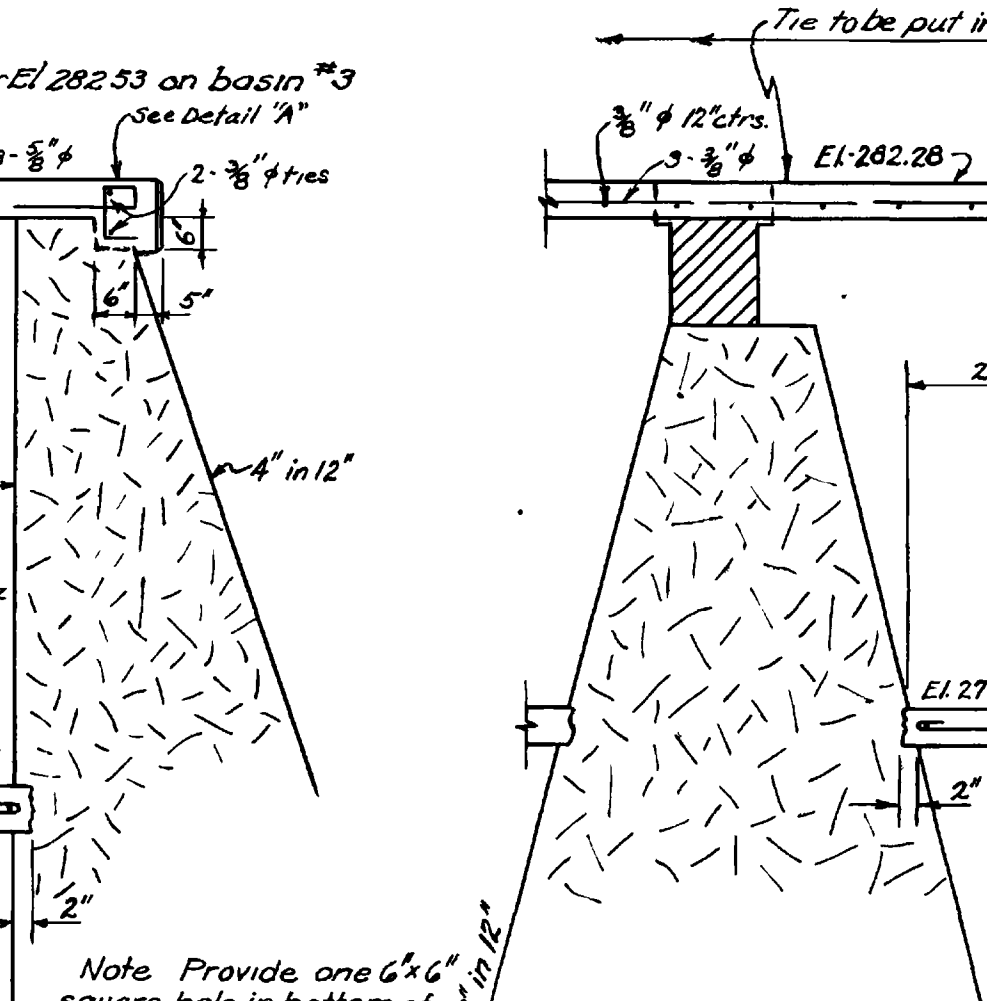
SECTION N-25



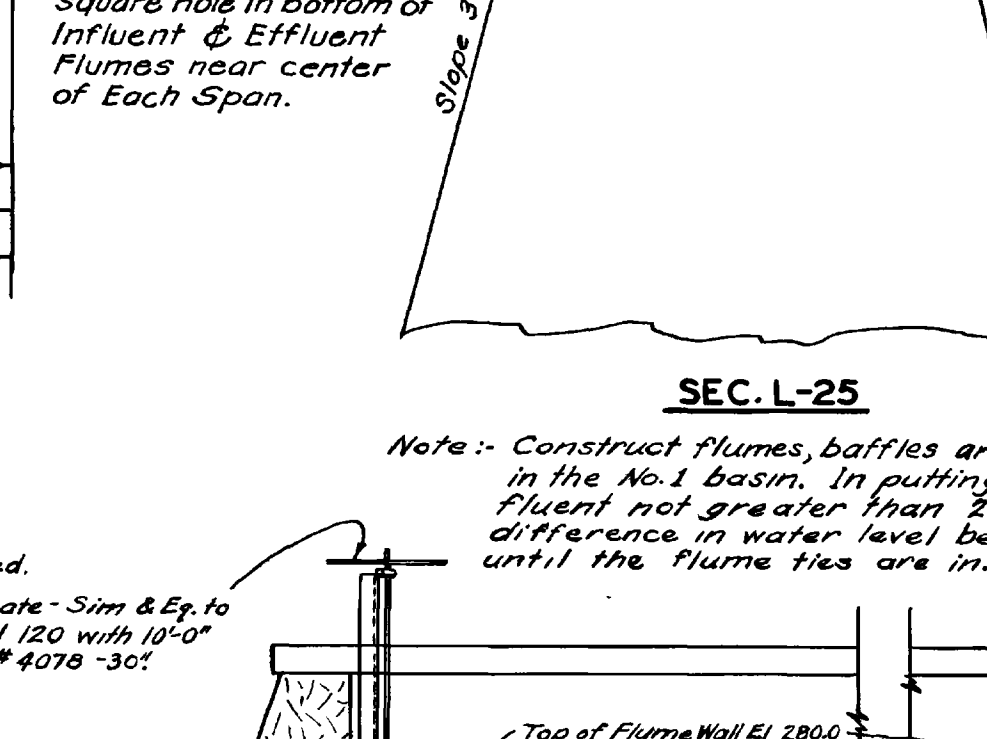
SECTION O-25



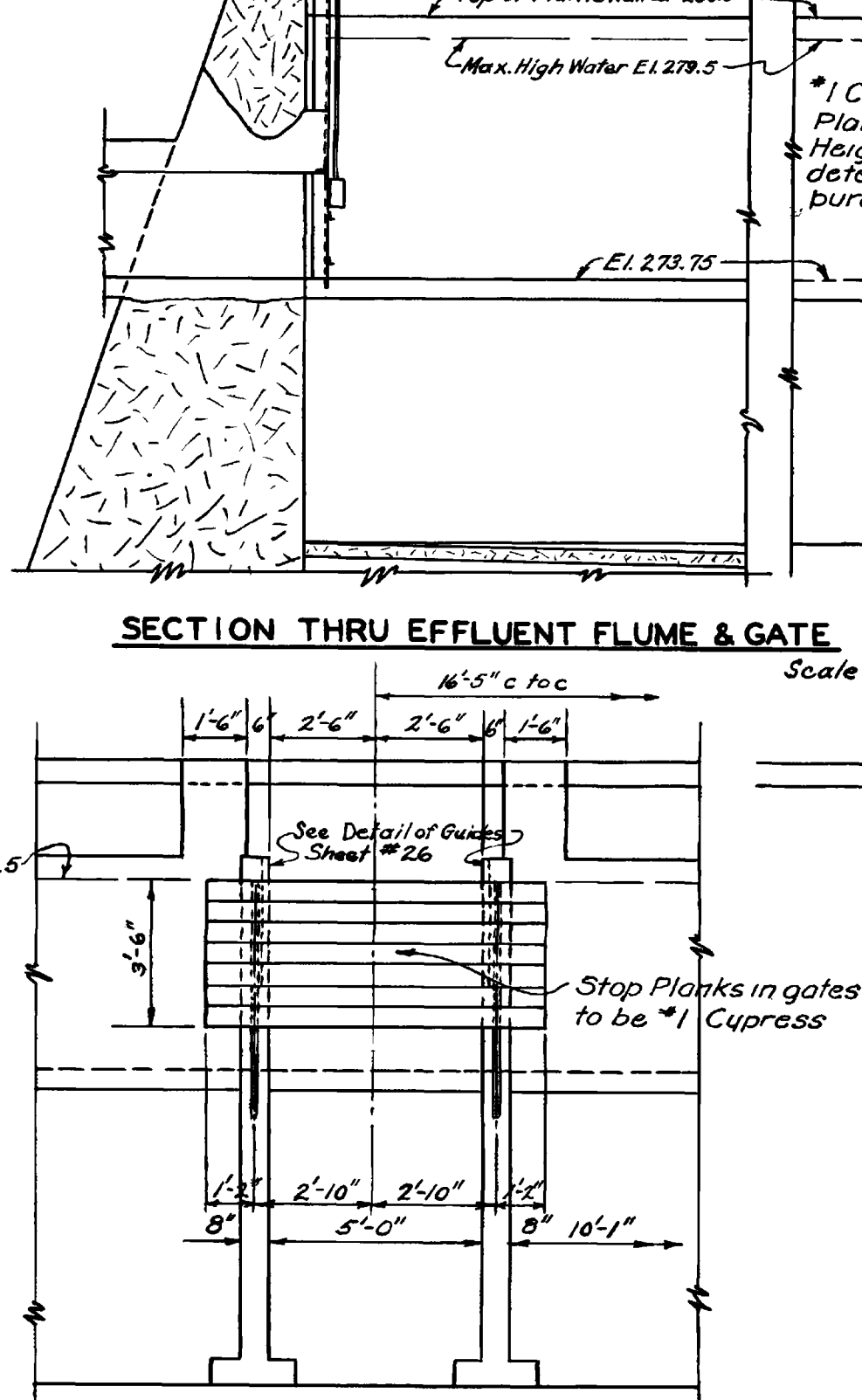
SECTION THRU WALKWAY



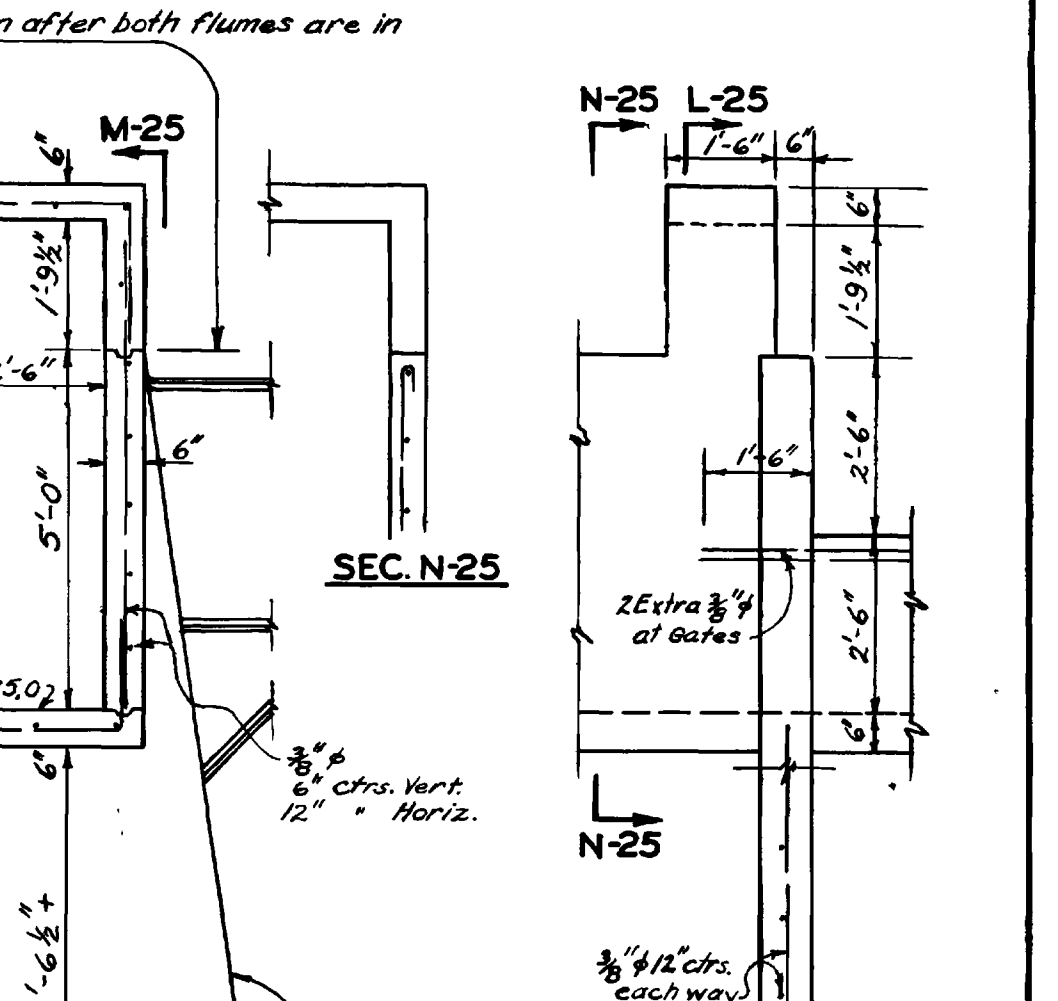
SECTION THRU EFFLUENT FLUME & GATE



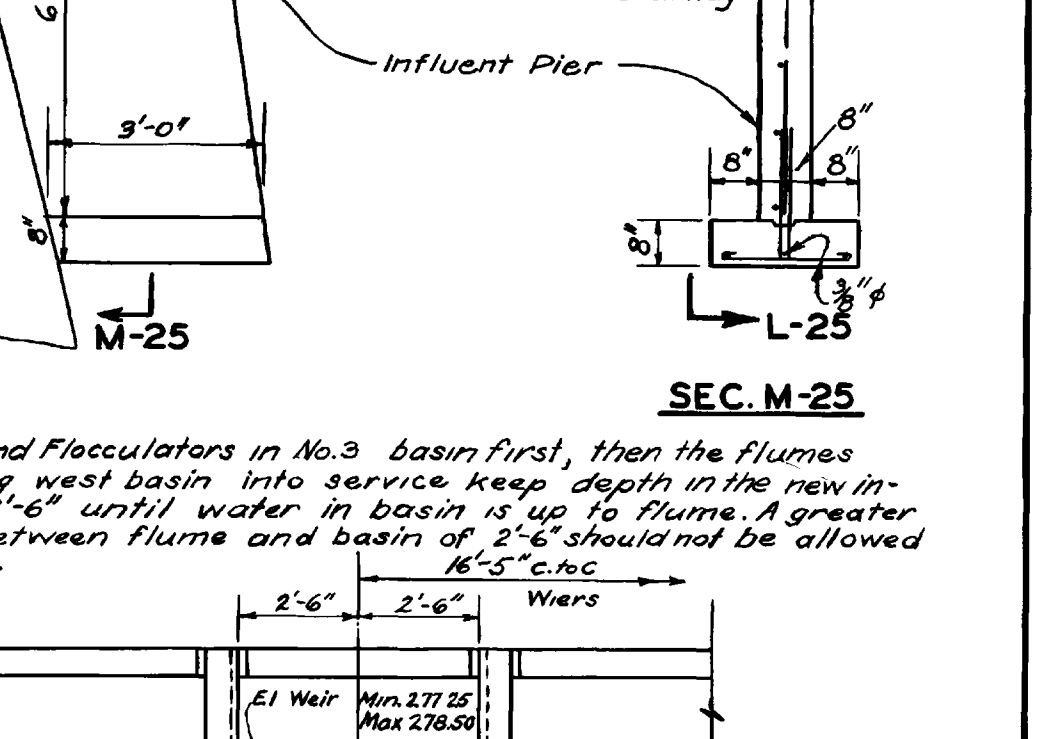
EFFLUENT FLUME



INFLUENT FLUME



ELEV. EFFLUENT FLUME

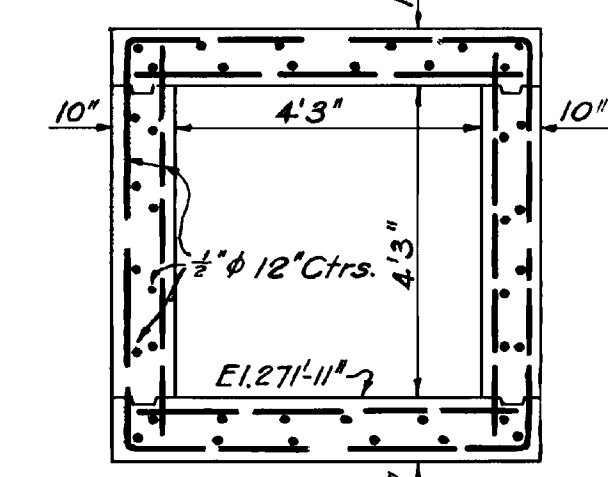
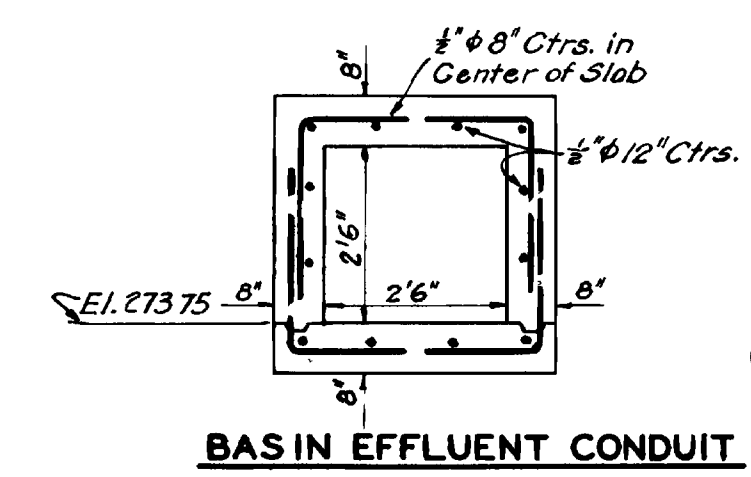
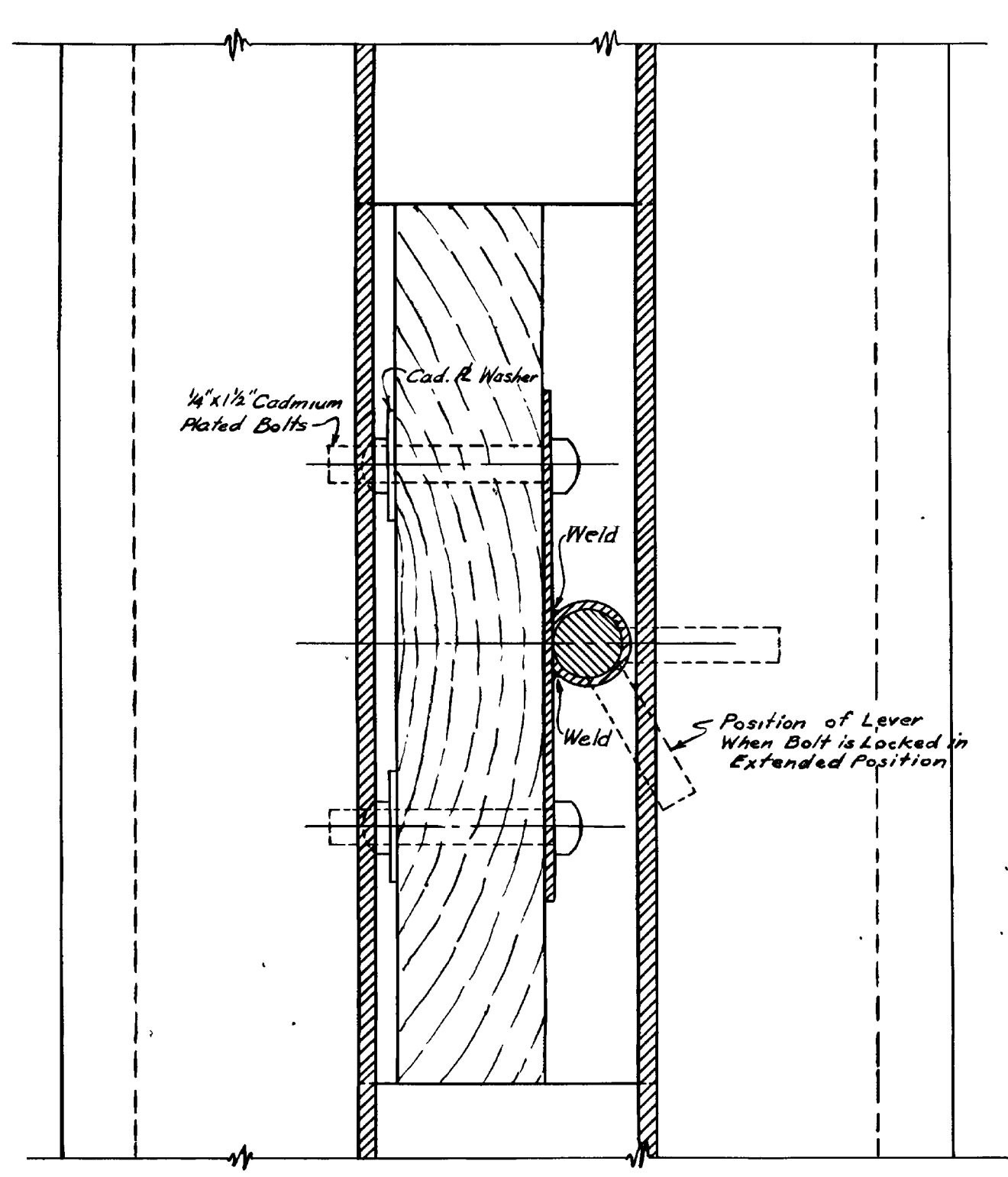
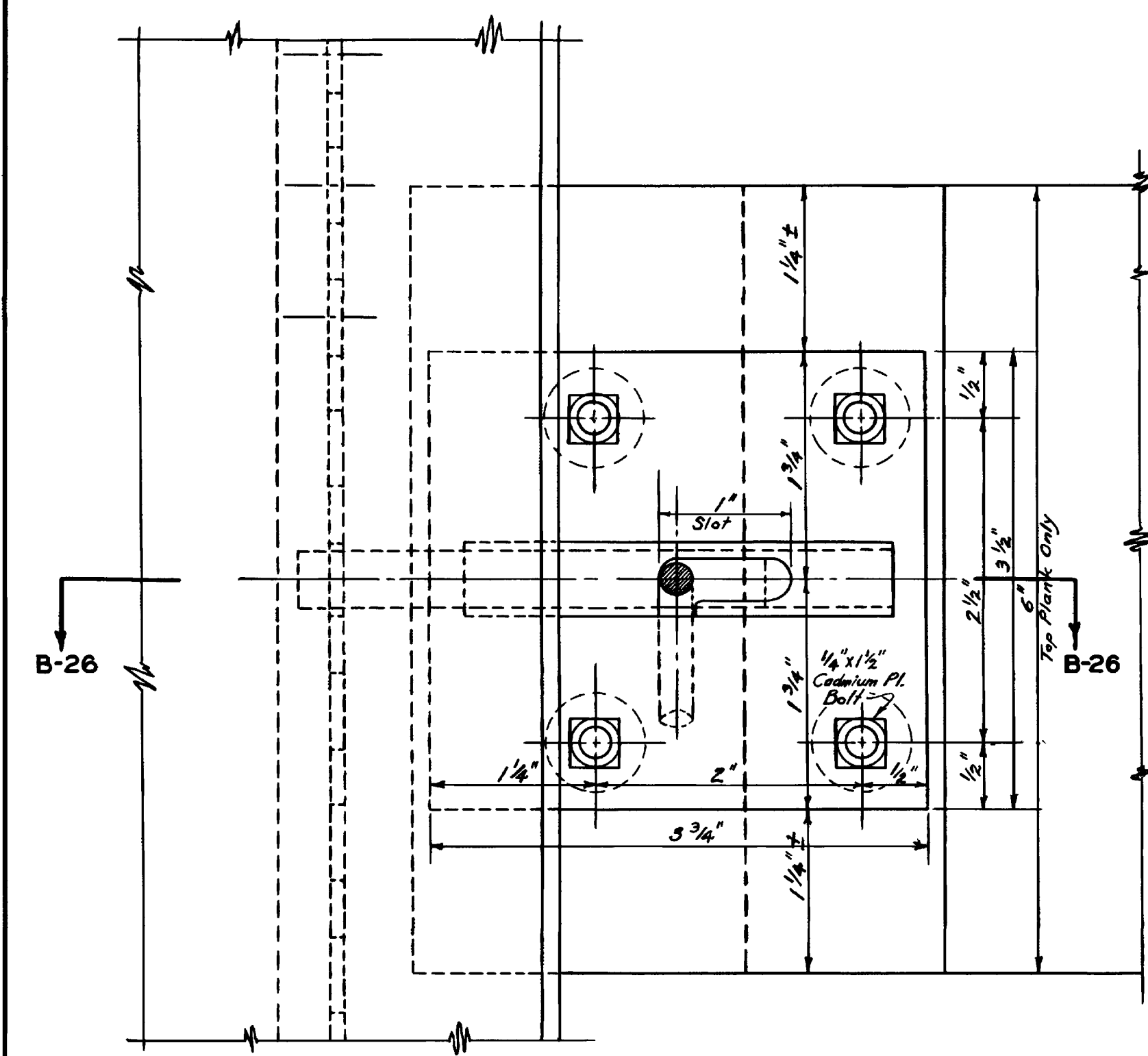


ELEV. INFLUENT FLUME

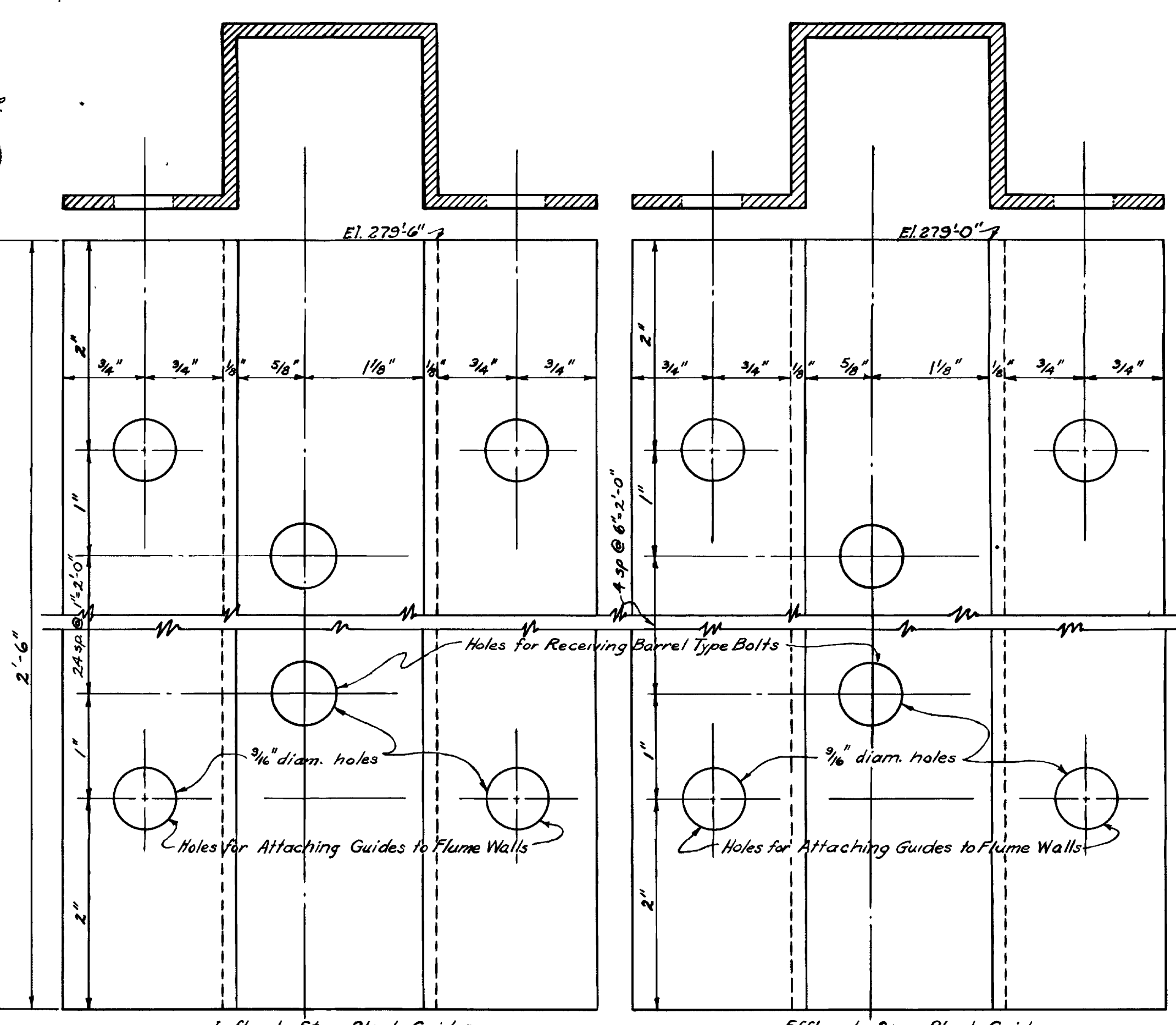
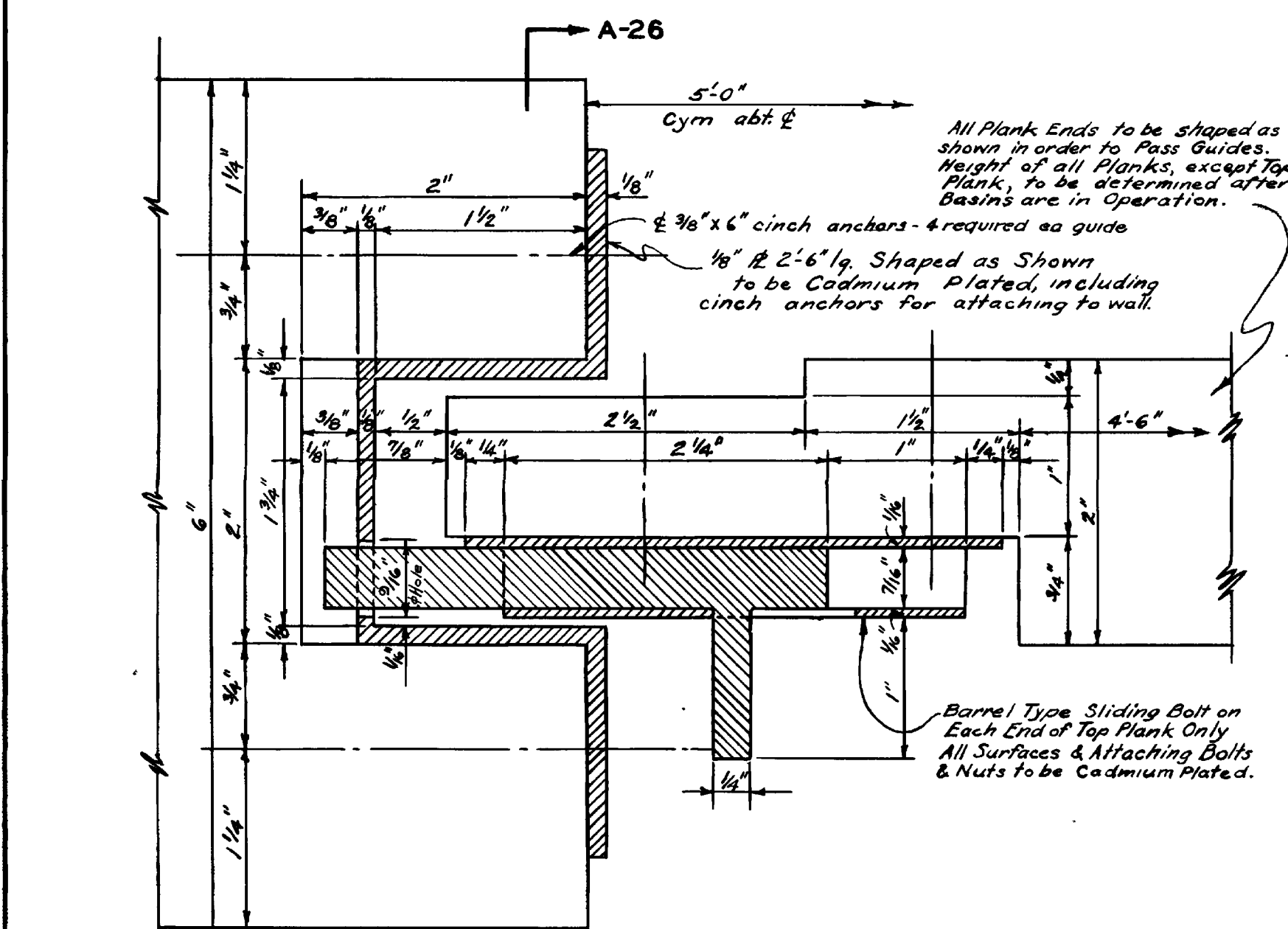
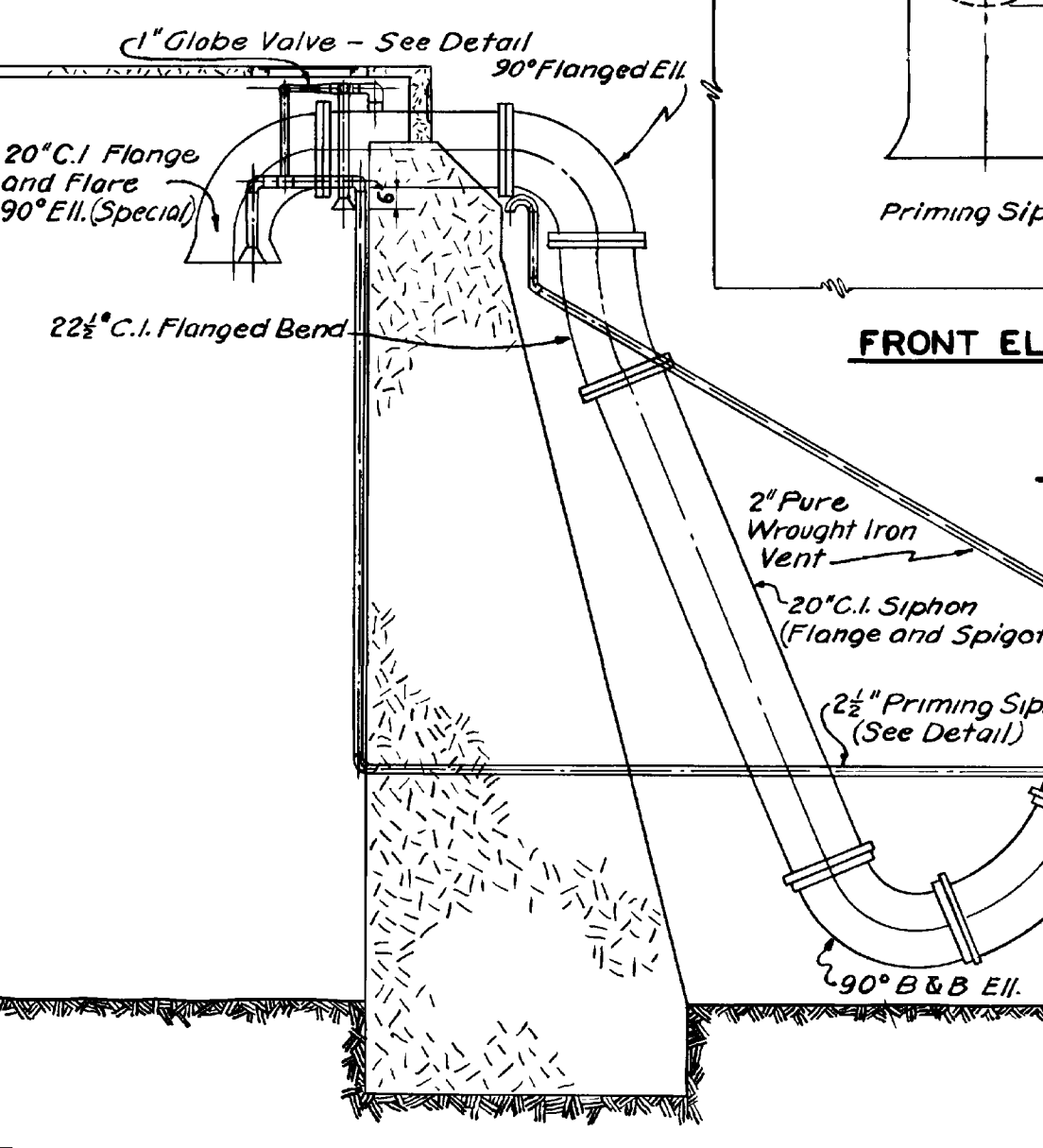
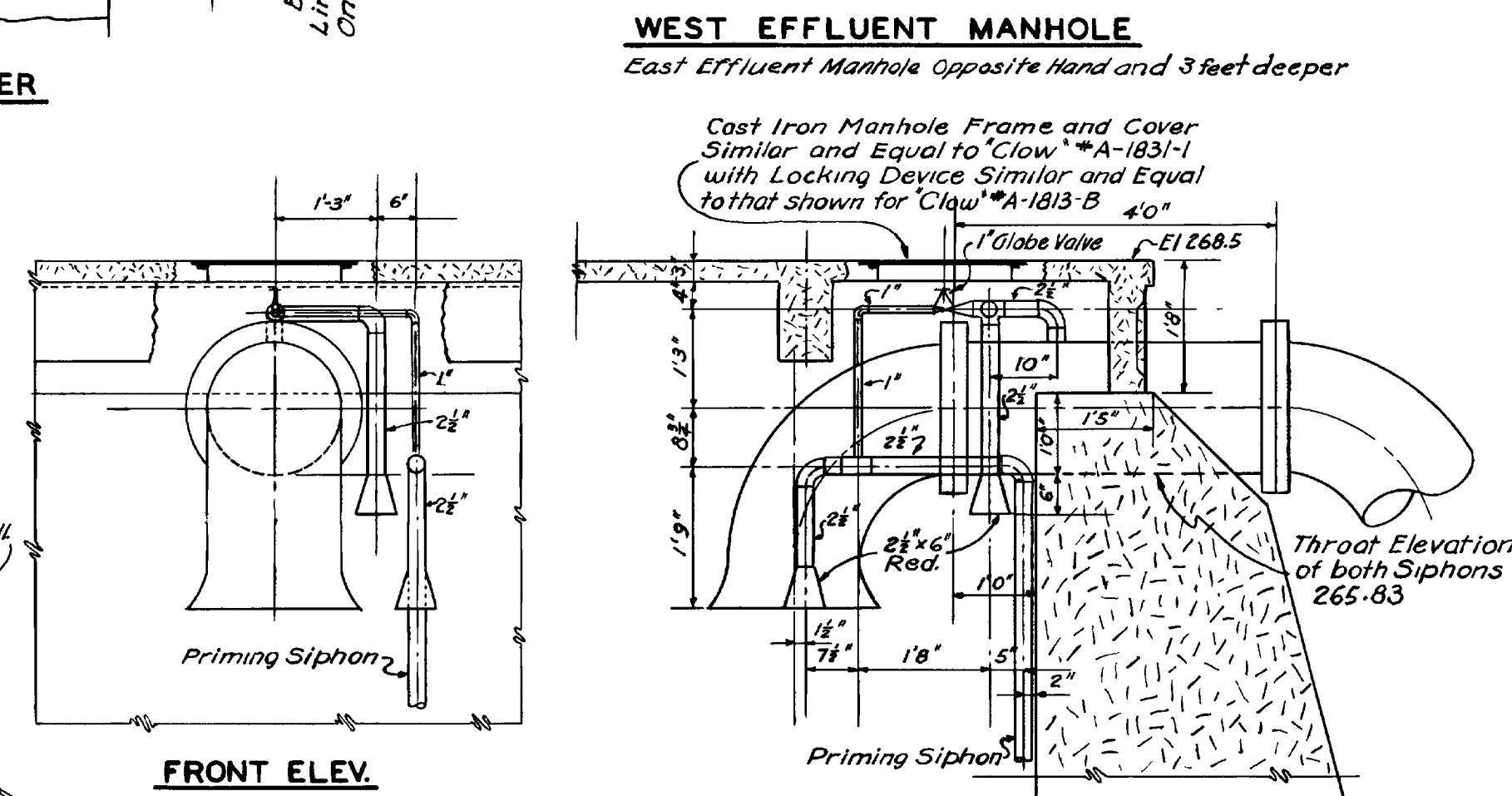
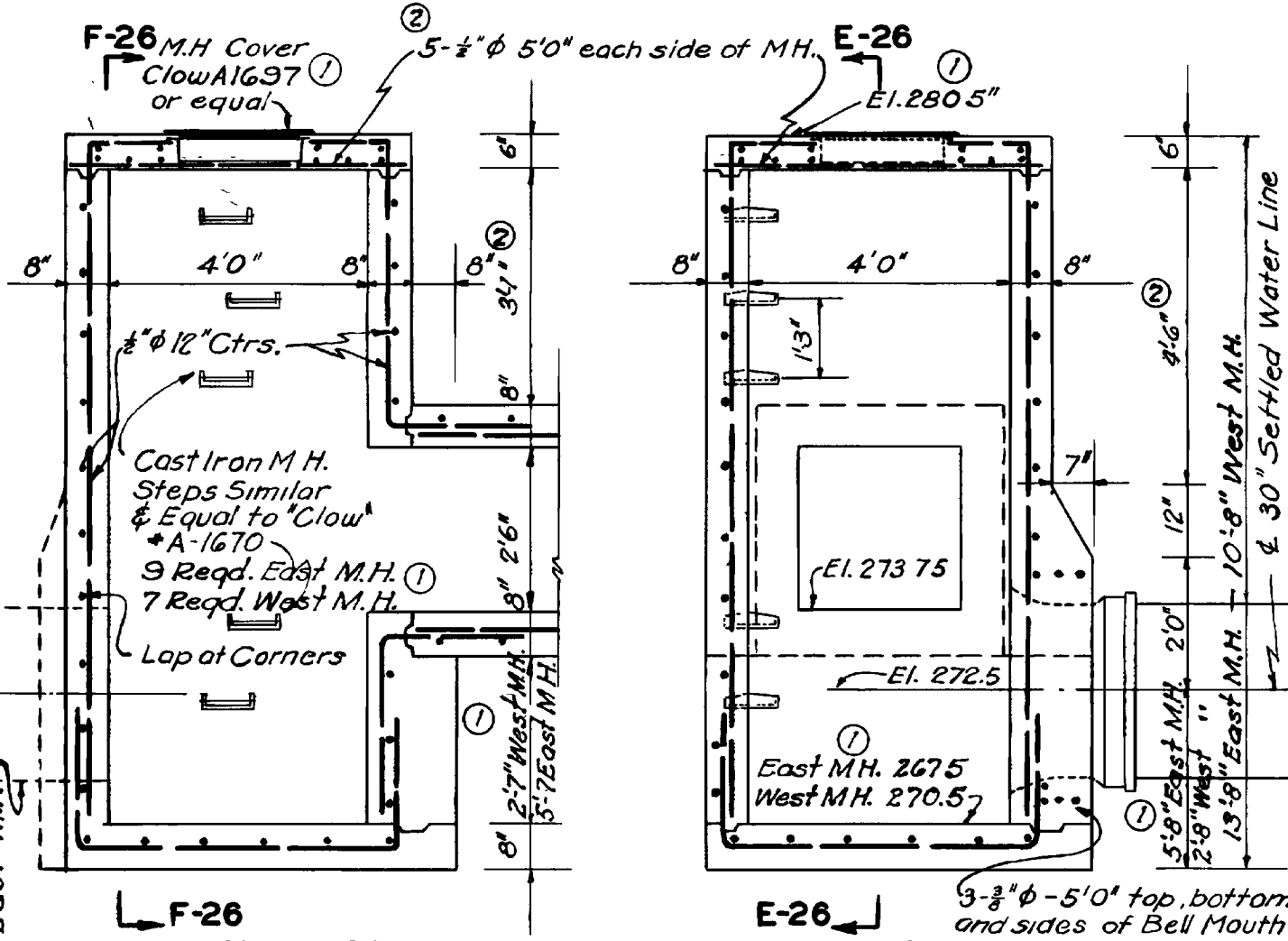
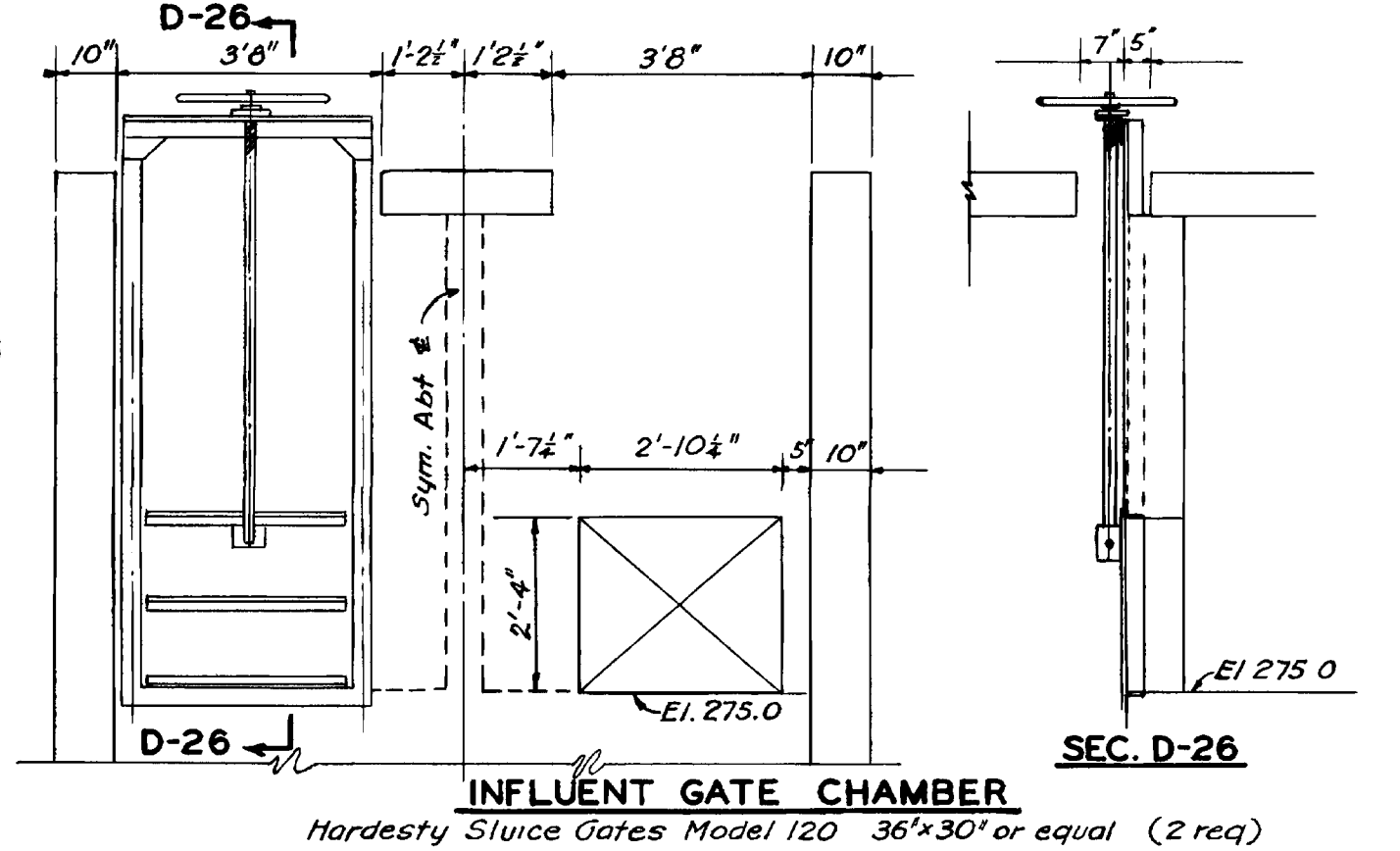
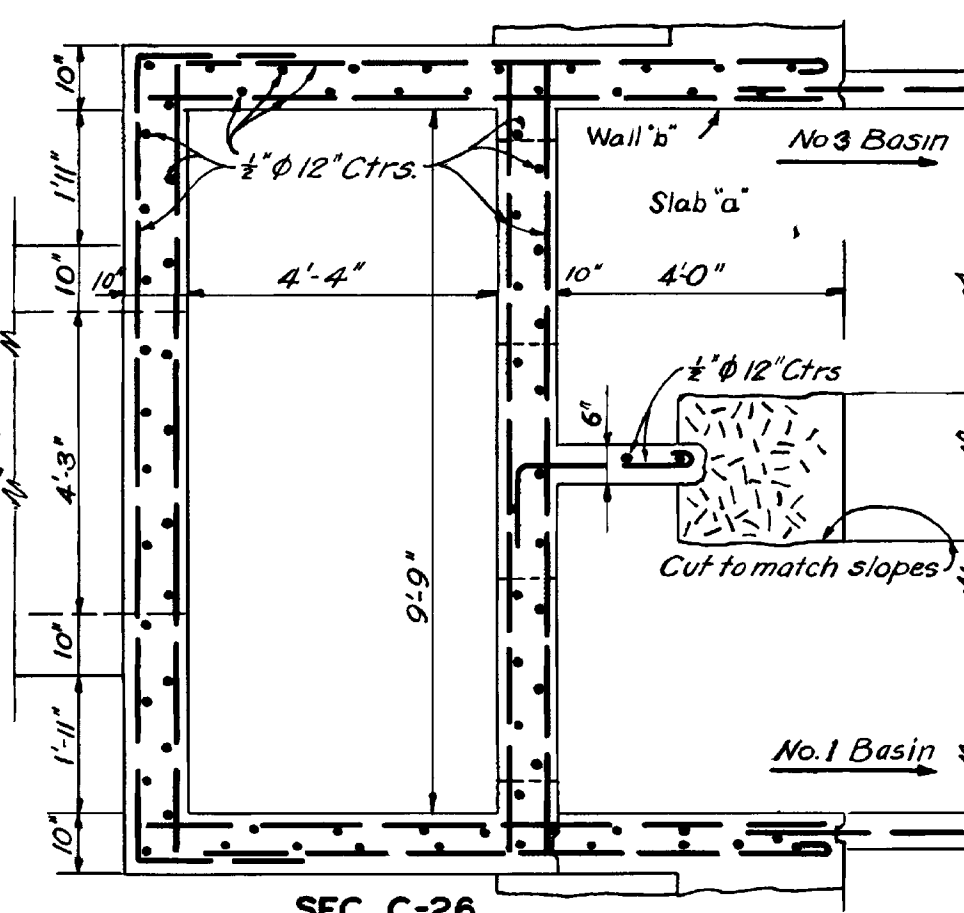
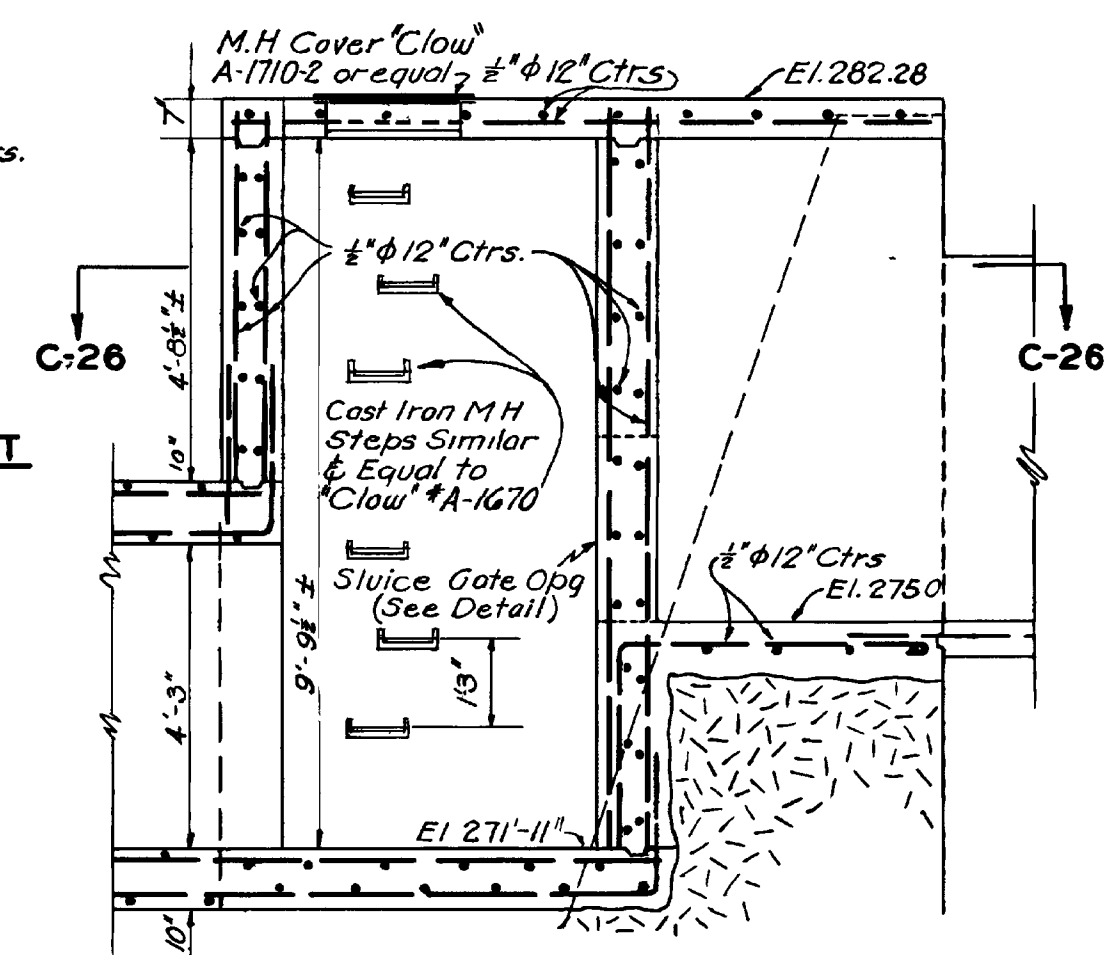
Date	By	Remarks
10-23-37	J.K.D.	Flocculator Revised
10-23-37	H.W.K.	VOID

WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS

BURNS & MCDONNELL ENGINEERING CO.
KANSAS CITY
APR. 1937

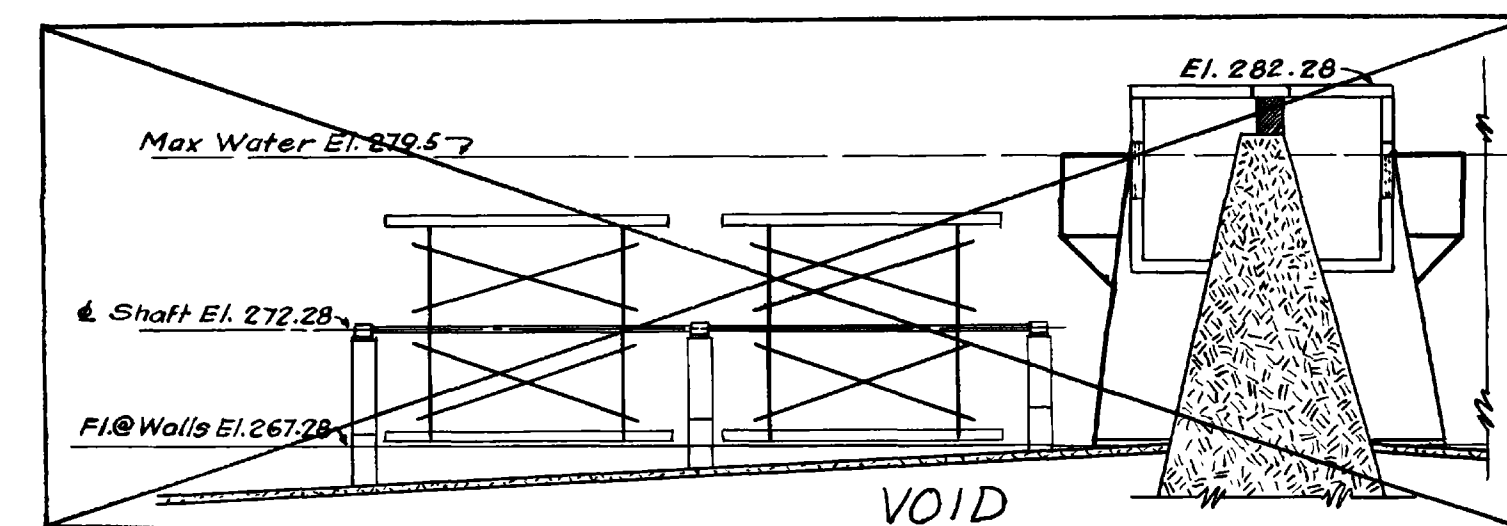


Note: Construct all except Slab 'a' and Wall 'b' and put No. 3 Basin in service then cut No. 1 Basin wall and pour Slab 'a' and Wall 'b'.



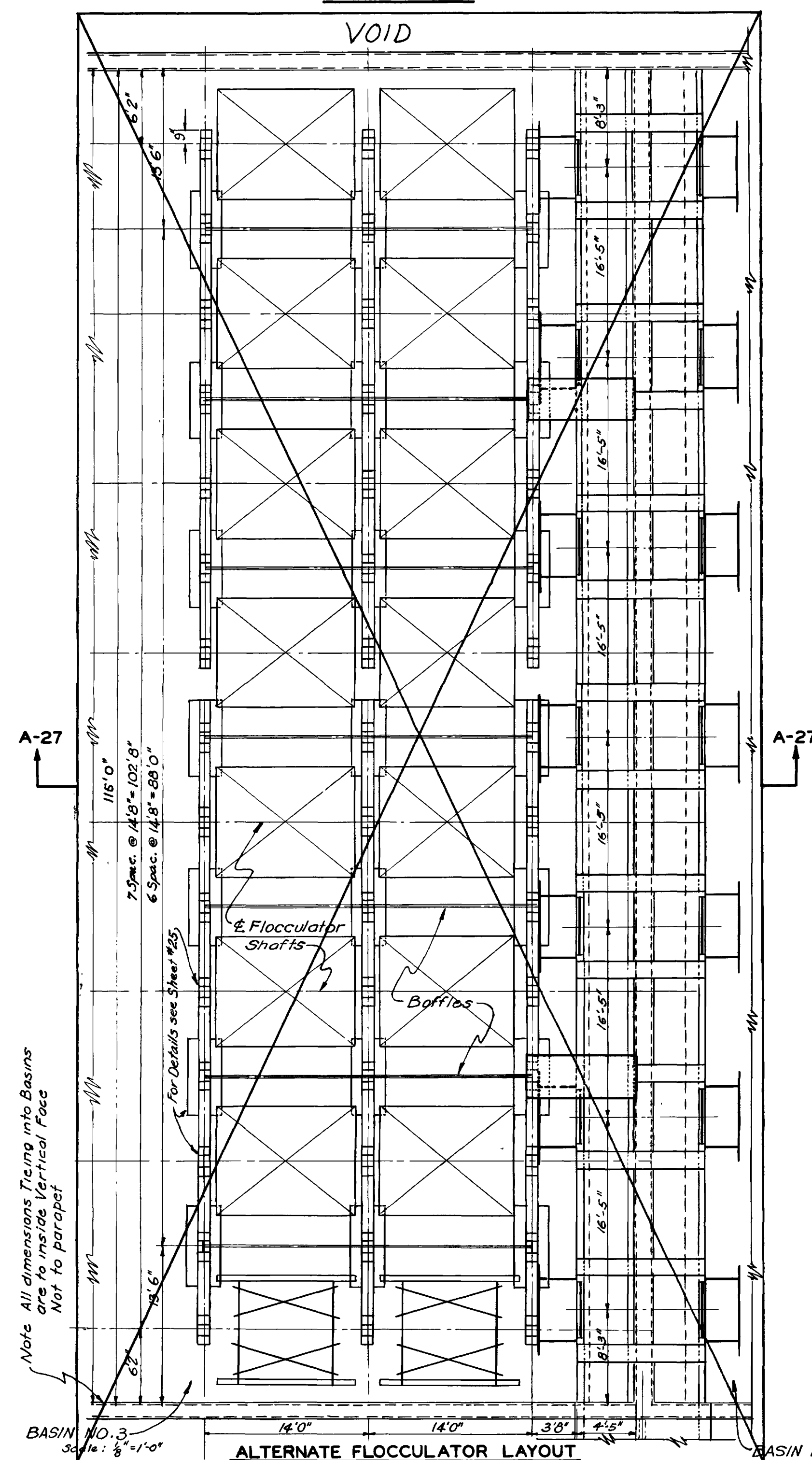
DETAILS OF STOP PLANKS AND GUIDES FOR FLUME GATES
(50 Required)
Full Size

Date	By	Remarks
8-5-37	J.K.D.	Changes on Effluent Manhole
9-23-37	J.K.D.	do do do
10-4-38	H.L.H.	do do do

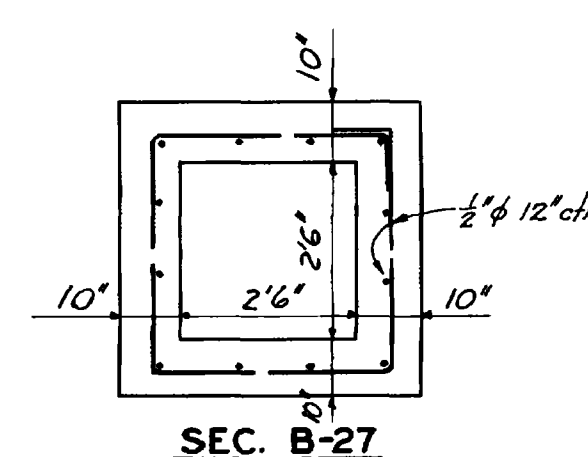
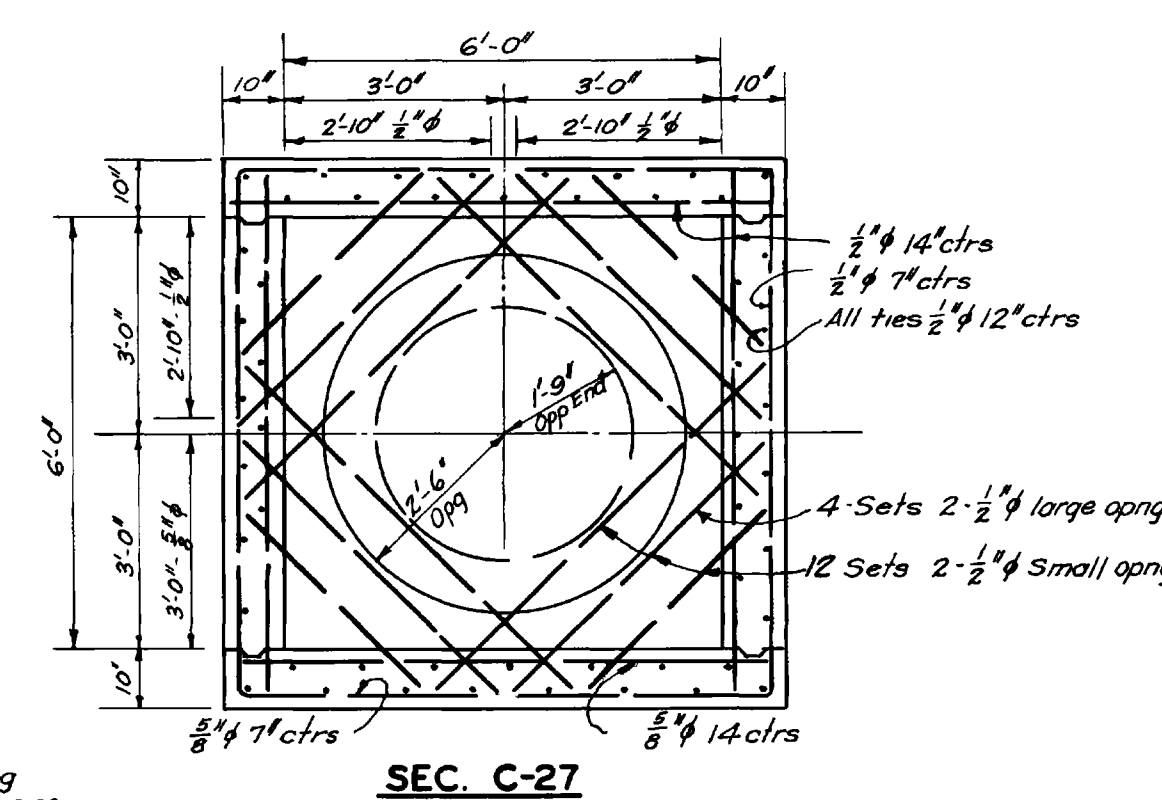
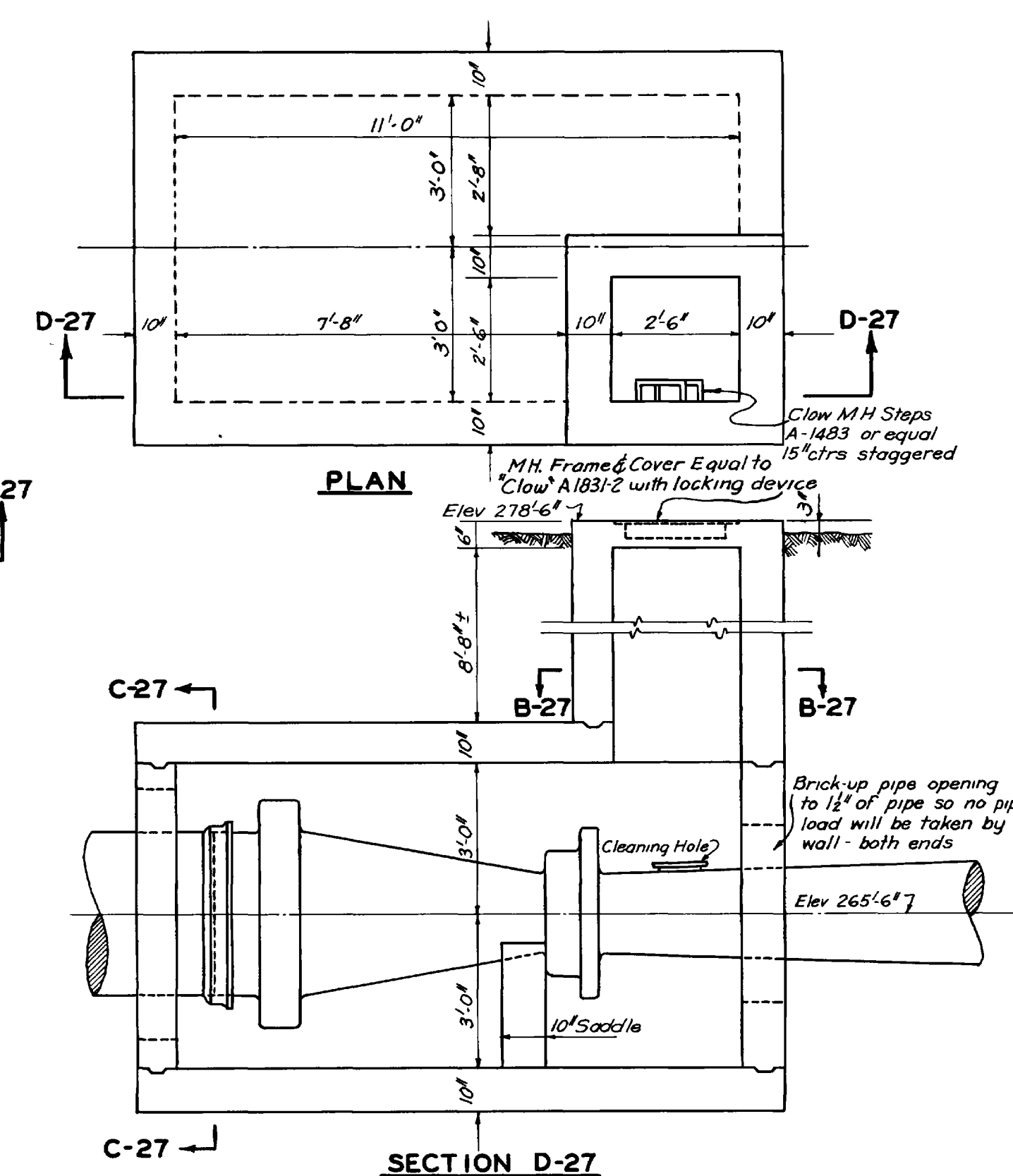
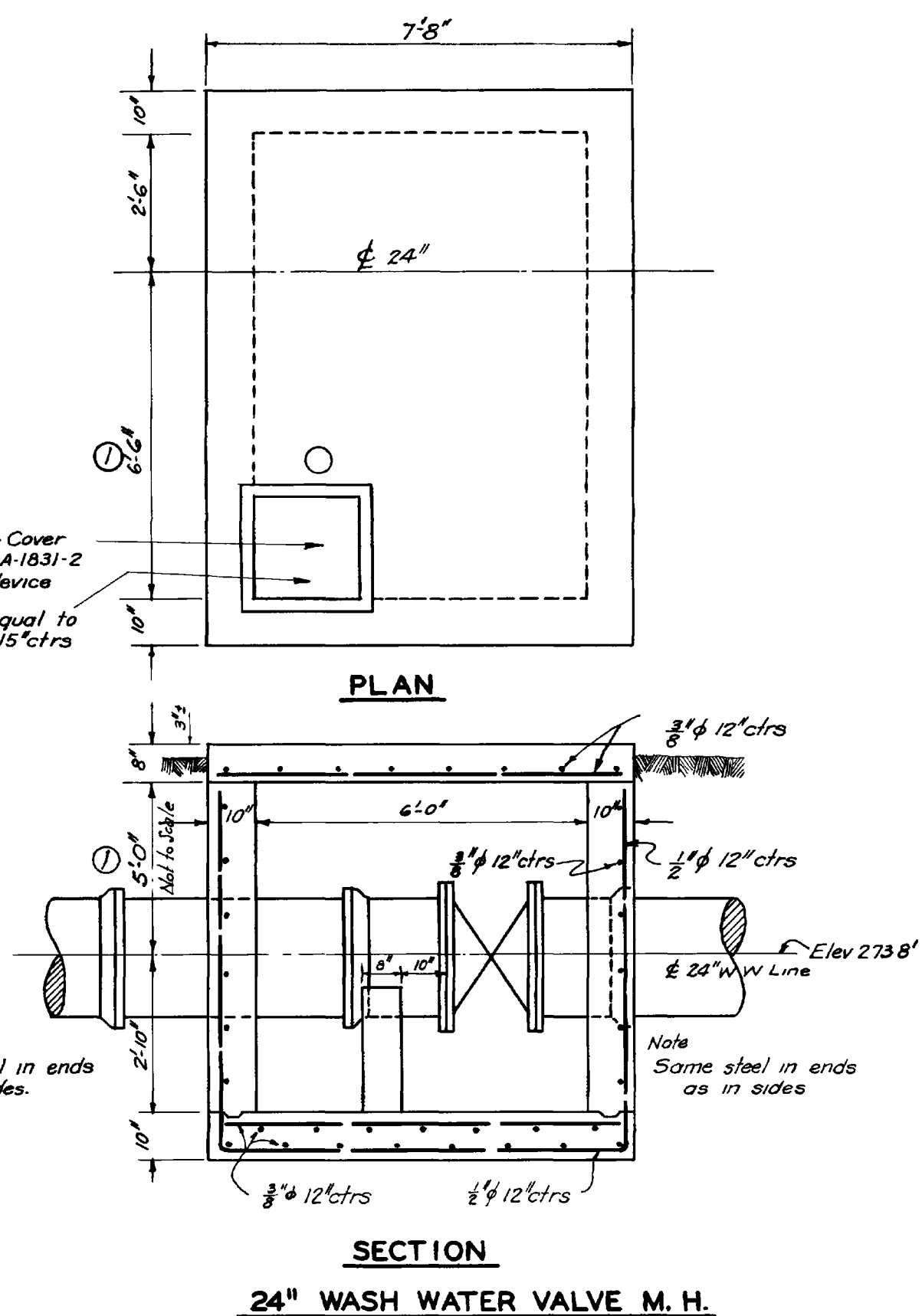
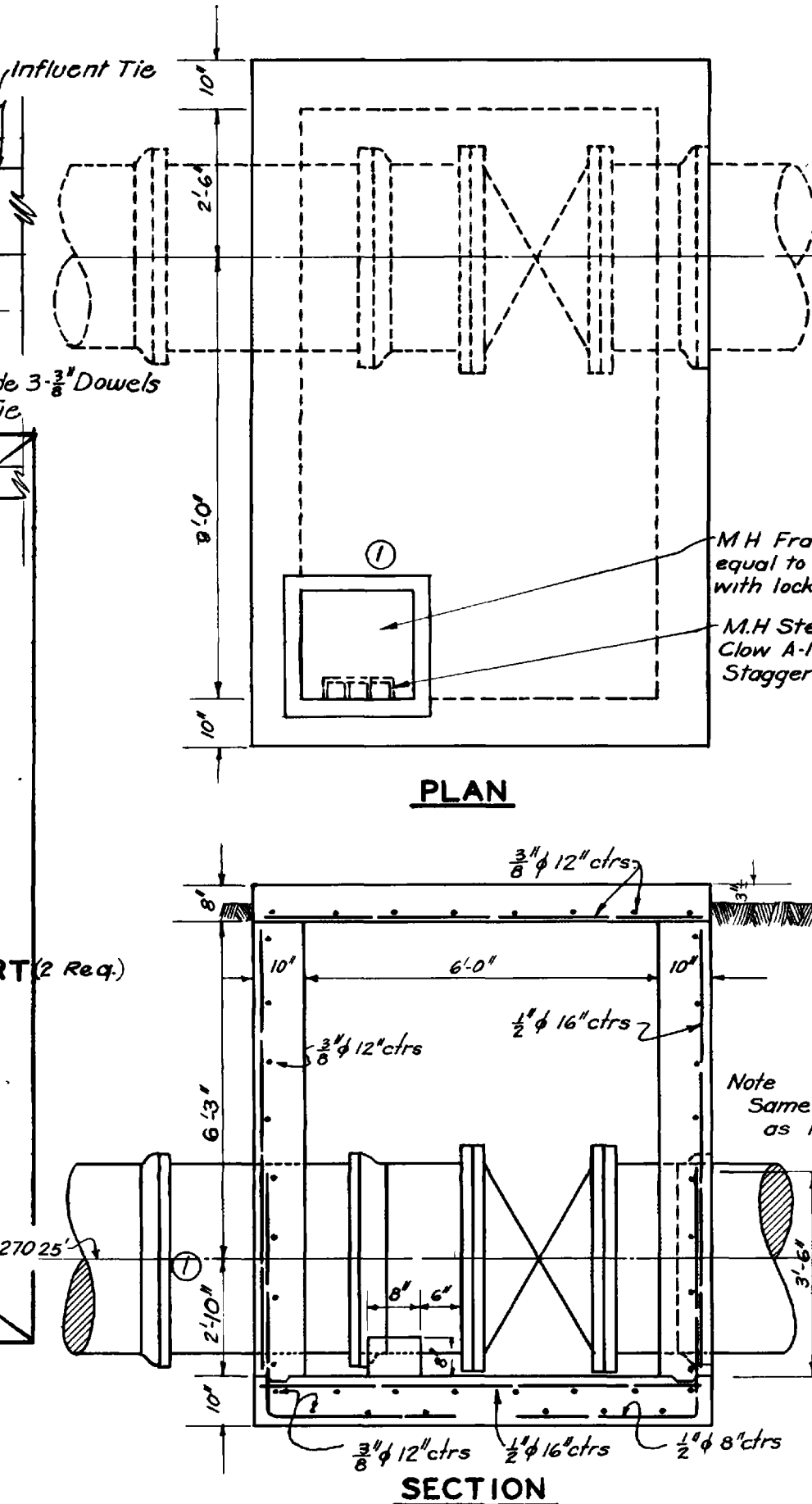
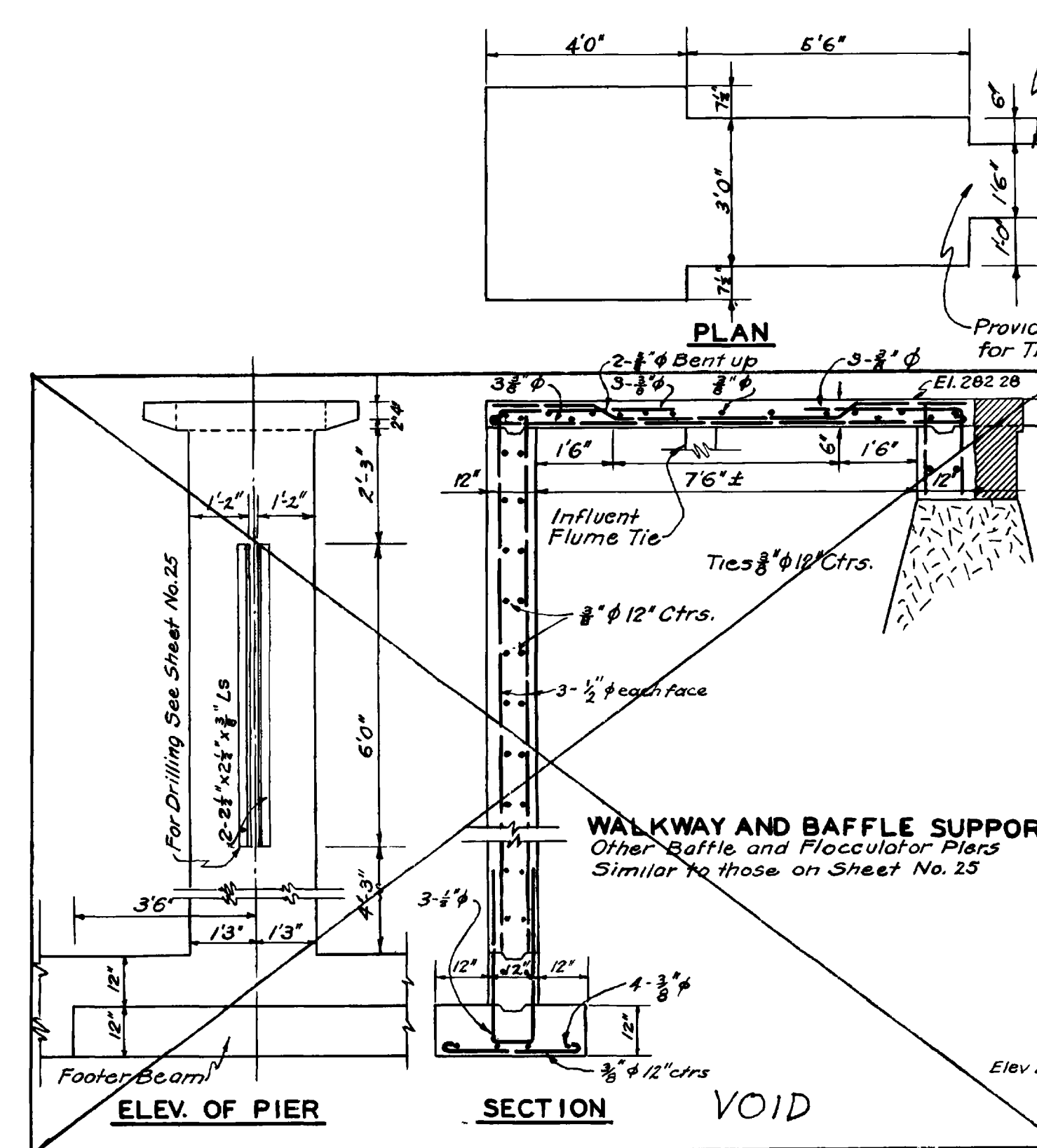


SECTION A-27

VOID



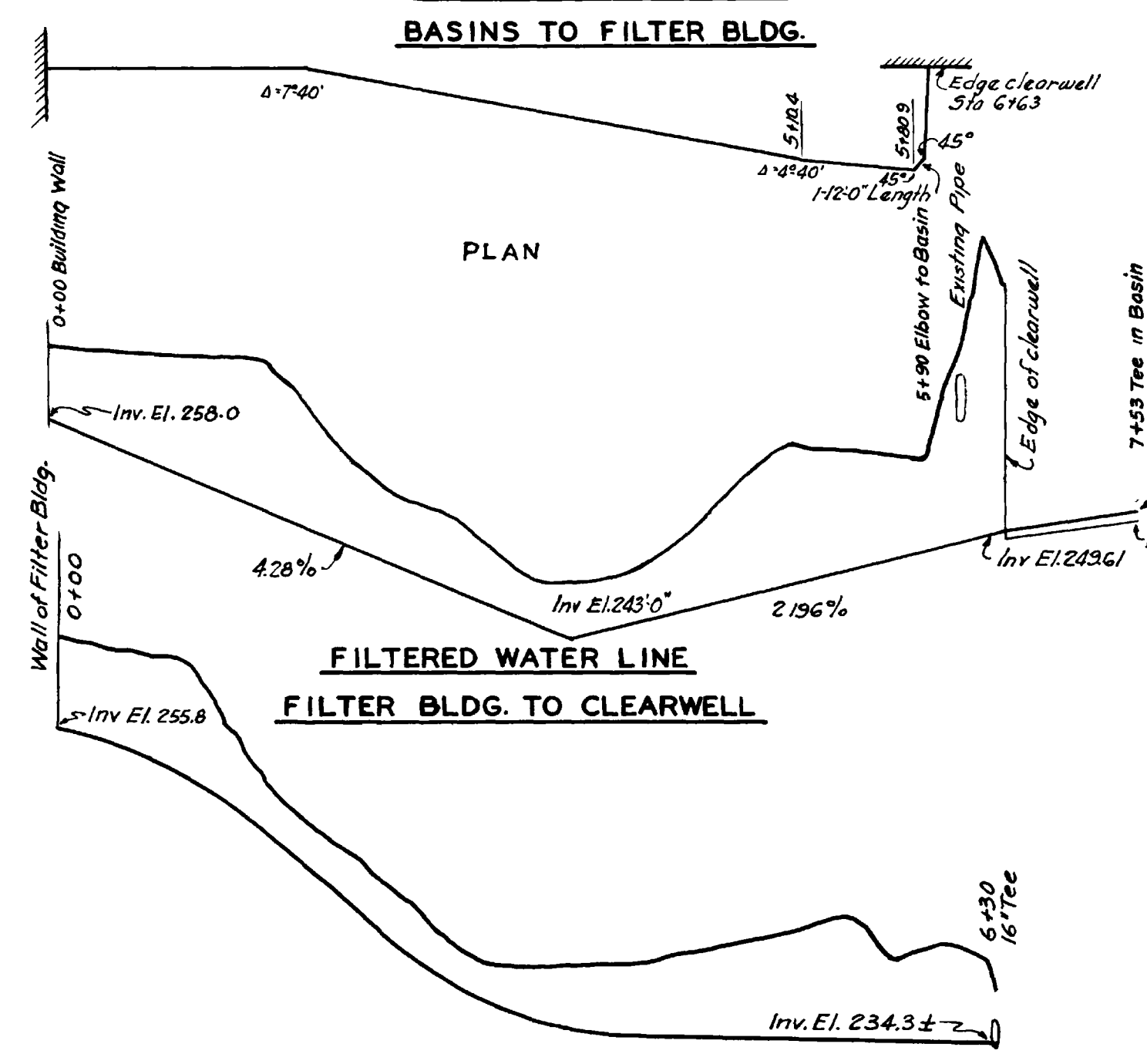
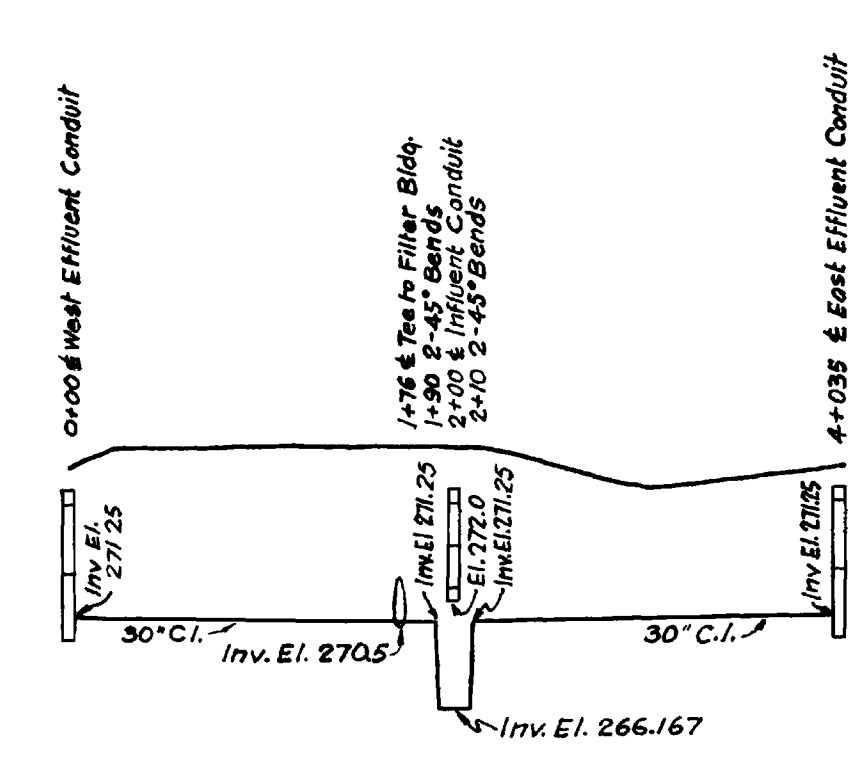
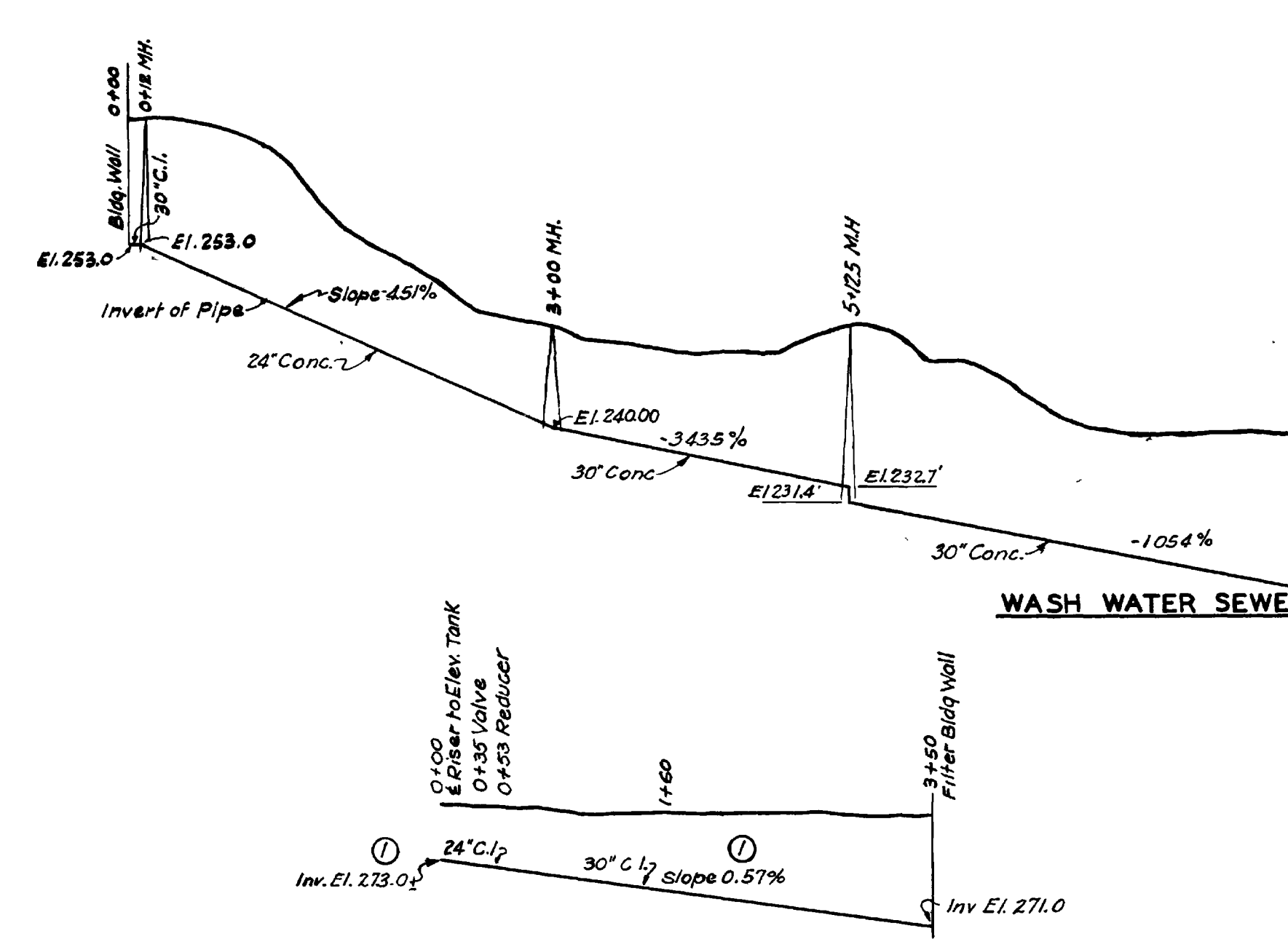
ALTERNATE FLOCCULATOR LAYOUT



Date	By	Remarks
9-23-37	JAD	Revised Valve Manholes
10-4-38	HHH	Flocculator Layout void

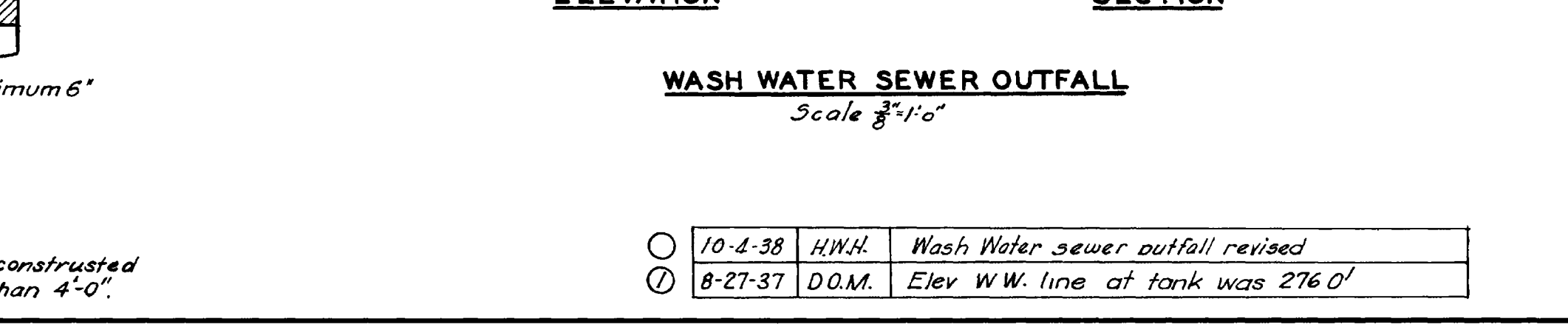
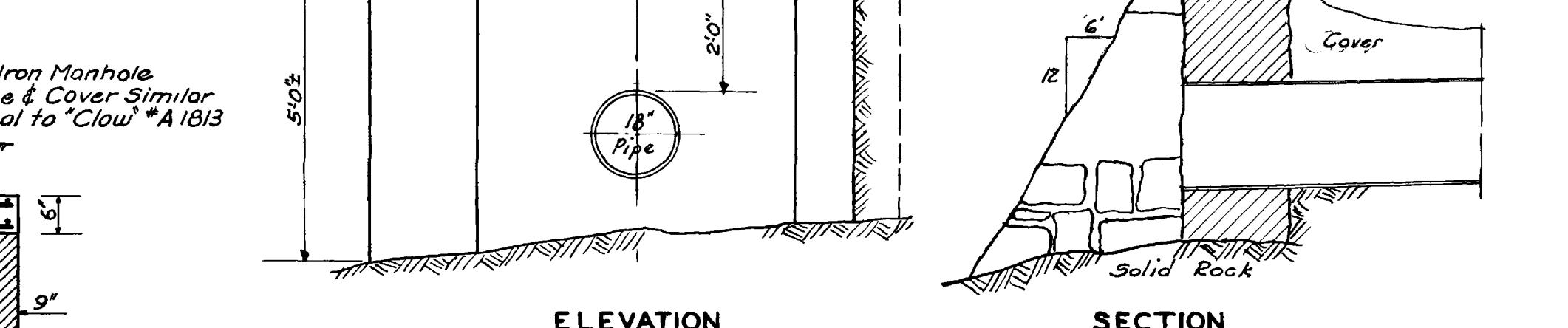
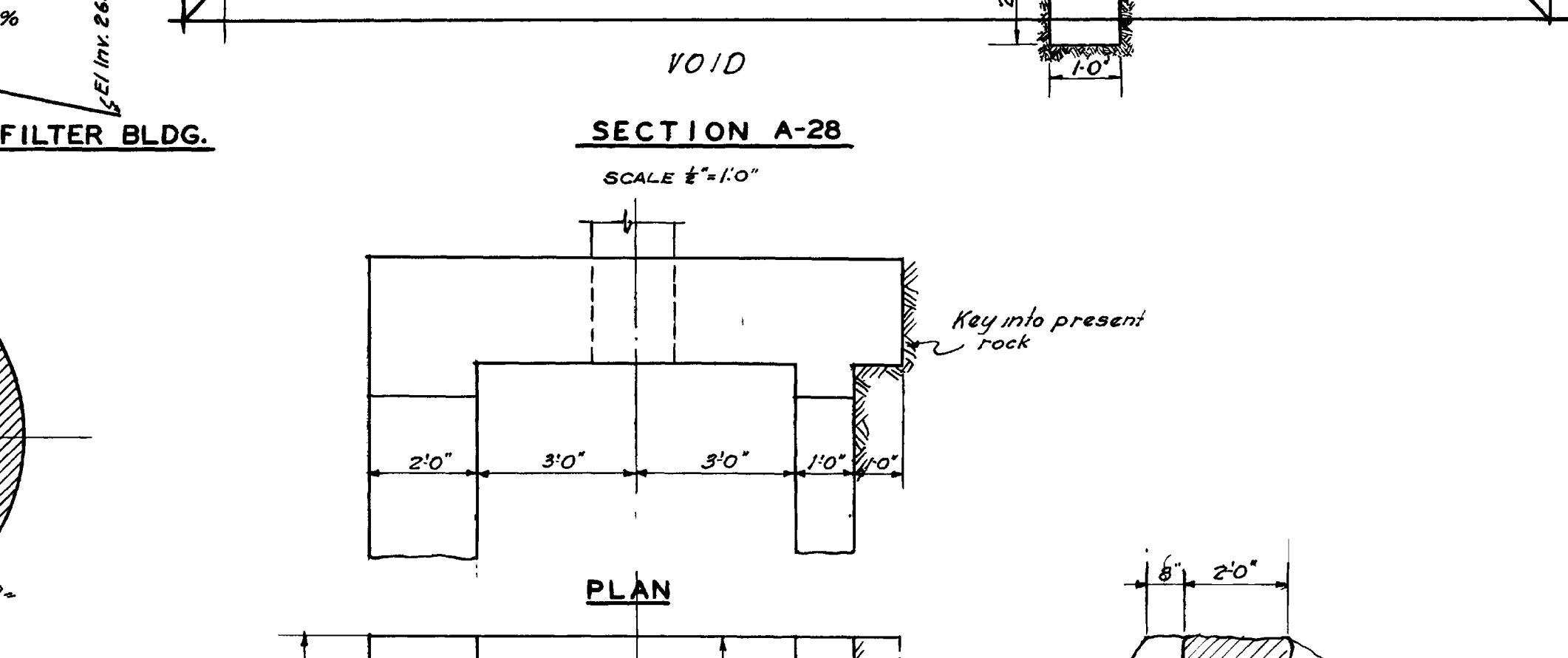
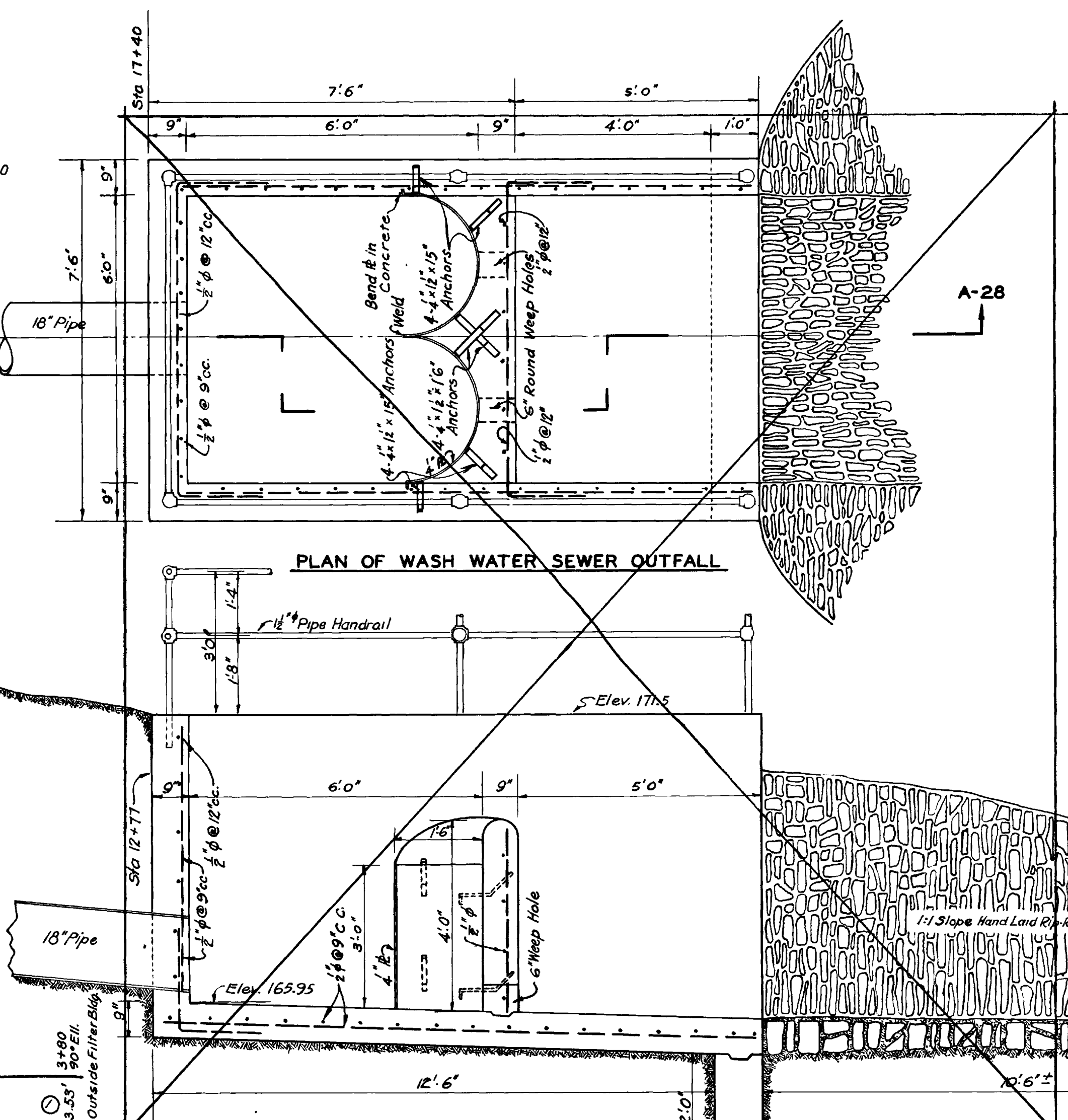
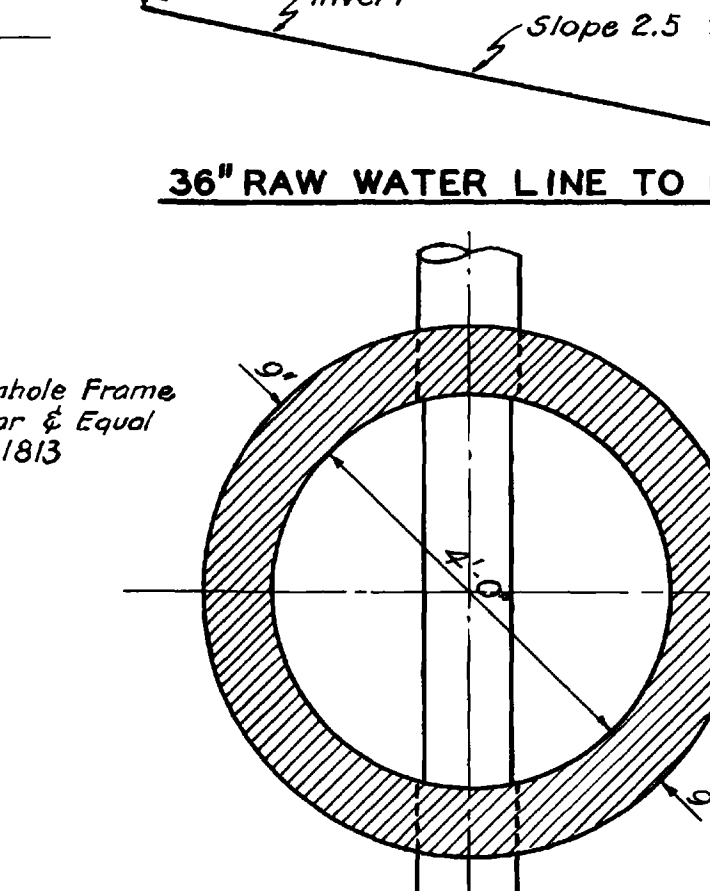
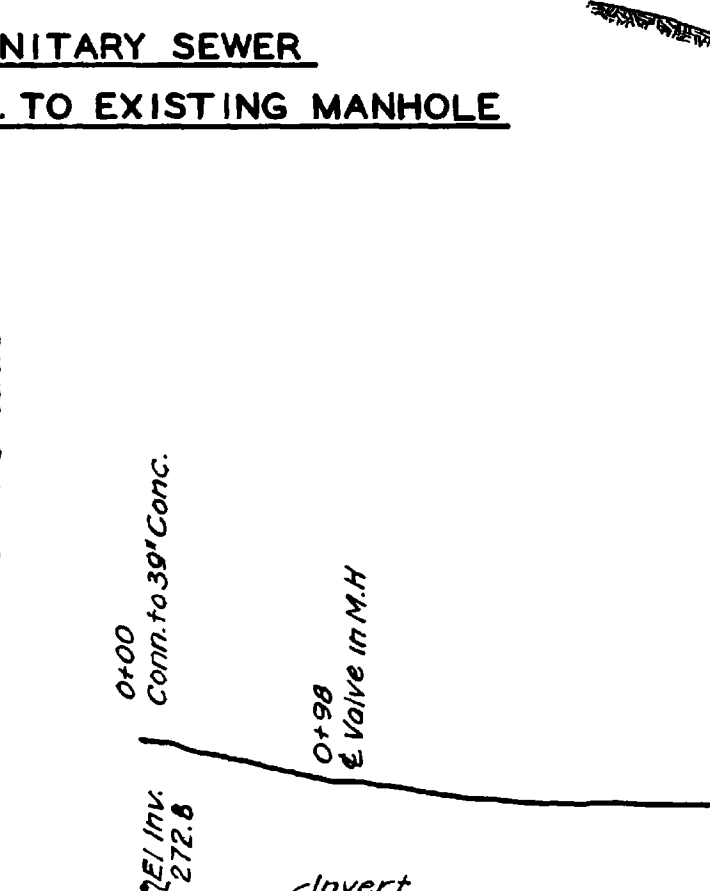
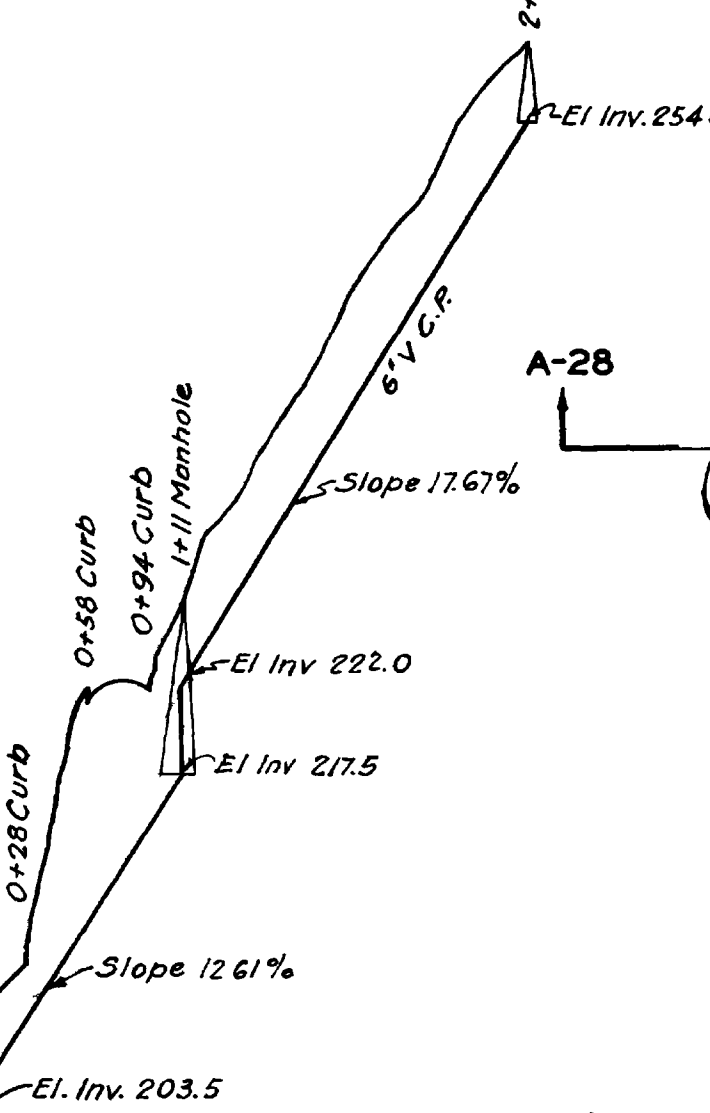
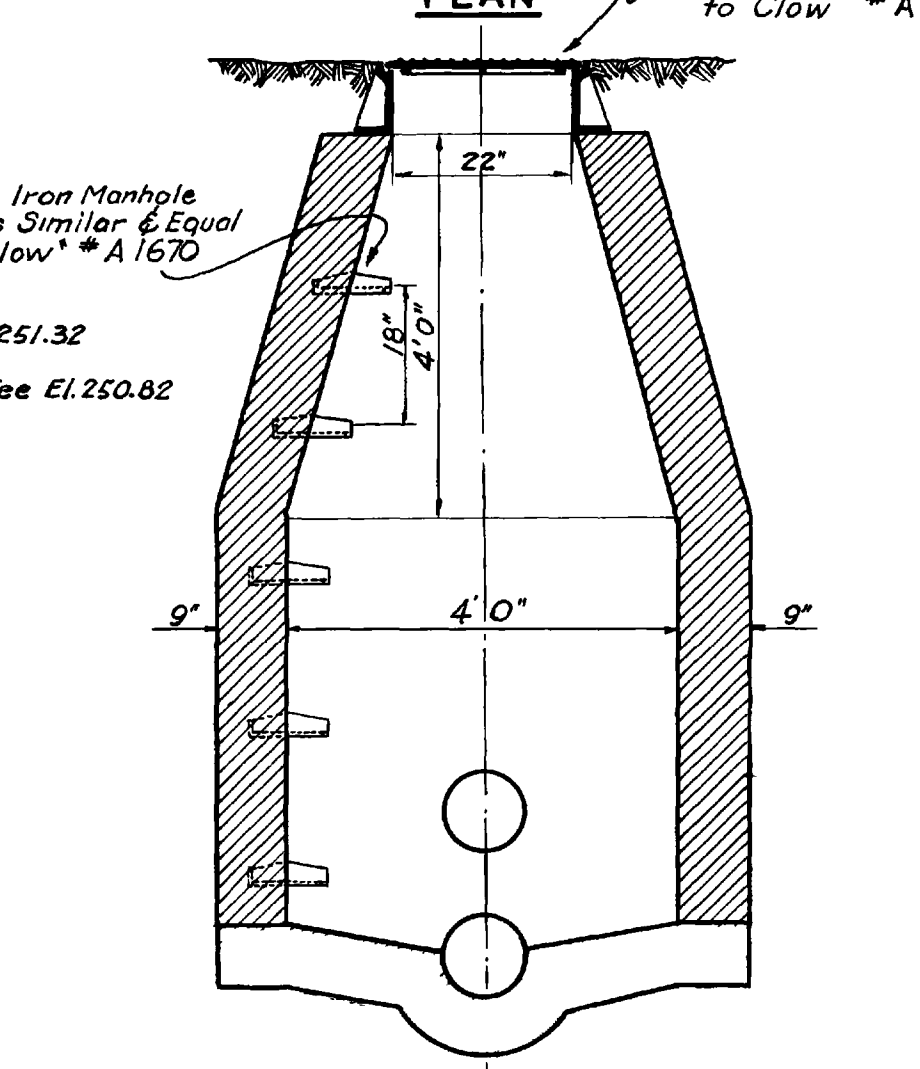
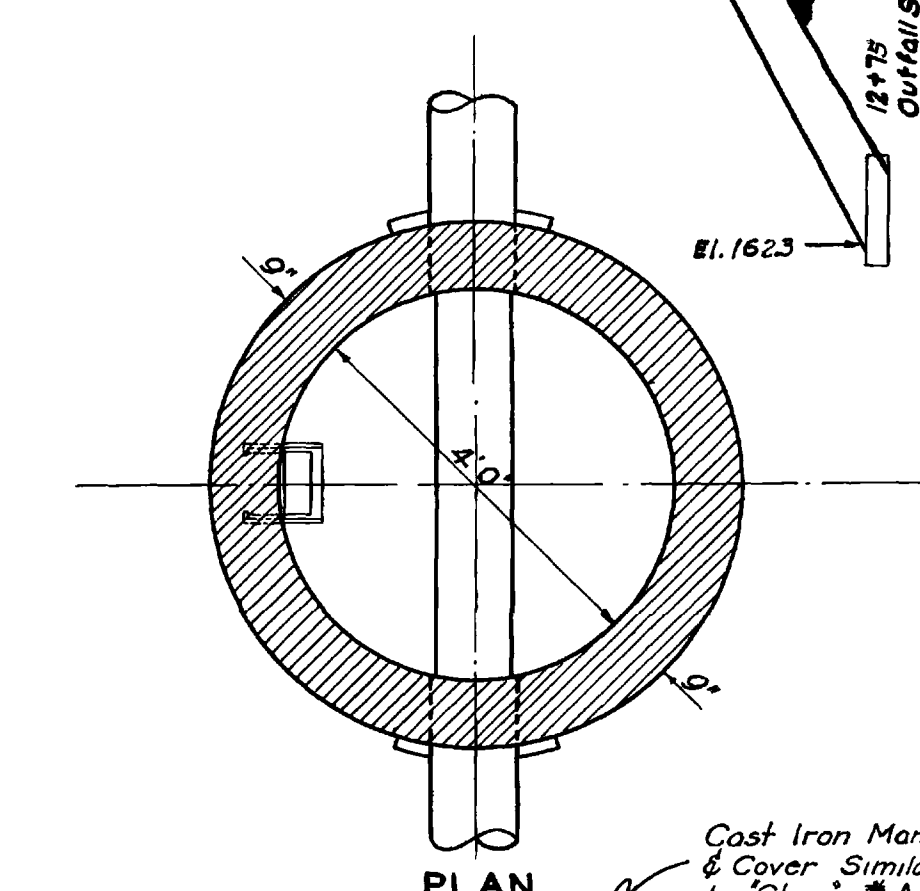
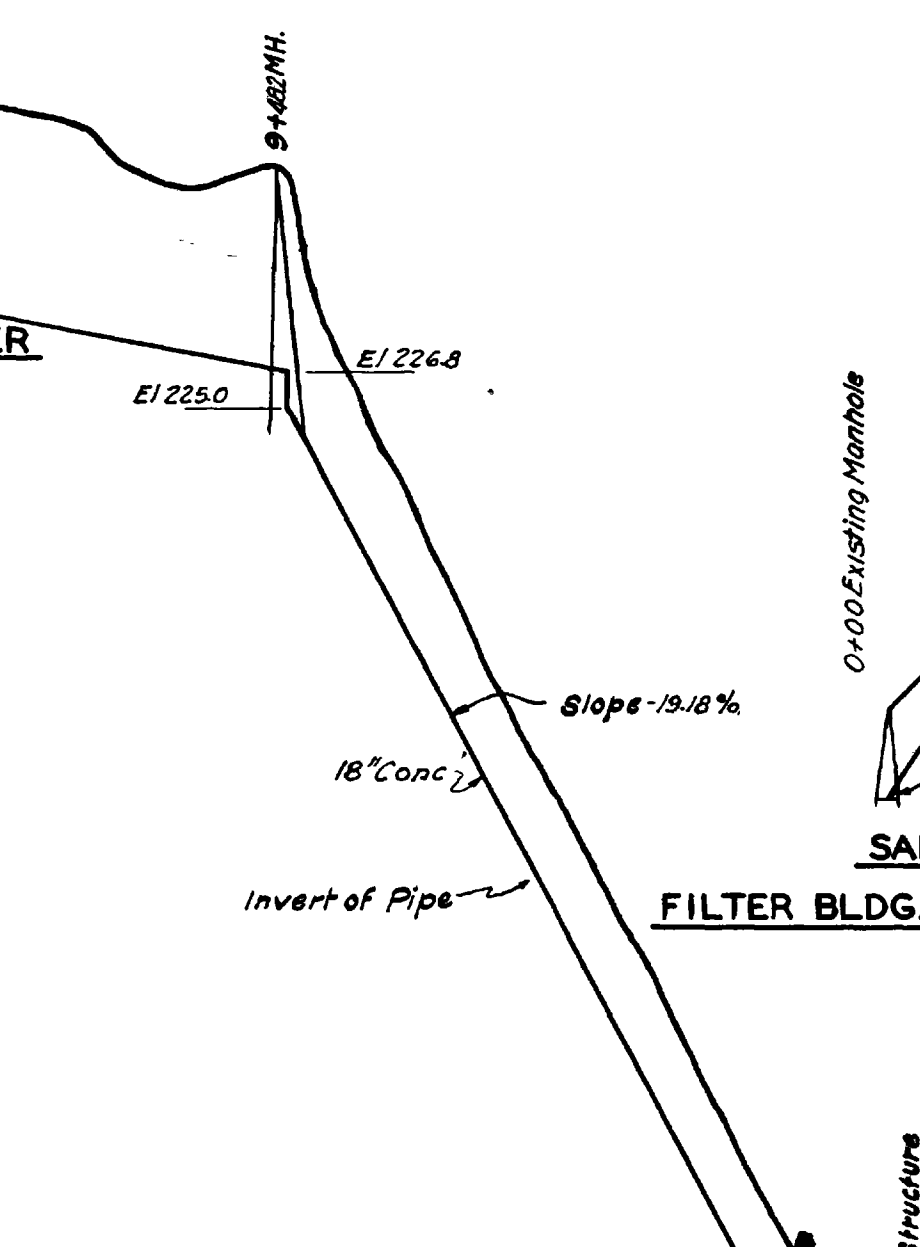
WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS

BURNS & McDONNELL ENGINEERING CO.
KANSAS CITY APR. 1937 CINCINNATI



16" PULASKI HEIGHTS PUMP SECTION

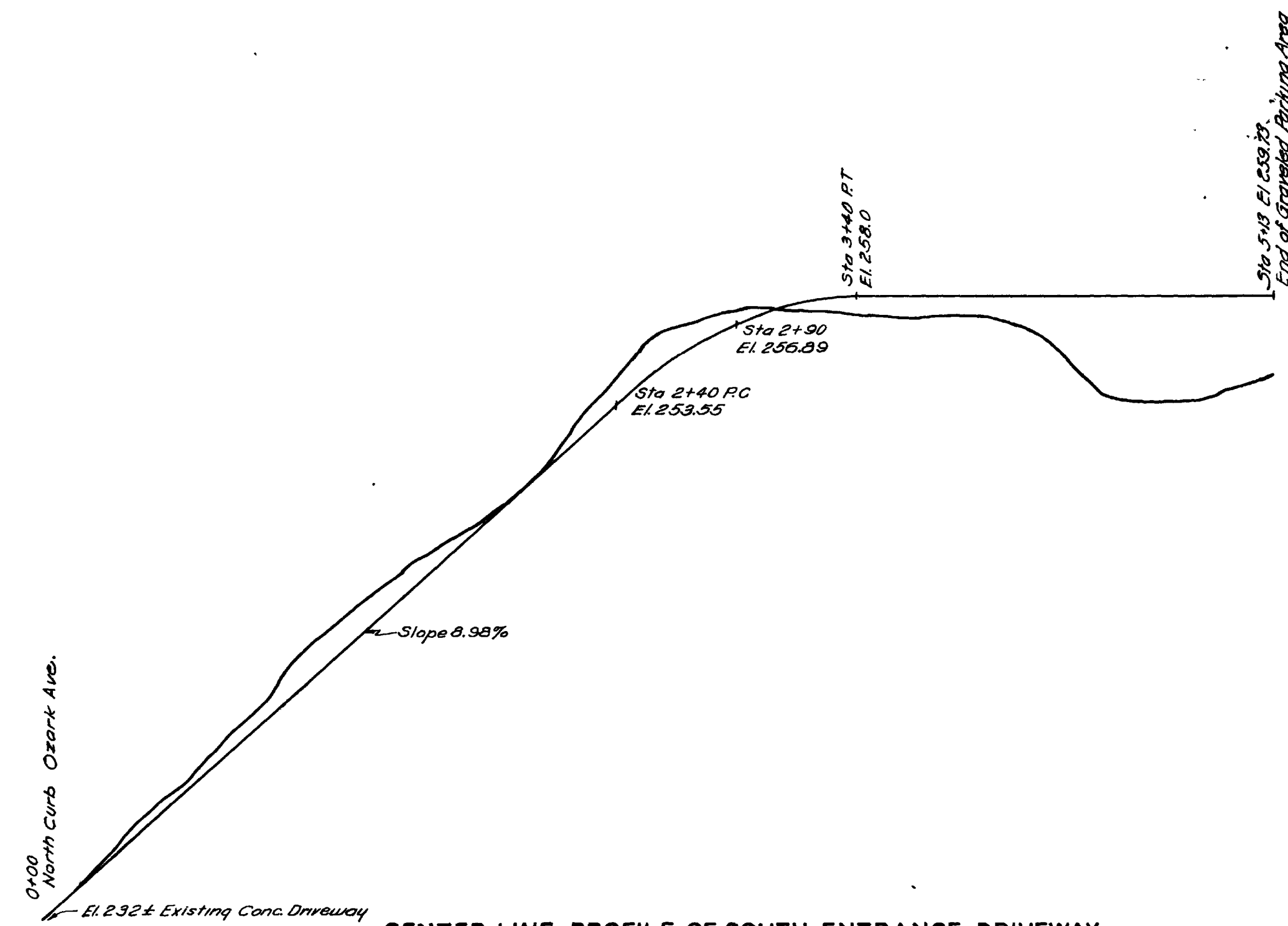
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Vertical Scale 1"=10'



WASH WATER SEWER OUTFALL
Scale 3/4"=1'-0"

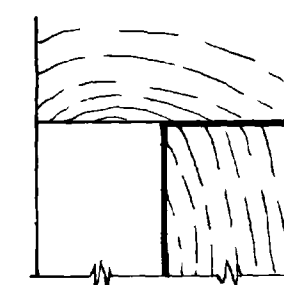
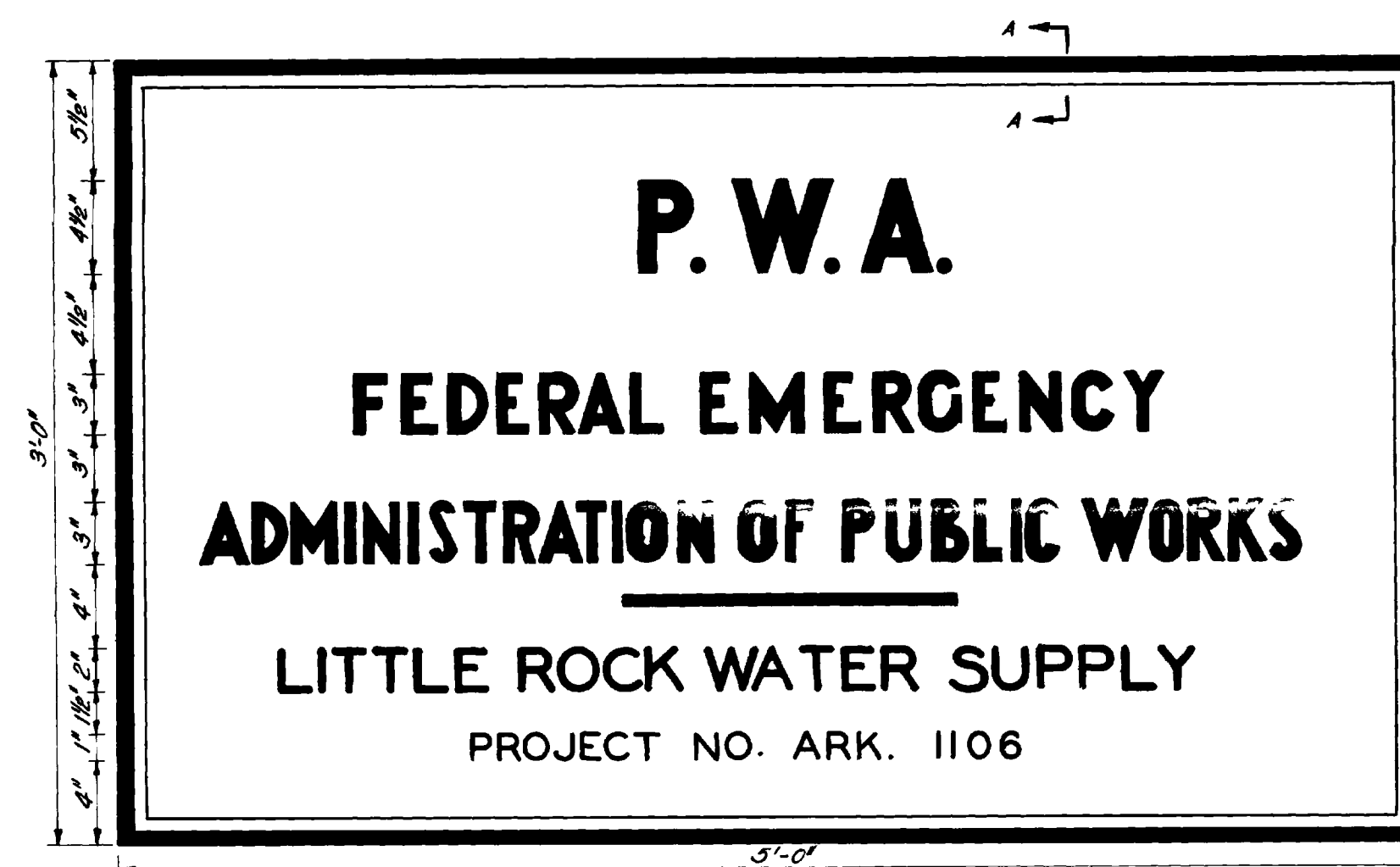
10-4-38	H.W.H.	Wash Water sewer outfall revised
8-27-37	D.O.M.	Elev W.W. line at tank was 276.0'

WATER WORKS IMPROVEMENTS
WATER SUPPLY PROJECT
LITTLE ROCK, ARKANSAS
Yard Piping & Misc. Structures
BURNS & MCDONNELL ENGINEERING CO.
KANSAS CITY APR. 1937 CINCINNATI

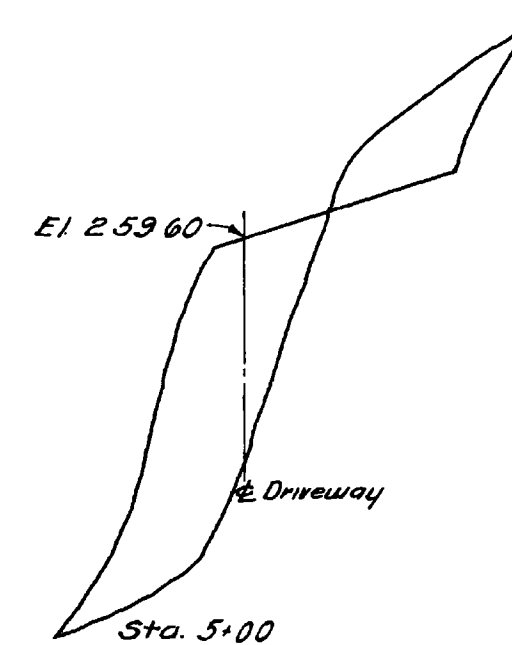
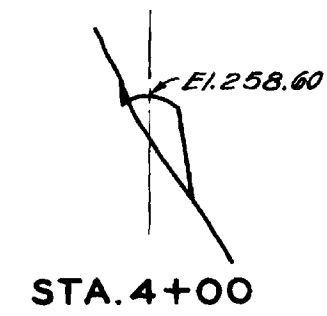
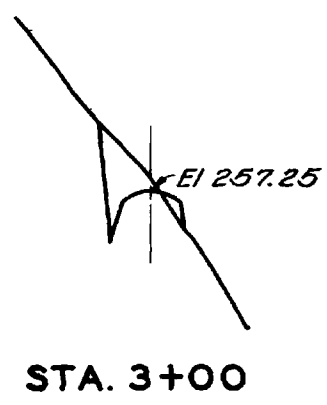
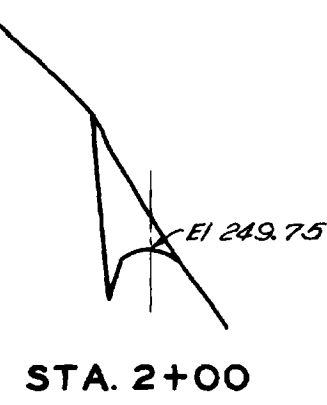
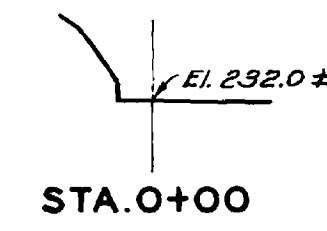


CENTER LINE PROFILE OF SOUTH ENTRANCE DRIVEWAY

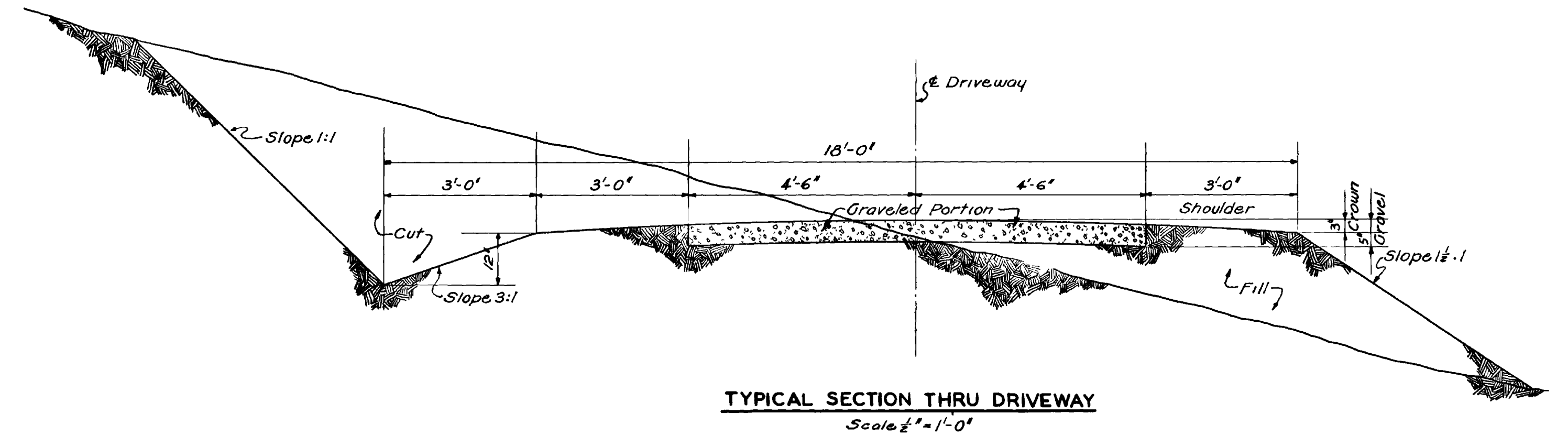
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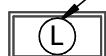
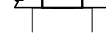
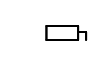
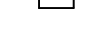
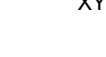
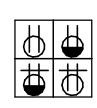
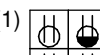
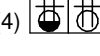
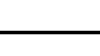
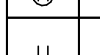
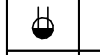
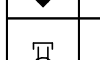
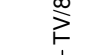
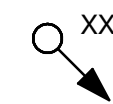
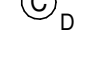
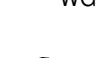
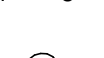
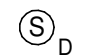
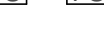
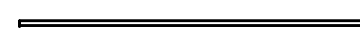
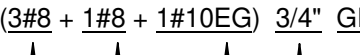
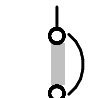
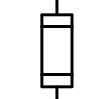
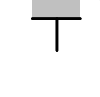
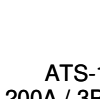
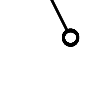
DETAIL OF SIGN



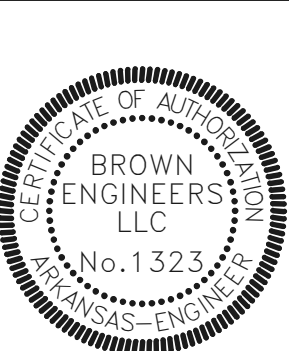
CROSS SECTIONS THRU DRIVEWAY
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Vertical Scale 1"=5'-0"



POWER AND LIGHTING LEGEND

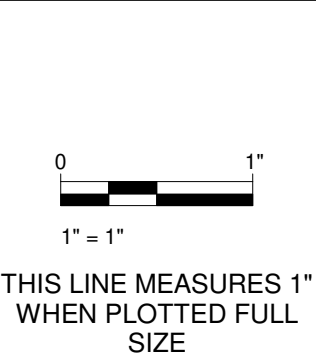
ABBREVIATION OR SYMBOL	DESCRIPTION	ABBREVIATION OR SYMBOL	DESCRIPTION	ABBREVIATION OR SYMBOL	DESCRIPTION	GENERAL NOTES	COMMUNICATIONS DEVICES								
FIXTURE DESIGNATION 2x4 LAY-IN OR SURFACE MOUNTED FIXTURE 2x4 LAY-IN OR SURFACE MOUNTED FIXTURE. SHADING INDICATES EMERGENCY POWERED BATTERY 2x2 LAY-IN OR SURFACE MOUNTED FIXTURE 2x2 LAY-IN OR SURFACE MOUNTED FIXTURE. SHADING INDICATES EMERGENCY POWERED BATTERY SURFACE OR STRIP FIXTURE RECESSED STRIP FIXTURE. SHADING INDICATES EMERGENCY POWERED BATTERY RECESSED DOWNLIGHT RECESSED DOWNLIGHT. SHADING INDICATES EMERGENCY POWERED BATTERY WALL-MOUNTED LINEAR FIXTURE DOWNLIGHT FIXTURE DOWNLIGHT FIXTURE. SHADING INDICATES EMERGENCY POWERED BATTERY WALL-MOUNTED FIXTURE EXIT SIGN. LED TYPE. DARKENED AREA INDICATES FACE. ARROWS INDICATE DIRECTION OF EGRESS RECESSED ELECTRICAL PANEL WITH REQUIRED CLEARANCE SURFACE MOUNTED ELECTRICAL PANEL WITH REQUIRED CLEARANCE COMBINATION STARTER DISCONNECT SWITCH NON FUSED DISCONNECT SWITCH FUSED DISCONNECT SWITCH MOTOR STARTER ELECTRIC MOTOR, HORSEPOWER AS SHOWN. JUNCTION BOX SPECIALTY JUNCTION BOX WITH DESIGNATION "XYZ". REFER TO JBOX ABBREVIATION LEGEND.		FLOOR BOXES FLOOR/WALL BOX WITH DESIGNATION "XYZ". REFER TO FLOOR/WALL BOX ABBREVIATION SCHEDULE. XYZ (1)  (2) DUPLEX RECEPTACLE (4)  (3) GFI DUPLEX RECEPTACLE (4)  (3) QUADRUPLEX RECEPTACLE (4) GFI QUADRUPLEX RECEPTACLE (6)  (7) TELEPHONE OUTLET (7)  (8) DATA OUTLET (9)  (8) COMBO TELE/DATA OUTLET (9)  (9) AUDIO VISUAL POWER -- FLOOR/WALL BOX ABBREVIATION SCHEDULE DUPLEX QUADRUPLEX STANDARD ABOVE COUNTER GFCI GFCI ABOVE COUNTER WEATHER PROOF CEILING MOUNT MULTI POLE RECEPTACLE. REFER TO RECEPTACLE ABBREVIATION LEGEND FOR DETAILS. SIMPLEX RECEPTACLE. REFER TO RECEPTACLE ABBREVIATION LEGEND FOR DETAILS. SPECIALTY RECEPTACLES WITH DESIGNATION "XYZ", "ABC", etc. REFER TO RECEPTACLE ABBREVIATION LEGEND BELOW. POWER -- RECEPTACLE ABBREVIATION LEGEND LIGHTING -- ROOM CONTROLLER ABBREVIATION SCHEDULE		SWITCHES S SINGLE POLE LIGHT SWITCH S_M PADLOCKABLE HP RATED SWITCH S_X SPECIALTY SWITCH. FOR "X" DESIGNATION, SEE LIGHTING SWITCH ABBREVIATION SCHEDULE BELOW. LIGHTING -- SWITCH ABBREVIATION SCHEDULE DATA DEVICES TELEPHONE OUTLET; ABOVE COUNTER, & FIREMAN'S DATA OUTLET; ABOVE COUNTER & CEILING MOUNTED COMBINATION DATA/TELEPHONE OUTLET & COMBINATION DATA/TELEPHONE OUTLET ABOVE COUNTER TELEVISION OUTLET WITH HEIGHT A.F.F. DESIGNATION ELECTRICAL GENERAL NOTES 1. ALL ELECTRICAL WORK SHALL COMPLY WITH ALL LOCAL CODES, AUTHORITIES HAVING JURISDICTION, DRAWINGS AND SPECIFICATIONS. IF DISCREPANCIES ARE FOUND - THE MOST STRINGENT REQUIREMENT SHALL GOVERN WORK. 2. REFER TO SPECIFICATIONS AND PROJECT MANUAL FOR ADDITIONAL INFORMATION AND REQUIREMENTS. 3. REFER TO ALL PROJECT DRAWINGS FOR DETAILS OF CONSTRUCTION AND INSTALLATION REQUIREMENTS. 4. PRIOR TO BID, CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE REQUIREMENTS OF THESE NOTES AS WELL AS OTHER NOTES SHOWN ON THE CONTRACT DOCUMENTS. 5. THESE DRAWINGS REFLECT A SYSTEM DESIGNED AROUND SPECIFIED REFERENCE PRODUCTS, THE SELECTION OF WHICH HAS INFLUENCED THE DESIGNS OF OTHER TRADES. IF SUBSTITUTE MANUFACTURERS, SIZES, OR MODEL NUMBERS ARE BID OR SUBMITTED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL DIFFERENCES PRIOR TO BID. ALL COSTS OF ALL TRADES ASSOCIATED WITH THE SUBSTITUTION SHALL BE INCLUDED IN THE BID. 6. REFER TO ELECTRICAL SCHEDULES AND SPECIFICATIONS FOR BASIS OF DESIGN, ACCEPTABLE MANUFACTURERS, AND MODELS OF ELECTRICAL FIXTURES AND EQUIPMENT. 7. ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRICAL RELATIONSHIPS OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, DEVICE, OPTION, FITTING, OR COMPONENT. 8. CONTRACTOR SHALL NOT SCALE DRAWINGS. DRAWINGS SPECIFIC TO THIS DISCIPLINE DO NOT LIMIT THE RESPONSIBILITY OF WORK REQUIRED BY THE CONTRACT DOCUMENTS. 9. COORDINATION OF ALL MODIFICATIONS TO EACH DISCIPLINE WHICH RESULT FROM SUBSTITUTION OF EQUIPMENT OR MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SUBSTITUTIONS WHICH ARE INSTALLED AND SUBSEQUENTLY ARE PROVEN UNSATISFACTORY BY OWNER AND/OR ENGINEER WITHIN THE WARRANTY PERIOD, SHALL BE REMOVED COMPLETELY BY THE CONTRACTOR AND REPLACED WITH THE ORIGINAL DESIGN OR CORRECTED AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL COST TO THE OWNER. 10. ALL ELECTRICAL CONDUIT SHALL BE ¾" OR GREATER. 11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF OTHER TRADES. REFER TO ALL CONSTRUCTION DOCUMENTS FOR COMPLETE INFORMATION PRIOR TO BID. 12. NO ELECTRICAL SYSTEMS SHALL BE SUSPENDED, HUNG, OR SUPPORTED FROM DUCTWORK OR PIPING. 13. CONTRACTOR SHALL BE RESPONSIBLE FOR FLASHING AND SEALING OF ALL ROOF PENETRATIONS AIR AND WATER TIGHT. 14. CLOSELY COORDINATE FINAL LOCATIONS OF INSTALLED EQUIPMENT TO ACHIEVE THE GREATEST ACCESSIBILITY FOR MAINTENANCE. 15. CONTRACTOR SHALL VISIT THE SITE TO ESTABLISH THE EXISTING CONDITIONS PRIOR TO CONDUIT OR ELECTRICAL EQUIPMENT FABRICATION. SYSTEMS SHALL BE ERECTED USING FIELD MEASUREMENTS FOR COORDINATION WITH THE EXISTING EQUIPMENT, STRUCTURE, FIRE PROTECTION AND ELECTRICAL. 16. ALL EQUIPMENT, DEVICES, AND FIXTURES SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION. 17. EXPOSED CONDUIT AND MC CABLE SHALL BE FURNISHED SUITABLE FOR PAINTING, AND SHALL BE PAINTED AS REQUIRED BY ARCHITECTURAL SPECIFICATIONS. 18. PROVIDE ALL FITTINGS, COUPLINGS, AND OTHER ACCESSORIES NEEDED TO COMPLETE CONNECTIONS AND PROVIDE FOR PROPER OPERATION OF ELECTRICAL FIXTURES AND ELECTRICAL EQUIPMENT. 19. REFER TO ELECTRICAL SPECIFICATIONS FOR CONDUIT MATERIALS AND INSTALLATION REQUIREMENTS. 20. FIRE STOP ALL CONDUIT PENETRATIONS THROUGH RATED WALLS. REFER TO SPECIFICATIONS. 21. REFER TO ARCHITECTURAL PLANS FOR CEILING GRILL AND LIGHT FIXTURE LOCATIONS, FOR CEILING TYPE, AND FOR MOUNTING REQUIREMENTS. CONTRACTOR SHALL PROVIDE AND INSTALL ALL LIGHTS WITH MOUNTING DESIGNED FOR MOUNTING SURFACE TYPE. 22. PROVIDE CONCRETE PADS FOR ALL GROUND MOUNTED EQUIPMENT. 23. REPLACE ALL ARCHITECTURAL FEATURES REMOVED OR DAMAGED DURING THE COURSE OF THE WORK. 24. CONTRACTOR SHALL PATCH ALL WALLS, FLOORS, AND CEILINGS TO MATCH NEW/EXISTING FOR OPENINGS CREATED BY INSTALLATION OF EQUIPMENT AND ELECTRICAL SERVICE PENETRATIONS. 25. ALL HVAC WITH ELECTRICAL REQUIREMENTS SHALL BE INSTALLED WITH ELECTRICAL INFRASTRUCTURE NECESSARY TO PROVIDE A FULLY FUNCTIONING SYSTEM. IF NOT SPECIFICALLY SHOWN ON ELECTRICAL SCHEDULE, HVAC FIXTURES REQUIRING ELECTRICAL SERVICE SHALL BE FED FROM BREAKER OF ADEQUATE CAPACITY. 26. REFER TO STRUCTURAL ENGINEERING CONTRACT FOR PROJECT SEISMIC DESIGN CRITERIA. PROVIDE VIBRATION ISOLATION AND SEISMIC RESTRAINT FOR EQUIPMENT AND CONDUIT AS REQUIRED.		SENSORS SPECIALTY CEILING MOUNT SENSOR WITH DESIGNATION "XX". REFER TO ABBREVIATION LEGEND BELOW. SPECIALTY CORNER MOUNT SENSOR WITH DESIGNATION "XX". REFER TO ABBREVIATION LEGEND BELOW. LIGHTING -- SENSOR ABBREVIATION SCHEDULE ROOM CONTROLLERS / POWER PACKS SPECIALTY POWER PACK WITH DESIGNATION "XX". REFER TO ABBREVIATION LEGEND BELOW. SPECIALTY ROOM CONTROLLER WITH DESIGNATION "XX". REFER TO ABBREVIATION LEGEND BELOW.		1. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE UTILIZED ON THE PROJECTS.		INTERCOM STATION MASTER INTERCOM STATION CLOCK CLOCK, DUAL SIDED CLOCK, WITH WIREGUARD HORN SPEAKER HORN SPEAKER - WEATHERPROOF PAGING SPEAKER CAMERA WITH PAN, TILT, & ZOOM CAMERA - WEATHERPROOF WITH PAN, TILT, & ZOOM SPECIAL SYSTEMS JUNCTION BOX ABOVE CEILING. ROUTE 1" C WITH PULL STRING TO DATA/ELECTRICAL ROOM. (V) VIDEO, (A) ALARM/ACCESS ACCESS CONTROL - PROVIDE ACCESS CONTROL ROUGH-IN AT DOOR. REFER TO DETAILS FOR ACCESS CONTROL ROUGH-IN REQUIREMENTS. MAGNETIC DOOR HOLDER FIRE ALARM PULL STATION FIRE ALARM COMBINATION HORN/STROBE DEVICE FIRE ALARM COMBINATION SPEAKER/STROBE DEVICE FIRE ALARM STROBE DEVICE FIRE ALARM ZAM DEVICE: IAM (I), CONTROL (C), OR MONITOR MODULE (M) SMOKE DETECTOR HEAT DETECTOR DUCT SMOKE DETECTOR DUCT SMOKE DETECTOR WITH AUXILIARY CONTACTS TAMPER SWITCH / FLOW SWITCH SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH MANHOLE, HANDHOLE DESIGNATION REFER TO SCHEDULE.		WIRE TYPES LIGHTING CONTROL CABLING EQUIPMENT AND CONDUIT LINE TYPES FURNISH + INSTALL NEW EXISTING DEMOLISH UNDERGROUND CONNECT TO EXISTING CONDUIT TYPE (SEE ABBREVIATIONS) REFER TO SPECIFICATIONS IF NOT SHOWN CONDUIT SIZE GROUNDED (NEUTRAL) CONDUCTOR, NUMBER AND SIZE GROUNDED (NEUTRAL) CONDUCTOR, NUMBER AND SIZE PHASE (HOT) CONDUCTOR, NUMBER & SIZE NUMBER OF SETS XX - ## HOME RUN TO PANEL. LETTER(S) INDICATE NAME OF PANEL, NUMBER(S) INDICATE CIRCUIT NUMBERS.		ONE LINE SYMBOLS CIRCUIT BREAKER, TRIP RATING SHOWN, 3-POLE UNLESS NOTED. FUSE, CURRENT LIMITING, RATING AS SHOWN. TRANSFORMER, RATINGS AS SHOWN. ELECTRIC MOTOR, HORSEPOWER SHOWN. MOTOR STARTER, SIZE AS SHOWN OR REQUIRED. FVNR UNLESS NOTED. SURGE PROTECTION DEVICE. GENERATOR GROUNDING ROD, 3/4" x 10' MINIMUM, COPPER CLAD. VARIABLE FREQUENCY DRIVE. AUTOMATIC TRANSFER SWITCH	

REV. NO.	DATE	DRWN	CHKD	REMARKS	

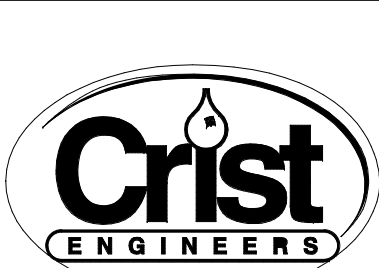


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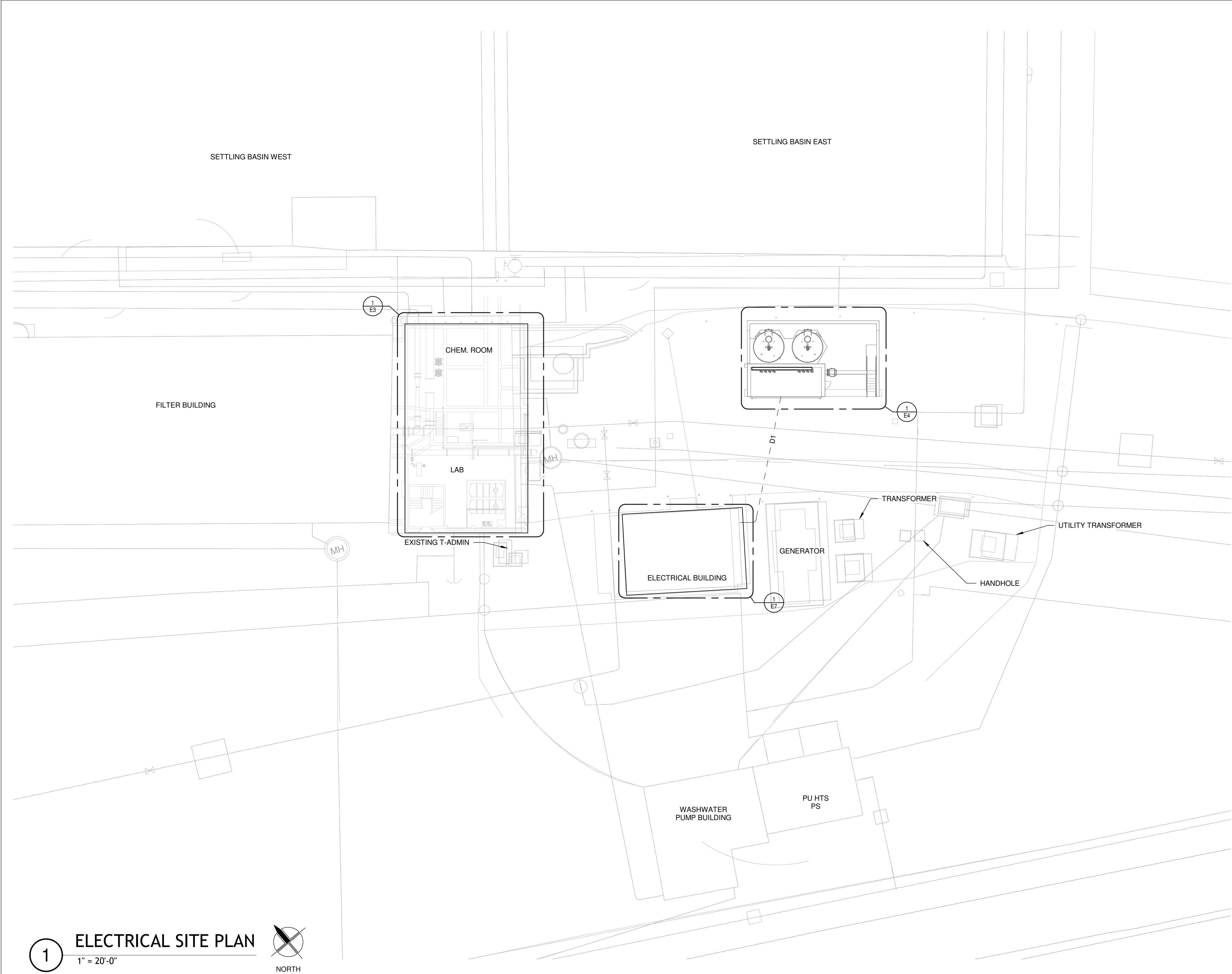
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DATE:	OCTOBER 2025



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LITTLE ROCK, AR		JOB NO:
OZARK POINT LIME SYSTEM IMPROVEMENTS		24045
LITTLE ROCK, ARKANSAS		SHEET NO:
ELECTRICAL POWER AND LIGHTING LEGEND		E1

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CABLE LEGEND

CONDUIT:

CONTROL TYPE:

QUANTITY:

1 = 1"C
2 = 2"C
3 = 3"C
4 = 4"C

D = DISCRETE (#14 AWG CONDUCTORS)
A = ANALOG (1 INDIVIDUALLY SHIELDED PAIR, 16 AWG, [1ISP16])
E = ETHERNET
F = FIBER

INDIVIDUAL #14 AWG (DISCRETE CONTROL "D")
INDIVIDUAL [1ISP16] CABLES (ANALOG CONTROL "A")
INDIVIDUAL FIBER STRANDS (FIBER CONTROL)
CAT5e CABLES (ETHERNET CONTROL)

EXAMPLE CALLOUTS

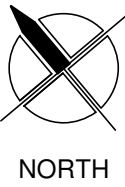
1D036	1A001	1F012
2D140	2A007	1E001
3D309	3A016	
4D531	4A027	

DUCT BANK SCHEDULE		
MARK	CONTENTS	CONFIGURATION
D1	(3#3/0 + 1#3/0N + 1#6G)	3"C
	1F012	1"C
	SPARE	3"C
	SPARE	3"C
	SPARE	1"C

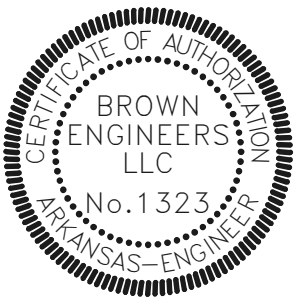
1

ELECTRICAL SITE PLAN

1" = 20'-0"



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01"=1"

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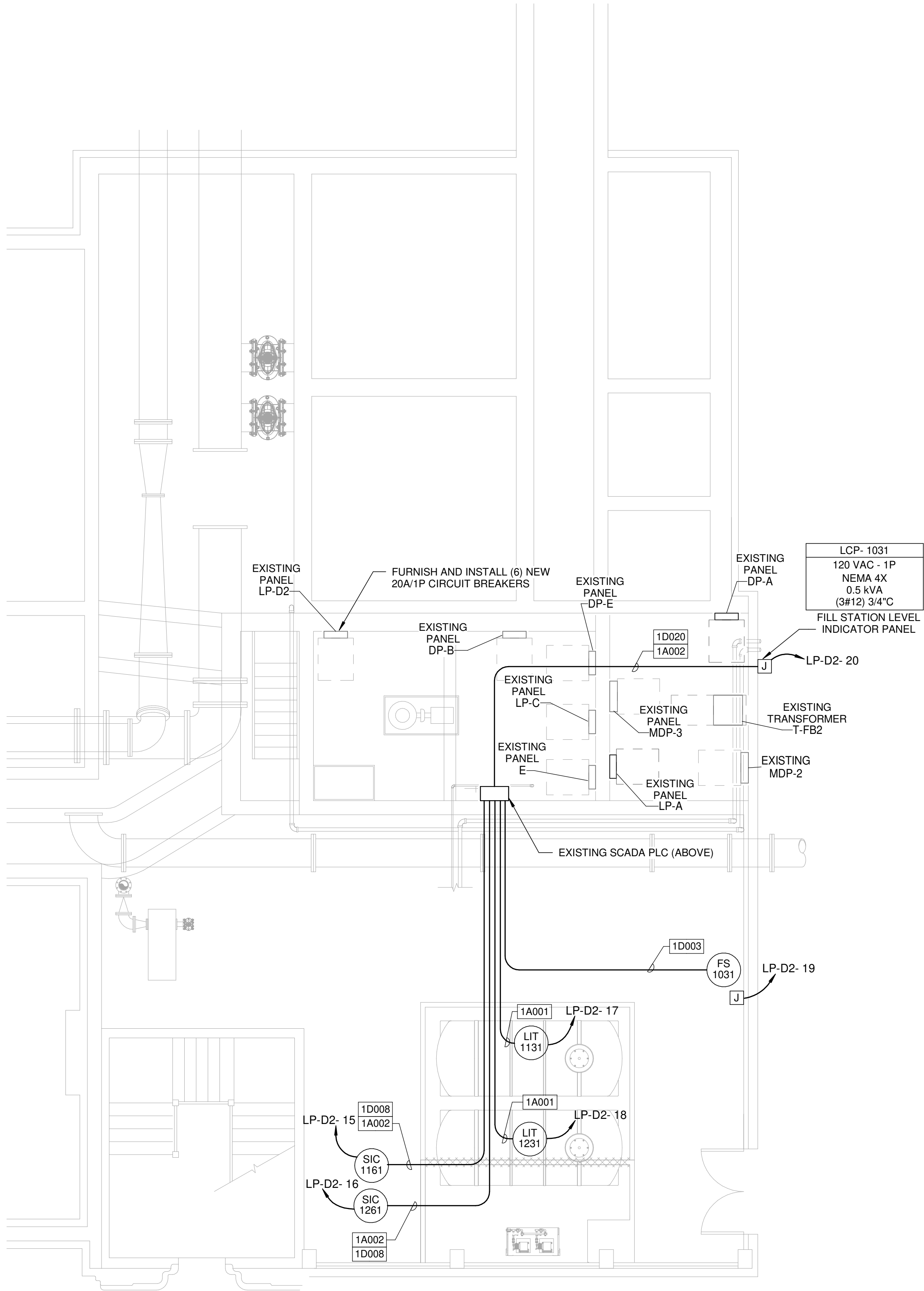
OZARK POINT LIME SYSTEM IMPROVEMENTS
LITTLE ROCK, ARKANSAS

ELECTRICAL SITE PLAN

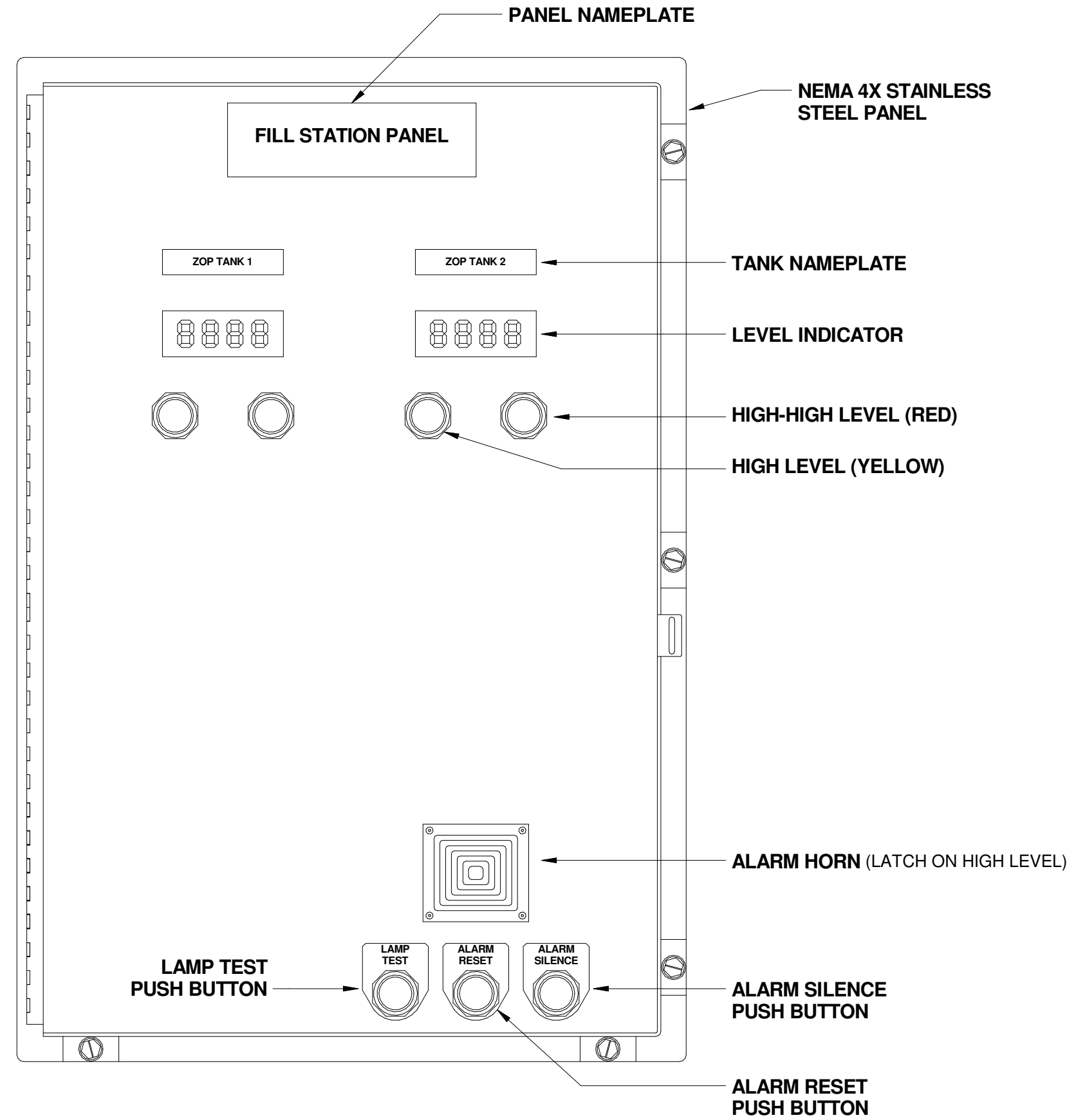
JOB NO:
24045

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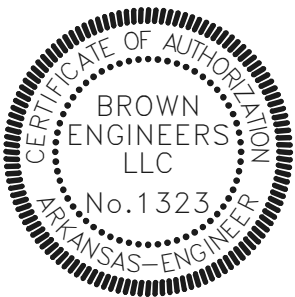


1 ELECTRICAL PLAN - CHEMICAL FEED BUILDING
3/16" = 1'-0"



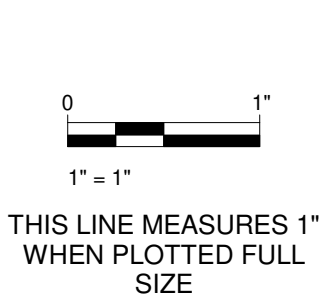
2 FILL STATION LEVEL INDICATOR PANEL (LCP-1031)
NOT TO SCALE

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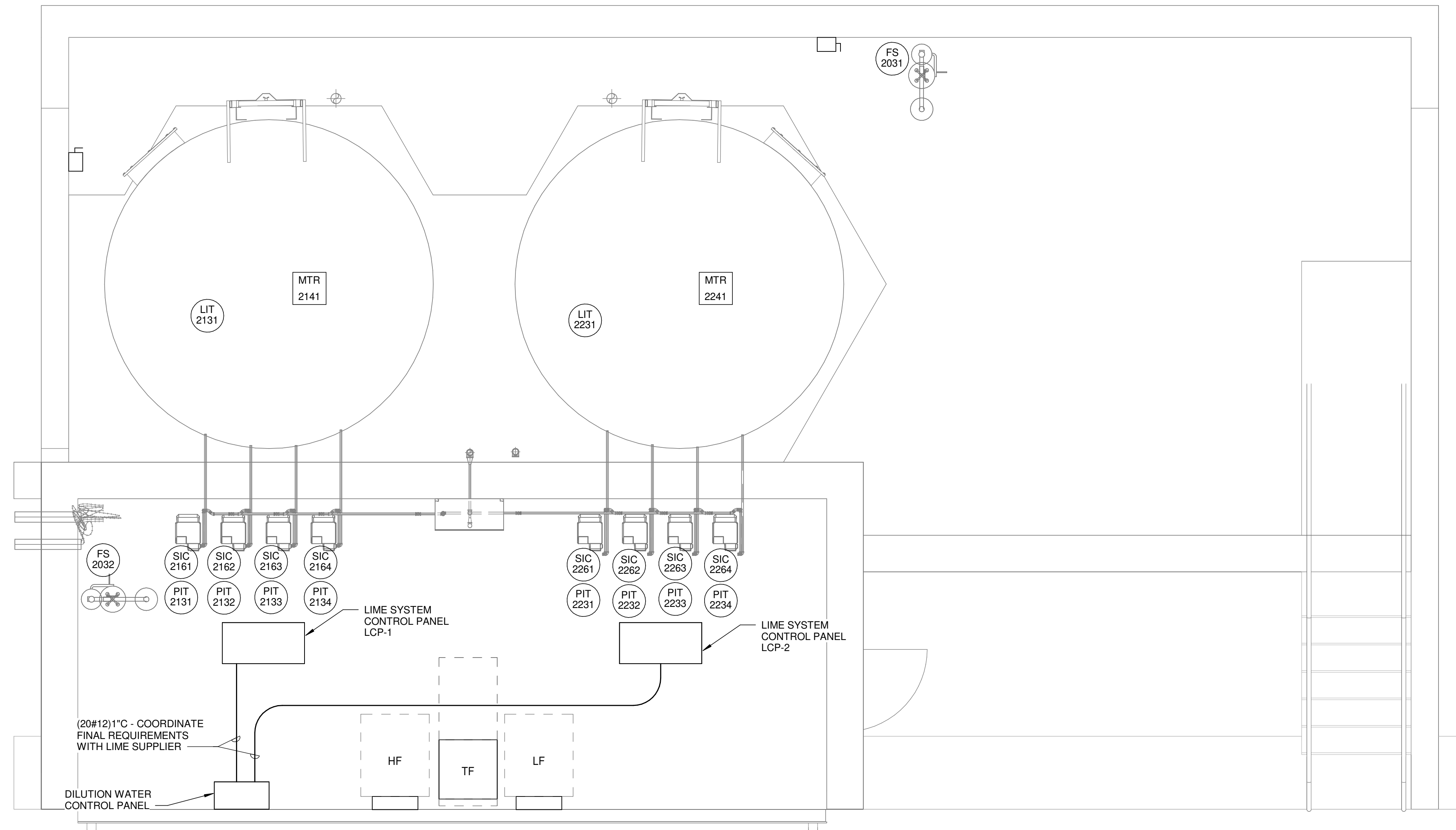


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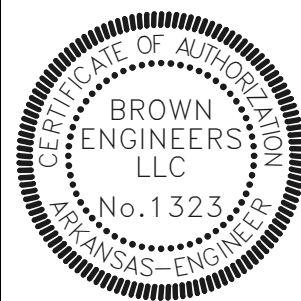
LITTLE ROCK, AR
OZARK POINT LIME SYSTEM IMPROVEMENTS
LITTLE ROCK, ARKANSAS

ELECTRICAL PLAN - CHEMICAL FEED BUILDING

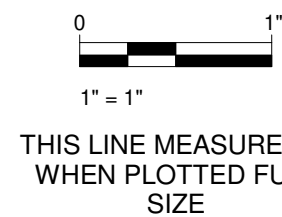
JOB NO:	24045
SHEET NO:	E3



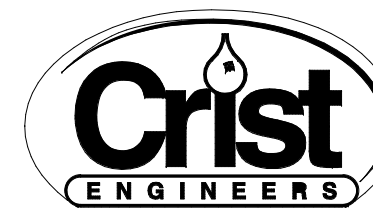
1 I&C PLAN - LIME BUILDING
3/8" = 1'-0"

[illegible]

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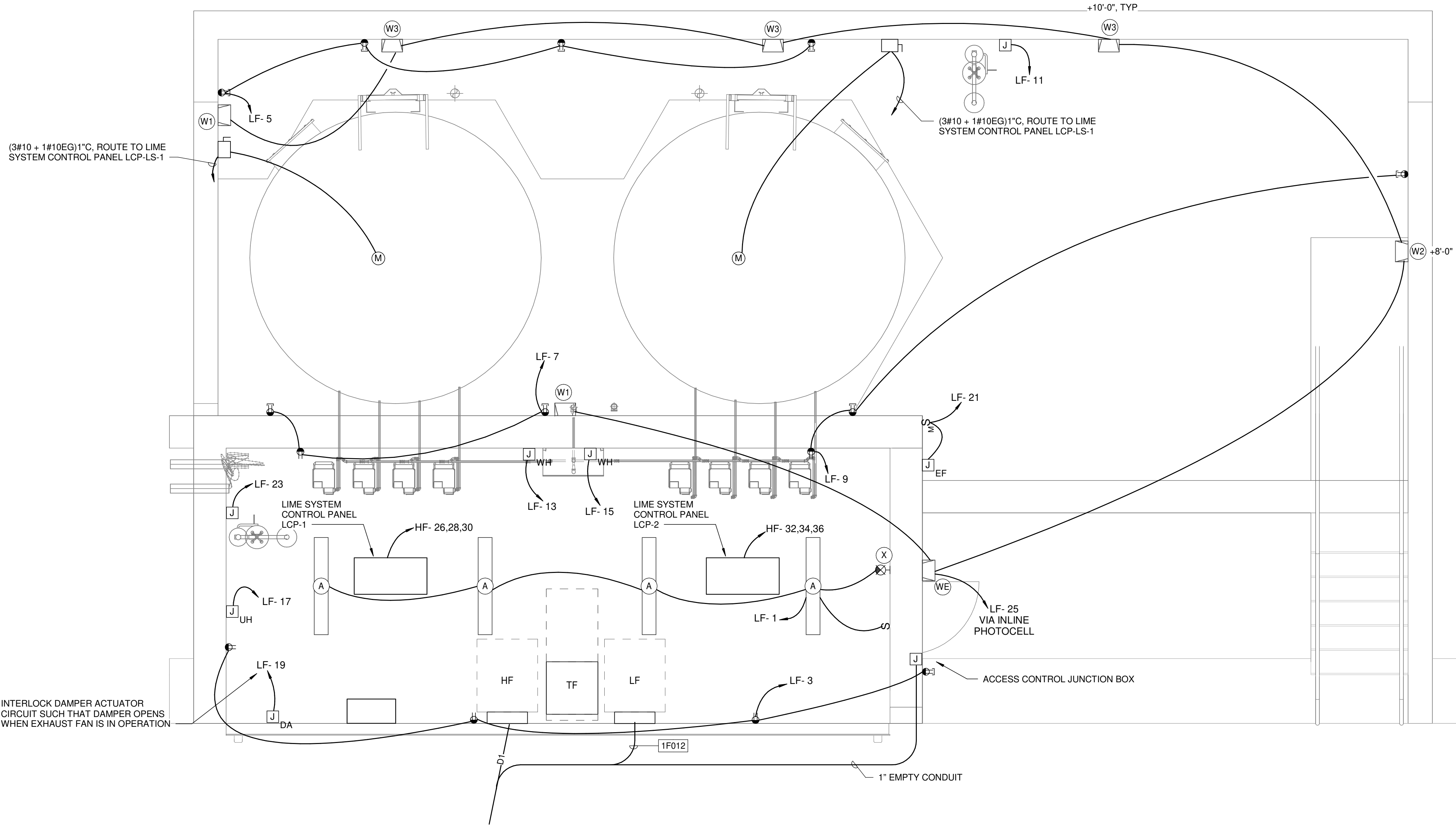
OZARK POINT LIME SYSTEM IMPROVEMENTS
LITTLE ROCK, ARKANSAS

I&C PLAN - LIME BUILDING

OB NO:
24045

HEET NO:
E4

LIGHTING -- FIXTURE SCHEDULE							
MARK	MANUFACTURER	MODEL NUMBER	DESCRIPTION	LAMPS	ELECTRICAL REQUIREMENTS		COMMENTS
				TYPE	WATTAGE	VOLTAGE	
A	RIG-A-LITE	CML-07-L-D-4-U	4' INDUSTRIAL STRIP	LED	54 W	120 V	
W1	GARDCO	GBS-A03-830-T3M-120-FINISH	WALLPACK	LED	25 W	120 V	
W2	GARDCO	GBS-A03-830-T4M-120-FINISH	WALLPACK	LED	25 W	120 V	
W3	GARDCO	GBS-A05-830-T4M-120-FINISH	WALLPACK	LED	41 W	120 V	
WE	GARDCO	GBS-A03-830-T3M-120-EM-FINISH	WALLPACK W/ BATTERY BACKUP	LED	25 W	120 V	
X	RIG-A-LITE	XPEH-1-R-DT-2-0	INDUSTRIAL EXIT SIGN	LED	2 W	120 V	



DUCT BANK SCHEDULE		
MARK	CONTENTS	CONFIGURATION
D1	(3#3/0 + 1#3/0N + 1#6G)	3"C
	1F012	1"C
	SPARE	3"C
	SPARE	3"C
	SPARE	1"C

1

FACILITIES PLAN - LIME BUILDING

3/8" = 1'-0"

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0
1"
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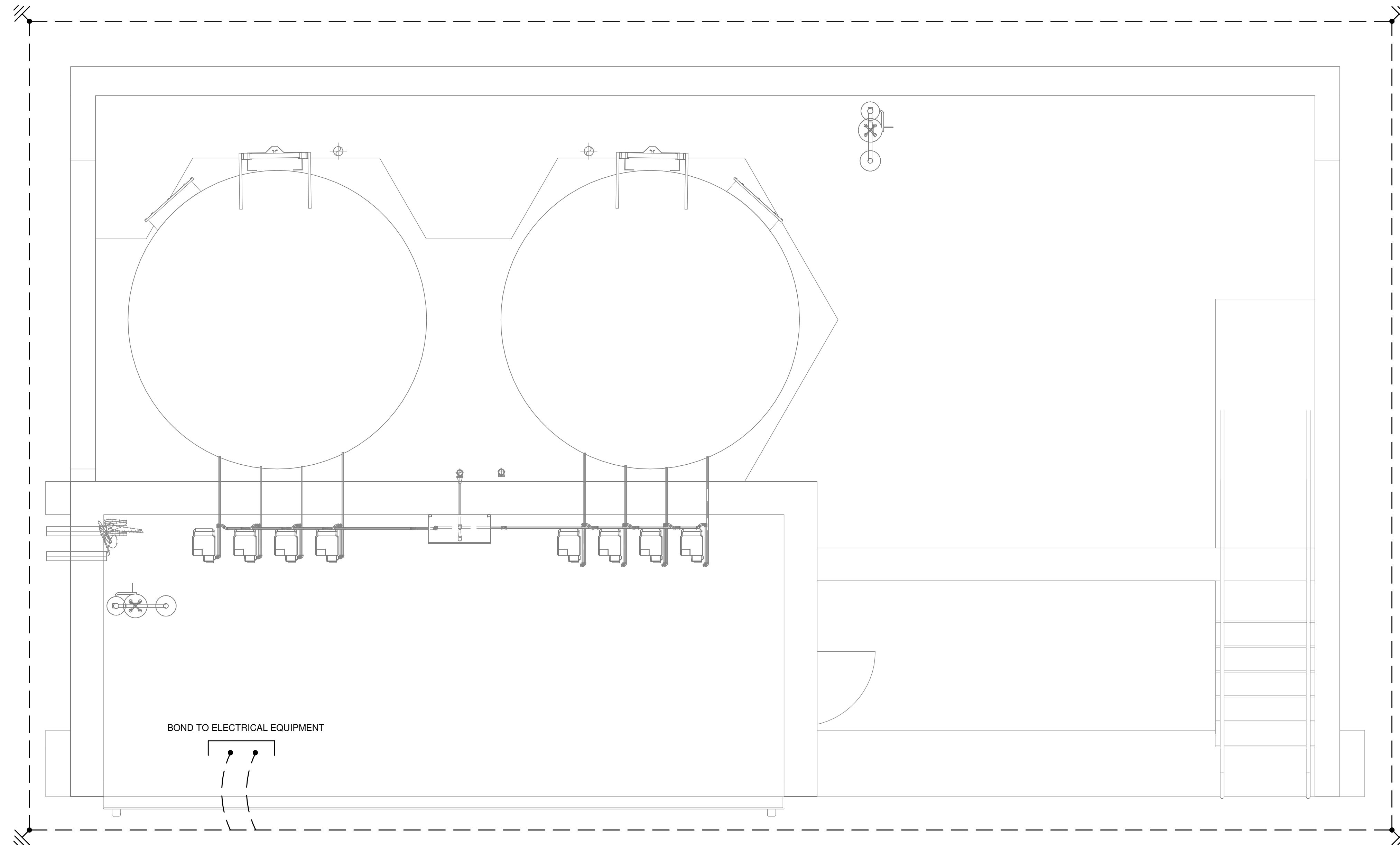
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FACILITIES PLAN - LIME BUILDING

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LEGEND:

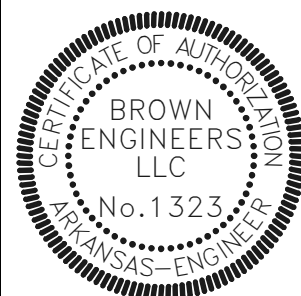
— — — #4/0 AWG SOFT DRAWN BARE COPPER COUNTERPOISE,
DIRECT BURIED 24" BELOW FINISHED GRADE

- EXOTHERMIC WELD, CADWELD

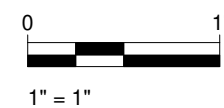
 3/4"X10'-0" COPPERCLAD GROUND ROD WITH EXOTHERMIC WELD

1

GROUNDING PLAN - LIME BUILDING

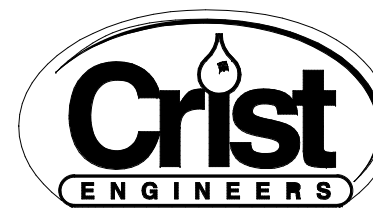
$$3/8" = 1'-0"$$
[illegible]

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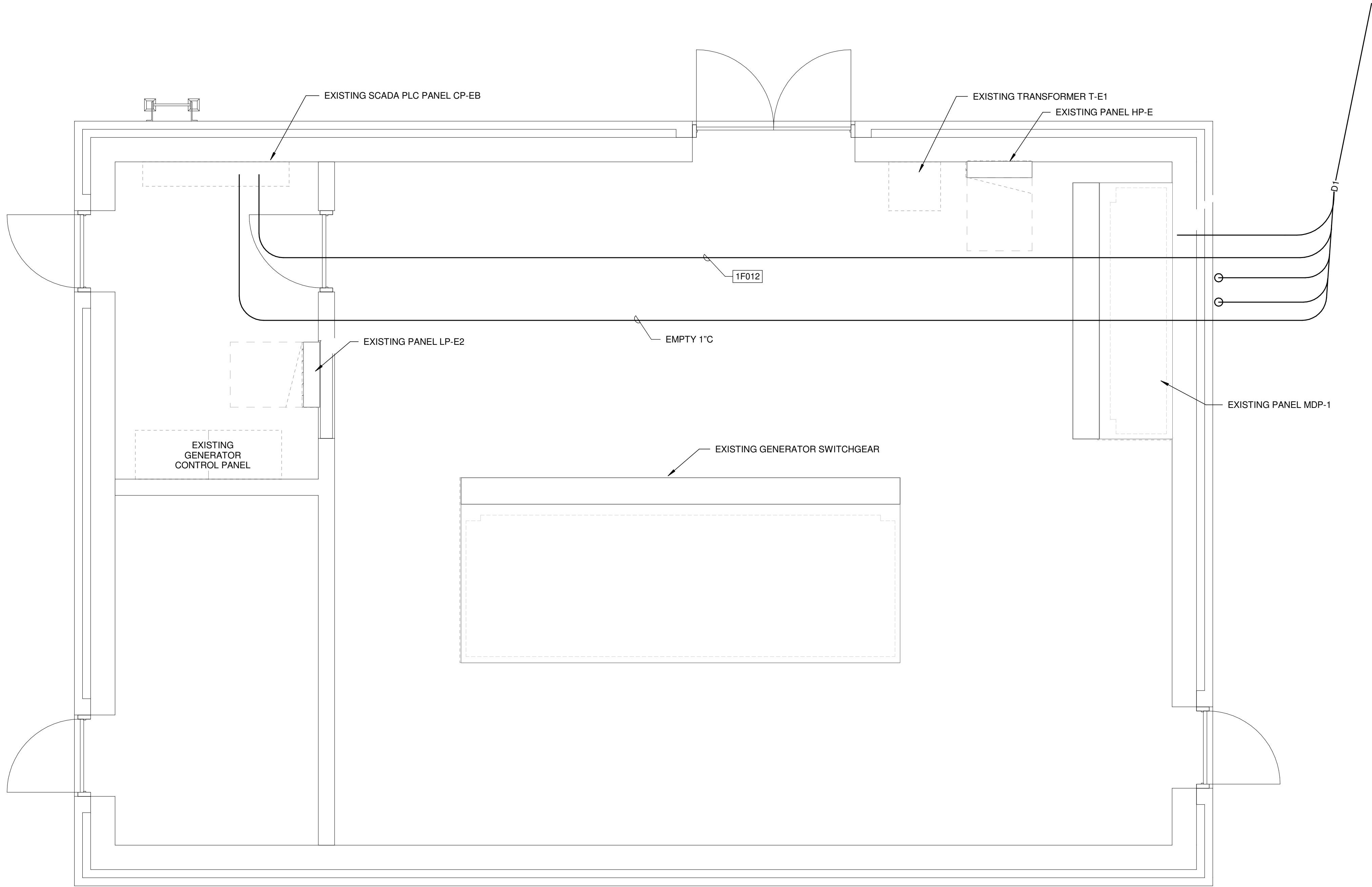
GROUNDING PLAN - LIME BUILDING

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6

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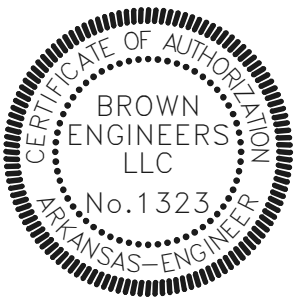
DUCT BANK SCHEDULE		
MARK	CONTENTS	CONFIGURATION
D1	(3#3/0 + 1#3/0N + 1#6G)	3"C
	1F012	1"C
	SPARE	3"C
	SPARE	3"C
	SPARE	1"C

1

ELECTRICAL BUILDING PLAN

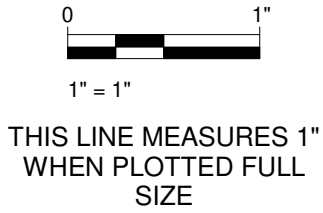
3/8" = 1'-0"

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ELECTRICAL BUILDING PLAN

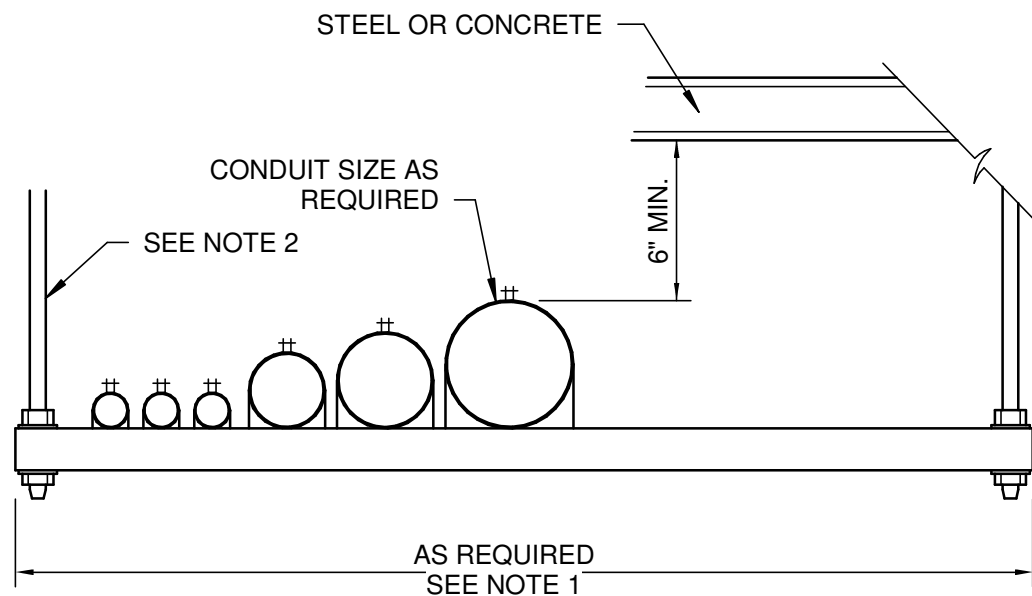
JOB NO:
24045

SHEET NO:

E7

NOTES:

- 1. LENGTH VARIES WITH NUMBER OF PIPES TO BE SUPPORTED AND SPACING BETWEEN PIPES.
- 2. HANGER RODS SHALL BE SIZED FOR LOADS AND SPACING.
- 3. ALLOWABLE SPAN, NUMBER AND SIZE OF SUPPORT RODS AND ALLOWABLE LOADING PER MANUFACTURERS RECOMMENDATIONS.
- 4. FOR HANGER ROD SUPPORT IN CONCRETE APPLICATIONS, USE SWIVEL CONCRETE INSERTS. FOR STEEL BEAM APPLICATIONS, USE SWIVEL BEAM CLAMPS.
- 5. IN DAMP AREAS USE SST HARDWARE.

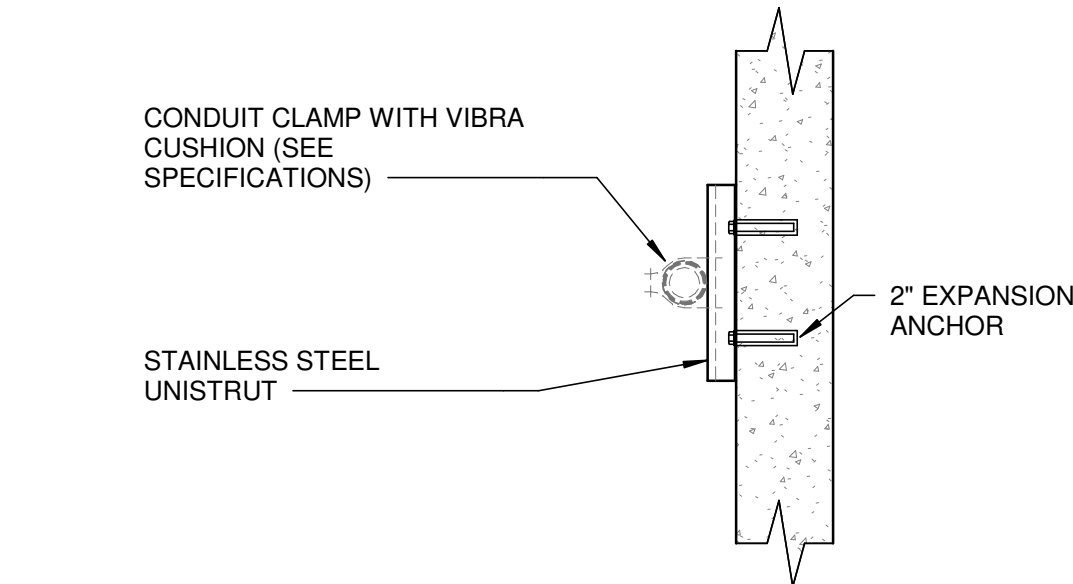


4 PIPE AND CONDUIT RACKING SYSTEM
NOT TO SCALE

CONDUIT CLAMP WITH VIBRA CUSHION (SEE SPECIFICATIONS)

STAINLESS STEEL UNISTRUT

2" EXPANSION ANCHOR

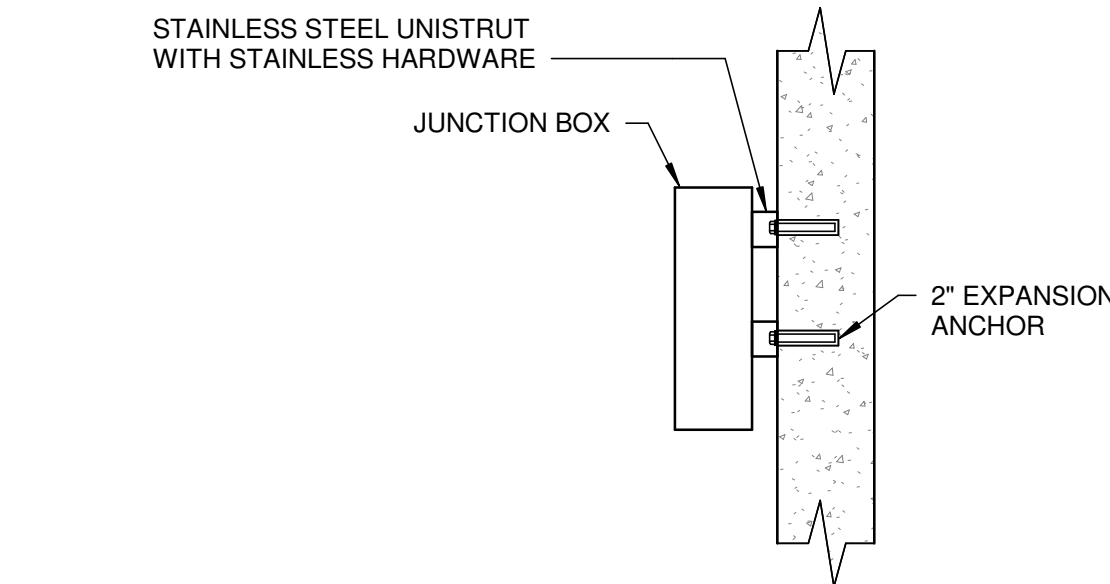


5 CONDUIT SUPPORT DETAIL
NOT TO SCALE

STAINLESS STEEL UNISTRUT WITH STAINLESS HARDWARE

JUNCTION BOX

2" EXPANSION ANCHOR



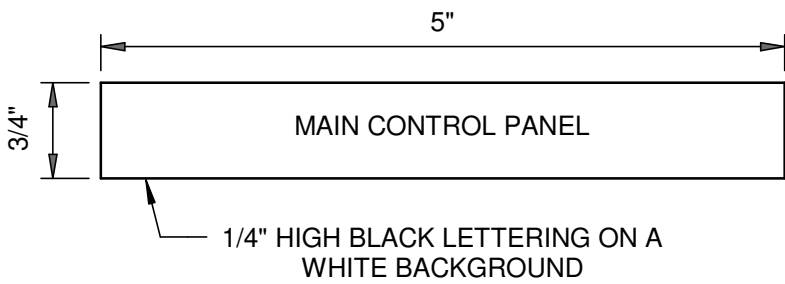
6 JUNCTION BOX SUPPORT DETAIL
NOT TO SCALE



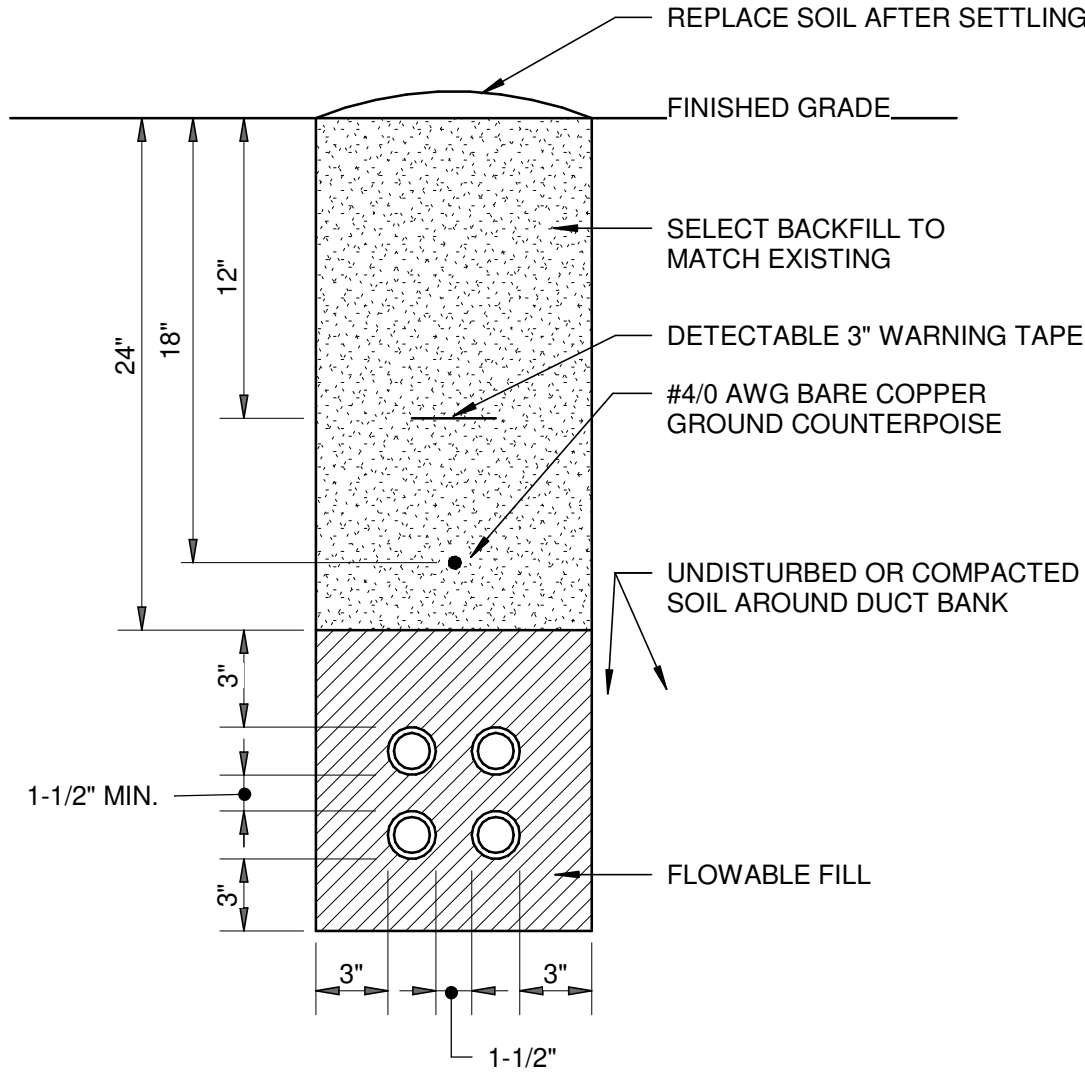
GENERAL NOTES:

- 1. POWER MARKING TAPES SHALL BE DETECTABLE TYPE CONSTRUCTION WITH RED BACKGROUND AND BLACK LETTERING.
- 2. COMMUNICATION MARKING TAPES SHALL BE DETECTABLE TYPE CONSTRUCTION WITH ORANGE BACKGROUND AND BLACK LETTERING, "TELEPHONE LINE" OR "FIBER OPTIC LINE" RESPECTIVELY.
- 3. TAPE SHALL BE DETECTABLE, DURABLE, HIGHLY VISIBLE, RESISTANT TO ELEMENTS, MEETING AND/OR EXCEEDING ALL INDUSTRY STANDARDS.

3 UNDERGROUND DETECTABLE WARNING TAPE
NOT TO SCALE



1 NAMEPLATE DETAIL
NOT TO SCALE

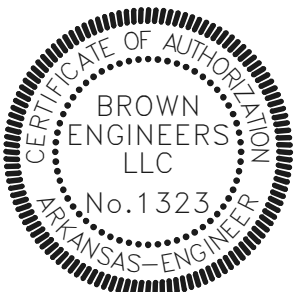


2 TRENCH DETAIL
NOT TO SCALE

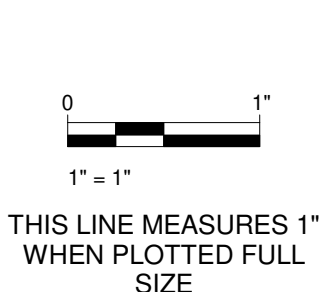
ELECTRICAL DUCT NOTES:

- 1. CONTRACTOR SHALL STAKE THE DUCT INSTALLATION IN PLAN AND ELEVATION FOR NEW ELECTRICAL DUCTS TO AVOID EXISTING UTILITIES.
- 2. CONTRACTOR SHALL ADJUST THE DEPTH OF THE ELECTRICAL DUCTS AS REQUIRED TO MAINTAIN THE MINIMUM COVER REQUIREMENT INDICATED AND AVOID EXISTING UTILITIES.
- 3. SIMILAR CONSTRUCTION FOR OTHER DUCT SIZES. SEE DUCT BANK SCHEDULE FOR QUANTITY AND SIZES.
- 4. INSTALL DUCT CONDUIT SUPPORTS AT 5'-0" O.C. MAXIMUM SPACING (TYPICAL ALL DUCTS).
- 5. OFFSETS AND BENDS OVER 10 DEGREES AND ELBOWS IN PVC CONDUIT RUNS SHALL BE GALVANIZED RIGID STEEL CONDUIT.
- 6. NO PVC SHALL EMERGE FROM THE GROUND OR CONCRETE SLAB OR ENCASEMENT. PVC SHALL CONVERT TO GALVANIZED RIGID STEEL CONDUIT PRIOR TO ITS EMERGENCE.
- 7. INSTALL GROUND RODS AT ENDS OF ELECTRICAL DUCT OR CONNECT TO GROUND RING.
- 8. INSTALL CONDUCTORS AND CABLES AS NOTED ON DRAWING. INSTALL PULLWIRE IN ALL SPARE DUCTS.
- 9. MINIMUM COVER REQUIREMENT FOR DUCT BANKS UNDER ROADS, DRIVEWAYS AND PARKING LOTS SHALL BE 24".
- 10. MINIMUM COVER REQUIREMENTS FOR ELECTRICAL SECONDARY SERVICE DUCT BANKS SHALL BE 30".
- 11. MINIMUM COVER REQUIREMENTS FOR ELECTRICAL PRIMARY SERVICE DUCT BANKS SHALL BE 36".

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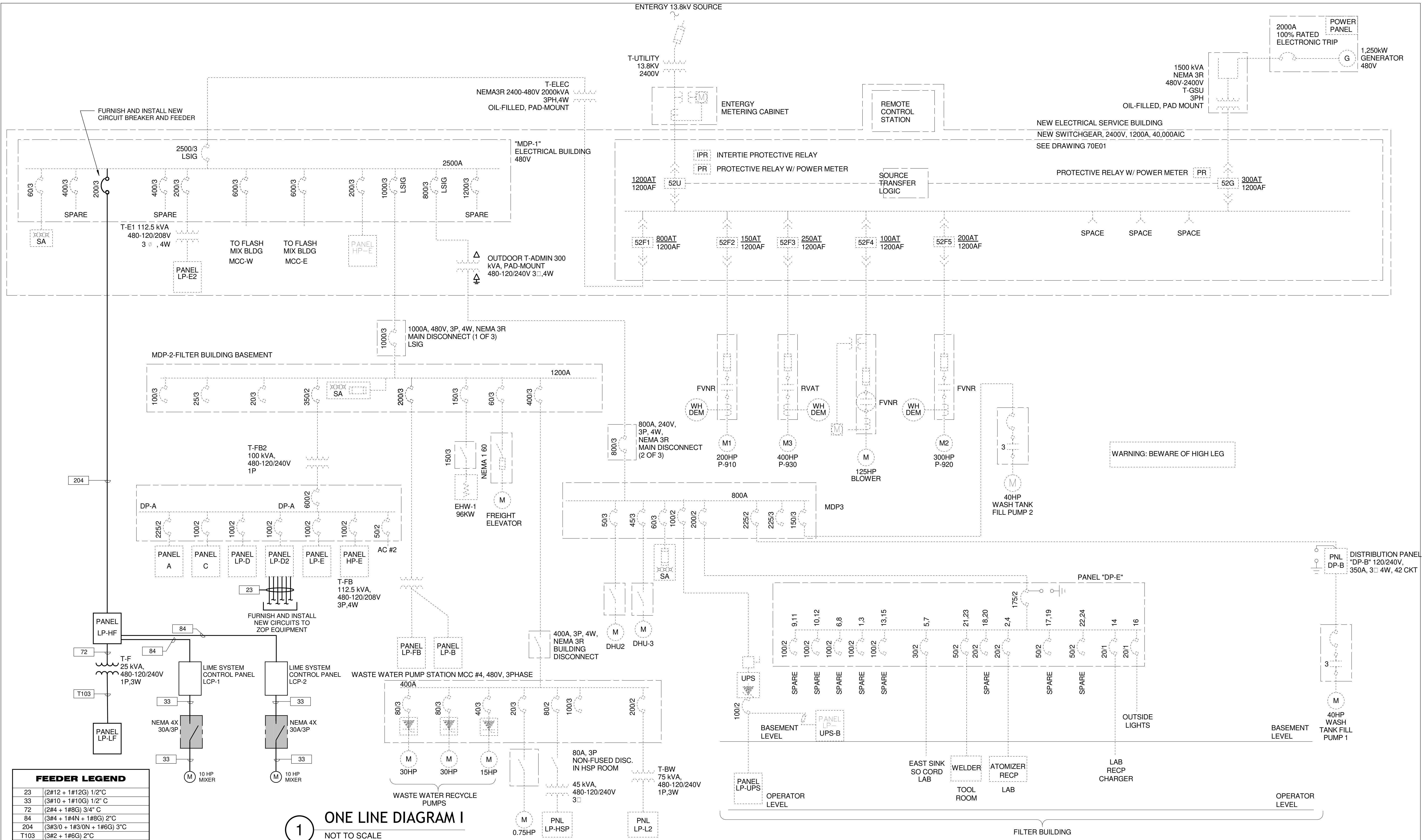
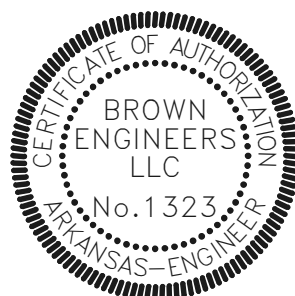


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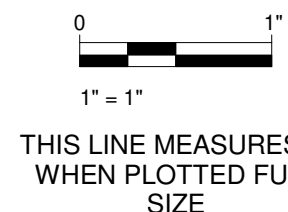
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ELECTRICAL DETAILS

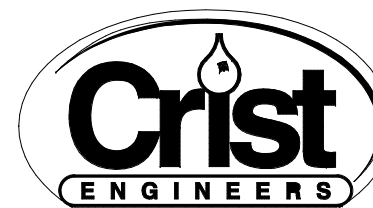
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SHEET NO:	E8

[illegible]

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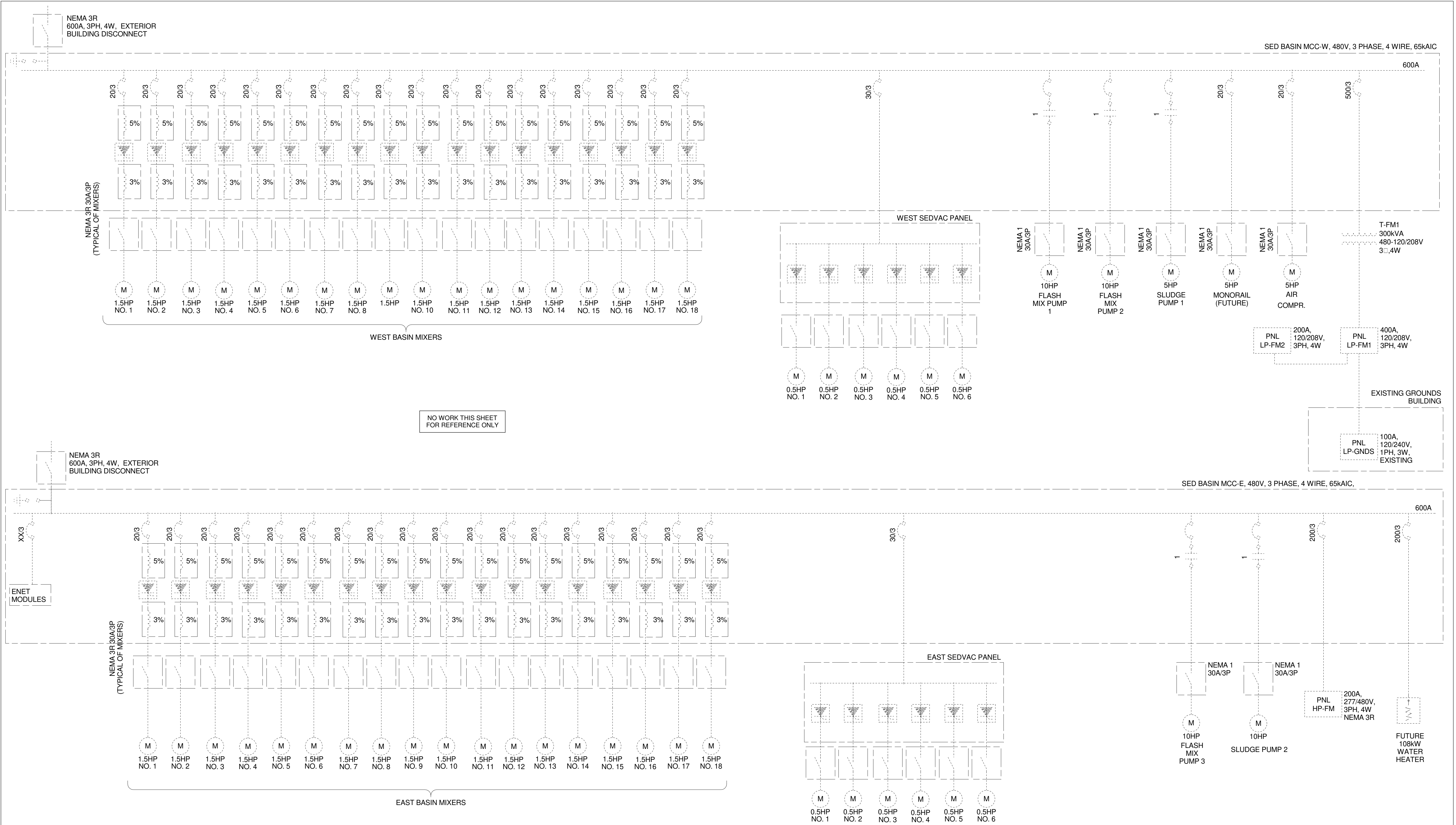
OZARK POINT LIME SYSTEM IMPROVEMENTS

LITTLE ROCK, ARKANSAS

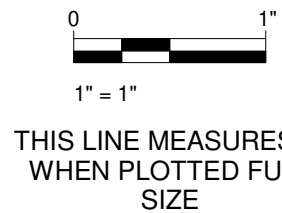
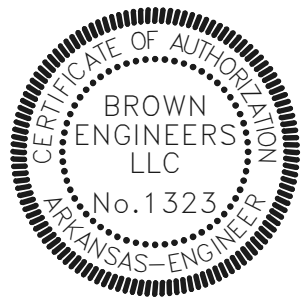
ONE-LINE DIAGRAM I

JOB NO:
24045

SHEET NO:



1 ONE LINE DIAGRAM II
NOT TO SCALE

[illegible]

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OZARK POINT LIME SYSTEM IMPROVEMENTS

LITTLE ROCK, ARKANSAS

ONE-LINE DIAGRAM III

JOB NO: 24045
SHEET NO: E10

Switchboard: MDP-1

Location:		Volts: 480/277 Wye		A.I.C. Rating: 65,000			
Supply From:		Phases: 3		Mains Type: MCB			
Mounting: Floor		Wires: 4		Mains Rating: 2500 A			
Enclosure: NEMA 1							
Notes:							
EXISTING							
Circuit Number	Circuit Description	Load	AMPS	Rating	Poles	Frame	Remarks
1	mdp-2 (7)	383.28 kVA	--	1,000 A	1	1200 A	
2	flash mx mcc-w (7)	200.28 kVA	--	600 A	1	800 A	
3	flash mx mcc-e (7)	198.03 kVA	--	600 A	1	800 A	
4	emdp (7)	199.53 kVA	--	800 A	1	800 A	
5	spd (7)	0.00 kVA	--	60 A	1	400 A	
6	t-e1 (7)	12.32 kVA	--	200 A	1	400 A	
7	hp-e (7)	3.44 kVA	--	200 A	1	400 A	
8	spare (8)	0.00 kVA	--	1,200 A	1	1200 A	
9	spare (8)	0.00 kVA	--	400 A	1	400 A	
10	HF (6)	106.08 kVA	127.59 A	200 A	3	400 A	
Panel Totals							
		Phase A	Phase B	Phase C			
Total Load:		1032.83 kVA	36.79 kVA	33.33 kVA			
Total Amps:		3,731 A	135 A	120 A			
Total Connected Load:		1102.96 kVA					
Total Connected Amps:		1,329 A					
Notes:							

Branch Panel: HF

Location:				Volts: 480/277 Wye				A.I.C. Rating: 65kA					
Supply From: MDP-1				Phases: 3				Panel Rating: 225 A MLO					
Mounting: Surface				Wires: 4									
Enclosure: NEMA 1													
Notes:													
CKT	Load Name	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Load Name	CKT
1	TRANSFORMER TF	50 A	2	2.62			0.00			3	20 A	SPARE	2
3				3.46			0.00		4				
5		SPARE	20 A	1			0.00						0.00
7	SPARE	20 A	1	0.00			0.00			3	20 A	SPARE	8
9	SPARE	20 A	1		0.00			0.00					10
11	SPARE	20 A	1			0.00			0.00				12
13	SPARE	20 A	1	0.00			0.00			3	20 A	SPARE	14
15	SPARE	20 A	1		0.00			0.00					16
17	SPARE	20 A	1			0.00			0.00				18
19	SPARE	20 A	1	0.00			0.00			3	20 A	SPARE	20
21	SPARE	20 A	1		0.00			0.00					22
23	SPARE	20 A	1			0.00			0.00				24
25	SPACE	--	1	--			16.67			3	80 A	LIME CONTROL PANEL 1 (LCP-1)	26
27	SPACE	--	1	--	--			16.67					28
29	SPACE	--	1			--			16.67				30
31	SPACE	--	1	--			16.67			3	80 A	LIME CONTROL PANEL 2 (LCP-2)	32
33	SPACE	--	1		--			16.67					34
35	SPACE	--	1			--			16.67				36
37	SPACE	--	1	--			--			1	--	SPACE	38
39	SPACE	--	1		--			--		1	--	SPACE	40
41	SPACE	--	1			--			--	1	--	SPACE	42
Panel Totals													
				PHASE A		PHASE B		PHASE C					
Total Load:				35.95 kVA		36.79 kVA		33.33 kVA					
Total Amps:				131 A		134 A		120 A					
Total Conn. Load:				106.08 kVA									
Total Design Current:				201 A									
Notes:													

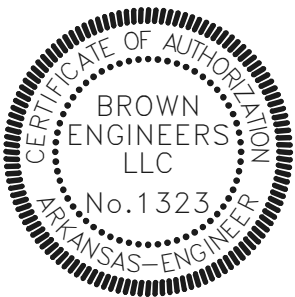
Branch Panel: LF

Location:				Volts: 120/240 Single				A.I.C. Rating: 10000			
Supply From: TF				Phases: 1				Panel Rating: 125 A MCB			
Mounting: Surface				Wires: 3							
Enclosure: 1											
Notes:											
CKT	Load Name	Trip	Poles	A	B	A	B	Poles	Trip	Load Name	CKT
1	LIGHTING	20 A	1	0.22		0.04		1	20 A	LIT-2131	2
3	RECEPTACLES	20 A	1		0.72		0.00	1	20 A	SPARE	4
5	RECEPTACLES	20 A	1	0.72		0.00		1	20 A	SPARE	6
7	RECEPTACLES	20 A	1		0.54		0.00	1	20 A	SPARE	8
9	RECEPTACLES	20 A	1	0.54		0.00		1	20 A	SPARE	10
11	EYEWASH HEAT TRACE/ALARM (5)	20 A	1		1.00		0.04	1	20 A	LIT-2231	12
13	WATER HEATER	20 A	1	0.06		0.00		1	20 A	SPARE	14
15	WATER HEATER	20 A	1		0.06		0.00	1	20 A	SPARE	16
17	UNIT HEATER	20 A	1	0.53		0.00		1	20 A	SPARE	18
19	DAMPER ACTUATOR	20 A	1		0.10		0.00	1	20 A	SPARE	20
21	EXHAUST FAN	20 A	1	0.30		0.00		1	20 A	SPARE	22
23	EYEWASH HEAT TRACE/ALARM (5)	20 A	1		1.00		0.00	1	20 A	SPARE	24
25	LIGHTING	20 A	1	0.22		0.00		1	20 A	SPARE	26
27	SPARE	20 A	1		0.00		0.00	1	20 A	SPARE	28
29	SPARE	20 A	1	0.00		0.00		1	20 A	SPARE	30
31	SPARE	20 A	1		0.00		0.00	1	20 A	SPARE	32
33	SPARE	20 A	1	0.00		0.00		1	20 A	SPARE	34
35	SPARE	20 A	1		0.00		0.00	1	20 A	SPARE	36
37	SPARE	20 A	1	0.00		0.00		1	20 A	SPARE	38
39	SPARE	20 A	1		0.00		0.00	1	20 A	SPARE	40
41	SPARE	20 A	1	0.00		0.00		1	20 A	SPARE	42
Panel Totals											
				PHASE A		PHASE B					
Total Load:				2.62 kVA		3.46 kVA					
Total Amps:				21.83 A		28.83 A					
Total Conn. Load:				6.08 kVA							
Total Design Current:				40 A							
Notes:											

PANELBOARD NOTES

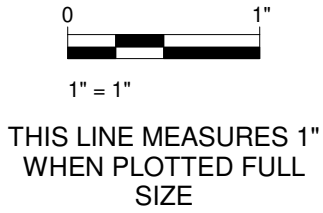
- (1)INSTALL LOCKING DEVICE (LOCK-OFF FOR MAINTENANCE)
- (2)INSTALL LOCKING DEVICE (LOCK-ON FOR CRITICAL LOAD).
- (3)REFER TO SITE LIGHTING PLAN FOR WIRE SIZES.
- (4)PROVIDE GFI CIRCUIT BREAKER OR INLINE GFI FOR PERSONNEL PROTECTION (5 mA).
- (5)PROVIDE GFI CIRCUIT BREAKER OR INLINE GFI FOR EQUIPMENT PROTECTION (30 mA).
- (6)PROVIDE U.L. LISTED OVERCURRENT DEVICE TO COORDINATE AND MAINTAIN MANUFACTURER'S SERIES RATED SYSTEM.
- (7)EXISTING CIRCUIT TO REMAIN.
- (8)EXISTING CIRCUIT BREAKER TO REMAIN. VERIFY CONDITION OF CIRCUIT BREAKER TO ENSURE THAT IT IS OPERATIONAL AND MEETS ALL U.L. RATINGS.
- (9)TRACE EXISTING CIRCUIT. IDENTIFY LOAD AND PROVIDE TYPEWRITTEN PANELBOARD SCHEDULE AND PLACE ON INTERIOR OF PANELBOARD DOOR. IF CIRCUIT IS A "SPARE", REFER TO NOTE (8).

REV. NO.	DATE	DRWN	CHKD	REMARKS	



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LITTLE ROCK, AR
OZARK POINT LIME SYSTEM IMPROVEMENTS
LITTLE ROCK, ARKANSAS

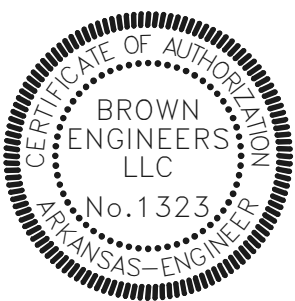
PANELBOARD SCHEDULES

JOB NO:	24045
SHEET NO:	E11

POWER CONDUIT AND CABLE SCHEDULE										
EQUIPMENT	EQ NUMBER	PANELBOARD	CIRCUIT	VOLTAGE	POLES	LOAD	FEEDER	CIRCUIT ROUTING	DESCRIPTION 1	DESCRIPTION 2
LCP	1031	LP-D2	20	120 V	1	0.50 kVA	(3#12) 3/4"C	DEVICE - PANELBOARD		
LIT	1131	LP-D2	17	120 V	1	0.04 kVA	(3#12) 3/4"C	DEVICE - PANELBOARD		
LIT	1231	LP-D2	18	120 V	1	0.04 kVA	(3#12) 3/4"C	DEVICE - PANELBOARD		
LIT	2131	LF	2	120 V	1	0.04 kVA	(3#12) 3/4"C	DEVICE - PANELBOARD		
LIT	2231	LF	12	120 V	1	0.04 kVA	(3#12) 3/4"C	DEVICE - PANELBOARD		
MTR	2141			480 V	3	5.00 kVA	(3#10+1#10EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
MTR	2241			480 V	3	5.00 kVA	(3#10+1#10EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
SIC	1161	LP-D2	15	120 V	1	0.35 kVA	(3#12) 3/4"C	DEVICE - PANELBOARD		
SIC	1261	LP-D2	16	120 V	1	0.35 kVA	(3#12) 3/4"C	DEVICE - PANELBOARD		
SIC	2161			480 V	3	0.35 kVA	(3#12+1#12N+1#12EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
SIC	2162			480 V	3	0.35 kVA	(3#12+1#12N+1#12EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
SIC	2163			480 V	3	0.35 kVA	(3#12+1#12N+1#12EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
SIC	2164			480 V	3	0.35 kVA	(3#12+1#12N+1#12EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
SIC	2261			480 V	3	0.35 kVA	(3#12+1#12N+1#12EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
SIC	2262			480 V	3	0.35 kVA	(3#12+1#12N+1#12EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
SIC	2263			480 V	3	0.35 kVA	(3#12+1#12N+1#12EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
SIC	2264			480 V	3	0.35 kVA	(3#12+1#12N+1#12EG) 3/4"C	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		

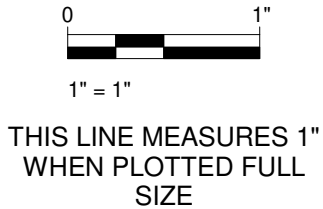
I&C CONDUIT AND CABLE SCHEDULE						
EQUIPMENT	EQ NUMBER	I&C CABLING (DIGITAL)	I&C CABLING (ANALOG)	CIRCUIT ROUTING	DESCRIPTION 1	DESCRIPTION 2
FS	1031	1D003	-	DEVICE - EXISTING PLC PANEL		
FS	2031	1D003	-	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
FS	2032	1D003	-	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
LCP	1031	1D020	1A002	DEVICE - EXISTING PLC PANEL		
LIT	1131	-	1A001	DEVICE - EXISTING PLC PANEL		
LIT	1231	-	1A001	DEVICE - EXISTING PLC PANEL		
LIT	2131	-	1A001	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
LIT	2231	-	1A001	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
PIT	2131	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
PIT	2132	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
PIT	2133	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
PIT	2134	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
PIT	2161	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
PIT	2162	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
PIT	2163	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
PIT	2164	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
PIT	2231	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
PIT	2232	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
PIT	2233	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
PIT	2234	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
PIT	2261	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
PIT	2262	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
PIT	2263	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
PIT	2264	-	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
SIC	1161	1D008	1A002	DEVICE - EXISTING PLC PANEL		
SIC	1261	1D008	1A002	DEVICE - EXISTING PLC PANEL		
SIC	2161	1D008	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
SIC	2162	1D008	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
SIC	2163	1D008	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
SIC	2164	1D008	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-1		
SIC	2261	1D008	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
SIC	2262	1D008	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
SIC	2263	1D008	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		
SIC	2264	1D008	1A002	DEVICE - LIME SYSTEM CONTROL PANEL LCP-2		

REV. NO.	DATE	DRWN	CHKD		REMARKS



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LITTLE ROCK, AR
OZARK POINT LIME SYSTEM IMPROVEMENTS
LITTLE ROCK, ARKANSAS

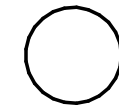
CONDUIT AND CABLE SCHEDULES

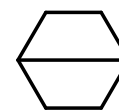
JOB NO:	24045
SHEET NO:	E12

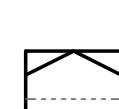
MEANING OF FUNCTION INSTRUMENT IDENTIFICATION LETTERS

FIRST LETTER			SUCCEEDING LETTERS		
LETTER	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER SUCCEEDING
A	ANALYSIS		ALARM		
B	BURNER FLAME		USER CHOICE	USER CHOICE	USER CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME-SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER CHOICE		USER CHOICE	USER CHOICE	USER CHOICE
O	USER CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST POINT)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNC.	MULTIFUNCTION
V	VIBRATION OR MECHANICAL ANALYSIS			VALVE, DAMPER, OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

INSTRUMENTS OR FUNCTIONS

 FIELD MOUNTED DISCRETE INSTRUMENT

 COMPUTER FUNCTION, PRIMATION LOCATION: OPERATOR ACCESSIBLE

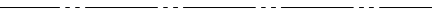
 PROGRAMMABLE LOGIC CONTROLLER, LOCATION NOT NORMALLY OPERATOR ACCESSIBLE

INSTRUMENT LINE TYPES

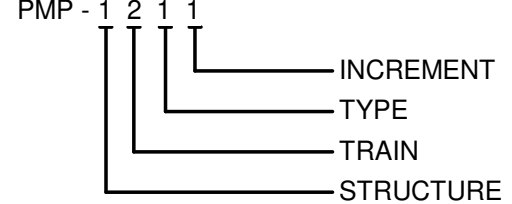
 ELECTRIC SIGNAL

 INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)

 MECHANICAL LINK

 ELECTRIC BINARY (ON-OFF SIGNAL)

PROCESS NUMBERING



EQUIPMENT LINE TYPES

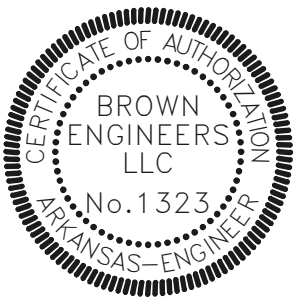
LINE

 PROPOSED OR NEW EQUIPMENT

 EXISTING EQUIPMENT

 CONNECT NEW CABLE TO EXISTING CABLE ON TERMINAL BLOCK

REV. NO.	DATE	DRWN	CHKD		REMARKS





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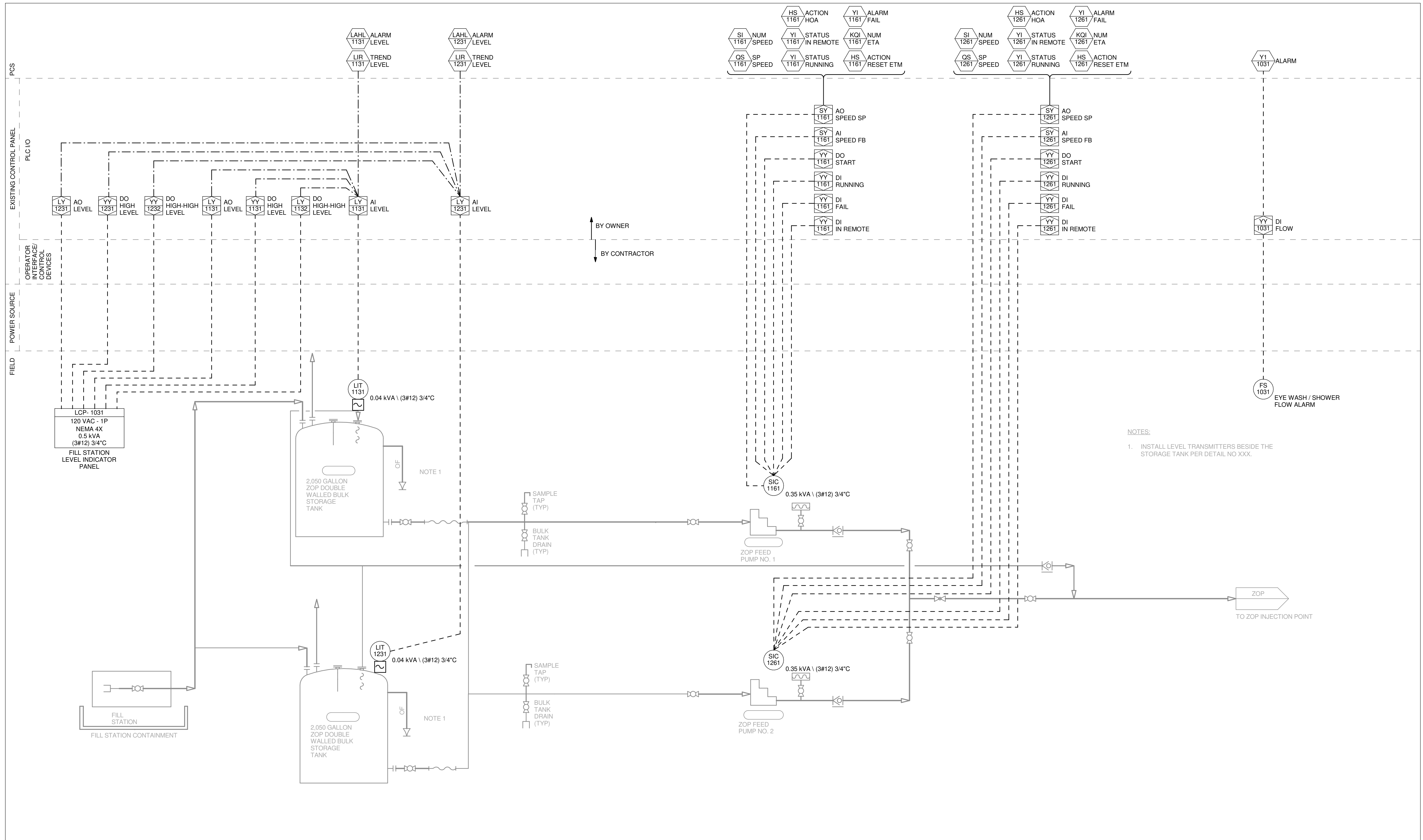
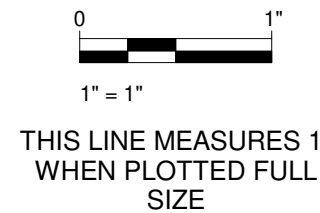
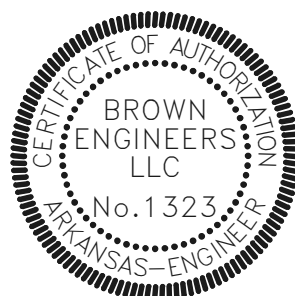
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LITTLE ROCK, ARKANSAS

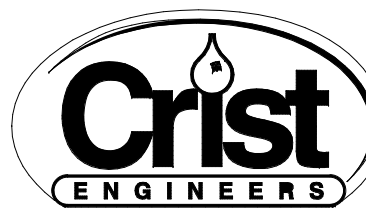
PROCESS AND INSTRUMENTATION LEGEND

JOB NO:
24045

SHEET NO:
PI1

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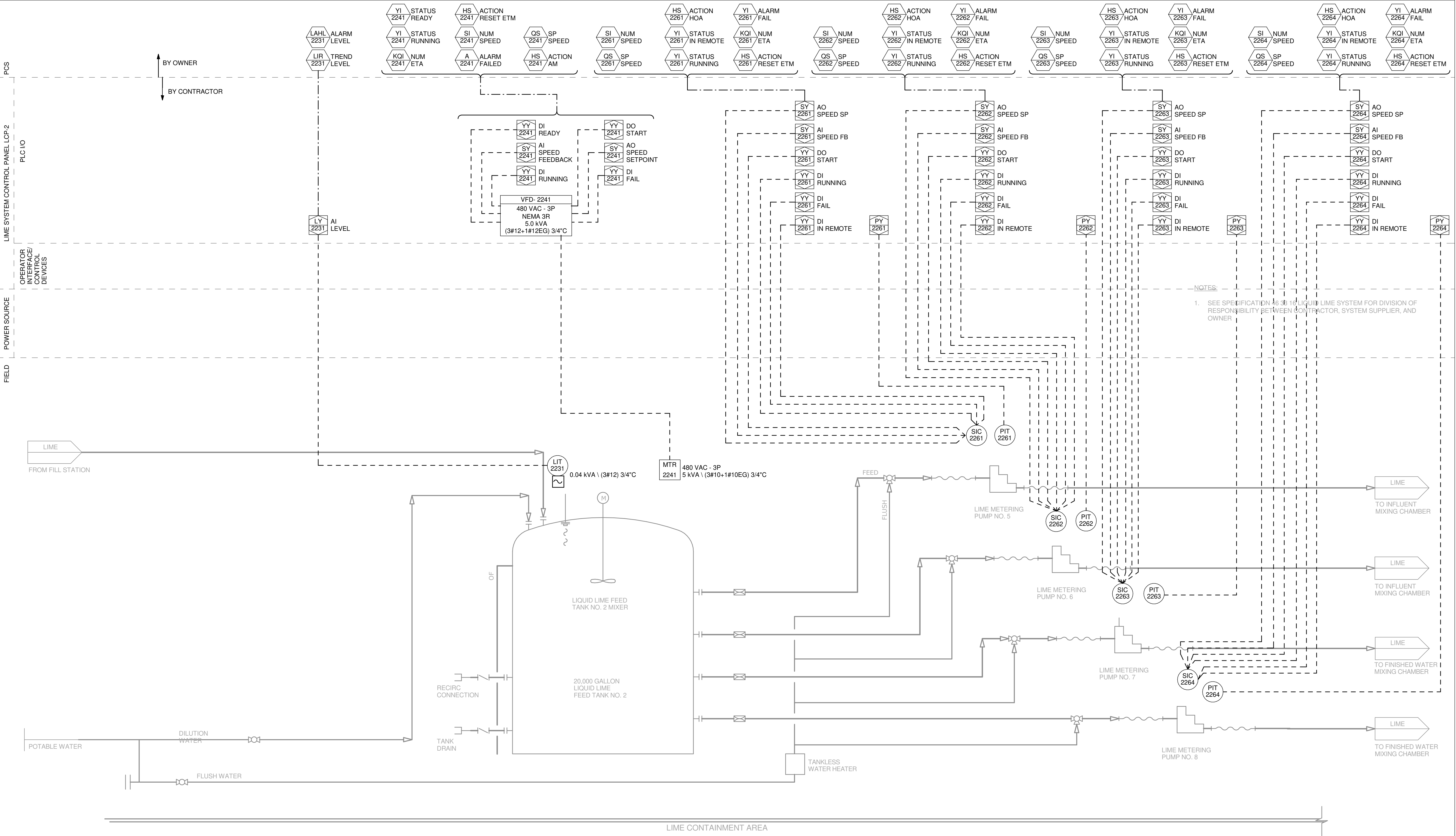
OZARK POINT LIME SYSTEM IMPROVEMENTS
LITTLE ROCK, ARKANSAS

P&ID I

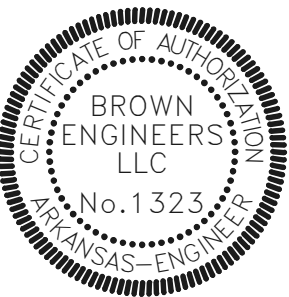
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24045

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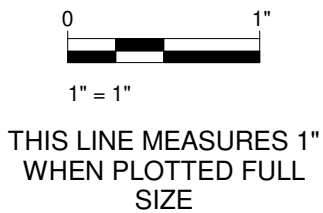


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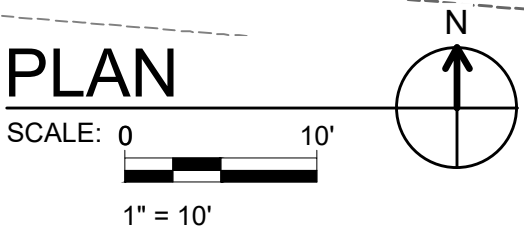
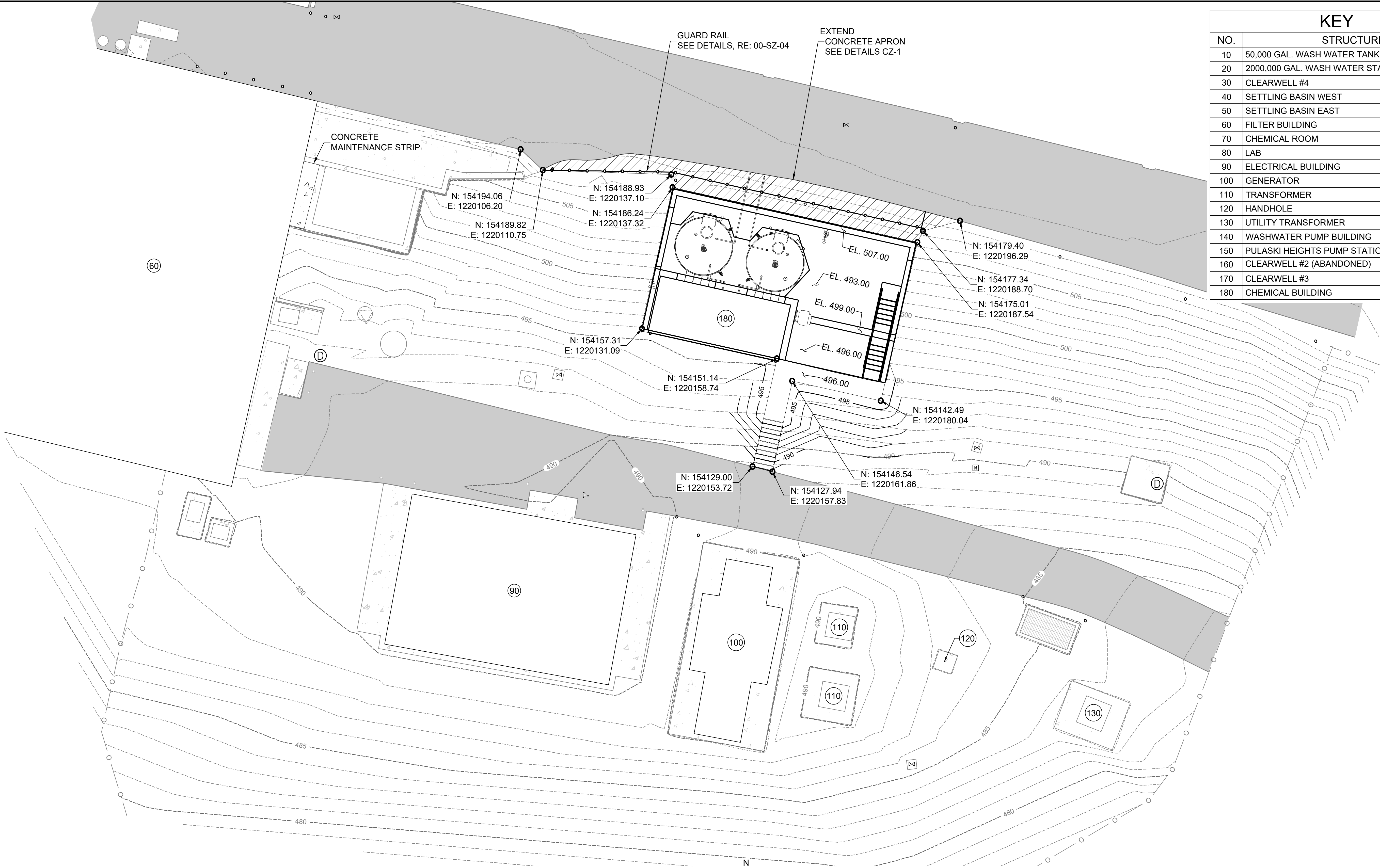
P&ID III

JOB NO:	24045
SHEET NO:	PI4

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P:\2024 Projects\24045 - CAW - Ozark Point Line System Improvements\06 - CADD\02 - Civil\24045 - Proposed Building Contours.dwg 1/23/2026 3:56 PM

KEY	
NO.	STRUCTURE
10	50,000 GAL. WASH WATER TANK
20	2000,000 GAL. WASH WATER STANDPIPE
30	CLEARWELL #4
40	SETTLING BASIN WEST
50	SETTLING BASIN EAST
60	FILTER BUILDING
70	CHEMICAL ROOM
80	LAB
90	ELECTRICAL BUILDING
100	GENERATOR
110	TRANSFORMER
120	HANDHOLE
130	UTILITY TRANSFORMER
140	WASHWATER PUMP BUILDING
150	PULASKI HEIGHTS PUMP STATION
160	CLEARWELL #2 (ABANDONED)
170	CLEARWELL #3
180	CHEMICAL BUILDING



1	1/27/26	TV	ADDENDUM NO. 02		
REV. NO.	DATE	DRWN	CHKD		REMARKS

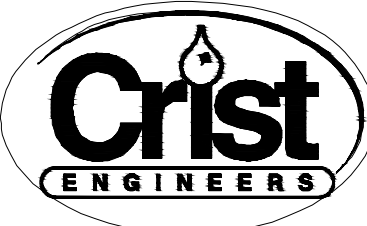


0 1"

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LITTLE ROCK, ARKANSAS
OZARK POINT WATER TREATMENT PLANT LIME & ZINC ORTHOPHOSPHATE CHEMICAL FEED IMPROVEMENTS
BID SET
PROPOSED CHEMICAL FEED GRADING PLAN

JOB NO.	24045
SHEET NO.	C-4