



December 13, 2024

**INVITATION TO BID  
BL005-25**

The Gwinnett County Board of Commissioners is soliciting competitive sealed bids from qualified contractors for the **Purchase of a Sodium Hypochlorite Tank** for the Department of Water Resources.

**Bid Submittal Date and Location:**

Bids should be typed or submitted in ink and returned in a sealed container marked on the outside with the BL# and Company Name. Bids will be received until 2:50 P.M. local time on **January 09, 2025**, at the Gwinnett County Financial Services - Purchasing Division – 2<sup>nd</sup> Floor, 75 Langley Drive, Lawrenceville, Georgia 30046. Any bid received after this date and time will not be accepted. Bids will be publicly opened and read at 3:00 P.M. Apparent bid results will be available the following business day on our website [www.gwinnettcounty.com](http://www.gwinnettcounty.com).

**Instruction on Submitting Questions:**

Questions regarding bids should be directed to Brittany Bryant, CPPB, Purchasing Associate III, at [Brittany.Bryant@GwinnettCounty.com](mailto:Brittany.Bryant@GwinnettCounty.com) or by calling 770-822-7759, **no later than 3:00P.M. December 27, 2024**. Bids are legal and binding upon the vendor when submitted. All bids should be submitted in duplicate.

**Successful contractors will be required to meet insurance requirements. The Insurance Company should be authorized to do business in Georgia by the Georgia Insurance Department and must have an A.M. Best rating of A-7 or higher.**

Gwinnett County does not discriminate on the basis of disability in the admission or access to its programs or activities. Any requests for reasonable accommodations required by individuals to fully participate in any open meeting, program or activity of Gwinnett County Government should be directed to the ADA Coordinator at the Gwinnett County Justice and Administration Center, 770-822-8165.

The written bid documents supersede any verbal or written prior communications between the parties.

Award will be made to the contractor(s) submitting the lowest responsive and responsible bid. Gwinnett County reserves the right to reject any or all bids to waive technicalities and to make an award deemed in its best interest. Bids may be split or awarded in entirety. Gwinnett County reserves the option to negotiate terms, conditions and pricing with the lowest responsive, responsible vendor(s) at its discretion.

Award notification will be posted after award on the County website, [www.gwinnettcounty.com](http://www.gwinnettcounty.com) and companies submitting a bid will be notified via email.

We look forward to your bid and appreciate your interest in Gwinnett County.

Brittany Bryant, CPPB  
Purchasing Associate III

**The following pages should be returned in duplicate as your bid: Fee Schedule, Page 11  
References, Page 12**

FAILURE TO RETURN THIS PAGE AS PART OF YOUR QUOTE DOCUMENT MAY RESULT IN REJECTION OF THE QUOTE.

Delivery will be F.O.B. Destination, freight pre-paid and allowed to: Gwinnett County F. Wayne Hill Water Resources Center located at 1500 One Water Way, Buford, GA 30519.

**BID SCHEDULE**

<b><u>DESCRIPTION</u></b>	<b><u>LUMP SUM</u></b>
Purchase of One (1) Sodium Hypochlorite Tank  Tank Manufacturer: _____	\$

- State the number of weeks needed to submit Shop Drawings from NTP: \_\_\_\_\_ weeks
- State the number of weeks for delivery of Tank from approval of shop drawings: \_\_\_\_\_ weeks
- The Undersigned agrees to commence all preliminary and submittal work within 10 days of the date of Notice to Proceed issued by Gwinnett County Purchasing Office

**Note:**

1. The unit price **MUST** include ALL charges, **including but not limited to delivery.**
2. Vendors should be able to submit product cut sheets or information documents upon request.

Certification of Non-Collusion in Quote Preparation \_\_\_\_\_  
Signature
Date

In compliance with the attached specifications, the undersigned acknowledges all requirements outlined in the "Instructions to Vendors" and all documents referred to therein, if this bid is accepted by the Board of Commissioners within ninety (90) days of the date of bid opening, to furnish any or all of the items upon which prices are bid, at the price set opposite each item bid, delivered to the designated point(s) within the time specified in the fee schedule. By submission of this bid, I understand that Gwinnett County uses Electronic Payments for remittance of goods and services. Vendors should select their preferred method of electronic payment upon notice of award. For more information on electronic payments, please refer to the Electronic Payment information in the Instructions to Vendors.

Legal Business Name \_\_\_\_\_

Vendor Registration Number \_\_\_\_\_ Telephone Number \_\_\_\_\_

Complete Address \_\_\_\_\_

Does your company currently have a location within Gwinnett County? Yes  No

Representative Signature \_\_\_\_\_ Printed Name \_\_\_\_\_

E-mail Address \_\_\_\_\_

*FAILURE TO RETURN THIS PAGE AS PART OF YOUR BID DOCUMENT MAY RESULT IN REJECTION OF BID.*

**REFERENCES**

Gwinnett County requests a minimum of three (3) references where work of a similar size and scope has been completed.

Note: References should be customized for each project, rather than submitting the same set of references for every project bid. The references listed should be of similar size and scope of the project being bid on. Do not submit a project list in lieu of this form.

1. Company Name \_\_\_\_\_  
Brief Description of Project \_\_\_\_\_  
Completion Date \_\_\_\_\_  
Contract Amount \$ \_\_\_\_\_ Start Dates \_\_\_\_\_  
Contact Person \_\_\_\_\_ Telephone \_\_\_\_\_  
E-Mail Address \_\_\_\_\_

2. Company Name \_\_\_\_\_  
Brief Description of Project \_\_\_\_\_  
Completion Date \_\_\_\_\_  
Contract Amount \$ \_\_\_\_\_ Start Date \_\_\_\_\_  
Contact Person \_\_\_\_\_ Telephone \_\_\_\_\_  
E-Mail Address \_\_\_\_\_

3. Company Name \_\_\_\_\_  
Brief Description of Project \_\_\_\_\_  
Completion Date \_\_\_\_\_  
Contract Amount \$ \_\_\_\_\_ Start Date \_\_\_\_\_  
Contact Person \_\_\_\_\_ Telephone \_\_\_\_\_  
E-Mail Address \_\_\_\_\_

Company Name \_\_\_\_\_

## VENDOR INSURANCE REQUIREMENTS

**Insurance:**

Contractor shall provide evidence of insurance for at least the coverage and amounts set forth below. All insurance shall be maintained in the form and with a company (or companies) satisfactory to the Gwinnett County Board of Commissioners. The Contractor and their Subcontractor’s/vendor’s Certificates of Insurance shall require that the County be notified in writing thirty (30) days prior to cancellation, modification, or non-renewal of any insurance policy listed on the certificate(s). Upon request, the County will be provided certified copies of all required insurance policies.

**A. Minimum Coverage**

Commercial General Liability (Occurrence Form):

General Aggregate (other than Prod/Comp Ops Liability)	\$2,000,000
Products/Completed Operations Aggregate	\$2,000,000
Personal & Advertising Injury Liability	\$1,000,000
Each Occurrence	\$1,000,000

- Gwinnett County Board of Commissioners to be named as Additional Insured
- Additional Insured Endorsement CG 20 10 (edition dates of 07/04, 04/13, 12/19 or a substitute endorsement providing equivalent coverage) and CG 2037 (edition dates of 07/04, 04/13, 12/19 or a substitute endorsement providing equivalent coverage) must be provided with your Certificate of Insurance.
- Primary and Non-Contributory Endorsement to be specified in writing
- Contractual Liability
- Broad Form Property Damage
- Severability of Interest
- Underground, explosion, and collapse coverage
- Personal Injury (deleting both contractual and employee exclusions)
- Incidental Medical Malpractice
- Hostile Fire Pollution Wording
- Include Waiver of Subrogation in favor of Gwinnett County Board of Commissioners
- If project or operations are within 50 ft of a railroad, Contractor is required to name the specific Railroad as an Additional Insured and provide a copy of the Additional Insured Endorsement CG2417 or its equivalent.
- In the event the General Liability insurance required by this Contract is written on a claims-made basis, Contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained, or an extended discovery period will be exercised for a period of five (5) years or applicable statute of limitation period following completion of the work.

Automobile Liability to include:

Combined Single Limit – Each Accident	\$1,000,000
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- Comprehensive form providing coverage for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of all owned, non-owned, leased, hired, borrowed vehicles, and any other statutorily required automobile coverage.
- Gwinnett County Board of Commissioners to be named as Additional Insured
- Additional Insured Endorsements must be provided with the Certificate of Insurance
- Coverage to include loading and unloading
- Contractual Liability

Worker’s Compensation & Employer’s Liability Coverage to include:

Workers Compensation	Georgia State Statutory Limits
Employers Liability	
Bodily Injury by Accident – Each Accident	\$500,000
Bodily Injury by Disease – Policy Limit	\$500,000
Bodily Injury by Disease – Each Employee	\$500,000
• Waiver of Subrogation in favor of Gwinnett County Board of Commissioners	

Umbrella/Excess Liability Insurance with policy limits as determined by Contract Sums (Higher limits may be required depending on the extent of contract):

Contract Sums:

Contracts up to \$999,999	
Each Occurrence and Aggregate Limit	\$1,000,000
Contracts from \$1,000,000 to \$1,999,999	
Each Occurrence and Aggregate Limit	\$3,000,000
Contracts from \$2,000,000 to \$4,999,999	
Each Occurrence and Aggregate Limit	\$5,000,000
Contracts Over \$5,000,000	
Each Occurrence and Aggregate Limit	\$10,000,000

- Concurrency of Effective Dates with Primary
- Blanket Contractual Liability
- Draw Down Feature
- Umbrella Policy must be as broad as the primary policy.
- Coverage excess over General Liability, Business Auto Liability, and Employers Liability
- In the event the Umbrella/Excess Liability insurance required by this Contract is written on a claims-made basis, Contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of five (5) years or applicable statute of limitation period following completion of the work.
- Evidence of coverage in the form of a Certificate of Insurance shall be provided to the County prior to start of work.
- Gwinnett County Board of Commissioners shall be Additional Insureds.
  - Contractor shall be liable for money, securities, or other property of the County.
  - Such coverage shall include an owner coverage endorsement for County and County shall be included as a loss payee.
  - Additional Insured Endorsements must be provided with the Certificate of Insurance

Cyber Liability Insurance (Applies if scope of work includes the storage or transfer of any County data or sensitive data (including but not limited to personally identifiable, health, or payment card data) or the related hosting of database(s) or internet site(s)):

Limit of Insurance per Claim	\$1,000,000
Aggregate Limit	\$1,000,000

The Contractor shall maintain insurance coverage for network security and privacy risks, including, but not limited to, insurance for data breach or introduction of virus or malicious codes, consumer notification, whether or not required by law, forensic investigation, public relations and crisis management and credit or identity monitoring or similar remediation services, unauthorized access, failure of security information theft, damage to destruction of

or alteration of electronic information, breach of privacy perils, wrongful disclosure and release of private information, collection, or other negligence in the handling of confidential information, and including coverage for related regulatory fines, defenses, and penalties allowed by law.

Property Insurance

The Contractor is fully and solely responsible for any physical loss or damage to all tools, equipment, construction office trailers and their contents, vehicles or any other personal property utilized in the performance of the Contractor's work. Contractor agrees to waive its rights of recovery and cause its insurers, if any, to waive their rights of subrogation against Owner and Company for any such damage or loss, however caused.

Riggers Liability Insurance.

If any work to be performed involves the rigging, lifting, lowering or moving of property or equipment, then those parties performing such work shall carry Rigger's Liability Insurance in an amount adequate to insure against the physical loss or damage to the property or equipment in its care

Aviation Insurance. (Applies if scope of work requires the use of aircraft, including helicopters, unmanned aircraft systems (e.g., drones) and/or fixed-wing aircraft):

Maintain (or require aircraft owner or operator to maintain), and Contractor shall furnish proof of, Aircraft Liability insurance with minimum limits of \$10,000,000 per occurrence for bodily injury and property damage of all aircraft.

Unmanned aircraft systems, minimum limits of \$2,000,000 for bodily injury, property damage, and personal injury (including invasion of privacy) for unmanned aircraft systems, and guest voluntary settlement bodily injury coverage (for any aircraft except unmanned aircraft systems)

- Such policy shall include contractual liability covering all owned and non-owned aircraft
- If the party providing the Aircraft Liability insurance is not Contractor, then Contractor shall require such party to (a) waive any subrogation rights of recovery they and/or their insurance carriers may have against County and any other indemnified parties and (b) name County and such other parties as Additional Insureds
- The Contractor shall (or shall require aircraft owner or operator) to hire, employ, and utilize pilots certified by the Federal Aviation Administration to operate any such aircraft.

- B. Gwinnett County Board of Commissioners (and any applicable Authority) must be specified in writing as an Additional Insured on General Liability, Auto Liability and Umbrella Liability policies.
- C. The cancellation should provide 10 days' notice for nonpayment and 30 days' notice of cancellation.
- D. Certificate Holder should read:  
 Gwinnett County Board of Commissioners  
 75 Langley Drive  
 Lawrenceville, GA 30046-6935
- E. Insurance Company, except Worker' Compensation carrier, must have an A.M. Best Rating of A-7 or higher. Certain Workers' Comp funds may be accepted subject to the approval of the Gwinnett County Insurance Unit. European markets including those based in London and domestic surplus lines markets that operate on a non-admitted basis are exempt from this requirement provided that the Contractor's broker/agent can provide financial data to establish that a market is equal to or exceeds the financial strengths associated with the A.M. Best's rating of A-7 or better.
- F. Insurance companies providing coverage should be licensed and authorized to do business by the Georgia with the exception of non-admitted carriers, in which case the broker placing coverage should be

- licensed by the Insurance Commissioner. All agents placing coverage should be licensed by the Insurance Commissioner, either as a resident or non-resident.
- G. Certificates of Insurance, and any subsequent renewals, must reference each corresponding bid/contract by project name and project/bid number, if applicable.
- H. The Contractor shall agree to provide complete certified copies of current insurance policy(ies) or a certified letter from the insurance company(ies) if requested by the County to verify compliance with these insurance requirements.
- I. All insurance coverage required to be provided by the Contractor shall state that it is primary over any insurance program carried by the County.
- J. Contractor shall incorporate a copy of the insurance requirements as herein provided in each and every subcontract with each and every subcontractor in any tier and shall require each and every subcontractor of any tier to comply with all such requirements. The Contractor agrees that if for any reason a subcontractor fails to procure and maintain insurance as required, all such required Insurance shall be procured and maintained by Contractor at Contractor's expense.
- K. No Contractor or Subcontractor shall commence any work of any kind under this Contract until all insurance requirements contained in this Contract have been complied with and until evidence of such compliance satisfactory to Gwinnett County as a to form and content has been filed with Gwinnett County. The ACORD Certificate of Insurance or a preapproved substitute is the required form in all cases where reference is made to a Certificate of Insurance or an approved substitute.
- L. The Contractor and its insurer(s) shall agree to waive all rights of subrogation against the County, the Board of Commissioners, its officers, officials, employees, and volunteers from losses arising from work performed by the Contractor for the County.
- M. Special Form Contractors' Equipment and Contents Insurance covering owned, used, and leased equipment, tools, supplies, and contents is required to perform the services called for in the Contract. The coverage must be on a replacement cost basis. The County will be included as a Loss Payee in this coverage for County owned equipment, tools, supplies, and contents.
- N. The Contractor shall make available to the County, through its records or the records of its insurer, information regarding any claim related to a County project. Any loss run information relating to a County project will be made available to the County upon its request.
- O. Compliance by the Contractor and Subcontractors with the foregoing insurance requirements shall not relieve the Contractor and Subcontractors of liability under the Contract and any applicable law.
- P. The Contractor and all Subcontractors are to comply with the Occupational Safety and Health Act of 1970, Public Law 91-956, and any other laws that may apply to this Contract.
- Q. The Contractor shall at a minimum apply risk management practices accepted by the Contractors' industry.
- R. The Contractor shall advise the County if required limits of insurance become eroded or impaired.

#### Surety Bonds (If Required)

All of the surety requirements will stay the same except the Surety Company must have the same rating as set forth in item E above.

FAILURE TO RETURN THIS PAGE MAY RESULT IN REMOVAL OF YOUR COMPANY FROM COMMODITY LISTING.

**BL005-25**

**Buyer Initials: BB**

**IF YOU DESIRE TO SUBMIT A "NO BID" IN RESPONSE TO THIS PACKAGE, PLEASE INDICATE BY CHECKING ONE OR MORE OF THE REASONS LISTED BELOW AND EXPLAIN.**

- Do not offer this product or service; remove us from your bidder's list for this item only.
- Specifications too "tight"; geared toward one brand or manufacturer only.
- Specifications are unclear.
- Unable to meet specifications
- Unable to meet bond requirements
- Unable to meet insurance requirements
- Our schedule would not permit us to perform.
- Insufficient time to respond.
- Other

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COMPANY NAME \_\_\_\_\_

AUTHORIZED REPRESENTATIVE \_\_\_\_\_

SIGNATURE

**GWINNETT COUNTY  
DEPARTMENT OF FINANCIAL SERVICES – PURCHASING DIVISION  
GENERAL INSTRUCTIONS FOR VENDORS, TERMS AND CONDITIONS**

**\*\*\*ATTENTION\*\*\***

FAILURE TO RETURN THE FOLLOWING DOCUMENTS MAY RESULT IN SUBMITTAL BEING DEEMED NON-RESPONSIVE AND AUTOMATIC REJECTION. THE COUNTY SHALL BE THE SOLE DETERMINANT OF TECHNICALITY VS. NON-RESPONSIVE SUBMITTAL:

1. FAILURE TO USE COUNTY FEE SCHEDULE.
2. FAILURE TO RETURN OR ACKNOWLEDGE APPLICABLE COMPLIANCE/SPECIFICATION SHEETS.
3. FAILURE TO RETURN OR ACKNOWLEDGE APPLICABLE ADDENDA.
4. FAILURE TO PROVIDE INFORMATION ON ALTERNATES OR EQUIVALENTS.
5. FAILURE TO PROVIDE BID BOND, WHEN REQUIRED, WILL RESULT IN SUBMITTAL BEING DEEMED NON-RESPONSIVE AND AUTOMATIC REJECTION. BID BONDS ARE NOT REQUIRED ON ALL SOLICITATIONS. BOND REQUIREMENTS ARE CLEARLY STATED ON THE INVITATION PAGE. IF CLARIFICATION IS NEEDED, CONTACT THE PURCHASING ASSOCIATE LISTED IN THE INVITATION. **IF BONDS ARE REQUIRED, FORMS WILL BE PROVIDED IN THIS SOLICITATION DOCUMENT.**
6. FAILURE TO PROVIDE CONTRACTOR AFFIDAVIT AND AGREEMENT, WHEN REQUIRED, MAY RESULT IN SUBMITTAL BEING DEEMED NON-RESPONSIVE AND REJECTED. THE CONTRACTOR AFFIDAVIT AND AGREEMENT IS NOT REQUIRED ON ALL SOLICITATIONS. IF CLARIFICATION IS NEEDED, CONTACT THE PURCHASING ASSOCIATE LISTED IN THE INVITATION.
7. FAILURE TO PROVIDE AN ETHICS AFFIDAVIT WHEN REQUIRED, MAY RESULT IN SUBMITTAL BEING DEEMED NON-RESPONSIVE AND REJECTED. THE ETHICS AFFIDAVIT IS REQUIRED ON ALL FORMAL SOLICITATIONS OVER \$100,000.00. IF CLARIFICATION IS NEEDED, CONTACT THE PURCHASING ASSOCIATE LISTED IN THE INVITATION.

**I. PREPARATION OF SUBMITTAL**

- A. Each vendor shall examine the drawings, specifications, schedule, and all instructions. Failure to do so will be at the vendor's risk, as the vendor will be held accountable for their submittal.
- B. Each vendor shall furnish all information required by the solicitation form or document. Each vendor shall sign the submittal and print or type his or her name on the fee schedule. The person signing the submittal should initial erasures or other changes. An authorized agent of the vendor must sign the submittal.
- C. Fee schedule pricing should have only two decimal places unless otherwise stated. In the event of a calculation error in total price, the unit pricing prevails.
- D. Except for solicitations for the sale of real property, individuals, firms, and businesses seeking an award of a Gwinnett County contract may not initiate or continue any verbal or written communications regarding a solicitation with any County officer, elected official, employee, or other County representative other than the Purchasing Associate named in the solicitation between the date of the issuance of the solicitation and the date of the final award. The Purchasing Director will review violations. If determined that such communication has compromised the competitive process, the offer submitted by the individual, firm or business may be disqualified from consideration for award. Solicitations for the sale of real property may allow for verbal or written communications with the appropriate Gwinnett County representative.
- E. Sample contracts (if pertinent) are attached. These do NOT have to be filled out with the submittal but are contained for informational purposes only. If awarded, the successful vendor(s) will be required to execute these documents prior to County execution.
- F. Effective July 1, 2013 and in accordance with the Georgia Illegal Immigration Reform Enhancements for 2013, an original signed, notarized and fully completed Contractor Affidavit and Agreement should be included with vendor's submittal, if the solicitation is for the physical performance of services for all labor or service contract(s) that exceed \$2,499.99 (except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia). Failure to provide the Contractor Affidavit and Agreement with your submittal may result in being deemed non-responsive and automatic rejection.

**II. DELIVERY**

- A. Each vendor should state time of proposed delivery of goods or services.
- B. Words such as "immediate," "as soon as possible," etc. should not be used. The known earliest date or the minimum number of calendar days required after receipt of order (delivery A.R.O.) should be stated. If calendar days are used, include Saturday, Sunday, and holidays in the number.

**III. EXPLANATION TO VENDORS**

Any explanation desired by a vendor regarding the meaning or interpretation of the solicitation,

drawings, specifications, etc. must be requested by the question cutoff deadline stated in the solicitation for a reply to reach all vendors before the deadline of the solicitation. Any information given to a prospective vendor concerning a solicitation will be furnished to all prospective vendors as an addendum to the solicitation if such information is necessary or if the lack of such information would be prejudicial to uninformed vendors. The written solicitation documents supersede any verbal or written communications between the parties. Receipt of addenda should be acknowledged in the submittal. **It is the vendor's responsibility to ensure they have all applicable addenda prior to their submittal.** This may be accomplished by contacting the assigned Purchasing Associate prior to the submittal or visiting the Gwinnett County website.

#### IV. SUBMISSION OF FORMAL OFFERS/SUBMITTALS

- A. Formal bid and proposal submittals shall be enclosed in a sealed package or envelope, addressed to the Gwinnett County Purchasing Division with the name of the vendor, the date and hour of opening and the solicitation number on the face of the package or envelope. Facsimile or emailed submittals will not be considered. Any addenda should be enclosed in the sealed envelopes as well.
- B. ADD/DEDUCT: Add or deduct amounts indicated on the outside of the envelope are allowed and will be applied to the lump sum amount. Amount shall be clearly stated and should be initialed by an authorized representative.
- C. Samples of items, when required, must be submitted within the time specified and, unless otherwise specified by the County, at no expense to the County. Unless otherwise specified, samples will be returned at the vendor's request and expense, if items are not destroyed by testing.
- D. Items offered must meet required specifications and must be of a quality that will adequately serve the use and purpose for which intended.
- E. Full identification of each item submitted, including brand name, model, catalog number, etc. must be furnished to identify exactly what the vendor is offering. Manufacturer's literature may be furnished but vendor should not submit excessive marketing material.
- F. The vendor must certify that items to be furnished are new and that the quality has not deteriorated to impair its usefulness.
- G. Unsigned submittals will not be considered except in cases where it is enclosed with other documents that have been signed. The County will determine acceptability in these cases.
- H. Gwinnett County is exempt from federal excise tax and Georgia sales tax regarding goods and services purchased directly by Gwinnett County. Vendors are responsible for federal excise tax and sales tax, including taxes for materials incorporated in county construction projects. Vendors should contact the State of Georgia Sales Tax Division for additional information. Agreements were there is a cost-plus mark-up, mark-up will not be paid on taxes.

- I. Information submitted by a vendor in the solicitation process shall be subject to disclosure after the public opening in accordance with the Georgia Open Records Act.

**V. WITHDRAWAL DUE TO ERRORS**

Vendors must give Gwinnett County Purchasing Division written notice within two (2) business days of completion of the opening stating that they wish to withdraw their submittal without penalty for an obvious clerical or calculation error. Submittal may be withdrawn from consideration if the price was substantially lower than the other submittals due solely to a mistake therein, provided pricing was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake and was due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of the submittal. The unintentional arithmetic error or omission can be clearly proven through inspection of the original work papers, documents, and materials used in preparing the submittal sought to be withdrawn. The vendor's original work papers shall be the sole acceptable evidence of error and mistake if a vendor elects to withdraw their submittal. If a quote or bid submittal is withdrawn under the authority of this provision, the lowest remaining responsive offer shall be deemed to be low bid.

No vendor who is permitted to withdraw their submittal shall, for compensation, supply any material or labor or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid or proposal was submitted.

Vendors who fail to request withdrawal by the required forty-eight (48) hours may automatically forfeit bid bond if a bond was required. Bid may not be withdrawn otherwise.

Withdrawal is not automatically granted and will be allowed solely at Gwinnett County's discretion.

**VI. TESTING AND INSPECTION**

Since tests may require several days for completion, the County reserves the right to use a portion of any supplies before the results of the tests are determined. Cost of inspections and tests of any item that fails to meet the specifications, shall be borne by the vendor.

**VII. F.O.B. POINT**

Unless otherwise stated in the request for invitation and any resulting contract, or unless qualified by the vendor, items shall be shipped F.O.B. Destination, Freight Prepaid and Allowed. The seller shall retain title for the risk of transportation, including the filing for loss or damages. The invoice covering the items is not payable until items are delivered and the contract of carriage has been completed. Unless the F.O.B. clause states otherwise, the seller assumes transportation and related charges either by payment or allowance.

**VIII. PATENT INDEMNITY**

The vendor guarantees to hold the County, its agents, officers, or employees harmless from liability of any nature or kind for use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, articles or appliances furnished or used in the performance of the contract, for which the vendor is not the patentee, assignee, or licensee.

**IX. BID BONDS AND PAYMENT AND PERFORMANCE BONDS (IF REQUIRED, FORMS WILL BE PROVIDED IN THIS DOCUMENT)**

A five percent (5%) bid bond, a one hundred percent (100%) performance bond, and a one hundred percent (100%) payment bond must be furnished to Gwinnett County for any solicitation as required in the solicitation package or document. **Failure to submit a bid bond with the proper rating will result in submittal being deemed non-responsive.** Bonding company must be authorized to do business in Georgia by the Georgia Insurance Commission, listed in the Department of the Treasury's publication of companies holding certificates of authority as acceptable surety on Federal bonds and as acceptable reinsuring companies, and have an A.M. Best rating as stated in the insurance requirement of the solicitation. **The bid bond, payment bond, and performance bond must have the proper A.M. Best rating as stated in the solicitation document.**

#### X. DISCOUNTS

- A. Time payment discounts may be considered in arriving at net prices and in award of solicitations. Offers of discounts for payment within ten (10) days following the end of the month are preferred.
- B. In connection with any discount offered, time will be computed from the date of delivery and acceptance at destination, or from the date correct invoice or voucher is received, whichever is the later date. Payment is deemed to be made for the purpose of earning the discount on the date of the County check.

#### XI. AWARD

- A. Award will be made to either the highest scoring firm (for proposals) or the lowest responsive and responsible vendor (for quotes/bids). The quality of the articles to be supplied, their conformity with the specifications, their suitability to the requirements of the County, and the delivery terms will be taken into consideration in making the award. The County may make such investigations as it deems necessary to determine the ability of the vendor to perform, and the vendor shall furnish to the County all such information and data for this purpose as the County may request. The County reserves the right to reject any submittal if the evidence submitted by, or investigation of such vendor fails to satisfy the County that such vendor is properly qualified to carry out the obligations of the contract.
- B. The County reserves the right to reject or accept any or all offers and to waive technicalities, informalities and minor irregularities in the submittals received.
- C. The County reserves the right to make an award as deemed in its best interest, which may include awarding to a single vendor or multiple vendors; or to award the whole solicitation agreement, only part of the agreement, or none of the agreement, based on its sole discretion of its best interest.
- D. In the event of proposal scores rounded to the nearest whole number result in a tie score, the award will be based on lowest cost.
- E. If proposal negotiations with the highest ranked firm are unsuccessful, the County may then negotiate with the second ranked firm and so on until a satisfactory agreement has been reached.

**XII. DELIVERY FAILURES**

Failure of a vendor to deliver within the time specified or within reasonable time as interpreted by the Purchasing Director, or failure to make replacement of rejected articles/services when so requested, immediately or as directed by the Purchasing Director, shall constitute authority for the Purchasing Director to purchase in the open market articles/services of comparable grade to replace the articles/services rejected or not delivered. On all such purchases, the vendor shall reimburse the County within a reasonable time specified by the Purchasing Director for any expense incurred in excess of the contract prices, or the County shall have the right to deduct such amount from monies owed the defaulting vendor. Alternatively, the County may penalize the vendor one percent (1%) per day for a period of up to ten (10) days for each day that delivery or replacement is late. Should public necessity demand it, the County reserves the right to use or consume articles/services delivered which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Director.

**XIII. COUNTY FURNISHED PROPERTY**

No material, labor or facilities will be furnished by the County unless so provided in the solicitation package.

**XIV. REJECTION OF SUBMITTALS**

Failure to observe any of the instructions or conditions in this solicitation package may constitute grounds for rejection.

**XV. CONTRACT**

Each submittal is received with the understanding that the acceptance in writing by the County of the offer to furnish any or all the commodities or services described therein shall constitute a contract between the vendor and the County which shall bind the vendor on his part to furnish and deliver the articles quoted at the prices stated in accordance with the conditions of said accepted submittal. The County, on its part, may order from such vendor, except for cause beyond reasonable control, and to pay for, at the agreed prices, all articles specified and delivered.

Upon receipt of a solicitation package containing a Gwinnett County "Sample Contract" as part of the requirements, it is understood that the vendor has reviewed the documents with the understanding that Gwinnett County requires that all agreements between the parties must be entered into via this document. If any exceptions are taken to any part, each must be stated in detail and submitted as part of the vendor's submittal. If no exceptions are stated, it is assumed that the vendor fully agrees to the provisions contained in the "Sample Contract" in its entirety.

entering into such an arrangement or executing a contract, the consultant agrees to abide by the current state law and: 1) Avoid any appearance of impropriety and shall follow all policies and procedures of the County, 2) Disclose to the County any material transaction or relationship pursuant to §36-80-28, that is considered a conflict of interest, any involvement in litigation or other dispute, relationship, or financial interest not disclosed in the ethics affidavit, and 3) Acknowledge that any violation or threatened violation of the agreement may cause irreparable injury to the County, entitling the County to seek injunctive relief in addition to all other legal remedies.

When the vendor has performed in accordance with the provisions of this agreement, Gwinnett

Any

County shall pay to the vendor, within thirty (30) days of receipt of any department approved payment request and based upon work completed or service provided pursuant to the contract, the sum so requested, less the retainage stated in this agreement, if any. If Gwinnett County fails to pay the vendor within sixty (60) days of receipt of a pay request based upon work completed or service provided pursuant to the contract, the County shall pay the vendor interest at the rate of ½% per month or pro rata fraction thereof, beginning the sixty-first (61<sup>st</sup>) day following receipt of pay requests. The vendor's acceptance of progress payments or final payment shall release all claims for interest on said payment.

The parties agree that this Contract shall be governed and construed in accordance with the laws of the State of Georgia.

**XVI. NON-COLLUSION**

Vendor declares that the submittal is not made in connection with any other vendor's submittal for the same commodity or commodities, and that the submittal is bona fide and is in all respects fair and without collusion or fraud. An affidavit of non-collusion shall be executed by each vendor. Collusion and fraud in submittal preparation shall be reported to the State of Georgia Attorney General and the United States Justice Department.

**XVII. DEFAULT**

The contract may be canceled or annulled by the Purchasing Director in whole or in part by written notice of default to the vendor upon non-performance or violation of contract terms. An award may be made to the next low responsive and responsible vendor, or the next highest scoring responsive and responsible proposer, or articles specified may be purchased on the open market similar to those so terminated. In either event, the defaulting vendor (or their surety) shall be liable to the County for costs to the County in excess of the defaulted contract prices; provided, however, that the vendor shall continue the performance of this contract to the extent not terminated under the provisions of this clause. Failure of the vendor to deliver materials or services within the time stipulated on their offer, unless extended in writing by the Purchasing Director, shall constitute contract default.

**XVIII. TERMINATION FOR CAUSE**

The County may terminate this agreement for cause upon ten days prior written notice to the vendor of the vendor's default in the performance of any term of this agreement. Such termination shall be without prejudice to any of the County's rights or remedies by law.

**XIX. TERMINATION FOR CONVENIENCE**

The County may terminate this agreement for its convenience at any time upon 30 days written notice to the vendor. In the event of the County's termination of this agreement for convenience, the vendor will be paid for those services actually performed. Partially completed performance of the agreement will be compensated based upon a signed statement of completion to be submitted by the vendor, which shall itemize each element of performance.

**XX. SUBSTITUTIONS**

Vendors offering substitutions or who are deviating from the attached specifications shall list such deviations on a separate sheet to be submitted with their offer. The absence of such a substitution list shall indicate that the vendor has taken no exception to the specifications contained herein.

**XXI. INELIGIBLE VENDORS**

The County may choose not to accept the offer by an individual, firm, or business who is in default on the payment of taxes, licenses, or other monies owed to the County. Additionally, vendors or persons placed on an Ineligible Source List for reasons listed in Part 6, Section II of the Gwinnett County Purchasing Ordinance shall not be eligible to provide any commodities or services to the County during the period such person remains on the Ineligible Source List.

**XXII. PENDING LITIGATION**

An individual, firm, or business that has litigation pending against the County, or anyone representing a firm or business in litigation against the County, not arising out of the procurement process, will be disqualified.

**XXIII. OCCUPATION TAX CERTIFICATE**

Each successful vendor must have a valid Gwinnett County occupation tax certificate if the vendor maintains an office within the unincorporated area of Gwinnett County. Incorporated, out of County, and out of State vendors are required to have any and all certificates necessary to do business in any town, County or municipality in the State of Georgia, or as otherwise required by County ordinance or resolution. Vendors may be required to provide evidence of valid certificates. Out of State vendors are required to have a certificate in the Georgia jurisdiction where they receive the most revenue.

**XXIV. PURCHASING POLICY AND REVIEW COMMITTEE**

The Purchasing Policy & Review Committee has been established to review purchasing procedures and make recommendations for changes; resolve problems regarding the purchasing process; make recommendations for standardization of commodities, schedule buying, qualified products list, annual contracts, supplier performance (Ineligible Source List), and other problems or requirements related to purchasing. The Purchasing Policy & Review Committee has authority to place vendors on the Ineligible Source List for reasons listed in Part 6, Section II of the Gwinnett County Purchasing Ordinance, for a period not to exceed three (3) years.

**XXV. AMERICANS WITH DISABILITIES ACT**

All vendors for Gwinnett County are required to comply with all applicable sections of the Americans with Disabilities Act (ADA) as an equal opportunity employer. In compliance with the Americans with Disabilities Act (ADA), Gwinnett County provides reasonable accommodations to permit a qualified applicant with a disability to enjoy the privileges of employment equal to those employees without disabilities. Disabled individuals must satisfy job requirements for education background, employment experience, and must be able to perform those tasks that are essential to the job with or without reasonable accommodations. Any requests for the reasonable accommodations required by individuals to fully participate in any open meeting, program or activity of Gwinnett County should be directed to the ADA Coordinator, 75 Langley Drive, Lawrenceville, Georgia 30046, 770-822-8165.

**XXVI. ALTERATIONS OF SOLICITATION AND ASSOCIATED DOCUMENTS**

Alterations of County documents are strictly prohibited and will result in automatic disqualification of the vendor's solicitation response. If there are "exceptions" or comments to any of the solicitation requirements or other language, then the firm may make notes to those areas, but may not materially alter any document language.

**XXVII. TAX LIABILITY**

Local and state governmental entities must notify vendors of their use tax liability on public works projects. Under Georgia law, private vendors are responsible for paying a use tax equal to the sales tax rate on material and equipment purchased under a governmental exemption that is incorporated into a government construction project: excluding material and equipment provided for the installation, repair, or expansion of a public water, gas, or sewer system when the property is installed for general distribution purposes. To the extent the tangible personal property maintains its character (for example, the installation of a kitchen stove), it remains tax-exempt. However, if the installation incorporates the tangible personal property into realty (for example, the installation of sheetrock), it becomes taxable to the private vendor. See O.C.G.A. §48-8-3(2) and O.C.G.A. §48-8-63.

**XXVIII. STATE AND FEDERAL LAW REGARDING WORKER VERIFICATION**

Effective July 1, 2013 State Law requires that all who enter into a contract for the physical performance of services for all labor or service contract(s) that exceed \$2,499.99 (except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia) and that all who enter into a contract for public works as defined by O.C.G.A. §36-91-2(12) for the County, must satisfy the Illegal Immigration Reform Enhancements for 2013 in conjunction with the Federal Immigration Reform and Control Act (IRCA) of 1986, in all manner, and such are conditions of the contract.

The Purchasing Division Director with the assistance of the Internal Audit Division shall be authorized to conduct random audits of a vendor's or subcontractors' compliance with the Illegal Immigration Reform Enhancements for 2013 and the rules and regulations of the Georgia Department of Labor. The vendor and subcontractors shall retain all documents and records of its compliance for a period of five (5) years following completion of the contract or shall abide by the current time requirements at the time of the contract. This requirement shall apply to all contracts for all public works, labor or service contracts that exceed \$2,499.99 except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia.

Whenever it appears that a vendor's or subcontractor's records are not sufficient to verify the work eligibility of any individual in the employment of such vendor or subcontractor, the Purchasing Director shall report same to the Department of Homeland Security and may result in termination of the contract if it is determined at any time during the work that the vendor or subcontractor is no longer in compliance with worker verification.

By submitting an offer to the County, vendor agrees that, in the event the vendor employs or contracts with any subcontractor(s) in connection with the covered contract, the vendor will secure from the subcontractor(s) such subcontractor(s)' indication of the employee-number category applicable to the subcontractor, as well as attestation(s) from such subcontractor(s) that they follow the Illegal Immigration Reform Enhancements for 2013 in conjunction with all federal requirements. Original signed, notarized Subcontractor Affidavits and Agreements must be maintained by the vendor awarded the contract.

A vendor's or subcontractor's failure to participate in the federal work authorization program as defined above shall be subject to termination of the contract. A vendor's failure to follow Gwinnett County's instruction to terminate a subcontractor that is not participating in the federal work authorization program may be subject to termination of the contract.

**XXIX. SOLID WASTE ORDINANCE**

No individual, partnership, corporation, or other entity shall engage in solid waste handling except in such a manner as to conform to and comply with the current Gwinnett County Solid Waste Ordinance and all other applicable local, state and federal legislation, rules, regulation, and orders.

**XXX. GENERAL CONTRACTORS LICENSE**

Effective July 1, 2008: **All General Contractors must have a current valid license from the State Licensing Board for Residential and General Contractors, unless specifically exempted from holding such license pursuant to Georgia law (O.C.G.A. §43-41-17).**

**XXXI. PRODUCTS MANUFACTURED IN GEORGIA**

When contracting for or purchasing supplies, materials, equipment, or agricultural products that exceeds \$100,000.00, excluding beverages for immediate consumption, Gwinnett County shall give preference as far as may be reasonable and practicable to such supplies, materials, equipment, and agricultural products as may be manufactured or produced in this state. Such preference shall not sacrifice quality. Gwinnett County Board of Commissioners shall consider, among other factors, information submitted by the vendor which may include the vendor's estimate of the multiplier effect on gross state domestic product and the effect on public revenues of the state and the effect on public revenues of political subdivisions resulting from acceptance of an offer to sell Georgia manufactured or produced goods as opposed to out-of-state manufactured or produced goods. Any such estimates shall be in writing. **(O.C.G.A. §36-84-1).**

**XXXII. INDEMNIFICATION**

To the fullest extent permitted by law, the vendor shall, at his sole cost and expense, indemnify, defend, satisfy all judgments, and hold harmless the County, its commissioners, officers, agents, and employees from and against all claims, damages, actions, judgments, costs, penalties, liabilities, losses and expenses, including, but not limited to, attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, action, judgment, cost, penalty, liability, loss or expense (1) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by the negligent acts, errors by any act or omission of the vendor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless whether such claim is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any of the rights or obligations of indemnity which would otherwise exist as to any party or person described in this agreement. In any and all claims against the County, its commissioners, officers, agents, and employees by any employee of the vendor, any subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation contained herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the vendor or any subcontractor under Worker's Compensation Acts, disability benefit acts, or other employee benefit acts.

Vendor shall also indemnify, hold harmless, insure, and defend the County for damages, losses, or expenses to the extent caused by or resulting from the negligence, recklessness, or intentionally wrongful conduct of the vendor or other persons employed or utilized by the vendor in the performance of a contract that utilizes survey services.

**XXXIII. CODE OF ETHICS**

Vendors shall disclose under oath the name of all elected officials whom it employs or who have a direct or indirect pecuniary interest in the business entity, its affiliates, or its subcontractors. (This shall not apply to informal purchases as defined by the Purchasing Ordinance.) The vendor shall execute a Code of Ethics affidavit. Failure to submit the affidavit during the procurement process shall render the offer non-responsive.

Any business entity holding a contract with Gwinnett County that after execution of the contract or issuance of the purchase order employs, subcontracts with, or transfers a direct or indirect pecuniary interest in the business entity to an elected official shall within five (5) days disclose such fact in writing under oath to the Clerk of the Board of Commissioners. Failure to comply, or vendors submitting false information or omitting material information shall be referred to the Purchasing Policy & Review Committee for action pursuant to the Purchasing Ordinance or to the District Attorney for possible criminal prosecution. Note: See Gwinnett County Code of Ethics Ordinance EO2011, Sec. 54-33. The ordinance is available to view in its entirety at [www.gwinnettcounty.com](http://www.gwinnettcounty.com).

**XXXIV. ELECTRONIC PAYMENT**

Vendors accepting procurements should select one of Gwinnett County's electronic payment options.

- A. A vendor may select ePayables payment process which allows acceptance of Gwinnett County's virtual credit card as payment for outstanding invoices. The authorized vendor representative must send an email to: [vendorelectronicpayment@gwinnettcounty.com](mailto:vendorelectronicpayment@gwinnettcounty.com) and indicate the desire to enroll in Gwinnett County's virtual credit card payment process.
- B. A vendor may select Direct Deposit payment process and the payment will be deposited directly into an account at their designated financial institution. To securely enroll in Direct Deposit, either access your online [Vendor Login and Registration](#) on the County's web site and update the requested information on the Direct Deposit tab or mail a [Direct Deposit Authorization Agreement](#) form.

The County will send a Payment Advice notification via email for both payment types. For more information about Electronic Payments, please visit the Gwinnett County Treasury Division page or click here -> [Gwinnett County Electronic Payments](#).

**DIRECTIONS TO GJAC BUILDING FROM I-85**

Take I-85 to Georgia Highway 316 (Lawrenceville/Athens exit). Exit Highway 120 (Lawrenceville/Duluth exit) and turn right. At seventh traffic light, turn right onto Langley Drive. Cross Highway 29 through the traffic light and proceed through the roundabout. Visitors can either proceed to the front parking area on the left or to the parking deck behind the building. Click [here](#) for additional information about parking. The Purchasing Division is located on the second floor, West Wing.

**F. WAYNE HILL WATER RESOURCES CENTER  
SODIUM HYPOCHLORITE TANK PROCUREMENT  
DWR PROJECT #BL005-25**



**Gwinnett**

**VOLUME 2 of 2  
TECHNICAL SPECIFICATIONS  
100% DESIGN**

Prepared By:



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November 2024  
GS Project No. 45483.16.FWH.004

**VOLUME 2**  
**TECHNICAL SPECIFICATIONS**

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**SECTION 01 0000 - GENERAL REQUIREMENTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This section includes general requirements of the Contract.

**1.2 GENERAL REQUIREMENTS**

- A. General Submittal Procedure Requirements: Submit electronic files for action and informational documents per the following requirements. The Engineer will mark comments and apply its review stamp electronically before returning the files to the Contractor. Contractor is responsible for printing or otherwise distributing reviewed copies of submittals.
  - 1. File Format: Portable document format [PDF] vector or scanned files; no other format is acceptable. Files must include legible stamps and notations from Contractor’s review indicating Contractor’s approval as required by the General Conditions. Submit all documents of a given type of action submittal (Product Data or Shop Drawings) as single files; individual files for separate brochures or drawing sheets are not acceptable.
  - 2. Submittal Method: The Engineer will provide access to Newforma document management software without cost to Contractor. Contractor shall use the standard transmittal forms provided by the Engineer. Use of e-mail or other proprietary software is not acceptable.
- B. Manufacturers Qualifications: The manufacturers of all materials and equipment used must be approved by the Engineer and regularly engaged in the manufacture of the particular material or equipment for the use and service to which it will be subjected.
- C. Compliance with state and local laws: Comply will all applicable requirements of state and local laws and ordinances to the extent that such requirements do not conflict with federal laws or regulations.
- D. Contractor’s General Warranty and Guarantee: Refer to Specification Section 01 8000 – Warranties.
- E. Operation and Maintenance of the Systems and Instruction to Owner: Where the specifications for equipment require that a factory service representative provide operation and maintenance instruction to the Owner for that equipment, this service shall be performed by prior arrangement with the Owner after and in addition to the manufacturer’s instructions to the Contractor for installation and start-up. The individual performing the instructions to the Owner is to be trained and/or certified by the manufacturer as its authorized operation, maintenance, and service specialist. If the said specialist is not a regular, full-time employee of the manufacturer, the specialist’s qualifications shall be submitted to the Owner for review and approval prior to scheduling the site visit for instructions to the Owner.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

ISSUED	DATE
ISSUED FOR BID	

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**SECTION 01 1000 - SUMMARY**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Contract description.
  - 2. Work by Owner or other Work at the Site.
  - 3. Owner-supplied products.
  - 4. Contractor's use of Site and premises.
  - 5. Work sequence.
  - 6. Owner occupancy.
  - 7. Permits.
  - 8. Specification conventions.
  
- B. Related Sections:
  - 1. 06 6100 – FRP Ladders
  - 2. 06 6101 – FRP Handrails and Guardrails
  - 3. 11 8129 – Facility Fall Protection
  - 4. 43 4145 – Fiberglass Reinforced Plastic Tanks

**1.2 CONTRACT DESCRIPTION**

- A. Project Location: F. Wayne Hill Water Reclamation Center, 1500 One Water Way, Buford, Georgia 30518
  
- B. Owner: Gwinnett County Department of Water Resources, 684 Winder Highway, Lawrenceville, Georgia 30045
  
- C. Project Description:
  - 1. Procurement and delivery of a sodium hypochlorite storage tank, ladder, guardrail and fall protection system. See related specifications above for more details on the products:
  - 2. Equipment delivery to be coordinated by the tank supplier.
  - 3. Equipment off-loading to be performed by others.

**1.3 WORK BY OWNER OR OTHERS**

- A. If Owner-awarded contracts interfere with each other due to work being performed at the same time or at the same Site, Owner will determine the sequence of work under all contracts according to "Work Sequence" and "Contractor's Use of Site and Premises" Articles in this Section.

**1.4 CONTRACTOR'S USE OF SITE AND PREMISES**

- A. Limit use of Site and premises to allow:
  - 1. Owner occupancy: Full time, continuous
  - 2. Owner staff: Uninterrupted operation of wastewater treatment facility.
  
- B. Access to Site: Limited to East Chemical Building for delivery of equipment only.
  
- C. Regular working hours may be Monday through Friday, excluding holidays, occurring between the hours of 7:00 AM and 4:00 PM, unless restricted otherwise. Contractor shall establish delivery of storage tank during such hours. Equipment supplier to coordinate delivery with the Owner at least 2-weeks in advance.

**1.5 SPECIFICATION CONVENTIONS**

- A. Specifications are written in imperative mood and streamlined form. This imperative language is directed to Contractor unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Owner Documents: Certain bidding and contracting documents included in the Project Manual documents were prepared by the Owner. These documents were included in the Project Manual without modification by Gresham Smith and are not issued under the seals of the Engineer or its consultants.
- D. Send requests for Information relating to Owner documents directly to the Owner's designated Project representative with a copy to the Engineer. The Owner will respond to such RFIs.
- E. No provision in the Owner's documents shall be effective to change the duties and responsibilities of Gresham Smith from those stated in its Agreement with the Owner.
- F. Gresham Smith is not responsible for enforcing provisions of Owner documents relating to construction safety.

**1.6 PROJECT INFORMATION EXCHANGE**

- A. Project Information Exchange: The Engineer will provide access to relevant Project files through its project information management software Newforma without charge to Contractor and provide instruction on its use. This software includes the ability to exchange large files and large numbers of files.
- B. Contract Documents will be issued using this software.
- C. Contractor shall use this software for transmitting all files for contract administration documents; no other method is acceptable. The Engineer will not download documents from Contractor's FTP site.
- D. Additional requirements for specific types of contract administration documents are specified in other Division-01 Specifications sections.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

ISSUED	DATE
ISSUED FOR BID	

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**END OF SECTION**

**SECTION 01 2219 – MEASUREMENT AND PAYMENT**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes administrative and procedural requirements for measurement and payment.
- B. Pay items for the work for which contract Lump Sum payment will be made are listed on the Bid Form. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum, shall be considered incidental to the pay items and the cost of such shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all labor, materials, machinery, equipment, tools, apparatus, service, and other necessary supplies and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.
- C. No adjustments will be made to the lump sum price based on differences in the field conditions and the assumed design conditions.
- D. The Contractor shall furnish all necessary labor, materials, machinery, equipment, tools, apparatus, service, and other necessary supplies and perform all work shown on the Drawings and/or described in the Specifications at the price listed on the Bid Form.
- E. The Contractor has become thoroughly familiar with the terms and conditions of the Bidding Documents and with local conditions affecting the performance and costs of the Work at the place where the Work is to be completed and has fully inspected the site in all particulars informing himself fully regarding all conditions pertaining to the Work site.

**1.2 LUMP SUM WORK**

- A. The Lump Sum Work shall include the following work:
  - 1. Procurement and delivery of storage tank, ladder, guardrails and fall protection system as specified in their respective sections.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

<b>ISSUED</b>	<b>DATE</b>
<b>ISSUED FOR BID</b>	

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## SECTION 01 2500 – SUBSTITUTION PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for substitution requests.

#### 1.2 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by the Equipment Supplier.

#### 1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit requests electronically. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use form provided at the end of this Section. Other forms are not acceptable.
  2. Substitution requests will not be considered when indicated on Shop Drawings or Product Data submittals.
  3. Additional studies, investigations, submittals, redesign, or analysis by the Engineer and its consultants necessitated by requested substitution shall be provided by the Equipment Supplier without change to Contract Sum or Contract Time.
  4. Only one request for substitution for each product will be considered. If substitution is not acceptable to Engineer and Owner, provide specified product.
  5. Engineer will determine the acceptability of all substitutions.
  6. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication, or installation cannot be provided, if applicable.
    - b. Coordination information, including list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - e. Samples, where applicable or requested.
    - f. Certificates and qualification data, where applicable or requested.
    - g. List of similar installations for completed projects with project names and addresses and names and addresses of engineers and owners.
    - h. Material test reports from qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES
    - j. Detailed comparison of Equipment Supplier's delivery schedule using proposed substitution with products specified for the Work. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

- k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Equipment Supplier's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. Equipment Supplier's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
7. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within five working days of receipt of a request for substitution. Engineer will notify Equipment Supplier of acceptance or rejection of proposed substitution within 15 working days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Engineer's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

**1.4 QUALITY ASSURANCE**

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

**1.5 PROCEDURES**

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

**1.6 SUBSTITUTIONS**

- A. Submit requests for substitution immediately on discovery of need for change, but not later than 15 working days before time required for preparation and review of related submittals.
  - 1. Conditions: Engineer will consider Equipment Supplier's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Substitution request is fully documented and properly submitted.
    - c. Requested substitution will not adversely affect Equipment Supplier's delivery schedule.
    - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - e. Requested substitution is compatible with other portions of the Work.
    - f. Requested substitution has been coordinated with other portions of the Work.
    - g. Requested substitution provides specified warranty.
    - h. Requested substitution does not require extensive revisions to the Contract Documents.
    - i. Where requested substitution involves more than one Equipment Supplier, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all Equipment Suppliers involved.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

ISSUED	DATE
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**F. Wayne Hill Water Resources Center  
Sodium Hypochlorite Tank Procurement  
DWR Project #BL005-25  
Gwinnett County, Georgia  
Gresham Smith Project No.: 45483.16.FWH.404**

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**SECTION 01 2501 – SUBSTITUTION REQUEST FORM**

**Instructions:** This form is for the Equipment Supplier's requests for Substitutions. No other form is acceptable. Refer to Section 01 2500 for requirements governing submission, review, and acceptance of requests for Substitutions.

**DATE OF CONTRACTOR'S REQUEST:**

1. We request consideration to use:

.....  
(Proposed Substitution)

Instead of the following specified item:

.....  
Section Page Paragraph Description

2. Reason for Request: Attach detailed explanations for all reasons that apply.

- Specified product has been discontinued by manufacturer.
- Specified product cannot be provided within Contract Time because of circumstances beyond control of Equipment Supplier.
- Product substitution offers substantial benefit to the Owner in the form of cost savings, time savings, energy conservation, sustainability advantages, or other valuable considerations, net of the Engineer's cost to evaluate the technical compatibility and modify the building design, if required.

3. Attached are the following supporting data:

- Product Data
- Test Reports
- Samples
- Drawings
- ICC-ES Evaluation Report

4. Attach comparison data of the proposed substitution versus the specified item, as an attachment to the following Substitution Request Form. Include highlighted product data and/or specifications to point out the technical similarities or differences between the specified product and the proposed substitution product. Indicate name, brand, catalog numbers, manufacturer, and list significant variations from specified product.

5. Attach comparison data between the proposed substitution and the specified item for non-technical characteristics (e.g. Cost benefit, schedule benefit, functionality improvement, energy savings, etc.)

6. Equipment Supplier has investigated the proposed substitution and certifies the following:

- a. Function, appearance, and quality of proposed substitution is equal or superior to the specified item, except as stated in comparison data.
- b. Proposed substitution will have no adverse effects on other installers, construction schedule, or specified warranty requirements.
- c. Proposed substitution does not adversely affect dimensions, clearances, or weight for functioning and maintenance.
- f. If accepted, Equipment Supplier will provide submittals per requirements of Section 01 3300.

**Point by Point Comparative Data Sheet**

<u>List all properties specified. (physical, test, standard, warranty, code, performance)</u>	<u>Specified product</u>	<u>Proposed product</u>	<u>If there is a difference explain why this should be accepted</u>

**Example Point by Point Comparative Data Sheet (example information in italics)**

<u>List all properties specified. (physical, test, standard, warranty, code, performance)</u>	<u>Specified product</u>	<u>Proposed product</u>	<u>If there is a difference explain why this should be accepted</u>
<i>Ex. Warranty</i>	<i>5yr</i>	<i>7yr</i>	<i>Exceeds specification</i>
<i>Ex. ASTM 123</i>	<i>Passed</i>	<i>Exceeds ASTM 123.</i>	<i>Meets ASTM 124 which has a lower air infiltration rate than ASTM 123</i>

**EQUIPMENT SUPPLIER'S SIGNATURE**

Equipment Supplier Name: \_\_\_\_\_

Name and Title of Person Signing: \_\_\_\_\_

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

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

**ENGINEER'S RECOMMENDATION**

- Approve Substitution: Provide submittals per Specification Section 01 3300.
- Approve Substitution as Noted: Provide responses to comments.
- Reject Substitution

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

**OWNER'S ACTION**

- Substitution Approved: Prepare Change Order.
- Substitution Approved as Noted: Prepare Change Order.
- Substitution Rejected: Provide originally specified products.

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

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**SECTION 01 2600 - CONTRACT MODIFICATION PROCEDURES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
  - 1. Section 01 2219 "Measurement and Payment" for administrative requirements for unit pricing.
  - 2. Section 01 2900 "Payment Procedures" for administrative requirements for preparation and processing payments for changes in the work.

**1.3 PROPOSAL REQUESTS**

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within 10 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to the Engineer.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - 4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship.
  - 5. Reimburse Owner for any design cost incurred for change if the additional work is for the Contractor's convenience.

#### **1.4 DOCUMENTATION OF PROPOSALS AND CLAIMS**

- A. Support each quotation for a lump-sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow the Engineer to evaluate the quotation.
- B. On request, provide additional data to support time and cost computations:
  - 1. Labor required.
  - 2. Equipment required.
  - 3. Products required:
    - a. Recommended source of purchase and unit cost.
    - b. Quantities required.
  - 4. Taxes, insurance and bonds.
  - 5. Credit for work deleted from Contract, similarly documented.
  - 6. Overhead and profit, for subcontractor and General Contractor separately.
  - 7. Justification for any change in Contract Time.
- C. Support each claim for additional costs, and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal, plus the following additional information:
  - 1. Name of the Owner's authorized agent who ordered the Work, and date of the order.
  - 2. Dates and hours work was performed, and by whom.
  - 3. Time record, summary of hours worked, and hourly rates paid.
  - 4. Receipts and invoices for:
    - a. Equipment used, listing dates and times of use.
    - b. Products used, listing of quantities.
    - c. Subcontracts.
    - d. Overhead and Profit, Taxes, Insurance.
- D. Document requests for substitutions for Products as specified in Section 01 2500 "Substitution Procedures".

#### **1.5 PREPARATION OF CHANGE ORDERS**

- A. Engineer will prepare each Change Order to address specific issues.
- B. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
  - 1. Reduction in contract amount for Engineering Expense Adjustment Items will be executed through the final adjusting/balancing Change Order.
- C. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time. Engineer will provide Change Order form.

#### **1.6 LUMP-SUM/FIXED PRICE CHANGE ORDER**

- A. Content of Change Orders will be based on, either:
  - 1. Engineer's Proposal Request and Contractor's responsive Proposal as mutually agreed between Owner and Contractor.
  - 2. Contractor's Proposal for a change, signed by the Contractor, as recommended by Engineer.
- B. Owner and Engineer will sign and date the Change Order as authorization for Contractor to proceed with changes, after Contractor has signed the Change Order.

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**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

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**SECTION 01 2900 - PAYMENT PROCEDURES**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes: Administrative and procedural requirements for preparing and processing Applications for Payment.
- B. Related Requirements:
  - 1. Section 01 2219: Administrative requirements governing use of Unit Prices.
  - 2. Section 01 2600: Administrative procedures for handling changes to the Contract.

**1.2 APPLICATIONS FOR PAYMENT**

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner. At a minimum, there should be three Applications for Payment for this scope of work:
  - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor.
- C. Payment Application Times: Submit Application for Payment to Engineer by the 15th day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
  - 1. Submit PDF copy of draft Application for Payment seven days before due date for review by Engineer,
- D. Application for Payment Forms: Use Owner approved form.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

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**SECTION 01 3300 - SUBMITTAL PROCEDURES**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. Related Sections include the following:
  - 1. Section 01 2219 Measurement and Payment, for submitting Application for Payment.
- C. Unless noted otherwise in the individual specification sections, specifications are written in a manner which allows for multiple providers to provide that material, equipment or service. In cases where there is a need to limit the provider choices, or prescribe one choice, that requirement will be stated in the individual specification section. The three options for specification types are "Or Equal", "Performance" and "Prescriptive" as defined in the paragraphs below.
- D. Specification definitions:
  - 1. Or Equal with a list of approved material or equipment options. This applies to material or equipment that is equally acceptable from multiple providers, but those providers may not be listed. This is the default option.
  - 2. Performance Specification with a Basis of Design. The specification lists the required performance requirements/criteria with a limited list of providers that can meet that performance. The first provider listed is the preferred provider and Basis of Design.
  - 3. Prescriptive (Basis of Design only). The provider listed, along with the performance criteria, is the only provider the Engineer will accept.

**1.2 DEFINITIONS**

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.

**1.3 SUBMITTAL PROCEDURES**

- A. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
  - 1. Initial Review: Allow 10 business days for initial review of each submittal.
  - 2. If re-submittal is necessary, process it in same manner as initial submittal.
  - 3. Allow 10 business days for processing each re-submittal.
- B. Identification: Place a permanent label or title block on each submittal for identification.
  - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
  - 2. Provide a space on label or beside title block to record Engineer's review and approval markings.
  - 3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of supplier.
    - d. Name of manufacturer.
    - e. Unique identifier, including revision number.
    - f. Number and title of appropriate Specification Section.

- g. Drawing number and detail references, as appropriate.
  - h. Other necessary identification.
- C. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Equipment Supplier.

## **PART 2 - PRODUCTS**

### **2.1 ACTION SUBMITTALS**

- A. General: Prepare and submit Action Submittals required by individual Specification Sections. The Engineer will provide access to Newforma document management software without cost to Equipment Supplier. Equipment Supplier shall use the standard transmittal forms provided by the Engineer. Using e-mail or other proprietary software is not acceptable.
- B. Compliance with Specification(s):
1. Include a copy of the applicable specification section(s), with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (√) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Supplier/Subcontractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.
  2. The Engineer shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Supplier/Subcontractor with the specifications.
  3. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
- C. Product Data: Collect information into a single submittal for each element and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Standard color charts.
    - e. Manufacturer's catalog cuts.
    - f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Mill reports.
    - j. Standard product operating and maintenance manuals.
    - k. Compliance with recognized trade association standards.
    - l. Compliance with recognized testing agency standards.
    - m. Application of testing agency labels and seals.
    - n. Notation of coordination requirements.

4. Number of Copies: Submit one electronic copy for each submittal.
- D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on standard printed data.
1. Preparation: Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Design calculations.
    - j. Compliance with specified standards.
    - k. Notation of coordination requirements.
    - l. Notation of dimensions established by field measurement.
  2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
  3. Number of Copies: Submit electronic copies plus the number of copies the Engineer desires to have returned of each submittal. Once approved, provide one final hard copy and one final electronic copy.

## **2.2 INFORMATIONAL SUBMITTALS**

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit one hard copy and one electronic copy of each submittal, unless otherwise indicated. Engineer will not return copies.
  2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Qualification Data: Prepare written information that demonstrates capabilities and experience of Equipment Supplier. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
- C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- D. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- E. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- F. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- G. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

- H. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- I. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- J. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."
- K. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
  - 1. Preparation of substrates.
  - 2. Required substrate tolerances.
  - 3. Sequence of installation or erection.
  - 4. Required installation tolerances.
  - 5. Required adjustments.
  - 6. Recommendations for cleaning and protection.

### **PART 3 - EXECUTION**

#### **3.1 ENGINEER'S REVIEW AND ACTION**

- A. General: Review of submittals by Engineer is only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
- B. Review of submittals by Engineer is not for purpose of determining the accuracy and completeness of dimensions and quantities, or substantiating installation instructions.
- C. Re-Submittal Review: Submittals marked as "Revise and Resubmit" or "Rejected" require a re-submittal. The re-submittal will be reviewed and stamped with an action stamp. Engineer will mark the stamp appropriately to indicate action taken. If the re-submittal is marked as "Revise and Resubmit" or "Rejected", the Engineer will deduct the amount of the Engineer's compensation for the third review (and any subsequent review) from the final payment to the Equipment Supplier.
- D. Re-submittal Review: Submittals marked as "Exceptions Noted – Resubmit" or "Resubmit" will be re-reviewed and stamped with an action stamp. Engineer will mark the stamp appropriately to indicate action taken. If the re-submittal is marked as "Exceptions Noted – Resubmit" or "Resubmit", the Engineer will deduct the amount of the Engineer's compensation for subsequent re-submittal review from the final payment to the Equipment Supplier as provided on the Bid Form.
- E. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - 1. Approved: Where submittal is marked "Approved", the Work covered by the submittal may proceed provided it complies with the Contract Documents.
  - 2. Approved As Noted: Where submittal is marked "Approved As Noted", the Work covered by the submittal may proceed provided it complies with all Engineer's notations and corrections on the submittal and the Contract Documents.
  - 3. Revise and Resubmit: Where the submittal is marked "Revise and Resubmit", the Equipment Supplier may not proceed with the Work covered by the submittal, including purchasing, fabrication,

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- delivery, or other activity for the product submitted. Revise or prepare a new submittal according to Engineer's notations and corrections.
  - 4. Rejected: Where the submittal is marked "Rejected", the Equipment Supplier may not proceed with the Work covered by the submittal. Prepare a new submittal that complies with the Contract Documents.
  - 5. Reviewed for General Conformance Only: This response is for when the Engineer is a secondary reviewer to a third party, or Engineer's stamp will demonstrate the submittal was reviewed without providing direction to the submitting entity - because the primary reviewer makes the determination regarding the acceptance of that submittal. The language that would accompany this choice would be as follows: "Submittal was reviewed for general conformance to the project documents. Since Gresham Smith is a secondary reviewer to a third party, the acceptability of the submittal is determined by the Primary Reviewer, whose stamp also appears on the submittal. Based upon our review, we are returning this submittal << without comments; or with comments marked on the drawings>>.
  - 6. Submittal Not Reviewed: Where Gresham Smith receives an informational submittal, or Gresham Smith receives a submittal we did not request, the manufacturer is receiving no direction from Gresham Smith.
- F. Informational Submittals: Engineer will review each informational submittal and will not return it or may return it as a "Submittal Not Reviewed" as noted in the Section above or will return it with comments if it is non-responsive to requirements. Engineer has authority to designate portions of action submittals as informational.
- G. Partial submittals prepared for a portion of the Work will be reviewed only when use of partial submittals has received prior approval from Engineer.
- H. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- I. Submittals not required by the Contract Documents will not be reviewed and may be discarded.
- J. Submittals attached to Substitution Requests will not be reviewed and will be returned without comment.

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## **SECTION 06 6100 - FIBERGLASS REINFORCED PLASTIC LADDERS**

### **PART 1 GENERAL**

#### **1.1 SUMMARY**

- A. Section Includes: pultruded fiberglass ladder system in compliance with OSHA 1910.23.

#### **1.2 RELATED REQUIREMENTS**

- A. Section 06 6101 FRP Handrails and Guardrails.
- B. Section 11 8129 Facility Fall Protection: Ladder safety systems.
- C. Section 43 4145 Fiberglass Reinforced Plastic Tanks

#### **1.3 REFERENCE STANDARDS**

- A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) Test Methods:
  - 1. ASTM D-638-Tensile Properties of Plastics
  - 2. ASTM D-790-Flexural Properties of Unreinforced and Reinforced Plastics
  - 3. ASTM D-2344-Apparent Interlaminar Shear Strength of Parallel Fiber Composites by Short Beam Method
  - 4. ASTM D-495-High Voltage, Low-Current, Dry Arc Resistance of Solid Electrical Insulation
  - 5. ASTM D-696-Coefficient of Linear Thermal Expansion for Plastics
  - 6. ASTM E-84-Surface Burning Characteristics of Building Materials
- B. THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
  - 1. Code of Federal Regulations (CFR), Title 29, Section 1910.23

#### **1.4 SUBMITTALS**

- A. See Section 01 3300-Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
- C. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
- D. Designer's Qualification Statement.

#### **1.5 QUALITY ASSURANCE**

- A. All items to be provided under this Section shall be furnished only by manufacturers having a minimum of ten (10) years of experience in the design and manufacture of similar products and systems. Additionally, if requested, a record of at least five (5) previous, separate, similar successful installations in the last five (5) years shall be provided.
- B. Manufacturer shall offer a 3 year limited warranty on all FRP ladder products against defects in materials and workmanship.

### **PART 2 PRODUCTS**

#### **2.1 FABRICATED LADDERS**

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- A. Construction: Light-duty/Heavy-duty capable of a 300-lb load. Ladder shall be 18-inches wide between side rails, and rungs shall be spaced 12-inches on center. Rungs shall be non-slip and square.
- B. Ladders shall be fully resistant to the liquids stored in the corresponding FRP tank.
- C. Stainless steel angle clips shall be furnished for mounting the bottom of the ladders to the concrete pad.
- D. Tank tops shall be equipped with ladder clips to bolt ladder handrails to the tanks.
- E. Ladder hardware shall be 3/8-inch bolts, nuts, and washers unless otherwise specified by FRP storage tank manufacturer.
- F. All ladder side rails, rungs and ladder mounting brackets are to be FRP structural shapes manufactured by the pultrusion process. All structural shapes shall be composed of fiberglass reinforcement and resin in qualities, quantities, properties, arrangements and dimensions as necessary to meet the design requirements and dimensions as specified in the Contract Documents.
- G. Fiberglass reinforcement shall be a combination of continuous roving, continuous strand mat, and surfacing veil in sufficient quantities as needed by the application and/or physical properties required.
- H. Resins shall be ISOFR, fire retardant isophthalic polyester; VE or VEFR, fire retardant vinyl ester, with chemical formulation necessary to provide the corrosion resistance, strength and other physical properties as required.
- I. All finished surfaces of FRP items and fabrications shall be smooth, resin rich, free of voids and without dry spots, cracks, crazes or unreinforced areas. All glass fibers shall be well covered with resin to protect against their exposure due to wear or weathering.
- J. All pultruded ladder components shall be further protected from ultraviolet (UV) attack with 1) integral UV inhibitors in the resin and 2) a synthetic surfacing veil to help produce a resin rich surface.
- K. All FRP products shall have a tested flame spread rating of 25 or less per ASTM E 84 Tunnel Test, (except for non-fire retardant isophthalic polyester and vinyl ester NSF Standard 61 certified shapes).
- L. The ladder side rail shall be 2" square tube with a wall thickness of 1/4" or greater. The rungs shall be 1-1/4" diameter pultruded structural shapes, continuously fluted to provide a non-slip surface. Rungs that are gritted as a secondary operation shall not be permitted. Ladder wall and floor mounts shall be fabricated from pultruded angles, 3/8" minimum thickness.
- M. Type 316 stainless steel bolts shall be provided for attaching wall and floor brackets to the ladder.
- N. All rungs shall penetrate the wall of the tube side rails and shall be connected to the rails with spring pins.
- O. All ladders are to be integrally pigmented yellow. All wall and floor mount brackets shall be beige.
- P. Pultruded structural shapes used in the ladder system are to have the minimum longitudinal mechanical properties listed below:

Property	ASTM Method	Value	Units
Tensile Strength	D-638	30,000 (206)	psi (MPa)
Tensile Modulus	D-638	2.5 x 10 <sup>6</sup> (17.2)	psi (GPa)
Flexural Strength	D-790	30,000 (206)	psi (MPa)

Flexural Modulus	D-790	1.8 x 10 <sup>6</sup> (12.4)	psi (GPa)
Flexural Modulus (Full Section)	N/A	2.8 x 10 <sup>6</sup> (19.3)	psi (GPa)
Short Beam Shear (Transverse)	D-2344	4,500 (31)	psi (MPa)
Shear Modulus (Transverse)	N/A	4.5 x 10 <sup>5</sup> (3.1)	psi (GPa)
Coefficient of Thermal Expansion	D-696	7.0 x 10 <sup>-6</sup> (12.6 x 10 <sup>-6</sup> )	in/in/°F (cm/cm/°C)
Flame Spread	E-84	25 or less	N/A

**2.2 LADDER LOCK**

- A. Provide a locking device at the bottom ladder to prevent unwanted access. Device to be consisted of the following:
  - 1. One FRP panel per ladder.
    - a. Width of panel to cover the entire width of the ladder rungs.
    - b. Height of panel to be minimum of 7ft.
  - 2. Minimum of three hinges bolting the panel onto one of the siderails.
  - 3. One locking mechanism bolted to the opposite siderail:
    - a. A hole in the FRP panel shall be drilled such that the angle clip can be accessible for placement of a lock.
    - b. Lock and key to be provided by the Contractor.
  - 4. Bolts, nuts, fasteners, hinges and clips to be stainless steel.

**2.3 PERFORMANCE REQUIREMENTS**

- A. The completed ladder installation shall meet the load requirements set forth in OSHA 1910.23.

**PART 3 EXECUTION**

**3.1 FABRICATION**

- A. All ladders shall be designed and laid out in strict accordance with OSHA 1910.23.
- B. Ladders shall be fully shop assembled.

**3.2 INSTALLATION**

- A. Ladder installation to be performed by others.
- B. Contractor to provide installation instructions as necessary to attach ladder to new tank.

**3.3 FIELD QUALITY CONTROL**

- A. Obtain Installation Certificate from equipment manufacturer's representative attesting equipment has been properly installed and is ready for startup and testing, and supply to Owner.

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**F. Wayne Hill Water Resources Center  
Sodium Hypochlorite Tank Procurement  
DWR Project #BL005-25  
Gwinnett County, Georgia  
Gresham Smith Project No.: 45483.16.FWH.404**

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**END OF SECTION**

**SECTION 06 6101 - FIBERGLASS REINFORCED PLASTIC GUARDRAILS AND HANDRAILS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes: pultruded fiberglass railing system in compliance with IBC and OSHA 1910.29.

**1.2 RELATED REQUIREMENTS**

- A. Section 06 6100 – FRP Ladders  
B. Section 11 8129 – Facility Fall Protection

**1.3 REFERENCE STANDARDS**

- A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) Test Methods:
1. ASTM D-638-Tensile Properties of Plastics
  2. ASTM D-790-Flexural Properties of Unreinforced and Reinforced Plastics
  3. ASTM D-2344-Apparent Interlaminar Shear Strength of Parallel Fiber Composites by Short Beam Method
  4. ASTM D-495-High Voltage, Low-Current, Dry Arc Resistance of Solid Electrical Insulation
  5. ASTM D-696-Coefficient of Linear Thermal Expansion for Plastics
  6. ASTM E-84-Surface Burning Characteristics of Building Materials
- B. THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
1. Code of Federal Regulations (CFR), Title 29, Section 1910.29
- C. INTERNATIONAL CODE COUNCIL, INC.
1. The International Building Code

**1.4 SUBMITTALS**

- A. See Section 01 3300-Administrative Requirements, for submittal procedures.  
B. Shop Drawings:  
C. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.  
D. Designer's Qualification Statement.

**1.5 QUALITY ASSURANCE**

- A. All items to be provided under this Section shall be furnished only by manufacturers having a minimum of ten (10) years of experience in the design and manufacture of similar products and systems. Additionally, if requested, a record of at least five (5) previous, separate, similar successful installations in the last five (5) years shall be provided.

- B. Manufacturer shall offer a 3 year limited warranty on all FRP products against defects in materials and workmanship.

## **PART 2 - PRODUCTS**

### **2.1 HANDRAILS AND GUARDRAILS**

- A. All posts and rails are to be FRP structural shapes manufactured by the pultrusion process. The structural shapes shall be composed of fiberglass reinforcement and resin in qualities, quantities, properties, arrangements and dimensions as necessary to meet the design requirements and dimensions specified in the Contract Documents.
- B. Fiberglass reinforcement shall be a combination of continuous roving, continuous strand mat, and surfacing veil in sufficient quantities as needed by the application and/or physical properties required.
- C. Resins shall be ISOFR, fire retardant isophthalic polyester; VE or VEFR, fire retardant vinyl ester, with chemical formulation necessary to provide the corrosion resistance, strength and other physical properties as required.
- D. All finished surfaces of FRP items and fabrications shall be smooth, resin-rich, free of voids and without dry spots, cracks, crazes or unreinforced areas. All glass fibers shall be well covered with resin to protect against their exposure due to wear or weathering.
- E. All pultruded structural shapes shall be further protected from ultraviolet (UV) attack with 1) integral UV inhibitors in the resin and 2) a synthetic surfacing veil to help produce a resin rich surface.
- F. All FRP products shall have a tested flame spread rating of 25 or less per ASTM E-84 Tunnel Test, (except for non-fire retardant isophthalic polyester and vinyl ester NSF Standard 61 certified shapes).
- G. Top and mid rails for guards are to be 1.75" x 0.125" (44.4 mm x 3.2 mm) wall square tube, the posts are to be 2.125" x 0.1875" (53.9 mm x 4.8 mm) wall square tube and kick plate is to be 5/8" deep x 4" wide with two reinforcing ribs. Offset rail used as handrail to be 1.5" x 0.25" (38.1 mm x 6.4 mm) wall round tube.
- H. The completed railing installation shall meet the following load requirements with a minimum factor of safety of 2.0:
  - 1. Concentrated Load: 200 lb (891 N) applied in any direction at any point on the rail.
  - 2. Uniform Load: 50 lb/lf (730.5 N/m) applied in any direction on the rail.
  - 3. Loads are assumed not to act concurrently.
- I. All rails, posts, and kick plates are to be integrally pigmented yellow.
- J. Pultruded structural shapes used in the railing systems are to have the minimum longitudinal mechanical properties listed below:

Property	ASTM Method		Value	Units
Tensile Strength	D-638		30,000 (206)	psi (MPa)
Tensile Modulus	D-638		2.5 x 10 <sup>6</sup> (17.2)	psi (GPa)
Flexural Strength	D-790		30,000 (206)	psi (MPa)
Flexural Modulus	D-790		1.8 x 10 <sup>6</sup> (12.4)	psi (GPa)
Flexural Modulus (Full Section)	N/A		2.8 x 10 <sup>6</sup> (19.3)	psi (GPa)
Short Beam Shear (Transverse)	D-2344		4,500 (31)	psi (MPa)
Shear Modulus (Transverse)	N/A		4.5 x 10 <sup>5</sup> (3.1)	psi (GPa)
Coefficient of Thermal Expansion	D-696		7.0 x 10 <sup>-6</sup> (12.6 x 10 <sup>-6</sup> )	in/in/°F (cm/cm/°C)
Flame Spread	E-84		25 or less	N/A

- K. All fasteners used in the railing system are to be 316 stainless steel.

### **PART 3 - EXECUTION**

#### **3.1 FABRICATION**

- A. The post/rail connection for guards is to be fabricated such that the rails are unbroken and continuous through the post without the use of packs or splices. The mid rail is to be installed through the post at a prepared hole made to fit the outside dimensions of the rail. The top rail is to fit into a machined, u-shaped pocket formed into top of the post such that the rail is located at the center of the post. All exposed post corners are to be ground smooth to eliminate sharp edges. The rails are to be fastened to the post using stainless steel rivets. The offset handrail is to be fabricated such that the rail is continuous. No sharp, protruding edges are to remain after assembly of the railing system. Spacing of the posts and offset handrail supports shall not exceed 6'-0" (1.83 m).
- B. The bases of the posts are to be attached according to the manufacturer's recommendations. The bases of the posts are to be reinforced to a minimum height of 8.5" (216 mm). The offset handrails are to be attached to guards or walls with brackets.
- C. When required, rails for guards are to be spliced using a 9" (228.6 mm) length of 1.5" x 1/8" (38.1 mm x 3.2 mm) FRP square tube mechanically fastened into place using spring pins. Rail for offset handrail is to be spliced using a 5" (127 mm) length of 1" (25.4 mm) FRP round rod.

#### **3.2 INSTALLATION**

- A. Guardrail installation to be performed by others.
- B. Contractor to provide installation instructions as required to attach guardrails to the new tank.

**3.3 FIELD QUALITY CONTROL**

- A. Obtain Installation Certificate from equipment manufacturer's representative attesting equipment has been properly installed and is ready for startup and testing, and supply to Owner.

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**END OF SECTION**

**SECTION 11 8129 - FACILITY FALL PROTECTION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section includes fall arrest system for the chemical storage tank.
- B. Related Sections:
  - 1. Section 06 6100 – FRP Ladders
  - 2. Section 43 4145 – Fiberglass Reinforced Plastic Tanks
- C. Provide fall protection systems including but not limited to engineering, tools, materials and equipment, required for a turn-key completion of a functional fall arrest system of anchors, pass-thru lifelines, cable shuttles, grounding, and any & all other components necessary for complete and operational personnel fall arrest systems.
- D. Systems shall allow personnel to traverse the entire ladder without detaching.
- E. Provide Georgia Professional Engineer stamped designs.
- F. Provide Trained Manufacturer’s oversight of the installation, final inspection, and certification of all systems.

**1.2 REFERENCE STANDARDS**

- A. The fall arrest systems shall comply with the latest issue of the following standards:
  - 1. OSHA
  - 2. ANSI

**1.3 COORDINATION**

- A. Section 01 3300 - Administrative Requirements: Requirements for coordination.

**1.4 SUBMITTALS**

- A. Section 01 3300 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer's catalog information.

**1.5 MAINTENANCE MATERIAL SUBMITTALS**

- A. Submit Operations and Maintenance Data, if applicable.

**1.6 QUALIFICATIONS**

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

**PART 2 - PRODUCTS**

**2.1 FALL ARREST SYSTEMS**

- A. Manufacturers:
  1. Fall Arrest Systems: Guardian Fall Protection Horizontal Lifelines CB Energy Absorber Hybrid System
  2. FrenchCreek Fall Safety
  3. Or equal.

**2.2 PERFORMANCE REQUIREMENTS**

- A. OSHA 1926 Subpart M, 1910 and others as applicable.
- B. ANSI Z359.1 and others as applicable.

**2.3 MATERIALS**

- A. All materials used in the installation shall be new and shall comply in weight, size, and composition as required by fall protection system manufacturer. The system furnished under this specification shall be the standard product of a manufacturer regularly engaged in the production of fall protection systems.
- B. Anchor bolts, cabling, fasteners, trolleys, and all exterior components shall be Type 316 stainless steel.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Fall protection system to be installed by others.
- B. Contractor to provide installation instructions as required to have system fully operational.

**3.2 FIELD QUALITY CONTROL**

- A. Obtain Installation Certificate from equipment manufacturer's representative attesting equipment has been properly installed and is ready for startup and testing, and supply to Owner.

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**SECTION 43 4145 - FIBERGLASS REINFORCED PLASTIC TANKS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes: Fiberglass-reinforced tanks for storage of the following chemicals:
  - 1. Sodium Hypochlorite (12.5 to 20%)
- B. Related Requirements:
  - 1. Section 06 6100 – FRP Ladders
  - 2. Section 06 6101 – FRP Guardrails and Handrails
  - 3. Section 11 8129 – Facility Fall Protection

**1.2 DEFINITIONS (NOT USED)**

**1.3 REFERENCE STANDARDS**

- A. American Society of Mechanical Engineers:
  - 1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
  - 2. ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
- B. American Society for Testing and Materials:
  - 1. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
  - 2. ASTM D 256, Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
  - 3. ASTM D 570, Test Method for Water Adsorption of Plastics.
  - 4. ASTM D 638, Test Method for Tensile Properties of Polyesters.
  - 5. ASTM D 695, Test Method for Compressive Properties of Rigid Polyesters.
  - 6. ASTM D 696, Test Method for Coefficient of Linear Thermal Expansion of Plastics.
  - 7. ASTM D 790, Test Methods for Flexural Properties of Unreinforced and Reinforced Polyesters and Electrical Insulating Materials.
  - 8. ASTM D 883, Definitions of Terms Relating to Polyesters.
  - 9. ASTM D 953, Test Method for Bearing Strength of Plastics.
  - 10. ASTM D 2240, Standard Test Method for Rubber Property-Durometer Hardness
  - 11. ASTM D 2471, Gel Time and Peak Exothermic Temperature of Reacting Thermosetting Resins.
  - 12. ASTM D2563 - Standard Practice for Classifying Visual Defects in Glass-Reinforced Plastic Laminate Parts.
  - 13. ASTM D 2583, Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
  - 14. ASTM D 2584, Ignition Loss of Cured Reinforced Resins.
  - 15. ASTM D3299 - Standard Specification for Filament-Wound Glass-Fiber-Reinforced Thermoset Resin Corrosion-Resistant Tanks.
  - 16. ASTM D4097 - Standard Specification for Contact-Molded Glass-Fiber-Reinforced Thermoset Resin Corrosion-Resistant Tanks.
  - 17. ASTM D 3846, Test Method for In-Plane Shear Strength of Reinforced Plastics.
- C. Occupational Safety and Health Administration (OSHA).

**1.4 ACTION SUBMITTALS**

- A. Prepare submittals per requirements of Section 01 3300 – Submittal Procedures.
- B. Product Data: Submit information concerning materials of construction, fabrication, and protective coatings.

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- C. Shop Drawings: Submit detailed certified dimensional Shop Drawings showing tank size, layout of accessories, nozzle locations and orientation, and anchoring system.
- D. Shop Drawings:
1. Submit a listing of all components, resins, catalysts, promoters, ultraviolet light absorbers, agents, reinforcing materials, etc., with manufacturer's name, trade and identification marks.
  2. Materials Compatibility: All fiberglass items shall be manufactured of material suitable for the stored liquid specified and for service in a treatment plant and shall be certified by the manufacturers for such use on the Shop Drawings. Refer to the Tank Schedules and Details Sheets shown for the liquid service intended for each FRP storage tank.
  3. Data Requirements: The drawings and data submitted shall include, but not be limited to, the following:
    - a. The manufacturer shall submit for approval all calculations, test reports, and other elements of the design prior to beginning fabrication.
    - b. Include all documentation required to support the selection and verification of the proposed materials and corrosion liner, including data indicating the compatibility of the materials selected for fabrication of each tank with the liquid being stored in the tank.
    - c. Include all information developed by the manufacturer that describes specifically how the equipment is to be manufactured. This will include Shop Drawings, manufacturing standards, specifications, or other manufacturer's instructions. This shall include, but not be limited to:
      - 1) Resin and catalyst type.
      - 2) Type and amounts of fillers.
      - 3) Corrosion liner description; veil type and thickness of liner.
      - 4) Reinforcement types for hand lay-up laminates.
      - 5) For filament-wound laminates: Helix angle; glass content range; strand yield; strands per inch in the winding band; ply thickness; amount of chop or unidirectional roving interspersed with winding, if any, and location within laminate.
      - 6) For all other components: Construction type; laminate thick-nesses; reinforcement types and weights; ply sequences; glass content range.
      - 7) For all secondary overlays (both interior and exterior): Laminate thicknesses; reinforcement types and weights; ply sequences and widths.
      - 8) Construction details for all assembly and other special configurations, including, but not limited to; bottom/top knuckle configuration, overlays and thicknesses; support and anchor lugs, including attachment details; nozzle installation, including cutout reinforcement, gusseting, etc.; support fabrication details, including pipe support attachment clips; configuration and fabrication details of other specialty items.
    - d. Include all information required to design the support foundation and properly install the tank, including but not necessarily limited to the following:
      - 1) Foundation loads: dead weight, liquid weight, wind and seismic overturning moments, shear and axial loads.
      - 2) Maximum anchor bolt pullout force.
      - 3) Required pre-tensioning of anchor bolts, if any.
      - 4) Handling, assembly and installation instructions.
    - e. Specifications and detailed fabrication drawings for all supplied bolting, gaskets, and accessory items.
    - f. Construction and installation details for ladders, grating, and handrails.
    - g. Paint systems including catalog cuts, descriptive data, specification sheets for all equipment, piping and appurtenances with manufacturer's standard color chart and custom color chart. Submit a one-square-foot sample of a typically painted FRP surface.
  4. Include documentation supporting the laminate properties of each laminate construction type used. Laminates used for testing shall be similar in construction, layer sequence, resin type and cure to those used in fabrication.

5. Properties for hand lay-up laminates constructed as Type I or Type II laminates in accordance with RTP-1, Subpart 2A, are adequately documented with the properties listed in Table 2A-3. If alternate laminate sequences are used, properties shall be determined by testing.
6. Properties of filament wound laminates shall be determined by testing or by laminate analysis, as presented in RTP-1, Appendix M-5, with the exception of ultimate strength values. Ultimate strength properties shall be determined by testing only.

#### **1.5 INFORMATIONAL SUBMITTALS**

- A. Manufacturer's Certificate:
  1. Certify that products meet or exceed specified requirements.
  2. Submit certified list of tank installations, storing same chemical and concentration, in service for period of not less than five years.
- B. Owner Installation Certificate: Obtain from equipment manufacturer's representative and submit, attesting equipment has been properly installed and is ready for startup and testing.
- C. Certification of Design: Provide with the submittals written certification from the manufacturer, signed and sealed by a Registered Professional Engineer, registered in the State of Georgia, verifying that the FRP storage tanks to be furnished under this Section meet all applicable structural requirements specified herein, including ASTM D3299, and shown for the conditions of service for each FRP storage tank. This requirement includes design drawings and calculations. Anchor design calculations shall be sealed by a Professional Engineer licensed in the State of Georgia.
- D. Delegated Design Submittals: Submit signed and sealed design calculations and assumptions for determination of shell thickness, nozzle reinforcement, and special elements of vessel construction and support.
- E. Test and Evaluation Reports:
  1. Submit certified data on physical properties of laminates being used to include laminate tensile modulus and flexural modulus in hoop and axial directions, and data on laminate makeup to include number and thickness of layers and layer glass content.
  2. Submit certified factory test results.
- F. Source Quality-Control Submittals: Indicate results of factory tests and inspections.
  1. Source Quality Control Submittals:
    - a. Test reports for all shop inspections shall be sent to the ENGINEER before shipping tanks to the Site. Shop inspections shall include but are not limited to those specified in section 2.13 of this specification. Do not ship tanks until after the ENGINEER has approved the test reports.
  2. Source Quality Control Testing Certificate:
    - a. A water fill hydrostatic test shall be performed on the FRP tank to ensure no leaks are observed during that period. Test Results shall be submitted to ENGINEER at least five (5) days prior to delivery.
  3. Site Quality Control Submittals:
    - a. Factory Test Report:
      - 1) Certify through visual inspection of tanks after fabrication that Acceptance Level II requirements of ASTM D2563 are met.
      - 2) Certify following during shop inspection:
        - a) Compliance with Drawing dimensions.
        - b) Surface cure by acetone wipe test; no surface tackiness is permitted.
        - c) Liquid tightness by minimum 24-hour hydrostatic test.
  4. Owner Inspection: Make completed tank available for inspection at manufacturer's factory before packaging for shipment. Notify Owner at least seven days before inspection is allowed.

5. Owner Witnessing: Allow witnessing of factory inspections and test at manufacturer's test facility. Notify Owner at least seven days before inspections and tests are scheduled.
6. Certificate of Compliance: When fabricator is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.
  - a. Specified shop tests are not required for Work performed by approved fabricator.

- G. Field Quality-Control Submittals: Indicate results of Contractor-supplied tests and inspections.
- H. Manufacturer Reports: Submit certification after installation that tanks have been installed according to manufacturer's instructions.
- I. Qualifications Statements:
  1. Submit qualifications for manufacturer, installer, and licensed professional.
  2. Submit manufacturer's approval of installer.

#### **1.6 CLOSEOUT SUBMITTALS**

- A. Submit Operations and Maintenance information, if applicable.
- B. Manufacturer warranties.

#### **1.7 QUALITY ASSURANCE**

- A. Perform Work according to ASTM D3299 standards.

#### **1.8 QUALIFICATIONS**

- A. Manufacturer's Qualifications: CONTRACTOR shall furnish FRP storage tanks from a manufacturer who has experience in the design and manufacturing of FRP storage tanks of the same or larger size to those specified. For a manufacturer to be determined acceptable for providing FRP storage tanks and appurtenances on this project, CONTRACTOR shall show evidence of five separate, substantially similar installations that have been in satisfactory operation for at least five years.
- B. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.
- C. Licensed Professional: Professional engineer experienced in design of specified Work and licensed in State of Georgia.

#### **1.9 MANUFACTURER WARRANTIES**

- A. Supply 5-year manufacturer's warranty for replacement due to breakage, yellowing, abrasion, loss of light transmission, leakage and coating delamination.
- B. Any defective equipment shall be repaired or replaced without cost or obligation to the Owner.

#### **1.10 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Deliver materials to the Site to ensure uninterrupted progress of the Work. Deliver anchor bolts and anchorage devices that are to be embedded in cast-in-place concrete in ample time to prevent delay of the Work.

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- B. Contractor shall be responsible for the safe transportation to the Site, including any freight cost and necessary permits, handling and open air storage of the tanks and other materials purchased as specified in this Section.
- C. Handle all FRP storage tanks and appurtenances as recommended by the manufacturer to avoid damage. Tanks that are damaged will not be acceptable. Protect all tank appurtenances or sub-assemblies from damage and contamination.

## **PART 2 - PRODUCTS**

### **2.1 TANKS**

- A. Manufacturers: Subject to compliance with requirements, supply products from one of the following.
  - 1. Design Tanks
  - 2. Augusta Fiberglass
  - 3. Diamond Fiberglass Fabricators, Inc
  - 4. Composites USA
  - 5. Belco Manufacturing Co, Inco
  - 6. Plas-Tanks
  - 7. Or approved equal
- B. Description:
  - 1. Construct tanks using zero-to-90-degrees laminate construction method, conforming to requirements specified in ASTM D3299 and ASTM D4097, and meeting Acceptance Level II requirements of ASTM D2563; zero-to-90-degrees laminate construction is defined as a tank having continuous circumferential hoop fibers running at zero degrees with two layers of axial fibers installed approximately 90 degrees to hoop wind.
  - 2. Use materials of construction to resist and retain process fluid without leakage or damage to structural integrity of tank; use same resin throughout construction of each tank. Supply nexus or C-veil to meet requirements.
  - 3. Minimum thickness: 1/4 inch
- C. Governing Standards
  - 1. ASTM 3299, ASTM 4097 and NBS PS-15-69. Designed and fabricated to meet or exceed ASTM 3299, ASTM 4097 and NBS PS-15-69. QA procedures per Tank Vendor's standard.
- D. Performance and Design Criteria:
  - 1. Tank Design Safety Factors:
    - a. 10:1 for internal pressure for contact molding.
    - b. inches/inch strain limit for filament winding; 5:1 for vacuum collapse.
    - c. Joint strength to equal shell strength.
- E. Storage Tank Configuration: vertical, cylindrical
  - 1. Closed top tanks, Indoor, flat-bottom, domed-top:
    - a. Sodium Hypochlorite Tanks
- F. Design temperature:
  - 1. 0-98 degrees Fahrenheit inside building
- G. Chemical environment. Product shall be resistant to corrosion as specified:
  - 1. Sodium Hypochlorite Tanks
    - a. 12.5% to 20% Sodium Hypochlorite
- H. Specific Gravity: 1.9

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- I. Fire retardancy: not required.
- J. Seismic design per latest IBC using the following address: 1500 One Water Way, Buford, GA, 30519.
- K. Tank roof shall be designed to support all dead load plus a uniform live load of 100 psf for access to manway and instrumentation by operating personnel.
- L. Anchor. Tanks shall be supported on and anchored to concrete pads. Anchor design calculations shall be sealed by a Professional Engineer licensed in the State of Georgia.

**2.2 CONNECTIONS AND NOZZLES**

- A. Contact molded, fully gusseted nozzles of same material as tank.
- B. Press molded accessories not permitted in contact with stored material.
- C. Supply flanged nozzles with standard ANSI B16.1, Class 125, or ASME B16.1 and ASME B16.42, Class 125 drilling.
- D. Gasket material:
  - 1. PTFE
- E. Nozzle locations:
  - 1. In accordance with existing tank submittals provided in Exhibit A.

**2.3 LIFTING LUGS**

- A. Tanks shall be furnished with Type 316 stainless steel lifting lugs capable of withstanding weight of empty tank with safety factor of 5 to 1. Provide a minimum of four lifting lugs on all storage tanks.

**2.4 ANCHORING SYSTEM**

- A. Supply each storage tank with fiberglass-reinforced plastic hold-down lugs with stainless-steel anchor bolts. Supply minimum of four lugs for each tank.

**2.5 TANK NAMEPLATE**

- A. Mark each tank with encapsulated paper tag or stainless-steel nameplate not less than 4 by 6 inches in size; attach to outside of tank wall.
- B. Print the following information on nameplates:
  - 1. Name of manufacturer.
  - 2. Capacity in gallons.
  - 3. Manufacturer serial number.
  - 4. Date of Manufacture.
  - 5. Liquid to be stored including:
    - a. Concentration
    - b. Specific gravity
    - c. Maximum temperature
  - 6. Design pressure.
  - 7. Resin.

**2.6 CHEMICAL WARNING SIGN**

- A. Chemical Warning Signs. Tanks shall be furnished with OSHA approved 20-inch by 24-inch Chemical Warning signs with NFPA 704 hazard numbers for the chemical services intended.

**2.7 FIBERGLASS STORAGE TANK SCHEDULE**

- A. East Chemical Building Sodium Hypochlorite Tanks:
  - 1. Liquid: 12.5% Sodium Hypochlorite
  - 2. Configuration: Vertical, closed top, domed top
  - 3. Dimensions: 12 ft (dia) x 27.5 ft height (or as required to meet the capacity)
  - 4. Capacity: 22,000 gal.
  - 5. Quantity: 1

**2.8 ACCESS LADDERS**

- A. Refer to Specification Section 06 6100 – FRP Ladders

**2.9 TANK PIPE SUPPORT BRACKETS**

- A. Where fill lines, overflow lines, and sight glass piping extend vertically against the outer wall of FRP storage tanks, as shown, the tank manufacturer shall attach Type 316 stainless steel brackets to the outer wall of the tank.
- B. Brackets shall be spaced no more than 3 feet-0 inches on center.

**2.10 RAILING**

- A. Refer to Specification Section 06 6101 – FRP Handrails and Guardrails

**2.11 PAINTING**

- A. All FRP exterior surfaces of chemical storage tanks and appurtenances exposed to ultra violet rays shall be shop painted with an approved epoxy paint system.
- B. Prepare all surfaces to be shop painted with sandpaper or sand blasting and solvent cleaning, as required.
- C. All FRP exterior surfaces of chemical storage tanks and appurtenances shall be painted with an epoxy-polyamide primer, Tnemec Series 66 Hi-Build Epoxoline 3 to 5 dry mils, or equal. Final coat shall be Tnemec Series 70 or 71 Endurashield aliphatic Polyester polyurethane enamel 1.5 to 2.5 dry mils, or equal. Submit paint manufacturer's complete standard and custom color charts for color selection by the ENGINEER and OWNER.

**2.12 SPARE PARTS**

- A. Furnish and deliver the following spare parts as specified below:
  - 1. Tanks: Two sets of each size of all gaskets, washers, and o-rings for each type of tank furnished and installed.
- B. Spare parts shall be packed in sturdy containers with clear indelible identification markings and shall be stored in a dry, warm location until transferred to the OWNER at the conclusion of the project.

**PART 3 - EXECUTION**

**3.1 FIELD QUALITY CONTROL**

- A. Obtain Installation Certificate from equipment manufacturer's representative attesting equipment has been properly installed and is ready for startup and testing, and supply to Owner.

<b>ISSUED</b>	<b>DATE</b>
<b>ISSUED FOR BID</b>	

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**END OF SECTION**

**EXHIBIT A - EAST CHEMICAL BUILDING - EXISTING TANK SUBMITTAL**

CHOP/HOOP FILAMENT WOUND FIBERGLASS FABRICATION NOTES

1. LINER TO BE INTERPLASTICS CORVE8301R/2 NEXUS WITH MEKP CURE, 100 MIL THICK.
2. STRUCTURAL TO BE INTERPLASTICS CORVE8301R WITH MEKP CURE, 0.07" PER LAYER.
3. EXTERIOR WHITE WAX COAT TO CONTAIN 3% STYWAX.
4. FABRICATED TO APPLICABLE SECTIONS OF ASTM D3299.
5. SOME ITEMS MAY BE ROTATED OR OMITTED IN ELEVATION VIEW FOR CLARITY. SEE PLAN VIEW FOR TRUE ORIENTATION.
6. ELEVATIONS ARE FROM OUTSIDE BOTTOM.
7. PROJECTIONS ARE FROM OUTSIDE SHELL.
8. ALL NOZZLE LOADS TO BE INDEPENDENTLY REACTED BY OTHERS.
9. ALL NOZZLES ARE ASA 150# HOLE PATTERN, FLAT FACE UNLESS OTHERWISE NOTED.
10. ALL FLANGED NOZZLES TO BE SPOT FACED.
11. BOLT HOLES TO STRADDLE PRINCIPAL CENTERLINES UNLESS OTHERWISE NOTED.
12. ALL FLANGES WITHOUT BLINDS TO BE COVERED WITH PLYWOOD PRIOR TO SHIPMENT.
13. FASTENERS AND GASKETS FOR SERVICE BY OTHERS UNLESS OTHERWISE NOTED.
14. FASTENERS TO BE 316SS UNLESS OTHERWISE NOTED.

LAMINATE SEQUENCE SYMBOLS

- V - 10 MIL THICK "C" GLASS VEIL 7% GLASS CONTENT.
- C - 50 MIL THICK 1.5 OZ./SQ. FT. CHOPPED "E" GLASS ROVING 30% GLASS CONTENT.
- M - 38 MIL THICK 1.5 OZ./SQ. FT. CHOPPED "E" GLASS MAT 30% GLASS CONTENT.
- R - 70 MIL THICK 24 OZ./SQ. YD. GLASS WOVEN ROVING 45% GLASS CONTENT.
- N - 20 MIL THICK APERTURED NEXUS VEIL.
- CH - 70 MIL THICK 2.4 OZ./SQ. FT. CHOPPED "E" GLASS ROVING AND 68 STRANDS OF 250 YIELD CONTINUOUS "E" GLASS HOOP STRANDS 50% GLASS CONTENT.

**NOTE: THIS SUBMITTAL IS NOT TO BE USED FOR PROCUREMENT PURPOSES, BUT SIMPLY FOR NOZZLE SCHEDULE REFERENCE.**

**WARNING NOTES - FAILURE TO COMPLY WITH THE FOLLOWING NOTES WILL VOID WARRANTY**

***THIS TANK DESIGNED FOR ATMOSPHERIC PRESSURE ONLY (MUST BE VENTED)  
ALL CLOSED TOP TANKS MUST HAVE A VENT OF EQUAL OR GREATER SIZE THAN THE LARGEST INLET OR OUTLET.***

***VENT NOT DESIGNED FOR COMPRESSED AIR UNLOADING.***

***FOUNDATION PAD MUST BE FABRICATED UNIFORM IN TEXTURE AND APPEARANCE, AND MEET A SURFACE PLANE TOLERANCE (1/8" IN 10 FEET). PAD MUST BE DESIGNED FOR A FULLY LOADED TANK, SOIL PROPERTIES AND FREEZE/THAW FORCES.***

DESIGN CONDITIONS MUST BE PROVIDED TO CONFIRM  
CORROSION RESISTANCE OF RESIN SELECTION  
WARRANTY VOID IF DESIGN CONDITIONS ARE NOT SUPPLIED

DESIGN CONDITIONS

CHEMICAL ENVIRONMENT: 25% SODIUM HYDROXIDE  
 MAX. TEMPERATURE: AMBIENT  
 PRESSURE: ATMOSPHERIC  
 VACUUM: NONE  
 SPECIFIC GRAVITY: 1.9  
 WIND: ---  
 SEISMIC ZONE: ---  
 CAPACITY: 23,300 GALLONS  
 EMPTY WEIGHT: 4500 POUNDS  
 FILLED W/WATER WEIGHT: 198,822 POUNDS  
 EQUIPMENT NO.: 52:CS-TK-1, 52:CS-TK-2  
 SERIAL NUMBER: 4668, 4669

**APPROVED FOR MANUFACTURE**

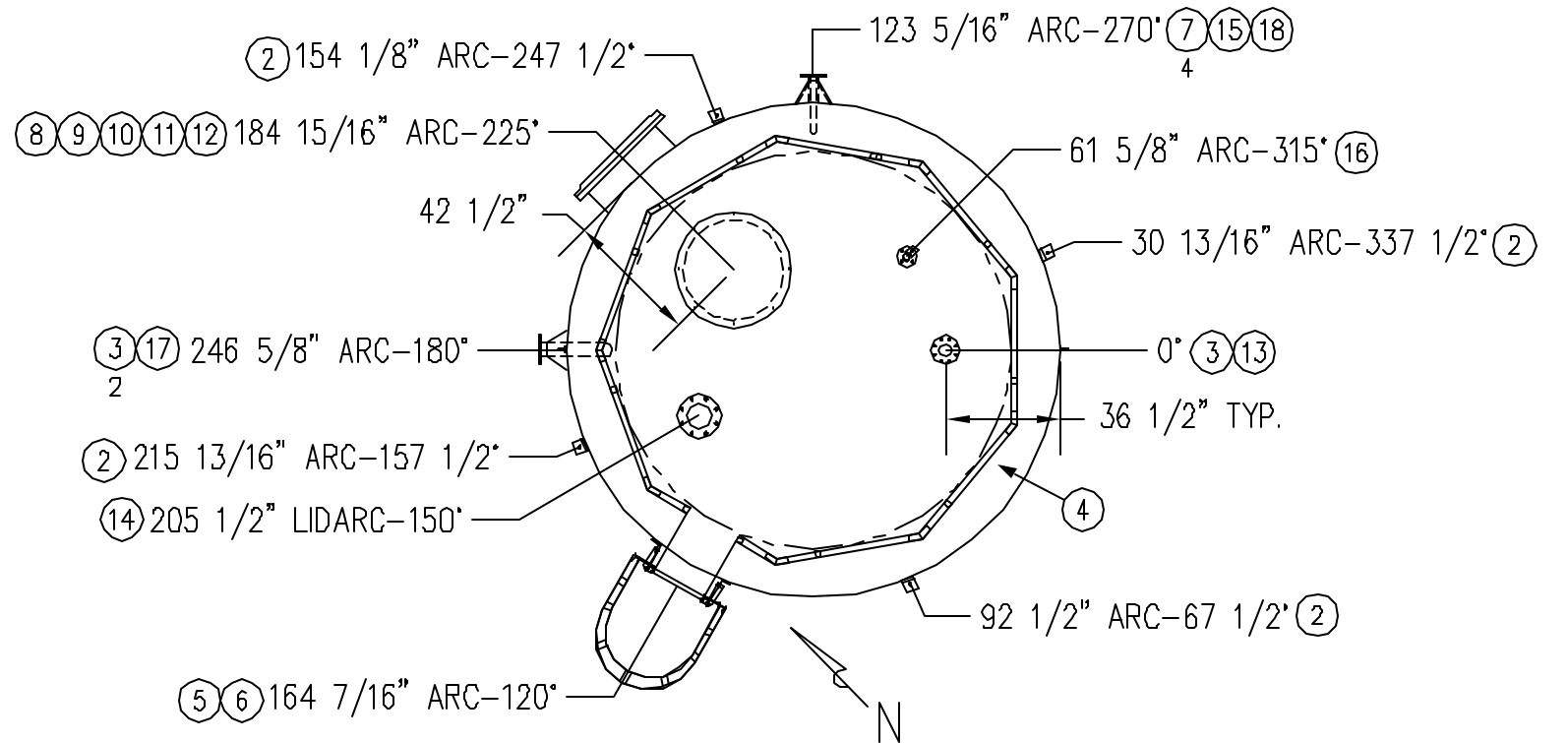
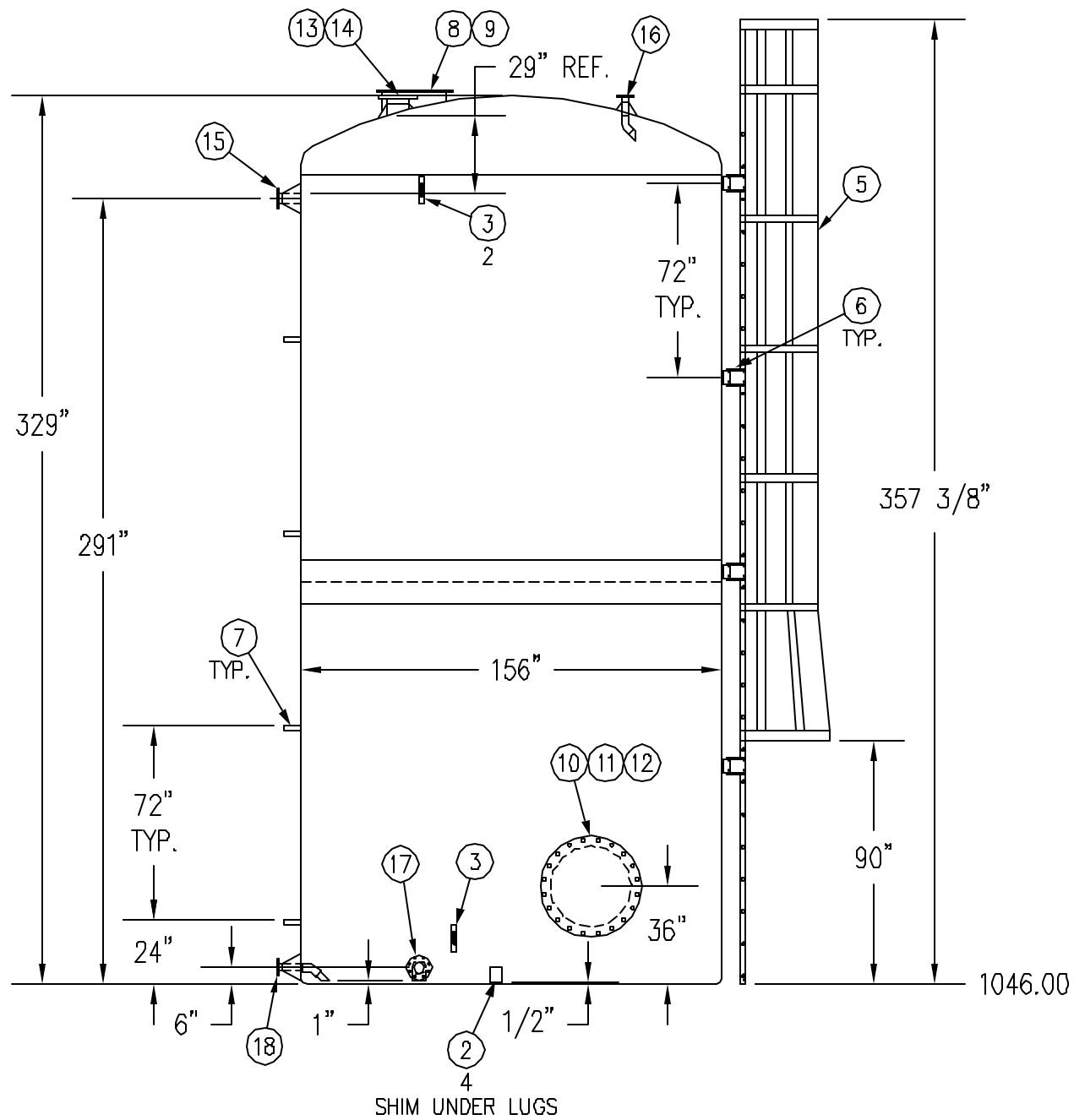
<b>DESIGN TANKS</b>				SIOUX FALLS, SOUTH DAKOTA			
TITLE				FBDT 13'-0" X 27'-5" 23,300 GALLON			
PROJECT #				7332		NO. OF TANKS: 2	
COLOR: WHITE		DATE: 10/27/03		TANK ASSY#		DRAWN BY: MSG	
CUSTOMER: WESTERN SUMMIT				SIZE <b>B</b>		DRAWING NO./REVISION NO. <b>34182A</b>	
RFQ # 10709		P.O. # 7332-13215P		SCALE 1= NA		SHEET 1 OF 4	

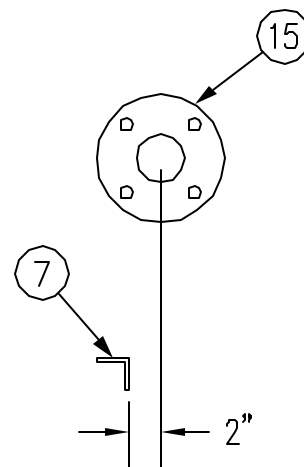
<b>PROPRIETARY NOTICE</b>			
NOTICE: THIS DRAWING WAS ORIGINATED BY AND IS THE PROPERTY OF DESIGN TANKS INC., WHO RESERVES ALL PATENT, PROPRIETARY DESIGN, USE, SALE, MANUFACTURING, AND/OR REPRODUCTION RIGHTS THERETO. UNDER PENALTY OF LAW MAY NOT BE USED IN ANY FORM BY ANY COMPANY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DESIGN TANKS INC.			

REVISED PER 12/30/03 RESUBMITTAL & 1/14/04 SUPPLEMENTAL INFORMATION	MSG	01/16/04	A
DESCRIPTION OF CHANGES	NAME	DATE	LTR.
DRAWING REVISIONS			



PRODUCTION NOTE:  
FLANGE BOLT HOLES TO STRADDLE 0°-180° CENTERLINE AS SHOWN.



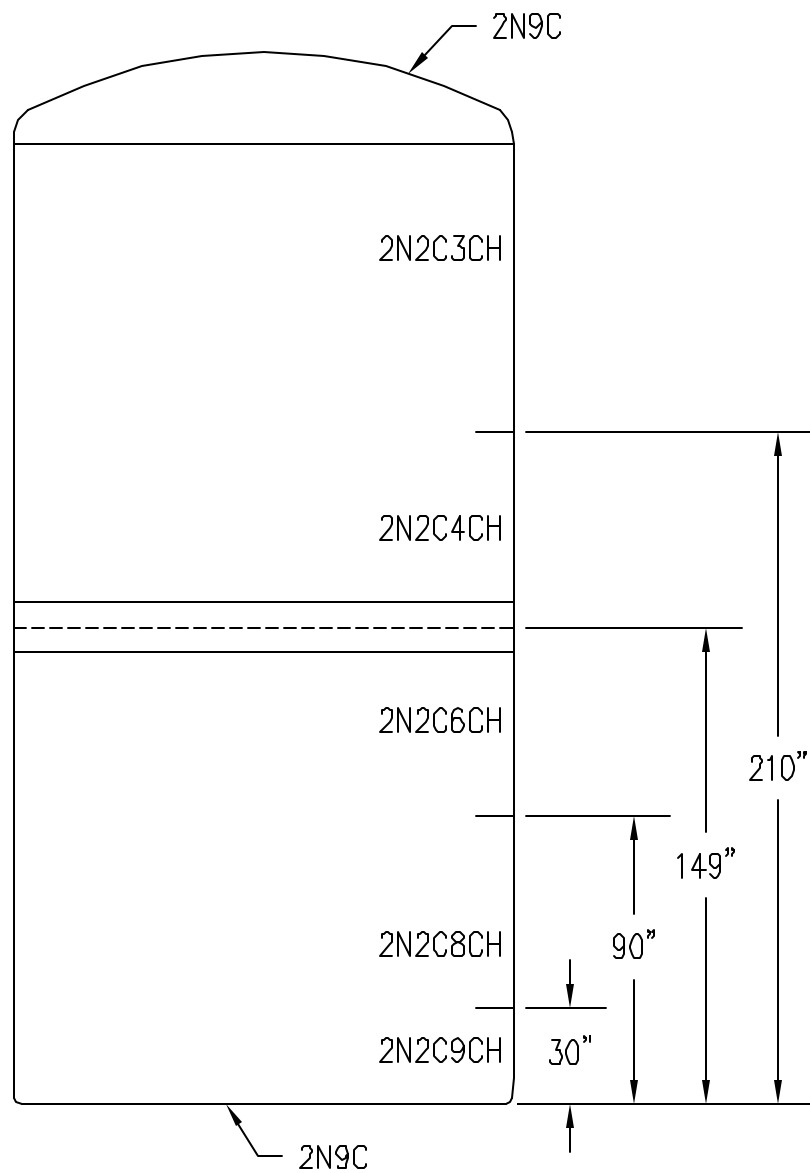
INTERPLASTICS CORVE8301R/2 NEXUS LINER/MEKP CURE

NOTE: SOME ITEMS MAY BE ROTATED OR OMITTED IN ELEVATION VIEW FOR CLARITY  
SEE TOP VIEW FOR PROPER ORIENTATION

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<b>DESIGN TANKS</b>		SIOUX FALLS, SOUTH DAKOTA	
TITLE: FBDT 13'-0" X 27'-5" 23,300 GALLON			
F. WAYNE HILL WATER RESOURCES CENTER PHASE 2 CONTRACT 4			
PROJECT #: 7332		NO. OF TANKS: 2	
COLOR: WHITE	DATE: 10/27/03	TANK ASSY#	DRAWN BY: MSG
CUSTOMER: WESTERN SUMMIT		SIZE: <b>B</b>	DRAWING NO./REVISION NO.: 34182A
RFQ # 10709	P.O. # 7332-13215P	SCALE 1= 60	SHEET 2 OF 4

**EXHIBIT A - EAST CHEMICAL BUILDING - EXISTING TANK SUBMITTAL**



TANK CONSTRUCTION - REF. LAMINATE SEQUENCE ON SHT. 1 OF 4

**PART SCHEDULE**

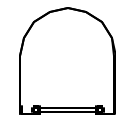
ITEM NO.	QTY. REQ'D.	NOTE	PART NUMBER	DESCRIPTION	PROJECTION	ORIENTATION	ELEVATION	RADIUS FROM EDGE	NOTES
1	1			O & M MANUAL					
2	4			316SS HOLD-DOWN LUG WITH 7/8" HOLE					
3	3			304SS LIFT LUG					
4	1			FRP HANDRAIL, SEE SHEET 4					
5	1			357 3/8" O.A.H. FRP LADDER & CAGE		120°			
6	8			FRP LADDER STANDOFF		120°			
7	4			FRP ANGLE BRACKET FOR OVERFLOW		270°			2" X 2" X 1/4" X 9" LONG
8	1			32" BOLT-DOWN MANWAY, WHITE	6"	225°		42 1/2"	TOP MANWAY, 316SS HARDWARE
9	1			1/8" THK. EPDM TOP MANWAY GASKET					32" I.D. X 36" O.D.
10	1			30" NON-GUSSET FLANGE, 50 PSI	8"	225°	36"		SIDE MANWAY, 12 REIN.
11	1			30" BLIND FLANGE, 50 PSI, WHITE					316SS HARDWARE
12	1			1/8" THK. EPDM SIDE MANWAY GASKET					
13	1			4" CON. GUSSET FLANGE	6"	0°		36 1/2"	VENT
14	1			8" CON. GUSSET FLANGE	6"	150°		36 1/2"	LEVEL INSTRUMENT
15	1			3" CON. GUSSET FLANGE	9"	270°	291"		OVERFLOW
16	1			2" CON. GUSSET SIPHON FLANGE	6"	315°		36 1/2"	FILL
17	1			4" CON. GUSSET SIPHON FLANGE	9"	180°	6"		OUTLET, 8 REIN.
18	1			2" CON. GUSSET SIPHON FLANGE	9"	270°	6"		DRAIN, 8 REIN.
19	1			CONTENTS LABEL					
20	1			DESIGN TANKS LOGO PELLON LABEL					
21	1			DRY HEAT CURE AND RINSE TANK					4 HOURS @ 180° F.
22	1			16" WIDE BELLY BAND					2N2R INSIDE; 6R OUTSIDE

INTERPLASTICS CORVE8301R/2 NEXUS LINER/MEKP CURE

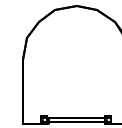
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CUSTOMER: WESTERN SUMMIT		SIZE: <b>B</b>	DRAWING NO./REVISION NO.: 34182A
RFQ # 10709	P.O. # 7332-13215P	SCALE 1= 60	SHEET 3 OF 4



**TOP CAGE STANDOFFS:**  
 \* 1 5/8" X 6" X 1/4" CHANNEL GRAY (ISO-FR).  
 \* 18-8 SS BOLTS AS MECHANICAL FASTENERS.



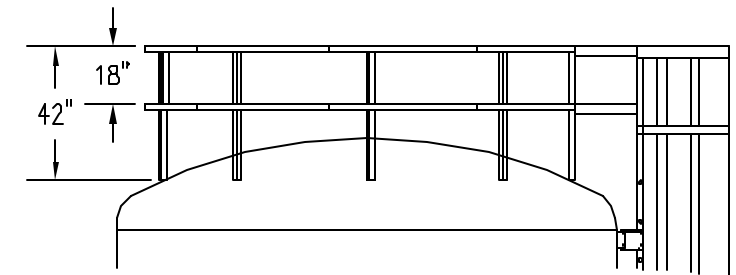
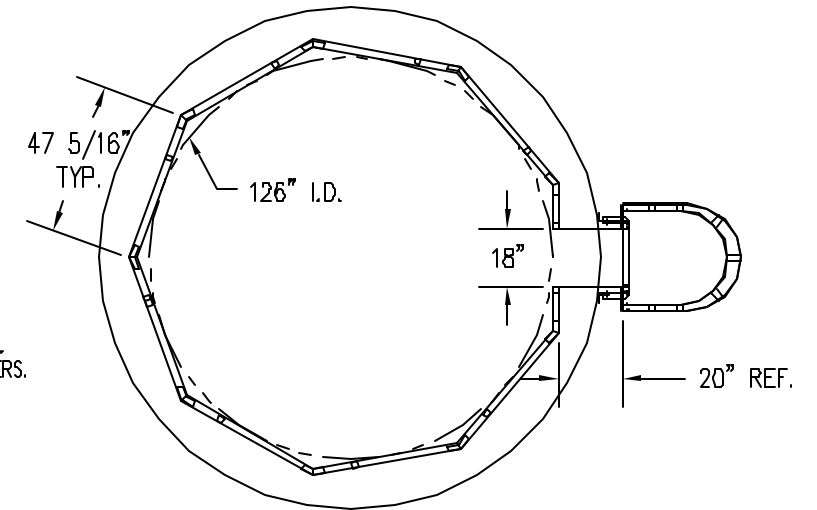
**BOTTOM CAGE STANDOFFS:**  
 \* 2" X 8" X 1/4" CHANNEL GRAY (ISO-FR).  
 \* 18-8 SS BOLTS AS MECHANICAL FASTENERS.

**LADDER/CAGE MATERIALS:**

- \* 2" X 1/4" SQ. TUBE SAFETY YELLOW (ISO-FR) FOR LADDER RAILS.
- \* 1 1/2" X 1/8" ROUND TUBE SAFETY YELLOW (ISO-FR) FOR LADDER RUNGS (GRITTED).
- \* 1/8" X 4" FLAT SHEET GRAY (ISO-FR) FOR CAGE STRAPS.
- \* 3/16" DIA. 316SS RIVETS AS MECHANICAL FASTENERS.
- \* 2" X 1/8" CHANNEL GRAY (ISO-FR) FOR CAGE RAILS.
- \* 18-8 SS BOLTS AS MECHANICAL FASTENERS.

**HANDRAIL MATERIALS:**

- \* 2" X 1/8" SQ. TUBE SAFETY YELLOW (ISO-FR) FOR TOP & MID RAIL.
- \* 1 3/4" X 1/4" SQ. TUBE SAFETY YELLOW (ISO-FR) FOR POSTS. PLUGGED SOLID AT BOTTOM.
- \* 1/8" X 4" FLAT SHEET GRAY (ISO-FR) FOR TOE PLATE.
- \* 3/16" DIA. 316SS RIVETS AS MECHANICAL FASTENERS.
- \* SOLID FRP JOINT CONNECTORS FOR TOP & MID RAIL.



INTERPLASTICS CORVE8301R/2 NEXUS LINER/MBKP CURE

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COLOR: WHITE	DATE: 10/27/03	TANK ASSY#	DRAWN BY: MSG
CUSTOMER: WESTERN SUMMIT		SIZE <b>B</b>	DRAWING NO./REVISION NO. 34182A
RFQ # 10709	P.O. # 7332-13215P	SCALE 1= 60	SHEET 4 OF 4