

LETTER OF TRANSMITTAL

TO:

JBrennon Construction, Inc.

HL Management Service, LLC

Haren Construction Company, Inc.

Eaton Construction Services

J.S. Haren Company

Allied Solution Enterprise

J. Cumby Construction

The Blue Book

Dodge Data & Analytics

Builders Exchange of Tennessee

Associated General Contractors

ConstructConnect

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FROM: Philip Schofield, P.E.

DATE: September 9, 2025

PROJ. NO.: C24044

SUBJECT: Addendum No. 1

Town of Tellico Plains, Tennessee

Re-Bid WTP Clearwell and Chemical Feed Building Improvements

PAGES: 73 pages to follow

**PLEASE
RESPOND****TO CONFIRM RECEIPT OF THIS ADDENDUM NO. 1****PLEASE SIGN AND EMAIL TO CTI**vvisco@ctiengr.com

Company _____

Signature _____

Title _____

Date _____

ID 860954

ADDENDUM NO. 1

CONTRACT DOCUMENTS, SPECIFICATIONS, DRAWINGS, AND CLARIFICATIONS FOR THE TELLICO PLAINS, TENNESSEE WTP CLEARWELL AND CHEMICAL FEED BUILDING IMPROVEMENTS RE-BID

The following changes shall be made to the Contract Documents, Specifications, and Drawings.

I. CONTRACT DOCUMENTS

- A. **00 01 10 Table of Contents.** DELETE Pages 00 01 10-1 through 00 01 10-4 and REPLACE with the attached Pages 00 01 10-1.1 through 00 01 10-4.1.
- B. **00 01 15 List of Drawings.** DELETE Page 00 01 15-2 and REPLACE with the attached 00 01 15-2.1.
- C. **Section 00 11 00 – Advertisement.** DELETE Pages 00 11 00-1 and -2 in their entirety and REPLACE with the attached Pages 00 11 00-1.1 through 00 11 00-4.1.
- D. **Section 00 51 00 Notice of Award.** DELETE Page 00 51 00-1 and REPLACE with the attached Page 00 51 00-1.1.
- E. **Section 00 55 00 Notice of Proceed.** DELETE Page 00 55 00-1 and REPLACE with the attached Page 00 55 00-1.1.
- F. **Section 00 64 00 Federal Contract Conditions.** ADD the attached Pages 00 64 00-1 through 00 64 00-24.

II. SPECIFICATIONS

- A. **Section 01 22 00 Measurement and Payment.** DELETE Pages 01 22 00-1 through -3 in their entirety and REPLACE with the attached Pages 01 22 00-1.1 through 3.1.
- B. **Section 33 09 30 Pump Controls.** DELETE this section in its entirety.
- C. **Section 40 05 61 – Valves.** Pages 40 05 61-8 and -9 DELETE the last highlighted sentence in paragraph C, referring to the metal-to-metal seal.
- D. **Section 43 41 45 FRP Potable Water Storage Tanks.** ADD Pages currently numbered 33 16 00-1 through 33 16 00-5 to Section 43. The attached pages have Renumber to read 43 41 45-1 through 43 41 45-5.
- E. **Section 46 33 42 Chemical Metering Pumps.** DELETE Pages 46 33 42-1 through 46 33 43-10 and REPLACE with the attached Pages 46 33 42-1.1 through 46 33 42-9.1.
- F. **Section 46 33 43 Residual Chlorine Analyzers.** ADD the attached Pages 46 33 43-1 through 46 33 43-3.

III. DRAWINGS

- A. DELETE Drawing Index G001 and REPLACE G001.1
- B. DELETE Drawing Index G002 and REPLACE G002.1
- C. DELETE Drawing C003 and REPLACE with C003.1
- D. DELETE Drawing C006 and REPLACE with C006.1
- E. DELETE Drawing S102 and REPLACE with S102.1
- F. DELETE Drawing S106 and REPLACE with S106.1
- G. DELETE Drawing S107 and REPLACE with S107.1
- H. DELETE Drawing S108 and REPLACE with S108.1
- I. DELETE Drawing M100 and REPLACE with M100.1
- J. DELETE Drawing M101 and REPLACE with M101.1
- K. DELETE Drawing E04.1 and REPLACE with the attached E04.1
- L. DELETE Drawing E07.1 and REPLACE with the attached E07.1
- M. ADD Drawings H01, H02 and H11
- N. ADD Drawings P01, P02 and P11

Date: September 9, 2025

Town of Tellico Plains, Tennessee
/s/ Marilyn Parker, Mayor,
Troy Taubert, Utility Manager

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TOWN OF TELLICO PLAINS WATER TREATMENT PLANT - PHASE 1 (Continued)

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Bid Number:	TDEC ARPA Project ID - DW-PDC-1
Bid Title:	Town of Tellico Plains - WTP (Water Treatment Plant) Clearwell and Chemical Feed Building Improvements
Category:	Construction Bid Public Works
Status:	

DESCRIPTION

Advertisement for Re-Bid

Tellico Plains WTP (Water Treatment Plant), Clearwell, and Chemical Feed Building Improvements

The Town of Tellico Plains will be soliciting bids for Tellico Plains WTP (Water Treatment Plant) Clearwell and Chemical Feed Building Improvements on the property located next to 140 Bank St, Tellico Plains, Tennessee, 37385. The proposed project includes the furnishing of all labor, materials, tools, equipment, services, supervision, and necessary appurtenances for the installation of the proposed Tellico Plains water Treatment Facility, which will serve the community of Monroe County, Tennessee.

This project involves the construction of a below-grade Clearwell and a new Chemical Feed Building. The scope includes site preparation, grading, and installation of 12-inch ductile iron yard piping. A 30' x 35' masonry building will be constructed to house chemical dosing systems, which include metering and transfer pumps, flow monitoring systems, and SCADA instrumentation for remote monitoring and pump control.

The facility will feature 100 HP vertical turbine high service pumps, each operated via a 100 HP variable frequency drive (VFD), along with an automatic transfer switch and related appurtenances to support continuous operation. Additional components of the project include relocation of an existing natural gas standby generator, installation of grinder pump station and, HVAC, plumbing, and electrical systems designed to support safe and efficient municipal water treatment processes.

All work shall be performed in accordance with applicable local, state, and federal regulations and under the direction of CTI Engineers, Inc.

All bidders must be licensed Contractors in compliance with all requirements of the State of Tennessee Contractor's Licensing Act.

This project is being supported with American Rescue Plan Act, Coronavirus State and Local Recovery Fund grant funding. Therefore, certain restrictions and other federal requirements attach to this opportunity.

Separate sealed bids for Tellico Plains WTP (Water Treatment Plant) Clearwell and Chemical Feed Building Improvements will be received by the Town of Tellico Plains at Town of Tellico Plains at their office located at 405 Veterans Memorial Drive, Tellico Plains, TN 37385 until 2:00 P.M., local time, on September 18, 2025, and then at said office publicly opened and read aloud. Any person with a disability requiring special accommodation must contact the Town of Tellico Plains no later than 7 days prior to the bid opening.

Copies of the Contract Documents and Specifications may be examined at the office of CTI Engineers Inc., located at 1122 Riverfront Parkway, Chattanooga, TN 37402. Copies may be obtained there upon payment of \$150.00 for each set. Payment is ***not refundable***.

All questions shall be directed to Philip R. Schofield, PE, or Carson Willis, EI, at CTI Engineers, Inc., 1122 Riverfront Parkway, Chattanooga, TN 37402, phone: 423-267-7613, email: PSchofield@CTIEngr.com or CWillis@CTIEngr.com.

The Town of Tellico Plains hereby notifies all bidders that it will affirmatively insure that in any contract entered according to this advertisement will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, or national origin in consideration for an award. The Town of Tellico Plains is an Equal Opportunity Employer. Any contract that uses federal funds to pay for construction work is a "federally assisted construction contract" and must include the equal opportunity clause found in 2 C.F.R. Part 200, unless otherwise stated in 41 C.F.R. Part 60. We encourage all small and minority owned firms and women's business enterprises to participate. No bidder may withdraw his bid within (60) days after the actual date of the opening thereof.

PLEASE NOTE: Official plan holders list will only be the list maintained by CTI Engineers, Inc. It is the sole responsibility of all plan holders, whether they have received digital downloads or paper copies of the plans and specifications, to periodically check for Addenda which may have been posted on <https://www.ctiengr.com/bid-info>.

Bidders must agree to comply with the Prevailing Wage Rate provisions.

The Copeland "Anti-Kickback" Act is also applicable, which prohibits workers on construction contracts from giving up wages that they are owed. Contractors must not appear on Sam.gov disbarment list.

A detailed listing of all subcontractors shall be provided by the Bidder. In accordance with the Contract Documents, documentation that the prospective General Contractor and its subcontractors meet minimum qualifications shall be provided and submitted. Subcontractors must also not appear on Sam.gov disbarment list. Mark-ups on subcontractor work or Cost Plus Overhead will be disallowed for reimbursement.

A bid bond or certified check for five percent (5%) of the total bid amount must accompany each bid. The successful bidder will be required to furnish a performance bond in the amount of his bid and shall, before entering on the work of said contract, be licensed as a contractor in the state of Tennessee.

The owner reserves the right to waive any informalities or to reject any or all bids.

Publication Date/Time

August 29, 2025, 2:00 P.M., local time

Closing Date/Time

September 18, 2025, 2:00 P.M., local time

Bid Opening Information

September 18, 2025, 2:00 P.M., local time at 405 Veterans Memorial Drive, Tellico Plains, TN 37385

Contact Person

Philip R. Schofield, PE, 423-267-7613, PSchofield@CTIEngr.com

Carson Willis, EI, 423-267-7613, CWillis@CTIEngr.com

Download Available

Builders Exchange of Tennessee

300 Clarke Street, Knoxville, TN 37921

The Blue Book

800 East Main Street, Jefferson Valley, NV 10535

Dodge Data & Analytics
3315 Central Ave., Hot Springs, AR 71913

Associated General Contractors
101 West 21st Street, Chattanooga, TN 37408

ConstructConnect
30 Technology Parkway S, Ste. 100 Norcross, GA 30092

Plans and Specifications Available

To obtain DIGITAL Plans and Specifications, please email Valerie Visco at VVisco@CTIEngr.com.

Digital copy Plans and Specifications may be secured for no fee, all printing, shipping and other required costs are at the contractor's expense.

Plan Holders List

To obtain DIGITAL Plan Holders List, please email Valerie Visco at VVisco@CTIEngr.com.

Digital copy Plans and Specifications may be secured for no fee, all printing, shipping and other required costs are at the contractor's expense.

NOTICE OF AWARD

To: _____

Project Description: This project involves the construction of a below grade clearwell and associated chemical feed building along with all associated appurtenances.

The Owner has considered the Bid submitted by you for the above described work in response to its Advertisement for Bids dated _____, 20____, and Information for Bidders.

You are hereby notified that your bid has been accepted for items in the amount of \$_____.

You are required by the Information for Bidders to execute the Contract and furnish the required Contractor's Performance Bond, Payment Bond and certificates of insurance within ten calendar days from the date of this notice to you.

If you fail to execute said Contract and to furnish said bonds within ten days from the date of this notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your bid as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this _____ day of _____, 20____.

TOWN OF TELLICO PLAINS

By _____
Name _____
Title _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by _____
_____, this the _____ day of _____, 20____.

By _____
Name _____
Title _____

NOTICE TO PROCEED

To: _____

Project Name: This project involves the construction of a below grade clearwell and associated chemical feed building along with all associated appurtenances.

You are hereby notified to commence work in accordance with the Contract dated____, 20____, on or before _____, 20____, and you are to complete the work within 270-day contract time. The date of completion of all work is therefore _____, 20____.

TOWN OF TELLICO PLAINS

By _____

Name _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by _____, this the _____ day of _____, 20____.

By _____

Name _____

Title _____

Federal Contract Conditions

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"Provision for Remedies" Clause

1.) **Termination:** Unearned payments under this contract may be suspended or terminated upon refusal to accept any additional conditions that may be imposed by City/County; or if the grant to the City/County under the Community Development Block Grant Program is suspended or terminated. Moreover, if through any cause, the contractor shall fail to fulfill its obligations under this contract in a timely and proper manner or if the contractor shall violate any of the covenants, agreements, conditions or obligations of the contract documents; the City/County may terminate this contract by giving written notice to the contractor and surety of such termination and specifying the effective date of such termination. In such event, the City/County may take over the work and prosecute the same to completion, by contract or otherwise, and the contractor and his sureties shall be liable to the City/County for any additional cost incurred by the Owner in its completion of the work and they shall also be liable to the Owner for liquidated damages for any delay in the completion of the work as provided below. Furthermore, the Contractor will be paid an amount which bears the same ratio to the total compensation as the work and services actually performed bear to the total work and services required. Provided, however, that if less than sixty percent of the services required by this Contract have been performed upon the effective date of such termination, the Contractor shall be reimbursed (in addition to the above payment) for that portion of the actual out-of-pocket expenses (not otherwise reimbursed under this Contract) incurred by the Contractor during the Contract period which are directly attributable to the uncompleted portion of the services required by this Contract.

2.) **Liquidated Damages for Delays.** If the work is not completed within the time stipulated, therefore, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Owner as fixed and agreed liquidated damages (it being impossible to determine the damages occasioned by the delay) for each working day of delay, until the work is completed, the amount as set forth in **Section 00 52 00** and the Contractor and his sureties shall be liable to the Owner for the amount thereof.

3.) **Excusable Delays.** The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

(a) To any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;

(b) To any acts of the Owner;

(c) To causes not reasonable foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other contract with the Owner, fires, floods, epidemics, quarantine, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, and cyclones; and

(d) To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs (a) (b) and (c) or this subparagraph "d".

Provided, however, that the Contractor promptly notified the Owner within ten (10) days of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If upon the basis of the terms of this contract the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

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"Termination for Convenience Clause"

1.) Termination for Convenience of the Owner:

The Owner may terminate this contract at any time for any reason by giving at least thirty (30) days notice in writing to the contractor. If the contract is terminated by the Owner as provided herein, the contractor will be paid a fair payment as negotiated with the Owner for the work completed as of the date of termination.

Equal Employment Opportunity (EEO) Clause

During the performance of this contract, the Contractor agrees as follows:

- 1.) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and the employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- 2.) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- 3.) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- 4.) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.
- 5.) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
- 6.) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by the rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- 7.) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

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**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION
CONTRACT SPECIFICATIONS
(EXECUTIVE ORDER 11246)**

1.) As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority;

c.. "Employer identification number" means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Return, US. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2.) Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3.) If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the US. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trade which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in

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an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4.) The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5.) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications. Executive Order 11246, or the regulations promulgated pursuant thereto.

6.) In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

7.) The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and

was not referred back to the Contractor by the union, or if referred, not employed by the Contractor, this shall be documented in the file with the reasons therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, lay-off, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Directs its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source. The Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

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j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment of minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8.) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7a through p of those Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9.) A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female,

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and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10.) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race color, religion, sex or national origin.

11.) The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12.) The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13.) The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.S.

14.) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15.) Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO EQUAL
EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

1.) The Offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2.) The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

<u>Timetable:</u>	<u>Goals for minority participation</u>	<u>Goals for female participation</u>
Until Further Notice	19.5%	6.9%

These goals are applicable to each non-exempt contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, Federally assisted or non-Federally related project, contract or sub-contract.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3.) The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4.) As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is *(insert description of the economic area in which the contract will be performed, giving the city, SMSA or non SMSA designation, and a list of the counties included in the economic area).*

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Certification of Nonsegregated Facilities

By the submission of this bid, the bidder, offerer, applicant or subcontractor certifies that s/he does not maintain or provide for his/her employees any segregated facility at any of his/her establishments, and that s/he does not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained. S/He certifies further that s/he will not maintain or provide for employees any segregated facilities at any of his/her establishments, and s/he will not permit employees to perform their services at any location under his/her control where segregated facilities are maintained. The bidder, offerer, applicant or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause of this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. S/He further agrees that (except where s/he has obtained identical certifications from proposed subcontractors for specific time periods) s/he will obtain identical certification from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause; that s/he will retain such certifications in his/her files; and that s/he will forward the following notice to such proposed subcontractors (except where proposed subcontractors have submitted identical certifications for specific time periods).

FEDERAL LABOR STANDARDS PROVISION
Georgia Community Development Block Grant

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A.1.(i) **Minimum Wages.** All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii)) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(a) The contracting officer shall require that any class of laborers or mechanics, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

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(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, US. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure

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to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 for under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) **Payrolls and basic records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project.) Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable program (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii)(a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), US. Government Printing Office, Washington, DC, 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

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(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3(i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4.(i) **Apprentices and Trainees.** Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the US. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as

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stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ration permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeymen's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification.

If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the US. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journey hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performs. In addition, any trainee performing work on the job site in excess of the ration permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) **Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. **Subcontracts.** The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may be appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. **Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounded for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. **Compliance with Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. **Disputes concerning labor standards.** Disputes arising out of a labor standards provision of this contract shall to be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the US. Department of Labor, or the employees or their representatives.

10. (i) **Certification of Eligibility.** By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the US. Criminal Code, 18 U.S.C. 1001. Additionally, US. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of ...influencing in any way the action of such Administration...makes, utters or publishes

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any statement, knowing the same to be false...shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) **Overtime requirements:** No contractor or subcontractor contracting for any part of the contract work may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) **Violation:** liability for unpaid wages, liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) **Withholding for unpaid wages and liquidated damages:** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any money payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) **Subcontracts:** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier

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subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

**ACCEPTABLE ALTERNATE WORK SHEET FOR CONTRACTOR CERTIFICATION
REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY
EXCLUSION (LOWER-TIER PARTICIPANT) FOR HUD PROGRAMS**

Certification regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower-Tier Covered Transactions pursuant to 24 Code of Federal Regulations, Part 24.510(b).

By signing and submitting this proposal, the prospective lower-tier participant certifies that neither it, its principals nor affiliates, is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. Further, the Participant provides the certification set out below.

The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that an erroneous certification was rendered, in addition to other remedies available to the Federal Government, the Department or agency with which this transaction originated may pursue available remedies.

Further, the Participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the Participant learns that this certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

By submitting this proposal, it is agreed that should the proposed covered transaction be entered into, the Participant will not knowingly enter into any lower-tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the agency with which this transaction originated.

It is further agreed that by submitting this proposal, the Participant will include this Certification, without modification, in all lower-tier covered transactions and in all solicitations for lower-tier covered transactions.

Contractor
Name _____ Date _____
Title _____ Address _____
City _____ State _____ Zip _____

NON-CERTIFICATION:

As the perspective lower-tier participant, I am unable to certify to statements in this Certification as explained in the attachment to this proposal.

Contractor
Name _____ Date _____
Title _____ Address _____
City _____ State _____ Zip _____

The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

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COMPLIANCE WITH CLEAN AIR AND WATER ACTS

The contract is subject to the requirements of the Clean Air Act, as amended, 42 USC 1857 et. seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended from time to time.

In compliance with said regulations:

- 1.) The Contractor shall require of subcontractors that any facility to be utilized in the performance of any nonexempt contract or subcontract is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 4C CFR 15.20.
- 2.) The Contractor will comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 USC 1857c-8) and section 308 of the Federal Water Pollution Control Act as amended, (330 USC 1318) relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in said section 114 and section 308, and all regulations and guidelines issued thereunder.
- 3.) The Contractor will provide prompt notice of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized or to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
- 4.) The Contract will include or cause to be included the criteria and requirements to paragraph (1) through (4) of this section in every nonexempt subcontract and take such action as the Government will direct as a means of enforcing such provisions.

PERFORMANCE, PAYMENT and BID BONDS

Contract Performance and Payment Bonds issued in the full amount of the contract are required by federal procurement rules if the contract is for \$100,000 or more.

A Bid Bond or other security is required by federal rules whenever the contract is for \$100,000 or more.

Generally these bonds must be issued by a surety company satisfactory to the local government, qualified to do business in Georgia, and in a format meeting the federal and state legal requirements. The bonding company must also appear on the "List of Acceptable Sureties" published annually by the US Department of the Treasury.

DCA recommends that CDBG Recipients be sure to assign responsibility for reviewing construction bonds. This job may be given to the local attorney, the grant administrator, or the project architect/engineer. Specific duties include verification that the agent is licensed by the state and authorized by the bonding company and verification through the Insurance Commissioner that the company is financially sound and licensed in Georgia. The actual bond should also be reviewed and verified as being valid.

CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm or corporation which is contracting with Ringgold, Georgia has registered with, is authorized to use and is participating in a federal work authorization program* [any of the electronic verification work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91. The user identification number and the date of authorization for the affiant are set forth below. The undersigned contractor is using and will continue to use the federal work authorization program throughout the contract period.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to this contract with Ringgold, Georgia, that undersigned shall require as a condition of such employment or contract that contractor or subcontractor registers and participates in a federal work authorization program to verify information of all newly hired employees. In addition, contractor will secure from such contractor(s) or subcontractor(s) similar verification of compliance with O.C.G.A. 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a notice of identity of such contractor or subcontractor together with a copy of each such verification to Ringgold, Georgia within five (5) business days after the time the contractor(s) or subcontractor(s) is retained to perform such service.

E-Verify* User identification Number

Date of Authorization for Contractor

Company Name

By: Authorized Officer or Agent

Date

Title of Authorized Officer or Agent of Contractor

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME THIS
____ DAY OF _____, 20____.

Notary Public: _____

My Commission expires: _____

(SEAL)

*As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is "E-Verify" operated by the U.S. Citizenship and Information Services Bureau of the U.S. department of Homeland Security, in conjunction with the Social Security Administration (SSA).

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SUBCONTRACTOR AFFIDAVIT

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services as a subcontractor for _____, the contractor which has a contract with Ringgold, Georgia, has registered with, is authorized to use and is participating in a federal work authorization program* [any of the electronic verification work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91. The user identification number and the date of authorization for this subcontractor to use the federal work authorization program are set forth below. The undersigned subcontractor is using and will continue to use the federal work authorization program throughout the contract period.

E-Verify* User identification Number

Date of Authorization for Subcontractor

Company Name

By: _____
Authorized Officer or Agent of
Subcontractor

Date of signing this Affidavit

Title of Authorized Officer or Agent of Subcontractor

Printed Name of Authorized Officer or Agent of Subcontractor

SUBSCRIBED AND SWORN BEFORE ME THIS
_____ DAY OF _____, _____. 20____.

Notary Public: _____
My Commission expires: _____

(NOTARY SEAL)

**As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is "E-Verify" operated by the U.S. Citizenship and Information Services Bureau of the U.S. department of Homeland Security, in conjunction with the Social Security Administration (SSA).*

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SECTION 01 22 00

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplemental Conditions or General Provisions and other Division 1 specification sections, apply to this section.

1.2 LUMP SUM PRICES

- A. Lump sum prices shall include all items of work shown on the Drawings, specified, or otherwise required or necessary for complete, working systems including work, services, fees, equipment or material not specifically listed, overhead, profit, and applicable taxes.

1.3 SCHEDULE OF VALUES

- A. A "Schedule of Values" is required to facilitate payment for partial completion of lump sum items as the project progresses.

PART 2 - PARTIAL PAYMENT

- A. Partial payment may be made for stored material on site, providing:
 - 1. The material meets the specifications outlined elsewhere in these documents.
 - 2. The material is stored according to the recommendations of the Engineer and/or manufacturer.
 - 3. The Contractor submits copies of all shipping invoices for the stored materials delivered to the site.

PART 3 - MEASUREMENT AND PAYMENT

3.1 MEASUREMENT AND PAYMENT

- A. Measurement and payment for all items of work shown on the Drawings, specified, or otherwise required or necessary for complete, working systems shall be made at the lump sum prices listed in the Bid Schedule. No separate payment shall be made for items of work, services, fees, or equipment not specifically listed, but payment for those items shall be included in the payment for items listed.

END OF SECTION

SECTION 43 41 45

FRP POTABLE WATER STORAGE TANKS

PART 1 - GENERAL

1.1 SCOPE

- A. The work under this section includes furnishing fiberglass reinforced polyester (FRP) underground tanks for the Potable Water Storage.

1.2 REFERENCES

- A. Underground Water & Wastewater Tanks:
 - 1. American Concrete Institute (ACI) standard ACI 318, Building Code Requirements for Structural Concrete.
 - 2. ANSI/AWWA D120 - Thermosetting Fiberglass-Reinforced Plastic Tanks.
 - 3. NSF/ANSI Standard 61: Drinking Water System Components - Health Effects.
 - 4. Tank manufacturer shall be recognized by Underwriters Laboratories as a manufacturer of tanks listed to the UL-1316 standard.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's data sheets on each product to be used, including, but not limited to, the following:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation manual and operating guidelines.
- B. Shop Drawings: Tank manufacturer shall submit the following for review and approval prior to fabrication of the tanks:
 - 1. Detailed shop drawings of each tank complete with all accessories supplied by the manufacturer.
 - 2. Detailed shipping, handling and installation instructions.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with tank manufacturer's Installation and Operating Guidelines recommendations for delivery, storage, and tank handling.

1.6 WARRANTY

- A. Warranty: Provide manufacturer's standard limited warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. Fiberglass Tanks:
- B. Acceptable Manufacturer: Xerxes Corporation, which is located at: 7901 Xerxes Avenue S, Suite 201, Minneapolis, MN 55431. Telephone: 952-887-1890. Email: watersales@mattr.com. Website: www.xerxes.com.
- C. Substitutions: With Engineer's prior approval.

2.2 UNDERGROUND FRP WATER TANKS

- A. Tank Design - Fiberglass reinforced plastic (FRP) tanks:
 - 1. The tank size, fittings and accessories shall be as shown on the drawings.
 - 2. Tank shall be manufactured with structural ribs which are fabricated as in integral part of the tank wall.
 - 3. Tank shall be manufactured with a laminate consisting of resin and glass fiber reinforcement only. No sand/silica fillers or resin extenders shall be used.
 - 4. Tank shall be vented to atmospheric pressure.
 - 5. Tank shall be capable of handling liquids with specific gravity up to 1.1
 - 6. Tank shall be compatible with liquids identified in the manufacturer's standard limited warranty.
- B. Loading Conditions - Tank shall meet the following design criteria:
 - 1. Internal Load Tank shall be designed to withstand a 5-psig (35 kPa) air-pressure test with a 5:1 safety factor.
 - 2. Surface Loads Tank shall be designed to withstand surface H-20 and HS-20 axle loads when properly installed according to manufacturer's current Installation Manual and Operating Guidelines.
 - 3. External Hydrostatic Pressure for Underground Water Tank shall be designed for 7 feet (2.1 m) of overburden over the top of the tank, the hole fully flooded, and a safety factor of 5:1 against general buckling.
- C. Potable Water Storage Applications:
 - 1. Governing Standards, as applicable:
 - a. ANSI/AWWA D120 - Thermosetting Fiberglass-Reinforced Plastic Tanks.
 - b. American Concrete Institute (ACI) standard ACI 318, Building Code Requirements for Structural Concrete.

- c. NSF/ANSI Standard 61: Drinking Water System Components - Health Effects. Tank shall be NSF/ANSI Standard 61 listed and labeled.
 - d. Tank manufacturer shall be recognized as a manufacturer of tanks listed to the ANSI/CAN/UL/ULC 1316:2018 Underwriters Laboratories (UL) Standard for Fiber Reinforced Underground Tanks for Flammable and Combustible Liquids.
- 2. Tank Design: Single-Wall or Double-Wall vessel as specified and shown on the Drawings.
 - a. Interstitial Space (Double-Wall Tanks only):
 - 1) The interstitial space between the primary and secondary walls shall be constructed with a glass reinforcement material such as Parabeam®, which provides a structural bond between the two tank walls while creating a defined interstice that allows for free flow of liquid.
 - 2) A tank top fitting shall be provided to allow for a monitoring sensor to be installed at the bottom of the interstice.
 - 3) The interstice of the tank shall be designed to withstand 20-psig (138 kPa) pressure.
- 3. Tank Accessories - Potable Water Storage Applications:
 - a. Tank Anchoring:
 - 1) Anchor straps shall be as supplied by tank manufacturer and designed for a maximum load of 25,000 lbs (11340 kg).
 - 2) Galvanized turnbuckles shall be supplied by the tank manufacturer.
 - 3) Prefabricated concrete anchors shall be supplied by the tank manufacturer, designed to the ACI 318 standard, manufactured with 4,000 psi concrete and shall have adjustable anchor points.
 - b. Manways:
 - 1) Potable water tank shall have at least one manway opening.
 - 2) The standard manway shall be flanged, 22 inches (559 mm) I.D. and complete with gaskets, bolts and cover.
 - 3) Manway openings shall be designed to withstand 5-psig (35 kPa) test pressure with a 5:1 safety factor.
 - 4) Manway extensions shall be FRP and shall be supplied by tank manufacturer.
 - 5) Manways, manway covers, and manway extensions shall be in accordance with NSF/ANSI Standard 61.
 - c. Piping and Fittings:

- 1) Tank shall be equipped with internal factory-installed piping that meets NSF/ANSI Standard 61.
 - 2) All flanged nozzles shall be flanged and flat-faced and conform to Class 150 bolting patterns as specified in ANSI/ASME/ B16.5.
 - 3) Stainless steel NPT fittings shall withstand a minimum of 150 foot-pounds (203 NM) of torque and 1,000 foot-pounds (1356 NM) of bending, both with a 2:1 safety factor.
 - 4) Fittings and pipe exposed to the contained fluid shall be in accordance with NSF/ANSI Standard 61.
- d. Suction/Fill Tubes:
- 1) Suction/fill tubes shall be manufactured with materials listed under NSF/ANSI Standard 61 and factory installed.
 - 2) Suction/fill tubes shall terminate 4 inches (102 mm) above the bottom of the tank.
- e. Ladders:
- 1) Ladders shall be the standard FRP ladder listed under NSF/ANSI Standard 61 as supplied by tank manufacturer.
- f. Pump Platforms:
- 1) Pump platforms shall be the pump platform listed under NSF/ANSI Standard 61 as supplied by tank manufacturer.

PART 3 - EXECUTION

3.1 SERVICES TO BE PROVIDED

- A. A qualified representative of the manufacturer shall provide the following services for the project. The general contractor shall install the fiberglass tanks and all related components that are not able to be factory installed.
- B. Provide onsite technical assistance for the handling and positioning of the fiberglass tank(s) the day of installation.
- C. Return to the site for testing and/or commissioning of the fiberglass tank(s) upon substantial completion of site work by the general contractor (backfill, piping, electrical, grading, etc.). Train the operator(s) and instruct the owner on treatment process operation the day of testing/commissioning.
- D. Remain accessible to the owner and/or operator for phone consultation.
- E. Be available on a contract basis for additional site visits or consultation.

3.2 INSTALLATION

- A. Tank(s) shall be installed according to the tank manufacturer's Installation Manual and Operating Guidelines in effect at time of installation.

- B. All materials and equipment shall be installed in a neat, workmanlike manner by the general contractor.
- C. The FRP tanks and all applicable treatment units shall be installed with sufficient ballast to offset buoyant forces due to induced or high groundwater conditions.

3.3 TESTING

- A. Tank(s) shall be tested according to the tank manufacturer's Installation Manual and Operating Guidelines in effect at time of installation.
- B. Underground potable water tanks outfitted with access openings and field attached PVC or FRP access risers may not be pressure tested.
- C. After installation, water and wastewater tanks shall undergo a 24 hour hydrostatic test with sealed access risers and covers installed to confirm they are watertight.

END OF SECTION

SECTION 46 33 42

CHEMICAL METERING PUMPS

PART 1 - GENERAL

1.1 SCOPE

- A. The work under this section includes the furnishing of all labor, materials, equipment, documentation, training and startup services for the manufacture and installation of a duplex chemical metering system suitable for the application.

1.2 WORK SPECIFIED HEREIN

A. Equipment

- 1. Chemical Metering Pumps and Pump Controls
- 2. Chemical Metering Pumps and Accessories
- 3. Spare Parts

B. Execution

- 1. Testing
- 2. Installation
- 3. Documentation
- 4. Services

1.3 QUALITY ASSURANCE

A. Acceptable Manufacturers

- 1. A single manufacturer, who shall demonstrate previous experience in the design and fabrication of chemical metering systems, shall provide the products of this section.
- 2. Pumps to be manufacturer's standard product. Manufacturer of tubing pumps must have at least 200 operating installations in domestic water or wastewater treatment plants located in the United States over a period of at least seven years pumping the same fluid as specified.
- 3. The metering system shall be a regularly marketed product of the manufacturer who must have a physical plant, technical and design staff, and production personnel located in the USA within 125 miles from the water plant to complete the work as specified. Systems assembled by second party fabricators, integrators, contractors or manufacturers not normally engaged in chemical metering system design and manufacturing shall not be acceptable.
- 4. The manufacturer shall supply a minimum of five separate references with contact names and phone numbers, where substantially similar installations for

the equipment as specified has been in satisfactory operation for a minimum of two years.

5. The manufacturer shall have a minimum of 5 years' experience with a successful record of manufacturing and servicing of systems as specified herein.
6. The manufacturer shall have a proven track record of after-market sales and service support on its equipment.
7. The products of this section shall be manufactured by Stenner Pumps or engineer approved equal.

B. Warranties

1. The system manufacturer shall provide a five (5) year warranty for the metering pumps (1-year for liquid end), material/construction, piping and valves. This warranty shall be in addition to and not in lieu of any warranties provided by the manufacturer of the equipment itself.

1.4 SUBMITTALS

- A. Submit under the provisions of Section 01 33 00 – Submittal Procedures.
- B. Submit shop drawing and product data for the equipment provided. Include detailed schematic of equipment, piping, controls, etc.
- C. Submit a list of the manufacturer's recommended spare parts, special tools and lubricants. List shall include local source for supply of all parts and professional service.
- D. Submit five (5) separate references where similar chemical metering systems have been in successful operation for a minimum of 2 years.

1.5 SECTION SPECIFIC SUBMITTALS

- A. The information requested in this section is required in order to determine that the manufacturer has the ability and resources to provide equipment that meets the design, fabrication and quality standards as set forth herein. Any submittals that do not include this information shall be returned as "Rejected".
- B. In addition to the general submittals as specified herein and elsewhere, the following CAD drawings shall be provided as a part of the submittal package in a section labeled SHOP DRAWINGS for each chemical metering system included in this section. The drawings shall be produced for the specific equipment to be provided for this project. Marked up copies of general product information is not acceptable.
 1. Detail Layout Drawing – The detail drawings shall include the following:
 - a. Top, front, side and isometric views for the proposed metering systems.
 - b. Top, front and side views shall include accurate overall dimensions and location and dimensions for all piping connections.
 - c. Isometric view shall include callouts indicating all skid mounted components and piping connections.

- d. A table shall be provided with the quantity, part number, description, P/M kit and recommended maintenance interval for all major equipment items and metering accessories.

1.6 SERVICE CONDITIONS

- A. This project includes chemical metering systems designed for pumping as listed in the chemical schedule. All components shall be resistant to corrosion from contact with this chemical.

PART 2 - EQUIPMENT

2.1 GENERAL

- A. The chemical metering systems shall be completely self-contained and designed to safely feed metered amounts of all chemicals as listed under Service Conditions. Each chemical metering system shall include chemical metering pumps, accessories, controls and options as indicated in this specification and the contract drawings.
- B. The Manufacturer shall be a company specializing in manufacture, assembly, and field performance of peristaltic metering pumps with a minimum of five years of experience.
- C. Acceptable manufacturers of the metering pumps shall be manufactured by Stenner Pumps.

2.2 CHEMICAL METERING PUMPS

- A. Pump Process Schedule

Quantity:	Three (3)
Fluid:	Sodium Hypochlorite, 12.5%
Min– Max Capacity (GPH)	0.25-1.5 GPH
Typical operating condition (GPH)	0.375 GPH
Operating discharge pressure (PSI)	100 (PSI)
Suction Head	25 FT
Quantity:	Two (2)

- B. Pump Construction

1. Pumphead

- a. Provide peristaltic, positive-displacement, rotary-roller chemical metering pumps with a replaceable Santoprene® tube cartridge. No diaphragm and no wetted check valves in the pump head (check valve only at the discharge injection fitting).
- b. Materials/Enclosure: Non-metallic, high-impact thermoplastic pumphead with clear cover; wall-mount NEMA 4X/IP65 enclosure; UV/chemical resistant, splash- and dust-tight.

- c. Discharge Rating: Up to 100 psi (select tube/model to meet scheduled pressure).
- d. Suction: Self-priming to 25 ft vertical water column; run-dry capable.
- e. Geometry: Roller path compresses tube (~270–300° wrap); full occlusion maintained; flow determined by tube ID, speed, and roller count.
- f. Rotor: Permanent, sealed rotor/roller assembly; tool-less tube replacement is routine maintenance.
- g. Wetted Compliance: All wetted parts NSF/ANSI/CAN 61 & 372 and chemically compatible with process fluid.
- h. Leak Containment/Detection: Integral leak sensor in pumphead to auto-stop the pump, annunciate local alarm, and provide remote alarm contact; active whenever pump is energized. Include programmable tube-life timer.
- i. Connections: Compression-style fittings with ferrules for suction/discharge tubing.

2. Drive

- a. Duty: Continuous 24/7 operation to 45 °C ambient with temperature/load protection.
- b. Power: 100–240 VAC, 50/60 Hz, single-phase, internal switch-mode supply; input ≤200 VA at full load. Provide ~9-ft cord with NEMA 5-15P for North America (or hardwire if shown).
- c. Enclosure: Integrated NEMA 4X non-metallic housing containing motor and controls; no separate VFD/motor assemblies.
- d. Direct Drive: Pumphead factory-mounted inside enclosure; transparent gasketed cover; no overhung load; drive stops on leak alarm with visual/remote alarm.
- e. Motor & Control: Variable-speed PMDC/BLDC with integral gearbox, microprocessor-controlled.
- f. Inputs: Local keypad/display; external 4–20 mA (or 0–10 VDC) analog input and pulse pacing input for proportional feed.

3. Controls & Interfaces — Required Point List

- a. General
 - (i) Provide open, published interfaces.
 - (ii) Hardwired discrete I/O: 24 VDC, isolated.
 - (iii) Analog I/O: isolated 4–20 mA (active or passive selectable).
 - (iv) If Modbus RTU/TCP is furnished, provide a complete register/coil map (names, addresses, data types, scaling, units, R/W, bit meanings).

- b. Hardwired I/O (minimum required)
- (i) RUN/STOP COMMAND — Discrete Input (dry contact, Form A), 24 VDC logic; fail-safe de-energize = STOP.
 - (ii) SPEED SETPOINT — Analog Input 4–20 mA (0–100 %), isolated; 0–10 VDC acceptable in lieu; scaling configurable.
 - (iii) PULSE PACING INPUT — Pulse Input (dry contact or open-collector), 0–100 Hz; K-factor configurable.
 - (iv) RUN STATUS — Discrete Output (dry contact, Form A), ≥ 0.5 A @ 24 VDC.
 - (v) GENERAL FAULT — Discrete Output (dry contact) — any latched fault.
 - (vi) TUBE LEAK ALARM — Discrete Output (dry contact) — leak sensor trip; pump auto-stops on leak.
 - (vii)(Optional) FLOW RATE FEEDBACK — Analog Output 4–20 mA proportional to mL/min or gph; scaling configurable.
 - (viii) (Optional) TOTALIZER PULSE OUTPUT — Pulse Output; K-factor configurable (e.g., 1 pulse = 1 mL).
- c. Modbus map (if furnished) — minimum data set

Vendor shall provide, at minimum, the following points with full details (address, data type, scaling, units, R/W):

Tag / Function	Object	Minimum Details
RUN_CMD	Coil	Start/stop command; default false on power-up
RESET_FAULT	Coil	Resets latched fault/leak (interlocked)
SPEED_SETPOINT	Holding Reg	0–10000 = 0–100 % (or eng. units)
SPEED_FEEDBACK	Input Reg	0–10000 = 0–100 %
FLOW_RATE	Input Reg	Instantaneous rate (mL/min or gph)
TOTALIZED_VOLUME	Input Reg (32-bit)	Non-volatile total; reset method provided
RUN_STATUS	Discrete Input	1 = motor turning
ALARM_STATUS	Input Reg (bit-field)	Bits for leak, fault, overtemp, comms loss, etc.
FAULT_CODE	Input Reg	Numeric code with legend
TUBE_LIFE_REMAINING	Input Reg	0–100 %
RUNTIME_TOTAL	Input Reg (32-bit)	Hours
DEVICE_INFO	Input Reg(s)	Model, firmware, serial, last leak timestamp

- d. Electrical & Comms Requirements
- (i) Discrete I/O: Dry contact or opto; outputs rated ≥ 0.5 A @ 24 VDC; NO/NC state and fail-safe behavior documented.
 - (ii) Analog I/O: 4–20 mA accuracy $\leq \pm 0.1$ mA; input burden ≤ 600 Ω ; output drive ≥ 600 Ω ; isolation ≥ 500 V.

- (iii) Pulse I/O: Specify electrical type (dry contact/open-collector), polarity, max frequency, debounce.
 - (iv) Modbus RTU: RS-485, isolated; 9.6–115.2 kbps; parity selectable; slave ID documented.
 - (v) Modbus TCP: 10/100Base-T; Port 502; static IP/DHCP; open register map (no licensing).
- e. Fail-Safe Behavior
 - (i) Loss of analog or pulse command: Pump stops (timeout adjustable; default 5 s).
 - (ii) Loss of Modbus comms: Pump stops or reverts to local per configurable setting; default STOP.
 - (iii) Power-up: Default STOP until valid command is issued.
 - (iv) Leak detect: Immediate STOP, local alarm, and remote alarm; manual reset required.
- f. Submittals (I/O)

Provide a point list for every external signal: tag/name, description, terminal or Modbus address, signal type, electrical details (sourcing/sinking, active/passive), scaling & units, R/W, default state, fail-safe state, and alarm bit definitions.

2.3 CHEMICAL METERING ACCESSORIES

1. Calibration Columns

- a. A clear calibration column made of materials compatible with pumped fluid shall be provided in the chemical supply piping. Calibration column shall be direct reading in both ml/minute and Gallons/Hour and sized to allow at least a 30-second drawdown.

2. Pressure Relief Valves

- a. Pressure relief valves shall be provided in the discharge piping of each metering pump, prior to any valves, to eliminate the buildup of excess pressure in the system. The pressure relief valves shall be fully adjustable from 10 – 150 psi with bodies compatible with the pumped fluid. Spring loaded valve shall have a Teflon diaphragm and no metal parts in contact with the chemical. Output of the pressure relief valves shall be field piped to return to the day tanks.

3. Diaphragm Protected Pressure Gauges

- a. Liquid filled pressure gauges with isolators shall be provided for indication of system pressure in the suction piping and the discharge piping of each metering pump. Industrial quality all 316 Stainless Steel gauges shall be utilized. The isolators shall have housings compatible with the pumped fluid. Isolation diaphragm shall be Teflon. The process connection shall feature a SS reinforcement ring not in contact with the chemical. A

fabricated PVC bracket shall be provided for each pressure gauge to secure the isolator and prevent lateral movement of the pressure gauge. Gauge face shall be 2-1/2" inches diameter.

2.4 PIPING

A. Polyvinylchloride (PVC)

1. Pipe and fittings shall be manufactured of Rigid Poly Vinyl Chloride (PVC) schedule 80. Fittings shall be heavy-duty Schedule 80 molded fittings.
2. All pipe and fittings shall bear the company's name or trademark, material designation, size, applicable IPS schedule, and the NSF mark as indicative of compliance with this specification.
3. All fittings shall be injection molded of PVC fitting compound of cell classification 12454-B and of CPVC fitting compound of cell classification 23447-B as described in ASTM D- 1784 Standard Specification for Rigid Poly Vinyl chloride Compounds.
4. Workmanship shall be in accordance with good commercial practice. Fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. The fittings shall be commercially uniform in color, opacity, density and other physical properties.
5. All molded threads, internal or external, shall be "blunt start" threads. All threads shall conform to thread standard ANSI/ASME B1 .20.1 for tapered pipe threads. Threads shall measure not more than 1 1/2 threads large or small when checked with a plug gauge or ring gauge.
6. Dimensions and tolerances of sockets shall conform to PVC IPS Schedule 80 Socket Dimensions. All reducer bushings shall be designed so as to provide for a positive and sufficient grip for cementing bushings in place.
7. Waterways shall be smooth and commercially free of flash and irregularities. On tees and 90° elbows, bond lines shall not coincide with the maximum stress area (crotch).
8. Assembly shall be performed in a controlled shop environment by the skid manufacturer. All pipe shall be squarely cut on precision equipment with the ends chamfered and deburred. All socket welded connections shall follow the guidelines set by the pipe/fitting manufacturer for proper cleaning, priming and gluing procedures. A heavy bodied solvent suitable for use with Sodium Hydroxide shall be used. All threaded connections will utilize Teflon tape, a suitable thread sealant or a combination of both. Threaded connections shall utilize stainless steel reinforcement rings where applicable to reduce the risk of cracking.

B. Isolation Valves

1. Ball Valve
 - a. All Ball Valves, sizes 1/2" to 4", shall be of true union design with two-way blocking capability. All O-rings shall be EPDM or FPM based on chemical being pumped. Seats shall have elastomeric backing cushion of the same

material as the valve seals. Stem shall have double O-rings and be of blowout-proof design. The ball valves shall have a pressure rating of 230 psi for sizes 1/2" to 3" and 150 psi for 4" at 70 ° F. Ball Valves must carry a two-year guarantee. Ball valves shall be equal to Hayward TB series as manufactured by Hayward Flow Control. Ball Valves used with Sodium Hypochlorite must be vented as recommended by manufacturer.

2.5 SPARE PARTS

A. Spare Parts

1. Provide the following spare parts to the Owner for each chemical metering skid upon delivery of the pump skid. Spare parts shall include all parts required for (2) years of normal maintenance of all components of the chemical metering system. All parts shall be in one box labeled with the Skid ID Information:
 - a. (2) Replacement pump heads for each model of pump tubing.
 - b. P/M kit for each pressure relief valve.
 - c. Spare valve of each size for each pump skid.
 - d. Parts list for all serviceable components.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install the chemical metering systems as indicated on the drawings and specified and in compliance with the manufacturer's instructions.

3.2 INSPECTION AND TESTING

- A. Upon completion of installation, a full operating test shall be performed in the presence of the Engineer and a qualified manufacturer's representative. The Contractor shall furnish all labor, materials and equipment required for such test and shall correct any deficiencies noted.

3.3 MANUFACTURER'S SERVICES

- A. The manufacturer shall provide the following services as specified.
 1. Mechanical Start-Up Services
 - a. Provide (1) 8-hour working days of mechanical start-up services.
 2. Process Start-Up Services
 - a. Provide (1/2) 8-hour working days of process start-up services.
 3. Operator Training Services
 - a. Provide (1/2) 8-hour working day to instruct operating personnel on the operation and maintenance of the system.

3.4 OPERATION & MAINTENANCE MANUALS AND PRODUCTION RECORDS

- A. Operating and maintenance manuals prepared specifically for this project shall be provided. Manuals shall include all procedures, drawings, parts lists, etc. required to instruct personnel unfamiliar with such equipment. Operation and maintenance manuals shall be prepared in accordance with all specifications of this project.
 - 1. Complete operating and maintenance manuals shall be provided in PDF electronic format with bookmarks and index for easy navigation.
 - 2. Operating and maintenance manuals shall include a copy of in-house testing certificate.

3.5 WARRANTIES

- A. The system manufacturer shall provide a two (5) year warranty for the metering pumps (1-year liquid end), material/construction, piping and valves. This warranty shall be in addition to and not in lieu of any warranties provided by the manufacturer of the equipment itself.
- B. The system manufacturer shall pass through any warranties from the equipment suppliers for the pumps, controllers, and other system components manufactured by others.

END OF SECTION

RESIDUAL CHLORINE ANALYZERS**PART 1 - GENERAL****1.1 SUMMARY**

- A. Provide a complete residual disinfectant analyzer for continuous monitoring of disinfectant concentration in potable water. Analyzer shall be Evoqua Wallace & Tiernan® DEPOLOX® 400 M or approved equal.

1.2 REFERENCES

- A. NSF/ANSI 61 certified materials
- B. CE and CSA compliance

1.3 SUBMITTALS

- A. Product data sheets and dimensional drawings
- B. Installation, operating, and maintenance manuals
- C. Factory test results

1.4 WARRANTY

- A. Standard manufacturer's warranty, minimum one year.

PART 2 - PRODUCTS**2.1 MANUFACTURER**

- A. Evoqua Water Technologies, Wallace & Tiernan® DEPOLOX® 400 M Analyzer.

2.2 GENERAL DESCRIPTION

- A. An on-line amperometric analyzer designed to measure disinfectant concentrations in potable and clean water applications.

2.3 FEATURES

- A. 4" color capacitive touchscreen with intuitive menus
- B. LED-lit flow cell with color change for alarm indication
- C. Data logging with transfer capability to remote devices
- D. Smart operation features: configurable calibration and service reminders
- E. Ethernet (Modbus TCP) and RS-485 communications
- F. Very fast response to disinfectant concentration changes

2.4 MEASUREMENT CAPABILITIES

- A. Free chlorine, total chlorine, chlorine dioxide, ozone, potassium permanganate
- B. Optional: pH, ORP, or fluoride in addition to disinfectant
- C. Temperature measurement standard

2.5 ELECTRONIC MODULE

- A. Display: 4" capacitive color touchscreen
- B. Inputs: Bare electrode DEPOLOX® 5 C or VariaSens™ C flow cell with membrane sensor
- C. Digital inputs: 5 freely definable
- D. Relay outputs: Up to 6, fused, 3.15 A @ 250 VAC
- E. Analog outputs: 4 × 0/4–20 mA, galvanically isolated
- F. Interfaces: Ethernet (HTTP, Modbus TCP), RS-485
- G. Power: 100–240 VAC ±10 %, 50/60 Hz, 48 VA or 24 VDC ±20 %, 30 W
- H. Enclosure: IP66
- I. Ambient: 0–50 °C (32–122 °F)
- J. Dimensions: 320 × 311 × 153 mm (12.6 × 12.2 × 6.0 in)
- K. Weight: 4.5 kg (9.9 lb)

2.6 FLOW CELL MODULES

- A. DEPOLOX® 5 C Flow Cell: Bare electrode design with hydrodynamic grit cleaning
- B. VariaSens™ C Flow Cell: Membrane sensor for free/total chlorine, chlorine dioxide, ozone
- C. Both include: temperature measurement, optional pH or fluoride, optional ORP, flow control valve, flow and temperature monitoring, earthing sleeve
- D. Sample water flow: 33 L/h (0.15 gpm), 0.25–3.0 bar inlet pressure, max 50 °C
- E. Dimensions: 253 × 375 × 163 mm (9.9 × 14.7 × 6.4 in)
- F. Weight: 2.5 kg (5.5 lb)

2.7 MEASURING RANGES

- A. Free chlorine, ClO₂, O₃, KMnO₄: 0–20 mg/L (bare electrode)
- B. Free chlorine (membrane sensor): 0–10 mg/L
- C. Total chlorine: 0.05–10 mg/L
- D. Chlorine dioxide: 0–10 mg/L
- E. Ozone: 0–10 mg/L

- F. Fluoride: 0–20 mg/L
- G. pH: 0–12 (short term to 14)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install analyzer and flow cell modules as recommended by manufacturer. Provide drain and sample connections per drawings.

3.2 FIELD TESTING AND STARTUP

- A. Verify analyzer operation with process water.
- B. Perform calibration and demonstrate communications to SCADA.
- C. Provide training for Owner's operators.

3.3 O&M MANUALS

- A. Submit complete manuals with instructions for calibration, maintenance, and troubleshooting.

END OF SECTION

CTI PROJECT: C24044-01 (Town of Tellico Plains) WTP Cleanwell and Chemical Feed Building, DRAWING: C24044-01 TITLE (PHASE 1) (6/29/25 6:08PM), LAYOUT: G001

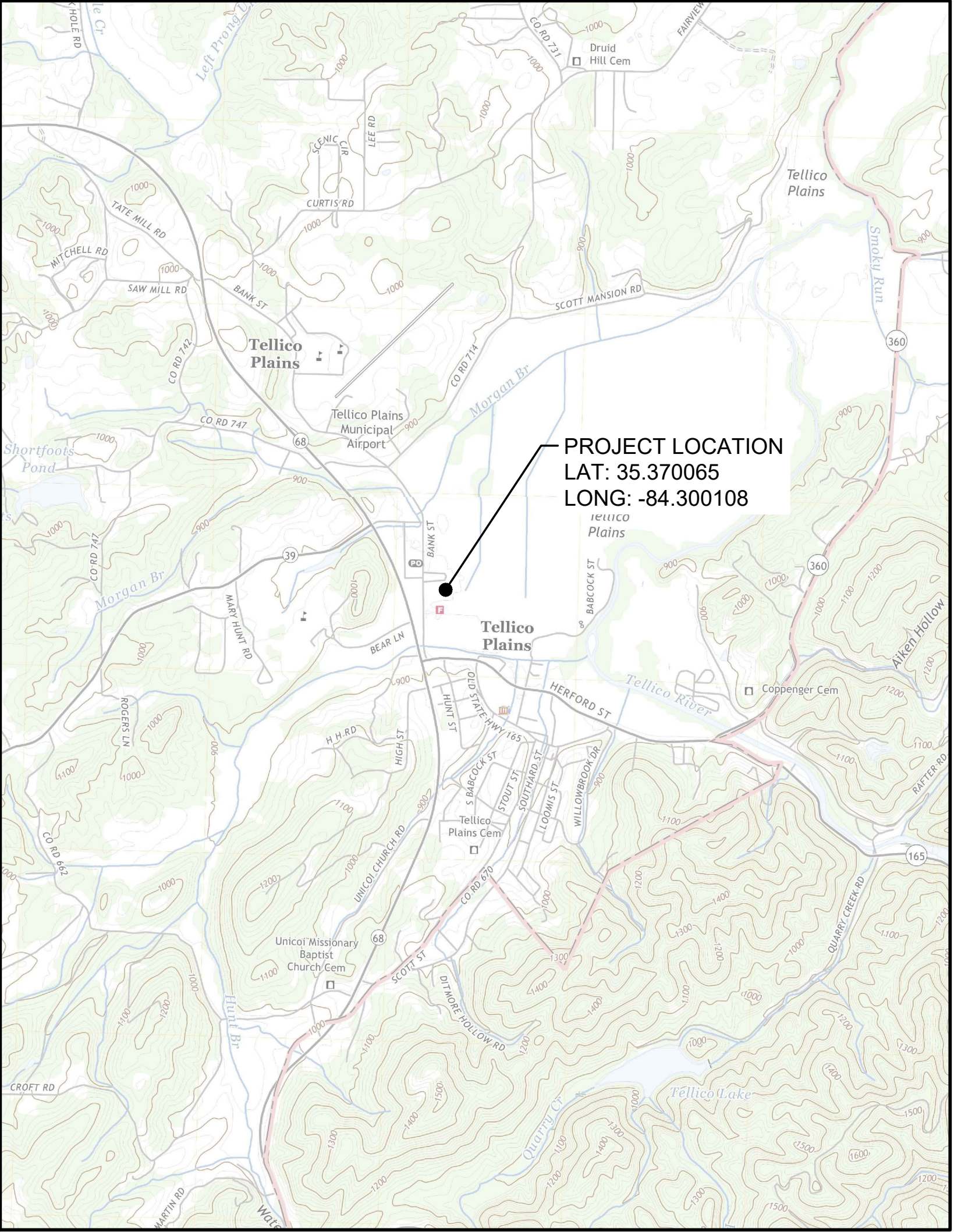
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TOWN OF TELLICO PLAINS, TENNESSEE

WATER TREATMENT PLANT - (PHASE 1)

TDEC ARPA PROJECT ID - DW-PDC-1

AUGUST 2025



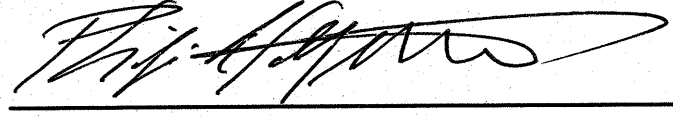
LOCATION MAP
SCALE: 1"= 2000'

PREPARED FOR
TOWN OF TELLICO PLAINS, TENNESSEE
405 VETERANS MEMORIAL DRIVE
TELLICO PLAINS, TN 37385

MARILYN PARKER, MAYOR
SHANNON HOLT-HARRIS, ALDERMAN
CYNTHIA MCDANIEL, ALDERMAN
JOYCE MCDANIEL, ALDERMAN
COURTNEY MILLSAPS, ALDERMAN

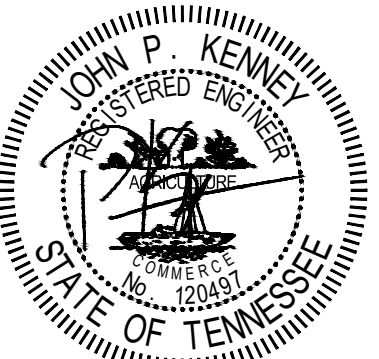
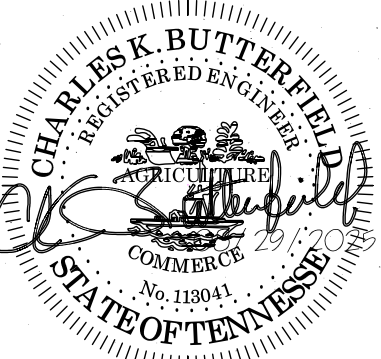
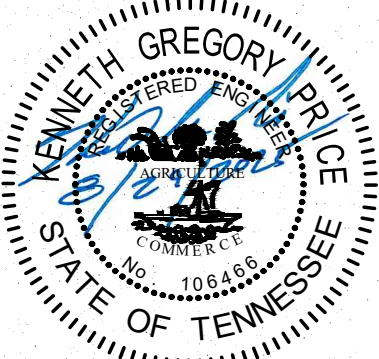
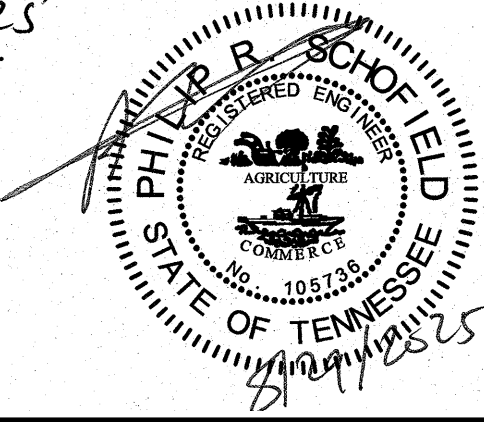
TROY TAUBERT, UTILITIES MANAGER




PHILIP R. SCHOFIELD, PE
TENNESSEE LICENSE NO. 105736

PLAN DATE: AUGUST 29, 2025
PROJECT NO. C24044

8/29/2025
DATE



REVISION NO.	DATE	DESCRIPTION
1	9/9/25	ADDENDUM 1



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CIVIL

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TITLE

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INSTRUMENTATION SYMBOLS & LEGENDS	I02
WTP PID	I03



DESIGN

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DRAWN

ZWR

CHECKED

ACW

APPROVED

PRS

TOWN OF TELLICO PLAINS

WATER TREATMENT PLANT - PHASE 1

DRAWING INDEX

CTI ENGINEERS

1122 RIVERFRONT PARKWAY

CHATTANOOGA, TN 37402

423-267-7613

PHILLIPS SCHOOL OF ENGINEERING

REGISTERED ENGINEER

AGRICULTURE

COMMERCE

1957

STATE OF TENNESSEE

Signature

JOB NO.

C24044-01

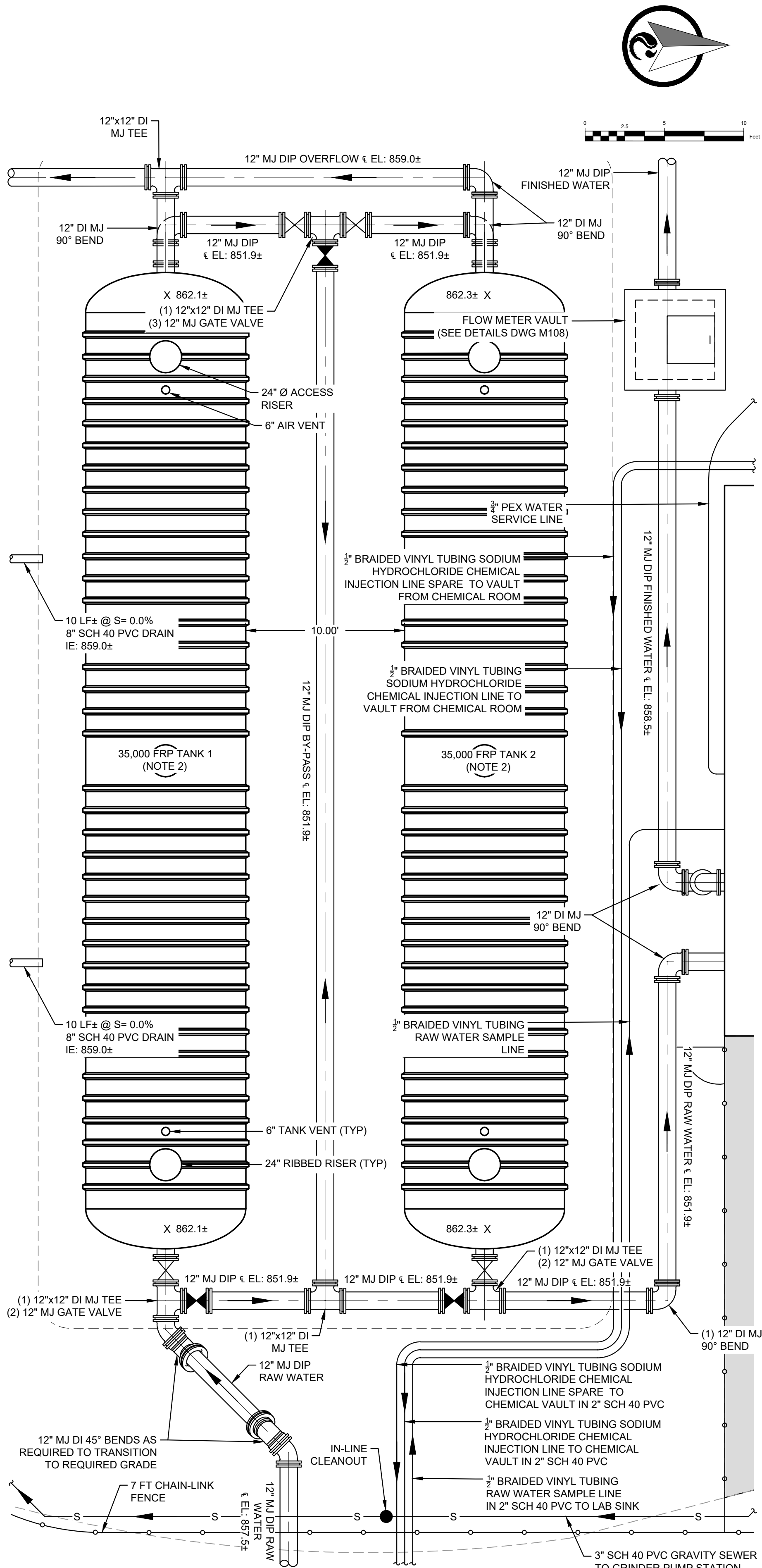
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08/29/2025

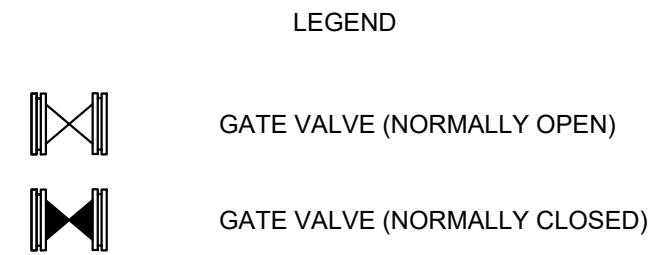
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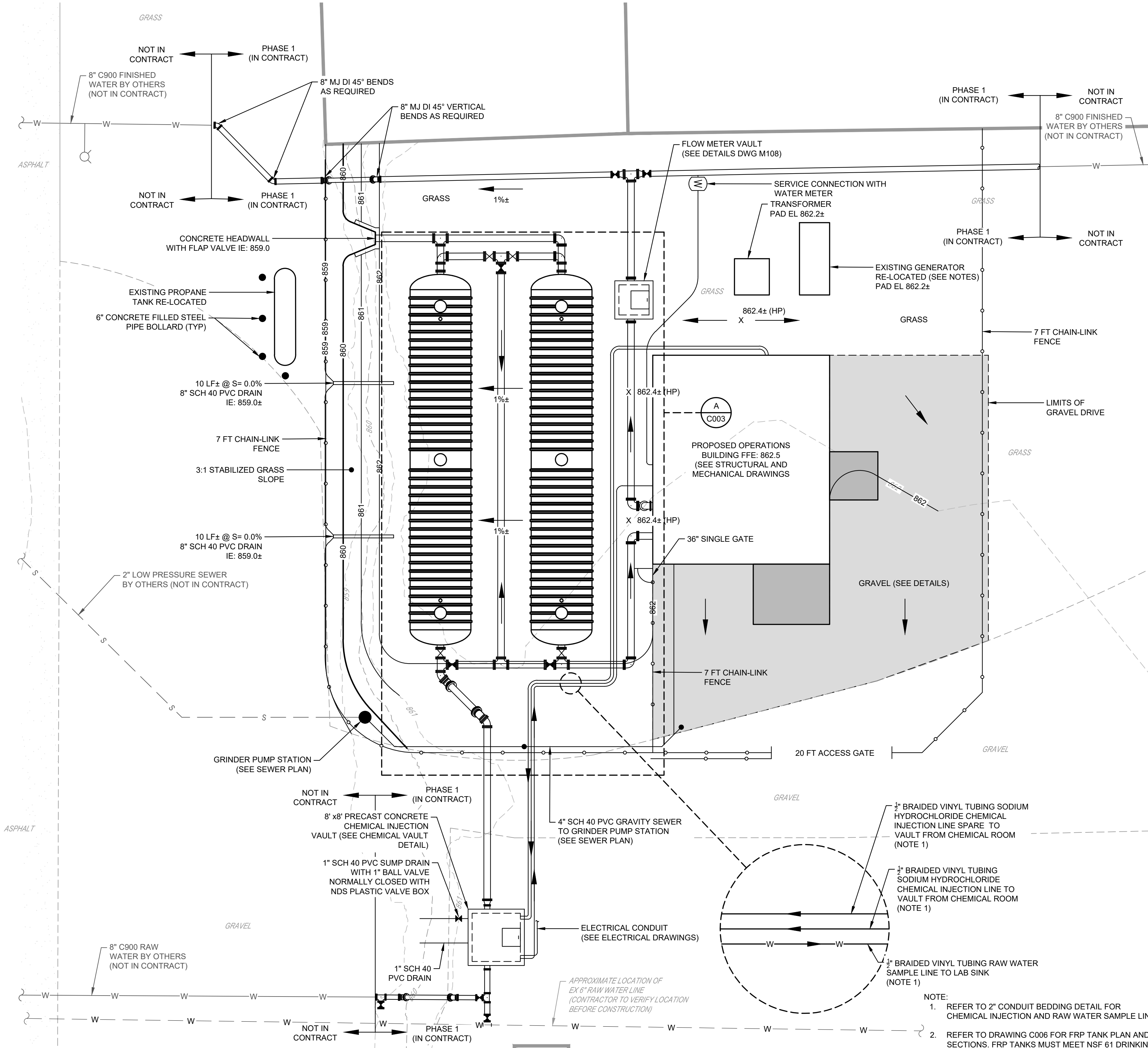
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ENLARGED PLAN VIEW
SCALE: 1" = 5'



- NOTES:
1. ALL EXISTING UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATION. CONTRACTOR SHALL VERIFY ALL UTILITY TIE-IN LOCATIONS PRIOR TO STARTING CONSTRUCTION.
 2. NO PORTION OF THE EXISTING WATER TREATMENT FACILITY SHALL BE RELOCATED, DEMOLISHED, OR ALTERED IN ANY WAY UNTIL THE NEW CLEARWELL FACILITY IS FULLY CONSTRUCTED AND OPERATIONAL. EXISTING WATER TREATMENT OPERATIONS SHALL REMAIN FULLY FUNCTIONAL AND UNINTERRUPTED AT ALL TIMES.
 3. PROVIDE POSITIVE DRAINAGE OUT AND AWAY FROM CLEARWELL AND EXISTING BUILDING TO PREVENT PONDING.
 4. THE EXISTING GRAVEL SURFACE LOCATED WITHIN THE PROPOSED LIMITS OF CONSTRUCTION MAY REMAIN IN PLACE. ANY GRAVEL SURFACE MARKED FOR DEMOLITION (REFER TO DEMOLITION PLAN) SHALL BE REMOVED AND PROPERLY DISPOSED OF. THE EXISTING GRAVEL SURFACE REMAINING AS INDICATED ON THIS PLAN SHALL BE RE-SURFACED WITH GRADED AGGREGATE BASE (GAB) ONCE CONSTRUCTION IS COMPLETE.
 5. PROVIDE CLASS A CONCRETE FOUNDATION FOR EXISTING GENERATOR, DIMENSIONS TO BE 1'-0" (MIN) LARGER THAN GENERATOR x 2'-0" THICK WITH #5 BARS AT 12" ON CENTER EACH WAY TOP AND BOTTOM.



- NOTE:
1. REFER TO 2" CONDUIT BEDDING DETAIL FOR CHEMICAL INJECTION AND RAW WATER SAMPLE LINES
 2. REFER TO DRAWING C006 FOR FRP TANK PLAN AND SECTIONS. FRP TANKS MUST MEET NSF 61 DRINKING WATER REQUIREMENTS.

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				DESCRIPTIONS	
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**TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT - PHASE 1**

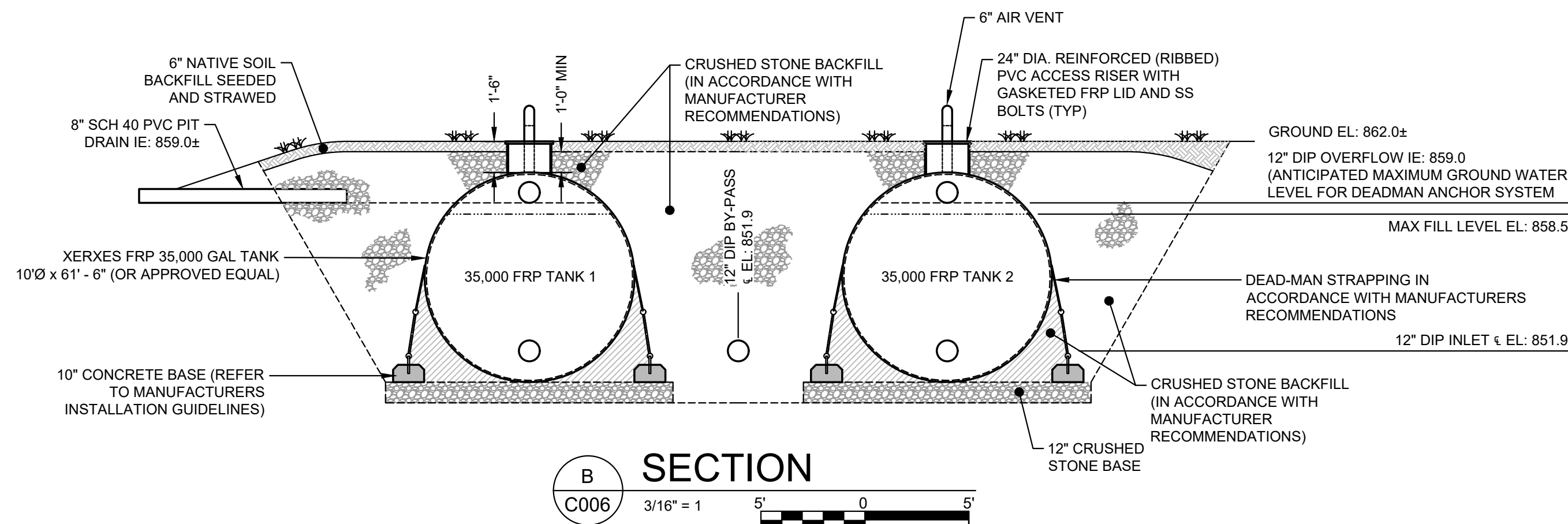
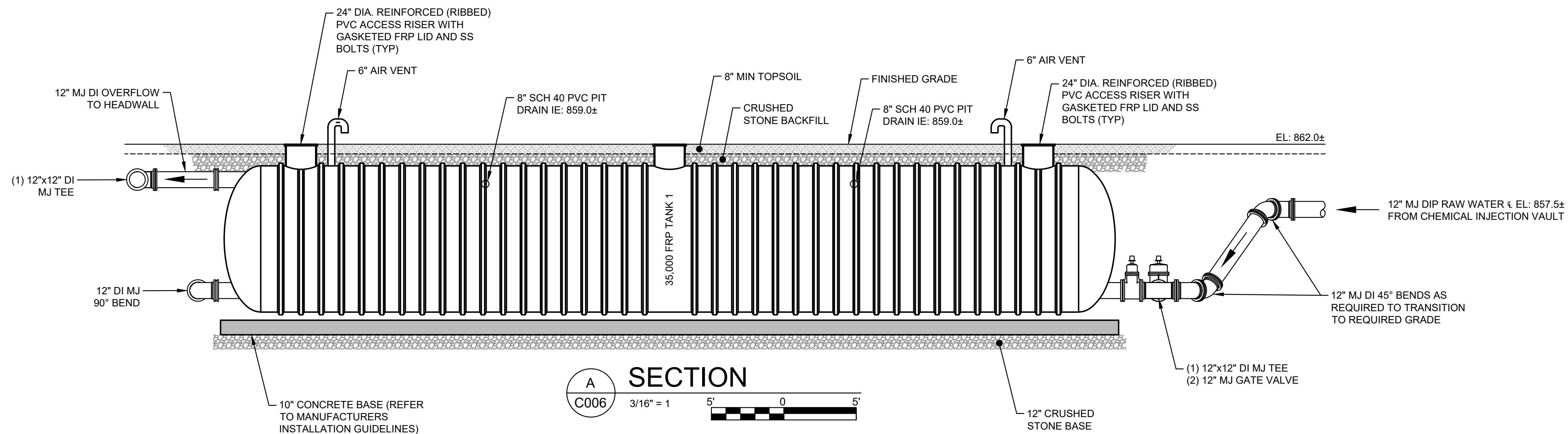
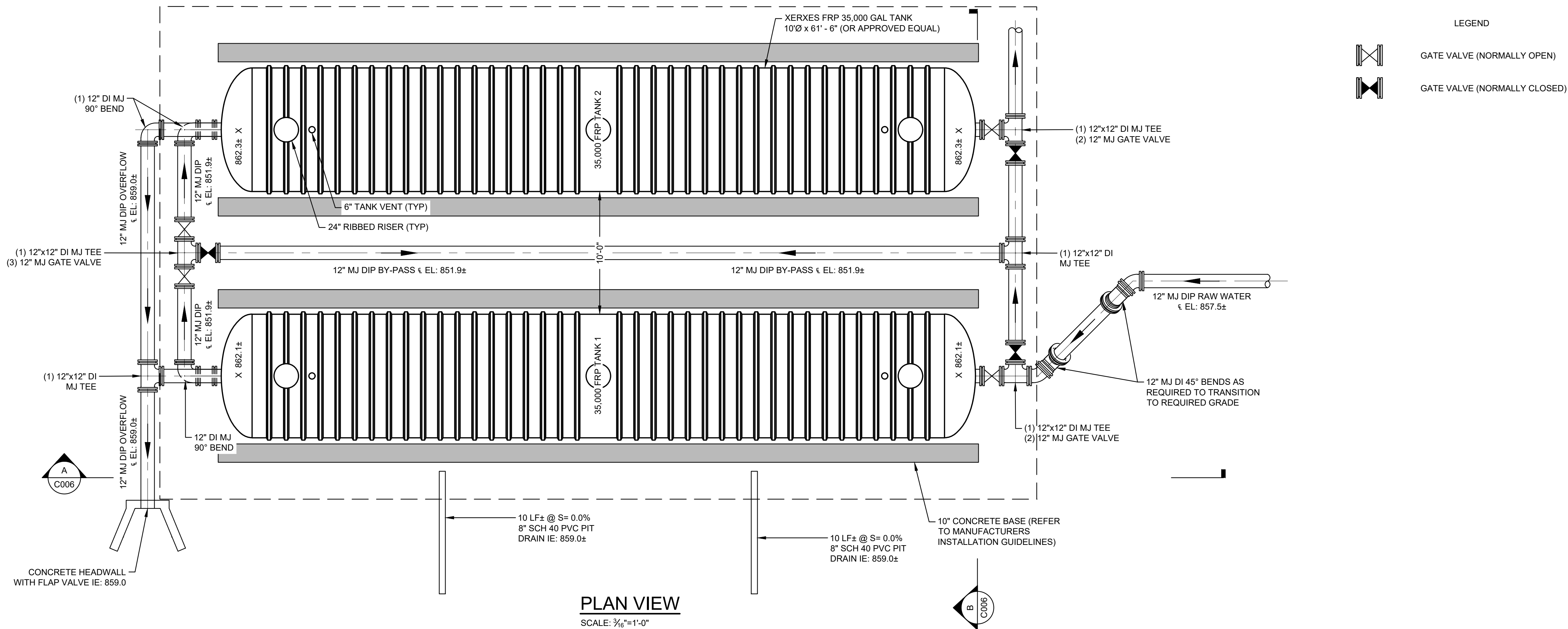
CLEARWELL SITE PLAN



CTI ENGINEERS
1122 RIVERFRONT PARKWAY
CHATTANOOGA, TN 37402
423-267-7613



JOB NO. C24044-01
ISSUE DATE 08/29/2025
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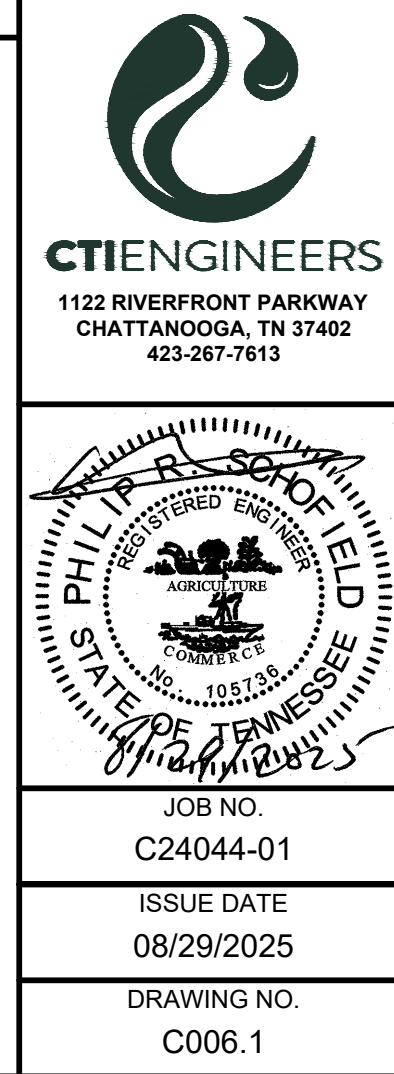


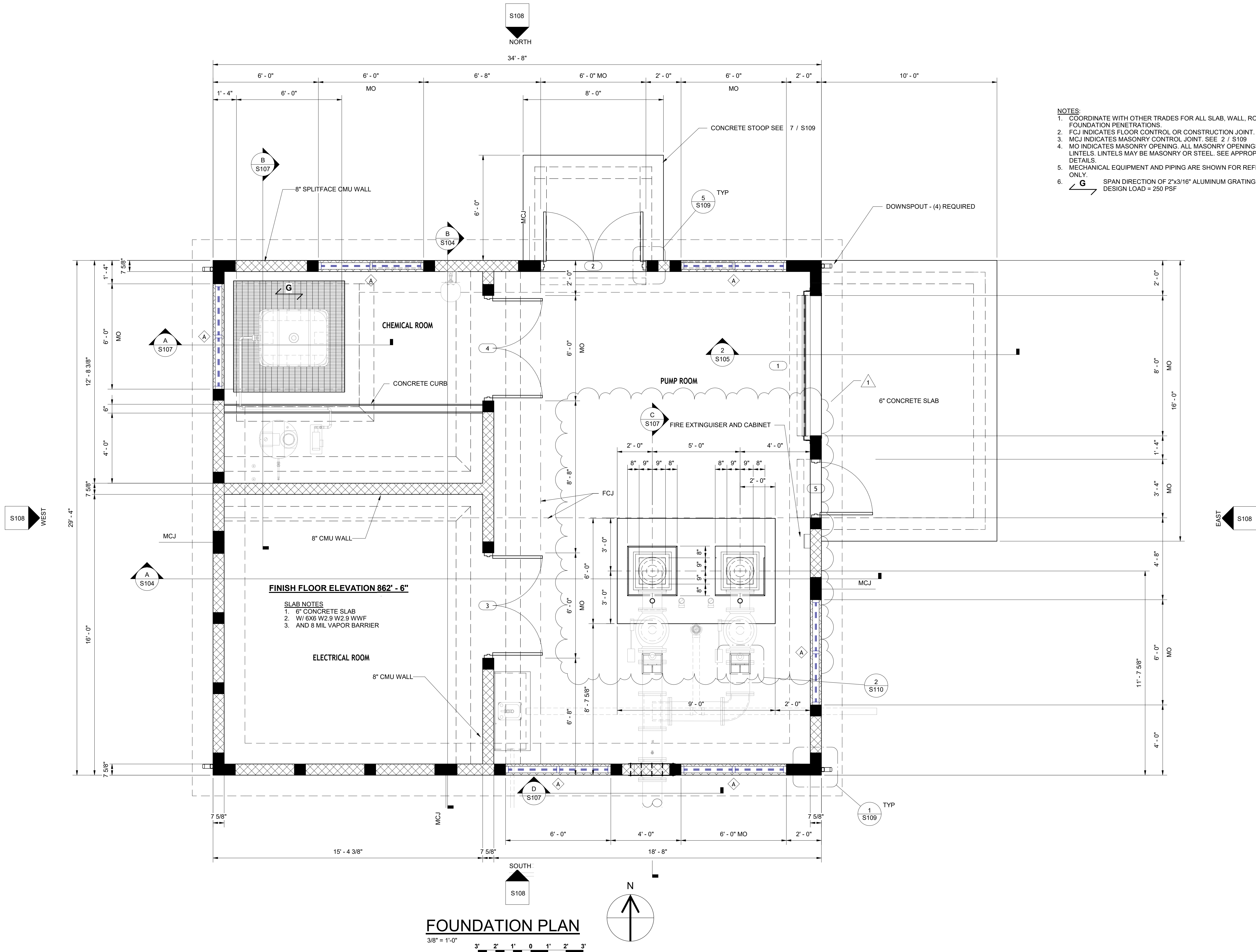
- NOTE:
1. FRP TANK SHALL BE MOUNTED TO THE DEAD MAN BASE USING STRAPS IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
 2. FRP TANKS SHALL BE WATER TIGHT AND INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
 3. FRP TANKS SHALL MEET NSF 61 DRINKING WATER STANDARDS AND COMPATIBLE WITH WITH SODIUM HYPOCHLORITE (NaOCl). (REFER TO SPECIFICATIONS)

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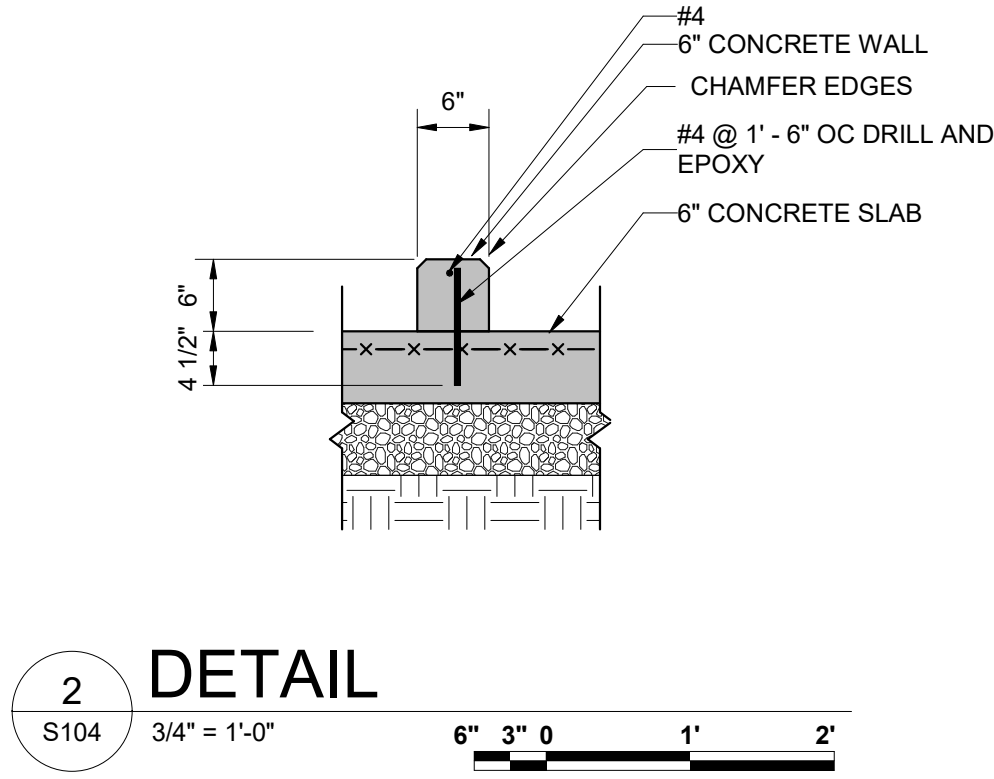
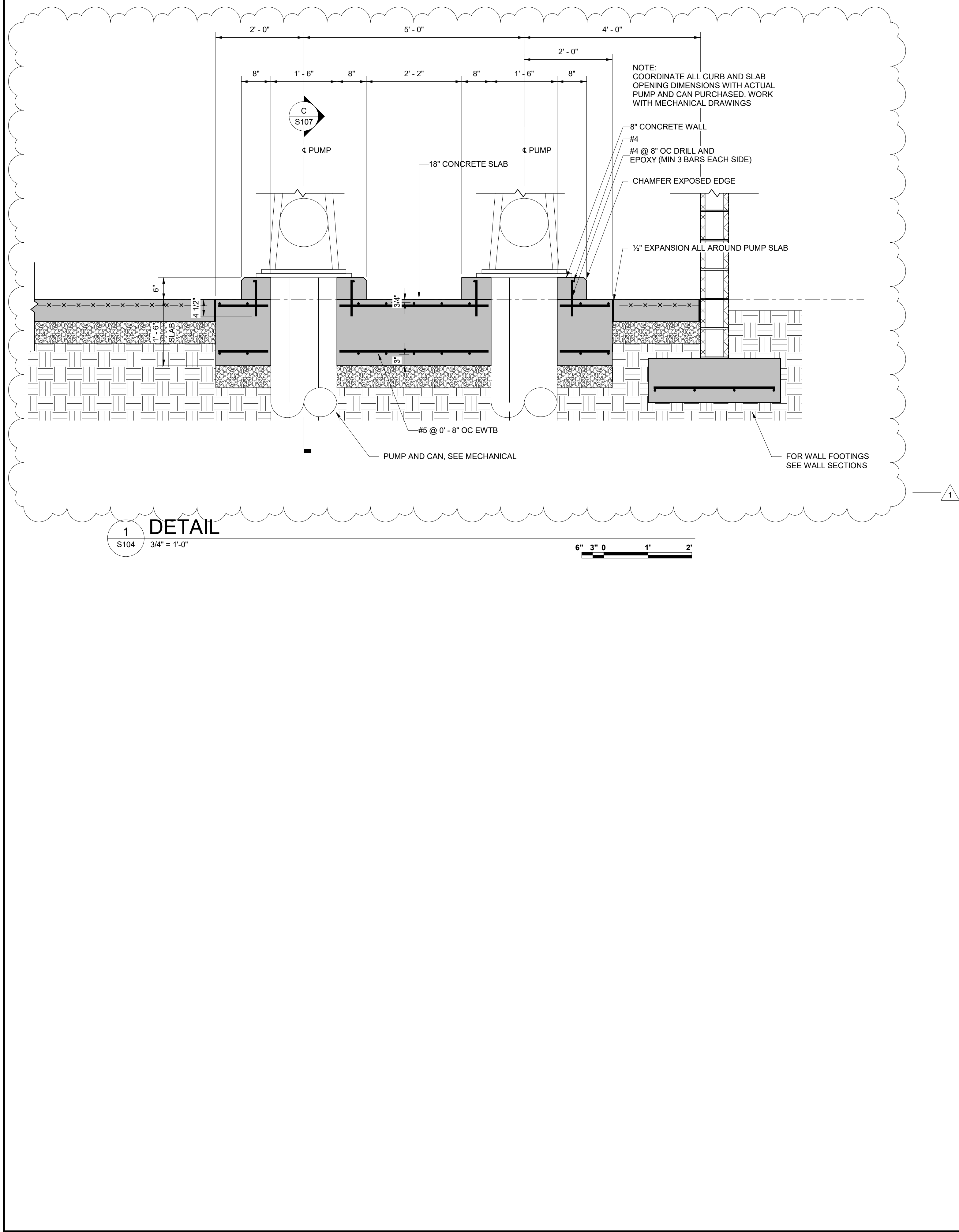
TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT - PHASE 1
FRP STORAGE TANK PLAN AND SECTION


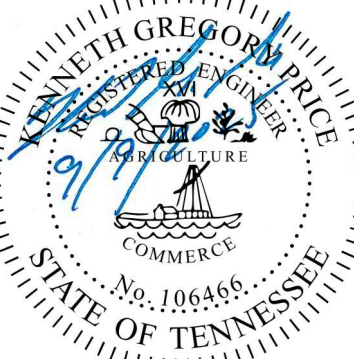




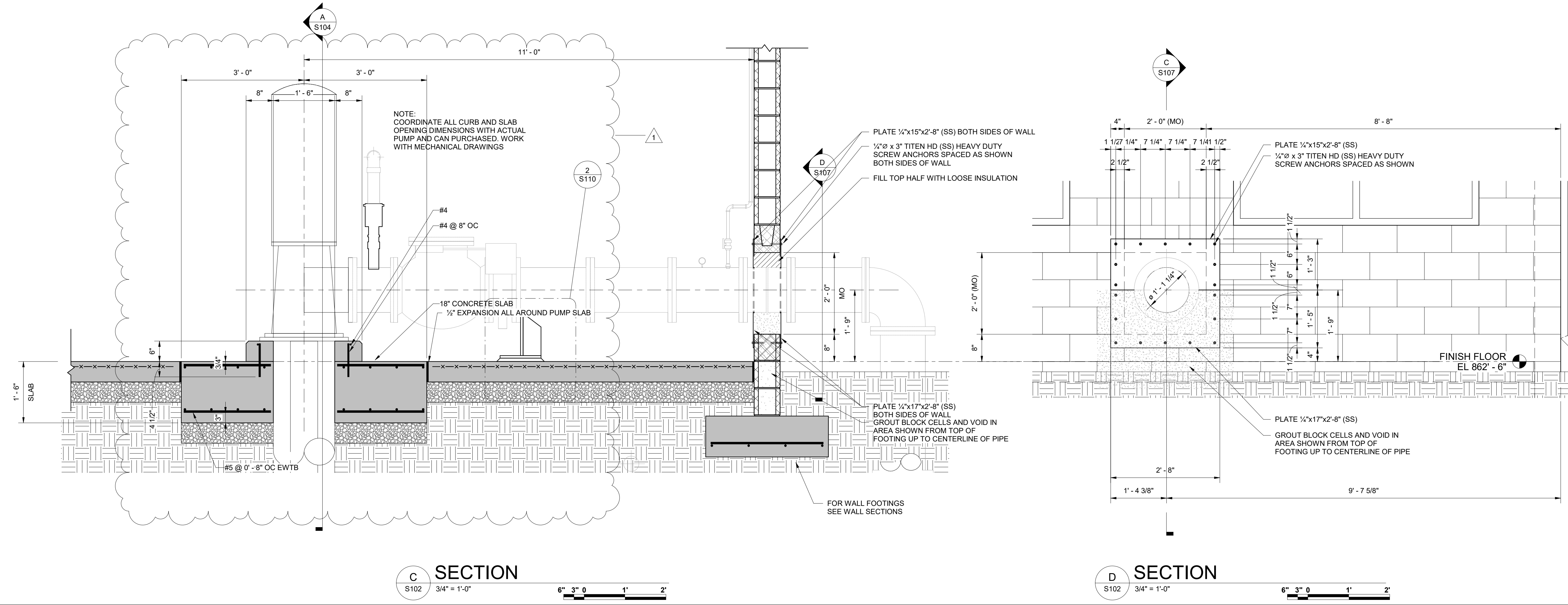
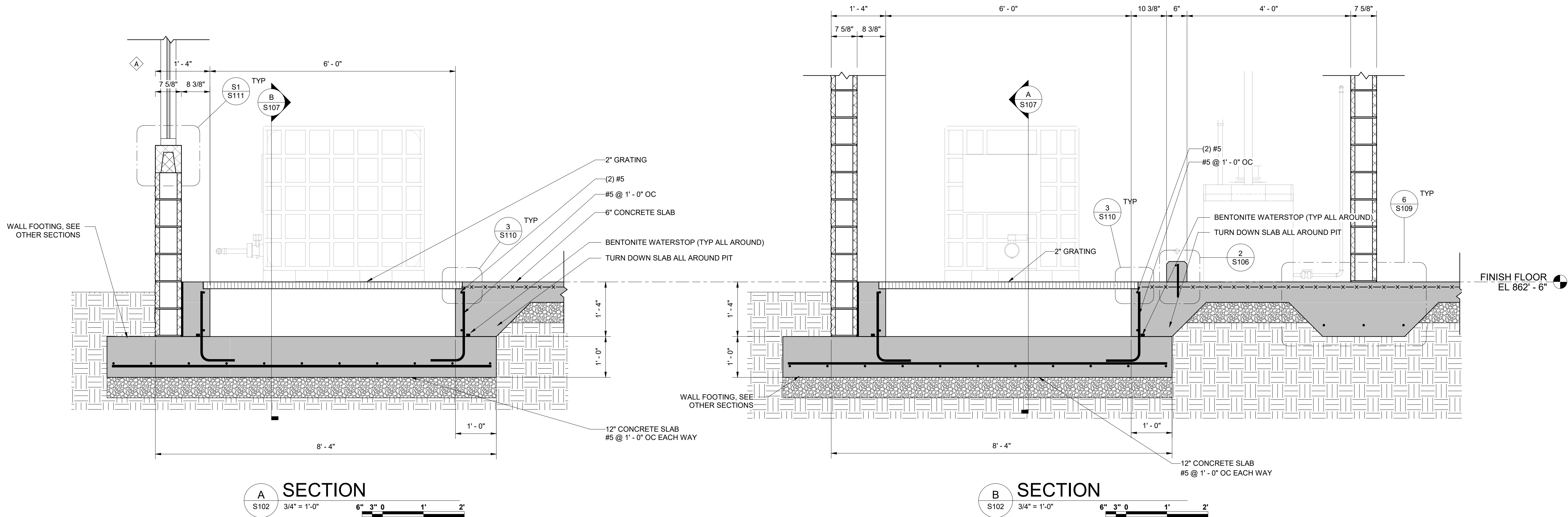
- NOTES:**
- COORDINATE WITH OTHER TRADES FOR ALL SLAB, WALL, ROOF, AND FOUNDATION PENETRATIONS.
 - FCJ INDICATES FLOOR CONTROL OR CONSTRUCTION JOINT. SEE 8 / S109
 - MCJ INDICATES MASONRY CONTROL JOINT. SEE 2 / S109
 - MO INDICATES MASONRY OPENING. ALL MASONRY OPENINGS REQUIRE LINTELS. LINTELS MAY BE MASONRY OR STEEL. SEE APPROPRIATE DETAILS.
 - MECHANICAL EQUIPMENT AND PIPING ARE SHOWN FOR REFERENCE ONLY.
 - SPAN DIRECTION OF 2"x3/16" ALUMINUM GRATING. DESIGN LOAD = 250 PSF

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KGP		KGP		9/9/25		PRS	
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APPROVED		PRS					
TOWN OF TELlico PLAINS							
WATER TREATMENT PLANT - PHASE 1							
PUMP BUILDING							
FOUNDATION PLAN							
CTI ENGINEERS 1122 RIVERFRONT PARKWAY CHATTANOOGA, TN 37402 423-267-7613							
JOB NO. C24044							
ISSUE DATE 08/29/2025							
DRAWING NO. S102.1							



DESIGNED KGP	DRAWN KGP	CHECKED KGP	APPROVED PRS	NO.	1	ADDENDUM 1	REVISIONS		DATE	BY	APPROVED
							DESCRIPTIONS	PRS			
TOWN OF TELLICO PLAINS WATER TREATMENT PLANT - PHASE 1											
PUMP BUILDING DETAILS											
 CTI ENGINEERS 1122 RIVERFRONT PARKWAY CHATTANOOGA, TN 37402 423-267-7613											
											
JOB NO. C24044											
ISSUE DATE 08/29/2025											
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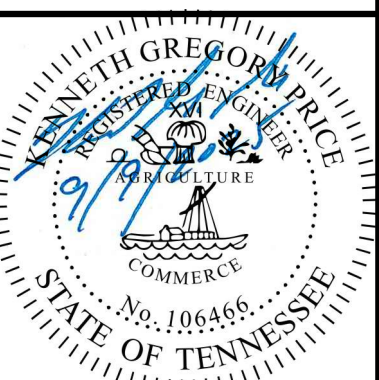
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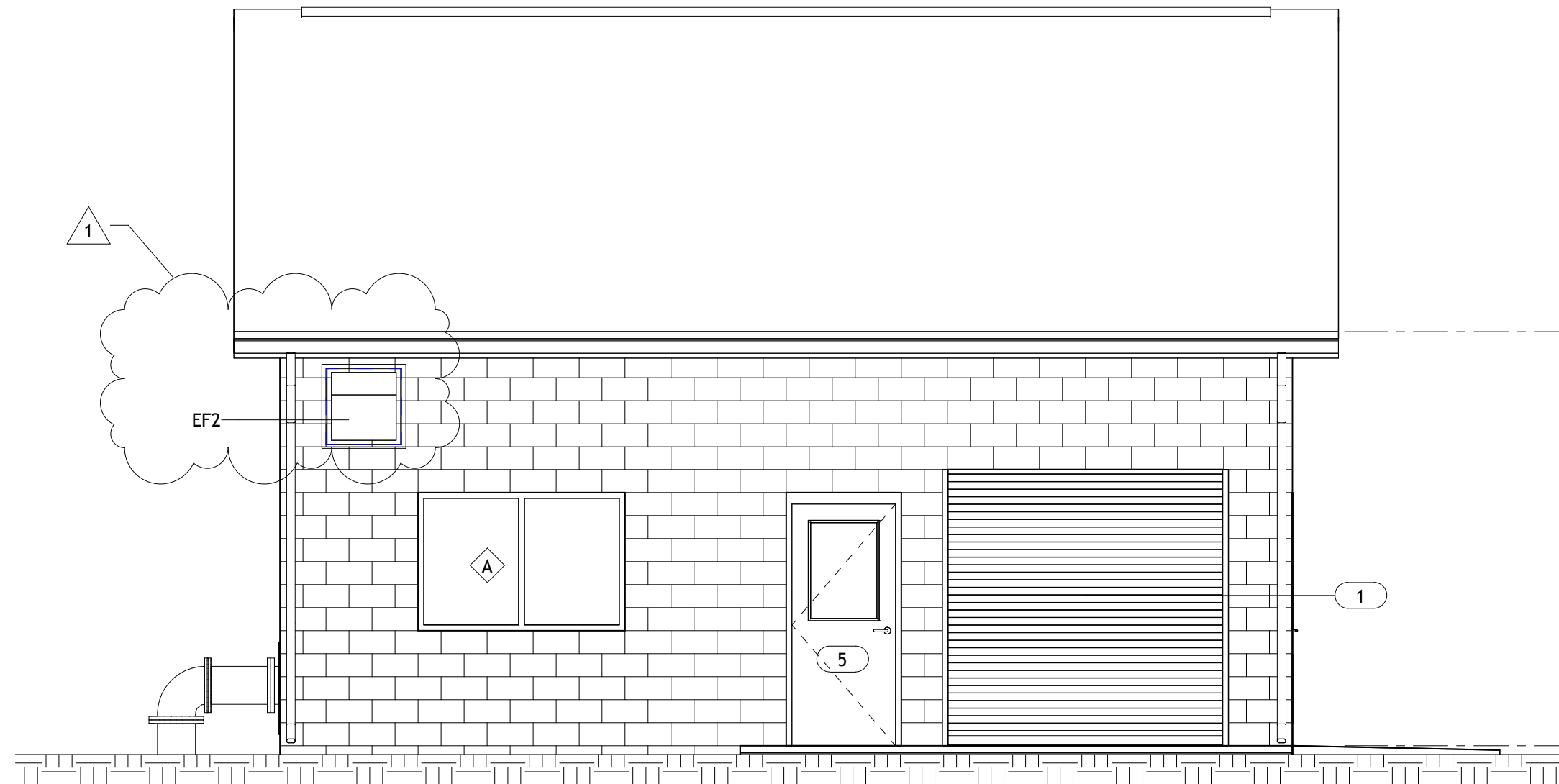
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TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT - PHASE 1
PUMP BUILDING
SECTIONS

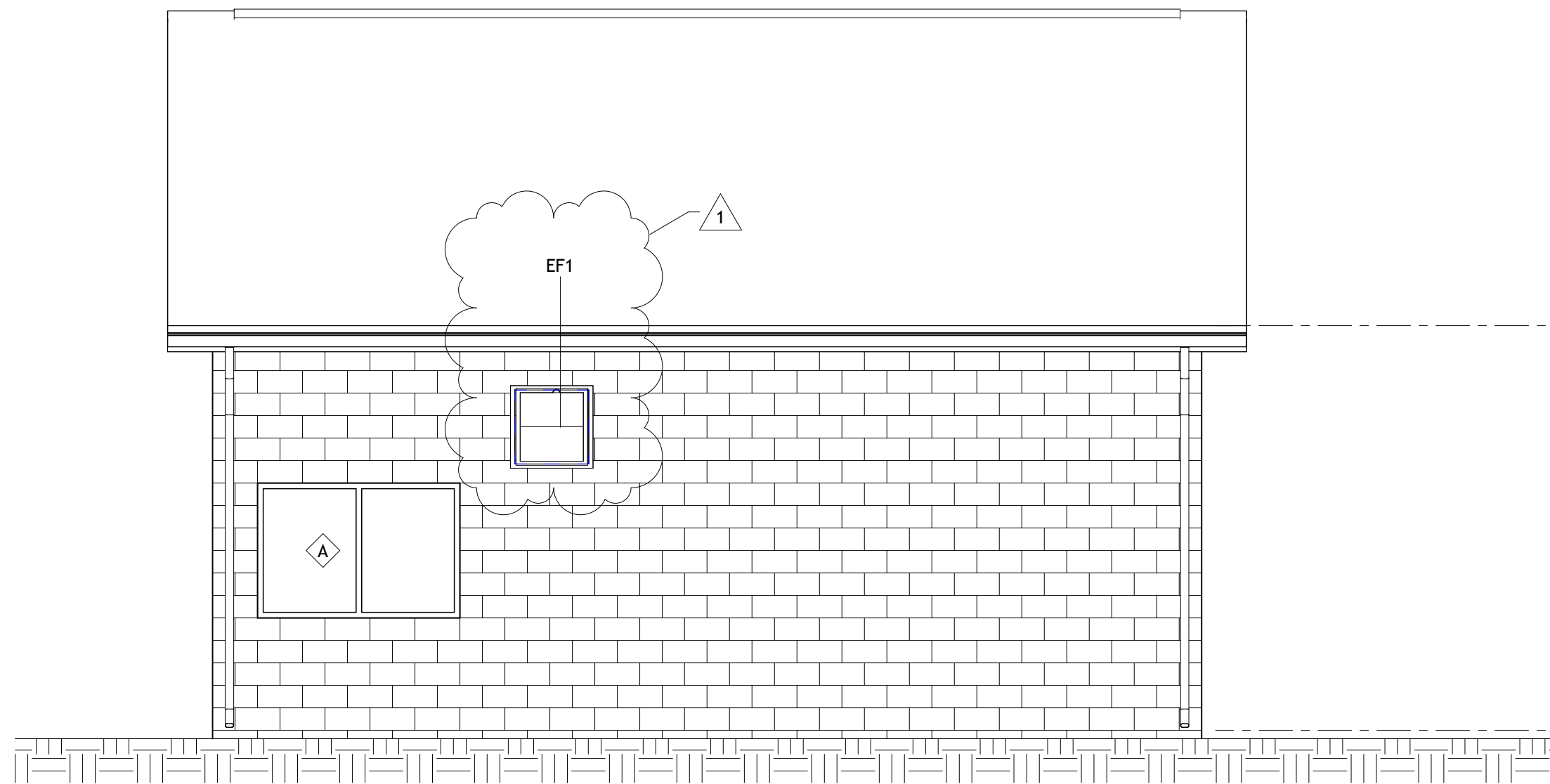


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DRAWING NO. S107.1

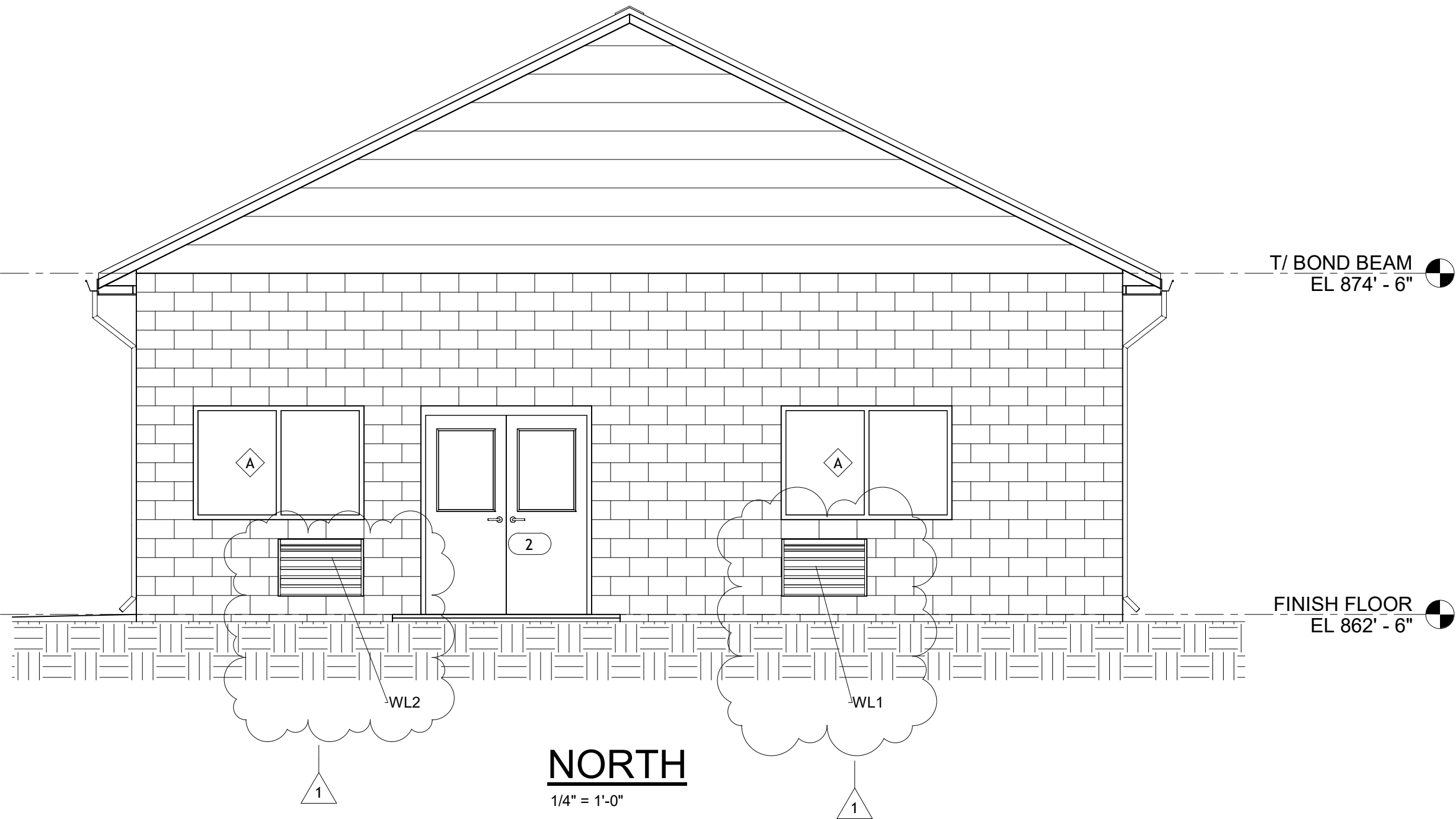
NOTE:
ALL MECHANICAL EQUIPMENT IS SHOWN FOR REFERENCE
ONLY. FOR PIPING, SEE MECHANICAL PLANS. FOR INTAKE
LOUVERS AND EXHAUST FANS, SEE HVAC DRAWINGS.



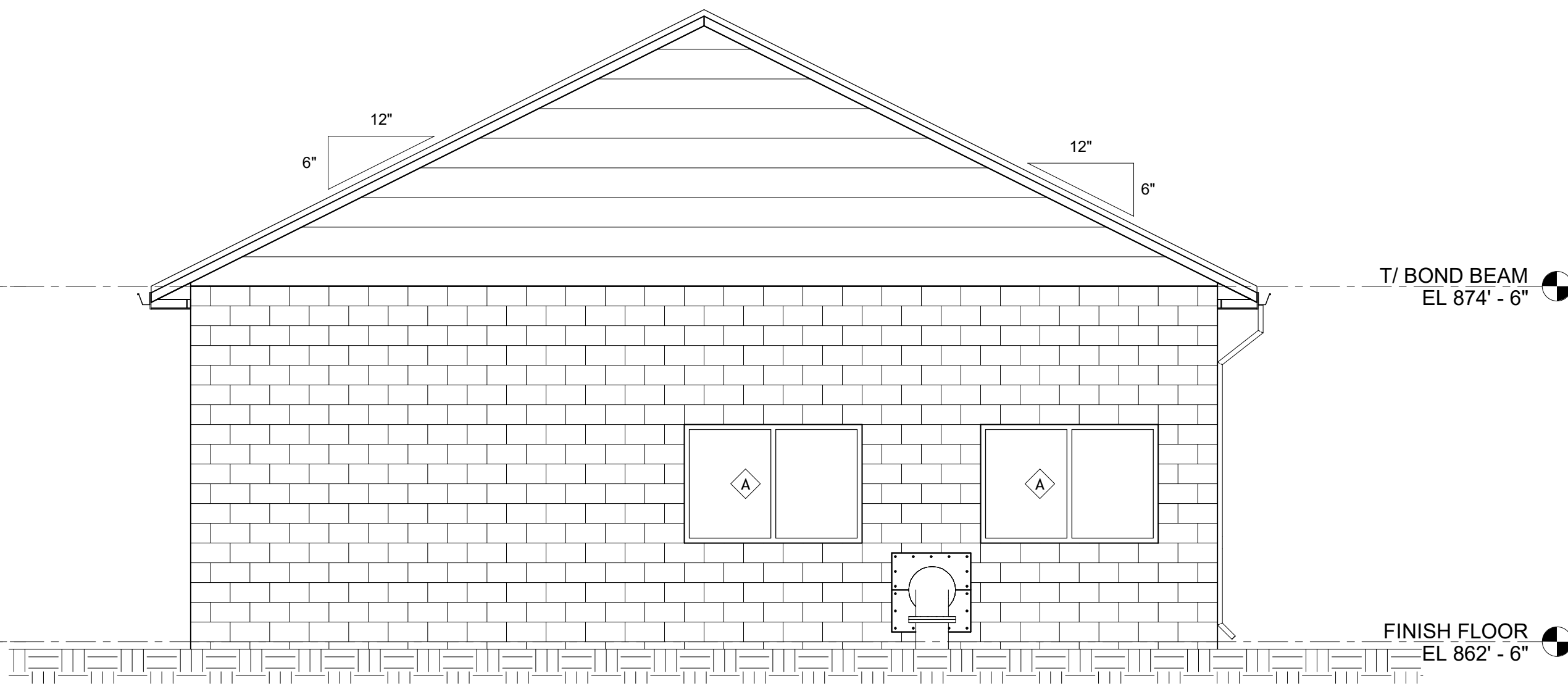
EAST
1/4" = 1'-0"



WEST
1/4" = 1'-0"



NORTH
1/4" = 1'-0"



SOUTH
1/4" = 1'-0"

DESIGNED		KGP		DRAWN		KGP		CHECKED		KGP		APPROVED		PRS	
NO.		1		ADDENDUM 1		DATE		9/9/25		BY		KGP		PRS	
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NO.		1		ADDENDUM 1		DATE		9/9/25		BY		KGP		PRS	

TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT - PHASE 1

PUMP BUILDING
EXTERIOR ELEVATIONS

CTIENGINEERS
1122 RIVERFRONT PARKWAY
CHATTANOOGA, TN 37402
423-267-7613

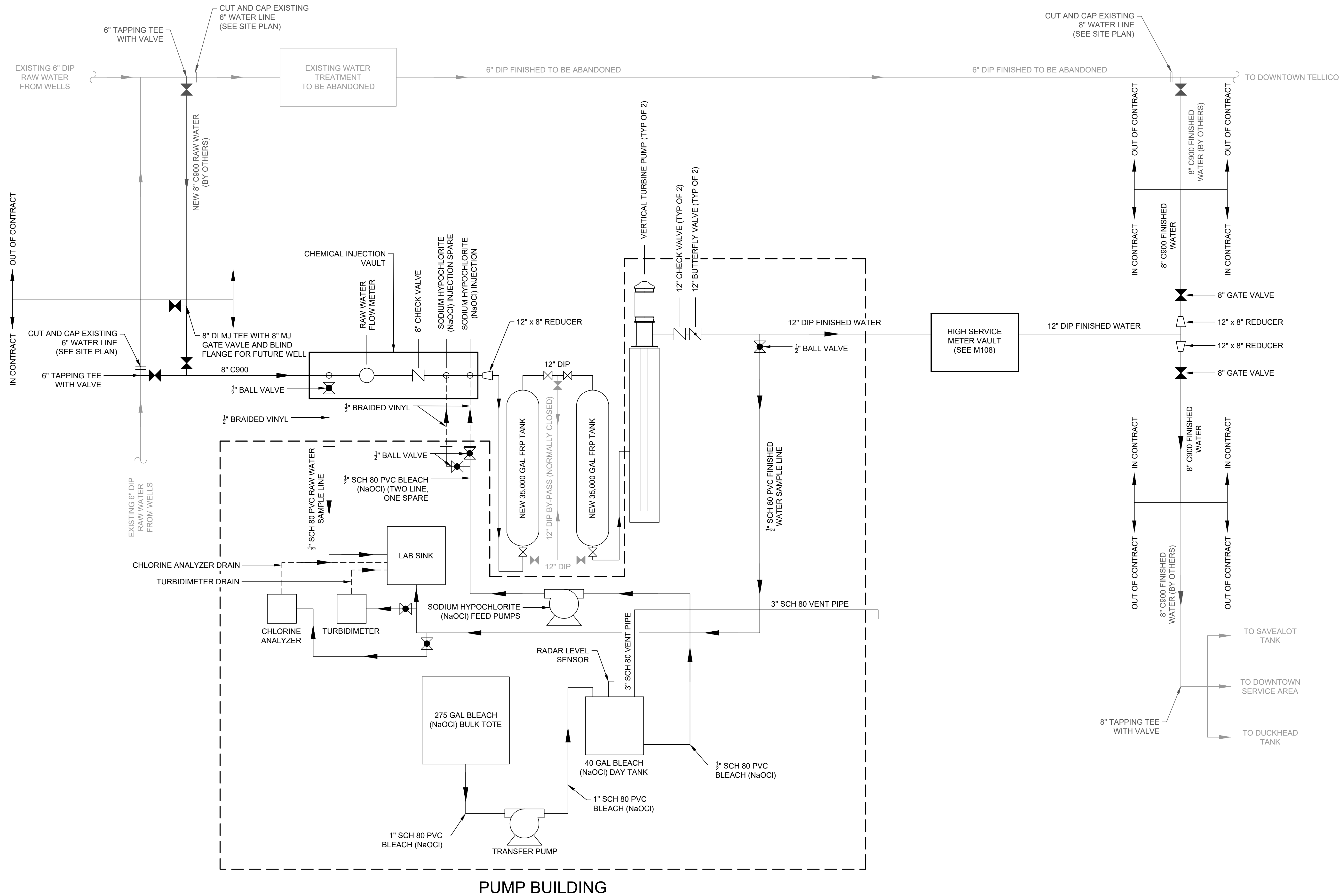
ANNETH GREGORY PRICE
Professional Engineer
No. 106466
STATE OF TENNESSEE
COMMERCE

JOB NO.
C24044

ISSUE DATE
08/29/2025

DRAWING NO.
S108.1

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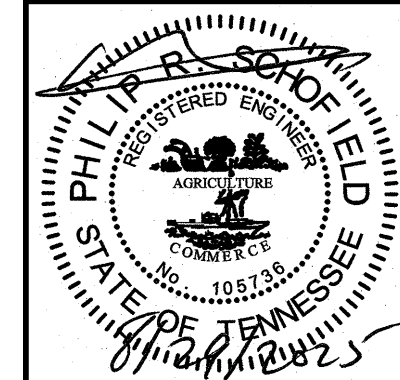


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DESIGN ACW	
DRAWN ZWR	
CHECKED ACW	
APPROVED PRS	

TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT - PHASE 1
PROCESS FLOW DIAGRAM

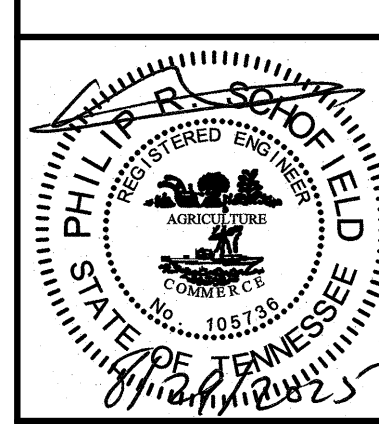


JOB NO. C24044-01
ISSUE DATE 08/29/2025
DRAWING NO. M100.1

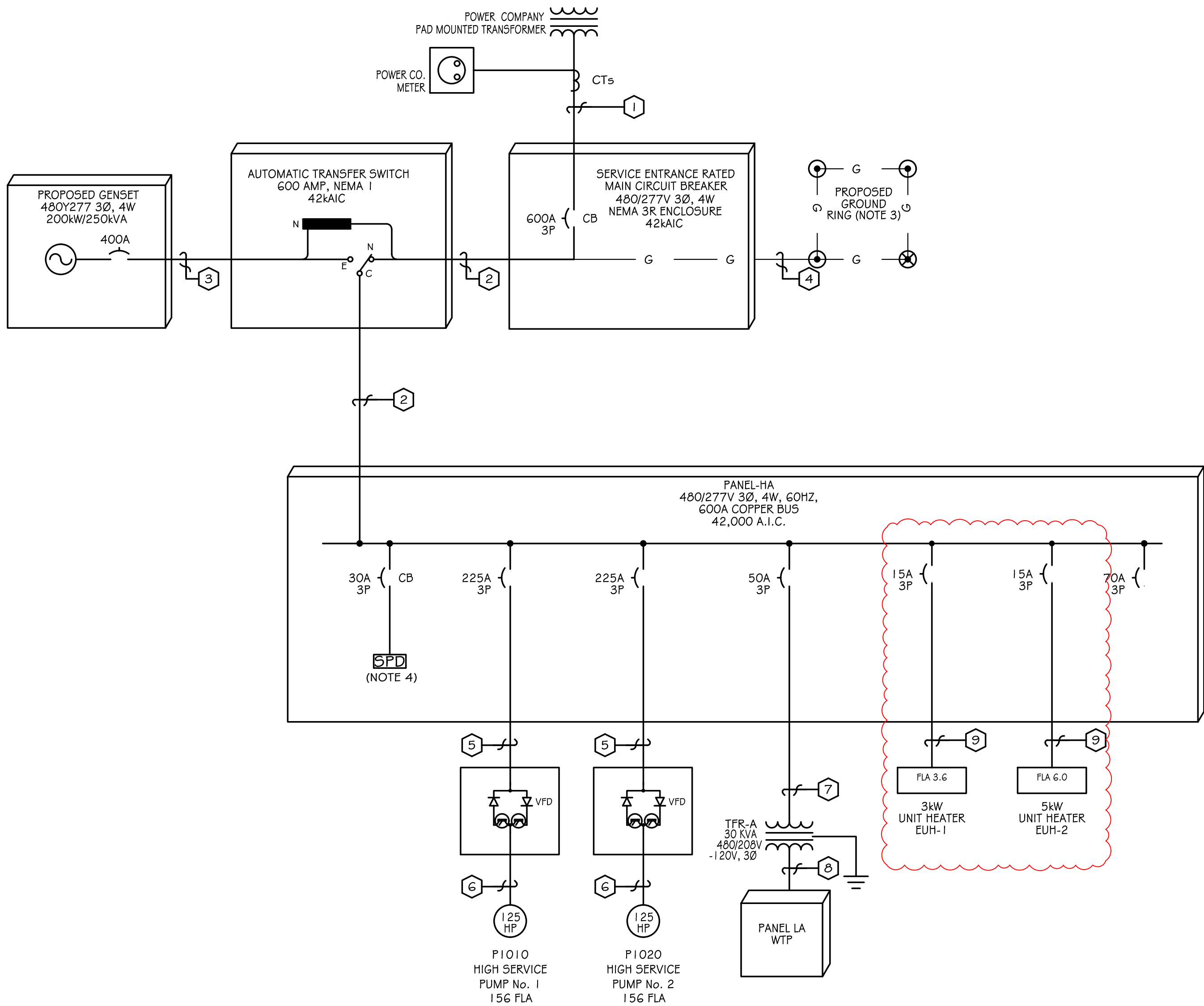


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TOWN OF TELlico PLAINS WATER TREATMENT PLANT - PHASE 1	
PUMP BUILDING MECHANICAL - FLOOR PLAN	



JOB NO. C24044
ISSUE DATE 08/29/2025
DRAWING NO. M101.1



WTP SINGLE LINE DIAGRAM

N.T.S.

CABLE & CONDUIT SCHEDULE	
1 2 SETS OF 4#350KCM - 3" C.	7 3#6 & 1#10(G) - 1.25" C.
2 2 SETS OF 4#350KCM, 1#1(G) - 3" C.	8 4#1, 1 #6(G) - 2" C.
3 2 SETS OF 4#3/0, 1#3(G) - 2.5" C.	9 4#12, 1 #12(G) - 3/4" C.
4 1#4/0(G) - 1" C.	
5 3#4/0 & 1#4(G) - 2.5" C.	
6 3#3/0 & 1#3(G) VFD CABLE - 2" C.	

NOTES:

- UTILITY COMPANY TRANSFORMER 480/277V, 3 PHASE, 4 WIRE. CONTRACTOR SHALL COORDINATE THE LOCATION WITH THE LOCAL UTILITY COMPANY.
- UTILITY COMPANY TO PROVIDE METER FOR INSTALLATION BY CONTRACTOR. INSTALL ON SERVICE POLE FOR OVERHEAD TRANSFORMER OR PROVIDE EQUIPMENT RACK FOR PAD MOUNT TRANSFORMERS.
- BOND TO BUILDING GROUNDING RING. #2/0 BARE COPPER CONDUCTORS WITH CADWELD OR EQUIVALENT EXOTHERMIC CONNECTION.
- INTERMATIC PANELGUARD OR EQUAL H20513Y2DG1 SURGE PROTECTIVE DEVICE, 7-MODE, 277/480. NEMA 4X ENCLOSURE, UL 1449, TYPE 1 SURGE PROTECTION, SURGE CURRENT RATING 200KA.
- COORDINATE CONDUIT STUB UP LOCATIONS W/ EQUIPMENT MANUFACTURER SEE GENERAL NOTES 4,5 & 6. REFER TO SHEET E01 FOR GENERAL ELECTRICAL NOTES.

PROPOSED THREE PHASE POWER PANEL SCHEDULE "PANEL HA" LOCATION: WATER TREATMENT PLANT									
VOLTAGE, PHASE & AMPS: 277/480Y—3Ø 4W. 600AMP MLO A.I.C. RATING: 42kAIC									
MOUNTING: SURFACE ENCLOSURE: NEMA 1		CONNECTED KVA					OTHER:		
CKT	DESCRIPTION	CB/P	PHASE A	PHASE B	PHASE C	CB/P	DESCRIPTION	CKT	
1	INFLUENT PUMP #1 (P1010)	225/	43.2	Ø.1		175/	PANEL-LA	2	
3		/		43.2	18.8	/		4	
5		/3			43.2	28.7		6	
7	INFLUENT PUMP #2 (P1020)	225/	43.2	0.0		/	SPACE	8	
9		/		43.2	0.0	/		10	
11		/3			43.2	0.0		12	
13	EUH-1	15/	1.0	-		/	SPACE	14	
15		/		1.0	-	/		16	
17		/3			1.0	-		18	
19	EUH-2	15/	1.7	-		/	SPACE	20	
21		/		1.7	-	/		22	
23		/3			1.7	-		24	

PROPOSED THREE PHASE PANEL SCHEDULE "PANEL LA SECTION ONE" LOCATION: WATER TREATMENT PLANT									
VOLTAGE, PHASE & AMPS: 120/208Y—3Ø 4W. 125AMP MCB A.I.C. RATING: 10kAIC									
MOUNTING: SURFACE ENCLOSURE: NEMA 1		CONNECTED KVA					OTHER: FEED-THRU LUGS		
CKT	DESCRIPTION	CB/P	PHASE A	PHASE B	PHASE C	CB/P	DESCRIPTION	CKT	
1	INTERIOR LIGHTING	20/1	1.1	0.5		20/1	RECEPTACLES	2	
3	EMERGENCY LIGHTING	20/1		0.2	0.5	20/1	RECEPTACLES	4	
5	TURBIDIMETER (AIT1010)	20/1			0.3	0.7	RECEPTACLES	6	
7	CHLORINE ANALYZER (AIT1020)	20/1	0.3	1.5		20/1	CONTROL PANEL (LCP1100)	8	
9	PUMP SKID	20/1		1.1	1.0	20/1	NETWORK DEVICES	10	
11	GRINDER PUMP	30/			1.4	1.9	EXHAUST FAN (EF-1)	12	
13		/2	1.4	1.9		/2		14	
15	HEAT PUMP (MHP-2)	50/		1.4	0.4	20/1	FLOW METER (FIT1010)	16	
17		/2			3.6	0.4	LEVEL TRANSMITTER (LIT1010)	18	
19	OLCP	20/	0.3	0.4		20/1	LEVEL TRANSMITTER (LIT1020)	20	
21		/1		0.3	1.1	20/1	TRANSFER PUMP	22	
23	LEVEL TRANSMITTER (LIT1020)	20/1			0.4	0.4	FLOW METER (FIT1020)	24	
25	SUMP PUMP	20/1	0.7	0.7		20/1	SUMP PUMP	26	
27	SPACE	20/1		0.0	0.6	15/	EXHAUST FAN (EF-2)	28	
29	SPACE	20/1			-	12		30	
31	SPACE	20/1	-	-		20/1	SPACE	32	
33	SPACE	20/1		-	-	20/1	SPACE	34	
35	SPACE	20/1			-	20/1	SPACE	36	
37	SPACE	20/1	-	-		20/1	SPACE	38	
39	SPACE	20/1		-	-	20/1	SPACE	40	
41	SPACE	20/1			-	20/1	SPACE	42	

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NO.	DESCRIPTIONS			
1	ADDENDUM #1	9/8/2025		

DESIGN	CKB	DRAWN	CKB	CHECKED	CKB	APPROVED	CKB
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TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT - PHASE 1

SINGLE LINE DIAGRAM & SCHEDULES



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1122 RIVERFRONT PARKWAY
CHATTANOOGA, TN 37402
423-267-7613



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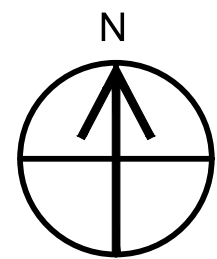
1/1/2025

DRAWING NO.

E04.1



BFIELD ENGINEERING, LLC
4180 Providence Road, Suite 325
Marietta, GA 30062
Phone: (678) 650-0732



ELECTRICAL PLAN

1/4" = 1'-0"

- | | |
|---|---|
| 1 | BOND TO STRUCTURE REINFORCING STEEL W/ EXOTHERMIC BOND. BOND TO ALUMINUM HAND RAIL. #4/0 BARE COPPER GROUNDING CONDUCTOR. |
| 2 | CONTRACTOR TO FURNISH AND INSTALL ALL POWER/ THERMAL CABLES/ CONDUIT FOR THE SWITCH & THERMOSTAT TO CONTROL THE EXHAUST FAN & LOUVER. PROVIDE SINGLE - PHASE STARTER FOR EXHAUST FAN. |
| 3 | 1 - 1.5" C. W/ FISH TAPE TO EXTERIOR OF BUILDING FOR CONNECTION TO NETWORK UTILITY |
| 4 | CHEMICAL FEED SIDS PREPARED BY MANUFACTURER. PROVIDE 120V POWER AND INTERCONNECTING WIRING TO TERMINAL BOX. |

1. VERIFY ALL DOOR SWINGS WITH THE ARCHITECTURAL DRAWINGS BEFORE ROUGHING IN LIGHT SWITCHES TO INSURE PROPER SWITCH LOCATION. VERIFY ALL CASEWORK DETAILS TO ENSURE THAT ALL OUTLETS ARE AT THE PROPER HEIGHT.
2. THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO ENSURE THAT CONDUITS FOR RECEPTACLES AND SWITCHES ARE ROUTED WITHIN WALL CAVITIES.
3. MOUNT PUMP MOTOR HAND SWITCHES ON EQUIPMENT RACKS.
4. 208V CIRCUIT FEEDERS:
20A CB5 - 2#1/2, 1#12(G), IN 3/4"C.
30A CB5 - 2#1/0, 1#10(G), IN 3/4"C.
35/40A CB5 - 2#8, 1#10(G), IN 1"C.
50A CB5 - 2#6, 1#10(G), IN 1 1/2"C.

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NO.	DESCRIPTIONS	DATE	BY	APP'D
1	ADDENDUM #1	9/6/2025		

DESIGN	CKB
DRAWN	CKB
CHECKED	CKB
APPROVED	CKB

TOWN OF TELlico PLAINS
WATER TREATMENT PLANT - PHASE 1

WTP ELECTRICAL PLAN



CTIENGINEERS
1122 RIVERFRONT PARKWAY
CHATTANOOGA, TN 37402
423-267-7613



JOB NO.

C24044

ISSUE DATA

1/1/2025

DRAWING NO.

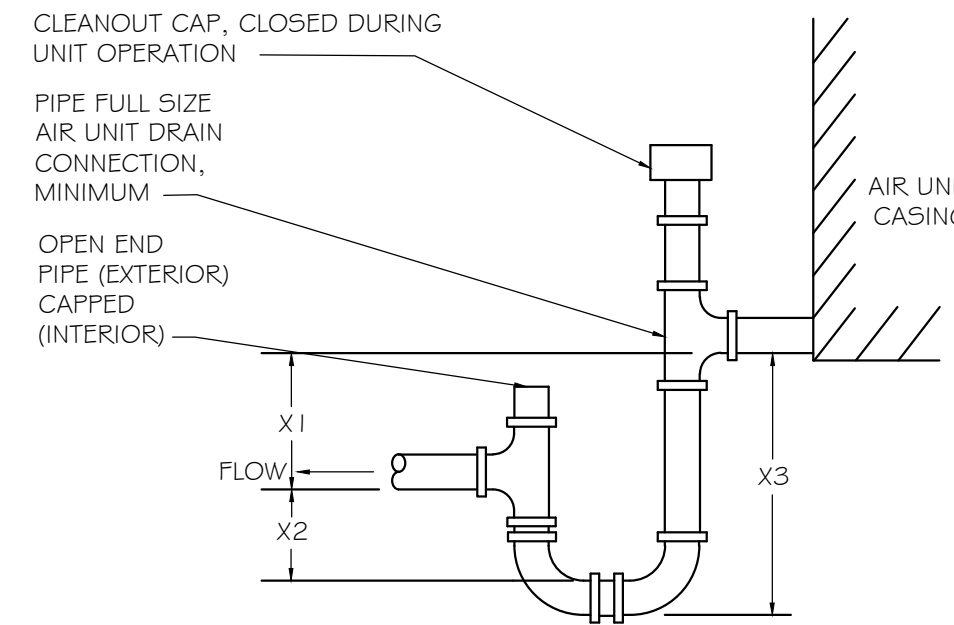
07.1



BFIELD ENGINEERING, LLC
4180 Providence Road, Suite 325
Marietta, GA 30062
Phone: (678) 650-0732

CONDENSATE TRAP (DRAW THROUGH UNIT)

NO SCALE



WHERE:

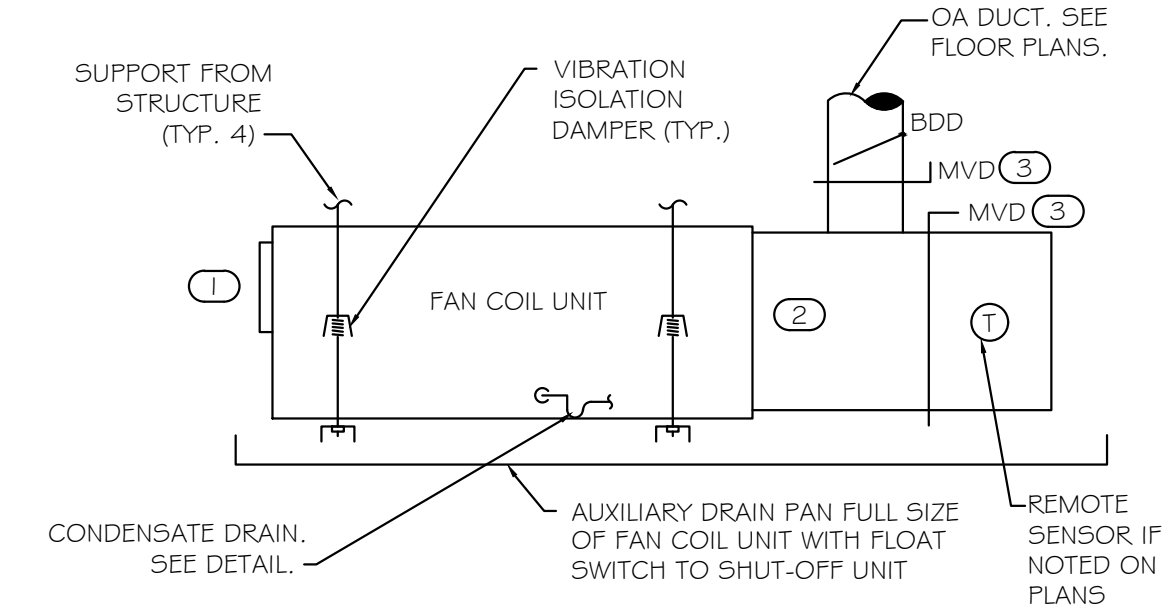
- X1 =1" PLUS MAXIMUM NEGATIVE STATIC PRESSURE
X2 =HALF OF X1
X3 =X1 +X2+PIPE Ø+INSULATION

NOTES

1. LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.

HORIZONTAL FAN COIL UNIT DETAIL

NO SCALE



KEY NOTES:

- 1 SUPPLY AIR DISCHARGE. PROVIDE FLEXIBLE CONNECTION AND TRANSITION TO SUPPLY AIR DUCT SIZE SHOWN ON FLOOR PLANS.
2 RETURN AIR PLENUM FULL SIZE OF RETURN AIR OPENING. SEE FLOOR PLAN(S) FOR DUCT CONNECTIONS.
3 PROVIDE MOTOR OPERATED DAMPERS WHERE ECONOMIZER OR DEMAND VENTILATION IS SCHEDULED.

SPECIFICATIONS

HEAT PUMP:

EQUIPMENT: FACTORY ASSEMBLED, SINGLE PIECE, AIR-COOLED HEAT PUMP UNIT. CONTAINED WITHIN THE UNIT ENCLOSURE IS ALL FACTORY WIRING, PIPING, CONTROLS, COMPRESSOR, REFRIGERANT CHARGE, AND SPECIAL FEATURES REQUIRED PRIOR TO FIELD START-UP.

UNIT CABINET WILL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED, AND COATED WITH A POWDER COAT PAINT.

CONDENSER FAN WILL BE DIRECT-DRIVE PROPELLER TYPE, DISCHARGING AIR UPWARD. CONDENSER FAN MOTORS WILL BE TOTALLY ENCLOSED, 1-PHASE TYPE WITH CLASS B INSULATION AND PERMANENTLY LUBRICATED BEARINGS. SHAFTS WILL BE CORROSION RESISTANT. FAN BLADES WILL BE STATICALLY AND DYNAMICALLY BALANCED. CONDENSER FAN OPENINGS WILL BE EQUIPPED WITH STEEL WIRE SAFETY GUARDS.

COMPRESSOR WILL BE HERMETICALLY SEALED. COMPRESSOR WILL BE MOUNTED ON RUBBER VIBRATION ISOLATORS.

CONDENSER COIL WILL BE AIR COOLED. COIL WILL BE CONSTRUCTED OF ALUMINUM FINS MECHANICALLY BONDED TO COPPER TUBES WHICH ARE THEN CLEANED, DEHYDRATED, AND SEALED.

REFRIGERATION CIRCUIT COMPONENTS WILL INCLUDE LIQUID-LINE SHUTOFF VALVE WITH SWEAT CONNECTIONS, VAPOR-LINE SHUTOFF VALVE WITH SWEAT CONNECTIONS, SYSTEM REFRIGERANT CHARGE, POE COMPRESSOR OIL, ACCUMULATOR, AND REVERSING VALVE.

SEE SCHEDULE FOR LIST OF ACCEPTABLE MANUFACTURERS.

FAN COIL UNIT:

GENERAL: EXCEPT AS OTHERWISE INDICATED, PROVIDE FAN COIL UNIT MANUFACTURER'S STANDARD MATERIALS AND COMPONENTS AS INDICATED BY PUBLISHED PRODUCT INFORMATION, DESIGNED AND CONSTRUCTED AS RECOMMENDED BY MANUFACTURER, AND AS REQUIRED FOR A COMPLETE INSTALLATION.

COOLING COILS: EXCEPT AS OTHERWISE INDICATED, PROVIDE MANUFACTURER'S STANDARD COIL OF INDICATED TYPE AND RATED FOR INDICATED CAPACITY. COPPER TUBE COILS, MECHANICALLY EXPANDED INTO ALUMINUM PLATE FINS; RATED AT 250 PSIG AND LEAK TESTED AT 350 PSIG MIN. AIR PRESSURE. PROVIDE MANUAL AIR VENTS.

ELECTRIC HEATING COILS SHALL BE AN OPEN GRID TYPE WITH FACTORY INSTALLED HIGH LIMIT CONTROL. HEATER SHALL BE FULLY ACCEPTABLE THROUGH THE DISCHARGE GRILLE OPENINGS.

THE FAN SHALL BE A CENTRIFUGAL, FORWARD CURVED, DOUBLE WIDTH, DOUBLE INLET, DIRECT DRIVE TYPE. BALANCED STATICALLY AND DYNAMICALLY, AND OF INDICATED CAPACITY.

MOTORS SHALL BE OF INDICATED CAPACITY, 3 SPEED, PERMANENT SPLIT CAPACITOR, INSTALLED FOR EASY REMOVAL. PROVIDE MOTORS WITH AUTOMATIC-RESET AND INTEGRAL THERMAL OVERLOAD PROTECTION. MOTORS SHALL BE CAPABLE OF OPERATING AT TEMPERATURES INDICATED ON DRAWINGS WITHOUT OVERLOADING. MOTOR SHALL BE CAPABLE OF FIELD OILING AS REQUIRED.

CABINETS: CABINETS SHALL BE FABRICATED OF 1/8 GAUGE STEEL AND HAVE BAKED ENAMEL FINISH. ALL SURFACES IN CONTACT WITH AIR STREAM SHALL BE INSULATED WITH HALF INCH THICK, 1-1/2 POUND DENSITY, MATT FACED, GLASS FIBER INSULATION.

THE FILTER SHALL BE ONE INCH THICK, THROWAWAY GLASS FIBER TYPE.

THE DRAIN PAN SHALL BE REMOVABLE AND HAVE SELF EXTINGUISHER THREE (3) POUND DENSITY CELLULAR POLYSTYRENE PLASTIC LINER, THE DRAIN PAN SHALL EXTEND UNDER THE ENTIRE COIL SECTION.

THERMOSTAT SHALL BE 7-DAY PROGRAMMABLE TYPE.

SEE SCHEDULE FOR LIST OF ACCEPTABLE MANUFACTURERS.

DIRECT DRIVE SIDEWALL PROPELLER FANS:

THE PROPELLER SHALL BE FABRICATED STEEL BLADES AND HUBS. THE WHEEL SHALL BE SECURELY ATTACHED TO THE FAN SHAFT WITH STANDARD SQUARE KEY AND SET SCREW OR TAPERED BUSHING. THE WHEEL SHALL BE STATICALLY AND DYNAMICALLY BALANCED IN ACCORDANCE WITH AMCA STANDARD 204-05. THE PROPELLER AND FAN INLET SHALL BE MATCHED.

THE MOTOR ENCLOSURE SHALL BE OPEN DRIPPROOF. THE MOTOR SHALL BE PERMANENTLY LUBRICATED, HEAVY DUTY BALL BEARING TYPE. THE MOTOR SHALL BE FURNISHED AT THE SPECIFIC VOLTAGE AND PHASE. REFER TO THE ELECTRICAL DOCUMENTS FOR REQUIRED FAN ELECTRICAL CHARACTERISTICS.

THE FRAMES AND PANELS SHALL BE BOLTED CONSTRUCTION. THE DRIVE FRAME ASSEMBLIES AND FAN PANELS SHALL BE GALVANIZED STEEL. THE DRIVE FRAME SHALL HAVE WELDED WIRE OR FORMED CHANNELS. THE FAN PANELS SHALL HAVE PREPUNCHED MOUNTING HOLES, FORMED FLANGES AND A DEEP FORMED ONE PIECE INLET VENTURI.

REFER TO THE EQUIPMENT SCHEDULE FOR A FULL LISTING OF REQUIRED FAN ACCESSORIES.

WALL LOUVERS:

THE WALL LOUVER SHALL BE AMCA CERTIFIED. THE WALL LOUVER SHALL BE A STATIONARY OR OPERABLE, DRAINABLE BLADE TYPE. THE LOUVER SHALL INCORPORATE DRAIN GUTTERS IN THE HEAD MEMBER AND HORIZONTAL BLADES TO CHANNEL WATER TO THE JAMBS WHERE WATER IS FURTHER CHanneLED THROUGH VERTICAL DOWNSPOUTS AND OUT A SLOPED SILL.

THE FRAME AND BLADES SHALL BE CONSTRUCTED FROM HEAVY GAUGE, EXTRUDED, ALUMINUM. THE LOUVER SHALL BE OF MECHANICALLY FASTENED CONSTRUCTION.

REFER TO THE EQUIPMENT SCHEDULE FOR A FULL LISTING OF REQUIRED ACCESSORIES.

SPECIFICATIONS

SHOP DRAWINGS:

SUBMIT SHOP DRAWINGS FOR REVIEW. PDF FILES PREFERRED. SHOP DRAWINGS SHALL BE BOUND INTO VOLUMES (FILES), WITH EACH VOLUME (FILE) CONTAINING ONE COPY OF ALL SHOP DRAWINGS. ALL SHOP DRAWINGS SHALL BE SUBMITTED SIMULTANEOUSLY; NO SHOP DRAWINGS WILL BE CHECKED UNTIL ALL HAVE BEEN SUBMITTED.

SUBMITTALS SHALL BE SUPPORTED BY DESCRIPTIVE MATERIAL, SUCH AS CATALOG CUTS, DIAGRAMS, PERFORMANCE CURVES AND CHARTS PUBLISHED BY THE MANUFACTURER, TO SHOW CONFORMANCE TO SPECIFICATION AND DRAWING REQUIREMENTS; MODEL NUMBERS ALONE WILL NOT BE ACCEPTABLE. ALL LITERATURE SHALL CLEARLY INDICATE THE SPECIFIED MODEL NUMBER, DIMENSIONS, ARRANGEMENT, RATING AND CHARACTERISTICS OF THE PROPOSED EQUIPMENT. CAPACITIES AND RATINGS SHALL BE BASED ON CONDITIONS INDICATED OR SPECIFIED HEREIN. ANY DEVIATIONS FROM SPECIFIED EQUIPMENT (PARTICULARLY THOSE WHICH REQUIRE COORDINATION WITH OTHER TRADES) SHALL BE CLEARLY NOTED IN A CONCISE LIST ON A SEPARATE SHEET.

TEST AND BALANCE:

TEST AND BALANCE (TAB) CONTRACTOR SHALL HOLD A CURRENT NATIONAL BALANCING COUNCIL (NBC) CERTIFICATION AND POSSESS ACCURATE AND CALIBRATED INSTRUMENTS. TAB WORK AND REPORTS SHALL BE PER NBC PRACTICAL STANDARDS, PROCEDURES AND FORMS. ACCEPTIBLE ALTERNATIVE TAB FIRM CERTIFICATIONS/PROCEDURES: NEBB, AABC, OR TABB.

PRIOR TO COMMENCEMENT OF THE TAB WORK, THE MECHANICAL SYSTEMS ARE TO BE STARTED AND FULLY FUNCTIONING. A CHECKLIST PRIOR TAB WORK IS TO BE SENT TO THE INSTALLING CONTRACTOR AND RETURNED ATTESTING TO THE READINESS OF THE SYSTEMS FOR BALANCING.

PREFERRED TAB FIRM: P-TAB.COM

GUARANTEE:

GUARANTEE THAT EACH PIECE OF APPARATUS SHALL BE OF THE CUSTOMARY STANDARD AND QUALITY FURNISHED BY THE DESIGNED MANUFACTURER FOR THAT CATALOG NUMBER.

GUARANTEE THAT THE AIR SYSTEMS SHALL OPERATE WITHOUT AERODYNAMIC NOISE GENERATED FROM THE FAULTY INSTALLATION OF DUCT WORK OR ANY COMPONENT OF THE AIR DISTRIBUTION SYSTEM.

GUARANTEE THAT ALL SYSTEMS AND COMPONENTS SHALL BE PROVIDED WITH A ONE YEAR WARRANTY FROM THE TIME OF DATE OF SUBSTANTIAL COMPLETION. THE WARRANTY SHALL COVER ALL MATERIALS AND WORKMANSHIP. DURING THIS WARRANTY PERIOD, ALL DEFECTS IN MATERIALS AND WORKMANSHIP SHALL BE CORRECTED BY REPAIR OR REPLACEMENT WITHOUT INCURRING ADDITIONS TO THE CONTRACT.

GENERAL NOTES:

REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED EQUIPMENT.

ALL DUCT DIMENSIONS INDICATED IN THESE DOCUMENTS ARE INSIDE-CLEAR DIMENSIONS.

PORTIONS OF DUCTWORK OR PIPING VISIBLE THROUGH GRILLES AND REGISTERS IN FINISHED AREAS SHALL BE PAINTED FLAT BLACK. PAINT BLACK BEHIND ALL GRILLES.

ALL WIRING IN THE CEILING PLENUM SHALL BE PLENUM RATED CABLE.

MOUNTING FRAME OF CEILING MOUNTED AIR DISTRIBUTION DEVICES SHALL BE COMPATIBLE WITH CEILING TYPE. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPE.

ALL FIRE SEPARATIONS MUST BE PROTECTED WHEN APPLICABLE.

PROVIDE NEW FILTERS (MERV 7 OR BETTER PER OWNER) FOR ALL APPLICABLE HVAC EQUIPMENT AT THE END OF CONSTRUCTION.

ALL MATERIAL IN PLENUM MUST MEET FIRE AND SMOKE SPREAD AS REQUIRED BY NFPA 90A.

ALL ROOF PENETRATIONS TO BE 12" APART AND AT LEAST 12" AWAY FROM CURBS, WALLS, AND DRAIN SUMPS TO PROVIDE ROOFING CONTRACTOR WITH SUFFICIENT ACCESS FOR FLASHING EACH ROOF PENETRATION.

SUBSTITUTIONS MUST BE APPROVED IN WRITING BY ARCHITECT PRIOR TO BID SUBMISSION.

CONTRACTOR SHALL REVIEW ALL CONTRACT DOCUMENTS AND SHALL BE FAMILIAR WITH THE SCOPE AND REQUIREMENTS OF THIS PROJECT. ANY DISCREPANCIES OR LACK OF CLARITY IN THE DOCUMENTS SHALL BE IDENTIFIED TO THE ARCHITECT OR ENGINEER PRIOR TO THE SUBMISSION OF PRICING BIDS. WITH A SUBMITTED BID, CONTRACTOR IS ACCEPTING THESE DOCUMENTS AS SUFFICIENT DEFINITION OF THE SCOPE OF WORK, AND ANY ADDITIONAL COSTS BASED ON UNCLARITY OF CONTRACT DOCUMENTS WILL NOT BE CONSIDERED.

THE CONTRACTOR SHALL REFERENCE THE FULL SET OF CONSTRUCTION DOCUMENTS DURING PRICING AND CONSTRUCTION FOR COORDINATION BETWEEN DISCIPLINES RELATIVE TO THE MECHANICAL SCOPE.

CEILING FAN:

CEILING MOUNTED EXHAUST FANS SHALL BE OF THE CENTRIFUGAL DIRECT DRIVE TYPE. THE FAN HOUSING SHALL BE CONSTRUCTED OF STEEL. THE PLASTIC DUCT COLLAR SHALL BE A TAPERED SLEEVE FOR EASE OF CONNECTION TO 3 IN AND 4 IN ROUND DUCTWORK AND SHALL INCLUDE A BACKDRAFT DAMPER. THE GRILLE SHALL BE CONSTRUCTED OF NON-YELLOWING HIGH STRENGTH POLYMER AND ATTACHED TO THE HOUSING WITH TORSION SPRINGS. THE WHEELS SHALL BE CONSTRUCTED OF HIGH STRENGTH POLYMER. THE ACCESS FOR WIRING SHALL BE EXTERNAL. THE MOTOR DISCONNECT SHALL BE INTERNAL AND OF THE PLUG IN TYPE.

ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEALS FOR SOUND AND AIR PERFORMANCE AND SHALL BE U.L. LISTED.

DUCTLESS SPLIT SYSTEM

CEILING CASSETTE INDOOR UNIT. STANDARD PREFILTER IS INCLUDED WITH INDOOR UNIT. CHOICE OF FAN SPEEDS: LOW, MEDIUM, HIGH. INDOOR UNIT POWERED FROM OUTDOOR UNIT. AUTO RESTART FOLLOWING A POWER OUTAGE. BASE HEATER. LIMITED WARRANTY: FIVE YEARS ON PARTS AND DEFECTS AND SEVEN YEARS ON THE COMPRESSOR.

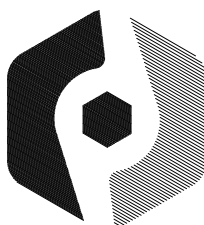
SEE SCHEDULE FOR LIST OF ACCEPTABLE MANUFACTURERS.

LEGEND

SYMBOLS	DESCRIPTION
X1 X2	DIFFUSER, GRILLE, REGISTER OR LOUVER TAG X1 = TYPE, X2 = CFM
	POSITIVE PRESSURE (AIR GOES OUT) DIFFUSER OR REGISTER, 4-WAY AIR PATTERN (UNLESS OTHERWISE NOTED)
	NEGATIVE PRESSURE (AIR GOES IN) GRILLE
	POSITIVE PRESSURE AIRFLOW (TYP. SUPPLY)
	NEGATIVE PRESSURE AIRFLOW (TYP. RETURN/EXHAUST)
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER (MVD)
	BACKDRAFT DAMPER (BDD)
	THERMOSTAT
	HUMIDISTAT
	REMOTE TEMPERATURE SENSOR
	INTERNALLY LINED DUCT
	DUCT UP
	DUCT UP
	DUCT DOWN
	SUPPLY DUCT
	EQUIPMENT TYPE EQUIPMENT NUMBER. WHERE A LETTER IS USED, THERE ARE MULTIPLE INSTANCES.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	M	MOTOR
BDD	BACKDRAFT DAMPER	MA	MAKE-UP AIR
AHU	AIR HANDLING UNIT	MAU	MAKE-UP AIR UNIT
CO2	CARBON DIOXIDE	MAV	MANUAL AIR VENT
CU	CONDENSING UNIT	MBH	1,000 BTU PER HR
D	CONDENSATE DRAIN	MFCU	MINI FAN COIL UNIT
DB	DRY BULB	MHP	MINI HEAT PUMP
DH	DEHUMIDIFIER	MVD	MANUAL VOLUME DAMPER
EA	EXHAUST AIR	NC	NORMALLY CLOSED
EAT	ENTERING AIR TEMPERATURE	NO	NORMALLY OPEN
EDH	ELECTRIC DUCT HEATER	OA	OUTSIDE AIR
EF	EXHAUST FAN	OBD	OPPOSED BLADE DAMPER
ESP	EXTERNAL STATIC PRESSURE	PIU	POWER INDUCTION UNIT
EWI	ELECTRIC WALL HEATER	RA	RETURN AIR
F	DEGREES FAHRENHEIT	RH	RELIEF HOOD
FCU	FAN COIL UNIT	RTU	ROOFTOP UNIT
FD	FIRE DAMPER	SA	SUPPLY AIR
FSD	COMBINATION FIRE/SMOKE DAMPER	SP	STATIC PRESSURE
FURN	FURNACE	U.N.O	UNLESS NOTED OTHERWISE
H	HUMIDISTAT	UC	UNDER CUT DOOR
IH	INTAKE HOOD	VAV	VARIABLE AIR VOLUME
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LWT	LEAVING WATER TEMPERATURE	WL	WALL LOUVER



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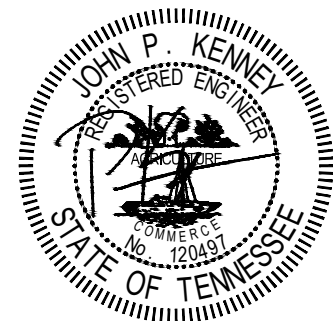
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TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT

GENERAL & DETAILS



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1122 RIVERFRONT PARKWAY
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423-267-7613



JOB NO.

C24044

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UNIT HEATER - ELECTRIC						
MARK	FAN		HEATING		BASIS OF DESIGN	WEIGHT (LBS)
	AIRFLOW (CFM)	MOTOR (HP)	KW	STAGES		
EUH-1	350	1/100	3.0	1	QMARK QWD	27.0
EUH-2	350	1/100	5.0	1	QMARK MUH	27.0
NOTES: (APPLY TO ALL)						
A. DISCONNECT SWITCH PROVIDED BY THE ELECTRICAL SUBCONTRACTOR.						
B. 24V CONTROL TRANSFORMER AND REMOTE / WALL MOUNTED THERMOSTAT. THERMOSTAT SET TO 50°F (ADJ.).						
C. AUTOMATIC THERMAL CUT-OUT.						
D. FAN DELAY.						
E. ADJUSTABLE DISCHARGE LOUVERS.						
F. CORROSION-RESISTANT CONSTRUCTION.						

FAN SCHEDULE																				
MARK	SERVES	DUTY	TYPE	CFM	ESP (IN WG)	MOTOR (W / HP*)	DRIVE	MAX NOISE (SONES)	CONTROL BY	BASIS OF DESIGN MODEL	REMARKS									
											1	2	3	4	5	6	7	8	9	10
EF-1	CHEM ROOM	EXHAUST	PROPELLER	2100	0.298	3*	DIRECT	12.6	NOTE 8	GREENHECK AER	X	X	X	X	X	X	X	X	X	X
EF-2	PUMP ROOM	EXHAUST	PROPELLER	2150	0.5	1/2 *	BELT	20.0	OCCUPANCY SENSOR	GREENHECK SBE	X	X	X	X						
NOTES (APPLY TO ALL):											REMARKS (APPLY AS SCHEDULED):									
A. SEE ELECTRICAL PLANS FOR POWER CHARACTERISTICS											1. INTEGRATED FAN SPEED CONTROLLER INSIDE FAN FOR BALANCING.									
B. DESIGN IS BASED ON PRODUCTS BY GREENHECK. ACCEPTABLE ALTERNATES SHALL BE BY LOREN-COOK, TWIN-CITY, PENN BARRY.											2. FACTORY DISCONNECT SWITCH/PLUG.									
											3. GRAVITY BACKDRAFT DAMPER.									
											4. CORROSION RESISTANT COATING, HIGH PRO POLY OR EQUAL.									
											5. SPARK C CONSTRUCTION.									
											6. WALL HOUSING AND OSHA GUARD..									
											7. VARIABLE FREQUENCY DRIVE.									
											8. FAN TO ACTIVATE UPON DETECTION OF CHLORINE GAS, ROOM ENTRY, OR LOSS OF CHEMICAL CONTAMINANT (INTERLOCKED WITH SCADA / ALARM SYSTEM).									
											9. MANUAL OVERRIDE SWITCH WITH INDICATOR LIGHT NEAR DOOR.									
											10. FLOW SWITCH OR DIFFERENTIAL PRESSURE SENSOR.									

DUCTLESS SPLIT DIRECT EXPANSION (DX) EQUIPMENT											
INDOOR UNIT						OUTDOOR UNIT				COMBINED CAPACITIES	
MARK	SERVES	TYPE	MODEL/SERIES	NOMINAL TONS	CFM SUPPLY	MARK	MIN. SEER	MIN. HSPF	MODEL/SERIES	COOLING TOTAL (MBH)	HEATING @ 47°F (MBH)
MFCU-1	ELECTRICAL	CEILING CASSETTE, HEAT PUMP	40MBCQ48---3	4.00	853/1030/1177	MHP-1	16.8	11.0	38MBRQ48A--3	48.0	48.0
NOTES (APPLY TO ALL):											
A. BASIS OF DESIGN: CARRIER. EQUAL PRODUCTS: DAIKIN, LENNOX, SAMSUNG, LG, SANYO, MITSUBISHI, JCIYORK.											
B. SINGLE POWER CONNECTION AT OUTDOOR UNIT. DISCONNECT SWITCHES PROVIDED AT THE INDOOR AND OUTDOOR UNITS BY ELECTRICAL SUBCONTRACTOR. REFER TO THE ELECTRICAL DOCUMENTS.											
C. UNITS SHALL BE DOE 2023 COMPLIANT.											
D. FACTORY CONDENSATE PUMP OR CONDENSATE LIFT MECHANISM.											
E. WALL MOUNTED WIRED REMOTE CONTROLLER.											
F. INVERTER DRIVEN COMPRESSOR.											
G. MOUNT OUTDOOR UNIT ON CONCRETE HOUSEKEEPING PAD. PAD SHALL BE A MINIMUM OF 4" THICK AND SHALL EXTEND 6" BEYOND UNIT ON ALL SIDES.											
H. REFRIGERANT LINE SET TOTAL EQUIVALENT LENGTH SHALL NOT EXCEED MANUFACTURER'S LIMITATIONS. SHOULD AN ALTERNATE MANUFACTURER BE USED, CONTRACTOR SHALL COMPLY WITH ALTERNATE MANUFACTURER LINE SET LIMITATIONS.											
I. CORROSION RESISTANT COATING.											

LOUVERS															
SYMBOL	MODEL / SERIES	SERVES	SIZE (WxH) (IN)	MIN FREE AREA (SF)	CFM	MAX PRESS. DROP (IN WC)	OPERATOR	INTERLOCK	FRAME	REMARKS					
										1	2	3	4	5	6
WL-1	ESD-635	CHEM ROOM	36x24	3.6	2,100	0.1	MOD	EF-1	ALUMINUM	X	X	X	X		
WL-2	ESD-635	PUMP ROOM	36x24	3.7	2,150	0.1	MOD	EF-2	ALUMINUM	X	X	X	X		
NOTES (APPLY TO ALL):															
A. FINAL COLOR SELECTION SHALL BE MADE BY ARCHITECT AT TIME OF SHOP DRAWING APPROVAL. PROVIDE COLOR/FINISH CHARTS AS PART OF SUBMITTAL.															
B. DESIGN IS BASED ON PRODUCTS BY GREENHECK. ACCEPTABLE ALTERNATES SHALL BE BY UNITED ENERTECH, ARROW, RUSKIN.															
REMARKS (APPLY AS SCHEDULED):															
1. BIRD SCREEN															
2. BAKED ON ENAMEL FINISH.															
3. 120V MOTORIZED DAMPER.															
4. CORROSION-RESISTANT COATING.															



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DESCRIPTIONS

DATE

BY

APPD

TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT

SCHEDULES

1122 RIVERFRONT PARKWAY
CHATTANOOGA, TN 37402
423-267-7613

JOB NO.
C24044

ISSUE DATE
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GENERAL NOTES

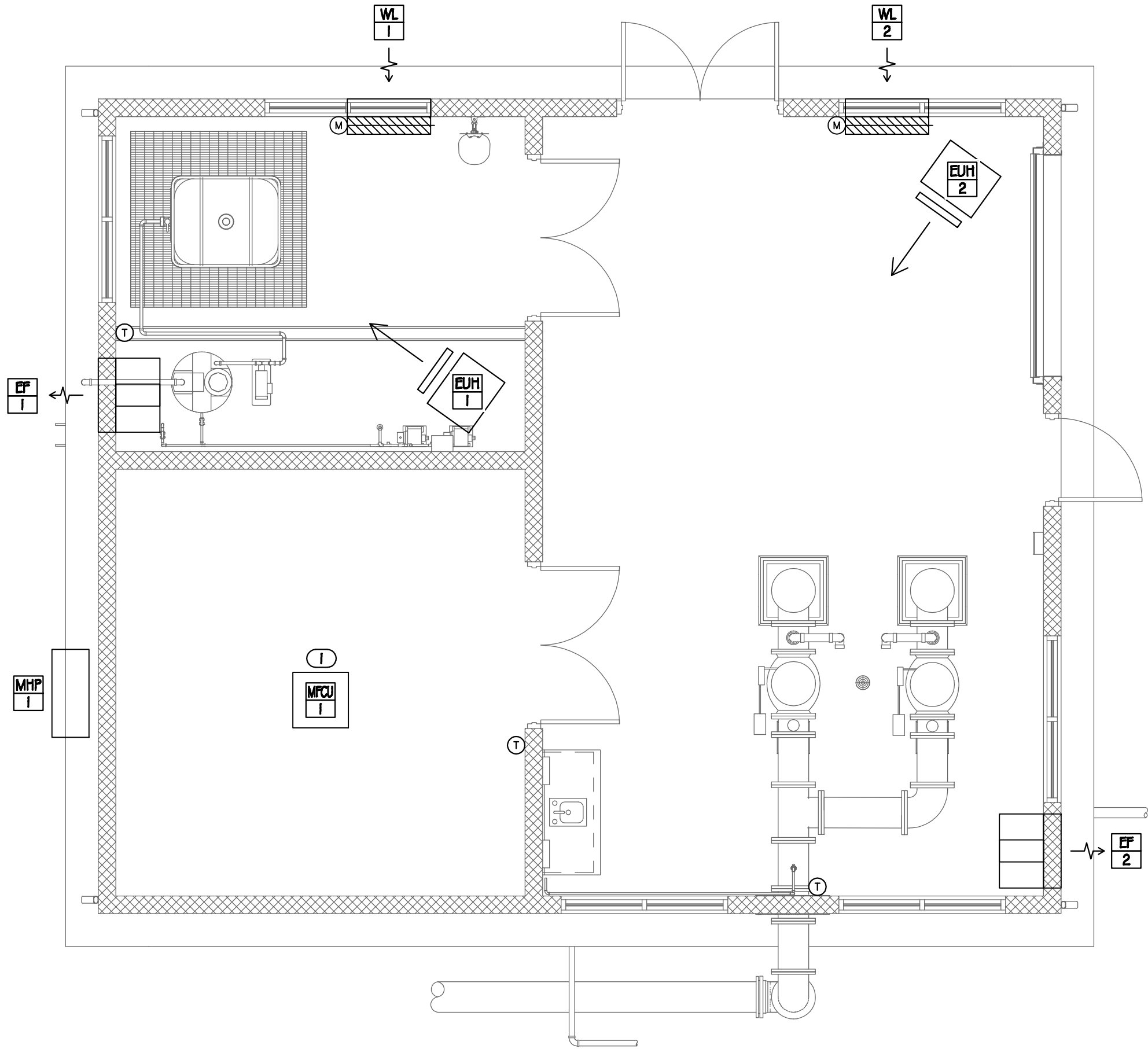
A. DRAWINGS ARE DIAGRAMMATIC ONLY; FINAL EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD.

B. ALL EXHAUST TERMINATIONS SHALL BE LOCATED A MINIMUM OF 1'-0" AWAY FROM MECHANICAL AIR INTAKES AND A MINIMUM OF 3'-0" AWAY FROM OPERABLE BUILDING OPENINGS.

C. ALL THERMOSTATS SHALL BE MOUNTED ON THERMALLY INSULATED BACK PLATES.

KEYNOTES

1 TRAP & ROUTE 1"Ø CONDENSATE DRAIN LINE FROM EACH MINI SPLIT TO SPLASH BLOCK ON GRADE. TERMINATE IN A LOCATION THAT WILL NOT CAUSE A NUISANCE. PROVIDE CONDENSATE PUMP WHERE GRAVITY DRAIN IS NOT POSSIBLE.



1 FLOOR PLAN

M-11 SCALE: 1/4" = 1'-0"

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ISSUE DATE
05/28/2025

DRAWING NO.
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TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT

FLOOR PLAN

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SPECIFICATIONS

GENERAL
ALL WORK SHALL COMPLY WITH ALL STATE, CITY AND LOCAL CODES, RULES AND REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED PERMITS AND INSPECTIONS ASSOCIATED WITH THIS WORK, AND SHALL PAY ALL COSTS AND FEES INVOLVED.

ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE BEST RECOGNIZED PRACTICE IN THE FIELD CONCERNED. MANUFACTURED ITEMS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED DIRECTIONS, SPECIFICATIONS AND RECOMMENDATIONS.

CONTRACTOR SHALL REVIEW ALL CONTRACT DOCUMENTS AND SHALL BE FAMILIAR WITH THE SCOPE AND REQUIREMENTS OF THIS PROJECT. ANY DISCREPANCIES OR LACK OF CLARITY IN THE DOCUMENTS SHALL BE IDENTIFIED TO THE ARCHITECT OR ENGINEER PRIOR TO THE SUBMISSION OF PRICING BIDS. WITH A SUBMITTED BID, CONTRACTOR IS ACCEPTING THESE DOCUMENTS AS SUFFICIENT DEFINITION OF THE SCOPE OF WORK, AND ANY ADDITIONAL COSTS BASED ON UNCLEARITY OF CONTRACT DOCUMENTS WILL NOT BE CONSIDERED.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LOCATIONS FOR EQUIPMENT INSTALLATION PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS. ALL EQUIPMENT AND DEVICES SHALL BE INSTALLED SUCH THAT THEY ARE EASILY ACCESSIBLE AND SERVICABLE. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PLUMBING FIXTURES, WATER HEATERS, EXPANSION TANKS, PUMPS, BACKFLOW PREVENTERS, VALVES, MIXING VALVES, THERMOMETERS, GAUGES, TRAP PRIMERS AND CLEANOUTS.

THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE FULL SET OF CONSTRUCTION DOCUMENTS, INCLUDING ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL & ELECTRICAL DRAWINGS (AS APPLICABLE) TO ENSURE ALL PLUMBING WORK IS COORDINATED WITH PHYSICAL CONDITIONS AND ALL OTHER TRADES.

THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE ARCHITECTURAL DRAWINGS TO ENSURE THERE IS ADEQUATE WALL THICKNESS SUCH THAT ALL PIPING, FIXTURE CARRIERS, WALL CLEANOUTS, WALL BOXES, WALL HYDRANTS AND ACCESS PANELS WILL FIT IN THE WALL SPACE. CONTRACTOR SHALL NOTIFY THE ARCHITECT IF WALL SPACE IS INADEQUATE PRIOR TO COMMENCING WORK.

THE CONTRACTOR SHALL OBTAIN EXACT WALL, FIXTURE, AND LAYOUT DIMENSIONS FROM THE ARCHITECTURAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ROUGH-IN AND INSTALLATION DRAWINGS FOR ALL PLUMBING FIXTURES, KITCHEN EQUIPMENT AND OWNER FURNISHED EQUIPMENT (AS APPLICABLE), AND SHALL COORDINATE THE PLUMBING INSTALLATION PRIOR TO COMMENCING THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL NECESSARY VALVES, CONNECTIONS, TRAPS, ACCESS PANELS, UNIONS, ESCUTCHEONS, WATER HAMMER ARRESTORS, VACUUM BREAKERS, RELIEF VALVES, PIPE INSULATION, AND EQUIPMENT SPECIALTY DEVICES AS REQUIRED TO FACILITATE COMPLETE AND OPERATIONAL CONDITIONS WHICH ARE IN STRICT COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

THESE DRAWINGS ARE DIAGRAMMATIC AND DO NOT REFLECT ALL POSSIBLE PHYSICAL CONDITIONS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND EXACT LOCATIONS OF EQUIPMENT AND FIXTURES. PROVIDE NECESSARY PIPING OFFSETS TO COORDINATE WITH THE BUILDING STRUCTURE, WORK OF OTHER TRADES, AND CONNECTION TO SITE UTILITIES (AS APPLICABLE).

COORDINATE THE ELECTRICAL REQUIREMENTS AND CHARACTERISTICS OF ALL PLUMBING EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO ISSUING SUBMITTALS OR PURCHASING EQUIPMENT.

UNLESS NOTED OTHERWISE, ALL DRAINAGE PIPING SHALL BE SLOPED AT A MINIMUM OF $\frac{1}{8}$ " PER FOOT. 2" SANITARY PIPING AND ALL GREASE WASTE PIPING SHALL BE SLOPED AT $\frac{1}{4}$ " PER FOOT.

DOMESTIC WATER PIPING SHALL BE PURGED OF DELETERIOUS MATTER AND DISINFECTED PRIOR TO UTILIZATION. PIPING TO BE FLUSHED AND STERILIZED IN ACCORDANCE WITH IPC 610.1 AND ALL APPLICABLE LOCAL AND STATE HEALTH DEPARTMENT STANDARDS.

ALL DOMESTIC WATER PIPING, SANITARY P-TRAPS AND GREASE WASTE PIPING SUBJECT TO FREEZING SHALL BE INSULATED AND PROVIDED WITH HEAT TRACE. CONDENSATE PIPING SUBJECT TO FREEZING WITHIN WALK-IN FREEZERS SHALL BE INSULATED AND PROVIDED WITH HEAT TRACE. PIPING INSTALLED IN EXTERIOR WALLS SHALL BE WRAPPED IN 1" THICK PIPE INSULATION AND BE LOCATED ON THE INTERIOR SIDE OF THE BUILDING INSULATION. IF INSTALLED IN EXTERIOR BLOCK WALLS, INTERSTITIAL SPACES SHALL BE FILLED WITH FOAM INSULATION.

IN CONCEALED LOCATIONS WHERE PIPING, OTHER THAN CAST-IRON OR GALVANIZED STEEL, IS INSTALLED THROUGH HOLES OR NOTCHES IN STUDS, JOISTS, OR SIMILAR MEMBERS LESS THAN $\frac{1}{2}$ " FROM THE NEAREST EDGE OF MEMBER, PIPE SHALL BE PROTECTED BY STEEL SHIELD PLATES IN ACCORDANCE WITH IPC 305.6.

PIPE PENETRATIONS THROUGH FIRE RATED WALLS OR FLOORS SHALL HAVE EQUIVALENTLY RATED SLEEVES AND SHALL BE SEALED AND FIRE CAULKED WITH A U.L. LISTED FIRE STOPPING SYSTEM INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S LISTED DETAILS AND SPECIFICATIONS.

THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE REQUIREMENTS OF THE COUNTY HEALTH DEPARTMENT AND OTHER LOCAL AUTHORITIES HAVING JURISDICTION REGARDING CROSS CONNECTION CONTROL OR OBTAINING A FOOD SERVICE PERMIT (AS APPLICABLE). REPORT ANY OBSERVED DISCREPANCIES TO THE ARCHITECT OR ENGINEER PRIOR TO COMMENCING WITH THE WORK.

CONTRACTOR SHALL CONFIRM PLUMBING FIXTURE FINISHES WITH THE ARCHITECTURAL SCHEDULES & DETAILS (AS APPLICABLE).

PROFICIENT ENGINEERING WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR PROBLEMS WHICH ARISE FROM OTHER'S FAILURE TO OBTAIN AND/OR FOLLOW PROFICIENT'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC IN NATURE.

SUBMITTALS
FURNISH SHOP DRAWINGS FOR MANUFACTURED PRODUCTS. ALL ITEMS SHALL BE CLEARLY MARKED TO MATCH EQUIPMENT MARKS ON THE PLUMBING DRAWINGS. ALL OPTIONS MUST BE CLEARLY MARKED ON THE SUBMITTAL SHEET. A MODEL NUMBER LISTING ON A COVER SHEET IS NOT AN ACCEPTABLE SUBSTITUTE FOR MARKING THE ACTUAL SUBMITTAL SHEET. ELECTRICAL DATA FOR POWERED EQUIPMENT MUST BE INDICATED ON THE SUBMITTAL SHEET FOR THAT ITEM.

SUBMITTAL REVIEW IS CONSIDERED A GENERAL ACCEPTANCE OF THE BASIC APPLICABILITY OF THE EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND/OR ALTERNATE ARRANGEMENT OF THE EQUIPMENT WITHIN A GIVEN SPACE. WHEN SUBSTITUTED EQUIPMENT IS INSTALLED, CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION OR ADDITIONAL COST BROUGHT ON BY THE USE OF THIS EQUIPMENT.

HANGERS AND SUPPORTS
HANGERS SHALL BE COMPLETE WITH RODS AND SUPPORTS PROPORTIONED TO THE SIZE OF PIPE TO BE SUPPORTED, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SIZE HANGERS FOR INSULATED PIPING TO BEAR ON OUTSIDE OF INSULATION. PROVIDE INSULATION PROTECTORS AT HANGERS BEARING ON THE OUTSIDE OF INSULATION. PROVIDE A RIGID INSERT OR RIGID INSULATION AT EACH INSULATION PROTECTOR.

WHERE SEVERAL PIPES $\geq \frac{3}{4}$ " AND SMALLER RUN PARALLEL AND IN THE SAME PLANE, THEY MAY BE SUPPORTED ON GANG OR MULTIPLE HANGERS. LARGER PIPING SHALL BE INDEPENDENTLY HUNG, RUN PARALLEL AND BE EQUALLY SPACED.

PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH IPC SECTION 308, AND SPACING OF HANGERS SHALL NOT EXCEED THE LIMITS SET FORTH IN TABLE 308.5. PIPES SHALL BE SUPPORTED WITHIN 1'-0" OF EACH ELBOW.

VERTICAL PIPE SUBJECT TO MOVEMENT SHALL BE SUPPORTED FROM THE WALL BY MEANS OF A PIPE CLAMP.

SUPPORT DOMESTIC WATER PIPING IN SPACES BEHIND PLUMBING FIXTURES BY BRACKETS AND U-BOLTS SECURED TO WASTE AND VENT STACKS. SIZE U-BOLTS TO BEAR ON THE PIPING.

AFTER HANGER RODS ARE INSTALLED IN FINISHED CONCRETE CEILING, FILL THE REMAINING OPENING WITH CEMENT SO THAT NO HOLE SHOWS AT THE CEILING.

WHERE COPPER PIPING IS USED, NONFERROUS METAL SUPPORT(S) OR PROPER ISOLATION BETWEEN DISSIMILAR MATERIALS SHALL BE PROVIDED.

PIPE HANGERS AND SUPPORTS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH RECOMMENDATIONS SET FORTH IN MANUFACTURER'S STANDARDIZATION SOCIETY STANDARD PRACTICES NO. SP-69 AND SP-58.

SLEEVES AND PENETRATIONS
SLEEVES SHALL BE PROVIDED WHERE PIPES PASS THROUGH WALLS, FLOORS AND ROOFS. PROVIDE STANDARD WEIGHT STEEL SLEEVES IN CONCRETE AND MASONRY CONSTRUCTION, PROVIDE 26GA GALVANIZED SHEET METAL SLEEVES IN INTERIOR DRYWALL CONSTRUCTION. SLEEVES SHALL BE THE FULL THICKNESS OF WALLS AND SHALL ALLOW FOR THE FULL THICKNESS OF PIPE INSULATION, WHERE APPLICABLE.

SLEEVES MAY BE OMITTED WHEN OPENINGS ARE CORE DRILLED FOR CONCEALED VERTICAL AND HORIZONTAL PIPING. SLEEVES ARE NOT REQUIRED AT INDIVIDUAL PLUMBING FIXTURES OR IN CONCRETE FLOOR SLABS ON GRADE, UNLESS OTHERWISE NOTED.

SLEEVES FOR ALL PIPING PENETRATING FIRE RATED WALLS AND FLOORS SHALL BE PROVIDED WITH 3M PIPE BARRIER NO. CP-25 FIRE PROOFING CAULKING, OR EQUAL, IN ANNULAR SPACE BETWEEN SLEEVE AND PIPING. CONTRACTOR SHALL VERIFY THE RATING OF THE WALL AND CONFIRM THE PENETRATION PROTECTION PROVIDED MEETS THAT RATING.

PENETRATIONS THROUGH OUTSIDE WALLS SHALL BE WATERTIGHT. CAULK BETWEEN PLUMBING PIPE AND SLEEVE. PACK WITH FIBERGLASS AND CAULK, 1" DEEP AT EACH FACE WITH NON-HARDENING SEALANT BETWEEN PIPE AND SLEEVE.

IN EXTERIOR WALLS AND BEARING PARTITIONS, WOOD STUDS ARE PERMITTED TO BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25 PERCENT OF THE WIDTH OF THE STUD. CUTTING OR NOTCHING OF STUDS TO A DEPTH NOT GREATER THAN 40 PERCENT OF THE WIDTH OF THE STUD IS PERMITTED IN NONBEARING PARTITIONS NOT SUPPORTING LOADS OTHER THAN THE WEIGHT OF THE PARTITION.

BORED HOLES NOT GREATER THAN 40 PERCENT OF THE STUD WIDTH ARE PERMITTED TO BE BORED IN ANY WOOD STUD. BORED HOLES NOT GREATER THAN 60 PERCENT OF THE STUD WIDTH ARE PERMITTED IN NONBEARING PARTITIONS IN ANY WALL WHERE EACH BORED STUD IS DOUBLED, PROVIDED THAT NOT MORE THAN TWO SUCH SUCCESSIVE DOUBLED STUDS ARE SO BORED. THE EDGE OF A BORED HOLE SHALL NOT BE NEARER THAN $\frac{3}{16}$ INCH (1.59 mm) TO THE EDGE OF THE STUD. BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A CUT OR NOTCH.

SPECIFICATIONS

WASTE AND VENT PIPING SYSTEMS AND ACCESSORIES
SANITARY PIPING SHALL BE PVC SCHEDULE 40 SOLID WALL PIPE AND DWV FITTING SYSTEM.

PIPE AND FITTINGS SHALL BE MANUFACTURED FROM PVC COMPOUND WITH A CELL CLASS OF 1.2454 PER ASTM D-1784 AND CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 14. PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D-1785 AND ASTM D-2665. INJECTION MOLDED FITTINGS SHALL CONFORM TO ASTM D-2665. FABRICATED FITTINGS SHALL CONFORM TO ASTM F-1866. SOLVENT CEMENTS SHALL CONFORM TO ASTM D-2564. PRIMER SHALL CONFORM TO ASTM F-656. BURIED PIPE SHALL CONFORM TO ASTM D-2321.

WASTE AND VENT PIPING SHALL BE TESTED IN ACCORDANCE WITH THE GOVERNING CODES. AT A MINIMUM, WASTE PIPING SHALL BE TESTED WITH AT LEAST 10 FOOT OF WATER HEAD PRESSURE APPLIED.

SANITARY STACKS TRANSITIONING TO THE HORIZONTAL SHALL BE THROUGH 45° WYE BRANCHES, COMBINATION WYE AND ONE-EIGHTH BEND BRANCHES, OR OTHER APPROVED FITTINGS OF EQUIVALENT SWEEP.

ALL VENTS THROUGH ROOF SHALL BE LOCATED AT LEAST 10'-0" AWAY FROM ANY AIR INTAKE, EVAPORATIVE COOLER, OR ANY OTHER DEVICE THAT WOULD DRAW AIR FROM THE VENT. FLASH AROUND ALL PIPES PENETRATING THROUGH ROOF WITH STANDARD MANUFACTURED FLASHINGS. FLASHING SHALL BE SHEET METAL WITH RUBBER GASKETS AND SHALL EXTEND INTO ROOFING AND UP PIPE DISTANCES IN ACCORDANCE WITH THE LOCAL CODE.

NO DOUBLE COMBINATION FITTINGS MAY BE UTILIZED IN THE HORIZONTAL.

WHERE TWO HORIZONTAL PIPES (BACK-TO-BACK WATER CLOSETS OR TWO SANITARY BRANCHES) COMBINE IN THE VERTICAL, A DOUBLE COMBINATION WYE EIGHTH BEND FITTING SHALL BE INSTALLED. DOUBLE SANITARY TEE OR SANITARY CROSS IS NOT ACCEPTABLE.

WHERE DRAWINGS REQUIRE CONNECTION TO EXISTING SANITARY SEWER PIPING IN BUILDING, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD DETERMINE EXACT LOCATION, DEPTH AND DIRECTION OF FLOW PRIOR TO COMMENCING WORK. CONTRACTOR SHALL ALERT ARCHITECT/ENGINEER IF THERE IS A POTENTIAL ISSUE MAINTAINING PROPER SLOPE IN CONNECTING TO EXISTING, OR IF THERE IS A MORE DIRECT CONNECTION POSSIBLE. CONTRACTOR SHALL CONFIRM THAT ANY EXISTING PIPING TO BE REUSED IS CLEAN, FREE OF DEFECTS, ADEQUATELY SLOPED $\frac{1}{4}$ "(FT MINIMUM) AND THAT THERE ARE NO DIPS THAT COULD HOLD WATER. PROVIDE CAMERA SCOPING TO DOCUMENT THIS INFORMATION. CONTRACTOR SHALL ALERT ARCHITECT/ENGINEER OF ANY DEFICIENCIES.

DOMESTIC WATER SYSTEMS AND ACCESSORIES
THE PRIMARY SPECIFICATION FOR DOMESTIC WATER PIPING SHALL BE AS FOLLOWS: WATER PIPING ABOVE FLOOR: TYPE 1' HARD DRAWN COPPER TUBING, ASTM B88, WROUGHT SOLDER JOINTS, ANSI B1.6.22. WATER PIPING BELOW FLOOR: TYPE K SOFT DRAWN COPPER TUBING, WITH NO JOINTS BELOW SLAB, ASTM B88.

AS AN ALTERNATE TO THE PRIMARY SPECIFICATION FOR WATER PIPING, THE FOLLOWING MAY BE USED IN WHOLE OR IN PART. THE PLUMBING CONTRACTOR SHALL LIST EACH SYSTEM AS A SEPARATE LINE ITEM AS AN ALTERNATE FOR THE OWNER'S SELECTION. USE OF ANY ALTERNATE SHALL BE AT THE SOLE DISCRETION OF THE OWNER. SERVICE PIPING BELOW GRADE: CPVC (CHLORINATED POLYVINYL CHLORIDE) SCHEDULE 40 WHEN APPROVED BY THE AUTHORITY HAVING JURISDICTION. SHALL MEET ASTM D2846 AND ASTM F 441. HOT AND COLD WATER PIPING ABOVE FLOOR: CPVC (CHLORINATED POLYVINYL CHLORIDE) SCHEDULE 40 WITH SOLVENT WELD JOINTS WHEN APPROVED BY THE AUTHORITY HAVING JURISDICTION. PIPING SHALL MEET ASTM D 2848 AND SHALL BE CERTIFIED BY THE NSF INTERNATIONAL FOR USE WITH POTABLE WATER SYSTEMS. SOLVENT CEMENTS FOR CPVC PLASTIC PIPING SHALL MEET ASTM F437, ASTM F438 AND ASTM F439. HOT AND COLD WATER PIPING ABOVE FLOOR: CROSS-LINKED POLYETHYLENE (PEX) TUBING, SHALL COMPLY WITH ASTM F 876, ASTM F 877; CSA B137.5. WATER PIPING BELOW SLAB: CROSS-LINKED POLYETHYLENE (PEX) TUBING, BELOW FLOOR PEX PIPING SHALL CONFORM TO ASTM D2774. INSTALL ACCORDING TO MANUFACTURER'S GUIDELINES.

ALL DOMESTIC HOT WATER PIPING SHALL HAVE A MINIMUM PRESSURE RATING OF 100PSI AT 180°F.

DOMESTIC WATER PIPING SHALL BE TESTED IN ACCORDANCE WITH ALL GOVERNING CODES. PIPING SHALL BE PURGED OF DELETERIOUS MATTER AND DISINFECTED PRIOR TO UTILIZATION. PIPING TO BE FLUSHED AND STERILIZED IN ACCORDANCE WITH IPC 610.1 AND ALL APPLICABLE LOCAL AND STATE HEALTH DEPARTMENT STANDARDS.

BALL VALVES SHALL BE TWO-PIECE BRONZE BODY, LARGE PORT WITH SOLID, SMOOTH BORE CHROME PLATED BRASS BALL. SEATS SHALL BE REINFORCED TFE WITH TEFLON PACKING RING AND THREADED ADJUSTABLE PACKING NUT. PROVIDE STEM EXTENSION AS NEEDED TO PROVIDE HANDLE ON OUTSIDE OF PIPE INSULATION. VALVES SHALL BE APOLLO 70 OR EQUAL.

BACKFLOW PREVENTERS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS FOR EASE OF TESTING AND SERVICING. FOR BACKFLOW PREVENTERS WITH VENT CONNECTIONS, ROUTE VENT LINE TO NEAREST DRAIN AND DISCHARGE WITH AIR GAP. BACKFLOW PREVENTERS SHALL BE TESTED IN ACCORDANCE WITH IPC 312.10.2. CONTRACTOR SHALL PROVIDE CERTIFICATIONS THAT STATE DEVICES HAVE BEEN TESTED AND APPROVED.

THERMOMETERS SHALL BE 9" ADJUSTABLE ANGLE, 30°-180°F RANGE (TERICER BX9 OR EQUAL). PRESSURE GAUGES SHALL BE $\frac{1}{2}$ " DIAL SIZE, 0-160PSI (TERICER 600CB OR EQUAL).

CONTRACTOR SHALL FIELD VERIFY INCOMING DOMESTIC WATER PRESSURE TO CONFIRM ADEQUATE PRESSURE TO SERVE THE DOMESTIC WATER SYSTEM. CONTRACTOR SHALL ALERT ENGINEER TO A POTENTIAL LOW PRESSURE CONDITION. WHERE PRESSURE EXCEEDS 80PSI, PROVIDE PRESSURE REGULATING VALVE (WATTS LF223) AND UPSTREAM STRAINER (WATTS LSF777).

CONTRACTOR SHALL FIELD COORDINATE LOCATION OF ACCESSIBLE ISOLATION VALVES ON DOMESTIC HOT & COLD WATER SUPPLIES TO FIXTURES OR GROUPS OF FIXTURES SUCH THAT THEY MAY BE SHUT OFF FOR SERVICING. SERVICE AND HOSE BIBB VALVES SHALL BE IDENTIFIED. ALL OTHER VALVES INSTALLED IN LOCATIONS THAT ARE NOT ADJACENT TO THE FIXTURE(S) SHALL BE IDENTIFIED, INDICATING THE FIXTURE(S) SERVED.

RETURN AIR PLENUMS
ALL EXPOSED MATERIALS WITHIN RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE OR HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50, AS DETERMINED IN ACCORDANCE WITH ASTM E84/UL723. COPPER AND CAST IRON PIPING IS APPROVED. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL RETURN AIR PLENUM LOCATIONS WITH THE MECHANICAL CONTRACTOR.

INSULATION
INSULATE ALL DOMESTIC HOT WATER AND HOT WATER RECIRCULATION PIPING IN ACCORDANCE WITH IECC TABLE C403.2.10. PIPE UP TO $\frac{1}{2}$ " 1" THICK INSULATION. PIPE $\frac{1}{2}$ " OR LARGER: $\frac{1}{2}$ " THICK INSULATION

INSULATE ALL HORIZONTAL COLD WATER PIPING LOCATED ABOVE CEILING, VERTICAL PIPING LOCATED IN AN EXTERIOR WALL, EXPOSED PIPING (I.E. MECH ROOMS). PIPE UP TO 1": $\frac{1}{2}$ " THICK. PIPING $\frac{1}{2}$ " AND OVER: 1" THICK INSULATION. ALL WATER AND DRAINAGE PIPING INSTALLED IN EXTERIOR WALLS SHALL BE WRAPPED IN 1" THICK PIPE INSULATION AND BE LOCATED ON THE INTERIOR SIDE OF THE BUILDING INSULATION. IF INSTALLED IN EXTERIOR BLOCK WALLS, INTERSTITIAL SPACES SHALL BE FILLED WITH FOAM INSULATION.

ALL JOINTS SHALL BE SEALED WITH MATCHING VAPOR BARRIER TAPE.

INSULATION SHALL HAVE A K-FACTOR (AVERAGE THERMAL CONDUCTIVITY) NOT TO EXCEED 0.27 BTU-IN/HR x SQFT x °F.


PROTECTION OF PIPING
PIPING PASSING UNDER FOOTINGS OR THROUGH FOUNDATION WALLS SHALL BE PROVIDED WITH A SLEEVE TWO PIPE SIZES LARGER THAN THE PIPE. OPEN ENDS OF SLEEVES SHALL BE SEALED. PIPING PASSING THROUGH CONCRETE OR CINDER WALLS AND FLOORS OR OTHER CORROSIVE MATERIAL SHALL BE PROTECTED IN ACCORDANCE WITH IPC 305.1. ALL PIPING INSTALLED THROUGH HOLES OR NOTCHES IN STUDS, JOISTS, RAFTERS OR SIMILAR MEMBERS SHALL BE PROTECTED BY STEEL SHIELD PLATES IN ACCORDANCE WITH IPC 305.6. VERTICAL STACKS IN WOOD CONSTRUCTION SHALL BE PROTECTED FROM BUILDING SETTLING WITH COMPRESSION/EXPANSION FITTINGS AND PIPE CLAMPS INSTALLED PER MANUFACTURER'S RECOMMENDATIONS (PERNCO XJ SERIES OR EQUAL).

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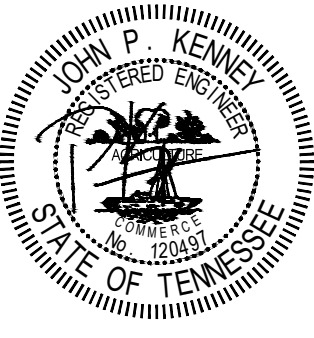
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TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT

GENERAL



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423-267-7613



JOB NO.
C24044

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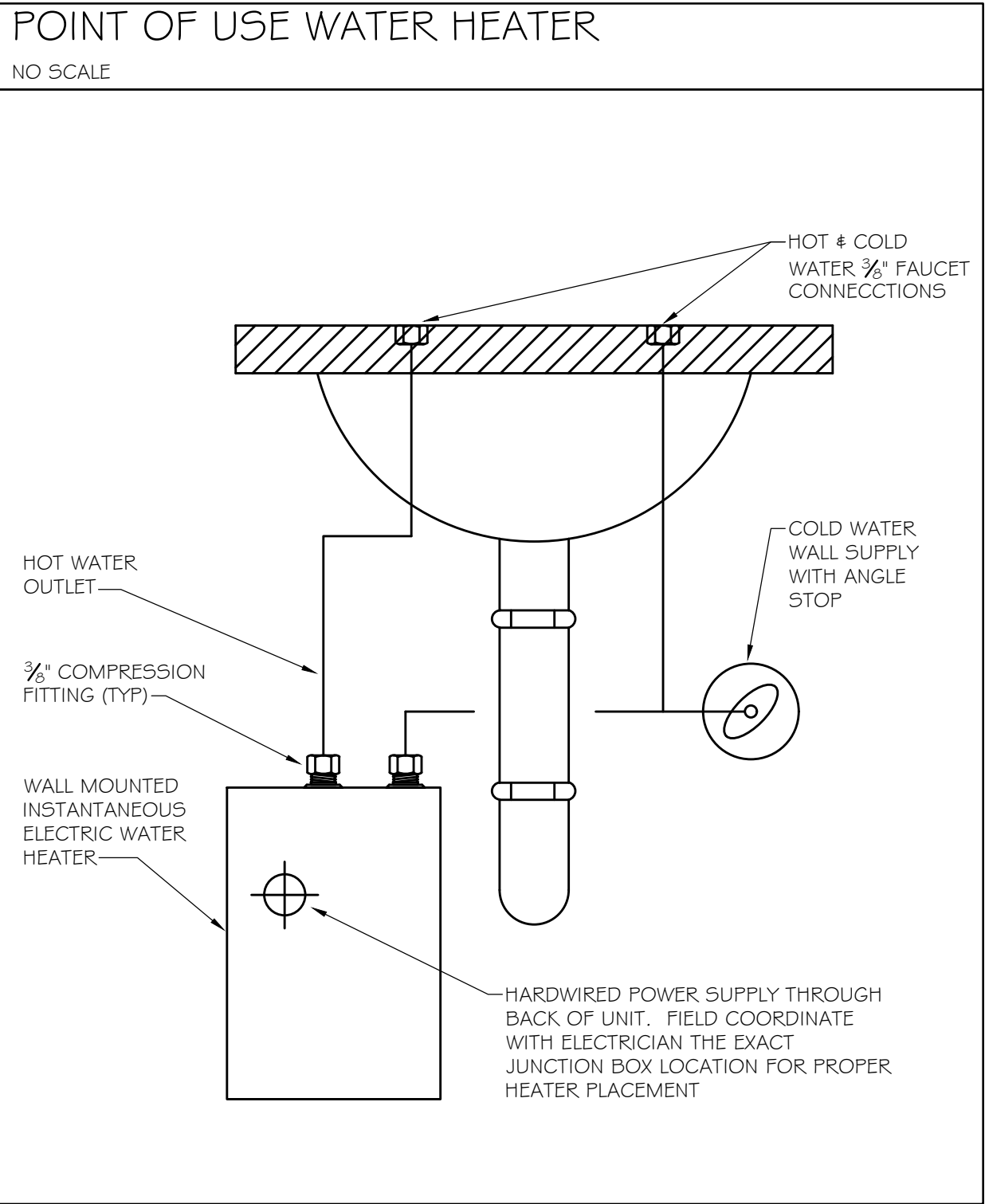
LEGEND	
	COLD WATER PIPE
	HOT WATER PIPE
	HOT WATER RETURN PIPE
	SANITARY PIPE
	VENT PIPE
	NATURAL GAS PIPE
	GREASE WASTE PIPE
	FIRE SPRINKLER PIPE
	STORM PIPE
	EMERGENCY STORM PIPE
	FILTERED WATER PIPE
	PIPE UP / PIPE DOWN
	PIPE TEE FROM TOP / TEE FROM BOTTOM
	PIPE CAP / PIPE CONTINUATION
	DIRECTIONAL FLOW ARROW
	BALL VALVE / CHECK VALVE
	MIXING VALVE / PRESSURE REDUCING VALVE
	BACKFLOW PREVENTER ASSEMBLY
	WALL HYDRANT / HOSE BIBB
	FLOOR DRAIN / FLOOR SINK
	WATER HAMMER ARRESTOR
	P-TRAP
	FLOOR CLEANOUT / GRADE CLEANOUT
	VENT THROUGH ROOF
	PIPE CLEANOUT / WALL CLEANOUT

ABBREVIATIONS			
AAV	AIR ADMITTANCE VALVE	IMB	ICE MACHINE BOX
A/C	ABOVE CEILING	IE	INVERT ELEVATION
A/F	ABOVE FLOOR	IWH	INSTANTANEOUS WATER HEATER
AFF, AFG	ABOVE FINISHED FLOOR/GRADE	L, LAV	LAVATORY
B/F, B/G	BELOW FLOOR/GRADE	MBH	1000 BTU/HR.
BFP	BACKFLOW PREVENTER	MS	MOP SINK
CD	CONDENSATE DRAIN	MV	MIXING VALVE
CONT	CONTINUATION	O/H	OVERHEAD
CW	COLD WATER	G	NATURAL GAS
DN	DOWN	PD	PUMPED DISCHARGE
ET	EXPANSION TANK	PRV	PRESSURE REDUCING VALVE
EWV	ELECTRIC WATER COOLER	RP	RECIRCULATION PUMP
ex.	EXISTING	S, SAN	SANITARY
FCO	FLOOR CLEANOUT	SH	SHOWER
FD	FLOOR DRAIN	SK	SINK
FHB	FREEZEPROOF HOSE BIBB	TP	TRAP PRIMER
FS	FLOOR SINK	TYP	TYPICAL
FRH	FREEZEPROOF ROOF HYDRANT	UR	URINAL
FWH	FREEZEPROOF WALL HYDRANT	V	VENT
GCO	GRADE CLEANOUT	VTR	VENT THROUGH ROOF
GI	GREASE INTERCEPTOR	WC	WATER CLOSET
HB	HOSE BIBB	W.C.	WATER COLUMN
HD	HUB DRAIN	WCO	WALL CLEANOUT
HW	HOT WATER	WHA	WATER HAMMER ARRESTER
HWR	HOT WATER RETURN	WMB	WASHING MACHINE BOX

MARK	DESCRIPTION	WASTE RUNOUT	WASTE CONN.	VENT	WATER RUNOUT		WATER CONN.		SPECIFICATION
					CW	HW	CW	HW	
SK-1	BAR SINK	2"	1 1/2"	2"	1/2"	1/2"	3/8"	3/8"	STAINLESS STEEL SINGLE BOWL SINK (ELKAY LR131G), 2 HOLES, GOOSENECK FAUCET WITH 4" WRISTLADE HANDLES (LK40GGH04T4). BOWL DIMENSIONS: 10" L, 10" W, 7.5" D. PROVIDE CHROME PLATED BRASS ANGLE SUPPLY STOPS, 12" LONG X 3/8" FLEX SUPPLIES. PROVIDE BASKET STRAINER (ZURN Z8741-SS).
GCO	EXTERIOR GRADE CLEANOUT	see plan	see plan	---	---	---	---	---	HEAVY DUTY CLEANOUT FOR EXTERIOR APPLICATION (J.R. SMITH 42G1). CAST IRON BODY WITH DOUBLE FLANGED HOUSING AND CAST IRON TOP.
PRIOR TO SUBMITTAL OR PURCHASE, THE PLUMBING CONTRACTOR SHALL VERIFY FIXTURE SPECIFICATIONS WITH ARCHITECT/OWNER.									

INSTANTANEOUS WATER HEATER SCHEDULE

MARK	HEATING	ACTIVATION FLOW	SETPOINT	ELECTRICAL INPUT	BASIS	NOTES
IWH-1	38° RISE @ 1.5 GPM	.35 GPM	110°F	8.3 KW	CHRONOMITE M-4OL / 208	MICROPROCESSOR CONTROLLED TEMPERATURE SETPOINT
PRIOR TO SUBMITTAL OR PURCHASE, THE PLUMBING CONTRACTOR SHALL VERIFY THE APPROPRIATE ELECTRICAL CHARACTERISTICS OF THE SELECTED WATER HEATER. COORDINATE DIRECTLY WITH THE ELECTRICAL CONTRACTOR AND THE POWER PANEL SCHEDULES ON THE ELECTRICAL DRAWINGS.						



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PK

TOWN OF TELLICO PLAINS
WATER TREATMENT PLANT

REVISIONS

NO.

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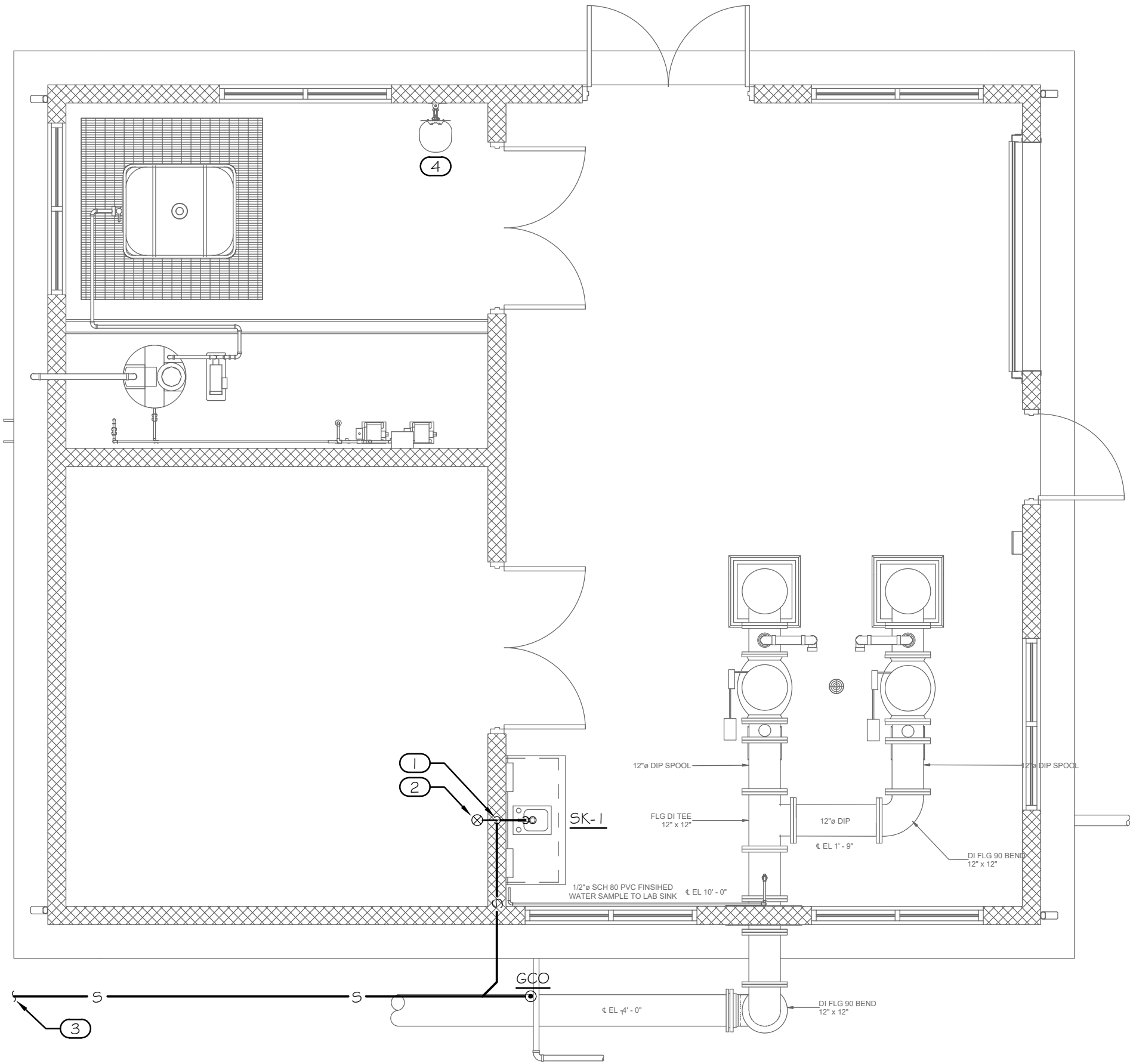
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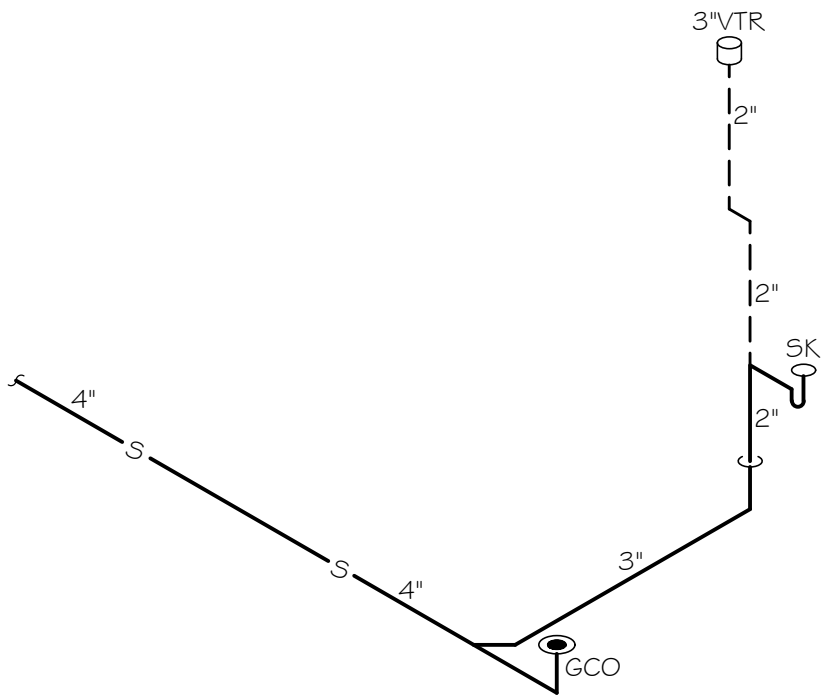
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PROJECT # 125315



1 FLOOR PLAN - WASTE & VENT
P11 SCALE: 1/4" = 1'-0"

WASTE/VENT ISOMETRIC

NO SCALE



KEYNOTES

- 1 2" V DN
- 2 3" V UP TO 3" VTR
- 3 4" S B/G, SEE CIVIL DWG FOR CONT
- 4 SELF-CONTAINED EYEWASH STATION (PROVIDED BY OTHERS)



DESIGN	REVISIONS			NO.	DESCRIPTIONS	DATE	BY	APPD
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TOWN OF TELLICO PLAINS WATER TREATMENT PLANT								
FLOOR PLAN - WASTE & VENT								

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