

SPECIFICATIONS

FOR

**CIRCUITS 641, 668, 671 & 672 POTHEAD
REPLACEMENT**

AT

GEORGIA SUBSTATION

JEA

Jacksonville, Florida



JAN 31, 2025

TECHNICAL SPECIFICATION - INSTALLATION

1. SCOPE OF WORK

- 1.1. Intent: The Contractor shall provide all labor, equipment, material, and supervision required for construction and final commissioning of the twelve (12) High Pressure Fluid Filled (HPFF) pipe-type cable terminations. The Contractor is responsible under this contract to purchase, inspect, receive, unload, and install all material at the job site. **The Contractor will be providing all G&W ATA 139N-HS terminations, shipped to Jacksonville.**
- 1.2. Scope of Work Statement: Provide for the installation of twelve 115kV HPFF pipe type cable terminations. The Contractor shall provide and install the G&W terminations at Georgia Substation. The HPFF cable system consists of steel pipe with a nominal diameter of 5.5625 inches, with three 450 or 1250 kcmil copper cables, and insulated with .285 inches of insulating paper material. Provisions shall be made to curtail any possibility of cable slipping past a point where the use of the supplied lugs will no longer be feasible.
- 1.3. Location of Project: The work will take place in Georgia Substation that is located approximately two (2) miles east of downtown Jacksonville at 637 N Georgia St.
- 1.4. General Description of Project: Twelve (12) new HPFF 115kV terminations will need to be installed at four separate 69kV circuit termination locations (at Georgia St Substation) within Duval County. The Contractor shall supply all material, labor, and equipment to complete the work. **The Contractor will be responsible for cleanup and disposal of all oil, boxes, old terminations, debris or any other trash associated with this, and with the previous termination project.**
- 1.5. Project Manager: Mohsen Shojaeion
225 N Pearl St,
Jacksonville, FL 32202
Cell: (904) 678-7227
e-mail: Talem@jea.com
- Project Representative: Howard J. Hockett
225 N Pearl St,
Jacksonville, FL 32202
Cell: (904) 603-1987
email: hockhj@jea.com
- 1.5. Pre-Bid Meeting and Site Visit: The Contractor shall be prepared to attend a mandatory pre-bid meeting and site visit held for the benefit of communication and coordination.
- 1.6. Sequence of Work and Project Schedule: All work shall be performed in an orderly and workmanlike manner. Sequence of work may be scheduled at the discretion of the Contractor within the guidelines of these specifications. Based on the availability and lead times of the material, the Contractor shall prepare a Project Schedule in Bar Chart format to be submitted with their bid.
- 1.7. Standards: The installation covered by these specifications shall conform to the practices set forth in the latest edition of the National Electrical Code and the National Electric Safety Code unless otherwise specified in these specifications.
- 1.8. Electrical Clearances (Outages):
- The Circuit 641 outage will likely be a two and half (2.5) weeks continuous outage and will occur on Nov 3, 2025 – November 19, 2025. These are subject to change once more information is known about material availability.
 - The Circuit 668 outage will likely be a two and half (2.5) weeks continuous outage and will occur on Nov 21, 2025 – Dec 9, 2025. These are subject to change once more information is known about material availability.

- The Circuit 671 outage will likely be a two and half (2.5) weeks continuous outage and will occur on Dec 11, 2025 – Dec 29, 2025. These are subject to change once more information is known about material availability.
- The Circuit 672 outage will likely be a two and half (2.5) weeks continuous outage and will occur on Jan 5, 2025 – Jan 21, 2025. These are subject to change once more information is known about material availability.

1.9 Material: the contractor shall furnish all material and equipment required for work, unless otherwise specified. Material shall include, but not be limited to the following:

- Twelve (12) G&W ATA 139N-HS terminations.
- Twelve (12) #269 rubber gaskets.
- Any bolts needed to attach termination to base plate.
- Any additional oil to complete the work.
 - The Contractor will also supply any oil drums needed to capture spent oil.
- Twelve standard and twelve long cable lugs.
 - Due to the possibility of cable slipping into the pipe an unknown distance, The Contractor shall procure from G&W, two different lengths of terminal lugs. The contractor shall be responsible for providing any other means to hold the cable prior to removing the existing lug in order to provide a controlled settlement and prevent slippage beyond the longest supplied lug.

2. CONDITIONS FOR PERFORMING THE WORK

2.1 Construction Drawings: Construction Drawings, Specifications, and Permits, if applicable, shall be furnished by the Contractor and shall be signed and sealed by a Professional Engineer licensed in the State of Florida. The Construction Drawings may be used to determine the quantity and type of labor, equipment, and material intended for use on this project.

2.2 Existing Drawings: The Owner has supplied existing construction drawings, as originally designed, which are included in the attachments of these specifications. The drawings are not to scale and are for the purpose of study and design only. The Owner does not assume any responsibility with respect to the sufficiency or accuracy of the drawings, or of the interpretations made thereof. The Contractor shall develop a design according to the conditions under which the work is to be performed.

2.3 Shop Drawings and Submittals: **The Contractor shall submit shop drawings and/ or submittals to the Project Representative for approval of any contractor furnished materials, equipment, or installation methods.** These shop drawings may be submitted in the form of drawings, diagrams, illustrations, schedules, or any other form deemed best to convey or illustrate the material, equipment or installation method to the Project Engineer. The data submitted shall be complete with respect to dimensions, design criteria, materials of construction, etc., to enable the Project Engineer to properly and completely review and evaluate the submittal without unnecessary delays.

2.3.1 The Contractor shall submit an electronic copy of all shop drawings and submittals to the JEA Project Manager. Each submittal must be accompanied by a Transmittal Letter.

- 2.4 As Built Drawings: The Contractor is required to provide the JEA with a complete set of "As Built" Drawings. The Contractor's "As Built" field markings shall be accurately transferred to a clean set of drawings provided by the Contractor. **As-builts shall be submitted no more than 90 calendar days after the date on which each circuit is energized.**
- 2.5 Permits: The Contractor shall obtain all federal, state, and local permit requirements required to complete work.
- 2.6 Materials:
- 2.6.1 All Contractor furnished materials, unless otherwise indicated, shall be new, of the first quality and of the proper type for use intended. When applicable, all material will be in accordance with the latest published NEMA Standards and/or carry the approval of the Underwriter's Laboratories. Miscellaneous material such as inhibitors, cleaning solvents, grout, epoxy, paint, rope, etc., required for construction shall be supplied by the Contractor and costs of such material shall be included in the bid.
- 2.6.2 The use of a manufacturer's trade name and catalog number is intended to indicate preference. Products of reputable manufacture, equal quality, and functional type may be used only after approval by the Project Engineer.
- 2.6.3 All material and equipment stored on the construction site shall be in the care, custody and control of the Contractor. The Contractor shall be responsible for any necessary repairs or replacement of materials and equipment damaged while in the care and custody of the Contractor.
- 2.7 Access to the Work: Access to perform all work is the responsibility of the Contractor. The Contractor shall display all signs and follow all Florida Department of Transportation (FDOT) and City of Jacksonville. The Contractor shall repair any damage to all roads, R/W's and adjacent property as directed by and to the satisfaction of JEA. Access to Easements and Right-Of-Way will be from Public Roads. Any access arrangements crossing private property will be the responsibility of the Contractor.
- 2.7.1 **The Contractor must have all members of the crew attend the JEA's Substation Entry Course prior to the commencement of any work inside the substation. The Entry Course is offered on the second Wednesday of every month at JEA's Westside Service Center, located at 6727 Broadway Avenue, Jacksonville Florida 32254. Coordinated by Jim Ayers AyerJL@jea.com 904-665-5362.**
- 2.8 Maintenance of Traffic: The Contractor shall conduct his work with as little interference as possible to traffic, with the Owner's operations, and the work of other contractors. Whenever it is necessary to cross, obstruct, or close roads, driveways, parking areas, and walks, the Contractor shall provide and maintain suitable and safe bridges, detours, or other temporary expedients at his own expense. All operations which will present a hazard to traffic, both pedestrian and vehicular, shall be suitably protected by use of safety barricades and warning lights. Installation of safety and warning equipment shall be sufficient to comply with governing authorities and to the satisfaction of the Project Representative.
- 2.9 Security: Contractor shall be responsible at all times for providing security to the work site including any areas outside the substation where freeze pits are to be installed, equipment, and materials. In addition, the Contractor shall provide site security for contractor worker safety.

3. ENVIRONMENTAL, EARTHWORK, AND TRENCHING

- 3.1. General: This section covers general earthwork and includes preparation of the construction areas; removal and disposal of debris; excavation and trenching; the handling, storage, transportation, and disposal of

excavated material; sheeting, shoring, and protection work; preparation of subgrades; dewatering; protection of adjacent construction; backfill; temporary plating of trench; jack and bore casing; construction of fills and embankments; surfacing and grading; and other appurtenant work, all in accordance with applicable federal, state and local laws, ordinances, permits and codes. The work shall consist of furnishing all labor, equipment and materials required of the work on this project.

The Contractor shall at all times exercise all reasonable precaution and diligence in all excavation and backfill activities so that the right-of-way of pedestrians and vehicles is obstructed for minimum periods only. To achieve these results the coordination of the equipment, personnel, and materials shall be given major consideration. All equipment, material and necessary personnel should be readily available or actually on the site of work before any excavation is started. All work shall be so planned that the time between the beginning of the excavation and the completion of the project is reduced to an absolute minimum.

- 3.2. Environmental Indemnity: The Contractor shall hold harmless, indemnify, and defend Owner, including without limitation, its officers, directors, members, representatives, affiliates, agents and employees, successors and assigns (the "Indemnified Parties") and will reimburse the Indemnified Parties from and against any and all claims, suits, demands, judgments, losses, costs, fines, penalties, damages, liabilities and expenses (including all costs of cleanup, containment or other remediation, and all costs for investigation and defense thereof including, but not limited to, court costs, reasonable expert witness fees and attorney fees) arising from or in connection with (a) the Contractor's, including, but not limited to, its agents, affiliates or assigns ("Parties"), actions or activities that result in a violation of any environmental law, ordinance, rule, or regulation or that leads to an environmental claim or citation or to damages due to the Contractor's or other Parties' activities, (b) any environmental, health and safety liabilities arising out of or relating to the operation or other activities performed in connection with the Work in by the Contractor or any Party at any time on or after the effective date of the Contract, or (c) any bodily injury (including illness, disability and death, regardless of when any such bodily injury occurred, was incurred or manifested itself), personal injury, property damage (including trespass, nuisance, wrongful eviction and deprivation of the use of real property) or other damage of or to any person in any way arising from or allegedly arising from any hazardous activity conducted by the Contractor or any Party. Owner will be entitled to control any remedial action, any proceeding relating to an environmental claim. This indemnification agreement is separate and apart from, and is in no way limited by, any insurance provided pursuant to this Contract or otherwise. This section relating to indemnification shall survive the Term of this Contract, and any holdover and/or Contract extensions thereto, whether such Term expires naturally by the passage of time or is terminated earlier pursuant to the provisions of this Contract.

There shall be no storage or stockpiling of tools, equipment, or materials and supplies within wetlands or other surface waters within or adjacent to the Work Area. Contractor shall prevent all cleared vegetation, lumber, scrap wood, trash, garbage, construction debris, equipment, tires, trailers, and other foreign debris or material from entering wetlands and surface waters not otherwise authorized by permit to be disturbed and impacted.

- 3.3. Environmental Requirements: Environmental Requirements shall be defined as all laws, ordinances, statutes, codes, rules, regulations, agreements, judgments, orders, permits including their conditions, and decrees, now or hereafter enacted, promulgated, or amended, of the United States, the states, the counties, the cities, or any other political subdivisions in which the Work Location is located, and any other political subdivision, agency or instrumentality exercising jurisdiction over JEA, the Work Location, or the use of the Work Location, relating to pollution, the protection or regulation of human health, natural resources, or the environment, or the emission, discharge, release or threatened release of pollutants, contaminants, chemicals, or industrial, toxic or hazardous substances or waste or Hazardous Materials (as defined in this Contract) into the environment (including, without limitation, ambient air, surface water, ground water or land or soil).

The Contractor shall be familiar, and otherwise comply with Environmental Requirements as they apply to the erection work under this Contract unless relieved from compliance with specified Environmental Requirements identified in this Contract.

- 3.4. Environmental Permitting: Contactor shall contact Andrew Sears, JEA Environmental Services at (904) 665-7719 or via email at searar@jea.com, within 30 days of being awarded this contract to discuss permitting requirements pertaining to the FL DEP Submerged Lands and Environmental Resources Program and to US Army Corp of Engineers (Agencies) permitting requirements. The Contractor shall not commence with application preparation or submittal of any applications to the Agencies, nor shall the Contractor hold meetings or otherwise discuss permitting requirements with the Agencies until the Contractor is authorized to do so by JEA Environmental Services.

- 3.5. NPDES Construction Generic Permit Conformance: The Contractor shall be responsible for making application and obtaining an NPDES Generic Permit for Stormwater Discharges from Large and Small Construction Activities as may be applicable pursuant to Chapter 62-621.300(4) F.A.C. The Contractor shall further be responsible for; developing and implementing a performance based Stormwater Pollution Prevention Plan (SWPPP), installing and maintaining in a functional manner structural and nonstructural best management practices identified by the SWPPP, evaluating the effectiveness of the best management practices, and employing additional performance based best management practices as may be deemed necessary by the Owner. The Contractor shall be responsible for completing inspections, required weekly and within 24 hours after a storm event resulting in greater than 0.5" of rainfall, as must be accurately determined in situ by the Contractor. The SWPPP and the weekly inspection reports are required to be kept at the project site and available for review upon request. The Contractor shall further ensure that the SWPPP will also comply with the City of Jacksonville Ordinance 98-994-E. The Contractor shall revise, or include as addendum to the SWPPP measures required by the City of Jacksonville necessary to remain compliant with the referenced ordinance. **No separate payment shall be made for Contractor revisions or addendums to the SWPPP, and their implementation, including those made so as to achieve functional, performance based best management practices, but all associated costs shall be included in the associated item of work in the Bid Form.**

The Contractor shall obtain all other applicable local, state, and federal permits. It is unlawful to have any discharges that are not composed entirely of stormwater (except discharges pursuant to a NPDES permit) to the Municipal Separate Stormwater System (MS4). Only non-contaminated water/non-turbid water shall be transported through the MS4. Groundwater discharge (approved by the Florida Department of Environmental Protection pursuant to 62-621.300(2)) from dewatering activities may be routed into the stormwater system, drainage ditch, creek, river or wetland providing that erosion, and transportation of suspended solids to the system is prevented.

If contaminated soil or contaminated groundwater is encountered, the dewatering activity shall cease immediately, and the Contractor shall contact the Owner's Environmental Coordinator, Andrew Sears at (904) 665-7719 and the Owner's Project Representative, Greg Couture at (904) 502-5925. The Owner shall complete Notice of Termination (NOT) (DEP Doc. No. 62-621.300(6), F.A.C.) within one (1) week of final site stabilization.

If the above requirements are not followed, the Contractor shall be held liable for any fines and/or violations incurred by the Owner.

- 3.6. Soil Management: No hazardous materials or contaminated soil are expected to be encountered during excavation.

Any excess soil generated by the excavation on either end of the installation which is not replaced within the excavation shall be disposed of in accordance with Chapters 62-770, 780, and 777, Florida Administrative Code (F.A.C.), and any other applicable federal, state, or local rules or regulations. Excess soil cannot be used or placed in a residential setting without first demonstrating that the material meets the soil cleanup target levels specified in 62-777 for a residential setting.

The contractor shall assume all liabilities and bear all costs associated with the disposition of the excess excavated materials (including but not limited to sampling, analyzing, storing, transporting, and disposal).

- 3.7. Sheeting and Shoring: The stability of previously constructed structures and facilities shall not be impaired or endangered by excavation work. Previously constructed structures and facilities include both structures and facilities existing when the work under these specifications begins and structures and facilities already provided under these specifications.

Adequate sheeting and shoring in accordance with OSHA regulations 29 CFR Part 1926 shall be provided to protect and maintain the stability of previously constructed structures and facilities and the sides of excavations and trenches until they are backfilled. Sheeting, bracing, and shoring shall be designed and built to withstand all loads that might be caused by earth movement or pressure and shall maintain the shape of the excavation under all circumstances. Certified/stamped drawings prepared by a registered professional engineer of all shoring details as required by OSHA shall be furnished to the Owner or the Owner's Engineer before any excavation begins. When "sloping" of the sides of the excavation or trench is used in lieu of sheeting or shoring the name of the "Competent Person" in charge for the Contractor shall be submitted in writing to the Owner or the Owner's Engineer before any excavation begins.

- 3.8. Dewatering: The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and ground water entering excavations and other parts of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until construction to be provided therein is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result. Ground water level shall be maintained at least 12 inches below the bottom of each excavation.

Surface water shall be diverted and prevented from entering trenches and excavations by means acceptable to the Project Representative **The Contractor will be responsible for any permit needed to properly discharge any groundwater.**

- 3.9. Existing Subsurface Installations: The Contractor shall conduct his operations on the basis that underground installations may exist which are not indicated. The Contractor shall be solely responsible for locating and identifying all existing underground installations such as, but not limited to, service connections, power lines, oil, water, air, and gas lines; sewers and other drains; circulating water lines; oil separators; septic tanks; telephone lines; electrical duct banks and raceway; or buried structures within the construction limits of the work and elsewhere where any penetration such as, but not limited to, excavation, plowing, trenching, driving of well points, or insertion of any tool or device below the surface is anticipated or required or where construction operations may subject underground installations to damage prior to the performance of such work. Surveying shall include contacting the Owners of underground utilities. Locator services and detection devices provided by the utility Owners shall be utilized when such are available. The Contractor shall hand excavate and positively identify all underground installations. **All information relative to the underground installations shall be recorded by the Contractor and incorporated into the field records.**

The Contractor will be held responsible for any interruption in the service of underground facilities resulting from his operations, unless the facility owner has given specific approval for the interruption in each case.

Except where the damaged parties desire to conduct their own repair and restoration work, the Contractor shall repair and fully restore any underground facility damaged during the construction period to a condition equal to or better than that which existed just prior to the time of damage. All repair and restoration work shall be done to the complete satisfaction of the facility owners and the Owner.

The Contractor shall make his own arrangements with any jurisdictional authority requiring inspection of repaired or reconditioned utility facilities. All inspection fees applicable shall be paid by the Contractor.

Where the facility owners desire to conduct their own repair and restoration work, the Contractor shall render all assistance to facilitate this corrective work. The Contractor shall assume all just and reasonable expenses incurred by the facility owners.

Any delay, additional work, or extra cost to the Contractor caused by existing underground installations shall not constitute a claim for increased work, additional work, additional payment, or damages.

- 3.10. Testing: All field and laboratory testing required to determine compliance with the requirements of this section shall be provided by the Contractor. Laboratory testing shall be performed by an independent testing laboratory acceptable to the Project Representative. Field sampling shall be performed by the testing laboratory. Field samples shall be taken at locations and depths selected by the Project Representative. If additional field control tests are necessary, in the opinion of the Project Representative, such tests shall be made.
- 3.11. Compaction: Backfill material over the top of pipe to finished grade shall be placed in 12 inch compacted thickness layers and shall be compacted to match existing conditions but not less than 95% of its maximum density as determined by the Laboratory Modified Proctor Test, ASTM D1557. Density testing shall be made on every compacted lift and at grade, located at 20% of all manholes/ structures and at (3) random locations as determined by the JEA Representative.
- 3.12. Structure Excavation: Excavation for structures shall be completed to the designated lines and elevations. Machine excavation shall be controlled to prevent undercutting the subgrade elevations indicated on the approved for construction drawings. Machinery shall not be used within 3 feet of permanent structures and facilities unless approved by the Project Engineer. Only hand tools shall be used for excavation around permanent structures and facilities. The Contractor shall be responsible for any damage caused by excavation. Construction areas shall be kept as free as possible from obstructions. Work shall not interfere with the transportation, storage, or handling of materials. Unused excavated materials shall be hauled away to an approved disposal site.
- 3.13. Over Excavation: All over excavated material shall be backfilled and compacted as specified at no additional cost to the JEA.
- 3.14. Structure and Trench Subgrades: Subgrades for structures and the bottom of trenches shall be firm, dense, free from mud, thoroughly compacted, and sufficiently stable to remain firm and intact.
- 3.15. Excavation: No more trench or other excavation shall be opened in advance of freeze pit installation than is necessary to expedite the work, or as required by city or county ordinance. All local laws and ordinances shall be strictly followed and acquired by the Contractor. Special care shall be taken to ensure safety to the workers and the public and minimize public inconvenience.
- The Contractor shall provide safety barricades, tape, guards, netting or other acceptable means to safeguard the public from hazards associated with the Contractor's work. All excavation shall be open cut from the surface.
- 3.16. Alignment and Grade: The Contractor shall be responsible for staking the alignment including offset stakes and maintaining the staked alignment and the elevation of each trench. The alignment and grade or elevation of each trench shall be fixed and determined by means of batter boards and offset stakes, laser beam equipment, or surveying instruments unless otherwise accepted.
- 3.17. Trench Dimensions: Trenches shall be excavated to a minimum width that will provide adequate working space and pipe clearance for safe and proper installation. Trenches shall be excavated to only a depth required by the approved construction issue drawings.

4. TERMINAL INSTALLATION

- 4.1. Scope: This work shall consist of furnishing all labor, equipment, and material required for the terminal installation of the cable system.

- 4.2. Installation of Terminals: The terminator shall be installed in strict accordance with the instructions and drawings issued by the cable and the terminator manufacturers. Where the instructions and/or drawings differ or contradict each other, the Project Representative shall determine the applicable instruction or method to follow.
Once a cap is removed from the end of a rise pipe, the connector installation shall proceed to completion without interruption.
- 4.3. Cable Support: **The possibility exists that the cable may be under some amount of unknown tension due to settlement. It is the responsibility of the contractor to relieve the tension enough to be able to install each termination and to protect the existing cable.**

5. SPREADER HEAD, RISER PIPE, AND TERMINATOR PRESSURE INSPECTION

- 5.1. After all terminators have been installed, they shall be tested for tightness by raising the pressure in the joined section to 15 psig with dry nitrogen and then checking each field weld, valves, and associated equipment not previously field tested, as follows:

When the pressure within the section has reached 15 psig, each weld (if any) shall be tapped around its circumference with a 2 pound ball peen hammer and liberally sprayed with "Leak-Tec" leak detector solution. Leaky welds, as indicated by the formation of gas bubbles in the film, shall be repaired and retested until they are tight. Other testing means shall be used only with the approval of the Project Representative.

6. PIPE FREEZE

- 6.1. Scope: The Contractor shall be responsible for furnishing and installing all necessary labor, equipment, and materials to successfully freeze the pipe-type cable system. The method to be used shall employ liquid nitrogen in copper coils wrapped around the bare steel pipe. The Contractor shall monitor the freeze continually to ensure the frozen plug remains intact during construction.
- 6.2. Personnel Safety: Direct contact with liquid nitrogen will result in burns and/or frost bit. Therefore, the Contractor shall adhere to the following minimum safety precautions:

Face shields, long sleeve shirts, and protective gloves shall be worn at all times while working in the freeze area. Only authorized personnel shall be allowed in the freeze area. All personnel shall be kept out of the freeze pit. Keep the freeze pit well ventilated. In a confined area, the nitrogen fumes can cause oxygen deficiency resulting in suffocation without warning. Fence off the area immediately around the exhaust of the nitrogen fumes.

During the freeze process, the Contractor shall have in force an effective safety program. The Contractor shall take all the necessary safety precautions when removing the existing pipe fluid and cable from the abandoned portion of cable pipe.
- 6.3. Material: The Contractor shall be responsible for disposing of all materials removed from service in accordance with all applicable federal, state, and local ordinances.
- 6.4. Excavation: A pit approximately 9 feet long, 5 feet wide, with a depth of 2 feet below the bottom of the pipe shall be excavated in an area deemed suitable by the Contractor. Portable water pumps shall be available in case of flooding to prevent water from coming in contact with the freezing coils which would provide a heat sink and thaw the freeze. Tarpaulins shall also be available to protect the freeze area from rain.
- 6.5. Establishing and Maintaining the Freeze: The pressure in the cable system shall be lowered to a maximum 75 psi and maintained at reduced pressure for the duration of the freeze.

Connect the feed lines to the liquid nitrogen tanks. Position the vent lines to face away from the valves and work area, so that the valves can be operated without danger of contact with the vented gas.

Record the ambient pipe surface temperatures. Record the time and start of the flow of liquid nitrogen at a rate sufficient to completely fill the coils. Use caution in vicinity of vents to prevent injury to skin or eyes from the extremely cold discharge.

Read and record temperatures at 15 minute intervals after the liquid nitrogen flow is started.

CAUTION: At no time during the hard freeze, should any external pressure, sharp blows or impact be applied to the frozen area of the pipe.

- 6.6. Thawing the Freeze: Once construction is complete, and oil has been received at steady flow, the freeze is ready to be thawed. The Contractor shall take measures to assure a balance of pressures on either side of the freeze. No external heat shall be applied to accelerate the thawing process.

Release the freeze by closing the valves to shut off the liquid nitrogen flow. Allow the tubes to vent before disconnecting from the tanks. Strip all insulation and allow the pipe to warm to ambient temperature. The frozen plug will thaw in 6 to 9 hours under normal ambient temperature conditions.

After the plug is completely thawed, fluid samples shall be taken to check the dielectric strength of the fluid. Once the dielectric strength is greater than 30 kV (ASTM D-877), the pressure shall be gradually raised to pressure with specification titled *Termination Evacuation and Liquid Filling*.

All this work shall be continued 24 hours a day until completed.

7. TERMINATION EVACUATION AND LIQUID FILLING

- 7.1. Scope: The Contractor shall furnish equipment and trained personnel as required for evacuation and admission of liquid into the pipe-type cable system. The requirements of the manufacturer for this process will be strictly adhered to by the Contractor.
- 7.2. General: Each termination shall be filled directly from the delivering tank trucks and will be degasified by the Contractor.
- 7.3. Evacuation: When the termination installation is complete, the circuit may be considered ready for final evacuation and filling with liquid.

The terminations shall be purged and then evacuated to an absolute pressure of 250 microns or less. Evacuation pumping shall be continued for 8 hours after which a vacuum drop test shall be conducted. If after 1 hour the vacuum loss is less than 250 microns, the pipeline shall be considered sound. If the loss is greater than 250 microns, the cause of the loss shall be determined and the Project Representative notified.

A vacuum pump of suitable capacity shall be connected to and operated at each liquid pump connection to establish and maintain the high vacuum initially and during filling operations. Suitable vacuum connections shall be made to each terminator.

Liquid Test: Prior to injecting any liquid into the pipeline system, a sample of liquid shall be withdrawn from each tank truck and checked for dielectric strength. The insulating fluid furnished and installed by the contractor shall be DICHEVEROL DIELECTRIC 500. The fluid shall be furnished in sufficient quantity to completely fill the entire section of new termination(s) and any associated losses from work performed. Fluid shall be degasified before shipping. Upon delivery of the fluid to the site, a dielectric test per ASTM D-877 and a moisture content test per ASTM D-1533 (Karl Fischer) test of the fluid shall be performed prior to acceptance and installation. The fluid must pass both tests to be acceptable.

- 7.4. Liquid Filling: Extreme care shall be exercised to prevent air or other contaminants from coming into contact with the liquid. As the line is filled, a high vacuum shall be maintained in front of the advancing liquid and a slight positive nitrogen pressure (approx. 2 psi) shall be applied to the discharging tank. The filling rate shall not exceed 50 gallons per minute. Pressure gauges shall be installed at the terminations to monitor the pressure.

Each terminator shall be flushed through with at least 2 gallons of fluid. After initial flushing, a sample shall be withdrawn and checked for clarity and dielectric strength. If the dielectric strength is 35 kV or better, the terminators may be sealed.

Excess insulating fluid shall become the property of JEA and shall be deposited in the tank reservoir at Georgia Substation, 637 N Georgia St, Jacksonville, FL.

- 7.5. Pressurizing: After the pipe system is filled and pressurized to 25 psi, the pipeline shall then be further pressurized using the pumping plant. Before proceeding from one pressure stage to the next, gas shall be bled from each bleed point. The following stages of pressurization shall be utilized in bringing the line up to full pressure.

50 psi	8 hours minimum
100 psi	6 hours minimum
150 psi	6 hours minimum
200 psi	24 hours minimum

8. CLEAN UP & RESTORATION

- 8.1. Site Clean Up & Restoration: The work included under these specifications shall include removal of all foreign materials from the job site, repair of all damages, and restoration of the construction area to as good or better condition than when construction started. Complete all "Punch List Items" to the "Owners" satisfaction prior to demobilization.
- 8.1.1. Removal of debris at Georgia Substation: Upon completion of the termination installation, the Contractor shall remove and dispose of all oil drums, boxes, old terminations etc. inside the Georgia 69kV Substation.
- 8.1.2. Removal of debris at Georgia Substation around Circuits 641, 668, 671 & 672: There are two (2) 55-gallon oil drums, and various boxes/debris located under each riser. It will be the responsibility of the Contractor to remove this debris.
- 8.2. Removal of Contaminated Fill: It will be the responsibility of the Contractor to remove and dispose of all substation rock encountered at Georgia Substation under circuits 641, 668, 671 & 672. The Contractor shall remove fill up to 1-foot in depth and replace with FDOT #5 Blue-Grey Limerock. **All bidders shall include a cost of removal and fill per cubic yard, as a separate line item on their bid.**

9. SEQUENCE OF WORK

- 9.1. Mobilize at circuit 641
- 9.2. Receive and Unload Material
- 9.3. Begin outage on 641
- 9.4. Install Freeze Pits

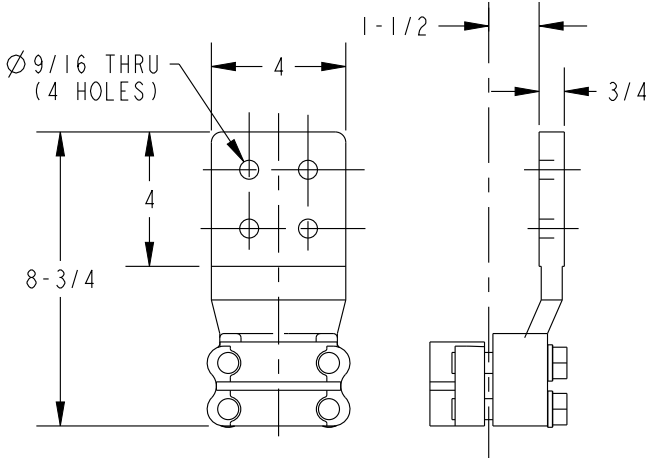
- 9.5. Remove and Install Pot Heads
- 9.6. Vacuum Test
- 9.7. Install DF 500 Dielectric Fluid
- 9.8. DC Test
- 9.9. Re-energize 641
- 9.10. Cleanup & Restore
- 9.11. Mobilize at circuit 668
- 9.12. Receive and Unload Material
- 9.13. Begin outage on 668
- 9.14. Install Freeze Pits
- 9.15. Remove and Install Pot Heads
- 9.16. Vacuum Test
- 9.17. Install DF 500 Dielectric Fluid
- 9.18. DC Test
- 9.19. Re-energize 668
- 9.20. Cleanup & Restore
- 9.21. Mobilize at circuit 671
- 9.22. Receive and Unload Material
- 9.23. Begin outage on 671
- 9.24. Install Freeze Pits
- 9.25. Remove and Install Pot Heads
- 9.26. Vacuum Test
- 9.27. Install DF 500 Dielectric Fluid
- 9.28. DC Test
- 9.29. Re-energize 671
- 9.30. Cleanup & Restore
- 9.31. Mobilize at circuit 672
- 9.32. Receive and Unload Material

- 9.33. Begin outage on 672
- 9.34. Install Freeze Pits
- 9.35. Remove and Install Pot Heads
- 9.36. Vacuum Test
- 9.37. Install DF 500 Dielectric Fluid
- 9.38. DC Test
- 9.39. Re-energize 672
- 9.40. Cleanup & Restore

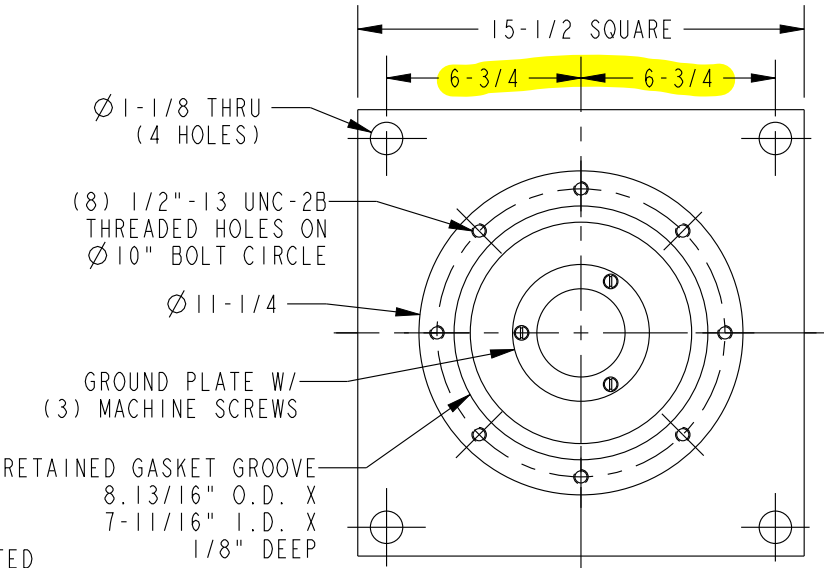
DRAWING REVIEW TEAM		REVISIONS		
		REV.	CHANGE	DATE
		A	398754 - PRL	7-2-18
		B	411076 - PRL	9-25-18

✱ - FIELD ASSEMBLY NOTE

IF AERIAL LUG ORIENTATION IS FIXED, BEFORE ATTACHING CONNECTOR TO CABLE, TEMPORARILY ASSEMBLE VALVE INTO CONNECTOR & ALIGN CONNECTOR WITH VALVE OUTLET POINTED AWAY FROM AERIAL LUG PAD LOCATION. THEN CRIMP CONNECTOR ONTO CABLE CONDUCTOR.



STYLE "8" AERIAL LUG
NEMA DRILLED, SILVER PLATED



EXISTING BASE PLATE AND
MOUNTING PLATE ASSEMBLY

CABLE SIZE		900 (kcmil)	
CONN. DIMENSIONS			
"A" ±.005	"B" ±.015	"C"	
1.100	1.500	3.75	
1.100	1.500	10.00	
PIPE STUB SIZE & MAT'L			
N/A			
PIPE STUB DIMS			
I.D.	O.D.	"L"	
N/A	N/A	N/A	
CABLE PREP DRAWING No.: D5080 0262 P00			
REMARKS			
REPLACES G&W D7260 0041 Z00			

PHYSICAL CHARACTERISTICS

NOMINAL OPERATING PRESSURE --- 300 PSI
MAX. TRANSIENT PRESSURE (UP TO 10 HR.) ----- 450 PSI
FACTORY TEST (1 HR) ----- 750 PSI
APPROX. WEIGHT ----- 800 LBS
OIL CAPACITY ----- 8 GALS.

DIELECTRIC CHARACTERISTICS

60 Hz. 6 HOUR DRY WITHSTAND ---- 200 kV
60 Hz. 1 MINUTE DRY WITHSTAND -- 260 kV
60 Hz. 10 SEC WET WITHSTAND ---- 230 kV
IMPULSE WITHSTAND - (1.2 X 50) = 550 kV

ALL DIMENSIONS ARE IN INCHES

ALL DRAWING CHANGES MUST BE MADE ON CAD. ANY MANUAL CHANGES WILL VOID DRAWING.

TERMINATION TYPE ATAI39N-HS 1/C, 115kV 300 P.S.I. OIL PRESSURE		G&W G&W ELECTRIC Co.	
CAT. NO.: ATAI39N-HS		DRAWING NO. D7263 0042 ARO	
DRAWN BY: PRL		DATE: Jun-27-18	
APPR BY: RHA		DATE: 6-29-18	
SCALE:		SHEET: 1 of 2	
REV		B	

PRINT IDENTIFICATION

DATE _____ G&W NO. _____

CUSTOMER _____

ORDER NO. _____

☐ FOR RECORD

ITEM NO. _____

☐ FOR APPROVAL

NO MORE WORK TO BE DONE UNTIL APPROVAL IS RECEIVED

This drawing and the information thereon are and remain the property of G&W and are not to be copied, reproduced or disclosed to others without the expressed written consent of G&W.

IT	DESCRIPTION	PART NUMBER	QTY	NOTES	PACKAGE
1	BASIC TERMINATION, ATAI39N-HS	B5083 0113 D00	1		A
2	NAMEPLATE, CUT-OFF/PRESSURE	A3717 0035 D00	1		A (W/BASIC TERM.)
3	NAMEPLATE, SERIAL NUMBER	A3717 0035 A00	1		A (W/BASIC TERM.)
4	#4 X 1/4" S.S. DRIVE SCREW	03000 0034 009	4		A (W/BASIC TERM.)
5	SEMI STOP ASSEMBLY, 115kV TERM.	B6322 0401 A00	1		B
6	CLAMPING DISC, 1.938" I.D.	A0018 0017 000	2		B (W/SEMI-STOP)
7	COMPRESSION GASKET,1.875" I.D.	A1881 0014 000	8		B (W/SEMI-STOP)
8	(3) OIL FILTERS & STANDS, ATA	A7260 1022 B00	1		BI
9	STUDS/HDWR KIT, SET OF 6	A7260 0554 C00	1		CI
10	STRESS CONTROL PORCELAIN	B6300 0006 000	1		DI
11	PAPER ROLL SUPPORT ASSEMBLY	A5080 0054 000	1		EI
12	CRNA SHLD KIT W/ CLIPS & VALVE	A7260 1081 B00	1		FI
13	STRESS CONE MATERIALS	A5080 1473 B00	1		GI
14	INSTALLATION GSKTS., ATAI39N	A7260 0583 P00	1		HI
15	STYLE 8 OFFSET CU LUG, AG PLT	A5076 0049 X00	1		JI
16	SPARE GSKTS., ATAI39N, ADAPTOR	A7260 0553 B00	1		KI
17	CONNECTOR, 900 kcmil, ATAI39N	B5025 0155 000	1		LI
18	EX. LG. CONN, 900kcmil,ATAI39N	B5025 0155 A00	1		MI
19	PAPER ROLL ASSEMBLY ATAI39N	B5323 0623 000	1	N1	
20	ADAPTOR KIT, ATAI30 TO ATAI39N	A7260 1817 000	1	N1	
21	CRATE KIT ATAI40 112 X 24 X 28	A1341 5816 A00	1		

DRAWING REVIEW TEAM		REVISIONS		
		REV.	CHANGE	DATE
		A	398754 - PRL	7-2-18
		B	411076 - PRL	9-25-18

G & W ELECTRIC CO.

CAT. NO.

ATAI39N-HS

115

 kV

900

 kcmil

SER. NO.

CABLE CUT-OFF
LENGTH _____

PRESSURE TESTED AT 750 PSI

CABLE CUT-OFF LENGTH EQUALS "L" MINUS 3-3/16"
(SEE BASIC TERM FOR "L")
FOR STANDARD LENGTH CONNECTORS ONLY

NOTES:

N1) THESE ITEMS ARE SPECIFIED AS SEPARATE LINE ITEMS.

SEE SHEET (1) FOR TERMINATION LAYOUT

ALL DIMENSIONS ARE IN INCHES

ALL DRAWING CHANGES MUST BE MADE ON CAD. ANY MANUAL CHANGES WILL VOID DRAWING.

TERMINATION TYPE ATAI39N-HS
1/C, 115kV
300 P.S.I. OIL PRESSURE



CAT. NO.: ATAI39N-HS

DRAWN BY: PRL

APPR BY:

DRAWING NO.
D7263 0042 ARO

DATE: Sep-25-18

DATE:

REV
B

SCALE:

SHEET: 2 of 2

69KV TRANSMISSION CABLES

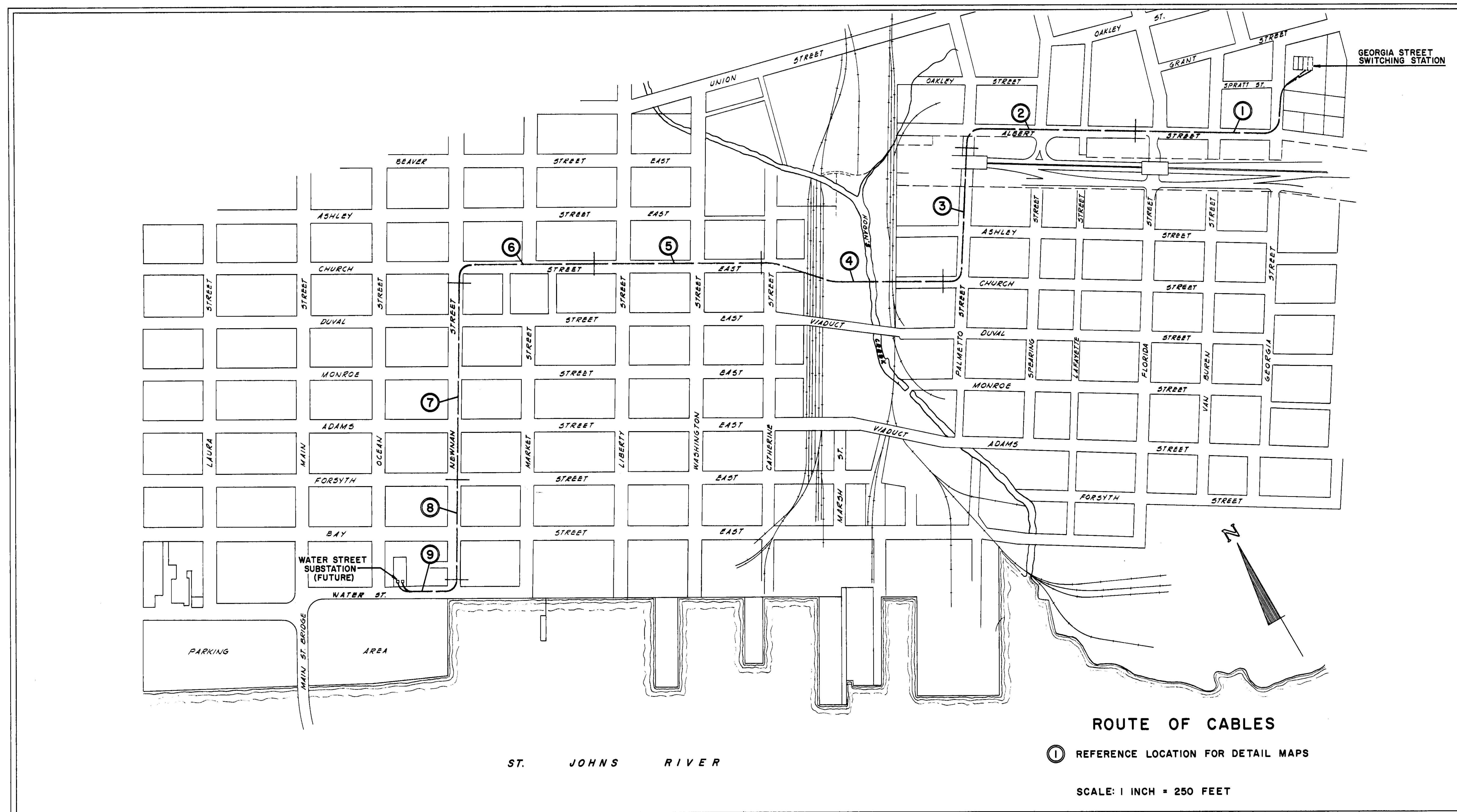
GEORGIA ST. SWITCHING STATION TO WATER ST. SUBSTATION

FOR

J. DILLON KENNEDY
PUBLIC UTILITIES COMMISSIONER

CITY OF JACKSONVILLE
JACKSONVILLE, FLORIDA

ROBERT B. COWAN - ENGINEER MANAGER
DEPARTMENT OF ELECTRIC & WATER UTILITIES

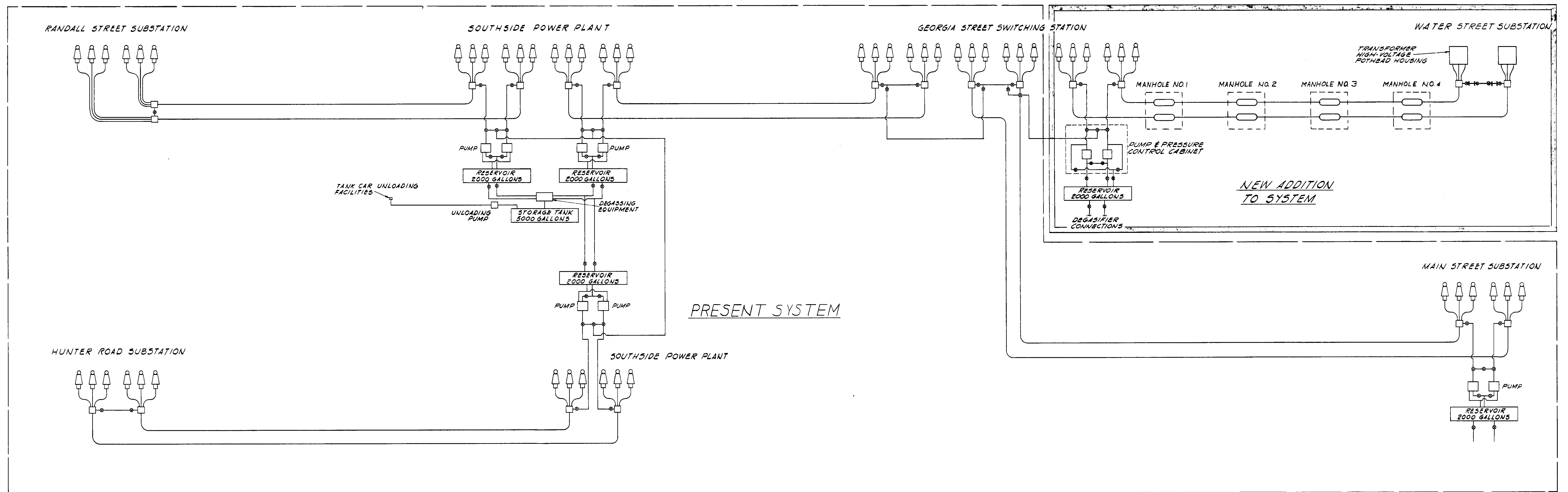


PROJECT NO. 59III-39

REYNOLDS, SMITH & HILLS
ARCHITECTS AND ENGINEERS
JACKSONVILLE, FLORIDA
JULY 1, 1960

CITY W.O. NO. 59III-39.1

DRAWING NO.	TITLE	SHEET NO.	DRAWING NO.	TITLE	SHEET NO.
59III-39 D5505	ROUTE OF CABLES & INDEX TO DRAWINGS	1	59III-39 D5513	CABLE TERMINATION AND DETAILS - GEORGIA STREET SWITCHING STATION	9
59III-39 D5506	GENERAL ARRANGEMENT OF 69 KV CABLE SYSTEM	2	59III-39 D5514	CABLE TERMINATION AND DETAILS - WATER STREET SUBSTATION	10
59III-39 D5507	ROUTE OF CABLES : REFERENCE LOCATION 1	3	59III-39 D5515	TYPICAL MANHOLE AND PIPE ANCHORS	11
59III-39 D5508	ROUTE OF CABLES : REFERENCE LOCATIONS 2 & 3	4	59III-39 D5516	TERMINAL STRUCTURE AND DETAILS	12
59III-39 D5509	ROUTE OF CABLES : REFERENCE LOCATION 4	5	59III-39 D5517	REMOTE PRESSURE RECORDING AND ALARM PANEL - MAIN STREET SUBSTATION	13
59III-39 D5510	ROUTE OF CABLES : REFERENCE LOCATIONS 5 & 6	6	59III-39 D5518	PUMPHOUSE - ELECTRICAL AND PIPING	14
59III-39 D5511	ROUTE OF CABLES : REFERENCE LOCATIONS 7 & 8	7	59III-39 D5519	PUMPHOUSE - STRUCTURAL	15
59III-39 D5512	ROUTE OF CABLES : REFERENCE LOCATION 9	8	SK-59III-39-54-R1	PILOT WIRE EQUIPMENT	



69KV PIPE-TYPE CABLE SYSTEM

DESIGN DATA							REMARKS
CIRCUIT NO. 642	TERMINATION AT GEORGIA STREET SWITCHING STATION	MANHOLE NO. 1	MANHOLE NO. 2	MANHOLE NO. 3	MANHOLE NO. 4	TERMINATION AT WATER STREET SUBSTATION	
STATION NUMBER	0+17	17+42.28	28+92.55	39+55.90	55+96.17	73+85.54	
SECTION DESIGNATION FOR CABLE	642-1	642-2	642-3	642-4	642-5	642-5	
DISTANCE BETWEEN MANHOLES - FEET	1,725.28	1,250.27	963.35	1,640.27	1,789.37		
CIRCUIT NO. 641	TERMINATION AT GEORGIA STREET SWITCHING STATION	MANHOLE NO. 1	MANHOLE NO. 2	MANHOLE NO. 3	MANHOLE NO. 4	TERMINATION AT WATER STREET SUBSTATION	REMARKS
STATION NUMBER	0+00	17+42.28	28+92.55	39+55.90	55+96.17	74+17.54	
SECTION DESIGNATION FOR CABLE	641-1	641-2	641-3	641-4	641-5	641-5	
DISTANCE BETWEEN MANHOLES - FEET	1,742.28	1,250.27	963.35	1,640.27	1,821.57		

AS CONSTRUCTED DATA							REMARKS
CIRCUIT NO. 642	TERMINATION AT GEORGIA STREET SWITCHING STATION	MANHOLE NO. 1	MANHOLE NO. 2	MANHOLE NO. 3	MANHOLE NO. 4	TERMINATION AT WATER STREET SUBSTATION	
STATION NUMBER	0+17	17+40.44	29+89.15	39+53.43	55+97.38	73+95.21	
SECTION DESIGNATION FOR CABLE	642-1	642-2	642-3	642-4	642-5	642-5	
DISTANCE BETWEEN MANHOLES - FEET	1,723.44	1,248.71	964.28	1,643.93	1,797.83		
VACUUM TEST DATA							
INSULATION TEST OF PIPE COATING - MEGOHMS/50 FT.							
DATE OF CABLE INSTALLATION	2-13-62	2-5-62	2-8-62	2-12-62	3-14-62		
MAXIMUM PULLING TENSION - POUNDS	2200	2200	1050	2000	2400		
TIME REQUIRED FOR PULL - MINUTES	70	55	40	60	50		
CIRCUIT NO. 641	TERMINATION AT GEORGIA STREET SWITCHING STATION	MANHOLE NO. 1	MANHOLE NO. 2	MANHOLE NO. 3	MANHOLE NO. 4	TERMINATION AT WATER STREET SUBSTATION	REMARKS
STATION NUMBER	0+00	17+40.44	29+89.15	39+53.43	55+97.38	74+30.08	
SECTION DESIGNATION FOR CABLE	641-1	641-2	641-3	641-4	641-5	641-5	
DISTANCE BETWEEN MANHOLES - FEET	1,740.44	1,248.71	964.28	1,643.93	1,832.70		
VACUUM TEST DATA							
INSULATION TEST OF PIPE COATING - MEGOHMS/50 FT.							
DATE OF CABLE INSTALLATION	2-14-62	2-3-62	2-7-62	2-9-62	3-8-62		
MAXIMUM PULLING TENSION - POUNDS	2200	1600	1000	1800	2000		
TIME REQUIRED FOR PULL - MINUTES	60	55	45	55	60		

PROJECT NO. 59111-39 H.O. NO. 59111-39.1

REYNOLDS, SMITH AND HILLS
ARCHITECTS & ENGINEERS
JACKSONVILLE, FLORIDA

DRAWN: S.M.
TRACED: R.A.H.
CHECKED: R.A.H.
SCALE: NONE
DATE: JULY 1, 1960

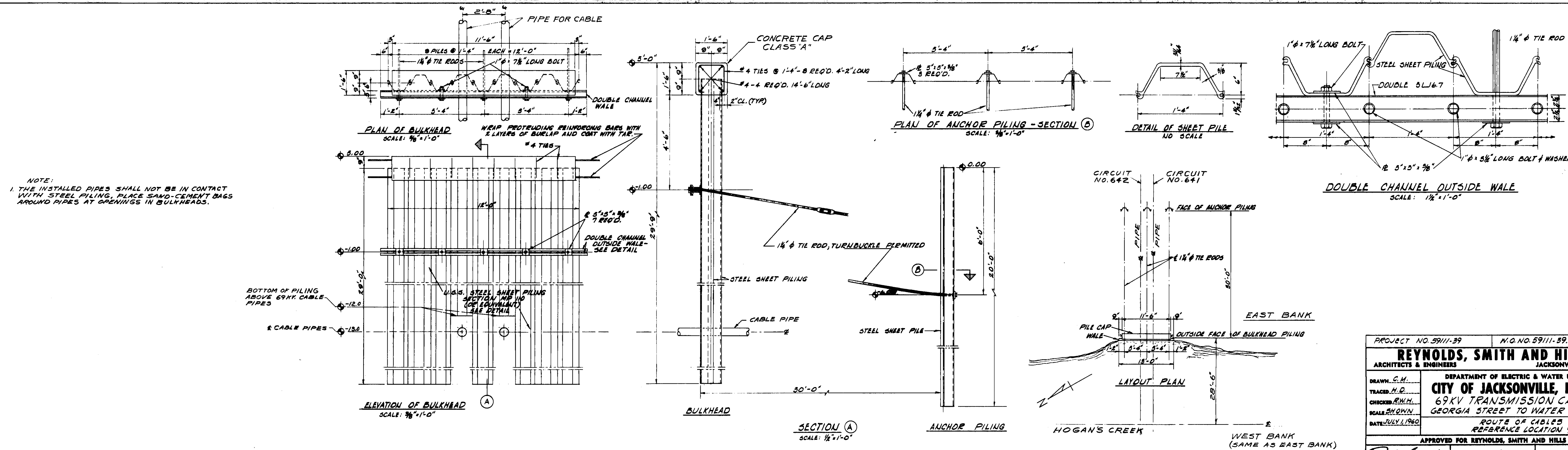
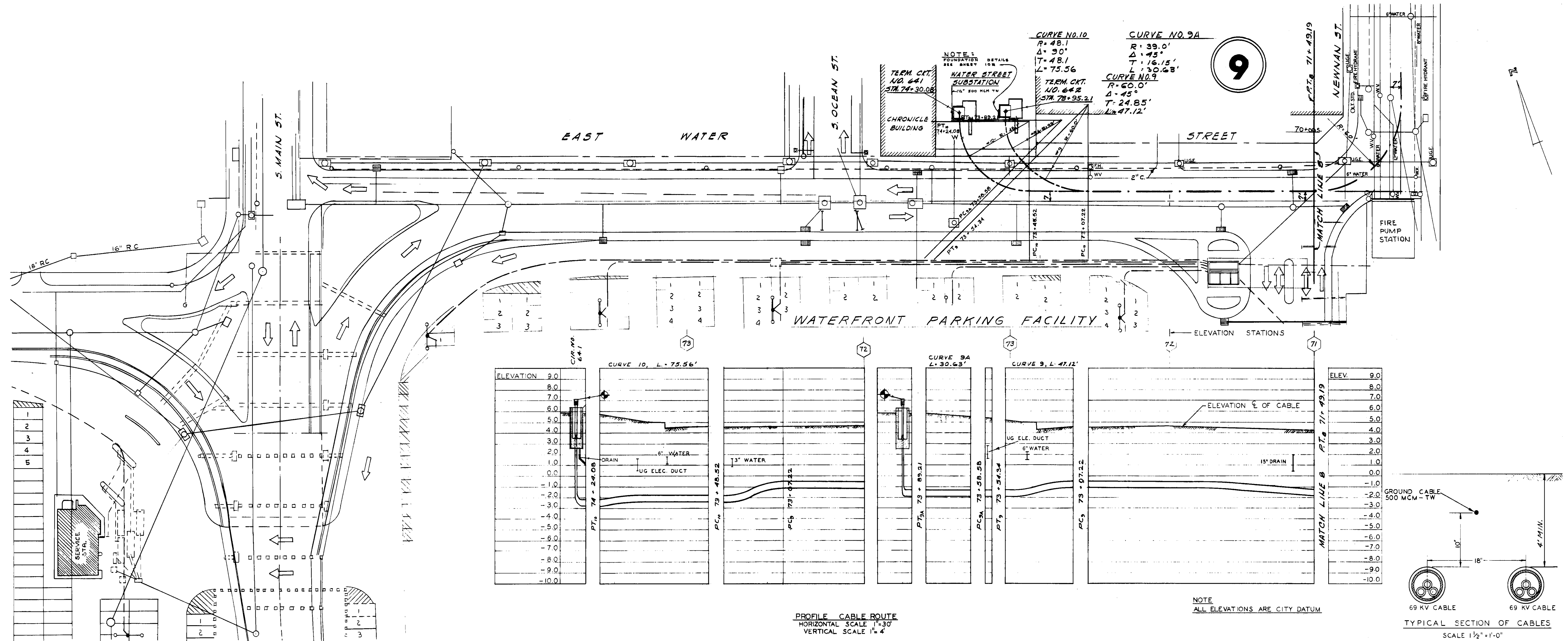
DEPARTMENT OF ELECTRIC & WATER UTILITIES
CITY OF JACKSONVILLE, FLORIDA
69KV TRANSMISSION CABLES
GEORGIA STREET TO WATER STREET
GENERAL ARRANGEMENT OF 69 KV CABLE SYSTEM

APPROVED FOR REYNOLDS, SMITH AND HILLS
R.C. Smith D.W. Hill

FOR THE CITY OF JACKSONVILLE
DEPARTMENT HEAD: R.C. Smith
ENGINEER: D.W. Hill

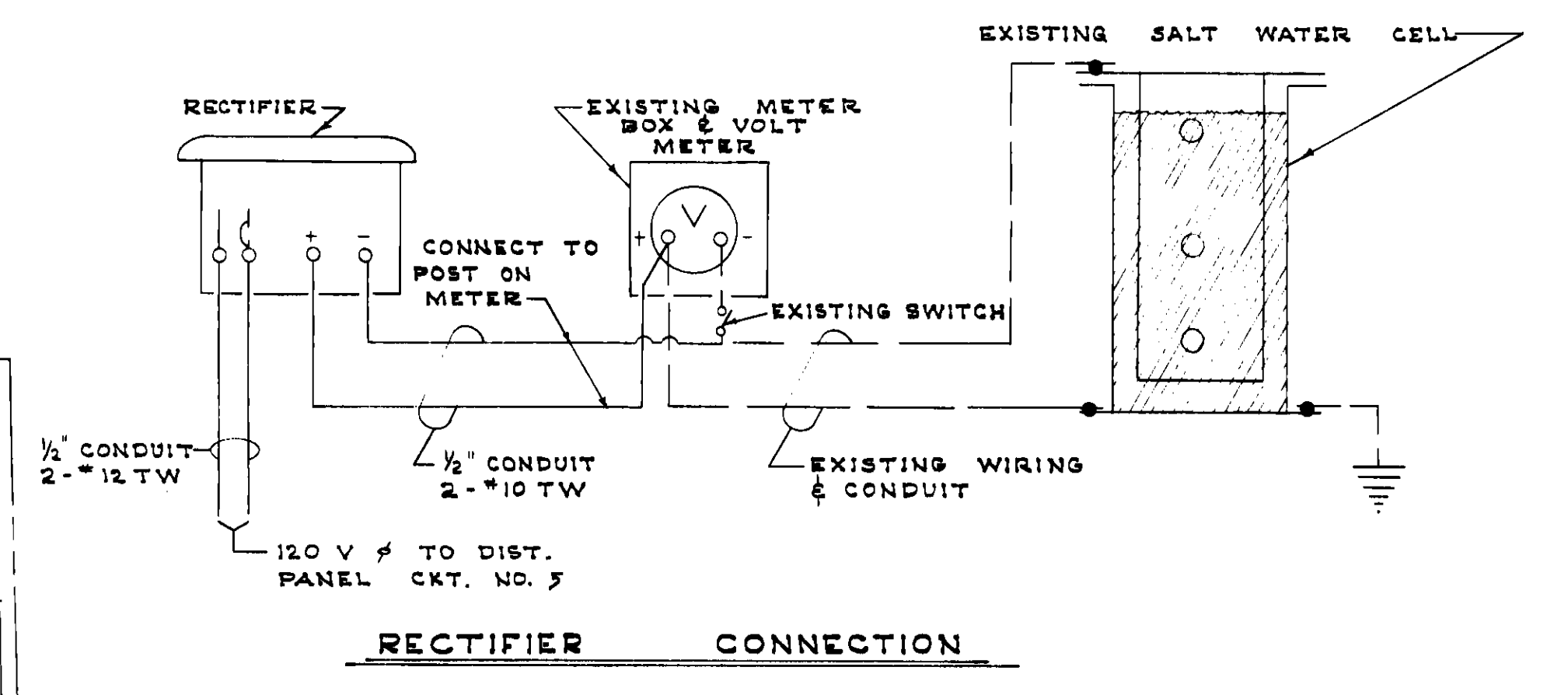
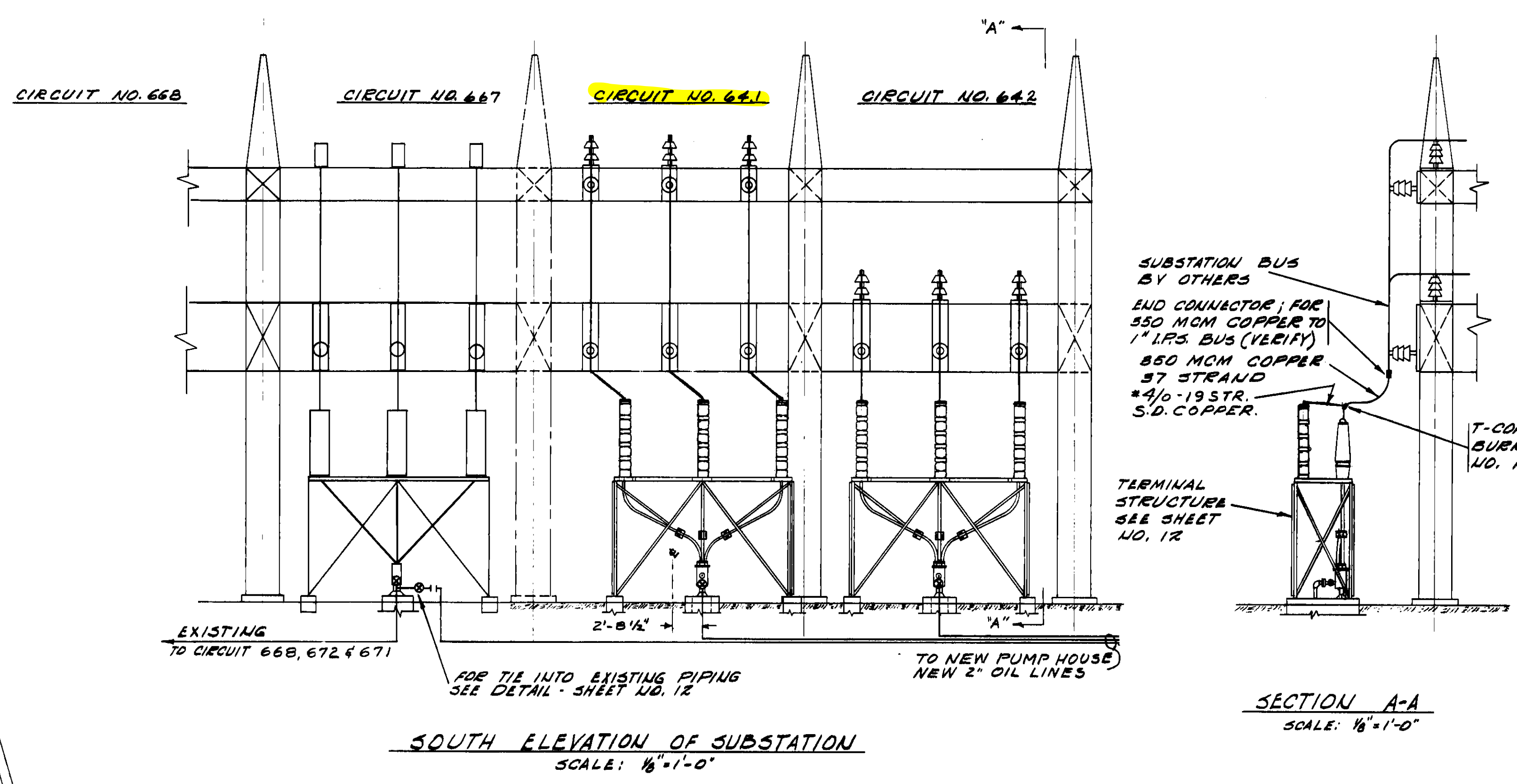
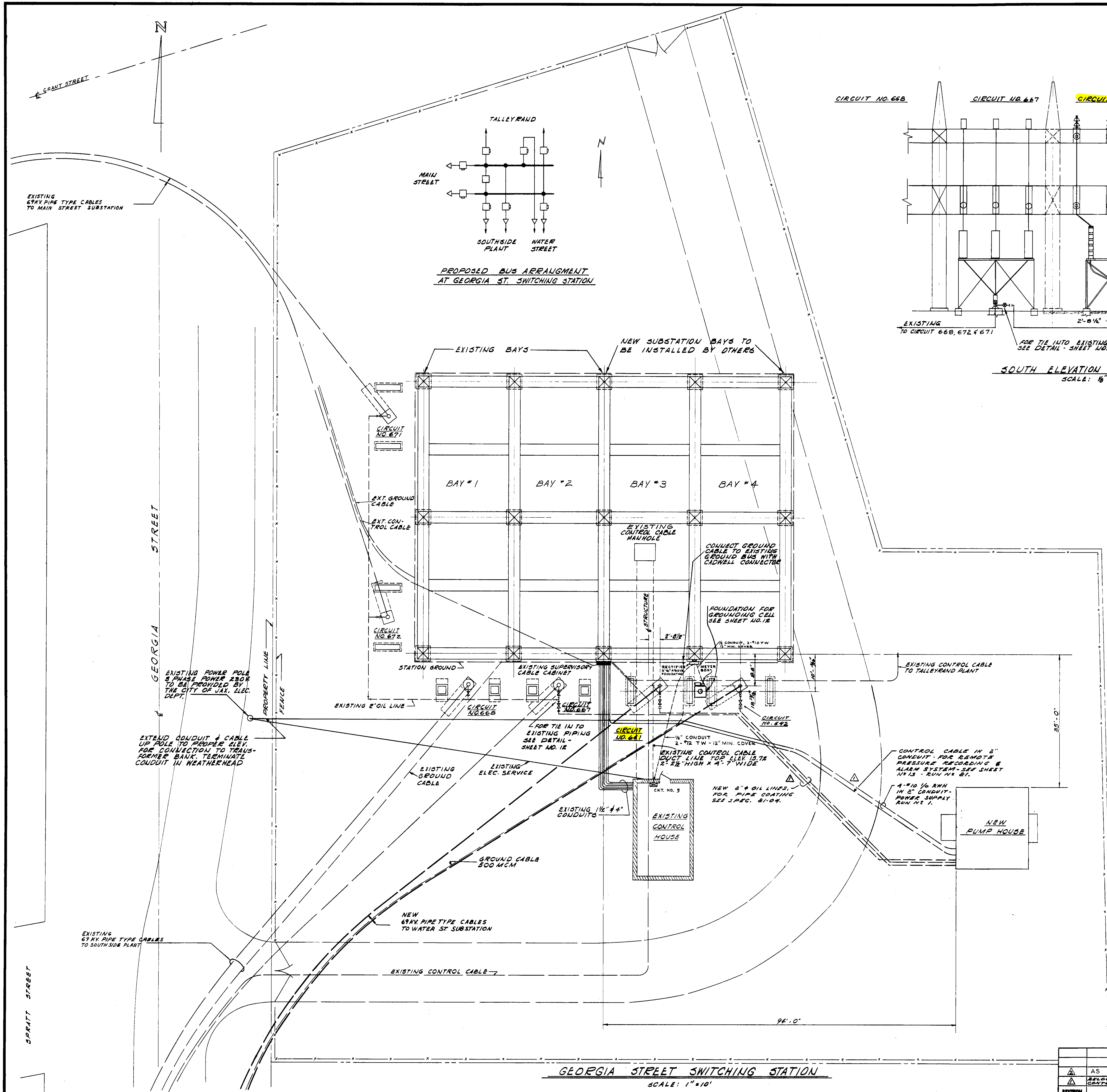
DRAWING NO.
59111-39
05506
SHEET 2 OF 15

REVISION	DESCRIPTION	DATE	BY	APPROVED	DEPARTMENT HEAD	ENGINEER	DATE
AS BUILT		5-7-63	RAH	RCG			



DETAILS - STEEL PILING BULKHEAD FOR HOGAN'S CREEK

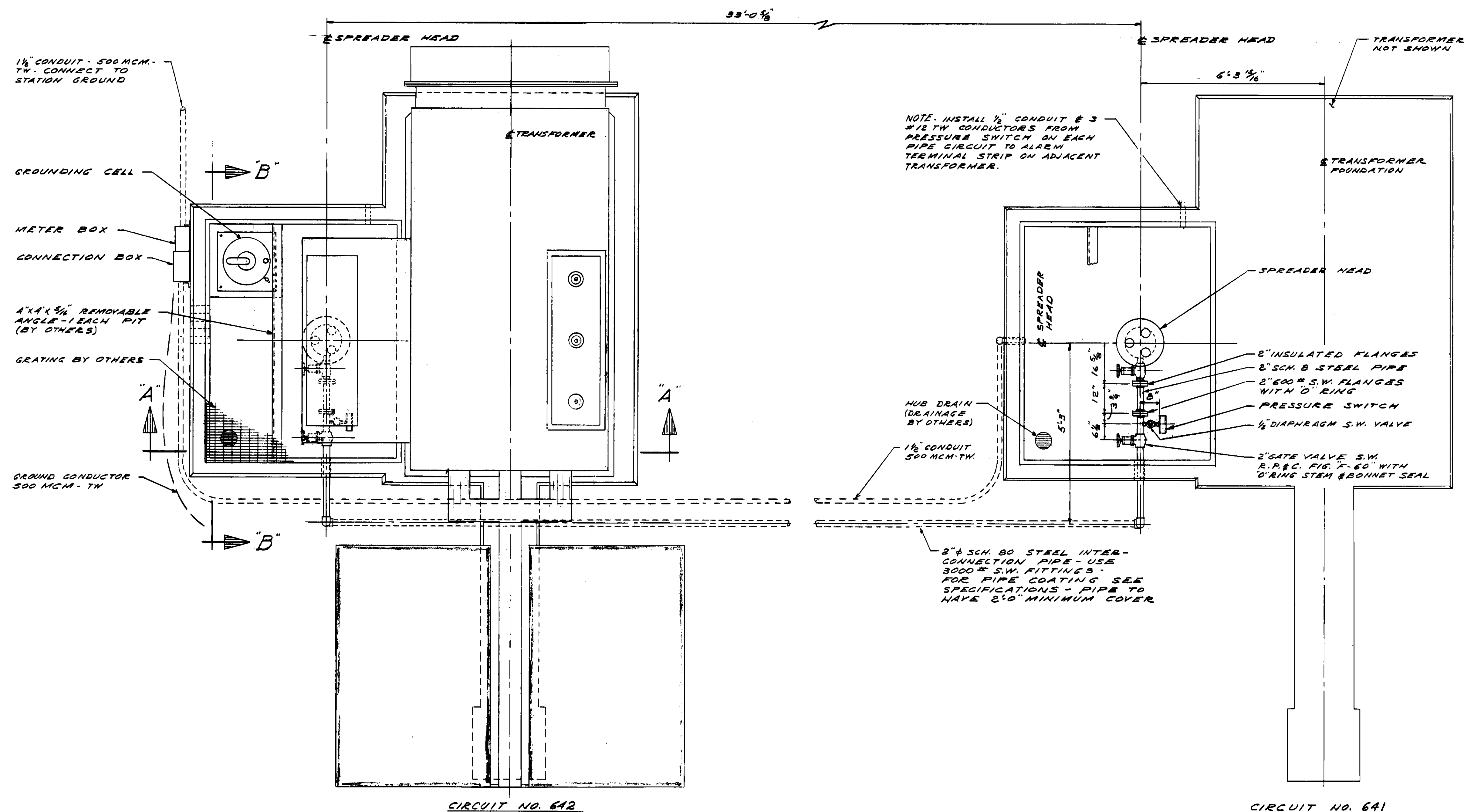
PROJECT NO. 59111-39		N.O. NO. 59111-39.1	
REYNOLDS, SMITH AND HILLS ARCHITECTS & ENGINEERS JACKSONVILLE, FLORIDA			
DEPARTMENT OF ELECTRIC & WATER UTILITIES CITY OF JACKSONVILLE, FLORIDA 69KV TRANSMISSION CABLES GEORGIA STREET TO WATER STREET ROUTE OF CABLES REFERENCE LOCATION 9			
APPROVED FOR REYNOLDS, SMITH AND HILLS			
FOR THE CITY OF JACKSONVILLE		DRAWING NO. 59111-39 D5512	
AS BUILT - DATA FROM CONTRACTOR		DATE: 5-10-63 BY: R.B.J. R.C.G.	
REVISION		DESCRIPTION	



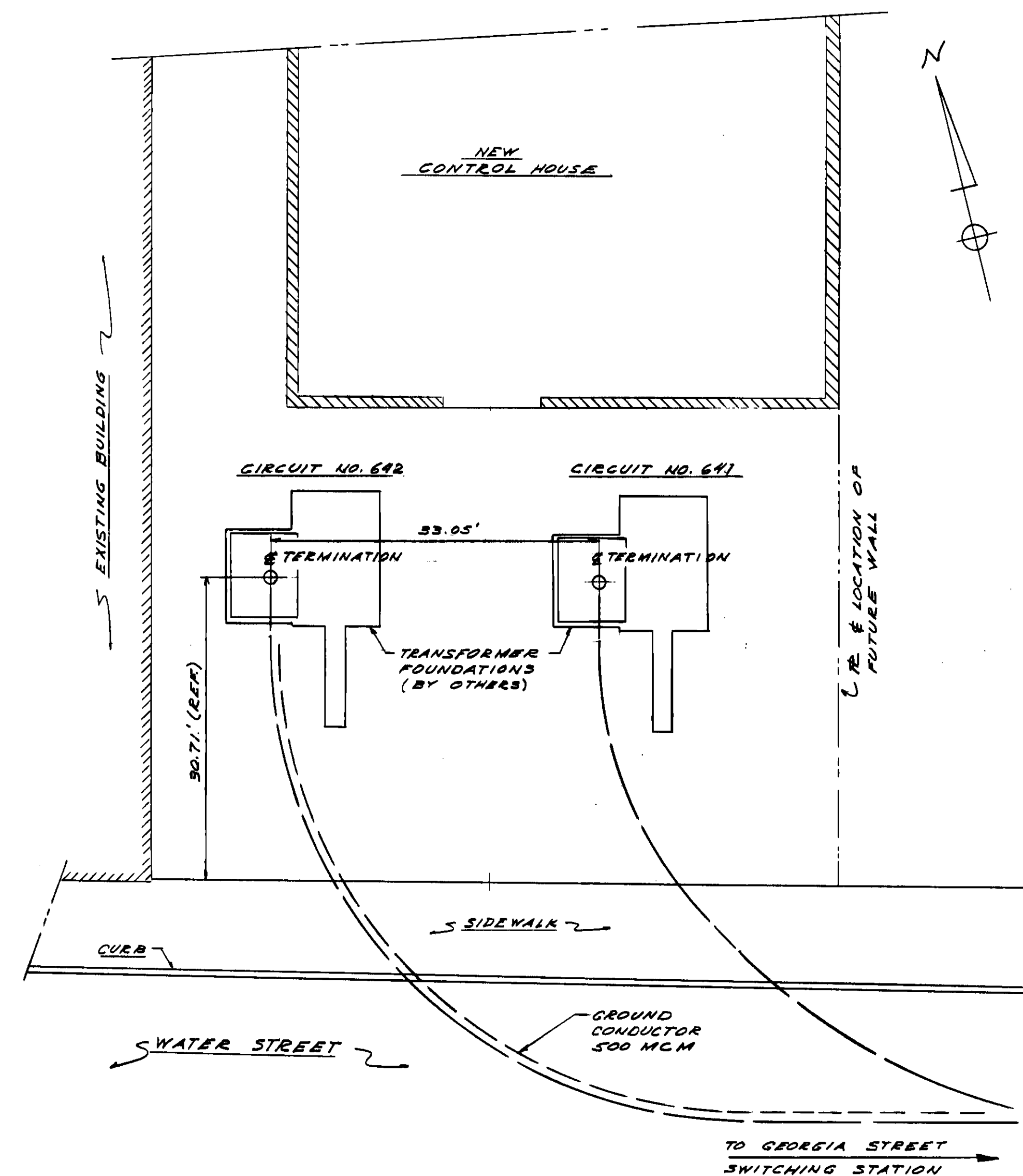
NOTE:
 1. THE ANCHOR & CENTER LINE OF CIRCUIT NO. 642 HAS BEEN OFF-SET TO PROVIDE CLEARANCE AROUND EXISTING CONTROL CABLE DUCT. THIS DUCT BANK SHALL BE ADEQUATELY PROTECTED FROM ALL DAMAGE DURING CONSTRUCTION OF ANCHOR AND INSTALLATION OF PIPE.

GEORGIA STREET SWITCHING STATION
 SCALE: 1"=10'

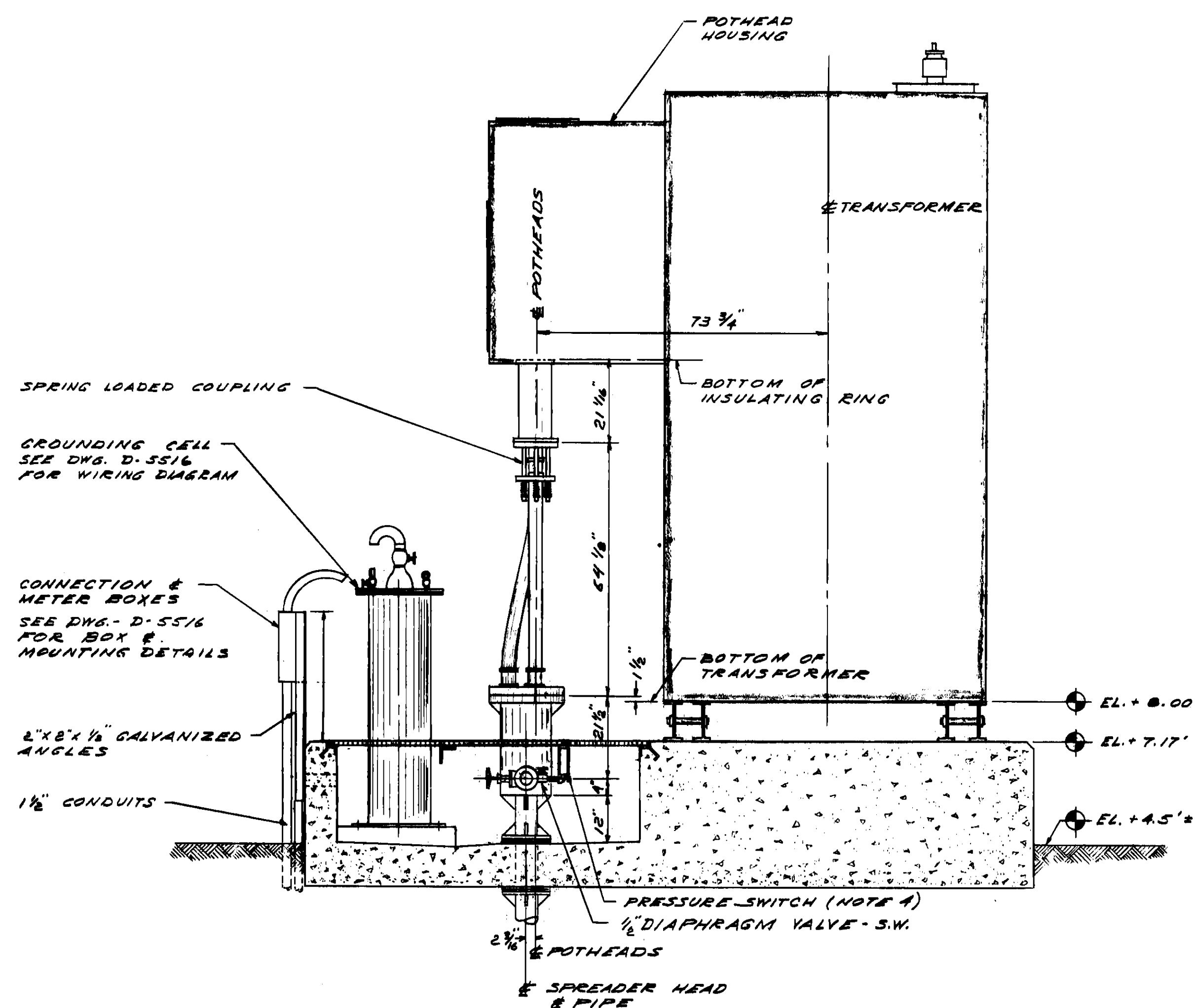
PROJECT NO. 59111-39		W.O. NO. 59111-39.1	
REYNOLDS, SMITH AND HILLS ARCHITECTS & ENGINEERS JACKSONVILLE, FLORIDA			
DEPARTMENT OF ELECTRIC & WATER UTILITIES CITY OF JACKSONVILLE, FLORIDA 69KV TRANSMISSION CABLES GEORGIA STREET TO WATER STREET CABLE TERMINATION & DETAILS GEORGIA STREET SWITCHING STATION			
APPROVED FOR REYNOLDS, SMITH AND HILLS			
FOR THE CITY OF JACKSONVILLE		DRAWING NO. 59111-39 D5513	
DESIGNED BY R.A.H.	CHECKED BY R.A.H.	DATE 11/1/60	ENGINEER R.A.H.
REVISION	DESCRIPTION	DATE	BY
AS BUILT	5-15-63	R.B.J.	R.C.G.
REPLACE 3-2\"/>			



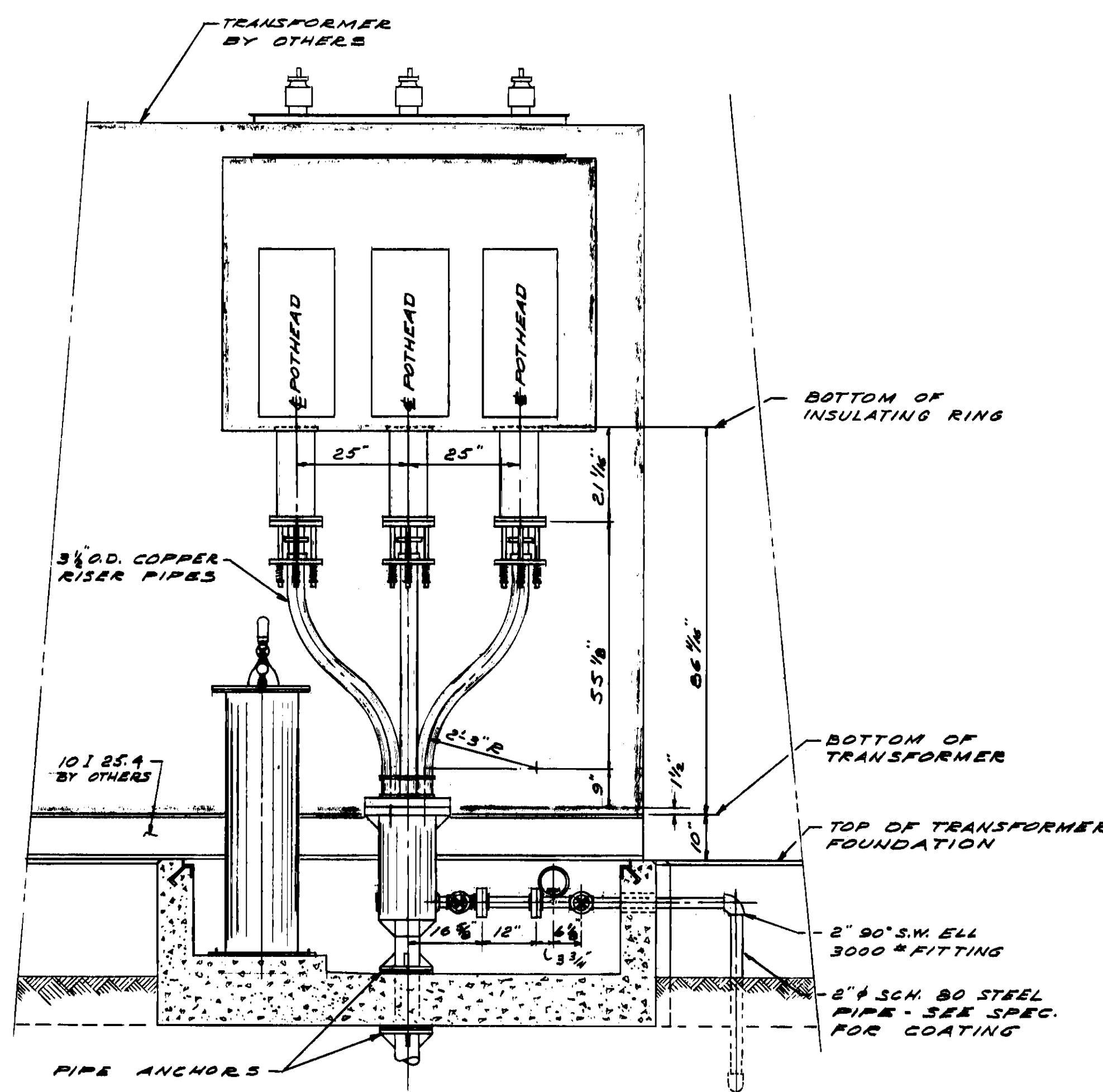
PLAN
SCALE 1/2" = 1'-0"



PLAN
WATER STREET SUBSTATION
SCALE 1" = 10'-0"



SECTION A-A
SCALE 1/2" = 1'-0"



SECTION B-B
SCALE 1/2" = 1'-0"

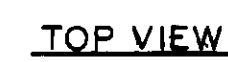
- NOTES**
1. THE WORK FOR THIS PROJECT SHALL BE CO-ORDINATED WITH THE CONSTRUCTION OF THE WATER STREET SUBSTATION, AND WITH THE INSTALLATION OF THE TRANSFORMERS BY OTHERS.
 2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL ON ALL EQUIPMENT FURNISHED FOR THE CABLE TERMINATION, SPREADER HEADS, RISER PIPES, COUPLINGS, ETC. SHALL BE PURCHASED BY THE CONTRACTOR FROM THE CABLE MANUFACTURERS FOR THIS PROJECT. POTHEADS FOR THE TERMINATION OF THE CABLE WILL BE FURNISHED BY OTHERS AS A PART OF THE TRANSFORMER.
 3. THE CONTRACTOR SHALL MAKE-UP POTHEADS, AND PERFORM ALL WORK AS REQUIRED FOR THE COMPLETE INSTALLATION OF THE CABLE CONNECTIONS TO THE TRANSFORMERS.
 4. PRESSURE SWITCHES SHALL BE MERCURIAL SERIES DAW-23 - WEATHER RESISTANT CASE, TYPE 93, RANGE 0-300 P.S.I.G. - 115 VOLTS. CONTACTS - 1 SET CLOSURE ON DECREASE TO 150 P.S.I.G. 1 SET CLOSURE ON INCREASE TO 250 P.S.I.G. SUITABLE FOR JUNISO OIL NO. 6.

PROJECT NO. 59111-39	W.O. NO. 59111-39.1
REYNOLDS, SMITH AND HILLS ARCHITECTS & ENGINEERS JACKSONVILLE, FLORIDA	
DEPARTMENT OF ELECTRIC & WATER UTILITIES CITY OF JACKSONVILLE, FLORIDA 69KV TRANSMISSION CABLES GEORGIA STREET TO WATER STREET WATER STREET SUBSTATION	
CABLE TERMINATION & DETAILS WATER STREET SUBSTATION	
APPROVED FOR REYNOLDS, SMITH AND HILLS	

FOR THE CITY OF JACKSONVILLE				DRAWING NO.	
				59111-39	
				D5514 R-1	
				SHEET 12 OF 15	
REVISION	DESCRIPTION	DATE	BY	APPROVED	
1	AS BUILT	5-15-63	RBU	RCG	
REVISION TO 12-1-63 WITH TRANSFORMERS PURCHASED					
2		5-24-61	G.M.C.	J.O.T.	



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



SCALE: 1" = 1'-0"

ELEVATION

SCALE: 1" = 1'-0"



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



ANCHOR PLATE

MICARTA DISC

SECTION
ASSEMBLED PIPE ANCHOR

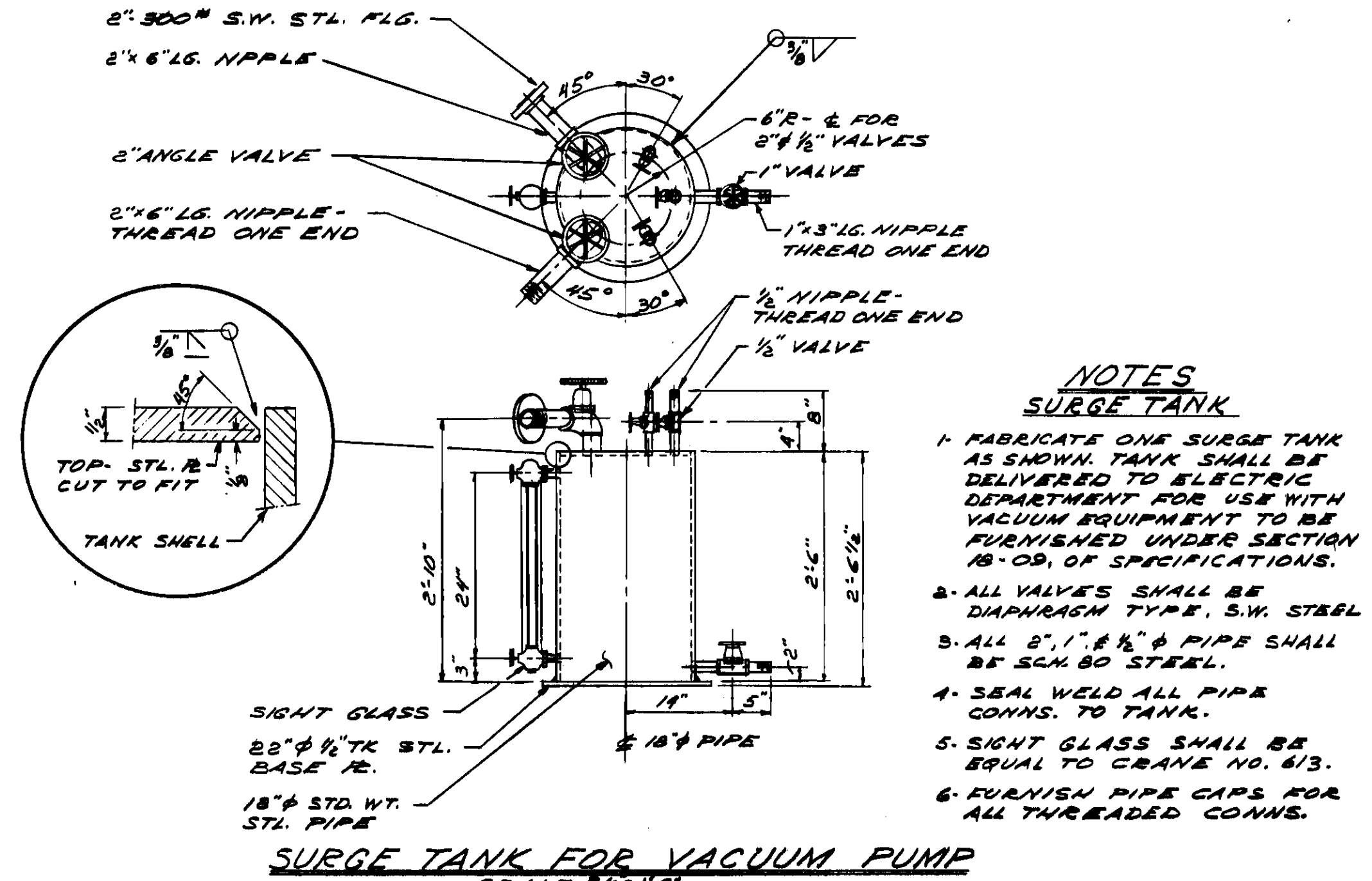
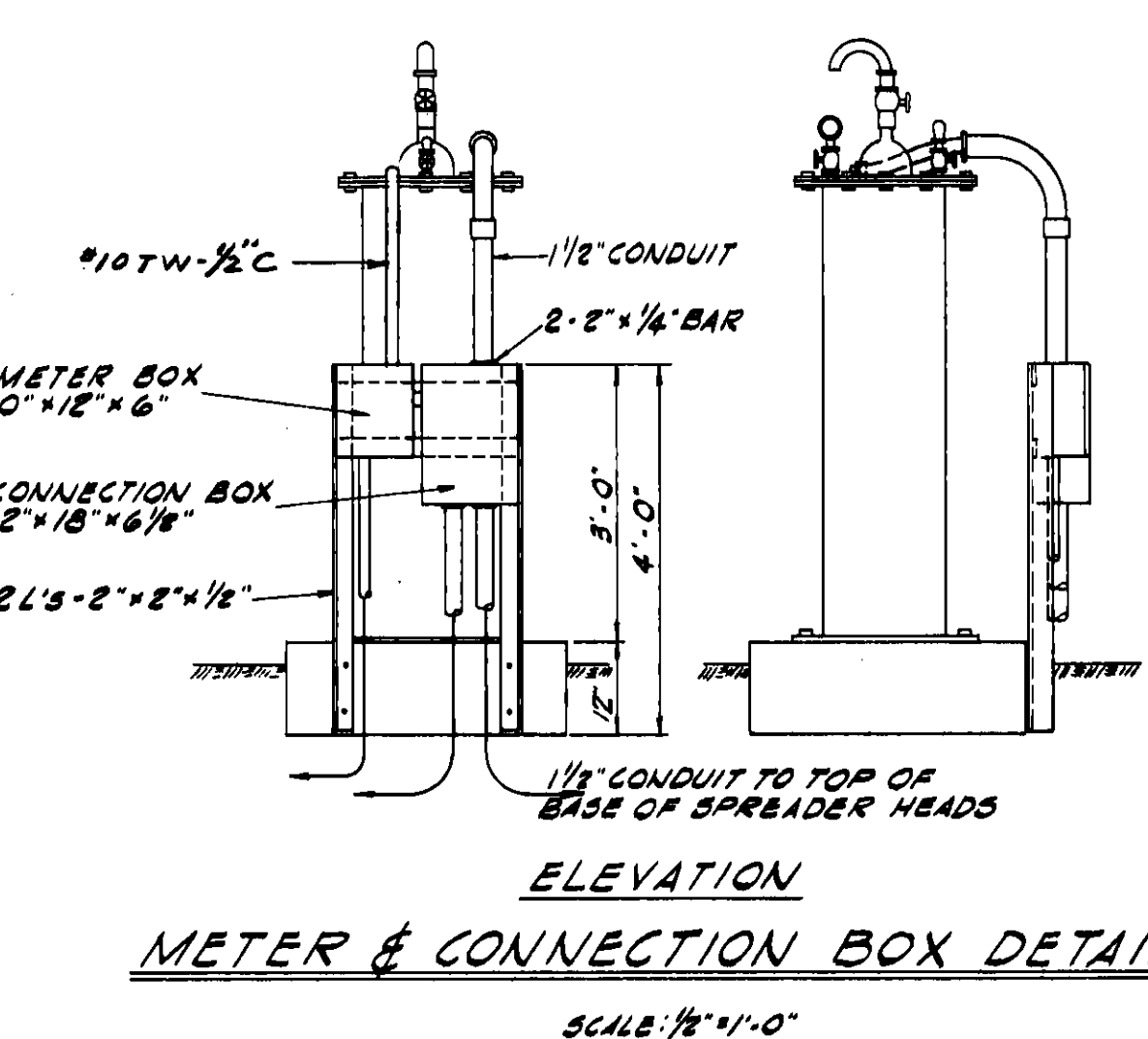
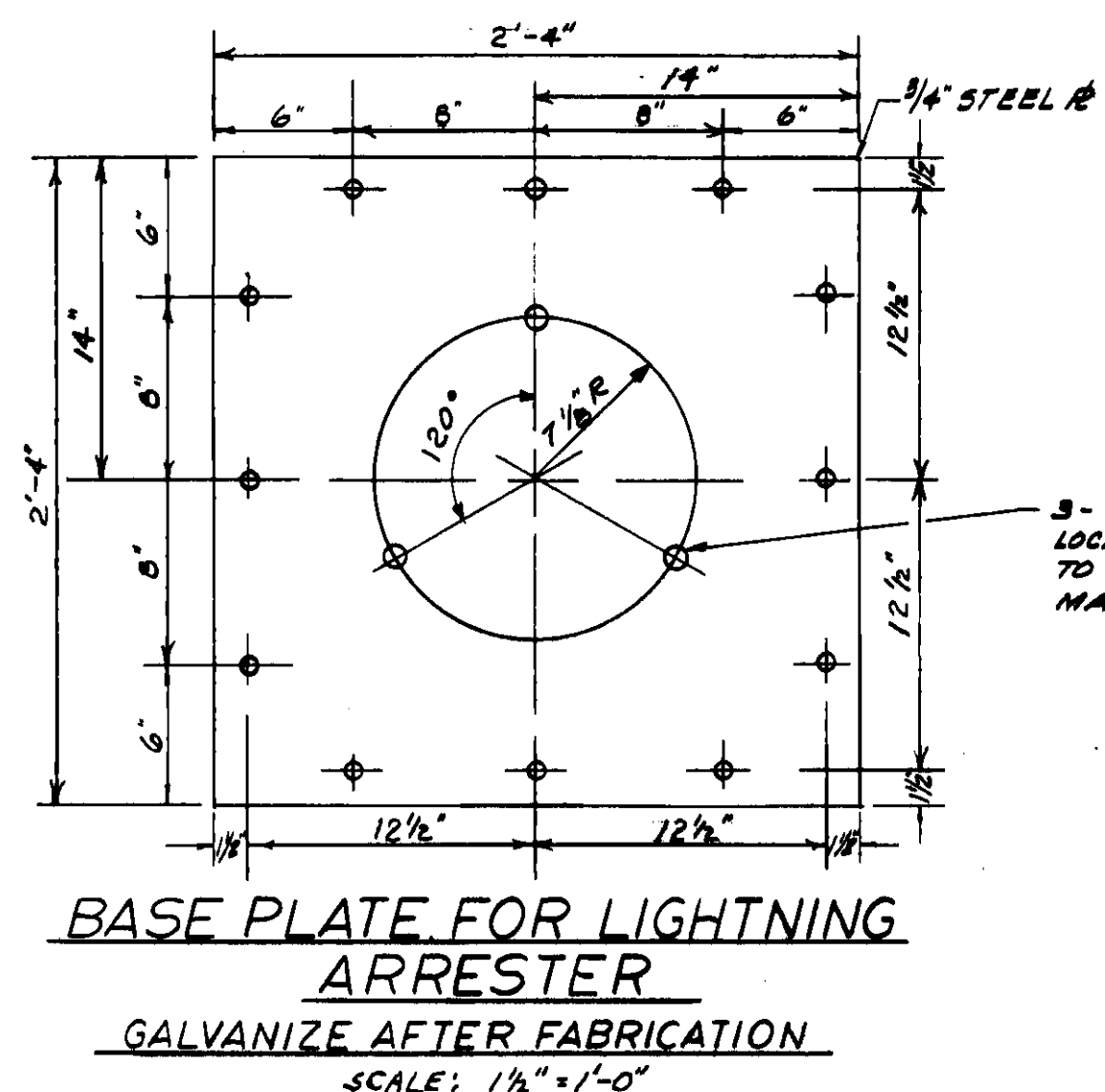
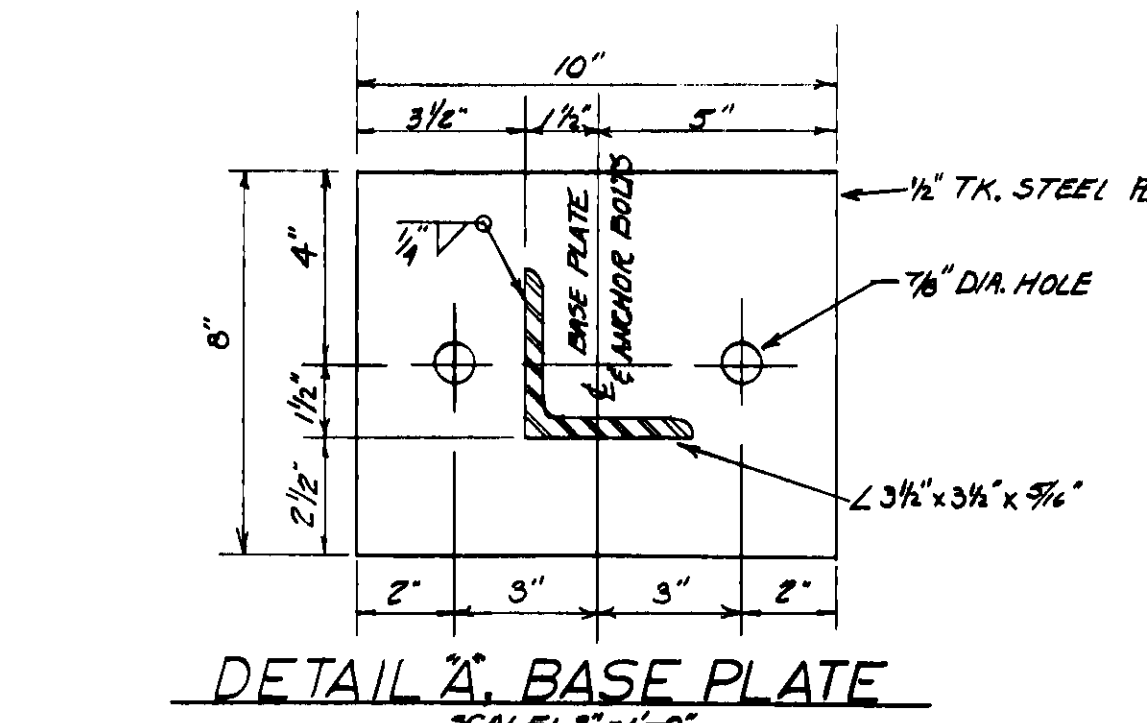
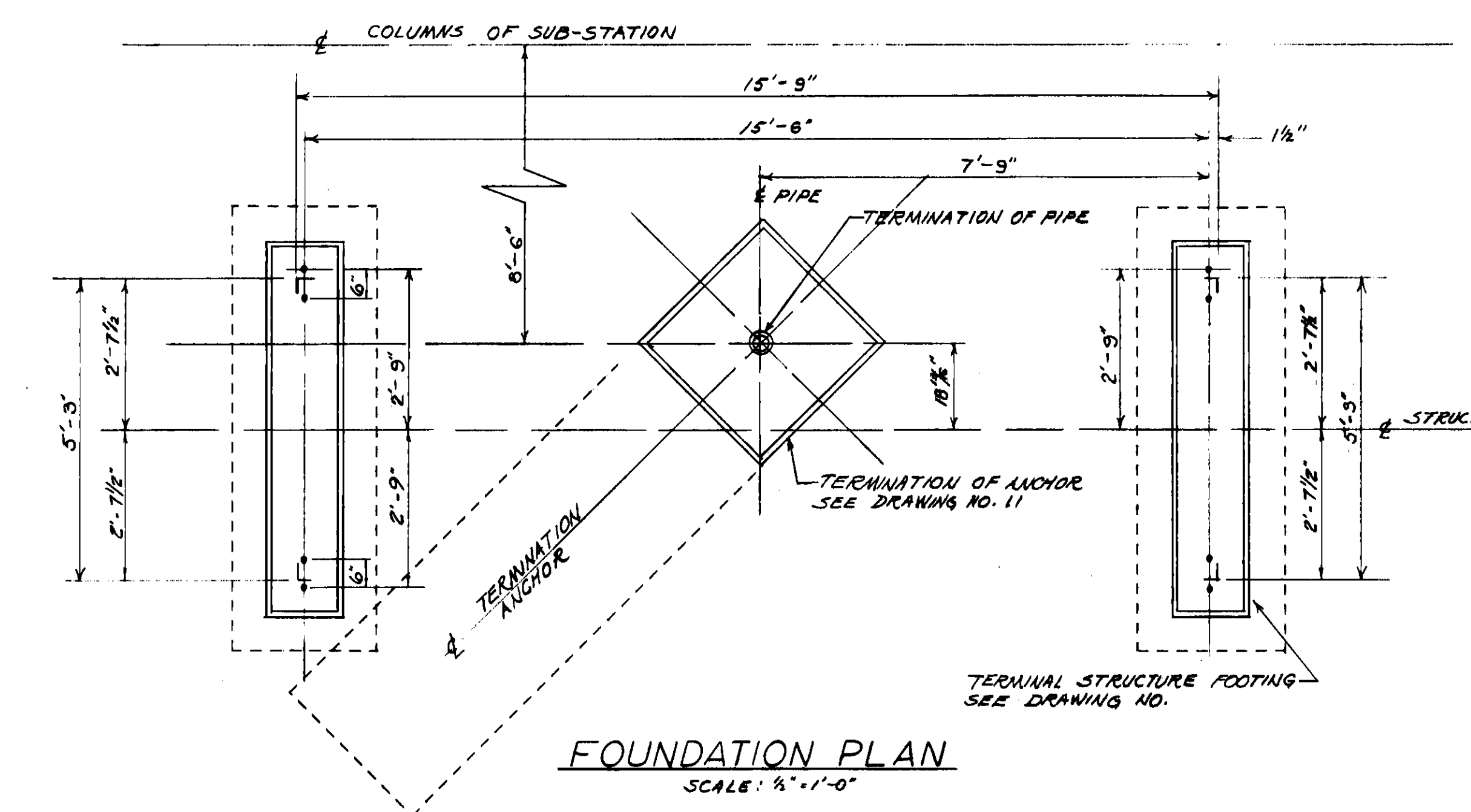
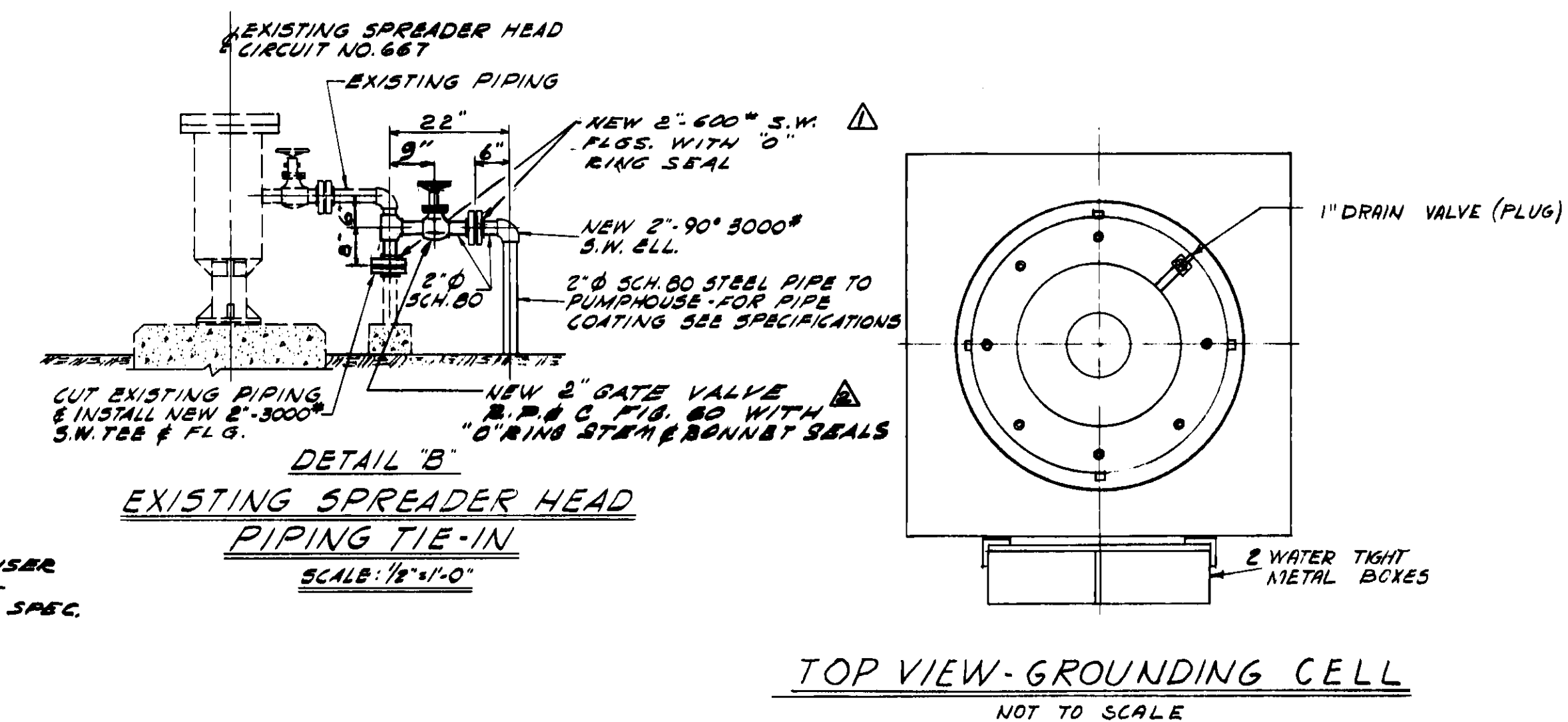
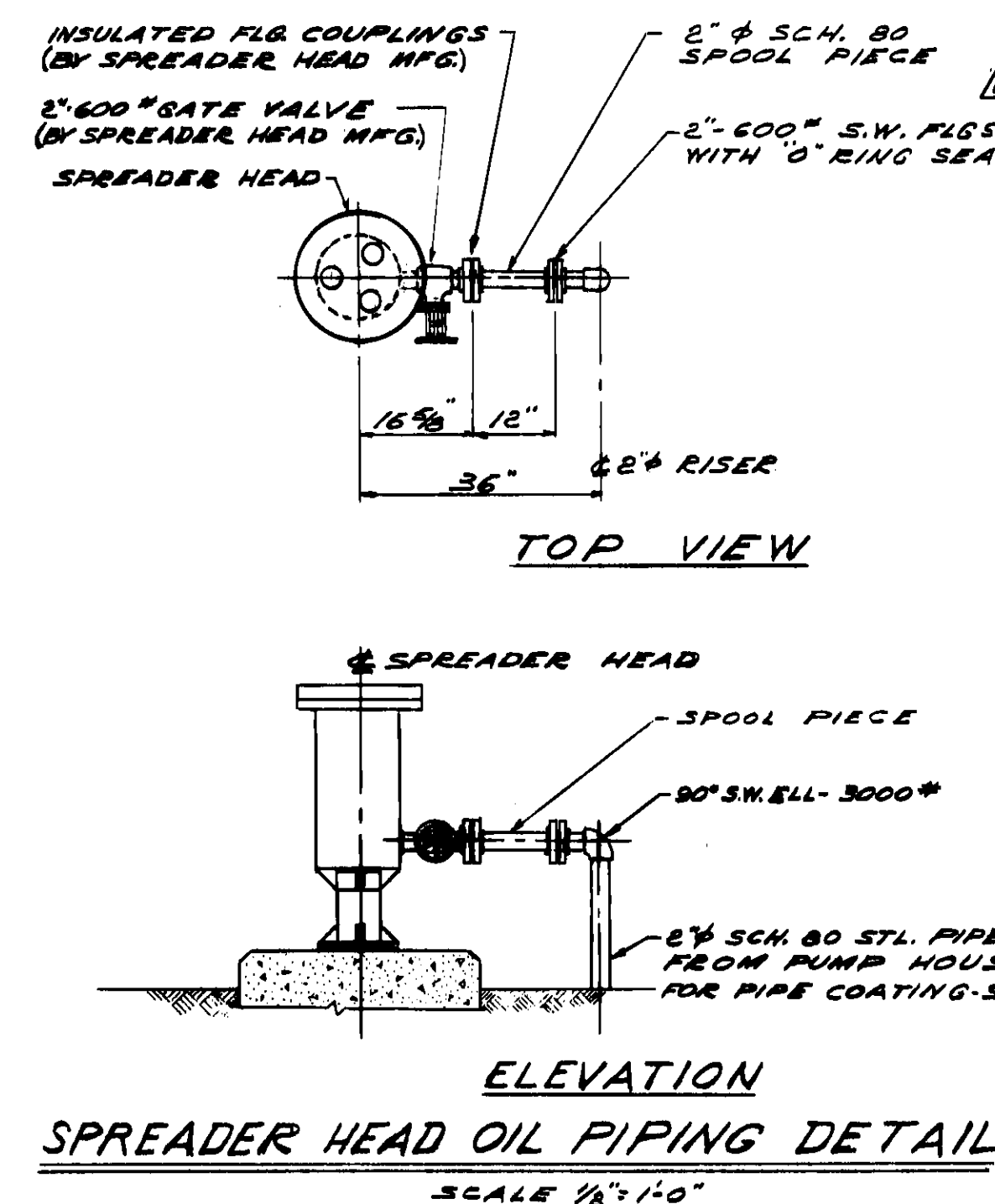
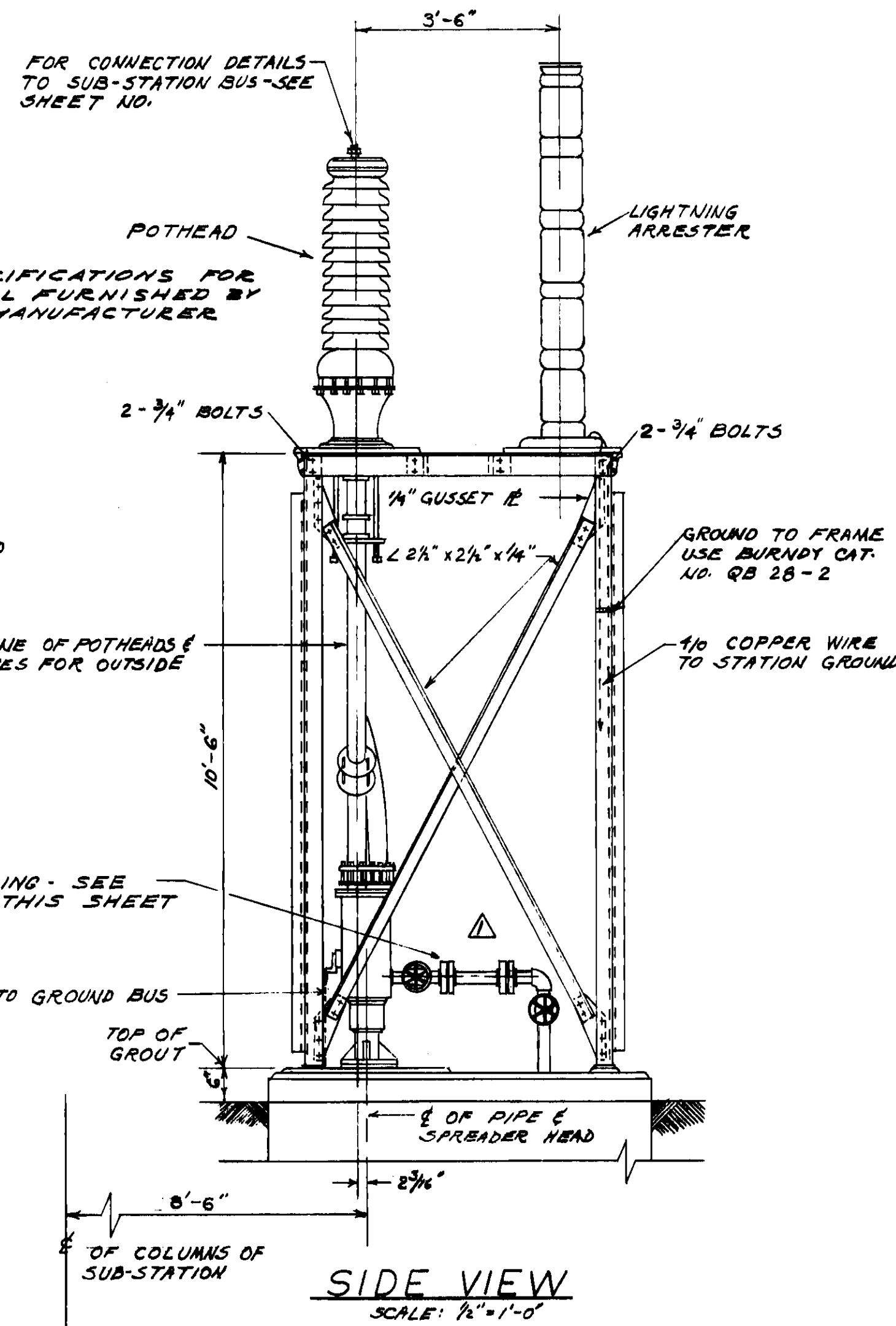
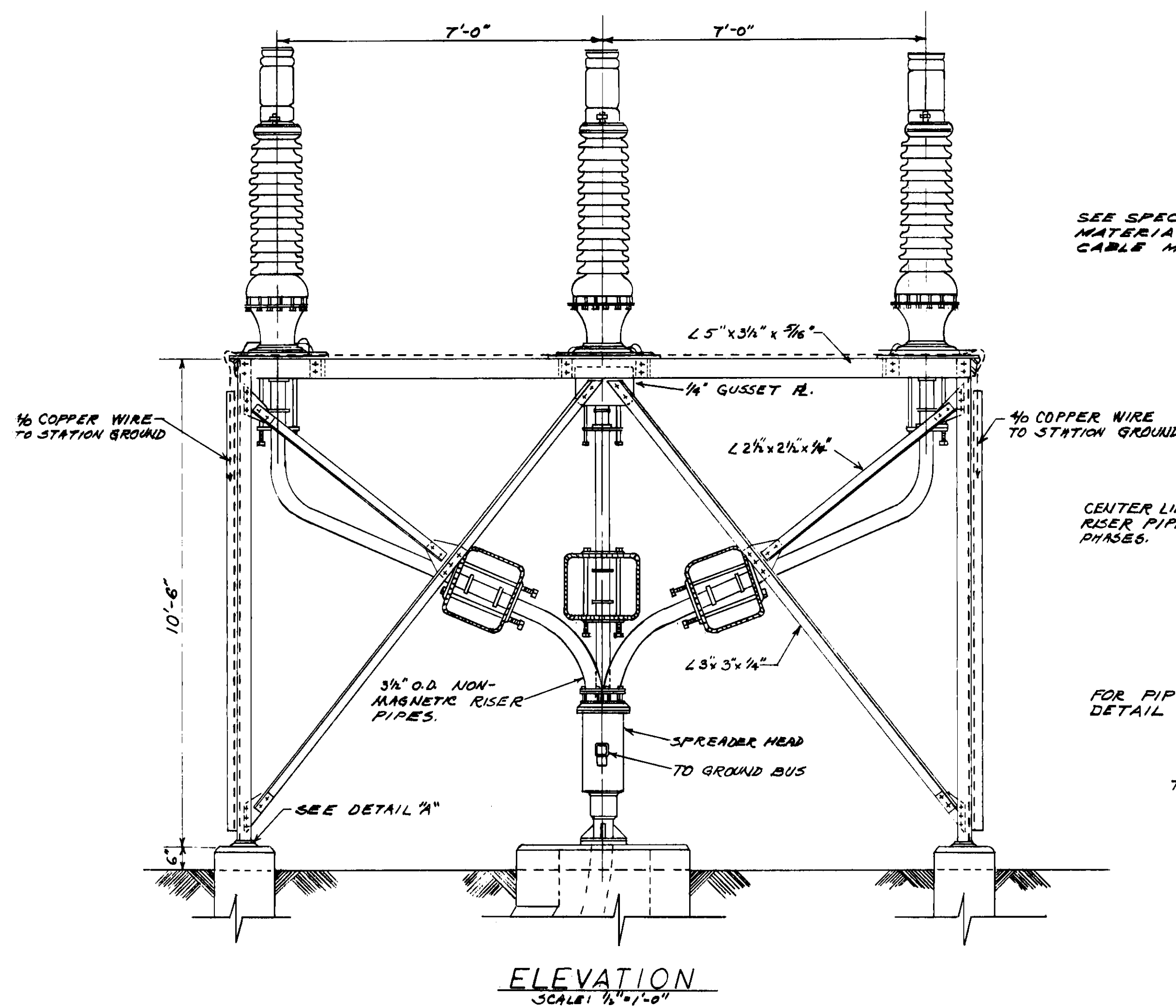
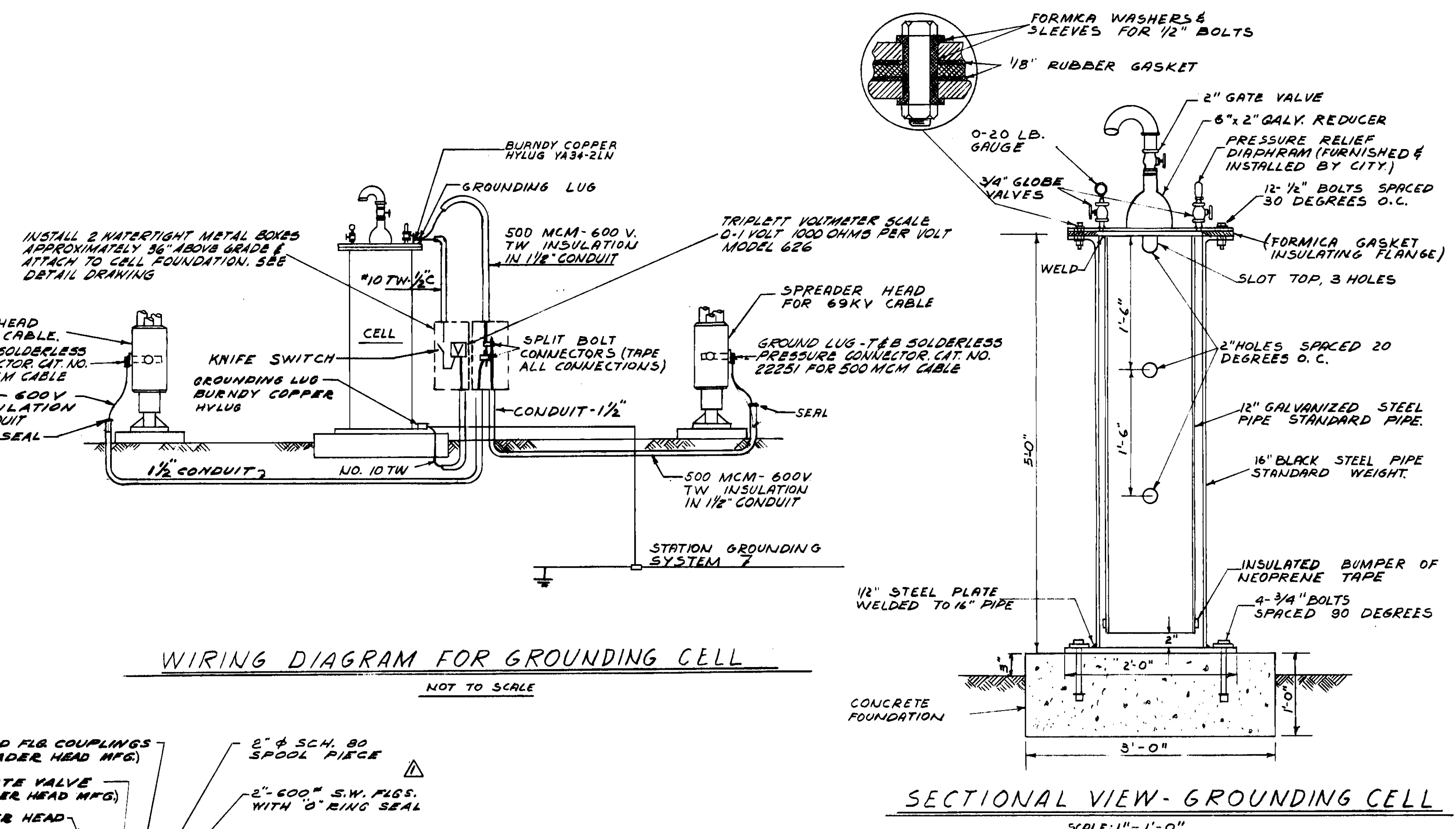
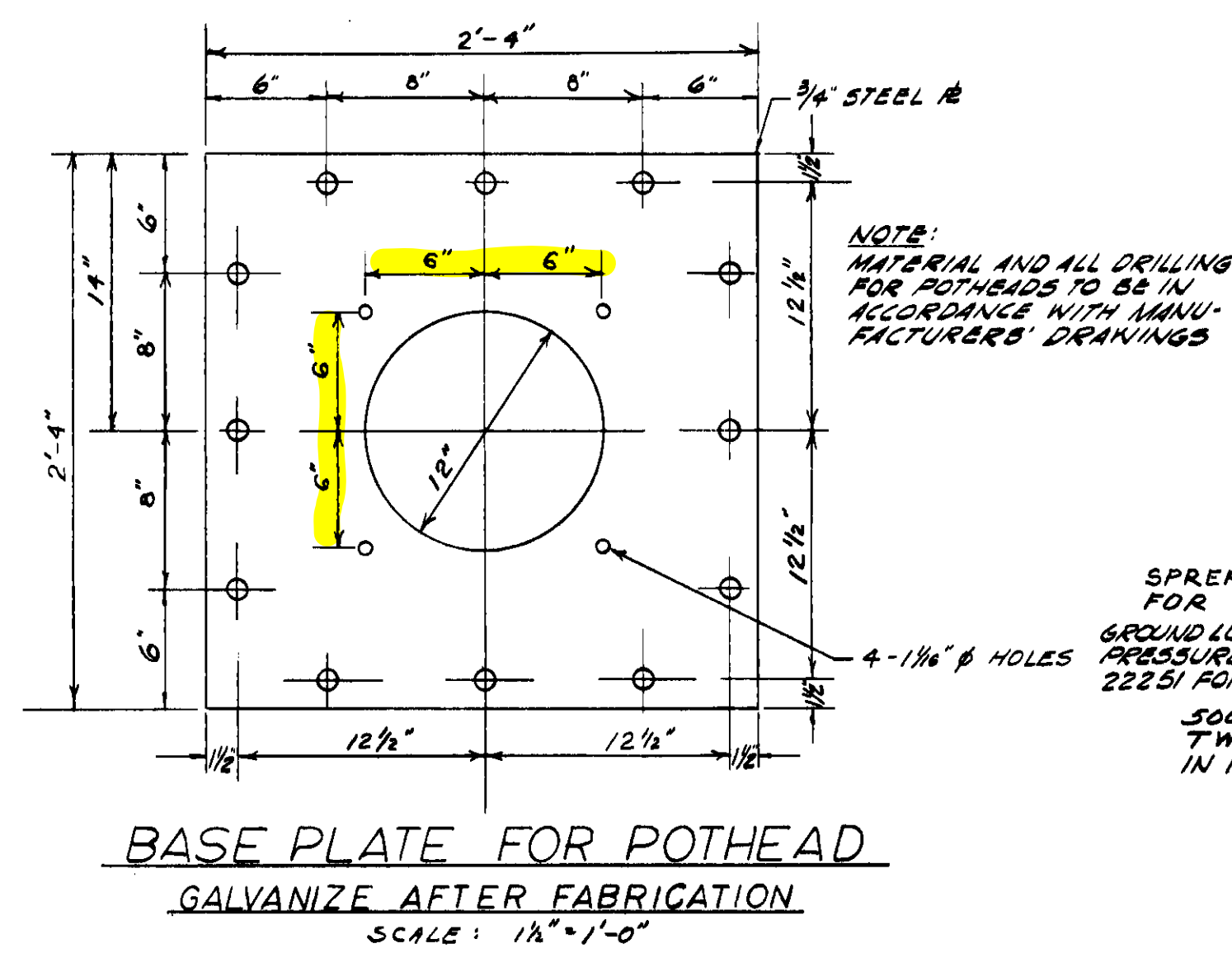
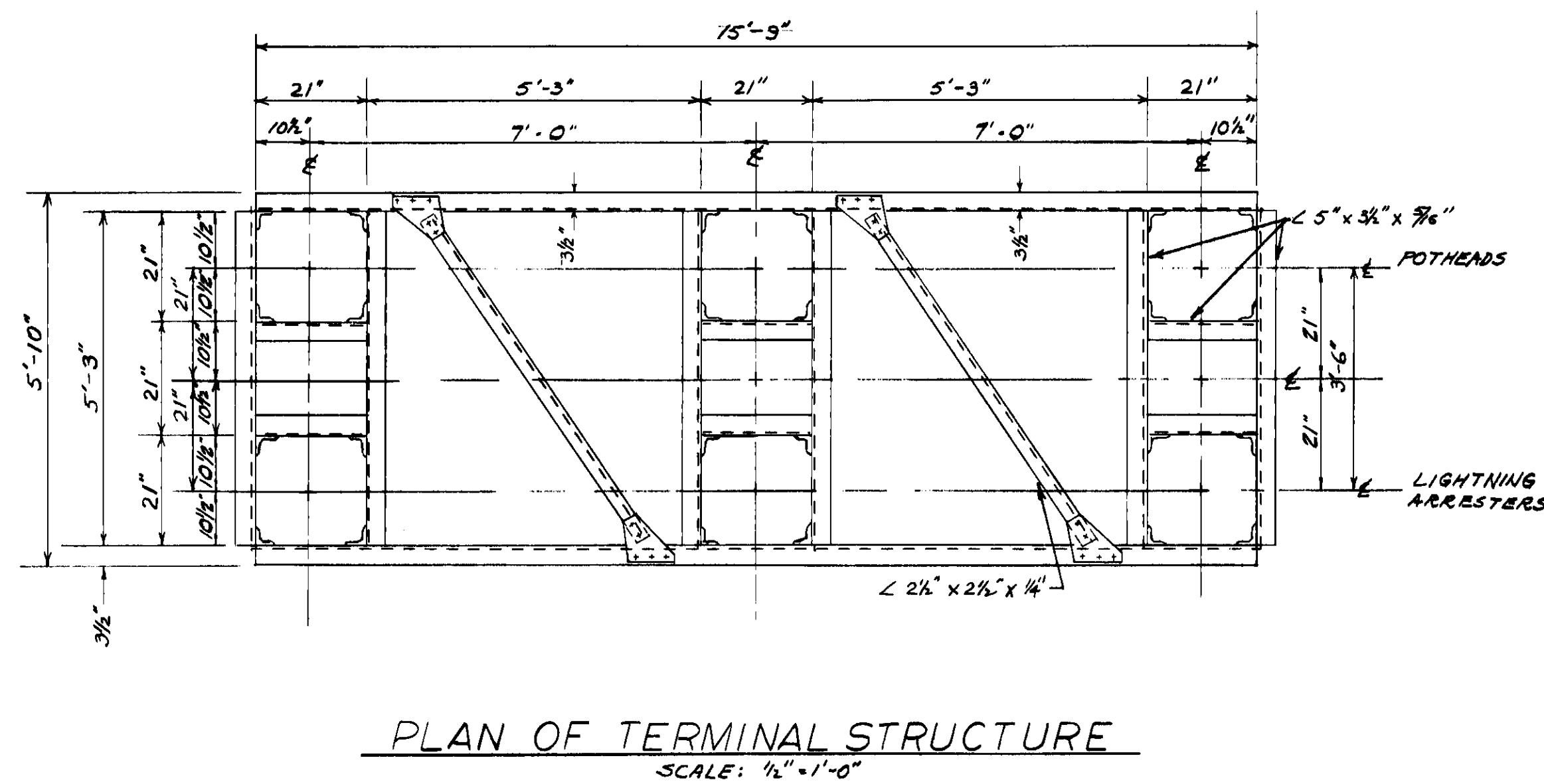
SCALE: 3" 1' - 0"



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

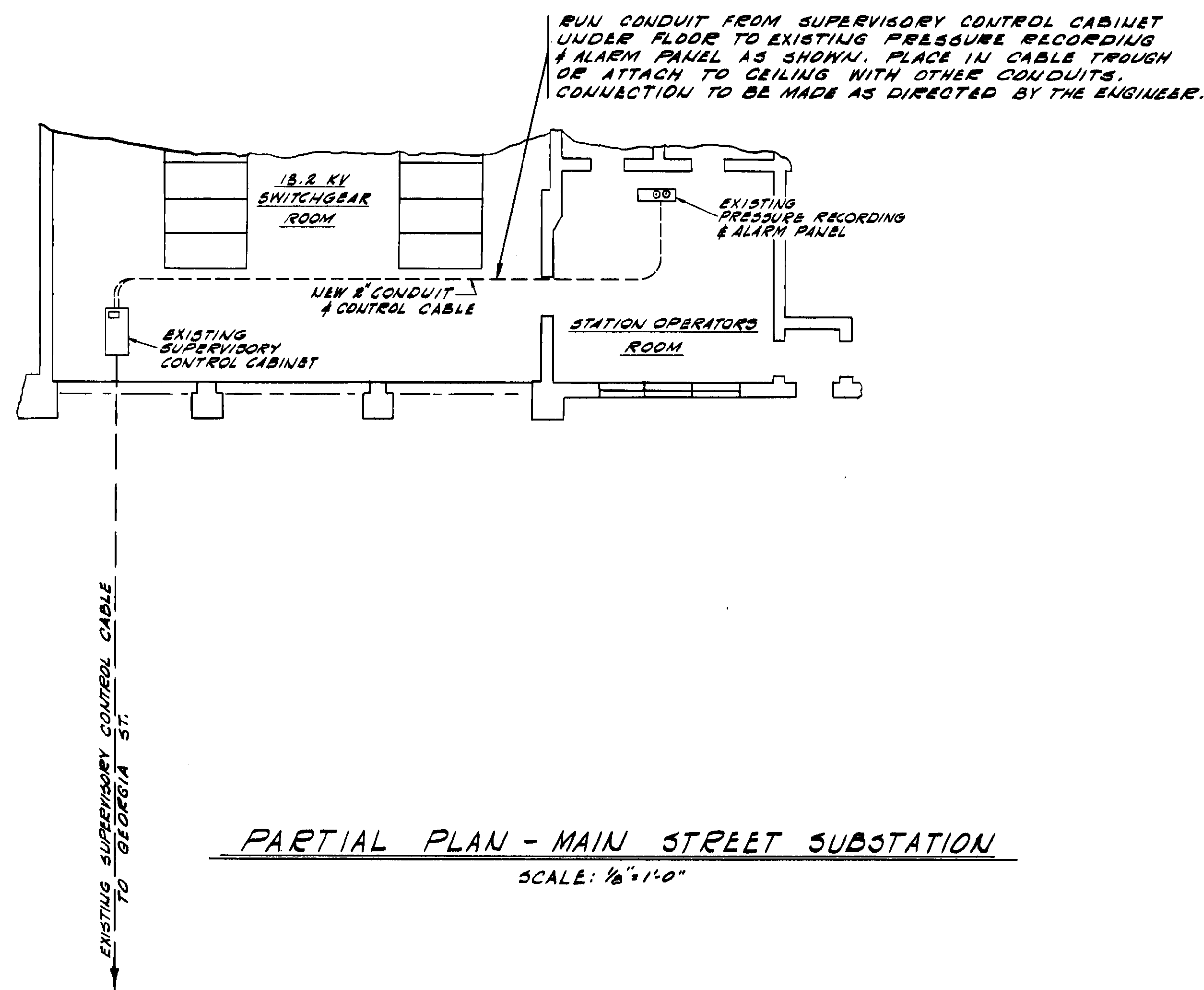


				FOR THE CITY OF JACKSONVILLE				247-767-0000 DRAWING NO. 59111-39	
				DEPARTMENT HEAD				C. Chapman ENGINEERING DEPARTMENT 59515	
AS BUILT				515-64				11-15	
DESCRIPTION				RATE				11-15	
DEPARTMENT HEAD				DEPARTMENT HEAD				11-15	



PROJECT NO. 59111-39	N.O. NO. 59111-39.1
REYNOLDS, SMITH AND HILLS	JACKSONVILLE, FLORIDA
ARCHITECTS & ENGINEERS	
DRAWN: C.M.	DEPARTMENT OF ELECTRIC & WATER UTILITIES
CHECKED: R.W.H.	CITY OF JACKSONVILLE, FLORIDA
SCALE: AS SHOWN	69KV TRANSMISSION CABLES
	GEORGIA STREET TO LAURA STREET
	TERMINAL STRUCTURE & DETAILS
APPROVED FOR REYNOLDS, SMITH AND HILLS	
FOR THE CITY OF JACKSONVILLE	
DRAWING NO.	59111-39
	D 5516 R-2
	DATE: 12.2.15

REVISION	DESCRIPTION	DATE	BY	APPROVED	DEPARTMENT HEAD	ENGINEER	DATE
1	AS BUILT	5-15-63	R.W.H.	R.C.G.			
2	1/4" DIA. ADD - SEE DETAIL A	5-15-63	R.W.H.	R.C.G.			
3	1/4" DIA. ADD - SEE DETAIL A	5-15-63	R.W.H.	R.C.G.			
4	1/4" DIA. ADD - SEE DETAIL A	5-15-63	R.W.H.	R.C.G.			



PARTIAL PLAN - MAIN STREET SUBSTATION
SCALE: 1/8" = 1'-0"

- NAME PLATES
- WATER ST. CABLE NO. 642
 - WATER ST. CABLE NO. 641
 - HIGH OIL PRESSURE
LOW OIL PRESSURE
EXCESSIVE OIL FLOW
 - HIGH OIL PRESSURE
LOW OIL PRESSURE
EXCESSIVE OIL FLOW
 - HIGH OIL LEVEL
LOW OIL LEVEL
HIGH NITROGEN PRESSURE
LOW NITROGEN PRESSURE
 - RELEASE OF CO₂ SYSTEM
POWER FAILURE
ABNORMAL ROOM TEMPERATURE HIGH
ABNORMAL ROOM TEMPERATURE LOW

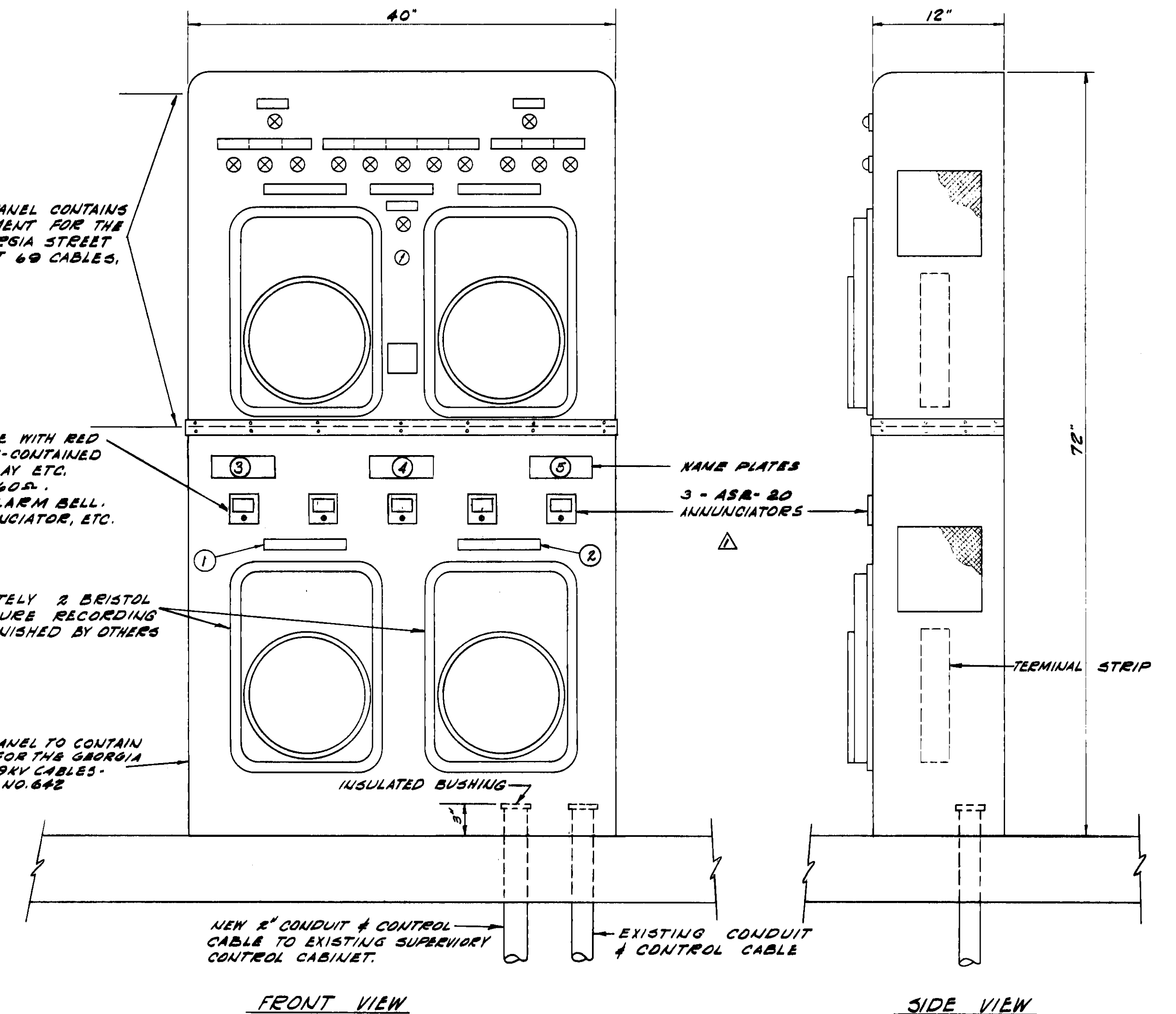
TOP HALF OF PANEL CONTAINS EXISTING EQUIPMENT FOR THE EXISTING - GEORGIA STREET TO MAIN STREET 69KV CABLES.

ALARMITE ANNUNCIATORS - WINDOW TYPE WITH RED & WHITE LAMP - RATED 120V. D.C. SELF-CONTAINED UNIT WITH BACK CONNECTIONS. RELAY ETC. MATCHED TO EXTERIOR CIRCUIT OF 600V. INDIVIDUAL RESET SWITCH FOR ALARM BELL. SUBMIT SHOP DRAWINGS ON ANNUNCIATOR, ETC.

INSTALL COMPLETELY 2 BRISTOL REMOTE PRESSURE RECORDING RECEIVERS FURNISHED BY OTHERS

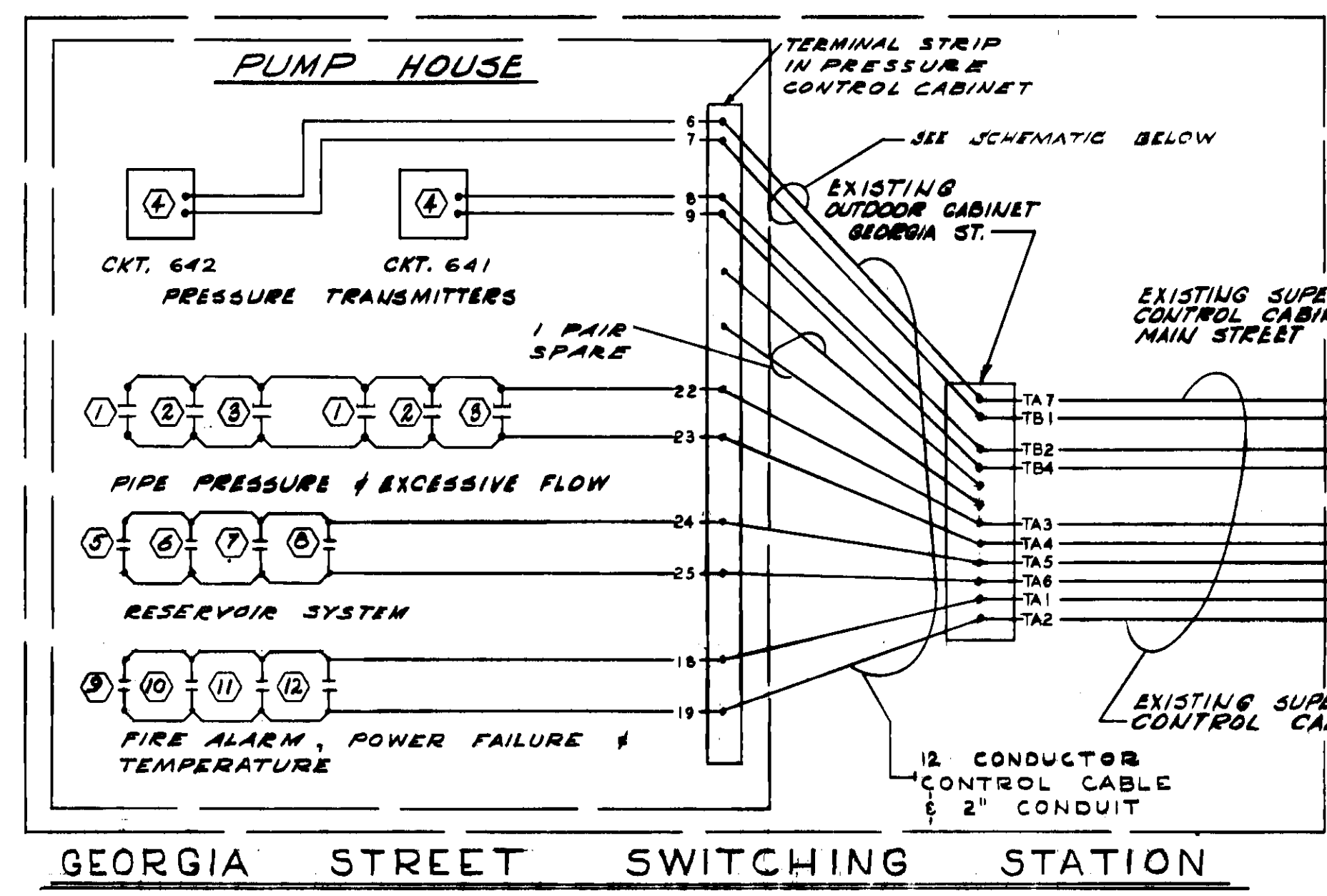
BOTTOM HALF OF PANEL TO CONTAIN NEW EQUIPMENT FOR THE GEORGIA ST. TO WATER ST. 69KV CABLES. CIRCUITS NO. 641 & NO. 642

ALARM SEQUENCE			
REMOTE ALARM CONTACTS	RESET SWITCH	AUDIBLE BELL	WINDOW LIGHT
ABNORMAL	—	OFF	OFF
ABNORMAL	—	ON	RED-WHITE
ABNORMAL	OPERATE	OFF	RED
ABNORMAL	—	ON	WHITE
ABNORMAL (NORMAL)	OPERATE	OFF	OFF

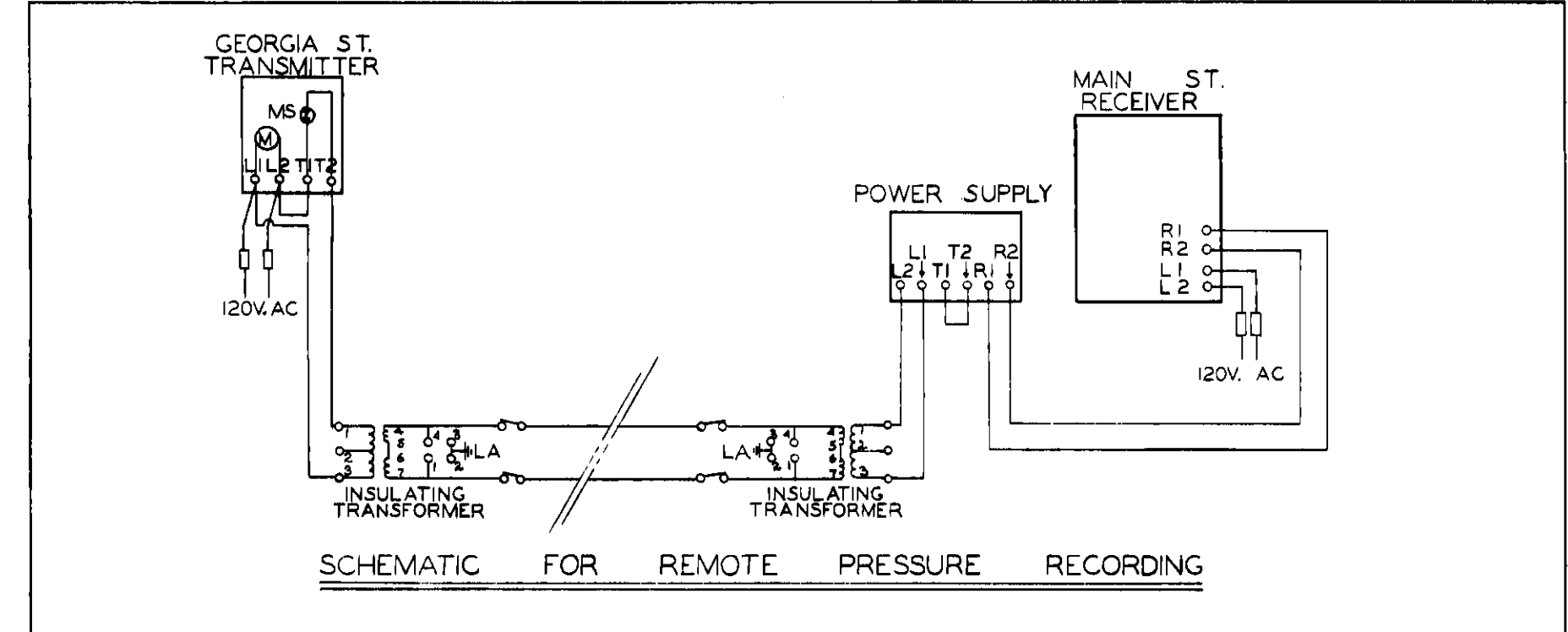


FRONT VIEW
SIDE VIEW
EXISTING REMOTE PRESSURE RECORDING & ALARM PANEL
SCALE: 1/2" = 1'-0"

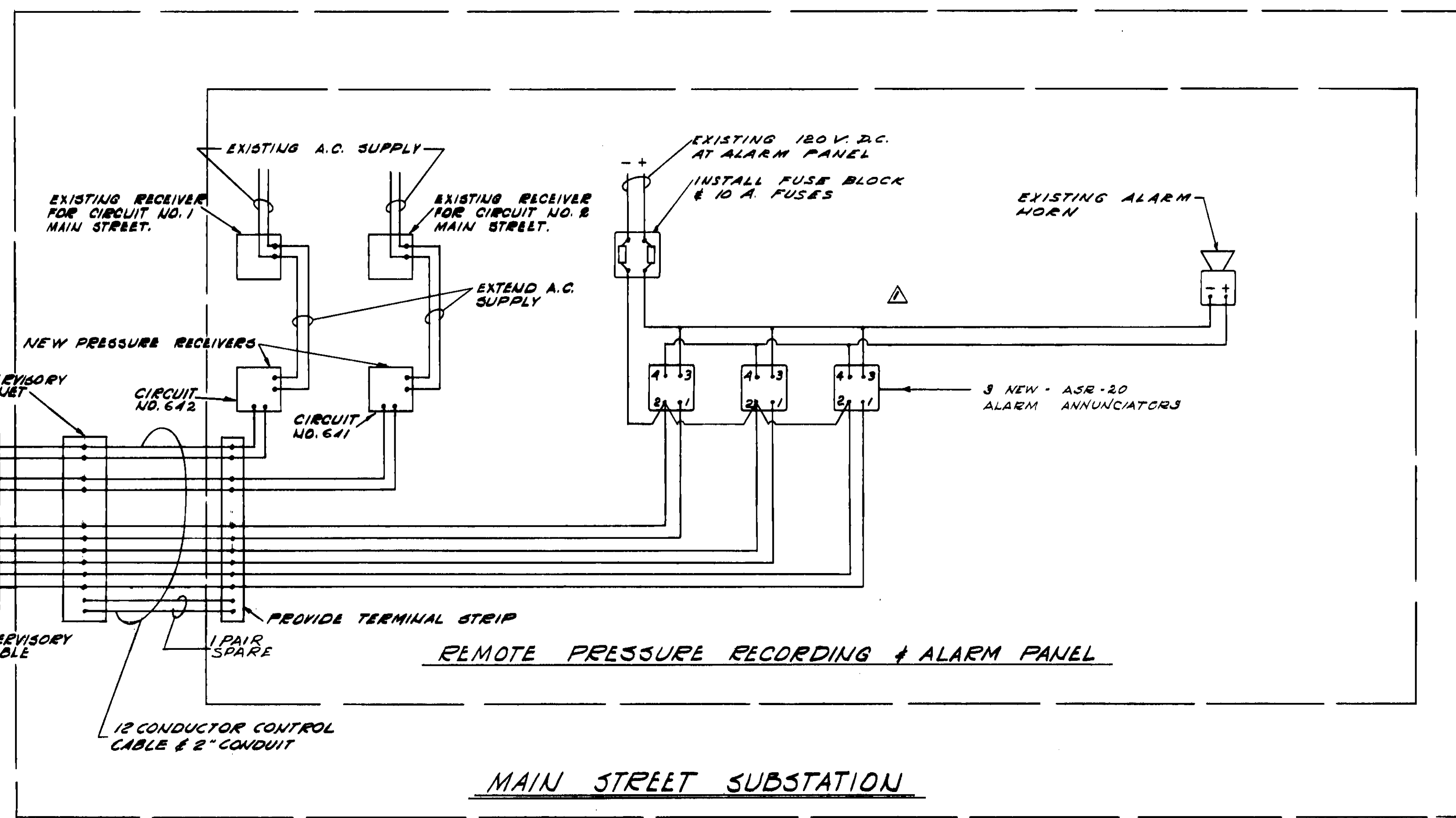
- EXTRA CONTACTS ON RELAY FOR HIGH OIL PRESSURE.
- EXTRA CONTACTS ON RELAY FOR LOW OIL PRESSURE.
- EXTRA CONTACTS ON RELAY FOR EXCESSIVE OIL FLOW.
- PRESSURE TRANSMITTER.
- RESERVOIR - EXTRA CONTACTS ON RELAY FOR HIGH OIL LEVEL.
- RESERVOIR - EXTRA CONTACTS ON RELAY FOR LOW OIL LEVEL.
- RESERVOIR - EXTRA CONTACTS ON RELAY FOR HIGH NITROGEN PRESSURE.
- RESERVOIR - EXTRA CONTACTS ON RELAY FOR LOW NITROGEN PRESSURE.
- RELEASE OF CO₂ SYSTEM.
- POWER FAILURE.
- ABNORMAL ROOM TEMPERATURE HIGH.
- ABNORMAL ROOM TEMPERATURE LOW.



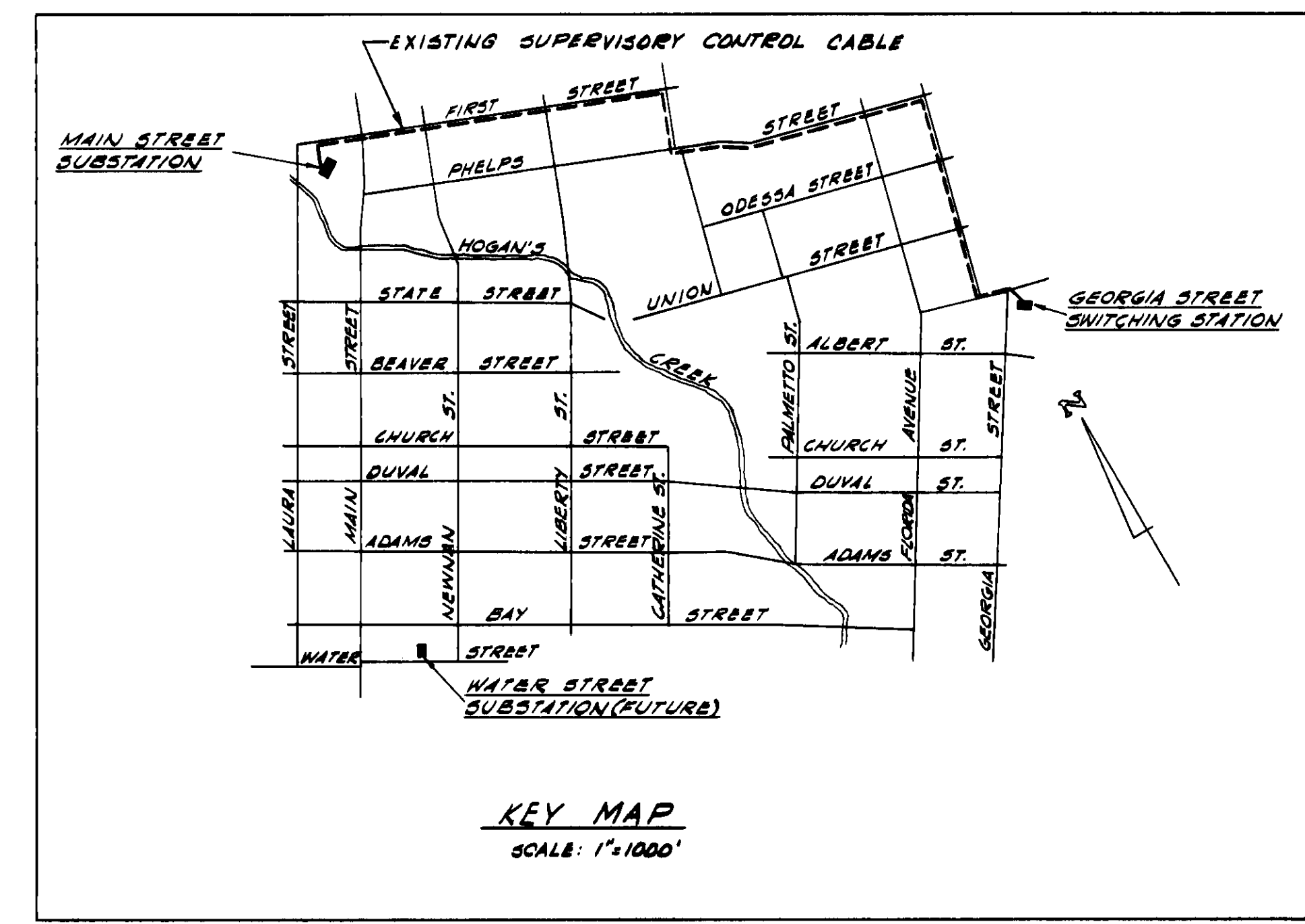
GEORGIA STREET SWITCHING STATION



SCHEMATIC FOR REMOTE PRESSURE RECORDING



REMOTE PRESSURE RECORDING & ALARM PANEL
MAIN STREET SUBSTATION



KEY MAP
SCALE: 1" = 1000'

CONTROL CABLE

ALL CONTROL CABLE FOR REMOTE PRESSURE RECORDING AND ALARM SYSTEM SHALL BE 12 CONDUCTORS NO. 14 AWG (19 STANDS), COLOR CODED, 600 V. JACKETED - GENERAL - ELECTRIC SI - 58135 OR APPROVED EQUAL, AND SHALL CONFORM TO IPCEA SPEC. S-19-61 APPENDICES C(A) AND K.

PROJECT NO. 59111-39 I.W.O. NO. 59111-39.1

REYNOLDS, SMITH AND HILLS
ARCHITECTS & ENGINEERS
JACKSONVILLE, FLORIDA

DRAWN: R.M.H.
TRACED: R.M.H.
CHECKED: R.M.H.
SCALE: SHOWN
DATE: JULY 11, 1960

DEPARTMENT OF ELECTRIC & WATER UTILITIES
CITY OF JACKSONVILLE, FLORIDA
69KV TRANSMISSION CABLES
GEORGIA STREET TO WATER STREET
REMOTE PRESSURE RECORDING & ALARM PANEL
MAIN STREET SUBSTATION

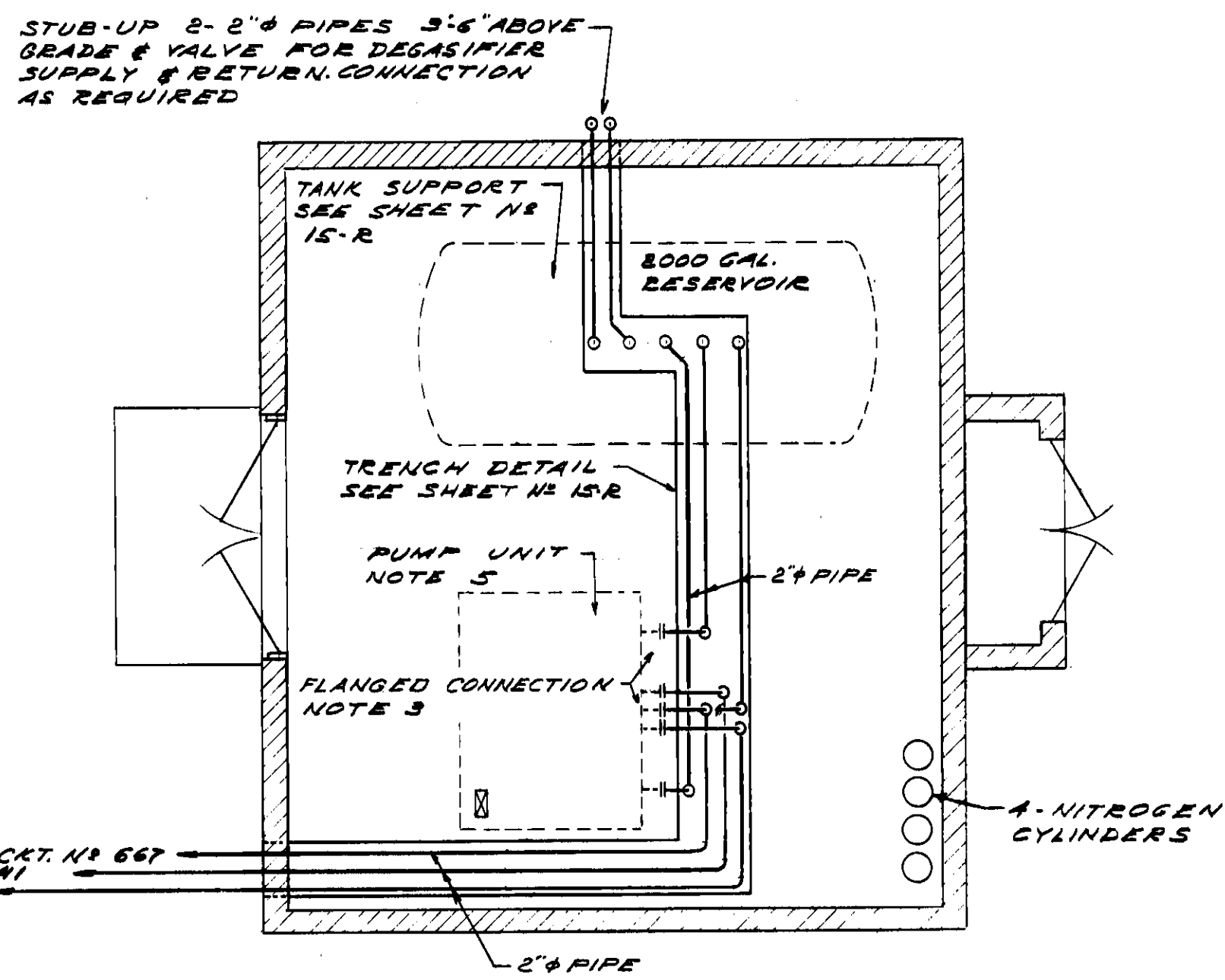
APPROVED FOR REYNOLDS, SMITH AND HILLS

FOR THE CITY OF JACKSONVILLE

APPROVED BY: [Signature]
ENGINEER

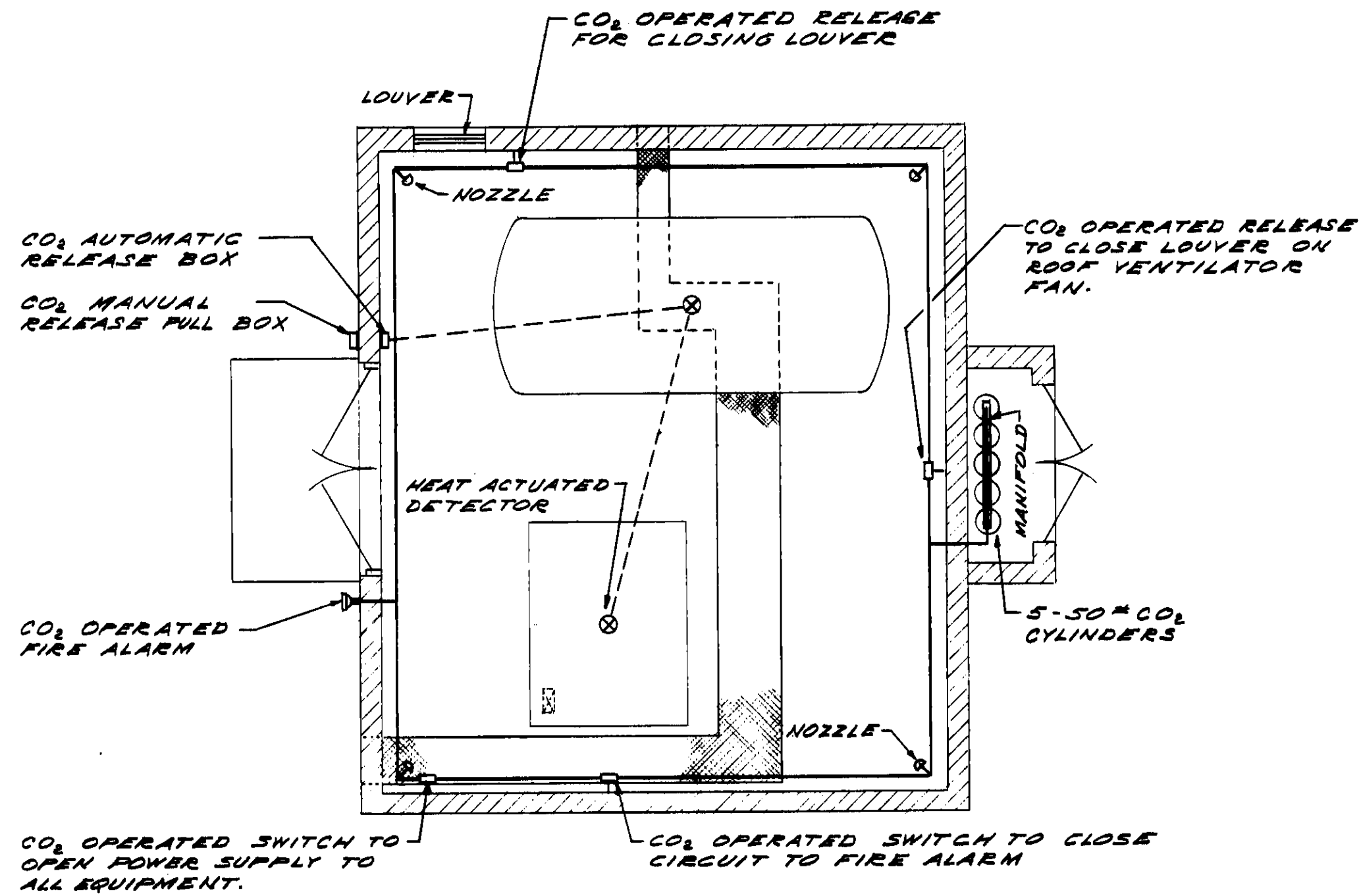
DRAWING NO. 59111-39
D5517-2-1
SHEET 13 OF 15

REVISION	DESCRIPTION	DATE	BY	APPROVED	DEPARTMENT HEAD	ENGINEER
AS BUILT		5-14-63	R.B.J.	R.C.G.		
AS BUILT		7-6-61	R.C.G.	R.C.G.		

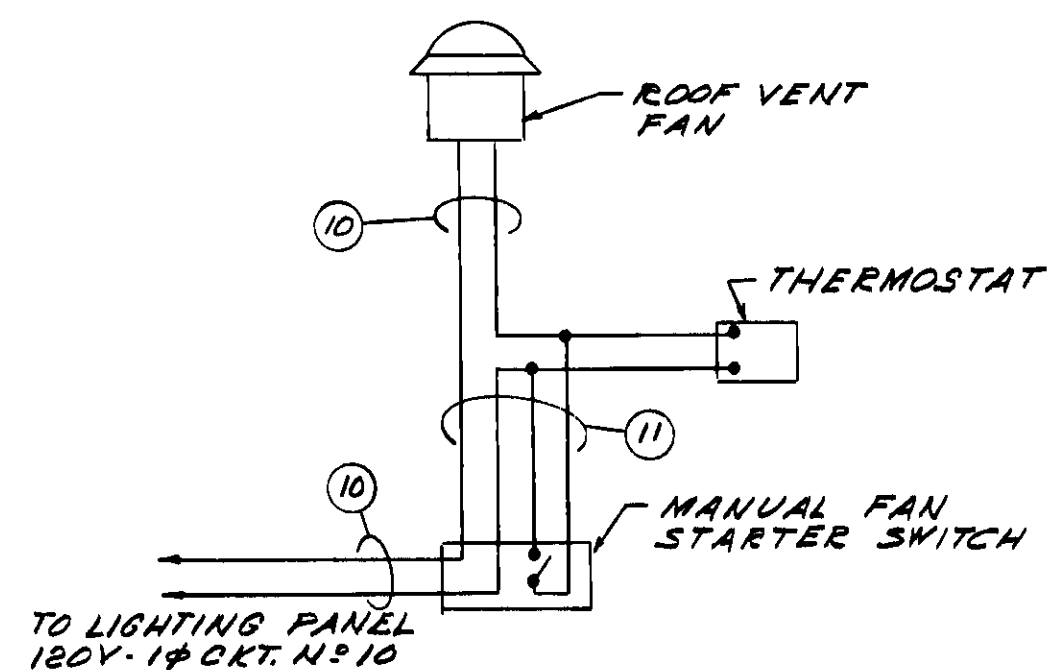


ARRANGEMENT OF PIPING
IN PUMP HOUSE
SCALE 1/4" = 1'-0"

- PIPING NOTES**
1. ALL PIPING SHALL BE SCHEDULE 40 STEEL.
 2. ALL FITTINGS SHALL BE 3000W SOCKET-WELD STEEL.
 3. FOR LOCATION OF 2" FLANGE CONNECTIONS IN PUMP UNIT, SEE SHOP DRAWINGS.
 4. ALL PIPING, FITTINGS, AND EQUIPMENT SHALL BE HYDROSTATICALLY TESTED AT 375 P.S.I.
 5. FOR ANCHOR BOLT LOCATION OF PUMP UNIT, SEE SHOP DRAWINGS.

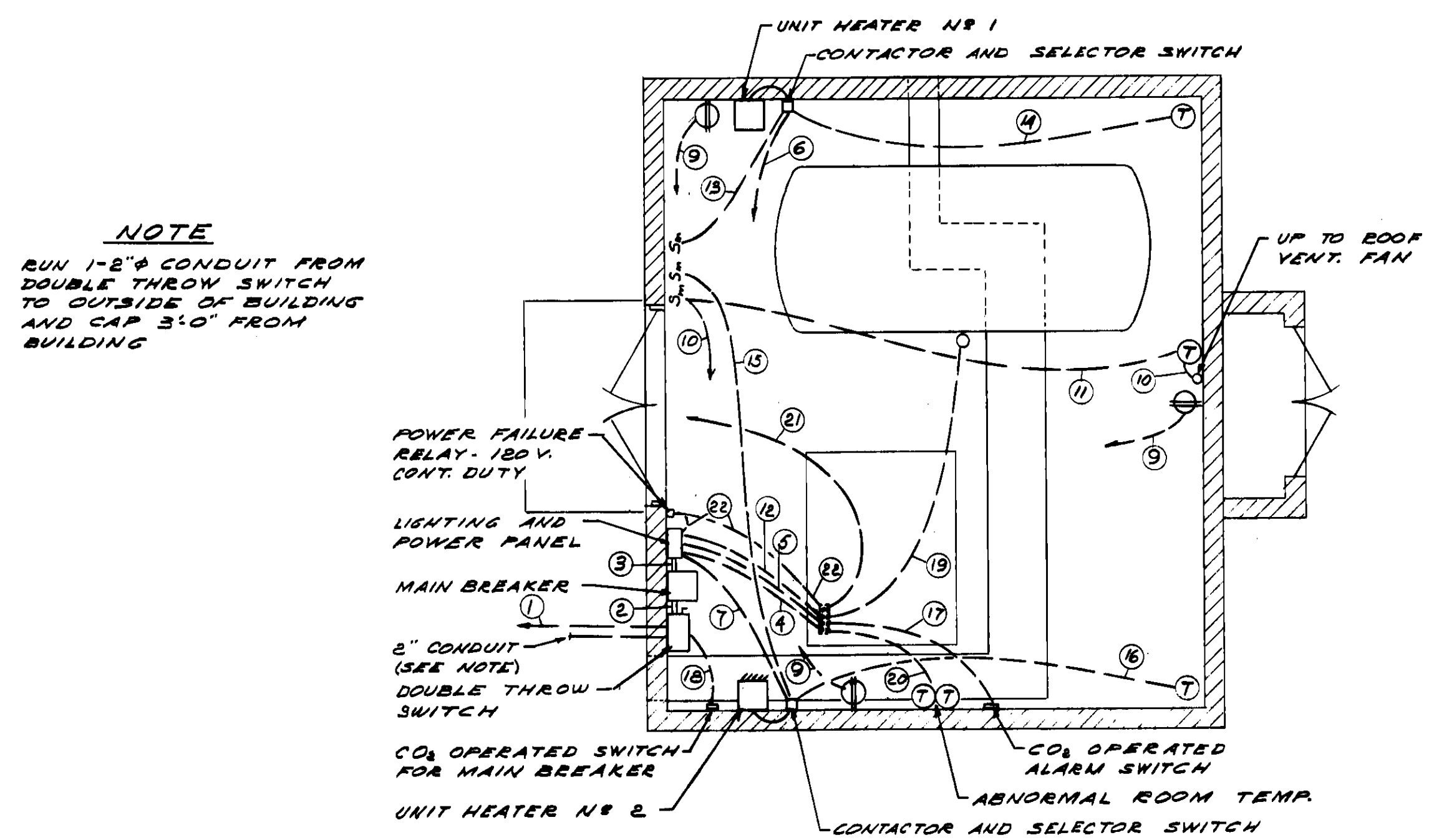


DIAGRAMATIC LAYOUT OF CARBON DIOXIDE
FIRE EXTINGUISHING SYSTEM
SCALE 1/4" = 1'-0"



WIRING DIAGRAM FOR
VENT FAN

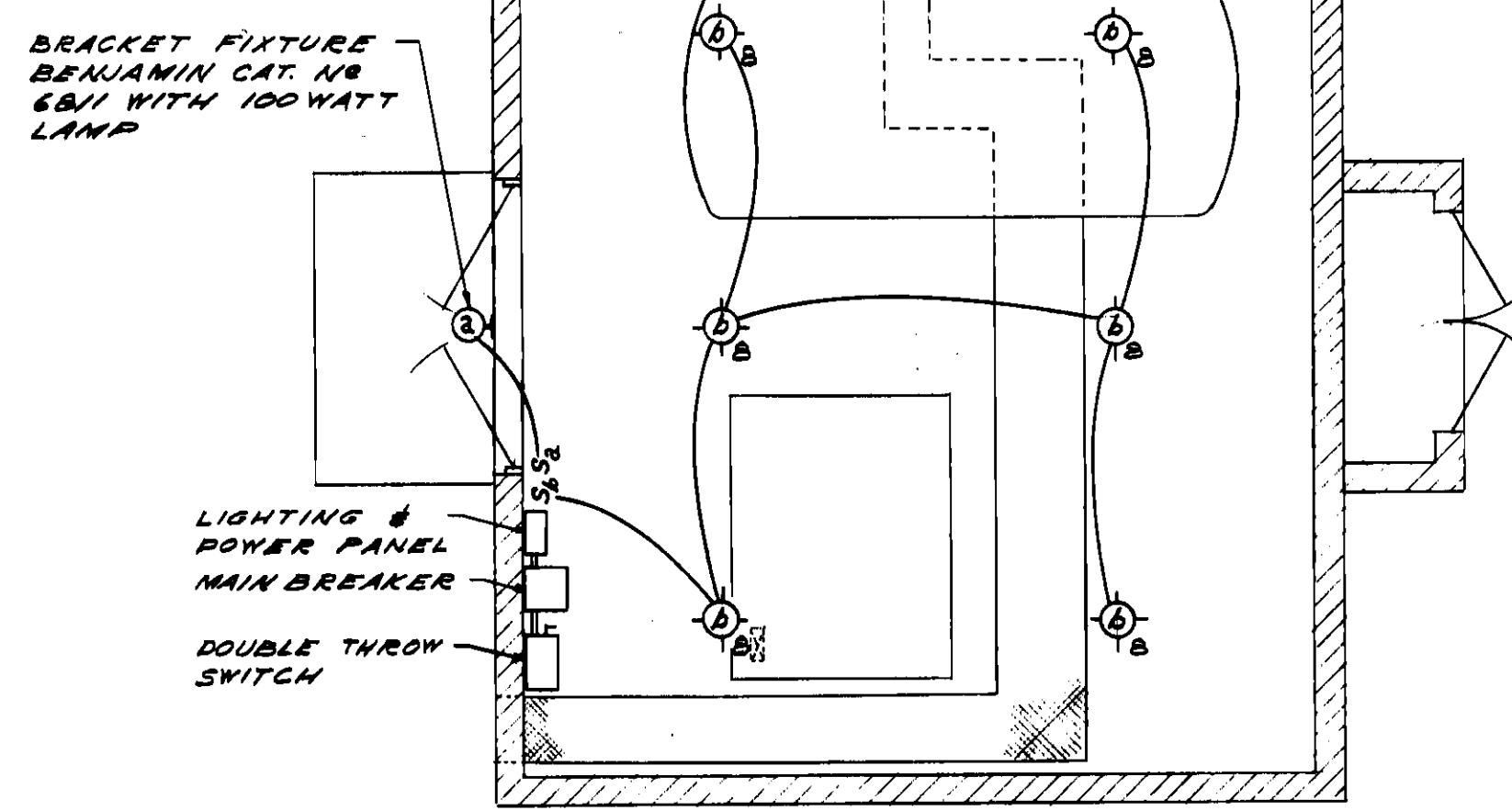
NOTE: SEE SPECIFICATIONS FOR DATA ON EQUIPMENT SHOWN



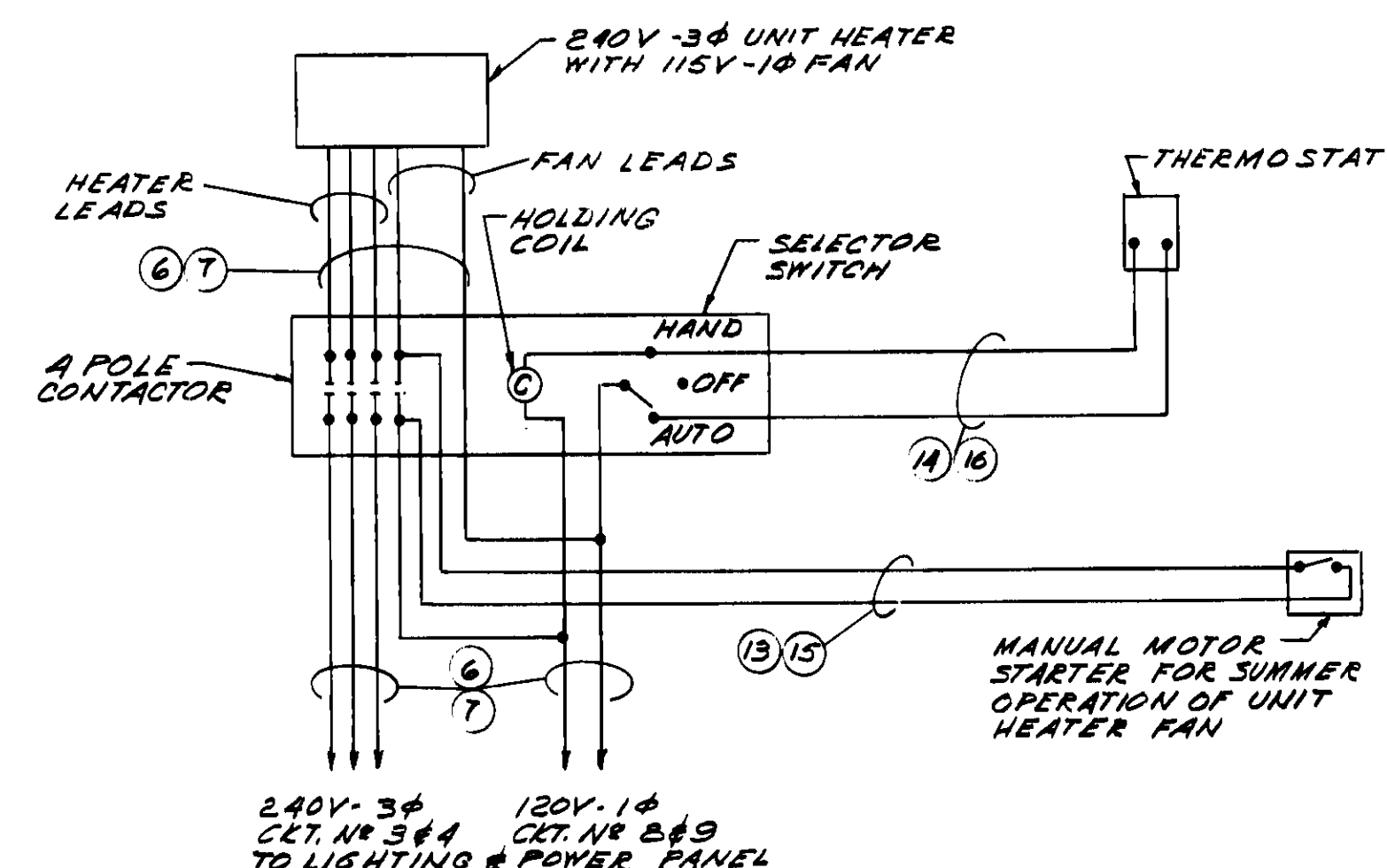
GENERAL ARRANGEMENT OF CONDUIT RUNS
SCALE 1/4" = 1'-0"

- LEGEND**
- ① LIGHTING FIXTURE - LETTER DENOTES SWITCHING CONTROL - NUMERAL DENOTES CIRCUIT NO.
 - ⊕ DUPLEX CONVENIENCE OUTLET
 - ⊖ SINGLE POLE SWITCH - LETTER DENOTES SWITCHING CONTROL
 - ⊙ MANUAL MOTOR STARTER - SINGLE POLE
 - PANELS AS NOTED
 - CONCEALED WIRING
 - WIRING CONCEALED UNDER CONCRETE SLAB OR GROUND. NUMBER IN CIRCLE INDICATES RUN NO.

NOTE: INTERIOR LIGHTING FIXTURES SHALL BE SIMILAR AND EQUAL TO APPELTON CAT. NO. 3-5734 (VAPOR PROOF) 150 WATT LAMP



LIGHTING SYSTEM
SCALE 1/4" = 1'-0"



TYPICAL WIRING DIAGRAM FOR UNIT HEATERS
2 REQUIRED

NOTE: SEE SPECIFICATIONS FOR DATA ON EQUIPMENT SHOWN

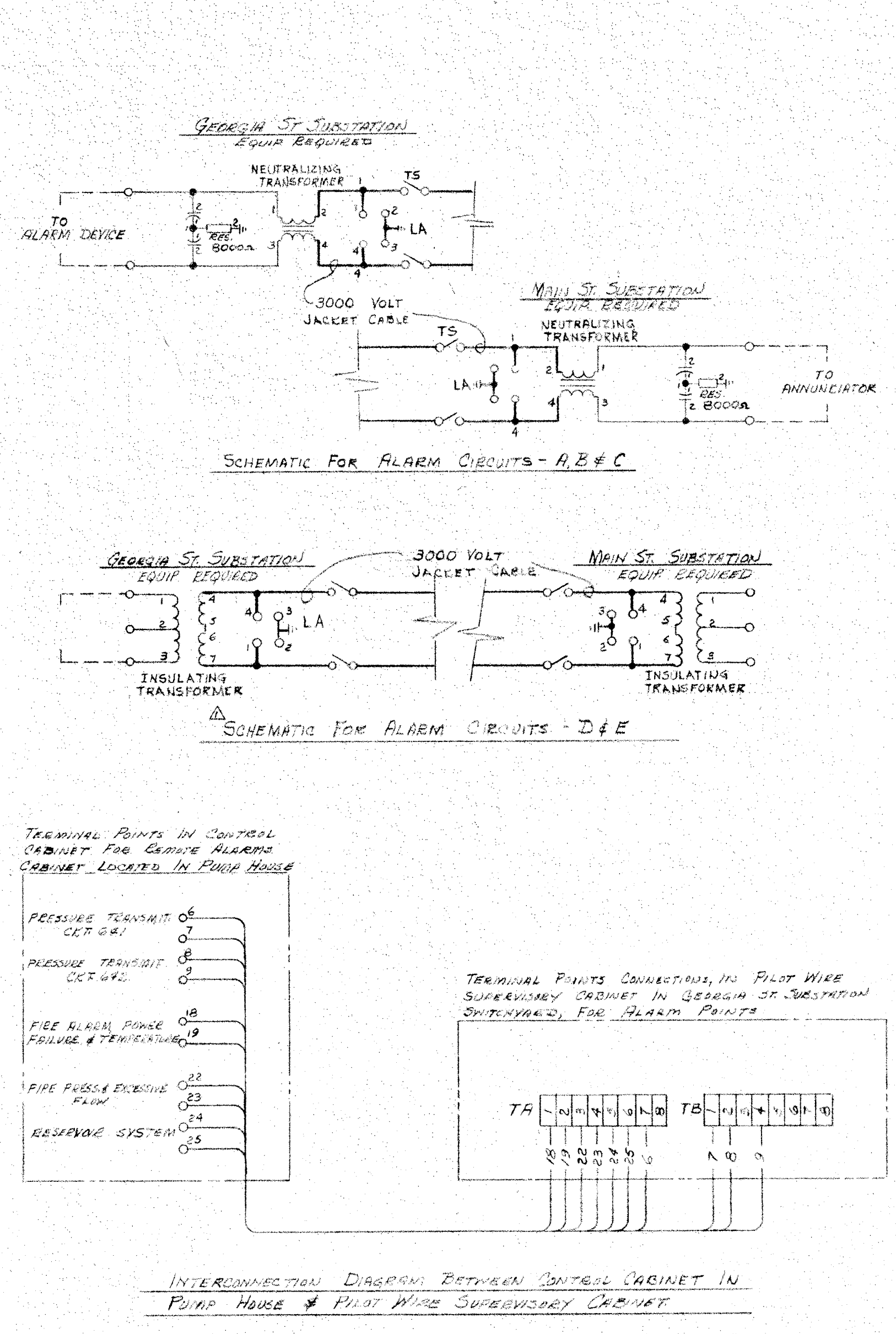
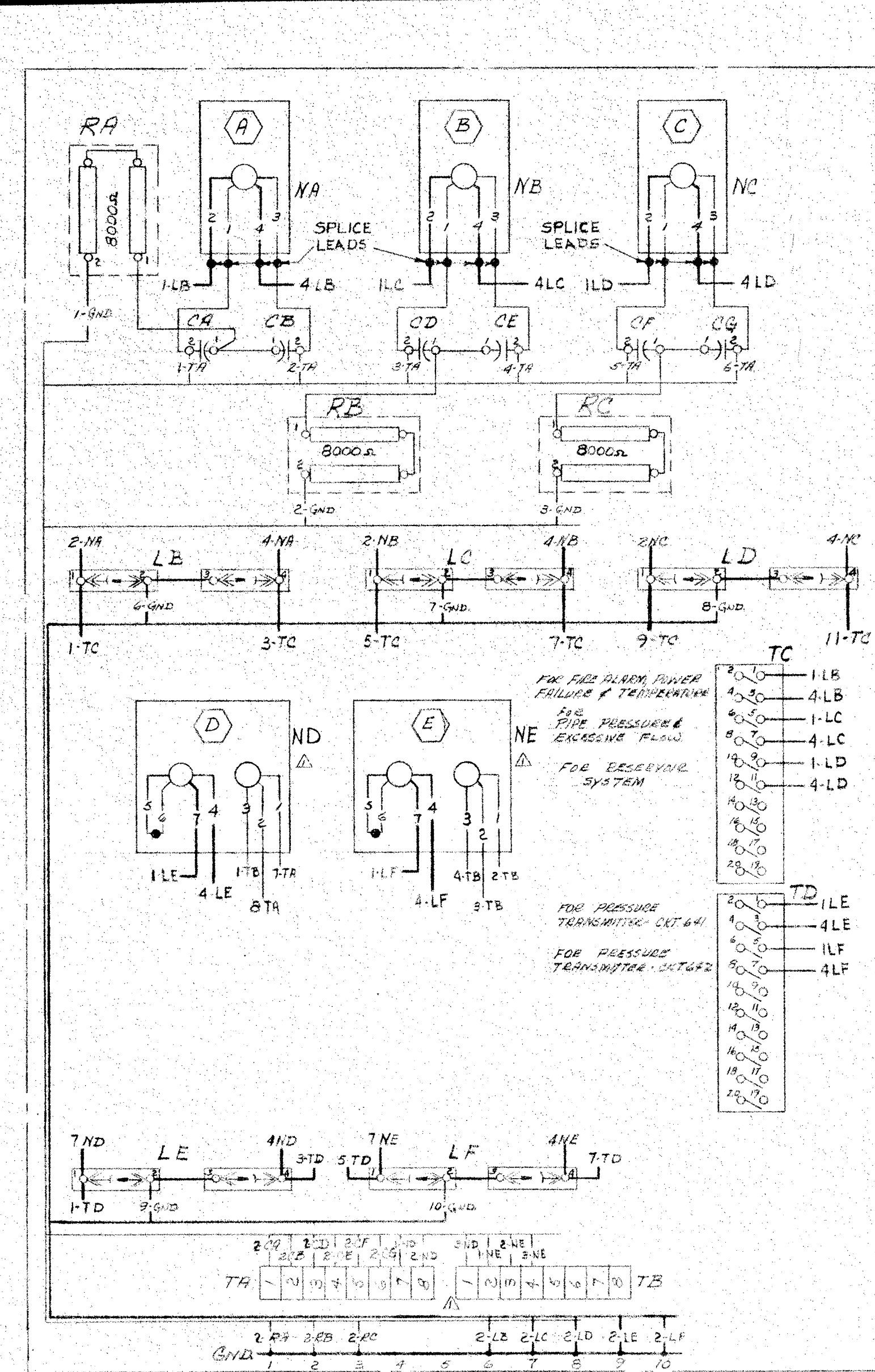
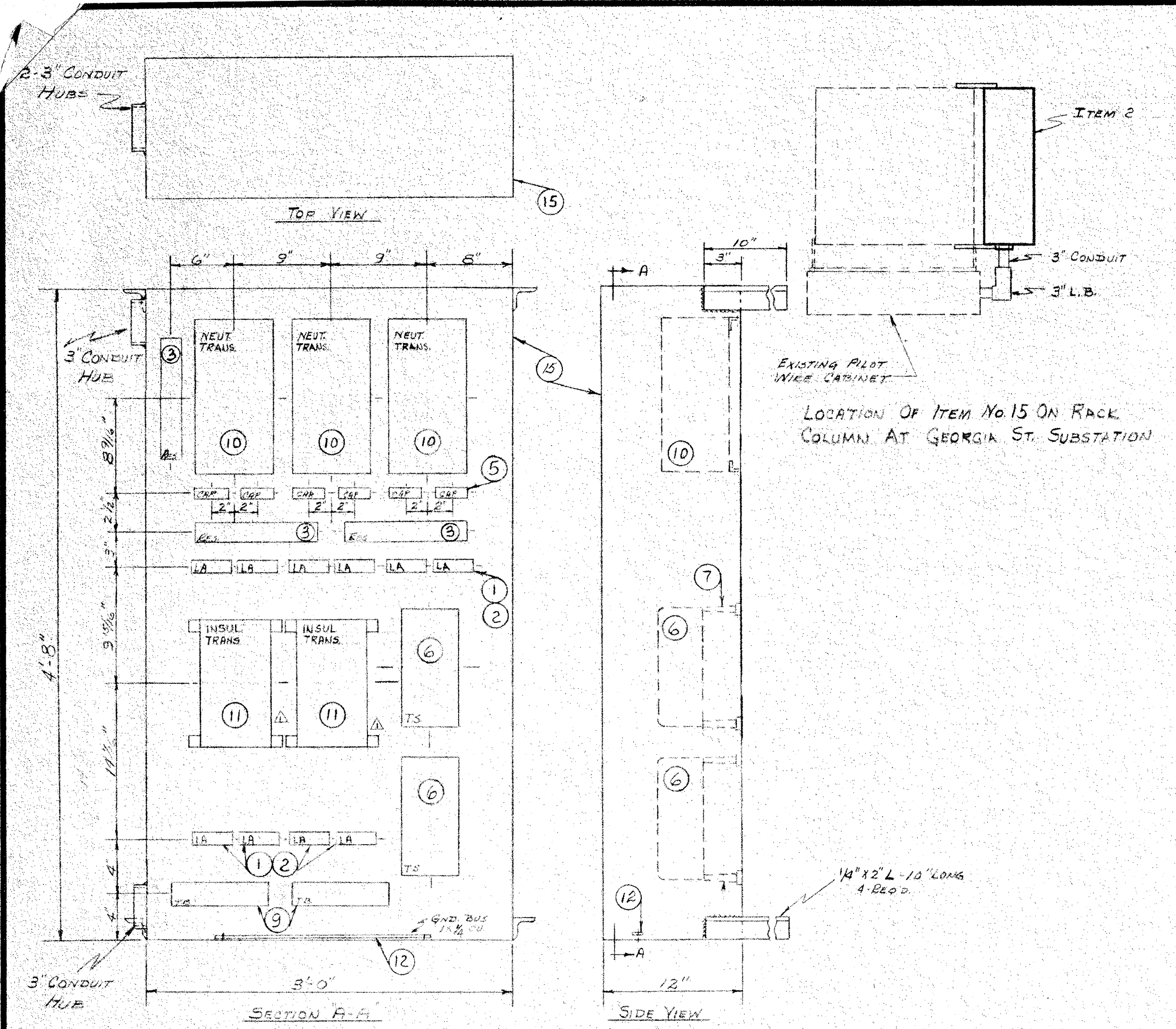
CONDUIT AND CIRCUIT SCHEDULE					
CIRCUIT NO.	STARTING POINT	CONDUIT WIRE	RUN NO.	TERMINATION	REMARKS
-	POWER POLE ON GEORGIA ST.	2" 4" 1/2 RHW	1	DOUBLE THROW SWITCH-PUMP HOUSE	180/240-3Ø POWER SUPPLY FOR PUMP HOUSE
-	DOUBLE THROW SWITCH	2" 4" 1/2 RHW	2	MAIN BREAKER	
-	MAIN BREAKER	2" 4" 1/2 RHW	3	LIGHTING & POWER PANEL	
1	LIGHTING & POWER PANEL	3/4" 5" 1/2	4	PUMP UNIT CONTROL CABINET	POWER FOR PUMP MOTOR NO. 1 & NO. 2
2	LIGHTING & POWER PANEL	3/4" 5" 1/2	5	PUMP UNIT CONTROL CABINET	SPARE
3 & 4	LIGHTING & POWER PANEL	3/4" 5" 1/2	6	CONTACTOR-UNIT HEATER NO. 1	SEE WIRING DIAGRAM
5 & 6	LIGHTING & POWER PANEL	3/4" 5" 1/2	7	CONTACTOR-UNIT HEATER NO. 2	SEE WIRING DIAGRAM
7	LIGHTING & POWER PANEL	1/2" 2" 1/2	8	LIGHTS	
8	LIGHTING & POWER PANEL	1/2" 2" 1/2	9	RECEPTACLES	
9	LIGHTING & POWER PANEL	1/2" 2" 1/2	10	SWITCH FOR ROOF VENT FAN	SEE WIRING DIAGRAM
10	LIGHTING & POWER PANEL	1/2" 2" 1/2	11	THERMOSTAT FOR ROOF FAN	SEE WIRING DIAGRAM
11	LIGHTING & POWER PANEL	1/2" 2" 1/2	12	LIGHTING-PUMP UNIT CABINET	NORMAL LIGHTING FOR PUMP UNIT
-	CONTACTOR-UNIT HEATER NO. 1	1/2" 2" 1/2	13	FAN MOTOR SWITCH	SEE WIRING DIAGRAM
-	CONTACTOR-UNIT HEATER NO. 1	1/2" 2" 1/2	14	THERMOSTAT	SEE WIRING DIAGRAM
-	CONTACTOR-UNIT HEATER NO. 2	1/2" 2" 1/2	15	FAN MOTOR SWITCH	SEE WIRING DIAGRAM
-	CONTACTOR-UNIT HEATER NO. 2	1/2" 2" 1/2	16	THERMOSTAT	SEE WIRING DIAGRAM
-	CO2 PRESSURE SWITCH-FIRE ALARM	1/2" 2" 1/2	17	PUMP UNIT CONTROL CABINET	FIRE ALARM SYSTEM
-	CO2 PRESSURE SWITCH-MAIN BR.	1/2" 2" 1/2	18	TRIP COIL-MAIN BREAKER	TRIPPING CIRCUIT FOR MAIN BREAKER
-	PUMP UNIT CONTROL CABINET	1/2" 3" 1/2	19	RESERVOIR	LIQUID LEVEL ALARM - GAGE ON TANK
-	PUMP UNIT CONTROL CABINET	1/2" 2" 1/2	20	THERMOSTAT-ABNORMAL TEMP.	SEE ALARM SYSTEM WIRING DIAGRAM
-	PUMP UNIT CONTROL CABINET	2" 12" 4" 1/2	21	CONTROL CAB. - SUB. STA. COL.	RECORDING & ALARM SYSTEM
12	LIGHTING & POWER PANEL RELAY	1/2" 2" 1/2	22	PUMP UNIT CONTROL CABINET	POWER FAILURE RELAY

* SEE SHEET NO. 13 FOR DESCRIPTION

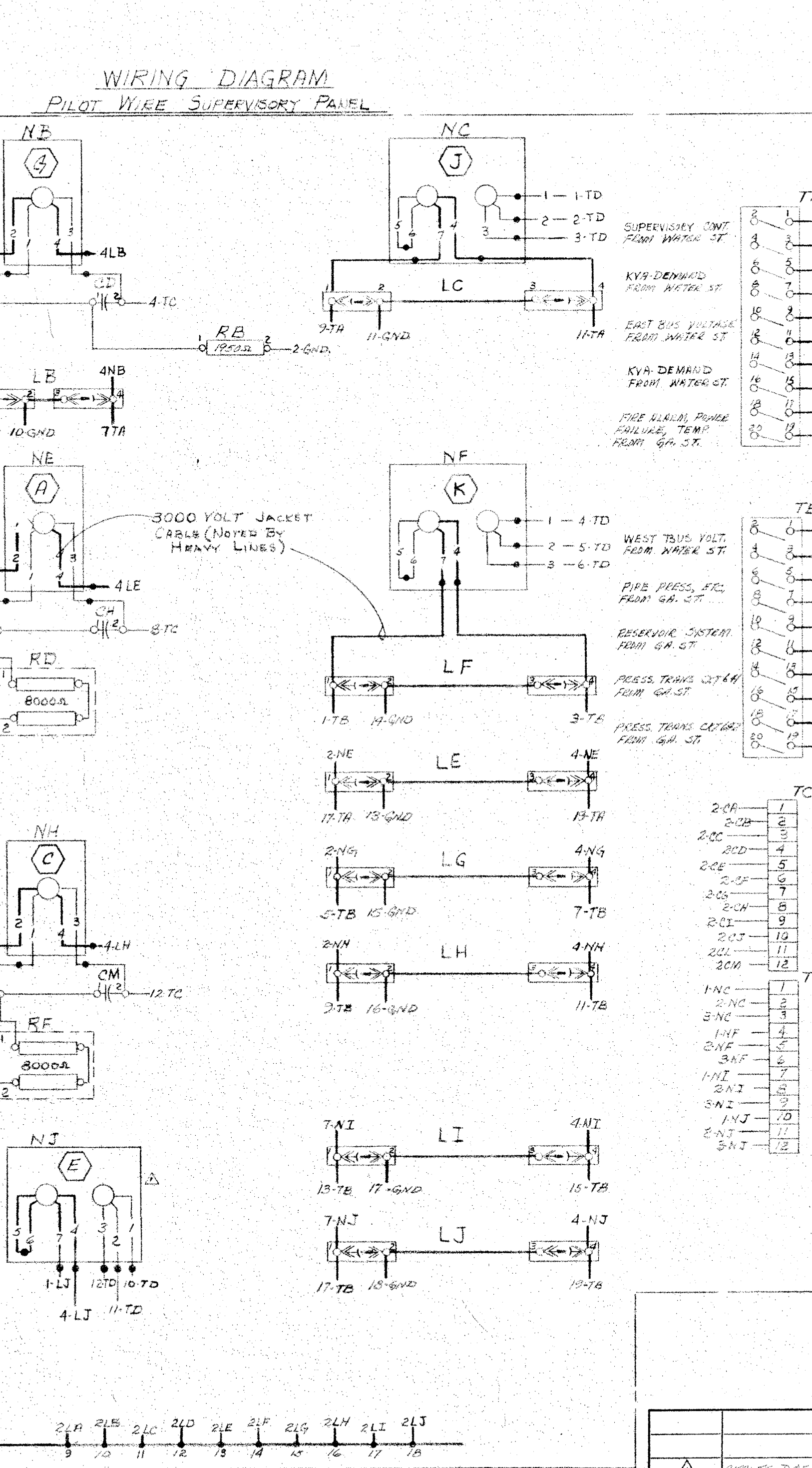
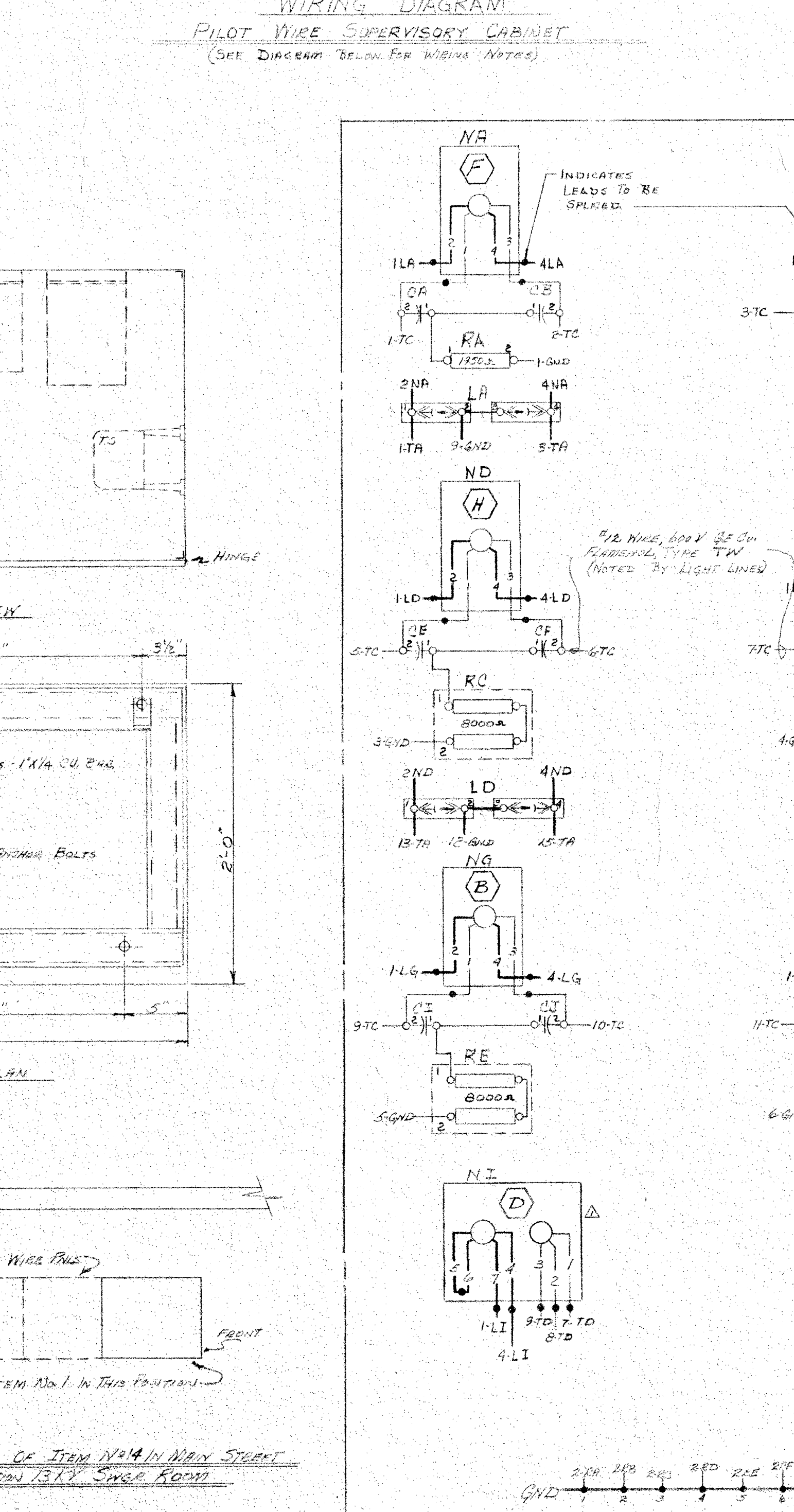
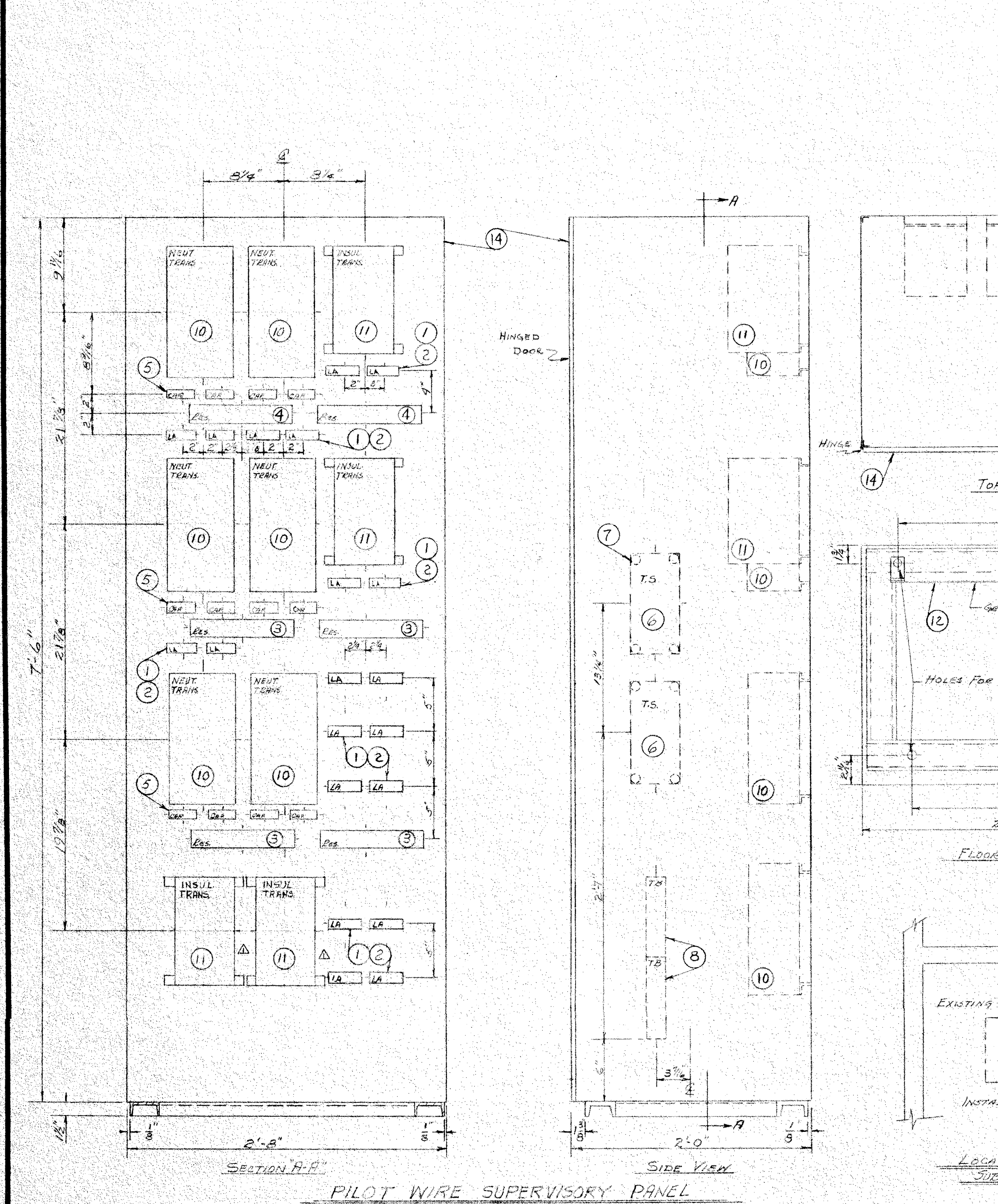
LIGHTING & POWER PANEL SCHEDULE				
CIRCUIT NO.	TRIP	POLES	SERVES	
1	50	3	PUMP MOTOR NO. 1 & NO. 2	
2	50	3	SPARE	
3	20	3	UNIT HEATER NO. 1	
4	20	3	UNIT HEATER NO. 2	
5	50	3	SPARE	
6	20	1	LIGHTS	
7	20	1	RECEPTACLES	
8	15	1	UNIT HEATER FAN 1/2 HP - 1Ø	
9	15	1	UNIT HEATER FAN 1/2 HP - 1Ø	
10	20	1	ROOF VENT FAN 1/2 HP - 1Ø	
11	20	1	LIGHTING PUMP UNIT CABINET	
12	15	1	POWER FAILURE RELAY	
13	20	1	SPARE	
14	20	1	SPARE	

AS BUILT	5-14-63	R.B.J.	G.M.C.	FOR THE CITY OF JACKSONVILLE	DRAWING NO. 59111-39
INCREASED WIRE SIZE & TRIP	5-14-63	R.B.J.	G.M.C.	DEPARTMENT HEAD	59111-39
WIRING SET FOR DELETED GEORGIA	5-14-63	R.B.J.	G.M.C.	ENGINEERING DEPARTMENT	05518-R2
CIRCUIT WIRE ON PUMP	5-14-63	R.B.J.	G.M.C.	ENGINEER	14-R2-15
DISCHARGE CHANGED	5-14-63	R.B.J.	G.M.C.	ENGINEER	14-R2-15
REVISION	DESCRIPTION	DATE	BY	APPROVED	

PROJECT NO. 59111-39	W.D. NO. 59111-39.1
ARCHITECTS & ENGINEERS	REYNOLDS, SMITH AND HILLS
JACKSONVILLE, FLORIDA	
DRAWN BY G.M.C.	DEPARTMENT OF ELECTRIC & WATER UTILITIES
TRACED BY G.M.C.	CITY OF JACKSONVILLE, FLORIDA
CHECKED BY G.M.C.	69KV TRANSMISSION CABLES
SCALE: SHOW N	GEORGIA STREET TO WATER STREET
DATE: 5-14-63	PUMPHOUSE - ELECTRICAL & PIPING
APPROVED FOR REYNOLDS, SMITH AND HILLS	
FOR THE CITY OF JACKSONVILLE	DRAWING NO. 59111-39
DEPARTMENT HEAD	59111-39
ENGINEERING DEPARTMENT	05518-R2
ENGINEER	14-R2-15



ITEM NO.	QUAN.	DESCRIPTION	REMARKS
1	30	UNION SWITCH AND SIGNAL CO., CAT. NO. AAR-1065F TERM.	
2	30	BLOCK COMPLETE WITH ALL NUTS & WASHERS	
3	7	THYRISTOR SIGNAL ARRESTOR, CAT. NO. 9LA404, WITH ADAPTER FOR MTS ON AAR TERMINAL BLOCK	
4	2	RESISTOR, G.E. CO. CAT. NO. IC90022102B8000	
5	20	RESISTOR, G.E. CO. CAT. NO. IC90022101A2000	
6	4	CAPACITOR, 1MFD, 1000 VOLT, G.E. CO. CAT. NO. 23F446	
7	1/6	SUPERIOR TEST SWITCH, CAT. NO. 1417-F	
8	2	STAND OFF INSULATOR, E.F. JOHNSON CAT. NO. 135-20-1	
9	2	TERMINAL BLOCK, 12 POINT - G.E. CO. CAT. NO. 6424B2312	
10	9	TERMINAL BLOCK, 8 POINT - G.E. CO. CAT. NO. 6424B2308	
11	6	TRANSFORMER, NEUTRALIZING, G.E. CO. CAT. NO. 3T21Y980A	
12	2	BUS, GROUND, 1/4" COPPER 2-3' LONG	
13	1	LOT WIRING, AS INDICATED ON WIRING DIAGRAMS	
14	1	PILOT WIRE PANEL, 1/8" SPECIALLY SMOOTH COLD ROLLED STEEL	
15	1	PILOT WIRE CABINET, 10 GAUGE STEEL, AS SHOWN FOR THIS DWG.	
16	1	LOT CONDUIT & CONDUITS AS INDICATED ON DRAWING	



ITEM NO.	QUAN.	DESCRIPTION	REMARKS
1	30	UNION SWITCH AND SIGNAL CO., CAT. NO. AAR-1065F TERM.	
2	30	BLOCK COMPLETE WITH ALL NUTS & WASHERS	
3	7	THYRISTOR SIGNAL ARRESTOR, CAT. NO. 9LA404, WITH ADAPTER FOR MTS ON AAR TERMINAL BLOCK	
4	2	RESISTOR, G.E. CO. CAT. NO. IC90022102B8000	
5	20	RESISTOR, G.E. CO. CAT. NO. IC90022101A2000	
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7	1/6	SUPERIOR TEST SWITCH, CAT. NO. 1417-F	
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12	2	BUS, GROUND, 1/4" COPPER 2-3' LONG	
13	1	LOT WIRING, AS INDICATED ON WIRING DIAGRAMS	
14	1	PILOT WIRE PANEL, 1/8" SPECIALLY SMOOTH COLD ROLLED STEEL	
15	1	PILOT WIRE CABINET, 10 GAUGE STEEL, AS SHOWN FOR THIS DWG.	
16	1	LOT CONDUIT & CONDUITS AS INDICATED ON DRAWING	

ORIGINAL

PROJECT NO. 59111-39 WD NO. 59111-39.1

REYNOLDS, SMITH AND HILLS
ARCHITECTS & ENGINEERS

DEPARTMENT OF ELECTRIC & WATER UTILITIES
CITY OF JACKSONVILLE, FLORIDA
GEORGIA & MAIN STREETS
PILOT WIRE EQUIPMENT

APPROVED FOR REYNOLDS, SMITH AND HILLS

FOR THE CITY OF JACKSONVILLE

DEPARTMENT HEAD: ENGINEERING DEPARTMENT

ENGINEER: ENGINEER

DRAWING NO. SK-59111-39-54-R1

DATE: 1-22-68

REVISION: 1

DESCRIPTION: 1

DATE: 1-22-68

APPROVED: 1

RS 07

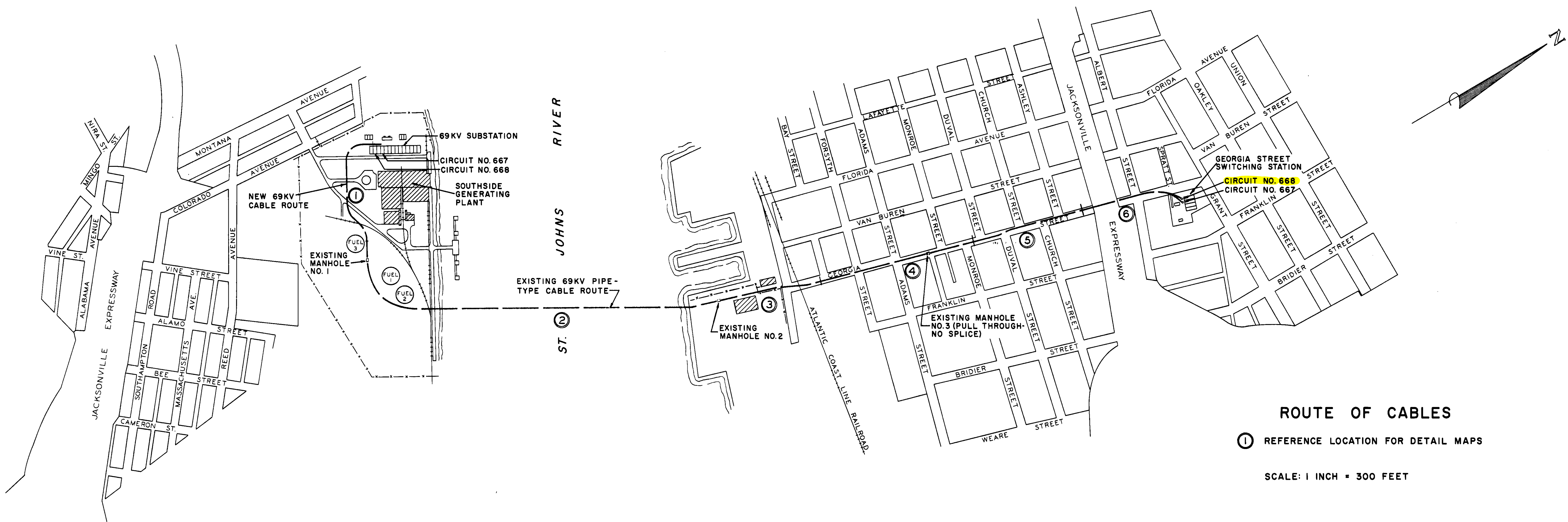
RECONDUCTOR OF 69KV CABLES
SOUTHSIDE POWER PLANT TO GEORGIA STREET SWITCHING STATION

J. DILLON KENNEDY
PUBLIC UTILITIES COMMISSIONER

FOR
CITY OF JACKSONVILLE
JACKSONVILLE, FLORIDA

ROBERT B. COWAN - ENGINEER MANAGER
DEPARTMENT OF ELECTRIC & WATER UTILITIES

MARCH 26, 1963



PROJECT NO. 59III-108

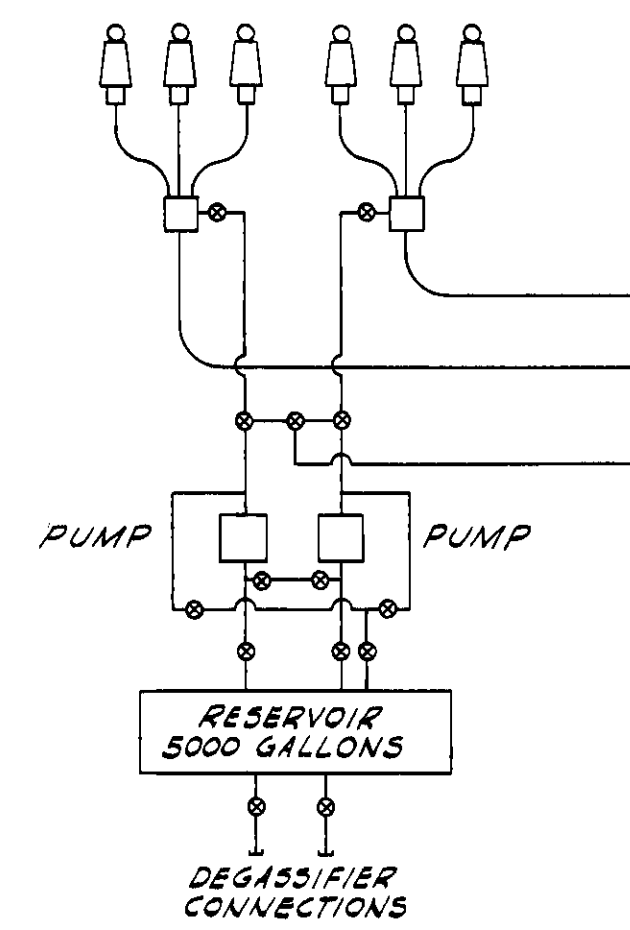
REYNOLDS, SMITH & HILLS
ARCHITECTS AND ENGINEERS
JACKSONVILLE, FLORIDA

CITY W.O. NO. 59III-108.1

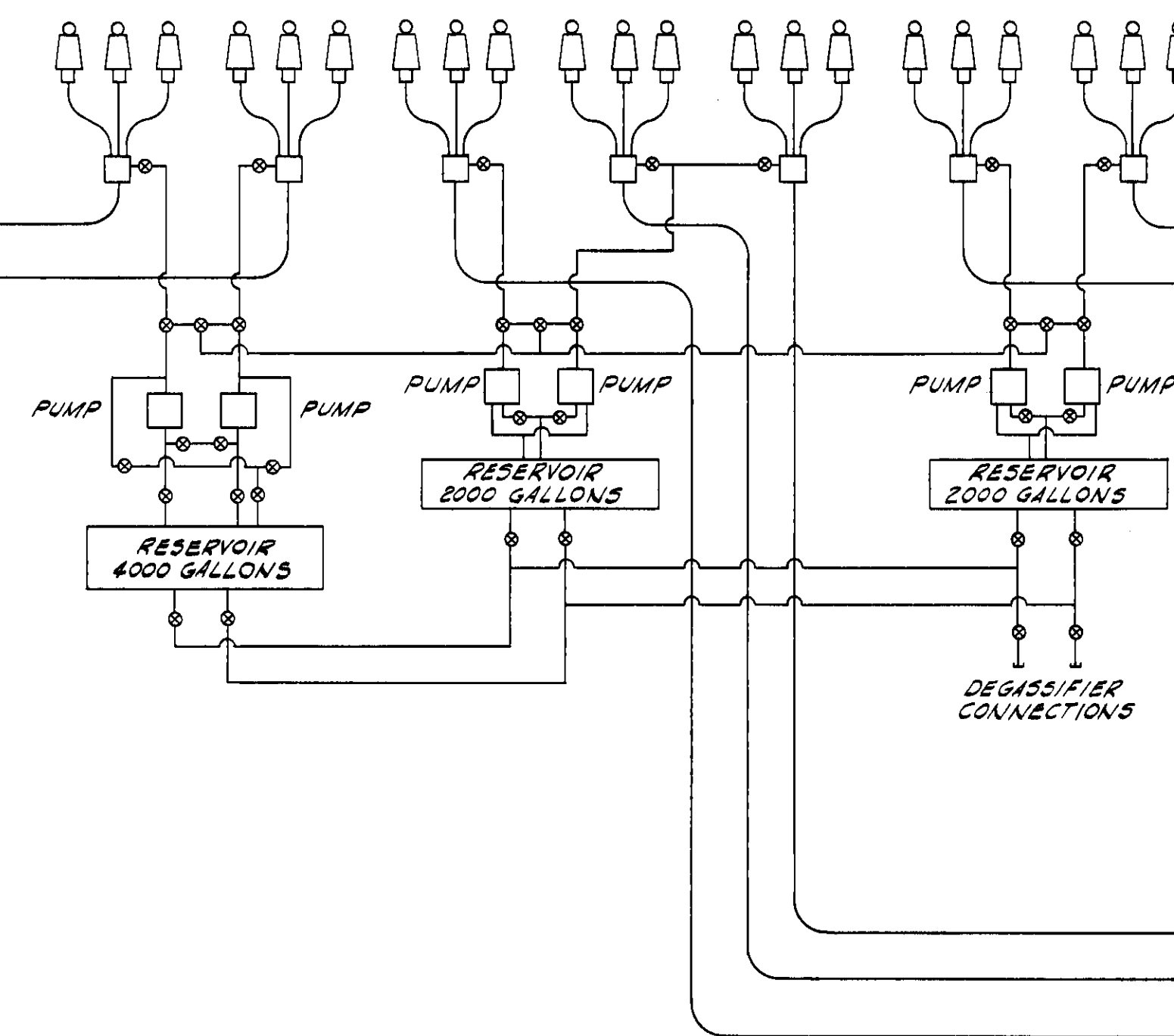
DRAWING NO.	TITLE	SHEET NO.
59III-D5725	ROUTE OF CABLE & INDEX TO DRAWINGS	1
59III-D5726	GENERAL ARRANGEMENT OF 69KV CABLE SYSTEM	2
59III-D5727	ROUTE OF CABLE - REFERENCE LOCATION 1	3
59III-D5728	ROUTE OF CABLE - REFERENCE LOCATION 2&3	4
59III-D5729	ROUTE OF CABLE - REFERENCE LOCATION 4&5	5
59III-D5730	ROUTE OF CABLE - REFERENCE LOCATION 6	6

DRAWING NO.	TITLE	SHEET NO.
59III-D5731	CABLE TERMINATION - SOUTHSIDE PLANT	7
59III-D5732	CABLE TERMINATION - GEORGIA STREET SWITCHING STATION	8
59III-D5733	TERMINAL STRUCTURE & DETAILS	9
59III-D5734	PIPE JOINTS & DETAILS	10

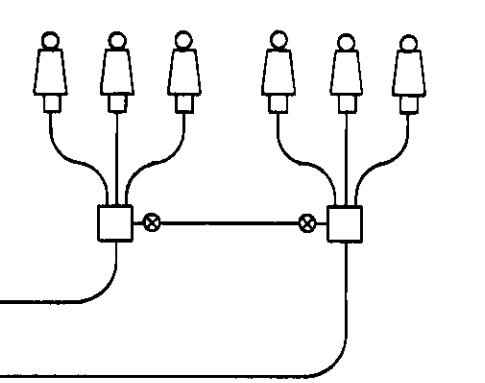
RANDALL STREET SUBSTATION



TALLEYRAND SUBSTATION

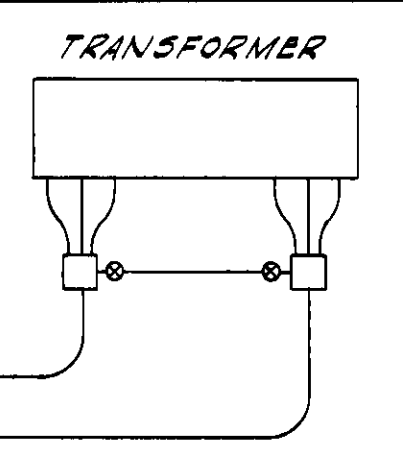


ARLINGTON CABLE TERMINAL

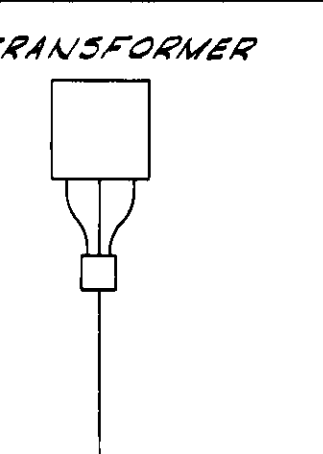


RIVER CROSSING

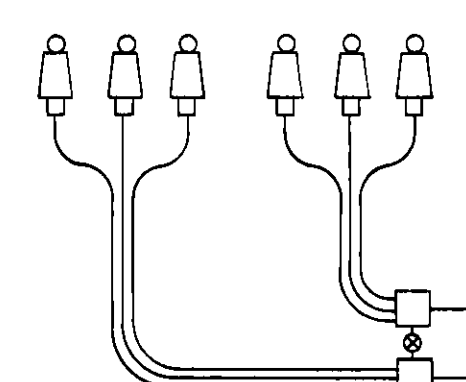
NO. 10 GEN. LEADS



NO. 9 GEN. LEADS

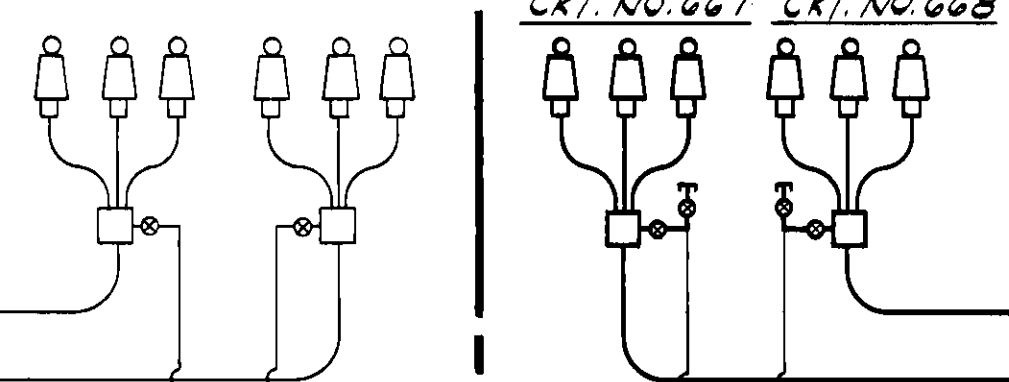


RANDALL STREET SUBSTATION



SOUTHSIDE POWER PLANT

CKT. NO. 667 CKT. NO. 668

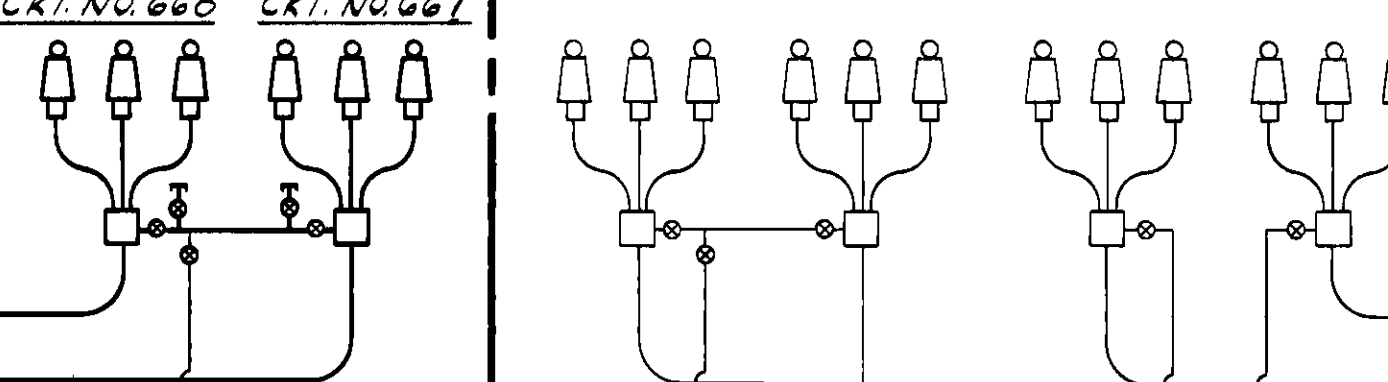


SECTION TO BE RECONDUCTED

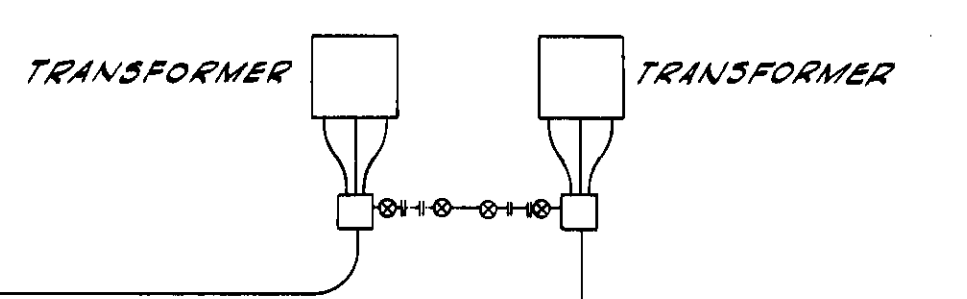
EXISTING ST. JOHNS RIVER CROSSING

GEORGIA STREET SWITCHING STATION

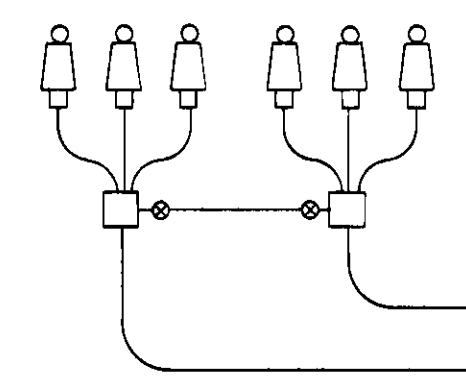
CKT. NO. 668 CKT. NO. 667



WATER STREET SUBSTATION



HUNTER STREET SUBSTATION



TANK CAR UNLOADING FACILITIES

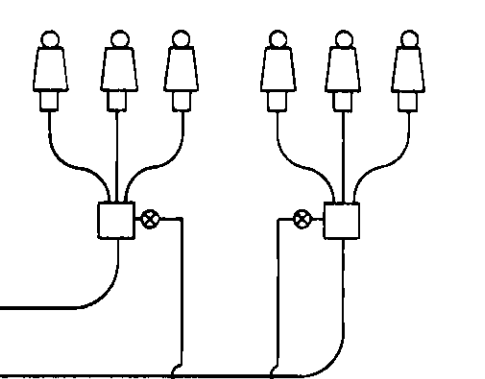
UNLOADING PUMP

STORAGE TANK 5000 GALLONS

RESERVOIR 2000 GALLONS

PUMP

MAIN STREET SUBSTATION



PUMP

RESERVOIR 2000 GALLONS

DEGASSIFIER CONNECTIONS

69KV PIPE TYPE CABLE SYSTEM

DESIGN DATA					
CIRCUIT NO. 667	CABLE TERMINATION SOUTHIDE PWR. PLANT	MANHOLE NO. 1	MANHOLE NO. 2	CABLE TERMINATION GEORGIA ST. SW. STATION	REMARKS
STATION NUMBER	0+00	10+29.20	35+71.91	68+30.95	
SECTION DESIGNATION FOR CABLE		667-1	667-2	667-3	
DISTANCE BETWEEN MANHOLES - FEET		1029.2	2542.71	3259.04	
CIRCUIT NO. 668	CABLE TERMINATION SOUTHIDE PWR. PLANT	MANHOLE NO. 1	MANHOLE NO. 2	CABLE TERMINATION GEORGIA ST. SW. STATION	REMARKS
STATION NUMBER	0+48	10+29.20	35+71.91	68+16.58	
SECTION DESIGNATION FOR CABLE		668-1	668-2	668-3	
DISTANCE BETWEEN MANHOLES - FEET		981.20	2542.71	3244.67	

AS CONSTRUCTED DATA					
CIRCUIT NO. 667	CABLE TERMINATION SOUTHIDE PWR. PLANT	MANHOLE NO. 1	MANHOLE NO. 2	CABLE TERMINATION GEORGIA ST. SW. STATION	REMARKS
STATION NUMBER					
SECTION DESIGNATION FOR CABLE					
DISTANCE BETWEEN MANHOLES - FEET					
VACUUM TEST DATA					
INSULATION TEST OF PIPE COATING - MEGOHMS/50 FT.					
DATE OF CABLE INSTALLATION					
MAXIMUM PULLING TENSION - POUNDS					
TIME REQUIRED FOR PULL - MINUTES					
CIRCUIT NO. 668	CABLE TERMINATION SOUTHIDE PWR. PLANT	MANHOLE NO. 1	MANHOLE NO. 2	CABLE TERMINATION GEORGIA ST. SW. STATION	REMARKS
STATION NUMBER					
SECTION DESIGNATION FOR CABLE					
DISTANCE BETWEEN MANHOLES - FEET					
VACUUM TEST DATA					
INSULATION TEST OF PIPE COATING - MEGOHMS/50 FT.					
DATE OF CABLE INSTALLATION					
MAXIMUM PULLING TENSION - POUNDS					
TIME REQUIRED FOR PULL - MINUTES					

PROJECT NO. 59111-108 CITY W.O. 59111-108

REYNOLDS, SMITH AND HILLS
ARCHITECTS & ENGINEERS
JACKSONVILLE, FLORIDA

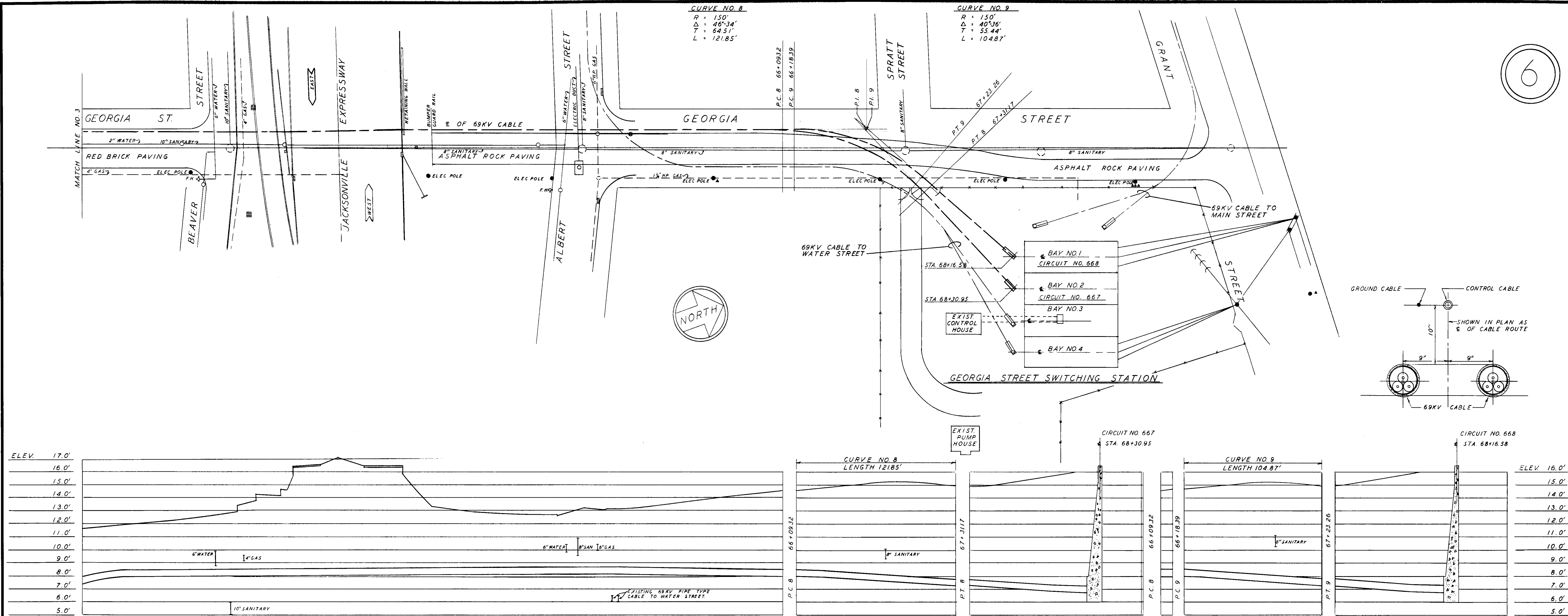
DEPARTMENT OF ELECTRIC & WATER UTILITIES
CITY OF JACKSONVILLE, FLORIDA
SOUTHSIDE PLANT TO GEORGIA STREET
GENERAL ARRANGEMENT OF
69KV CABLE SYSTEM

APPROVED FOR REYNOLDS, SMITH AND HILLS
[Signature] *[Signature]*

FOR THE CITY OF JACKSONVILLE
DEPARTMENT HEAD *[Signature]*
ENGINEER MANAGER *[Signature]*

DRAWING NO. 59111-108
D5726
SHEET 2 OF 10

REVISION	DESCRIPTION	DATE	BY	APPROVED	DEPARTMENT HEAD

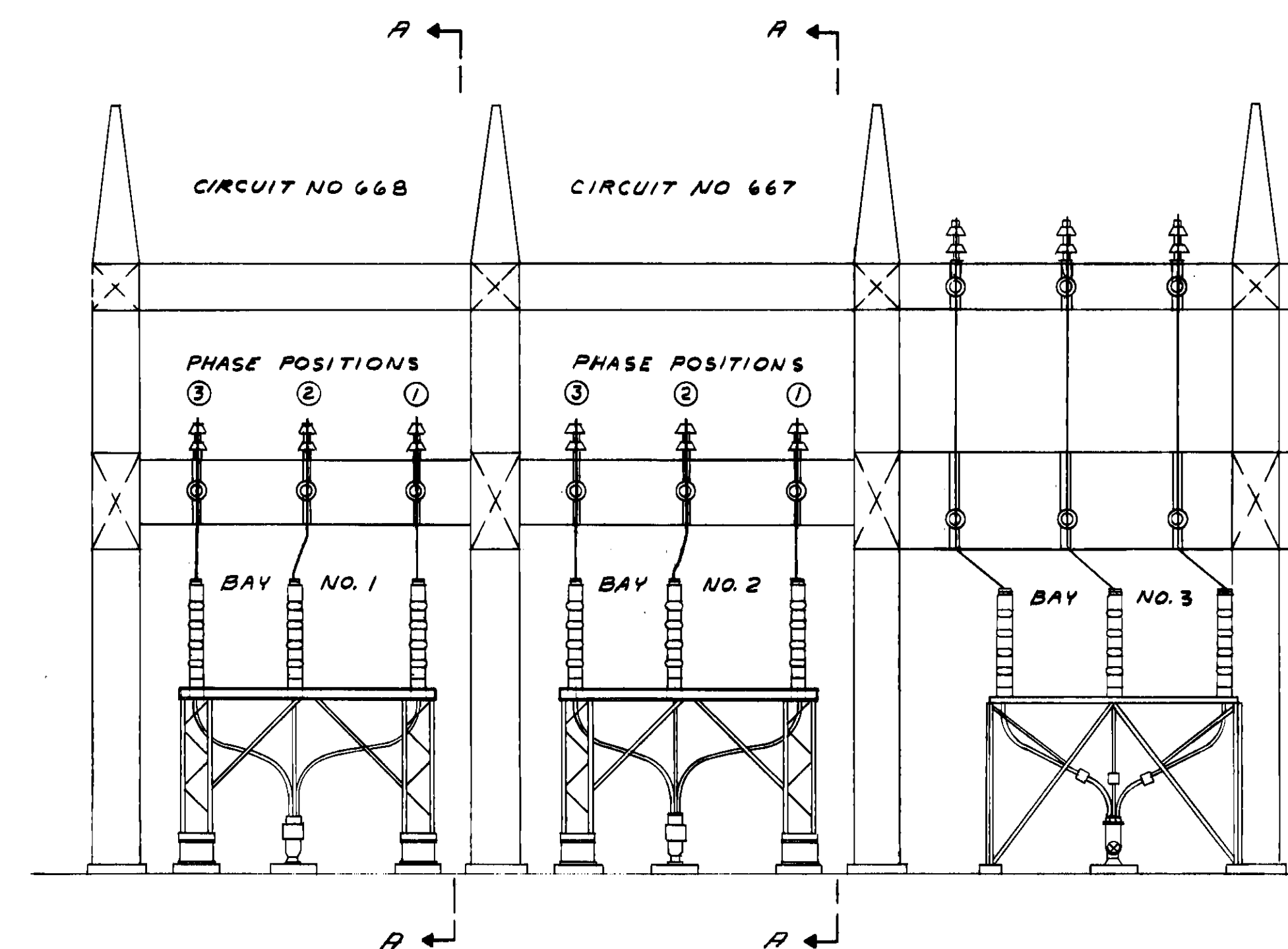
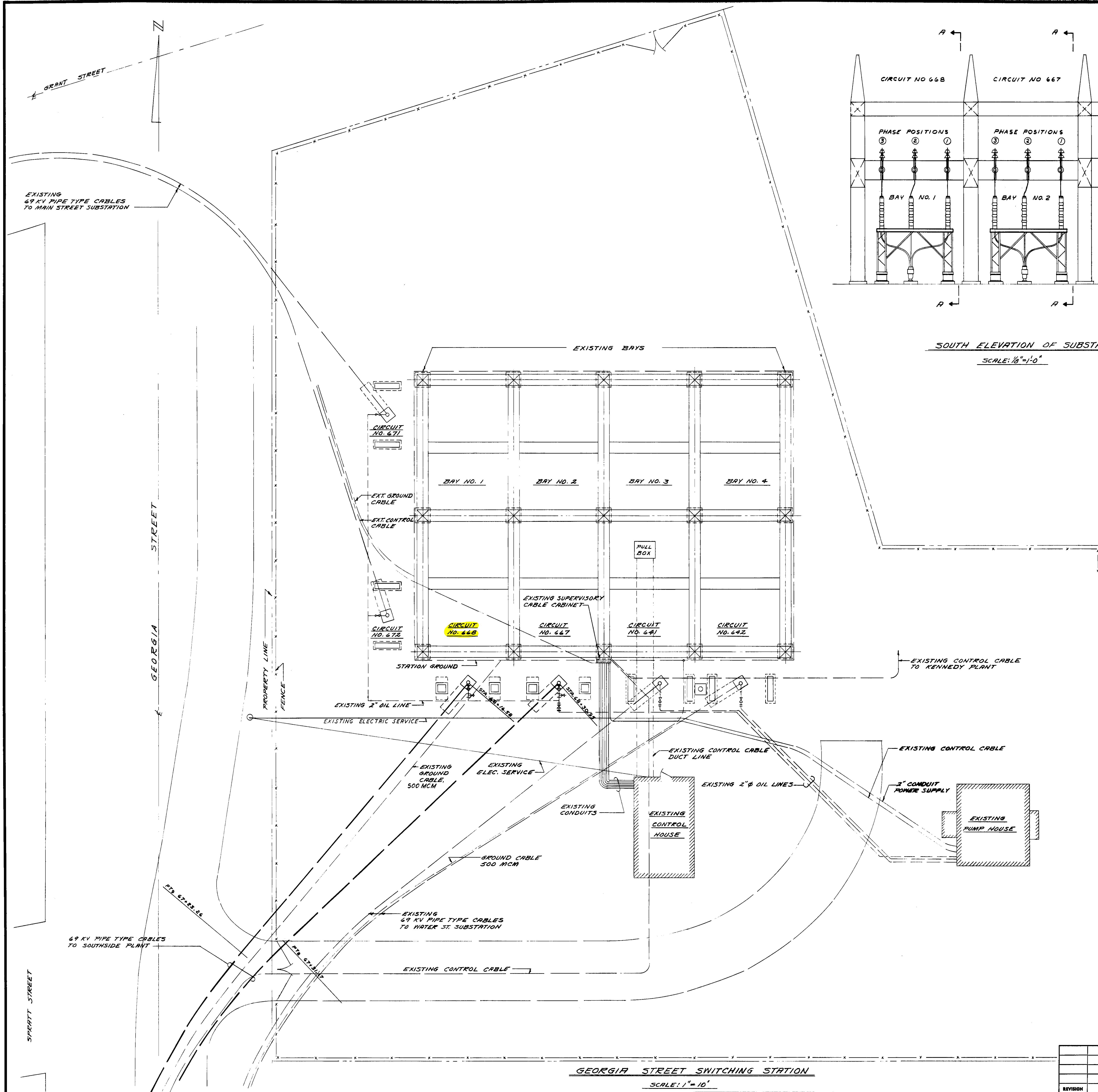


PROFILE-CABLE ROUTE
 SCALE: HORIZ. 1"=30'
 VERT. 1"=3'

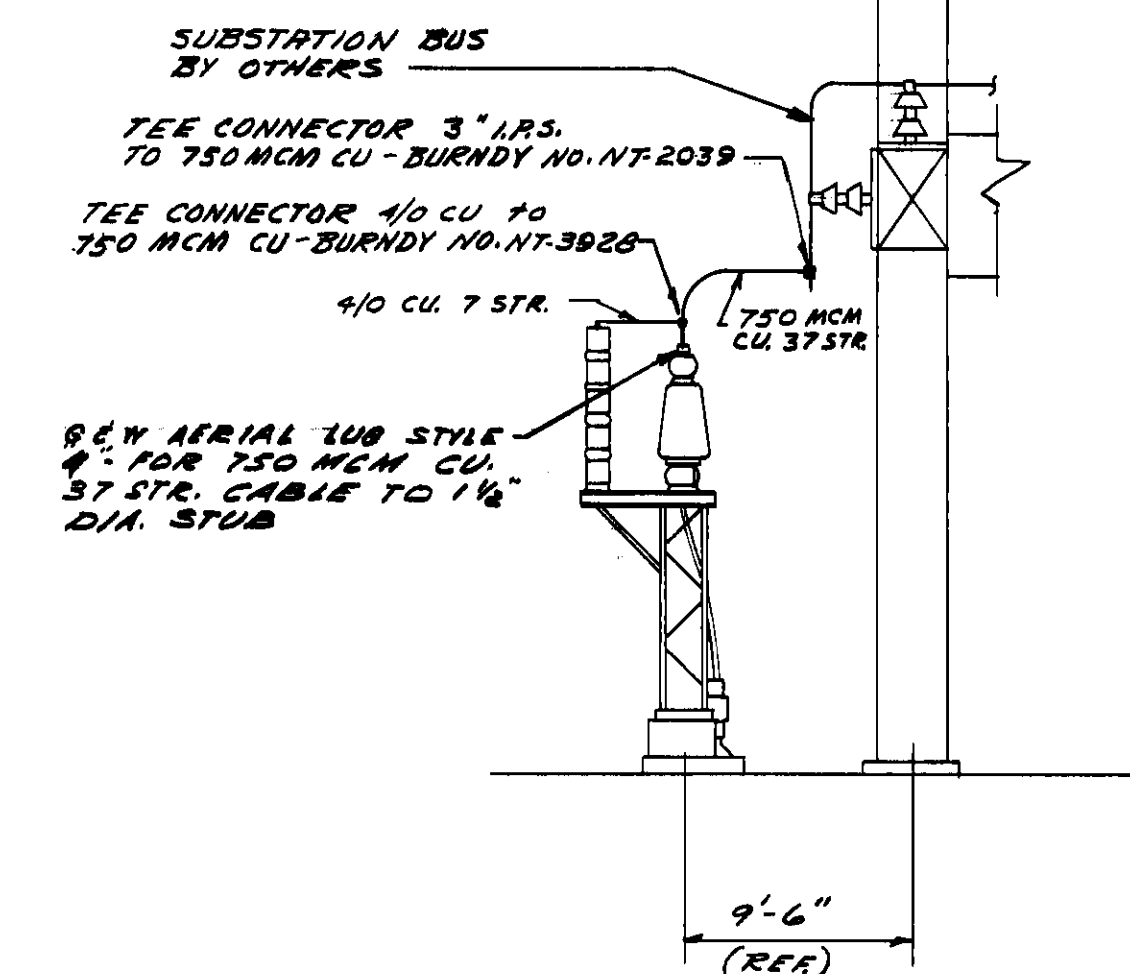
NOTE: ALL ELEVATIONS ARE CITY DATUM.

PROJECT NO. 59111-108		CITY NO. 59111-108.1	
REYNOLDS, SMITH AND HILLS			
ARCHITECTS & ENGINEERS		JACKSONVILLE, FLORIDA	
DEPARTMENT OF ELECTRIC & WATER UTILITIES			
CITY OF JACKSONVILLE, FLORIDA			
69 KV TRANSMISSION CABLES			
SOUTHSIDE PLANT TO GEORGIA STREET			
ROUTE OF CABLES			
REFERENCE LOCATION 6			
APPROVED FOR REYNOLDS, SMITH AND HILLS			
FOR THE CITY OF JACKSONVILLE		DRAWING NO. 59111 D5730	
DEPARTMENT HEAD		ENGINEERING DEPARTMENT	
DEPARTMENT HEAD		ENGINEER MANAGER	

REVISION	DESCRIPTION	DATE	BY	APPROVED

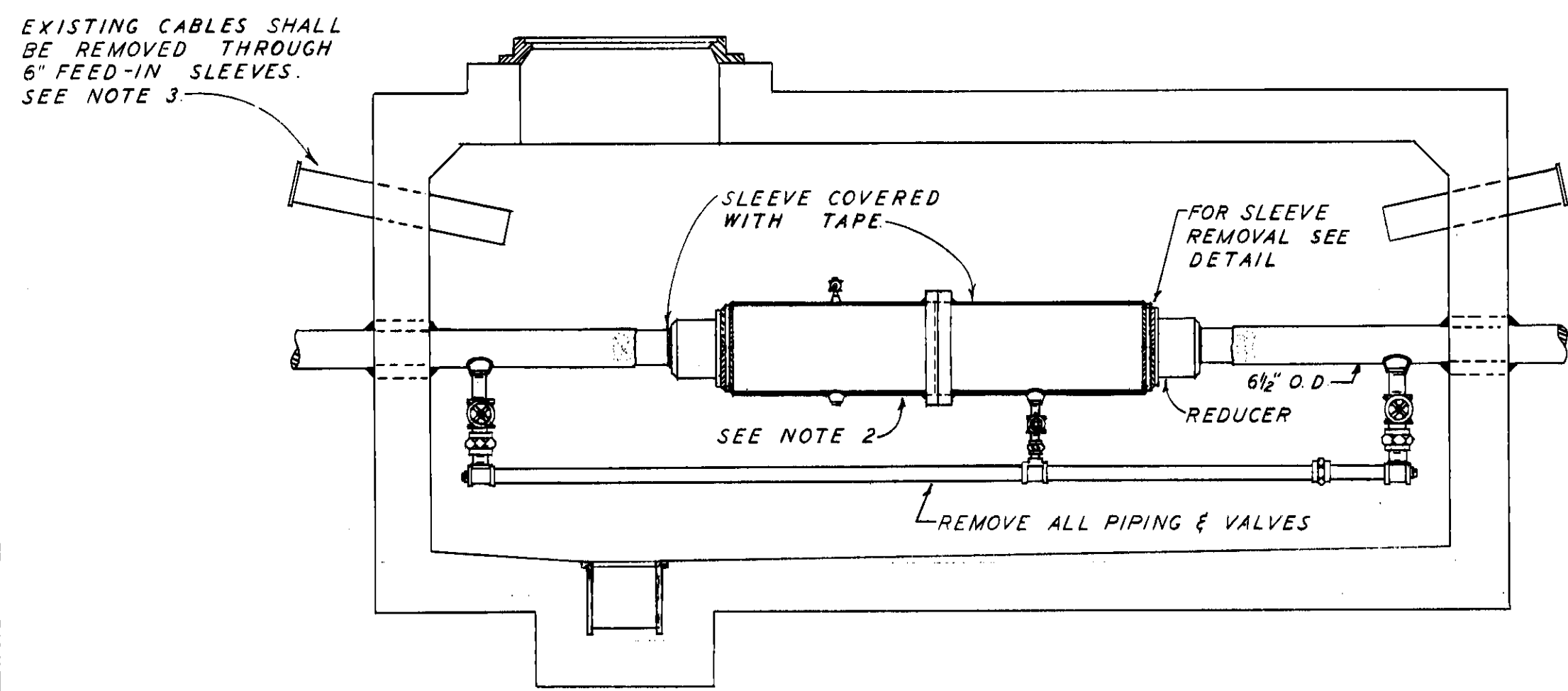


SOUTH ELEVATION OF SUBSTATION
SCALE: 1/8" = 1'-0"

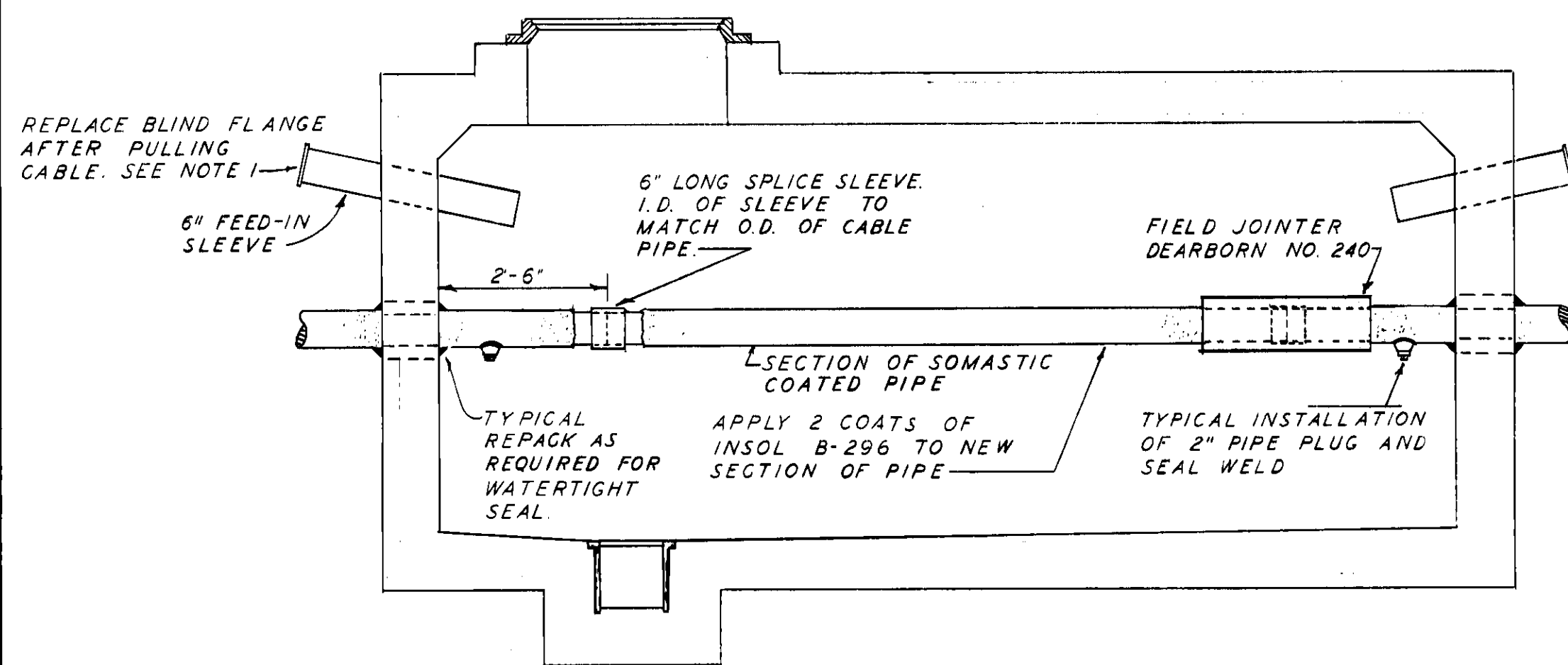


SECTION A-A
SCALE: 1/8" = 1'-0"

PROJECT NO. 59111-108		CITY W.D. 59111-108.1	
REYNOLDS, SMITH AND HILLS ARCHITECTS & ENGINEERS JACKSONVILLE, FLORIDA			
DEPARTMENT OF ELECTRIC & WATER UTILITIES CITY OF JACKSONVILLE, FLORIDA 69 KV TRANSMISSION CABLES SOUTHSIDE PLANT TO GEORGIA STREET CABLE TERMINATION GEORGIA ST. SWITCHING STATION			
APPROVED FOR REYNOLDS, SMITH AND HILLS			
DRAWN: W.T.H. TRACED: W.T.H. CHECKED: G.M.C. SCALE SHOWN: AS SHOWN DATE: 3-28-83		APPROVED FOR THE CITY OF JACKSONVILLE DEPARTMENT HEAD: [Signature] ENGINEER MANAGER: [Signature]	
DRAWING NO. 59111 D5732 SHEET 8 OF 10		PROJECT NO. 59111-108 CITY W.D. 59111-108.1	



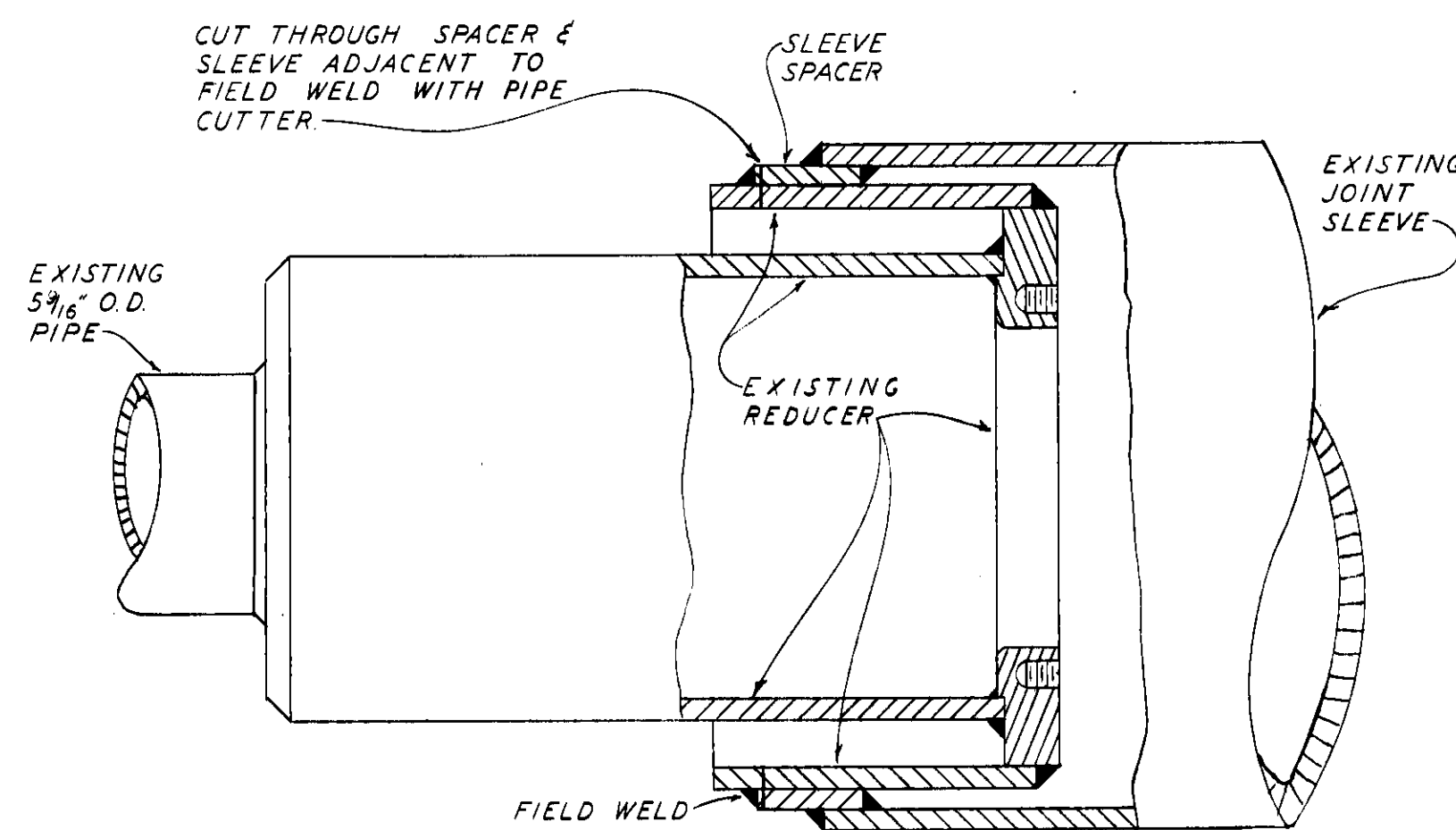
EXISTING JOINT CASINGS
MANHOLES 1-3
SCALE 1/2" = 1'-0"



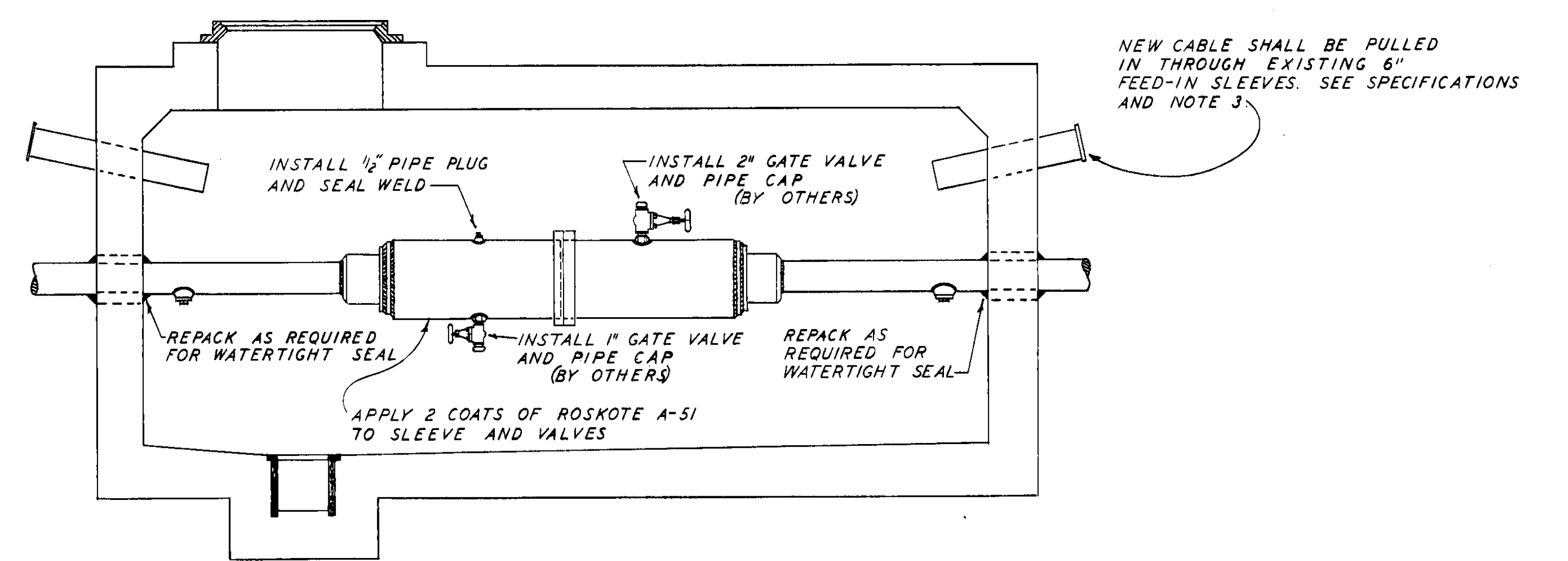
SPLICING OF CABLE PIPE
MANHOLE 3
SCALE 1/2" = 1'-0"

NOTES

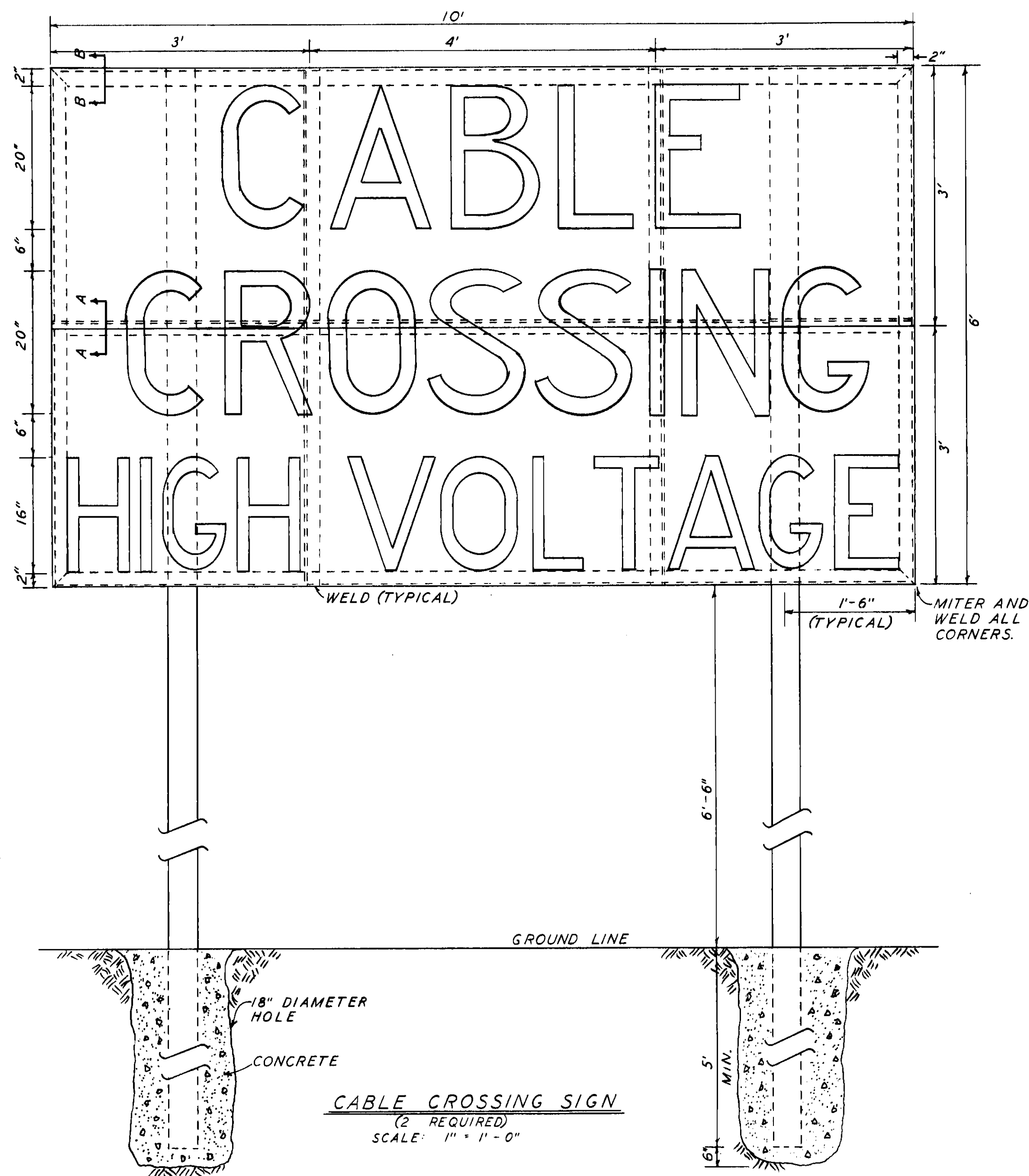
1. CLEAN THE EXTERIOR OF ALL 6" PULL-IN SLEEVES, BLIND FLANGES AND APPLY TWO COATS OF ASPHALTIC PAINT BEFORE BOLTING ON FLANGE. USE NEW GALVANIZED BOLTS.
2. EXISTING JOINT SLEEVES SHALL BE RE-USED ON THIS PROJECT SEE SECTION NO. 13 OF SPECIFICATIONS FOR DETAIL OF REMOVAL.
3. INTERIOR OF 6" FEED-IN SLEEVE SHALL BE THOROUGHLY CLEANED OF ALL RUST, GREASE, ETC. BEFORE REMOVING CABLE AND IMMEDIATELY BEFORE PULLING IN NEW CABLE.



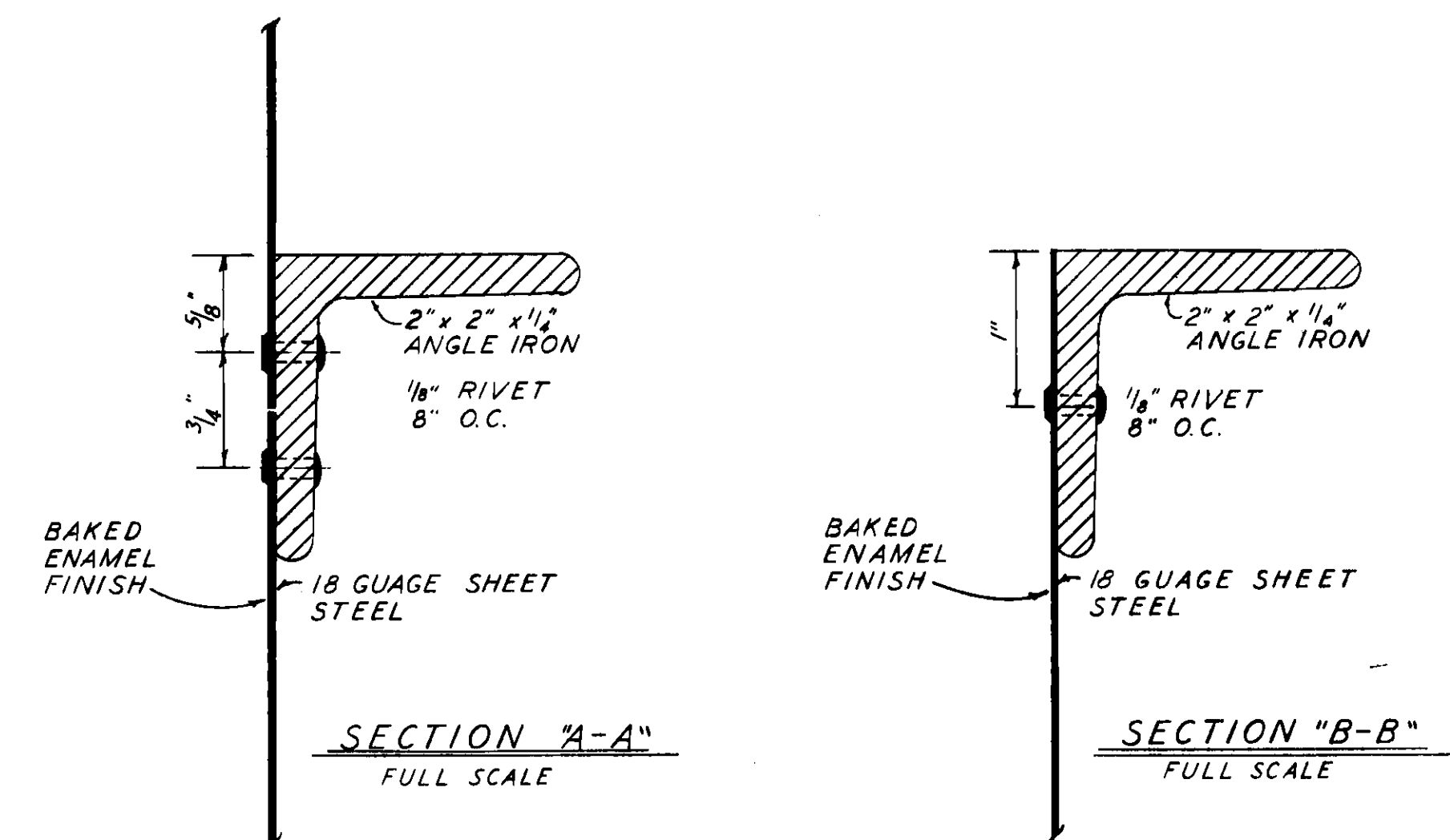
DETAIL OF
JOINT SLEEVE REMOVAL
SCALE 1/4" = 1'



MODIFICATIONS TO JOINT CASINGS
MANHOLES 1 & 2
SCALE 1/2" = 1'-0"



CABLE CROSSING SIGN
(2 REQUIRED)
SCALE 1" = 1'-0"



NOTES

- SIGNS SHALL BE ROYAL BLUE WITH WHITE LETTERS BAKED ENAMEL FINISH.
- SIGN SHALL BE FABRICATED FROM 2'-36" X 120" 18 GAUGE 64.7 LBS SHEET - PAINT GRIP STEEL - ROLLER LEVELLED.
- SIGN SHALL BE FRAMED WITH 2"x2"x1/4" ANGLE IRON GALVANIZE AFTER FABRICATION.
- SIGN SHALL BE MOUNTED ON 4" GALVANIZED PIPE - SCHEDULE 40.
- PAINTING AND BAKING SHALL BE DONE AFTER FABRICATION OF FRAME AND SIGN.
- SUBMIT SHOP DRAWINGS.

PROJECT NO 59111-108		CITY W.O 59111-108.1	
REYNOLDS, SMITH AND HILLS			
ARCHITECTS & ENGINEERS		JACKSONVILLE, FLORIDA	
DRAWN <i>R.L.L.</i>		DEPARTMENT OF ELECTRIC & WATER UTILITIES	
TRACED <i>R.L.L.</i>		CITY OF JACKSONVILLE, FLORIDA	
CHECKED <i>G.M.C.</i>		69KV TRANSMISSION CABLES	
SCALE <i>SHOWN</i>		SOUTHSIDE PLANT TO GEORGIA STREET	
DATE <i>3-26-63</i>		PIPE JOINTS & DETAILS	
APPROVED FOR REYNOLDS, SMITH AND HILLS			
<i>Ray M. Reynolds</i>		<i>R.C. Blain</i>	
FOR THE CITY OF JACKSONVILLE		DRAWING NO.	
DEPARTMENT HEAD		59111	
ENGINEER		D5734	
ENGINEER MANAGER		SHEET 10 OF 10	

REVISION	DESCRIPTION	DATE	BY	APPROVED	DEPARTMENT HEAD

PLANS FOR

69 K V TRANSMISSION CABLES

GEORGIA ST. TO MAIN ST.

CITY OF JACKSONVILLE

JACKSONVILLE, FLORIDA

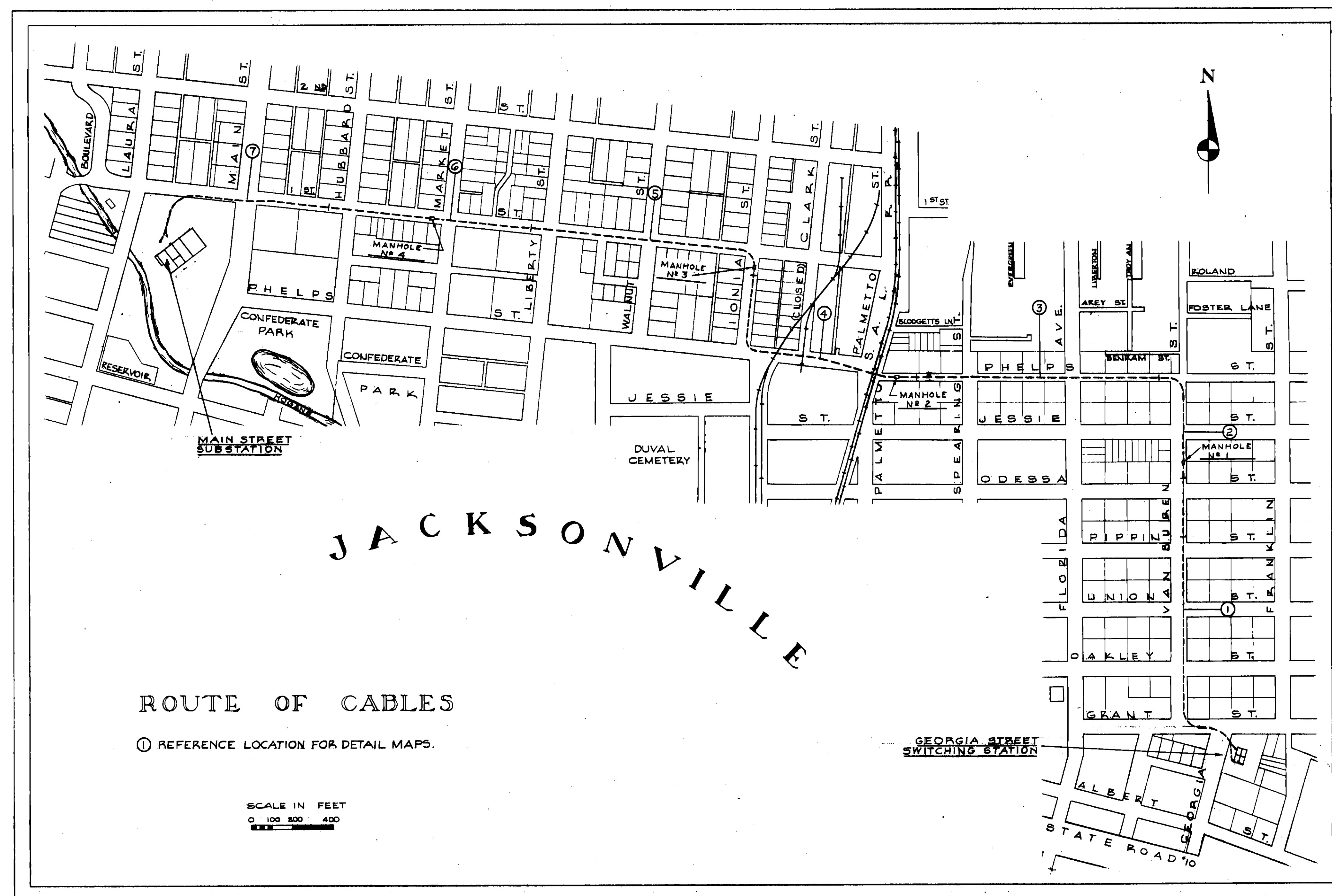
REYNOLDS, SMITH AND HILLS

ARCHITECTS AND ENGINEERS

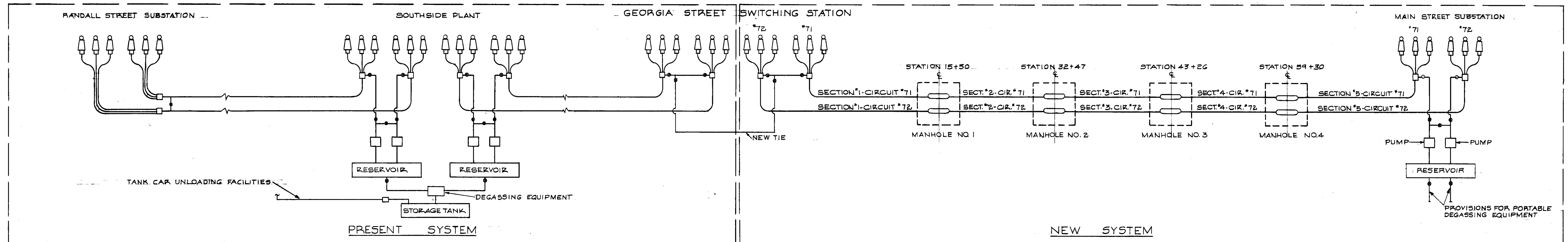
PROJECT NO. 4543-126

JACKSONVILLE, FLORIDA

CITY W.O. NO. 1480-126-1947 CCN

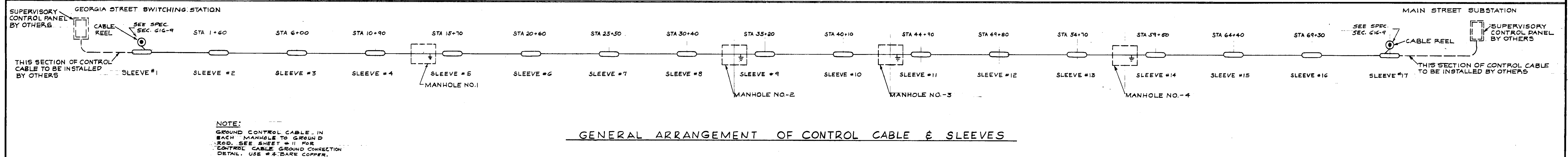


DRAWING NO. 4543-126 - D-567	GENERAL ROUTE OF CABLES	SHEET NO. 1	DRAWING NO. 4543-126 - D-575	TERMINATION STRUCTURE & DETAILS	SHEET NO. 4
4543-126 - D-568	SCHEMATIC DRAWING OF SYSTEM	2	4543-126 - D-576	PUMPING AND CONTROL EQUIPMENT	12
4543-126 - D-569	ROUTE OF CABLES: REFERENCE LOCATIONS ① & ②	3	4543-126 - D-577	SPLICE AND JOINT DETAILS	11
4543-126 - D-570	ROUTE OF CABLES: REFERENCE LOCATIONS ③ & ④	4	4543-126 - D-578	MANHOLE & ANCHOR DETAILS	12
4543-126 - D-571	ROUTE OF CABLES: REFERENCE LOCATIONS ⑤ & ⑥	5	4543-126 - D-579	PUMP HOUSE & DETAILS - ARCHITECTURAL	13
4543-126 - D-572	ROUTE OF CABLES: REFERENCE LOCATION ⑦	6	4543-126 - D-580	PUMP HOUSE - ELECTRICAL	14
4543-126 - D-573	CABLE TERMINATION - GEORGIA STREET SWITCHING STATION	7			
4543-126 - D-574	CABLE TERMINATION - MAIN STREET SUBSTATION	8			

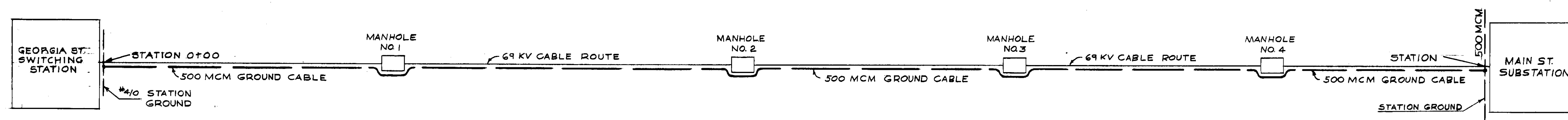


GENERAL ARRANGEMENT OF COMPLETE PIPE-TYPE CABLE SYSTEM & ASSOCIATED EQUIPMENT

DESIGN DATA										AS CONSTRUCTED DATA									
CIRCUIT NO. 71										CIRCUIT NO. 71									
SECTION NOTATION FOR CABLE	TERMINATION GEORGIA ST.	MANHOLE NO. 1	MANHOLE NO. 2	MANHOLE NO. 3	MANHOLE NO. 4	TERMINATION MAIN ST.					SECTION NOTATION FOR CABLE	TERMINATION GEORGIA ST.	MANHOLE NO. 1	MANHOLE NO. 2	MANHOLE NO. 3	MANHOLE NO. 4	TERMINATION MAIN ST.		
CENTERLINE DISTANCE OF SECTION - FEET	71-1	71-2	71-3	71-4	71-5		TOTAL DISTANCE	7,339.48 FT.			CENTERLINE DISTANCE OF SECTION - FEET	71-1	71-2	71-3	71-4	71-5		TOTAL DISTANCE	7,339.48 FT.
LENGTH OF CABLE REQUIRED - FEET - 1/2 (ESTIMATED)	4,550.0	5,190.0	3,276.0	4,851.0	4,428.0		TOTAL LENGTH	22,395.00 FT.			LENGTH OF CABLE REQUIRED - FEET - 1/2 (ESTIMATED)							TOTAL LENGTH	22,395.00 FT.
LENGTH OF CABLE FURNISHED - FEET - 1/2	4,710.0	5,250.0	3,336.0	4,911.0	4,488.0		TOTAL LENGTH	22,695.00 FT.			LENGTH OF CABLE FURNISHED - FEET - 1/2							TOTAL LENGTH	22,695.00 FT.
MINIMUM RESISTANCE OF PIPE INSULATION											MINIMUM RESISTANCE OF PIPE INSULATION								
OIL CAPACITY OF SECTION - GALLONS	670.8	764.0	480.2	713.8	637.2		TOTAL	3,266.0 GALS. - CALCULATED USING .445 GAL./LIN. FT. OF PIPE			OIL CAPACITY OF SECTION - GALLONS							TOTAL	3,266.0 GALS. - CALCULATED USING .445 GAL./LIN. FT. OF PIPE
CIRCUIT NO. 72										CIRCUIT NO. 72									
SECTION NOTATION FOR CABLE	72-1	72-2	72-3	72-4	72-5		TOTAL DISTANCE	7,360.40 FT.			SECTION NOTATION FOR CABLE	72-1	72-2	72-3	72-4	72-5		TOTAL DISTANCE	7,360.40 FT.
CENTERLINE DISTANCE OF SECTION - FEET	1,554.72	1,717.0	1,079.0	1,604.0	1,405.68		TOTAL LENGTH	22,461.00 FT.			CENTERLINE DISTANCE OF SECTION - FEET							TOTAL LENGTH	22,461.00 FT.
LENGTH OF CABLE REQUIRED - FEET - 1/2 (ESTIMATED)	4,794.0	5,190.0	3,276.0	4,851.0	4,350.0		TOTAL LENGTH	22,761.00 FT.			LENGTH OF CABLE REQUIRED - FEET - 1/2 (ESTIMATED)							TOTAL LENGTH	22,761.00 FT.
LENGTH OF CABLE FURNISHED - FEET - 1/2	4,854.0	5,250.0	3,336.0	4,911.0	4,410.0		TOTAL LENGTH	22,761.00 FT.			LENGTH OF CABLE FURNISHED - FEET - 1/2							TOTAL LENGTH	22,761.00 FT.
MINIMUM RESISTANCE OF PIPE INSULATION											MINIMUM RESISTANCE OF PIPE INSULATION								
OIL CAPACITY OF SECTION - GALLONS	691.9	764.0	480.0	713.8	625.5		TOTAL	3,275.4 GALS. - CALCULATED USING .445 GAL./LIN. FT. OF PIPE			OIL CAPACITY OF SECTION - GALLONS							TOTAL	3,275.4 GALS. - CALCULATED USING .445 GAL./LIN. FT. OF PIPE



DESIGN DATA																			
CONTROL CABLE																		TERMINATION MAIN ST.	REMARKS
CENTER LINE DISTANCE	255 FT.	440 FT.	490 FT.	480 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.	490 FT.		
LENGTH OF CABLE FURNISHED	1000 FT.																		
AS CONSTRUCTED DATA																			
MAXIMUM PULLING TENSION																			
DIRECTION OF PULL																			



GENERAL ARRANGEMENT OF GROUND CABLE

PROJECT NO. 4543-126 I.W.O. NO. 1480-126-1947-CCN

REYNOLDS, SMITH AND HILLS
ARCHITECTS & ENGINEERS
JACKSONVILLE, FLORIDA

DEPARTMENT OF ELECTRIC & WATER UTILITIES
CITY OF JACKSONVILLE, FLORIDA
69 KV TRANSMISSION CABLES
GEORGIA ST. TO MAIN ST.

DATE JAN. 31, 58

SCHEMATIC DRAWING OF SYSTEM

APPROVED FOR REYNOLDS, SMITH AND HILLS

FOR THE CITY OF JACKSONVILLE

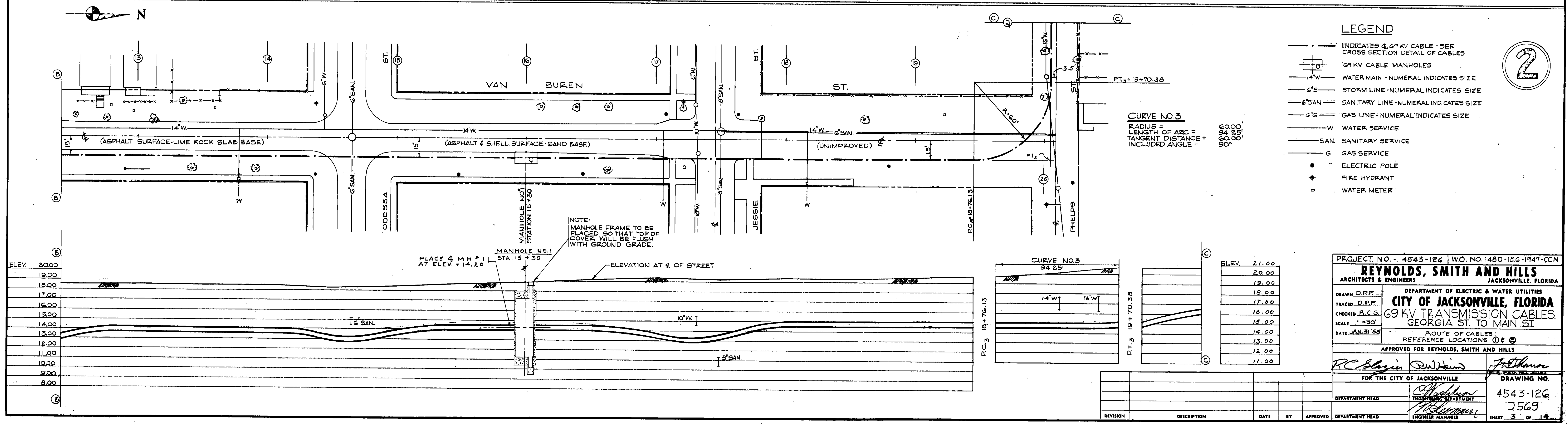
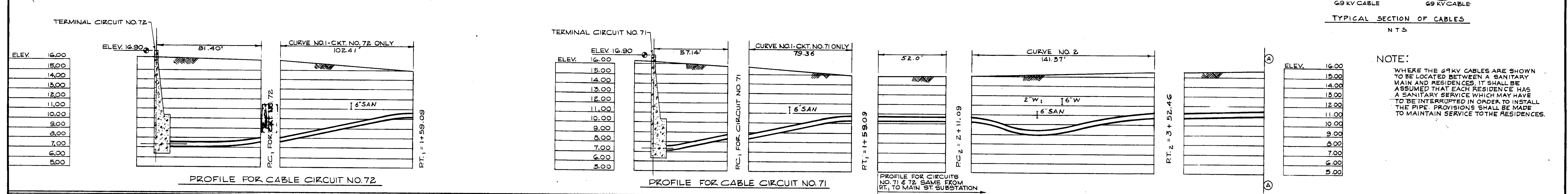
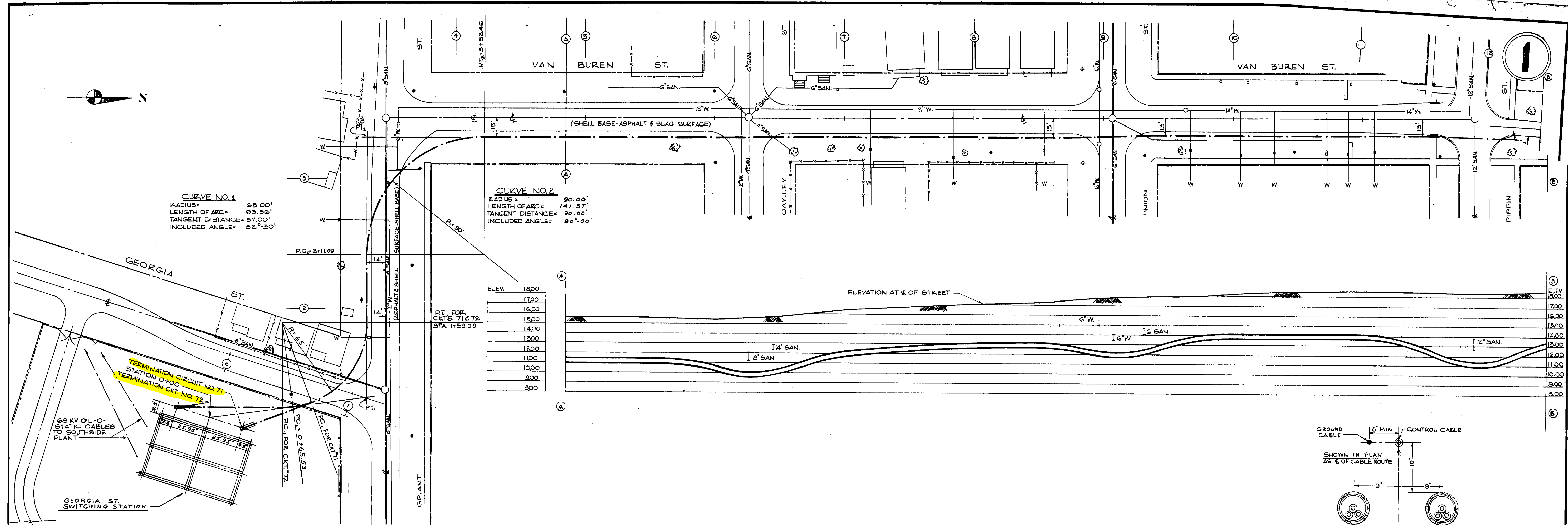
DEPARTMENT HEAD

ENGINEER

DRAWING NO. 4543-126 D568

SHEET 2 OF 14

25268



PROJECT NO. - 4543-126 | WO. NO. 1480-126-1947-CCN

REYNOLDS, SMITH AND HILLS
ARCHITECTS & ENGINEERS
JACKSONVILLE, FLORIDA

DRAWN *D.F.F.*
TRACED *D.F.F.*
CHECKED *R.C.G.*
SCALE 1"=30'
DATE JAN. 31 '55

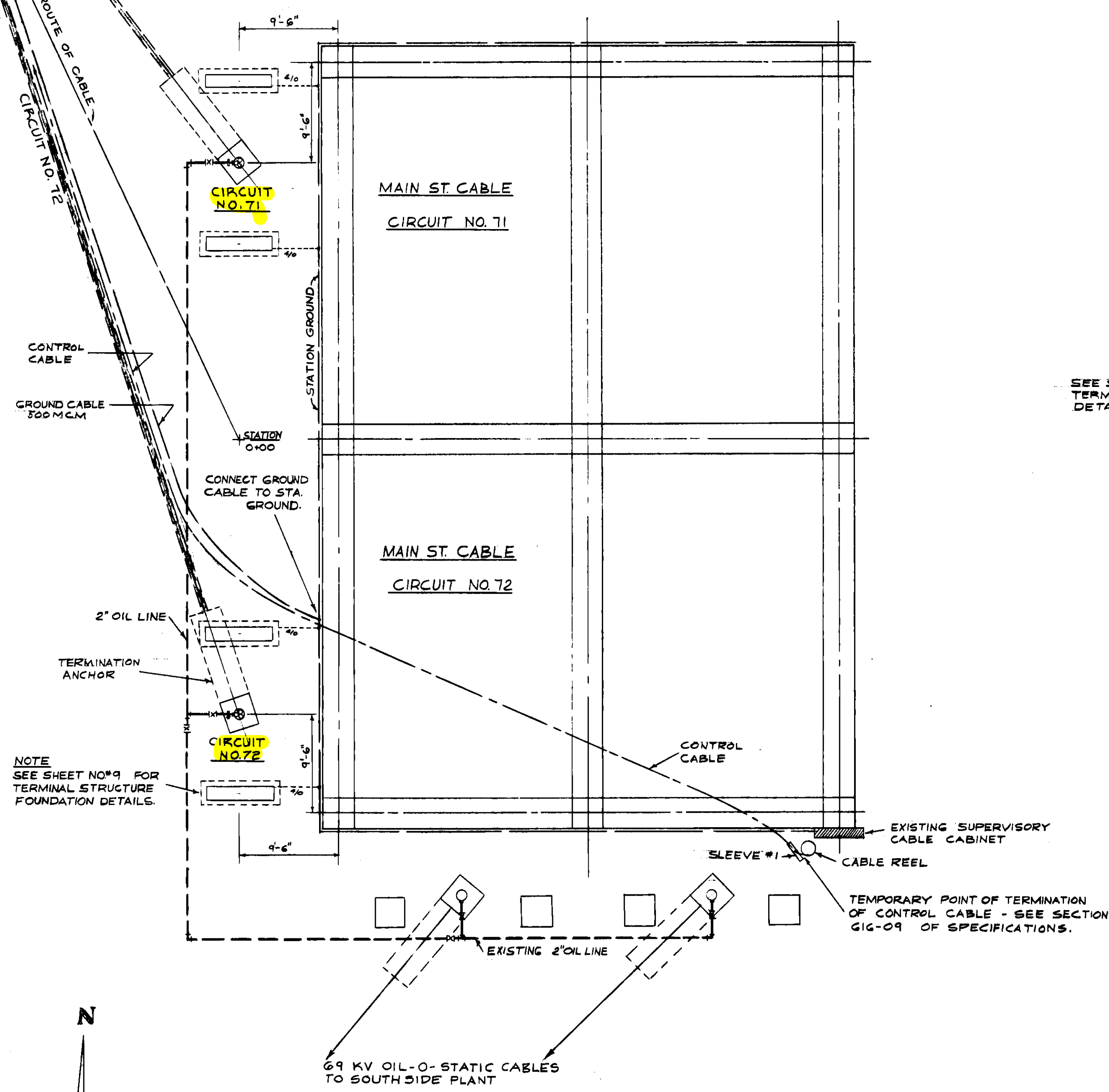
DEPARTMENT OF ELECTRIC & WATER UTILITIES
CITY OF JACKSONVILLE, FLORIDA
69 KV TRANSMISSION CABLES
GEORGIA ST. TO MAIN ST.

ROUTE OF CABLES
REFERENCE LOCATIONS 0 & 2

APPROVED FOR REYNOLDS, SMITH AND HILLS
R.C. Reynolds *D.W. Hill* *J. Hillman*

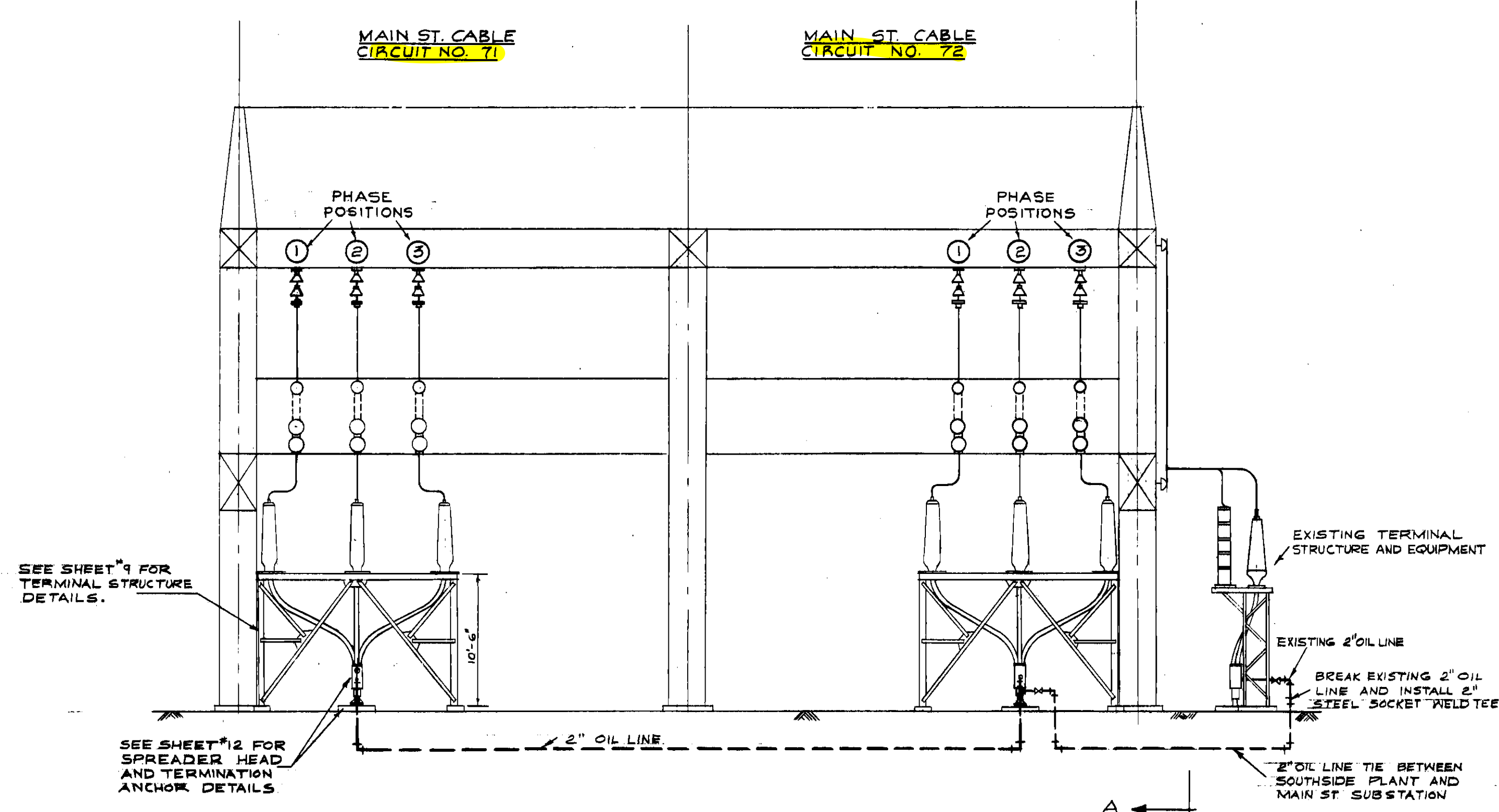
FOR THE CITY OF JACKSONVILLE
DEPARTMENT HEAD *J. Hillman*
ENGINEER *J. Hillman*

DRAWING NO.
4543-126
D569
SHEET 3 OF 14

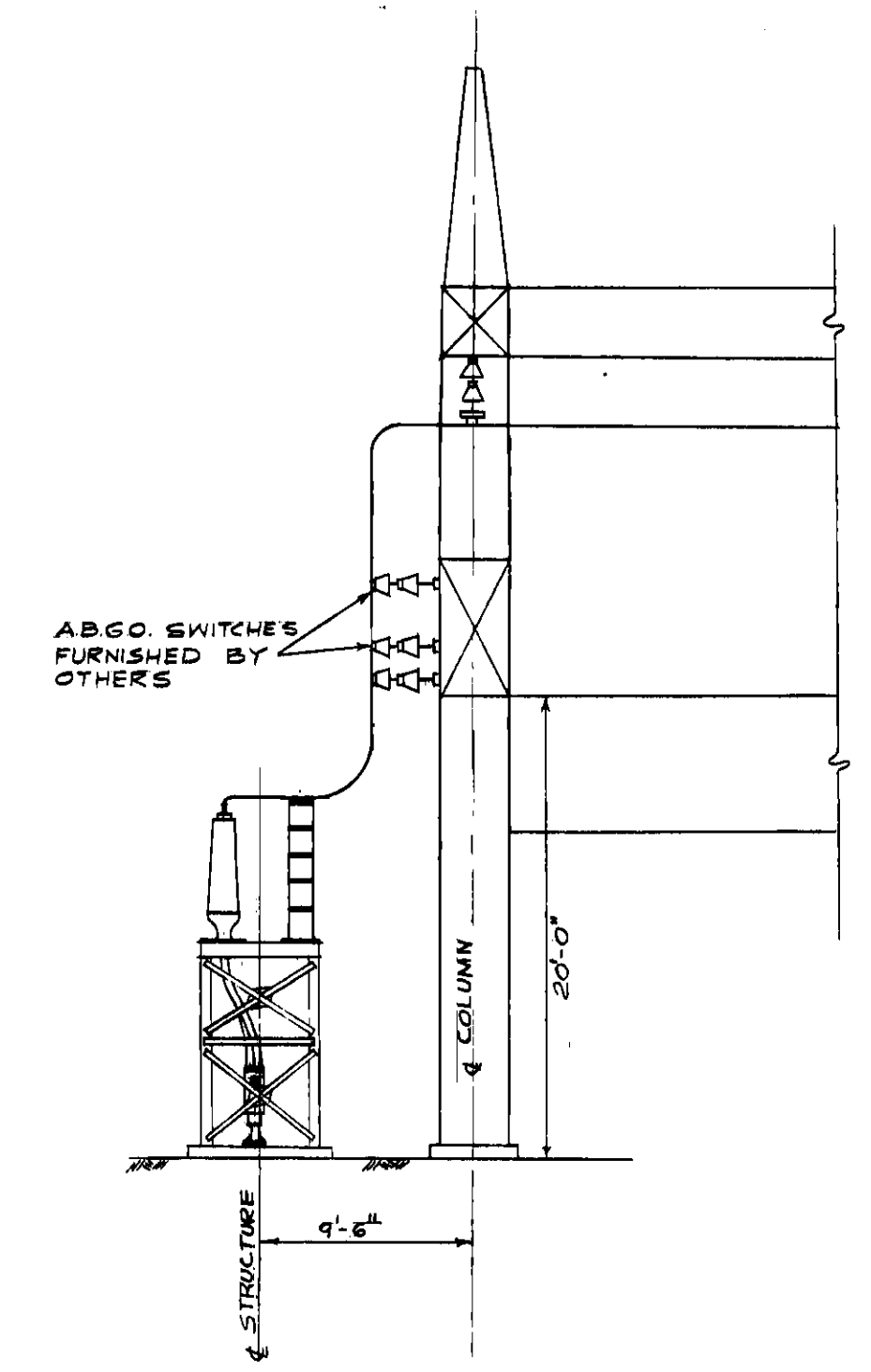


PLAN
SCALE: 1/8"=1'-0"

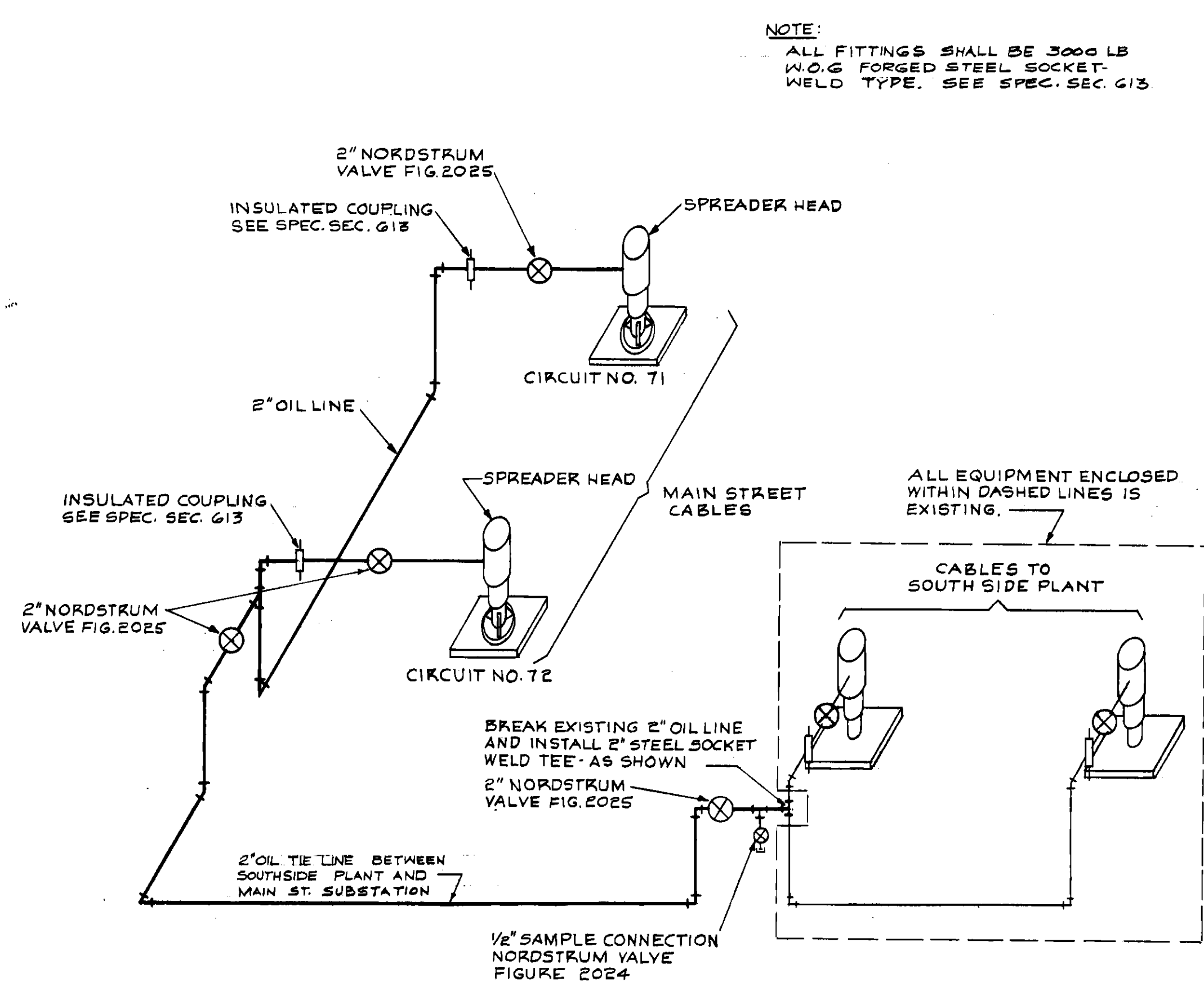
GEORGIA STREET SWITCHING STATION



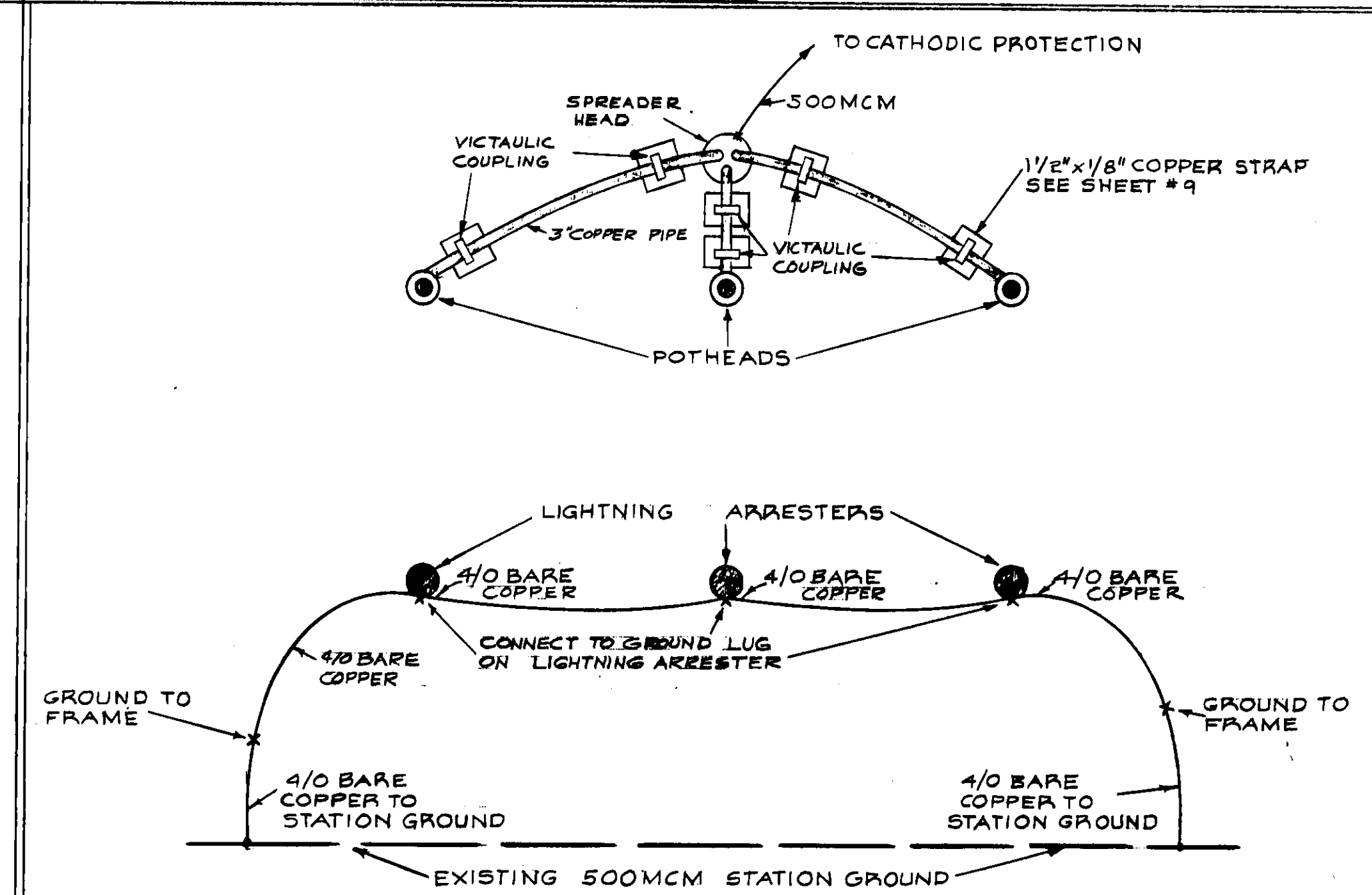
WEST ELEVATION
SCALE: 1/8"=1'-0"



SECTION "A-A"
SCALE: 1/8"=1'-0"



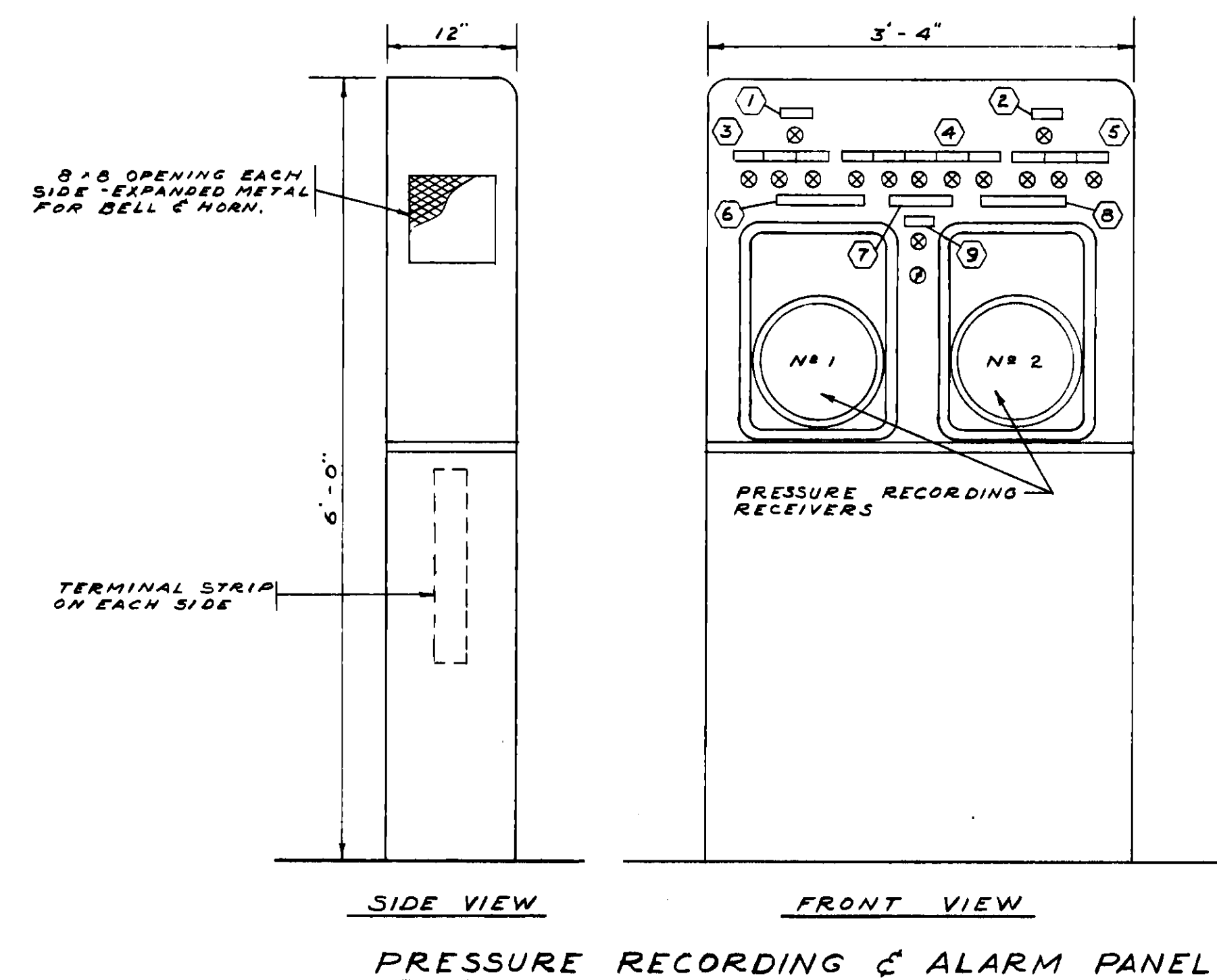
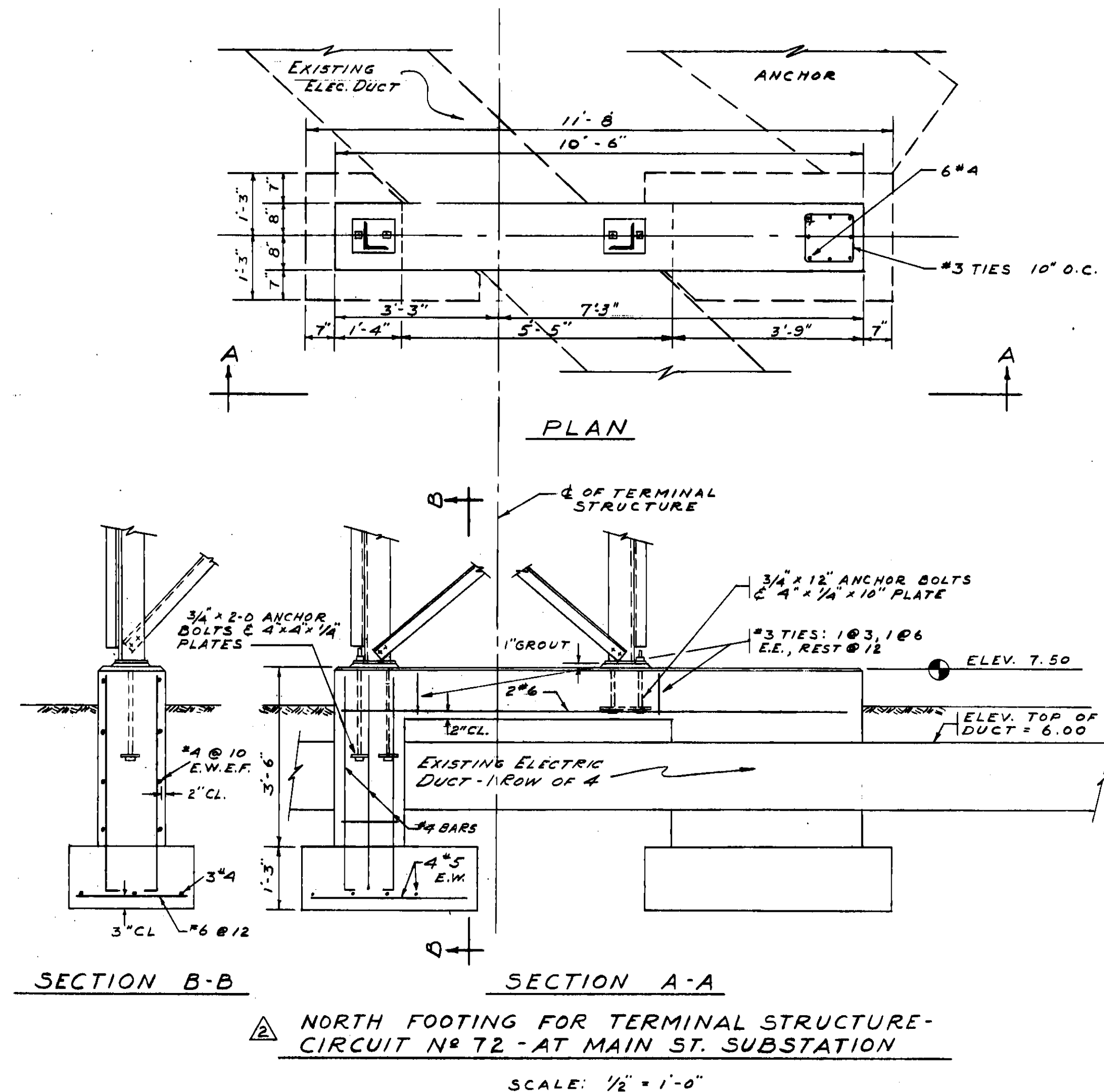
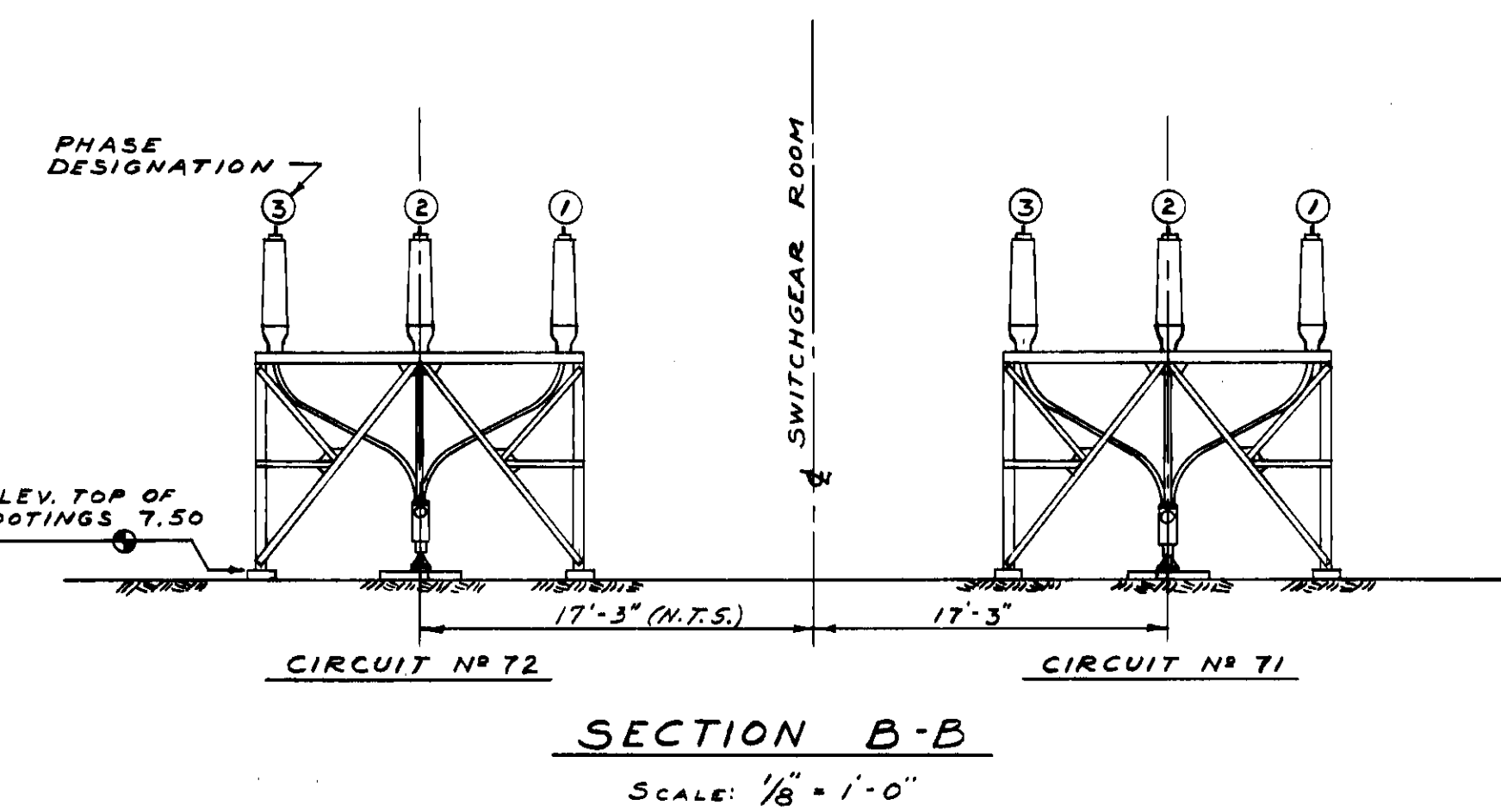
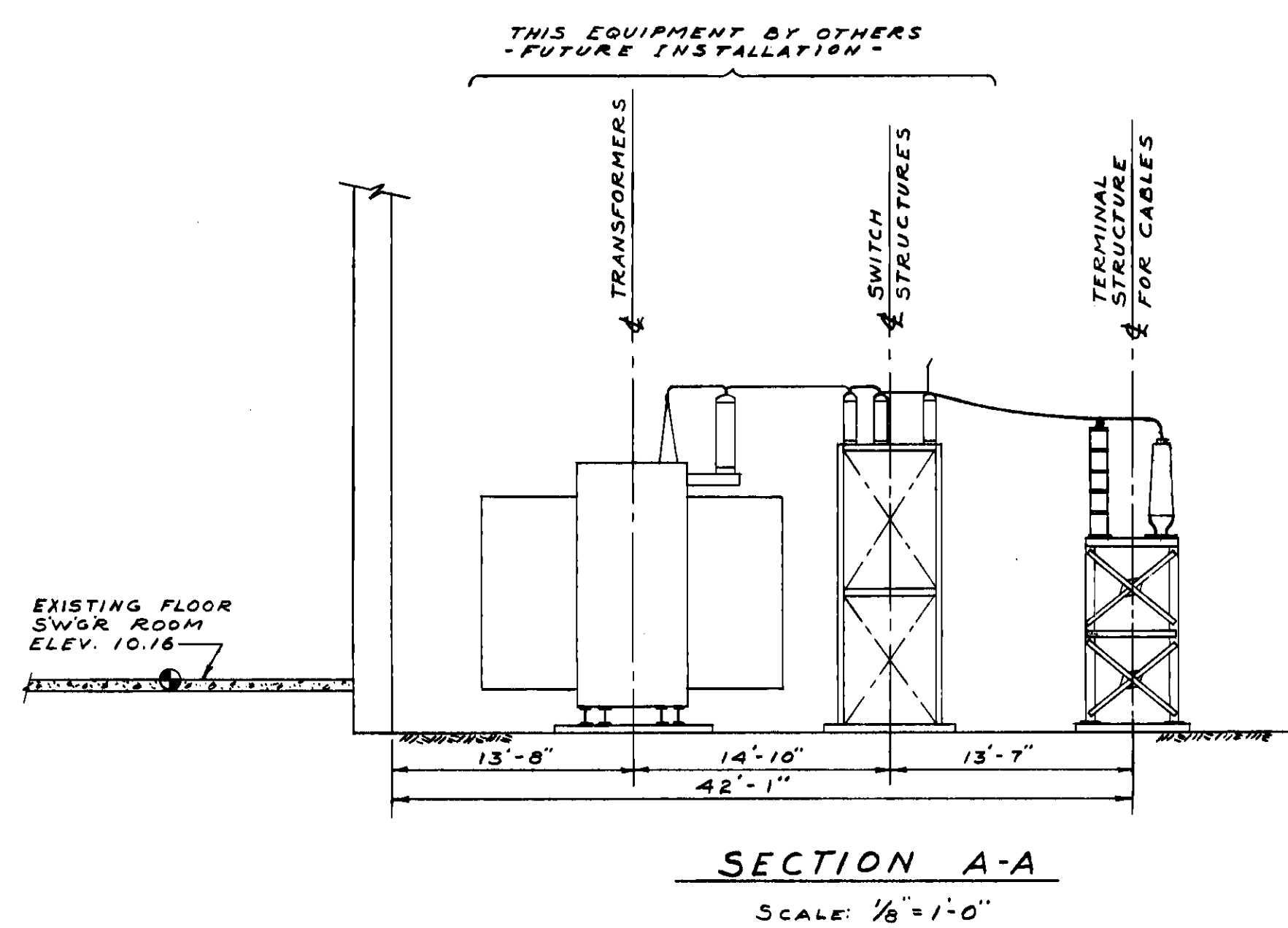
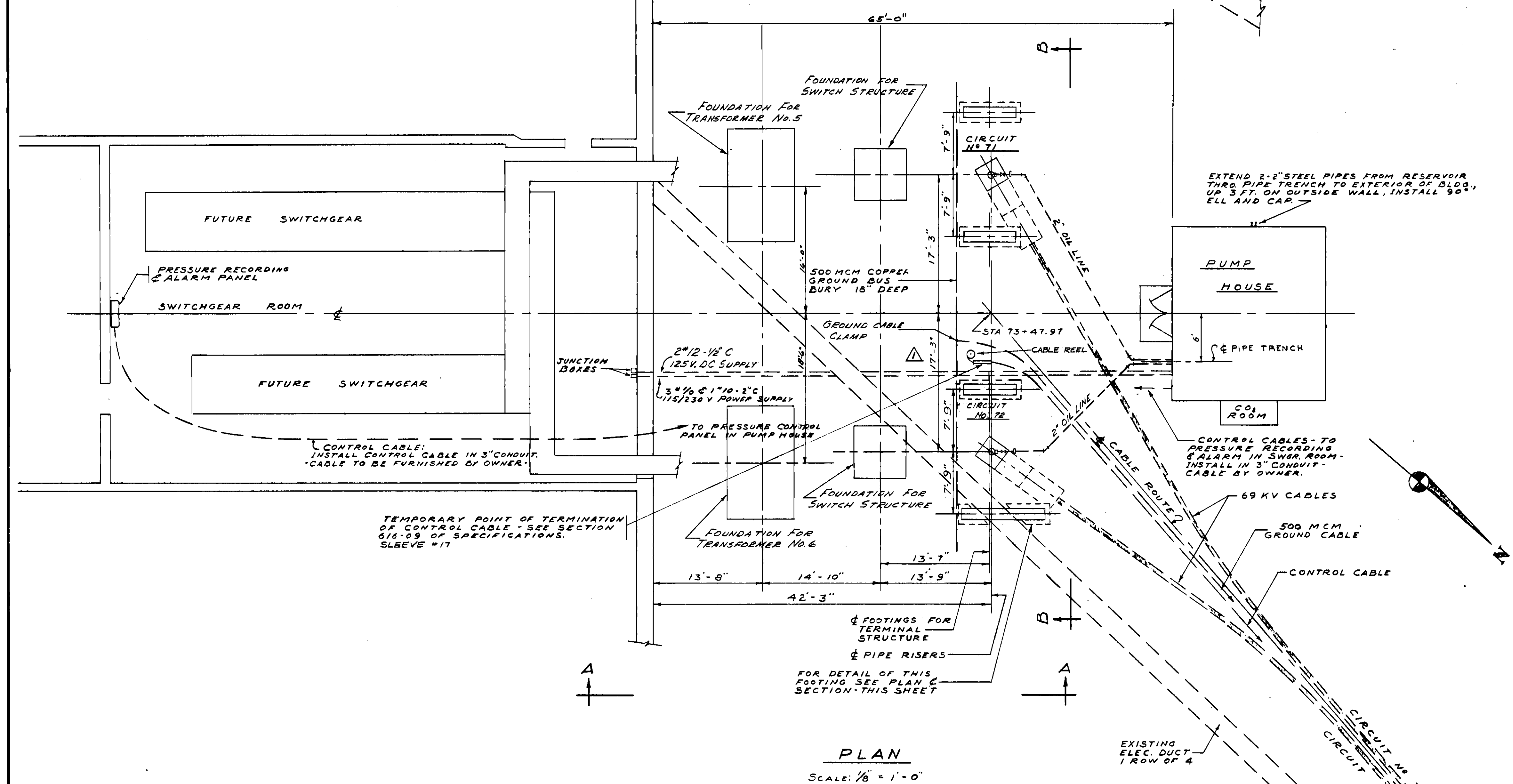
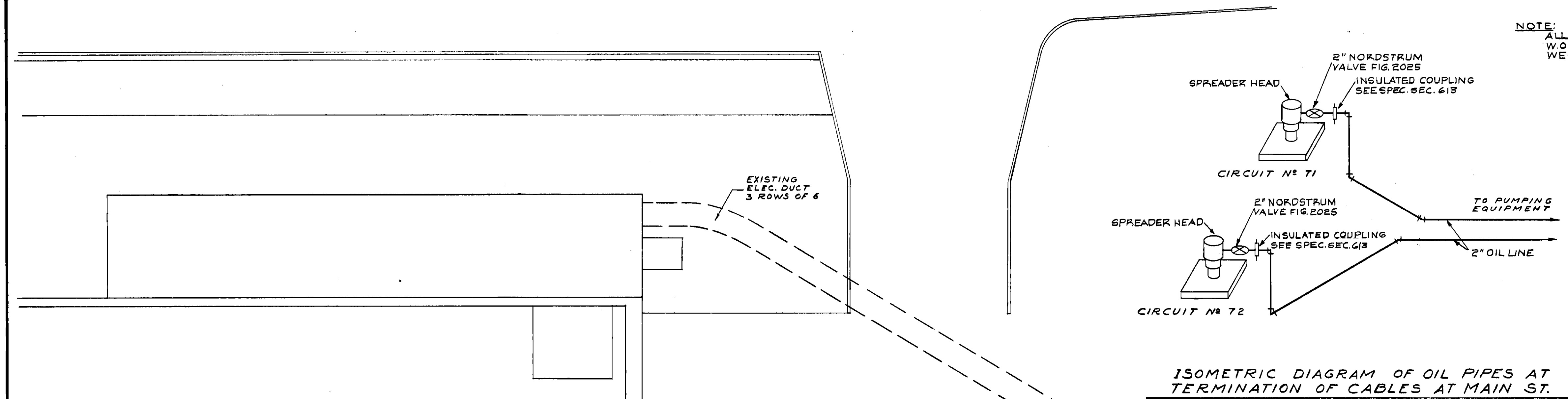
ISOMETRIC DIAGRAM OF OIL PIPES AT TERMINATION OF CABLES AT GEORGIA ST.



SCHEMATIC DIAGRAM FOR GROUNDING LIGHTNING ARRESTERS & POTHEAD

PROJECT NO. 4543-126 W.O. NO. 1480-126-1947-CCN	
REYNOLDS, SMITH AND HILLS ARCHITECTS & ENGINEERS	
DEPARTMENT OF ELECTRIC & WATER UTILITIES	CITY OF JACKSONVILLE, FLORIDA
DRAWN: R.N.L.	CHECKED: R.W.H.
69 KV TRANSMISSION CABLES	
GEORGIA ST. TO MAIN ST.	
CABLE TERMINATION - GEORGIA STREET SWITCHING STATION	
APPROVED FOR REYNOLDS, SMITH AND HILLS	
FOR THE CITY OF JACKSONVILLE	
DEPARTMENT HEAD	ENGINEER MANAGER
4543-126	D573
SHEET 7 OF 14	

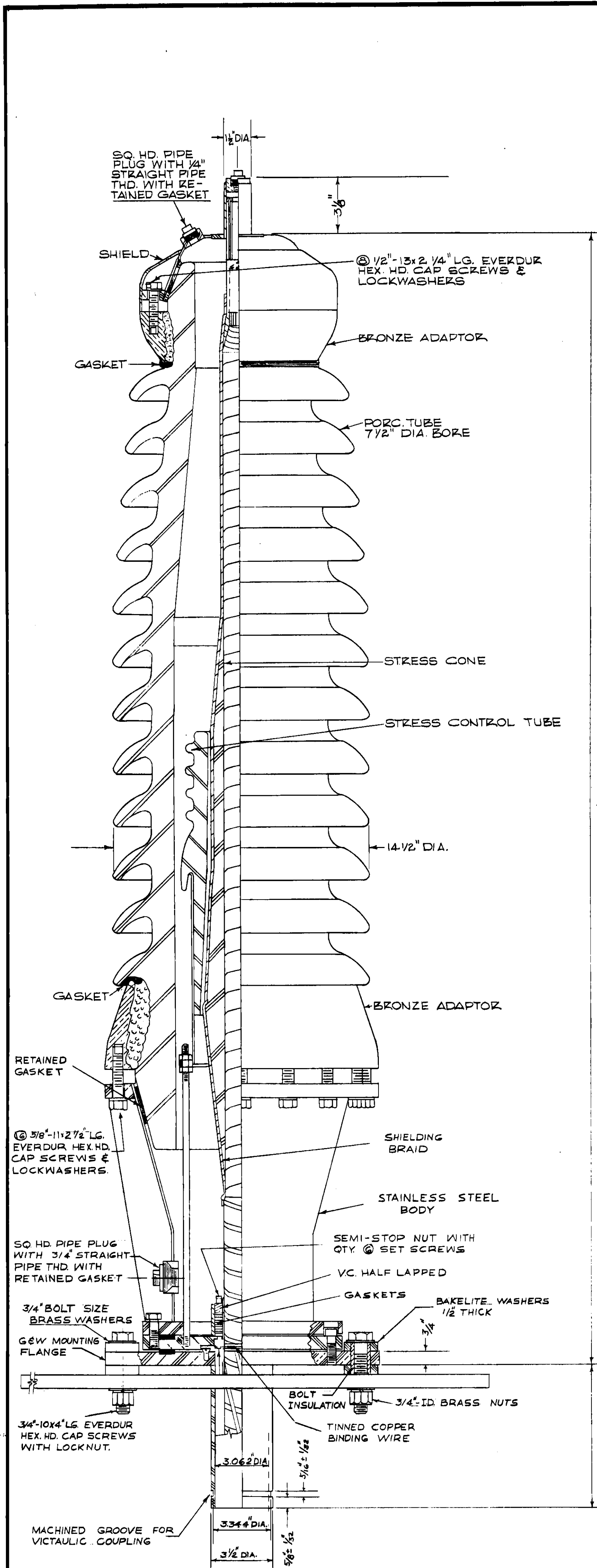
25266



- NAMEPLATE MARKINGS
- | ITEM NO. | DESCRIPTION |
|----------|---|
| 1 | FIRE ALARM |
| 2 | ABNORMAL TEMPERATURE |
| 3 | HIGH PRESSURE - LOW PRESSURE - EXCESSIVE OIL FLOW |
| 4 | HIGH NITROGEN PRESSURE - LOW NITROGEN PRESSURE - POWER FAILURE - LOW OIL RESERVOIR - HIGH OIL RESERVOIR |
| 5 | HIGH PRESSURE - LOW PRESSURE - EXCESSIVE OIL FLOW |
| 6 | MAIN STREET CABLE NO. 1 |
| 7 | RESERVOIR NO. 1 |
| 8 | MAIN STREET CABLE NO. 2 |
| 9 | ALARM |
- SYMBOLS
- ⊗ INDICATING LIGHT - RED
 - ⊙ ALARM ON-OFF SWITCH

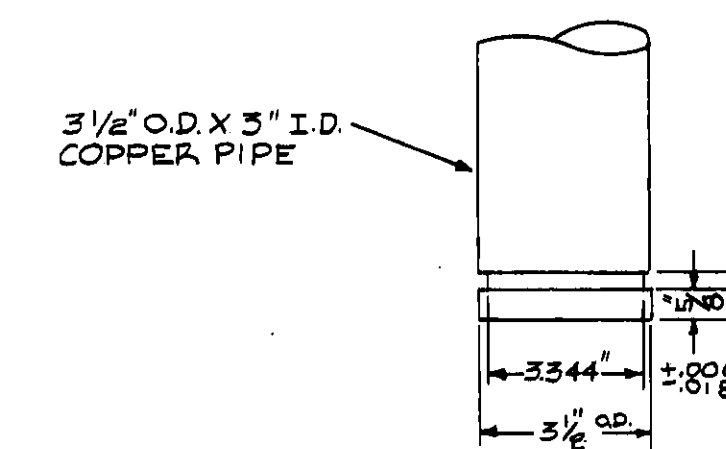
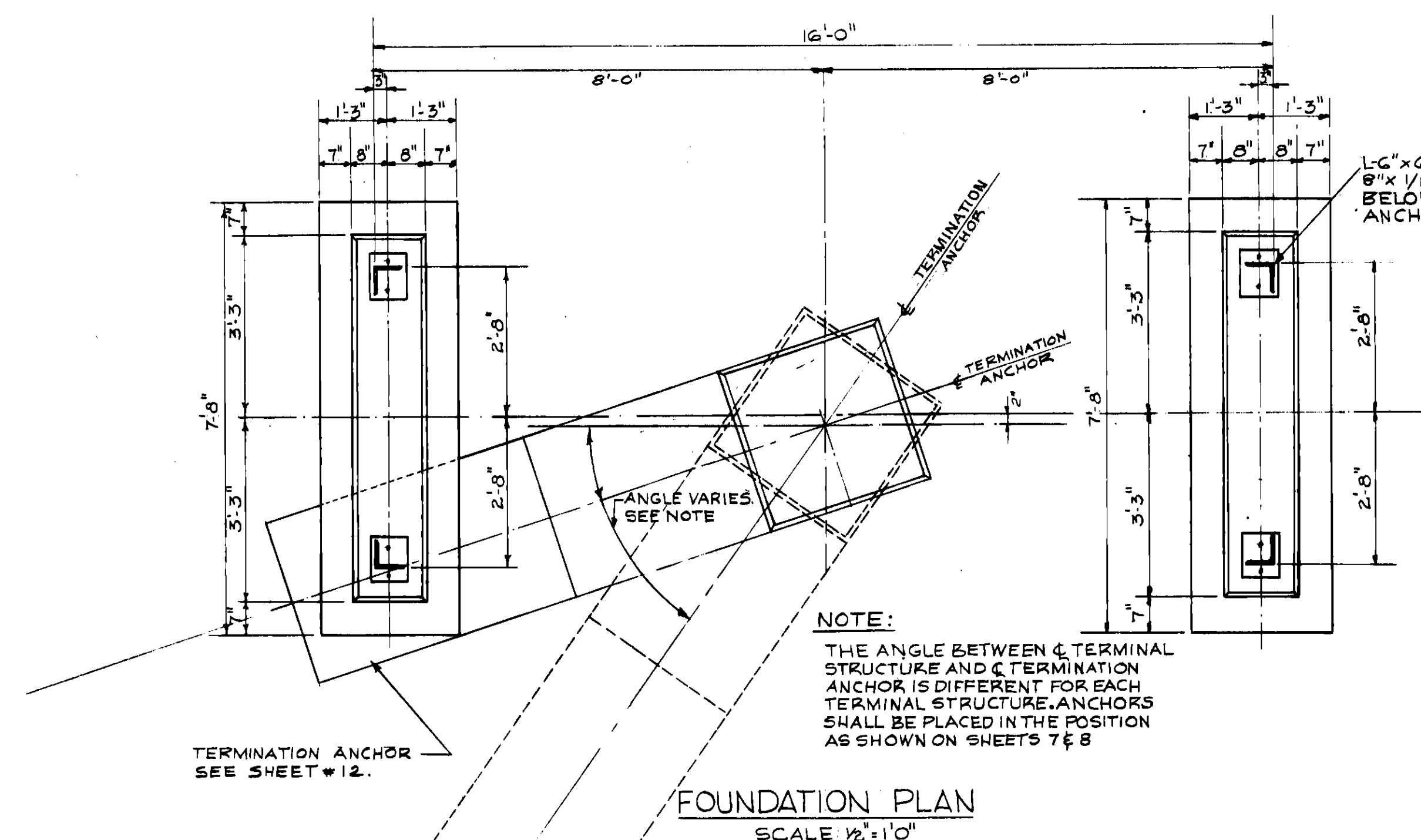
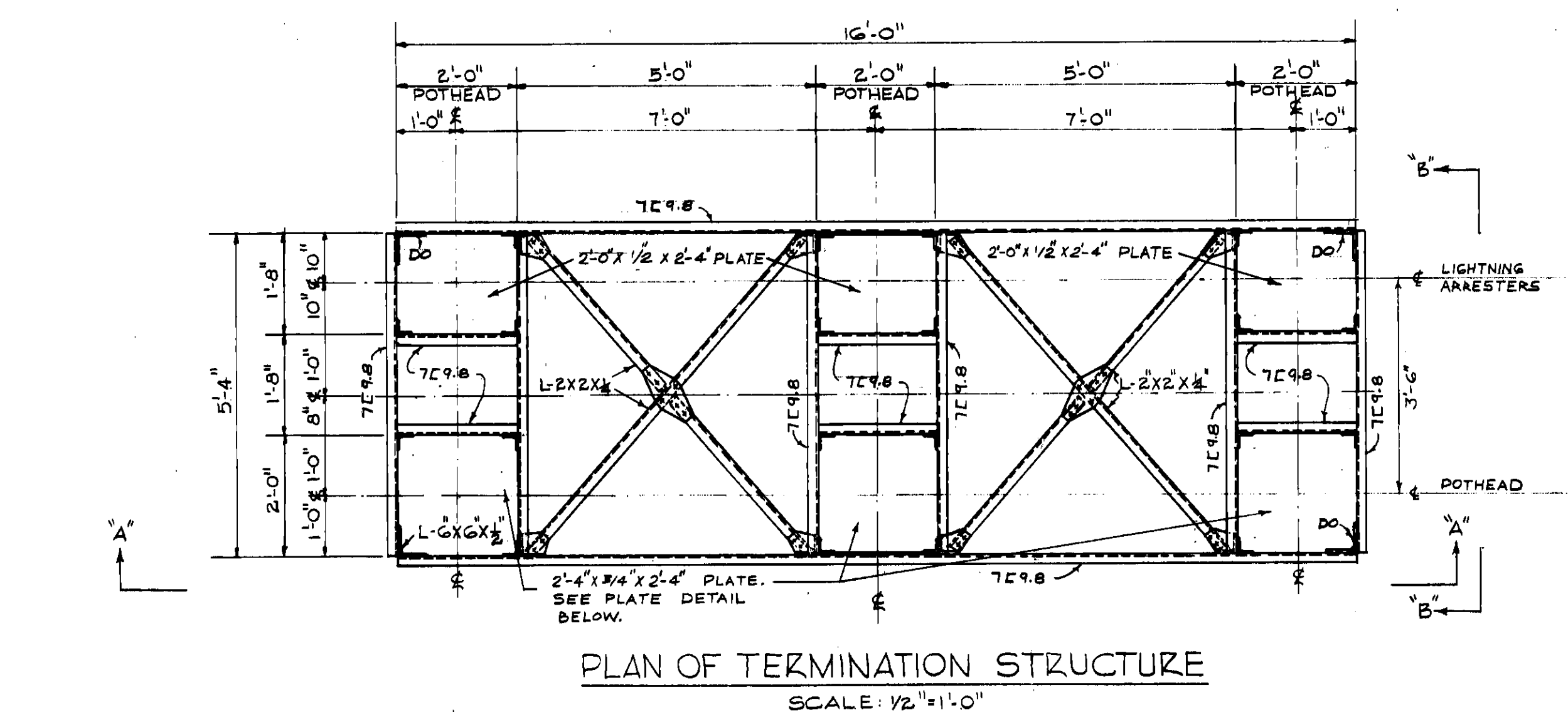
PROJECT NO. 4543-126 W.O. NO. 1480-126-1947-CCN			
REYNOLDS, SMITH AND HILLS ARCHITECTS & ENGINEERS JACKSONVILLE, FLORIDA			
DEPARTMENT OF ELECTRIC & WATER UTILITIES CITY OF JACKSONVILLE, FLORIDA 69 KV TRANSMISSION CABLES GEORGIA ST. TO MAIN ST.			
CABLE TERMINATION - MAIN STREET SUBSTATION			
APPROVED FOR REYNOLDS, SMITH AND HILLS			
FOR THE CITY OF JACKSONVILLE			
DRAWING NO. 4543-126		D574	
SHEET 8 OF 14		25264	

REVISION	DESCRIPTION	DATE	BY	APPROVED
1	NORTH FOOTING FOR TERMINAL STR. FOR CIRCUIT NO. 72 CHANGED FROM 10'-0" TO 17'-3" FROM SWGR ROOM	5-23-55	R.C.G.	J.D.T.
2	TERMINATION FOR CIRCUIT NO. 72 CHANGED FROM 10'-0" TO 17'-3" FROM SWGR ROOM	5-23-55	R.C.G.	J.D.T.

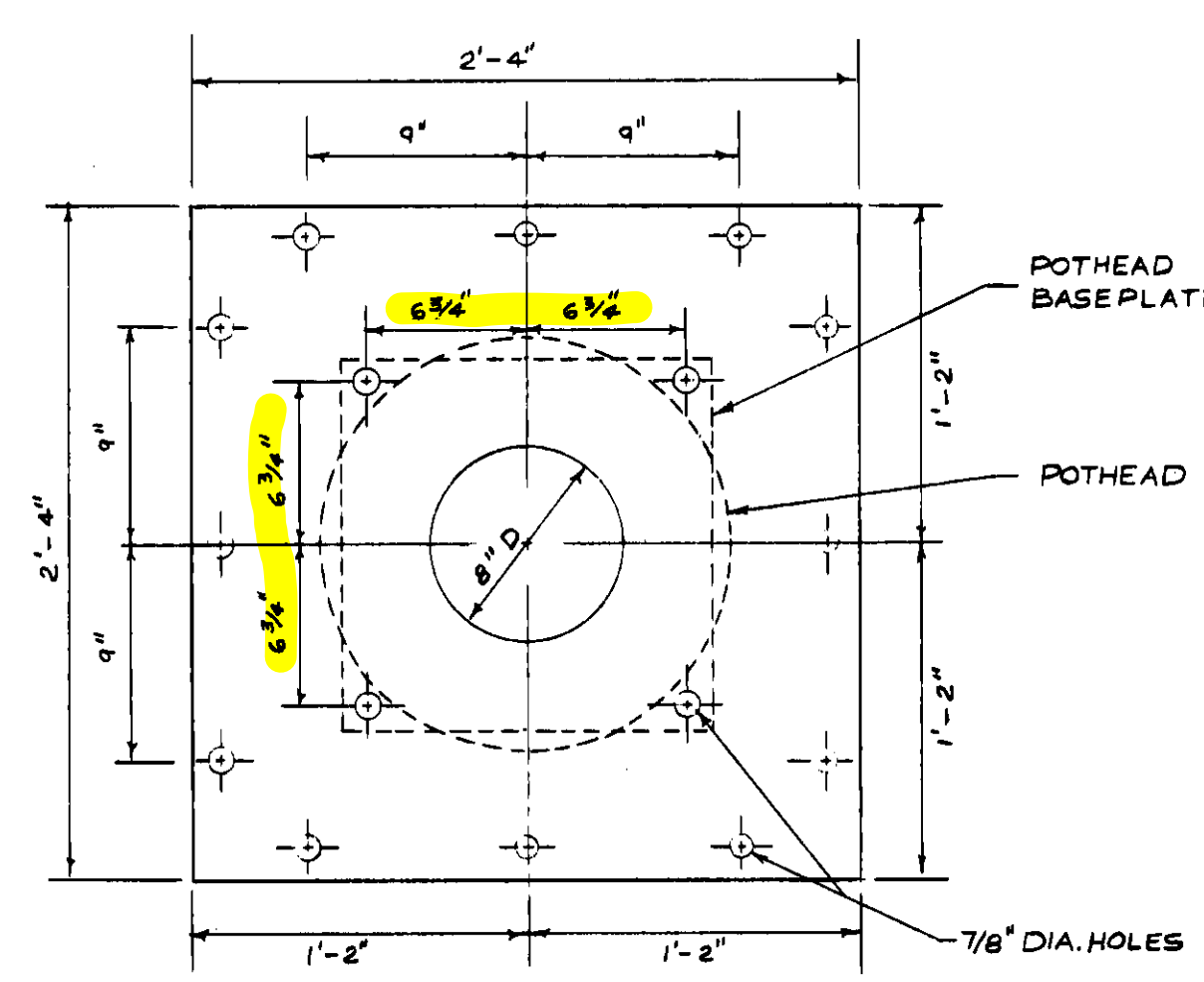


DETAIL OF POTHEAD

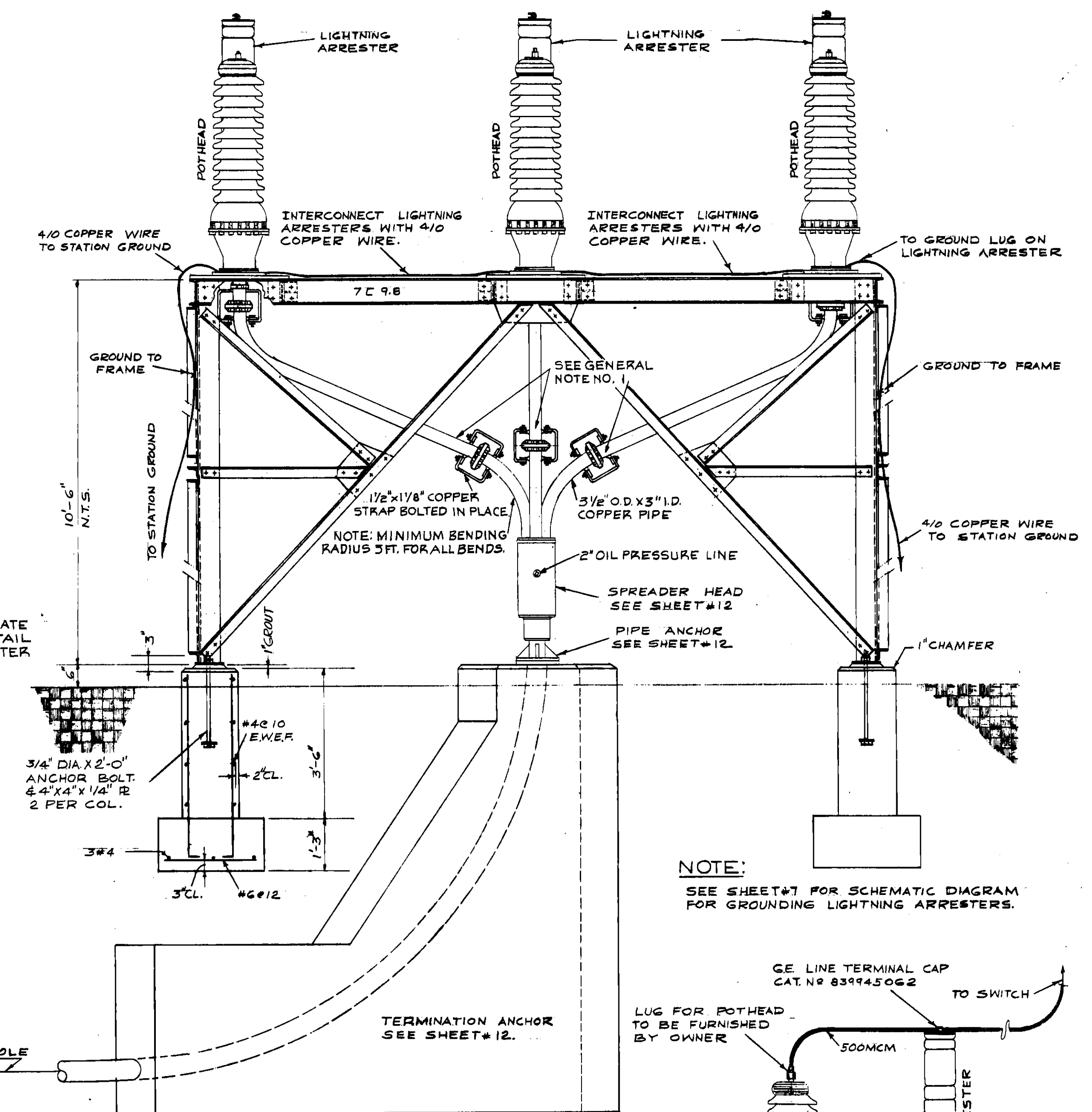
SCALE: 3/4" = 1'-0"



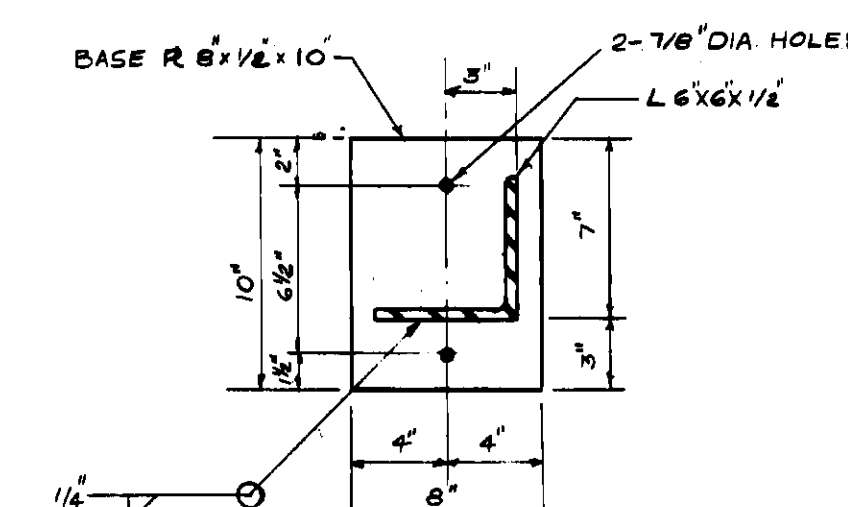
DETAIL OF VICTAULIC GROOVE
SCALE: 3/4" = 1'-0"



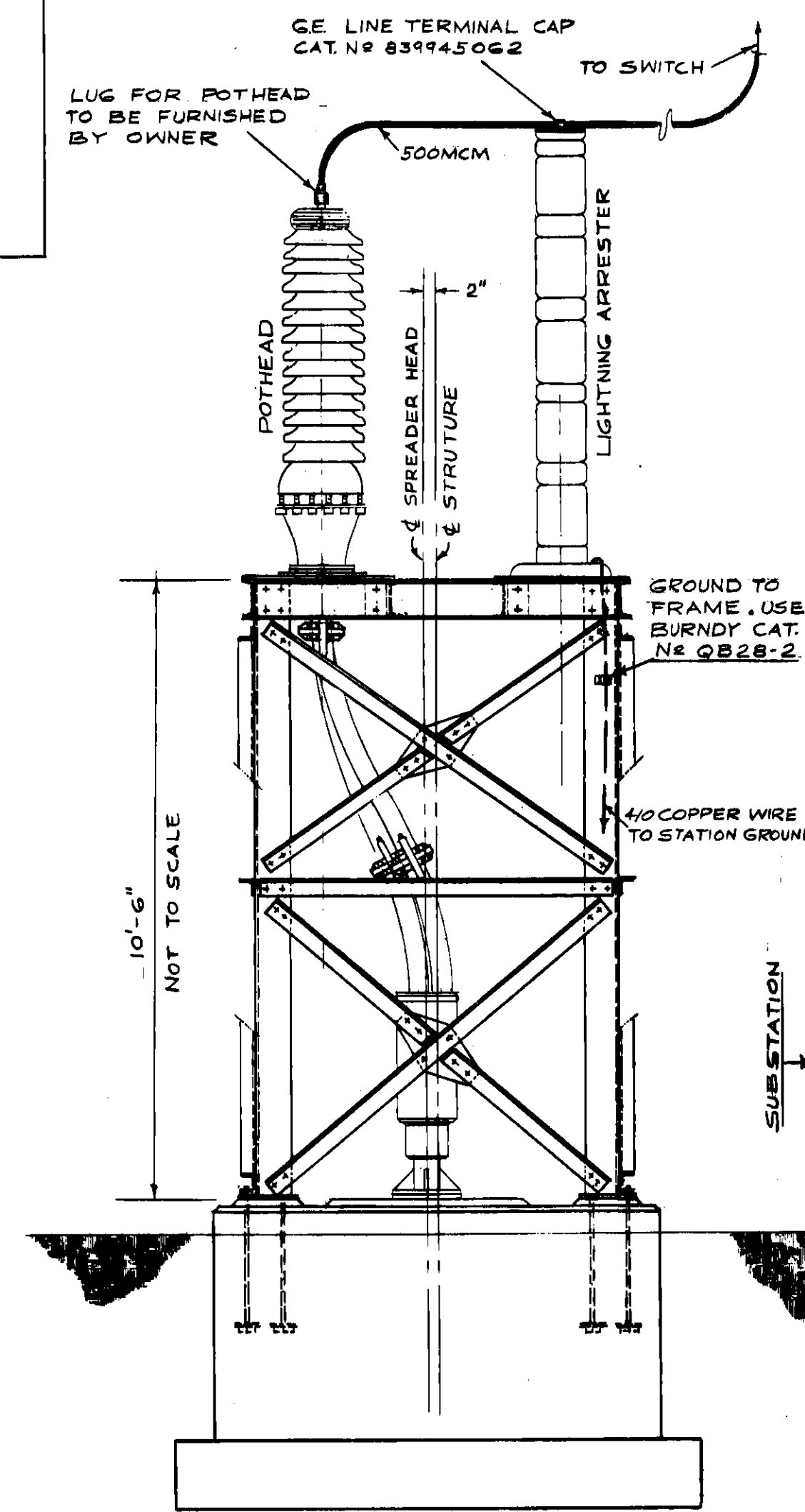
DETAILS OF STEEL PLATE 3/4\"/>



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



DETAIL OF BASE PLATE
SCALE: 1/2" = 1'-0"



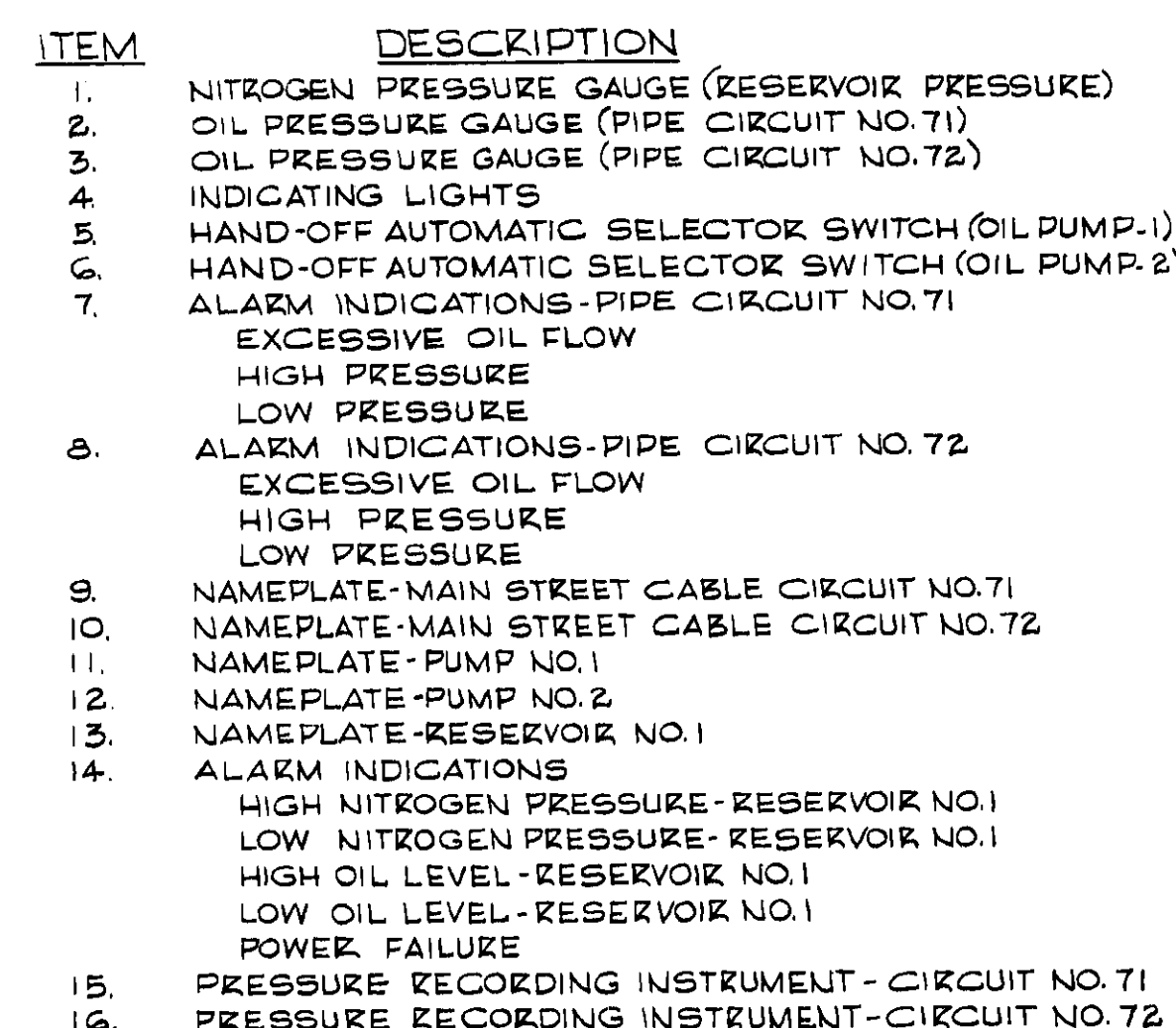
SECTION "B-B"
SCALE: 1/2" = 1'-0"

GENERAL NOTES:

1. THESE PIPE BENDS WILL BE SHIPPED 6" LONGER THAN REQUIRED ON THE END INDICATED TO ALLOW FOR FIELD VARIATIONS. THE PIPES WILL HAVE TO BE CHECKED & SOME POSSIBLE FIELD ADJUSTMENT MADE. THEY CAN THEN BE CUT & THE END GROOVED AS SHOWN ON DETAIL OF VICTAULIC GROOVE. VICTAULIC TOOL WILL BE FURNISHED BY OXONITE CO.
2. ALL CONNECTIONS SHALL BE BOLTED.
3. ALL BOLTS TO BE 3/4" DIA. UNLESS OTHERWISE NOTED.
4. ON BOLTED CONNECTIONS SPLIT LOCK WASHERS SHALL BE USED THROUGHOUT THE STRUCTURE.
5. BACKFILL SHALL BE OF EARTH ONLY. NO FOREIGN MATTER SHALL BE INCLUDED. BEFORE PLACING STRUCTURE FOUNDATIONS, ALL BACKFILL AND DISTURBED SOIL SHALL BE COMPACTED BY VIBRATORY METHODS.
6. ALL L'S 3" X 3" X 1/4" UNLESS OTHERWISE NOTED. ALL GUSSETS TO BE 3/8" PLATE.

PROJECT NO. 4543-126		W.O. NO. 1480-126-1947-CCN	
REYNOLDS, SMITH AND HILLS ARCHITECTS & ENGINEERS			
DRAWN: DPE		DEPARTMENT OF ELECTRIC & WATER UTILITIES	
CHECKED: EWH		CITY OF JACKSONVILLE, FLORIDA	
DATE: JAN. 31, 55		69 KV TRANSMISSION CABLES	
		GEORGIA ST. TO MAIN ST.	
TERMINAL STRUCTURE & DETAILS			
APPROVED FOR REYNOLDS, SMITH AND HILLS			
FOR THE CITY OF JACKSONVILLE		DRAWING NO.	
DEPARTMENT HEAD		4543-126	
ENGINEER MANAGER		D575	
		SHEET 9 OF 14	

REVISION	DESCRIPTION	DATE	BY	APPROVED



Technical drawing of the base of the cabinet, showing internal components and dimensions. The drawing is oriented vertically on the page.

Dimensions:

- Overall width: 84"
- Overall height: 46"
- Internal width segments: 12", 1 1/2", 7 1/2", 8"
- Internal height segments: 3 1/4", 1 1/2", 2", 3 1/2", 5"
- Bottom segment: 27"

Labels and Components:

- PUMP SUCTION →
- PRESSURE RELIEF
- 3/8" COPPER TUBING NITROGEN PRESSURE
- 7/8" DIA. - 1/4" HOLES FOR ANCHOR BOLTS
- FLOOR OPENING FOR ELECTRICAL SERVICE
- BASE OF CABINET

LOW OIL PRESSURE SWITCH

HIGH OIL PRESSURE SWITCH

RELIEF VALVE

HIGH NITROGEN PRESSURE SWITCH

LOW NITROGEN PRESSURE SWITCH

MAGNETIC VALVE

PRIMARY TIME DELAY

SECONDARY TIME DELAY

EMERGENCY PRESSURE SWITCH

SAMPLING VALVE

PUMP

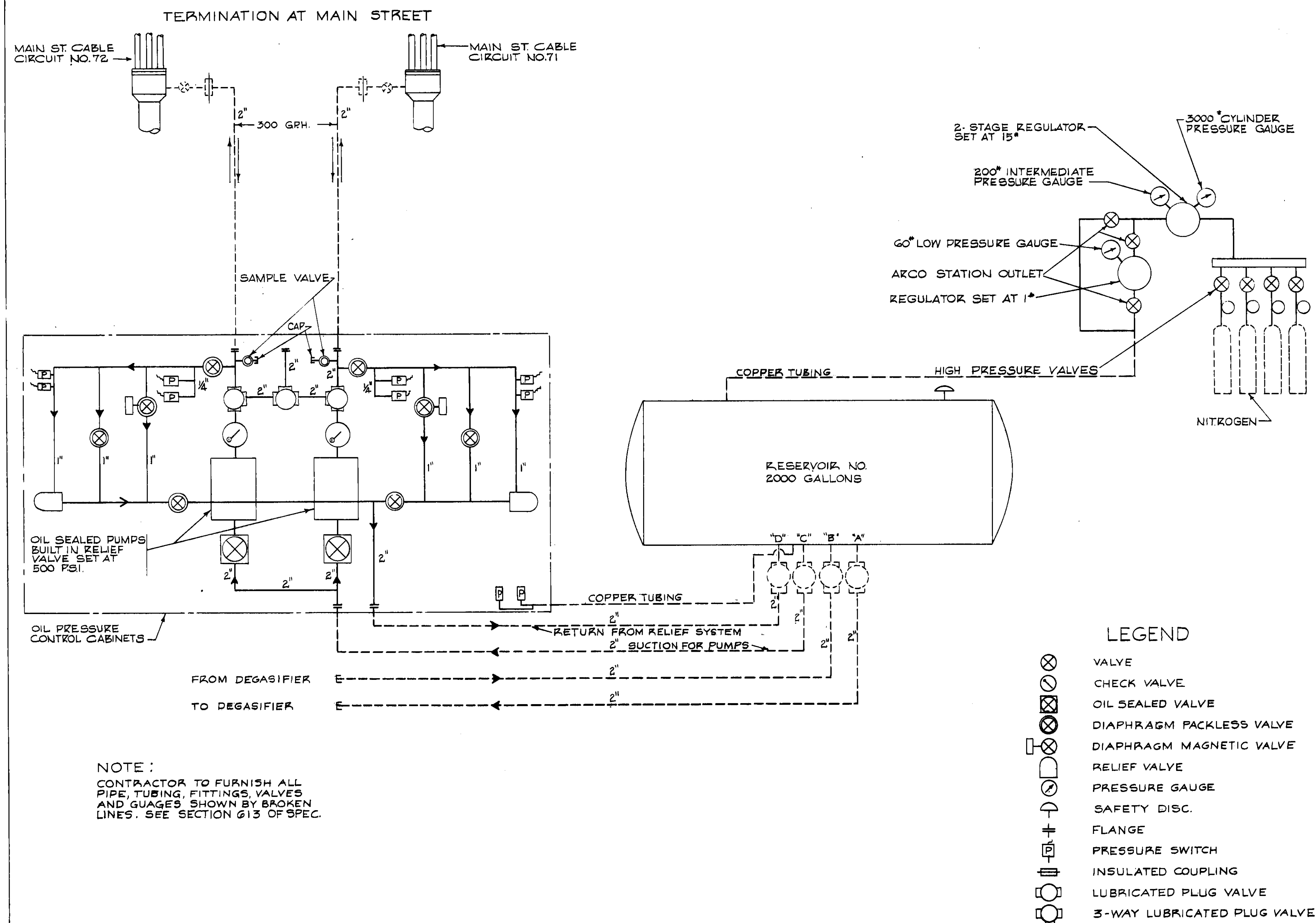
DISCHARGE

84"

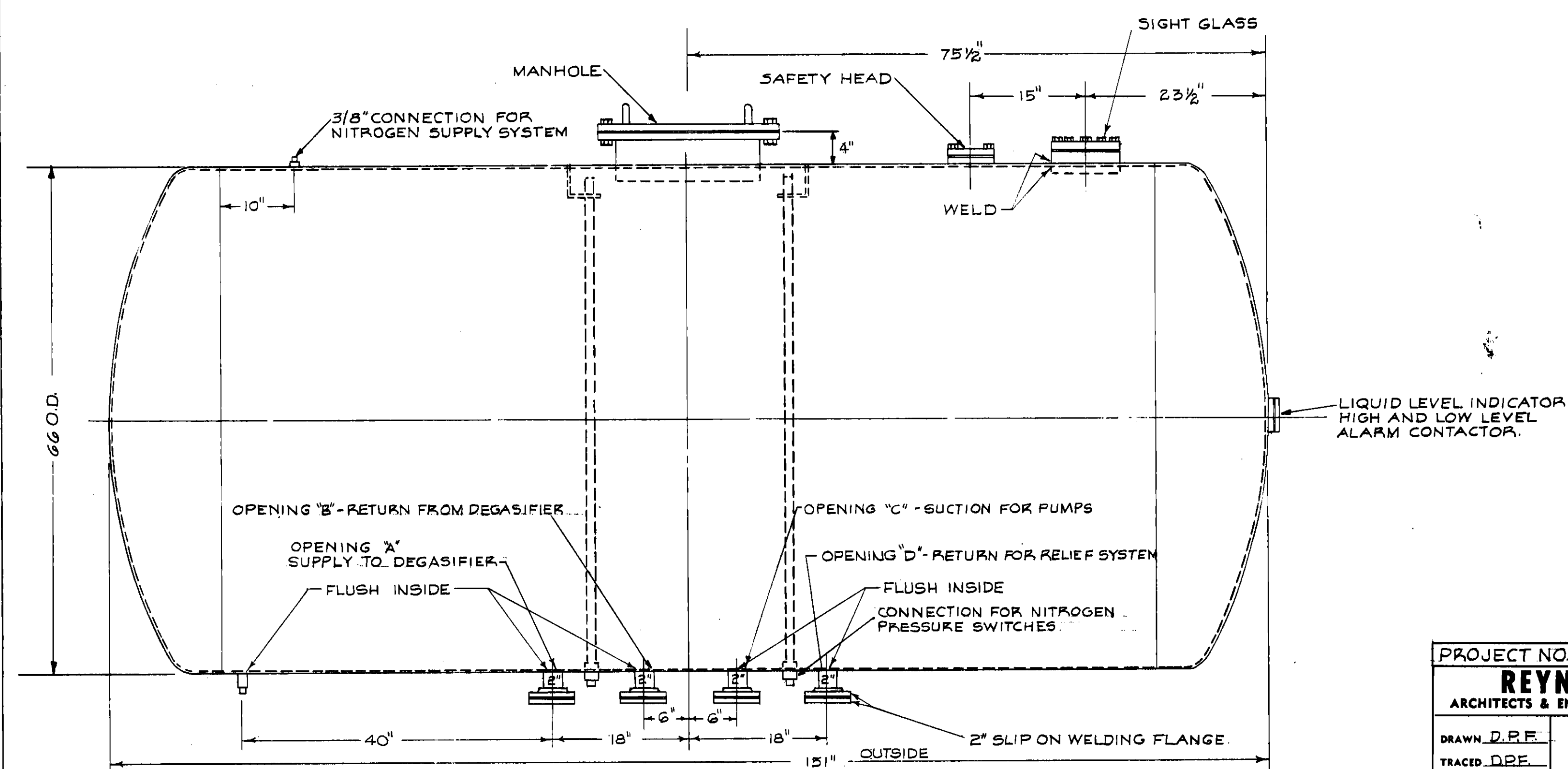
72"

5"

FRONT - INTERIOR VIEW OF CABINET
OIL PRESSURE CONTROL CABINET
SCALE: 1/2" = 1'-0"



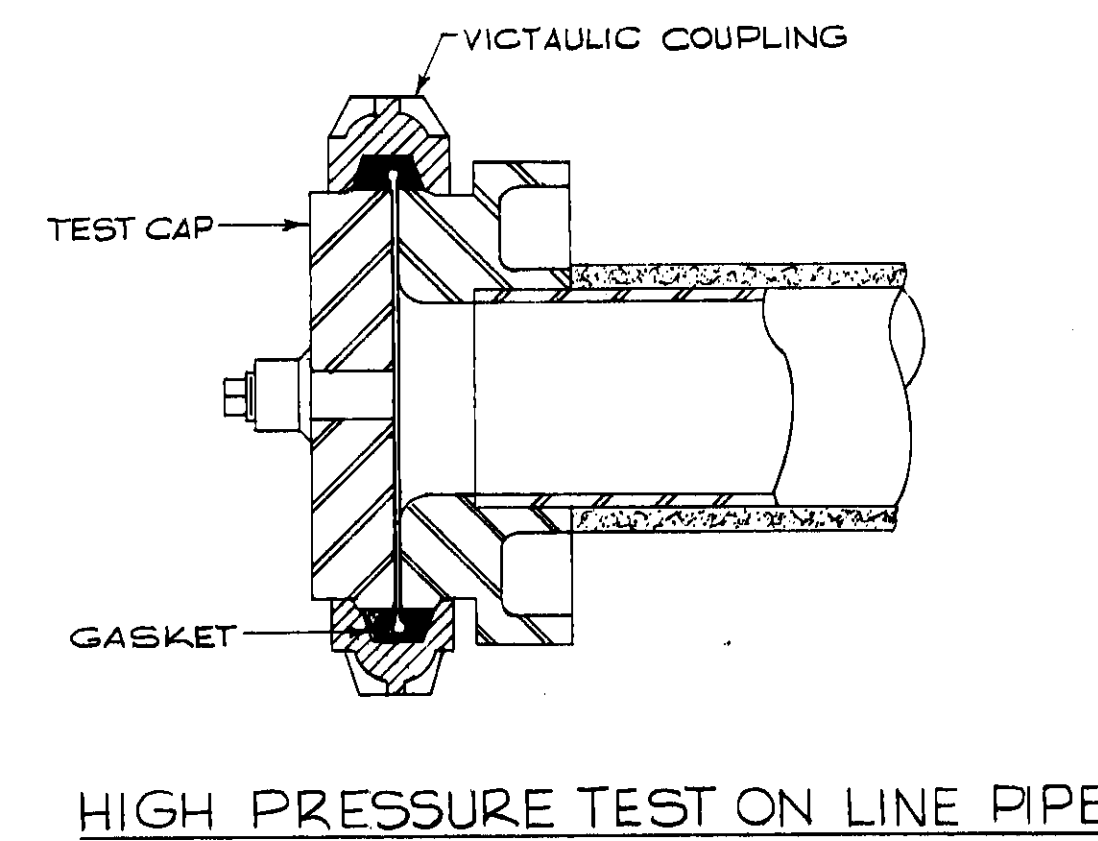
SCALE NONE



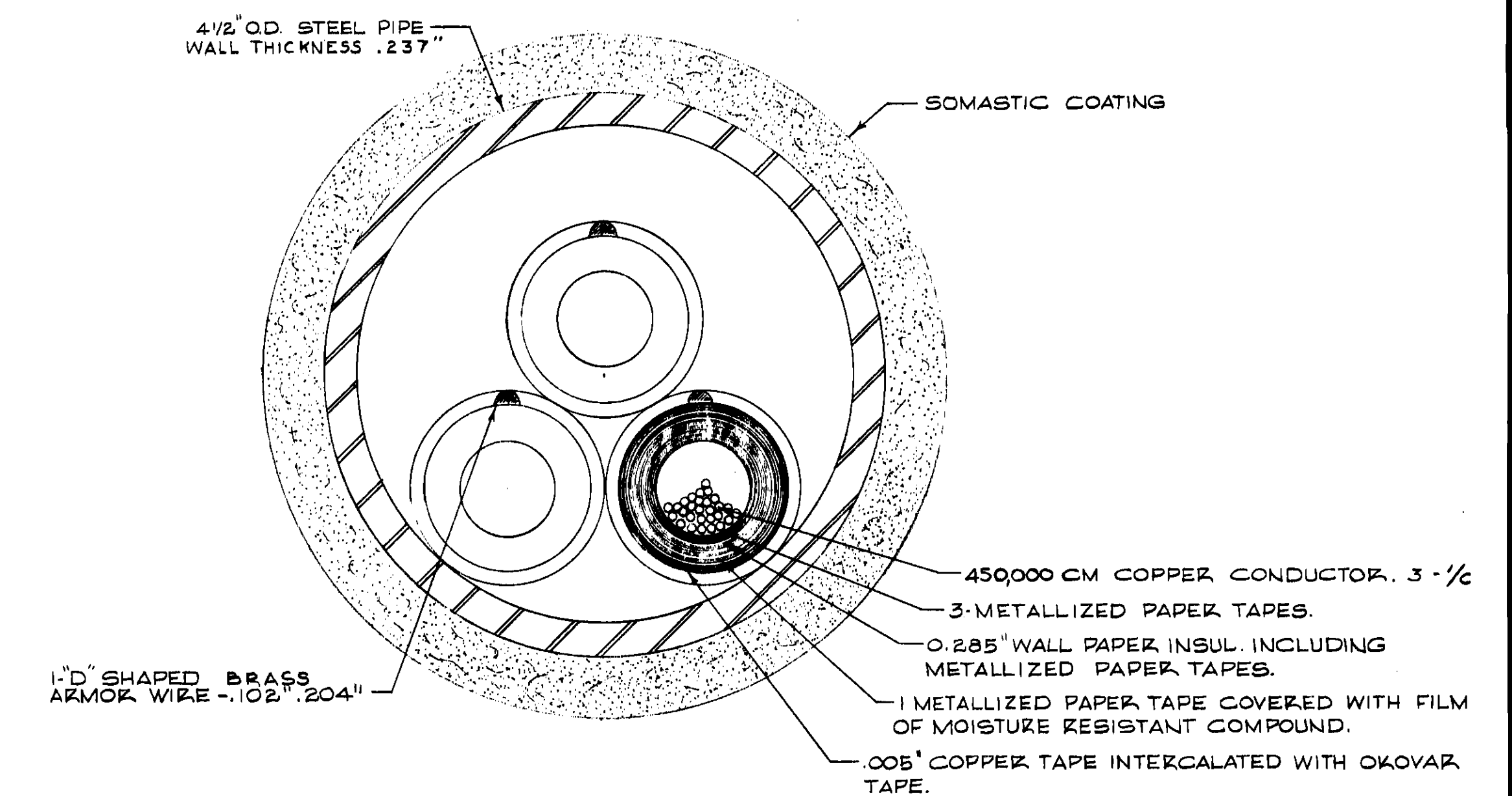
OIL RESERVOIR
SCALE: 1" = 1'-0"

PROJECT NO. 4543-126		W.O. NO. 1480-126-1947-CCN	
REYNOLDS, SMITH AND HILLS			
ARCHITECTS & ENGINEERS		JACKSONVILLE, FLORIDA	
DRAWN <u>D.F.F.</u>		DEPARTMENT OF ELECTRIC & WATER UTILITIES	
TRACED <u>D.F.F.</u>		CITY OF JACKSONVILLE, FLORIDA	
CHECKED <u>J.W.H.</u>		69 KV TRANSMISSION CABLES	
SCALE <u>SHOWN</u>		GEORGIA ST. TO MAIN ST.	
DATE <u>JAN 21, 65</u>		PUMPING & CONTROL EQUIPMENT	
APPROVED FOR REYNOLDS, SMITH AND HILLS			
<i>RC Blaylock</i>		<i>W. H. Hearn</i>	
FOR THE CITY OF JACKSONVILLE		<i>J. H. Williams</i> FOR A REAR END VIEW	
DRAWING NO.		4545-126	
DEPARTMENT HEAD		ENGINEERING DEPARTMENT	
DRAWING NO.		4576	
DEPARTMENT HEAD		ENGINEER MANAGER	
SHEET		10 OF 14	

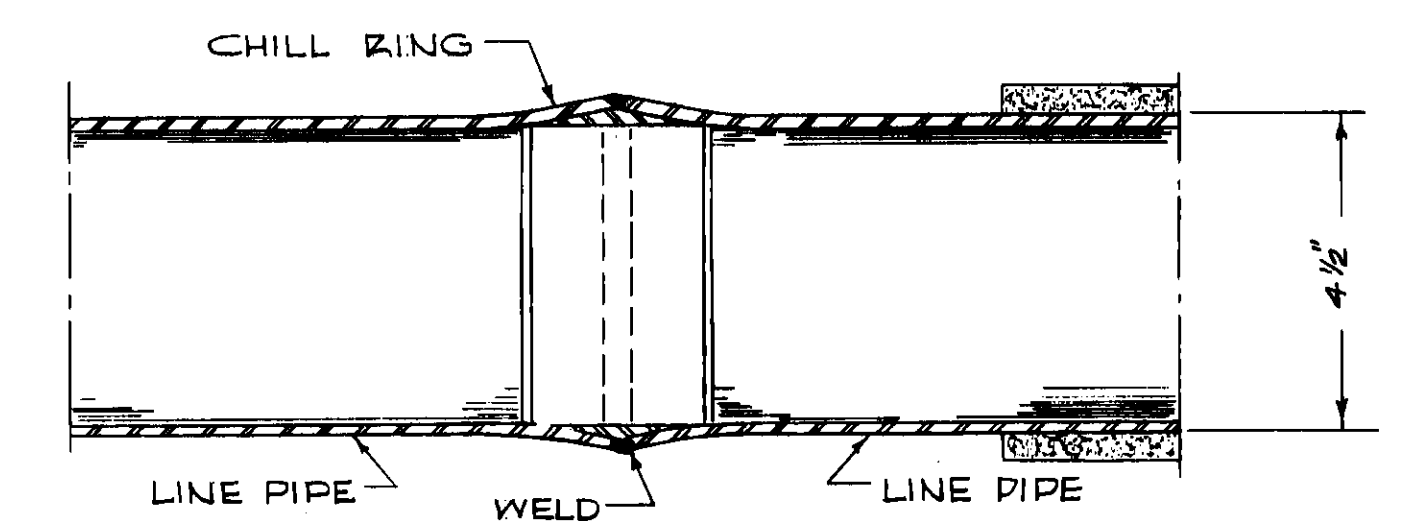
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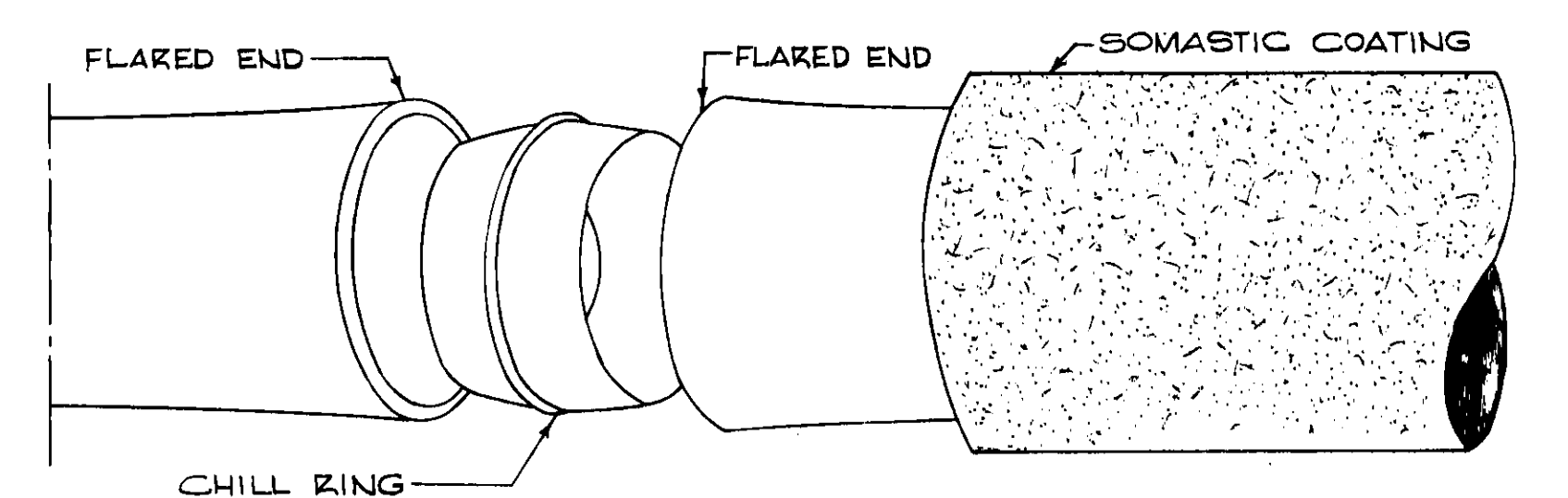
ASSEMBLY OF STRAIGHT JOINT
SCALE 3" = 1'-0"



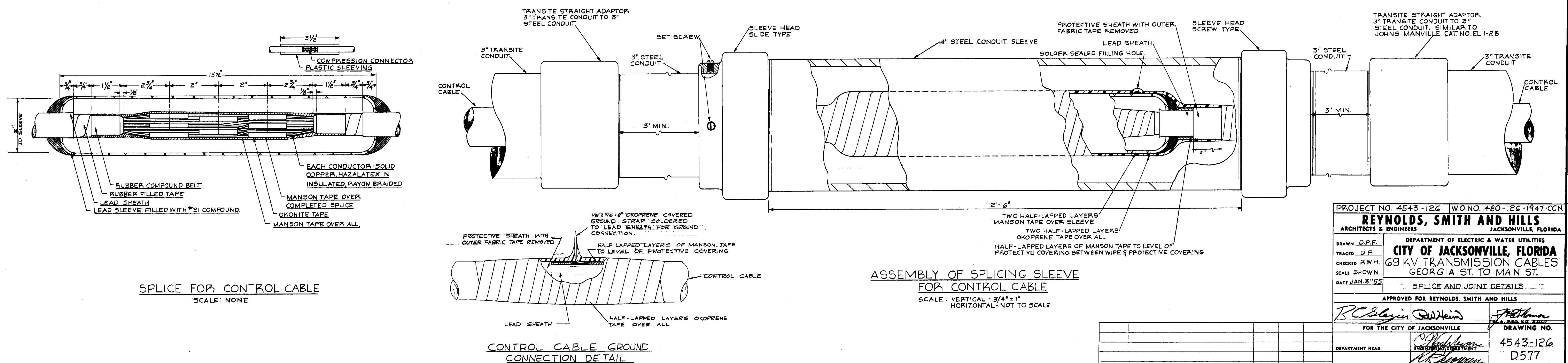
CROSS SECTION OF PIPE AND CABLE
NON-LEADED CONSTRUCTION
SCALE: 1"= 1'-0"



SECTION AT CENTER LINE



TYPICAL CHILL RING JOINT
SCALE NONE



PROJECT NO 4543-126	WORK NO 1480-126-1947-CCN
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REYNOLDS, SMITH AND HILLS

ARCHITECTS & ENGINEERS		JACKSONVILLE, FLORIDA

DRAWN D.P.F. DEPARTMENT OF ELECTRIC & WATER UTILITIES
CITY OF JACKSONVILLE, FLORIDA

TRACED D.F. **CITY OF JACKSONVILLE, FLORIDA**

CHECKED R.W.H. 69 KV TRANSMISSION CABLES
GEORGIA CT TO MAIN CT

SCALE SHOWN: GEORGIA ST. TO MAIN ST.

DATE JAN 31 55 SPLICE AND JOINT DETAILS

APPROVED FOR REYNOLDS, SMITH AND HILLS

Doc #	Date	File
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Wagner Alheim F. H. H. H.

FOR THE CITY OF JACKSONVILLE	DRAWING NO.
<i>[Signature]</i>	

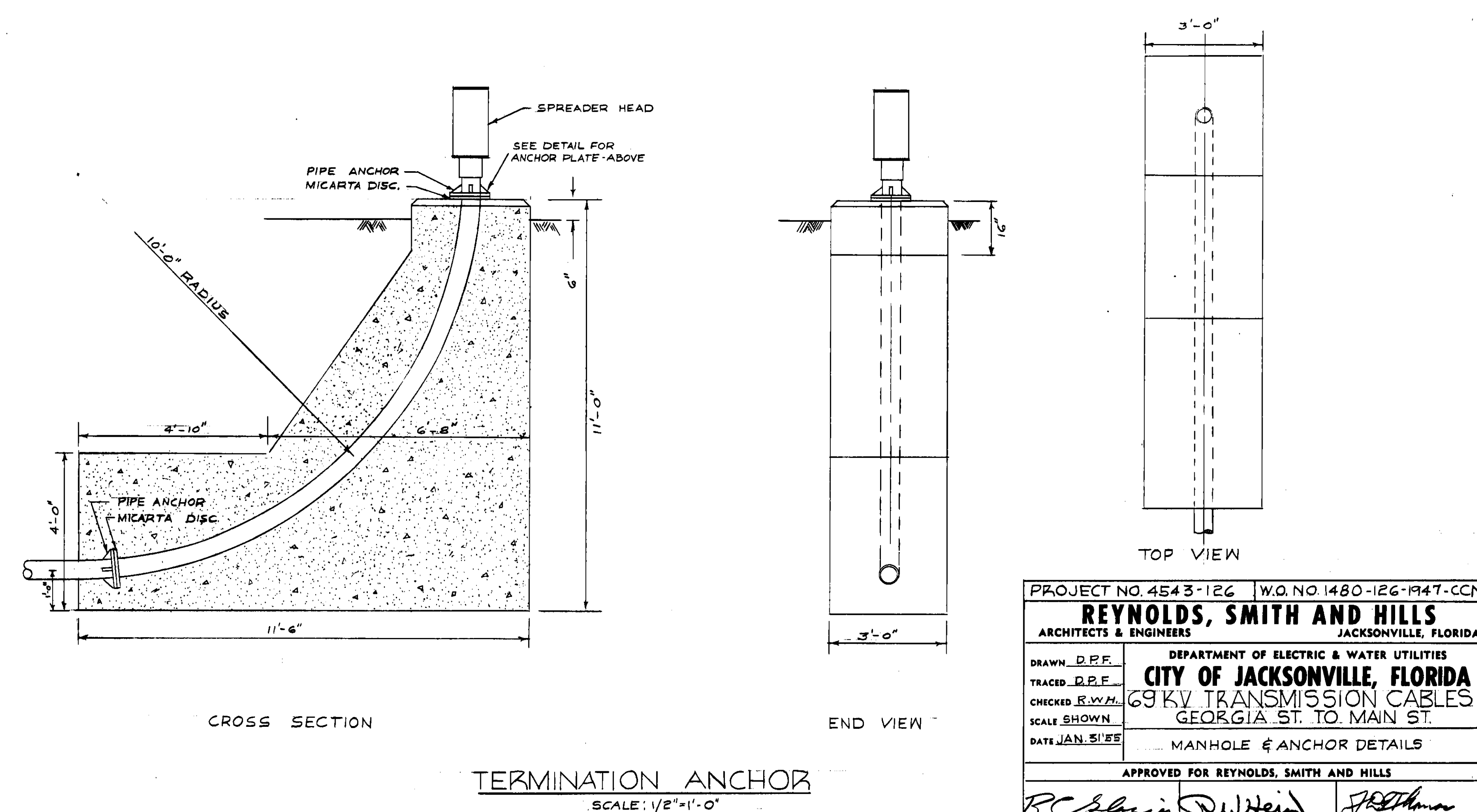
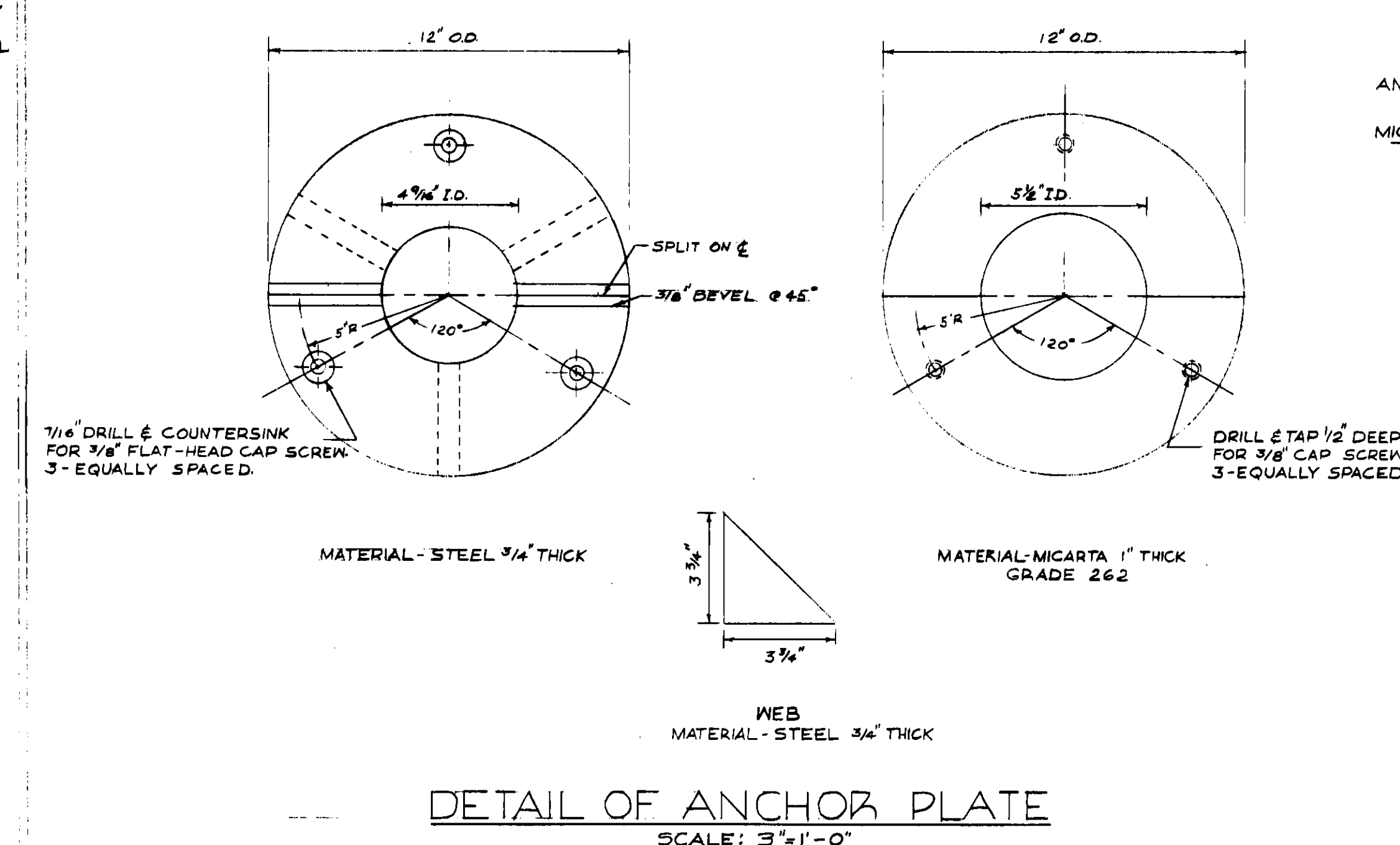
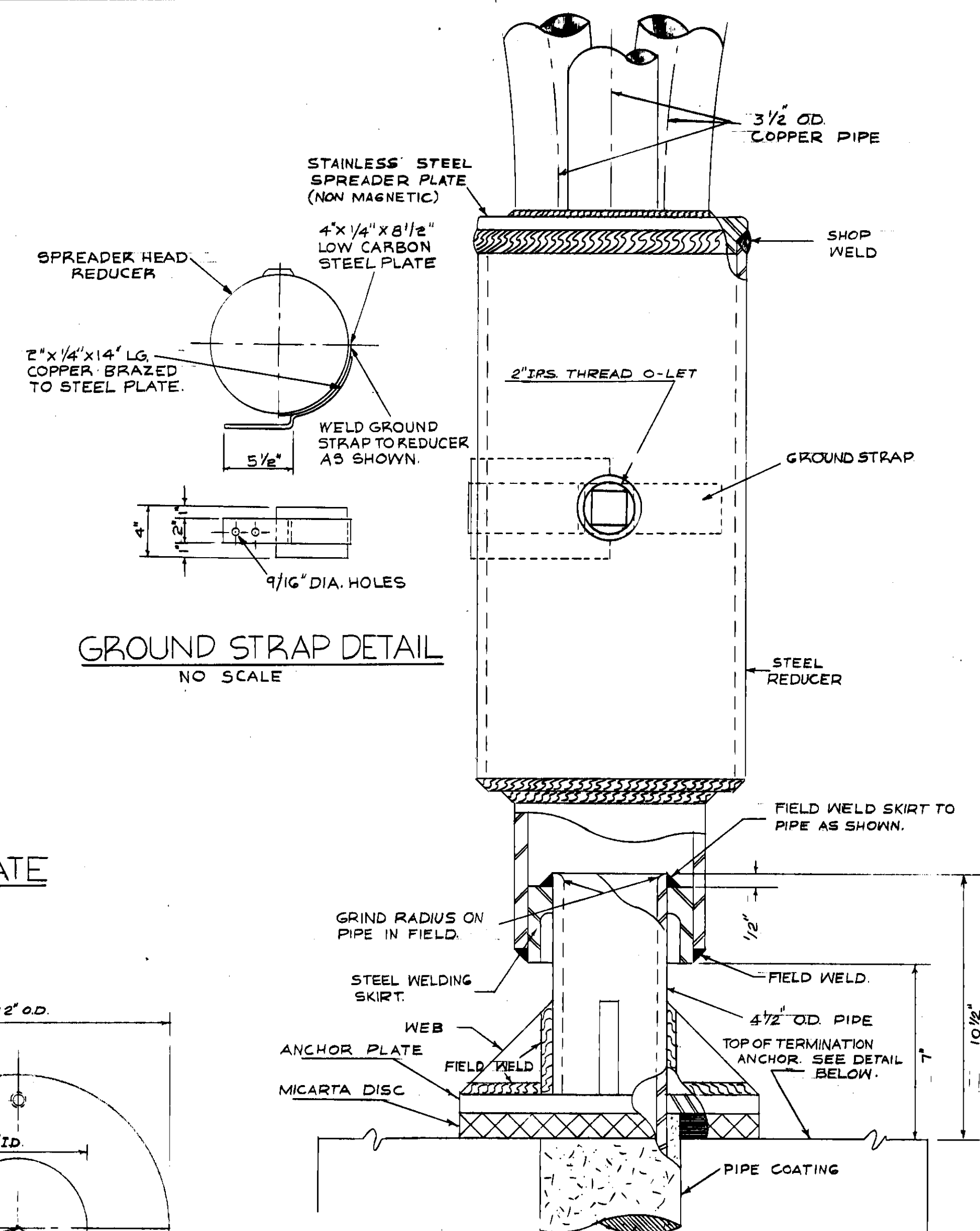
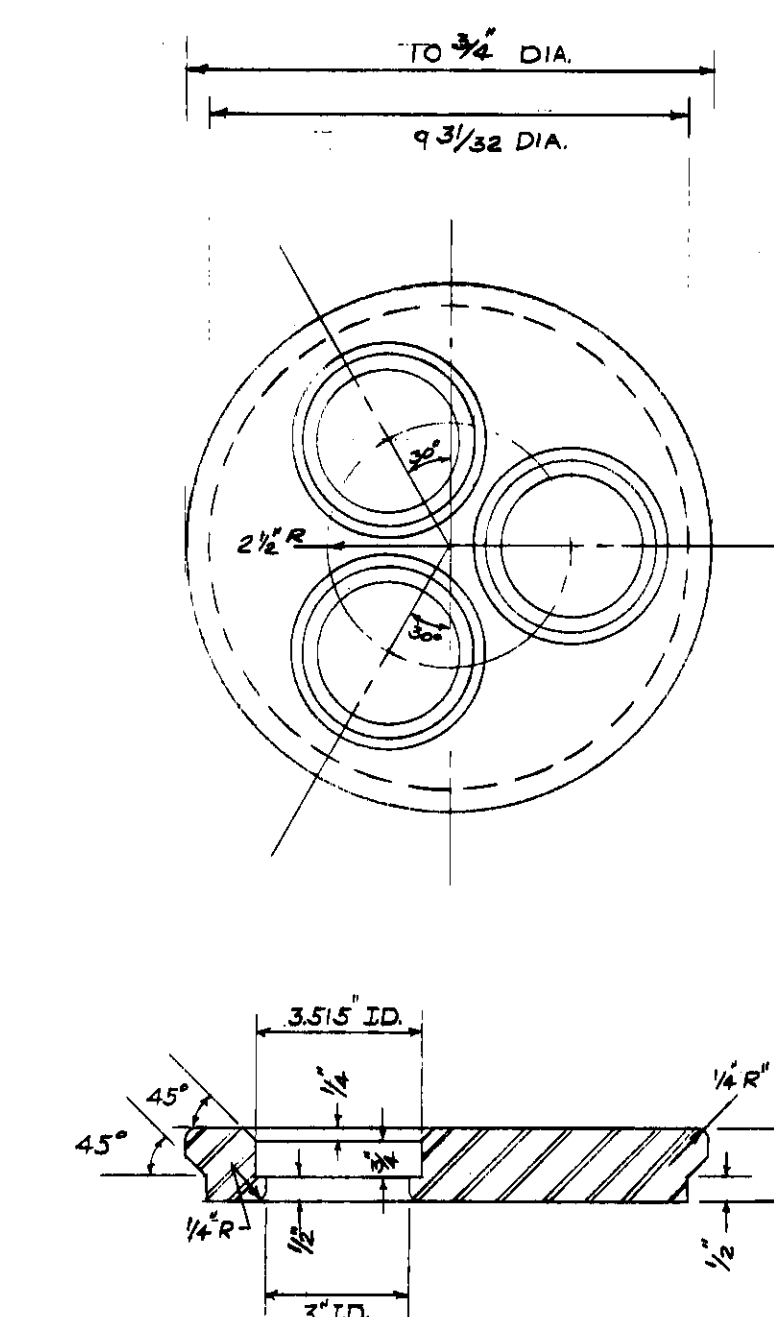
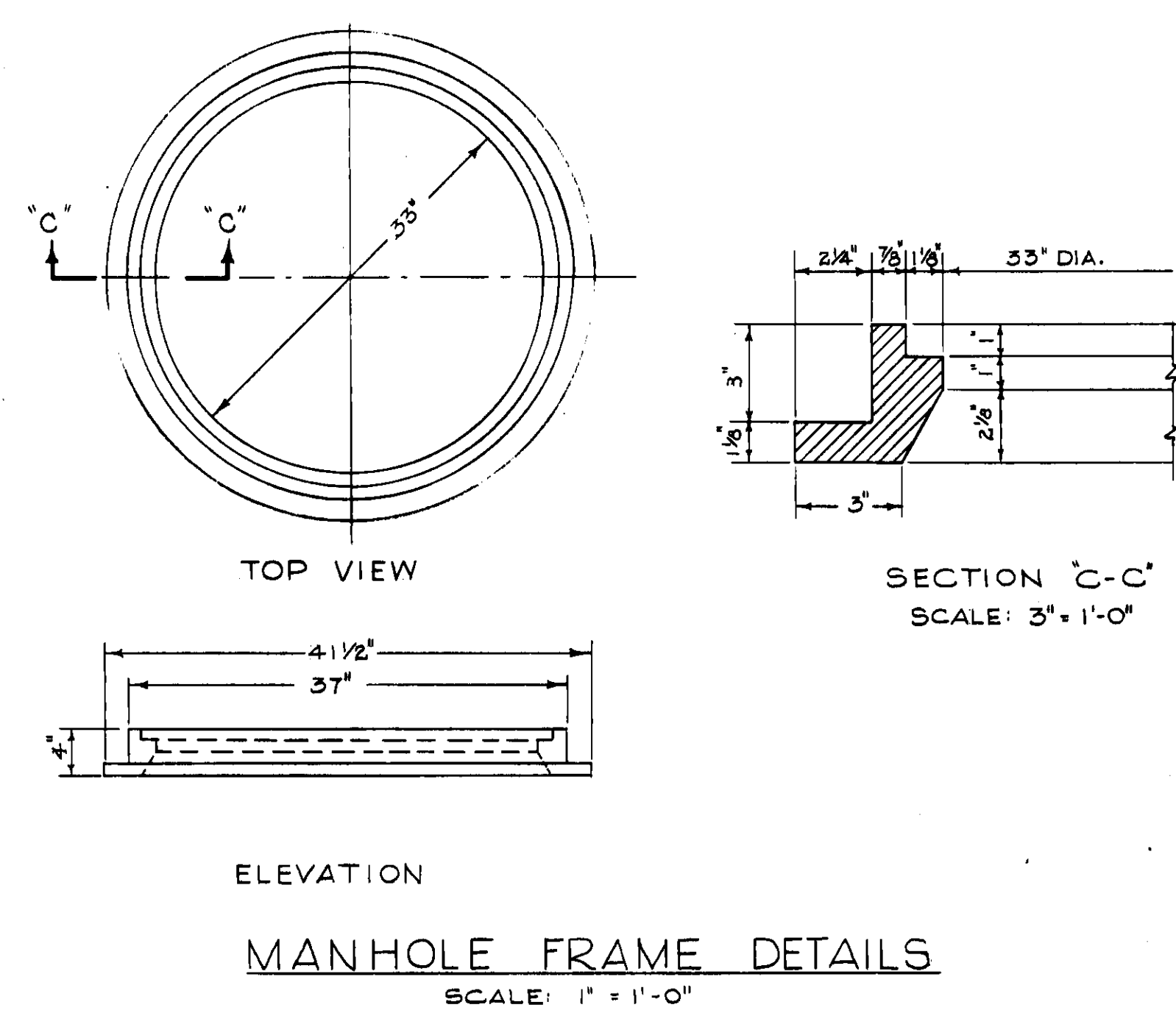
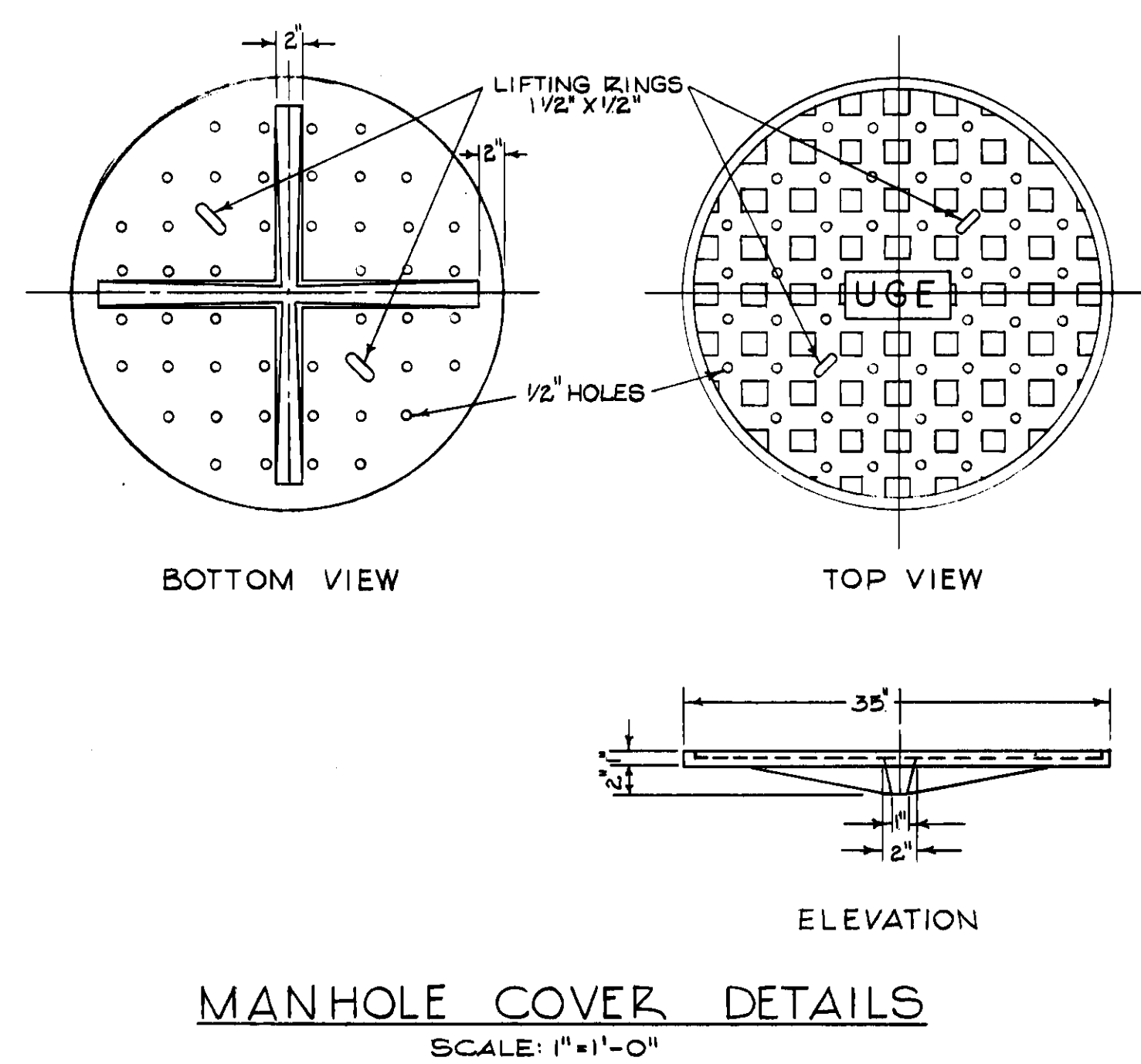
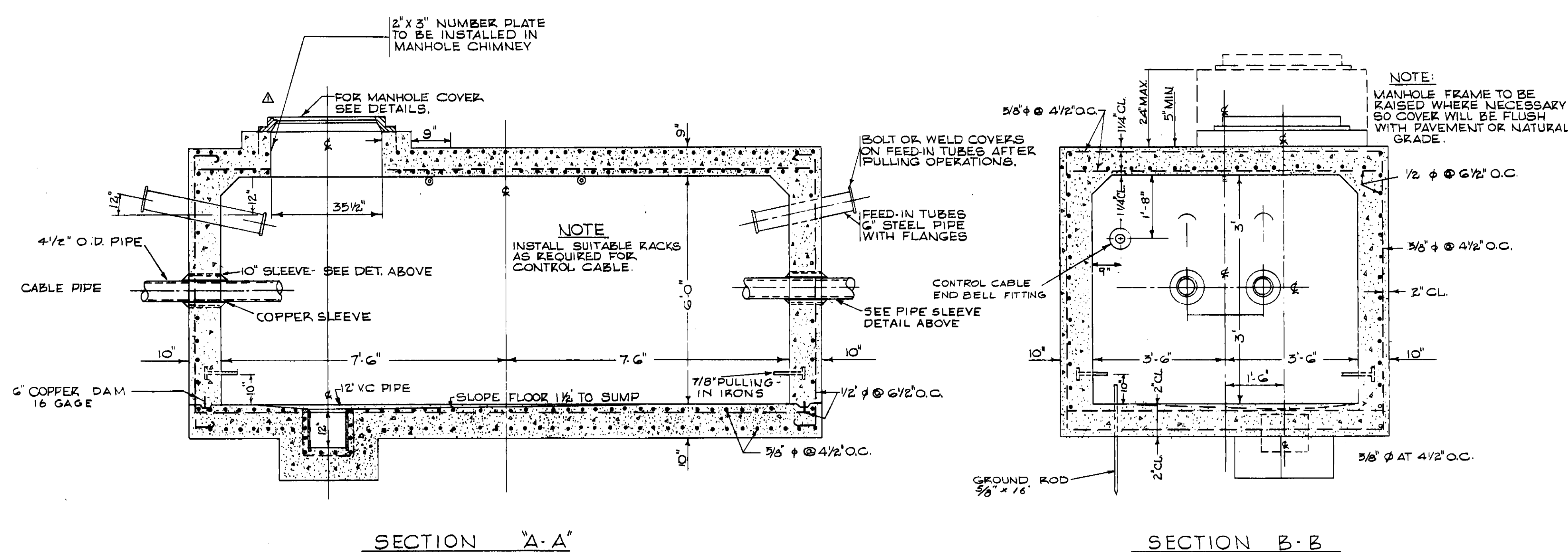
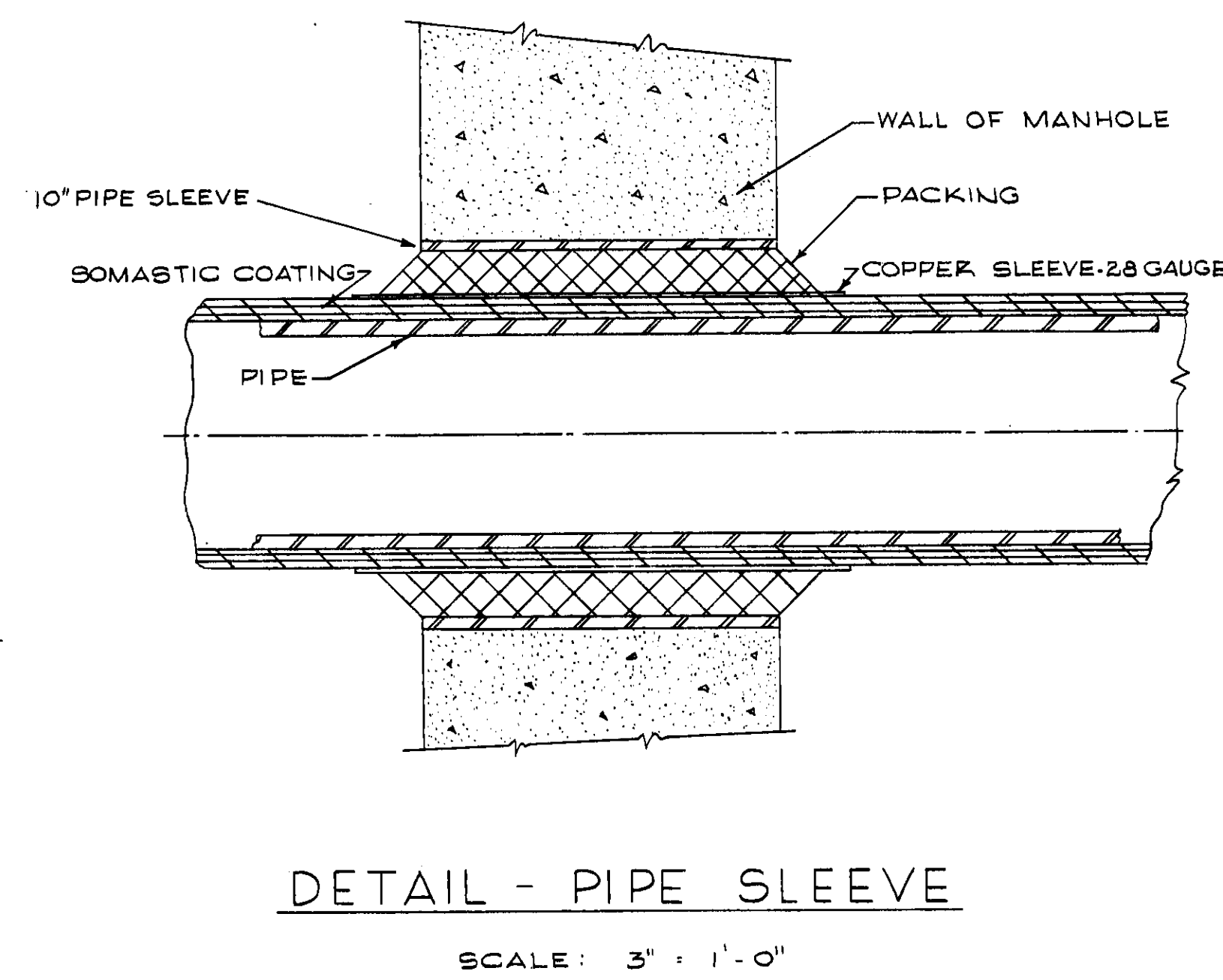
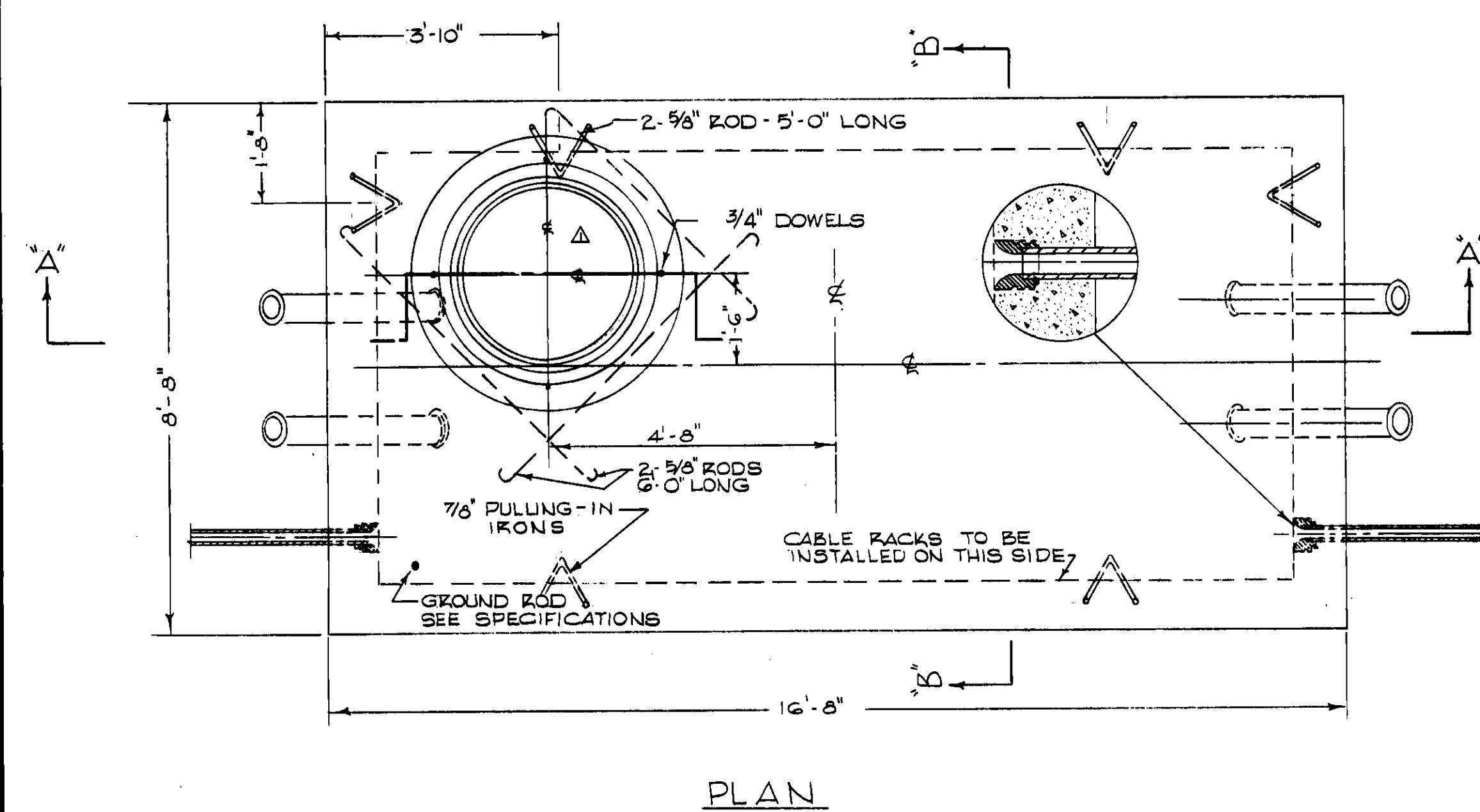
	<i>Chad Moore</i>	4543-126
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DEPARTMENT HEAD	ENGINEERING DEPARTMENT	D577
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D	DEPARTMENT HEAD	ENGINEER MANAGER	SHEET 11 OF 14
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052614

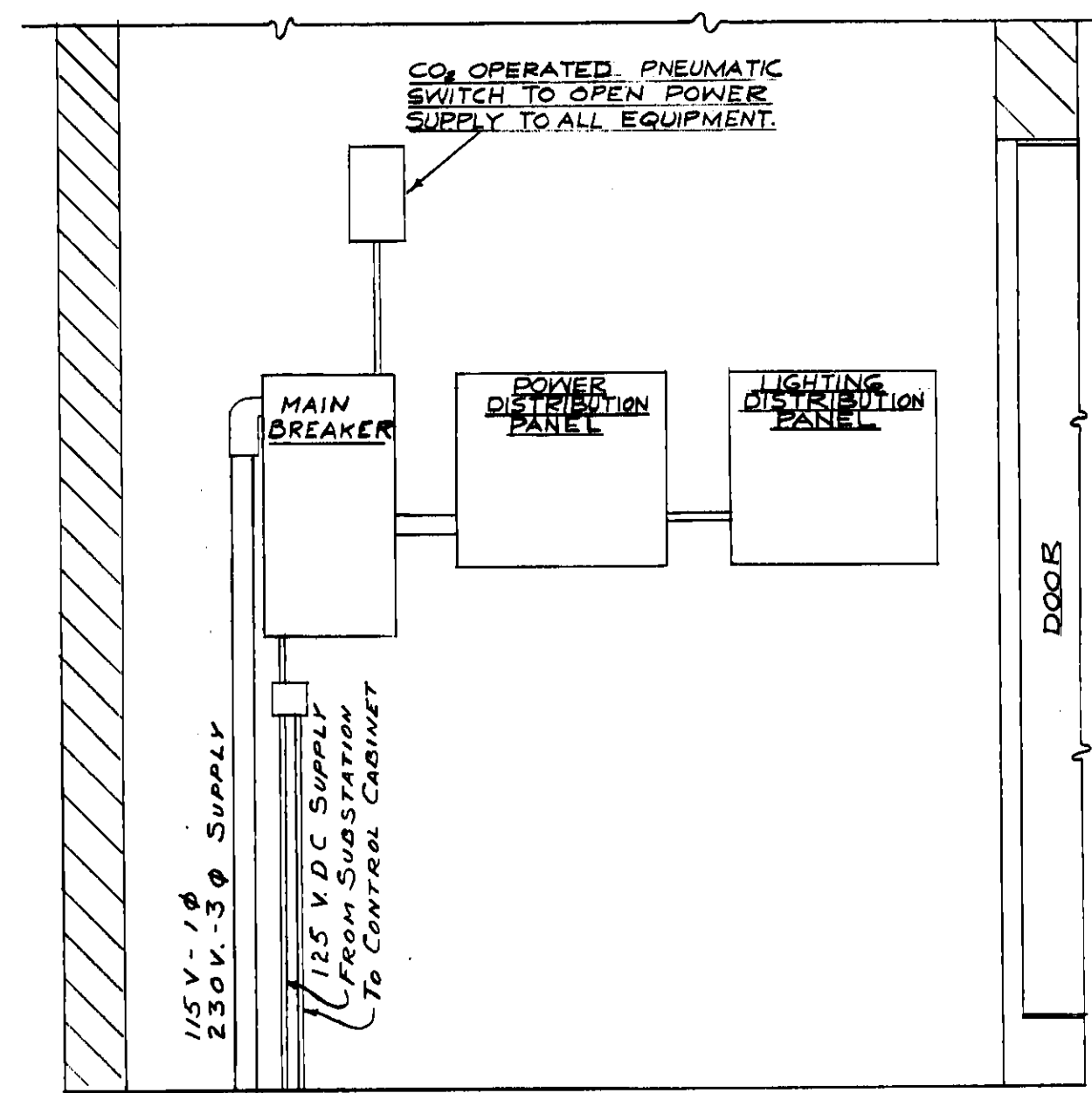
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					FOR THE CITY OF JACKSONVILLE		DRAWING NO.	
					DEPARTMENT HEAD		4543-126	
					DEPARTMENT HEAD		D578	
REVISION	DESCRIPTION	DATE	BY	APPROVED	DEPARTMENT HEAD	ENGINEER NAME	DATE	12 of 14

PROJECT NO. 4543-126		W.Q. NO. 1480-126-1947-CN	
REYNOLDS, SMITH AND HILLS ARCHITECTS & ENGINEERS JACKSONVILLE, FLORIDA			
DRAWN <u>D.F.F.</u>		DEPARTMENT OF ELECTRIC & WATER UTILITIES	
TRACED <u>R.W.H.</u>		CITY OF JACKSONVILLE, FLORIDA	
CHECKED <u>D.F.F.</u>		69 KV TRANSMISSION CABLES	
SCALE <u>SHOWN</u>		GEORGIA ST. TO MAIN ST.	
DATE <u>JAN 5 '56</u>		 MANHOLE & ANCHOR DETAILS	
APPROVED FOR REYNOLDS, SMITH AND HILLS			
<i>RC Blair</i>		<i>J. H. Heid</i>	
FOR THE CITY OF JACKSONVILLE		DRAWING NO.	
DEPARTMENT HEAD		4543-126	
ENGINEERING DEPARTMENT		D578	
DEPARTMENT HEAD		ENGINEER	
		SHEET 12 OF 14	

					FOR THE CITY OF JACKSONVILLE		DRAWING NO.	
					DEPARTMENT HEAD		4543-126	
					ENGINEERING DEPARTMENT		D579	
					DEPARTMENT HEAD		SHEET 13 OF 14	
					ENGINEER MANAGER			
REVISION	DESCRIPTION				DATE	BY	APPROVED	



ELEVATION - INTERIOR FRONT WALL
SCALE: 3/4" = 1'-0"

GENERAL ARRANGEMENT OF DISTRIBUTION CENTER

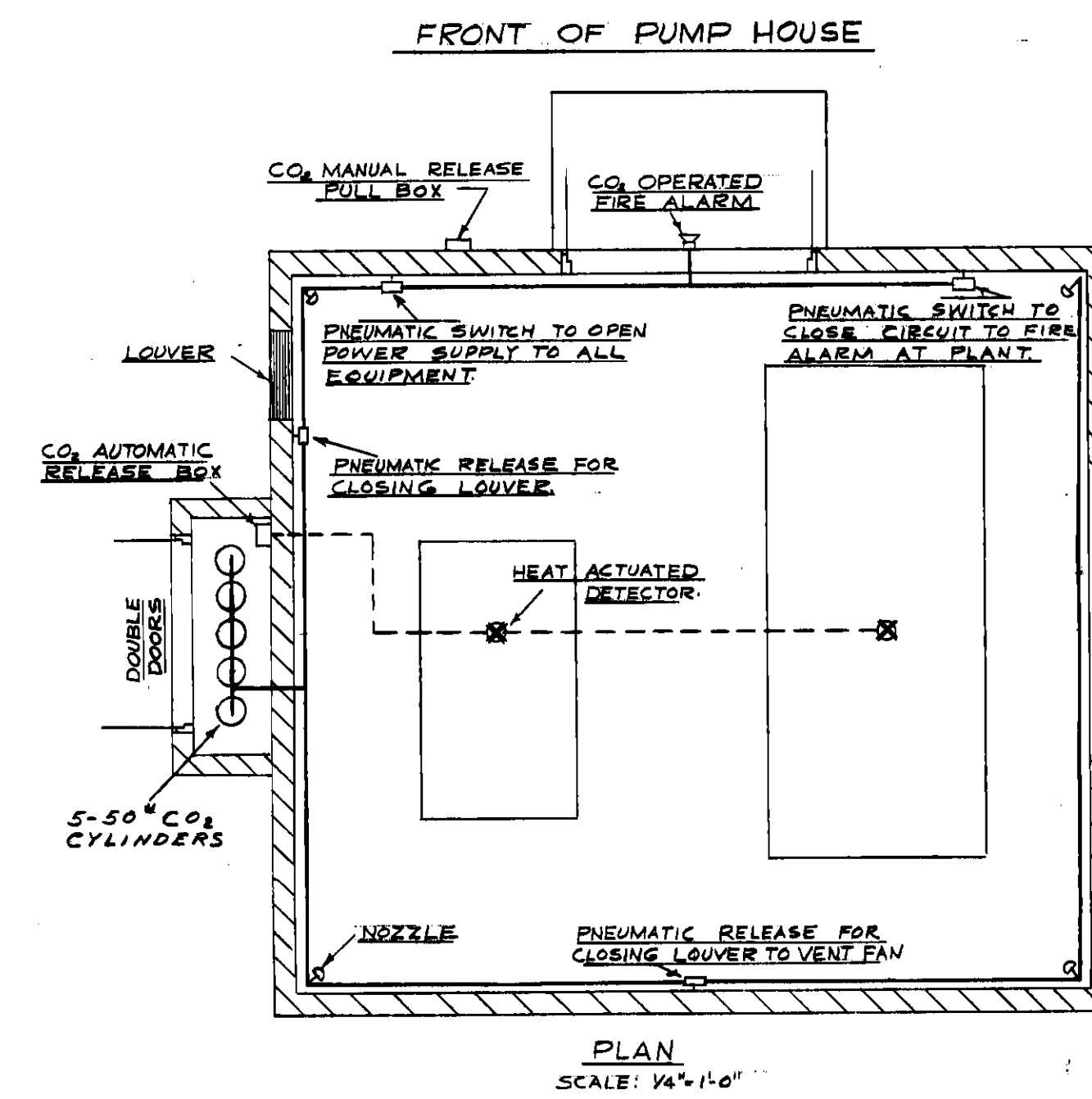
PANEL SCHEDULE

POWER PANEL
SQUARE D-TYPE M.L.N.
250 VOLTS AC-30-3W
100 AMP MAIN LUGS

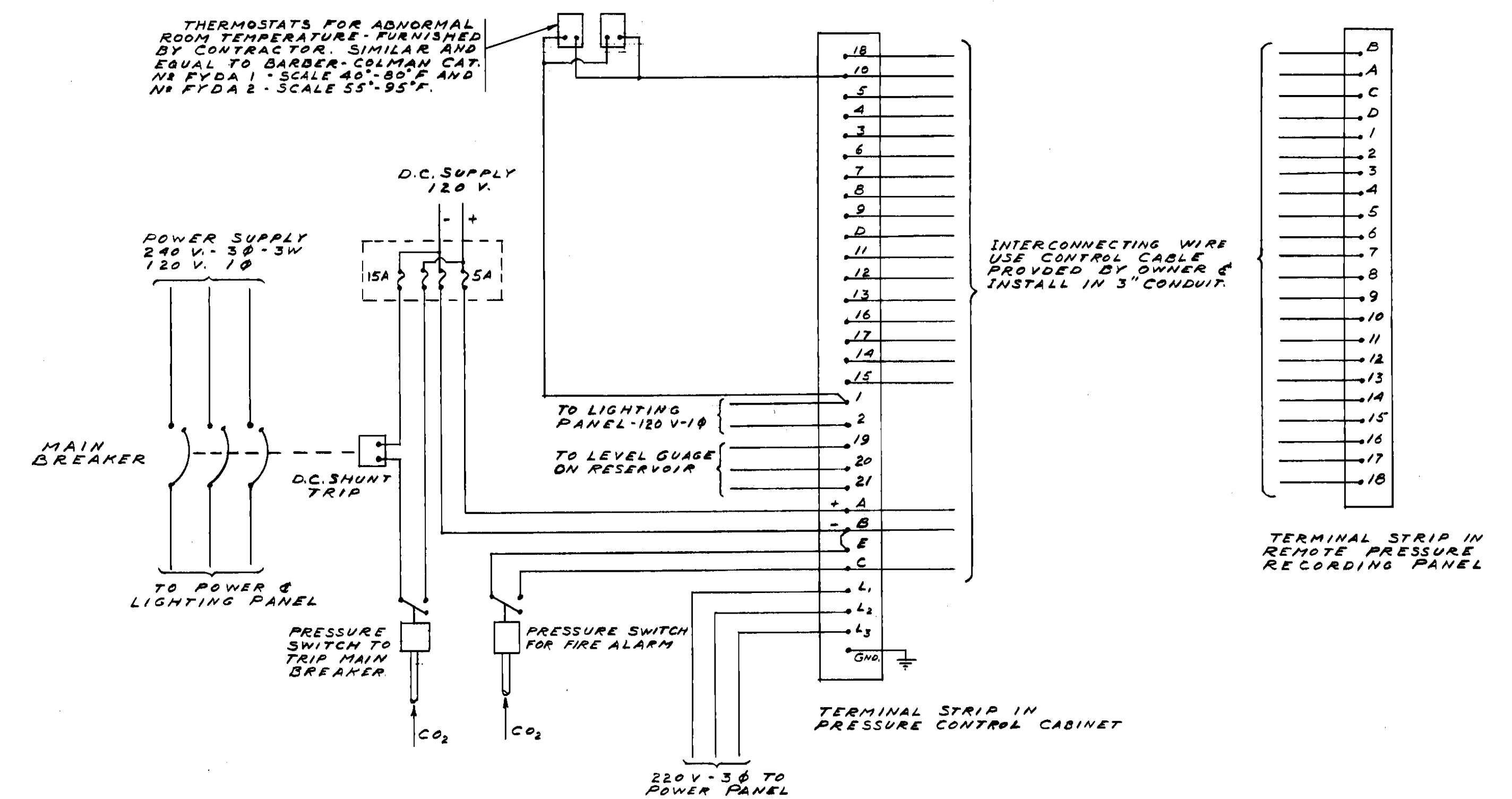
CIRCUIT NO.	NO. POLES	TRIP AMPS	SERVES
1	3	15	ROOM HEATER NO. 1
2	3	15	ROOM HEATER NO. 2
3	3	40	CONTROL CABINET
4	3		SPARE
5	3		SPARE
6	2	40	LGT. PANEL

LIGHTING PANEL
TRUMBULL TYPE NAB3
125/250 V. 10-3W-3W
50 AMP MAIN LUGS

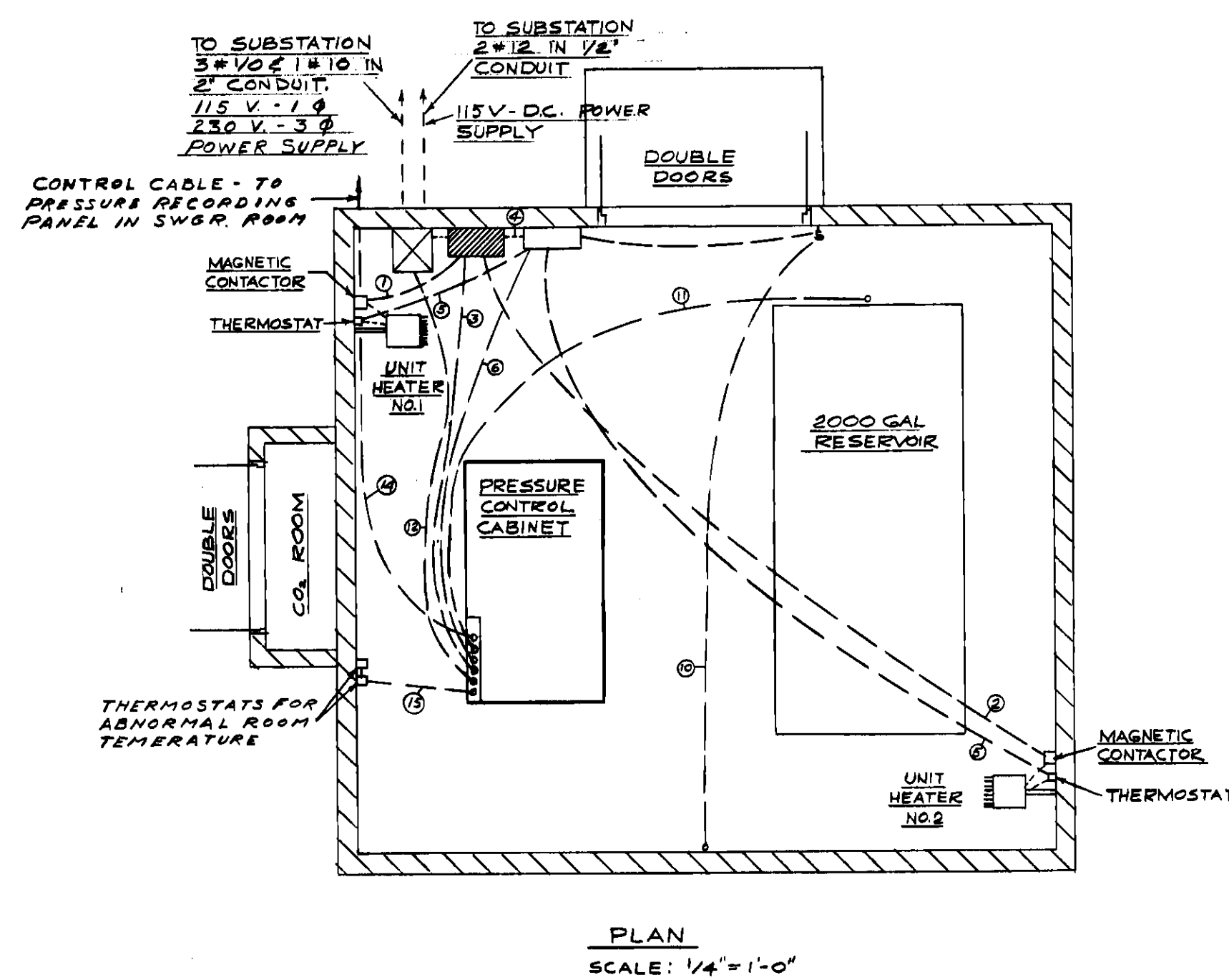
CIRCUIT NO.	NO. POLES	TRIP AMPS	SERVES
1	1	15	UNIT HTR. FANS
2	1	15	ALARM CIRCUIT
3	1	20	LGT. CIRCUIT
4	1	20	LGT. CIRCUIT
5	1	20	RECEPTACLES
6	1	20	ROOF VENT FAN
7	1	20	SPARE
8	1	20	SPARE



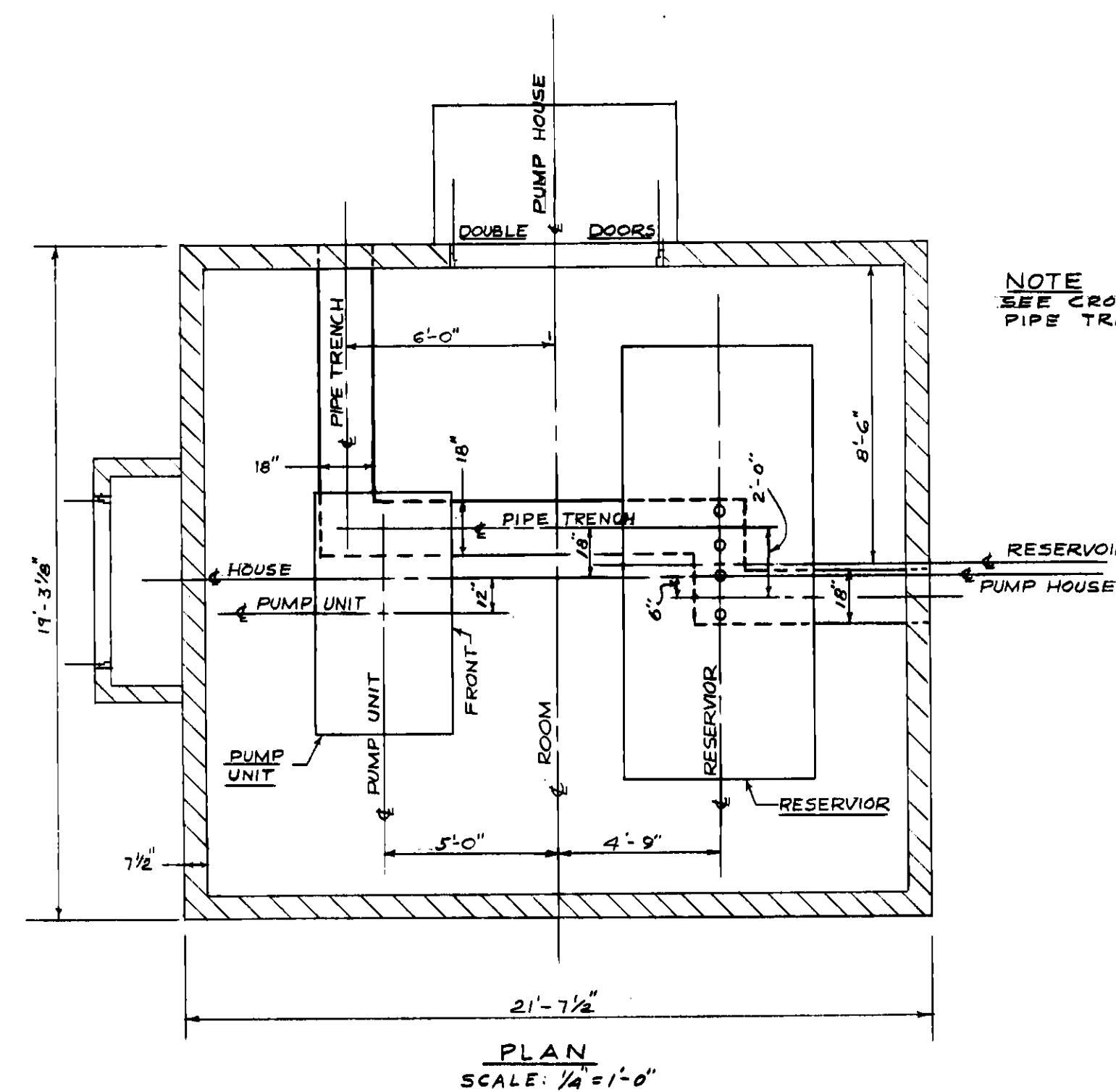
DIAGRAMMATIC LAYOUT OF CARBON DIOXIDE
FIRE EXTINGUISHING SYSTEM



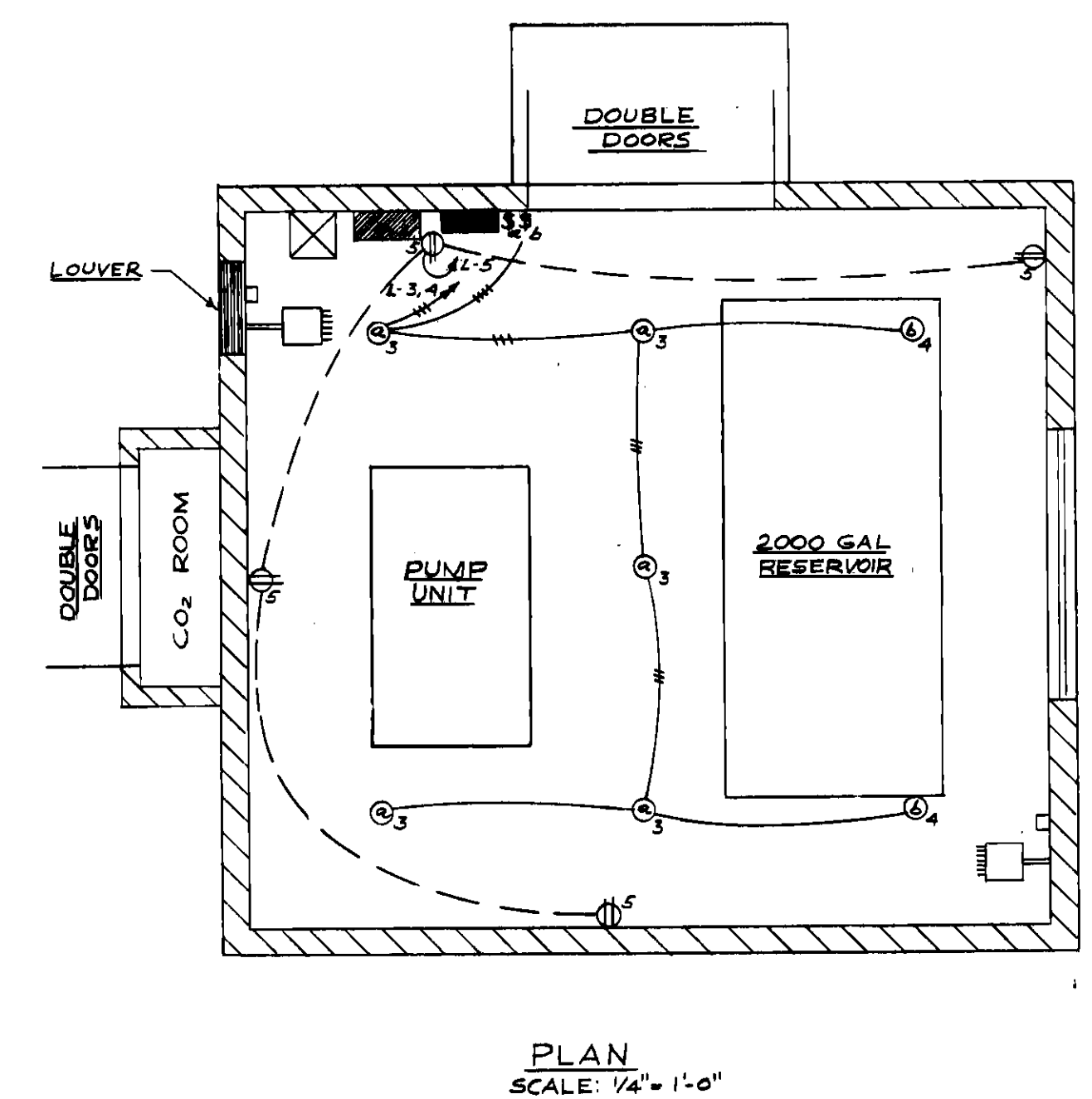
SIMPLIFIED WIRING DIAGRAM OF
POWER AND ALARM SYSTEM



GENERAL ARRANGEMENT OF
CONDUIT RUNS



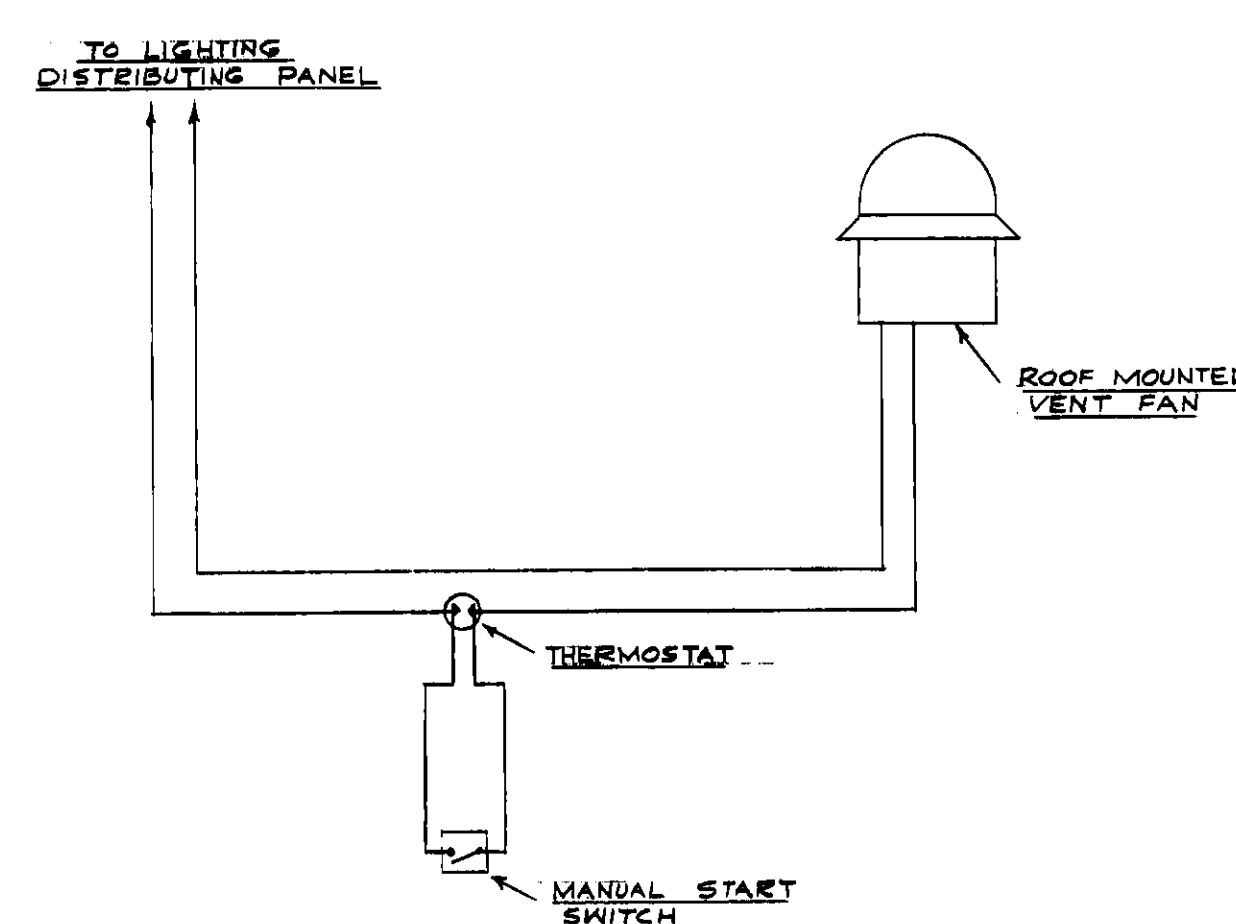
ARRANGEMENT OF EQUIPMENT
AND PIPING IN PUMP HOUSE



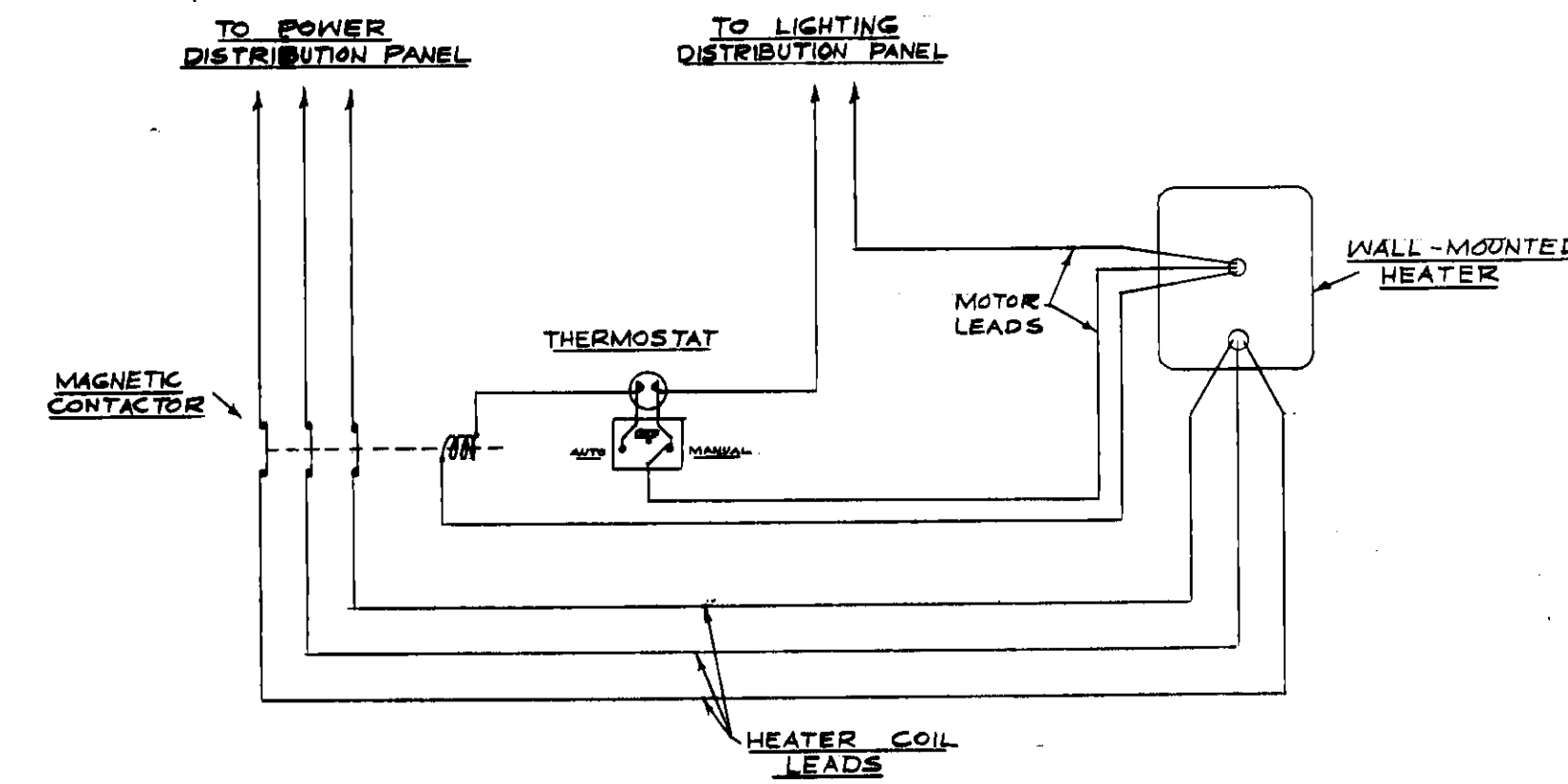
LIGHTING SYSTEM

CONDUIT AND CIRCUIT SCHEDULE

CIRCUIT NO.	STARTING POINT	CONDUIT	WIRE	TERMINATION	REMARKS
1	POWER DISTRIBUTION PANEL	NO. 1 - 1/2"	3 # 12	MAGNETIC CONTACTOR - ROOM HEATER NO. 1	CONNECT HEATER AS SHOWN
2	"	NO. 2 - 1/2"	3 # 12	MAGNETIC CONTACTOR - ROOM HEATER NO. 2	CONNECT HEATER AS SHOWN
3	"	NO. 3 - 1/2"	3 # 12	PRESSURE CONTROL CABINET	POWER SUPPLY FOR PUMP MOTORS 2-3HP
4	"	"	"	"	SPARE BREAKER
5	"	"	"	"	SPARE BREAKER
6	"	NO. 4 - 3/4"	3 # 10	LIGHTING PANEL	
7	LIGHTING PANEL	NO. 5 - 1/2"	2 # 12	FAN MOTORS FOR UNIT HEATERS	CONNECT FANS & THERMOSTATS AS SHOWN
8	"	NO. 6 - 1/2"	2 # 12	PRESSURE CONTROL CABINET	FOR ALARM CIRCUITS ONLY - 115 V. A.C.
9	"	NO. 7 - 1/2"	3 # 12	LIGHTING CIRCUIT NO. 1	
10	"	NO. 8 - 1/2"	3 # 12	LIGHTING CIRCUIT NO. 2	
11	"	NO. 9 - 1/2"	3 # 12	RECEPTACLE CIRCUIT	
12	"	NO. 10 - 1/2"	2 # 12	ROOF MOUNTED VENT FAN	INSTALL MANUAL START SWITCH AT DOOR
13	RESERVOIR	NO. 11 - 1/2"	2 # 12	PRESSURE CONTROL CABINET	FOR LIQUID LEVEL ALARM
14	MAIN CIRCUIT BREAKER	NO. 12 - 1/2"	2 # 12	PRESSURE CONTROL CABINET	FOR ALARM CIRCUIT ONLY - 115 V. D.C.
15	MAIN CIRCUIT BREAKER	NO. 13 - 2"	3 # 10 # 10	POWER DISTRIBUTION PANEL	NO WIRE CONTINUOUS TO LIGHTING PANEL
16	PRESSURE CONTROL CABINET	NO. 14 - 3"	BY OWNER	PRESSURE RECORDING PANEL - SWGR. ROOM	CABLE TO BE SAME AS USED FROM GA. ST. TO MAIN ST.
17	PRESSURE CONTROL CABINET	NO. 15 - 1/2"	2 # 12	THERMOSTATS	FOR ABNORMAL ROOM TEMPERATURE



WIRING DIAGRAM FOR
VENT FAN



TYPICAL WIRING DIAGRAM FOR ROOM
HEATERS - 2 REQ.

SYMBOLS

- CEILING OUTLET
- ⊕ DUPLEX CONVENIENCE OUTLET
- ⊞ SINGLE POLE SWITCH
- LIGHTING PANEL
- ▨ POWER PANEL
- ⊞ MAIN CIRCUIT BREAKER
- ⊞ MAGNETIC CONTACTOR
- CONCEALED WIRING IN CEILING
- CONCEALED WIRING IN FLOOR
- EXPOSED WIRING
- ⊞ CEILING OUTLET - NUMERAL INDICATES CIRCUIT NUMBER - INTERIOR LETTER INDICATES SWITCHING CONTROL

PROJECT NO. 4543-126 W.O. NO. 1480-126-1947-CCN

REYNOLDS, SMITH AND HILLS
ARCHITECTS & ENGINEERS JACKSONVILLE, FLORIDA

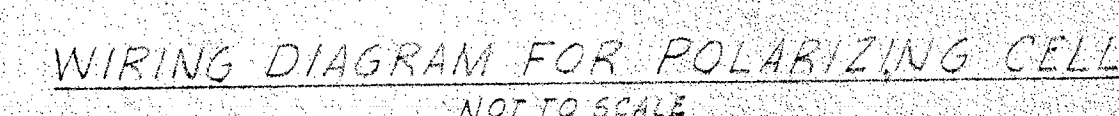
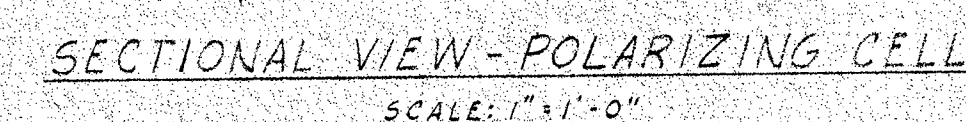
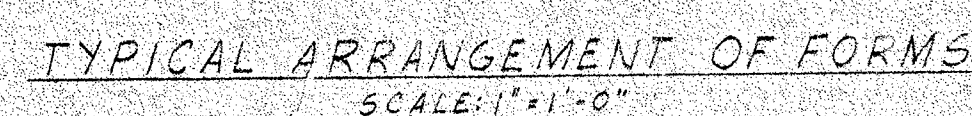
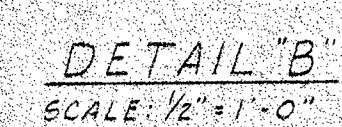
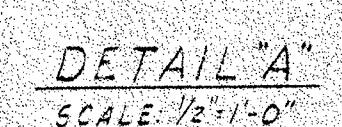
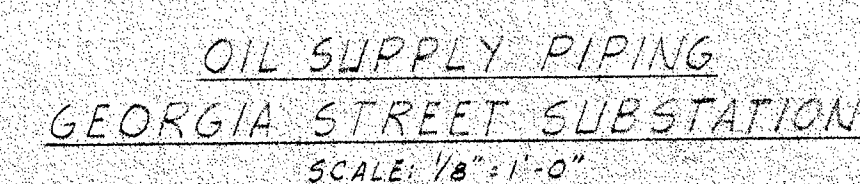
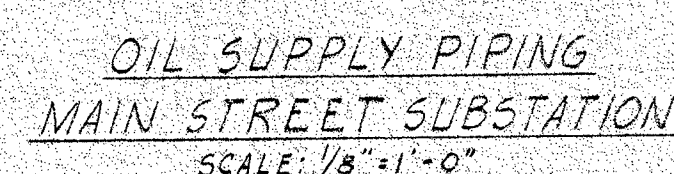
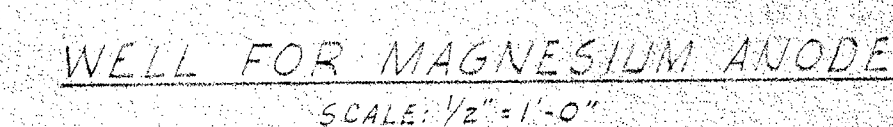
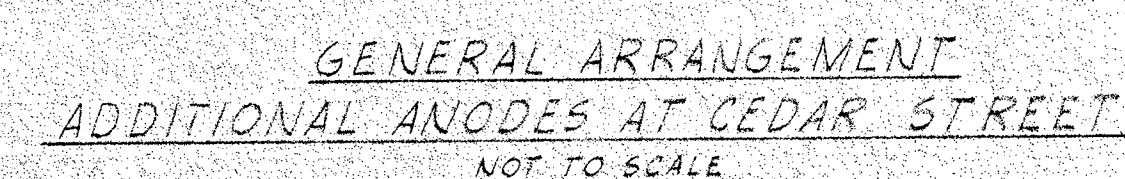
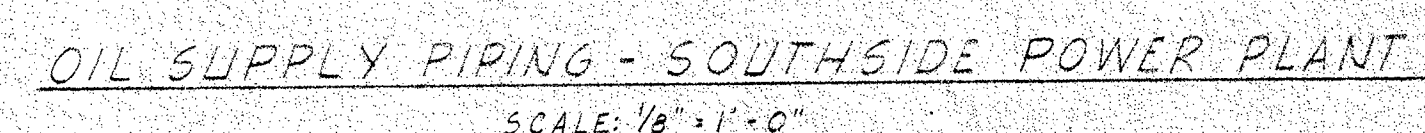
DEPARTMENT OF ELECTRIC & WATER UTILITIES
CITY OF JACKSONVILLE, FLORIDA
69 KY TRANSMISSION CABLES
GEORGIA ST. TO MAIN ST.

SCALE SHOWN
DATE JAN. 31, 1955

APPROVED FOR REYNOLDS, SMITH AND HILLS
FOR THE CITY OF JACKSONVILLE
DEPARTMENT HEAD
ENGINEER MANAGER

DRAWING NO.
4543-126
D580
SHEET 14 OF 14

REVISION	DESCRIPTION	DATE	BY	APPROVED



PROJECT NO. 4543-126			
REYNOLDS, SMITH AND HILLS			
ARCHITECTS & ENGINEERS		JACKSONVILLE, FLORIDA	
DRAWN <u>R.A.H.</u> TRACED <u>R.A.H.</u> CHECKED <u>R.W.H.</u> SCALE <u>SHOWN</u> DATE <u>MAR 7, '56</u>	DEPARTMENT OF ELECTRIC & WATER UTILITIES CITY OF JACKSONVILLE, FLORIDA <u>69KV TRANSMISSION CABLES</u> <u>GEORGIA ST. TO MAIN ST.</u> <u>CATHODIC PROTECTION EQUIPMENT</u>		
APPROVED FOR REYNOLDS, SMITH AND HILLS			
FOR THE CITY OF JACKSONVILLE		DRAWING NO.	
DEPARTMENT HEAD	ENGINEERING DEPARTMENT	4543-126	
		D561	
DEPARTMENT HEAD	ENGINEER MANAGER	SHEET	OF
0			