	<b>City Of Goodyear</b>	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	<b>Request for Qualifications Design-Build Pre-Construction Phase</b>	

**Solicitation Number:** 17-3977

**Project Number:** WA-1710

**Materials and/or Service:** Site 12 Treatment Expansion and site work, 2 New Production Wells, and Reservoir

**Solicitation Due Date:** **July 11, 2017**      **Time:** 3:00 pm (Arizona Time)

**Mailing Address:** City of Goodyear, City Hall Front Desk  
190 North Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338

**Procurement Officer:** Victoria Jackson, CPPB  
**Phone:** (623) 882-7845  
**Email:** [Victoria.jackson@goodyearaz.gov](mailto:Victoria.jackson@goodyearaz.gov)

All Offers must be received by the City of Goodyear, City Hall Front Desk, at the specified location by the date and time cited above. Late Offers will not be considered. Offers received by the correct date and time shall be publicly opened and read. Offerors are advised to carefully read the entire Solicitation Package. Offers that do not comply with all Instructions to Offerors may be disqualified.

Offerors must register as a vendor with the City of Goodyear at <https://procurement.goodyearaz.gov/bsol> to obtain a solicitation packet. Solicitation packages can be obtained by downloading from the City of Goodyear's website: [www.goodyearaz.gov](http://www.goodyearaz.gov) and following these instructions: Enter City website, click on BUSINESS, click on Vendor Services/Procurement, click on Solicitations for Bids/Proposals, click on RFQ 17-3977. Should you experience problems downloading the solicitation, contact Victoria Jackson, CPPB at the above email address.

Attendance at the Pre-Offer Conference is non-mandatory. Offerors are also strongly encouraged to read entire solicitation prior to Pre-Offer Conference. Copies of the solicitation will not be handed out at the Pre-Offer Conference.

**Pre-Offer Conference:** **June 14, 2017, 10:00 a.m. – Noon (Arizona Time)** **Pre-Offer Location:**

City of Goodyear Public Works  
Conference Room 104 – Training Room  
4980 S. 157th Ave  
Goodyear, AZ 85338

All communications concerning this solicitation must be directed to responsible Procurement Officer identified above, via email only. Communications with other city staff may disqualify you from the evaluation process.

**OFFERORS ARE STRONGLY ENCOURAGED TO READ THE ENTIRE SOLICITATION.**

Published in the Arizona Republic Southwest Section on: 5/31, 6/2, 6/7, and 6/9/17





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
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#### **SECTIONS**

#### **PAGE**

Notice Page	1
Table of Contents	2
Section I - General Information	3
Section II - Statement of Qualifications Requirements	6
Section III - Statement of Qualifications Organization and Format	8
Section IV - Statement of Qualifications Evaluation Criteria	10
Section V - Evaluation and Selection Process	10
Section VI - Additional Information	11
Section VII – Standard Terms and Conditions	13
Section VIII - Special Terms and Conditions	24
Offer and Acceptance	27

#### **ATTACHMENTS**

A	Non Collusion Affidavit	28
B	Similar well site exhibit	29
C	Site 12 Existing Conditions	30
D	Approx. locations of new wells	33

#### Remaining attachments available under separate cover:

E	Site 12 As-built drawings
F	Well 12B Reservoir Fill Line
G	2016 Radio Path Study
H	City Fiber Optic Interconnect System





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
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## **SECTION I – GENERAL INFORMATION**

### **INTRODUCTION**

The City of Goodyear, ("City") is seeking Statements of Qualifications (SOQ's) from Arizona licensed Contractors for complete Design-Build Services including Design, Design Review/Value Engineering, permitting and regulatory assistance and Construction Services for the above referenced project.

The Owner's initial construction budget for this project is currently estimated at \$ 20,000,000. This is an approximate estimate. Actual available construction funding will be determined during the design phase of this project.

### **1. BACKGROUND**

The City currently relies entirely on groundwater pumping to meet its physical water demands. A recent evaluation of the water distribution system determined that the system lacks sufficient redundancy in production, pumping, and storage capacity to meet current and future demands. The City has identified the need to increase the water supply in its portfolio to not only accommodate future growth, but to fill an immediate need to increase the firm supply (or supply with the highest producing well offline) in order to at least meet the peak day demands.

The Site 12 Water Facility has been identified for expansion. It is located on City owned land generally west of Cotton Lane and south of Lower Buckeye. The current facilities include 2.0MG water reservoir, reverse osmosis, ("RO") treatment, and booster pumps. This site will be expanded to the south and additional storage, treatment and pumping capacity will be added to the site, and two new wells will be constructed nearby.

### **2. PROJECT DESCRIPTION**

2.1 The project will generally consist of:

- 2.1.1 Complete design services for the proposed improvements to include:
  - a. Two new wells with an assumed depth of 500'BGS and a pumping rate of 1500GPM;
  - b. RO treatment upgrades at Site 12 for additional capacity;
  - c. RO treatment facility building at Site 12. New or pre-fabricated;
  - d. Booster upgrades at Site 12 for additional capacity;
  - e. New 2MG reservoir at Site 12, directly south and adjacent to existing reservoir;
  - f. New and/or modifications to existing brine line and sewer connection;
  - g. Misc. demolition;
  - h. Earthwork and site grading;
  - i. New site perimeter fencing;
  - j. Water design report and other technical reports;
  - k. Well development;
  - l. May include drilling of well pilot holes;
  - m. Other alternatives as may be developed during design;
  - n. Modifications to SCADA control and associated electrical improvements.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
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- 2.1.2 Permitting and regular assistance and support.
  - 2.1.3 Construction of all improvements
  - 2.1.4 Startup and commissioning phase of all improvements.
- 2.2 The general description of each project element include:
- 2.2.1 New COG24 Well- to be located south of Lower Buckeye Rd and west of the Flood Control channel west of Cotton Lane. The transmission main from the well site to Site 12 is being installed by others.
  - 2.2.2 New COG25- to be located on land west of 175<sup>th</sup> Avenue and north of Broadway Road. The new well will be located on land acquired by a development agreement. The transmission main from the well site to Site 12 is being installed by others.
  - 2.2.3 Expansion of Site- 12 to the south including earthwork, excavation, demolition of the existing fence. The expansion area will be located on land acquired by a development agreement. The design of the site expansion will account for the additional 2.0MG water reservoir.
  - 2.2.4 Additional reverse osmosis- the current RO treatment capacity is 1.0MGD. (Two skids @ 0.5MGD capacity each.) The City desires:
    - a. To expand the capacity to accommodate the additional wells and be designed with redundancy in case of a malfunction and for maintenance.
    - b. To explore options for housing the existing and future RO skids in new fully enclosed structure.
    - c. To allow for blending and/or bypass.
    - d. Blending options to reduce RO treatment are highly desirable.
    - e. To explore other types of skids and/or manufacturers. The new additional treatment does not necessarily have to match the existing equipment.
  - 2.2.5 Increase Booster Capacity- the existing booster pumps capacity is 2,000 gpm. The desired capacity is 4,800 gpm.
  - 2.2.6 Site layout and improvements- generally consistent with City Standard Detail G-3364 and with City Approved Materials List (both available on the City's webpage) The new perimeter fence and landscaping of Site 12 will generally match the new El Cidro development architectural features.
  - 2.2.7 Well development- consistent with City Engineering Design Standards Chapter 5.
  - 2.2.8 Preferred well equipment- common to both well sites:
    - a. Site perimeter fencing and landscaping similar to, but not necessarily exactly like, the fencing depicted in exhibit 1;
    - b. VFD vertical turbine pumps;
    - c. LAKOS or similar separator;
    - d. Transfer Switch for portable emergency generator with quick connections to match existing City equipment;
    - e. Chlorine injection or onsite chlorine generation;
    - f. Surge protection as needed;
    - g. Pre-treatment of raw water at Site 12 to minimize RO treatment;
    - h. Electrical and SCADA as required.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
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Phone: 623-882-7845

2.2.9 New Reservoir- 2.0MG epoxy coated welded steel reservoir generally similar in size and dimension to the existing reservoir and in conformance with AWWA D-100-most recent revision.

2.2.10 Existing SCADA- communications from Site 12 to the Public Works SCADA control room located at 4980 S. 157<sup>th</sup> Ave. is via radio communications. A recent radio path study was completed and is available. The City desires to review the radio path study with the Design-Builder and explore the possibility of converting to fiber optic communications if practical, feasible and cost-effective. An exhibit of existing locations of fiber optic lines and empty conduit is available.

### 3. **PROJECT SCHEDULE**

Design-Builder Pre-construction Phase Services Contract award	August 2017
Construction Phase Guaranteed Maximum Price (GMP) contract award	October 2017
Project Construction Documents complete and approved for permits	October 2017
Construction NTP	October 2017
Project completion	June 2018

### 4. **SCOPE OF WORK**

4.1 Overview. The Design-Builder will be chosen through a qualifications based selection process. The successful Design-Builder will enter into separate agreements with the City for each project phase.

4.2 Pre-Construction Phase. During the Pre-Construction Phase the Design-Builder may be required to but is not limited to the following:

- 4.2.1 Provide detailed independent cost estimating and knowledge of marketplace conditions;
- 4.2.2 Prepare a complete and comprehensive set of construction plans and specifications;
- 4.2.3 Provide alternate systems evaluation and constructability studies;
- 4.2.4 Advise City of ways to gain efficiencies in project delivery;
- 4.2.5 Provide long-lead procurement studies and initiate the discussion for procuring of long-lead items;
- 4.2.6 Assist in the permitting processes;
- 4.2.7 Protect the City's sensitivity to quality, safety, and environmental factors.
- 4.2.8 Provide detailed water report consistent with ADEQ and City engineering guidelines and requirements.

4.3 Construction. The Construction phase services by the Design-Builder may include but will not be limited to the following:

- 4.3.1 Complete construction of the facility in accordance with plans and specifications;
- 4.3.2 Coordinate with various City departments, other agencies, utility companies, etc.;
- 4.3.3 Arrange for procurement of materials and equipment;
- 4.3.4 Schedule and manage site operations;
- 4.3.5 Bid, award, and manage all construction related contracts;
- 4.3.6 Provide quality controls;
- 4.3.7 Bond and insure the construction;
- 4.3.8 Address all federal, state and local permitting requirements;
- 4.3.9 Address Owner concerns and issues;
- 4.3.10 Maintain a safe work site for all project participants.
- 4.3.11 Abandonment of an existing agricultural well near COG 25.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

#### 5. **THE USE OF DESIGN-BUILD PROCESS**

**The City reserves the right to complete or cancel any project phase in whole or in part.**

The City intends to select a Design-Builder contractor through a procurement process pursuant to A.R.S. § 34-603 and wishes to employ the Design-Builder project delivery process to encourage a creative, value engineering approach through the interactive efforts of an experienced, highly motivated team. The Design-Build process is expected to foster a cooperative owner-designer-contractor effort to review design documents, to identify potential value engineering opportunities and to complete construction of the improvements. The City will encourage the development of creative options to maximize the value of the product received.

The City's primary objective in utilizing the Design-Build approach is to bring the best available construction experience and expertise together to meet the budget and schedule challenges presented by this project and to work flexibly, cooperatively and successfully with the City and Contractor.

The Contractor shall provide an accurate project delivery schedule, maintain delivery per the approved schedule, optimally use available budget and successfully perform quality construction of this project.

The City will employ a Phased Delivery Approach. Phase 1 services include all engineering, design and cost-model development services to bring the design to approximately 90%. The Design-Builder will develop a Guaranteed Maximum Price for Phase 2. Phase 2, if exercised by the City, will encompass completing the final design, permitting and regulatory assistance, construction services and all other services necessary for successful completion of the project.

#### **SECTION II – STATEMENT OF QUALIFICATIONS REQUIREMENTS**

##### 1. **GENERAL REQUIREMENTS**

Responses to this Request for Qualifications ("RFQ") must be in the form of a Statement of Qualifications ("SOQ"), as outlined in this RFQ and as allowed by A.R.S. § 34-603(C). Submittals must be clear, concise, organized as indicated in the outline in Section III and shall include all identified sections. If in the judgment of the City, a SOQ does not conform to the format specified herein, or if any section is absent or significantly incomplete, the City reserves the right to reject the submittal.

Interested firms are required to submit information relative to their qualifications, experience, project understanding and approach, ability to meet the Project's goals and other listed criteria. All requested information must be provided regarding required submittals and key personnel for this Project. *Responses must be made within the appropriate evaluation criteria section for points to be applied.*

Wherever the word "Contractor" is used in this RFQ, it shall mean each or any of the individuals, firms, partnerships or corporations submitting a SOQ for performance of the solicited DESIGN-BUILDER services.

##### 2. **PRE-OFFER CONFERENCE**

A Pre-Offer Conference will be held. Attendance at the scheduled Pre-Offer Conferences is non-mandatory. The date, time and location of the conference are indicated on the Notice page of this document. The purpose of this conference will be to clarify the contents of this





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

solicitation in order to prevent any misunderstanding of the City's position. Any doubt as to the requirements of this solicitation or any apparent omission or discrepancy should be presented to the City at this conference and in writing via e-mail. The City will then determine if any action is necessary and will issue a written amendment to the solicitation. *Oral statements or instructions will not constitute an amendment to this solicitation.*

A non-mandatory site visit will immediately follow the Pre-offer conference. No other arrangements for site visits will be accommodated.

#### 3. **INQUIRIES**

Any questions related to the solicitation shall be directed to the responsible Procurement Officer whose name appears on the Notice page **via email only**. The Contractor shall not contact or ask questions of other City staff or the City department for which the requirement is being procured. Any correspondence related to a solicitation should refer to the solicitation number, page, and paragraph number. All questions must be submitted no later than the close of business five (5) calendar days prior to the opening date.

#### 4. **PANEL CONTACT**

Contractor shall have no exclusive meetings, conversations or communications with an individual evaluation panel member on any aspect of the solicitation, after submittal.

#### 5. **PREPARATION OF OFFER**

- a. It is the responsibility of all Contractors to examine the entire solicitation package and seek clarification from the responsible Procurement Officer of any item or requirement that may not be clear, and to check all responses for accuracy before submitting an offer.
- b. All offers shall be on the forms provided in the solicitation package. It is permissible to copy these forms if required. Telegraphic (facsimile) or email bids will not be considered.
- c. The Offer and Acceptance document shall be returned with the submittal with an original blue ink signature by a person authorized to sign the Offer. Pricing documents and other documents which require information to be filled in must be done in ink, typewritten or computer printed. No Offers will be accepted if pencil is used. Erasures, interlineations, or other modifications in the Offer shall be initialed in original blue ink by the authorized person signing the Offer.
- d. It is the Contractor's responsibility to obtain a copy of any addenda relevant to this solicitation. Failure to submit addenda with the solicitation response may be grounds for deeming a bid non-responsive.
- e. Offers shall be submitted in a sealed envelope provided by the Contractor, and should include the Contractor's name, address and solicitation number on outside of the sealed envelope/package.
- f. Periods of time, stated as a number of days, shall be calendar days.
- g. It is the responsibility of the Contractor to submit the offer at the place and by the time provided in the solicitation.
- h. Negligence in preparing an offer confers no right of withdrawal after the due date and time of the offer. No offer shall be altered, amended, or withdrawn after the specified offer due date and time.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

- i. The City shall not reimburse the cost of developing, presenting, or providing any responses to this solicitation. Offers submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner.

## **SECTION III – STATEMENT OF QUALIFICATIONS ORGANIZATION AND FORMAT**

### **1. GENERAL**

The Statement of Qualifications (“SOQ”) should present clearly and accurately the experience, knowledge and capability of the Contractor by providing a brief, straightforward, concise description of the Contractor’s ability to meet the requirements of this RFQ. SOQ emphasis should be on quality, completeness, clarity of content and responsiveness to the requirements.

### **EACH CONTRACTOR MUST SUBMIT SEVEN COPIES OF THE STATEMENT OF QUALIFICATIONS**

The SOQ should be fully self-contained, follow the format outlined below and be without addenda. Presentations within the statement should reflect consideration of the specific evaluation criteria identified in Section IV, Evaluation Criteria.

### **2. FORMAT**

The Selection Committee will evaluate responses based on the SOQ information provided by the Contractors. To allow for a standard basis of evaluation, all SOQs are required to follow the following format.

Contractors shall submit (1) original, marked “original” and seven (7) copies of their SOQ. The SOQ shall not exceed fifteen (15) pages total in length excluding front and back cover pages, cover letter, title page, table of contents, section dividers, signed transmittal letter, *Affidavit of Non-Collusion* and any addenda issued. Pages shall be single-sided 8 ½” x 11”, except one page may consist of an 11” x 17” foldout. Font size shall be no less than 11 point.

**Do not include any design concepts, fees, man-hours or pricing related to this project with the SOQ submittal.** These materials will not be considered and failure to comply with this provision may result in the rejection of the submittal.

Contractors MUST SUBMIT A SIGNED COPY OF THE NON-COLLUSION AFFIDAVIT WITH THEIR SOQ. The affidavit is contained in this RFQ as **Attachment A**.

### **3. ORGANIZATION**

The information provided herein has been provided to Contractors as a guide to addressing items in your response. SOQ’s should contain direct responses to the following requests for information and be organized so that they are readily identifiable. Responses should be thorough and detailed as possible so that the firm’s capabilities may be properly evaluated and shall, at a minimum, contain the following information:





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

#### 3.1 Cover:

The cover at a minimum must contain the following data:

- Statement indicating response to: RSOQ 17-3977  
Site 12 Treatment Expansion and Site Wells Work, 2 New Production Wells and Reservoir  
Attn: Victoria Jackson, CPPB, Procurement Officer  
City of Goodyear, Purchasing  
190 N. Litchfield Road  
Goodyear, AZ 85338

#### 3.2 Title Page (one page maximum):

Include company name, addresses, email/website addresses, phone numbers, fax numbers and names (s) of Principals.

#### 3.3 Cover Letter (one page maximum):

Provide a cover letter on the Contractor's company letterhead identifying the Contractor and include an expression of the firm's interest in being selected. Include a brief narrative that summarizes the background and distinguishing qualities or capabilities that uniquely qualify the Contractor for this project. Identify the contact person for the firm's submittal and confirm the availability of the key personnel identified in the SOQ.

3.3.1 List Principal Office location and describe local office work role;

3.3.2 Number of employees;

3.3.3 Length of time your firm has been in business;

3.3.4 Areas of specialty.

This information should also be provided for all firms that make up the team.

3.3.5 Specifically state that:

3.3.5.1 Reasonable diligence has been exercised in the preparation of the SOQ and that all contents are true, accurate and complete, to the best of the signer's knowledge.

3.3.5.2 That no exceptions are taken to the contents of the RFQ and DESIGN-BUILDER Agreement or;

3.3.5.3 Specifically identify and explain any RFQ or DESIGN-BUILDER Agreement item to which an exception is taken.

*Note: Exceptions taken may render an SOQ nonresponsive and exceptions taken may be considered in scoring the SOQ under relevant scoring criteria.*

This letter is to be signed by the individual with authority to bind the Contractor contractually. Please address the letter to the Procurement Officer identified on the Notice page.

#### 3.4 Table of Contents:

The Table of Contents shall include all listed SOQ sections. Please separate and tab each section.

#### 3.5 Required Information:

If selected as a finalist for this Project, the firm will be required to provide a statement from an 'A' minus rated or better Surety Company describing the firm's bonding capacity,





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

commensurate with the project estimate.

- 3.6 The following shall be included in the SOQ, in a separate tab titled "Appendix", placed at the end of the SOQ, and will not be part of the page count.

3.6.1 Provide a list of current licenses by state, including type, category and number.

3.6.2 List both Arizona professional and Arizona contractor licenses held, including license numbers and note whether licenses are held by the firm, individuals or sub-consultants.

3.6.3 For the proposed DESIGN-BUILDER team, provide a maximum two (2) page resume for each team member and key individuals that will be directly involved in the project. Briefly describe their experience with similar projects, number of years with the firm and their length of experience in their respective industry.

#### 4. **GROUND'S FOR DISQUALIFICATION**

Please be advised that the following will be grounds for disqualification, and will be strictly enforced:

4.1 Receipt of submittal after the specified cut-off date and time.

4.2 Too few copies of the submittal.

4.3 Violating the "Contact with City Employees" contained in this RFQ.

#### **SECTION IV – STATEMENT OF QUALIFICATIONS EVALUATION CRITERIA**

A firm will be selected through a qualifications based selection process based on the following criteria:

##### 1. **PROJECT UNDERSTANDING AND APPROACH (400 points)**

- Discuss the major issues your team has identified on this project and how you intend to address those issues;
- Discuss your team's approach to providing the services in Section I - Project Description and Scope of Work. Include approach and experience with DESIGN-BUILDER projects;
- Describe your team's project management approach and team organization during design and construction phase services. Describe system used for planning, scheduling and estimating. Briefly describe the firm's experience in quality control, dispute resolution, and safety management.

##### 2. **EXPERIENCE OF KEY PERSONNEL AND SUBCONTRACTORS (300 points)**

Discuss the experience and qualifications of your selected project team members for projects of comparable character, size, budget and complexity, particularly the Project Manager, Project Architect and the managers of the key disciplines, including subcontractor experience. Describe your approach to overall team formation and coordination of design team members and provide an organizational chart. Resumes, not to exceed two (2) pages in length per team member should be included in the Appendix.

For each key person identified, list their length of time with the firm and at least two (2) comparable projects in which they have played a primary role. If a project selected for a key person is the same as one selected for the firm, provide just the project name and the role of the key person. For other projects provide the following:





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

- a. Description of project;
- b. Role of the person;
- c. Project's budget;
- d. Construction dates;
- e. Project Owner (include reference contact information).

### 3. **EXPERIENCE OF THE PRIME FIRM (200 points)**

Discuss the prime firm's experience and qualifications in providing design and construction administration services on at least five (5) similar facilities, including size, budget and complexity. For each project listed provide:

- a. Description of the project;
- b. Role of the firm;
- c. Team members and role;
- d. Project owner (include reference contact information);
- e. Project Designer/Architect (include reference contact information);
- f. Original budget, size, contracted construction cost, and final construction costs of the project;
- g. Construction dates;
- h. Specific municipal experience similar to scope provided;
- i. Overall ability of firm to provide required services;
- j. Provide at least three (3) general references.

### 4. **SUBCONTRACTOR SELECTION PLAN (100 points)**

- a. Describe the firm's plan to select and engage major Subcontractors and major suppliers to complete the project work. As a minimum, describe which tasks the firm proposes to perform with its own forces and which major tasks will be executed by subcontractors.
- b. Identify proposed selection method to be used in selecting key Subcontractors and suppliers. Methods available are either by qualifications-based selection only or by a combination of qualifications and price.
- c. Identify which key Subcontractors, if any, are proposed to be selected early in the design process to engage with the design team in a design assist role, with justification to support that recommendation.
- d. Identify your team's familiarity with City of Goodyear procedural requirements and/or local issues pertinent to this project, which enhances your qualifications to successfully perform pre-construction design services for this project.

## **SECTION V – EVALUATION AND SELECTION PROCESS AND SCHEDULE**

### 1. **OVERVIEW**

This is a qualifications-based selection process as authorized by A.R.S. § 34-603. The initial activity will involve an evaluation and scoring of each Contractor's qualifications and relevant experience, as indicated in its SOQ. Negotiations will commence with the highest ranked firm on the Final List in accordance with A.R.S. § 34-603(E) and will proceed as set forth therein; or the solicitation may be cancelled pursuant to A.R.S. § 34-603.

### 2. **QUALIFICATION FOR EVALUATION**

To qualify for evaluation, the SOQ must have been submitted on time and materially satisfy all requirements identified in this document.

### 3. **EVALUATION PANEL**

Submittals will be evaluated by an evaluation panel. Award shall be made to the responsive, responsible Offeror whose SOQ is determined to be the most advantageous to the City.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
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#### 4. **SOQ EVALUATION AND RANKING PROCESS**

The City intends to award a Contract to the most qualified Contractor based on demonstrated competence and qualifications. SOQ submittals that materially satisfy the requirements of this RFQ will be evaluated by the Selection Committee and awarded points for each stated criteria item as follows:

	<u>Maximum Achievable Points</u>
1. Specific experience of the firm with comparable water design and construction projects	200
2. Experience of the proposed project team and availability, within current and anticipated workload, for this project	250
3. Proposed project approach, to include a detailed discussion and identification of areas that will require special attention	250
4. Overall quality of the SOQ, evidencing interest in the project	150
5. Knowledge and experience with City of Goodyear rules, regulations, procedures and local / regional construction conditions including subsurface and geophysical conditions	<u>150</u>
	Total Available Points 1000

#### 5. **INTERVIEWS**

Following evaluation of the Proposals and Statements of Qualifications, a shortlist of at least three but not more than five (3-5) firms may be determined based upon the composite score of Evaluation Panel members. A presentation-interview session with each of the top ranked firm(s) may comprise the second half of the evaluation/selection process, if deemed necessary by the City. In the presentation-interviews, candidate firms will be required to demonstrate their understanding and familiarity with the scope, location, and other aspects of this project. The Evaluation Panel members will have the opportunity to discuss questions regarding the firms' submittal and presentation at that time. Criteria and weighting for evaluation of the presentation-interviews are as follows:

	<u>Maximum Points Achievable</u>
1. Observation of Existing Conditions and Grasp of Key Project Information	200
2. Identification of Issues or Problems That will Need to be Considered	250
3. Approach to Planning and Construction including Innovative Ideas	300
4. Experience and Capabilities for performing DESIGN-BUILDER design and construction phase services	100
5. Define Why Their Firm Should be Engaged	75
6. Overall Quality of Presentation/ Interview	<u>75</u>
	Total 1000

It is highly recommended that candidate firms visit the project site. The City reserves the right to proceed to Final Ranking based on the Proposals and Statements of Qualifications submitted without conducting Interviews.

#### 6. **FIRM SELECTION**

The City reserves the right to proceed to Final Ranking based on the Statements of Qualifications without conducting Interviews. If Interviews are held, The Evaluation Panel members may also consider information from the Statements of Qualifications. The Evaluation





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
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Goodyear, AZ 85338  
Phone: 623-882-7845

Panel members will then formulate a consensus ranking, notify each of the candidate firms of the final rankings and meet with the top-ranked firm for the purpose of initiating contract negotiations. If negotiations are unsuccessful, the City will terminate negotiation efforts and open negotiations with the 2nd ranked firm. This process will continue until negotiation efforts are successful.

#### 7. **SCHEDULE**

The following tentative schedule has been prepared for this project.

Pre-submittal conference	June, 2017
SOQ due date	July, 2017
Contractor Selection	August, 2017
Anticipated Award of Contract (Pre-construction Phase Services)	August, 2017

### **SECTION VI – ADDITIONAL INFORMATION**

#### 1. **INSTRUCTIONS**

The City shall not be held responsible for any oral instructions. Any changes to this RFQ will be in the form of an addendum to the SOQ. The addenda's if applicable are available via download from our City of Goodyear website.

#### 2. **CITY RIGHTS**

The City reserves the right to reject any or all SOQ's, to waive any informality or irregularity in any SOQ received, and to be the sole judge of the merits of the respective SOQ received.

#### 3. **CONTACT WITH CITY EMPLOYEES**

Beginning on the date the RFQ is issued and until the date the contract is awarded or the RFQ withdrawn, all persons or entities that respond to the RFQ, including their authorized employees, agents, representatives, proposed partner(s), subcontractor(s), joint venture(s), member(s), or any of their lobbyists or attorneys (collectively the Contractor), will refrain from any direct or indirect contact with any person (other than the designated Purchasing Officer) who may play a part in the selection process, including members of the evaluation panel, the City Manager, Assistant City Manager, Deputy City Managers, Department heads, the Mayor and other member of the Goodyear City Council. As long as the RFQ solicitation is not discussed, Contractors may continue to conduct business with the City and discuss business that is unrelated to this RFQ solicitation with City staff.

#### 4. **RESERVATION OF RIGHTS**

There shall be no express or implied intent to contract until expressly stated in writing by the City, an award is made, and all conditions stated herein are satisfied. The City reserves the right to reject any or all SOQs, or to withhold the award for any reason it may elect, and to waive or decline to waive irregularities in any proposal.

### **SECTION VII – STANDARD TERMS AND CONDITIONS**

#### 1. **SERVICES PROVIDED BY CONTRACTOR**

1.1 Scope of Work Contractor shall provide those "Services" described in the Scope of Work. Additional Services, which are outside the scope of basic services contained herein shall not be performed by Contractor without prior written consent of the City. Authorized additional Services shall be compensated for by a fee mutually agreed upon between the





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

City and Contractor.

- 1.2 Professional Practices. All Services shall be provided by personnel experienced in their respective fields and in a manner consistent with the standards of care, diligence and skill ordinarily exercised by professionals in similar fields and circumstances in accordance with sound professional practices. Contractor is responsible for knowing and complying with all applicable laws, rules, and regulations, including all applicable building regulations, license and permits requirements.
- 1.3 Performance to City's Satisfaction. Contractor agrees to perform all Services required by this Contract to the complete satisfaction of the City and as required herein. If the quality of work is not satisfactory to the City, in addition to any and all other remedies available by law, the City in its discretion has the right to do any or all of the following: (i) Meet with Contractor to review quality of work and resolve the matters of concern; (ii) Require Contractor to repeat the work at no additional fee until it is satisfactory to the City; and/or (iii) Terminate the Contract as provided herein.
- 1.4 Investigation. Contractor warrants and agrees familiarity of the work is required to perform the Services, is satisfied as to the conditions under which it is to be performed, is competent to perform the Services and enters into this Contract based upon the Contractor's own investigation.

## 2. **COMPENSATION AND BILLINGS/PAYMENTS**

- 2.1 Compensation. Contractor's total compensation, including those Services furnished by its Subcontractors, shall not exceed the amounts offered by Contractor in the Fee Schedule.
- 2.2 Method of Billing. Contractor will invoice City by the 10th day of each month for Services provided during the prior month. Invoices shall contain itemized hourly fees and specifically describe the Services performed, the name of the person(s) performing the Services, and supporting documentation.
- 2.3 Review and Withholding. City's Project Manager shall review invoices to certify payment requests. If an invoice is rejected, the City Project Manager will issue a notice of the items not approved for payment. If during the course of the Contract, Services performed do not meet the requirements set forth in the Contract, Contractor shall correct or modify the work to comply with the Contract requirements and the City shall have the right to withhold payment for such work until Contractor complies with the requirements of the Contract to the reasonable satisfaction of the City.
- 2.4 Payment. City shall pay Contractor within 30 days from the date the City receives a complete, correct and approved invoice.
- 2.5 Advance/Late Payments. Advance payments are not authorized. The City will not honor any invoices or claims which are tendered more than one (1) year after the last item of the account accrues.
- 2.6 Fund Appropriation Contingency. Funds may not presently be available for performance under this Contract beyond the City's current fiscal year starting July 1 and ending on June 30<sup>th</sup> of the following year. If payment for Contract Services extends into a new fiscal year, the City's obligation to pay for such performance is contingent upon approval of future appropriations by City Council to fund this Contract. The City shall have no legal liability





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
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P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

to pay funds due for performance under the terms of the Contract until and unless such funds are appropriated.

- 2.7 Free on Board ("FOB") Destination. All prices are F.O.B final destination, unless otherwise provided.
- 2.8 Taxes. Contractor is solely responsible for any and all tax obligations that may result from Contractor's performance of this Contract.

### 3. **PROJECT TEAM/SUBCONTRACTORS/CITY PROJECT MANAGER**

- 3.1 Project Team Selection. Prior to the start of any Services, Contractor shall provide the City detailed resumes of the proposed project manager, team members, and all subcontractors Contractor wishes to assign or use to perform the Contract Services for review and final approval by the City. Contractor will maintain an adequate and competent staff of qualified persons with sufficient training, knowledge and experience consistent with applicable standards as required by this Contract. The project manager shall be responsible for and supervise all project team members and any other employees and subcontractors assigned by the Contractor. Contractor agrees that, once assigned to work under this Contract, the project manager and team shall not be removed or replaced without prior written consent of the City.
- 3.2 Discharge, Reassign, Replacement. Contractor will not discharge, reassign, replace or diminish the responsibilities of any team member approved by the City without City's prior written consent unless that person leaves the employment of Contractor, in which case the substitute must be approved by the City. Contractor will promptly remove any project team member at the City's request if that member's performance does not equal or exceed the level of competence the City may reasonably expect of a person performing those duties or if the City reasonably believes the acts or omissions of that person are detrimental to the development of the Project.
- 3.3 Coordination; Interaction. Contractor's project team are expected to work in close consultation and cooperation with all professionals working on the Project.
- 3.4 Subcontracts. Contractor shall not enter into any subcontract for the performances of any Service for this Contract without the prior approval of the City's Project Manager. Contractor shall identify all proposed subcontractors and subcontractor's proposed responsibilities. All subcontracts shall incorporate by reference all terms and conditions of this Contract. Contractor is solely responsible for the performance and payment of its subcontractors.
- 3.5 City Project Manager. The City will designate a City Project Manager to act on behalf of the City during the term of this Contract. The City Project Manager has the authority to administer this Contract and shall oversee and monitor compliance with all Contract terms and conditions. All requests for information or decisions to be made by the City for this Contract shall be directed to the City Project Manager.

### 4. **LICENSING, DEBARMENT AND SUSPENSION**

- 4.1 Licensing/Permits. Contractor warrants and certifies that Contractor and its Subcontractors will maintain valid licenses, registrations, permits, and other approvals necessary to perform the Services required under this Contract ("Approvals"). Contractor





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

shall immediately advise the City in writing of any change in information provided by Contractor or its subcontractors as it relates to any Approvals. Noncompliance with this provision is a material breach of Contract.

4.2 Debarment/Suspension. Contractor warrants and certifies neither Contractor nor any of its subcontractor(s):

4.2.1. Are presently debarred, suspended, proposed for debarment, declared ineligible or otherwise legally excluded from contracting with any federal, state or local government entity; and

4.2.2 Have not been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (federal, state or local) transaction or contract; violation of federal or state anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property within a three (3) year period preceding this Contract;

4.2.3 Are not, or have not been, indicted of or otherwise criminally charged by a governmental entity with the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing any public transaction or contract under a public transaction; violation of federal or state anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property, and

4.2.4 Have not had one or more public transaction (federal, state or local) terminated for cause or default.

4.3 City has no affirmative duty or obligation to confirm or deny the existence or issuance of any Approvals or Debarments, or to examine Contractor's contracting ability.

## 5. WORK PRODUCT/CONFIDENTIALITY/ENCRYPTION

5.1 Ownership of Intellectual Property. Any and all intellectual property, including but not limited to copyright, invention, trademark, trade name, service mark, and/or trade secrets created or conceived pursuant to or as a result of this Contract and/or any related subcontract ("Intellectual Property") shall be work made for hire and the City shall be considered the creator of such Intellectual Property. The City shall own the entire right, title and interest to the Intellectual Property throughout the world. Contractor shall notify the City, within 30 days, of the creation of any Intellectual Property by it or its subcontractor(s). Contractor, on behalf of itself and any subcontractor (s), agrees to execute any and all document(s) necessary to vest ownership of the Intellectual Property in the City and shall take no affirmative actions that may have the effect of vesting all or part of the Intellectual Property in any entity or person other than the City. If applicable, Contractor shall place the professional seal of Contractor on all plans and documents prepared in the performance of this Contract. This section is intended to apply to all original designs, plans and specifications exclusively developed for the City by Contractor and not intended to apply to standard details, systems and specifications developed and used by Contractor which shall remain the property of Contractor and may be used with other projects without City's consent. Contractor warrants, and agrees to indemnify, hold harmless and defend the City for, from and against any claim that any Work Product infringes on third-party propriety rights. It is expressly agreed by Contractor that the covenants in this section are





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

irrevocable and perpetual.

5.2 Confidential/Proprietary. All data, regardless of form, including originals, images and reproductions, prepared by, obtained by, or transmitted to Contractor in connection with this Contract are confidential, proprietary information owned by the City. Contractor shall not disclose data generated in the performance of the Services to any third person without the prior written consent of the City Manager.

5.2.1 Contractor, its employees and subcontractors, in the course of their duties, may have access to financial, accounting, statistical, and personnel data of private individuals and employees of the City. Contractor covenants that all such data, documents, discussion, or other information developed or received by Contractor or provided in performance of this Contract, whether electronic format or hard copy, are deemed confidential or restricted City information, and shall be secured and protected to avoid unauthorized access, and not be disclosed by Contractor, its employees or subcontractors without prior written authorization from the City.

5.2.2 At a minimum Contractor shall ensure all electronic transmissions of confidential data are encrypted and any cryptographic algorithm implementations used have been validated by the National Institute of Standards and Technology (NIST). The use of proprietary encryption algorithms will not be allowed for any purpose. The export of encryption technologies is restricted by the U.S. Government.

5.2.3 In the event that Contractor reasonably believes that any Confidential Data has been compromised, Contractor shall notify the City Attorney immediately. Contractor agrees to reimburse the City for any costs incurred by the City to investigate potential breaches of this data and, where applicable, the cost of notifying individuals who may be impacted by the breach.

5.2.4 Contractor agrees to comply with this section and the Information Technology Non-Disclosure Agreement attached hereto and incorporated herein by reference; noncompliance is a material breach of Contract.

5.3 City Use. City may reuse the Work Product provided by Contractor and its subcontractor pursuant to this Contract at its sole discretion. In the event the Work Product is used for another project or modified by the City without further consultation with Contractor, the City agrees to indemnify and hold Contractor harmless from any claim arising out of such use of the Work Product. In such case, City will also remove any seal and title block from the Work Product.

## 6. TERMINATION

6.1 Termination. The City may terminate this Contract in whole or in part, with or without cause and for any reason, including the City's convenience, upon thirty (30) days written notice to the Contractor.

6.2 Compensation. In the event of termination, Contractor shall immediately stop all work hereunder, and shall immediately cause any of its suppliers and subcontractors to cease such work. As compensation in full for Services performed to the date of such termination, the Contractor shall receive a fee for the percentage of services actually performed to the satisfaction of the City. This fee shall be in the amount mutually agreed upon by the Contractor and City, based on the Scope of Work and fee schedule. If there





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

is no mutual agreement, the City Project Manager shall determine the percentage of work performed for each task detailed in the Scope of Work, with Contractor's compensation based on such determination and the fee schedule included herein.

- 6.3 Acts of Insolvency/Other. The City may terminate this Contract immediately by written notice to Contractor if any of the following occurs: Contractor becomes insolvent; makes a general assignment for the benefit of creditors; suffers or permits the appointment of a receiver for its business or assets; becomes subject to any proceeding under any bankruptcy or insolvency law, foreign or domestic; is wound up or liquidated, voluntarily or otherwise; persistently or repeatedly refuses or fails to complete the work required herein; persistently disregards law, rules or regulations; or fails to make prompt payment to subcontractors for material or labor.
- 6.4 Documents/Work Product. In the event of termination of this Contract, all documents and work product prepared by Contractor pursuant to this Contract including, but not limited to, finished or unfinished design, development and constructions documents, studies, drawings, maps and reports, shall be delivered to the City within ten (10) days of the City's delivery of termination notice to Contractor, at no cost to the City. Any use of uncompleted documents without specific written authorization of Contractor shall be at City's sole risk and without liability or legal expense to Contractor.

## 7. REPRESENTATIONS/WARRANTIES

- 7.1 Warranties. Contractor warrants that all goods and Services provided under this Contract shall fully conform to the specifications of this Contract and all representations of the Contractor, and shall be fit for all purposes and uses required by the Contract.
- 7.2 Safety. Contractor shall take all necessary precautions for the safety of employees on the work site and shall comply with all applicable provisions of law, rules, and regulations. If applicable, Contractor shall erect and properly maintain at all time, as required by the conditions and progress of the work, all necessary safeguards for the protection of workers and the public and shall post signs warning against known or unusual hazards.
- 7.3 Responsibility for Errors. Contractor shall be responsible for its work and results under this Contract. Contractor, when requested, shall furnish clarification and/or explanation as may be required by the City's Project Manager regarding any Services rendered under this Contract at no additional cost to the City. In the event that an error or omission attributable to Contractor occurs, Contractor shall, at no cost to the City, provide all necessary design drawings, estimates and other professional services necessary to rectify and correct the matter to the sole satisfaction of the City.

## 8. CONTRACTOR REPRESENTATIONS

- 8.1 Compliance with law. Contractor, its employees and subcontractors shall provide all Services under this Contract in compliance with all applicable laws, rules, regulations, building codes, life safety codes, and other standards and criteria designated by the City.
- 8.2 Non-Discrimination. Contractor shall not discriminate against any person on the basis of race, color, religion, age, gender, or national origin in the performance of this Contract, and shall comply with the terms and intent of Title VI of the Civil Rights Act of 1964, P.L. 88-354 as amended; the Americans with Disabilities Act, the Immigration Reform and





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

Control Act of 1986, the Drug Free Workplace Act of 1989 and Arizona Executive Order 2009-09 as amended, in performing this Contract and to permit the City to verify such compliance.

- 8.3 E-Verify. Pursuant to the provisions of the Federal Immigration and Nationalization Act and A.R.S. § 41-4401, as amended, Contractor hereby warrants to the City that the Contractor and each of its subcontractors will comply with all federal immigration laws and regulations that relate to the immigration status of their employees and the requirement to use E-Verify set forth in A.R.S. § 23-214. The City may request verification of compliance from Contractor and any of its subcontractors under this Contract. The City reserves the right to confirm compliance. Should the City suspect or find that the Contractor or any of its subcontractors are not in compliance, the City may pursue any and all remedies allowed by law, including, but not limited to suspension of Services, termination of the Contract for breach or default, and suspension and/or debarment of the Contractor. All costs necessary for compliance shall be solely borne by the Contractor.
- 8.4 Evidence of lawful presence in the United States. In accordance with A.R.S. §§ 1-501, 1-502, as amended, and as a condition of entering into this Contract, a natural person shall execute an affidavit, and present one of the identification documents identified by statute, verifying their lawful presence in the U.S. Failure to execute this affidavit upon submittal of the Contract documents shall be considered nonresponsive and shall result in rejection of the submitted response and automatic cancellation of this Contract. Companies, corporations, and limited partnerships (anyone other than an individual) are not required to complete and submit this form prior to receiving a public benefit.
- 8.5 Liens. Contractor shall hold the City harmless from claimants supplying labor or materials to the Contractor or its subcontractors in the performance of the Services required under this Contract. Contractor shall provide written certification that all liens against materials and labor have been satisfied before the City will make final payment.
- 8.6 Notice of Action/Suit. Contractor shall give the City prompt notice in writing of any action or suit filed, and prompt notice of any claim made against Contractor by any entity that may result in litigation related in any way to this Contract and/or which may affect the Contractor's performance under this Contract.
- 8.7 Advertising. Contractor shall not use, advertise or promote information for commercial benefit concerning this Contract without the prior written approval of the City Manager.
- 8.8 City Logos/Marks. Contractor shall not use any trade name, trademark, service mark, or logo of the City (or any name, mark or logo confusingly similar thereto) in any advertising, promotions, or otherwise, without the City's express prior written consent.
- 8.9 Public Records. Contractor acknowledges all Contract documents provided to the City may be subject to disclosure pursuant to Arizona Public Records laws.

## 9. RIGHTS/REMEDIES

- 9.1 Right of Assurance. Whenever one Party to this Contract in good faith has reason to question the other Party's intent or ability to perform, that Party questioning performance may demand that the other Party give a written assurance of this intent to perform. In the event that a demand is made and no written assurance is given within five (5) days, the demanding Party may treat this failure as an anticipatory repudiation of the Contract.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

- 9.2 Stop Work Order. The City may, at any time by written order to the Contractor, require the Contractor to stop all or any part of the work called for by this Contract for period(s) of days indicated by the City after the order is delivered to the Contractor. The order shall be specifically identified as a Stop Work Order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. If a stop work order issued under this clause is canceled or the period of the order or any extension expires, the Contractor shall resume work. The Procurement Officer shall make an equitable adjustment in the delivery schedule or Contract price, or both, and the Contract shall be amended in writing accordingly.
- 9.3 Non-Exclusive Remedies. The rights and remedies of the city under this Contract are non- exclusive.
- 9.4 Right of Offset. The City shall be entitled to offset against any sums due the Contractor, any expenses or costs incurred by the City, or damages assessed by the City concerning the Contractor's non-conforming performance or failure to perform the Contract, including expenses, costs and damages described in the Uniform Terms and Conditions.
- 9.5 Strict Performance. Failure of either Party to insist upon the strict performance of any item or condition of the Contract or to exercise or delay the exercise of any right or remedy provided in the Contract, or by law, or the acceptance of goods or Services, obligations imposed by this Contract or by law shall not be deemed a waiver of any right of either Party to insist upon the strict performance of the Contract.

## 10. GENERAL PROVISIONS

- 10.1 Modification. No supplement, modification, or amendment of any term of this Contract will be deemed binding or effective unless in writing and signed by the Parties with authority to do so.
- 10.2 Delegation and Assignment. No Party may delegate, assign, sublet or transfer any of its rights, or performance under this Contract, except with the prior written consent of the other Party which shall not be unreasonably withheld. Any purported assignment or delegation in violation of this Section is void.
- 10.3 Third Party Beneficiary. Nothing under this Contract shall be construed to give any rights or benefits in this Contract to anyone other than the City and the Contractor, and all duties and responsibilities undertaken pursuant to this Contract will be for the sole and exclusive benefit of City and the Contractor, and not for the benefit of any other Party.
- 10.4 Disputes, Governing Law, Attorney Fees. This Contract shall be deemed to be made under, construed in accordance with, and governed by the laws of the State of Arizona, without regard to choice of law or conflicts of laws principles thereof. Any action arising out of this Contract shall be commenced and maintained in Maricopa County Superior Court, Arizona. In the event of litigation in a U.S. District Court, exclusive venue shall lie in the U.S. District Court located in Phoenix, Maricopa County, Arizona. The prevailing Party shall be reimbursed by the other Party for all attorney fees and all costs and expenses, including but not limited to all service of process, filing fees, court and court report costs, investigative costs, and expert witness fees which are incurred in any legal proceeding whatsoever arising out of this Contract, including, bankruptcy, arbitration, declaratory relief





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

or other litigation, including appeals or rehearing.

- 10.5 Provisions Required by Law. Each and every provision of law and any clause required by law to be in the Contract shall be read and enforced as though it were included herein and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either Party the Contract shall forthwith be physically amended to make such insertion or correction.
- 10.6 Entire Agreement. This Contract constitutes the entire agreement of the Parties and supersedes all previous representations, written or oral, with the respect to the subject matter, goods and Services specified herein. Any prior or contemporaneous written or oral agreement between the parties regarding the subject matter hereof is merged and superseded by this Contract. This Contract shall be construed and interpreted according to its plain meaning, and no presumption shall be deemed to apply in favor of, or against the drafting Party. The Parties acknowledge and agree that each has had the opportunity to seek and utilize legal counsel in the drafting of, review of, and entry into this Contract.
- 10.7 Severability. If any provision in this Contract or the application thereof to any person or circumstance shall be invalid, illegal or unenforceable to any extent, the remainder of this Contract and the application thereof shall not be affected and shall be enforceable to the fullest extent permitted by law.
- 10.8 Contract Order of Precedence. In the event of a conflict in the provisions of the Contract, as accepted by the City and as they may be amended, the following shall prevail in the following order:
1. Standard Terms and Conditions;
  2. Statement or Scope of Work;
  3. Solicitation, Instructions to Offerors (including other documents referenced or included);
  4. Offer;
  5. Fee Schedule/Price Sheet; and
  6. Attachments, Addendums and Exhibits
- 10.9 Independent Contractor. Each Party will act in its individual capacity and not as an agent, employee, partner, joint venture, or associate of the other. An employee, agent, subcontractor or subcontractor of one Party shall not be deemed or construed to be the employee or agent of the other for any purpose whatsoever. Contractor is advised that taxes or Social Security payments will not be withheld from any City payments issued hereunder and that the Contractor should make arrangements to directly pay such expenses, if any.
- 10.10 Ambiguities Not Held Against Drafter. This Contract having been freely and voluntarily negotiated by all Parties and the rule of contract construction that ambiguities, if any, in any term or condition of an agreement are held against the drafter of the agreement is not applicable to this Contract.
- 10.11 Waiver. The delay or failure of either Party at any time to require performance of compliance by the other of any of its obligations or agreements shall in no way be deemed a waiver of those rights to require such performance or compliance. No waiver of any provision of this Contract shall be effective unless in writing and signed by a duly authorized representative of the party against whom enforcement of a waiver is sought. The waiver of any right or remedy in respect to any occurrence of event shall not be deemed a waiver of any right a waiver of any right or remedy in respect to any occurrence or event, nor shall





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

any waiver constitute a continuing waiver.

- 10.12 Survival. The Parties agree that each Party shall remain obligated to the other Party under all provisions of this Contract that expressly or by their nature extend beyond and survive the expiration or termination of this Contract. This includes by way of example, but not limitation, the provisions addressing insurance, indemnification, warranties, damage, Information Technology Nondisclosure, and audit provisions.
- 10.13 Time is of The Essence. Time of each of the terms, covenants, and conditions of this Contract is hereby expressly made of the essence. Contractor is providing Services which involve health, safety and welfare of the general public, delivery time is of the essence. Delivery must be made in accordance with the delivery schedule promised by the Contractor.
- 10.14 Non-Exclusive Contract. Any subsequent Contract resulting from the solicitation shall be awarded with the understanding and agreement that it is for the sole convenience of the City. Contractor acknowledges that the City may enter into agreements with other contractors to obtain the same or similar services that are the subject of this Contract or may have its own employees perform services similar to those services contemplated by the Contract.
- 10.15 Audit of Records. Contractor, and its subcontractors that perform any work under this Contract, shall retain all books, accounts, reports, files and any and all other records relating to the Contract for six (6) years after completion of the Contract and upon written request, shall make such records available to the City for review, inspection, and audit. Contractor shall deliver all records, at no cost to the City, to the Goodyear City Hall, 190 N. Litchfield Road, Goodyear, Arizona, or to such other City facility within the City as designated by the City. If approved by City Attorney in writing, photographs, microphotographs, or other authentic reproductions may be maintained instead of original Contract Documents.
- 10.16 Audit/Billing and Expenses. The City reserves the right to request supporting documentation for all hourly amounts or reimbursable expenses charged to the City. Such records will be subject to audit at any time during the term of this Contract and for a period not to exceed two (2) years after any amount is billed. Within thirty (30) days of receiving a request, Contractor will furnish to the City original invoices and payroll records to support all charges. The City reserves the right to audit all supporting evidence necessary to substantiate charges related to this Contract, both direct and indirect costs, including overhead allocations if they apply to hourly costs associated with this Contract. If requested by the City, Contractor will provide supporting records electronically in addition to a hard copy. If the audit reveals overcharge, the Contractor will reimburse the City upon demand for the amount of such overcharges plus interest thereon from the date paid by the City through the date of reimbursement. If the overcharges exceed 5% of Contractor's compensation, Contractor shall also reimburse the City for the cost of the audit. Contractor shall include this subsection in all contracts with subcontracts providing materials/Services for this Contract.
- 10.17 Cooperative Statement. This Contract shall be for the use of the City. In addition, political subdivisions, nonprofit organizations and public health institutions may in its discretion may participate (piggyback) at on this Contract if the Contractor agrees to do so.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

- 10.18 Headings/Captions. Headings and captions appearing in this Contract have been inserted for convenience of reference only and in no way define, limit, or enlarge the scope or meaning of this Contract or any provision hereof.
- 10.19 Conflict of Interest. This Contract is subject to cancellation by the City, without penalty or further obligations, pursuant to the provisions of A.R.S. § 38-511, as amended.
- 10.20 Notices. Unless otherwise provided herein, demands under this Contract will be in writing and will be deemed to have been duly given and received either (a) on the date of service if personally delivered to the Party to whom notice is to be given, or (b) on the third day after the date of the postmark of deposit by first class United States mail, registered or certified postage prepaid and properly addressed as follows:

To Contractor:

To City:  
Tim Burkeen  
Sr. Project Manager, Engineering  
City of Goodyear  
190 N. Litchfield Road  
Goodyear, AZ 85338

Copy to:  
City Attorney  
City of Goodyear  
190 N. Litchfield Road  
Goodyear, AZ 85338

- 10.21 Modification or Waiver. Any changes, alterations, or modifications to this Contract, including agreed upon interpretation of meaning and other mutually agreed upon conditions provided for in this Contract, shall be made by written instrument executed by all Parties and adopted in the manner by which this Contract was adopted.
- 10.22 Counterparts. This Contract may be executed by the Parties in any number of separate counterparts, each of which when executed and delivered shall be deemed an original, and all such counterparts shall together constitute one original document. All signatures need not be on the same counterpart.
- 10.23 Authorization. Each Party warrants and represents that it has full power and authority to enter into and perform this Contract and the person signing on behalf of each Party has been properly authorized and empowered to enter this Contract. Each Party further acknowledges it has read this Contract, understands it, and agrees to be bound by it.
- 10.24 Electronic Signature. The signatures on this Contract may be an original signature, or an original signature that has been replicated by photocopy, electronic or other digital means or fax.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

## **SECTION VIII – SPECIAL TERMS AND CONDITIONS**

### **1. TERM OF CONTRACT**

The term of this Contract shall be one (1) year commencing on the effective date, which is the date last signed by both Parties, and may be extended or renewed for consecutive additional one (1) year periods, not to exceed a total of five (5) years, subject to appropriations and mutual agreement of the Parties. The City has no obligation to extend or renew this contract, and any decision to do so is at the sole discretion of the City.

### **2. SUBSTITUTIONS OR EXCEPTIONS**

The City reserves the option to not consider offers for award if the Offeror: i) takes any exception to the specifications and the City does not agree or accept the proposed changes; or ii) proposes a unit which does not meet the City's specifications exactly and the Contractor does not additionally propose the specified unit prior to RFQ opening, and the City rejects the alternative identified.

### **3. PREPARATION OF SPECIFICATIONS BY PERSONS OTHER THAN CITY PERSONNEL**

All specifications shall seek to promote overall economy for the purposes intended and encourage competition and not be unduly restrictive in satisfying the City's needs. No person preparing specifications shall receive any direct or indirect benefit from the utilization of specifications, other than fees paid for the preparation of specifications.

### **4. LATE OFFERS/MODIFICATIONS/WITHDRAWALS**

Offers, modifications of offers, and withdrawals received *after* the due date and time specified for receipt will be rejected and returned to the Contractor unopened. A Contractor (or designated representative) may withdraw their offer via email to the responsible Procurement Officer any time *prior* to the solicitation due date and time.

### **5. PUBLIC RECORD/CONFIDENTIAL INFORMATION**

All offers submitted in response to this solicitation shall become the property of the City and shall become a matter of public record available for review, subsequent to the award. If the Contractor believes that any information provided throughout the procurement process should be withheld as confidential, it is the responsibility of the Contractor to submit to the Procurement Manager a statement when the confidential information is submitted which identifies those items the Contractor believes to be confidential and the legal reason(s) why they are confidential. The Procurement Manager shall review the request for confidentiality and advise the Contractor in writing if the information will be treated as confidential by the City. If the City receives a public records request for any of the information determined to be confidential by the Procurement Manager, the City will use reasonable efforts to give notice to the Contractor prior to the release of the information.

### **6. OFFER ACCEPTANCE PERIOD**

In order to allow for an adequate evaluation, the City requires an offer in response to this Solicitation to be valid for one hundred twenty (120) days after the opening time and date.

### **7. DISCUSSIONS**

The City reserves the right to conduct discussions with Contractors for the purpose of eliminating minor irregularities, informalities, or apparent clerical mistakes in the submittal in order to clarify an offer and assure full understanding of, and responsiveness to, solicitation requirements.





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

#### 8. **PERSONNEL**

It is essential that the Contractor provide adequate experienced personnel, capable of and devoted to the successful accomplishment of the work to be performed in this Solicitation. The Contractor agrees that those persons identified in their submittal shall not be removed or replaced without a written request to and approval from the City.

#### 9. **AWARD OF CONTRACT**

9.1 The contract will be awarded pursuant to the provisions of the City of Goodyear Procurement Code. Unless the Contractor states otherwise, or unless provided within this solicitation, the City reserves the right to award by individual line item, by group of line items, or as a total, whichever is deemed most advantageous to the City. Notwithstanding any other provision of this solicitation, the Procurement Manager further reserves the right to i) waive any immaterial defect or informality; ii) reject any or all offers, or portions thereof; iii) reissue the solicitation; or iv) modify or cancel this solicitation.

9.2 A response to a solicitation is an offer to contract with the City based upon the terms, conditions and specifications contained in the City's solicitation and the written amendments thereto, if any. If City Council approval is necessary, offers do not become contracts unless and until they are accepted by the City Council. A contract is formed when written notice of award(s) is provided to the successful Contractor(s). The Contract has its inception in the award document, eliminating a formal signing of a separate contract.

9.3 In the event the City should receive two or more identical offers, the awardee will be determined by lottery.

#### 10. **BUSINESS REGISTRATION PERMIT**

All Contractors awarded contracts with the City shall be required to obtain a City of Goodyear Business Registration Permit through the Goodyear Business Registration Office. For further information call Finance, Joe Lewandowski at (623) 882-7899 or [joe.lewandowski@goodyearaz.gov](mailto:joe.lewandowski@goodyearaz.gov)

#### 11. **PROTESTS**

11.1 Any interested party may protest a solicitation issued by the City or the proposed award or the award of a City Contract by submitting a request in writing with the Procurement Manager for the City of Goodyear, with a copy directed to the City Attorney for the City of Goodyear as follows:

Jacque Behrens, CPPB  
Procurement Manager  
City of Goodyear  
P.O. Box 5100  
190 North Litchfield Road  
Goodyear, AZ 85338

Roric Massey  
City Attorney  
City of Goodyear  
P.O. Box 5100  
190 North Litchfield Road  
Goodyear, AZ 85338

11.2 Writing: All protests must be in writing and shall include the following information:

11.2.1 The name, address and telephone number of the protester;

11.2.2 The signature of the protester or its representative;

11.2.3 The solicitation or contract number;

11.2.4 A detailed statement of the legal or factual grounds of the protest including copies of relevant documents; and

11.2.5 The form of relief requested. R3-4-16.01





## City Of Goodyear

### Request for Qualifications Design-Build Pre-Construction Phase

Office of Procurement  
190 N. Litchfield Road  
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- 11.3 Time Frame: To be considered, protests must be filed during the time frame identified in the procurement code.
- 11.3.1 Protests of a solicitation must be filed within five (5) days of the first advertising of the solicitation.
- 11.3.2 Protests of an award must be filed within ten (10) days of the issue date of the Notice of Award or Notice of Intent to Negotiate and Award.

- 11.4 The Procurement Manager is required to notify all interested parties that a protest has been filed.

#### 12. **CONFLICT OF INTEREST**

Offerors shall fully disclose all known and potential conflicts that could influence or appear to influence their judgment or the quality of their services.

#### 13. **COOPERATION**

In the event any claim or action is brought against the City relating to Contractor's Services, Contractor shall provide the City with any and all reasonable assistance and cooperation which the City may require or request.

#### 14. **TITLE AND RISK OF LOSS**

Title and risk of loss of goods and Services shall not pass to the City until the City authorized personnel actually receives and accepts the goods or Services at the point of delivery; and such loss, injury or destruction shall not release the Contractor from any obligation hereunder. Mere receipt does not constitute final acceptance. The risk of loss for nonconforming goods shall remain with the Contractor regardless of receipt.

#### 15. **ACCEPTANCE**

All material and Services are subject to final inspection and acceptance by the City. Material or Services failing to conform to the specifications of this Contract shall be held at Contractor's risk and may be rejected by the City. If returned or rejected, all costs are the responsibility of the Contractor.

#### 16. **BEST AND FINAL OFFERS**

The City may request best and final offers if deemed necessary, and will determine the scope and subject of any best and final request.


#### 17. **BONDING**

- 17.1 Contractor will be required to obtain necessary bonding at the time of entering into the GMP Construction Agreement. Bonding required will be as follows:
- 17.1.1 A performance bond for one hundred (100%) of the Contract price is required at the time of execution of the Contract and shall meet the requirements of A.R.S., Title 34, as amended, if applicable.
- 17.1.2 A payment bond for one hundred (100%) of the Contract price is required at the time of execution of this Contract and shall meet the requirements of A.R.S., Title 34, as amended, if applicable.

#### 18. **CONTINUATION OF SERVICES – ISRAEL**

Contractor certifies that it is not currently engaged in, and agrees for the duration of this Contract that it will not engage in a boycott of Israel, as that term is defines in A.R.S. § 35-393.



	<b>City Of Goodyear</b>	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	<b>Offer and Acceptance</b>	

**DESCRIPTION OF SERVICES:** Site 12 Treatment Expansion and Site Work, 2 New Production Wells and Reservoir

#### OFFER

To the City of Goodyear: The undersigned Contractor hereby offers and agrees to furnish the goods and/or services in compliance with this Contract, as the term Contract is defined in this document.

**By signing and submitting this Offer, Contractor certifies and warrants that Contractor:** has read, understands and agrees to comply with the Contract as defined here; Contractor is qualified to perform all Services required herein; has no known, undisclosed conflict of interest; has not made an offer of any gift(s), payment(s) or other consideration to any City employee, elected official who has or may have had a role in the procurement process for this Contract; pursuant to A.R.S. § 41-4401, Contractor and its subcontractors will comply with all immigration laws and regulations that relate to its employees and A.R.S. § 23-214; and the signatory is an officer or duly authorized agent of the Contractor with full power and authority to submit binding offers for the goods and/or services as specified herein.

Arizona Transaction (Sales) Number:  
City of Goodyear Business Registration No.:

Arizona Contractor License Number:  
Privilege Tax License Number:

*Sign:*

Contractor's Company Name

Signature of Person Authorized to Sign Offer

Address

Printed Name

City State Zip Code

Title Date

Telephone

Email

#### ACCEPTANCE OF OFFER - CITY OF GOODYEAR

Contractor's Offer is hereby accepted and a Contract awarded by the City. Contractor is now bound to provide the goods and/or services as specified in Scope of Work of this Contract. Contractor shall not start any billable work or provide any material/services until the Contractor receives an executed purchase order or written notice to proceed.

City Manager, City of Goodyear (if applicable)

Attested by:

Maureen Scott, City Clerk  
City Seal

Official File

Eff. Date: \_\_\_\_\_

Jacque Behrens, Procurement Manager Date

Approved as to form:

Roric Massey, City Attorney





**City Of Goodyear**

**Attachment A**  
**Non Collusion Affidavit**

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845

**NON-COLLUSION AFFIDAVIT**

**SITE 12 TREATMENT EXPANSION AND SITE WORK, 2 NEW PRODUCTION WELLS AND RESERVOIR**

State of Arizona County of \_\_\_\_\_

\_\_\_\_\_, affiant,  
the

\_\_\_\_\_  
(TITLE)

\_\_\_\_\_  
(NAME OF COMPANY)

The person, corporation or company responsible for the accompanying Request for Qualifications, having first been duly sworn, deposes and says:

That such Request for Qualifications is genuine and not sham or collusive, nor made in the interest of or on behalf of any person not herein named, and that the Contractor has not directly or indirectly induced or solicited any other Contractor to put in a sham submittal, or any other person, firm or corporation to refrain from submitting, and that the Contractor has not in any manner sought by collusion to secure for itself an advantage over any other Contractor.

\_\_\_\_\_

\_\_\_\_\_  
(TITLE)

Subscribed and sworn to before me this  
\_\_\_\_\_ Day of \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_  
SIGNATURE OF NOTARY PUBLIC  
IN AND FOR THE

COUNTY OF \_\_\_\_\_

STATE OF \_\_\_\_\_ My Commission Expires\_\_\_\_\_





**City Of Goodyear**

**Attachment B  
Similar Well Site Exhibits**

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845



**Well COG 20**



**Well COG 19**





**City Of Goodyear**

**Attachment C  
Site 12 Existing Conditions**

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845



**Site 12 Perimeter Fence**



**Site 12 Expansion Area**





**City Of Goodyear**

**Attachment C  
Site 12 Existing Conditions**

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845



**Site 12 Existing RO Facilities**



**Site 12 Existing RO Facilities**





**City Of Goodyear**

**Attachment C  
Site 12 Existing Conditions**

Office of Procurement  
190 N. Litchfield Road  
P.O. Box 5100  
Goodyear, AZ 85338  
Phone: 623-882-7845



**Site 12 Existing Booster Pumps**



**Site 12 Existing RO to be removed**







# AMCOR INVESTMENTS CORPORATION

## ESTRELLA

### ESTATES

#### WATER STORAGE TANK AND BOOSTER STATION

#### SHEET INDEX

SHT. NO.	DESCRIPTION
1	COVER SHEET
2	NOTES, QUANTITIES, BOUNDARY & SURVEY INFO
3	SITE GRADING PLAN
4	SITE PIPING PLAN
5	BOOSTER PUMP PLAN & SECTION
6-7	BOOSTER PUMP SECTIONS & DETAILS
8	TURBO METER
9	FIXTURE LOCATION DIAGRAM, & MISC. DETAILS
10	CATHODIC PROTECTION & ANODE DETAILS
11	LEVEL CONTROL, LEVEL INDICATOR & M.H. DETAILS
12	TANK FILL, DISCHARGE & DRAIN LINE DETAILS
13	LADDER, ROOF VENT & MANWAY DETAILS
14	HYDROPNEUMATIC TANK
15	DECORATIVE SCREEN WALL DETAIL
16-19	ELECTRICAL PLANS, SCHEMATICS & DETAILS
20-21	ELECTRICAL P & I D
22-26	PROGRAMMABLE CONTROLLER LOGIC

#### BENCH MARK

TBM#1: B.C. IN CONC. HEADWALL 200'  
EAST OF COTTON LANE & SOUTH SIDE  
OF S.R. 85 ELEV. = 909.80

TBM#2: TOP OF I.P. IN H.H. SOUTHWEST COR.  
SEC. 23 INTERSECTION OF BROADWAY RD.  
& COTTON LANE ELEV. = 912.81

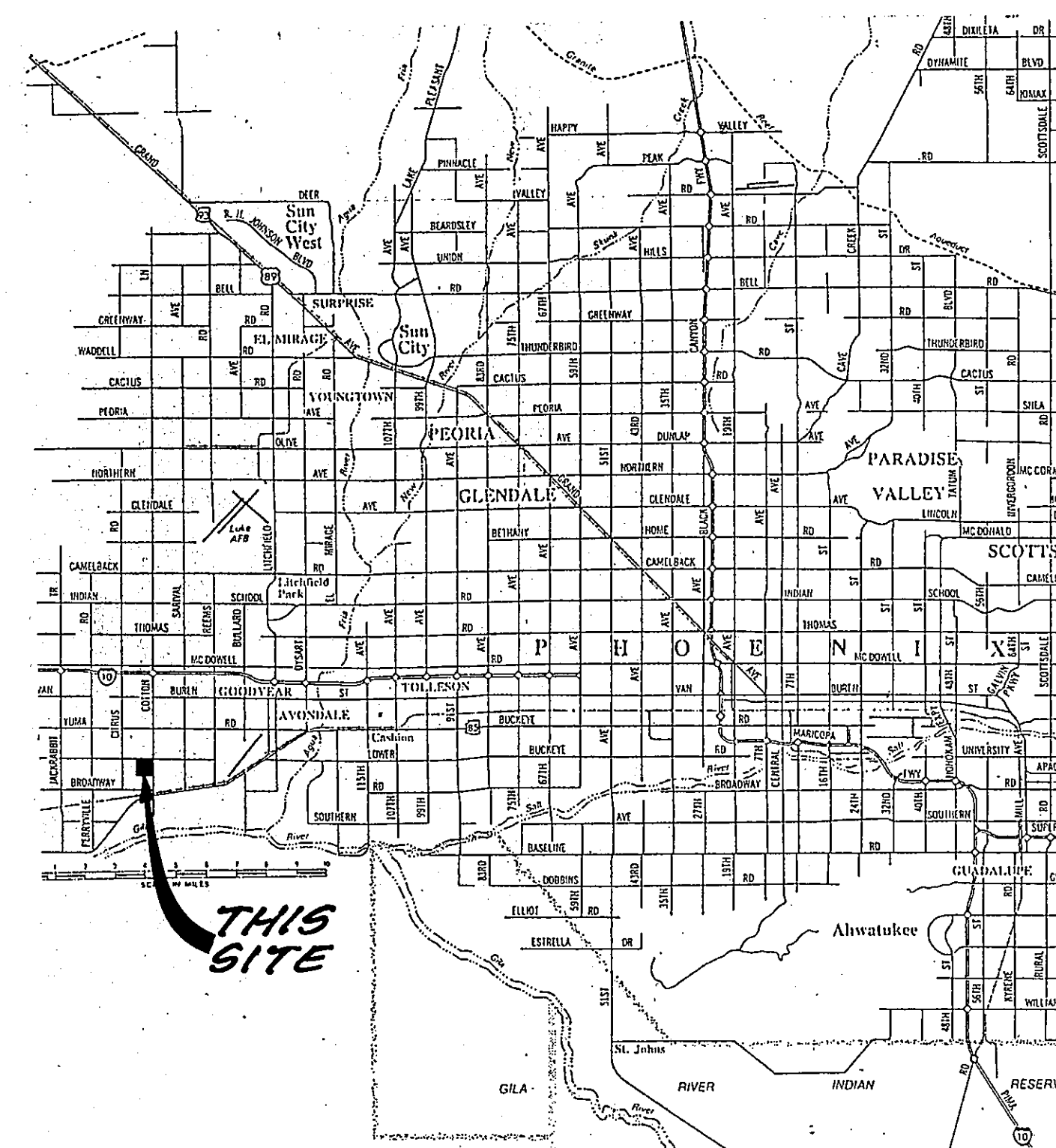
BM: B.C. IN CONC. HEADWALL 400'  
WEST OF REEMS ON SOUTH SIDE OF  
S.R. 85 ELEV. = 916.58

#### DEVELOPER

AMCOR INVESTMENT CORPORATION  
2735 E. CAMELBACK RD.  
PHOENIX, ARIZONA 85016  
(602) 957-7170

#### ENGINEER

COE & VAN LOO CONSULTING ENGINEERS INC.  
4550 N. 12TH STREET  
PHOENIX, ARIZONA 85014  
(602) 264-6831



VICINITY MAP

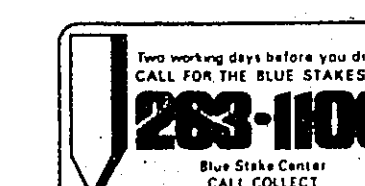
SUBMITTED BY: Karl H. Hering 9-29-87  
REGISTERED SAN. ENGINEER DATE

CITY OF GOODYEAR  
APPROVED BY: Allen C. Bush 9/1/87  
FOR CITY ENGINEER DATE

MARICOPA COUNTY  
HEALTH DEPT.  
APPROVED BY: Allen C. Bush 9/1/87  
FOR M.C.H.D. DATE

#### REVISIONS

- 7/31/87 CHANGE ELECTRICAL TO INCLUDE  
WELL MOTOR, CHANGE FIRST PHASE PUMPS  
FROM 200 TO 500 RPM. (SHT. 5)  
CHANGE PIPING PLAN.



SHT. 1 OF 26

COE & VAN LOO PHOENIX  
CONSULTING ENGINEERS INC. ARIZONA

1074-16-05 1987-034-C1-001



## GENERAL NOTES

1. CONSTRUCTION WITHIN THE RIGHT OF WAY SHALL CONFORM TO THE LATEST APPLICABLE MARICOPA ASSOCIATION OF GOVERNMENTS UNIFORM STANDARD DETAILS AND SPECIFICATIONS AND THE CITY OF PHOENIX SUPPLEMENTALS LATEST REVISION TO THE MAG UNIFORM STANDARD SPECIFICATIONS AND DETAILS.

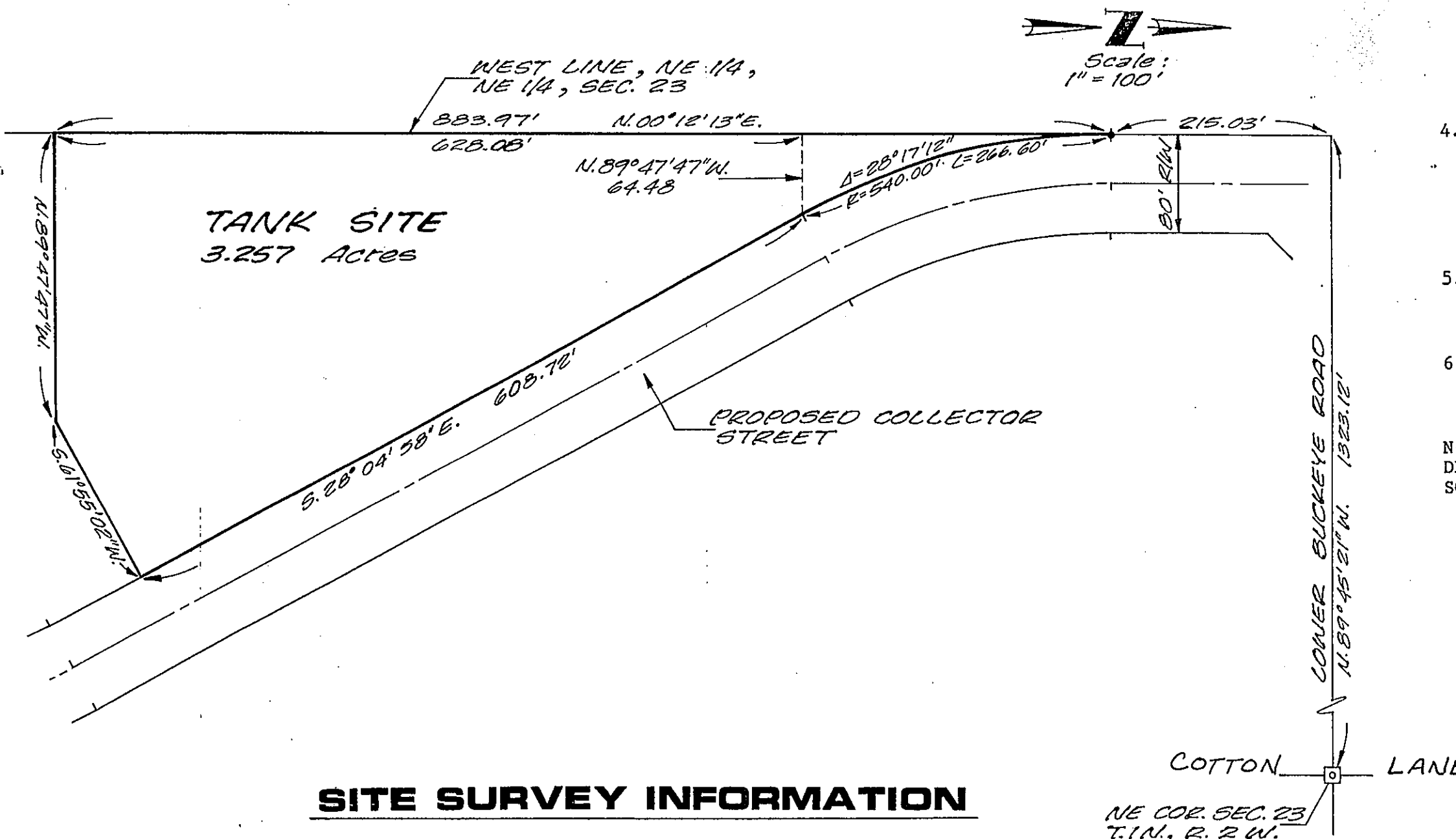
# ENGINEERS NOTES

1. THE CONTRACTOR SHALL MAKE NO CLAIM AGAINST THE OWNER OR THE ENGINEER REGARDING ALLEGED INACCURACY OF CONSTRUCTION STAKES SET BY THE ENGINEER UNLESS ALL SURVEY STAKES SET BY THE ENGINEER ARE MAINTAINED INTACT AND CAN BE VERIFIED AS TO THEIR ORIGIN. IF, IN THE OPINION OF THE ENGINEER, THE STAKES ARE NOT MAINTAINED INTACT AND CAN BE VERIFIED AS TO THEIR ORIGIN, ANY REMEDIAL WORK REQUIRED TO CORRECT ANY ITEM OF IMPROPER CONSTRUCTION WORK IN THIS DEVELOPMENT SHALL BE PERFORMED AT THE SOLE EXPENSE OF THE RESPONSIBLE CONTRACTOR OR SUBCONTRACTOR.
2. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE, ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.
3. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK, AND HE WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA, HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN THE AREA.

APPLICABLE AWWA STANDARDS

1. AWWA D100-84  
WELDED STEEL TANKS FOR WATER STORAGE
2. AWWA D102-78  
PAINTING STEEL WATER STORAGE TANKS
3. AWWA D105-80  
DISINFECTION OF WATER STORAGE FACILITIES
4. AWWA C200-80  
STEEL WATER PIPE 6" AND LARGER
5. AWWA C205-80  
CEMENT MORTAR PROTECTIVE LINING AND COATING FOR STEEL WATER PIPE  
4" AND LARGER - SHOP APPLIED
6. AWWA C206  
FIELD WELDING OF STEEL WATER PIPE
7. AWWA C207  
STEEL PIPE FLANGES FOR WATER WORKS SERVICE, SIZES 4" THROUGH 144"
8. AWWA C211-78  
COAL TAR EPOXY COATING SYSTEM FOR THE INTERIOR AND EXTERIOR OF  
STEEL WATER PIPE



### WATER STORAGE TANK SPECIFICATIONS:

## GENERAL

THE WATER STORAGE TANK SHALL HAVE A TOTAL CAPACITY OF 2,000,000 GALLONS AND SHALL MEET ALL PERTINENT STANDARDS OF AWWA D-100-84 AND AWS D-5.2-73 OR LATEST REVISIONS THEREOF. THE DIMENSIONS OF THE TANK SHALL BE 158 FEET IN DIAMETER AND 16 FEET IN HEIGHT.

THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF THE TANK. THE PLANS MUST COMPLY WITH ALL GOVERNING BUILDING CODES. THE PLANS SHALL BE SUBMITTED, BEARING THE SEAL OF A REGISTERED STRUCTURAL ENGINEER, AND BE APPROVED BY THE ENGINEER AND THE ARIZONA STATE DEPARTMENT OF HEALTH SERVICES.

THE TANK SHALL CONFORM TO NFPA BULLETIN 22. PROVISIONS SHALL BE MADE TO ALLOW FOR SETTLEMENT WITH RESPECT TO PIPES TO AND FROM THE TANK.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DISINFECT THE TANK IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.D.H.S. ENGINEERING BULLETIN NO. 8, AND THESE SPECIFICATIONS, OR WITH THE CURRENT AWWA STANDARD D102.

## SITE PREPARATION

THE SITE FOR THE STORAGE TANK WILL BE PREPARED BY THE CONTRACTOR BY EXCAVATING ONLY AS MUCH OF THE SITE AS IS NECESSARY FOR CONSTRUCTION AND INSTALLATION. THE CONTRACTOR SHALL CONSTRUCT A ROADWAY TO THE SITE AS SHOWN ON THE PLANS.

## WELDING

WELDING IS TO BE OF X-RAY QUALITY AND SHALL BE CERTIFIED BY A QUALIFIED TESTING LAB IN ACCORDANCE WITH AWWA STANDARDS.

## SCREENS

20 MESH BRONZE SCREENS WILL BE INSTALLED ON THE DRAIN LINE FROM THE STORAGE TANK AND ON THE TANK VENT. A LOCKING DEVICE WITH OVERLAPPING COVER SHALL BE PROVIDED ON THE ENTRANCE MANHOLE. SEE PLANS FOR VENT AND MANWAY DETAILS.

FOUNDATION

THE CONTRACTOR SHALL PROVIDE A FOUNDATION FOR THE STORAGE TANK IN CONFORMANCE WITH THE DETAILS SHOWN ON THE PLANS AND IN ACCORDANCE WITH RECOMMENDATIONS OF THE SOILS ENGINEER.

NOTE: PAINTING AND COATING SHALL CONFORM TO AWWA D-102 STANDARDS AND THE TECHNICAL SPECIFICATIONS FOR THIS PROJECT. COLOR SHALL BE AS DETERMINED BY THE C.O.G.

NOTE: ELECTRICAL PERMIT WILL BE REQUIRED BY ELECTRICAL CONTRACTOR

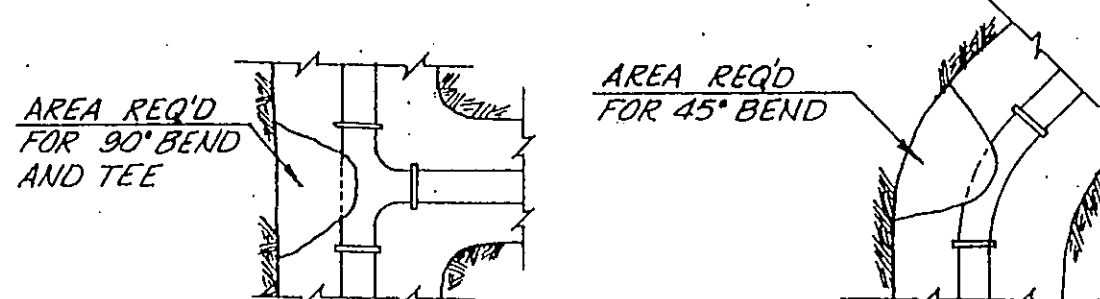
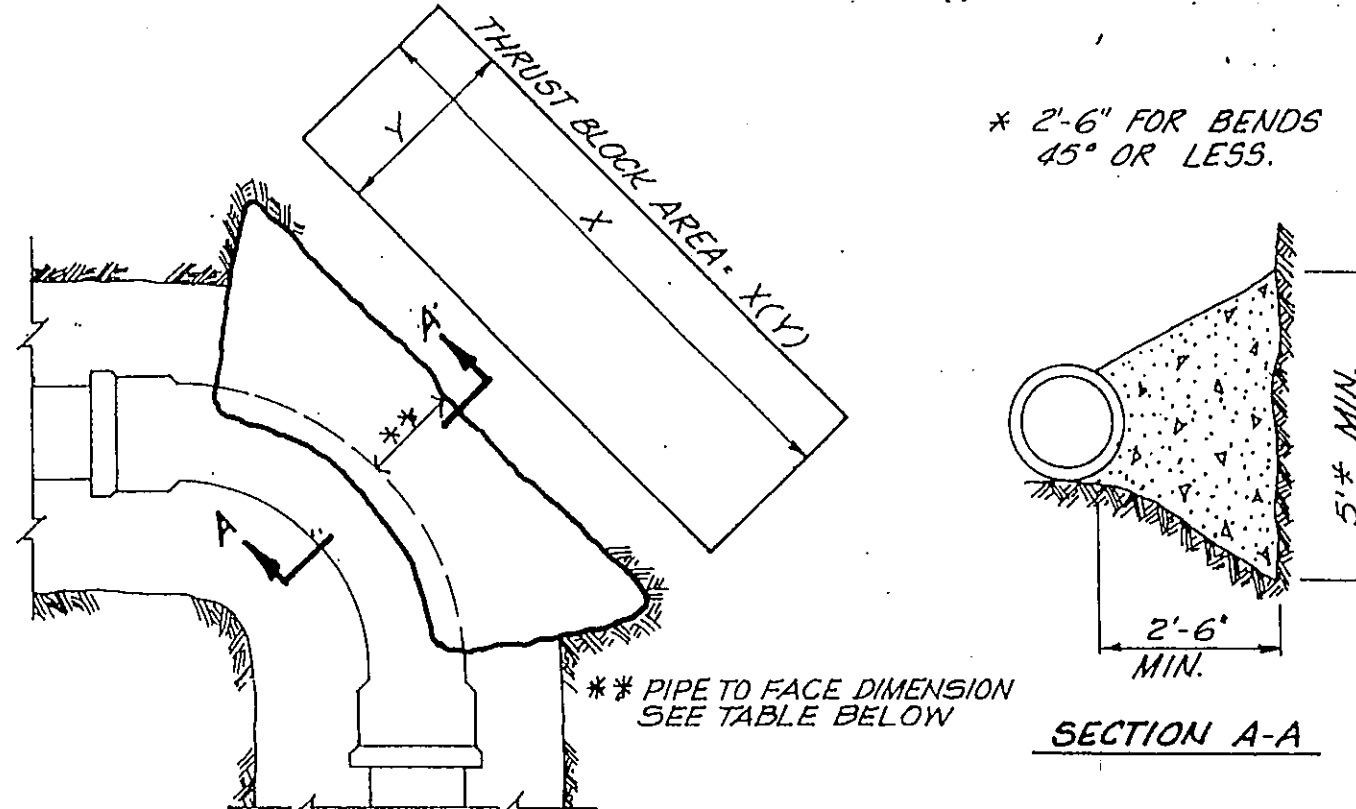
### GENERAL NOTES

1. STEEL PIPE LINED AND COATED PER A.W.W.A. STANDARDS, MAY BE USED AS AN ALTERNATIVE TO D.I.P. ON THE SUCTION SIDE OF THE PUMPS.
2. ALL ABOVE GROUND PUMPING UNITS, PIPING, AND THE HYDRO-PNEUMATIC TANK SHALL BE PAINTED IN ACCORDANCE WITH THE EXTERIOR SPECIFICATIONS. (PAINT INTERIOR OF HYDRO-PNEUMATIC TANK PER INTERIOR SPECIFICATIONS).
3. THE PORTIONS OF THE SUCTION AND DISCHARGE MANIFOLDS TO BE CONCRETE ENCASED SHALL BE PRIME COATED ONLY. CEMENT MORTAR COATING IS TO BE USED ON ALL OTHER BELOW GROUND PIPING.

## CRITERIA FOR STEEL WATER PIPE

1. MAXIMUM ALLOWABLE DESIGN STRESS IN THE STEEL SHALL BE 50% OF THE MINIMUM YIELD POINT OF THE STEEL BEING USED.
2. PIPE AND FITTINGS SHALL BE DESIGNED FOR A 150 PSI WORKING PRESSURE, PLUS A SURGE ALLOWANCE OF 60 PSI. ALL PIPE SHALL BE PRESSURE TESTED TO 250 P.S.I.
3. BACKFILL LOADS ON BURIED PIPING SHALL BE CALCULATED ON THE BASIS OF A POSITIVE PROJECTING EMBANKMENT FILL CONDITION, WITH THE FOLLOWING PARAMETERS:
  - A. UNIT SOIL WEIGHT 140 POUNDS PER CUBIC FOOT
  - B. 95% COMPACTION OF BACKFILL AROUND PIPE
  - C. 120-DEGREE BOTTOM BEDDING ON PIPE
  - D. MAXIMUM ALLOWABLE PIPE DEFLECTION OF 2%
  - E. SOIL TYPE IS SAND AND GRAVEL
  - F. AASHTO H-20 LIVE LOADING, WITH 1.1 IMPACT FACTOR
4. ALL STEEL PIPE AND FITTINGS LARGER THAN 6 INCHES SHALL BE CEMENT MORTAR LINED AND COATED IN CONFORMANCE WITH A.W.W.A. STANDARD C 205. CEMENT MORTAR LININGS AND COATINGS SHALL BE APPLIED AFTER ALL SHOP WELDING IS COMPLETED, AND SHALL BE DELIVERED TO THE JOINT WITH SMOOTH, CONTINUOUS LININGS AND COATINGS. FIELD APPLICATION OF CEMENT-MORTAR LININGS AND COATINGS SHALL NOT BE ALLOWED.
5. ALL STEEL PIPE AND FITTINGS 6 INCHES AND SMALLER MAY BE UNLINED. THE EXPOSED EXTERIOR SURFACES ARE TO BE COVERED BY A COAL-TAR EPOXY COATING SYSTEM PER A.W.W.A. C-210.
6. 12 INCHES AND SMALLER STEEL PIPE SHALL BE SCHEDULE 40.

NOTE: UPON SATISFACTORY COMPLETION OF PRESSURE TESTING AND DISINFECTION, ALL MAINS ARE TO BE FILLED AND SEALED WITH CHLORINE SOLUTION OF 50 PPM MINIMUM RESIDUAL.



MINIMUM THRUST BLOCK AREA REQUIRED (Y X X)		
PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° & 22½° BEND
4" & LESS	3 SQ. FEET	3 SQ. FEET
6"	4 " "	3 " "
8"	6 " "	3 " "
10"	9 " "	5 " "
12"	13 " "	7 " "
16"	23 " "	12 " "

## NOTES

1. TABLE IS BASED ON 3000#/SQ. FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPE LARGER THAN 18" SHALL BE CALCULATED FOR EACH PROJECT. *APPROVED BY ENG*
3. FORM ALL NON-BEARING VERTICAL SURFACES.

## THRUST BLOCK DETAIL

NOTE: THRUST BLOCK REQUIRED AT EACH CHANGE OF DIRECTION REQUIRING FITTING

[illegible]

## SITE SURVEY INFORMATION

COTTON LAND

NE COR. SEC. 23  
T. 1 N., R. 2 W.

# ESTREIA ESTATES - WATER PLANT

**COE & VAN LOO**  
PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

## NOTES & QUANTITIES



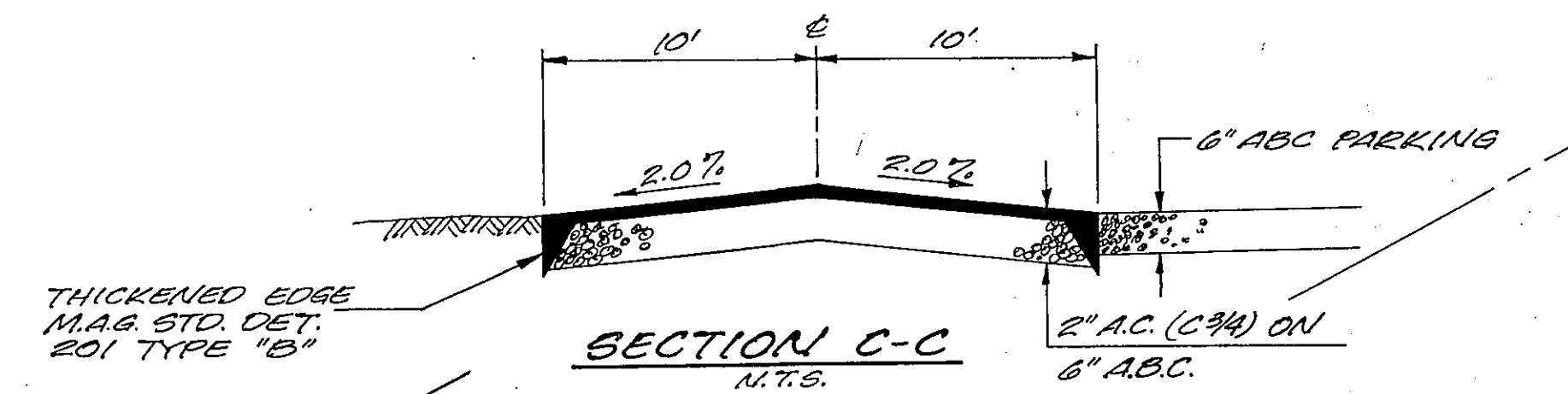
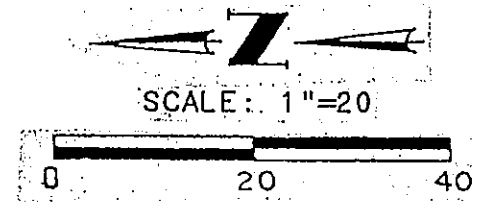
**SHEET**

2 OF 2.

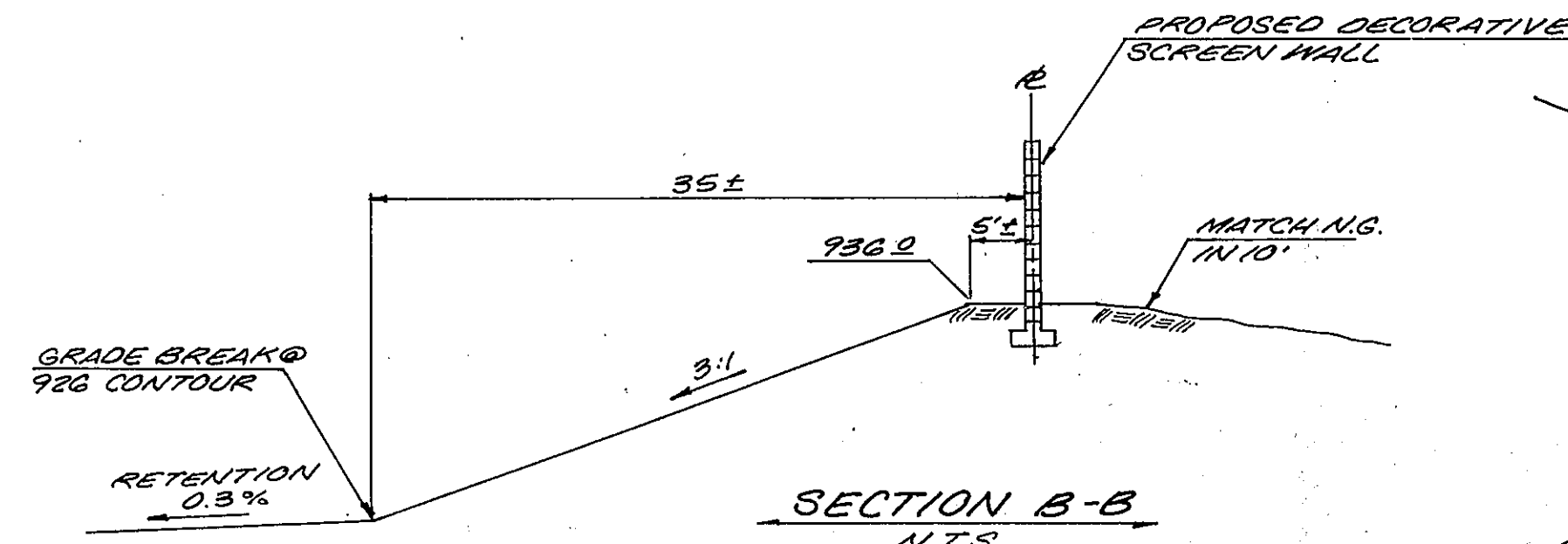
1074-16-C



CURVE TABLE		
NO.	RADIUS	DELTA
①	40.00'	30°18'14"
②	40.00'	31°24'35"
③	55.00'	58°30'39"
④	90.50'	314°59'50"
⑤	55.00'	76°29'11"
⑥	28.26'	30°18'14"
LENGTH		
①	21.16'	
②	21.93'	
③	56.17'	
④	497.55'	
⑤	73.42'	
⑥	14.94'	



SECTION B-B  
N.T.S.



INSTALL 30' ROLLING MEDIUM WEIGHT IRON GATE IN REDWOOD SLATS 4" LOCK 1450P. SUBMIT DRAWINGS OR LITERATURE TO ENGINEERS FOR APPROVAL PRIOR TO INSTALLATION.

MATCH EXISTING GROUND IN 20'

FUTURE STREET NOT BE CONSTRUCTED AT THIS TIME.  
5.28° 04' 58" E.

FUTURE DIV. ENTRANCE

INSTALL THICKENED EDGE PER MAG. STD. DET. 201 TYPE "B"  
AREA FOR PROPOSED TREATMENT BLDG.  
PAD = 937.0

CONSTRUCT 198 S.F. 3' VALLEY BUTTER PER MAG. STD. DET. 240

MATCH EDGE OF RING ROAD GRADE TO TOP OF RING WALL ELEV. IN 4'

INSTALL 45 L.F. STEEL GUARD RAIL PER MAG. STD. DET. 135 PAINT SAME COLOR AS TANK

TANK OVERFLOW PER SHT. 9

TANK RINGWALL ELEV = 929.0

280133.4644 N.  
343373.7503 E.

0° TANK DIA. = 158'

180°

270°

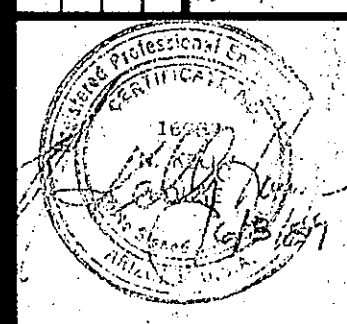
90°

ESTRELLA ESTATES - WATER PLANT

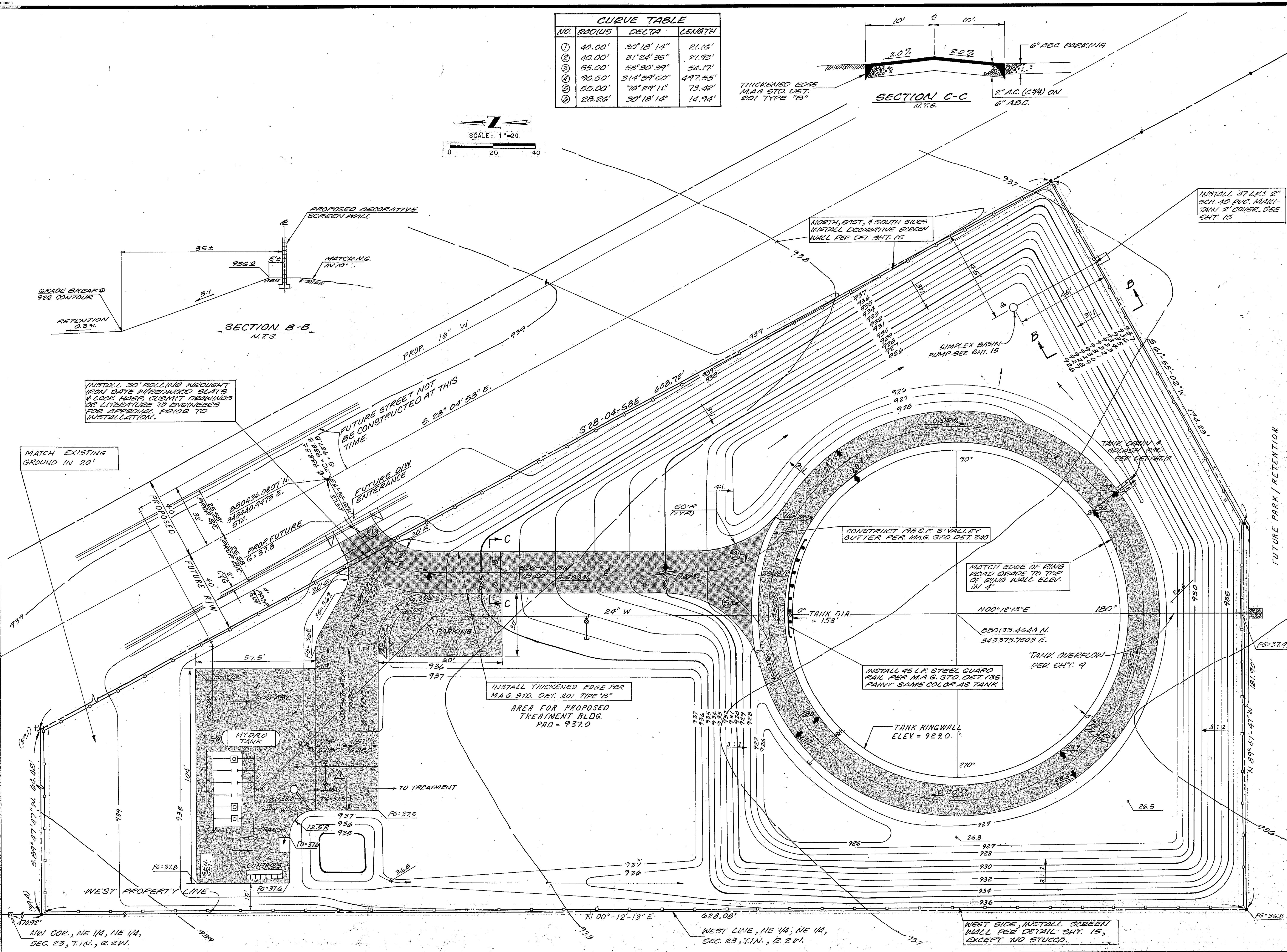
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4550 NORTH 12TH STREET  
PHOENIX, ARIZONA 85014  
TELEPHONE (602) 264-6831

DESIGNED	DRAWN	CHECKED	DATE	T.H.	REVISIONS	DATE	BY
					1	CHANGE PAVING	7-31-87
					2	PAVING CONDITION	T.H.



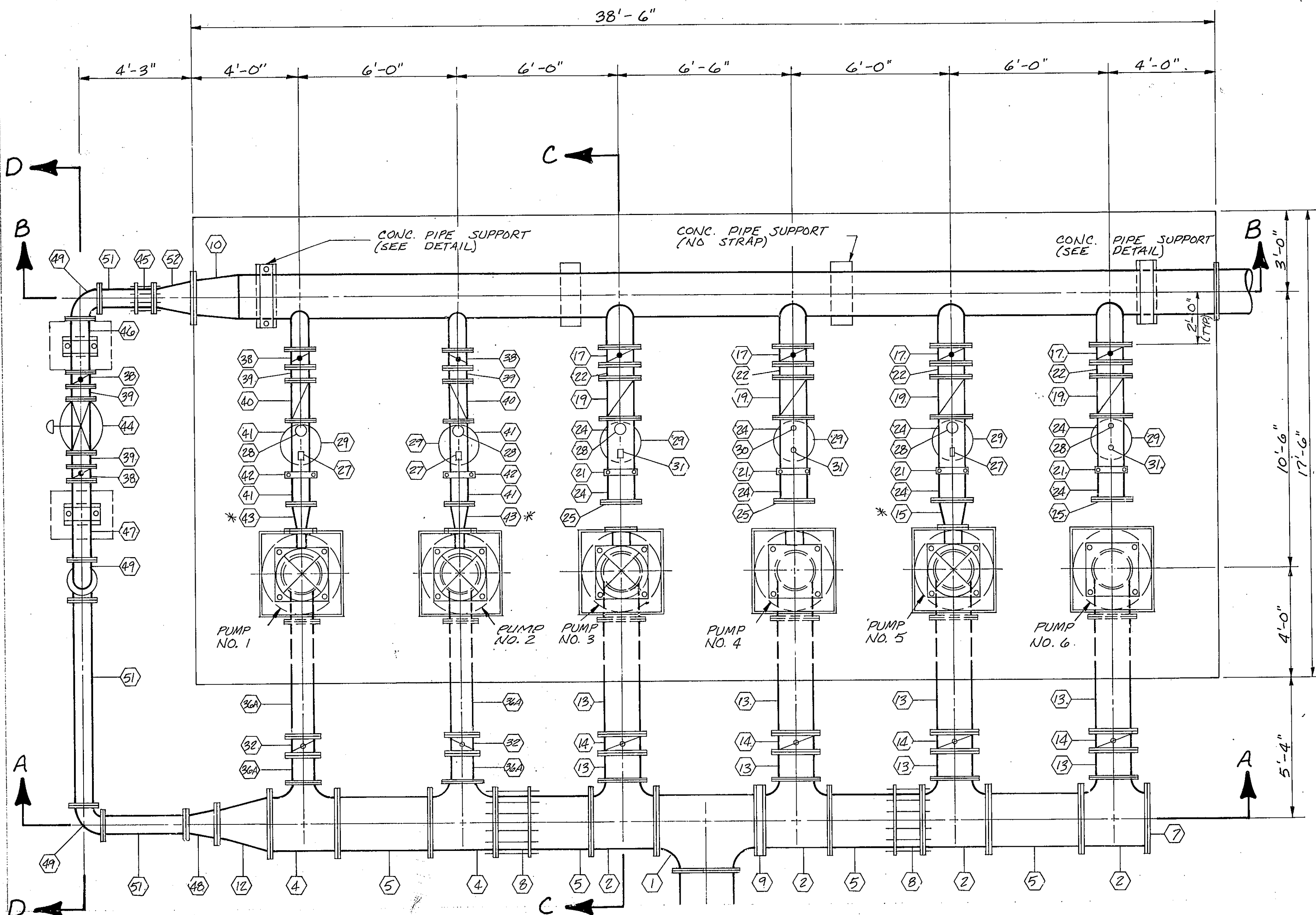
WATER STORAGE TANK  
SITE GRADING PLAN







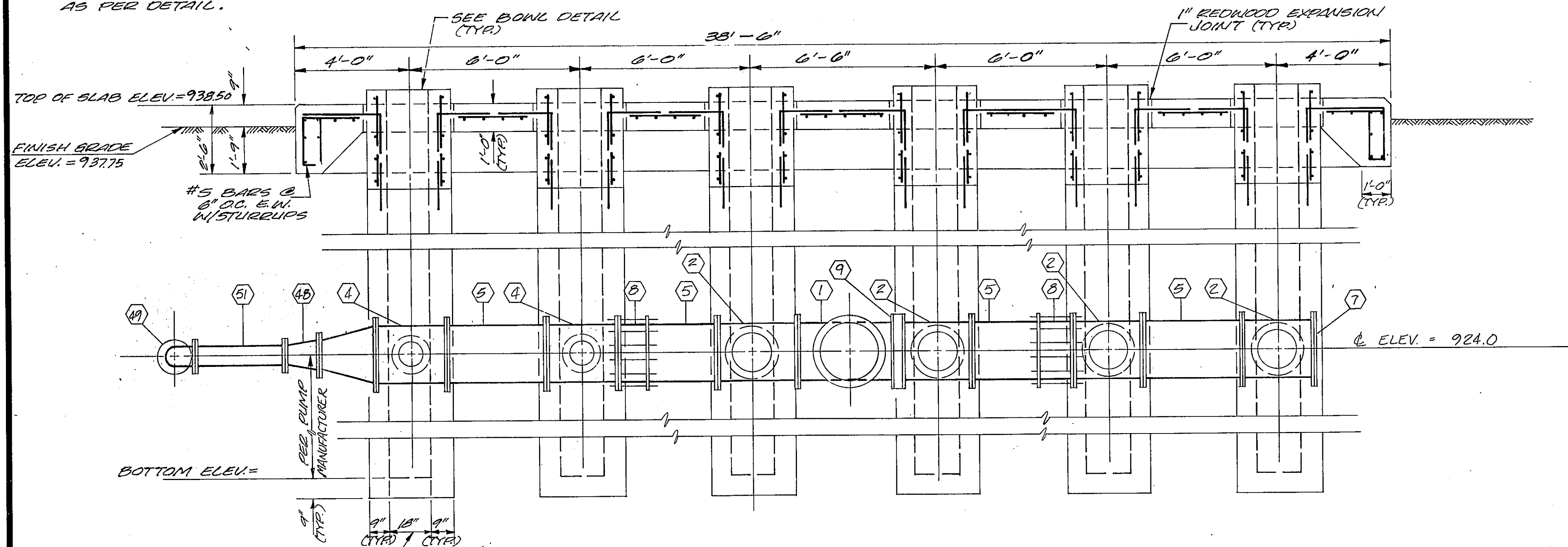




- NOTES:**
1. ALL UNDERGROUND FLANGED FITTINGS ARE WITH STAINLESS STEEL NUTS & BOLTS WITH EPOXY COATED AFTER INSTALLATION.
  2. ALL UNDERGROUND BENDS & TEES TO HAVE THRUST BLOCKS AS PER DETAIL.
  3. CHECK WITH PUMP VENDOR FOR POSSIBLE CHANGE IN SIZE PER PUMP SPECIFICATION.
  4. ALL CONC. TO BE CLASS "A" - 3000 P.S.I.

### BOOSTER PUMP PAD - PLAN

SCALE: 3/8" = 1'-0"



### BOOSTER PUMP PAD - SECTION "A-A"

SCALE: 3/8" = 1'-0"

### BOOSTER PUMP PAD PIPING

ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
37	10" VICTAULIC COUPLING ANKHA STYLE 31	1	24" X 24" O.I. TEE FLG.
38	8" (ANKHA) BUTTERFLY VALVE, FLG. W/MANUAL ACTUATOR, HANDWHEEL & GEAR OPERATOR	2	24" X 16" O.I. TEE FLG.
39	8" O.I. BRASS SPOOL (6" LENGTH)	3	24" X 12" O.I. TEE FLG.
40	8" SILENT CHECK VALVE GLOBE STYLE, FLG. (APCO SERIES 600 OR APPROVED EQUAL)	4	24" X 10" O.I. TEE FLG.
41	8" O.I. FLG. & P.E. W/ VICTAULIC GROOVING (LENGTH VARIES)	5	24" O.I. SPOOL FLG. (LENGTH VARIES)
42	8" VICTAULIC COUPLING ANKHA STYLE 31	6	24" O.I. FLG. & P.E.
43	8" X 4" O.I. REDUCER FLG.	7	24" O.I. BLIND FLANGE
44	10" O.I. SPOOL FLG. (LENGTH VARIES)	8	24" STL. FLG. COUPLING ADAPTER, W/ANCHOR STUDS (ROCKWELL #1 OR APPROVED EQUAL)
		9	24" O.I. FLANGE FILLEES
		10	20" X 16" STL. REDUCER FLG.
		11	<del>24" X 12" O.I. REDUCER</del>
		12	16" O.I. FLG. SPOOL (LENGTH VARIES)
		13	16" (ANKHA) BUTTERFLY VALVE, FLG. W/MANUAL ACTUATOR, HANDWHEEL & GEAR OPERATOR
		14	16" X 8" O.I. REDUCER, FLG. (OR AS PER VERTICAL PUMP MFR. DISCHARGE SIZE)
		15	12" X 4" O.I. REDUCER, FLG. (OR AS PER VERTICAL PUMP MFR. DISCHARGE SIZE)
		16	12" (ANKHA) BUTTERFLY VALVE, FLG. W/MANUAL ACTUATOR, HANDWHEEL & GEAR OPERATOR
		17	12" (ANKHA) BUTTERFLY VALVE, FLG. W/MANUAL ACTUATOR, HANDWHEEL & GEAR OPERATOR
		18	12" SILENT CHECK VALVE GLOBE STYLE, FLG. (APCO SERIES 600 OR APPROVED EQUAL)
		19	12" PRESSURE RELIEF VALVE, GLOBE TYPE, FLG. (CLA-VAL MODEL 50-OI OR APPROVED EQUAL)
		20	12" VICTAULIC COUPLING ANKHA STYLE 31
		21	10" O.I. SPOOL FLG. (LENGTH VARIES)
		22	12" O.I. FLG. & P.E. (LENGTH VARIES)
		23	12" O.I. FLG. & P.E. W/ VICTAULIC GROOVING (LENGTH VARIES)
		24	12" O.I. BLIND FLANGE
		25	12" O.I. FLG. & P.E.
		26	12" O.I. FLG. & P.E.
		27	12" O.I. FLG. & P.E.
		28	12" O.I. FLG. & P.E.
		29	12" O.I. FLG. & P.E.
		30	12" O.I. FLG. & P.E.
		31	12" O.I. FLG. & P.E.
		32	12" O.I. FLG. & P.E.
		33	12" O.I. FLG. & P.E.
		34	12" O.I. FLG. & P.E.
		35	12" O.I. FLG. & P.E.
		36	12" O.I. FLG. & P.E.
		37	12" O.I. FLG. & P.E.
		38	12" O.I. FLG. & P.E.
		39	12" O.I. FLG. & P.E.
		40	12" O.I. FLG. & P.E.
		41	12" O.I. FLG. & P.E.
		42	12" O.I. FLG. & P.E.
		43	12" O.I. FLG. & P.E.
		44	12" O.I. FLG. & P.E.
		45	12" O.I. FLG. & P.E.
		46	12" O.I. FLG. & P.E.
		47	12" O.I. FLG. & P.E.
		48	12" O.I. FLG. & P.E.
		49	12" O.I. FLG. & P.E.
		50	12" O.I. FLG. & P.E.
		51	12" O.I. FLG. & P.E.

### EXPECTED PUMP PHASING

PUMP POS. NO.	PHASE 1	PHASE 2	PHASE 3	PHASE 4
1	500 GPM 30 HP 1770 RPM	500 GPM	500 GPM 30 HP 1770 RPM	500 GPM
2	500 GPM 30 HP 1770 RPM	500 GPM	500 GPM 30 HP 1770 RPM	500 GPM
3	EMPTY	500 GPM 30 HP 1770 RPM	1500 GPM 85 HP 1770 RPM	1500 GPM
4	EMPTY	EMPTY	EMPTY	2000 GPM 120 HP 1770 RPM
5	1500 GPM 85 HP 1770 RPM	1500 GPM	1500 GPM	1500 GPM
6	EMPTY	1500 GPM 85 HP 1770 RPM	1500 GPM	1500 GPM

ESTRELA ESTATES-WATER PLANT

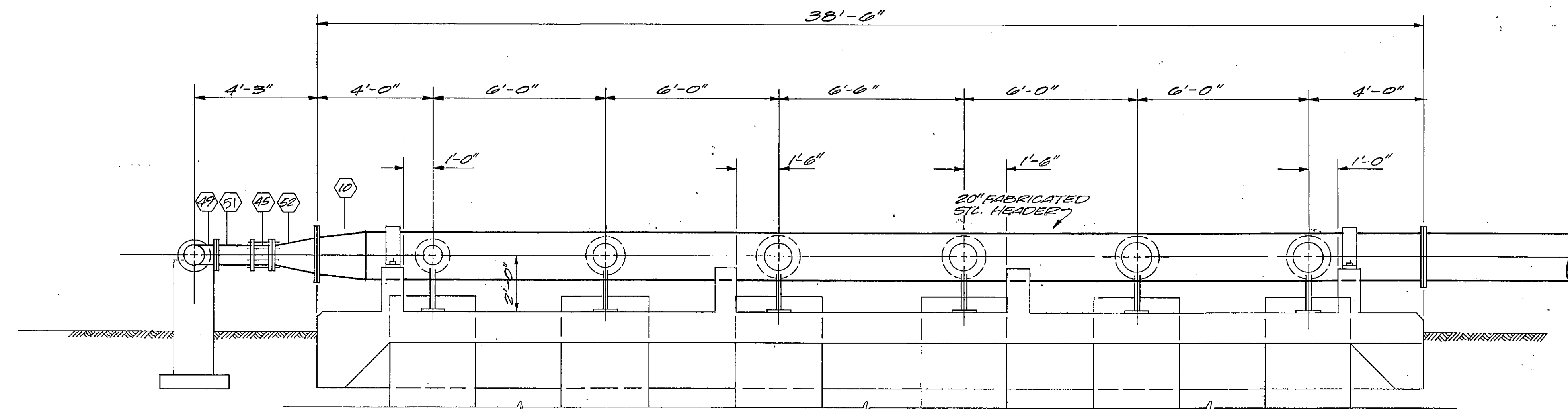
COE & VAN LOO

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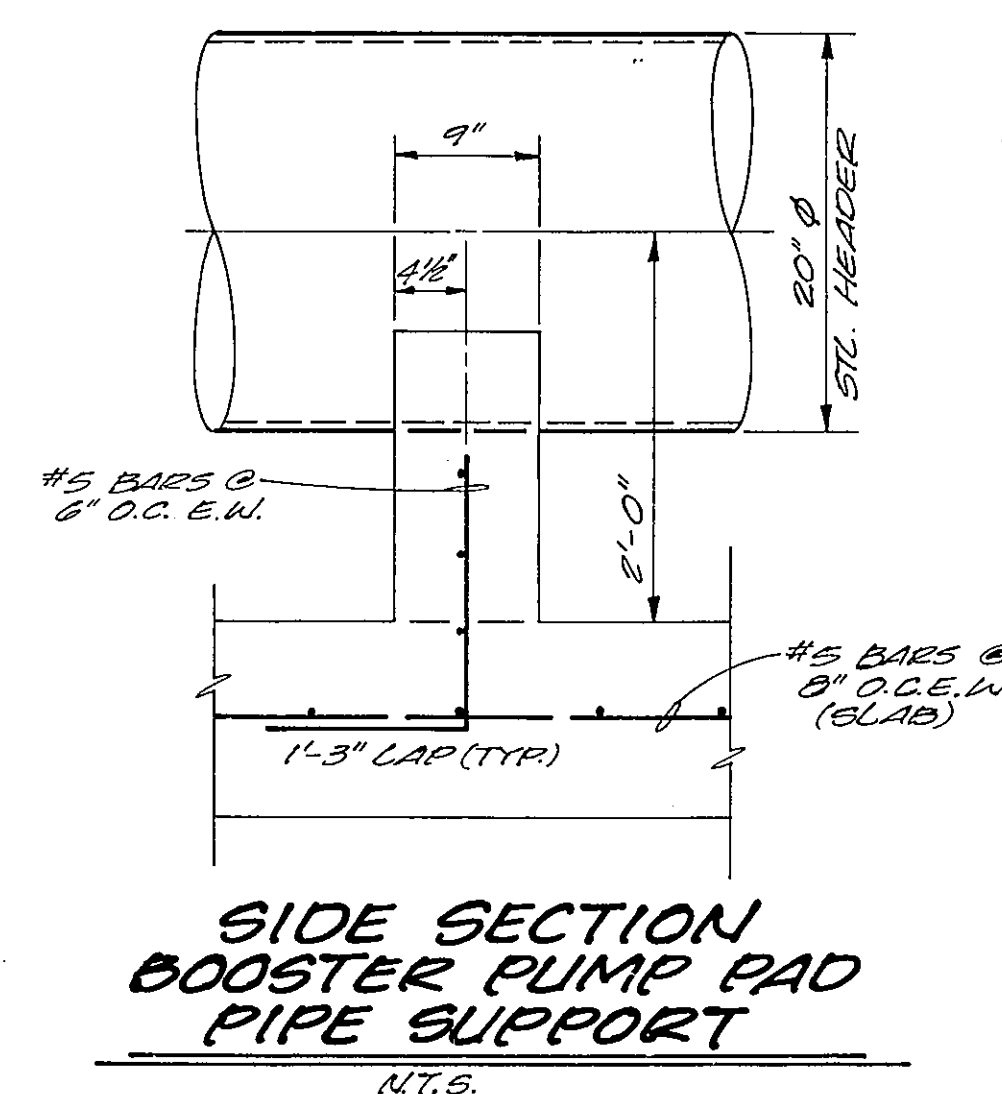
DESIGNED BY  
DRAWN BY  
CHECKED BY  
DATE

BOOSTER PUMP PAD  
PLAN & SECTION

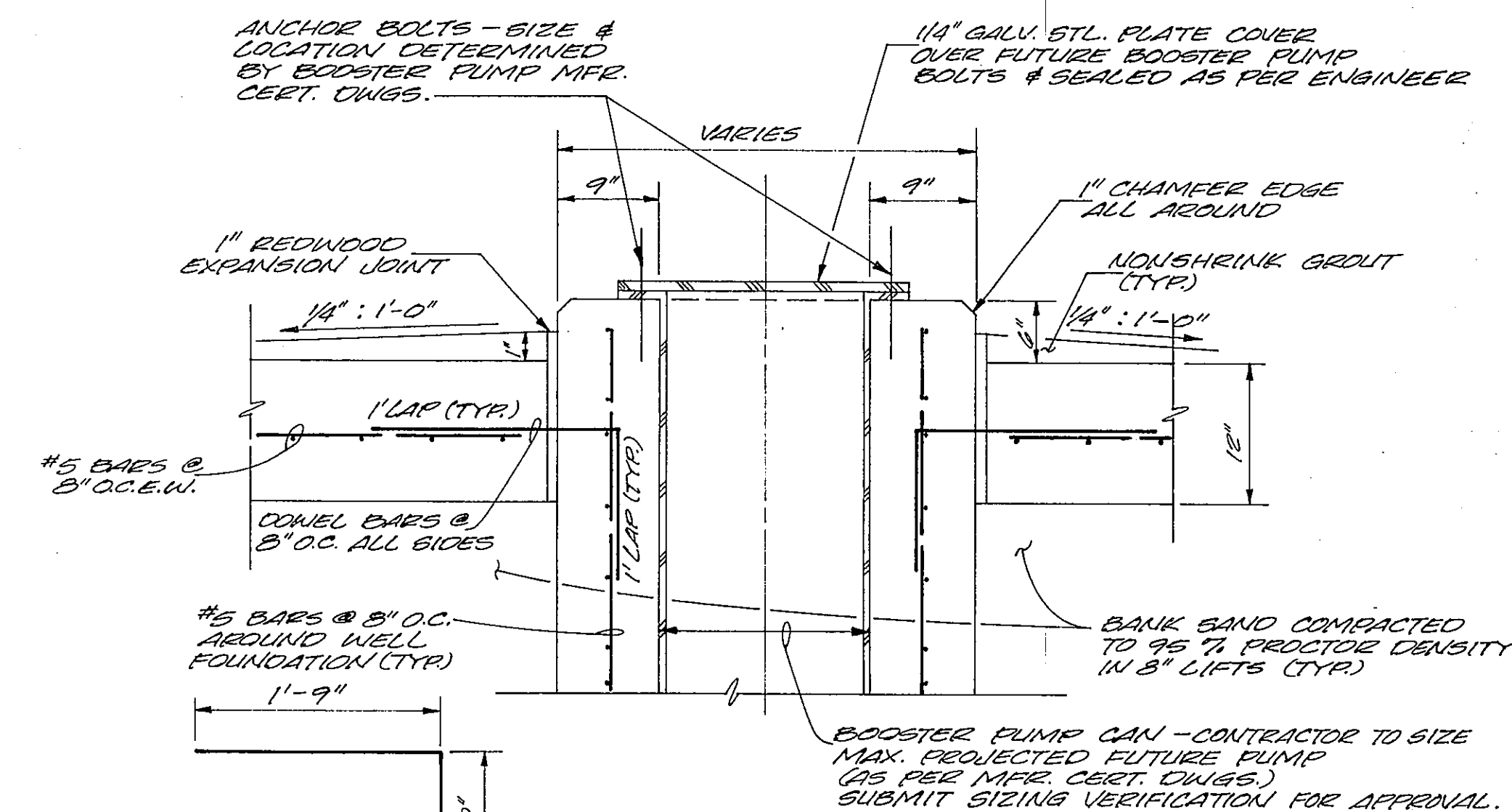




**BOOSTER PUMP PAD - SECTION "B-B"**  
SCALE: 3/8" = 1'-0"

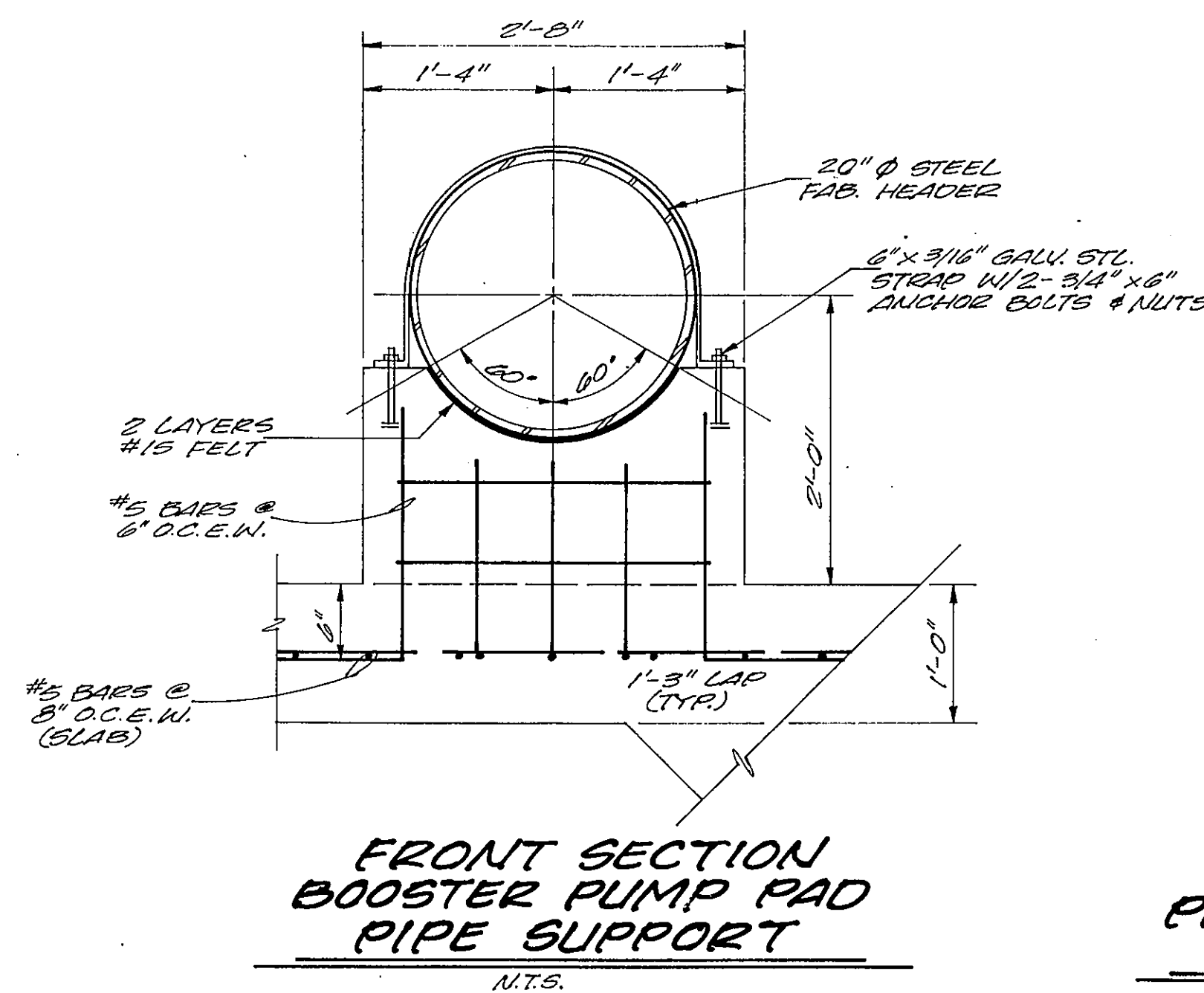


**SIDE SECTION  
BOOSTER PUMP PAD  
PIPE SUPPORT**  
N.T.S.

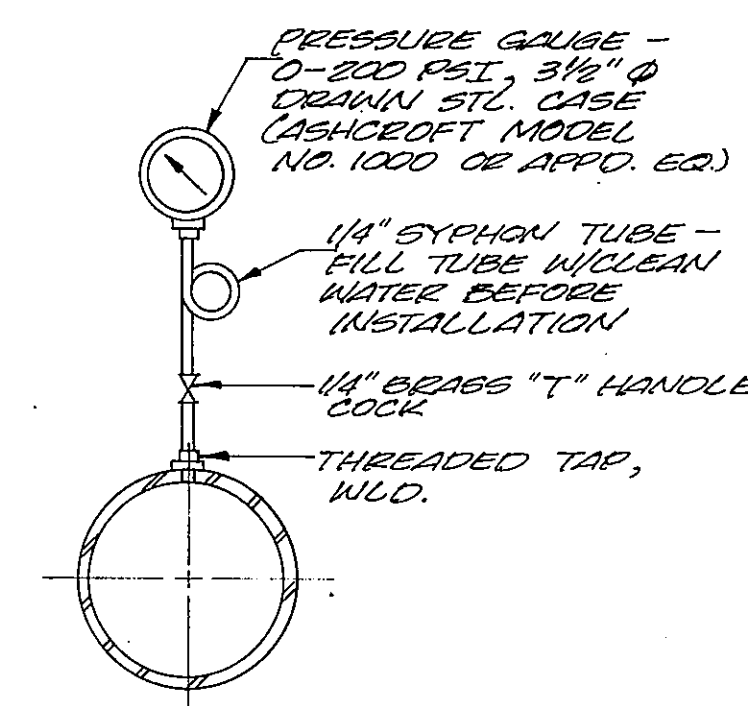


**BOOSTER PUMP  
BOWL DETAIL**  
N.T.S.

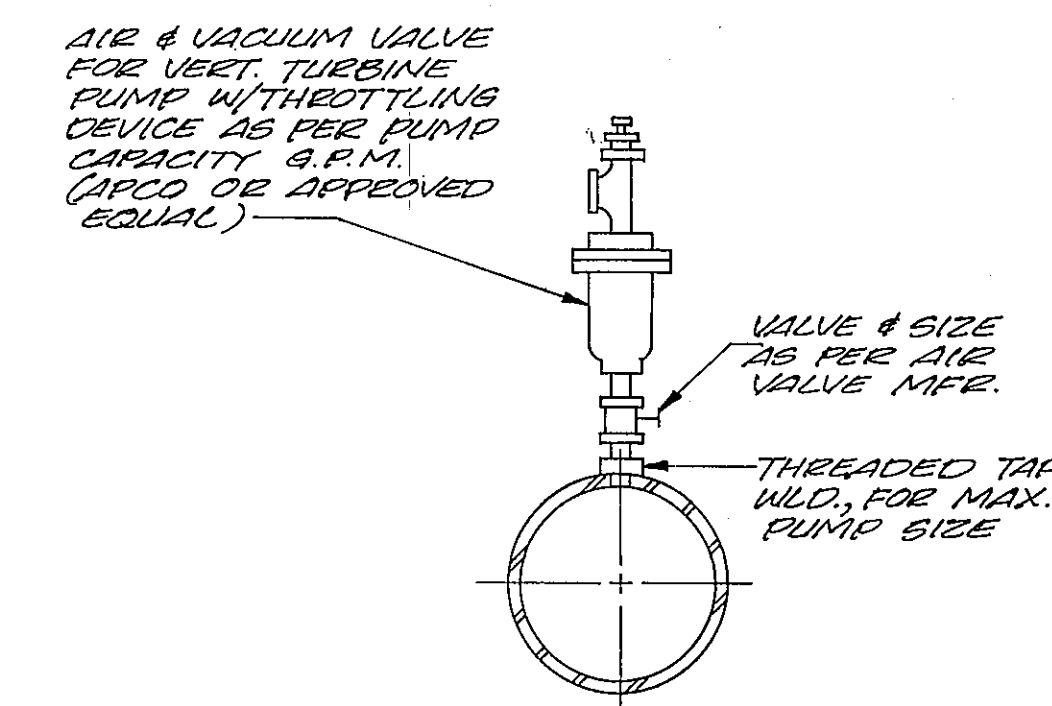
**DOWEL  
BAR**  
N.T.S.



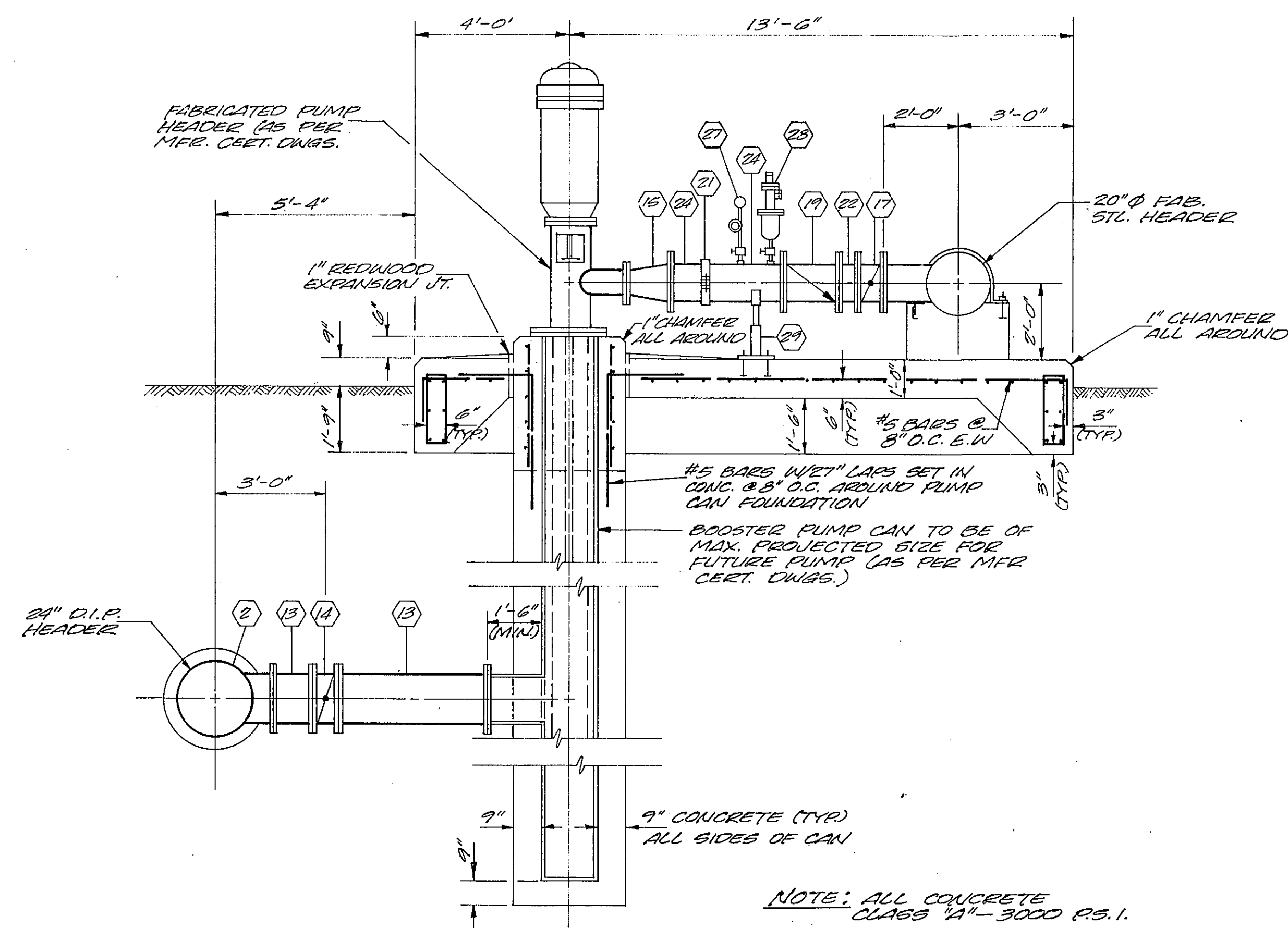
**FRONT SECTION  
BOOSTER PUMP PAD  
PIPE SUPPORT**  
N.T.S.



**PRESSURE GAUGE  
DETAIL**  
N.T.S.



**AIR & VACUUM VALVE  
DETAIL**  
N.T.S.



**BOOSTER PUMP PAD - SECTION "C-C"**  
SCALE: 3/8" = 1'-0"

**ESTRELLA ESTATES - WATER PLANT**

**COE & VAN LOO**  
PLANNING, ENGINEERING, LANDSCAPE ARCHITECTURE

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PHOENIX, ARIZONA 85014  
TELEPHONE (602) 264-8831

**BOOSTER PUMP PAD  
SECTIONS & DETAILS**

DESIGNED	DRAWN	CHECKED	DATE	REVISIONS	DATE	BY

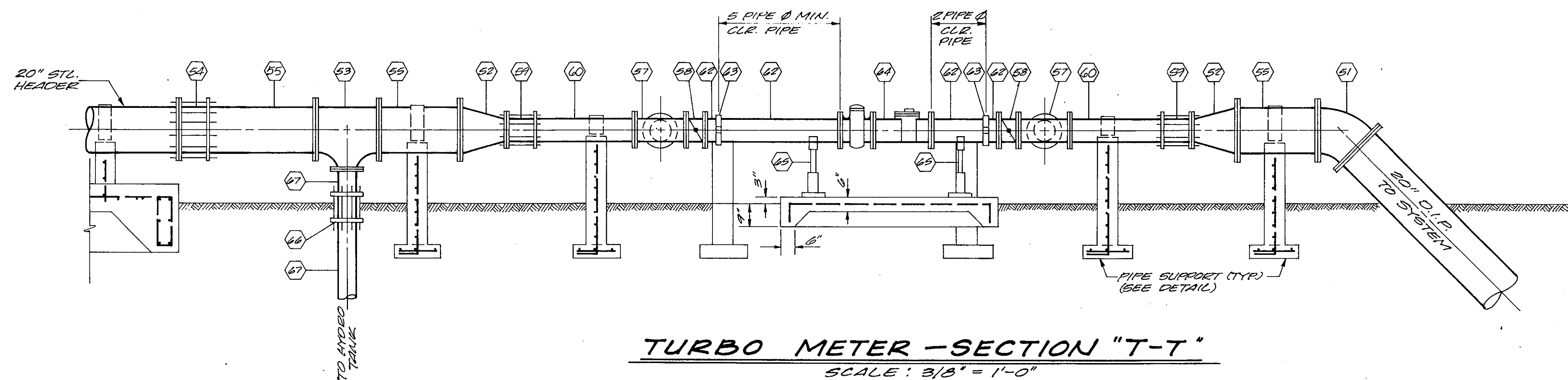
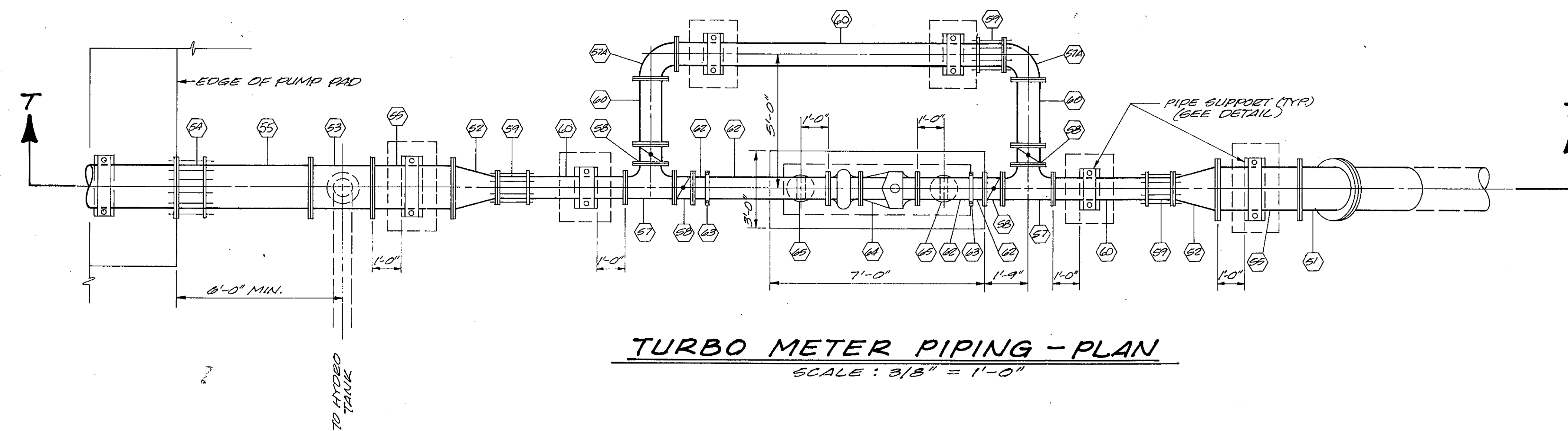
APPROVED  
4/2/87

SHEET  
6 OF 26  
1074-10-05



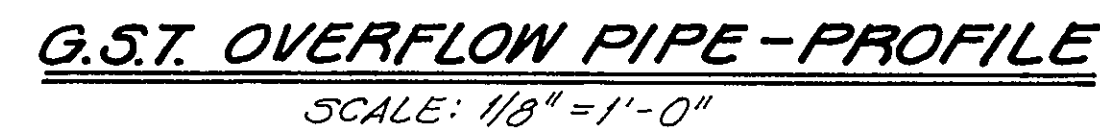
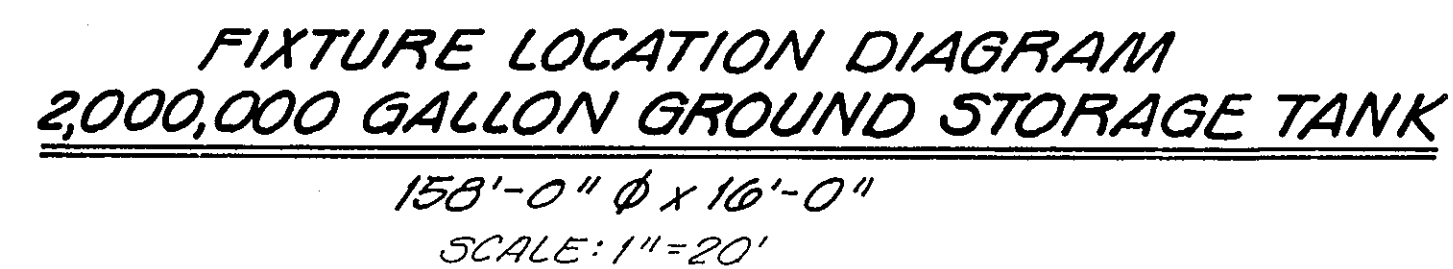







TURBO-METER PIPING		
ITEM NO.	DESCRIPTION	
(51)	20"X45" D.I. BEND, FLG.	
(52)	20"X10" D.I. REDUCER	
(53)	20"X8" D.I. TEE, FLG.	
(54)	20" STL. FLANGED COUPLING ADAPTOR W/ANCHOR STUDS (ROCKWELL NO. 913 OR APPROVED EQUAL)	
(55)	20" D.I. SPOOL, FLG. (LENGTH VARIES)	
(56)	20" D.I. FLG. & P.E. (LENGTH VARIES)	
(57)	10"X10" D.I. TEE, FLG.	
(58)	10"X90" D.I. BEND, FLG.	
(59)	10"(ANWIA) BUTTERFLY VALVE, FLG. W/MANUAL ACTUATOR, HANDWHEEL & LOCKING DEVICE	
(60)	10" STL. FLANGED COUPLING ADAPTOR W/ANCHOR STUDS (ROCKWELL NO. 913 OR APPROVED EQUAL)	
(61)	10" D.I. SPOOL, FLG. (LENGTH VARIES)	
(62)	10" D.I. FLG. & P.E. (LENGTH VARIES)	
(63)	10" D.I. FLG. & PE W/ VICTALCIC GROOVING (LENGTH VARIES)	
(64)	10"(ANWIA) COUPLING "VICTALCIC" STYLE 31 OR APFD. EQUAL	
(65)	10" TURBO-METER 50-5500 G.P.M. CAP. BRONZE MAGNETIC DRIVE & STRAINER ASSY., FLG. W/DIRECT FEEDING REGISTERS "ROCKWELL" MODEL W-5500 OR APPROVED EQUAL	
(66)	10" SIZE ADJUSTABLE PIPE SADDLE SUPPORT (ITT GRINNELL FLG. 264 OR APFD. EQUAL) SEE DETAIL	
(67)	8" STEEL COUPLING FOR D.I.P. W/EPoxy COATED BASEBALL S.S. NUTS (ROCKWELL NO. 431 OR APFD. EQUAL)	
(68)	8" D.I. FLG. & P.E. (LENGTH VARIES)	






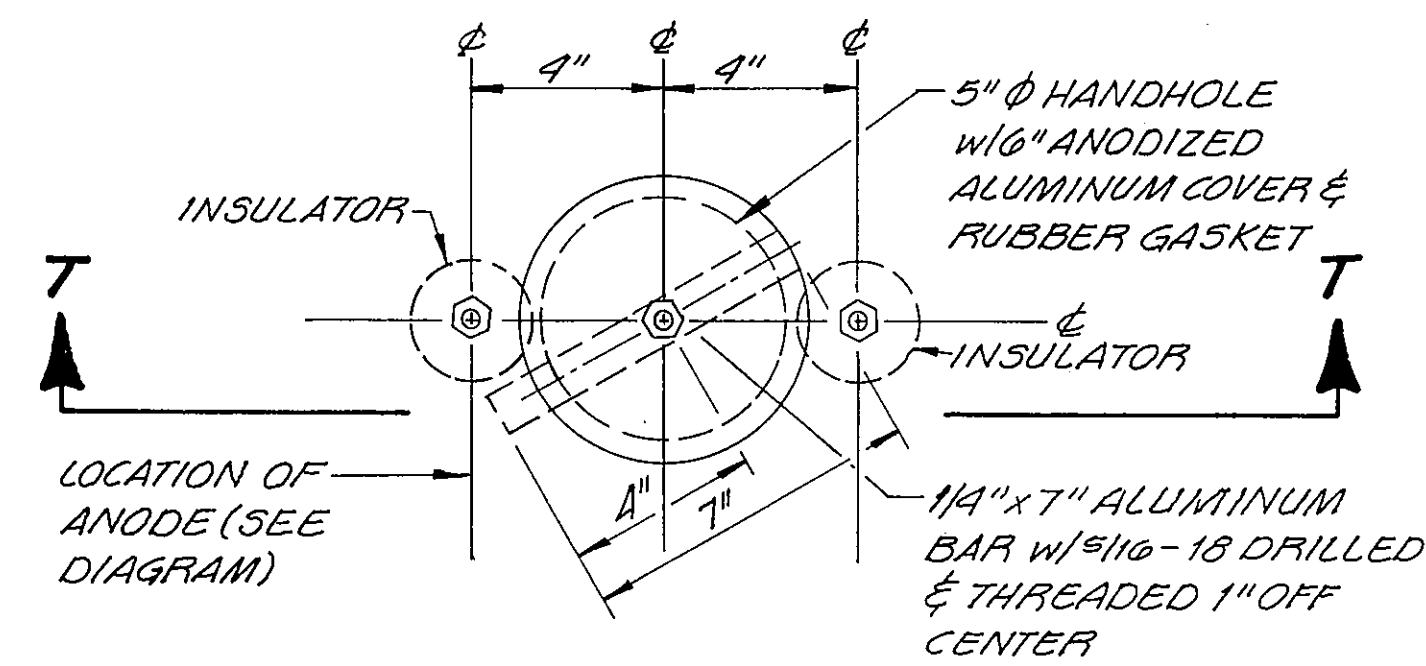
DESIGNED	T. H.	REVISIONS	DATE	BY
DRAWN	STAFF	Δ CHANGE INLET #		
CHECKED	T. H.	DIRECT LOCATIONS	7-31-87	T. H.
DATE				

200,000 GAL. GROUND STORAGE TANK  
 FUTURE LOCATION DIAGRAM  
 OVERFLOW PLAN & DETAILS

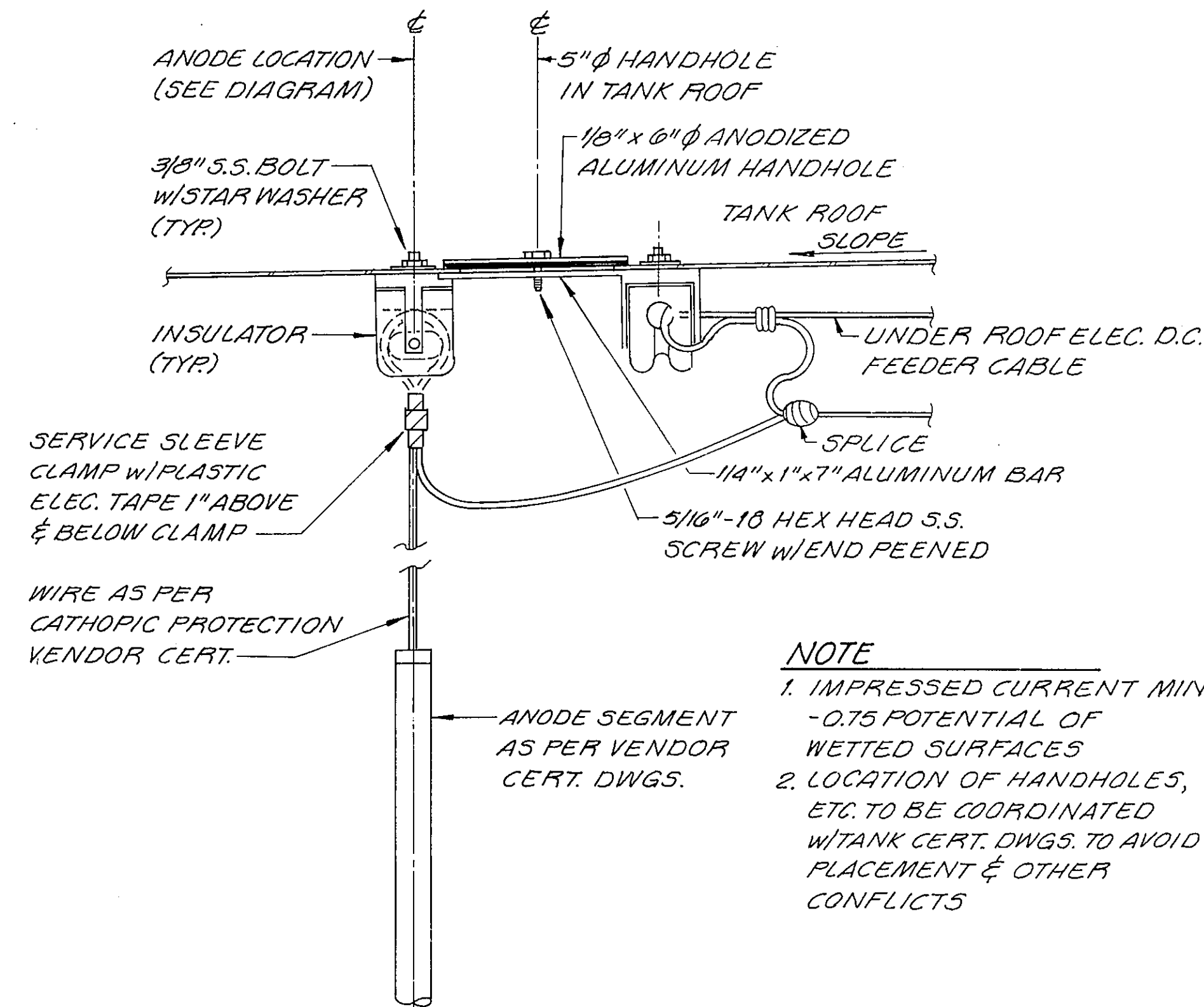




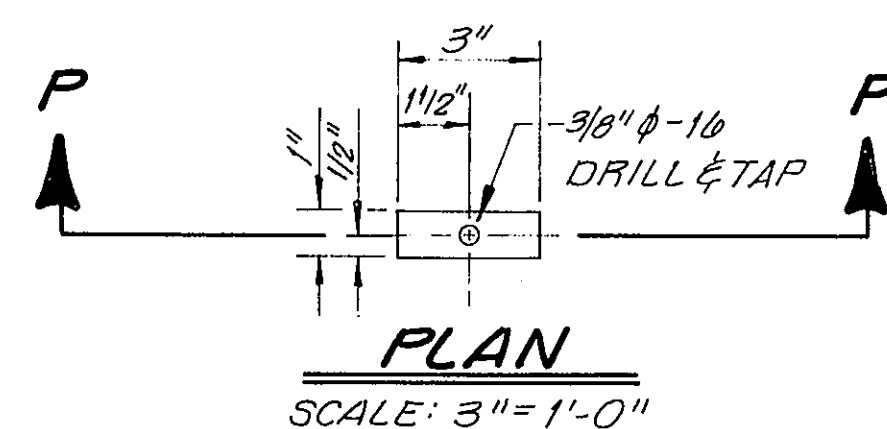




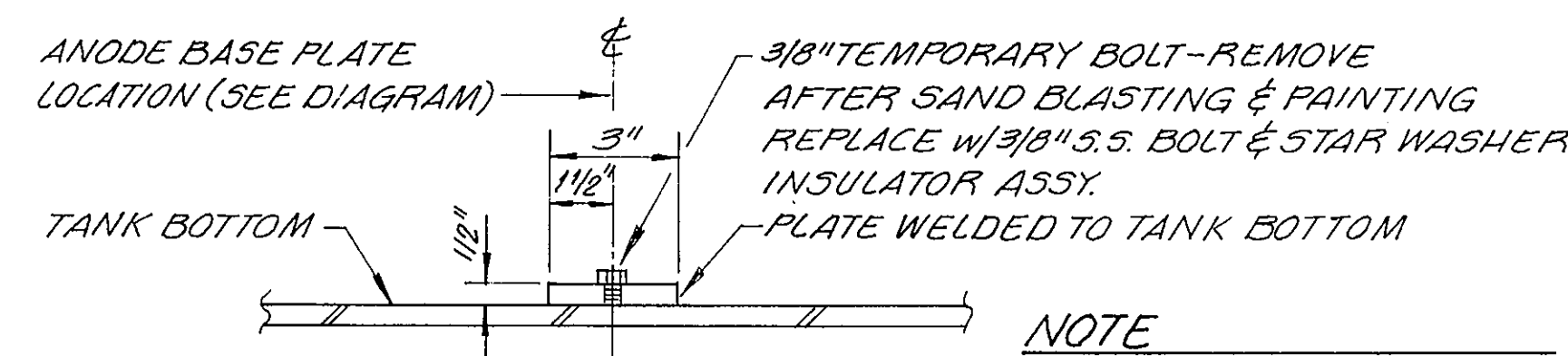
**PLAN**  
SCALE: 3"=1'-0"



**SECTION "T-T"**  
**ANODE & ROOF HANDHOLE DETAIL**  
SCALE: 3"=1'-0"

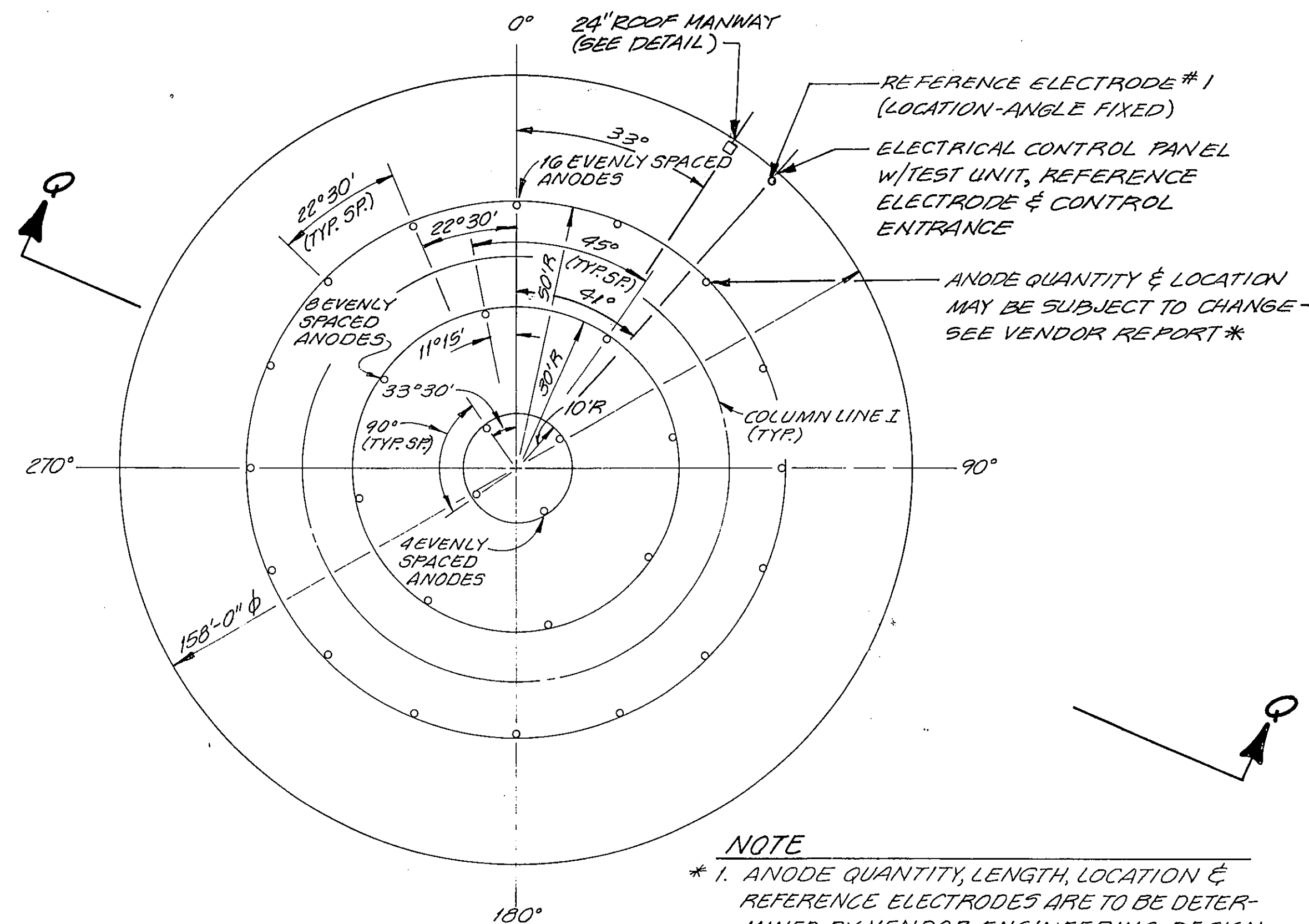


**PLAN**  
SCALE: 3"=1'-0"



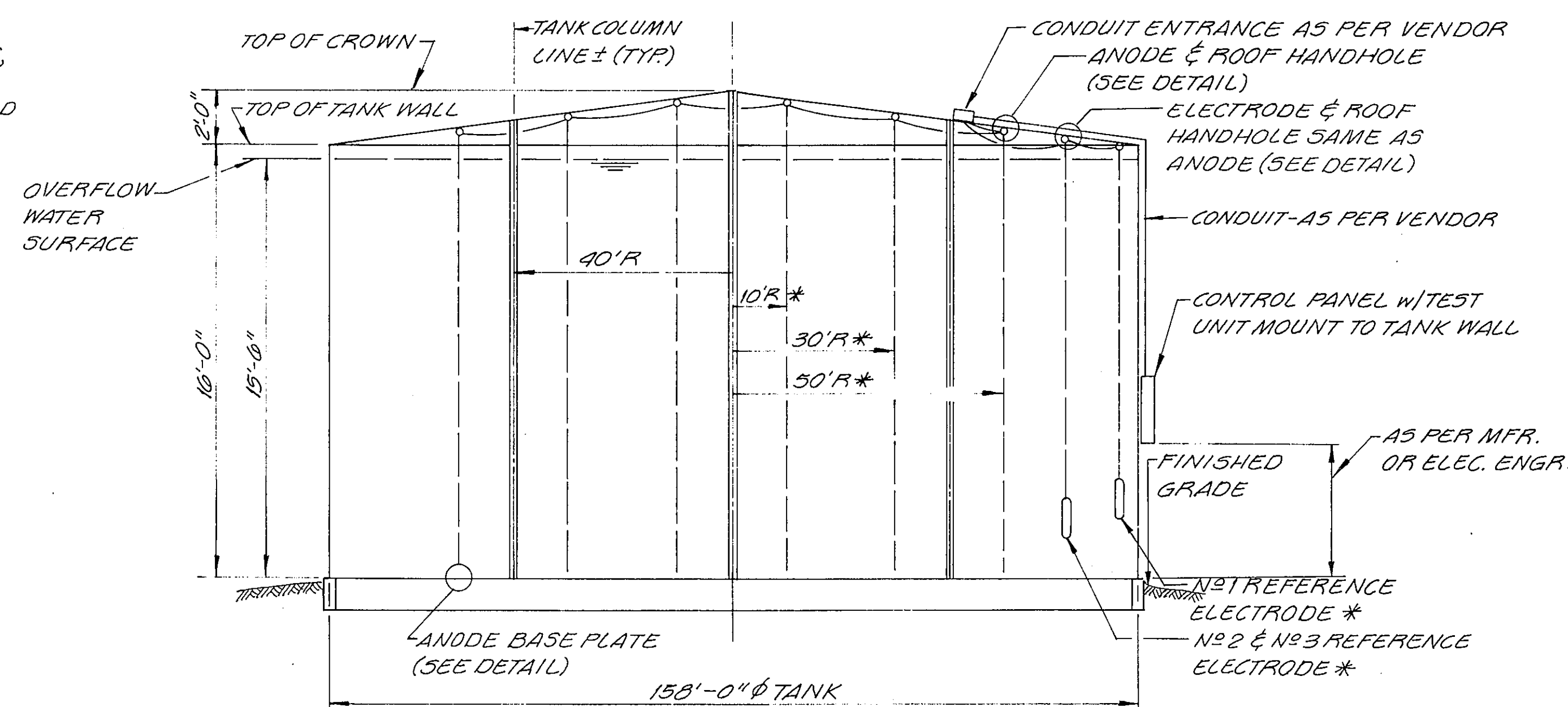
**SECTION "P-P"**  
**ANODE BASE PLATE DETAIL**  
SCALE: 3"=1'-0"

- NOTE**
1. IMPRESSED CURRENT MIN. -0.75 POTENTIAL OF WETTED SURFACES
  2. LOCATION OF HANDHOLES, ETC. TO BE COORDINATED WITH TANK CERT. DWGS. TO AVOID PLACEMENT & OTHER CONFLICTS



**PLAN**  
SCALE: 1"=20'

- NOTE**
- \* 1. ANODE QUANTITY, LENGTH, LOCATION & REFERENCE ELECTRODES ARE TO BE DETERMINED BY VENDOR ENGINEERING. DESIGN IS TO SUIT INDIVIDUAL APPLICATION. COMPLETE CERTIFIED REPORT IS TO BE SUBMITTED TO PROJECT ENGINEER BEFORE INSTALLATION.
  2. ANODE & ELECTRODE LOCATION TO BE COORDINATED WITH TANK VENDOR CERT. DWGS. TO AVOID PLACEMENT & OTHER CONFLICTS WITH COLUMN LINES, RAFTERS, ETC.



**SECTION "Q-Q"**  
**2,000,000 GALLON GROUND STORAGE TANK**  
**CATHODIC PROTECTION FIXTURE DIAGRAM**  
SCALE: HORIZ. 1"=20'  
VERT. 1"=4'

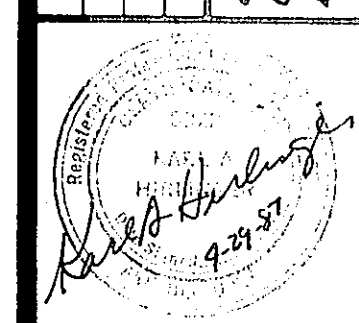
**ESTRELLA ESTATES - WATER PLANT**

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PHOENIX, ARIZONA 85014  
TELEPHONE (602) 264-5831

**COE & VAN LOO**  
PLANNING ENGINEERING LANDSCAPE ARCHITECTURE

DESIGNED	T.H.	REVISIONS	DATE	BY
DRAWN	STOFF			
CHECKED	T.H.			
DATE				

2,000,000 GAL. GROUND STORAGE TANK  
CATHODIC PROTECTION DIAGRAM &  
DETAILS

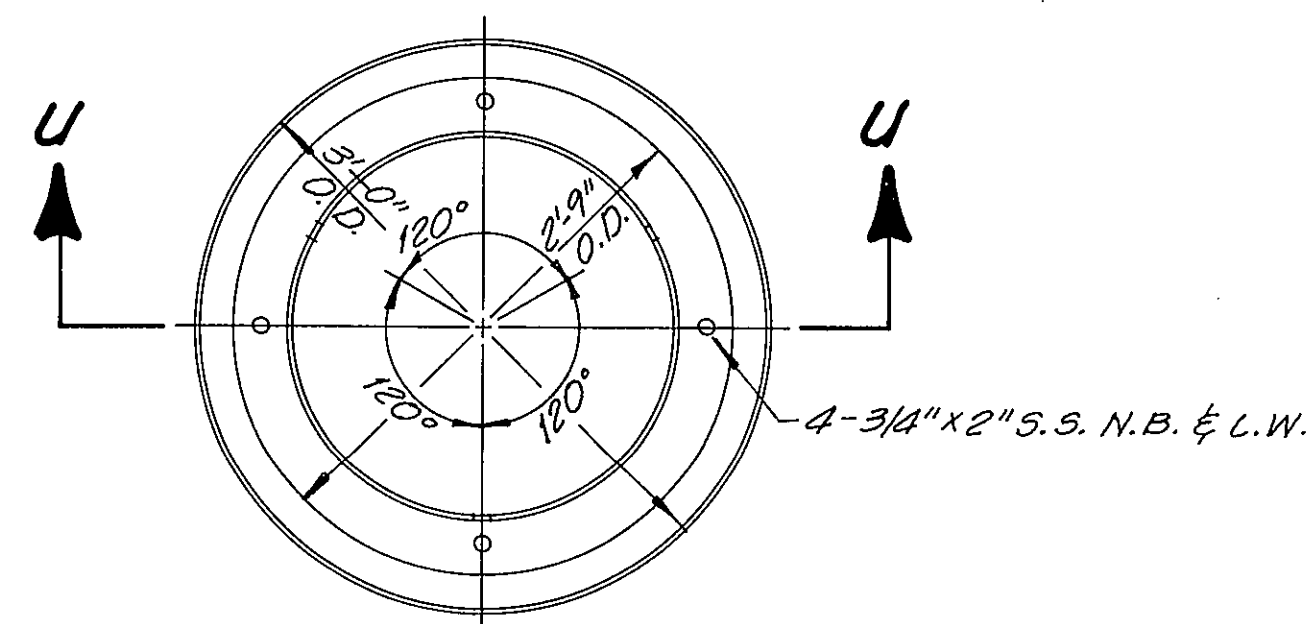


**10**

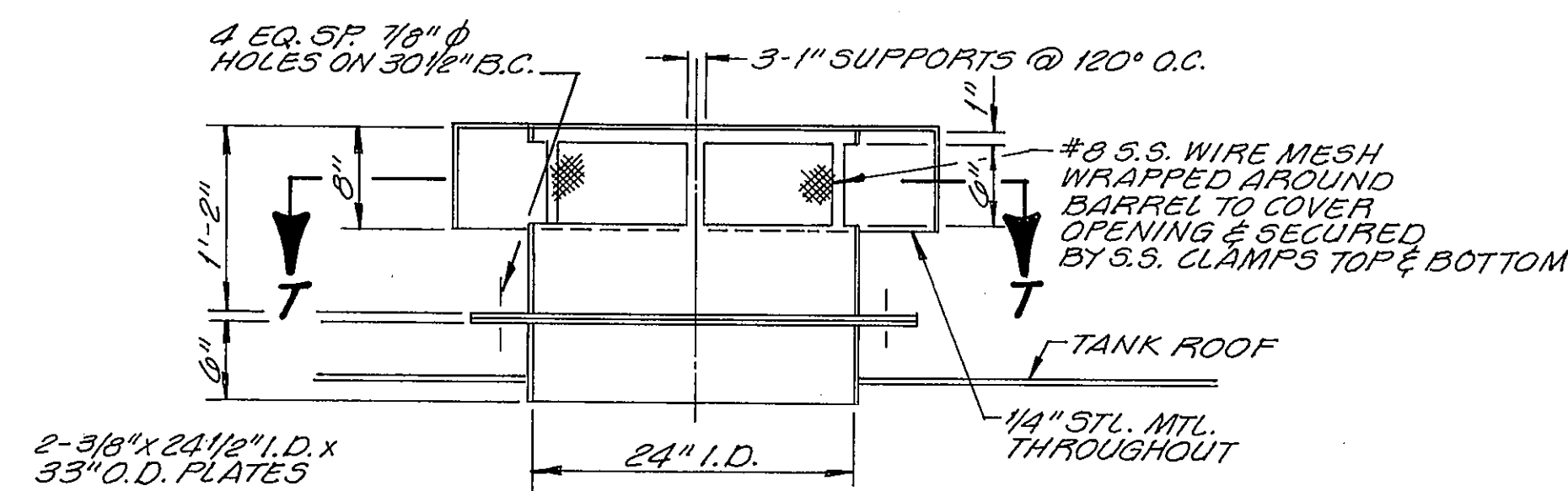
SHEET  
10 OF 26

1074-16-05



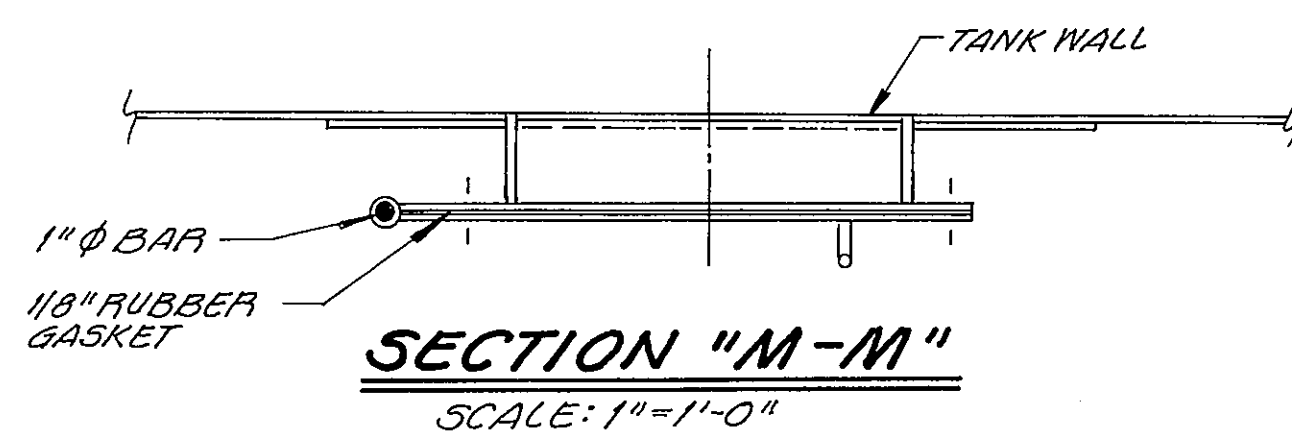


**SECTION "T-T"**  
SCALE: 1" = 1'-0"

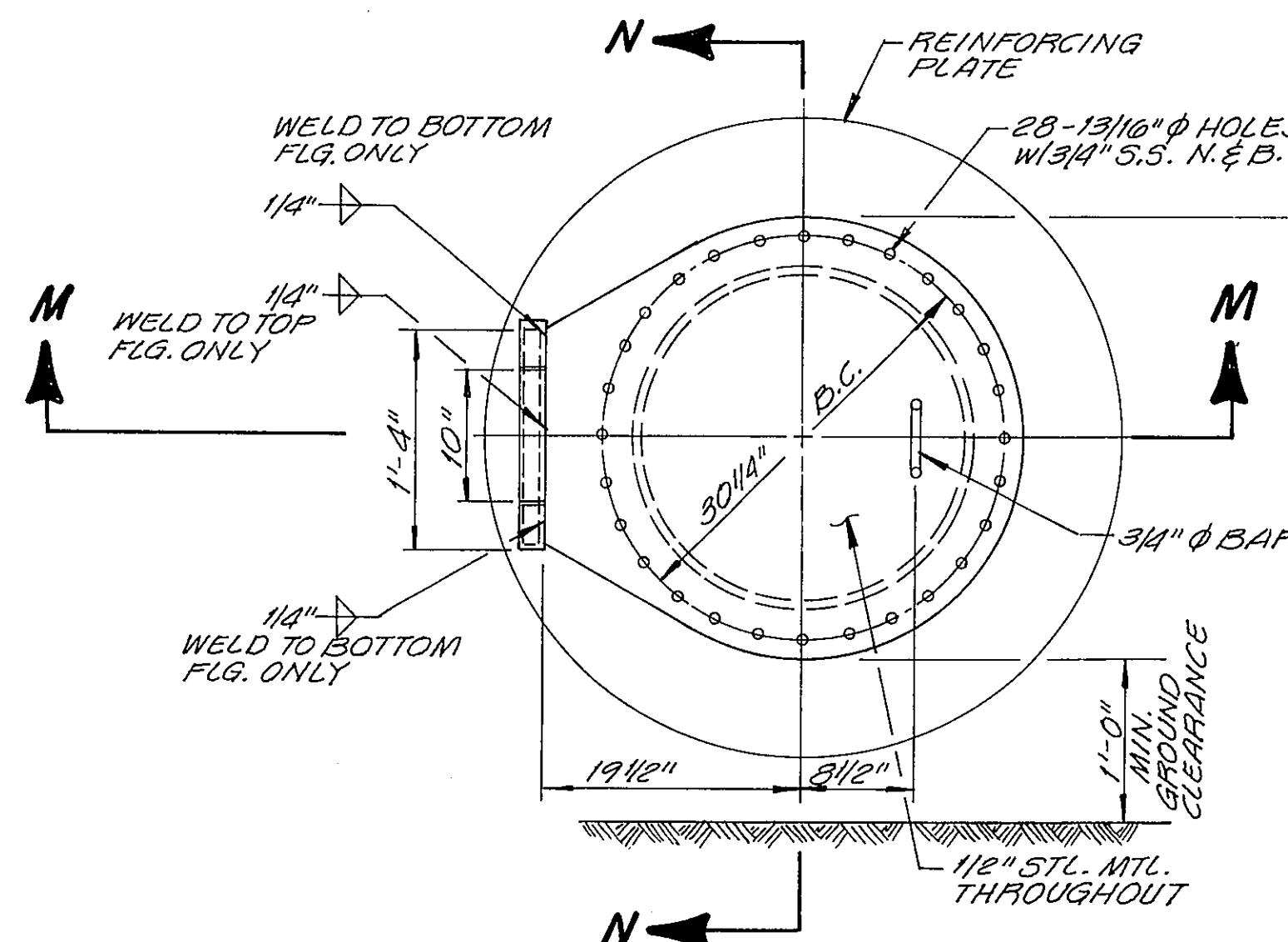


**SECTION "U-U"**  
SCALE: 1" = 1'-0"

**24" Ø G.S.T. AIR VENT**

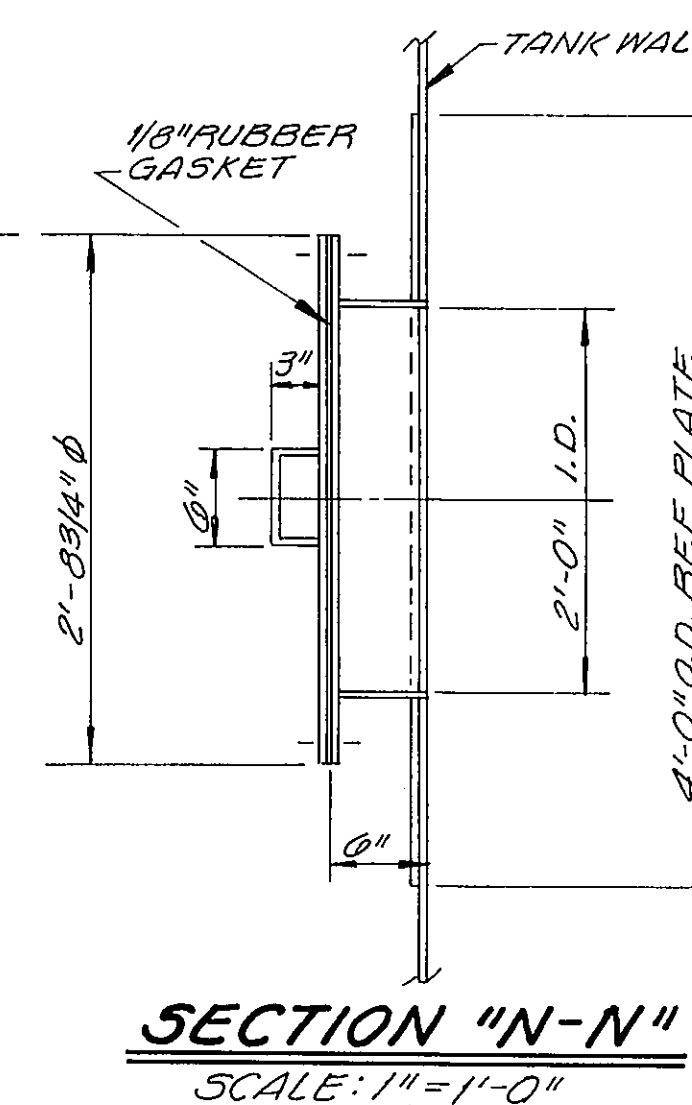


**SECTION "M-M"**  
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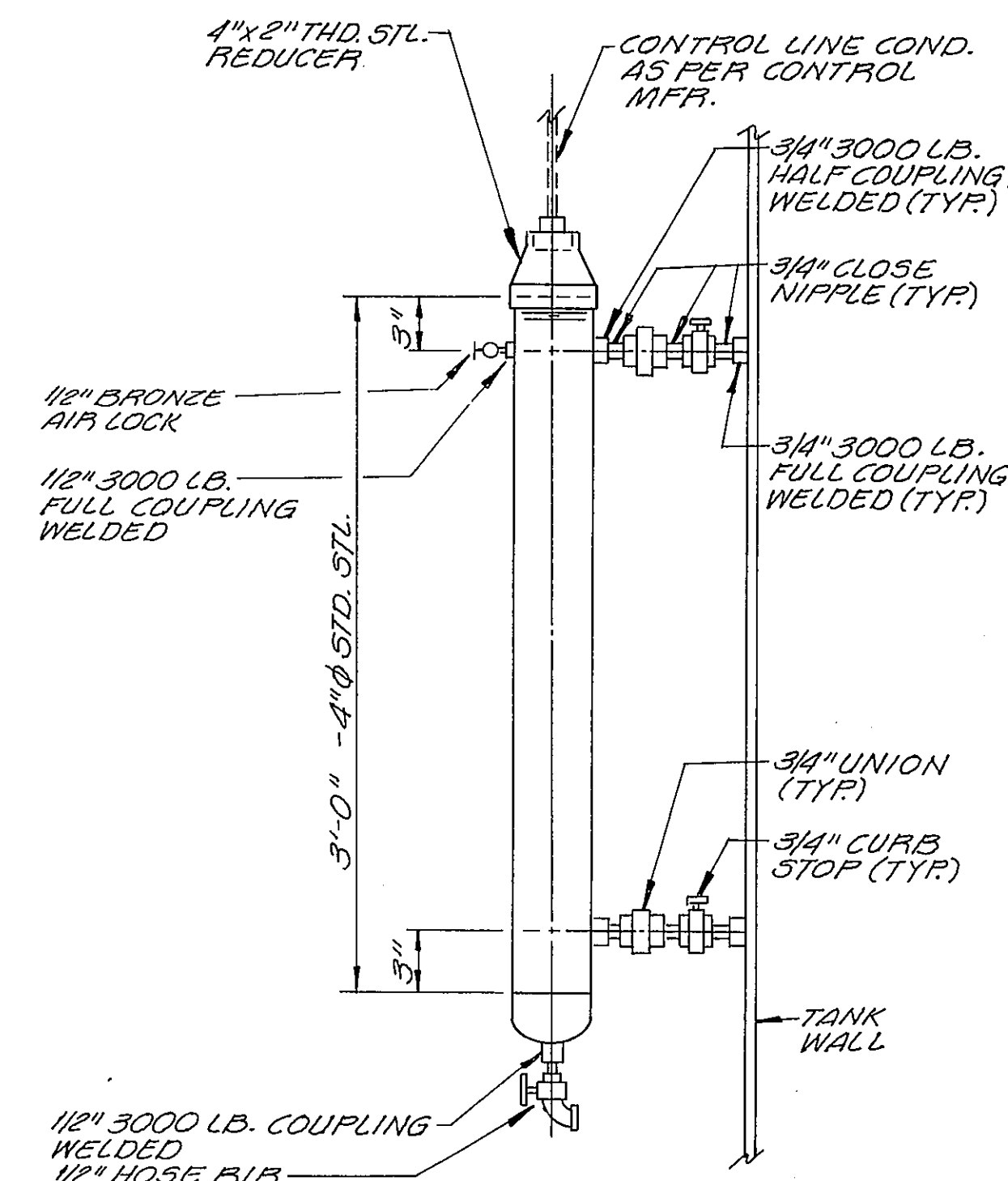


**ELEVATION**  
SCALE: 1" = 1'-0"

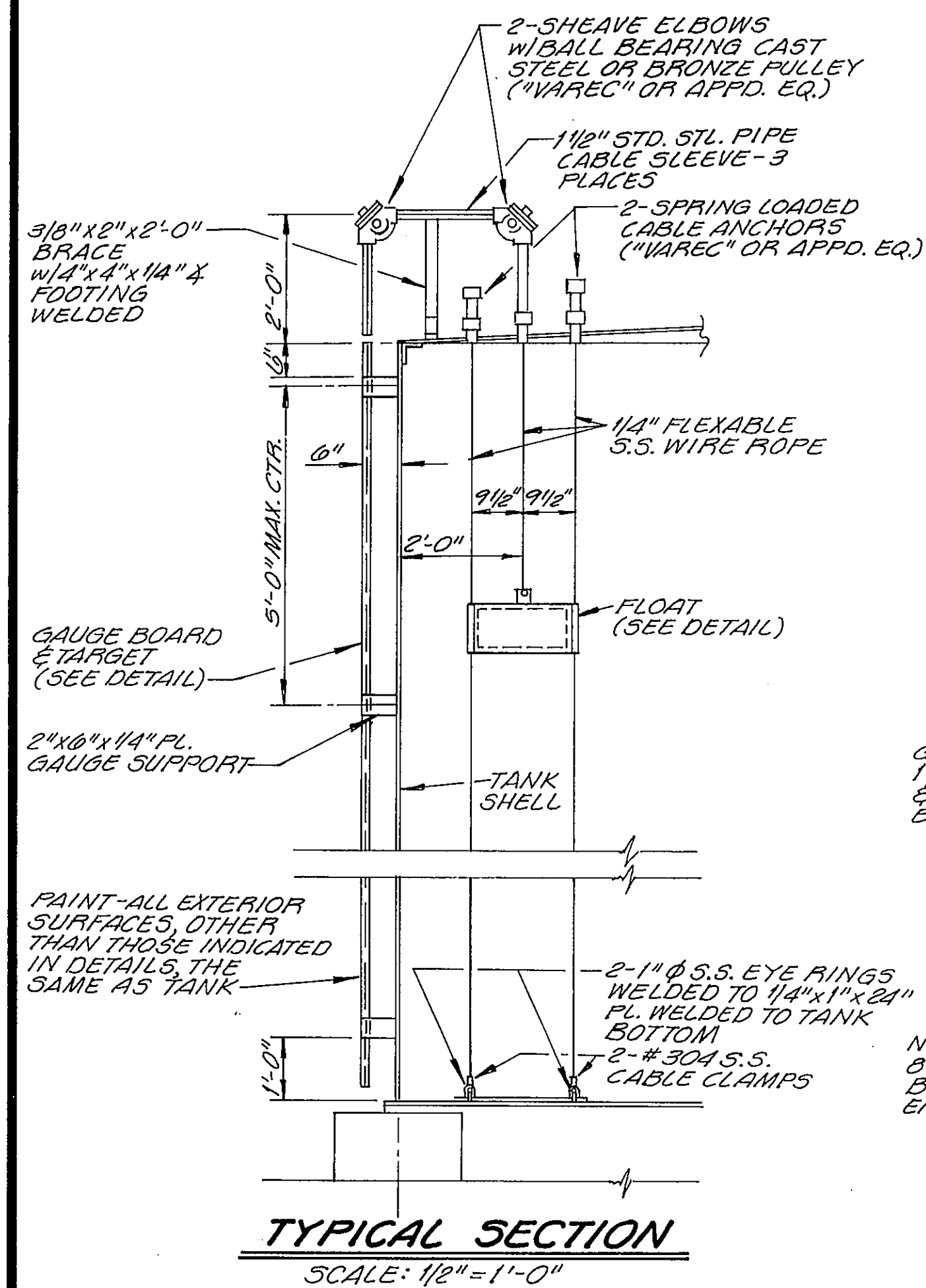
**24" Ø G.S.T. MANWAY DETAIL**



**SECTION "N-N"**  
SCALE: 1" = 1'-0"

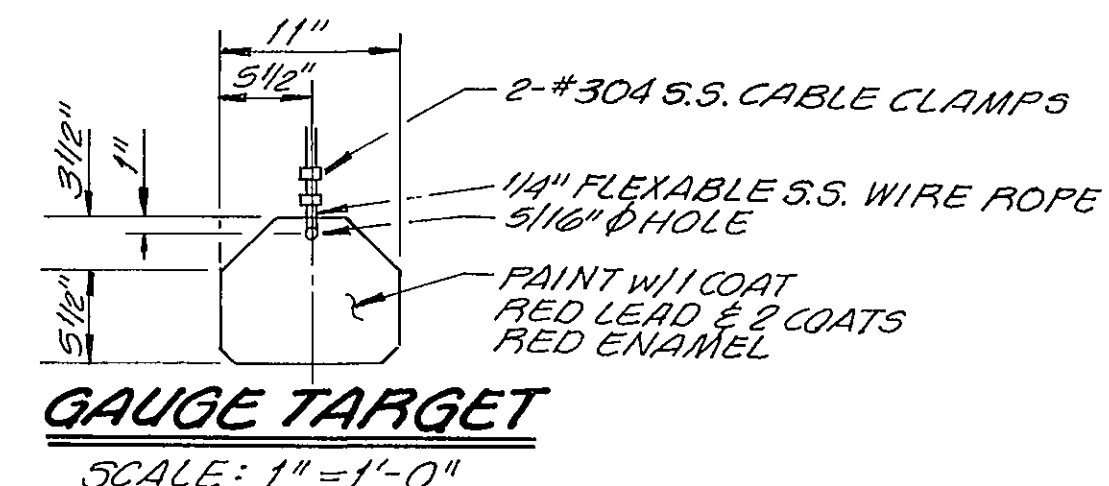


**G.S.T. PROBE BOTTLE DETAIL**  
SCALE: 1 1/2" = 1'-0"

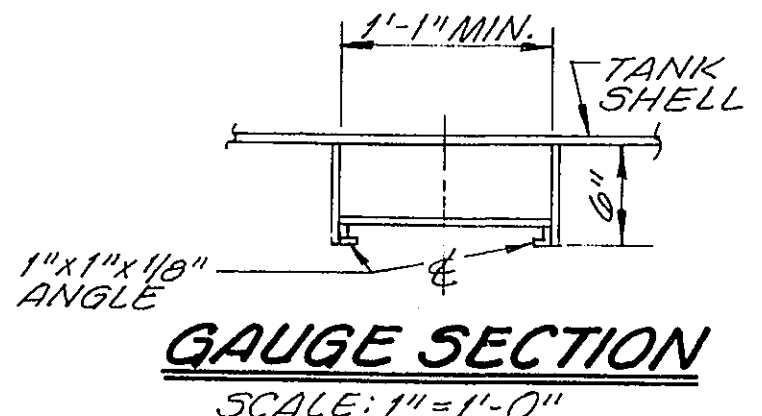


**TYPICAL SECTION**  
SCALE: 1/2" = 1'-0"

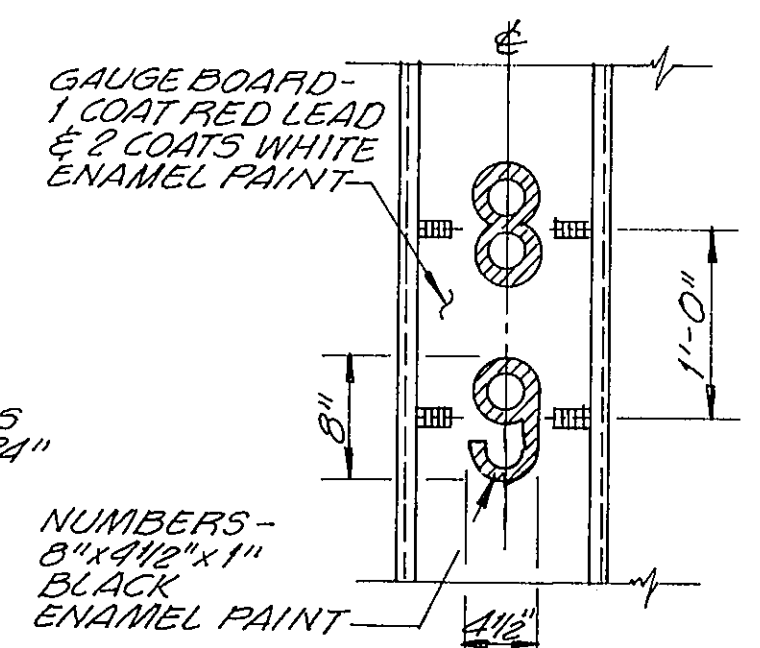
**G.S.T. LEVEL INDICATOR DETAIL**



**GAUGE TARGET**  
SCALE: 1" = 1'-0"

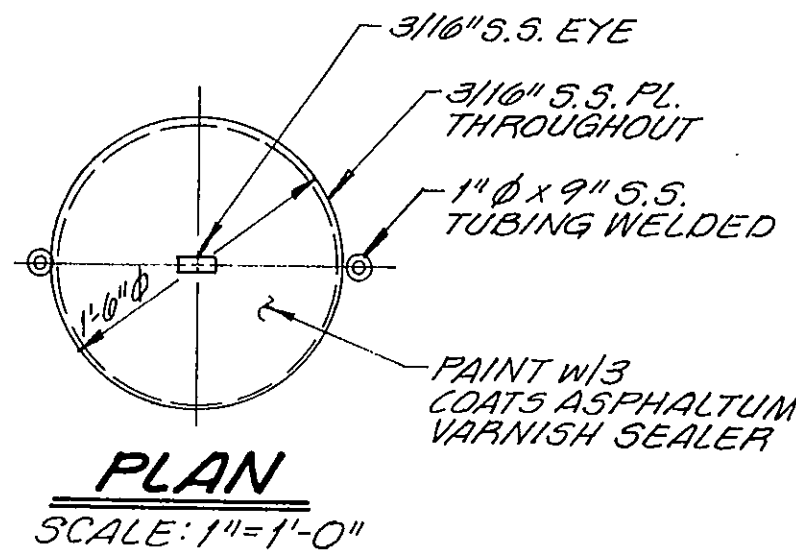


**GAUGE SECTION**  
SCALE: 1" = 1'-0"

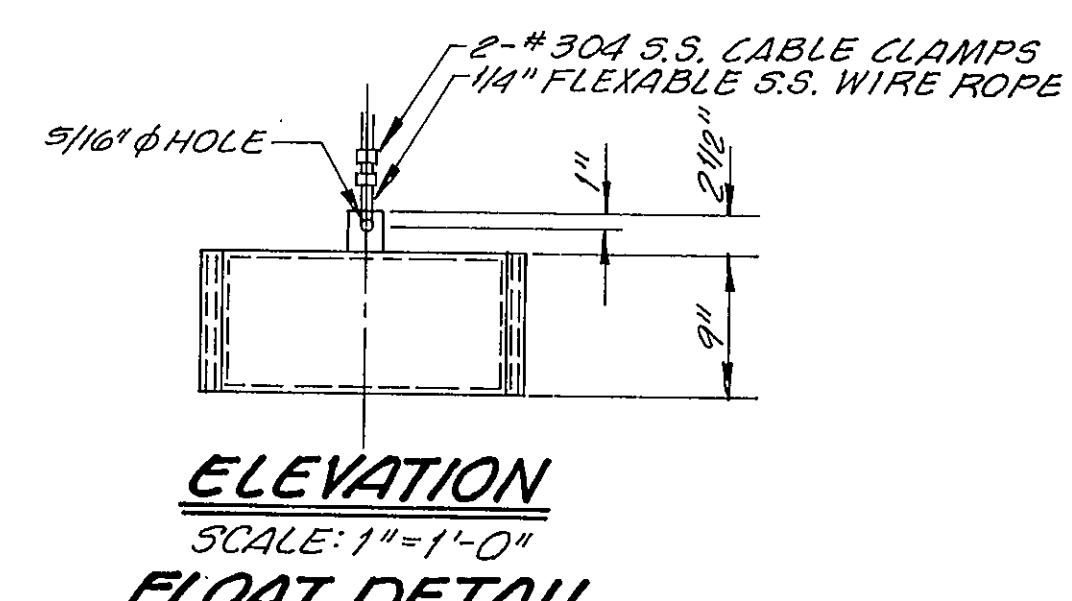


**GAUGE FACE**  
SCALE: 1" = 1'-0"

**GAUGE BOARD & TARGET DETAIL**

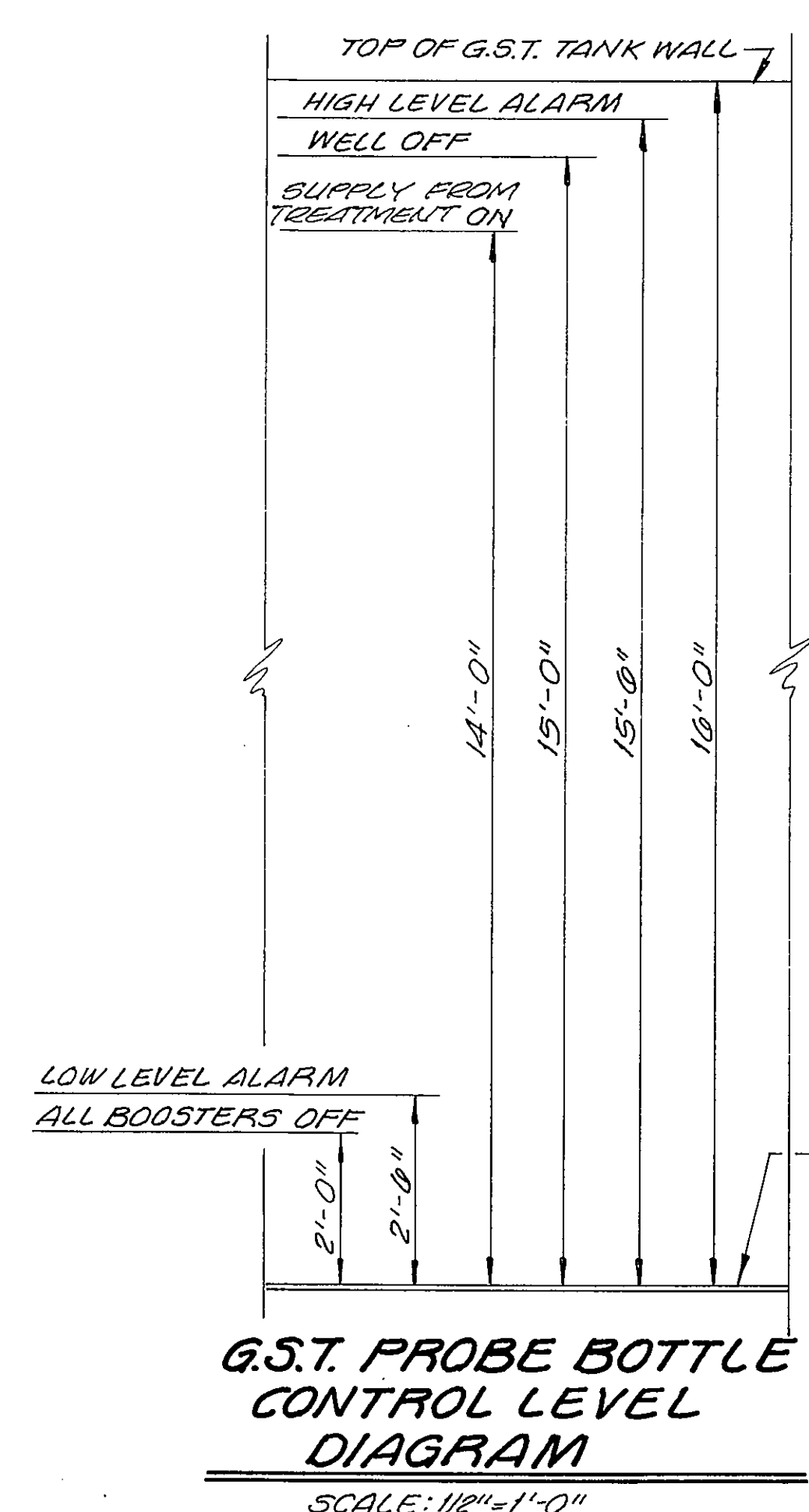


**PLAN**  
SCALE: 1" = 1'-0"

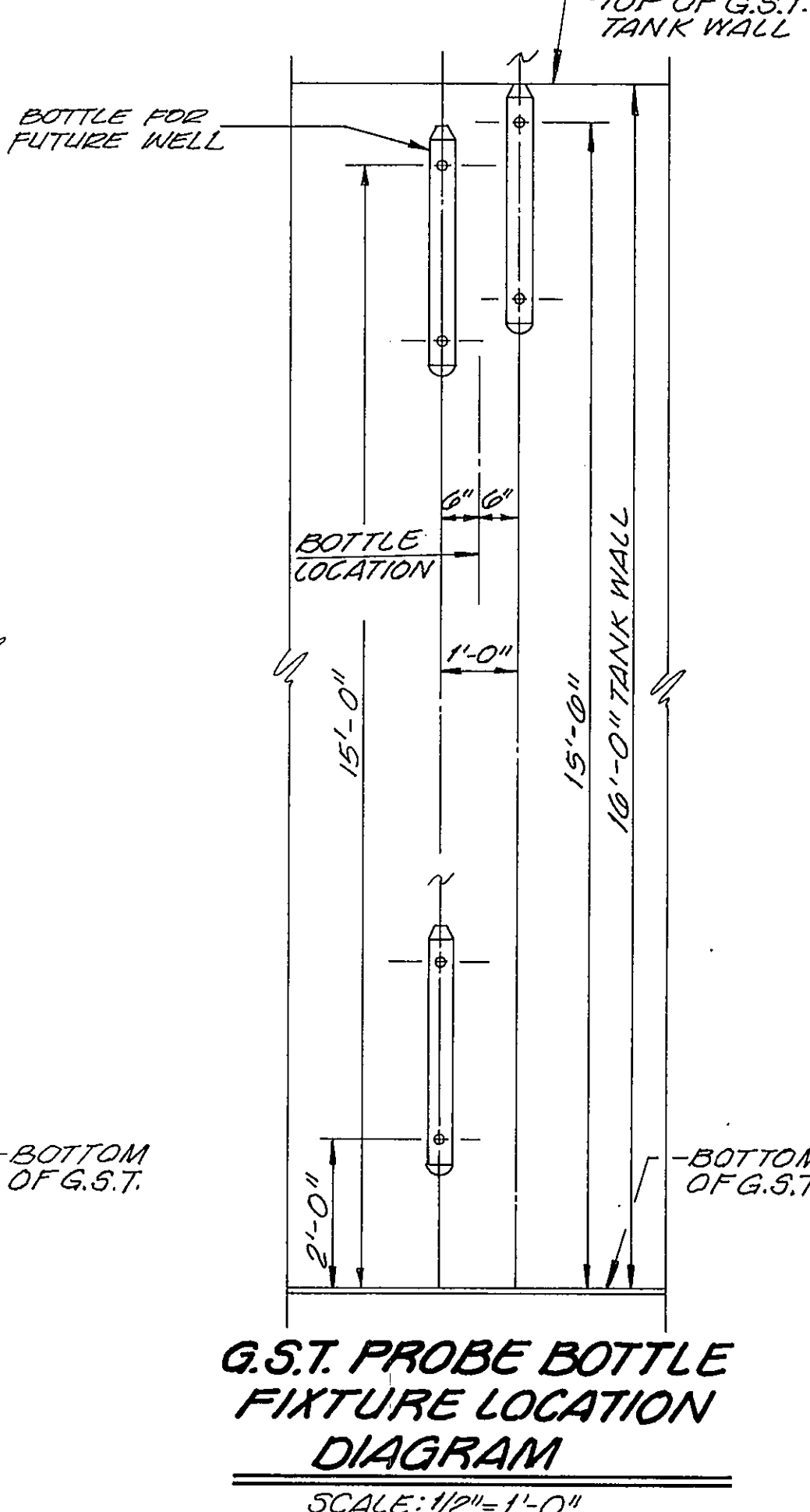


**ELEVATION**  
SCALE: 1" = 1'-0"

**FLOAT DETAIL**



**G.S.T. PROBE BOTTLE CONTROL LEVEL DIAGRAM**  
SCALE: 1/2" = 1'-0"



**G.S.T. PROBE BOTTLE FIXTURE LOCATION DIAGRAM**  
SCALE: 1/2" = 1'-0"





Technical drawing showing a cross-section of a tank shell foundation detail. The drawing includes the following labels and dimensions:

- E RING WALL**
- TANK SHELL** (79'-0" DIA.)
- PROVIDE 1/2" ASPHALT IMPREGATED EXPANSION JOINT FILLER & BITUMINOUS MASTIC SEALER**
- 1" CHAMFER BOTH TOP EDGES ALL AROUND**
- SELECT GRANULAR BASE MATERIAL**
- RECOMPACTED MATERIAL** (SCAFFRY & REMOVE VEGETATION BEFORE PLACEMENT, COMPACT TO 95% PROCTOR DENSITY OR AS PER SOILS ENGINEER)
- NEED HOLES - 1 1/4" Ø GALV. STL. PIPE @ 25' O.C.**
- #6 BARS EACH FACE @ 9" O.C.**
- #3 TIES @ 12" O.C.**
- Dimensions:** 1'-0", 2'-0", 3" (TYP), 2'-0"

**NOTE:**  
HEIGHT, WIDTH & RE-BARS MAY BE ADJUSTED AS PER STRUCTURAL ENGINEER CERT. DIMS.

G.S.T. TYPICAL RING WALL SECTION  
SCALE: 1/2" = 1'-0"



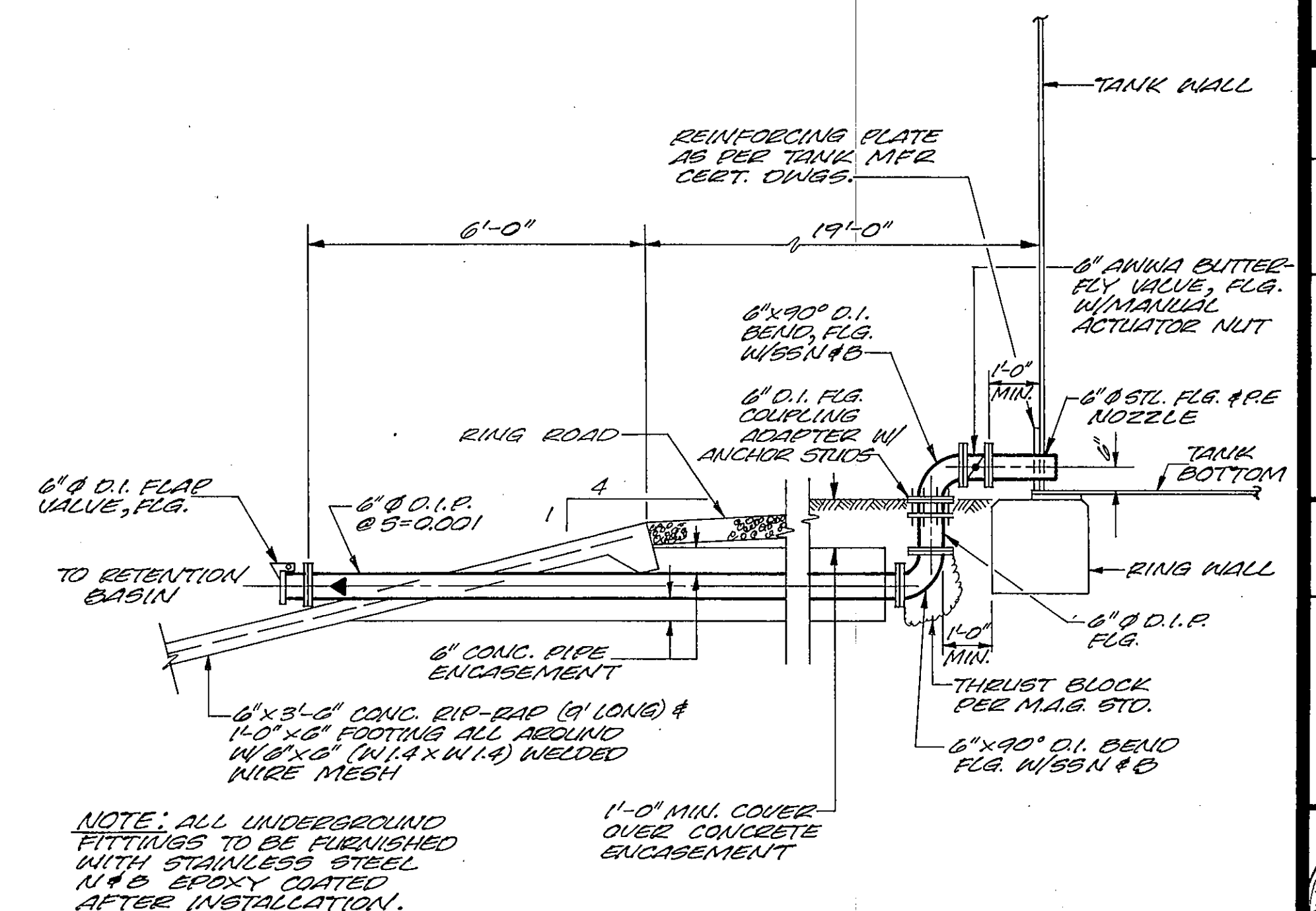
SCALE:  $3/8" = 1'-0"$



SCALE:  $3/8" = 1'-0"$



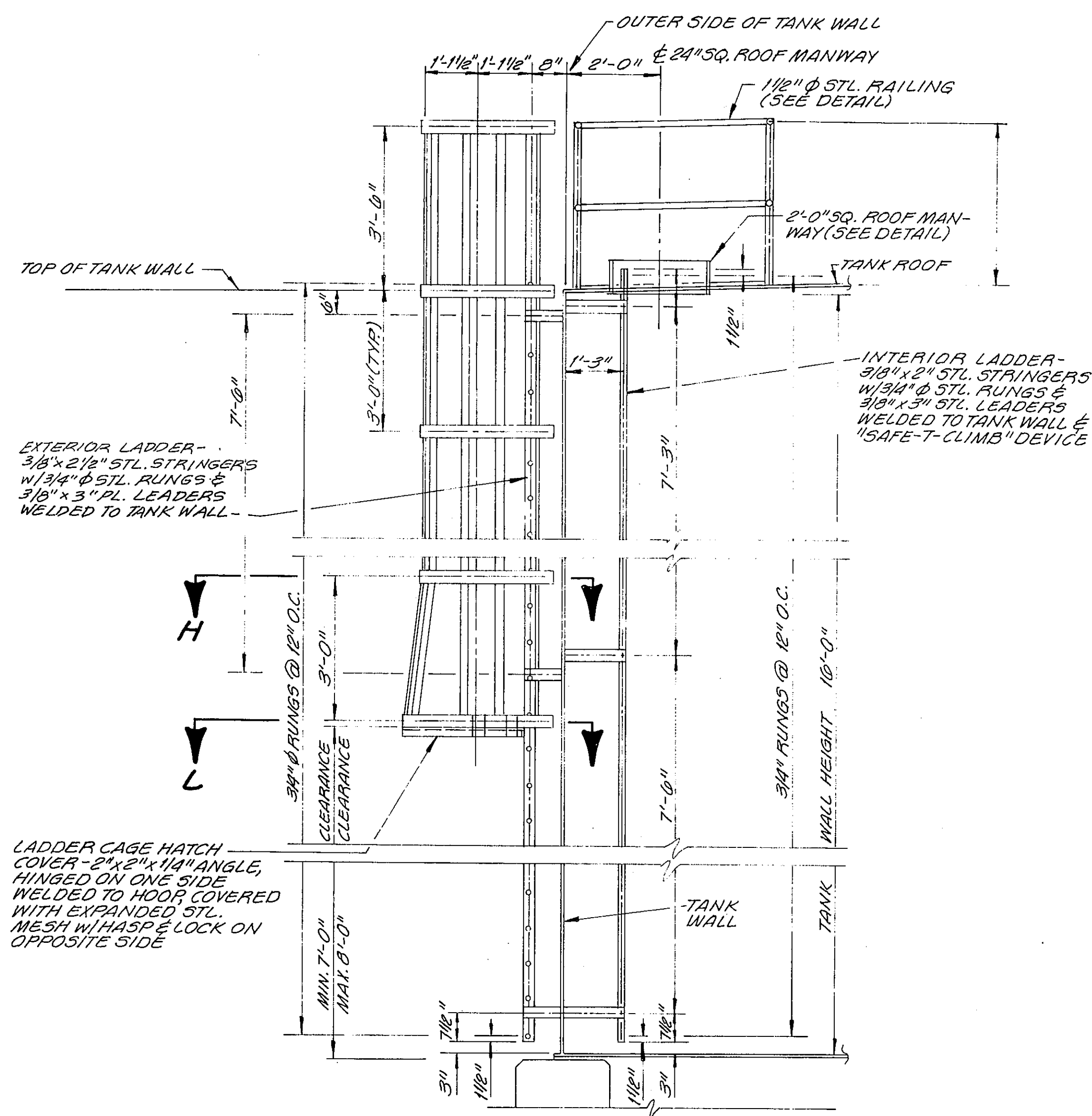
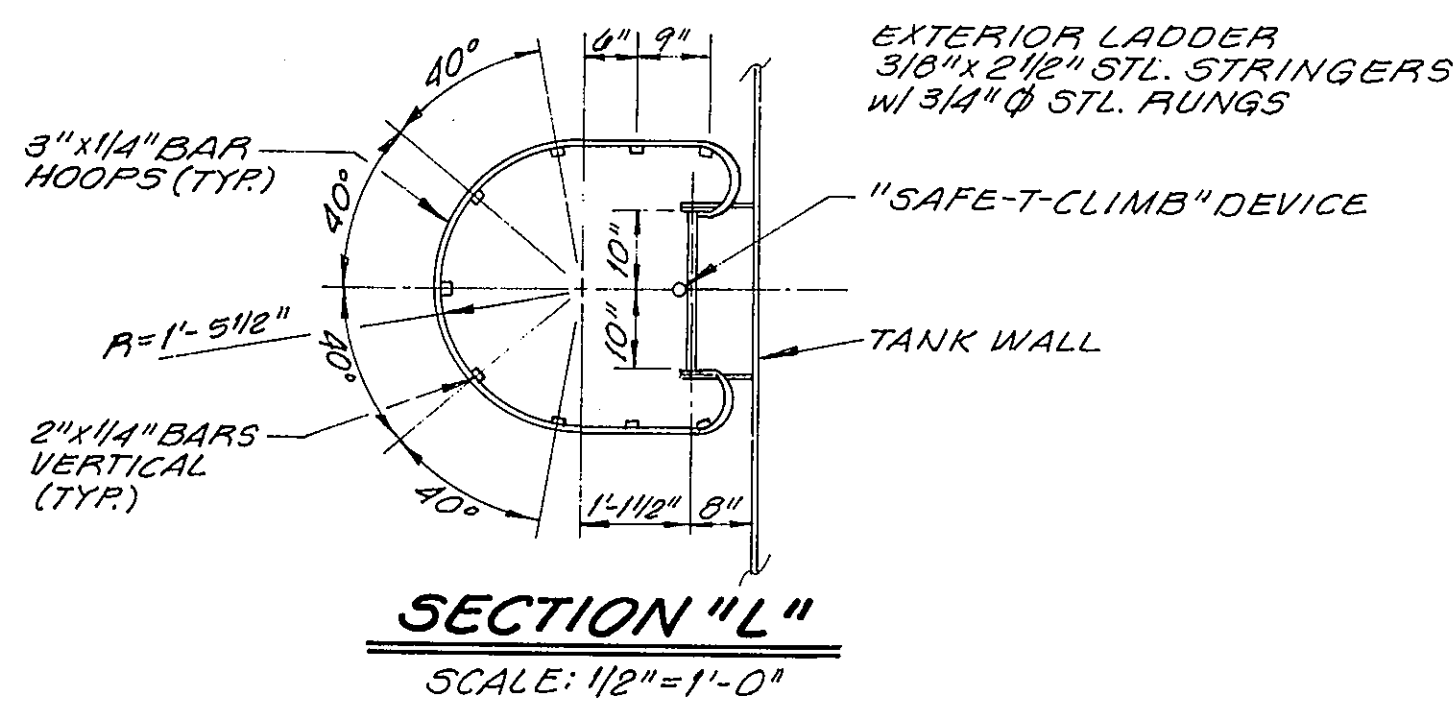
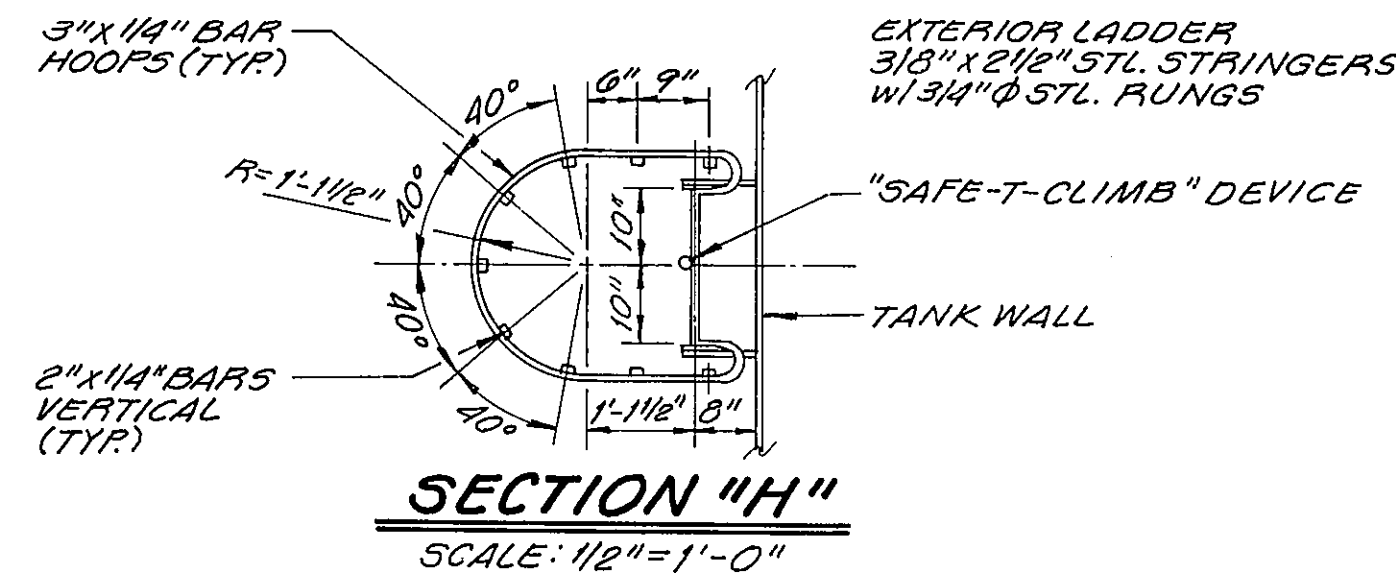
SCALE:  $3/8" = 1'-0"$



6" Ø DRAIN DETAIL  
GROUND STORAGE TANK

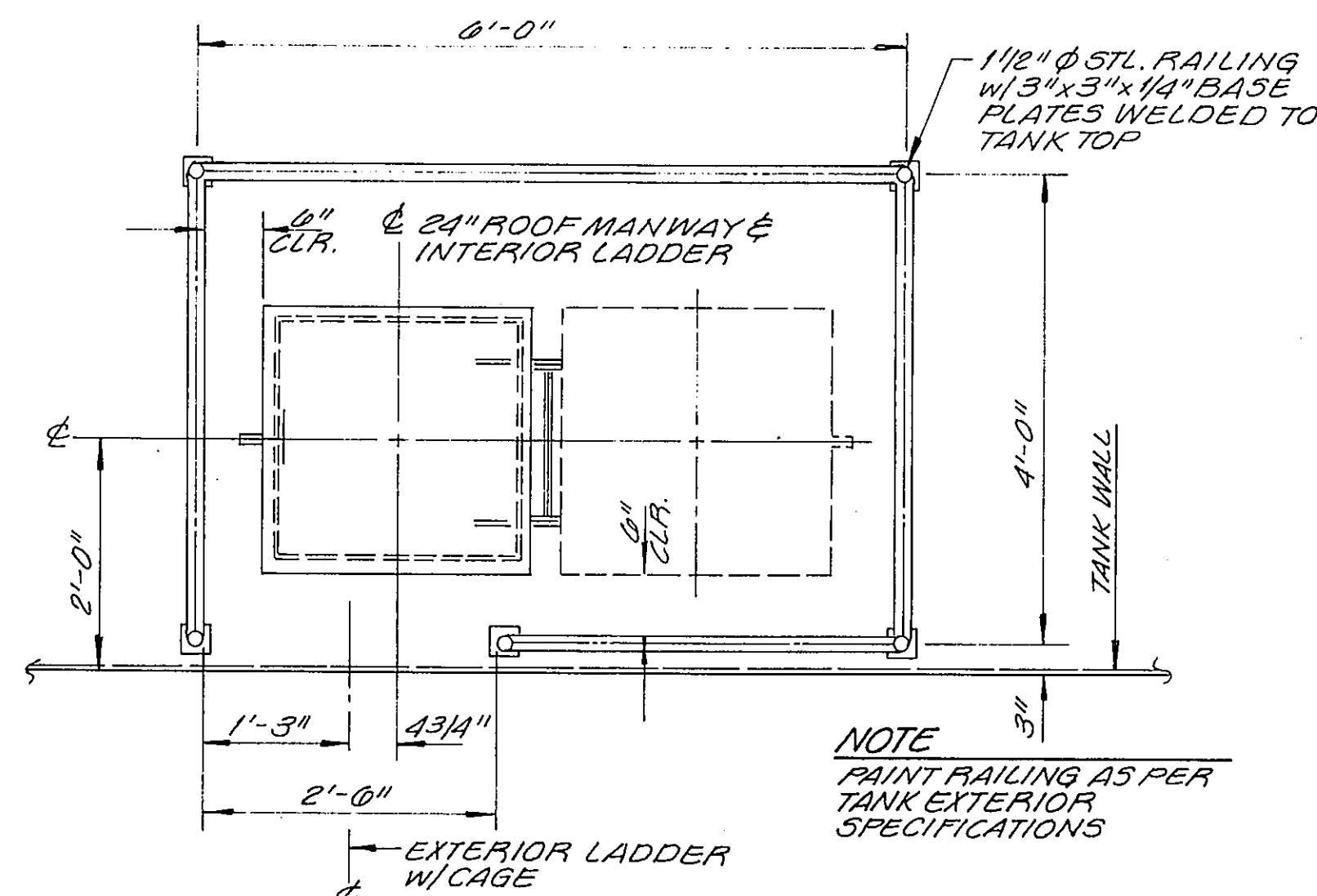
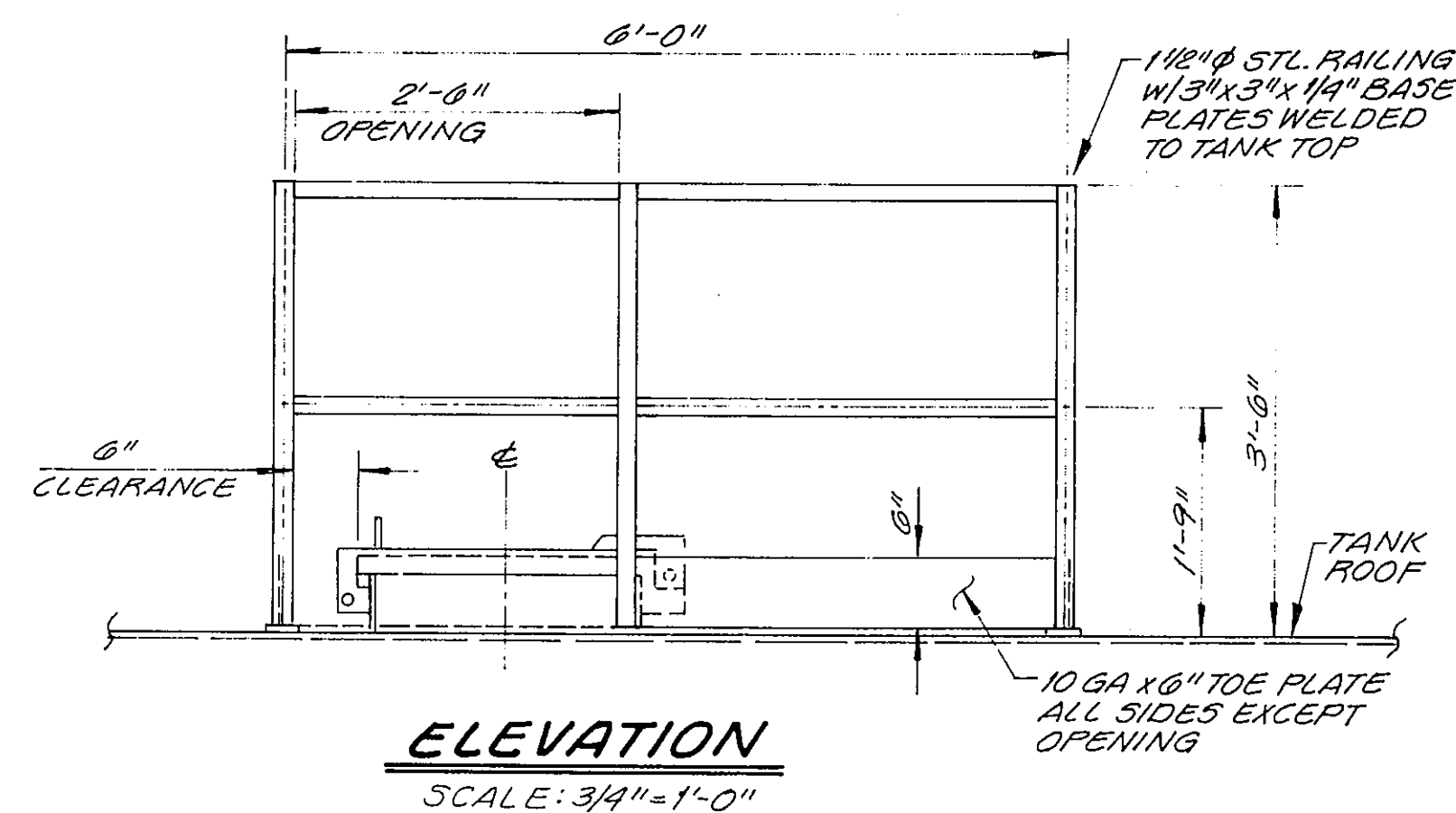
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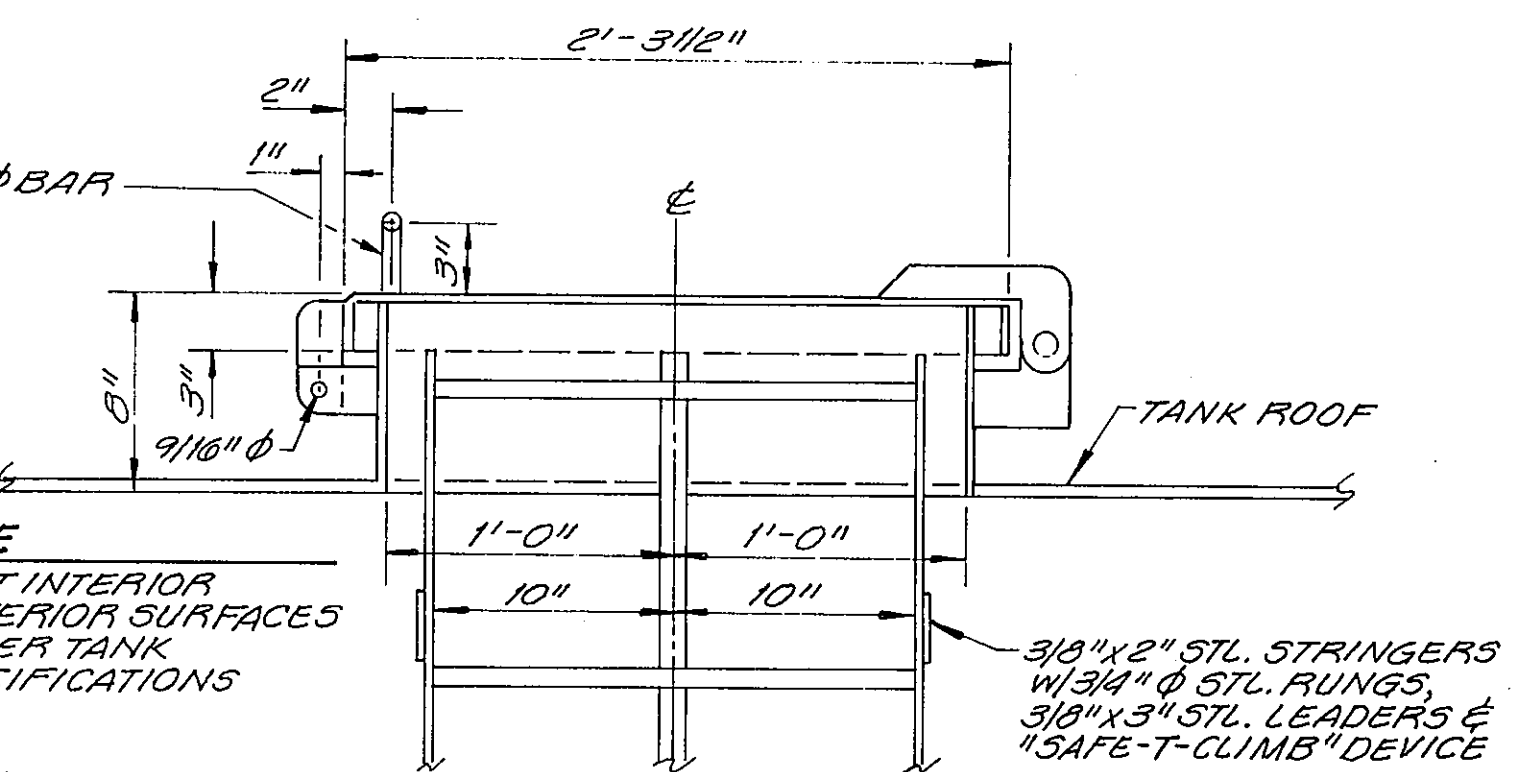
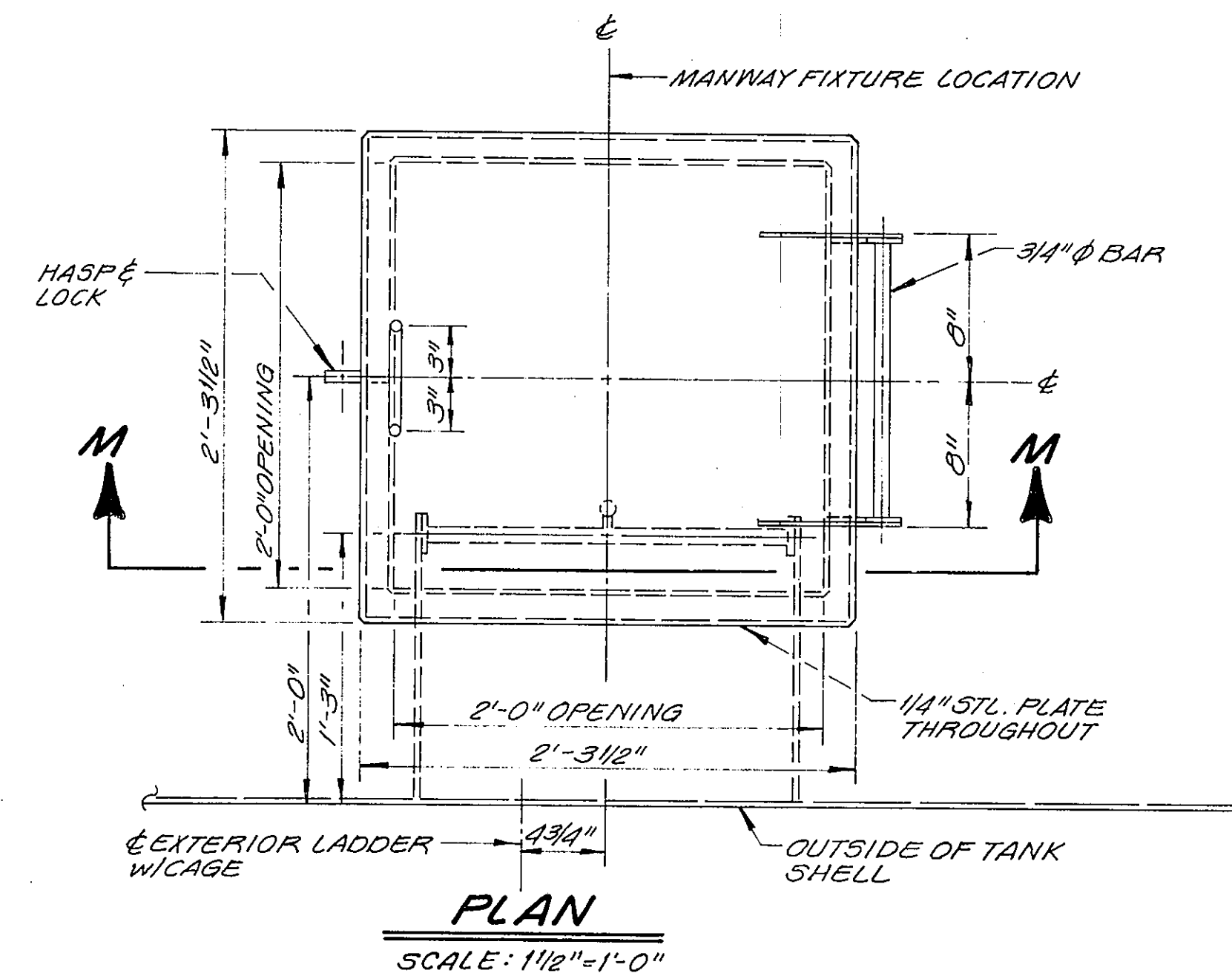
**ELEVATION  
G.S.T. LADDER DETAIL**  
SCALE: 1/2"=1'-0"

NOTE  
EXTERIOR ITEMS TO BE HOT  
DIPPED GALV. AFTER  
FABRICATION



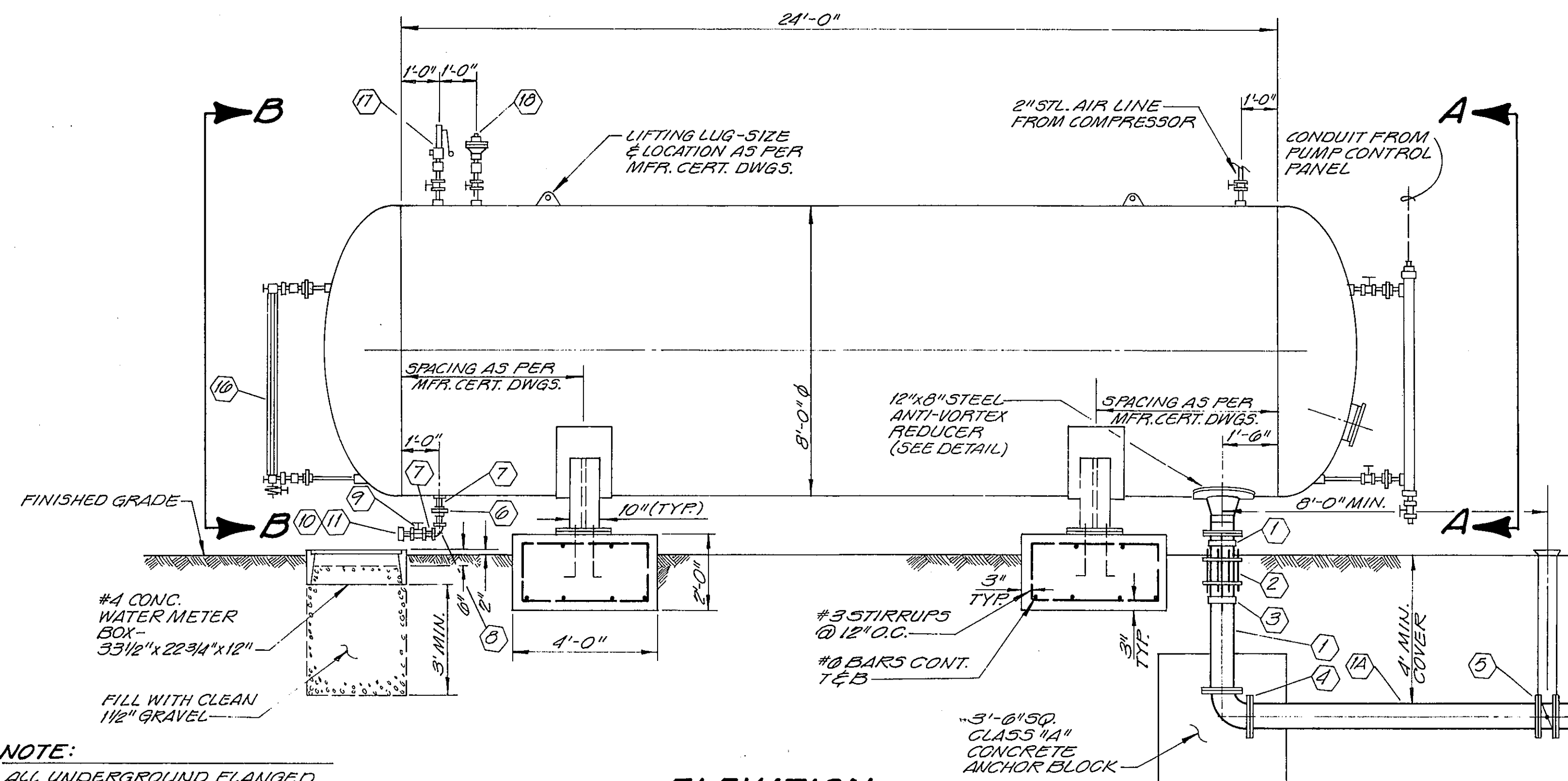
**PLAN  
24\"/>**

NOTE  
PAINT RAILING AS PER  
TANK EXTERIOR  
SPECIFICATIONS



**SECTION "M-M"  
24\"/>**

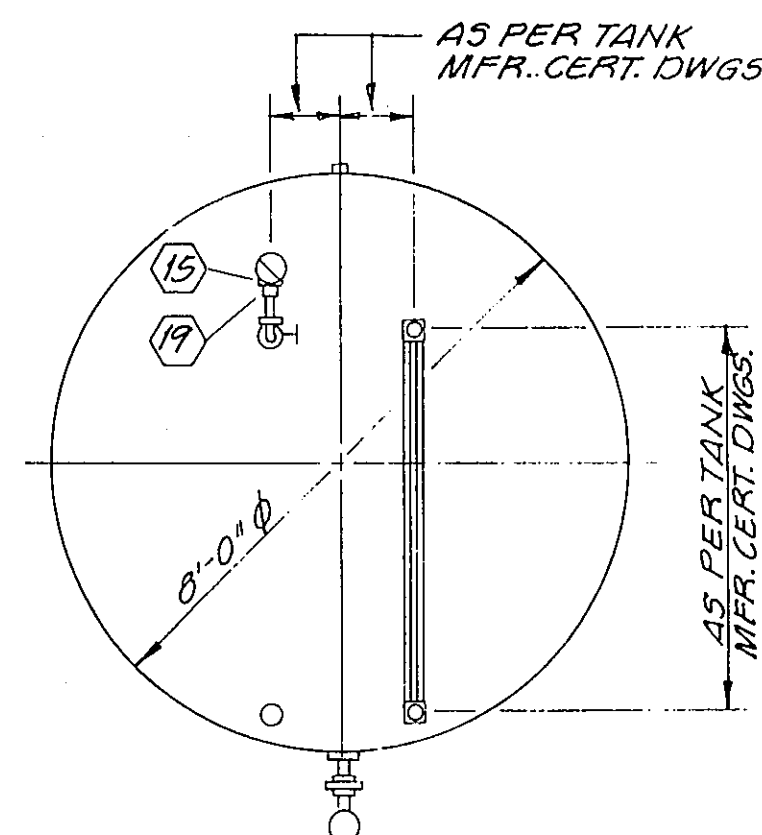




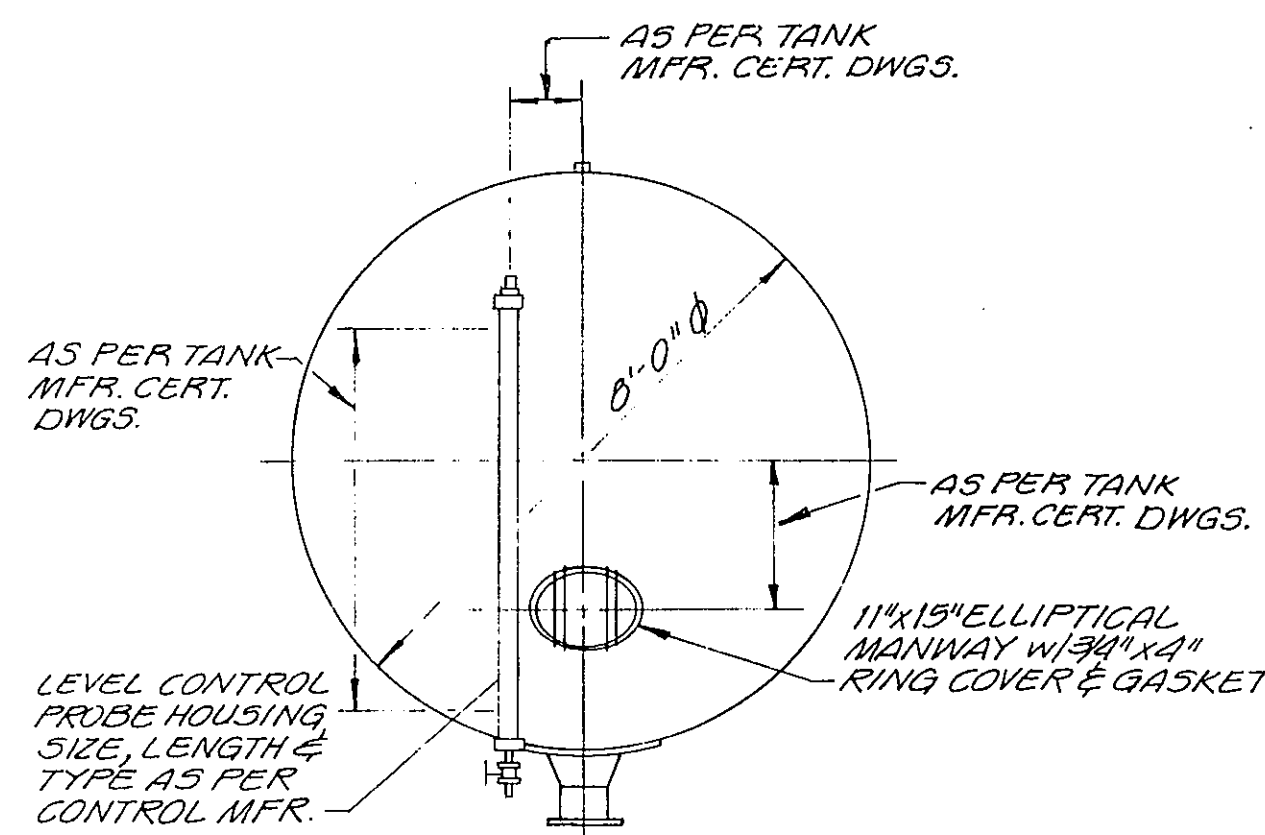
**ELEVATION  
10,000 GALLON-HYDROPNEUMATIC TANK**  
SCALE: 3/8"=1'-0"

**NOTE:**

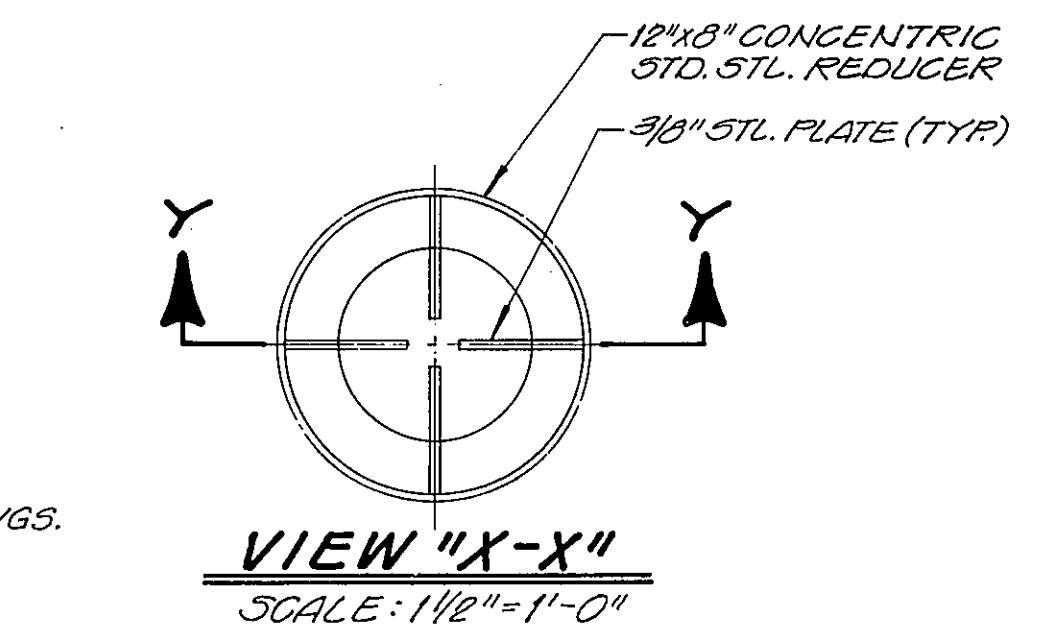
ALL UNDERGROUND FLANGED FITTINGS ARE TO BE SUPPLIED WITH STAINLESS STEEL NUTS & BOLTS AND ARE TO BE EPOXY COATED AFTER INSTALLATION



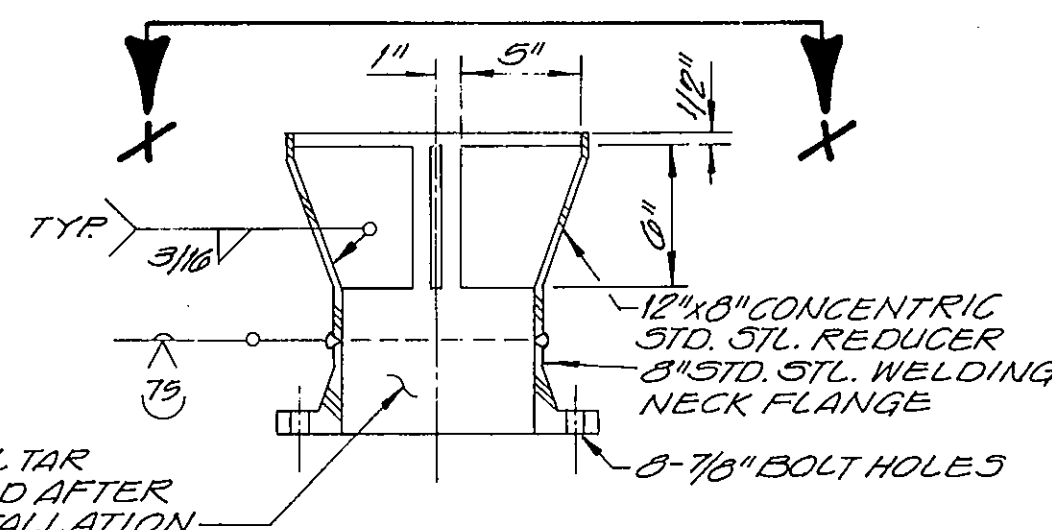
**VIEW "B-B"  
HYDROPNEUMATIC TANK**  
SCALE: 3/8"=1'-0"



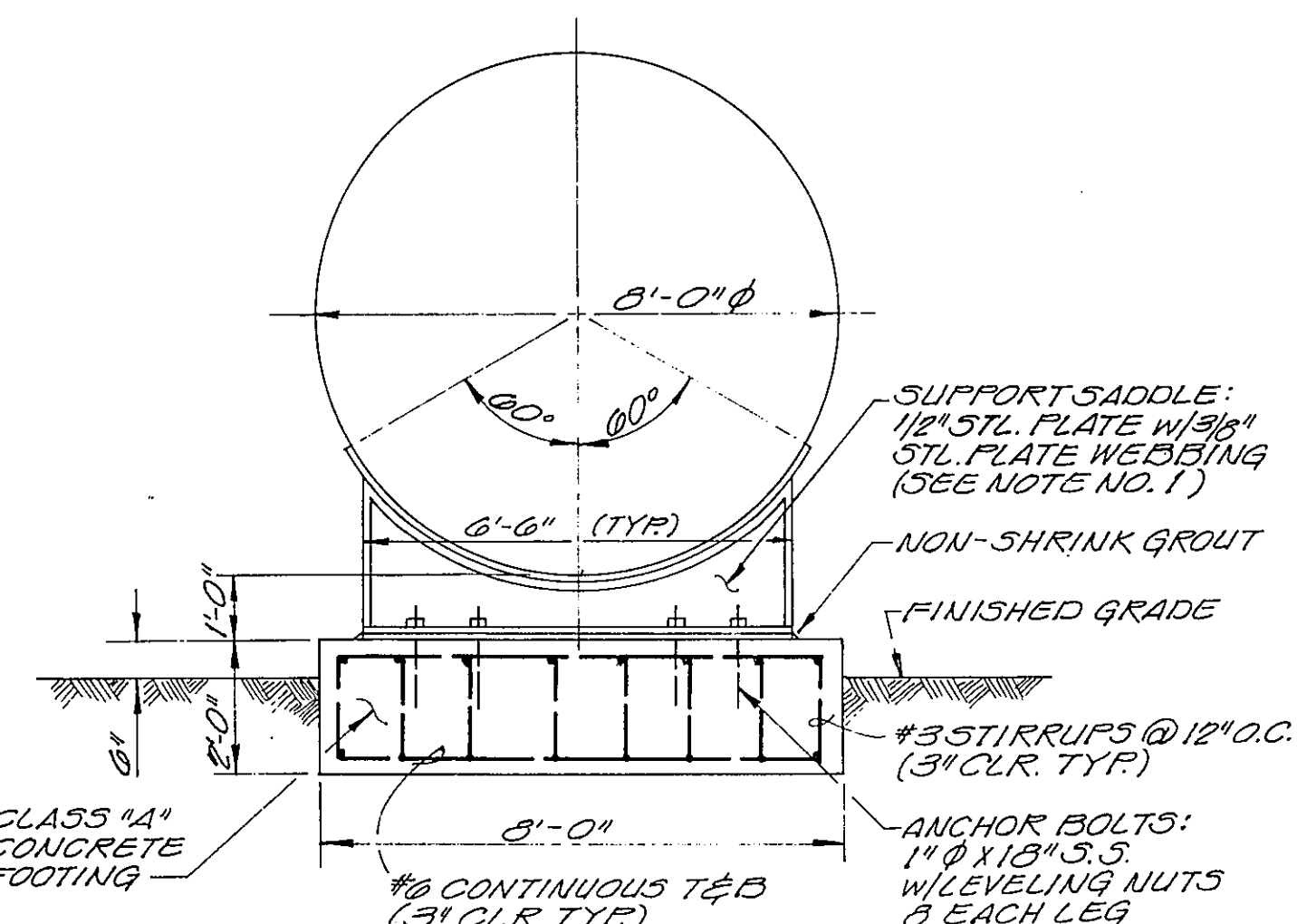
**VIEW "A-A"  
HYDROPNEUMATIC TANK**  
SCALE: 3/8"=1'-0"



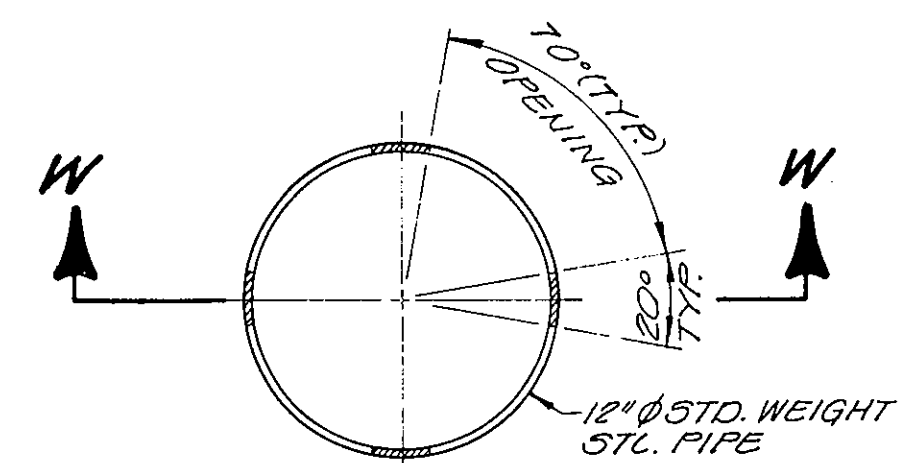
**VIEW "X-X"  
SCALE: 1/2"=1'-0"**



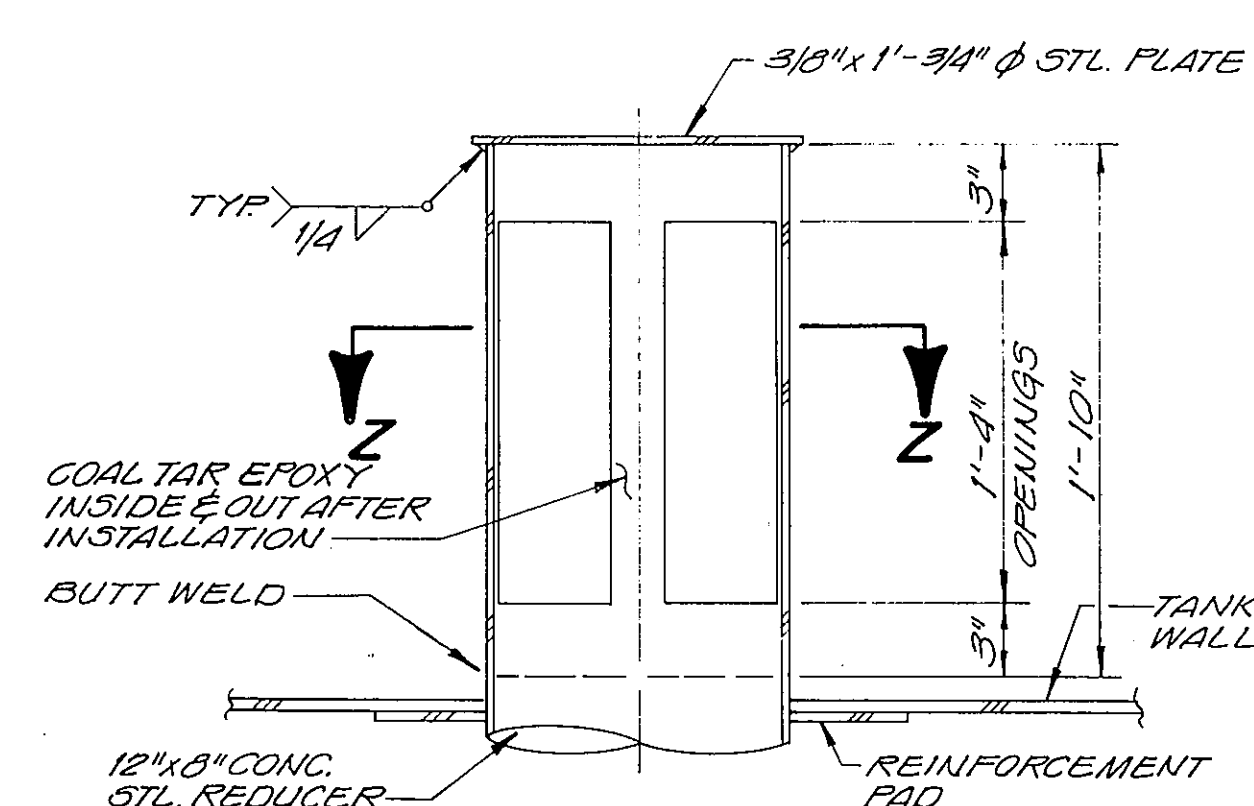
**SECTION "Y-Y"  
12"x8" STEEL ANTI-VORTEX REDUCER**  
SCALE: 1/2"=1'-0"



**SADDLE SUPPORTS  
10,000 GALLON  
HYDROPNEUMATIC TANK**



**SECTION "Z-Z"  
SCALE: 1/2"=1'-0"**



**SECTION "W-W"  
12"Ø BAFFLE DETAIL**  
SCALE: 1/2"=1'-0"

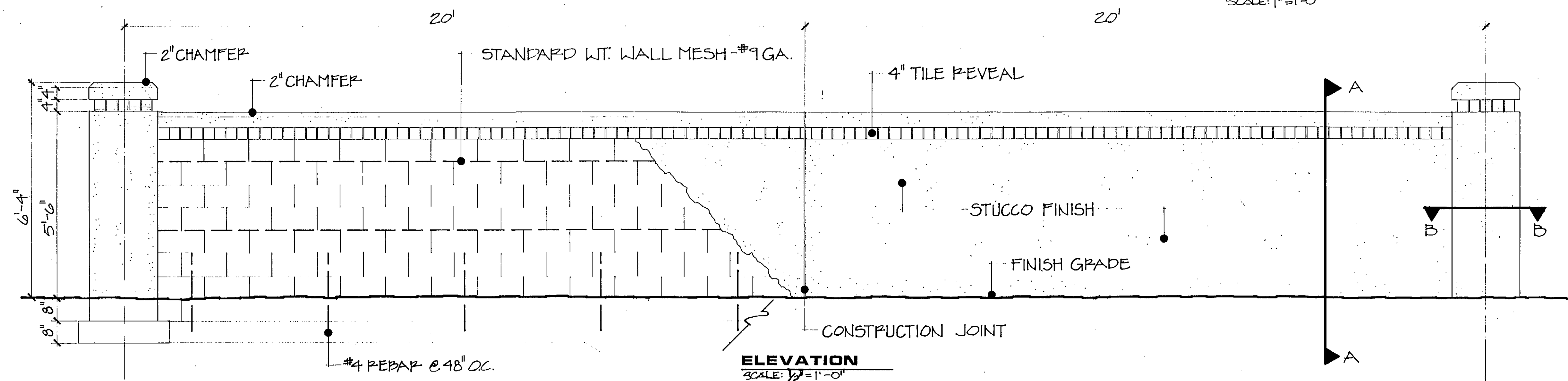
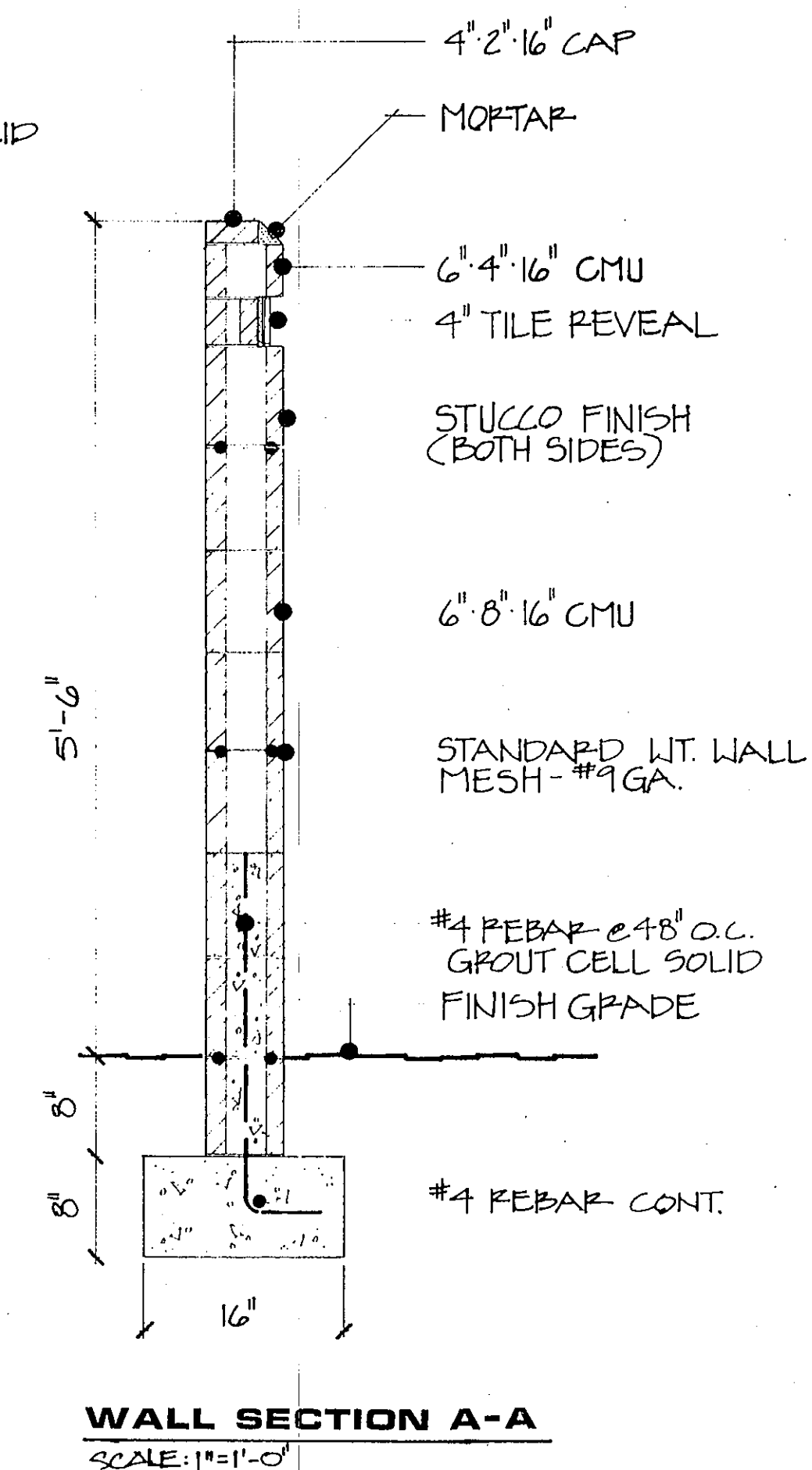
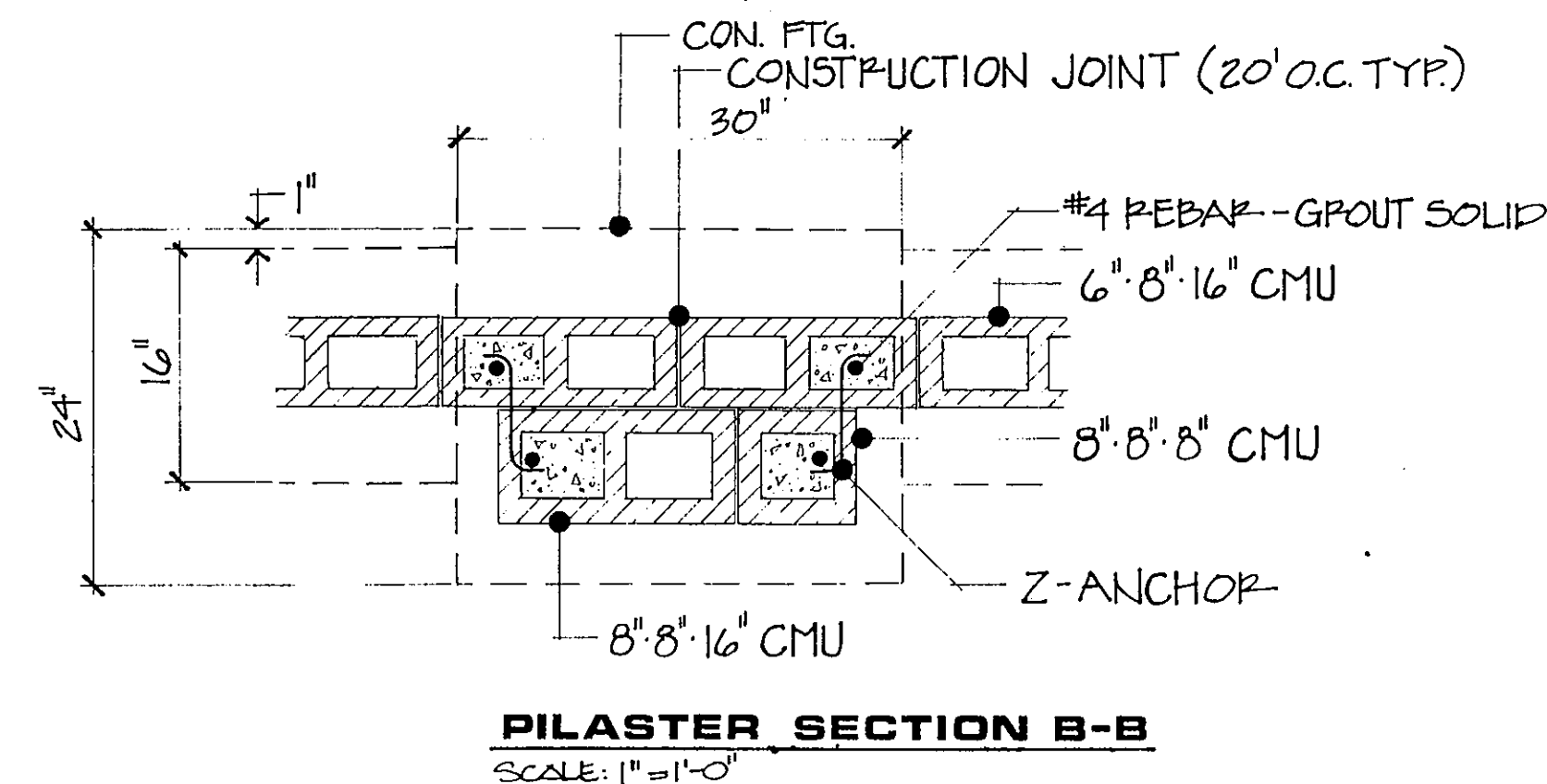
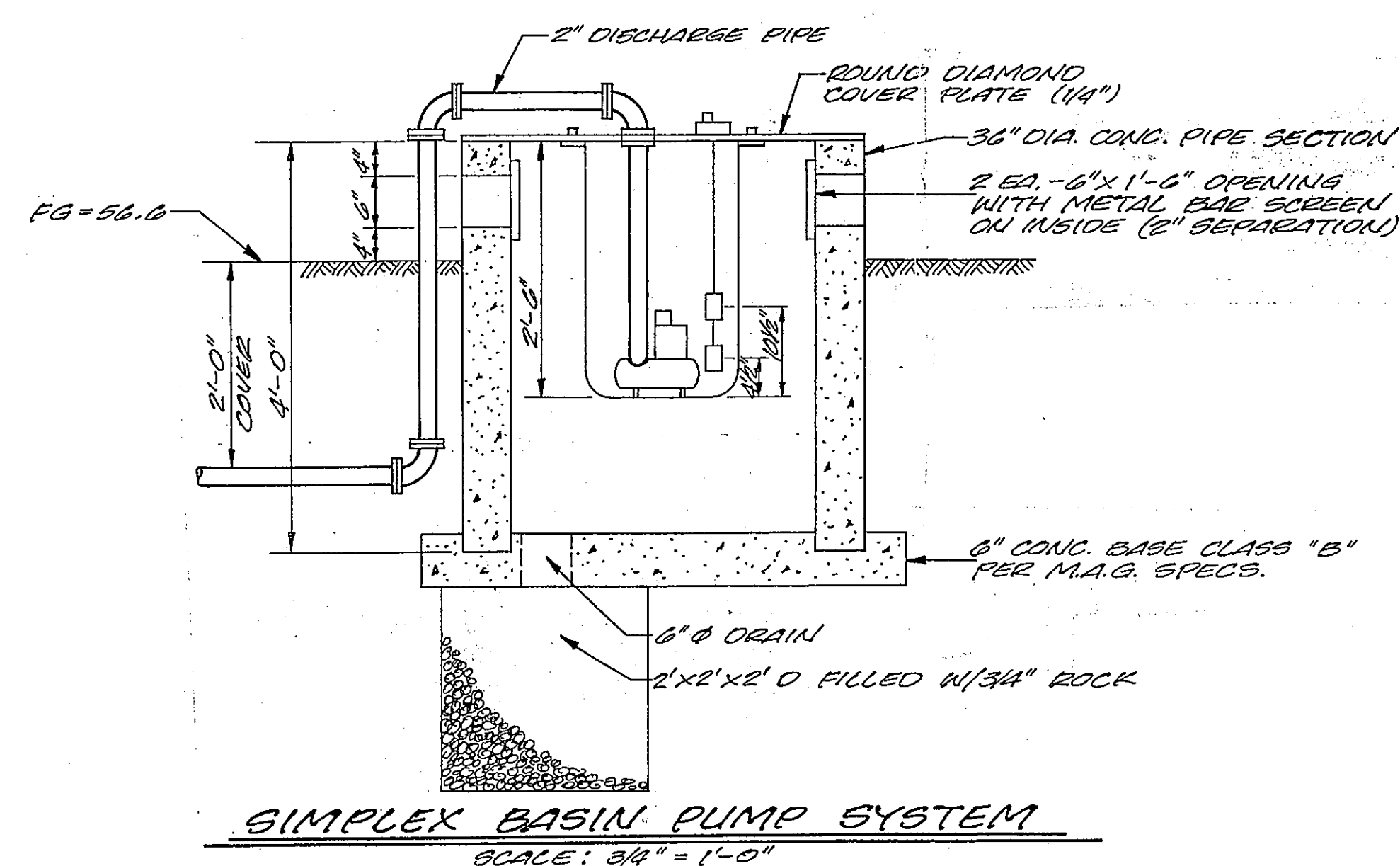
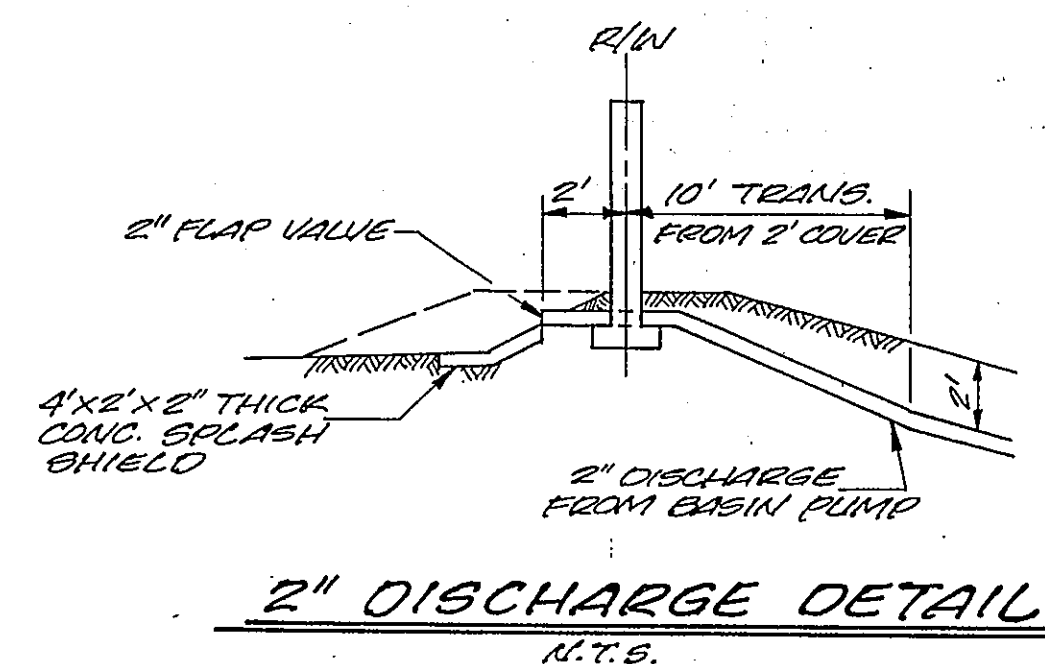
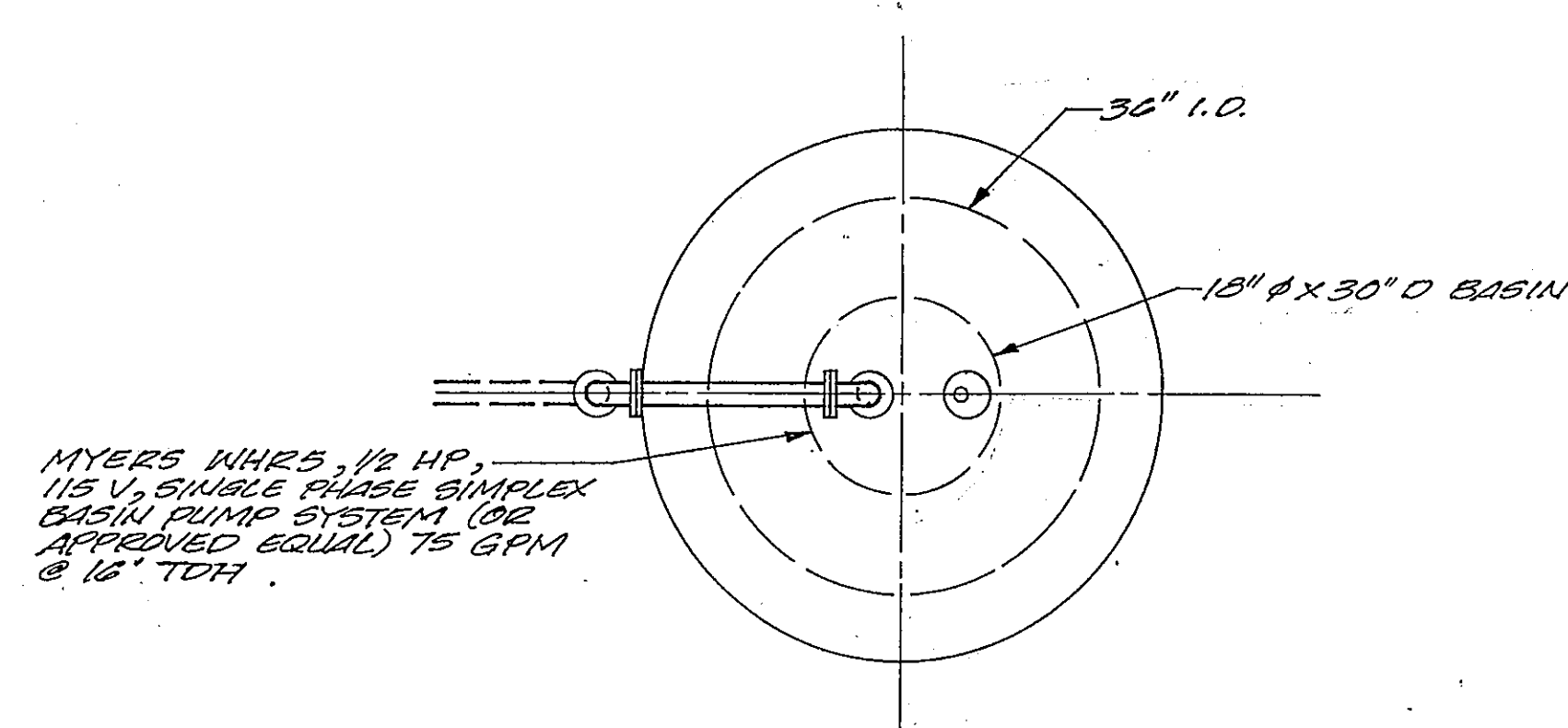
**NOTES**

- THE HYDROPNEUMATIC TANK'S FOUNDATION AND ANCHORING SHALL BE DESIGNED BY THE SUPPLIER AND SUBMITTED FOR REVIEW BY THE ENGINEER FOR ACCEPTANCE. THE FOUNDATION DESIGN BEARING VALUE SHALL BE LIMITED TO 1500 P.S.F. (NET PRESSURE) FOR DEAD LOAD PLUS LIVE LOAD. A ONE THIRD INCREASE IN THE BEARING VALUE MAY BE USED FOR LATERAL LOADS. THE FOLLOWING LATERAL LOADS SHALL APPLY:  
A. WIND LOAD OF 20 P.S.F. WITH TANK EMPTY  
B. SEISMIC DESIGN CRITERIA WITH TANK FULL  
C. VERTICAL FORCE = 0.05 G; HORIZONTAL FORCE = 0.10 G  
D. ZONE 3
- THE PRESSURE TANK SHALL BE AN A.S.M.E. CODE TANK FOLLOWING CODE STANDARDS (NON FIRED PRESSURE VESSEL RATED 150 P.S.I. WORKING PRESSURE.)

**HYDROPNEUMATIC  
TANK PIPING**

ITEM NO.	DESCRIPTION
1	8" D.I.P. FLG. & RE.
2	8" STL. COUPLING FOR D.I.P.-ROCKWELL #441 STL. COUPLING EPOXY COATED SLEEVE W/SS. N. & B.
3	8" SOCKET CLAMP & WASHER-ITT GRINNELL FIG. NO. 595 & 594 W/SS. N. & B.
4	8"x90° D.I. BEND FLG. W/SS. N. & B. EPOXY COATED
5	8"(AWWA) BUTTERFLY VALVE FLG. (SS. N. & B. EPOXY COATED) W/MANUAL ACTUATOR NUT (BURIED SERVICE) V.B. & C.
6	2 1/2" N.P.T. GALV. STL. UNION
7	2 1/2" N.P.T. GALV. STL. NIPPLE (LENGTH VARIES)
8	2 1/2"x90° N.P.T. GALV. STL. BEND
9	2 1/4" N.P.T. BRONZE GATE VALVE W/IRISING STEM (HORN MOUNT)
10	2 1/2" BRASS NATL. FIRE THD. NIPPLE
11	2 1/2" NATL. FIRE THD. BRASS CAP W/CHAIN
12	2" N.P.T. 200 P.S.I. BRONZE GATE VALVE
13	1" N.P.T. 200 P.S.I. BRONZE GATE VALVE
14	1 1/2" Ø PRESSURE GAUGE 0-200 P.S.I. ("ASHCROFT" TYPE 1000 UTILITY GAUGE OR APPROVED EQUAL)
15	1/2" Ø BRONZE WATER GAUGE SET W/BALL CHECK TYPE GAGE, AUTOMATIC, 1/8" DRAIN COCK & GAGE GLASS PROTECTOR (ERNST GAGE CO. FIG. NO. 55A & FIG. PRT OR APPD. EQ.) LENGTH AS PER HYDRO. TANK CERT. DRAWING
16	2" N.P.T. BRONZE AIR SAFETY VALVE 150 P.S.I. (CONSOLIDATED) MODEL NO. 1541H ALL BRONZE MEDIUM CAPACITY OR APPROVED EQUAL
17	2" N.P.T. AIR VACUUM RELIEF VALVE 150 P.S.I. ("LA-VAL" MODEL NO. 31 OR APPROVED EQUAL)
18	8" D.I.P. FLG. 3POOL
19	1/4" BRASS AIR PRESSURE SNUBBER ("ASHCROFT" NO. 1112 B OR APPD. EQ.)





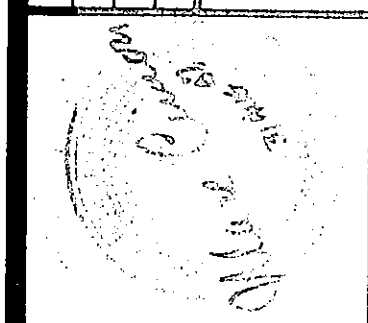
**6' MASONRY WALL DETAILS**

DESIGNED	T.H.	DATE	REVISIONS	DATE	BY
DRAWN	T.H.				
CHECKED					
DATE					

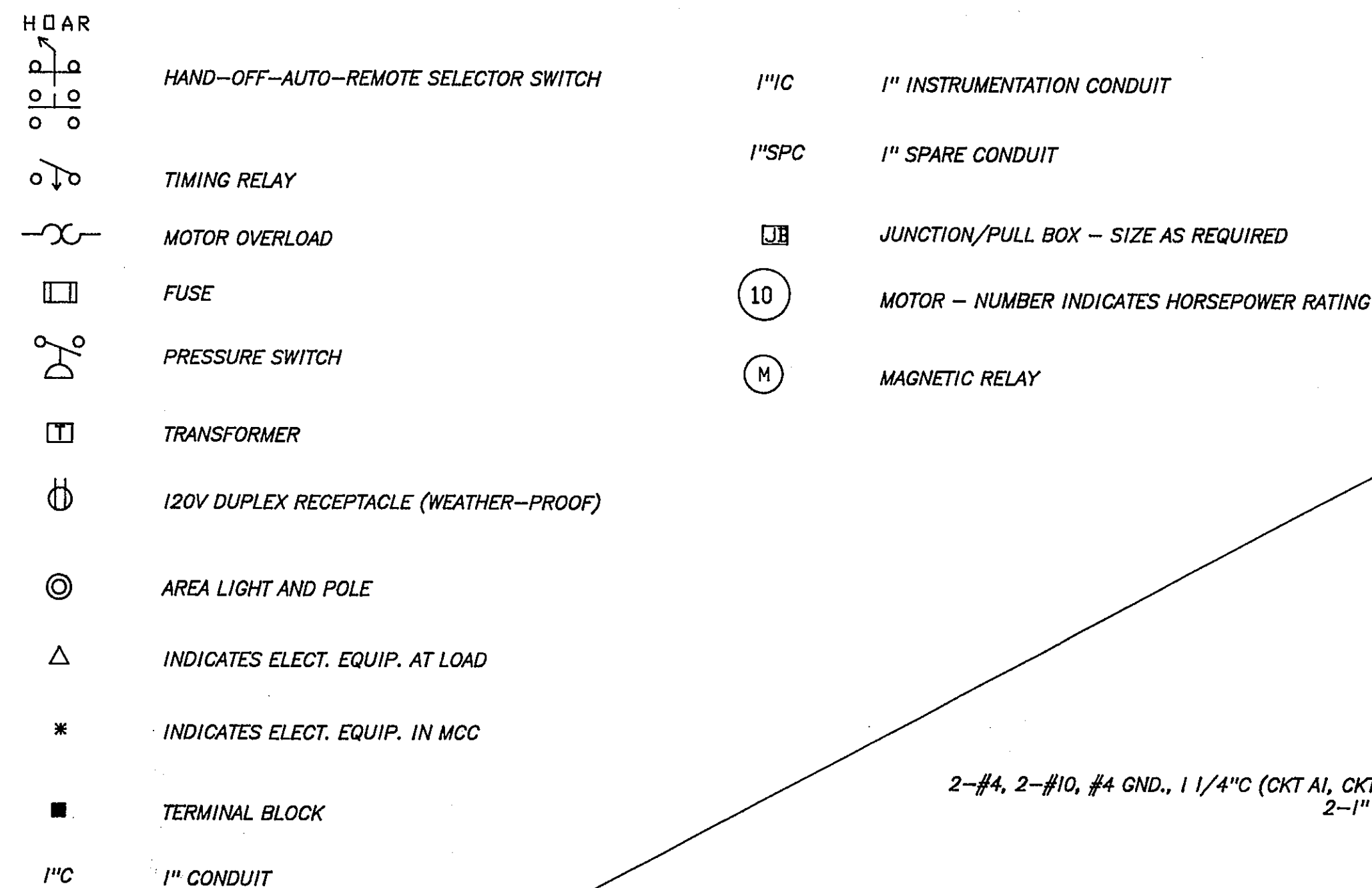
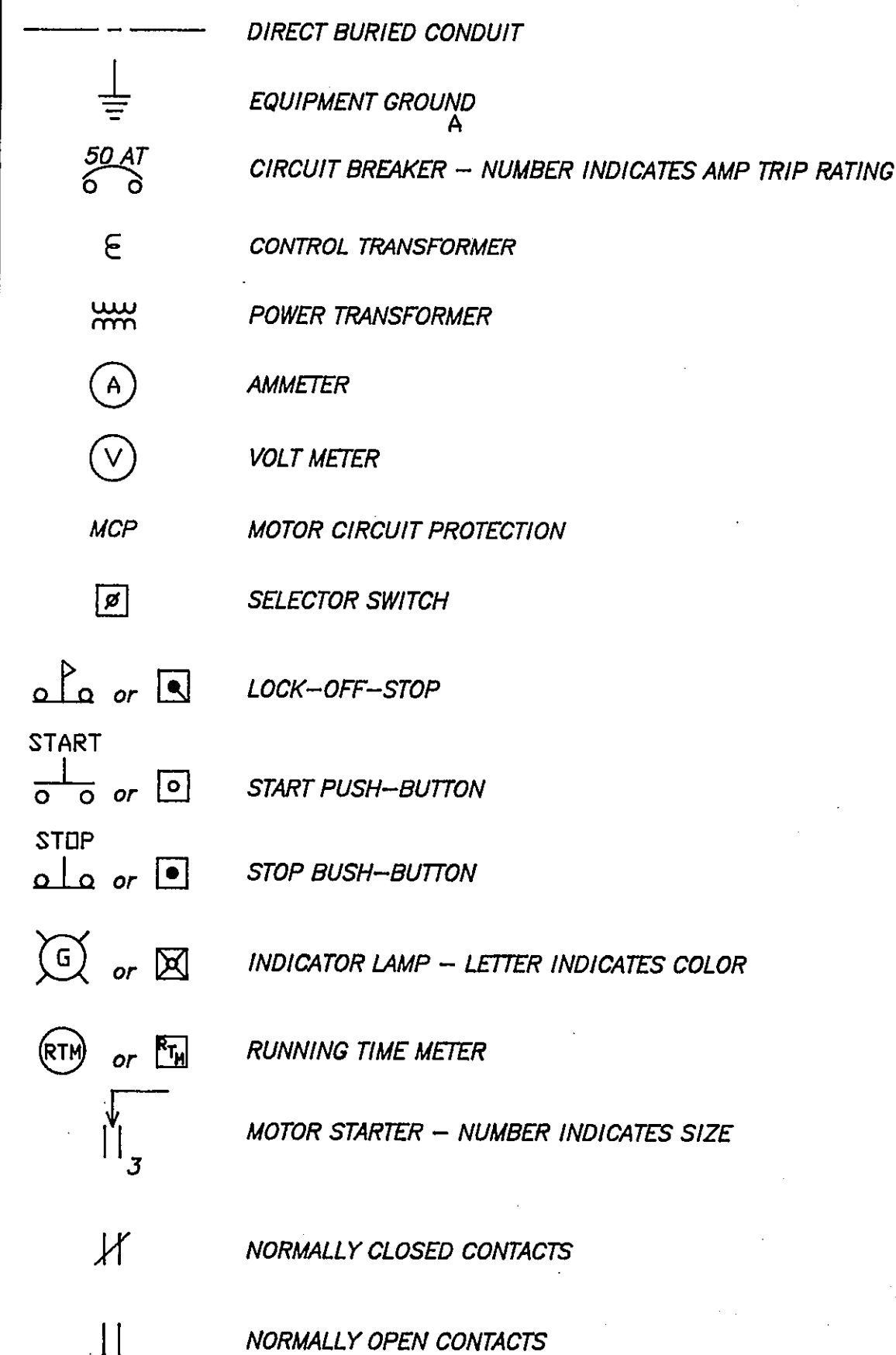
DECORATIVE SCREEN WALL  
DETAIL



DESIGNED	DAR	REVISIONS	DATE	BY
DRAWN	EI			
CHECKED	MC			
DATE	8-31-87			

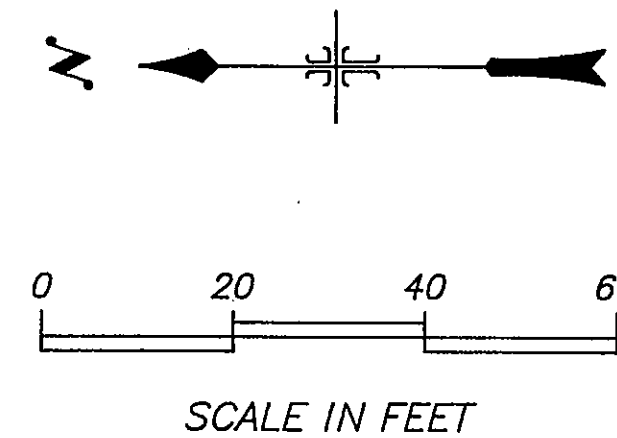
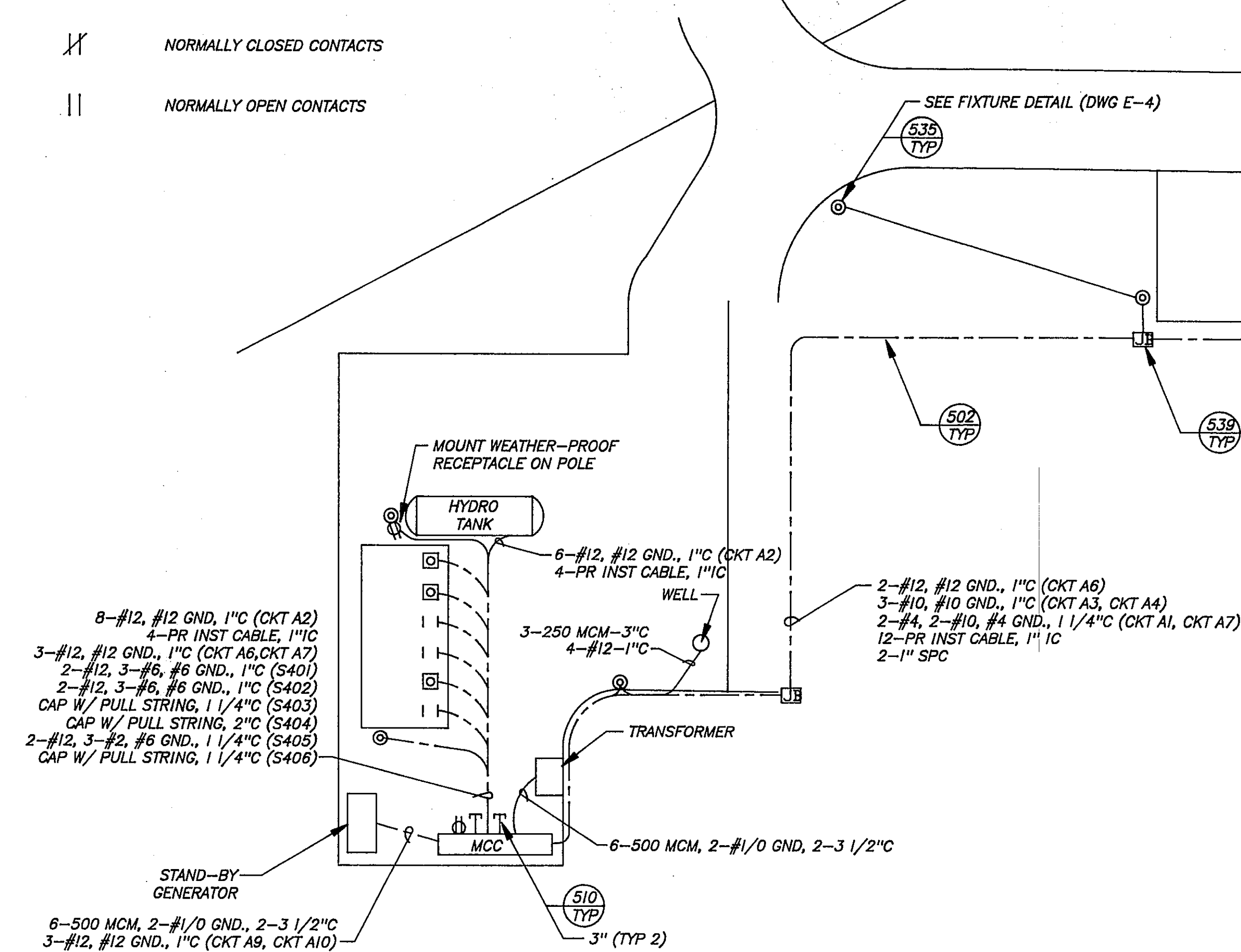


## LEGEND



## NOTES:

1. MINIMUM SIZE FOR CONDUCTORS SHALL BE #14 AWG FOR CONTROL CIRCUITS WHEN CONFINED WITHIN CONTROL PANEL OR MCC. ALL OTHER CONDUCTORS SHALL BE #12 AWG MINIMUM, OR AS NOTED.
2. ALL CIRCUITS SHALL HAVE A BARE GROUNDING CONDUCTOR RUN IN THE CONDUITS AND SIZED PER N.E.C. - MINIMUM SIZE SHALL BE #12.
3. TYPICAL DETAILS SHALL APPLY IN ALL CASES, WHETHER SPECIFICALLY REFERRED TO OR NOT.
4. CONTROL CIRCUIT TRANSFORMERS SHALL BE SIZED FOR EXTRA LOADS AS SHOWN ON SCHEMATICS.
5. ALL STRUCTURAL STEEL EQUIPMENT (UNISTRUT, TUBES, PLATES, ETC.) USED TO MOUNT OR SUPPORT ELECTRICAL EQUIPMENT OUTDOORS, SHALL BE HOT DIPPED GALVANIZED.
6. UNDERGROUND CONDUIT MAY BE PVC (1" OR LARGER), ALL OTHER CONDUITS SHALL BE RIGID STEEL.



(PLAN IS SCHEMATIC ONLY. SEE  
CIVIL ENGINEERING DRAWINGS  
FOR EXACT LOCATION OF EQUIPMENT  
AND STRUCTURES)



ELECTRICAL CONSULTING ENGINEERS

3509 EAST SHEA BLVD., SUITE 109 PHOENIX, AZ 85028

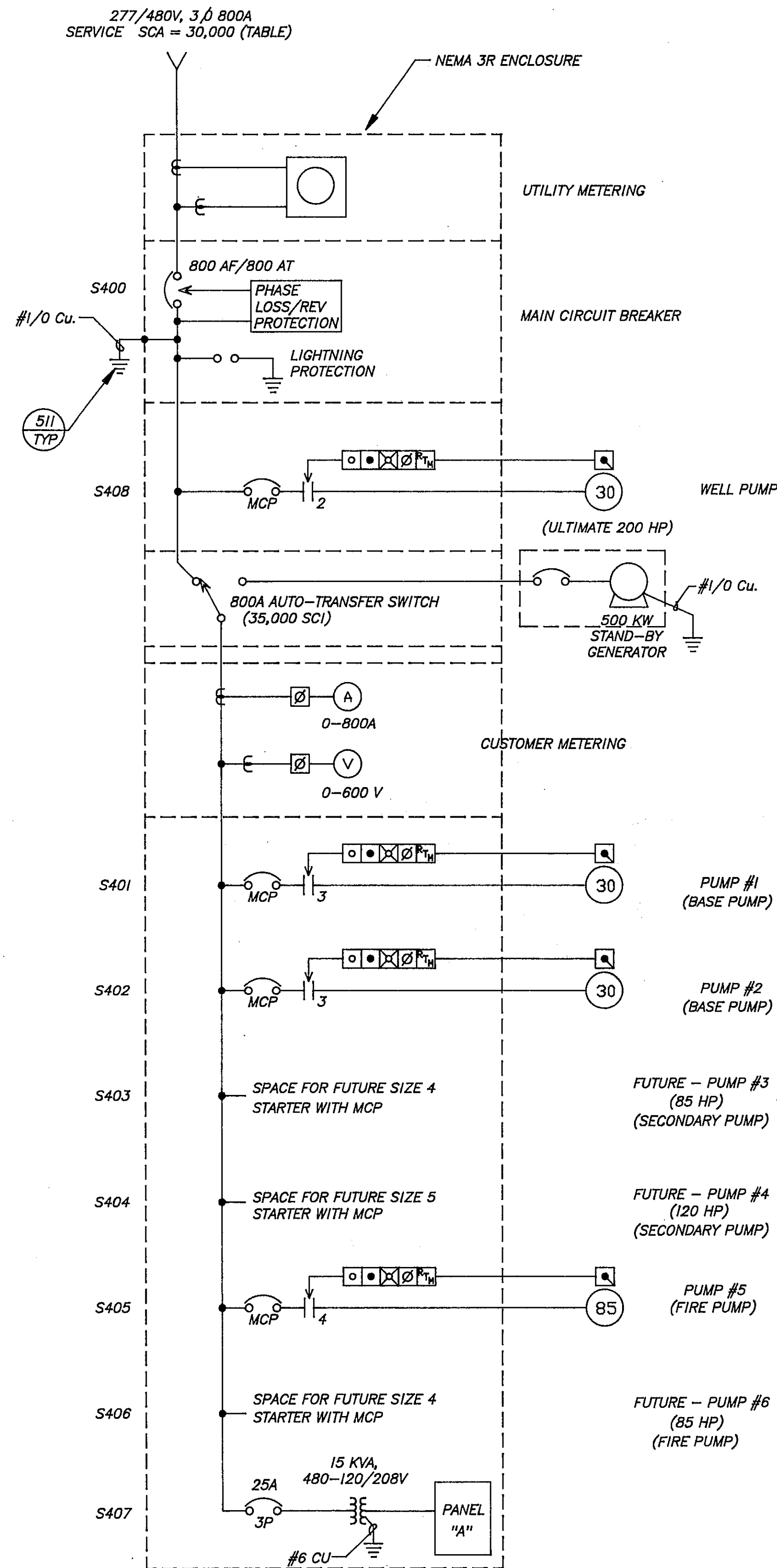
ENGINEERS INC.

(602) 996-5950

P308EI.DWG

E-1

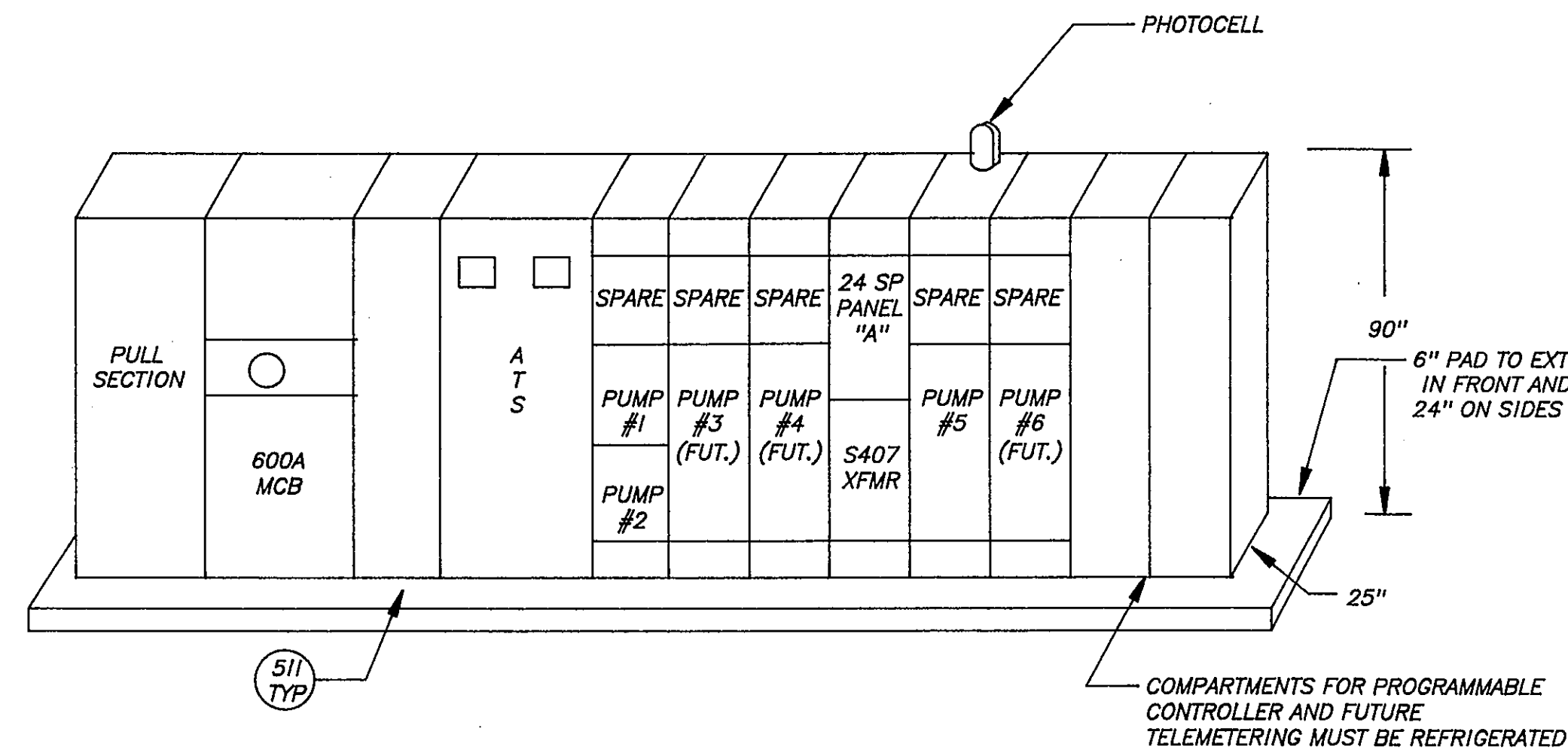




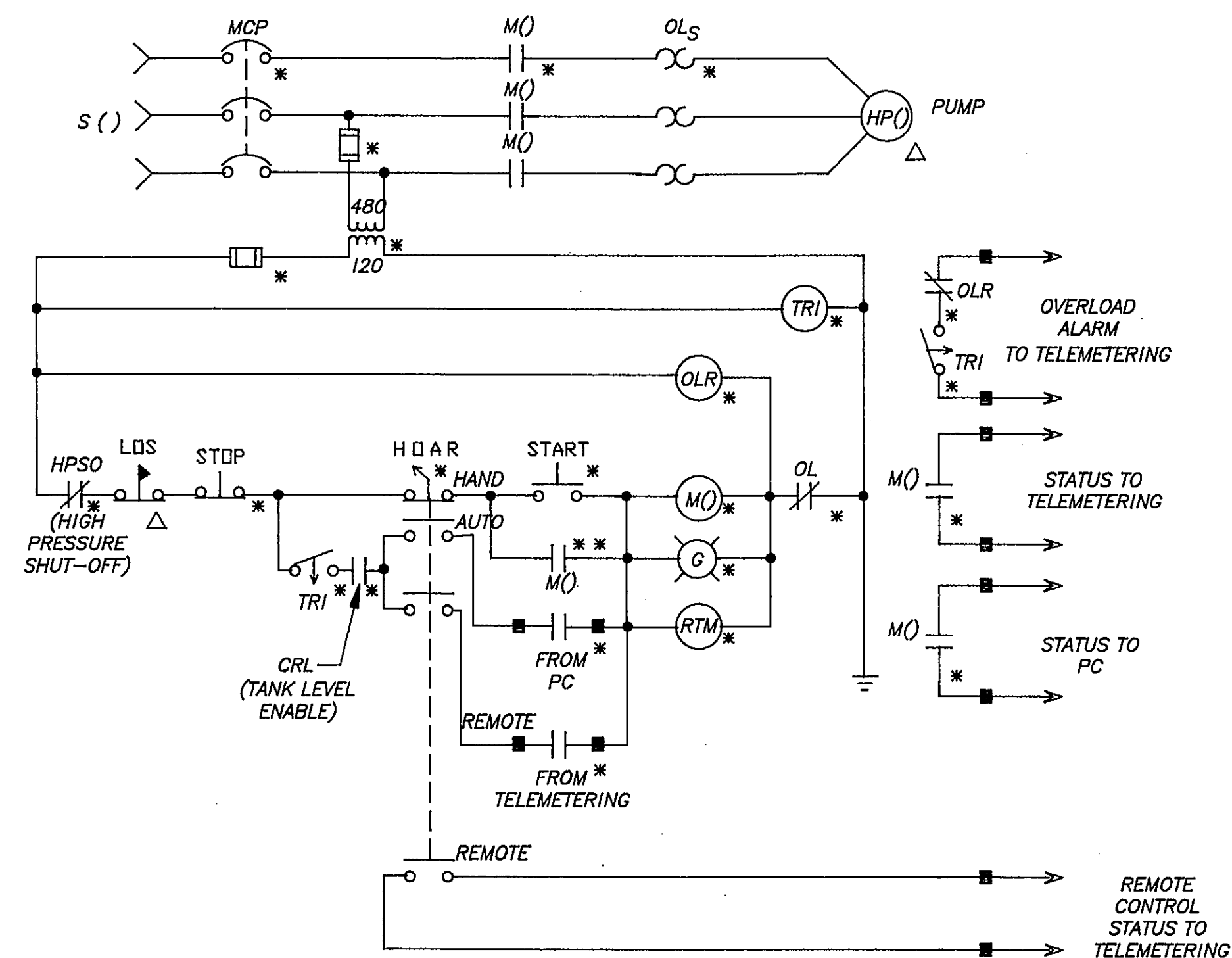
NOTES:

1. ALL MCP'S AND CIRCUIT BREAKERS SHALL BE RATED FOR MINIMUM 35,000 SCF
2. ALL MCP'S SHALL BE SIZED FOR THE CURRENT MOTOR HP AND MUST HAVE A STARTER SIZE TO HANDLE THE ULTIMATE HORSEPOWER
3. BUS BRACING SHALL BE FOR 35,000 AMPS MINIMUM
4. SEE PLAN VIEW FOR BRANCH CIRCUIT WIRE SIZES

SINGLE LINE DIAGRAM



ELEVATION - MOTOR CONTROL CENTER  
NTS



CKT S( )	PUMP	HP	M ( )	TRI SETTING (SECONDS)
S401	PUMP # 1	(30)	401	
S402	PUMP # 2	(30)	402	

ACROSS-THE-LINE PUMP  
CONTROLLER SCHEMATIC DIAGRAM

P288CSD.DWG

**ESTRELLA ESTATES - WATER PLANT**  
ELECTRICAL CONSULTING ENGINEERS  
3509 EAST SHEA BLVD., SUITE 109 PHOENIX, AZ 85028  
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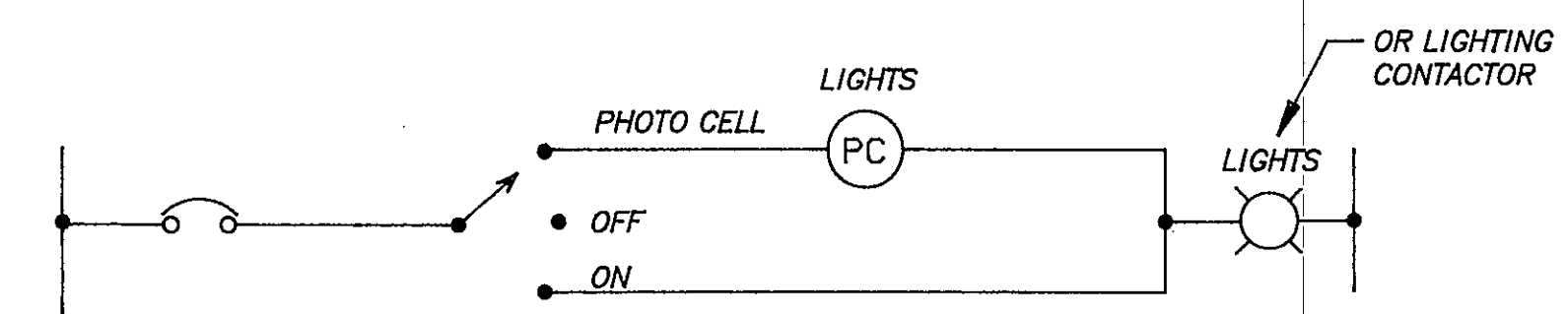
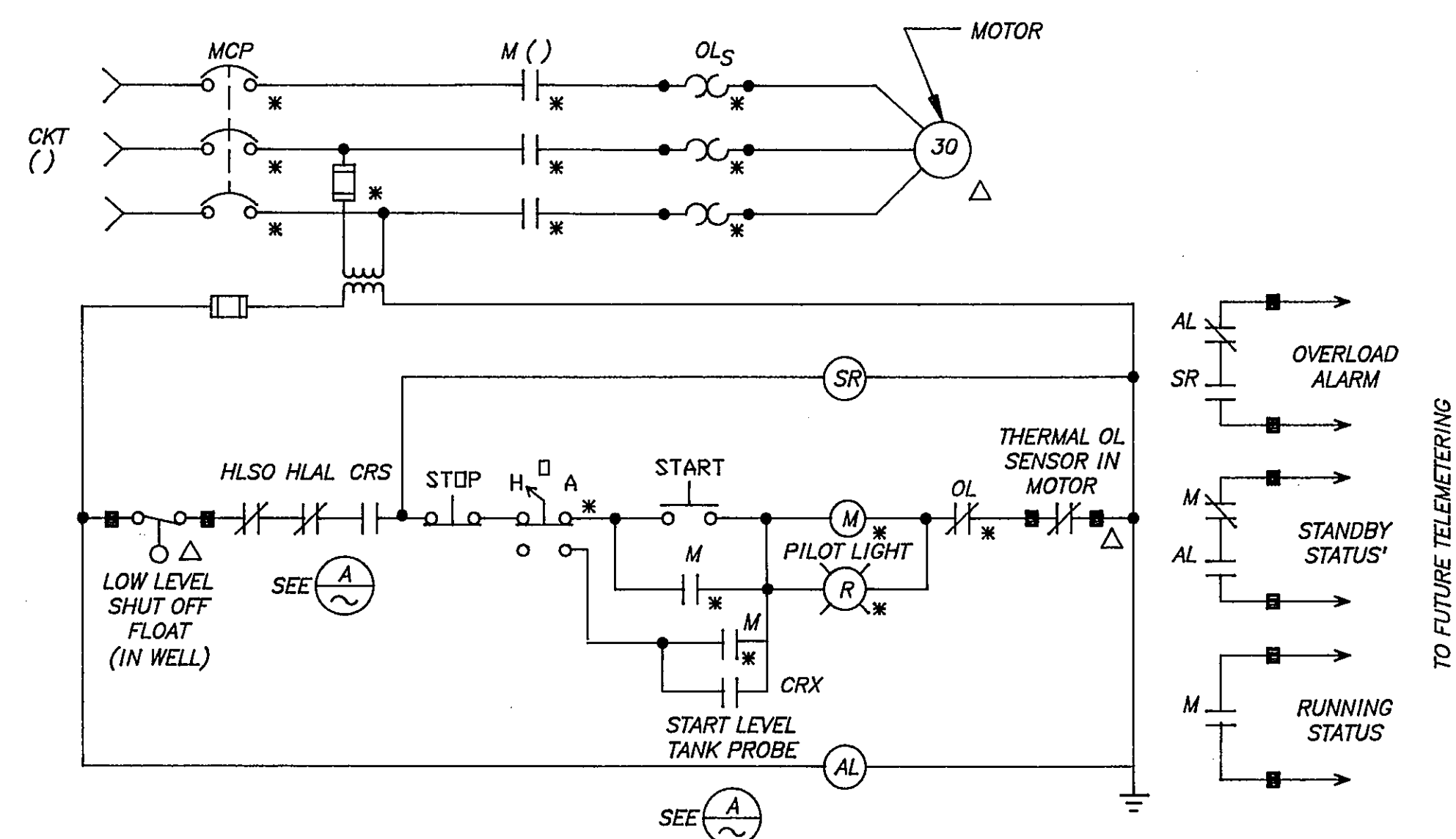
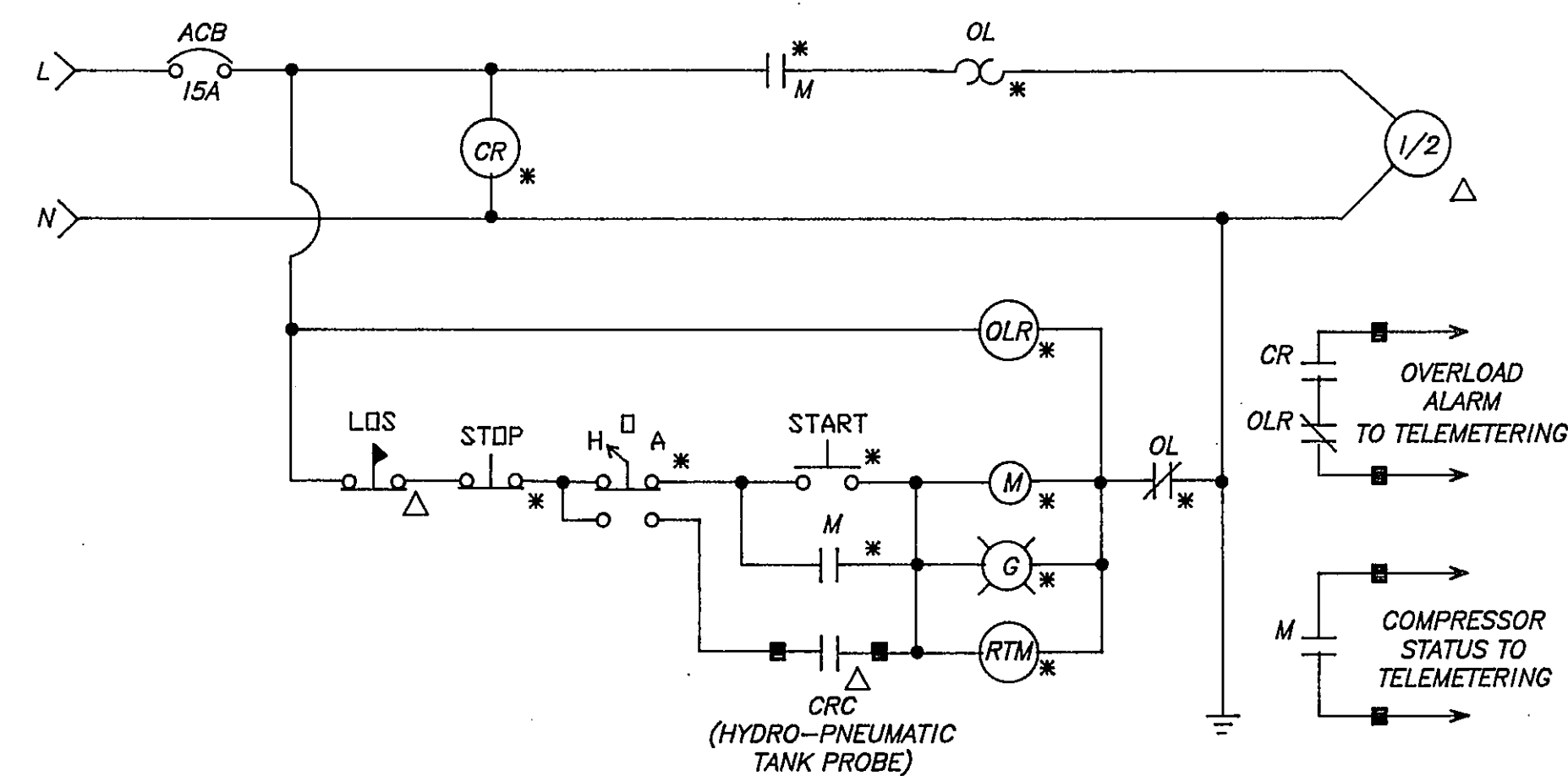
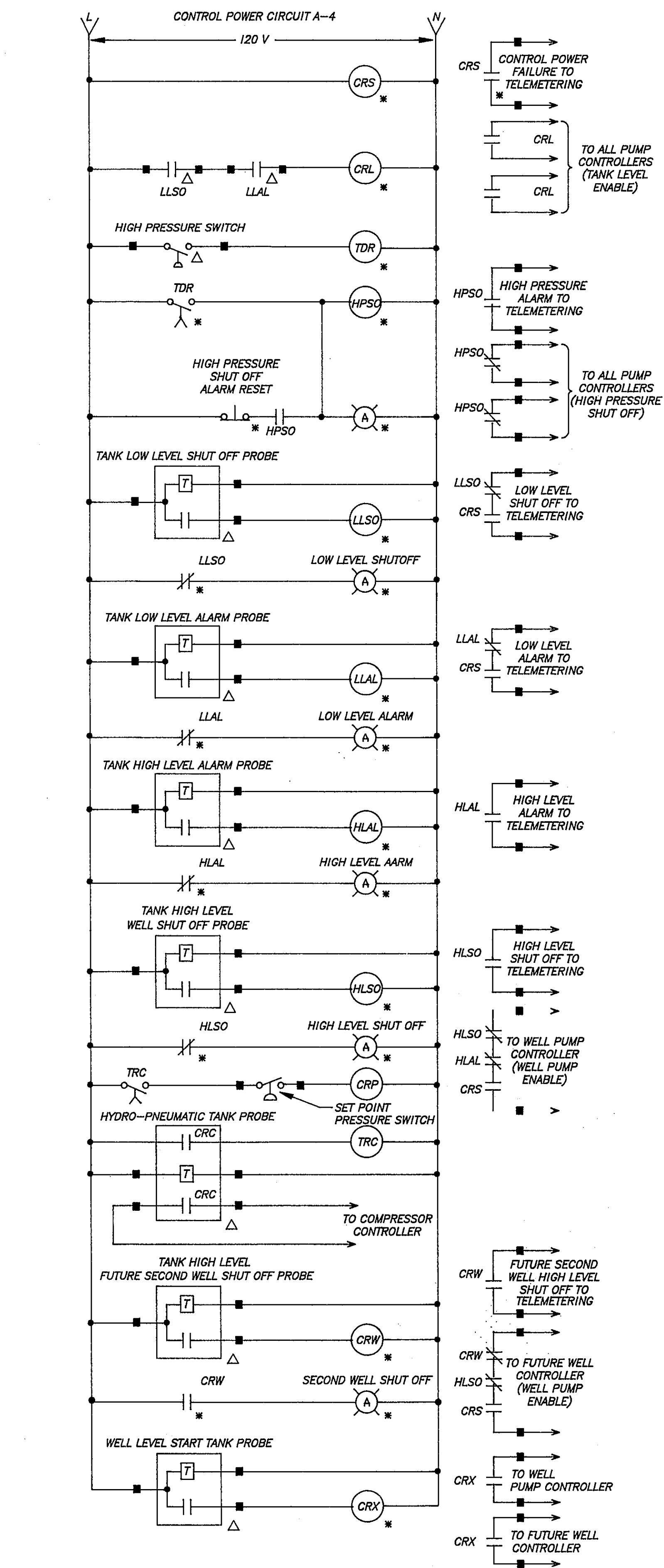
4550 NORTH 12TH STREET  
PHOENIX, ARIZONA 85014  
TELEPHONE (602) 234-8881

**COE & VAN LOO**  
PLANNING, ENGINEERING, LANDSCAPE ARCHITECTURE

DESIGNED BY  
DRAWN BY  
CHECKED BY  
DATE  
ESTRELLA ESTATES  
ELECTRICAL ONE LINE & SCHEMATICS

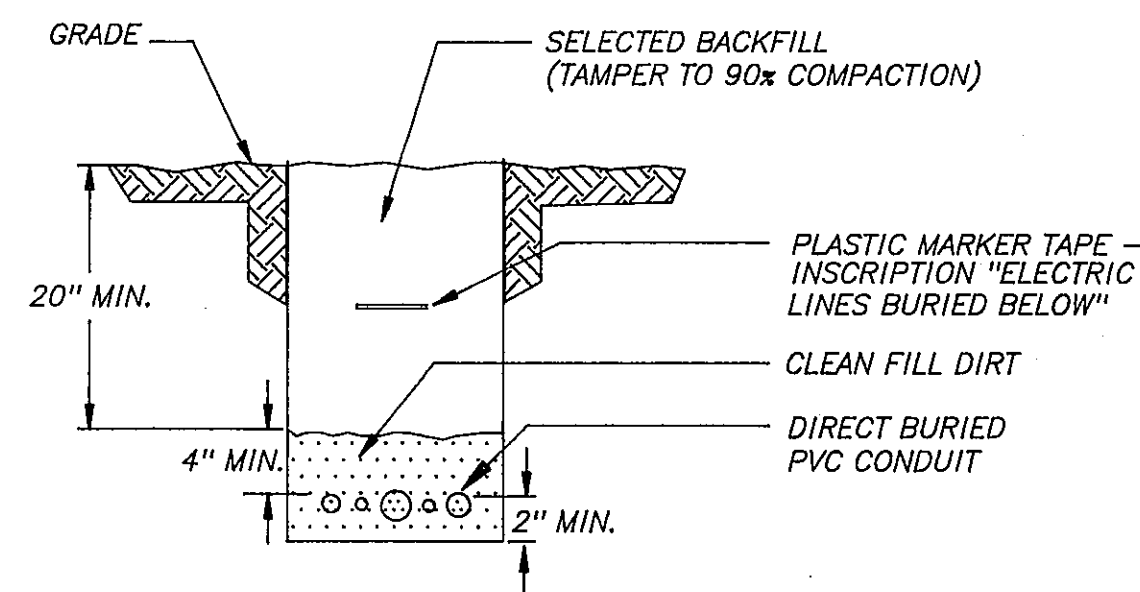
SHEET  
17 OF 26  
1074-16-05



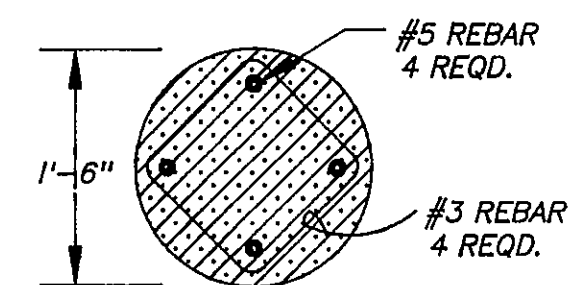


PANEL: A	VOLTAGE: 208 / 120 MAIN	50 AMP	BUS AMPS: 100			
TYPE: BOLT IN BREAKERS		MOUNTING FLUSH MOUNT IN MCC			MIN. A.I.C.: 10,000	
VA LOAD/PHASE						
CIRCUIT DESCRIPTION	BKR	CIR	A	B	C	CIR
SIMPLEX BASIN PUMP	20/1	1	1200			
			450			
CATHODIC PROTECTION SYS.	20/1	3		500		2
				500		20/1
PROGRAMMABLE CONTROLLER	20/1	5			500	4
					1200	20/1
CONVENCE OUTLETS	20/1	7	640			6
			300			20/1
BATTERY CHARGER	20/1	9		500		8
				1000		20/1
		11				10
						20/1
		13				12
		15				14
		17				16
		19				18
						20
CONNECTED KVA PER PHASE			2.79	2.5	1.7	NOTES:
CONNECTED AMPS PER PHASE			13.4	12.0	8.17	
CONTINUOUS & LIGHTING LOAD(25%)					300	
LARGEST MOTOR (25%)						
CODE KVA PER PHASE			2.79	2.5	2	
CODE AMPS PER PHASE			13.4	12.0	9.62	
20 SPACE PANEL						

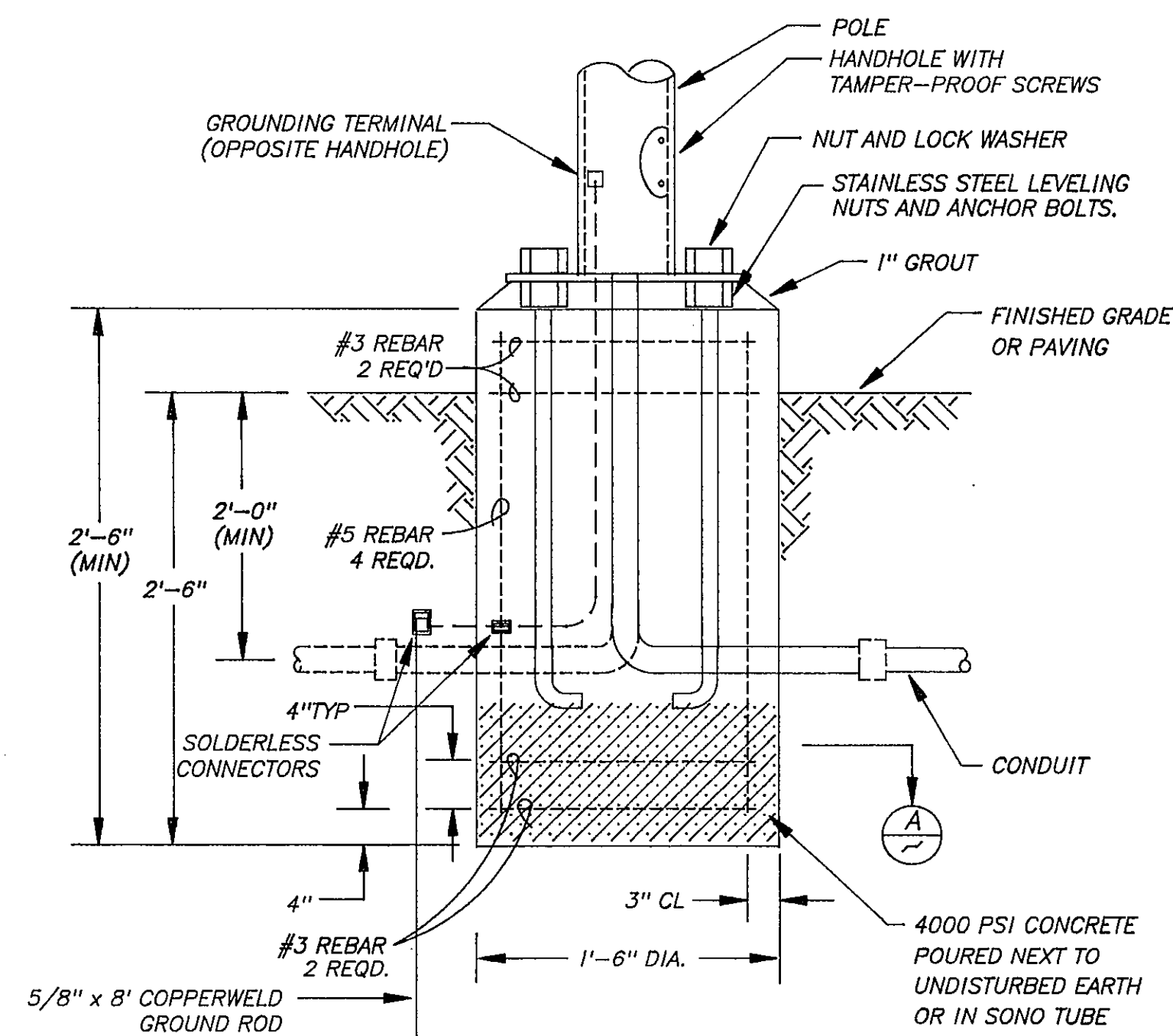




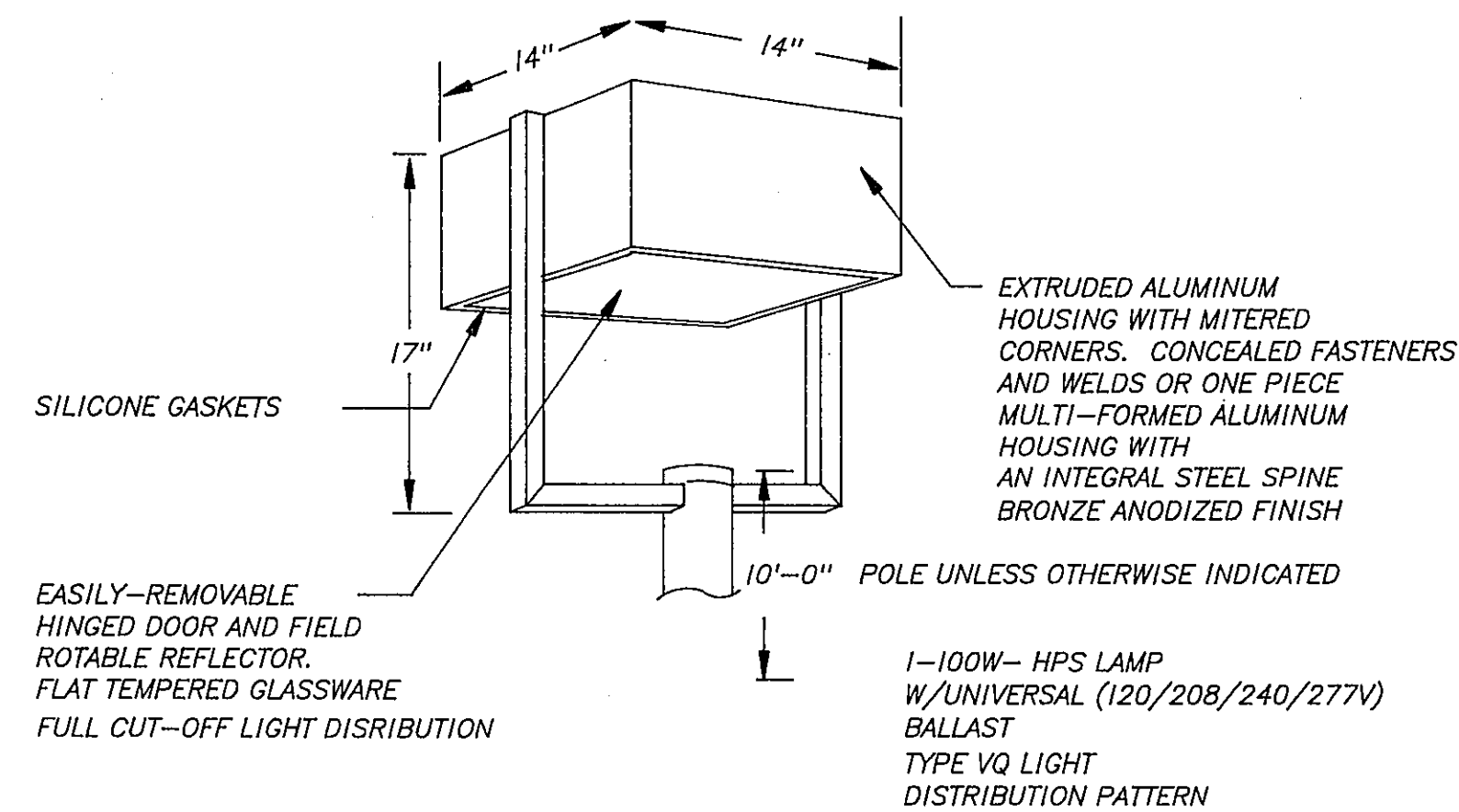
502 DIRECT BURIED CONDUIT  
TYP NTS



SECTION

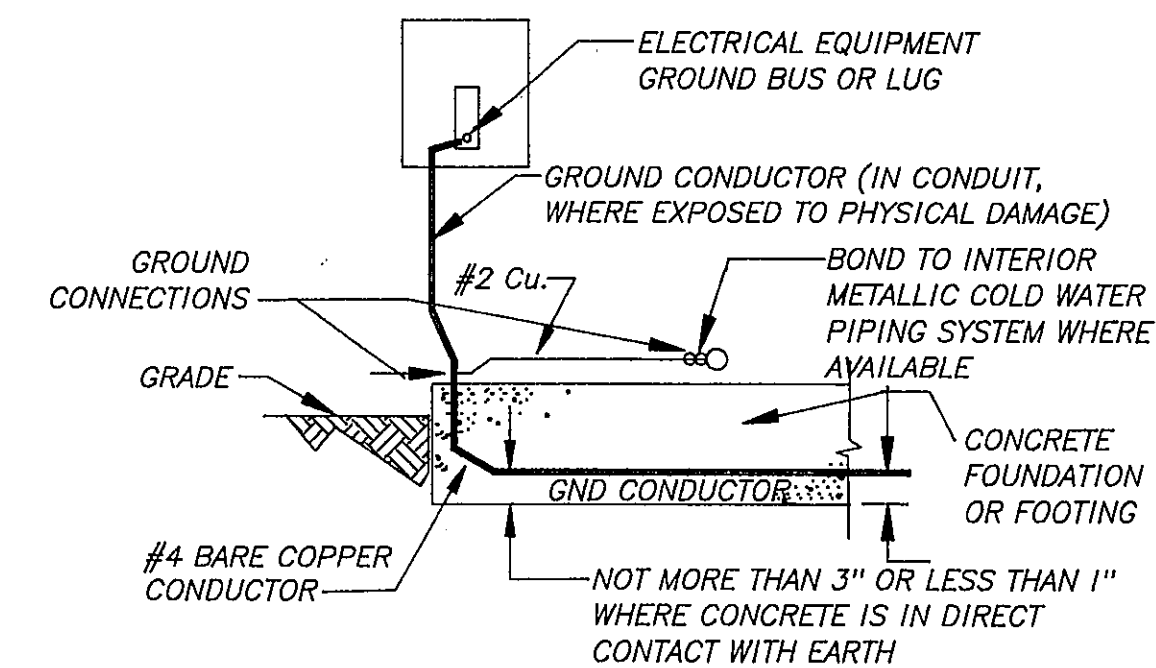


535 DETAIL TYPICAL AREA LIGHTING  
FIXTURE MOUNTING  
NTS



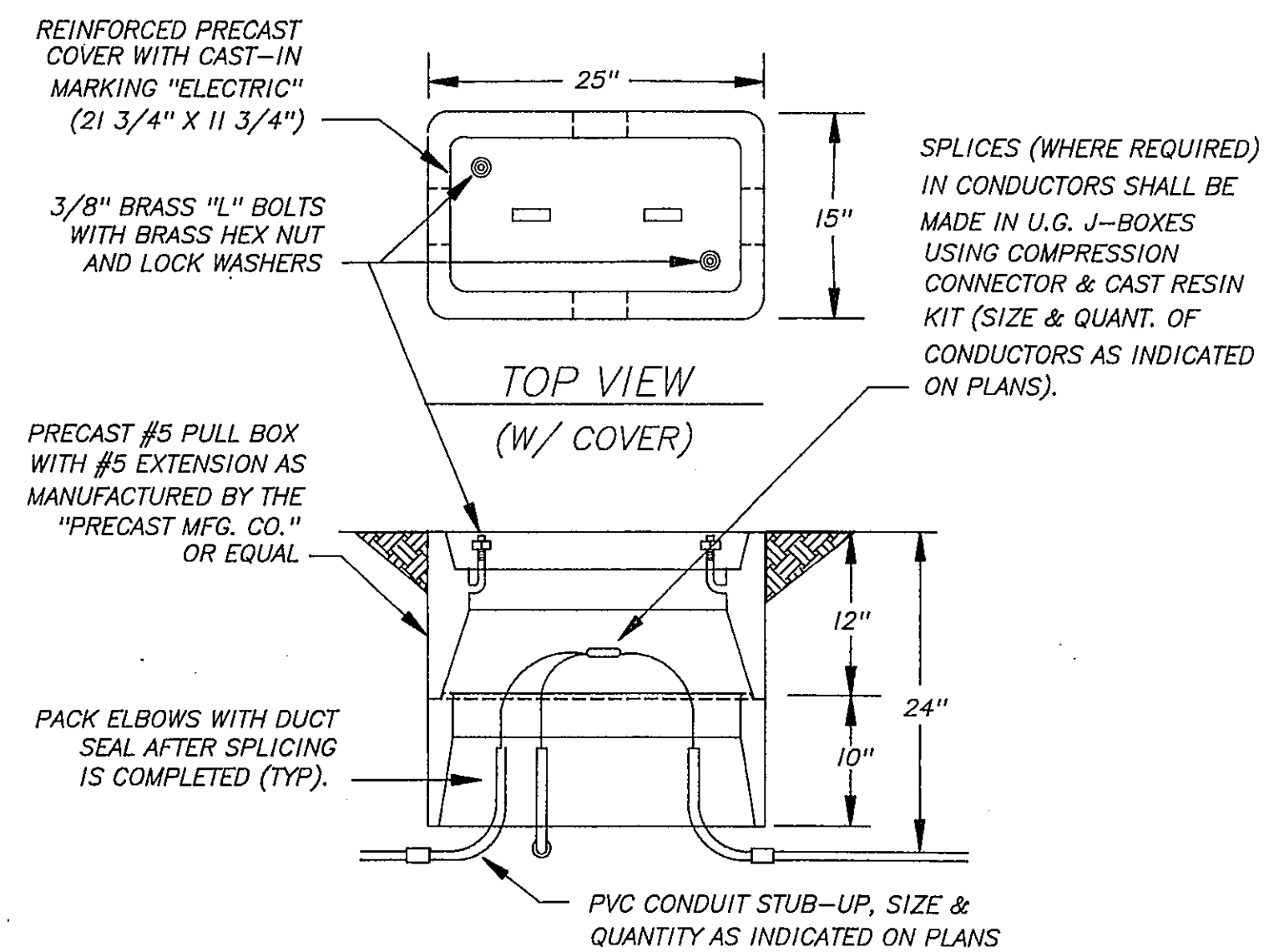
GARDCO JEHI41Q-BRA OR EQUAL  
AREA LIGHT FIXTURE  
NTS

HT0002.DWG



- NOTES:
1. BOND #4 COPPER CONDUCTOR TO STEEL REINFORCEMENT RODS WHEN AVAILABLE.
  2. GROUND WIRE MUST RUN A MINIMUM OF 20 FEET IN FOUNDATION.

511 GROUNDING DETAIL ("UFER")  
TYP NTS



539 UNDERGROUND CONCRETE  
JUNCTION BOX DETAIL  
NTS

**ESTRELLA ESTATES - WATER PLANT**  
ELECTRICAL CONSULTING ENGINEERS  
3509 EAST SHEA BLVD, SUITE 109 PHOENIX AZ 85028  
(602) 996-5950  
ENGINEERS INC.

**ESTRELLA ESTATES - WATER PLANT**  
COE & VAN LOO  
PLANNING-ENGINEERING-LANDSCAPE ARCHITECTURE  
4550 NORTH 12TH STREET  
PHOENIX, ARIZONA 85014  
TELEPHONE (602) 264-5831

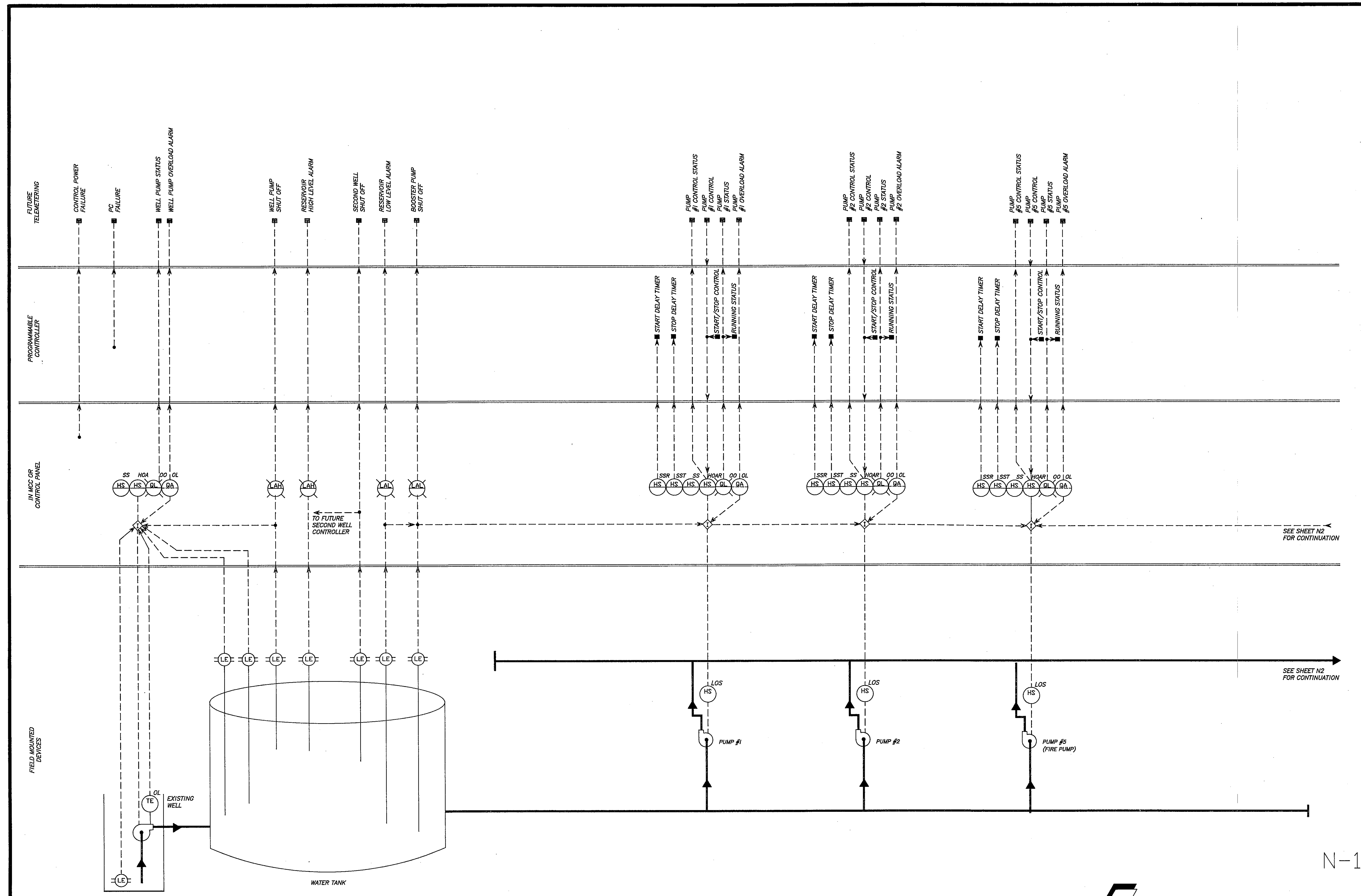
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ESTRELLA ESTATES TYPICAL DETAILS  
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19 OF 26  
1074-16-05

P308E4.DWG

E-4





SEE SHEET N2  
FOR CONTINUATION

N-1

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				MC			
				MC			
				MC			

ESTRELLA ESTATES  
P & ID NI

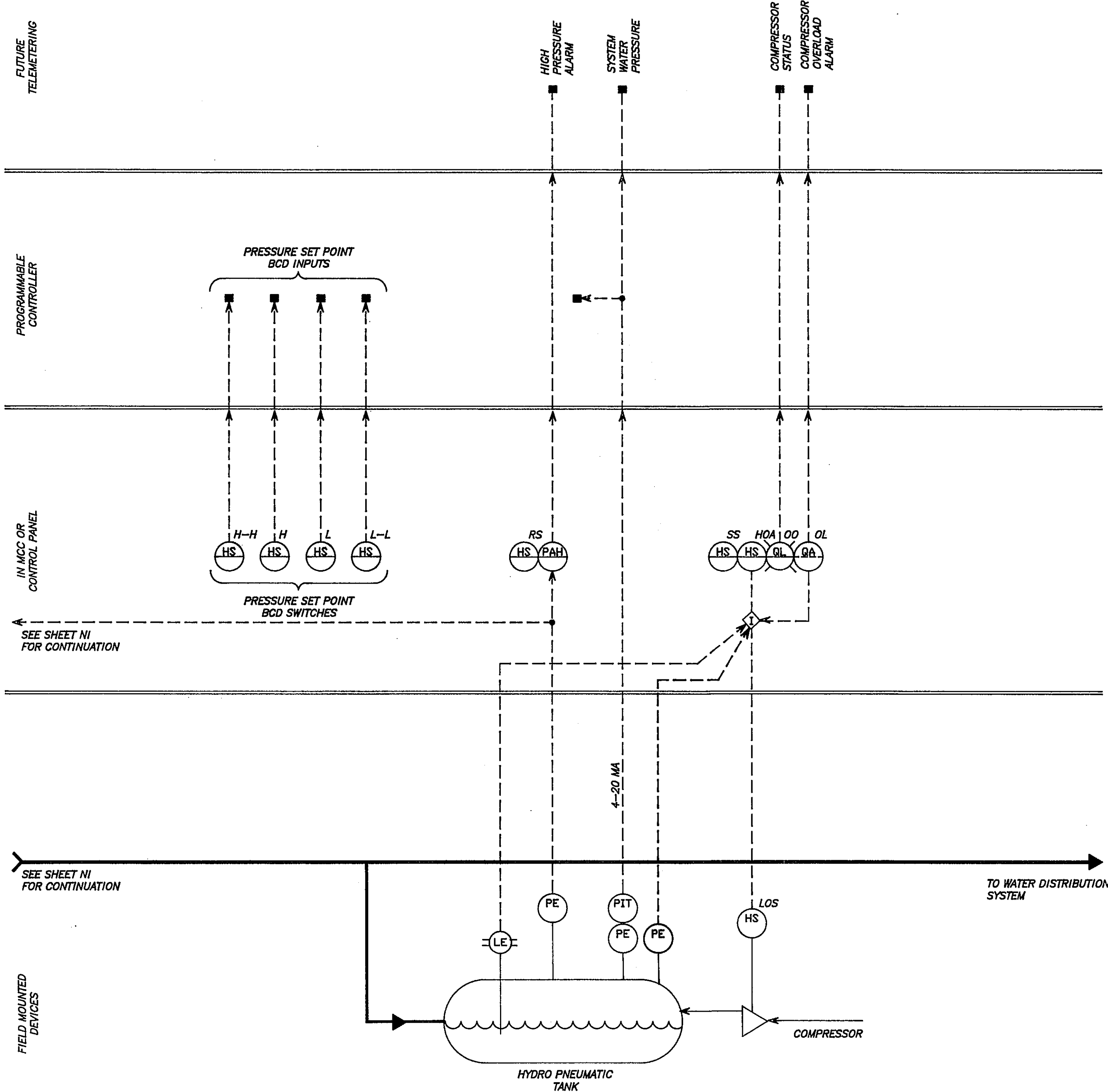
**COE & VAN LOO**  
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 PHOENIX, ARIZONA 85014  
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SHEET  
 20 OF 26  
 1074-16-05





## P & ID LEGEND

### INSTRUMENT IDENTIFICATION

#### INSTRUMENT TYPE

FIRST LETTER(S)  
SUCCEEDING LETTERS

#### INSTRUMENT LOCATION CODE

FIELD MOUNTED INSTRUMENT

REAR-OF PANEL MOUNTED INSTRUMENT

PANEL MOUNTED INSTRUMENT

### SPECIAL CASES

ILLUMINATED HAND SWITCH

FUNCTION SYMBOL  
ON AND OFF EVENT LIGHTS

OPEN AND CLOSE POSITION SWITCHES

STOP-START HAND SWITCH. MOMENTARY CONTACT  
SWITCHES (CONTROLLED DEVICE WILL NOT RESTART  
ON RETURN OF POWER AFTER POWER FAILURE).

OFF-ON HAND SWITCH. MAINTAIN CONTACT SWITCHES  
(CONTROLLED DEVICE WILL RESTART ON RETURN  
OF POWER AFTER POWER FAILURE).

H = HIGH  
H-H = HIGH-HIGH  
HOA = HAND-OFF-AUTO  
HOAR = HAND-OFF-AUTO-REMOTE  
L = LOW  
L-L = LOW-LOW  
LOS = LOCK-OFF-STOP  
OL = OVERLOAD  
OO = ON-OFF  
RS = RESET  
SP = SET POINT  
SS = START/STOP  
SSR = SET START TIMER  
SST = SET STOP TIMER

COMPRESSOR  
PUMP  
CONDUCTIVITY LEVEL PROBE

LETTER	LETTER SYMBOLS				
	FIRST LETTER(S)		SUCCEEDING LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (M)		ALARM		
B	BURNER FLAME				
C	CONDUCTIVITY			CONTROL	
D	DENSITY (S.G.)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAUGE		GLASS	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE		CONTROL STATION		
L	LEVEL		LIGHT		LOW
M	MOTION				MIDDLE
N	STROKE				NORMAL
D	LOOP VEH. DETECTOR		DRIFICE		
P	PRESSURE (OR VACUUM)		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT		INTEGRATE		
R	RATIO		RECORD OF PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (M)		MULTIFUNCTION (M)		
V	TURBIDITY			VALVE	
W	WEIGHT OR FORCE		WELL		
X	PARTICLE COUNT				
Y	PHOTO CELL		LIGHT SOURCE	RELAY OR COMPUTE (M)	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL.

### INSTRUMENT LINE SYMBOLS

PRIMARY PROCESS FLOW  
SECONDARY PROCESS FLOW OR CONNECTION TO PROCESS, OR MECHANICAL LINK, OR INSTRUMENT SUPPLY.  
ELECTRICAL SIGNAL

ELECTRICAL CONSULTING ENGINEERS  
3509 EAST SHEA BLVD., SUITE 109 PHOENIX, AZ 85028  
ENGINEERS INC. (602) 996-5950

ESTRELLA ESTATES - WATER PLANT

COE & VAN LOO

PLANNING, ENGINEERING, LANDSCAPE ARCHITECTURE

ESTRELLA ESTATES  
P & ID N2

DESIGNED BY  
DRAWN BY  
CHECKED BY  
DATE

REVISIONS  
DATE

1074-16-05

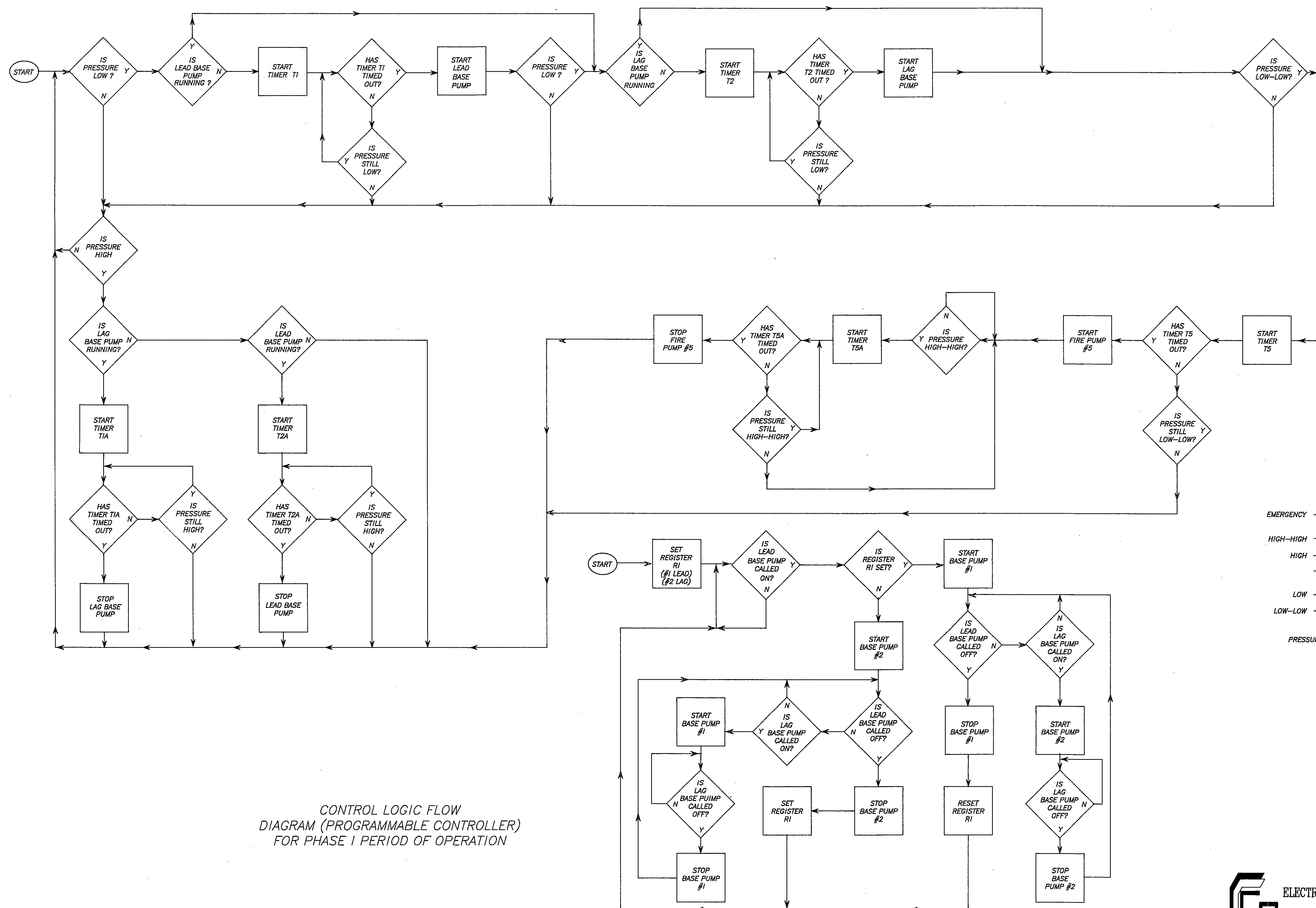
SHEET  
21 OF 26

1074-16-05

N-2

P308N2.DWG





BASE PUMPS #1 & #2 AUTOMATIC  
LEAD/LAG ALTERNATOR

EMERGENCY	DISABLES PUMP STATION AND SETS ALARM
HIGH-HIGH	STOP FIRE PUMP(S)
HIGH	STOP BASE PUMPS
	HYDRO-PNEUMATIC TANK SET POINTS
LOW	START BASE PUMPS
LOW-LOW	START FIRE PUMP(S)
PRESSURE SCALE	

N-3



ELECTRICAL CONSULTING ENGINEERS  
3509 EAST SHEA BLVD., SUITE 109 PHOENIX, AZ 85028  
(602) 996-5950

# ESTRELLA ESTATES - WATER PLANT

4350 NORTH 12TH STREET  
PHOENIX, ARIZONA 85014  
TELEPHONE (602) 254-5837

**COE & VAN LOO**

DESIGNED	MC	REVISIONS	DATE	BY
DRAWN	EL			
CHECKED	MC			
DATE	8-28-87			

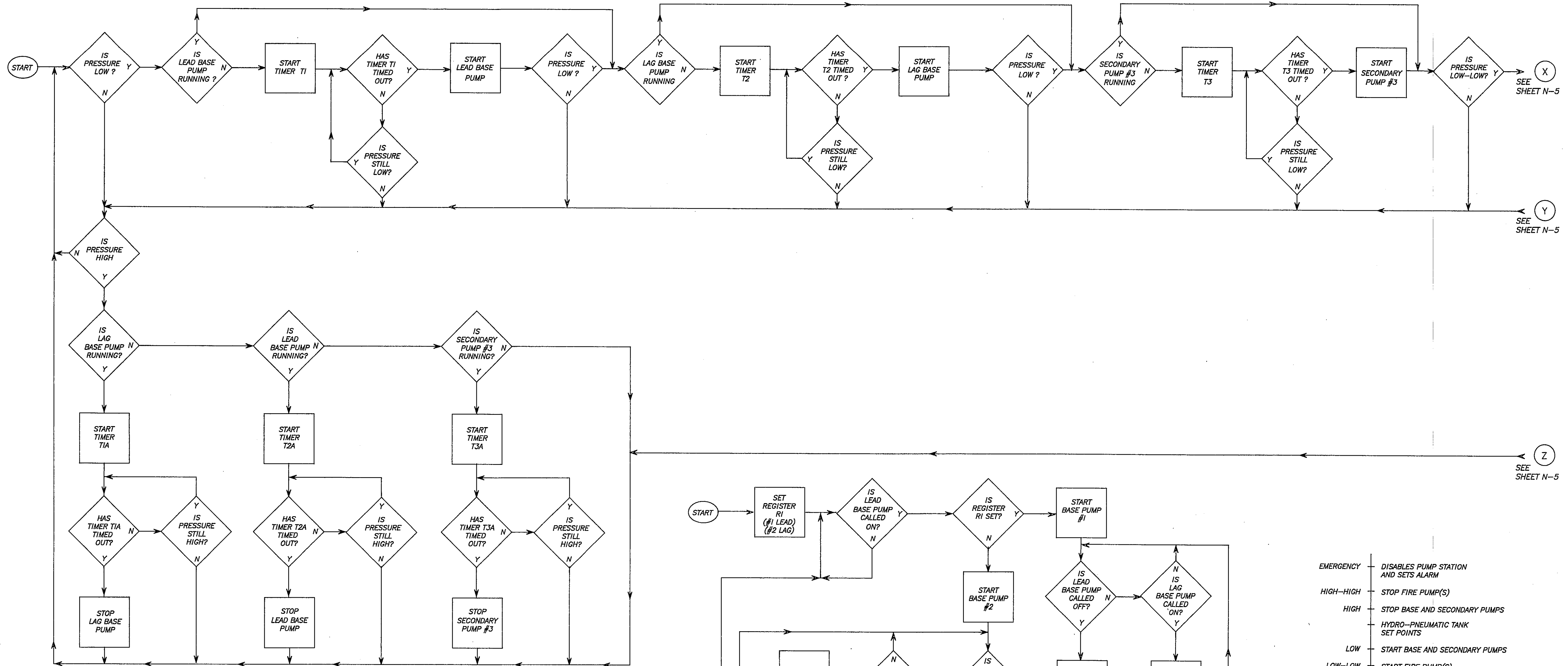
ESTRELLA ESTATES  
PROGRAMMABLE CONTROLLER LOGIC  
(PHASE 1)

ESTRELLA ESTATES  
PROGRAMMABLE CONTROLLER LOGIC  
(PHASE I)

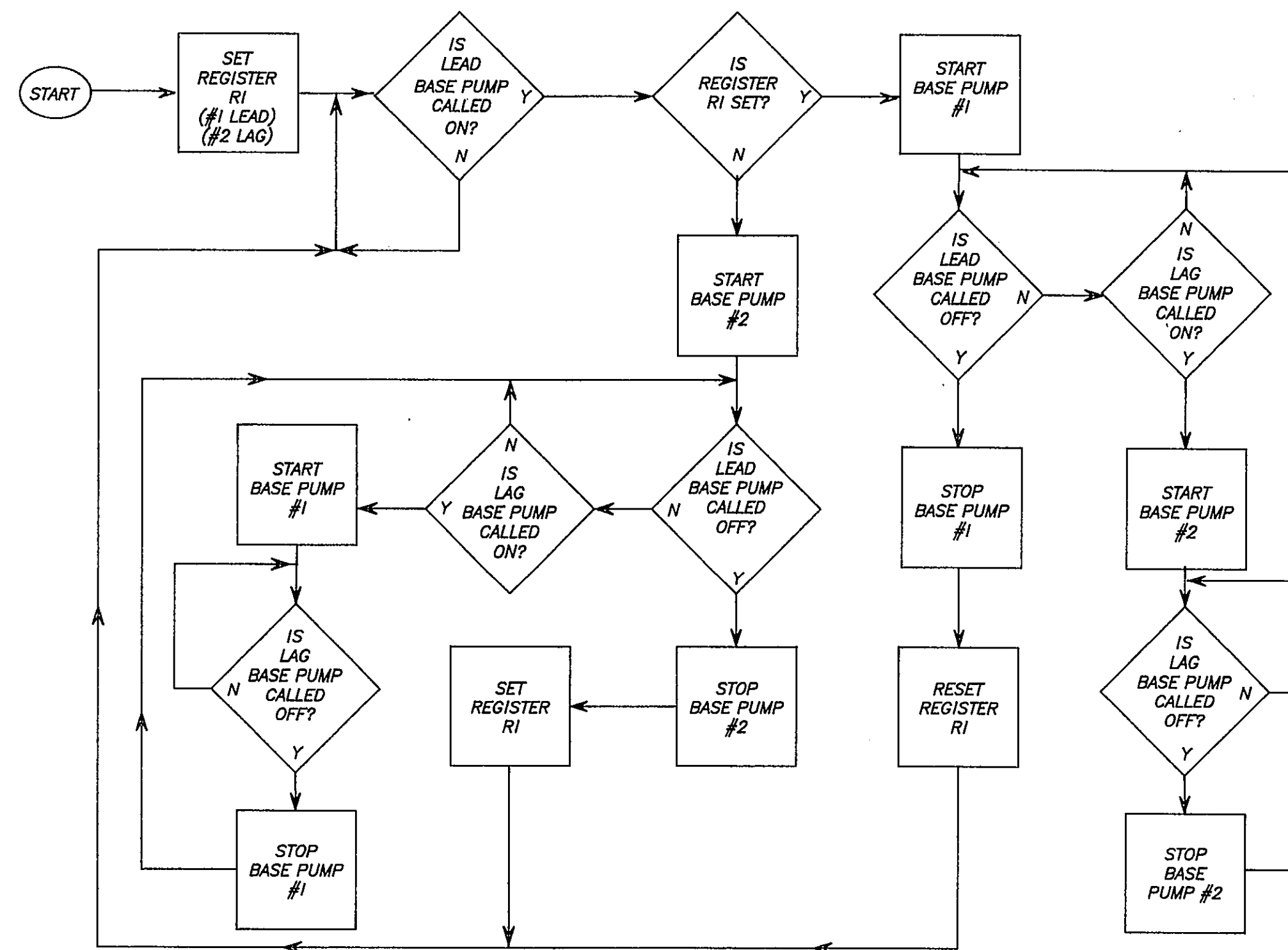
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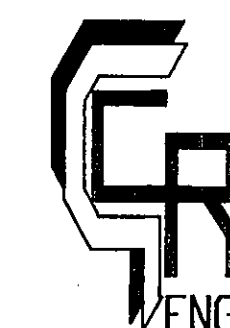
CONTROL LOGIC FLOW  
DIAGRAM (PROGRAMMABLE CONTROLLER)  
FOR PHASES 2 & 3 PERIODS OF  
OPERATION (PART I)



BASE PUMPS #1 & #2 AUTOMATIC  
LEAD/LAG ALTERNATOR

EMERGENCY — DISABLES PUMP STATION  
AND SETS ALARM  
HIGH-HIGH — STOP FIRE PUMP(S)  
HIGH — STOP BASE AND SECONDARY PUMPS  
HYDRO-PNEUMATIC TANK  
SET POINTS  
LOW — STOP BASE AND SECONDARY PUMPS  
LOW-LOW — START FIRE PUMP(S)  
PRESSURE SCALE

N-4



ELECTRICAL CONSULTING ENGINEERS

3509 EAST SHEA BLVD., SUITE 109 PHOENIX, AZ 85028

ENGINEERS INC.

(602) 996-5950

P3080N4.DWG

DESIGNED	DRAWN	CHECKED	DATE	MC	REVISIONS	DATE	BY

ESTRELLA ESTATES  
PROGRAMMABLE CONTROLLER LOGIC  
(PHASES 2 & 3 - PART I)

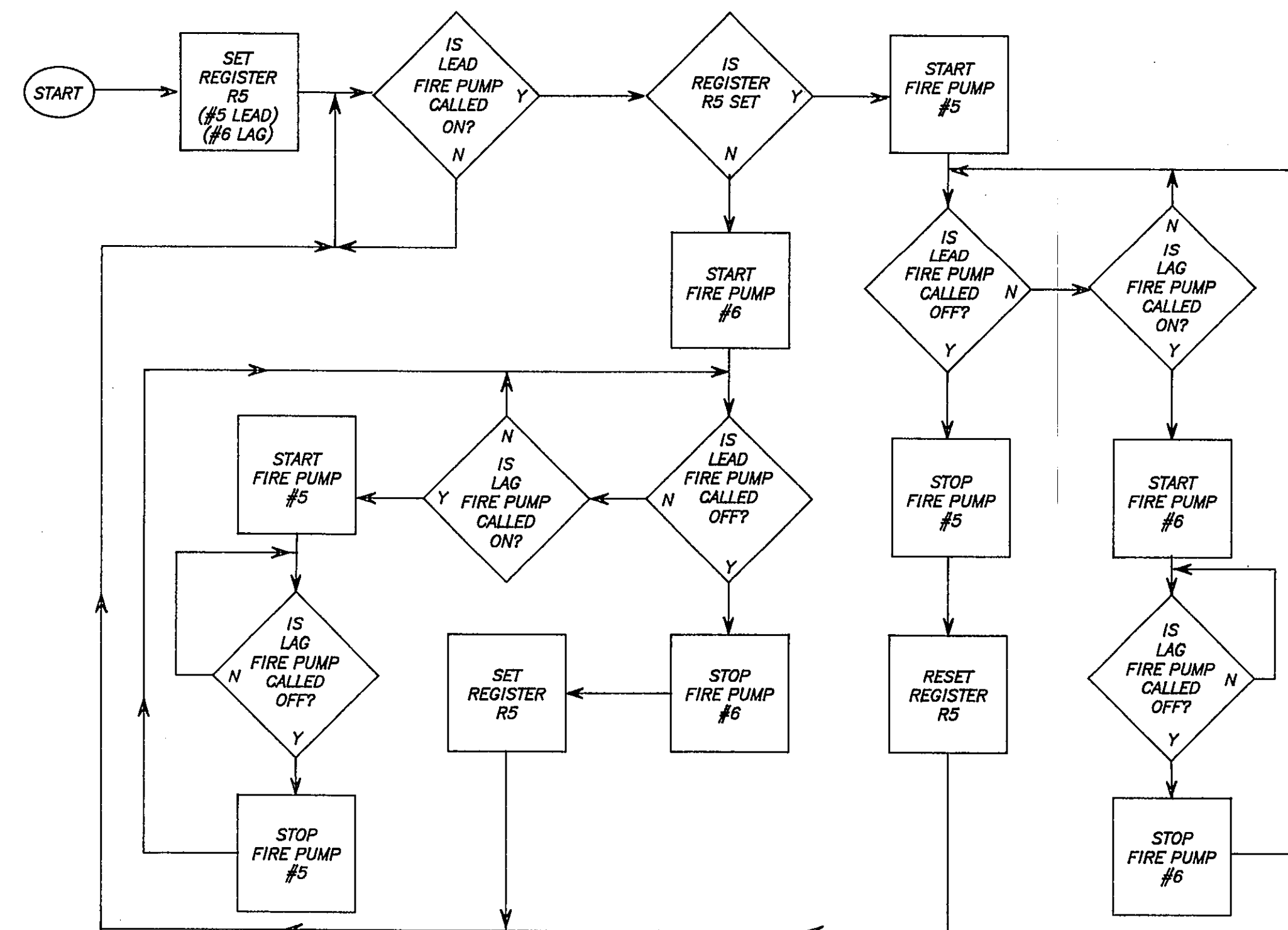
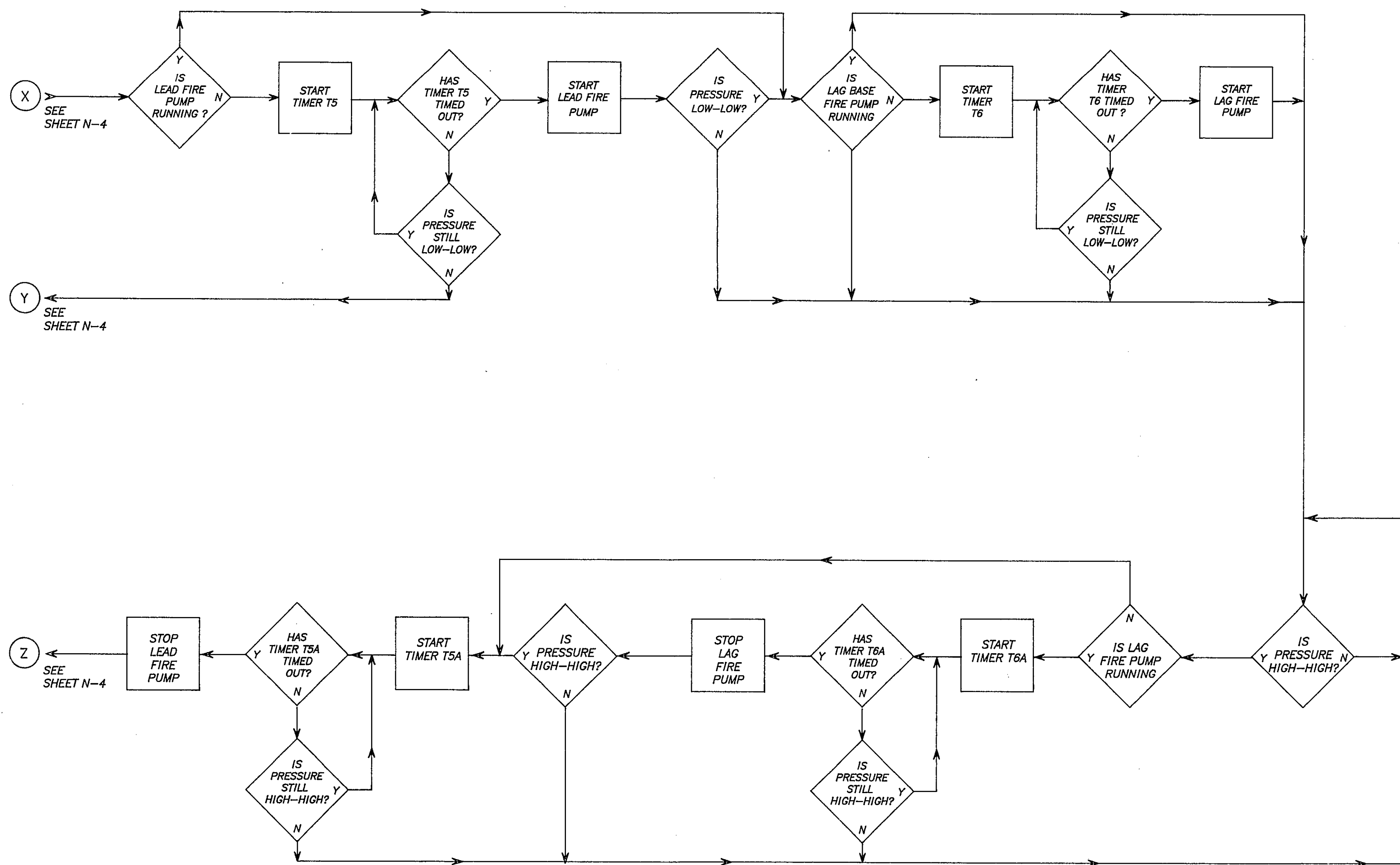
10/16/05

10/16/05

SHEET  
23 OF 26

1074-16-05





FIRE PUMPS #5 & #6 AUTOMATIC  
LEAD/LAG ALTERNATOR

CONTROL LOGIC FLOW  
DIAGRAM (PROGRAMMABLE CONTROLLER)  
FOR PHASES 2 & 3 PERIODS OF  
OPERATION (PART 2)

ESTRELLA ESTATES - WATER PLANT

4550 NORTH 12TH STREET  
PHOENIX, ARIZONA 85014  
TELEPHONE (602) 264-57

COE & VAN LOO  
PLANNING ENGINEERING LANDSCAPE ARCHITECTURE

DESIGNED	MC	REVISIONS	DATE	BY
DRAWN	MC			
CHECKED	MC			
DATE	9-28-87			

ESTRELLA ESTATES  
PROGRAMMABLE CONTROLLER LOGIC  
(PHASES 2 & 3 - PART 2)

N-5



ELECTRICAL CONSULTING ENGINEERS

3509 EAST SHEA BLVD., SUITE 109 PHOENIX, AZ 85028

ENGINEERS INC.

(602) 996-5950

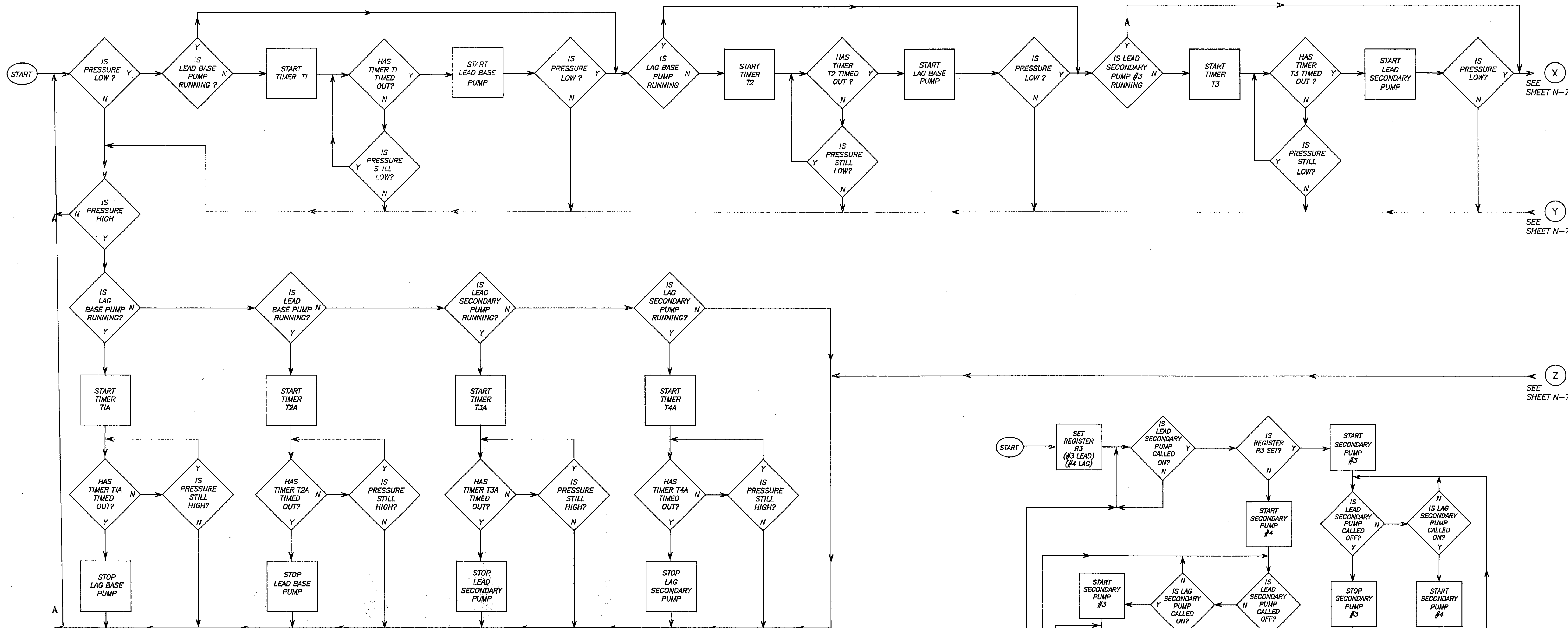
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SHEET  
24 OF 26

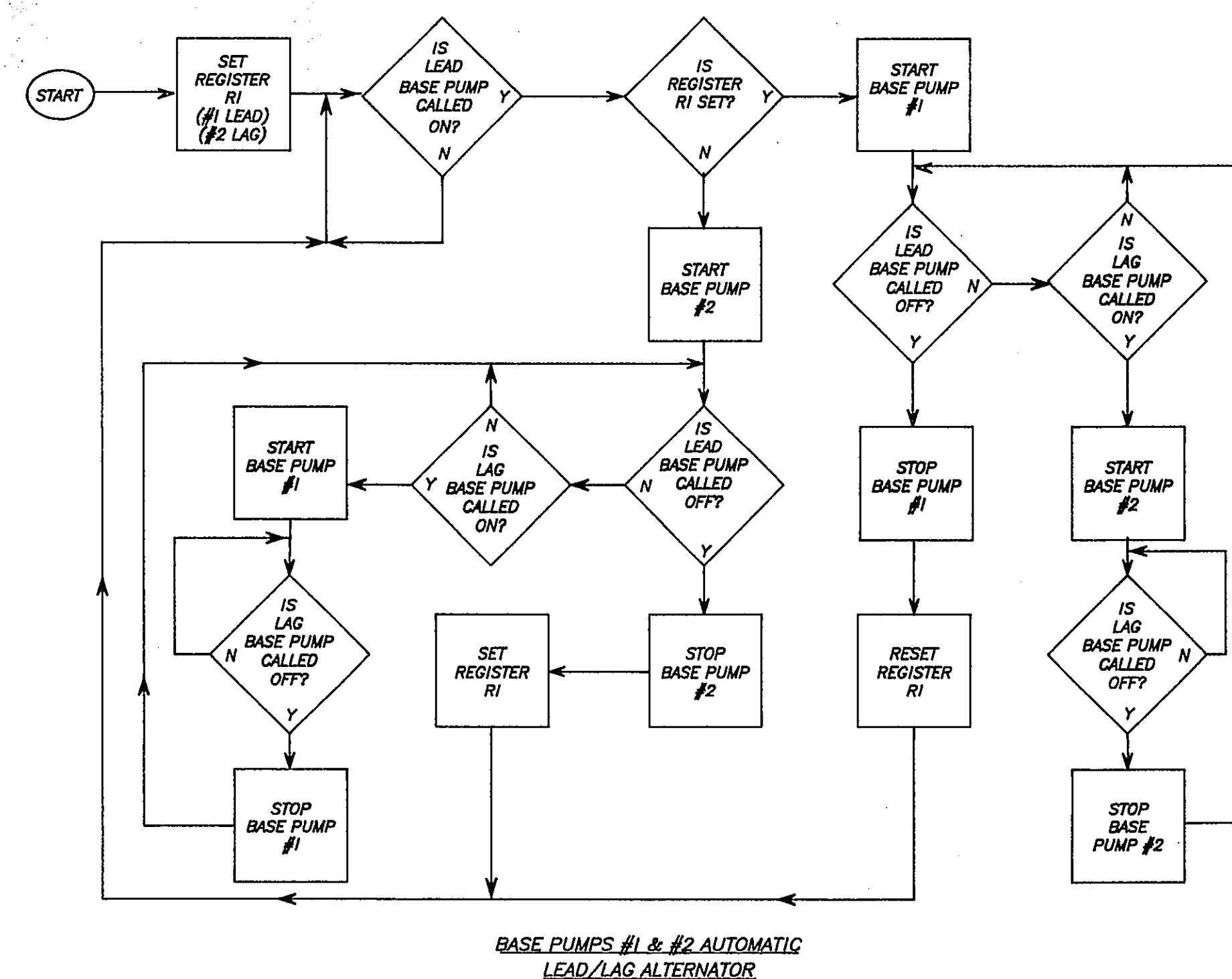
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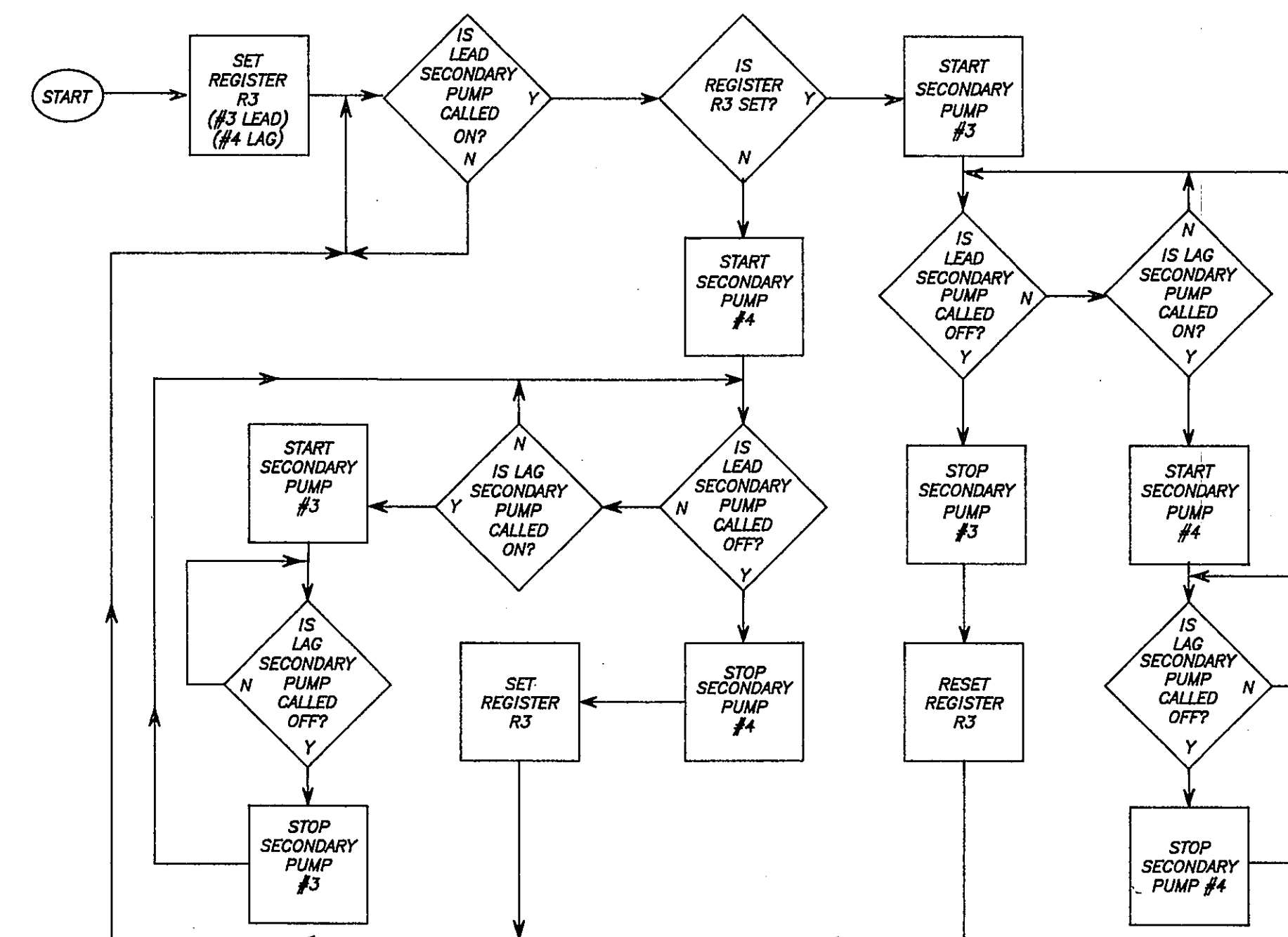


CONTROL LOGIC FLOW  
DIAGRAM (PROGRAMMABLE CONTROLLER)  
FOR PHASE 4 PERIOD OF  
OPERATION (PART I)

EMERGENCY - DISABLES PUMP STATION  
AND SETS ALARM  
HIGH-HIGH - STOP FIRE PUMP(S)  
HIGH - STOP BASE AND SECONDARY PUMPS  
HYDRO-PNEUMATIC TANK  
SET POINTS  
LOW - START BASE AND SECONDARY PUMPS  
LOW-LOW - START FIRE PUMP(S)  
PRESSURE SCALE



BASE PUMPS #1 & #2 AUTOMATIC  
LEAD/LAG ALTERNATOR

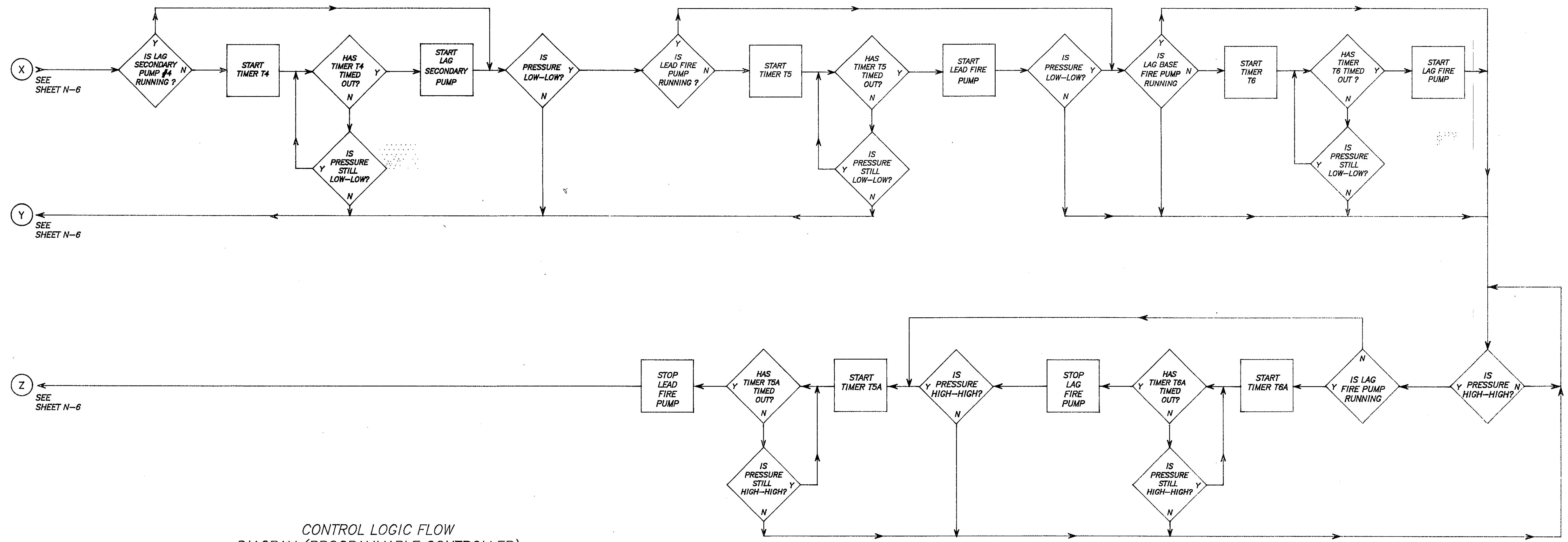


SECONDARY PUMPS #3 & #4 AUTOMATIC  
LEAD/LAG ALTERNATOR

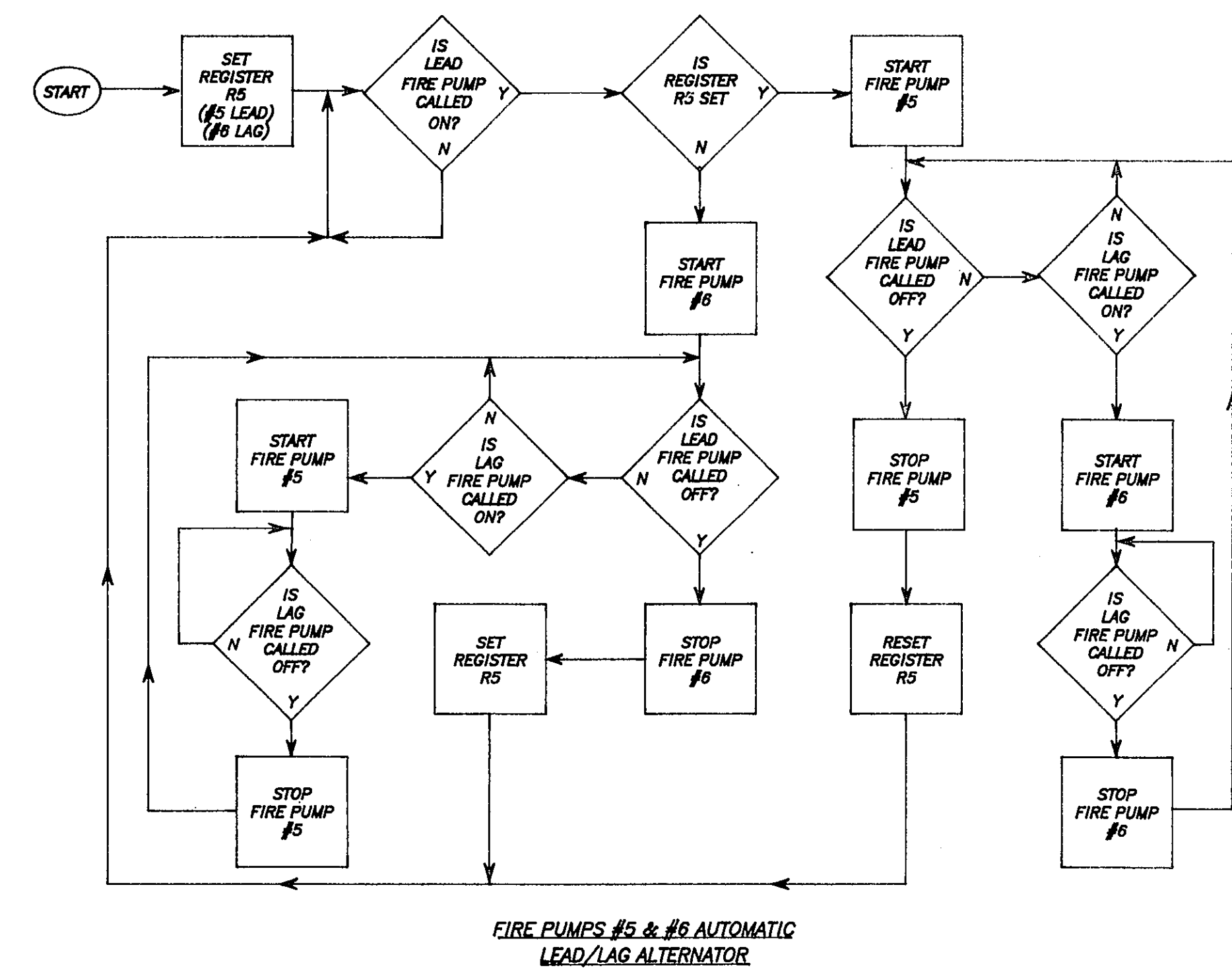


ELECTRICAL CONSULTING ENGINEERS  
3509 EAST SHEA BLVD., SUITE 109 PHOENIX AZ 85028  
(602) 996-5950  
ENGINEERS INC.

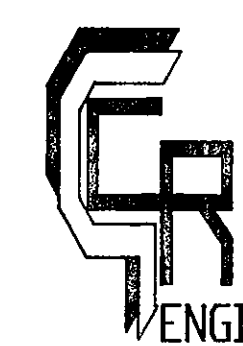




CONTROL LOGIC FLOW  
DIAGRAM (PROGRAMMABLE CONTROLLER)  
FOR PHASE 4 PERIOD OF  
OPERATION (PART 2)



N-7



ELECTRICAL CONSULTING ENGINEERS  
3509 EAST SHEA BLVD., SUITE 109 PHOENIX, AZ 85028  
(602) 996-5950  
ENGINEERS INC.

P308N7.DWG

**ESTRELLA ESTATES - WATER PLANT**

**COE & VAN LOO**

PLANNING, ENGINEERING, LANDSCAPE ARCHITECTURE

4550 NORTH 12TH STREET  
PHOENIX, ARIZONA 85014  
TELEPHONE (602) 264-8831

DESIGNED	DRAWN	CHECKED	DATE	REVISIONS	DATE	BY
MC	MC	MC	8-28-87			

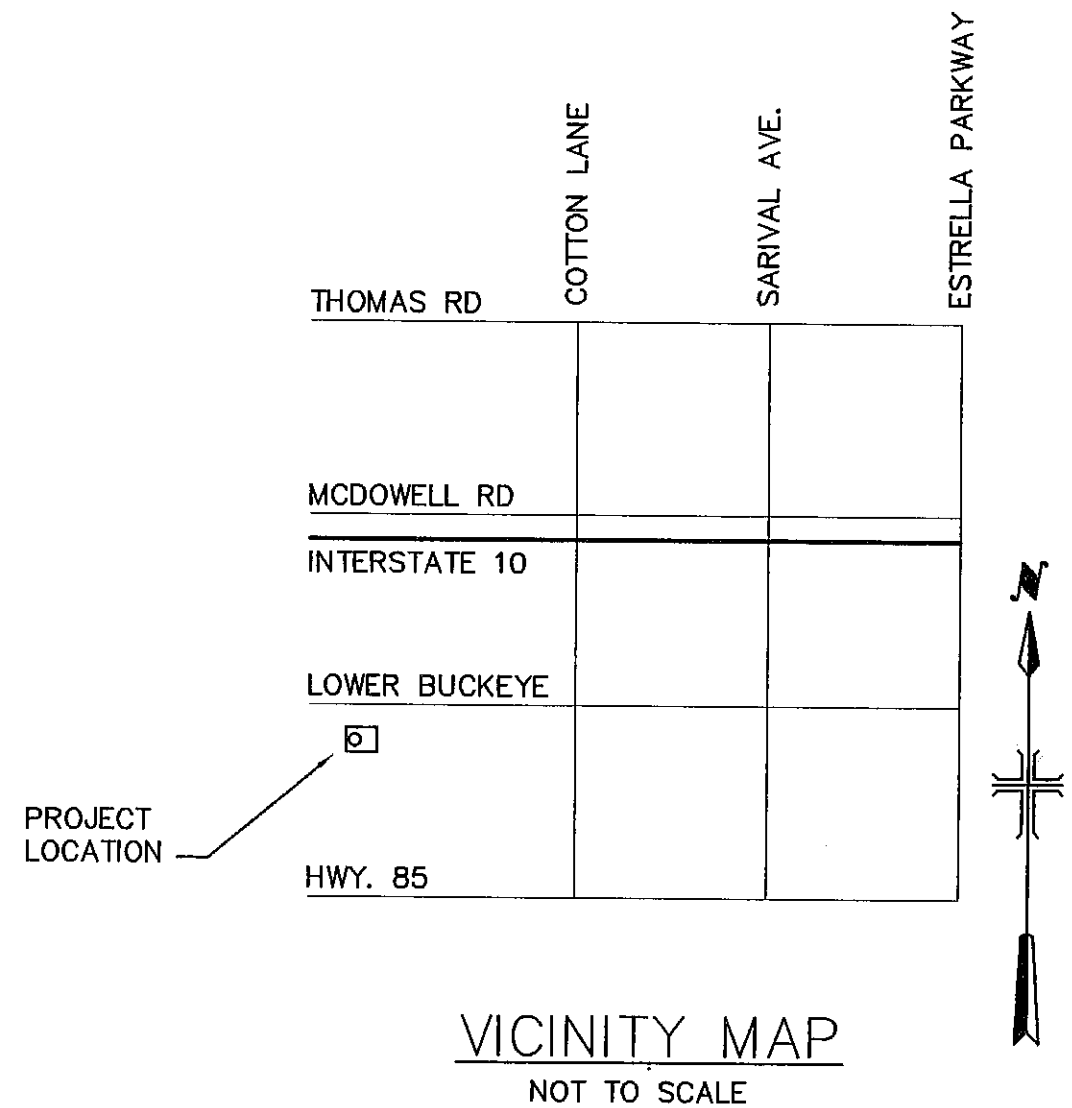
ESTRELLA ESTATES  
PROGRAMMABLE CONTROLLER LOGIC  
(PHASE 4 - PART 2)

**SHEET**  
26 OF 26  
1074-16-05



# City of Goodyear

## Well 12B Reservoir Fill Line



**BENCH MARK**  
TBM#1: B.C. IN CONC HEADWALL 200'  
EAST OF COTTON LANE AND SOUTH SIDE  
OF S.R. 95 ELEV.=909.80  
TBM#2: TOP OF I.P. IN H.H. SOUTHWEST COR.  
SEC. 23 INTERSECTION OF BROADWAY RD.  
& COTTON LANE ELEV=912.31  
BM: B.C. IN CONC HEADWALL 400' WEST OF  
REEMS ON SOUTH SIDE OF S.R. 85 ELEV=916.58

**HYDRO  
ENGINEERING  
SOLUTIONS LLC**  
HYDRO ENGINEERING SOLUTIONS LLC.  
9212 W. Charleston Ave.  
Peoria, Az 85382  
Email: edole@hydroengineeringsolutions.com

BILL OF MATERIALS TABLE			
Description	Qty.	LF	SIZE
Ductile Iron Pipe		30	16
Ductile Iron Pipe		530	12
Ductile Iron Pipe		17	10
Ductile Iron Pipe		5	8
Ductile Iron Pipe		14	6
PVC Pipe		30	8
Steel Pipe Std Wt		3	16
Steel Pipe Std Wt		1	8
Elbow 90 Flgd	2		16
Hol Tap Tee w/Gate Valve	3		16
Reducer Flgd	2		16x8
Eccentric Reducer MxMJ	1		16x12
Elbow 45 MxMJ	4		12
Elbow 22.5 MxMJ	1		12
Victaulic Cplg	2		16
Victaulic Cplg	2		8
Victaulic Cplg	1		6
Elbow 90 MxMJ	1		12
Tee Flgd	1		12
Tee Flgd	2		16
Reducer Flgd	2		12x10
Krohne Mag Meter	1		10
Victaulic Cplg	1		10
Valve Cla-Val 643-01	1		10
Gate Valve	2		10
Elbow 90 Flgd	2		6
Tee Flgd	2		10x6
Elbow 90 Flgd	1		12
Blind Flg	2		12
Reducer Port Globe Valve	1		6
Check Valve	1		16
Gate Valve	2		16
Gate Valve	2		8
Combination Air/Vacuum Valve	1		2
Gate Valve	1		12
Blind Flg Class D	1		16
Ring Flg Class D	1		8
Elbow 90 PVC	2		8
Flange PVC	1		8
Pipe Strap 3" Wide	6		
Pipe Support	2		16
Pipe Support	2		8
Pipe Support	3		10
Pipe Support	4		6
Flex Coupling wiretrain	2		16

**CITY OF GOODYEAR**  
**GENERAL NOTES FOR CONSTRUCTION**

- A. ALL CONSTRUCTION SHALL CONFORM WITH THE LATEST MAG STANDARD DETAILS AND SPECIFICATIONS AND THE CITY'S SUPPLEMENTAL DETAILS AND SPECIFICATIONS.
- B. THIS SET OF PLANS HAS BEEN REVIEWED FOR COMPLIANCE WITH CITY REQUIREMENTS PRIOR TO ISSUANCE OF CONSTRUCTION PERMITS. HOWEVER, SUCH REVIEW SHALL NOT PREVENT THE CITY FROM REQUIRING CORRECTION OF ERRORS IN PLANS FOUND TO BE IN VIOLATION OF ANY LAW OR ORDINANCE.
- C. THE CITY APPROVAL IS FOR GENERAL LAYOUT. THIS APPROVAL IS VALID FOR A PERIOD OF ONE YEAR. CONSTRUCTION PERMITS SHALL BE OBTAINED DURING THIS PERIOD OR THE PLANS SHALL BE RESUBMITTED FOR REVIEW AND APPROVAL.
- D. AN APPROVED SET OF PLANS SHALL BE AVAILABLE ON THE JOBSITE AT ALL TIMES.
- E. THE CITY SHALL BE NOTIFIED 24 HOURS PRIOR TO ANY CONSTRUCTION WORK AND INSPECTIONS (932-1637). CONSTRUCTION WORK CONCEALED WITHOUT INSPECTION BY THE CITY SHALL BE SUBJECT TO EXPOSURE AT THE CONTRACTORS EXPENSE.
- F. PROJECT IMPROVEMENTS SHALL NOT BE ACCEPTED UNTIL "AS BUILT" PLANS HAVE BEEN SUBMITTED AND APPROVED BY THE CITY. (SEE AS-BUILT REQUIREMENTS)
- G. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OR RELOCATION OF ALL OBSTRUCTIONS PRIOR TO STARTING NEW CONSTRUCTION.
- H. THE CONTRACTOR SHALL CONTACT BLUESTAKE (263-1100) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
- I. THE CONTRACTOR SHALL BARRICADE CONSTRUCTION SITES AT ALL TIMES PER THE CITY OF PHOENIX TRAFFIC BARRICADE MANUAL. WHEN REQUIRED BY THE CITY, A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED FOR APPROVAL IN ADVANCE OF CONSTRUCTION.
- J. THE CONTRACTOR MAY REQUEST A FIRE HYDRANT METER FOR CONSTRUCTION WATER FROM THE FINANCE DEPARTMENT. THIS METER SHOULD BE ORDERED TWO WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. THE UNLAWFUL REMOVAL OF WATER FROM A FIRE HYDRANT IS A VIOLATION OF THE MUNICIPAL CODE, PUNISHABLE BY FINE AND/OR IMPRISONMENT.
- K. THE CONTRACTOR SHALL PROVIDE DUCTILE IRON PIPING IN ACCORDANCE WITH MAG STANDARD TS-750.2 AND FITTINGS WITH MAG STANDARD 750.4. PROVIDE THRUST BLOCKS AS REQUIRED IN ACCORDANCE WITH MAG STANDARD DETAIL 380.

**CITY OF GOODYEAR**  
**GENERAL NOTES FOR WATER MAIN CONSTRUCTION**

- A. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT MAG SPECIFICATION AND STANDARD DETAILS.
- B. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
- C. CITY OF GOODYEAR INSPECTORS SHALL BE NOTIFIED 24 HOURS PRIOR TO STARTING EACH PHASE OF CONSTRUCTION, AND EACH INSPECTION REQUESTED (932-1637)
- D. AND WORK PERFORMED WITHOUT THE APPROVAL OF THE CITY ENGINEER AND ANY WORK/MATERIAL NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTORS EXPENSE.
- E. CONTRACTOR WILL EXPOSE AND LINES BEING TIED INTO TO VERIFY LOCATION.
- F. CONTRACTOR SHALL HAVE ALL EXISTING UNDERGROUND UTILITIES LOCATED (BLUE STAKE 263-1100) AND SHALL ELIMINATE ALL CONFLICTS PRIOR TO CONSTRUCTION.
- G. CITY OF GOODYEAR IS NOT LIABLE FOR DELAYS NOR DAMAGES TO UTILITIES RELATED TO THIS CONSTRUCTION; NEITHER WILL THE CITY PARTICIPATE IN THE COST OF UTILITY CONSTRUCTION NOR RELOCATION.
- H. AS-BUILT DRAWINGS (ONE SET MYLARS AND TWO SETS OR PRINTS). CERTIFIED BY ENGINEER, SHALL BE SUBMITTED TO AND ACCEPTED BY THE CITY ENGINEER BEFORE FINAL ACCEPTANCE OF THE WORK.
- I. BACKFILLING SHALL NOT BE DONE UNTIL LINES ARE INSPECTED AND APPROVED BY THE CITY ENGINEER
- J. VALVES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR ACCORDING TO MAG AND C.O.G. SUPPLEMENTS. APPROVED VALVES LIST IS AVAILABLE AT THE PUBLIC WORKS DEPARTMENT.

**GENERAL NOTES**

1. ALL WORK MATERIALS AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL CONFORM TO THESE DRAWINGS, AND THE FOLLOWING WHERE APPLICABLE.
- THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS, ARIZONA ADMINISTRATION CODE, DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) SAFE DRINKING WATER, TITLE 18, CHAPTER4, ADEQ ENGINEERING BULLETIN NOS. 8 AND 10.
2. THE CONTRACTOR SHALL SECURE NECESSARY PERMITS REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT AND ADHERE TO SPECIAL CONDITIONS STIPULATED BY SUCH PERMITS. CONTRACTOR IS ALSO RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS AND CERTIFICATIONS.
3. THE ENGINEER SHALL APPROVE ALL CHANGES PRIOR TO CONSTRUCTION.
4. ALL WATER LINES AND FITTINGS SHALL HAVE NSF-PW SEAL.
5. ALL MATERIALS AND PRODUCTS USED IN THE DRINKING WATER SYSTEM SHALL CONFORM TO NSF STANDARD 61.
6. CONSTRUCTION MATERIALS USED IN THE WATER SYSTEM SHALL BE LEAD FREE AS DEFINED AT R18-4-504 AND R18-4-101.
7. CONTRACTOR TO DETERMINE THE REQUIREMENT FOR AND LOCATION OF PIPE HANGERS AND PIPE SUPPORTS. FINAL SUPPORT REQUIREMENTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
8. THE PIPING AND EQUIPMENT SHALL BE DISINFECTED AND BACTERIOLOGICALLY TESTED PRIOR TO PROJECT ACCEPTANCE AND PLACEMENT IN SERVICE. DISINFECTING OF PIPE SHALL BE IN ACCORDANCE WITH ANSI/AWWA C601-81 AND DISINFECTION OF EQUIPMENT SHALL BE IN ACCORDANCE WITH ANSI/AWWA C652-87. DISINFECTION AND TESTING SHALL COMPLY WITH APPLICABLE SECTIONS OF ADEQ'S ENGINEERING BULLETIN NO. 8.

**GENERAL NOTES**

9. UNLESS OTHERWISE SPECIFIED, WATER LINES AND OTHER SYSTEM PIPING SHALL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA C604 STANDARD.
10. "RECORD DRAWINGS" ARE REQUIRED BEFORE A LETTER OF FINAL ACCEPTANCE WILL BE ISSUED.
11. STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR AND REFLECTED ON 'RECORD DRAWINGS' PRIOR TO CONSTRUCTION.
12. IF APPLICABLE, THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS, FOR THE ENGINEER'S REVIEW, AS MAY BE NECESSARY FOR THE EXECUTION OF THE WORK AND AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.
13. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON PROJECT.
14. CONTRACTOR TO COORDINATE RESTRAINED JOINT LOCATIONS.
15. CONTRACTOR MUST VERIFY ALL EXISTING UTILITIES PRIOR TO EXCAVATING. LOCATION OF EXISTING UTILITIES MAY VARY.

**SHEET INDEX**

SHEET NUMBER	DRAWING	SHEET TITLE
1	G-1	COVER SHEET, SHEET INDEX
2	C-1	YARD PIPING PLAN
3	C-2	TIE IN TO EXISTING LINE
4	C-3	VALVE STATION
5	C-4	VALVE STATION SECTIONS
6	C-5	SECTIONS
7	C-6	TYPICAL DETAILS
8	S-1	VALVE VAULT

**APPROVALS**

JERRY POSTEMA  
WATER OPERATIONS SUPERINTENDANT  
CITY OF GOODYEAR

DATE

*Kevin R. Arterberry*  
DAVID RAMIREZ Kevin R. Arterberry  
CITY OF GOODYEAR

7/27/2006  
DATE

KEN JAMES  
MARICOPA COUNTY ENVIRONMENTAL  
SERVICES DEPARTMENT

DATE

**APPROVAL PHASE I**

*Ken James, PE* MCESD# 2011386  
KEN JAMES  
MARICOPA COUNTY ENVIRONMENTAL  
SERVICES DEPARTMENT

7/27/06  
DATE

**APPROVAL PHASE II**

KEN JAMES  
MARICOPA COUNTY ENVIRONMENTAL  
SERVICES DEPARTMENT

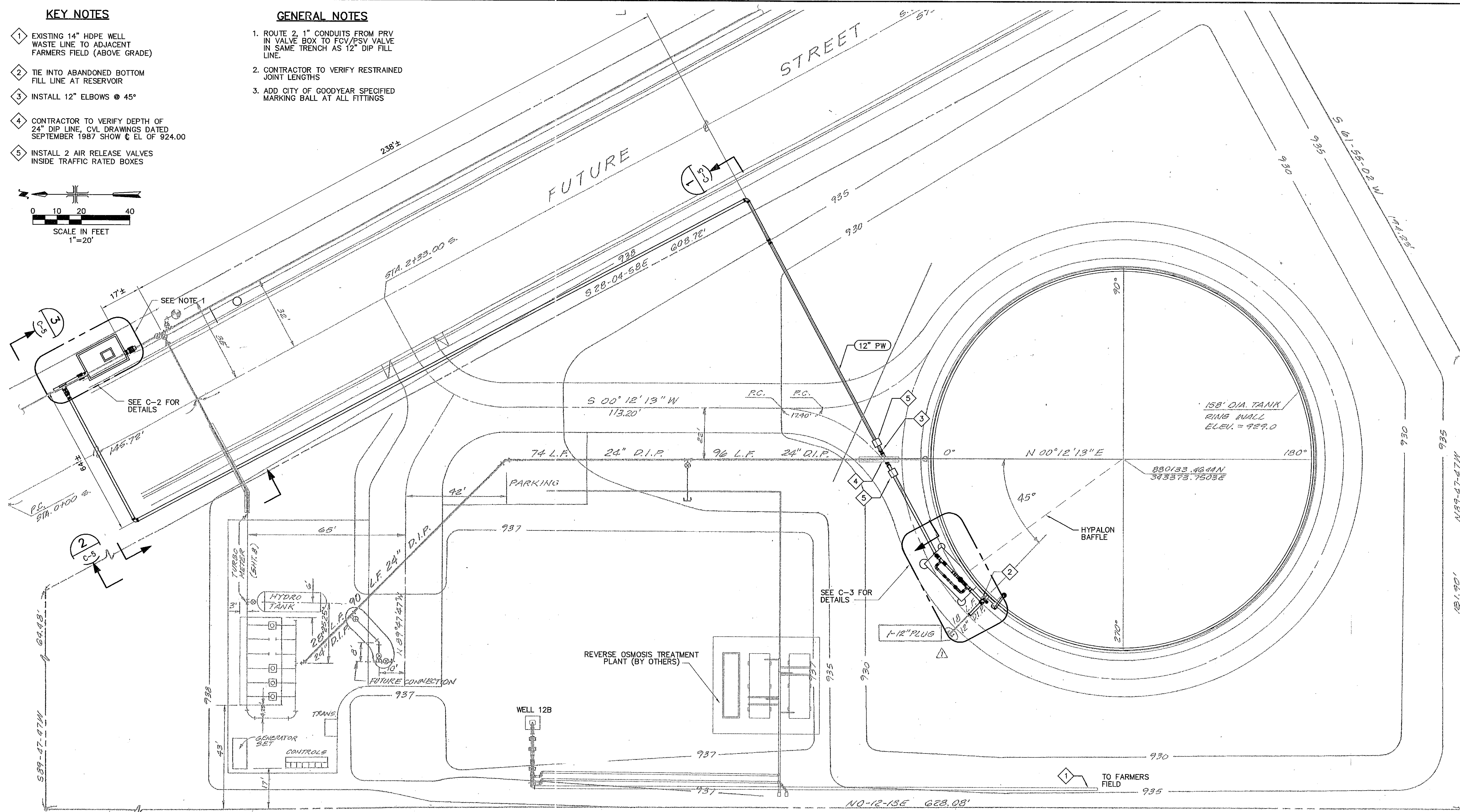
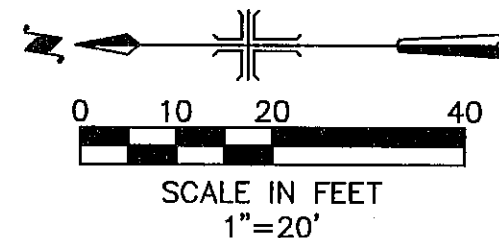
DWG NO G-1

SHT NO 1 OF 8



- 1 EXISTING 14" HDPE WELL  
WASTE LINE TO ADJACENT  
FARMERS FIELD (ABOVE GRADE)
- 2 TIE INTO ABANDONED BOTTOM  
FILL LINE AT RESERVOIR
- 3 INSTALL 12" ELBOWS @ 45°
- 4 CONTRACTOR TO VERIFY DEPTH OF  
24" DIP LINE, CVL DRAWINGS DATED  
SEPTEMBER 1987 SHOW C EL OF 924.00
- 5 INSTALL 2 AIR RELEASE VALVES  
INSIDE TRAFFIC RATED BOXES

1. ROUTE 2, 1" CONDUITS FROM PRV IN VALVE BOX TO FCV/PSV VALVE IN SAME TRENCH AS 12" DIP FILL LINE.
2. CONTRACTOR TO VERIFY RESTRAINED JOINT LENGTHS
3. ADD CITY OF GOODYEAR SPECIFIED MARKING BALL AT ALL FITTINGS



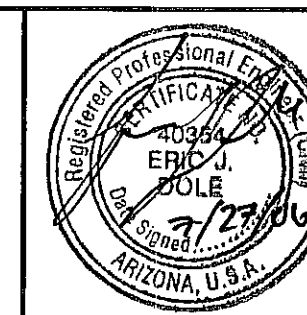
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Designed:	EJD				
Drawn:	RLL				
Checked:	EJD				
		0	DATE	BY	DESCRIPTION



**CITY OF**  
**GOODYEAR**  
**ARIZONA**

**CITY OF GOODYEAR  
WELL 12B  
FILL LINE**

HYDRO  
ENGINEERING  
SOLUTIONS LLC

CIVIL

YARD PIPING PLAN

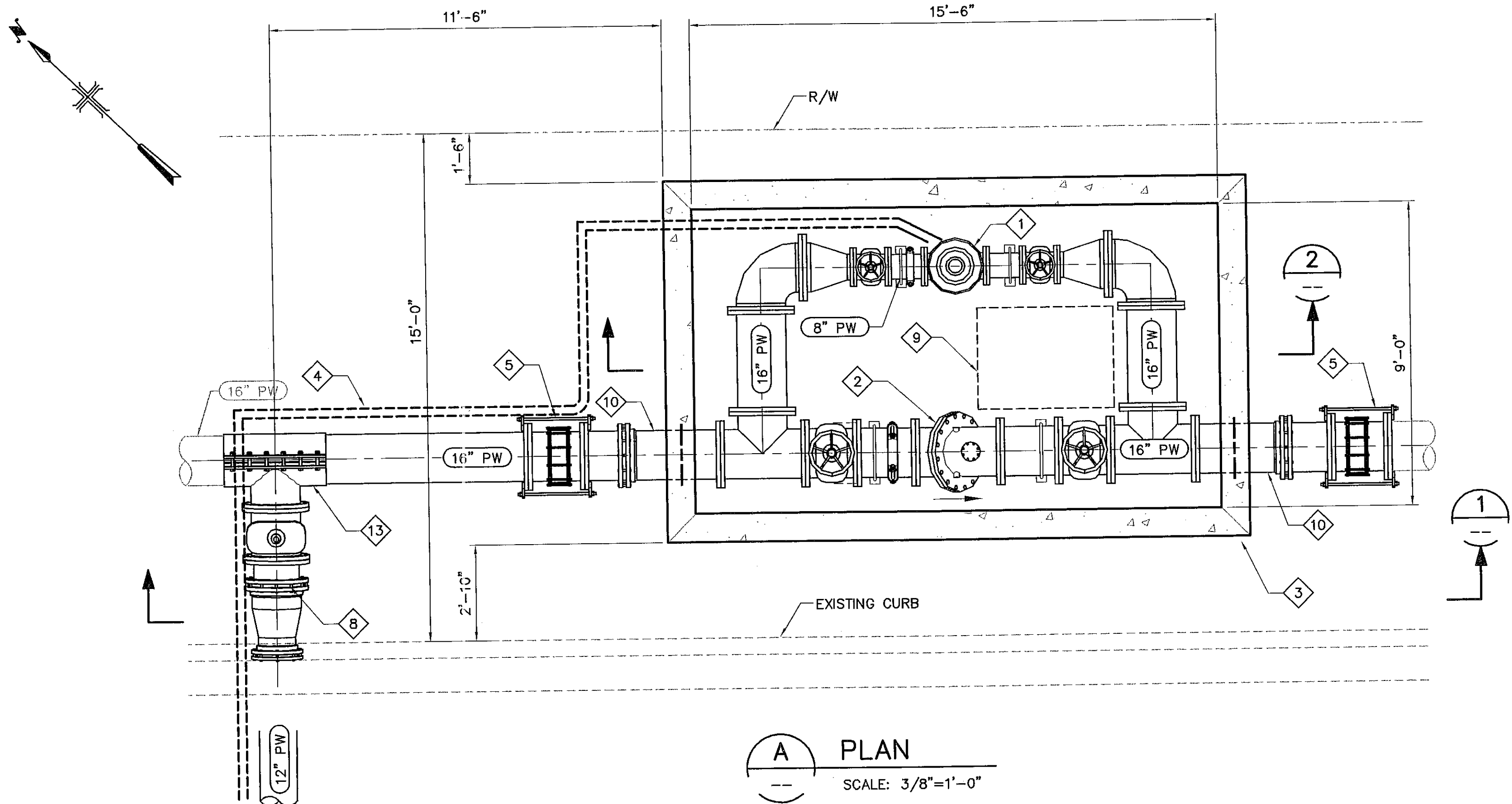
Dwg No.	C-1		
Sht No.	2	Of	8
HES Project Number			
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2006-190-C1-002

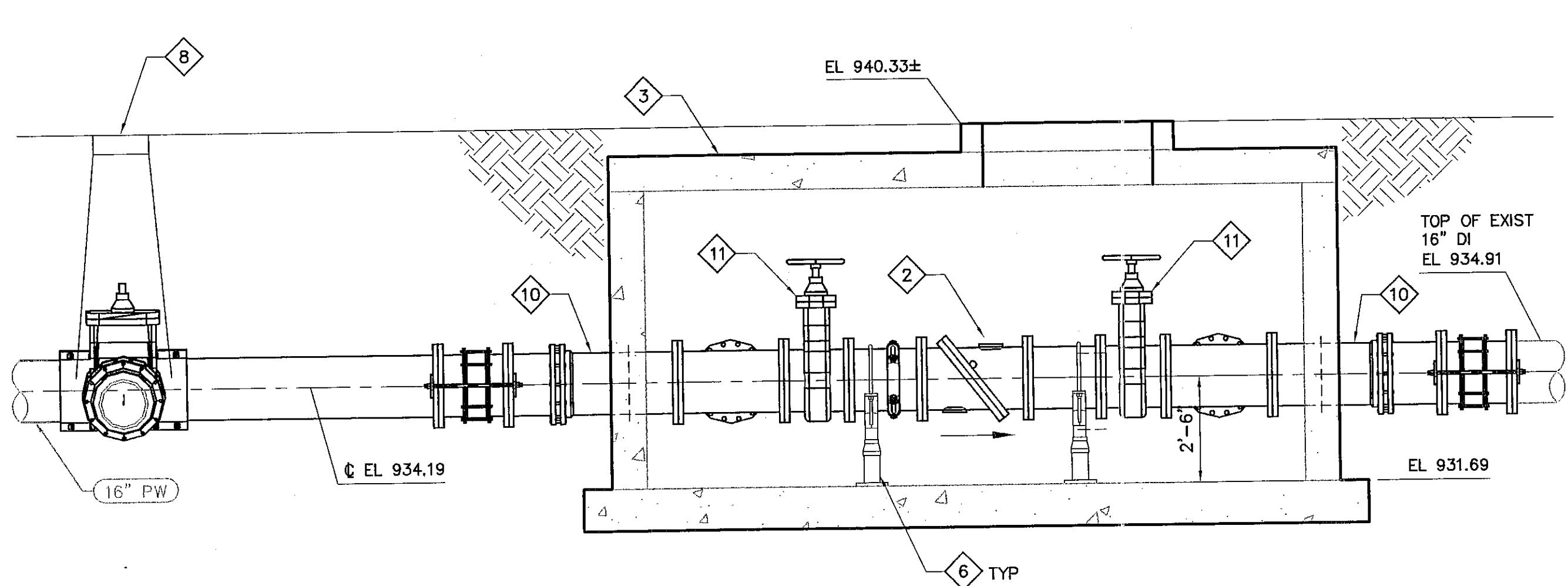


KEYNOTES

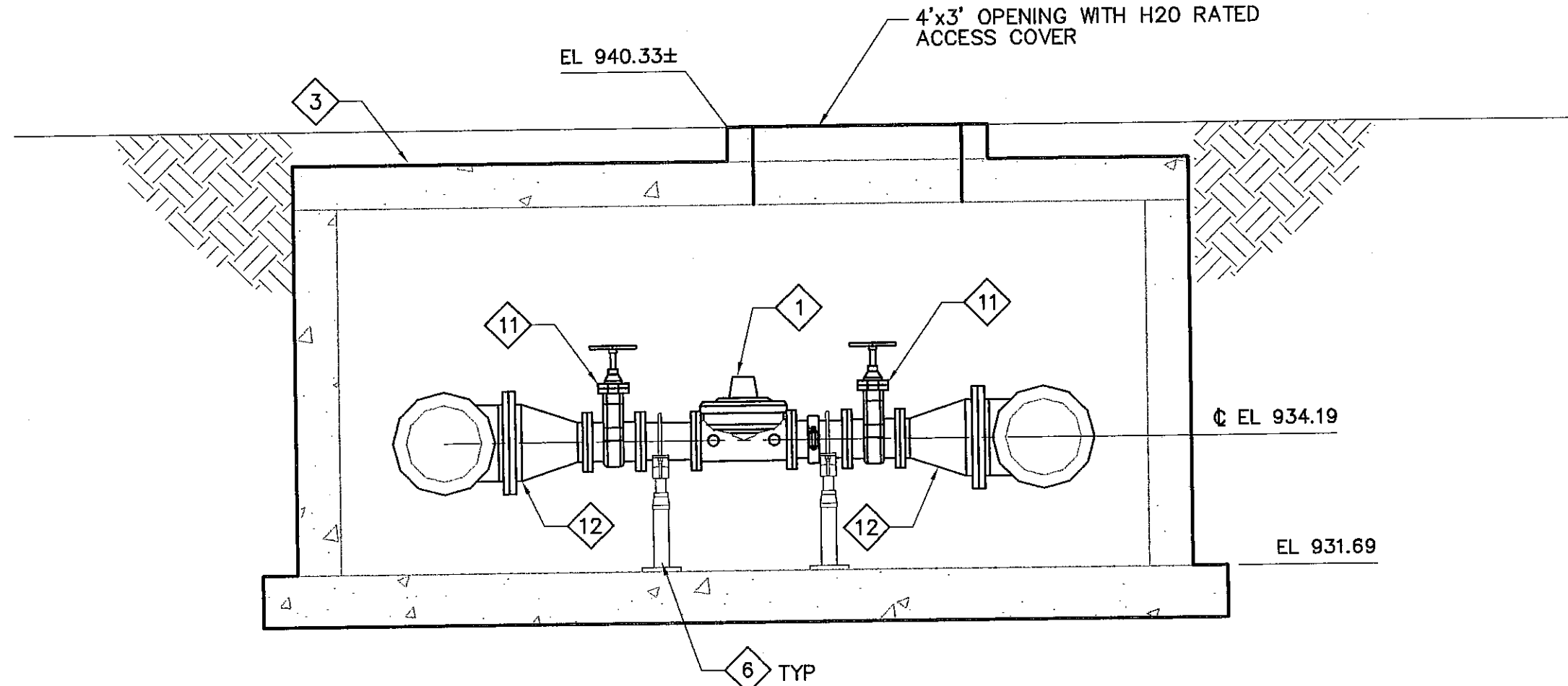
- 1 8" CLA-VAL PRV MODEL 906-01BCSYKCDX WHEN VALVE OPENS A SIGNAL IS SENT TO FLOW CONTROL SOLENOID TO CLOSE TO PREVENT TANK WATER FROM CIRCULATING INSTALL A 0-100 PSI GLYCOL FILLED PRESSURE GAUGE ON THE DOWNSTREAM PORT
- 2 16" CLA-VAL DIAPHRAGM CHECK VALVE (SLOW CLOSING) MODEL 816-02KC
- 3 15'-6"x9'-0" x 7'-0" DEEP VALVE VAULT (H-20 RATED) SEE S-1.
- 4 CONTROL AND POWER CONDUITS TO BE ROUTED TO FLOW CONTROL VALVE IN THE SITE.
- 5 RESTRAINED FLEXIBLE COUPLING SEE TYP DETAILS
- 6 ADJUSTABLE PIPE SUPPORT SEE TYPICAL DETAILS
- 7 EXISTING 16" WATER LINE. CONTRACTOR TO POT HOLE TO DETERMINE EXACT ELEVATION.
- 8 VALVE W/VALVE BOX AND COVER PER MAG STD DTL 391-1
- 9 ACCESS HATCH TO BE LOCKABLE AND H-20 RATED SUBMIT DESIGN TO ENGINEER FOR APPROVAL BEFORE FABRICATION
- 10 16" WALL FITTING FLANGE X MECHANICAL JOINT WITH WALL RING
- 11 GATE VALVE
- 12 16"x8" REDUCER
- 13 HOT TAP SLEEVE ASSEMBLY PER MAG DETAIL 340



A PLAN  
SCALE: 3/8"=1'-0"



1 SECTION  
SCALE: 3/8"=1'-0"



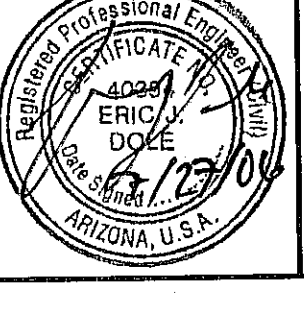
2 SECTION  
SCALE: 3/8"=1'-0"

Designed:	EJD			
Drawn:	RLL			
Checked:	EJD			



CITY OF GOODYEAR  
WELL 12B  
FILL LINE

HYORO  
ENGINEERING  
SOLUTIONS LLC



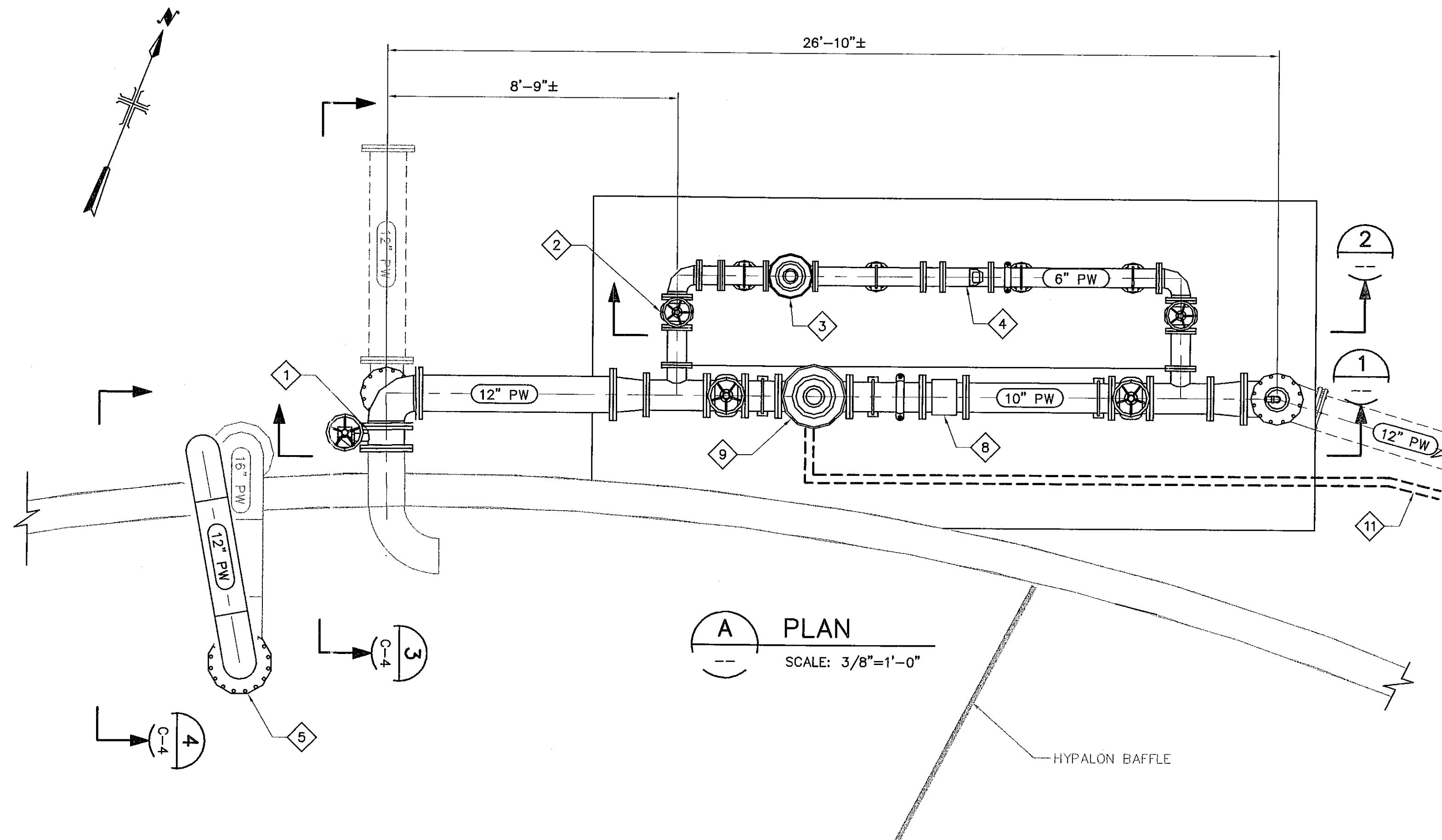
CIVIL  
TIE IN TO EXISTING LINE

Dwg No.	C-2
Sht No.	3 of 8
HES Project Number	
E-File Name	COG.12B.C002.TieIn.dwg

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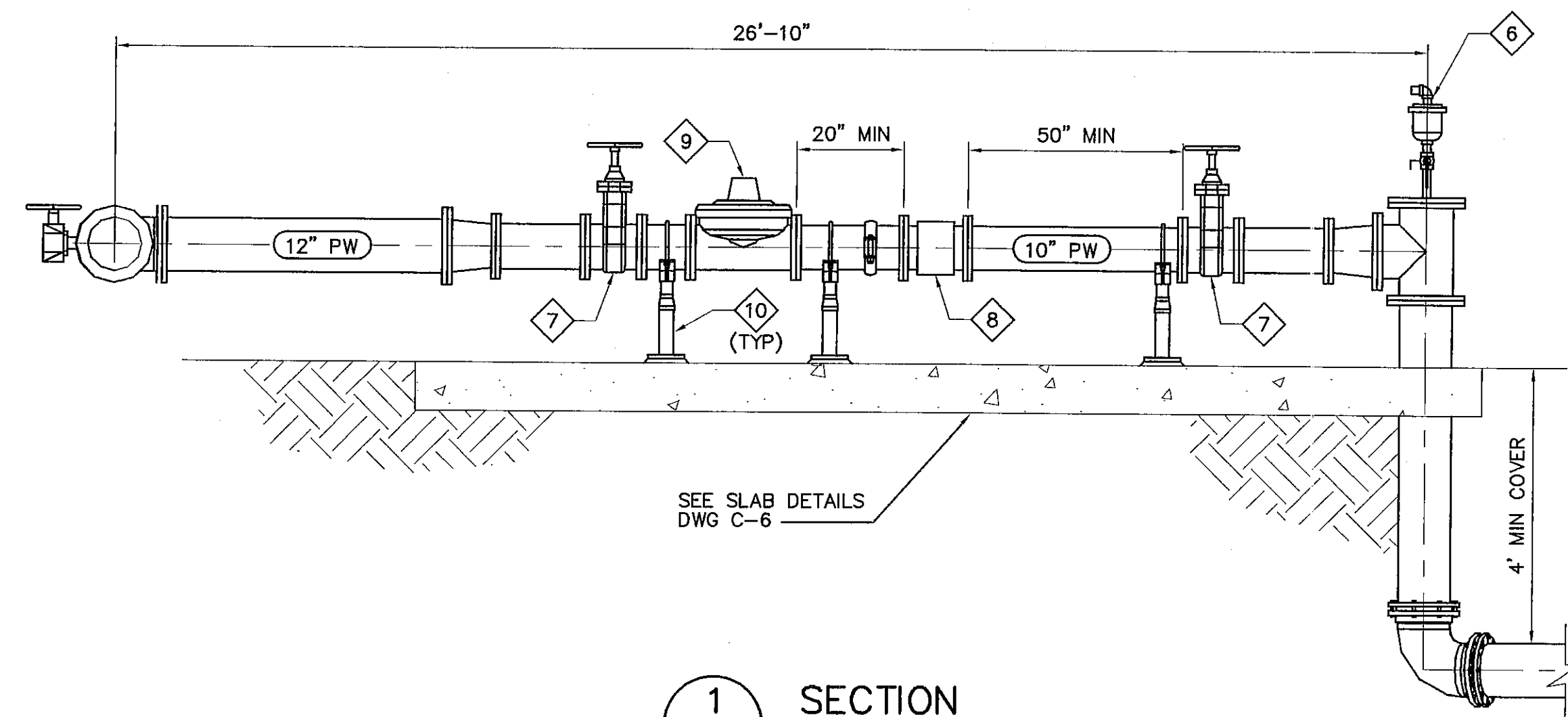


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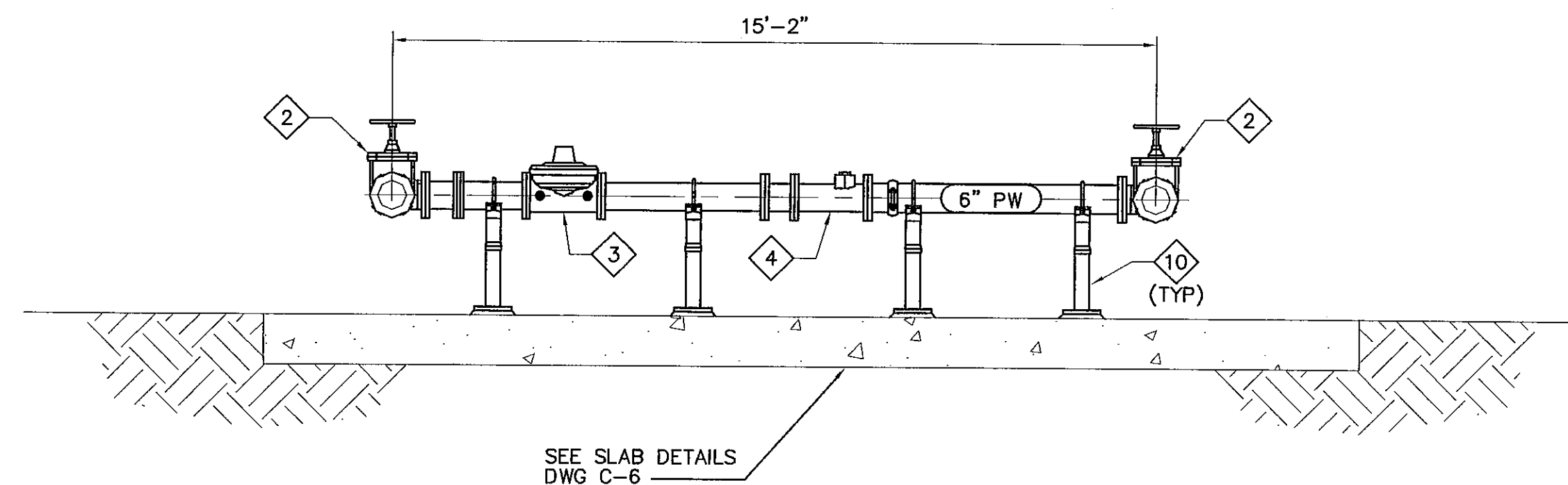


**A PLAN**  
SCALE: 3/8"=1'-0"

- KEYNOTES**
- 1 REPLACE EXISTING 12" BUTTERFLY VALVE WITH A 12" RESILIENT WEDGE GATE VALVE. ROTATE EXISTING 90° ELBOW FROM THE VERTICAL TO THE HORIZONTAL
  - 2 RESILIENT WEDGE GATE VALVE
  - 3 6" REDUCED PORT GLOBE VALVE SOLENOID ACTUATED FOR LEVEL CONTROL
  - 4 REUSE EXISTING CITY-OWNED SENSUS TURBOMETER
  - 5 16" OUTLET W/BLIND FLANGE ADDED TO EXISTING 16" ELBOW SEE SECTION 4, DWG C-4
  - 6 CLA-VAL COMBINATION AIR VALVE
  - 7 10" RESILIENT WEDGE GATE VALVE
  - 8 10" KROHNE ENVIROMAG MAGNETIC FLOW METER (ELECT POWER TO BE SUPPLIED BY CONTRACTOR)
  - 9 10" CLA-VAL 643-01 COMBINATION RATE OF FLOW CONTROLLER AND SOLENOID SHUT OFF W/PSV OPTION
  - 10 ADJUSTABLE PIPE SUPPORT SEE DETAIL, DWG C-6
  - 11 CONTROL AND POWER CONDUITS TO BE ROUTED TO PRV IN VALVE BOX OUTSIDE OF THE SITE.



**1 SECTION**  
SCALE: 3/8"=1'-0"



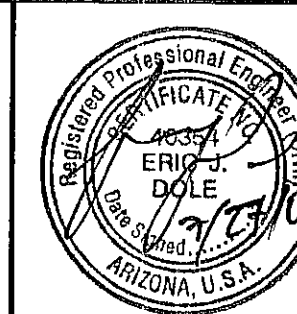
**2 SECTION**  
SCALE: 3/8"=1'-0"

Designed:	EJD				
Drawn:	RLL				
Checked:	EJD				
	0	DATE	BY	DESCRIPTION	



**CITY OF GOODYEAR  
WELL 12B  
FILL LINE**

**HYORO  
ENGINEERING  
SOLUTIONS LLC**



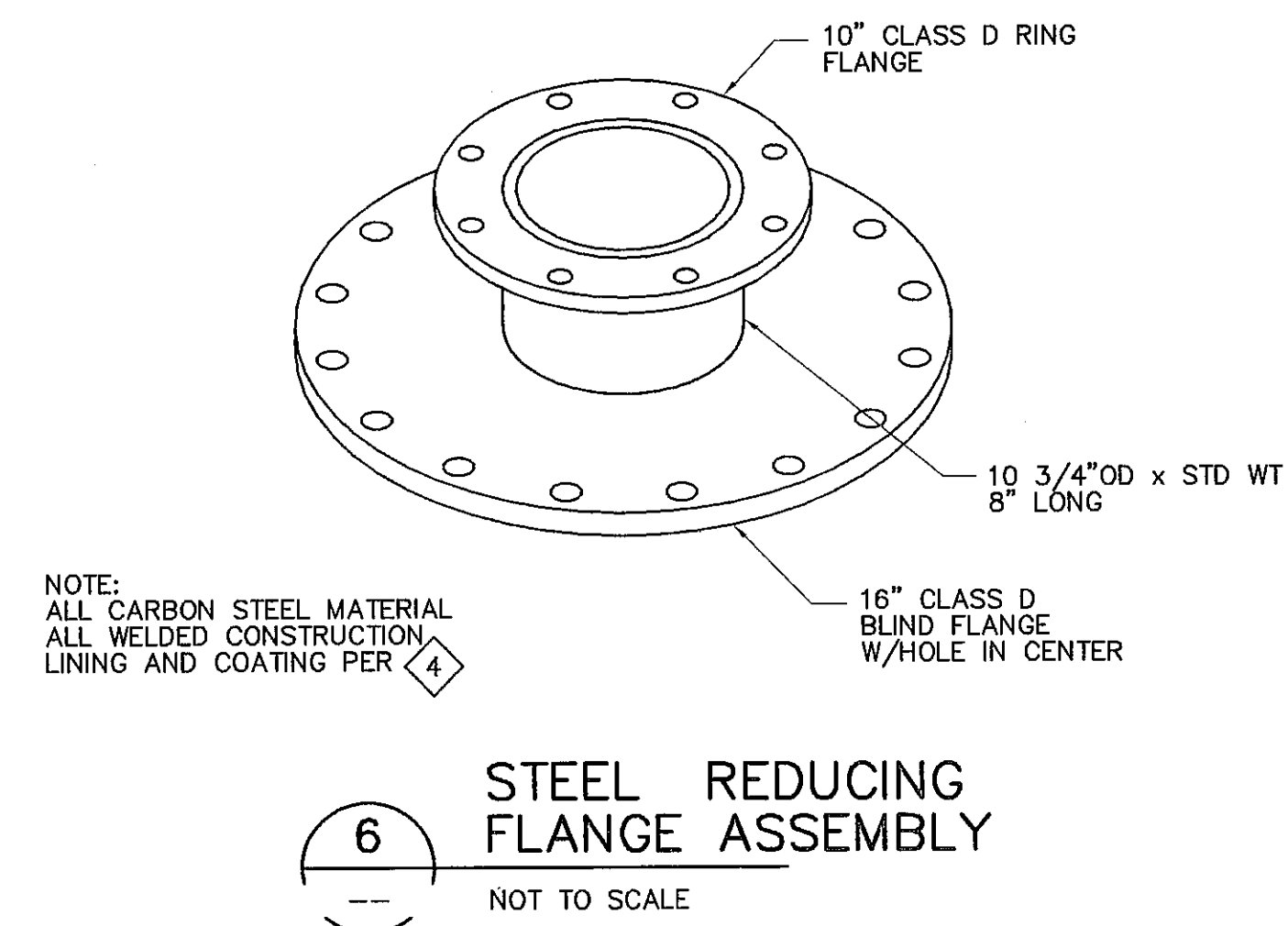
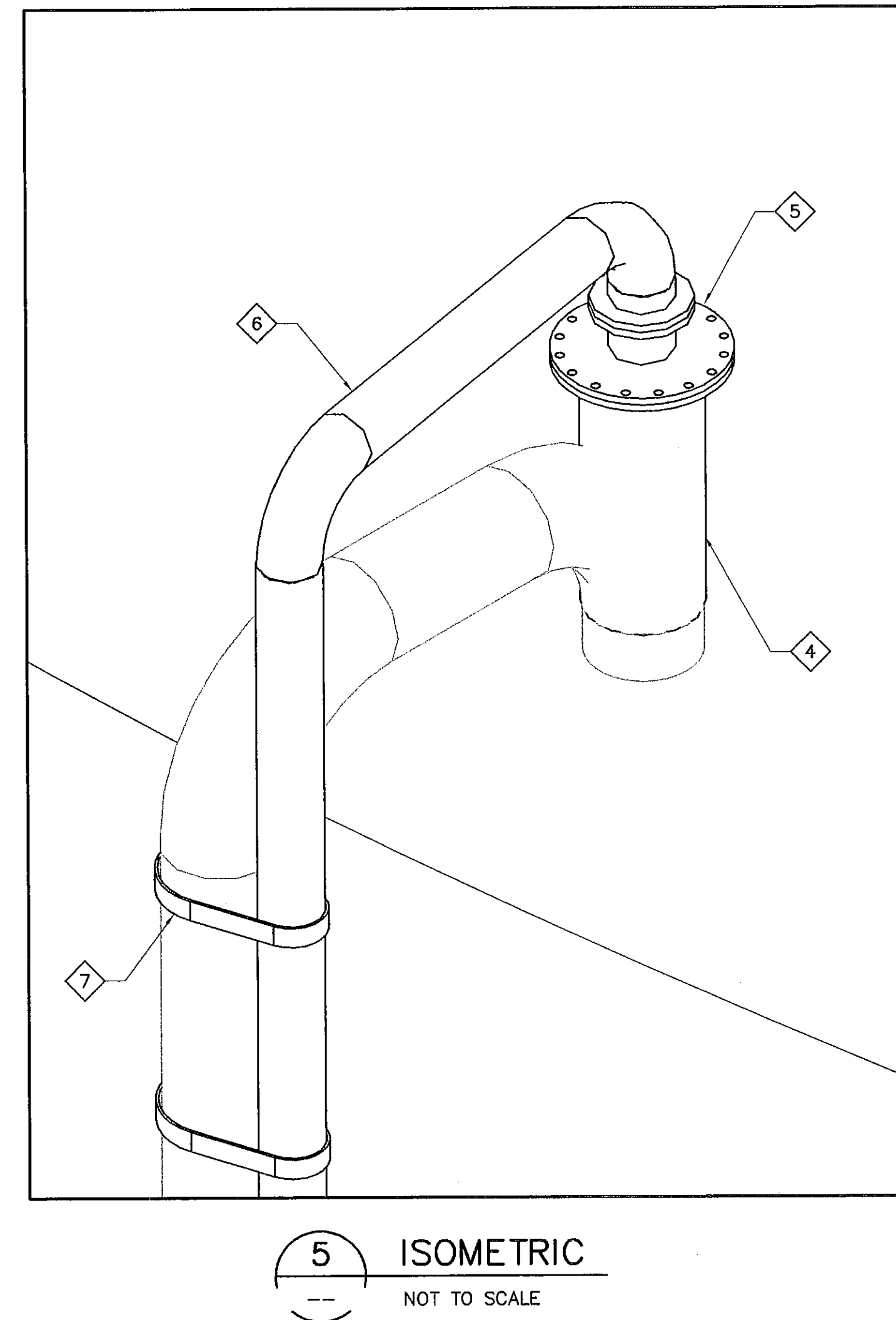
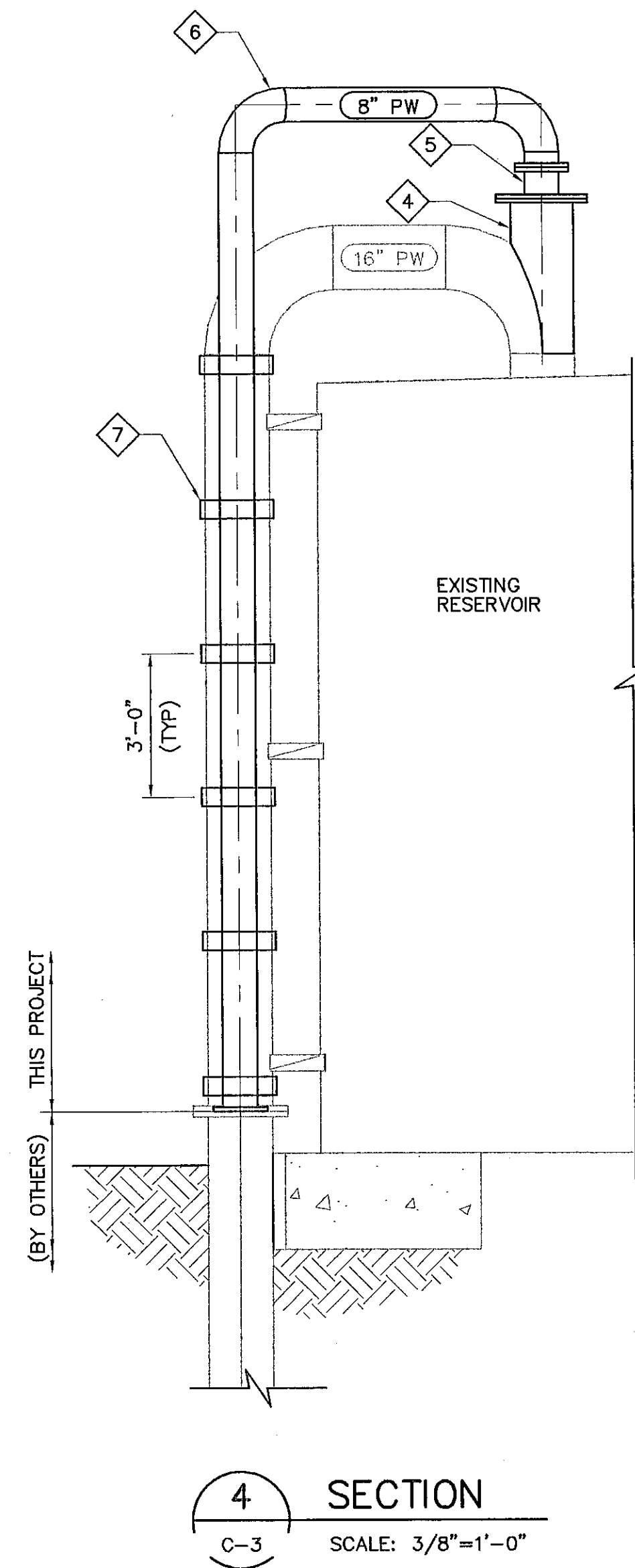
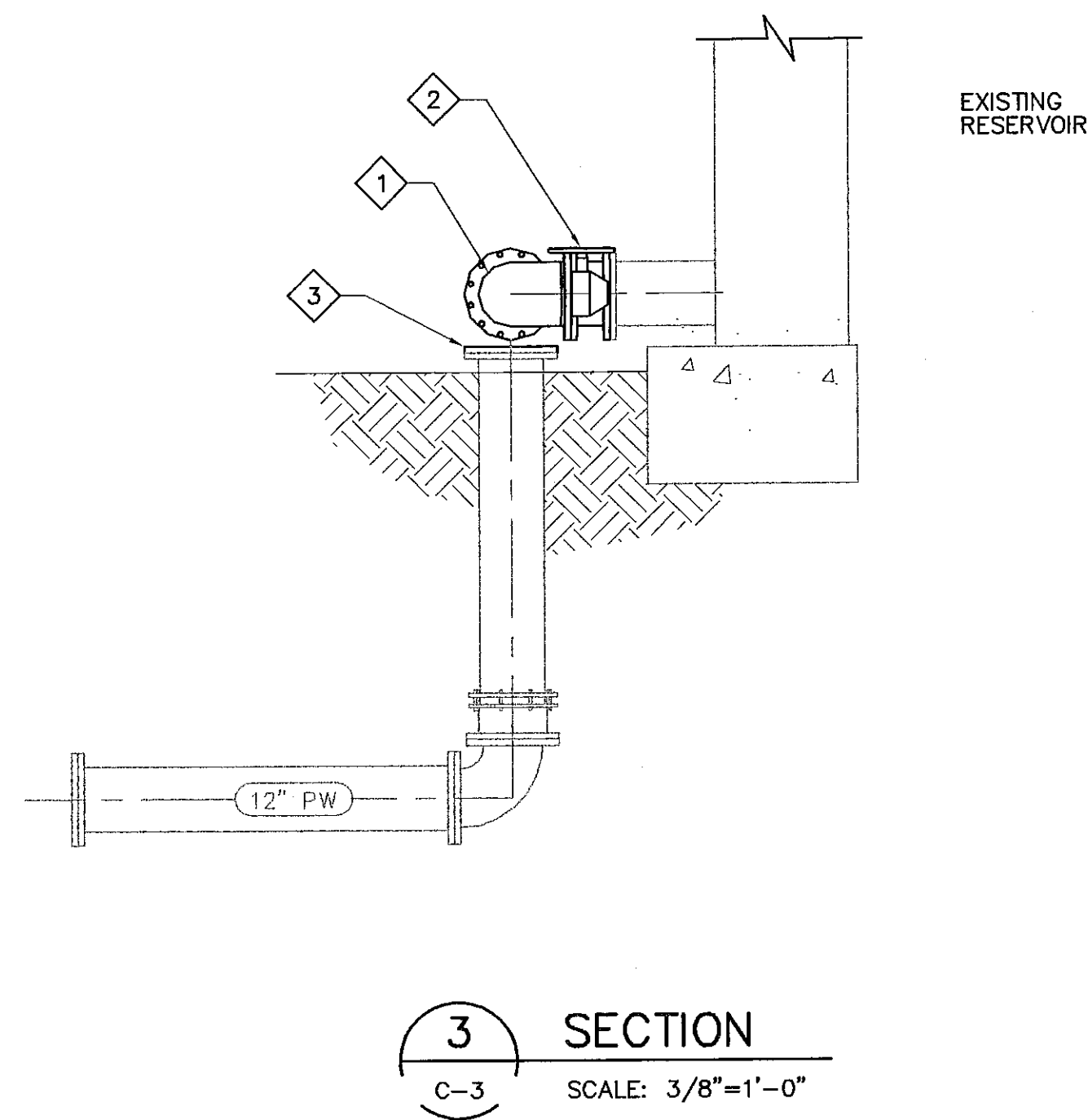
CIVIL  
**VALVE STATION**

Dwg No. **C-3**  
Sht No. 4 of 8  
HES Project Number

E-File Name : COG-12B-C003-ValveStaAG.dwg



Dwg File: C:\GAD\HydroEngineering\Well 12\COG-12B-C003.ValveStaAG.dwg Modified: Jul 20, 2006 -- 9:24pm Plotted: Jul 25, 2006 -- 8:00pm



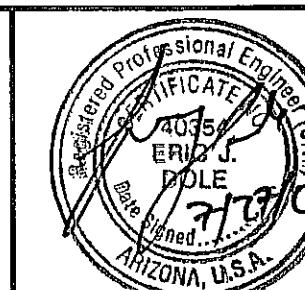
- KEYNOTES**
- 1 ROTATE THE EXISTING 90° ELBOW FROM THE VERTICAL TO THE HORIZONTAL
  - 2 REPLACE EXISTING 12" BUTTERFLY VALVE WITH A 12" RESILIENT WEDGE GATE VALVE
  - 3 SEAL EXISTING 12" LINE WITH 12" BLIND FLANGE
  - 4 ADD 16" STEEL PIPE FLANGED OUTLET TO EXISTING 16" STEEL 90° ELBOW AS SHOWN. REPAIR AND PAINT INTERIOR OF NEW OUTLET AND EXISTING ELBOW WITH NSF APPROVED TENEMEC POTOPOX PAINT. EXTERIOR TO MATCH EXISTING PIPE ALL PAINT/COATINGS TO BE APPLIED TO THE SATISFACTION OF THE ENGINEER AND SPECIFICATIONS.
  - 5 16"x10" STEEL REDUCING FLANGE ASSEMBLY TO EXISTING 16" STEEL 90° ELBOW (SEE DETAIL THIS SHEET)
  - 6 8" SCH 80 PVC (WITH UV RESISTANT COATING)
  - 7 STRAP NEW 8" PVC PIPE TO EXISTING 16" STEEL PIPE

Designed:	EJD				
Drawn:	RLL				
Checked:	EJD	0	DATE	BY	DESCRIPTION



**CITY OF GOODYEAR**  
**WELL 12B**  
**FILL LINE**

**HYDRO**  
**ENGINEERING**  
**SOLUTIONS LLC**



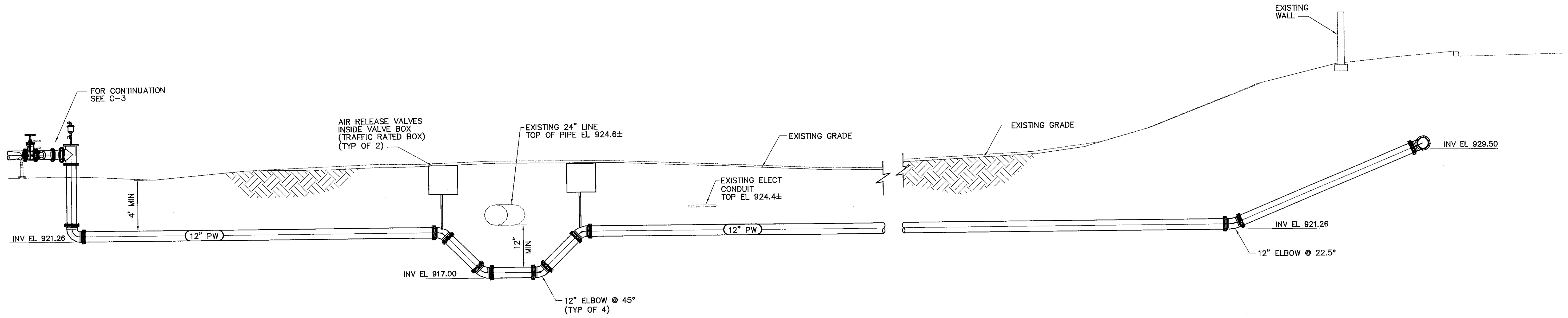
CIVIL

**VALVE STATION SECTIONS**

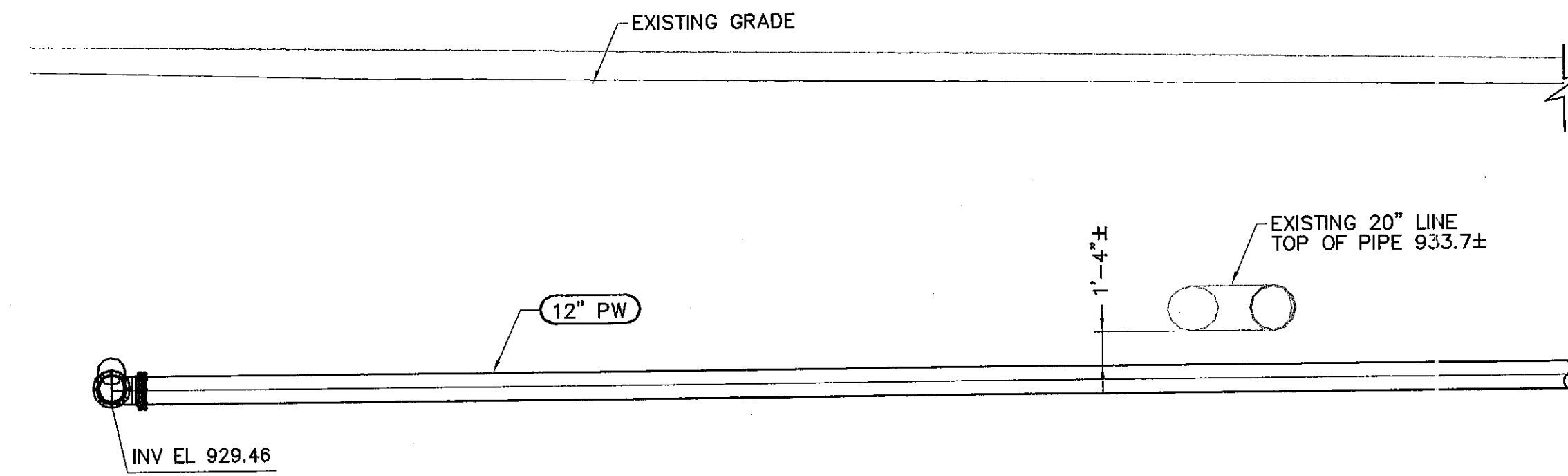
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Sht No.	5 of 8
HES Project Number	
E-File Name	: COG-12B-C003.ValveStaAG.dwg



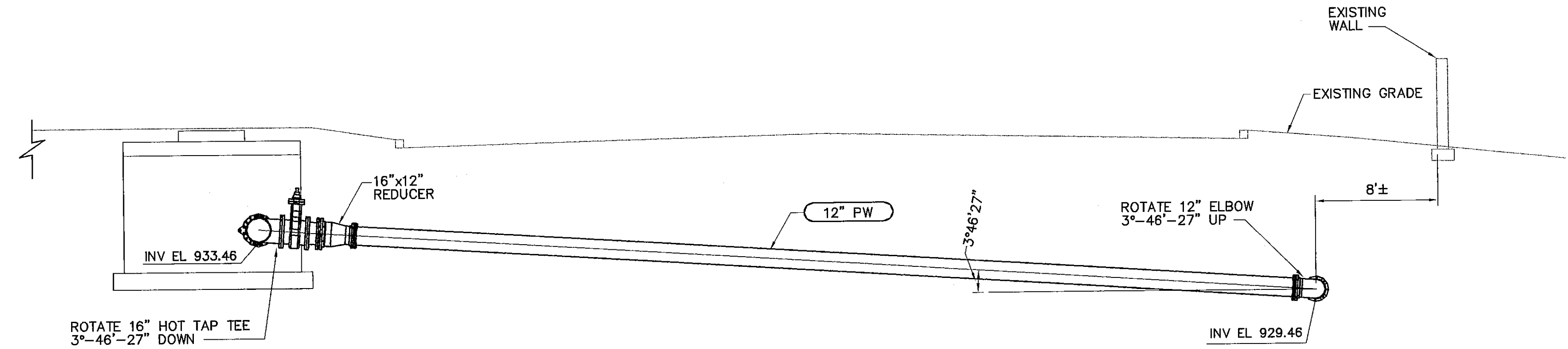
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1 SECTION  
C-1 SCALE: 3/16"=1'-0"



2 SECTION  
C-1 SCALE: 3/16"=1'-0"



3 SECTION  
C-1 SCALE: 3/16"=1'-0"

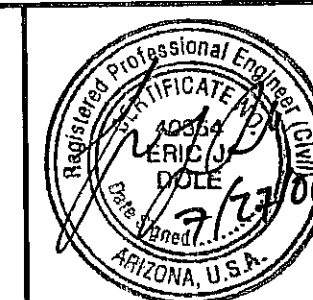
Designed:	EJD				
Drawn:	RLL				
Checked:	EJD				
	0	DATE	BY	DESCRIPTION	



CITY OF  
GOODYEAR  
ARIZONA

CITY OF GOODYEAR  
WELL 12B  
FILL LINE

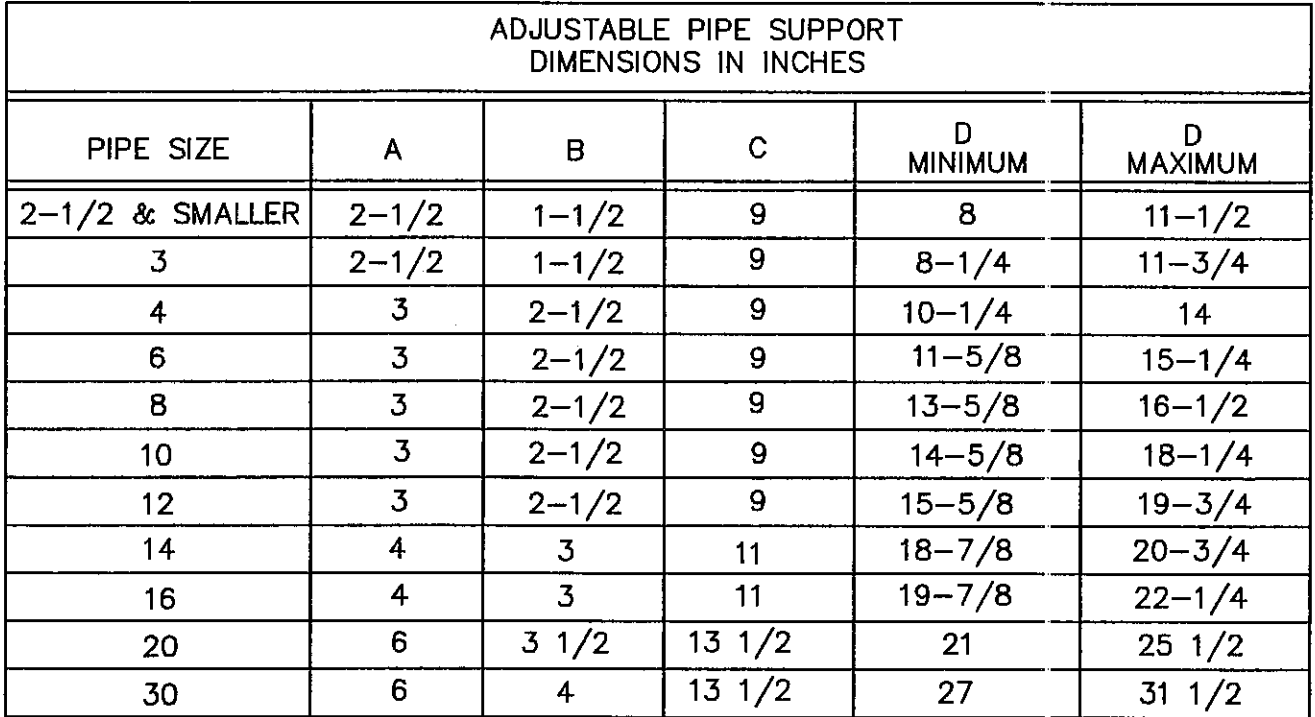
HYDRO  
ENGINEERING  
SOLUTIONS LLC



CIVIL  
SECTIONS

Dwg No.	C-5		
Sht No.	6	Of	8
HES Project Number			
E-File Name : COG.12B.C006.Profiles.dwg			



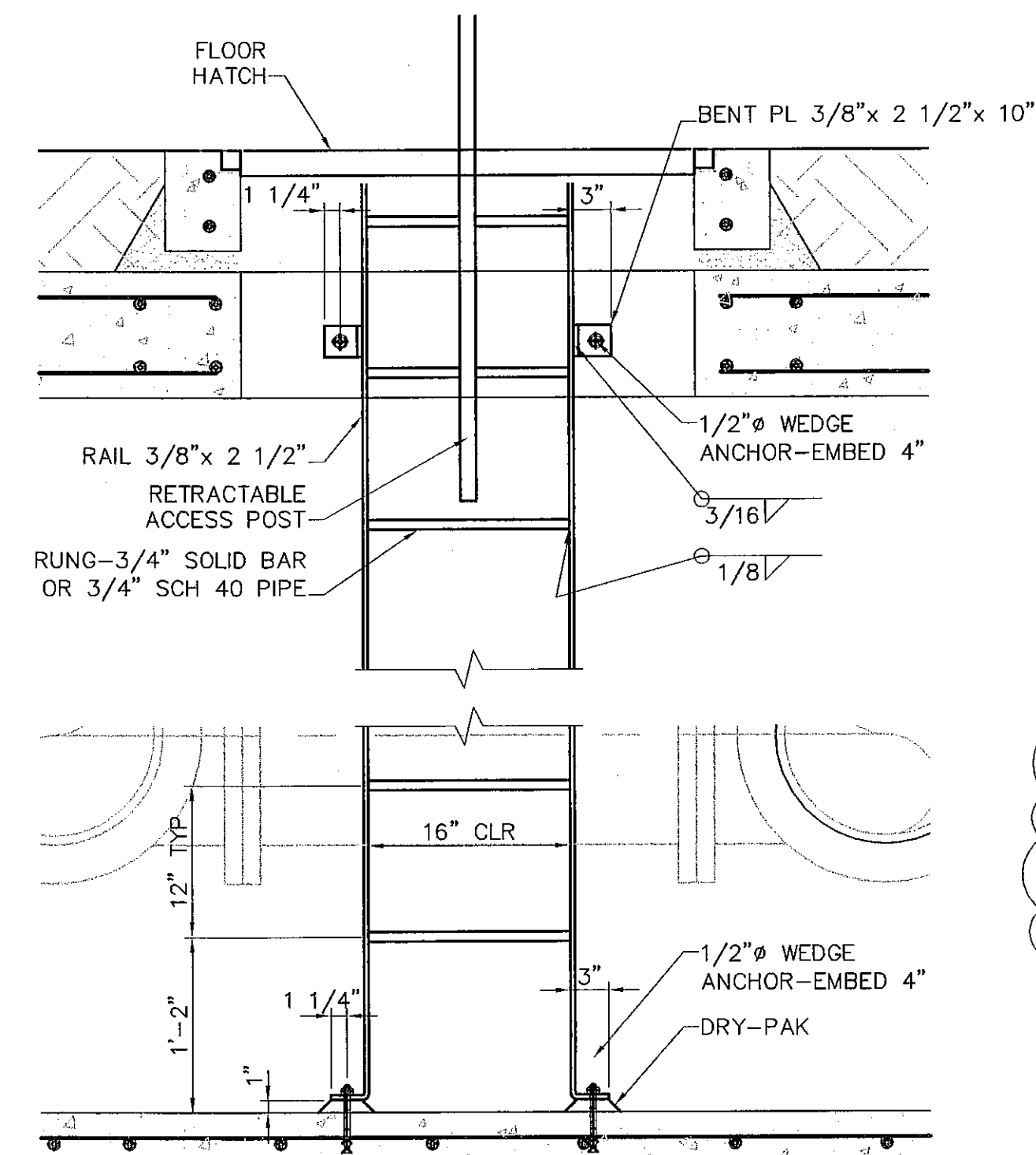


## ADJUSTABLE PIPE SUPPORT

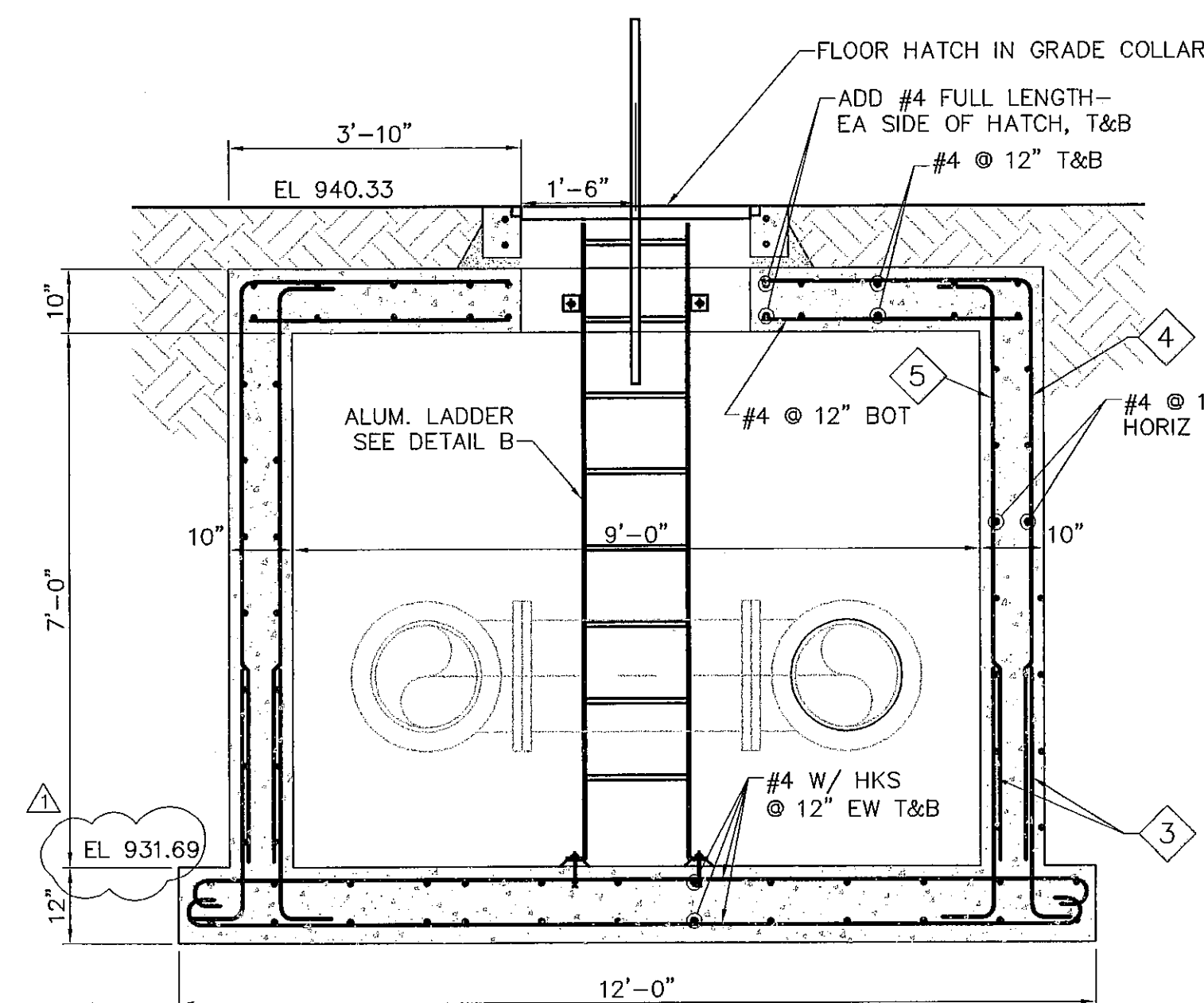
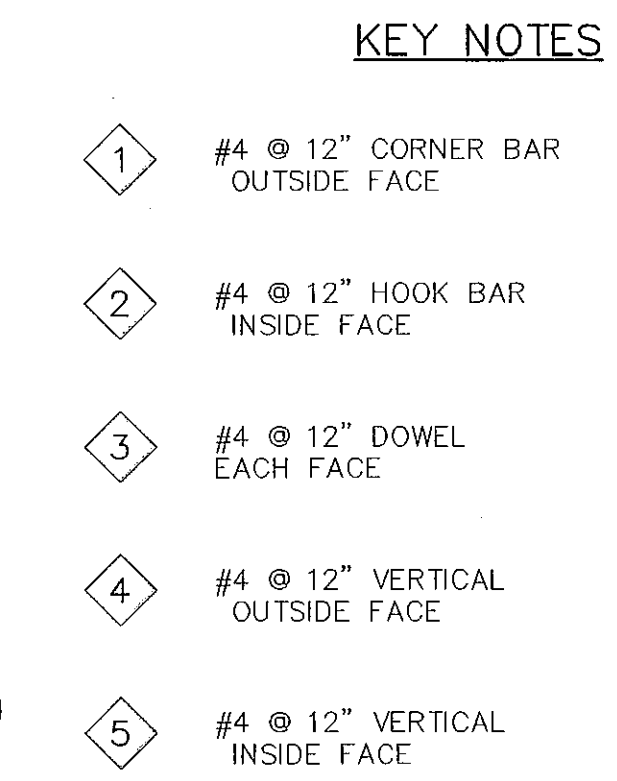




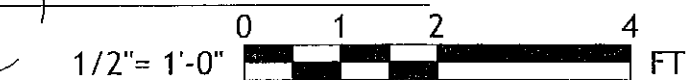
1. CONCRETE SHALL BE 4000 PSI, W/C RATIO  $\leq 0.45$ , SLUMP  $4" \pm 1/2"$ . SUBMIT MIX DESIGN FOR APPROVAL OF ENGINEER.
2. CONCRETE SHALL BE WATER-CURED FOR A MINIMUM OF 7 DAYS.
3. SPECIAL INSPECTION IS REQUIRED FOR REINFORCING AND CONCRETE PLACEMENT.
4. ALL ANCHORS SHALL BE HILTI KWIK-BOLT II, OR APPROVED EQUAL. SUBMIT ANY PROPOSED SUBSTITUTE FOR APPROVAL.
5. LADDER SHALL MEET ANSI 14.3-02. SUBMIT SHOP DRAWINGS FOR APPROVAL, INCLUDING MANUFACTURER'S LITERATURE FOR RETRACTABLE ACCESS POST.



### WALL PIPE DETAIL




ADDED REINF




**W HEERUP  
ENGINEERING  
PC**

Construction Management,  
Civil & Structural Engineering  
10812 North 44th Street  
Phoenix Arizona 85028  
Phone: (602) 923-6829  
Fax: (602) 595-0678



Dwg No.	S-1	
Sht No.	8	Of 8
HES Project Number		
E-File Name : R1ext (R1ext)		





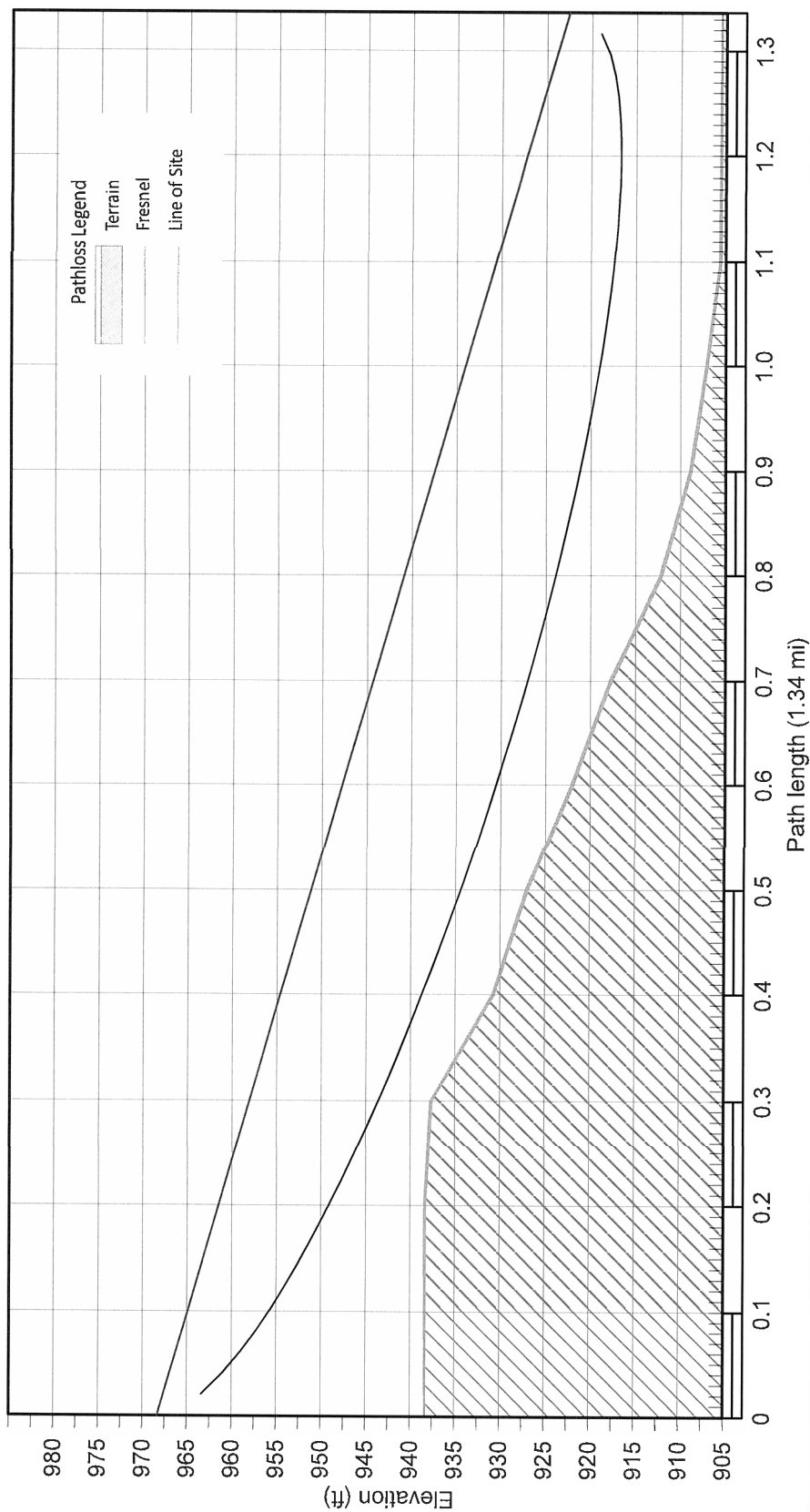
City of Goodyear  
Wireless Feasibility Studies  
2016

Well 12/Booster/RO to Lift Station 13 Las Brisas

July 2016







5 Well 12/Booster/RO  
 Latitude 33 25 10.10 N  
 Longitude 112 25 52.01 W  
 Azimuth 229.19°  
 Elevation 938 ft ASL  
 Antenna CL 30.0 ft AGL

Frequency (MHz) = 5800.0  
 K = 1.33  
 %F1 = 100.00, 100.00

Southwest LAN Connections, LLC

32 LS13 Las Brisas  
 Latitude 33 24 24.47 N  
 Longitude 112 26 55.01 W  
 Azimuth 49.18°  
 Elevation 906 ft ASL  
 Antenna CL 17.0 ft AGL

Sep 24 16





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# City of Goodyear Wireless Feasibility Study

**Site Names:** Well 12/ Booster / RO to Lift Station 13 Las Brisas

**Scope:** Summary, Wireless Design, Site Data and Analysis

**Summary:**

**Southwest LAN Connections (SW LAN)** has been contracted by the **City of Goodyear Information Technology Services Department** to provide services for development of a plan for a wireless communication study. The services also consist of the execution of the study plan, a final report showing the results for the wireless communication study as well as documentation and a Bill of Materials describing each link.

The Wireless WAN (Wide Area Network) consisting of wireless broadband technologies will be used in a wireless Backhaul design and build-out for the City's PCN (Process Control Network). The City of Goodyear is looking to define a wireless solution so that future budgetary funds can be allocated accordingly.

**Wireless Design:**

The microwave path study for the City of Goodyear was designed, conducted, spectrum assessed and sample performance Ethernet tested utilizing FCC (Federal Communications Commission) 47 CFR Part 15 licensed-exempt wireless technologies. The Part 15 licensed-exempt wireless technologies will meet the bandwidth requirements set forth by the City of Goodyear of 10 Mbps of Ethernet connectivity per spoke site required from designated wireless Hub network distribution. The license-exempt wireless technologies are widely available, cost effective, easy to deploy, support, spare and maintain. Their proven technologies are industry accepted as an alternative solution to optical networks which would have been cost-prohibitive given City of Goodyear's large-scale network comprising numerous sites and large geographical layout.

For this particular application, these FCC Licensed-Exempt platform wireless microwave systems can be robust, reliable and operate in harsh environments and extreme temperatures. The radio architecture is most often all-outdoor wireless Ethernet bridges that utilize PoE (Power over Ethernet) capabilities over a single network shielded twisted pair copper cable. These common platforms provide Carrier-Class, high through put data transport utilizing MIMO-OFDM modulations for low, medium and high capacity Ethernet applications. Most often these series are available with standard or optional 128- and 256-bit AES encryption, secure SNMP v3 management and enhanced fault management and diagnostic features.





In many cases, the licensed-exempt technology can perform in Non-line of sight (NLOS) geographical applications. It is recommended, however, that all wireless paths always should be designed for RF and optical line of sight, taking into account the Fresnel Zone clearance criteria based on the path, antennas and equipment transmission frequencies. Obstacles such as trees, structures, physical landscape and high-voltage power lines limit how signals are transmitted by either absorbing or reflecting the signal.

FCC Part 15 licensed-exempt technology are designed within a point- to- point and point-to-multipoint wireless topologies. They do not require any FCC regulatory licensing and are on a first-come, first-served coordinated site based service in non-restricted frequency bands.

#### Site Data:

<b>Wireless Design</b>	Point-to-point (P2P)	
<b>Distance</b>	1.33 miles	
<b>Site</b>	Lift Station 13 Las Brisas	Well 12 Booster/RO
<b>Designation</b>	Spoke	Spoke
<b>Coordinates</b>	33 24 25.24 N 112 26 55.01 W	33 25 10.12 N 112 25 52.02 W
<b>Antenna Centerline AGL</b>	15 feet (Above Ground Level)	30 feet (Above Ground Level)
<b>Elevation ASL</b>	913 feet (Above Sea Level)	941 feet (Above Sea Level)
<b>Azimuth</b>	.02° to Well 12 Booster / RO	.02° to Lift Station 13 Las Brisas

#### Analysis:

**Lift Station 13 Las Brisas** is located at 18102 W. Broadway Road , Goodyear, AZ 85338. This site has been designated by the City of Goodyear as a wireless spoke. There are currently no existing 900 MHz microwave wireless communication system or infrastructure such as antenna pipe mast, conduit pathway or communication enclosure at this site. Wireless feasibility only exists between Lift Station 13 Las Brisas and Public Works Administration hub site if a 60' Steel Taper pole will be installed due to commercial buildings and a very large tree line which is directly in path between these two locations. There is wireless feasibility between Lift Station 13 Las Brisas and Well 12 Booster / RO. The path is only 1.33 in miles and wireless is feasible between the two sites just about anywhere at this location. Mounting a new antenna mast can be accomplished very economically by using a wall mount bracket on the perimeter wall or on a structure within the site. The recommended dimensions of the antenna pipe mast is 2 3/8 in diameter and 12-15 ft. above ground level for the height. Please review **Lift Station 13 Las Brisas Supporting Photo**.



#### Lift Station 13 Las Brisas Supporting Photo

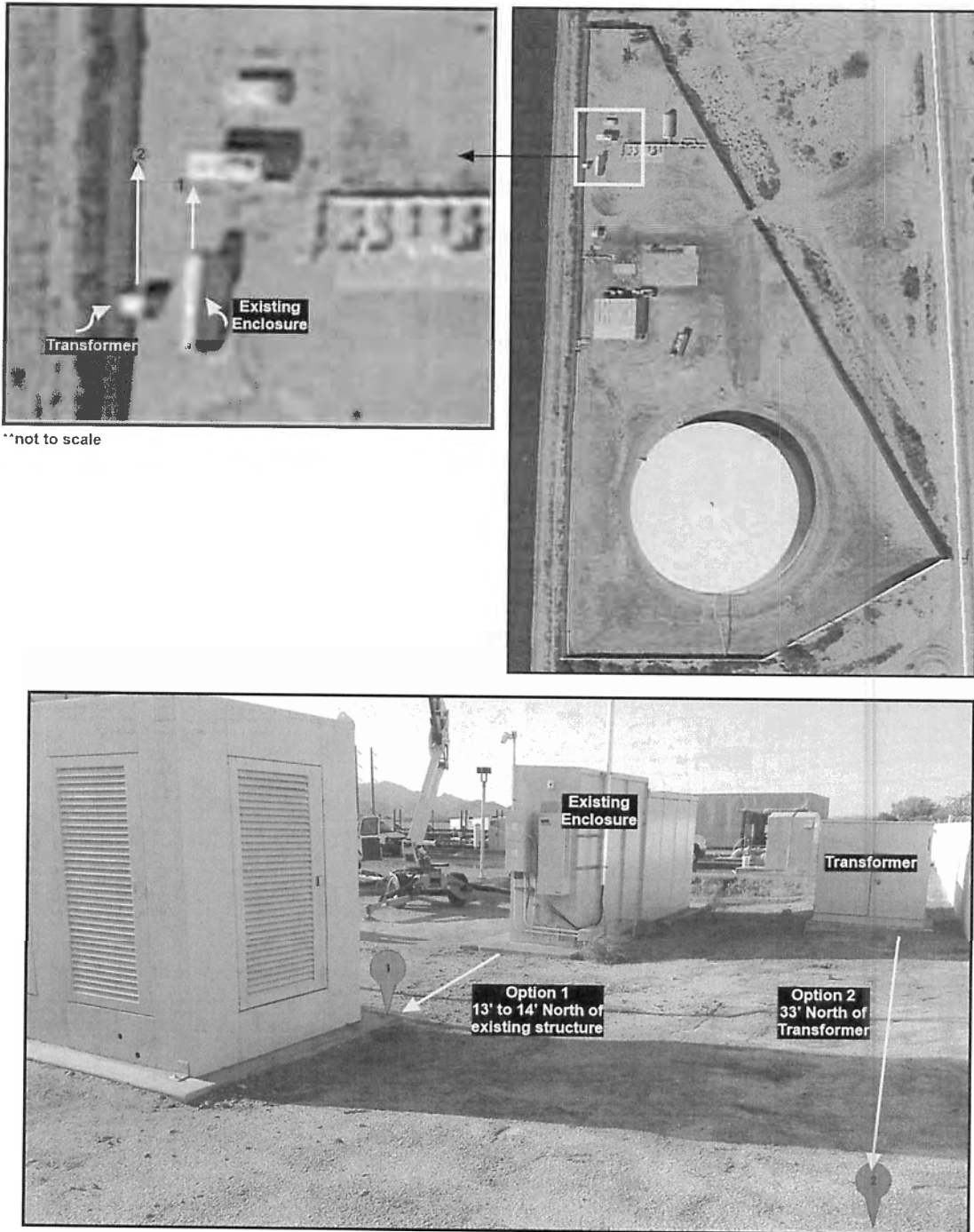


wireless is feasible between the two sites just about anywhere at this location

**Well 12 Booster / RO** is located at , 3200 S. 173 Ave. Goodyear, AZ 85338. This site has been designated by the City of Goodyear as a wireless spoke. There is an existing 900 MHz microwave wireless communication system and infrastructure such as antenna pipe mast, conduit pathway and communication enclosure at this site. The location and height of the existing 900 MHz antenna mast is too short in height and is not in the most advantageous location for wireless communications to Public Works Administration. SW LAN has determined that wireless feasibility does exist between Well 12 Booster / RO to Public Works Administration and from Well 12 Booster / RO to Lift Station 13 Las Brisas from only the identified location within the Well 12 Booster complex. Please review **Well 12 Booster / RO Supporting Photo** for antenna mast location. The wireless communication mast will need to support the wind loading of broadband antennas and equipment. The new pole will need to be approx . 40' in height. The microwave antenna and radio for the point to multi-point to Public Works Administration should be installed at the highest part of the new communication structure. The point to point microwave radio to Lift Station 13 Las Brisas can be installed anywhere above 25' in height.



Well 12 Booster / RO Supporting Photo







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## **Spectrum Sweep Overview, Assessment, Testing Parameters and Supporting Documents**

### **Spectrum Sweep Overview:**

A basic spectrum analysis test displays a moment in time snapshot which shows signal amplitude (signal strength) on the vertical axis (y-axis) and frequency on the horizontal axis (x-axis). The vertical axis is a logarithmic plot of signal amplitude; the more negative the signal amplitude the less transmitting power at the frequency. An example would be a signal amplitude of a -85 dBm is a weaker signal than a signal amplitude of a -55 dBm. The horizontal axis is the SPAN of the frequency range the test is being conducted or analyzed at. FCC (Federal Communications Commission) 47 CFR Part 15 licensed-exempt wireless technologies utilize 5.725-5.850 (FCC, Universal). The spectrum sweep was conducted using this frequency band in both the Vertical and Horizontal Axis. The supporting documents, assessment and results are provided based upon the wireless assessment conducted in July 2016. RF environments will change and future assessments will need to be determined for licensed channel plan allocations and usage.

### **Spectrum Sweep Assessment:**

Between Well 12/ Booster / RO and List Station 13 Las Brisas there is no interference of other transmitters that exists.



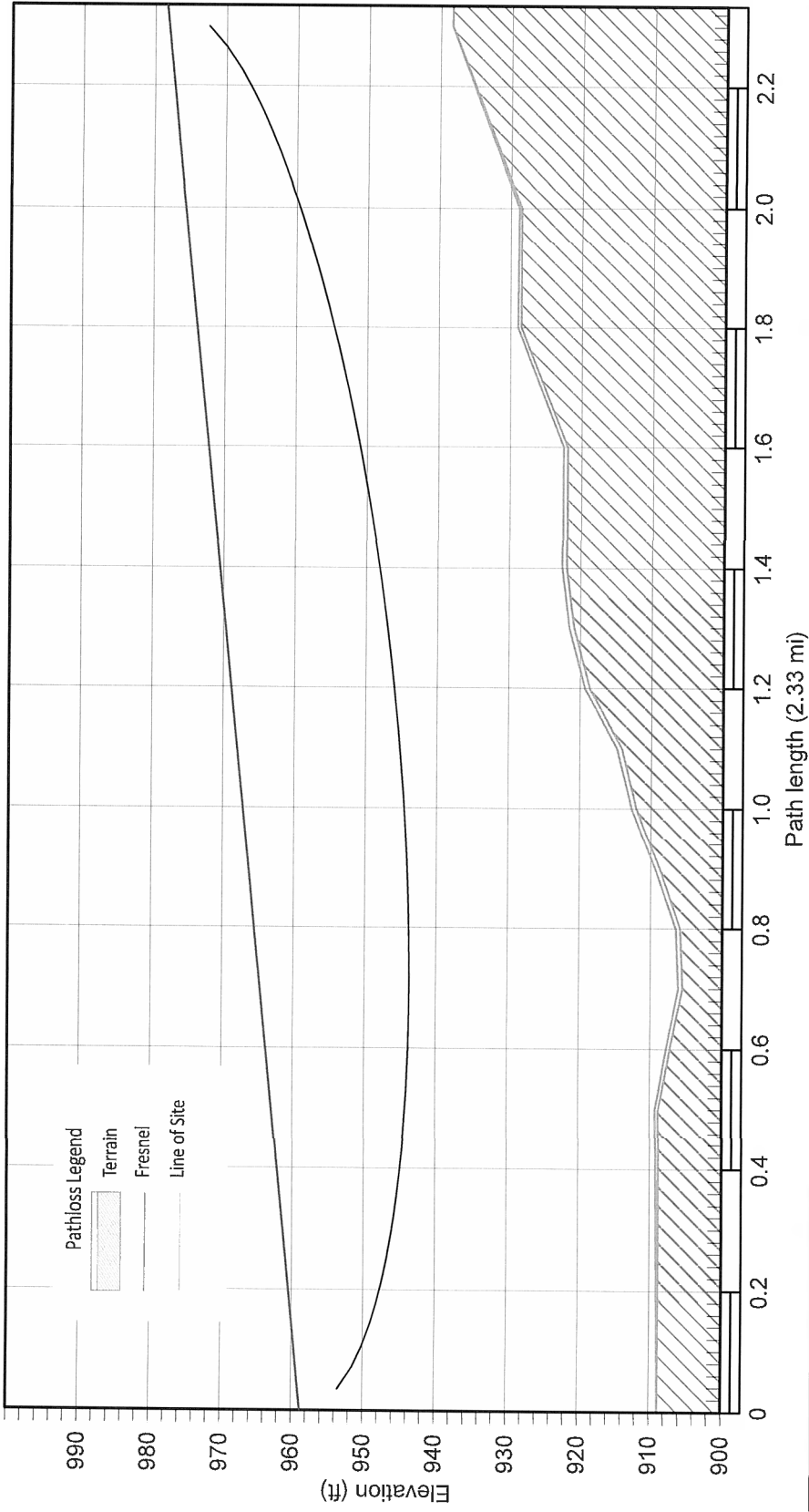


City of Goodyear  
Wireless Feasibility Studies  
2016  
Public Works Administration to Well 12/Booster

July 2016







Public Works Admin  
 Latitude 33 24 03.90 N  
 Longitude 112 23 49.96 W  
 Azimuth 302.90°  
 Elevation 909 ft ASL  
 Antenna CL 50.0 ft AGL

Frequency (MHz) = 5800.0  
 K = 1.33  
 %F1 = 100.00, 100.00

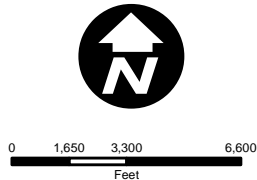
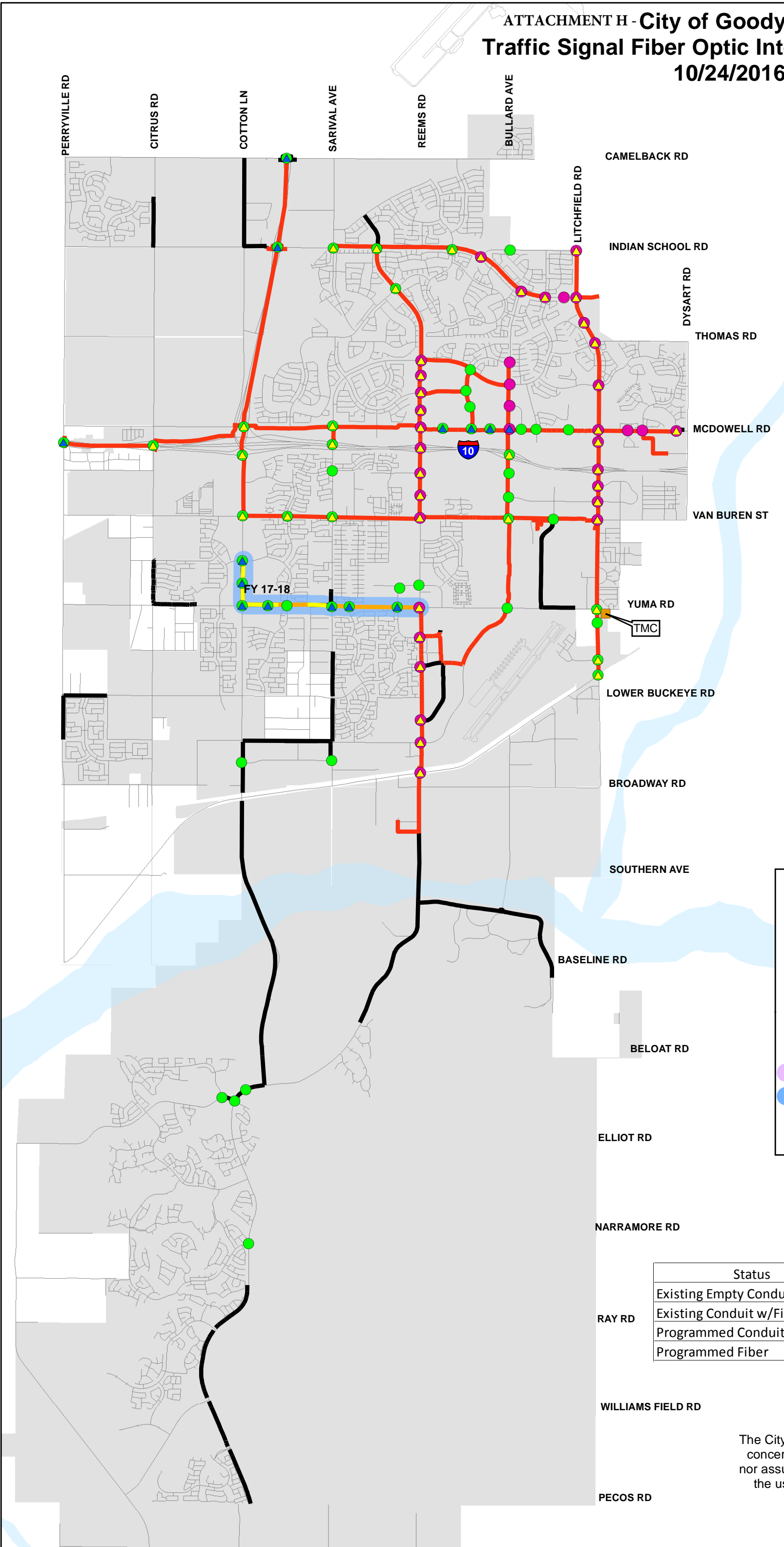
5 Well 12/Booster/RO  
 Latitude 33 25 10.10 N  
 Longitude 112 25 52.01 W  
 Azimuth 122.88°  
 Elevation 938 ft ASL  
 Antenna CL 40.0 ft AGL

Southwest LAN Connections, LLC

Sep 24 16



ATTACHMENT H - City of Goodyear  
Traffic Signal Fiber Optic Interconnect System  
10/24/2016




**Legend**

- Proposed Fiber
- Proposed Conduit W/Fiber
- Existing Empty Conduit
- Existing Conduit W/Fiber
- Coordinated Traffic Signal
- Uncoordinated Traffic Signal
- Existing CCTV
- Proposed CCTV
- FY 15-16 Project
- FY 17-18 Project
- City Boundary
- Traffic Management Center

Status	Feet	Miles
Existing Empty Conduit	117,671	22.3
Existing Conduit w/Fiber	201,173	38.1
Programmed Conduit w/Fiber	7,128	1.4
Programmed Fiber	5,927	1.1

The City of Goodyear makes no claims concerning the accuracy of this map nor assumes any liability resulting from the use of the information hereon.



	<b>Solicitation Amendment No. 1</b>	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	<b>Solicitation No. 17-3977</b> <b>Solicitation Due Date: July 11, 2017 Time: 3:00 pm</b>	

**RFQ- Design Build - Site 12 Treatment Expansion and  
Site Work, 2 New Production Wells and Reservoir**

CLARIFICATION 1: Section IV – State of Qualifications Evaluation Criteria, remains as written.

CLARIFICATION 2: Section V – Evaluation and Selection Process and Schedule, Item 4 – SOW Evaluation and Ranking Process, replace with the following.

**REPLACE WITH THE FOLLOWING:**

The City intends to award a Contract to the most qualified Contractor based on demonstrated competence and qualifications. SOQ submittals that are materially satisfy to the requirements of this RFQ will be evaluated by the Selection Committee and awarded points for each stated criteria item as follows:

	<u>Maximum Achievable Points</u>
1. Project Understanding and Approach	400
2. Experience of Key Personnel and Subcontractors	300
3. Experience of the Prime Firm	200
4. Subcontractor Selection Plan	<u>100</u>

Total Available Points 1000

QUESTION 1: Does the City require a cover letter and a separate signed transmittal letter? Page 8, Section III, part 2 requests both a cover letter and signed transmittal letter. Section III, part 3.3 – Cover Letter outlines the details of the cover letter requirements, however transmittal letter requirements are not specified.

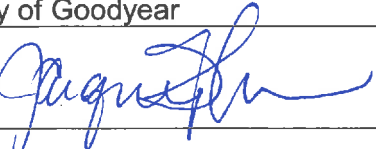
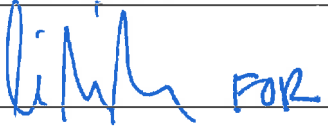
ANSWER 1: The transmittal letter identifies the contents of the package, the sender the recipient, and other relevant information. The transmittal letter, title page, and cover letter are separate documents conveying different information.

QUESTION 2: On Page 8, Section III, part 2 – Format it states "Do not include any design concepts, ..." Please elaborate on the term "design concepts" as used in this context and how it may coincide with our approach to addressing key project issues?

ANSWER 2: Remove the words "design concepts" from this paragraph.

***No other terms, conditions, or performance standards written or implied are changed.***

Procurement Officer: Victoria Jackson, CPPB

City of Goodyear	Approved as to form
By: 	By:  FOR
Jacquie Behrens, CPPB	Roric Massey, City Attorney


**Acknowledgement by Contractor**

Contractor hereby acknowledges receipt and understanding of the above amendment. Contractor shall sign and return with their submittal.

Contractor Signature: \_\_\_\_\_

Date: \_\_\_\_\_



	<b>Solicitation Amendment No. 2</b>	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	<b>Solicitation No. 17-3977</b> <b>Solicitation Due Date:</b> July 11, 2017 <b>Time:</b> 3:00 pm	

**RFQ- Design Build - Site 12 Treatment Expansion and  
Site Work, 2 New Production Wells and Reservoir**

**CLARIFICATION 1:**

Section 1 – General Information – Item 3 Project Schedule, page 5 Change to the following:

**PROJECT SCHEDULE**

Design-Builder Pre-construction Phase Services Contract award	August 2017
Construction Phase Guaranteed Maximum Price (GMP) contract award	June 2018
Project Construction Documents complete and approved for permits	June 2018
Construction NTP	July 2018
Project completion	April 2019

**CLARIFICATION 2:**

Section VIII – Special Terms and Conditions, Item 17 – Bonding:

ADD – Contractor must include with their SOQ response a Bonding Capacity Certification Letter. The Letter must be submitted from a surety company or companies holding a certificate of authority to transact surety business in this state issued by the Director of the Department of Insurance pursuant to title 20, chapter 2, article 1.

**CLARIFICATION 3:**

Page 8, Item 2, Format, Contractors shall submit one (1) original marked “original” and **five (5) copies**. The SOQ shall not exceed **twenty (20) pages** total in length **excluding front and back cover pages, cover letter, title page, table of contents, section dividers, signed transmittal letter, Affidavit of Non-Collusion, Offer and Acceptance, and any addenda issued**. Pages shall be single sided 8 ½” X 11”, except **three (3)** pages may consist of **three (3)**, 11 X 17 foldout. Font size shall be no less than 11 point font.

**QUESTION 1:**

Section IV, Statement of Qualifications Evaluation Criteria, Item. 3., Experience of the Prime Firm, sub-item j., requires respondents to “provide at least three (3) general references” for each submitted reference project.

For reference projects of similar size, budget, and complexity, it can often be difficult to identify three individuals associated with the Owner’s organization that would have significant in-depth knowledge of a project to provide the information typically asked of a person in the position of a “project reference.” This type of association with the specifics of a project is often limited to one to two individuals within an Owner’s organization. It is more typical to see similar solicitations to require projects used to demonstrate similar experience to provide only **one** client reference.

Is it possible to change the requirement of Section IV, Item 3.j, from three general references to one general reference?

**ANSWER 1:**

Please provide one (1) reference per project.


**QUESTION 2:**

Page 9, paragraph 3.3 states that the cover letter must be one page maximum. Would the City consider expanding the cover letter maximum to two pages, to better accommodate all cover letter items required in paragraph 3.3?

**ANSWER 2:**

Page 9, Item 3.3, Cover Letter, may be **two (2)** single sided pages. Font size remains as stated in RFQ.



	<b>Solicitation Amendment No. 2</b>	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	<b>Solicitation No. 17-3977</b> <b>Solicitation Due Date:</b> July 11, 2017 <b>Time:</b> 3:00 pm	

**QUESTION 3:** Page 8, paragraph 2 also states that “Pages shall be single-sided 8 ½” x 11”, except one page may consist of an 11” x 17” foldout.” Would the City consider allowing more than one 11x17 page?

**ANSWER 3:** Please refer to Clarification 3.

**QUESTION 4:** Page 8, paragraph 2 states that “The SOQ shall not exceed fifteen (15) pages total in length...” Would the City consider increasing the maximum page count, for improved readability and spacing of the required SOQ items?

**ANSWER 4:** Please refer to Clarification 3.

**QUESTION 5:** The RFQ wording stated on Page 11, Paragraph 4, Section b. entitled “Subcontractor Selection Plan” allows either qualifications based selection only **or** by a combination of qualifications and price. The Sample Contract language stated on Page 17, Section 2.9.2 entitled “The Design-Builder” states that subcontractors will be selected on qualifications **then** low price. Please clarify.

**ANSWER 5:** The Sample Contract language shall prevail.

**QUESTION 6:** Page 7 of 33, item 5c, Does the Offer and Acceptance document count towards the page count, or can this document be included in the appendix?

**ANSWER 6:** Please refer to Clarification 3.

**QUESTION 7:** Page 11 of 33, item 3 h & I,  
a. We’re not exactly sure how these two bullet points are to be addressed.  
i. Do you anticipate these two questions as a Yes or No answer?  
ii. We (also assuming the other contractor teams) have the “Specific municipal experience...” and “Overall ability to provide the services”.

**ANSWER 7:** All SOQ’s will be scored based on the evaluation criteria as set forth under section IV Statement of Qualifications Evaluation Criteria. Contractors shall provide adequate information in their SOQ response for the evaluation panel to determine experience and ability of firm(s) to perform the job as described in the solicitation.

**QUESTION 8:** Does the City require the proposed facility to produce a certain minimum capacity, including blending, to meet demand projections? If so, what is that capacity?

**ANSWER 8:** The City is looking to increase capacity by 4 MGD.


**QUESTION 9:** Will the blending sources be raw well water, City water, or both?

**ANSWER 9:** Can be either or both.

**QUESTION 10:** What is the TDS goal of the blended water?

**ANSWER 10:** 500 mg/L



	<b>Solicitation Amendment No. 2</b>	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	<b>Solicitation No. 17-3977</b> <b>Solicitation Due Date: July 11, 2017 Time: 3:00 pm</b>	

**QUESTION 11:** Should the RO facility be designed for future expansion? What future capacity is desired?

**ANSWER 11:** We do not anticipate expansion of the RO facility.

**QUESTION 12:** Please provide pump curves and any other available information about the existing booster pumps.

**ANSWER 12:** Please refer to attachment A, drawings.

**QUESTION 13:** Section IV, page 11, item 3. h: "Specific municipal experience similar to scope provided." Please explain what the City is seeking in this item. The municipal experience and relevance of a given reference project is usually presented in the project description section (e.g., 3 a.). Given the limited number of pages in this proposal, we would like you to consider removing this item.

**ANSWER 13:** Refer to Answer 7.

**QUESTION 14:** Section IV, page 11, item 3. i: "Overall ability of the firm to provide required services." Is this intended as a qualitative evaluation to be performed by the City in its review or as an additional explanation to be provided by proposers?

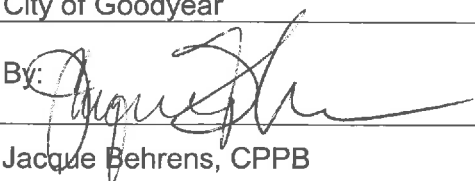
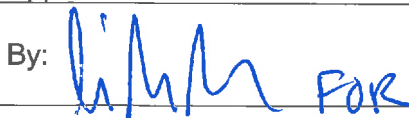
**ANSWER 14:** Refer to Answer 7.

**QUESTION 15:** Section IV, page 11, item 3. j: "Provide at least three general references." At the pre-offer conference, the City indicated that these are to be presented as additional general references for the proposer separate from those presented specifically for each project description. Please confirm.

**ANSWER 15:** Refer to Answer 1.

***No other terms, conditions, or performance standards written or implied are changed.***

Procurement Officer: Victoria Jackson, CPPB

City of Goodyear	Approved as to form
By: 	By:  FOR
Jacquie Behrens, CPPB	Roric Massey, City Attorney

**Acknowledgement by Contractor**

Contractor hereby acknowledges receipt and understanding of the above amendment. Contractor shall sign and return with their submittal.

Contractor Signature:

Date:



# ATTACHMENT A

## AMCOR INVESTMENTS CORPORATION ESTRELLA ESTATES

### WATER STORAGE TANK AND BOOSTER STATION

#### BENCH MARK

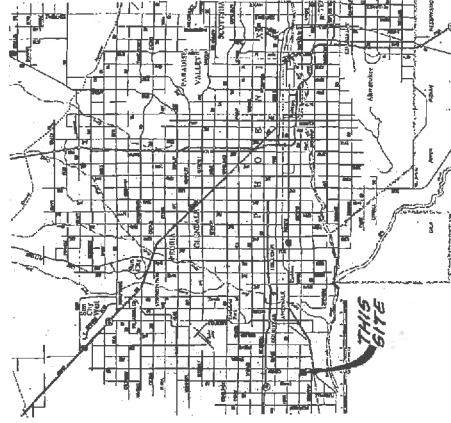
TEMP-1: S.C. IN CONC. HEADWALL 200'  
EAST OF COTTON LANE & SOUTH SIDE  
OF S.R. 85 ELEV. = 905.80  
TEMP-2: TOP OF I.P. IN H.H. SOUTHWEST COR.  
SEC. 23 INTERSECTION OF BROADWAY RD.  
& COTTON LANE ELEV. = 912.81  
BM S.C. IN CONC. HEADWALL 400'  
WEST OF REEMS ON SOUTH SIDE OF  
S.R. 85 ELEV. = 915.82

#### DEVELOPER

AMCOR INVESTMENT CORPORATION  
2735 E. CAMELSBACK RD.  
PHOENIX, ARIZONA 85016  
(602) 987-7170

#### ENGINEER

COE & VAN LOO CONSULTING ENGINEERS INC.  
4550 N. 12TH STREET  
PHOENIX, ARIZONA 85014  
(602) 284-8831



VICINITY MAP

#### SHEET INDEX

SHT. NO.	DESCRIPTION
1	COVER SHEET
2	NOTES, QUANTITIES, BOUNDARY & SURVEY INFO
3	SITE GRADING PLAN
4	SITE PIPING PLAN
5	BOOSTER PUMP PLAN & SECTION
6-7	BOOSTER PUMP SECTIONS & DETAILS
8	TURBO METER
9	FIXTURE LOCATION DIAGRAM, & MISC. DETAILS
10	CATHODIC PROTECTION & ANODE DETAILS
11	LEVEL CONTROL, LEVEL INDICATOR & M.H. DETAILS
12	TANK FILL, DISCHARGE & DRAIN LINE DETAILS
13	LADDER, ROOF VENT & MANWAY DETAILS
14	HYDRO-PNEUMATIC TANK
15	DECORATIVE SCREEN WALL DETAIL
16-19	ELECTRICAL PLANS, SCHEMATICS & DETAILS
20-21	ELECTRICAL P & I D
22-28	PROGRAMMABLE CONTROLLER LOGIC

#### SUBMITTED BY:

*Handwritten signature*  
REGISTERED SAN. ENGINEER

DATE 4-22-97

#### CITY OF GOODYEAR APPROVED BY:

*Handwritten signature*  
FOR CITY ENGINEER

DATE 9/1/87

#### MARICOPA COUNTY HEALTH DEPT. APPROVED BY:

FOR MCH.D.

DATE

#### REVISIONS

△ TYPED CHANGE ELECTRICAL TO INCLUDE  
WELL MOTOR. CHANGE PUMP PHASE PLANS  
FROM 200 TO 250 RPM (SHT. 5)  
CHANGE PIPING PLAN.



SHT. 1 OF 26

COE & VAN LOO PHOENIX  
CONSULTING ENGINEERS INC. ARIZONA

WELL 2

1070-16-05 1987-034-C1-001

WALL 2

SEP 3 0 1996



## SITE SURVEY INFORMATION

- [illegible]

6. 12 INCHES AND SMALLER STEEL PIPE SHALL BE SCHEDULE 40.

NOTE: UPON SATISFACTORY COMPLETION OF PRESSURE TESTING AND

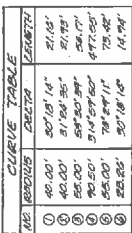
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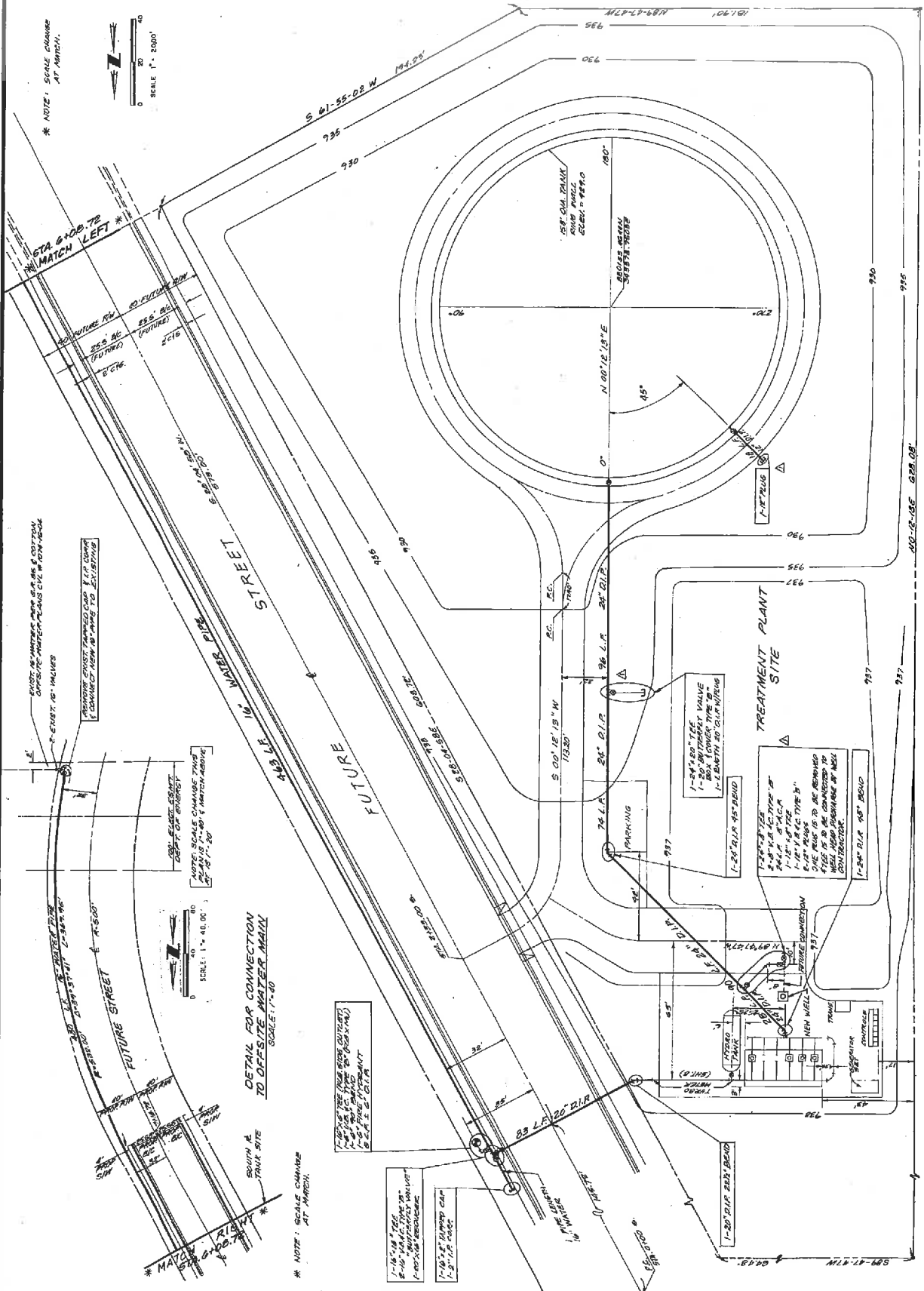
**WATER STORAGE TANK**  
**SITE GRADING PLAN**

ET 26

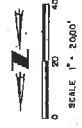




DATE	BY	REVISION	DATE
DESIGNED			
DRAWN			
CHECKED			



\* NOTE: SCALE CHANGE AT MATCH.



NOTE: SCALE CHANGE THIS PLAN TO MATCH ABOVE SCALE 1\"/>

DETAIL FOR CONNECTION TO OFFSITE WATER MAIN  
 SCALE 1\"/>

\* NOTE: SCALE CHANGE AT MATCH.

1-10\"/>

1-10\"/>

1-24\"/>

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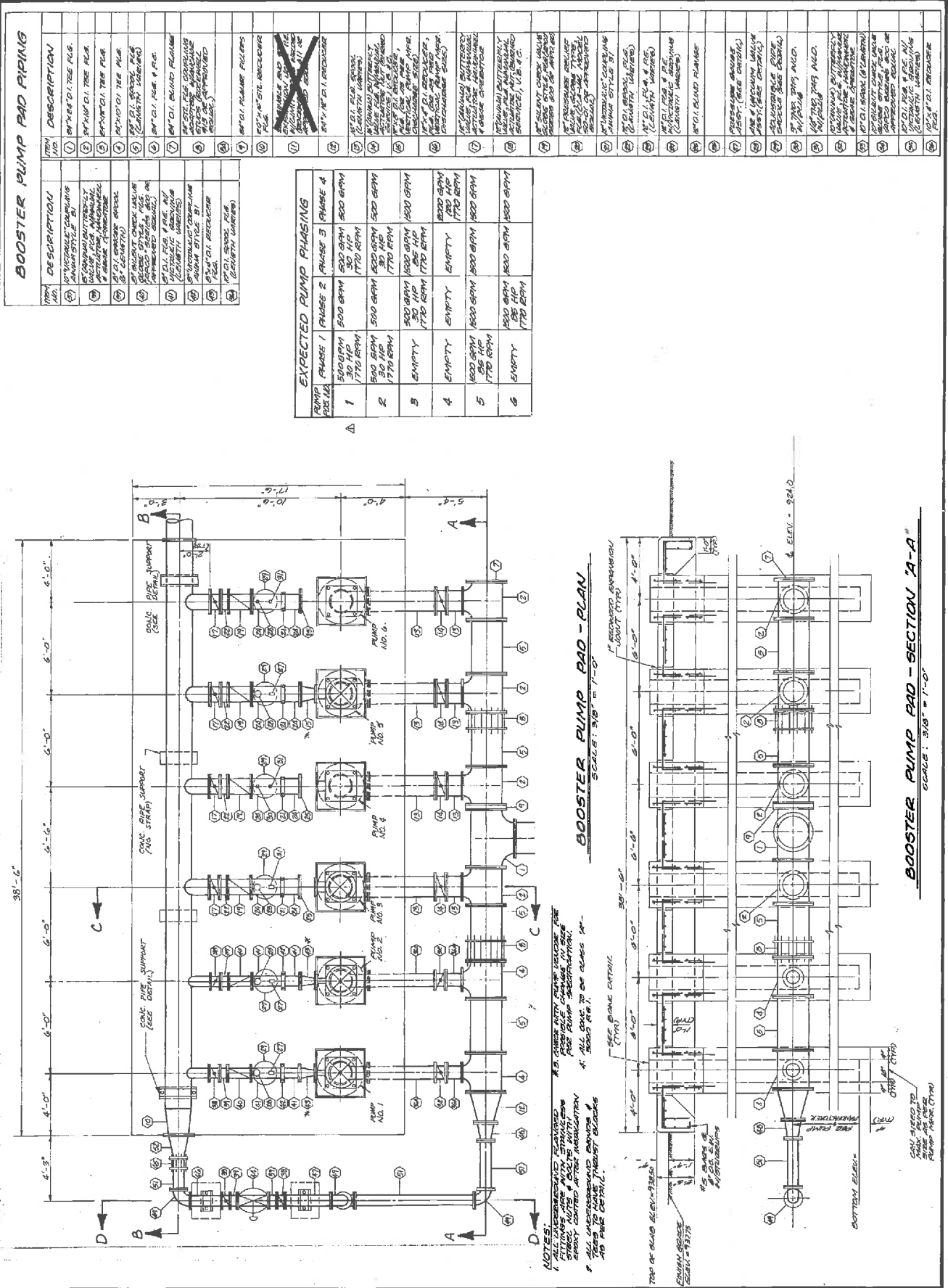
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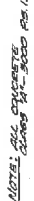
1-24\"/>



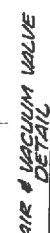
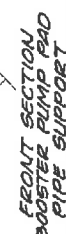




## 8007144 PUMP PAD SECTIONS & DETAILS

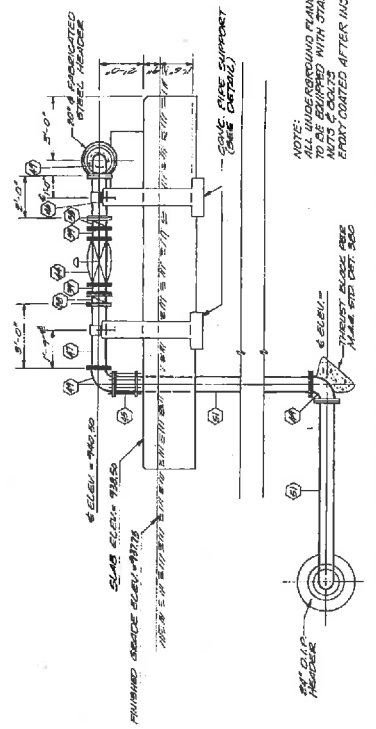


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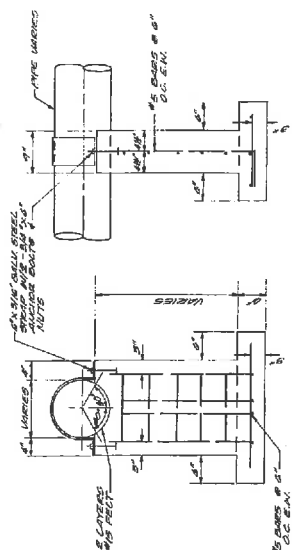




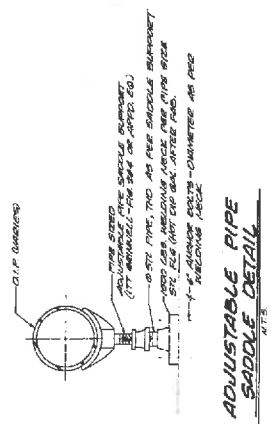
ITEM NO.	DESCRIPTION
1	BOOSTER PUMP
2	PAD PIPING (CONTINUED)
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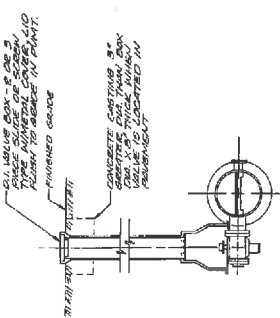
925-6 BOOSTER PUMP PAD - SECTION "D-D"



FRONT SECTION  
CONCRETE YARD PIPE SUPPORT  
DETAIL  
N.T.S.



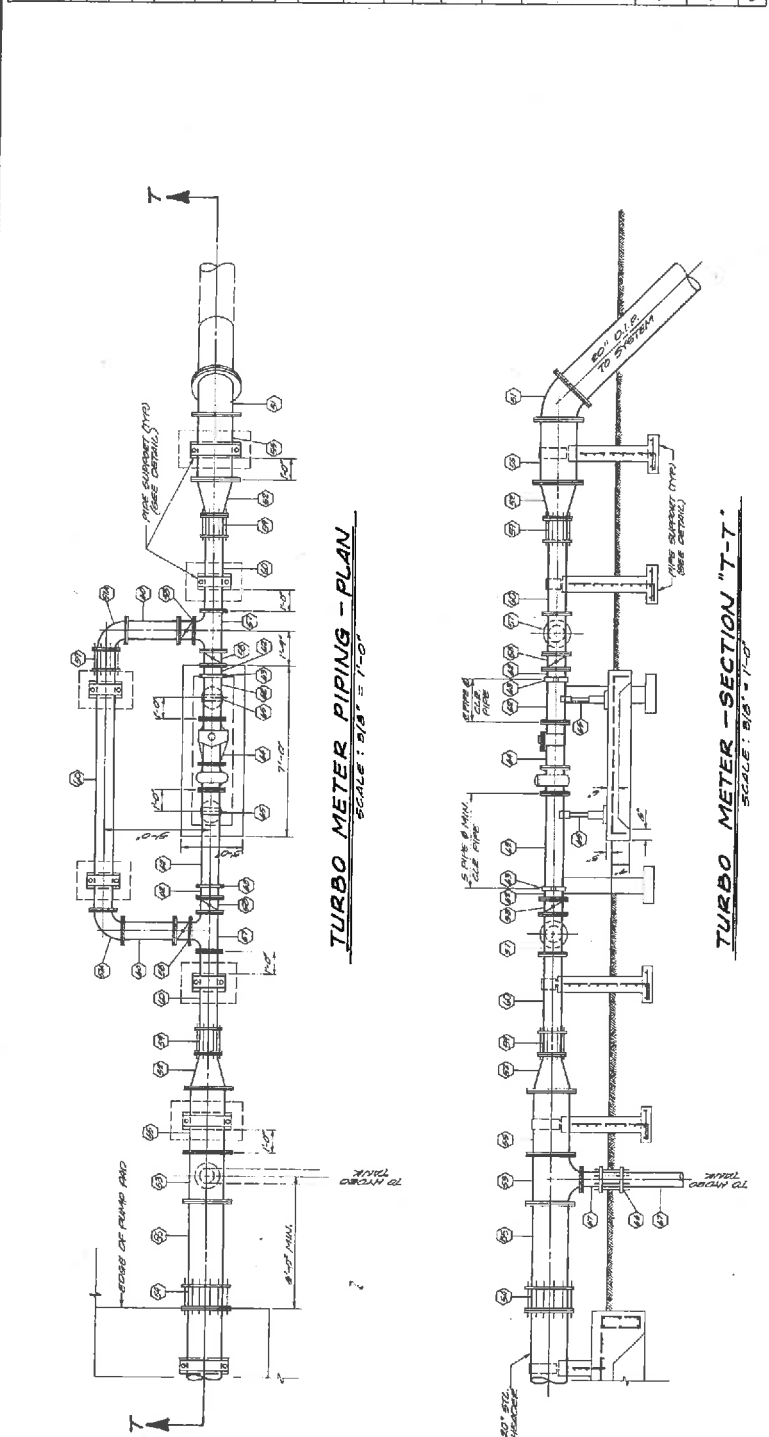
ADJUSTABLE PIPE  
SADDLE DETAIL  
N.T.S.



BUTTERFLY VALVE  
BOX DETAIL  
N.T.S.



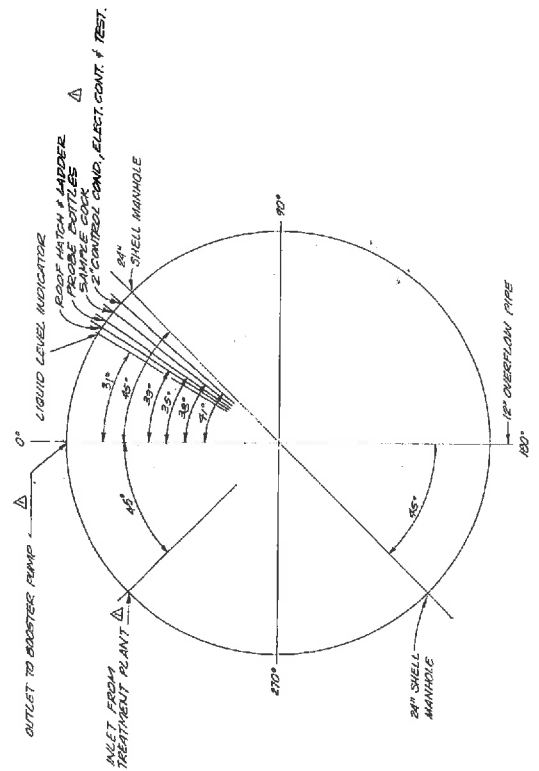
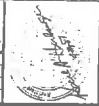
ITEM	DESCRIPTION
1	1" DIA. 10' LONG, P.L.B.
2	1" DIA. 10' LONG, P.L.B.
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99	1" DIA. 10' LONG, P.L.B.
100	1" DIA. 10' LONG, P.L.B.



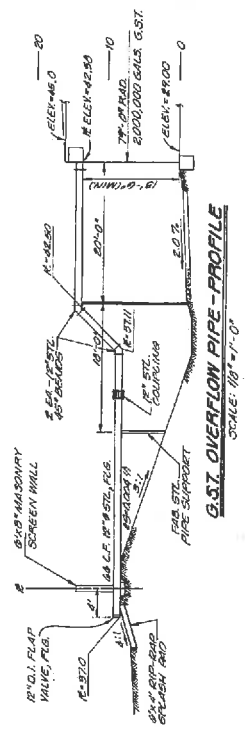


**ESTRELLA ESTATES - WATER PLANT**

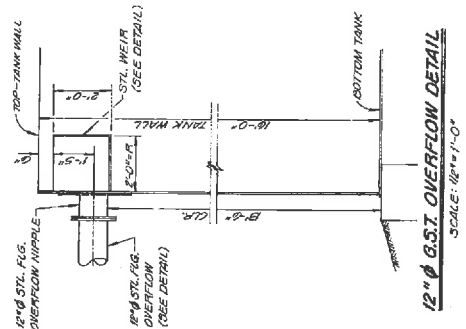
DESIGNED	DATE	BY
CH. H.	1-11-77	T.H.
CHECKED	DATE	BY
CH. H.	1-11-77	T.H.
REVISIONS	DATE	BY
1. REVISED	1-11-77	T.H.



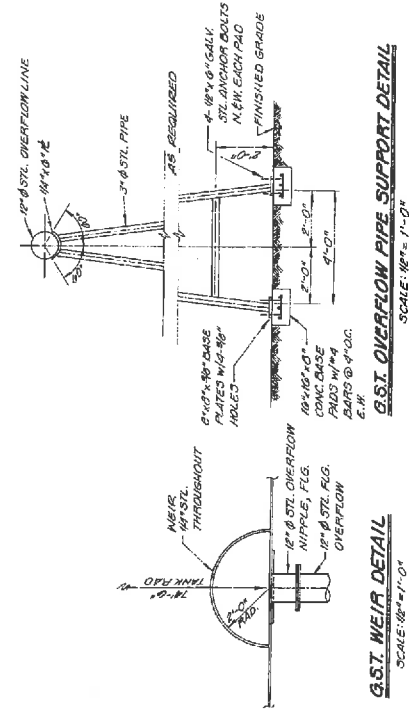
**FIXTURE LOCATION DIAGRAM**  
**2000,000 GALLON GROUND STORAGE TANK**  
100'-0"  $\phi$  x 18'-0"  
SCALE: 1"=20'



**G.S.T. OVERFLOW PIPE - PROFILE**  
SCALE: 1/8"=1'-0"

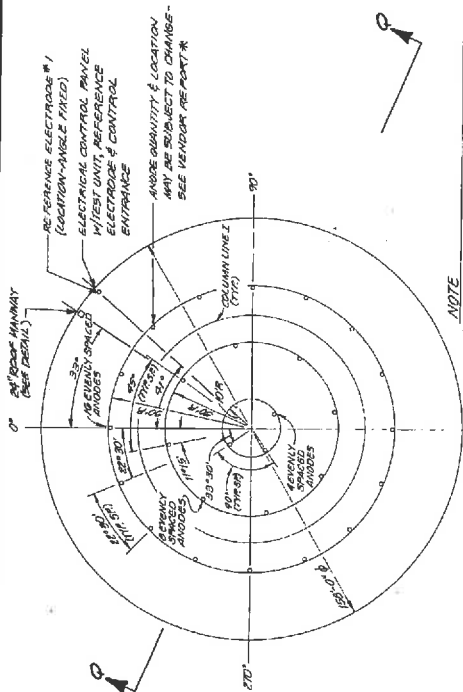


**12"  $\phi$  G.S.T. OVERFLOW DETAIL**  
SCALE: 1/4"=1'-0"



**G.S.T. OVERFLOW PIPE SUPPORT DETAIL**  
SCALE: 1/4"=1'-0"

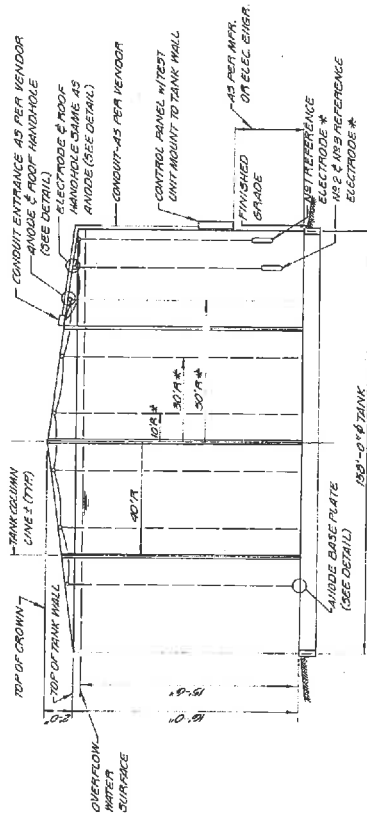




**NOTE**

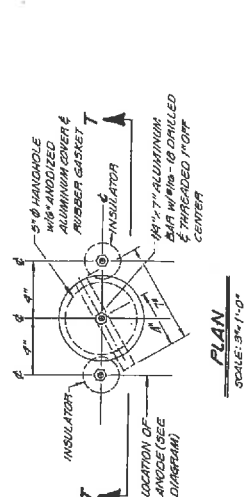
1. ANODE QUANTITY, LENGTH, LOCATION & ANODE ELECTRODES ARE TO BE DETERMINED BY VENDOR ENGINEERING. DESIGN IS TO SUIT INDIVIDUAL APPLICATION. DESIGNER CERTIFIED REPORT IS TO BE SUBMITTED TO PROJECT ENGINEER BEFORE INSTALLATION.
2. ANODE & ELECTRODE LOCATION TO BE COORDINATED WITH/AN VENDOR CERT. DESIGN TO AVOID COLLISION & OTHER CONFLICTS WITH CEMENT LINES, PIPES, ETC.

**PLAN**  
**SCALE: 1"=80'**

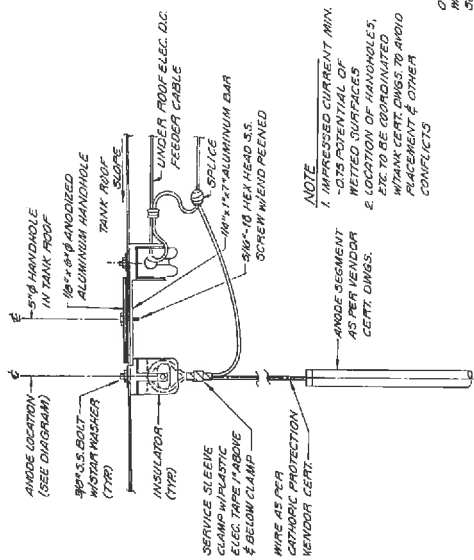


SECTION "Q-Q"  
2,000,000 GALLON GROUND STORAGE TANK  
CATHODIC PROTECTION FIXTURE DIAGRAM

SCALE: HORIZ. 1"=20'  
VERT. 1"=1'

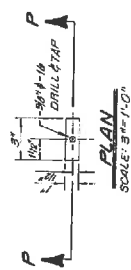


PLAN  
SCALE: 3/4" = 1'-0"

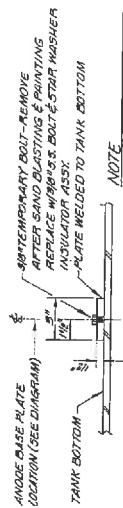


NOTE  
IMPRESSIONED CURRENT MIN.  
-0.75 POTENTIAL OF  
WETTED SURFACES  
LOCATION OF HANDHOLES,  
ETC. TO BE COORDINATED  
WITH AN CERT. DWGS. TO AVOID  
CLASHES & OTHER  
CONFLICTS

SECTION "T-T"  
ANDOE & ROOF HANDHOLE DETAIL  
SCALE: 3/4" = 1'-0"



PLAN  
SCALE: 3"=1'-0"

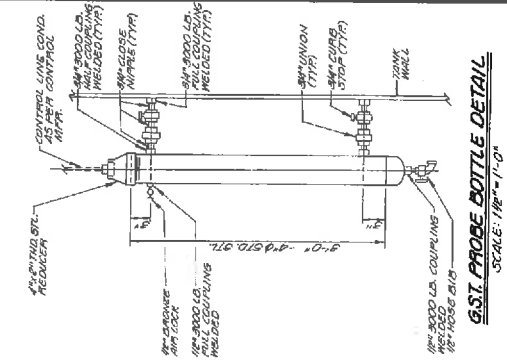


**NOTE**  
BASE PLATES TO BE  
INSTALLED IF REQUIRED  
(TANK VENDOR)

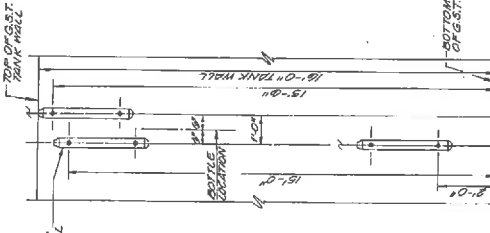
SECTION "P-P"  
ANODE BASE PLATE DETAIL



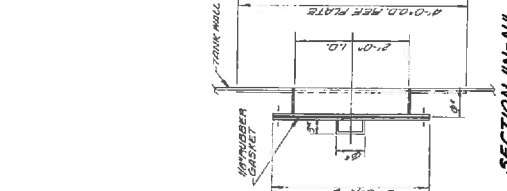
DESIGNED	DRAWN	CHECKED	DATE
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REVISIONS	DATE	BY	



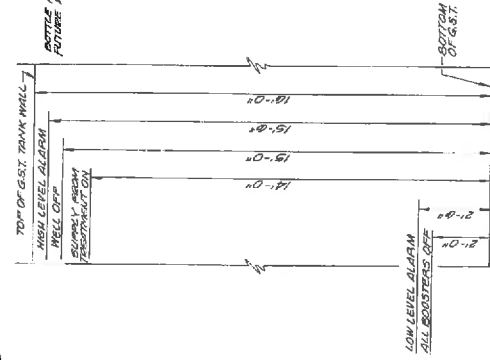
G.S.T. PROBE BOTTLE DETAIL  
SCALE: 1/8\"/>



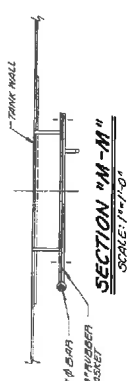
G.S.T. PROBE BOTTLE  
FIXTURE LOCATION  
DIAGRAM  
SCALE: 1/8\"/>



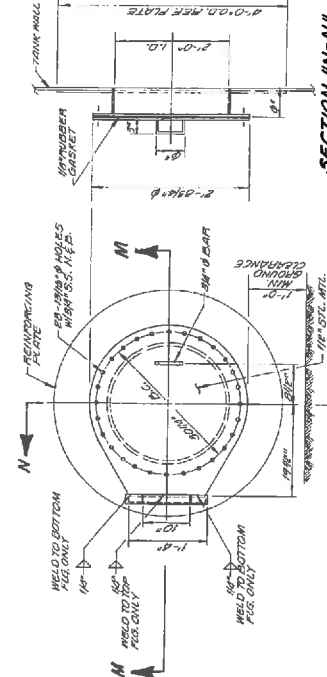
SECTION 4\"/>



G.S.T. PROBE BOTTLE  
CONTROL LEVEL  
DIAGRAM  
SCALE: 1/8\"/>

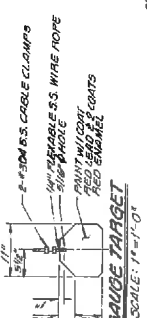


SECTION 4\"/>

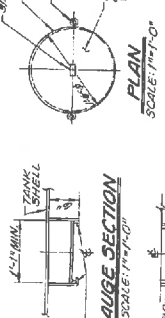


ELEVATION 4\"/>

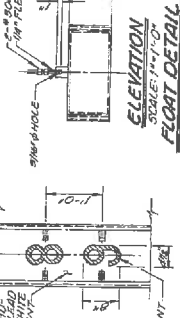
24\"/>



GAUGE TARGET  
SCALE: 1\"/>



GAUGE SECTION  
SCALE: 1\"/>

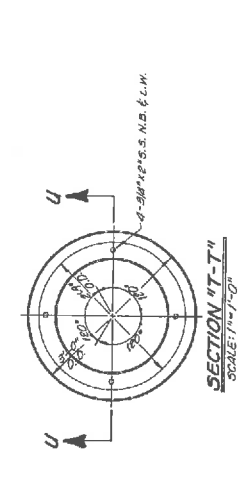


PLAN  
SCALE: 1\"/>

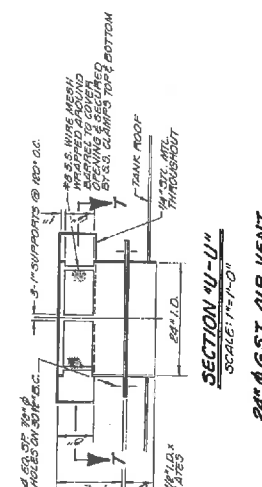


ELEVATION  
SCALE: 1\"/>

GAUGE BOARD & TARGET  
DETAIL  
SCALE: 1\"/>

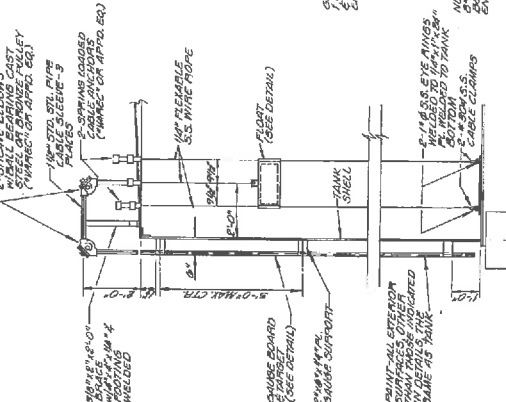


SECTION 4\"/>



SECTION 4\"/>

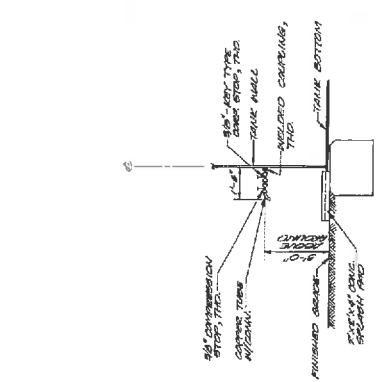
24\"/>



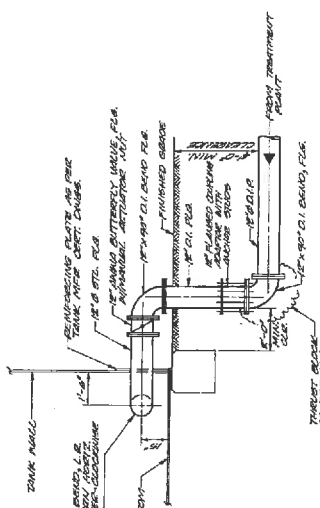
TYPICAL SECTION  
SCALE: 1/8\"/>

G.S.T. LEVEL INDICATOR DETAIL  
SCALE: 1/8\"/>

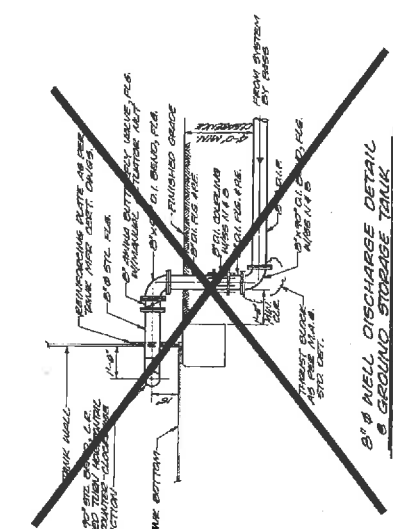




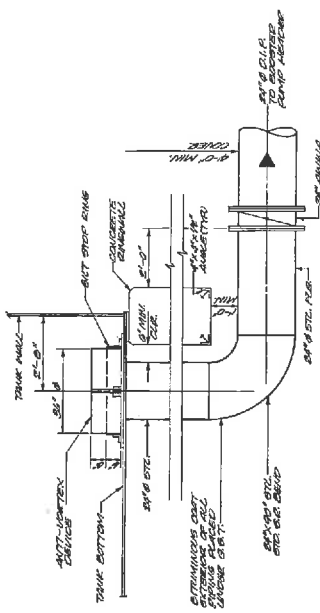
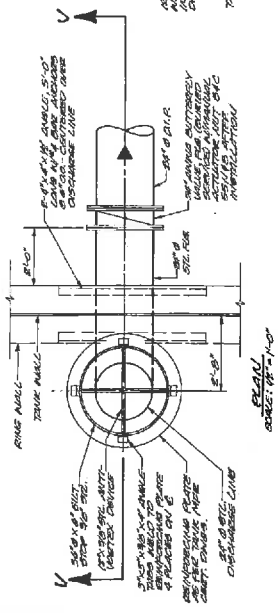
9.0" SAMPLE COCK DETAIL  
OF GROUND STORAGE TANK  
SCALE: 3/8" = 1'-0"



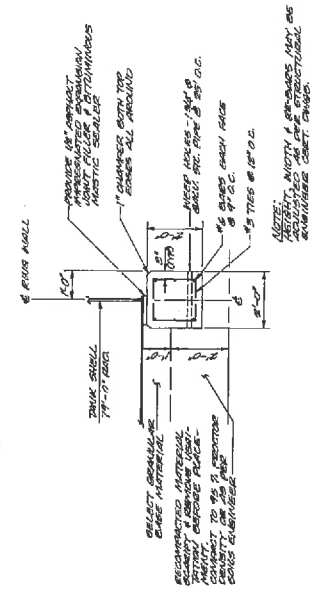
12.0" DISCHARGE DETAIL  
FROM TREATMENT PLANT  
OF GROUND STORAGE TANK  
SCALE: 3/8" = 1'-0"



8.0" WELL DISCHARGE DETAIL  
OF GROUND STORAGE TANK  
SCALE: 3/8" = 1'-0"



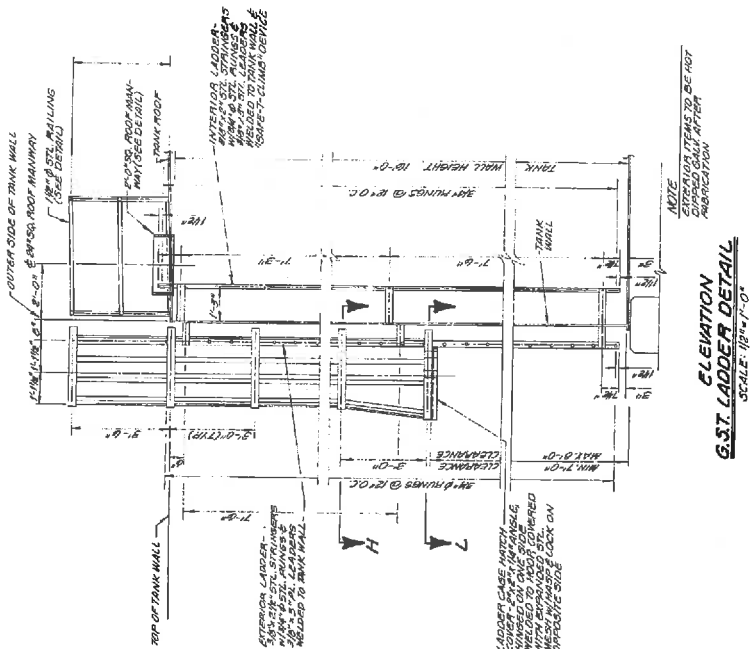
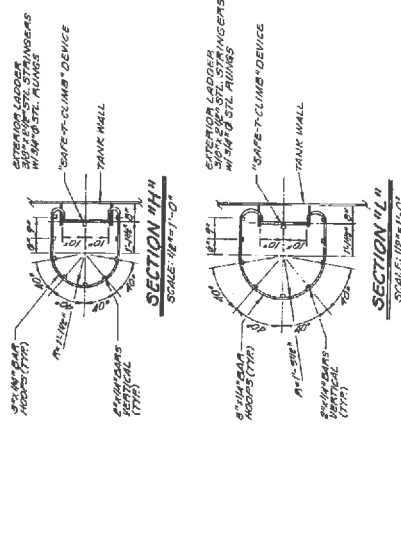
12.0" GROUND STORAGE TANK DISCHARGE DETAIL  
W/ANTI-VORTEX DEVICE & SECT. STOP RING  
SCALE: 3/8" = 1'-0"



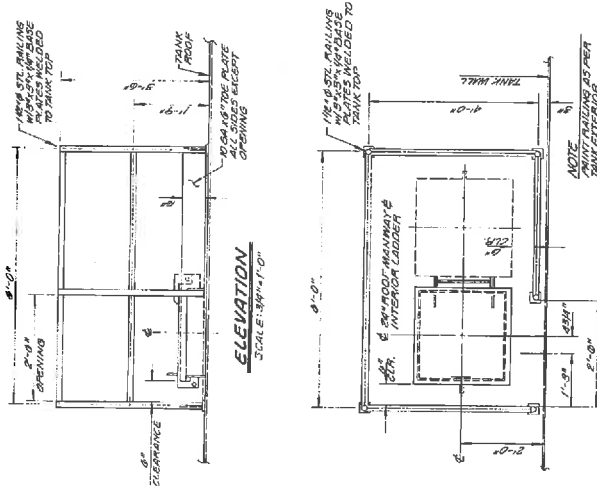
8.0" TYPICAL RING WALL SECTION  
SCALE: 3/8" = 1'-0"



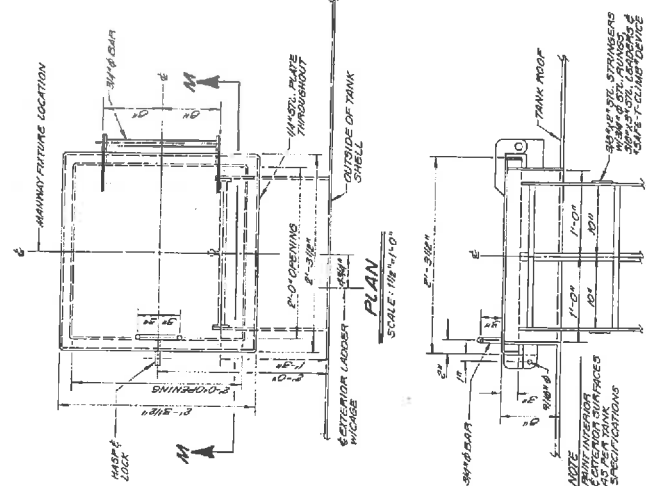
## ESTHERELLA ESTATES - WATER PLANT



ELEVATION  
G.S.T. LADDER DETAIL  
SCALE: 1/2" = 1'-0"



PLAN  
24" SQUARE ROOF MANWAY  
RAILING DETAIL  
SCALE: 3/4" = 1'-0"



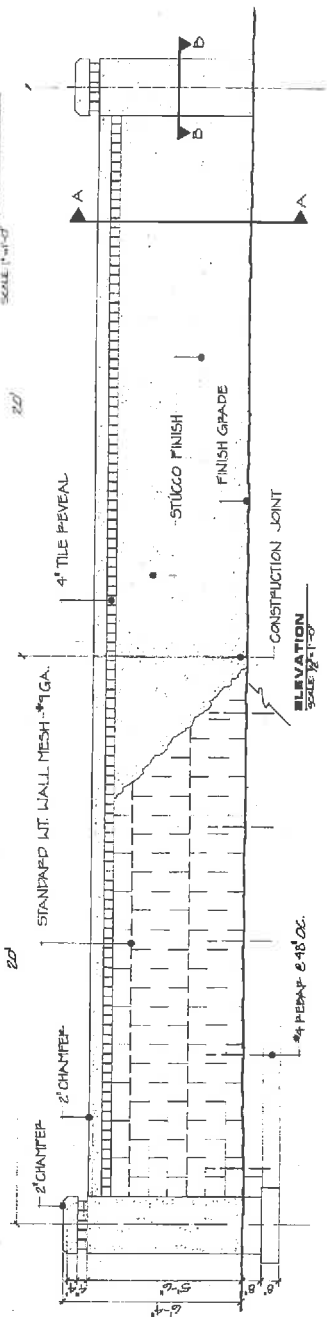
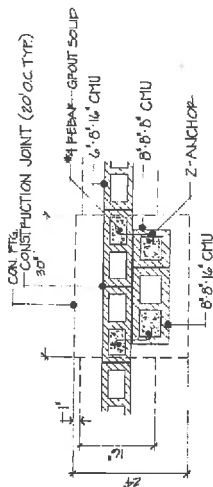
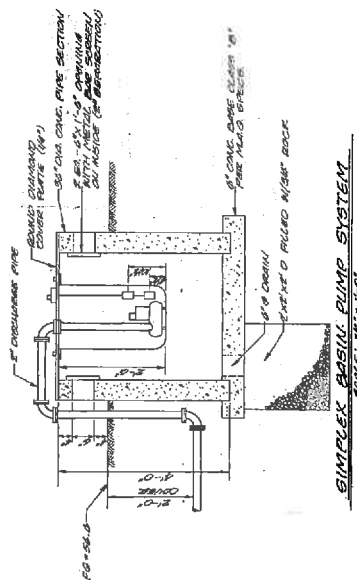
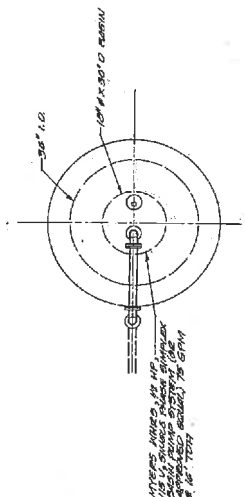
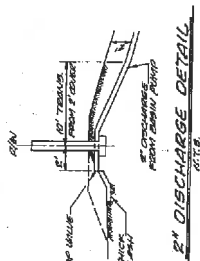
SECTION 4M-16"  
24" SQUARE ROOF MANWAY DETAIL  
SCALE: 1/2" = 1'-0"







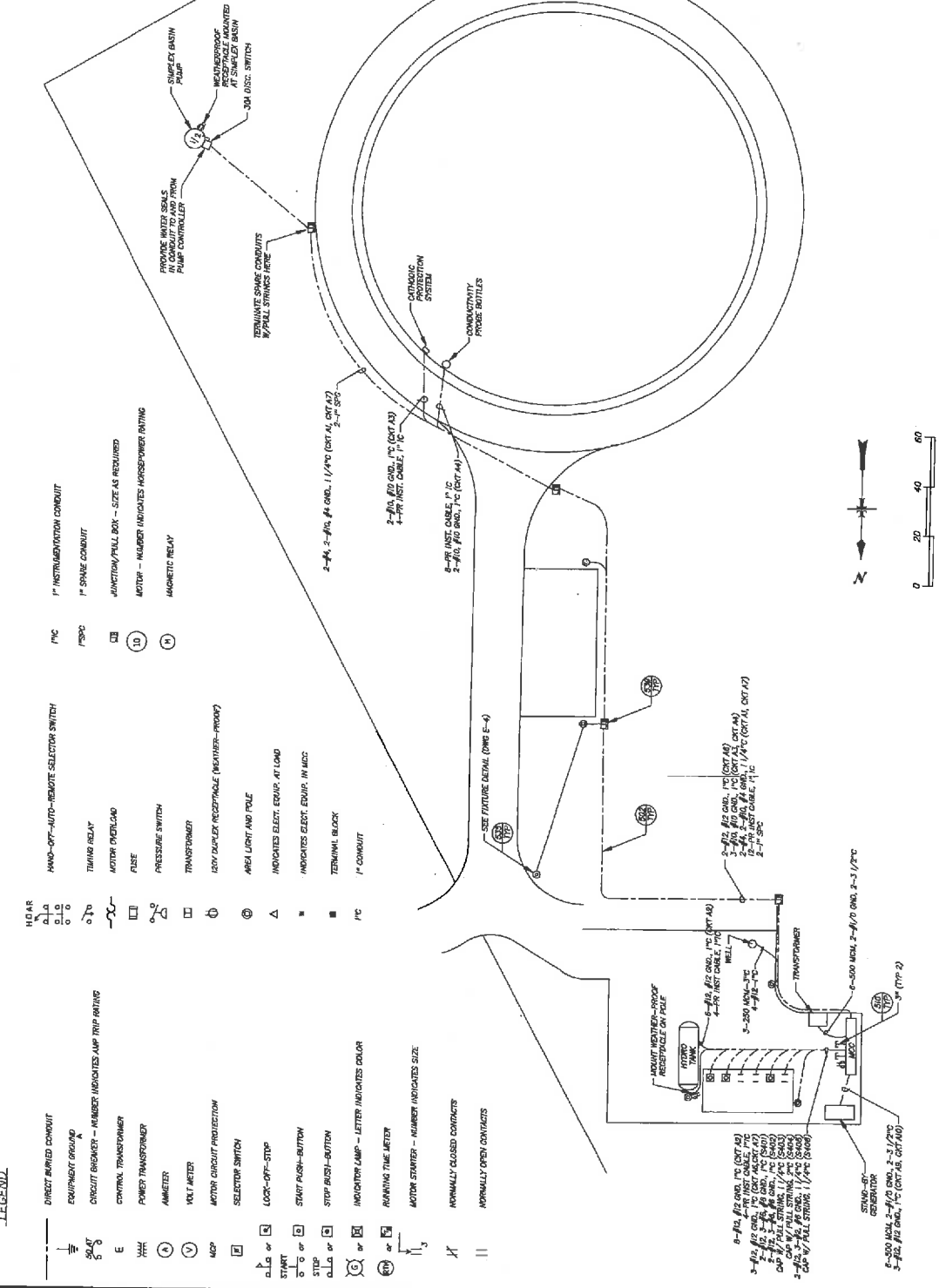
DESIGNED	DATE
J.H.	
CHECKED	DATE
J.H.	
REVISIONS	DATE





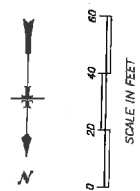
**ELECTRICAL CONSULTING ENGINEERS**  
3606 EAST SHEA BLVD., SUITE 100 PHOENIX, AZ 85028  
(602) 996-5950

- NOTES:**
1. CONDUIT SHALL BE 1/2" OR 3/4" OR 1" OR 2" OR 3" OR 4" OR 6" OR 8" OR 10" OR 12" OR 14" OR 16" OR 18" OR 20" OR 24" OR 30" OR 36" OR 42" OR 48" OR 54" OR 60" OR 66" OR 72" OR 78" OR 84" OR 90" OR 96" OR 102" OR 108" OR 114" OR 120" OR 126" OR 132" OR 138" OR 144" OR 150" OR 156" OR 162" OR 168" OR 174" OR 180" OR 186" OR 192" OR 198" OR 204" OR 210" OR 216" OR 222" OR 228" OR 234" OR 240" OR 246" OR 252" OR 258" OR 264" OR 270" OR 276" OR 282" OR 288" OR 294" OR 300" OR 306" OR 312" OR 318" OR 324" OR 330" OR 336" OR 342" OR 348" OR 354" OR 360" OR 366" OR 372" OR 378" OR 384" OR 390" OR 396" OR 402" OR 408" OR 414" OR 420" OR 426" OR 432" OR 438" OR 444" OR 450" OR 456" OR 462" OR 468" OR 474" OR 480" OR 486" OR 492" OR 498" OR 504" OR 510" OR 516" OR 522" OR 528" OR 534" OR 540" OR 546" OR 552" OR 558" OR 564" OR 570" OR 576" OR 582" OR 588" OR 594" OR 600" OR 606" OR 612" OR 618" OR 624" OR 630" OR 636" OR 642" OR 648" OR 654" OR 660" OR 666" OR 672" OR 678" OR 684" OR 690" OR 696" OR 702" OR 708" OR 714" OR 720" OR 726" OR 732" OR 738" OR 744" OR 750" OR 756" OR 762" OR 768" OR 774" OR 780" OR 786" OR 792" OR 798" OR 804" OR 810" OR 816" OR 822" OR 828" OR 834" OR 840" OR 846" OR 852" OR 858" OR 864" OR 870" OR 876" OR 882" OR 888" OR 894" OR 900" OR 906" OR 912" OR 918" OR 924" OR 930" OR 936" OR 942" OR 948" OR 954" OR 960" OR 966" OR 972" OR 978" OR 984" OR 990" OR 996" OR 1000"
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  5. ALL STRUCTURAL STEEL EQUIPMENT (MOTOR, TUBES, ETC.) SHALL BE GALVANIZED OR GALVANNEAL.
  6. UNDERGROUND CONDUIT SHALL BE PVC (1" OR LARGER).
  7. ALL OTHER CONDUIT SHALL BE RIGID STEEL.



**LEGEND**

- DIRECT BURIED CONDUIT**
- EQUIPMENT GROUND**
- CIRCUIT BREAKER - NUMBER INDICATES AMP TRIP RATING**
- CONTROL TRANSFORMER**
- POWER TRANSFORMER**
- AMMETER**
- VOLT METER**
- MOTOR CIRCUIT PROTECTION**
- SELECTOR SWITCH**
- LOCK-OFF-STOP**
- START PUSHER-BUTTON**
- STOP PUSHER-BUTTON**
- INDICATOR LAMP - LETTER INDICATES COLOR**
- RANKING TIME METER**
- MOTOR STARTER - ALUMINUM INDICATES SIZE**
- NORMALLY CLOSED CONTACTS**
- NORMALLY OPEN CONTACTS**

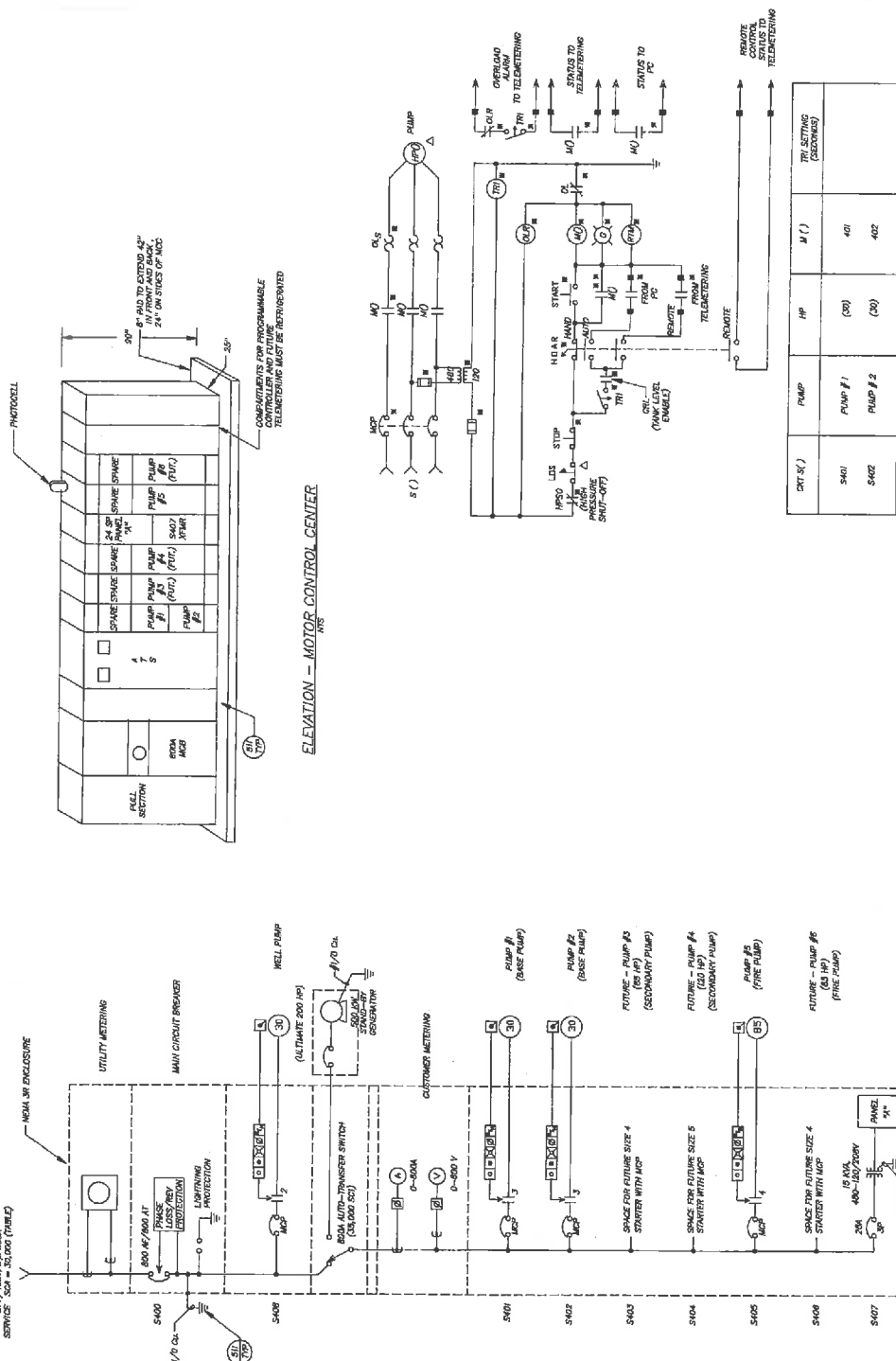


SCALE IN FEET

(PLAN IS SCHEMATIC ONLY. SEE FOR EXACT LOCATION OF EQUIPMENT AND STRUCTURES)



## ESTRELLA ESTATES - WATER PLANT



NOTES:

1. ALL MA
2. ALL MA  
A STA
3. BUS
4. SEE

W  
I  
L

PRODUCT.DWG

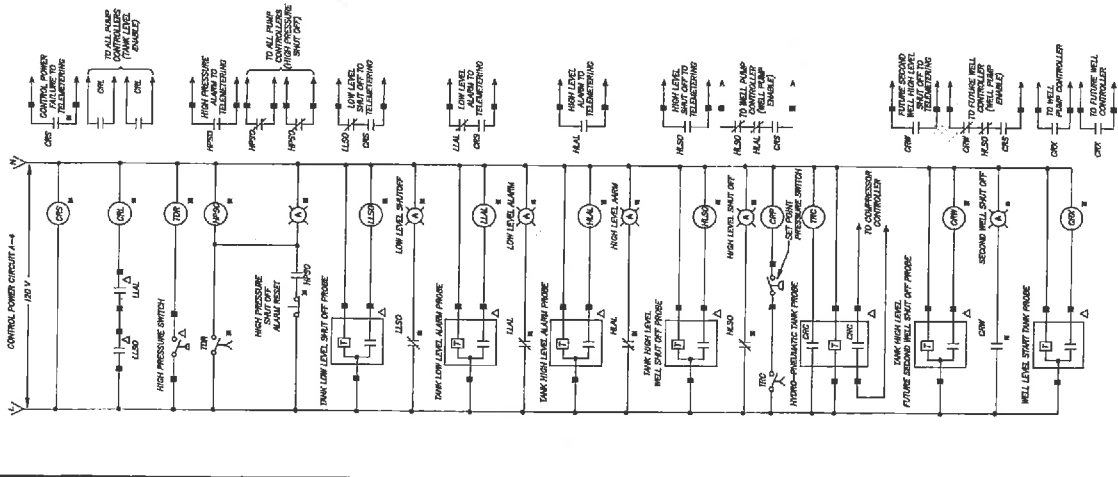
### ACROSS-THE-LINE PUMP CONTROLLER SCHEMATIC DIAGRAM

**EL**  
ELECTRICAL CONSULTING ENGINEERS  
3500 EAST SEVEN BLVD., SUITE 100 POKOKONG AZ 85028  
(602) 996-5950  
ENGINEERS INC./

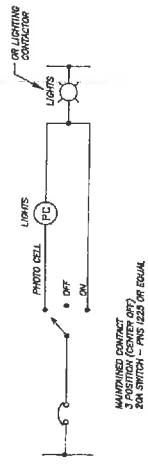
P303E2.DWG

### SINGLE LINE DIAGRAM

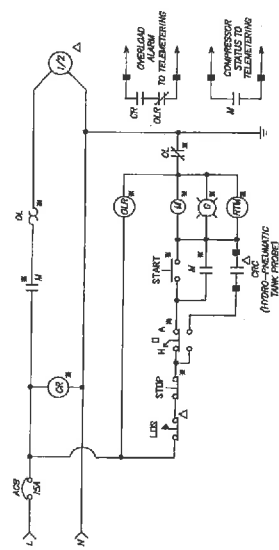




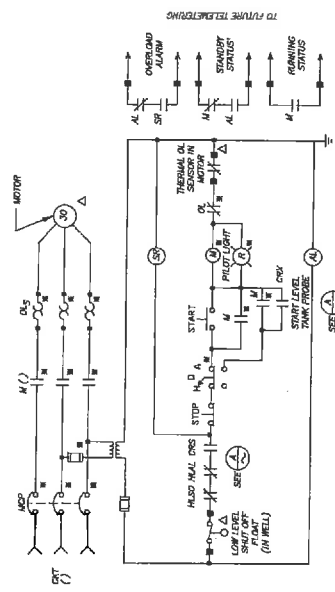
### A CONTROL AND ALARM SCHEMATIC DIAGRAM



PHOTOCELL OVERRIDE CIRCUIT



A HYDRO-PNEUMATIC TANK  
AIR COMPRESSOR  
CONTROL SCHEMATIC DIAGRAM



WELL PUMP CONTROLLER  
SCHEMATIC DIAGRAM

[illegible]





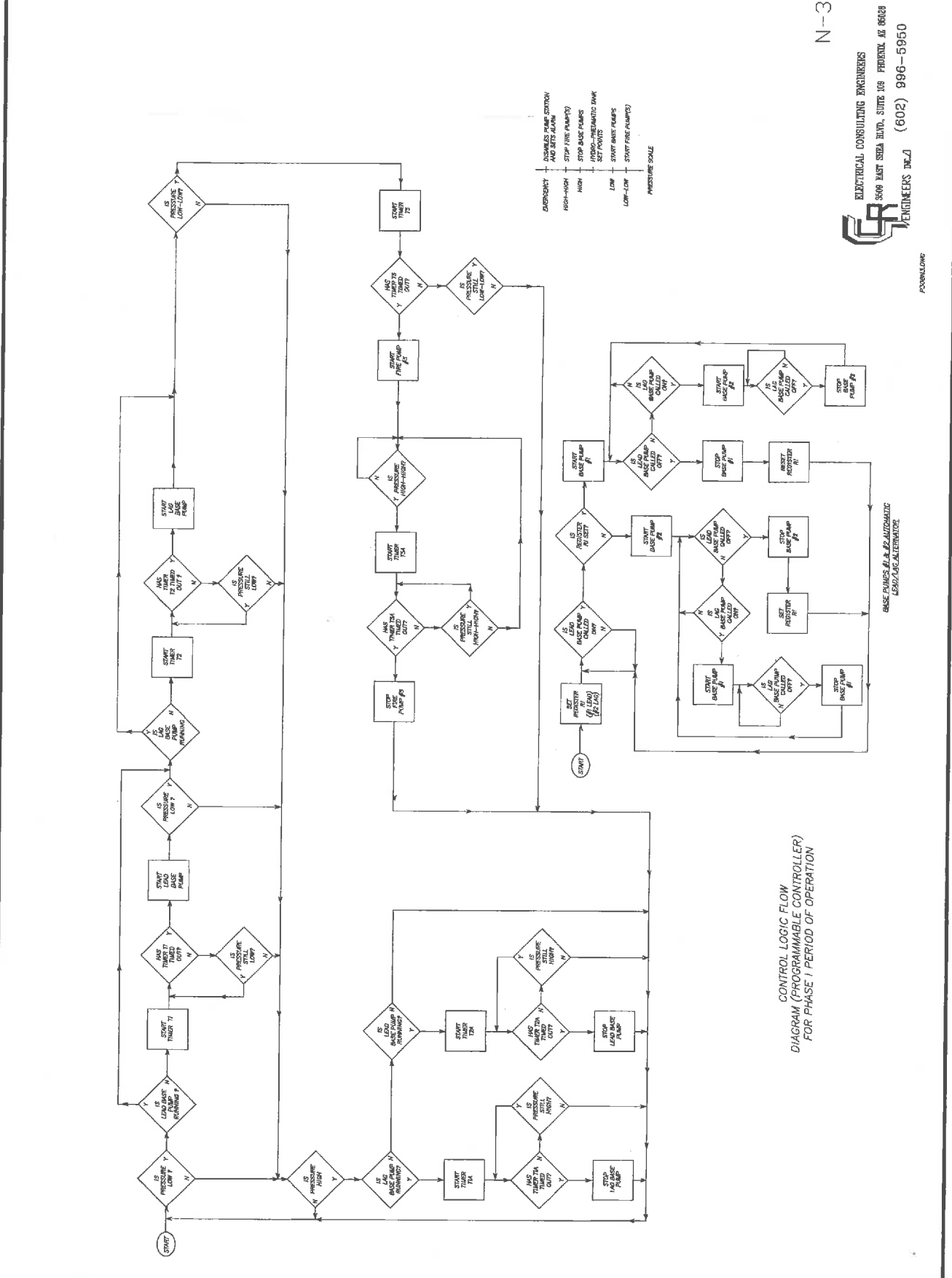




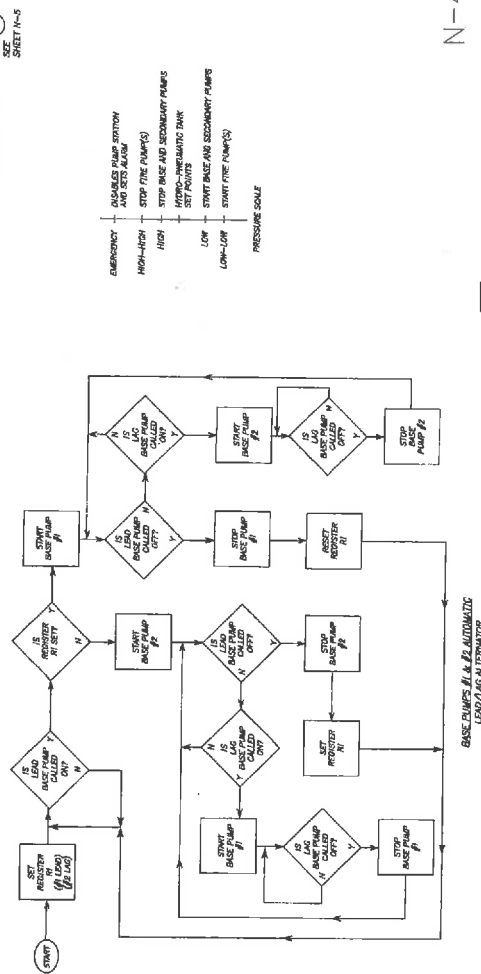
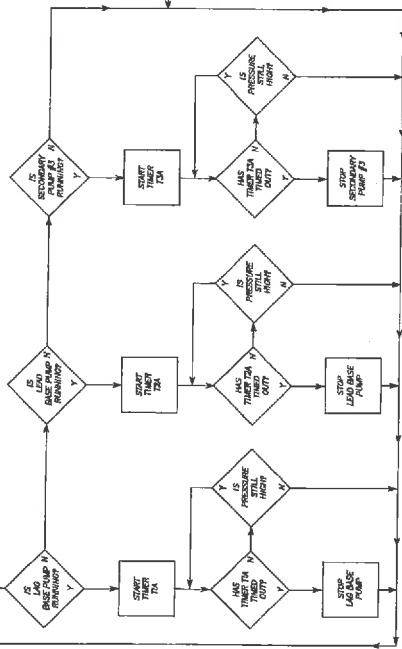
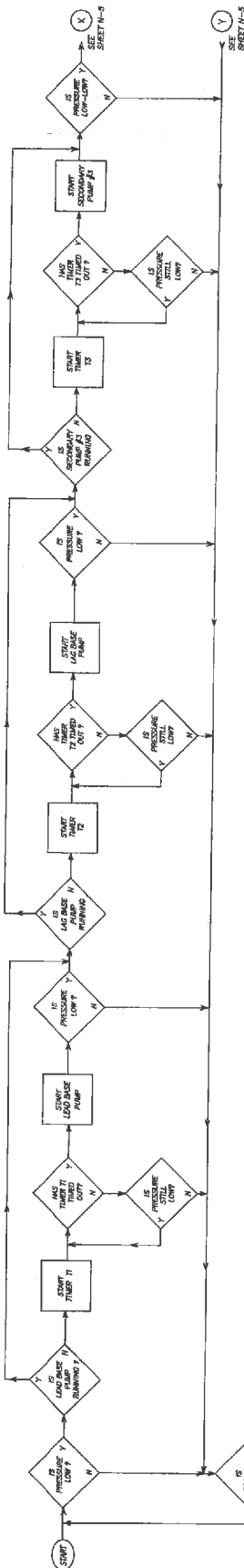












CONTROL LOGIC FLOW  
DIAGRAM (PROGRAMMABLE CONTROLLER)  
FOR PHASES 2 & 3 PERIODS OF  
OPERATION (PART 1)

**ELECTRICAL CONSULTING ENGINEERS**  
3509 EAST SHERA BLVD., SUITE 109 PHOENIX, AZ 85028  
**ENGINEERS INC./** (602) 996-5950

TSUBOTA, H. I.



# ESTRELLA ESTATES - WATER PLANT

4530 NORTH 12TH STREET  
PHOENIX, ARIZONA 85018  
TELEPHONE (602) 264-8914

GOE & VAN LEE  
PLANNING ENGINEERING LANDSCAPE ARCHITECTURE

ESTRELLA ESTATES  
PROGRAMMABLE CONTROLLER LOGIC  
(PHASES 2 & 3 - PART 2)

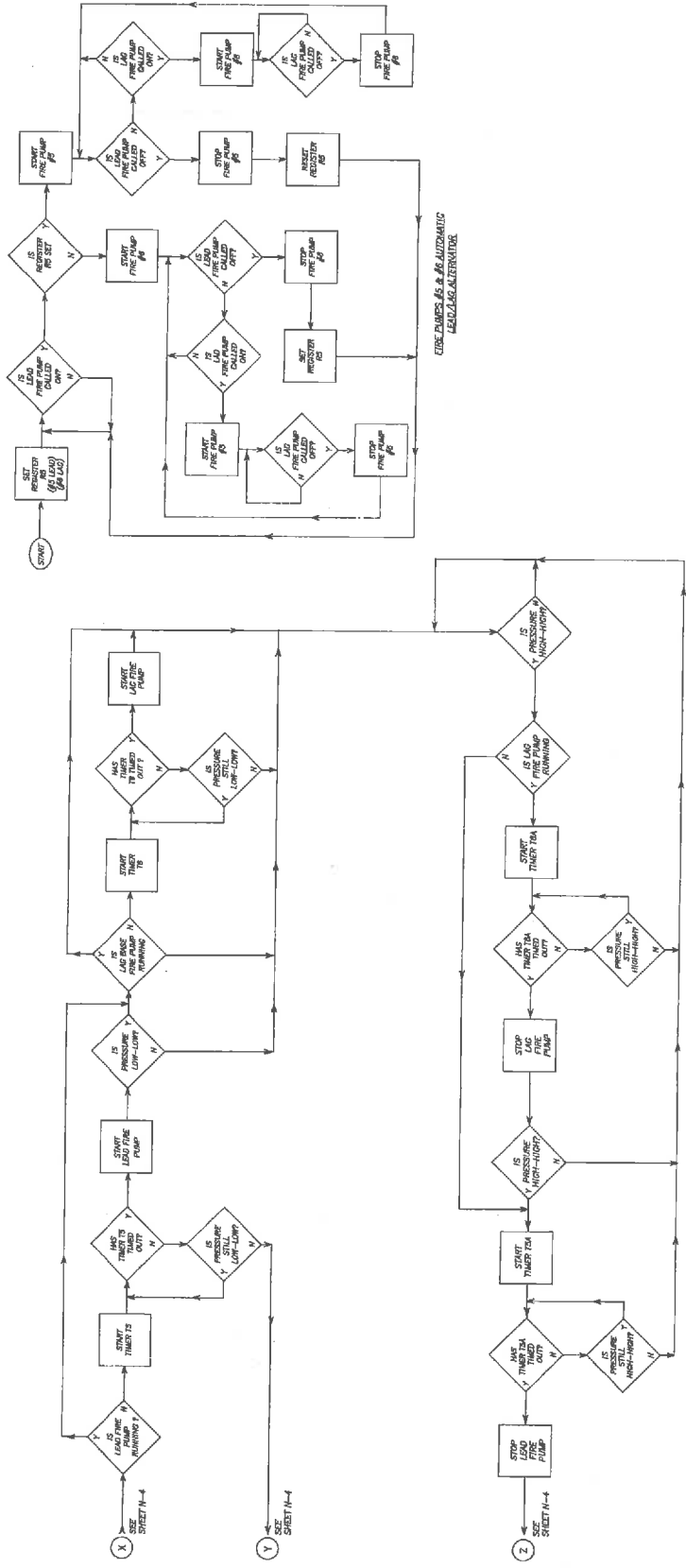
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DATE	DATE	DATE
CHECKED	DATE	DATE
DATE	DATE	DATE

11-1-78  
1074-16-03  
SHEET  
24 OF 26

C-1-N

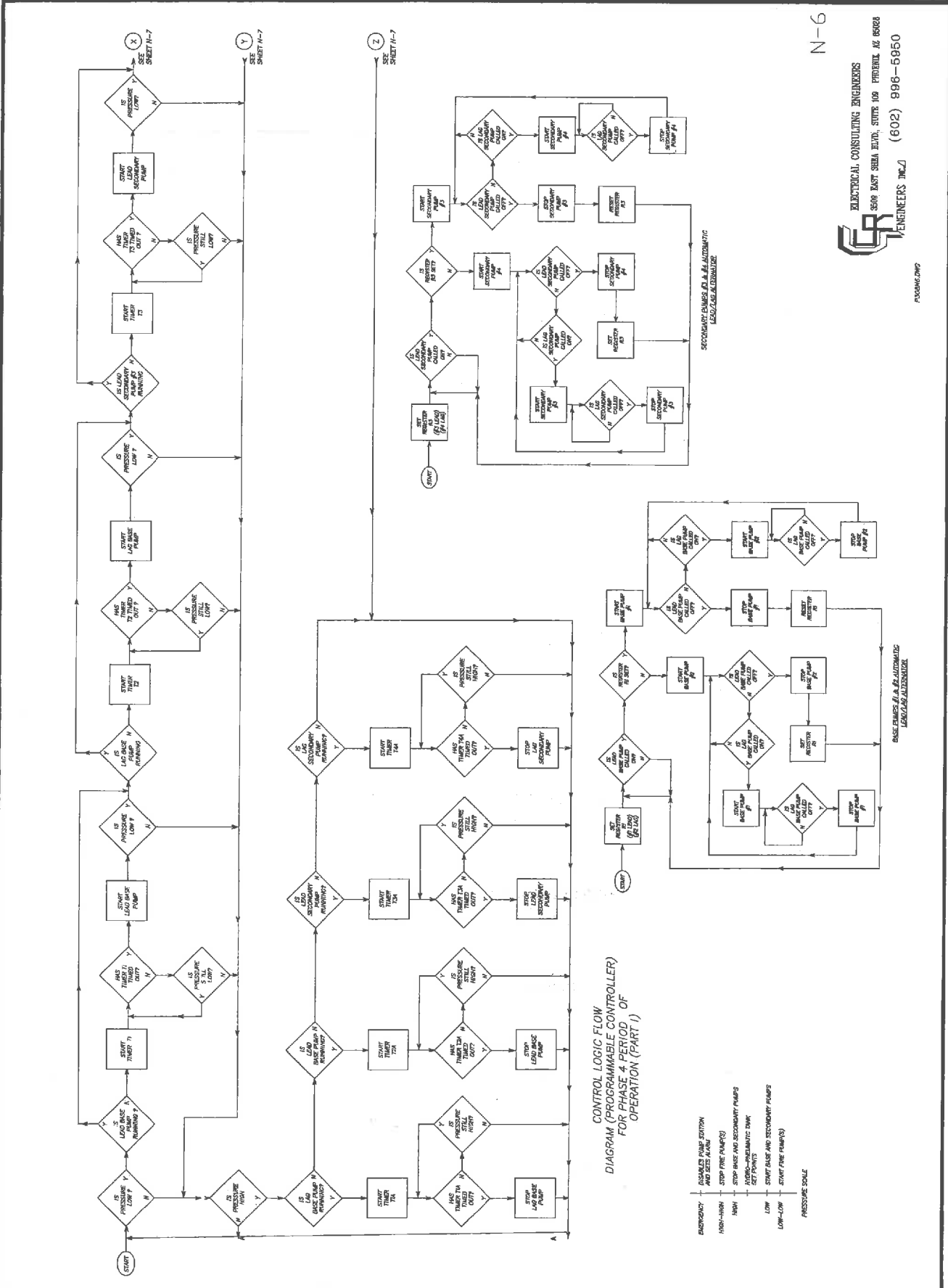
ELECTRICAL CONSULTING ENGINEERS  
8600 EAST SHERA BLVD., SUITE 100 PHOENIX, AZ 85028  
(602) 996-5950  
ENGINEERS INC.

PROGRAMS.DWG



CONTROL LOGIC FLOW  
DIAGRAM (PROGRAMMABLE CONTROLLER)  
FOR PHASES 2 & 3 PERIODS OF  
OPERATION (PART 2)

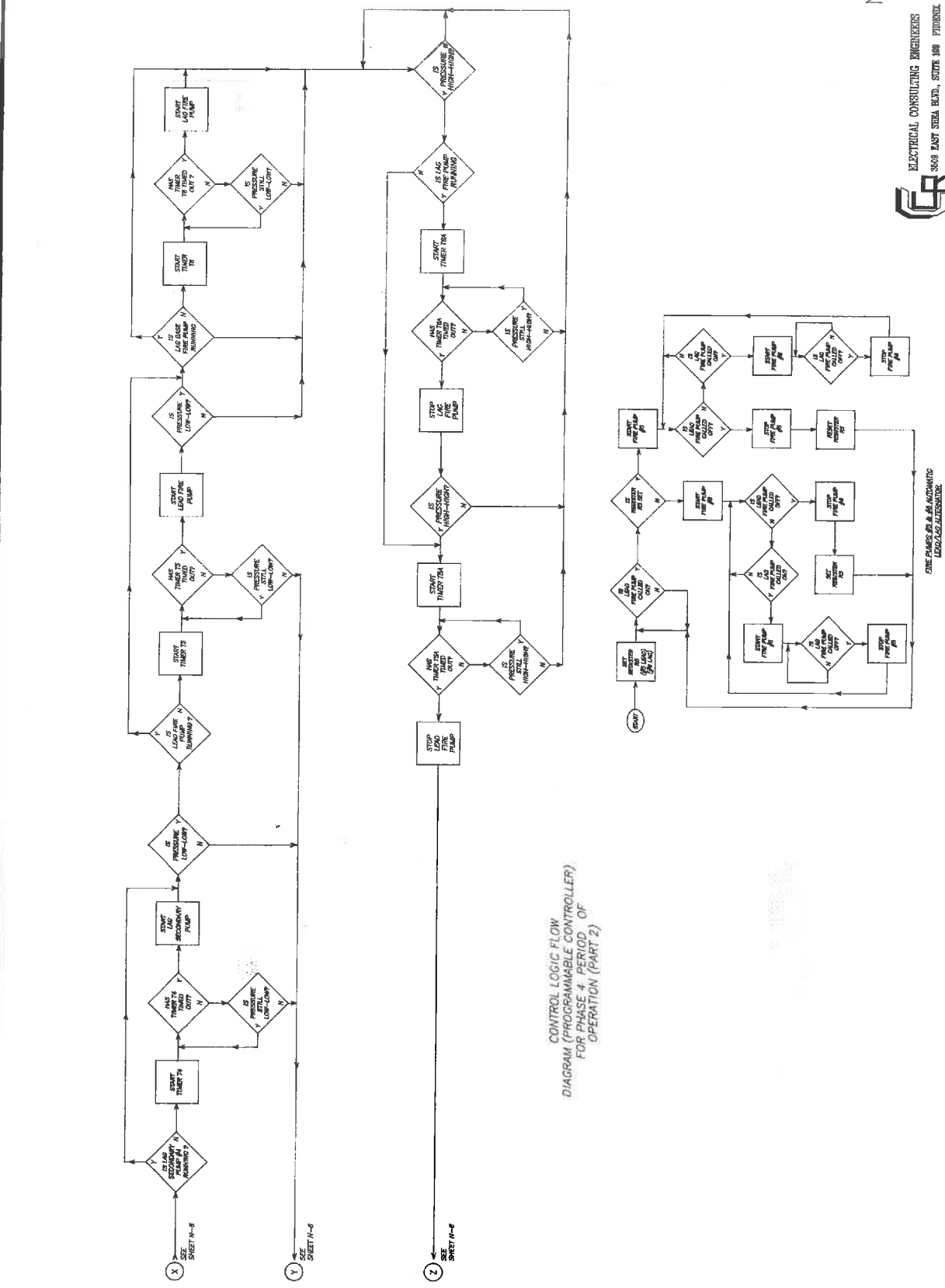






ELECTRICAL CONSULTING ENGINEERS  
3649 EAST SEA HWY., SUITE 100 PHOENIX, AZ 85028  
ENGINEERS INC. (602) 998-5950

10/14/80



ESTRELLA ESTATES  
SHEET 26 OF 26  
10/14/80



Company:  
Name:  
Date: 1/4/2016



**Pump**

Size: 9ML (4 stage)  
Type: Vertical  
Synch speed: 1800 rpm  
Curve: 9ML  
Specific Speeds:  
Dimensions:  
Vertical Turbine:  
Speed: 1760 rpm  
Dia: 6.785 in  
Impeller: 9ML SS ENGL.  
Ns: ---  
Nss: 2290  
Suction: 6 in  
Discharge: 8 in  
Bowl size: 9.25 in  
Max lateral: 0.88 in  
Thrust K factor: 4.9 lb/ft

**Search Criteria**

Flow: 400 US gpm  
Head: 175 ft  
Water  
Density: 62.32 lb/ft<sup>3</sup>  
Viscosity: 0.9946 cP  
NPSHr: ---  
Temperature: 68 °F  
Vapor pressure: 0.3391 psi a  
Atm pressure: 14.7 psi a

**Notes**

Standard: NEMA  
Enclosure: WP1  
Sizing criteria: Max Power on Design Curve  
Size: 25 hp  
Speed: 1800 rpm  
Frame: 284T

**Prop Limits**

Temperature: 140 °F  
Pressure: 400 psi g  
Sphere size: 0.56 in  
Power: 250 hp  
Eye area: ---

**Design Point**

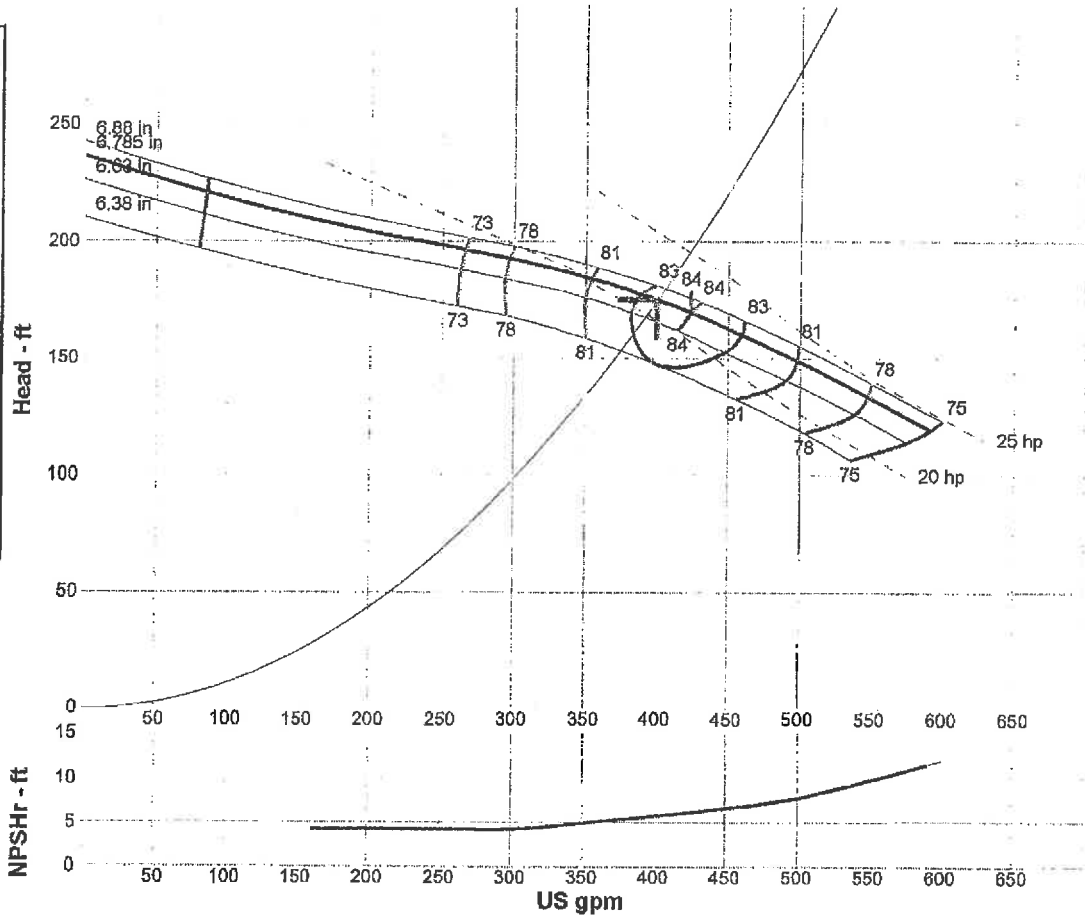
Flow: 400 US gpm  
Head: 175 ft  
Eff: 83.3%  
Power: 21.2 hp  
NPSHr: 5.72 ft

**Design Curve**

Shutoff head: 236 ft  
Shutoff dP: 102 psi  
Min flow: 84.8 US gpm  
BEP: 84% @ 424 US gpm  
NOL power:  
23.8 hp @ 591 US gpm

**Max Curve**

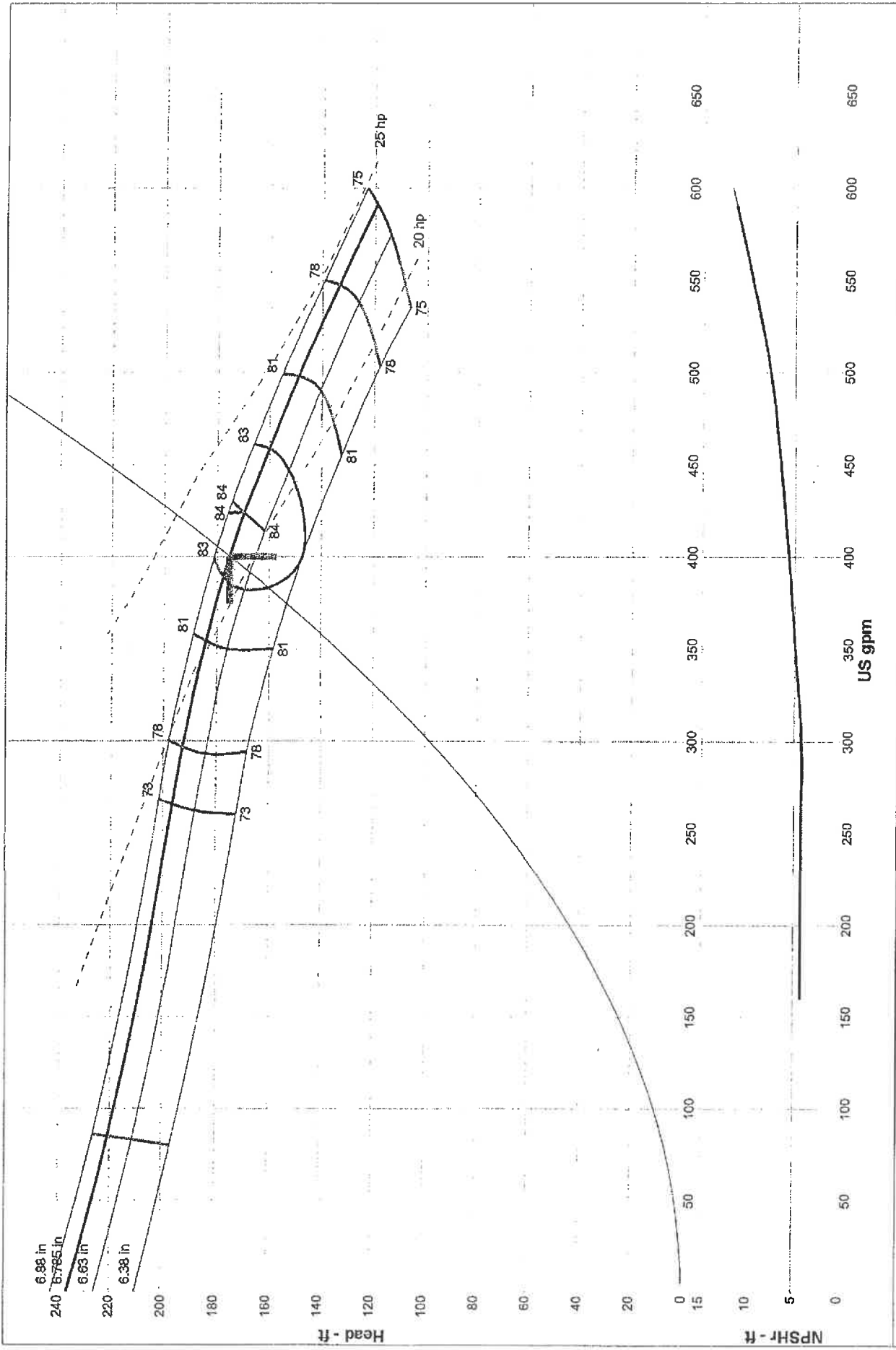
Max power:  
24.8 hp @ 600 US gpm



**Performance Evaluation**

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
480	1760	154	81.9	22.8	7.29
400	1760	175	83.3	21.2	5.72
320	1760	189	79.2	19.2	4.53
240	1760	199	67.1	17.9	4.2
160	1760	209	48.6	17.4	4.2





Company: Hydroflo Pumps USA, Inc.  
 Name: Catalog: Hydroflo VS Pumps 60, Vers 18.3  
 1/4/2016 Vertical - 1800 rpm  
 Design Point: 400 US gpm, 175 ft

Size: 9ML (4 stage)  
 Speed: 1760 rpm  
 Dia: 6.785 in  
 Curve: 9ML  
 Impeller: 9ML SS ENCL.

**Hydroflo Pumps**  
 Fluid Solutions  
 A Bredent Corporation





# Performance Curves

(per stage - standard construction)

Number of Stages Required:

150

Head, ft.

130

110

90

70

Bowl Power Input, hp.<sup>a</sup>

60

40

20

0

March '98

15-M-180

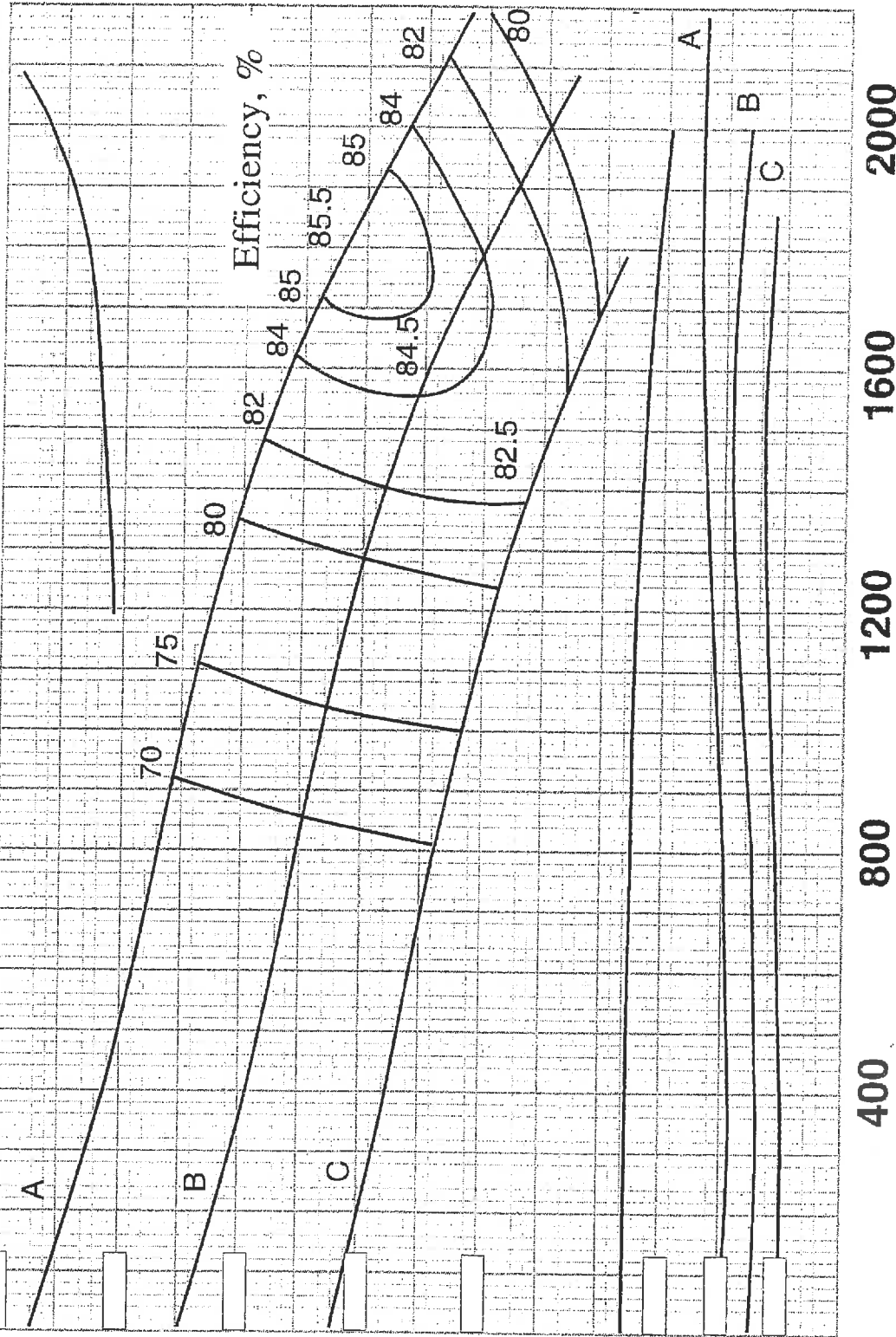
1760 RPM

N.P.S.H. Required, ft.

50  
25  
0

Hydraulic Thrust Factor,<sup>b</sup>  
lbs./ft. of head

15  
10  
5



Capacity, U.S. g.p.m.