



April 08, 2025

**INVITATION TO BID
BL049-25**

The Gwinnett County Board of Commissioners is soliciting competitive sealed bids from qualified suppliers for the **Purchase and Installation Support of Circular Clarifier Drives at Lanier Filter Plant.**

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 May 19, 2025**, at the Gwinnett County Financial Services - Purchasing Division – 2nd 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.

Pre-bid Date and Location:

A Webex Pre-bid Meeting is scheduled for 2:00 P.M. on May 02, 2025. To access, dial 1-408-418-9388, enter Access code 2341 015 1896. All interested parties are urged to attend. The pre-bid conference is to be utilized by contractors and subcontractors to ask any questions in order to submit a bid for this project. Note: Contractors can go by the project area at any time to look at the existing conditions.

Instruction on Submitting Questions:

Questions regarding bids should be directed to Brittany Bryant, CPPB, Purchasing Associate III, at Brittany.Bryant@GwinnettCounty.com or by calling 770-822-7759, **no later than 3:00PM on May 09, 2025**. Bids are legal and binding upon the vendor when submitted. All bids should be submitted in duplicate.

All suppliers must submit with bid, a bid bond, certified check or cashier's check in the amount of five percent (5%) of the total bid. **Failure to submit a bid bond with the proper rating will result in the bid being deemed non-responsive.** Successful supplier will be required to meet insurance requirements, submit a one hundred percent (100%) performance bond and a one hundred percent (100%) payment bond. Insurance and Bonding Company should be licensed to do business by the Georgia Secretary of State, authorized to do business in Georgia by The Georgia Insurance Department, listed in the Department of Treasury's Publication of Companies holding Certificates of Authority as Acceptable Surety on Federal Bonds and as acceptable reinsuring companies. **The bid bond, payment bond, and performance bond 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 supplier 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 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:

**Bid Schedule, Page 6-7
References, Page 8
Code of Ethics, Page 9
Contractor Affidavit, Page 10
Bid Bond, Pages 11-12**

I. INTENT

The intent of this scope is to procure circular clarifier drives and equipment for the two (2) Pre-Clarification Basins including replacement two (2) motors and drives, torque tube upper and lower steady bearings and rake arm squeegees at the Lanier Filter Plant (LFP). The equipment supplied will be installed and connected to the existing electrical and control equipment under a separate contract by others.

II. BACKGROUND

The backwash waste clarification process at LFP includes Flocculation and Pre-Clarification Basins and are shown below in Figure 1. The location of LFP is 2590 South Water Works Rd, Buford, GA 30518.

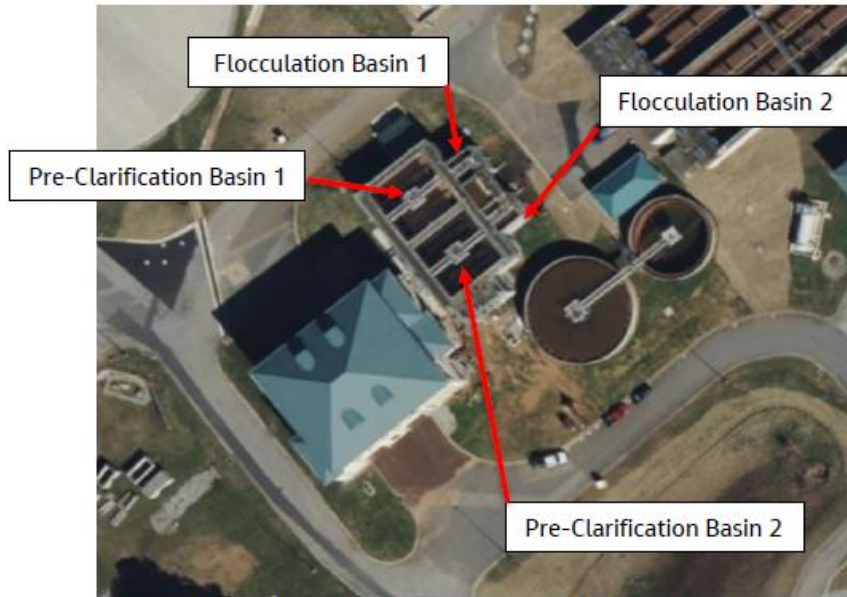


Figure 1 – LFP Pre-Clarification Basins Location

The Gwinnett County Department of Water Resources (GCDWR) has assessed the pre-clarification process at LFP and are undertaking rehabilitation of the structure and some of the associated equipment. The pre-clarification basin rake arm drives (circular clarifier drives) and thickener mechanism were installed in 2000 and are nearing the end of their useful life. There are concerns relating to their ongoing reliability. As a result, GCDWR is requiring the complete replacement of the motors and drives, rake squeegees, torque tube upper and lower steady bearings in the two (2) pre-clarification basins. The drive coupling will need to mate to the existing torque tube. The existing electrical equipment, wiring and conduits are to be reconnected to the new units. Existing clarifier rake motor, drive and Pre-clarification Basin information is included in Tables 1 to 3 below. Drawings are provided in Attachments 1, 2, and 3.

The existing units were manufactured and installed by US Filters/Envirex, and the details are provided in Tables 1 to 3 below. The drives are Type F25HT units (see Figure 2), and the gearbox and motor nameplates are shown in Attachment 1. Replacement motors and drives, rake squeegees, torque tube upper and lower steady bearings should be compatible with existing rake assembly and installation within the tanks. The replacement equipment should be provided by GCDWR and installed by an installation contractor (yet to be

Table 1: Existing Pre-Clarification Basin Drive Motors

Tag No.	Equipment Description	Ex. Starter	Ex. Rating	Ex. RPM	Ex. Amps
TDU-1	Pre-Clarification Rake Motor 1	Constant Speed	0.75 HP	1,755	1.1 @ 460V
TDU-2	Pre-Clarification Rake Motor 2	Constant Speed	0.75 HP	1,755	1.1 @ 460V

appointed) under a separate contract.

Table 1: Existing Pre-Clarification Basin Drive Motors

Tag No.	Equipment Description	Ex. Starter	Ex. Rating	Ex. RPM	Ex. Amps
TDU-1	Pre-Clarification Rake Motor 1	Constant Speed	0.75 HP	1,755	1.1 @ 460V
TDU-2	Pre-Clarification Rake Motor 2	Constant Speed	0.75 HP	1,755	1.1 @ 460V

Table 2: Existing Pre-Clarification Drives

Tag No.	Equipment Description	Gearbox ratio	Torque	Drive Type	Service Factor
M-78201	Pre-Clarification Drive Unit 1	195	13,700 lb-in	Chain/Wormgear	1.0
M-78202	Pre-Clarification Drive Unit 2	195	13,700 lb-in	Chain/Wormgear	1.0

Table 3: Existing Pre-Clarification Basins

Tag No.	Description	Type	Dimensions	Depth	Volume
TNK-78200	Pre-Clarification (PC) Basin 1	Concrete	40'x40'	26.3' SWD	325,00 GAL
	Pre-Clarification (PC) Basin 2	Concrete	40'x40'	26.3' SWD	325,00 GAL



Figure 2 – Existing Pre-Clarification Basin Drive Unit

The basins are operated in two (2) trains, with one (1) train being able to be taken off-line whilst the other train is in operation. The replacement unit will be installed on one (1) train at a time. Once all the work on the first train has been completed and successfully operated continuously for 7 days, work on the second train will commence. Manufacturing and delivery of the replacement units are to be phased to suit the complete installation of the first train, followed by installation of the second train.

As part of the overall rehabilitation, the structural steel support elements will be repaired and recoated. The rake assembly, torque tubes, drive units and motors will also be recoated following installation.

III. SCOPE:
General

1. The existing equipment was supplied by US Filters/Envirex. GCDWR has no manufacturer preference, other than the replacement units should meet the design criteria and be able to be installed in the

- existing basin with minimal modifications.
2. If any modifications to the existing installation and impacts on the installation are envisaged, they should be detailed at the time of the manufacturer's submission of the bid submittal. The installation and any modifications should be completed by the future installation Contractor.
 3. Equipment manufacture should provide all materials, equipment, spare parts, and supervision for the completion of the Work.
 4. Equipment manufacture should provide all structural support/bracing elements and materials necessary for the proper installation, support and performance of the replacement equipment
 5. If required, the Owner should facilitate a post bid inspection of one of the existing basins to enable the manufacturer to undertake any onsite measurements necessary for the design and support of the replacement equipment prior to preparing the shop drawings. Note that the basins are considered a confined space, and manufacturers will be required to provide appropriate PPE for their staff. Confined space access and monitoring equipment will be provided by the Owner.
 6. Drawings, photographs and specifications are provided as attachments.
 7. The Vendor should provide submittals for any material/equipment identified within this procurement scope.
 8. The manufacturer representative should verify that the equipment has been installed properly before the installation contractor places any units into service.

Bid submittals are requested for the following services:

1. Supply of all information requested on this bid submittal.
2. Manufacture and assemble a total of 2 drive units and motors and mounting bases in accordance with specifications.
3. Provide a total of twenty (20) rake squeegees (2 rakes/10 blades each in each basin) compatible with the existing rakes.
4. Provide replacement upper and lower steady bearings on each rake mechanism (two (2) locations typical).
5. Supply of couplings complete with bolts and accessories to connect to existing rake torque tubes.
6. Submission of specified submittals for approval prior to commencing manufacture.
7. Provide a manufacturing and delivery schedule and future monthly progress updates.
8. Coordination and delivery to Lanier Filter Plant (LFP), 2590 South Water Works Road, Buford, GA 30518.
9. Site visit to confirm measurements and equipment selection prior to preparation of shop drawings.
10. Structural assessment of the existing structural support system to confirm it is adequate for the replacement equipment. If in the opinion of the manufacturer the existing support system is not considered acceptable, design of any modifications, and provision of materials necessary for the modification.
11. Installation and start up assistance to the installation contractor (not yet appointed). Note that it is intended to undertake the rehabilitation work in two (2) phases. During each phase, one side of the pre-clarification basins (flocculator and associated pre-clarification basins and one (1) sludge conditioning tank) will be isolated and taken off line whilst the other basins will commence on Phase 2.
12. Manufacturer Certificate of Compliance with material specifications should be submitted prior to shipment of the equipment. The certificate should certify materials, manufacture, and final product conforms to or exceeds specified requirements and intent for which the product will be used. Submit supporting reference data, affidavits, and certificates as appropriate. The certificate may reflect recent or previous test results on material or product, acceptable to the Engineer.
13. Provision of Manufacturers Certificate of Proper Installation for each train.
14. Provision of two (2) hard copies and one electronic copy (in searchable PDF format) of Operating and Maintenance instructions for all components, including drawings of equipment, preventative maintenance schedule, and troubleshooting information (see Specification Section 01 78 23). Draft O&M manuals are to be submitted prior to the shipment date of the units. The information is to summarize all equipment provided and highlight requirements for the specific units. Generic product information is to be minimized.
15. Supply of specified spare parts (see Specification Section 44 45 24.01) and special tools for future maintenance.
16. Training of Owners staff.

Drawings and engineering data of the existing basins and equipment are provided in attached drawings and specifications.

IV. SPECIFICATIONS:

Equipment should comply with the following specifications:

- Section 01 43 33 - Manufacturers Field Services
- Section 01 78 23 - Operation and Maintenance Data
- Section 01 88 15 - Anchorage and Bracing
- Section 01 91 14 - Equipment Testing and Facility Startup
- Section 05 05 19 – Post Installed Anchors
- Section 26 20 00 – Low-Voltage AC Induction Motors
- Section 44 42 24.01 – Circular Clarifier Equipment

V. ATTACHMENTS:

Attachment 1: Existing Pre-Clarification Record Drawings (3) and Photographs

Attachment 2: US Filter Shop Drawings (9)

Attachment 3: Rehabilitation Drawings (8)

The following information sheets should be submitted with the bid submittal.

1. Make, model, weight, horsepower and amperes of each component.
2. Manufacturer's catalog information, descriptive literature, specifications, and materials of construction.
3. Complete description of the drive units, bearings and thickener mechanism squeegees.
4. A complete listing of materials identifying manufacturer and installation contractor supply including but not limited to the following:
 - Motor Data Sheets.
 - Coupling Data Sheets
 - Squeegee Data Sheets
 - Upper and Lower Steady Bearings Data Sheets
5. Plan and section views of the basins, anchor bolt location and templates, dimensional tolerances required for installation. Typical details should include dimensions of components and their relationship to other items of supply with respect to the basins and details for sling lifting.
6. Manufacturer Certificate of Compliance with materials specifications should be submitted prior to shipment of the equipment. The certificate should certify materials, manufacture, and final product conforms to or exceeds specified requirements and intent for which the product will be used. Submit supporting reference data, affidavits, and certificates as appropriate. The certificate may reflect recent or previous test results on material or product, acceptable to the Engineer

BID SCHEDULE

ITEM #	DESCRIPTION	QTY	MANUF. & NO.	DELIVERY A.R.O.	UNIT PRICE	TOTAL PRICE
1	Flocculator Drives					
1.1	Replacement vertical drive assembly	2 EA			\$	\$
1.2	Motor, adaptor and coupling guard module	2 EA			\$	\$
1.3	Coupling	2 EA			\$	\$
1.4	Fasteners and mounting plates	2 EA			\$	\$
1.5	Factory priming and coating of completed units and motors	1 LUMP SUM			\$	\$
1.6	Tools and spare parts	1 LUMP SUM			\$	\$
2	Thickener Mechanism Equipment					
2.1	Upper and lower steady bearings	2 SETS			\$	\$
2.2	Squeegees	20 EA			\$	\$
2.3	Tools and spare parts	1 LUMP SUM			\$	\$
3	On-site visit to obtain information necessary for the selection of the thickener mechanism equipment including all travel, accommodation, and ancillary expenses, etc.	1 LUMP SUM			\$	\$
4	Submittal preparation, shop drawings and submissions	1 LUMP SUM			\$	\$
5	Support for Installation Contractor					
5.1	Factory representative to inspect the final installation and supervise a test run of the equipment, including all travel, accommodation and ancillary expenses etc. (two trips of one day).	2 DAYS			\$	\$
5.2	Cost for separate onsite day visit of 8 hours if requested by the Owner - rate only.	1 DAY			\$	\$
5.3	Factory representative to provide onsite post start up training to the Owner's personnel including all travel, accommodation and ancillary expenses etc. and provision of Manufacturers Certificate of Proper Installation (two trips of one day).	2 DAY			\$	\$
5.4	Cost for separate one day training session if requested by the Owner - rate only.	1 DAY			\$	\$
5.5	Provide two hard copies and one electronic copy (in editable PDF) of the operating and training material and operating and maintenance manuals.	1 LUMP SUM			\$	\$
TOTAL						\$

COMPANY NAME _____

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

Notes:

1. The unit price **MUST** include ALL charges, including but not limited to delivery and installation, test-run, and start-up assistance to the installation contractor.
2. If submitting an approved equivalent, please submit product cut sheets or information documents.
3. Reminder to include the Manufacturer/Product Number and the Delivery A.R.O (time to receive the product after receiving the purchase order).

Certification Of Non-Collusion in Bid Preparation _____
Signature _____ Date _____

In compliance with the attached specifications and O.C.G.A. §36-91-50, 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 sixty (60) days of the date of bid opening, to furnish any or all of the items upon which prices are quoted, at the price set opposite each item, 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 _____

Address _____

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

Representative Signature _____ Printed Name _____

Telephone Number _____ E-mail address _____

Contact Person (if someone other than the authorized representative listed above) _____

Telephone Number _____ E-mail address _____

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 _____



Bid # & Description BL049-25, Purchase and Installation Support of Circular Clarifier Drives

CODE OF ETHICS AFFIDAVIT

PLEASE RETURN THIS FORM COMPLETED WITH YOUR SUBMITTAL. SUBMITTED FORMS ARE REQUIRED PRIOR TO EVALUATION.

In accordance with Section 54-33 of the Gwinnett County Code of Ordinances the undersigned bidder/proposer makes the following full and complete disclosure under oath, to the best of their knowledge, of the name(s) of all elected officials whom it employs or who have a direct or indirect pecuniary interest in or with the vendor, its affiliates or its subcontractors:

1. _____
Company Submitting Bid/Proposal

- 2. Please select one of the following:
 - No information to disclose (*complete only section 4 below*)
 - Disclosed information below (*complete section 3 & section 4 below*)

3. If additional space is required, please attach list:

Gwinnett County Elected Official Name

Gwinnett County Elected Official Name

Gwinnett County Elected Official Name

Gwinnett County Elected Official Name

4. BY: _____
Authorized Officer or Agent Signature

Sworn to and subscribed before me this

_____ day of _____, 20____

Printed Name of Authorized Officer or Agent

Notary Public

Title of Authorized Officer or Agent of Contractor

(seal)

Note: See Gwinnett County Code of Ethics Ordinance EO2011, Sec. 54-33. The ordinance will be available to view in its' entirety at **GwinnettCounty.com**



Solicitation Name & No. BL049-25, Purchase and Installation Support of Circular Clarifier Drives

**CONTRACTOR AFFIDAVIT AND AGREEMENT
(THIS FORM SHOULD BE FULLY COMPLETED AND RETURNED WITH YOUR SUBMITTAL)**

By executing this affidavit, the undersigned contractor verifies its compliance with The Illegal Immigration Reform Enhancements for 2013, stating affirmatively that the individual, firm, or corporation which is contracting with the Gwinnett County Board of Commissioners has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security] to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act, in accordance with the applicability provisions and deadlines established therein.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services or the performance of labor pursuant to this contract with the Gwinnett County Board of Commissioners, contractor will secure from such subcontractor(s) similar verification of compliance with the Illegal Immigration Reform and Enforcement Act on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the Gwinnett County Board of Commissioners at the time the subcontractor(s) is retained to perform such service.

E-Verify * User Identification Number

Date Registered

Legal Company Name

Street Address

City/State/Zip Code

BY: _____
Authorized Officer or Agent
(Contractor Signature)

Date

Title of Authorized Officer or Agent of Contractor

Printed Name of Authorized Officer or Agent

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

Notary Public
My Commission Expires: _____

For Gwinnett County Use Only:
Document ID # _____
Issue Date: _____
Initials: _____

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

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____

(Corporation, Partnership or Individual)

hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

a Corporation of the State of _____, and a surety authorized by law to do business in the State of Georgia, hereinafter called Surety, are held and firmly bound unto

Gwinnett County Board of Commissioners
(Name of Oblige)

75 Langley Drive, Lawrenceville, Georgia 30046
(Address of Oblige)

Thereinafter referred to as Oblige: in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to submit, or has submitted, to Gwinnett County, Georgia, a proposal for furnishing materials, labor, and equipment for:

WHEREAS, the Principal desires to file this Bond in accordance with law in lieu of a certified Bidder's check otherwise required to accompany this Proposal.

NOW, THEREFORE, the conditions of this obligation are such that if the proposal be accepted, the Principal shall within ten days after receipt of notification of the acceptance, execute a Contract in accordance with the Proposal and upon the terms, conditions, and prices set forth in the form and manner required by Gwinnett County, Georgia, and execute a sufficient and satisfactory Performance Bond and Payment Bond payable to Gwinnett County, Georgia, each in the amount of 100% of the total Contract Price, in form and with security satisfactory to said Gwinnett County, Georgia, and otherwise, to be and remain in full force and virtue in law, and the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to Gwinnett County, Georgia, upon demand, the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

Gwinnett County, Georgia

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant to and in accordance with the applicable provisions of the Official Code of Georgia Annotated, as Amended, including, but not limited to, O.C.G.A. § 36-91-1 et seq., and is intended to be and shall be constructed as a bond in compliance with the requirements thereof.

Signed, sealed and dated this _____ day of _____, A.D., 20_____.

ATTEST:

(Principal Secretary)
(SEAL)

(Principal)

By: _____

(Address)

(Witness as to Principal)

(Address)

ATTEST:

(Surety)

By: _____
(Attorney-in-Fact)

Resident or Nonresident Agent
(SEAL)

(Address)

(Witness as to Surety)

(Address)

NOTE: If Contractor is Partnership, all partners should execute Bond. Surety Companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

Principal Secretary, Principal and Witness as to Principal signature lines must be signed by three different individuals. Additionally, Resident or Nonresident Agent, Witness as to Surety, and Attorney-in-fact must be signed by three different individuals.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____
(Corporation, Partnership or Individual)

hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

a Corporation of the State of _____, and a surety authorized by law to do business in the State of Georgia, hereinafter called Surety, are held and firmly bound unto

Gwinnett County Board of Commissioners

(Name of Obligee)

75 Langley Drive, Lawrenceville, Georgia 30046

(Address of Obligee)

hereinafter called Obligee;

for the use and protection of all subcontractors and all persons supplying labor, services, skill, tools, machinery, materials and/or equipment in the prosecution of the work provided for in the contract hereinafter referred to in the full and just sum of _____

_____ Dollars

(\$ _____) in lawful money of the United States, for the payment of which sum, will and truly to be made, the Principal and Surety bind themselves, their, and each of their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such, as whereas the Principal entered into a certain contract, hereto attached, with the Obligee.

NOW, THEREFORE THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall well, truly, and faithfully perform said Contract according to its terms, covenants, and conditions, and shall promptly pay all persons furnishing labor, materials services, skill, tools, machinery and/or equipment for use in the performance of said Contract, then this obligation shall be void; otherwise it shall remain in full force and effect.

ALL persons who have furnished labor, materials, services, skill, tools, machinery and/or equipment for use in the performance of said Contract shall have a direct right of action on this Bond, provided payment has not been made in full within ninety (90) days after the last day on which labor was performed, materials, services, skill, tools, machinery, and equipment furnished or the subcontract completed.

PROVIDED FURTHER, that said Surety to this Bond, for value received, hereby stipulates and agrees that no change, extension of time, alterations, or additions to the terms of the Contract or to the Work to be performed thereunder shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alterations, or additions to the terms of the Contract or to the work to be performed thereunder.

PROVIDED, HOWEVER, that no suit or action shall be commenced hereunder by any person furnishing labor, materials, services, skill, tools, machinery, and/or equipment having a direct contractual relationship with a subcontractor, but no contractual relationship express or implied with the Principal:

Unless such person shall have given notice to the Principal within ninety (90) days after such person did, or performed the last of the work or labor, or furnished the last of the materials, services, skill, tools, machinery and/or equipment for which claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials, services, skill, tools, machinery and/or equipment were furnished, or for whom the work or labor was done or performed. Such a notice shall be served by mailing the same by registered mail, postage prepaid, in an envelope addressed to the Principal, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State in which the aforesaid project is located, save that such service need not be made by a public officer, and a copy of such notice shall be delivered to the Obligee, to the person and at the address provided for in the Contract, within five (5) days of the mailing of the notice to the Principal.

PROVIDED, FURTHER, that any suit under this bond must be instituted before the expiration of one (1) year after the acceptance of the public works covered by the Contract by the proper authorities.

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant to and in accordance with the applicable provisions of the Official Code of Georgia Annotated, as Amended, including, but not limited to, O.C.G.A. § 36-91-1 et seq., and is intended to be and shall be construed as a bond in compliance with the requirements thereof.

[Signatures Next Page]

ATTEST:

(Principal Secretary)

(SEAL)

(Witness as to Principal)

(Address)

ATTEST:

Resident or Nonresident Agent

(SEAL)

(Witness as to Surety)

(Address)

(Principal)

By: _____

(Address)

(Surety)

By: _____
(Attorney-in-Fact)

(Address)

BONDING AGENT CONTACT INFO

Print Name_____

Company Name_____

E-Mail_____

Phone_____

NOTE: If Contractor is Partnership, all partners should execute Bond. Surety Companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

Principal Secretary, Principal and Witness as to Principal signature lines must be signed by three different individuals. Additionally, Resident or Nonresident Agent, Witness as to Surety, and Attorney-in-fact must be signed by three different individuals.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____
(Corporation, Partnership or Individual)

hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

a Corporation of the State of _____, and a surety authorized by law to do business in the State of Georgia, hereinafter called Surety, are held and firmly bound unto

Gwinnett County Board of Commissioners
(Name of Obligee)

75 Langley Drive, Lawrenceville, Georgia 30046
(Address of Obligee)

hereinafter referred to as Obligee, are held and firmly bound unto said Obligee and all persons doing work or furnishing skill, tools, machinery, supplies, or material under or for the purpose of the Contract hereinafter referred to, in the penal sum of

_____ Dollars

(\$ _____) in lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such, as whereas the Principal entered into a certain contract, hereto attached, with the Obligee.

NOW, THEREFORE THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall well, truly, fully and faithfully perform said contract according to its terms, covenants, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Obligee, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreement of any and all duly authorized modifications of said contract that may hereafter be made, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that said Surety to this Bond, for value received, hereby stipulates and agrees that no change, extension of time, alterations, or additions to the terms of the Contract or to the Work to be performed thereunder shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alterations, or additions to the terms of the Contract or to the work to be performed thereunder.

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant to and in accordance with the applicable provisions of the Official Code of Georgia Annotated, as Amended, including, but not limited to, O.C.G.A. § 36-91-1 et seq., and is intended to be and shall be construed as a bond in compliance with the requirements thereof.

(Signatures Next Page)

ATTEST:

(Principal Secretary)

(SEAL)

(Witness as to Principal)

(Address)

ATTEST:

Resident or Nonresident Agent

(SEAL)

(Witness as to Surety)

(Address)

(Principal)

By: _____

(Address)

(Surety)

By: _____
(Attorney-in-Fact)

(Address)

BONDING AGENT CONTACT INFO

Print Name _____
Company Name _____
E-Mail _____
Phone _____

NOTE: If Contractor is Partnership, all partners should execute Bond. Surety Companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

Principal Secretary, Principal and Witness as to Principal signature lines must be signed by three different individuals. Additionally, Resident or Nonresident Agent, Witness as to Surety, and Attorney-in-fact must be signed by three different individuals.

GENERAL CONDITIONS
To Service Provider AGREEMENT

Article

- 1 Definitions
- 2 Contract Documents
- 3 Changes and Extra Work
- 4 Personnel and Equipment
- 5 Accuracy of Work
- 6 Findings Confidential
- 7 Termination of Agreement for Cause
- 8 Termination for Convenience of the COUNTY
- 9 SERVICE PROVIDER to Cooperate with other SERVICE PROVIDERS
- 10 Indemnification
- 11 Covenant Against Contingent Fees
- 12 Insurance
- 13 Prohibited Interests
- 14 Subcontracting
- 15 Assignability
- 16 Equal Employment Opportunity
- 17 Anti-Kickback Clause
- 18 Audits and Inspectors
- 19 Ownership, Publication, Reproduction and Use
- 20 Verbal Agreement or Conversation
- 21 Independent Service provider
- 22 Notices

1 DEFINITIONS

Wherever used in this Agreement, whether in the singular or in the plural, the following terms shall have the following meanings:

- 1.1 COUNTY-means Gwinnett County, Georgia, a political subdivision of the State of Georgia.
- 1.2 SUPPLEMENTAL AGREEMENT-means a written order to SERVICE PROVIDER signed by COUNTY and accepted by SERVICE PROVIDER, effecting an addition, deletion or revision in the Work, or an adjustment in the Agreement Price or the Contract Time, issued after execution of this Agreement.
- 1.3 CONTRACT-means the Agreement Documents specifically identified and incorporated herein by reference in Section 2, CONTRACT DOCUMENTS.
- 1.4 AGREEMENT EXECUTION-means the date on which SERVICE PROVIDER executes and enters into an Agreement with the COUNTY to perform the Work.
- 1.5 AGREEMENT PRICE-means the total monies, adjusted in accordance with any provision herein, payable to the SERVICE PROVIDER under this Agreement.
- 1.6 CONTRACT TIME-means the period of time stated in this Agreement for the completion of the Work.
- 1.7 SERVICE PROVIDER-means the party or parties contracting directly with the COUNTY to perform Work pursuant to this Agreement.
- 1.8 DEPARTMENT- means the Director or designee of requesting department(s) named in this solicitation.
- 1.9 DRAWINGS-means collectively, all the drawings, receipt of which is acknowledged by the COUNTY, listed in this Agreement, and also such supplementary drawings as the SERVICE PROVIDER may issue from time to time in order to clarify or explain such drawing or to show details which are not shown thereon.
- 1.10 SPECIFICATIONS-means the written technical provisions including all appendices thereto, both general and specific, which form a part of the Agreement Documents.
- 1.11 SUBSERVICE PROVIDER-means any person, firm, partnership, joint venture, company, corporation, or entity having a contractual agreement with SERVICE PROVIDER or with any of its subservice providers at any tier to provide a part of the Work called for by this Agreement.
- 1.12 WORK-means any and all obligations, duties and responsibilities, including furnishing equipment, engineering, design, workmanship, labor and any other services or things necessary to the successful completion of the Project, assigned to or undertaken by SERVICE PROVIDER under this Agreement.
- 1.13 LIAISON-Representative of the COUNTY who shall act as Liaison between the County and the SERVICE PROVIDER for all matters pertaining to this Agreement, including review of SERVICE PROVIDER'S plans and work.

2 CONTRACT DOCUMENTS

2.1 LIST OF DOCUMENTS

The Agreement, any required bonds, the General Conditions, the Appendices, the Detailed Scope of Work, the Specifications, the Drawings, the Exhibits, and all Agreement Supplemental Agreements shall constitute the Agreement Documents.

2.2 CONFLICT AND PRECEDENCE

2.2.1 The Agreement Documents are complementary, and what is called for by one is as binding as if called for by all. In the event there are any conflicting provisions or requirements in the component parts of this Agreement, the several Agreement Documents shall take precedence in the following order:

1. Supplemental Agreements
2. Agreement
3. General Conditions
4. Detailed Scope of Work
5. Specifications
6. Drawings

3 CHANGES AND EXTRA WORK

The COUNTY may, at any time, request changes in the work to be performed hereunder. All such changes, including any increase or decrease in the amount of the SERVICE PROVIDER'S compensation, which are mutually agreed upon by and between the COUNTY and the SERVICE PROVIDER, shall be incorporated in written Supplemental Agreements to the Agreement.

4 PERSONNEL AND EQUIPMENT

The SERVICE PROVIDER represents that it has secured or will secure, at its own expense, all personnel necessary to complete this Agreement; none of whom shall be employees of, or have any contractual relationship with, the COUNTY. Primary liaison with the COUNTY will be through its designee. All of the services required hereunder will be performed by the SERVICE PROVIDER under its supervision, and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under law to perform such services.

The SERVICE PROVIDER shall employ only persons duly registered in the appropriate category in responsible charge of supervision and design of the work; and further shall employ only qualified surveyors in responsible charge of any survey work.

The SERVICE PROVIDER shall endorse all reports, contract plans, and survey data. Such endorsements shall be made by a person duly registered in the appropriate category by the Georgia State Board of Registration, being in the full employ of the SERVICE PROVIDER and responsible for the work prescribed by this Agreement.

5 ACCURACY OF WORK

The SERVICE PROVIDER shall be responsible for the accuracy of the work and shall promptly correct errors and omissions in its plans and specifications without additional compensations.

Acceptance of the work by the COUNTY will not relieve the SERVICE PROVIDER of the responsibility for subsequent correction of any errors and the clarification of any ambiguities.

6 FINDINGS CONFIDENTIAL

The SERVICE PROVIDER agrees that its conclusions and any reports are for the confidential information of the COUNTY and that it will not disclose its conclusions in whole or in part to any persons whatsoever,

other than to submit its written documentation to the COUNTY, and will only discuss the same with it or its authorized representatives. Upon completion of this Agreement term, all documents, reports, maps, data and studies prepared by the SERVICE PROVIDER pursuant thereto shall become the property of the COUNTY and be delivered to the DEPARTMENT.

Articles, papers, bulletins, reports, or other materials reporting the plans, progress, analyses, or results and findings of the work conducted under this Agreement shall not be presented publicly or published without prior approval in writing of the COUNTY.

It is further agreed that if any information concerning the PROJECT, its conduct, results, or data gathered or processed should be released by the SERVICE PROVIDER without prior approval from the COUNTY, the release of same shall constitute grounds for termination of this Agreement without indemnity to the SERVICE PROVIDER, but should any such information be released by the COUNTY or by the SERVICE PROVIDER with such prior written approval, the same shall be regarded as public information and no longer subject to the restrictions of this Agreement.

7 TERMINATION OF AGREEMENT FOR CAUSE

If through any cause the SERVICE PROVIDER shall fail to fulfill in a timely and proper manner its obligations under this Agreement, or if the SERVICE PROVIDER shall violate any of the covenants, agreements or stipulations of this Agreement, the COUNTY shall thereupon have the right to terminate this Agreement by giving written notice to the SERVICE PROVIDER of such termination, and specifying the effective date thereof, at least ten (10) days before the effective date of such termination. Failure to maintain the scheduled level of effort as proposed and prescribed, or deviation from the aforesaid scheduler without prior approval of the COUNTY shall constitute cause for termination. In such event, all finished or unfinished documents, maps, data, studies, work papers and reports prepared by the SERVICE PROVIDER under this Agreement shall become the property of the COUNTY, and the SERVICE PROVIDER shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents, as determined by the COUNTY.

8 TERMINATION FOR CONVENIENCE OF THE COUNTY

The COUNTY may terminate this Agreement for its convenience at any time upon 30 days notice in writing to the SERVICE PROVIDER. If the Agreement is terminated by the COUNTY as provided in this Article 8, the SERVICE PROVIDER will be paid compensation for those services actually performed. Partially completed tasks will be compensated for based on a signed statement of completion to be submitted by the SERVICE PROVIDER which shall itemize each task element and briefly state what work has been completed and what work remains to be done.

All such expenses shall be properly documented and submitted to the COUNTY for processing and payment. The County shall be the final authority in the event of any disputes over authorized costs between the COUNTY and the Service Provider.

9 SERVICE PROVIDERS TO COOPERATE WITH OTHER SERVICE PROVIDERS

If the COUNTY undertakes or awards other contracts for additional related work, the SERVICE PROVIDER shall fully cooperate with such other SERVICE PROVIDERS and the COUNTY employees or appointed committee(s), and carefully fit its own work to such additional work as may be directed by the COUNTY. The SERVICE PROVIDER shall not commit or permit any act which will interfere with the performance of work by any other SERVICE PROVIDER or COUNTY employees.

10 INDEMNIFICATION

SERVICE PROVIDER agrees to protect, defend, indemnify, and hold harmless the COUNTY, its commissioners, officers, agents and employees from and against any and all liability, damages, claims, suits, liens, and judgments, for whatever nature, including claims for contribution and/or indemnification,

for injuries to or death of any person or persons, or damage to the property or other rights of any person or persons to the extent arising out of and attributed to the negligent acts, errors or omissions of the SERVICE PROVIDER. SERVICE PROVIDER'S obligation to protect, defend, indemnify, and hold harmless, as set forth herein above shall include any matter arising out of any patent, trademark, copyright, or service mark, or any actual or alleged unfair competition disparagement of product or service, or other business tort of any type whatsoever, or any actual or alleged violation of trade regulations.

SERVICE PROVIDER further agrees to protect, defend, indemnify, and hold harmless the COUNTY, its commissioners, officers, agents, and employees from and against any and all claims or liability for compensation under the Worker's Compensation Act arising out of injuries sustained by any employee of the SERVICE PROVIDER.

11 COVENANT AGAINST CONTINGENT FEES

The SERVICE PROVIDER warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by SERVICE PROVIDER for the purpose of securing business and that the SERVICE PROVIDER has not received any non-COUNTY fee related to this Agreement without the prior written consent of the COUNTY. For breach or violation of this warranty, the COUNTY shall have the right to annul this Agreement without liability or at its discretion to deduct from the Agreement Price of consideration the full amount of such commission, percentage, brokerage or contingent fee.

12 INSURANCE

The SERVICE PROVIDER shall, at all times that this Agreement is in effect, cause to be maintained in force and effect an insurance policy (s) that will ensure and indemnify both GWINNETT COUNTY and SERVICE PROVIDER against liability or financial loss resulting from injuries occurring to persons or property or occurring as a result of any negligent error, act, or omission of the SERVICE PROVIDER during the term of this Agreement. The liability under such insurance policy shall be not less than as stated in the Bid Proposal.

The SERVICE PROVIDER shall provide, at all times that this Agreement is in effect, Worker's Compensation insurance in accordance with the laws of the State of Georgia.

The SERVICE PROVIDER shall provide, at all times that this Agreement is in effect, Professional Liability Insurance with a limit of not less than that as stated in the Bid Proposal.

Additionally, SERVICE PROVIDER shall provide, at all times that this Agreement is in effect, automobile liability insurance with a limit of not less than that as stated in the Bid Proposal.

The policies shall be written by a responsible company(s), to be approved by the COUNTY, and shall be non-cancelable except on thirty-(30) days' written notice to the COUNTY. Such policies shall name the COUNTY as additional insured, except for worker's compensation and professional liability policies, and a copy of such policy or a certificate of insurance shall be filed with the Director at the time of the execution of this Agreement.

13 PROHIBITED INTERESTS

13.1 Conflict of Interest: The SERVICE PROVIDER agrees that it presently has no interest and shall acquire no interest, direct or indirect, that would conflict in any manner or degree with the performance of its services hereunder.

13.2 Interest of Public Officials: No member, officer, or employee of the COUNTY during his tenure or for one year thereafter, shall have any interest, direct or indirect, in this Agreement

or the proceeds thereof.

14 SUBCONTRACTING

The SERVICE PROVIDER shall not subcontract any part of the work covered by this Agreement or permit subcontracted work to be further subcontracted without the DEPARTMENT's prior written approval of the subservice provider, except as may have been specifically stated in the SERVICE PROVIDER'S response to proposal per Exhibit A. The DEPARTMENT will not approve any subservice provider for work covered by this Agreement that has not been recommended for approval by the Department Director.

All subcontracts in the amount of \$5,000 or more shall include the provisions set forth in this Agreement.

15 ASSIGNABILITY

The SERVICE PROVIDER shall not assign or transfer whether by an assignment or novation, any of its rights, obligations, benefits, liabilities or other interest under this Agreement without the written consent of the COUNTY.

16 EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Agreement, the SERVICE PROVIDER agrees as follows: (1) the SERVICE PROVIDER will not discriminate against any employee or applicant for employment because of race, creed, color, sex or national origin; (2) the SERVICE PROVIDER will, in all solicitations or advertisements for employees placed by qualified applicants, receive consideration for employment without regard to race, creed, color, sex or national origin; (3) the SERVICE PROVIDER will cause the foregoing provisions to be inserted in all subcontracts for any work covered by the Agreement so that such provision will be binding upon each subservice provider, provided that the foregoing provision shall not apply to contracts or subcontracts for standard commercial supplies of raw materials.

17 ANTI-KICKBACK CLAUSE

Salaries of architects, draftsmen, technical engineers and engineers, and technicians performing work under this Agreement shall be paid unconditionally and not less often than once a month without deduction or rebate on any account except only such payroll deductions as are mandatory by law. The SERVICE PROVIDER hereby promises to comply with all applicable "Anti-kickback" laws, and shall insert appropriate provisions in all subcontracts covering work under this Agreement.

18 AUDITS AND INSPECTORS

At any time during normal business hours and as often as the COUNTY may deem necessary, the CONSULTANT shall make available to the COUNTY for examination all of its records with respect to all matters covered by this Agreement. It shall also permit the COUNTY to audit, examine and make copies, excerpts or transcripts from such records of personnel, conditions of employment and other data relating to all matters covered by this Agreement.

The SERVICE PROVIDER shall maintain all books, documents, papers, accounting records and other evidence pertaining to costs incurred on the Project and used in support of its proposal and shall make such material available at all reasonable times during the period of the Agreement, and for three years from the date of final payment under the Agreement, for inspection by the COUNTY or any reviewing agencies, and copies thereof shall be furnished upon request. The SERVICE PROVIDER agrees that the provisions of this Article shall be included in any Agreements it may make with any subservice provider, assignee, or transferee.

19 OWNERSHIP, PUBLICATION, REPRODUCTION AND USE

All documents and materials prepared pursuant to this Agreement are the property of the COUNTY. The COUNTY shall have the unrestricted authority to publish, disclose, distribute, and otherwise use, in whole or in part, any reports, data, maps, or other materials prepared under this Agreement without according credit

of authorship. The COUNTY shall hold harmless and indemnify the SERVICE PROVIDER against all claims arising out of such use of documents and materials without the SERVICE PROVIDER'S knowledge and consent.

20 VERBAL AGREEMENT OR CONVERSATION

No verbal agreement or conversation with any officer, agent, or employee of the COUNTY, either before, during, or after the execution of this Agreement, shall affect or modify any of the terms or obligations herein contained, nor shall such verbal agreement or conversation entitle the SERVICE PROVIDER to any additional payment whatsoever under the terms for this Agreement. All changes to this Agreement shall be in writing and appended hereto as prescribed in Article 3 above.

21 INDEPENDENT SERVICE PROVIDER

The SERVICE PROVIDER shall perform the services under this Agreement as an independent service provider and nothing contained herein shall be construed to be inconsistent with this relationship or status. Nothing in this Agreement shall be interpreted or construed to constitute the SERVICE PROVIDER or any of its agents or employees to be the agent, employee, or representative of the COUNTY.

22 NOTICES

All notices shall be in writing and delivered in person or transmitted by certified mail, postage prepaid.

Gwinnett County requires that all Contracts between parties be entered into via the following documents. If any exceptions are taken to any part of this document, each must be stated in detail and submitted as part of your bid document. If no exceptions are noted it is assumed that the party fully agrees to the contract in its entirety. Exceptions to the sample contract provided in this request for proposal will be considered in terms of responsiveness when making award.

SAMPLE
ONE-TIME SERVICE PROVIDER CONTRACT
BL049-25

This **CONTRACT** made and entered into by and between Gwinnett County, Georgia (Party of the First Part, hereinafter called the "County"), and, _____(Party of the Second Part, hereinafter called the "Service Provider").

NOW THEREFORE, for and in consideration of the mutual promises and obligations contained herein and under the conditions hereinafter set forth, the parties do hereby agree as follows:

1. TERM:

This contract shall commence _____ and be in effect for _____ consecutive calendar days.

2. ATTACHMENTS:

This Contract shall consist of the Service Provider's bid/proposal and all Invitations to Bid/Proposals including all drawings, specifications, price lists, Instructions to Bidders, General Conditions, Special Provisions, Detailed Specifications, addenda, and change orders issued after execution of the Contract (hereinafter collectively referred to as the "Bid"), which are specifically incorporated herein by reference (Exhibit A). In the event of a conflict between the County's contract documents and the Service Provider's bid/proposal, the County's contract documents shall control.

3. PERFORMANCE:

Service Provider agrees to furnish all skill and labor of every description necessary to carry out and complete in good, firm and substantial, workmanlike manner, the work specified, in strict conformity with the Bid.

4. PRICE:

As full compensation for the performance of this Contract, the County shall pay the Service Provider for the actual quantity of work performed, which shall in no event exceed \$_____. The fees for the work to be performed under this Contract shall be charged to the County in accordance with the rate schedule referenced in the Bid Proposal (Exhibit A). The County agrees to pay the Service Provider following receipt by the County of a detailed invoice, reflecting the actual work performed by the Service Provider.

5. INDEMNIFICATION AND HOLD HARMLESS:

Service Provider agrees to protect, defend, indemnify, and hold harmless the COUNTY, its commissioners, officers, agents and employees from and against any and all liability, damages, claims, suits, liens, and

judgments, for whatever nature, including claims for contribution and/or indemnification, for injuries to or death of any person or persons, or damage to the property or other rights of any person or persons to the extent arising out of and attributed to the negligent acts, errors, or omissions of the Service Provider. Service Provider's obligation to protect, defend, indemnify, and hold harmless, as set forth hereinabove shall include any matter arising out of any patent, trademark, copyright, or service mark, or any actual or alleged unfair competition disparagement of product or service, or other business tort of any type whatsoever, or any actual or alleged violation of trade regulations.

Service Provider further agrees to protect, defend, indemnify, and hold harmless the COUNTY, its commissioners, officers, agents, and employees from and against any and all claims or liability for compensation under the Worker's Compensation Act arising out of injuries sustained by any employee of the Service Provider.

6. TERMINATION FOR CAUSE:

The County may terminate this Contract for cause upon ten (10) days prior written notice to the Service Provider of the Service Provider's default in the performance of any term of this Contract. Such termination shall be without prejudice to any of the County's rights or remedies provided by law.

7. TERMINATION FOR CONVENIENCE:

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

8. CONTRACT NOT TO DISCRIMINATE:

During the performance of this Contract, the Service Provider will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, age, or disability which does not preclude the applicant or employee from performing the essential functions of the position. The Service Provider will also, in all solicitations or advertisements for employees placed by qualified applicants, consider the same without regard to race, creed, color, sex, national origin, age, or disability, which does not preclude the applicant from performing the essential functions of the job. The Service Provider will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this Contract so that such provision will be binding upon each subservice provider, providing that the foregoing provisions shall not apply to contracts or subservice providers for standard commercial supplies of raw materials.

9. ASSIGNMENT:

The Service Provider shall not sublet, assign, transfer, pledge, convey, sell or otherwise dispose of the whole or any part of this Contract or his right, title, or interest therein to any person, firm, or corporation without the previous consent of the County in writing.

10. WAIVER:

A waiver by either party of any breach of any provision, term, covenant, or condition of this Contract shall not be deemed a waiver of any subsequent breach of the same or any other provision, term, covenant, or condition.

11. SEVERABILITY:

The parties agree that each of the provisions included in this Contract is separate, distinct and severable from the other and remaining provisions of this Contract, and that the invalidity of any Contract provision shall not affect the validity of any other provision or provisions of this Contract.

12. GOVERNING LAW:

The parties agree that this Contract shall be governed and construed in accordance with the laws of the State of Georgia. This Contract has been signed in Gwinnett County, Georgia.

13. MERGER CLAUSE:

The parties agree that the terms of this Contract include the entire Contract between the parties, and as such, shall exclusively bind the parties. No other representations, either oral or written, may be used to contradict the terms of this Contract.

[Signatures Next Page]

IN WITNESS WHEREOF, the parties hereto, acting through their duly authorized agents, have caused this **CONTRACT** to be signed, sealed and delivered.

WINNETT COUNTY, GEORGIA

By: _____

ATTEST:

APPROVED AS TO FORM:

SERVICE PROVIDER: _____

BY: _____
Signature

Print Name

Title

ATTEST:

Signature

Print Name
Corporate Secretary
(Seal)



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

- 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
- Drop 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. Gwinnett County should be provided with a minimum of 30 days advance written notice of cancellation, material change, or non-renewal of policies required by the contract.
- 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 Office of the Insurance and Safety Fire Commissioner of Georgia ("Insurance Commissioner"), 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 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.

**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.

By Consultant as defined in O.C.G.A. §36-80-28 that is engaged to develop or draft

specifications/requirements or serve in a consultative role during the procurement process for any County procurement method, by 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 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 (61st) 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.

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 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.

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

BL049-25

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

COMPANY NAME _____

AUTHORIZED REPRESENTATIVE _____

SIGNATURE

SPECIFICATIONS:

Equipment shall comply with the following specifications:

Section 01 43 33 - Manufacturers Field Services

Section 01 78 23 - Operation and Maintenance Data

Section 01 88 15 - Anchorage and Bracing

Section 01 91 14 - Equipment Testing and Facility Startup

Section 05 05 19 – Post Installed Anchors

Section 26 20 00 – Low-Voltage AC Induction Motors

Section 44 42 24.01 – Circular Clarifier Equipment

**SECTION 01 43 33
MANUFACTURERS' FIELD SERVICES**

PART 1 GENERAL

1.01 DEFINITIONS

- A. Person-Day: One person for 8 hours within regular Contractor working hours.

1.02 SUBMITTALS

- A. Informational Submittals:
1. Training Schedule: Submit, in accordance with requirements of this Specification, not less than **7** days prior to start of equipment installation and revise as necessary for acceptance.
 2. Lesson Plan: Submit, in accordance with requirements of this Specification, proposed lesson plan not less than **7** days prior to scheduled training and revise as necessary for acceptance.

1.03 QUALIFICATION OF MANUFACTURER'S REPRESENTATIVE

- A. Authorized representative of the manufacturer, factory trained, and experienced in the technical applications, installation, operation, and maintenance of respective equipment, subsystem, or system, with full authority by the equipment manufacturer to issue the certifications required of the manufacturer. Additional qualifications may be specified in the individual specification section.
- B. Representative subject to acceptance by Owner. No substitute representatives will be allowed unless prior written approval by such has been given.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 FULFILLMENT OF SPECIFIED MINIMUM SERVICES

- A. Furnish manufacturers' services, when required by an individual specification section, to meet the requirements of this section.
- B. Where time is necessary in excess of that stated in the Specifications for manufacturers' services, or when a minimum time is not specified, time required to perform specified services shall be considered incidental.
- C. Schedule manufacturer' services to avoid conflict with other onsite testing or other manufacturers' onsite services.
- D. Determine, before scheduling services, that conditions necessary to allow successful testing have been met.

LFP PRE-CLARIFICATION BASIN REHABILITATION

- E. Only those days of service approved by Engineer will be credited to fulfill specified minimum services.
- F. When specified in individual specification sections, manufacturer's onsite services shall include:
 - 1. Assistance during product (system, subsystem, or component) installation to include observation, guidance, instruction of Contractor's assembly, erection, installation or application procedures.
 - 2. Inspection, checking, and adjustment as required for product (system, subsystem, or component) to function as warranted by manufacturer and necessary to furnish Manufacturer's Certificate of Proper Installation.
 - 3. Providing, on a daily basis, copies of manufacturers' representatives field notes and data to Owner.
 - 4. Revisiting the Site as required to correct problems and until installation and operation are acceptable to Engineer.
 - 5. Resolution of assembly or installation problems attributable to or associated with respective manufacturer's products and systems.
 - 6. Assistance during functional and performance testing, and facility startup and evaluation.
 - 7. Training of Owner's personnel in the operation and maintenance of respective product as required.

3.02 MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION

- A. When so specified, a Manufacturer's Certificate of Proper Installation form, a copy of which is attached to this section, shall be completed and signed by equipment manufacturer's representative.
- B. Such form shall certify signing party is a duly authorized representative of manufacturer, is empowered by manufacturer to inspect, approve, and operate their equipment and is authorized to make recommendations required to ensure equipment is complete and operational.

3.03 TRAINING

- A. General:
 - 1. Furnish manufacturers' representatives for detailed classroom and hands-on training to Owner's personnel on operation and maintenance of specified product (system, subsystem, component) and as may be required in applicable Specifications.
 - 2. Furnish trained, articulate personnel to coordinate and expedite training, to be present during training coordination meetings with Owner, and familiar with operation and maintenance manual information.
 - 3. Manufacturer's representative shall be familiar with facility operation and maintenance requirements as well as with specified equipment.
 - 4. Furnish complete training materials, to include operation and maintenance data, to be retained by each trainee.

LFP PRE-CLARIFICATION BASIN REHABILITATION

- B. Training Schedule:
1. List specified equipment and systems that require training services and show:
 - a. Respective manufacturer.
 - b. Estimated dates for installation completion.
 - c. Estimated training dates.
 2. Adjust schedule to ensure training of appropriate personnel as deemed necessary by Owner, and to allow full participation by manufacturers' representatives. Adjust schedule for interruptions in operability of equipment.
 3. Documentation, and Section 01 91 14, Equipment Testing and Facility Startup.
- C. Lesson Plan: When manufacturer or vendor training of Owner personnel is specified, prepare a lesson plan for each required course containing the following minimum information:
1. Title and objectives.
 2. Recommended attendees (such as, managers, engineers, operators, maintenance).
 3. Course description, outline of course content, and estimated class duration.
 4. Format (such as, lecture, self-study, demonstration, hands-on).
 5. Instruction materials and equipment requirements.
 6. Resumes of instructors providing training.
- D. Prestartup Training:
1. Coordinate training sessions with Owner's operating personnel and manufacturers' representatives and with submission of operation and maintenance manuals.
 2. Complete at least 7 days prior to beginning of facility startup.
- E. Post-startup Training: If required in Specifications, furnish and coordinate training of Owner's operating personnel by respective manufacturer's representatives.

3.04 SUPPLEMENTS

- A. The supplement listed below, following "End of Section," is part of this specification.
1. Manufacturer's Certificate of Proper Installation.

END OF SECTION

MANUFACTURER’S CERTIFICATE OF PROPER INSTALLATION

OWNER _____ EQPT SERIAL NO: _____
EQPT TAG NO: _____ EQPT/SYSTEM: _____
PROJECT NO: _____ SPEC. SECTION: _____

I hereby certify that the above-referenced equipment/system has been:

(Check Applicable)

- Installed in accordance with Manufacturer’s recommendations.
- Inspected, checked, balanced and adjusted.
- Serviced with proper initial lubricants.
- Electrical and mechanical connections meet quality and safety standards.
- All applicable safety equipment has been properly installed.
- Functional tests.
- System has been performance tested, and meets or exceeds specified performance requirements. (When complete system of one manufacturer)

Note: Attach any performance test documentation from manufacturer.

Comments: _____

I, the undersigned Manufacturer’s Representative, hereby certify that I am (i) a duly authorized representative of the manufacturer, (ii) empowered by the manufacturer to inspect, approve, and operate their equipment and (iii) authorized to make recommendations required to ensure equipment furnished by the manufacturer is complete and operational, except as may be otherwise indicated herein. I further certify that all information contained herein is true and accurate.

Date: _____, 20__

Manufacturer: _____

By Manufacturer’s Authorized Representative: _____
(Authorized Signature)

Installation Contractor’s Authorized Representative: _____
(Authorized Signature)

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Detailed information for the preparation, submission, and Engineer's review of Operations and Maintenance (O&M) Data, as required by individual Specification sections.

1.02 DEFINITIONS

- A. Preliminary Data: Initial and subsequent submissions for Engineer's review.
- B. Final Data: Engineer-accepted data, submitted as specified herein.
- C. Maintenance Operation: As used on Maintenance Summary Form is defined to mean any routine operation required to ensure satisfactory performance and longevity of equipment. Examples of typical maintenance operations are lubrication, belt tensioning, adjustment of pump packing glands, and routine adjustments.

1.03 SEQUENCING AND SCHEDULING

- A. Equipment and System Data:
 - 1. Preliminary Data:
 - a. Do not submit until Shop Drawing for equipment or system has been reviewed and approved by Engineer.
 - b. Submit prior to shipment date.
 - 2. Final Data: Submit Instructional Manual Formatted data not less than 30 days prior to installation of equipment. Submit Compilation Formatted and Electronic Media Formatted data prior to Completion of Project and Final Invoice.
- B. Materials and Finishes Data:
 - 1. Preliminary Data: Submit at least 15 days prior to request for training.
 - 2. Final Data: Submit within 10 days after final inspection.

1.04 DATA FORMAT

- A. Prepare preliminary and final data in the form of an instructional manual. Prepare final data in data compilation format and electronic media.
- B. Instructional Manual Format:
 - 1. Binder: Commercial quality, permanent, three-ring or three-post binders with durable plastic cover.
 - 2. Size: 8-1/2 inches by 11 inches, minimum.

LFP PRE-CLARIFICATION BASIN REHABILITATION

3. Cover: Identify manual with typed or printed title “OPERATION AND MAINTENANCE DATA” and list:
 - a. Project title.
 - b. Designate applicable system, equipment, material, or finish.
 - c. Identity of separate structure as applicable.
 - d. Identify volume number if more than one volume.
 - e. Identity of equipment number and Specification section.
 4. Spine:
 - a. Project title.
 - b. Identify volume number if more than one volume.
 5. Title Page:
 - a. Contractor name, address, and telephone number.
 - b. Subcontractor, Supplier, installer, or maintenance contractor’s name, address, and telephone number, as appropriate.
 - 1) Identify area of responsibility of each.
 - 2) Provide name and telephone number of local source of supply for parts and replacement.
 6. Table of Contents:
 - a. Neatly typewritten and arranged in systematic order with consecutive page numbers.
 - b. Identify each product by product name and other identifying numbers or symbols as set forth in Contract Documents.
 7. Paper: 20-pound minimum, white for typed pages.
 8. Text: Manufacturer’s printed data, or neatly typewritten.
 9. Three-hole punch data for binding and composition; arrange printing so that punched holes do not obliterate data.
 10. Material shall be suitable for reproduction, with quality equal to original. Photocopying of material will be acceptable, except for material containing photographs.
- C. Electronic Media Format:
1. Portable Document Format (PDF):
 - a. After all preliminary data has been found to be acceptable to Engineer, submit Operation and Maintenance data in PDF format in electronic format.
 - b. Files to be exact duplicates of Engineer-accepted preliminary data. Arrange by specification number and name.
 - c. Files to be fully functional and viewable in most recent version of Adobe Acrobat.

1.05 SUBMITTALS

- A. Informational:
1. Data Outline: Submit one electronic copy of a detailed outline of proposed organization and contents of Final Data prior to preparation of Preliminary Data.
 2. Preliminary Data:
 - a. Submit two copies for Engineer’s review.
 - b. If data meets conditions of the Contract:

LFP PRE-CLARIFICATION BASIN REHABILITATION

- 1) One copy will be returned to Contractor.
- 2) One copy will be retained in Engineer's file.
- c. If data does not meet conditions of the Contract:
 - 1) All copies will be returned to Contractor with Engineer's comments (on separate document) for revision.
 - 2) Engineer's comments will be retained in Engineer's file.
 - 3) Resubmit two copies revised in accordance with Engineer's comments.
3. Final Data: Submit two copies in format specified herein.

1.06 DATA FOR EQUIPMENT AND SYSTEMS

- A. Content For Each Unit (or Common Units) and System:
 1. Product Data:
 - a. Include only those sheets that are pertinent to specific product.
 - b. Clearly annotate each sheet to:
 - 1) Identify specific product or part installed.
 - 2) Identify data applicable to installation.
 - 3) Delete references to inapplicable information.
 - c. Function, normal operating characteristics, and limiting conditions.
 - d. Performance curves, engineering data, nameplate data, and tests.
 - e. Complete nomenclature and commercial number of replaceable parts.
 - f. Original manufacturer's parts list, illustrations, detailed assembly drawings showing each part with part numbers and sequentially numbered parts list, and diagrams required for maintenance.
 - g. Spare parts ordering instructions.
 - h. Where applicable, identify installed spares and other provisions for future work (for example, reserved panel space, unused components, wiring, terminals).
 2. Charts of valve tag numbers, with the location and function of each valve.
 3. Drawings: Supplement product data with Drawings as necessary to clearly illustrate:
 - a. Format:
 - 1) Provide reinforced, punched, binder tab; bind in with text.
 - 2) Reduced to 8-1/2 inches by 11 inches, or 11 inches by 17 inches folded to 8-1/2 inches by 11 inches.
 - 3) Where reduction is impractical, fold and place in 8-1/2-inch by 11-inch envelopes bound in text.
 - 4) Identify Specification section and product on Drawings and envelopes.
 - b. Relations of component parts of equipment and systems.
 - c. Control and flow diagrams.
 - d. Coordinate drawings with Project record documents to assure correct illustration of completed installation.
 4. Instructions and Procedures: Within text, as required to supplement product data.
 - a. Format:
 - 1) Organize in consistent format under separate heading for each different procedure.

LFP PRE-CLARIFICATION BASIN REHABILITATION

- 2) Provide logical sequence of instructions for each procedure.
 - 3) Provide information sheet for Owner's personnel, including:
 - a) Proper procedures in event of failure.
 - b) Instances that might affect validity of guarantee or Bond.
 - b. Installation Instructions: Including alignment, adjusting, calibrating, and checking.
 - c. Operating Procedures:
 - 1) Startup, break-in, routine, and normal operating instructions.
 - 2) Test procedures and results of factory tests where required.
 - 3) Regulation, control, stopping, and emergency instructions.
 - 4) Description of operation sequence by control manufacturer.
 - 5) Shutdown instructions for both short and extended duration.
 - 6) Summer and winter operating instructions, as applicable.
 - 7) Safety precautions.
 - 8) Special operating instructions.
 - d. Maintenance and Overhaul Procedures:
 - 1) Routine maintenance.
 - 2) Guide to troubleshooting.
 - 3) Disassembly, removal, repair, reinstallation, and re-assembly.
- B. Content for Each Electric or Electronic Item or System:
1. Description of Unit and Component Parts:
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, nameplate data, and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 - d. Interconnection wiring diagrams, including control and lighting systems.
 2. Electrical service.
 3. Control requirements and interfaces.
 4. Communication requirements and interfaces.
 5. List of electrical relay settings, and control and alarm contact settings.
 6. Electrical interconnection wiring diagram, including as applicable, single-line, three-line, schematic and internal wiring, and external interconnection wiring.
 7. Operating Procedures:
 - a. Routine and normal operating instructions.
 - b. Startup and shutdown sequences, normal and emergency.
 - c. Safety precautions.
 - d. Special operating instructions.
 8. Maintenance Procedures:
 - a. Routine maintenance.
 - b. Guide to troubleshooting.
 - c. Adjustment and checking.
 - d. List of relay settings, control and alarm contact settings.
 9. Manufacturer's printed operating and maintenance instructions.
 10. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
- C. Maintenance Summary:

LFP PRE-CLARIFICATION BASIN REHABILITATION

1. Compile individual Maintenance Summary for each applicable equipment item, respective unit or system, and for components or sub-units.
2. Format:
 - a. Use Maintenance Summary Form bound with this section or electronic facsimile of such.
 - b. Each Maintenance Summary may take as many pages as required.
 - c. Use only 8-1/2-inch by 11-inch size paper.
 - d. Complete using typewriter or electronic printing.
3. Include detailed lubrication instructions and diagrams showing points to be greased or oiled; recommend type, grade, and temperature range of lubricants and frequency of lubrication.
4. Recommended Spare Parts:
 - a. Data to be consistent with manufacturer's Bill of Materials/Parts List furnished in O&M manuals.
 - b. "Unit" is the unit of measure for ordering the part.
 - c. "Quantity" is the number of units recommended.
 - d. "Unit Cost" is the current purchase price.

1.07 DATA FOR MATERIALS AND FINISHES

- A. Content for Architectural Products, Applied Materials, and Finishes:
 1. Manufacturer's data, giving full information on products:
 - a. Catalog number, size, and composition.
 - b. Color and texture designations.
 - c. Information required for reordering special-manufactured products.
 2. Instructions for Care and Maintenance:
 - a. Manufacturer's recommendation for types of cleaning agents and methods.
 - b. Cautions against cleaning agents and methods that are detrimental to product.
 - c. Recommended schedule for cleaning and maintenance.
- B. Content for Moisture Protection and Weather Exposed Products:
 1. Manufacturer's data, giving full information on products:
 - a. Applicable standards.
 - b. Chemical composition.
 - c. Details of installation.
 2. Instructions for inspection, maintenance, and repair.

1.08 SUPPLEMENTS

- A. The supplements listed below, following "End of Section", are part of this Specification.
 1. Forms: Maintenance Summary Form.

LFP PRE-CLARIFICATION BASIN REHABILITATION

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

MAINTENANCE SUMMARY FORM

PROJECT: _____ CONTRACT NO.: _____

1. EQUIPMENT ITEM _____
2. MANUFACTURER _____
3. EQUIPMENT/TAG NUMBER(S) _____
4. WEIGHT OF INDIVIDUAL COMPONENTS (OVER 100 POUNDS) _____
5. NAMEPLATE DATA (hp, voltage, speed, etc.) _____
6. MANUFACTURER'S LOCAL REPRESENTATIVE _____
 - a. Name _____ Telephone No. _____
 - b. Address _____

7. MAINTENANCE REQUIREMENTS

Maintenance Operation Comments	Frequency	Lubricant (If Applicable)
List briefly each maintenance operation required and refer to specific information in manufacturer's standard maintenance manual, if applicable. (Reference to manufacturer's catalog or sales literature is not acceptable.)	List required frequency of each maintenance operation.	Refer by symbol to lubricant required.

**SECTION 01 88 15
ANCHORAGE AND BRACING**

PART 1 GENERAL

1.01 SUMMARY

- A. This section covers requirements for anchorage and bracing of equipment, distribution systems, and other nonstructural components required in accordance with the ICC 2012 International Building Code (IBC), for seismic, wind, gravity, soil, and operational loads.

1.02 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Institute of Steel Construction (AISC) 360, Specification for Structural Steel Buildings.
 2. American Society of Civil Engineers (ASCE): ASCE 7, Minimum Design Loads for Buildings and Other Structures.
 3. International Code Council (ICC): International Building Code (IBC).

1.03 DEFINITIONS

- A. Authority Having Jurisdiction (AHJ): Permitting building agency; may be a federal, state, local, or other regional department, or individual including building official, fire chief, fire marshal, chief of a fire prevention bureau, labor department, or health department, electrical inspector; or others having statutory authority. AHJ may be Owner when authorized to be self-permitting by governmental permitting agency or when no governmental agency has authority.
- B. Designated Seismic System: Architectural, electrical, and mechanical system or their components for which component importance factor is greater than 1.0.

1.04 DESIGN AND PERFORMANCE REQUIREMENTS

- A. General:
1. Anchorage and bracing systems shall be designed by a qualified professional engineer registered in the State of Georgia.
 2. Design anchorage into concrete including embedment in accordance with ACI 318-14; Chapter 17 (or other industry standard approved by Engineer), and Project Specifications.
 - a. Unless otherwise noted, design for cracked concrete condition.
 3. Design anchorage and bracing of architectural, mechanical, and electrical components and systems in accordance with this section, unless a design is specifically provided within Contract Documents or where exempted hereinafter.

LFP PRE-CLARIFICATION BASIN REHABILITATION

4. Design attachments, braces, and anchors for equipment, components, and distribution systems to structure for gravity, seismic, wind, and operational loading.
5. Anchor and brace piping and ductwork, whether exempt or not exempt for this section, so that lateral or vertical displacement does not result in damage or failure to essential architectural, mechanical, or electrical equipment.
6. Architectural Components: Includes, but are not limited to, nonstructural walls and elements, partitions, cladding and veneer, access flooring, signs, cabinets, suspended ceilings, and glass in glazed curtain walls and partitions.
7. Provide supplementary framing where required to transfer anchorage and bracing loads to structure.
8. Adjust equipment pad sizes or provide additional anchorage confinement reinforcing to provide required anchorage capacities.
9. Design anchorage and bracing for:
 - a. Equipment and components that weigh more than 400 pounds and are mounted 4 feet or less above adjacent finished floor.
 - b. Mechanical and electrical components that are not provided with flexible connections between components and associated ductwork, piping, or conduit.
10. For components exempted from design requirements of this section, provide bolted, welded, or otherwise positively fastened attachments to supporting structure.

B. Design Loads:

1. Gravity: Design anchorage and bracing for self-weight and superimposed loads on components and equipment.
2. Wind: Design anchorage and bracing for wind criteria for exposed architectural components and exterior and wind-exposed mechanical and electrical equipment. Alternately, manufacturer certification may be provided for components such as roofing and flashing to verify attachments meet Project.
3. Operational:
 - a. For loading supplied by equipment manufacturer for IBC required load cases.
 - b. Loads may include equipment vibration, torque, thermal effects, effects of internal contents (weight and sloshing), water hammer, and other load-inducing conditions.
 - c. Locate braces to minimize vibration to or movement of structure.
 - d. For vibrating loads, use anchors meeting requirements of Section 05 05 19, Post-Installed Anchors, for anchors with designated capacities for vibratory loading per manufacturer's ICC-ES report.
 - e. In accordance with 2012 IBC, Section 1613, and Chapter 13 of ASCE 7.
 - f. Design forces for anchors in concrete or masonry shall be in accordance with ASCE 7, Section 13.4 as applicable for Project Seismic Design Category.

C. Seismic Design Requirements:

LFP PRE-CLARIFICATION BASIN REHABILITATION

1. Analyze local region of body of nonstructural component for load transfer of anchorage attachment if component $I_p = 1.5$.
2. Provide support drawings and calculations for electrical distribution components if any of the following conditions apply:
 - a. Conduit diameter is greater than 2.5-inch trade size.
 - b. Total weight of bus duct, cable tray, or conduit supported by trapeze assemblies exceeds 10 pounds per foot.
3. Other seismic design and detailing information identified in ASCE 7, Chapter 13, is required to be provided for new architectural, mechanical and electrical components, systems, or equipment.

1.05 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
 - a. List of architectural, mechanical, and electrical equipment requiring Contractor-designed anchorage and bracing, unless specifically exempted.
 - b. Manufacturers' engineered seismic and non-seismic hardware product data.
 - c. Attachment assemblies' drawings including seismic attachments; include connection hardware, braces, and anchors or anchor bolts for nonexempt components, equipment, and systems.
 - d. Submittal will be rejected if proposed anchorage method would create excessive stress to supporting member. Revise anchorages and strengthen structural support to eliminate overstressed condition.

B. Informational Submittals:

1. Anchorage and Bracing Calculations: For attachments, braces, and anchorages, include IBC and any Project-specific criteria, in addition to manufacturer's specific criteria used for design; sealed by a civil or structural engineer registered in the State of Georgia
2. Manufacturer's hardware installation requirements.

1.06 SOURCE QUALITY CONTROL

- A. Contractor and supplier responsibilities to accommodate Owner-furnished shop fabrication related special inspections and testing are provided in Section 01 91 14 Equipment Testing and Facility Startup.

PART 2 PRODUCTS

2.01 GENERAL

- A. Design and construct attachments and supports transferring seismic and non-seismic loads to structure of materials and products suitable for application and in accordance with design criteria shown on Drawings and nationally recognized standards.

LFP PRE-CLARIFICATION BASIN REHABILITATION

- B. Provide post-installed concrete and masonry anchors for anchorage of equipment to concrete or masonry in accordance with Section 05 05 19, Post-Installed Anchors. Provide post-installed anchors of the size, minimum embedment, and spacing designated in calculations submitted by Contractor and accepted by Engineer.
- C. Do not use powder-actuated fasteners or sleeve anchors for seismic attachments and anchorage where resistance to tension loads is required. Do not use expansion anchors, other than undercut anchors, for nonvibration isolated mechanical equipment rated over 10 horsepower.

PART 3 EXECUTION

3.01 GENERAL

- A. Make attachments, bracing, and anchorage in such a manner that component lateral force is transferred to lateral force resisting system of structure through a complete load path.
- B. Design, provide, and install overall seismic anchorage system to provide restraint in all directions, including vertical, for each component or system so anchored.
- C. Provide snubbers in each horizontal direction and vertical restraints for components mounted on vibration isolation systems where required to resist
- D. Provide piping anchorage that maintains design flexibility and expansion capabilities at flexible connections and expansion joints.
 - 1. Piping and ductwork suspended more than 12 inches below supporting structure shall be braced for seismic effects to avoid significant bending of hangers and their attachments.
- E. Anchor tall and narrow equipment such as motor control centers and telemetry equipment at base and within 12 inches from top of equipment, unless approved otherwise by Engineer.
- F. Do not attach architectural, mechanical, or electrical components to more than one element of a building structure at a single restraint location where such elements may respond differently during a seismic event. Do not make such attachments across building expansion and contraction joints.

3.02 INSTALLATION

- A. Do not install components or their anchorages or restraints prior to review and acceptance by Engineer and AHJ.
- B. Notify Engineer upon completion of installation of seismic restraints.

3.03 FIELD QUALITY ASSURANCE AND QUALITY CONTROL

- A. In accordance with Section 05 05 19, Post-Installed Anchors.

LFP PRE-CLARIFICATION BASIN REHABILITATION

- B. Owner-Furnished Quality Assurance, in accordance with IBC Chapter 17 requirements, is provided in Section 01 91 14 Equipment Testing and Facility Startup.

END OF SECTION

SECTION 01 91 14
EQUIPMENT TESTING AND FACILITY STARTUP

PART 1 GENERAL

1.1 DEFINITIONS

- A. Facility: Entire Project, or an agreed-upon portion, including all of its unit processes.
- B. Functional Test: Test or tests in presence of Engineer and Owner to demonstrate that installed equipment meets manufacturer's installation, calibration, and adjustment requirements and other requirements as specified.
- C. Performance Test: Test or tests performed after any required functional test in presence of Engineer and Owner to demonstrate and confirm individual equipment meets performance requirements specified in individual sections.
- D. Unit Process: As used in this section, a unit process is the Rapid Mixers and Flocculators.

1.2 SUBMITTALS

- A. Informational Submittals:
 - 1. Facility Startup and Performance Demonstration Plan.
 - 2. Functional and Performance test results.
 - 3. Completed Unit Process Startup Form for each unit process.

1.3 FACILITY STARTUP AND PERFORMANCE DEMONSTRATION PLAN

- A. Develop a written plan, in conjunction with installation Contractor and Owner's operations personnel; to include the following:
 - 1. Step-by-step instructions for startup of each unit process and the complete facility.
 - 2. Unit Process Startup Form (sample attached), to minimally include the following:
 - a. Description of the unit process, including equipment numbers/nomenclature of each item of equipment and all included devices.
 - b. Detailed procedure for startup of the unit process, including valves to be opened/closed, order of equipment startup, etc.
 - c. Startup requirements for each unit process, including water, power, chemicals, etc.
 - d. Space for evaluation comments.
 - 3. Facility Performance Demonstration/Certification Form (sample attached), to minimally include the following:
 - a. Description of unit processes included in the facility startup.
 - b. Sequence of unit process startup to achieve facility startup.
 - c. Description of computerized operations, if any, included in the facility.
 - d. Contractor certification facility is capable of performing its intended function(s), including fully automatic operation.
 - e. Signature spaces for Contractor and Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 GENERAL

- A. Facility Startup Meetings: Schedule to discuss test schedule, test methods, materials, chemicals and liquids required, facilities operations interface, and Owner involvement.
- B. Contractor's Testing and Startup Representative:
 - 1. Designate and furnish one or more personnel to coordinate and expedite testing and facility startup.
 - 2. Representative(s) shall be present during startup meetings and shall be available at all times during testing and startup.
- C. Provide temporary valves, gauges, piping, test equipment and other materials and equipment required for testing and startup.
- D. Provide Subcontractor and equipment manufacturers' staff adequate to prevent delays. Schedule any ongoing work so as not to interfere with or delay testing and startup.
- E. Owner will:
 - 1. Provide water, power, chemicals, and other items as required for startup, unless otherwise indicated.
 - 2. Operate process units and facility with support of the installation Contractor.
 - 3. Provide labor and materials as required for laboratory analyses if required.
 - 4. Make available spare parts, special tools, and operation and maintenance information for Owner-furnished products.

3.2 EQUIPMENT TESTING

- A. Preparation:
 - 1. Complete installation before testing.
 - 2. Furnish qualified manufacturers' representatives, when required by individual Specification sections.
 - 3. Obtain and submit from equipment manufacturer's representative Manufacturer's Certificate of Proper Installation Form, in accordance with Section 01 43 33 Manufacturers' Field Services, when required by individual Specification sections.
 - 4. Equipment Test Report Form: Provide written test report for each item of equipment to be tested, to include the minimum information:
 - a. Owner/Project Name.
 - b. Equipment or item tested.
 - c. Date and time of test.
 - d. Type of test performed (Functional or Performance).
 - e. Test method.
 - f. Test conditions.
 - g. Test results.
 - h. Signature spaces for Contractor and Engineer as witness.

5. Cleaning and Checking: Prior to beginning functional testing:
 - a. Calibrate testing equipment in accordance with manufacturer's instructions.
 - b. Inspect and clean equipment, devices, connected equipment, and structures to ensure they are free of foreign material.
 - c. Lubricate equipment in accordance with manufacturer's instructions.
 - d. Turn rotating equipment by hand when possible to confirm that equipment is not bound.
 - e. Check power supply to electric-powered equipment for correct voltage.
 - f. Adjust clearances and torque settings.
6. Ready-to-test determination will be by Owner based at least on the following:
 - a. Acceptable Operation and Maintenance Data.
 - b. Notification by installation Contractor of equipment readiness for testing.
 - c. Receipt of Manufacturer's Certificate of Proper Installation, if so specified.
 - d. Adequate completion of work adjacent to, or interfacing with, equipment to be tested [, including items to be furnished by Owner].
 - e. Availability and acceptability of manufacturer's representative, when specified, to assist in testing of respective equipment.
 - f. Satisfactory fulfillment of other specified manufacturer's responsibilities.
 - g. Equipment and electrical tagging complete.
 - h. Delivery of all spare parts and special tools.

B. Functional Testing:

1. Conduct as specified in individual Specification sections.
2. Notify Owner in writing at least 10 days prior to scheduled date of testing.
3. Prepare Equipment Test Report summarizing test method and results.
4. When, in Engineer's opinion, equipment meets functional requirements specified, such equipment will be accepted for purposes of advancing to performance testing phase, if so required by individual Specification sections. Such acceptance will be evidenced by Engineer/Owner's signature as witness on Equipment Test Report.

C. Performance Testing:

1. Conduct as specified in individual Specification sections.
2. Notify Engineer and Owner in writing at least 10 days prior to scheduled date of test.
3. Performance testing shall not commence until equipment has been accepted by Engineer as having satisfied functional test requirements specified.
4. Type of fluid, gas, or solid for testing shall be as specified.
5. Unless otherwise indicated, furnish labor, materials, and supplies for conducting the test and taking samples (if required) and performance measurements.
6. Prepare Equipment Test Report summarizing test method and results.
7. When, in Owner's opinion, equipment meets performance requirements specified, such equipment will be accepted as conforming to Contract requirements. Such acceptance will be evidenced by Engineer's signature on Equipment Test Report.

3.3 STARTUP OF UNIT PROCESSES

- A. Prior to unit process startup, equipment within unit process shall be accepted by Owner as having met functional and performance testing requirements specified.

- B. Startup sequencing of unit processes shall be as chosen by Contractor to meet schedule requirements.
- C. Make adjustments, repairs, and corrections necessary to complete unit process startup.
- D. Startup shall be considered complete when, in opinion of Owner, unit process has operated in manner intended for 5 continuous days without significant interruption. This period is in addition to functional or performance test periods specified elsewhere.
- E. Significant Interruption: May include any of the following events:
 - 1. Failure of Contractor to provide and maintain qualified onsite startup personnel as scheduled.
 - 2. Failure to meet specified functional operation for more than 2 consecutive hours.
 - 3. Failure of any critical equipment or unit process that is not satisfactorily corrected within 5 hours after failure.
 - 4. Failure of any noncritical equipment or unit process that is not satisfactorily corrected within 8 hours after failure.
 - 5. As determined by Owner.
- F. A significant interruption will require startup then in progress to be stopped. After corrections are made, startup test period to start from beginning again.

3.4 FACILITY PERFORMANCE DEMONSTRATION

- A. When, in the opinion of Owner, startup of all unit processes has been achieved, sequence each unit process to the point that facility is operational.
- B. Demonstrate proper operation of required interfaces within and between individual unit processes.
- C. After facility is operating, complete performance testing of equipment and systems not previously tested.
- D. Document, as defined in Facility Startup and Performance Demonstration Plan, the performance of the facility including its computer system until all unit processes are operable and under control of computer system.
- E. Certify, on the Facility Performance Demonstration/Certification Form, that facility is capable of performing its intended function(s), including fully automatic and computerized operation.

3.5 SUPPLEMENTS

- A. Supplements listed below, following “End of Section,” are a part of this Specification:
 - 1. Unit Process Startup Form.
 - 2. Facility Performance Demonstration/Certification Form.

END OF SECTION

UNIT PROCESS STARTUP FORM

OWNER: _____ **PROJECT:** _____

Unit Process Description: (Include description and equipment number of all equipment and devices): _____

Startup Procedure (Describe procedure for sequential startup and evaluation, including valves to be opened/closed, order of equipment startup, etc.): _____

Startup Requirements (Water, power, chemicals, etc.): _____

Evaluation Comments: _____

FACILITY PERFORMANCE DEMONSTRATION/CERTIFICATION FORM

OWNER: _____ **PROJECT:** _____

Unit Processes Description (List unit processes involved in facility startup): _____

Unit Processes Startup Sequence (Describe sequence for startup, including computerized operations, if any): _____

Contractor Certification that Facility is capable of performing its intended function(s), including fully automatic operation:

Contractor: _____ Date: _____, 20_____

Engineer: _____ Date: _____, 20_____

(Authorized Signature)

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SECTION 05 05 19

POST-INSTALLED ANCHORS

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Concrete Institute (ACI):
 - a. 318, Building Code Requirements for Structural Concrete.
 - b. 355.2, Qualification of Post-Installed Mechanical Anchors in Concrete.
 - c. 355.4, Qualification of Post-Installed Adhesive Anchors in Concrete.
 2. American Iron and Steel Institute (AISI): Stainless Steel Type 316.
 3. American National Standards Institute (ANSI).
 4. ASTM International (ASTM):
 - a. A123/A123M, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - b. A143, Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.
 - c. A153/A153M, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - d. A193/A193M, Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
 - e. A194/A194M, Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both.
 - f. A380, Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems.
 - g. A385, Practice for Providing High-Quality Zinc Coatings (Hot-Dip).
 - h. A563, Specification for Carbon and Alloy Steel Nuts.
 - i. A780, Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 - j. A967, Specification for Chemical Passivation Treatments for Stainless Steel Parts.
 - k. E488, Standard Test Methods for Strength of Anchors in Concrete Elements.
 - l. F436, Specification for Hardened Steel Washers.
 - m. F468, Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use.
 - n. F568M, Specification for Carbon and Alloy Steel Externally Threaded Metric Fasteners.
 - o. F593, Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
 - p. F594, Specification for Stainless Steel Nuts.
 - q. F1554, Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.
 5. International Association of Plumbing and Mechanical Officials Uniform ES (IAPMO-UES): Evaluation Reports for Concrete and Masonry Anchors.
 6. International Code Council Evaluation Service (ICC-ES):

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- a. Evaluation Reports for Concrete and Masonry Anchors.
 - b. AC01, Acceptance Criteria for Expansion Anchors in Masonry Elements.
 - c. AC70, Acceptance Criteria for Fasteners Power-driven into Concrete, Steel and Masonry Elements.
 - d. AC106, Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements.
 - e. AC193, Acceptance Criteria for Mechanical Anchors in Concrete Elements.
 - f. AC308, Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements. Evaluation Reports for Concrete and Masonry Anchors.
7. NSF International (NSF): 61, Drinking Water System Components - Health Effects.
 8. Specialty Steel Industry of North America (SSINA):
 - a. Specifications for Stainless Steel.
 - b. Design Guidelines for the Selection and Use of Stainless Steel.
 - c. Stainless Steel Fabrication.

1.02 DEFINITIONS

- A. Corrosive Area: Containment area or area exposed to delivery, storage, transfer, or use of chemicals.
- B. Exterior Area: Location not protected from weather by a building or other enclosed structure to include buried roof structures.
- C. Interior Dry Area: Location inside building or structure where floor is not subject to liquid spills or wash down, and where wall or roof slab is not common to a water-holding or earth-retaining structure.
- D. Interior Wet Area: Location inside building or structure where floor is sloped to floor drains or gutters and is subject to liquid spills or wash down, or where wall, floor, or roof slab is common to a water-holding or earth-retaining structure.
- E. Submerged: Location at or below top of wall of open water-holding structure, such as a basin or channel, or wall, ceiling, or floor surface inside a covered water-holding structure, or exterior below grade wall or roof surface of water-holding structure, open or covered.

1.03 SUBMITTALS

- A. Action Submittals:
 1. Shop Drawings: Specific instructions for concrete anchor installation, including drilled hole size and depth, preparation, placement, procedures, and instructions for safe handling of anchoring systems.
- B. Informational Submittals:
 1. Concrete Anchors:
 - a. Manufacturer's product description and installation instructions.

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- b. Current ICC-ES or IAPMO-UES Report for each type of post-installed anchor to be used.
2. Passivation method for stainless steel members.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Installers of adhesive anchors horizontally or upwardly inclined to support sustained tension loads shall be certified by an applicable certification program. Certification shall include written and performance tests in accordance with the ACI/CRSI Adhesive Installer Certification Program or equivalent.
2. Galvanized Coating Applicator: Company specializing in hot-dip galvanizing after fabrication and following procedures of Quality Assurance Manual of the American Galvanizers Association.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package stainless steel items in a manner to provide protection from carbon impregnation.
- B. Protect hot-dip galvanized finishes from damage as a result of metal banding and rough handling.

PART 2 PRODUCTS

2.01 GENERAL

- A. Unless otherwise indicated, meet the following requirements:

Item	ASTM Reference
Stainless Steel:	
Threaded Rods	F593, AISI Type 316, Condition CW
Nuts*	F594, AISI Type 316, Condition CW
Carbon Steel:	
Threaded Rods	F1554, Grade 36 or F568M Class 5.8
Flat and Beveled Washers (Hardened)	F436
Nuts*	A194/A194M, Grade 2H
Galvanized Steel:	
All	A153/A153M
*Nuts of other grades and styles having specified proof load stresses greater than specified grade and style are also suitable. Nuts must have specified proof load stresses equal to or greater than minimum tensile strength of specified threaded rod.	

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- B. Bolts, Washers, and Nuts: Use stainless steel material types.

2.02 POST-INSTALLED CONCRETE ANCHORS

A. General:

1. AISI Type 316 stainless steel.
2. Post-installed anchor systems used in concrete shall be approved by ICC Evaluation Services Report or equivalent for use in cracked concrete and for short-term and long-term loads including wind and earthquake.
3. Mechanical Anchors: Comply with the requirements of ICC-ES AC193 or ACI 355.2.
4. Adhesive Anchors: Comply with the requirements of ICC-ES AC308 or ACI 355.4.
5. Acceptable for use in potable water structures by EPA and local health agencies or NSF 61.

B. Adhesive Anchors:

1. Threaded Rod:
 - a. Diameter as shown on Drawings.
 - b. Length as required to provide minimum depth of embedment indicated and thread projection required.
 - c. Clean and free of grease, oil, or other deleterious material.
2. Adhesive:
 - a. Two-component, insensitive to moisture, designed to be used in adverse freeze/thaw environments.
 - b. Cure Temperature, Pot Life, and Workability: Compatible for intended use and anticipated environmental conditions.
3. Packaging and Storage:
 - a. Disposable, self-contained system capable of dispensing both components in proper mixing ratio and fitting into a manually or pneumatically operated caulking gun.
 - b. Store adhesive on pallets or shelving in a covered storage area.
 - c. Package Markings: Include manufacturer's name, product name, batch number, product expiration date, ANSI hazard classification, and appropriate ANSI handling precautions.
 - d. Dispose of When:
 - 1) Shelf life has expired.
 - 2) Stored other than in accordance with manufacturer's instructions.
4. Manufacturers and Products:
 - a. Hilti, Inc., Tulsa, OK; HIT Doweling Anchor System, HIT-HY 200 V3 Safe Set System with HIT-Z ROD (ESR-4868), HIT RE 500 V3 Safe Set System with HAS threaded rod (ESR-3814), or HIT-RE 500 V3 Safe Set System with Hilti Roughening Tool (HIT RT) with HAS threaded rod (ESR-3814) for diamond cored holes.
 - b. Simpson Strong-Tie Co., Inc., Pleasanton, CA; SET-3G Epoxy Adhesive Anchors. (ESR-4057).
 - c. DeWalt/Powers Fasteners, Brewster NY; Pure 220+ Epoxy adhesive anchor system with Dust X+ System (ESR-5144).

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- C. Adhesive Threaded Inserts:
 - 1. Type 316 stainless steel, internally threaded inserts.
 - 2. Manufacturer and Product: Hilti, Inc., Tulsa, OK; HIS-RN Insert with HIT-RE 500-V3 or HIT-HY 200 adhesive.

PART 3 EXECUTION

3.01 CONCRETE ANCHORS

- A. Begin installation only after concrete to receive anchors has attained design strength.
- B. Locate existing reinforcing with Ground Penetrating Radar or other method approved by Engineer prior to drilling. Coordinate with Engineer to adjust anchor locations where installation would result in hitting reinforcing.
- C. Install in accordance with written manufacturer's instructions.
- D. Provide minimum embedment, edge distance, and spacing as indicated on Drawings.
- E. Use only drill type and bit type and diameter recommended by anchor manufacturer.
- F. Clean hole of debris and dust per manufacturer's requirements.
- G. When unidentified embedded steel, rebar, or other obstruction is encountered in drill path, slant drill to clear obstruction. If drill must be slanted more than indicated in manufacturer's installation instructions to clear obstruction, notify Engineer for direction on how to proceed.
- H. Adhesive Anchors:
 - 1. Unless otherwise approved by Engineer and adhesive manufacturer:
 - a. Do not install adhesive anchors when temperature of concrete is below 40 degrees F or above 100 degrees F.
 - b. Do not install prior to concrete attaining an age of 21 days.
 - c. Remove any standing water from hole with oil-free compressed air. Inside surface of hole shall be dry.
 - d. Do not disturb anchor during recommended curing time.
 - e. Do not exceed maximum torque as specified in manufacturer's instructions.

3.02 FIELD QUALITY ASSURANCE AND QUALITY CONTROL

- A. Owner-Furnished Quality Assurance, in accordance with IBC Chapter 17 requirements, is provided in Section 01 91 14.

3.03 MANUFACTURER'S SERVICES

- A. Adhesive and Mechanical Anchors: Conduct Site training of installation personnel for proper installation, handling, and storage of adhesive anchor system. Notify Engineer of time and place for sessions.

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3.04 FASTENER SCHEDULE

A. Unless indicated otherwise on Drawings, provide fasteners as follows:

Service Use and Location	Product	Remarks
1. Post-Installed Anchors for Metal Components to Cast-in-Place Concrete (such as, Ladders, Handrail Posts, Electrical Panels, Platforms, and Equipment)		
Submerged, Exterior, Interior Wet, and Corrosive Areas	Stainless steel adhesive anchors	Verify product acceptability and manufacturer's requirements if anchor installation will occur in an overhead application
4. All Others		
All service uses and locations	Stainless steel fasteners	

]

B. Antiseizing Lubricant: Use on all stainless steel threads.

C. Do not use adhesive anchors to support fire-resistive construction or where ambient temperature will exceed 120 degrees F.

END OF SECTION

LFP PRE-CLARIFICATION BASIN REHABILITATION

SECTION 26 20 00

LOW-VOLTAGE AC INDUCTION MOTORS

PART 1 GENERAL

1.01 RELATED SECTIONS

- A. This section applies to low-voltage AC induction motors, whether or not referenced by a motor-driven equipment specification. If equipment specification section deviates from this section in requirements such as, application, horsepower, enclosure type, mounting, shaft type, or synchronous speed, then those listed requirements shall take precedence over this section.

1.02 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Bearing Manufacturers Association (ABMA):
 - a. 9, Load Ratings and Fatigue Life for Ball Bearings.
 - b. 11, Load Ratings and Fatigue Life for Roller Bearings.
 2. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - a. 112, Standard Test Procedure for Polyphase Induction Motors and Generators.
 - b. 620, Guide for the Presentation of Thermal Limit Curves for Squirrel Cage Induction Machines.
 - c. 841, Standard for Petroleum and Chemical Industry—Premium Efficiency Severe Duty Totally Enclosed Fan-Cooled (TEFC) Squirrel Cage Induction Motors—Up to and Including 370 kW (500 hp).
 3. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).
 - b. C50.41, Polyphase Induction Motors for Power Generating Stations.
 - c. MG 1, Motors and Generators.
 4. National Fire Protection Association (NFPA): 70, National Electrical Code (NEC).
 5. UL:
 - a. 83, Standard for Safety for Thermoplastic-Insulated Wire and Cables.
 - b. 674, Standard for Safety for Electric Motors and Generators for Use in Division 1 Hazardous (Classified) Locations.
 - c. 2111, Standard for Safety for Overheating Protection for Motors.

1.03 DEFINITIONS

- A. DIP: Dust-ignition-proof enclosure.
- B. EXP: Explosion-proof enclosure.
- C. Inverter Duty (Definite Purpose) Motor: Motor meeting applicable requirements of NEMA MG 1, Section IV, Parts 30 and 31.

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- D. Motor Nameplate Horsepower: That rating after any derating required to allow for extra heating caused by the harmonic content in the voltage applied to the motor by its controller.
- E. ODP: Open drip-proof enclosure.
- F. TEFC: Totally enclosed, fan-cooled enclosure.
- G. TENV: Totally enclosed, nonventilated enclosure.
- H. VPI: Vacuum pressure impregnated.
- I. WPI: Open weather protected enclosure, Type I.
- J. WPPI: Open weather protected enclosure, Type II.

1.04 SUBMITTALS

A. Action Submittals:

- 1. Descriptive information.
- 2. Nameplate data in accordance with NEMA MG 1.
- 3. Additional Rating Information:
 - a. Service factor.
 - b. Locked rotor current.
 - c. No load current.
 - d. Safe stall time for motors 50 hp and larger.
 - e. Multispeed load classification (for example, variable torque).
 - f. Adjustable frequency drive motor load classification (for example, variable torque or constant torque) and minimum allowable motor speed for that load classification.
 - g. Guaranteed minimum full load efficiency and power factor.
- 4. Enclosure type and mounting (such as, horizontal, vertical).
- 5. Dimensions and total weight.
- 6. Conduit box dimensions and usable volume as defined in NEMA MG 1 and NFPA 70.
- 7. Bearing type.
- 8. Bearing lubrication.
- 9. Bearing life.
- 10. Space heater voltage and watts.
- 11. Description, ratings, and wiring diagram of motor thermal protection.
- 12. Motor sound power level in accordance with NEMA MG 1.
- 13. Maximum brake horsepower required by the equipment driven by the motor.
- 14. Anchorage and bracing data sheets and drawings as required by Section 01 88 15, Anchorage and Bracing.

B. Informational Submittals:

- 1. Anchorage and bracing calculations as required by Section 01 88 15, Anchorage and Bracing.
- 2. Operation and Maintenance Data: As specified in Section 01 78 23, Operation and Maintenance Data.

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3. Manufacturer's Certificate of Proper Installation, in accordance with Section 01 43 33 Manufacturers' Field Services.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Materials, equipment, and accessories specified in this section shall be products of:
 1. General Electric.
 2. MagneTek.
 3. Siemens Energy and Automation, Inc., Motors and Drives Division.
 4. Baldor.
 5. U.S. Electrical Motors.
 6. TECO-Westinghouse Motor Co.
 7. Toshiba International Corp., Industrial Division.
 8. WEG Electric Motors Corp.
 9. Approved equal.

2.02 GENERAL

- A. For multiple units of the same type of equipment, furnish identical motors and accessories of a single manufacturer.
- B. In order to obtain single source responsibility, use a single supplier to provide drive motor, its driven equipment, and specified motor accessories.
- C. Meet requirements of NEMA MG 1.
- D. For motors used in hazardous (classified) locations, Class I, Division 1, Groups B, C, and D, and Class II, Division 1, Groups E, F, and G provide motors that conform to UL 674 and have an applied UL listing mark.
- E. Provide motors specifically designed for the use and conditions intended, with a NEMA design letter classification to fit the application.
- F. Lifting lugs on motors weighing 100 pounds or more.
- G. Operating Conditions:
 1. Maximum ambient temperature not greater than 50 degrees C.
 2. Provide motors suitable for operating conditions without reduction in nameplate rated horsepower or exceeding rated temperature rise.
 3. Overspeed in either direction in accordance with NEMA MG 1.

2.03 HORSEPOWER RATING

- A. As designated in motor-driven equipment specification.
- B. Adjustable Frequency and Adjustable Speed Applications (Inverter Duty Motor):
Driven equipment brake horsepower at any operating condition not to exceed motor nameplate horsepower rating, excluding service factor.

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- C. Special Project Requirement: The two new flocculator motors shall each include a nameplate horsepower rating not to exceed 3 HP. The motor nameplate rating of the new flocculator motors shall also include a maximum FLA rating of 3.6A in order to match the FLA rating of the existing motors that are currently installed. The existing variable frequency drives (VFDs) to be used are sized based on the FLA rating of the existing flocculator motors not exceeding 3.6A.

2.04 SERVICE FACTOR

- A. Inverter-Duty Motors: 1.0 at rated ambient temperature, unless otherwise noted.
- B. Other Motors: 1.15 minimum at rated ambient temperature, unless otherwise noted.

2.05 VOLTAGE AND FREQUENCY RATING

- A. System Frequency: 60 Hz.
- B. Voltage Rating: Unless otherwise indicated in motor-driven equipment specification:

Voltage Rating		
Size	Voltage	Phase
1/2 hp and smaller	115	1
3/4 hp through 400 hp	460	3

- C. Suitable for full voltage starting.
- D. Suitable for accelerating the connected load with supply voltage at motor starter supply terminals dipping to 90 percent of motor rated voltage.

2.06 EFFICIENCY AND POWER FACTOR

- A. For all motors except single-phase, under 1 hp, multispeed, short-time rated and submersible motors, or motors driving gates, valves, elevators, cranes, trolleys, and hoists:
1. Efficiency:
 - a. Tested in accordance with NEMA MG 1, Paragraph 12.59.
 - b. Guaranteed minimum at full load in accordance with NEMA MG 1 Table 12-12, Full-load Efficiencies for NEMA Premium Efficiency Electric Motors Rated 600 Volts or Less (Random Wound), or as indicated in motor-driven equipment specification.
 2. Power Factor: Guaranteed minimum at full load shall be manufacturer's standard or as indicated in motor-driven equipment specification.

2.07 LOCKED ROTOR RATINGS

- A. Locked rotor kVA Code F or lower, if motor horsepower not covered by NEMA MG 1 tables.
- B. Safe Stall Time: 12 seconds or greater.

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2.08 INSULATION SYSTEMS

- A. Single-Phase, Fractional Horsepower Motors: Manufacturer's standard winding insulation system.
- B. Motors Rated Over 600 Volts: VPI windings in accordance with NEMA MG 1.
- C. Three-phase and Integral Horsepower Motors: Unless otherwise indicated in motor-driven equipment specification, Class F with Class B rise at nameplate horsepower and designated operating conditions.
- D. Motors With Form-Wound Coils: Locked coil bracing system in accordance with NEMA C50.41.

2.09 ENCLOSURES

- A. Conform to NEMA MG 1.
- B. Totally Enclosed Fan-Cooled (TEFC): Furnish with drain hole with porous drain/weather plug. The new motors for the two flocculators shall each include a TEFC enclosure.

2.10 TERMINAL (CONDUIT) BOXES

- A. Oversize main terminal boxes for motors.
- B. Diagonally split, rotatable to each of four 90-degree positions. Threaded hubs for conduit attachment.
- C. Except ODP, furnish gaskets between box halves and between box and motor frame.
- D. Minimum usable volume in percentage of that specified in NEMA MG 1, Section 1, Paragraph 4.19 and NFPA 70, Article 430:

Terminal Box Usable Values		
Voltage	Horsepower	Percentage
Below 600	15 through 125	500
Below 600	150 through 300	275
Below 600	350 through 600	225
Above 600	All sizes	200

- E. Terminal for connection of equipment grounding wire in each terminal box.
- F. Coordinate motor terminal box conduit entries versus size and quantity of existing conduits.

2.11 BEARINGS AND LUBRICATION

- A. Horizontal Motors:

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1. 3/4 hp and Smaller: Permanently lubricated and sealed ball bearings, or regreasable ball bearings in labyrinth sealed end bells with removable grease relief plugs.
2. 1 hp through 400 hp: Regreasable ball bearings in labyrinth sealed end bells with removable grease relief plugs.
3. For Direct Drive Equipment: Minimum 100,000 hours L-10 bearing life for ball and roller bearings as defined in ABMA 9 and ABMA 11.
4. For Belt Driven Equipment: Minimum 30,000 hours L-10 bearing life for ball and roller bearings as defined in ABMA 9 and ABMA 11.

B. Vertical Motors:

1. Thrust Bearings:
 - a. Antifriction bearing.
 - b. Manufacturer's standard lubrication 100 hp and smaller.
 - c. Minimum 50,000 hours L-10 bearing life.
2. Guide Bearings:
 - a. Manufacturer's standard bearing type.
 - b. Manufacturer's standard lubrication 200 hp and smaller.
 - c. Minimum 100,000 hours L-10 bearing life.

C. Regreasable Antifriction Bearings:

1. Readily accessible, grease injection fittings.
2. Readily accessible, removable grease relief plugs.

D. Oil Lubrication Systems:

1. Oil reservoirs with sight level gauge.
2. Oil fill and drain openings with opening plugs.
3. Provisions for necessary oil circulation and cooling.

E. Food-grade lubricants shall be used for equipment and pumps in contact with potable water.

F. Inverter Duty Rated Motors Larger than 50 hp, Bearing Isolation: Provide electrically isolated bearings to prevent stray current damage.

2.12 NOISE

- A. Measured in accordance with NEMA MG 1.
- B. Maximum Sound Level for Motors Controlled by Adjustable Frequency Drive Systems: 3 dBA higher than NEMA MG 1.

2.13 BALANCE AND VIBRATION CONTROL

- A. In accordance with NEMA MG 1, Part 7.

2.14 EQUIPMENT FINISH

- A. Protect Motor for Service Conditions:

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1. ODP Enclosures: Indoor industrial atmospheres.
 2. Other Enclosures: Outdoor industrial atmospheres, including moisture and direct sunlight exposure.
- B. External Finish: Prime and finish coat manufacturer's standard.
- C. Internal Finish: Bore and end turns coated with clear polyester or epoxy varnish.

2.15 SPECIAL FEATURES AND ACCESSORIES

- A. Screen Over Air Openings: Stainless steel on motors with ODP, WPI, and WPII enclosures meeting requirements for guarded machine in NEMA MG 1, and attached with stainless steel screws.
- B. Winding Thermal Protection:
1. Thermostats:
 - a. The new motors for both the flocculators shall each include thermostats.
 - b. Bi-metal disk or rod type thermostats embedded in stator windings.
 - c. Automatic reset contacts rated 120 volts ac, 5 amps minimum, opening on excessive temperature. (Provide manual reset at motor controller.)
 - d. Leads extending to separate terminal box for motors 100 hp and larger.
- C. Nameplates:
1. Raised or stamped letters on stainless steel or aluminum.
 2. Display motor data required by NEMA MG 1, Paragraph 10.39 and Paragraph 10.40 in addition to bearing numbers for both bearings.
 3. Premium efficiency motor nameplates to display NEMA nominal efficiency, guaranteed minimum efficiency, full load power factor, and maximum allowable kVAR for power factor correction capacitors.
- D. Anchor Bolts: Provide meeting manufacturer's recommendations and of sufficient size and number for specified seismic condition.

2.16 SPECIAL MOTORS

- A. Requirements in this article take precedence over conflicting features specified elsewhere in this section.
- B. IEEE 841 (Severe-Duty) Motors:
1. In accordance with IEEE 841.
 2. TEFC in accordance with NEMA MG 1.
 3. Suitable for indoor or outdoor installation in severe-duty applications including high humidity, chemical (corrosive), dirty, or salty atmospheres.
 4. Motor Frame, End Shields, Terminal Box, and Fan Cover: Cast iron.
 5. Ventilating Fan: Corrosion-resistant, nonsparking, external.
 6. Drain and Breather Fittings: Stainless steel.
 7. Nameplate: Stainless steel.
 8. Gaskets between terminal box halves and terminal box and motor frame.
 9. Extra slinger on rotor shaft to prevent moisture seepage along shaft into motor.
 10. Double shielded bearings.
 11. 125,000 hours minimum L-10 bearing life for direct-connected loads.

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12. External Finish: Double-coated epoxy enamel.
 13. Coated rotor and stator air gap surfaces.
 14. Insulation System, Windings, and Connections:
 - a. Class F insulation, Class B rise or better at 1.0 service factor.
 - b. Multiple dips and bakes of nonhygroscopic polyester varnish.
 15. Service Factor:
 - a. At 40 Degrees C Ambient: 1.15.
 - b. At 65 Degrees C Ambient: 1.00.
 16. Safe Stall Time Without Injurious Heating: 20 seconds minimum.
- C. Multispeed: Meet requirements for speeds, number of windings, and load torque classification indicated in motor-driven equipment specification.
- D. Inverter Duty Motor:
1. Motor Supplied Power by Adjustable Voltage and Adjustable Frequency Drives: Inverter duty rated in accordance with NEMA Parts 30 and 31.
 2. Provide winding insulation rated 1,600 peak volts, minimum.
 3. Meet or exceed NEMA MG 1 corona inception voltage rating.
 4. Suitable for operation over entire speed range indicated.
 5. Provide forced ventilation where speed ratio is greater than published range for motor provided.
 6. Shaft Grounding Device, Motors Larger than 50 hp: Furnish with shaft grounding brush or conductive micro fiber shaft grounding ring solidly bonded to grounded motor frame in accordance with manufacturer's recommendations.
 - a. Manufacturers:
 - 1) Grounding Brush: Sohre Turbomachinery, Inc or approved equal.
 - 2) Grounding Ring: EST-Aegis or approved equal.

2.17 FACTORY TESTING

- A. Tests:
1. In accordance with IEEE 112 for polyphase motors.
 2. Routine (production) tests in accordance with NEMA MG 1. Test multispeed motors at all speeds.
 3. For energy efficient motors, test efficiency and power factor at 50 percent, 75 percent, and 100 percent of rated horsepower:
 - a. In accordance with IEEE 112, Test Method B, and NEMA MG 1, Paragraph 12.59. and Paragraph 12.60.
 - b. On motors of 100 hp and smaller, furnish certified copy of motor efficiency test report on an identical motor.
 4. Provide test reports for all polyphase motors 50 hp and larger.
- B. Test Report Forms:
1. Routine Tests: IEEE 112, Form A.
 2. Efficiency and power factor by Test Method B, IEEE 112, Form A-2, and NEMA MG 1, Table 12-11.
 3. Temperature Test: IEEE 112, Form A-2.

LFP PRE-CLARIFICATION BASIN REHABILITATION

PART 3 EXECUTION

3.01 INSTALLATION

- A. In accordance with manufacturer's instructions and recommendations.
- B. Align motor carefully and properly with driven equipment.
- C. Secure equipment to mounting surface with anchor bolts.

3.02 MANUFACTURER'S SERVICES

- A. Furnish manufacturer's representative at Site in accordance with Section 01 43 33, Manufacturers' Field Services, for installation assistance, inspection, equipment testing, and startup assistance for motors 40 HP and larger.
- B. Manufacturer's Certificate of Proper Installation.

END OF SECTION

SECTION 44 42 24.01
CIRCULAR CLARIFIER MECHANISM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers the design, manufacture, delivery, site storage, installation support, testing and placement into operation of replacement two clarifier drives including:
 - 1. Drive units
 - 2. Steady bearings
 - 3. Rake squeegees
- B. The Manufacturer shall thoroughly review the conditions of service, mounting arrangements for the replacement gearboxes including baseplate/anchorage and support and shall select equipment suitable for the existing application.
- C. Drive unit supports and mounting arrangements and connections to the support structure shall be designed by the manufacturer and take into account the existing submerged elements. Manufacturer shall submit design drawings and calculations sealed by a currently registered professional engineer in the state of Georgia. The drive unit and motor and mounting support shall allow for removal of the gearbox and motor as one unit. Provide recessed lifting lugs or lug attachment points to allow assembly to be lifted by four points.
- D. Each assembly shall be furnished and installed by a third party Contractor (yet to be appointed) complete with motor, coupling with approved steel guard for connection to the existing shaft and rake assembly. The Contractor shall use proper installation techniques to ensure proper alignment and to prevent damage to the existing equipment. The installation Contractor shall follow the drive unit manufacturer's Installation, Operation and Maintenance Manual for proper storage and installation procedures.

1.2 REFERENCES

- A. The following is a list of standards that may be referenced in this section:
 - 1. American Bearing Manufacturers Association (ABMA).
 - 2. American Gear Manufacturers Association (AGMA):
 - a. 2001, Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth.
 - b. 2004, Gear Materials, Heat Treatment and Processing Manual.
 - c. 6022, Design Manual for Cylindrical Wormgearing.

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- d. 6034, Practice for Enclosed Cylindrical Wormgear Speed Reducers and Gearmotors.
 - e. 9005, Industrial Gear Lubrication.
 3. American Institute of Steel Construction (AISC).
 4. American Iron and Steel Institute (AISI).
 5. American Society of Mechanical Engineers (ASME): B29.100, Precision Power Transmission, Double-Pitch Power Transmission, and Double-Pitch Conveyor Roller Chains, Attachments, and Sprockets.
 6. American Water Works Association (AWWA): C200, Steel Water Pipe – 6 In. (150 mm) and Larger.
 7. American Welding Society (AWS):
 - a. D1.1/D1.1M, Structural Welding Code – Steel.
 - b. QC 1, Standard for AWS Certification of Welding Inspectors.
 8. ASTM International (ASTM):
 - a. A36/A36M, Standard Specification for Carbon Structural Steel.
 - b. A48/A48M, Standard Specification for Gray Iron Castings.
 - c. A148/A148M, Standard Specification for Steel Castings, High Strength, for Structural Purposes.
 - d. A283/A283M, Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
 - e. A285/A285M, Standard Specification for Pressure Vessel Plates, Carbon Steel, Low- and Intermediate-Tensile Strength.
 - f. A536, Standard Specification for Ductile Iron Castings.
 9. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
 - b. MG 1, Motors and Generators.
 10. The Society for Protective Coatings (SSPC): SP 7, Brush-off Blast Cleaning.
 11. Underwriters Laboratories, Inc. (UL): 674, Standard for Safety, Electric Motors and Generators for Use in Hazardous (Classified) Locations.

1.3 SUBMITTALS

- A. Action Submittals:
 1. Shop Drawings:
 - a. Product Data: Make, model, weight, and horsepower.
 - 1) Descriptive literature, specifications, dimensional layout, identification of materials of construction, and specialized equipment assembly cuts.
 - 2) Painting/Coating System(s): Manufacturer’s descriptive technical catalog literature and specifications.
 - 3) Seismic anchorage and bracing data sheets and drawings as required by Section 01 88 15, Anchorage and Bracing.
 - b. Detailed Drawings:

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- 1) Structural, mechanical, and electrical showing equipment fabrications and interface with other items including dimensions, size, and locations of connections to other work, and weights of associated equipment.
 - 2) Diameter of ball race.
 - c. Design Details:
 - 1) Running, Alarm, Cutout, and Ultimate Torque ratings of drive unit assembly.
 - 2) Ultimate Torque load capabilities of drive unit assembly.
 - d. Structural Loads: Static, dynamic, and torque reaction loads to be transferred into existing steel equipment support structure.
 - e. Details of torque sensing and load indication device.
 - f. External utility requirements such as air, water, power, and drain for each component.
 - g. Functional description of internal and external instrumentation and controls to be supplied, including list of parameters monitored, controlled, or alarmed.
 - h. Power and control wiring diagrams, including terminals and numbers.
- B. Informational Submittals:
1. Designer's qualifications.
 2. Seismic anchorage and bracing calculations as required by Section 01 88 15, Anchorage and Bracing.
 3. Certificates:
 - a. Manufacturer's Certificate of Compliance for installation following assistance and inspections services provided to the installation Contractor.
 4. Special shipping, storage and protection, and handling instructions.
 5. Test procedures.
 6. Test results, reports, and certifications.
 7. Operation and Maintenance Data: As specified in Section 01 78 23, Operation and Maintenance Data.
 8. Manufacturer's Certificate of Proper Installation, in accordance with Section 01 43 33, Manufacturers Field Services for installation following assistance and inspections services provided to the installation Contractor.

1.4 EXTRA MATERIALS

- A. Furnish, tag, and box for shipment and storage the following spare parts and special tools:

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Item	Quantity
Gaskets, O-rings, keys, dowels, and pins	One complete set per unit
Shear pins of each different size	Six
Lubricants	As required for 1 year of continuous operation; locally obtained per manufacturer's listing of approved lubricants

- B. Delivery: Deliver to Lanier Filter Plant Warehouse.
- C. Equipment Identification Plates: Provide 16 gauge stainless steel identification plate securely mounted on each separate equipment components in a readily visible location. Plate shall bear 3.8 inch high engraved block type black enamel filled equipment identification number and letters.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Materials, equipment, and accessories specified in this section shall be products of:
 - 1. US Filter/Envirex
 - 2. Eimco Water Technologies (EWT)/Ovivo.
 - 3. Or approved equal.

2.2 SERVICE CONDITIONS

- A. Material Handled: Dual Media filter backwash water with a solids concentration between 1 % and 4% from Lake Lanier Raw Water.
- B. Influent Liquid Temperature Range: 35 degrees F minimum to 85 degrees F maximum.
- C. Influent pH Range 7.0 minimum to 7.5 maximum.
- D. Site Conditions:
 - 1. In addition, design shall accommodate the following site conditions:
 - a. Exposure: Ultraviolet radiation of sun.
 - b. Ambient Temperature Range: Minimum -20 degrees F to 100 degrees F, maximum.
 - c. Ambient Humidity Range: Minimum 10 percent to 98 percent relative humidity.

LFP PRE-CLARIFICATION BASIN REHABILITATION

2.3 MANUFACTURED UNITS

A. Performance Requirements:

1. Collect and convey settled solids/sludge to center solids hopper.
2. Operate satisfactorily under the following conditions:

	Design Flow Rates Per Basin			
	Minimum	Average	Normal Maximum	Peak Instantaneous
Flow Rate from EQ Basin Pumps (mgd)	1	3.5	8	5,550 gpm

2.4 SLUDGE REMOVAL EQUIPMENT

A. Sludge Removal Equipment: Motor and drive, overload protection, and alarms; capable of continuous operation without overheating and without excessive vibration or noise.

1. Design Criteria:

- a. Continuous Output Torque Rating: 20,000 foot-pounds, minimum, with scraper arms rotating.
- b. Peripheral Speed: Match existing equipment.
- c. Design for continuous 24-hour service under design loads, including continuous output rated torque load, without excessive wear, damage, or failure.
- d. Design Stresses: Not to exceed stresses allowed under AISC 360.
- e. Safety Factor: 2.5.

B. Sludge Scraper Mechanism:

1. Squeegees

- a. Stainless steel, 1/8 inch thick.
- b. Attachment to Arms: Stainless steel bolts and nuts with provision for vertical adjustment of not less than 2 inches.

2.5 DRIVE ASSEMBLIES

A. Drive Assemblies: Turntable, turntable bearing assembly, turntable base, motor and drive assembly, with appropriate gearing and bearings.

1. Design for all radial and axial loads imposed by drive assembly and components supported, to permit sustained operation at continuous output torque rating without excessive wear, and to develop twice continuous output torque rating without damage to or failure of drive assembly components.

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2. Arrange component parts to permit replacement of motor, drive, bearings, bearing raceways, and complete bearing units.
 3. Turntable cast integrally with spur gear or fastened to spur gear with machine screws or bolts.
 4. Turntable and Turntable Base: Cast iron, nodular cast iron, or steel; of sufficient thickness to provide rigidity necessary to maintain alignment of sludge collector assembly.
 5. Bearing Raceway Material: Rockwell "C" hardness of not less than 58.
 6. Fully enclose gearing in cast iron or fabricated steel housings provided with dust and oil seals.
 7. Machine-mate surfaces of turntable and intermediate gear reducer housing in such manner and to such tolerances that accurate alignment of pinion is ensured.
- B. Bearings: Ball or roller bearings, either oil lubricated or grease lubricated.
1. Life Expectancy: Load rating and fatigue life based on ABMA STD 9 and ABMA STD 11, as applicable, when clarifier mechanism is operating continuously at specified torque rating.
 - a. Worm and Primary Helical Gearbox: L10 of 100,000 hours.
 - b. Gearmotor, Direct Drive: L10 of 100,000 hours.
 - c. Spur and Intermediate Helical Gearbox: L10 of 17,000 hours.
 - d. Gearmotor, Indirect Drive: L10 of 17,000 hours.
- C. Motor: Constant speed, totally-enclosed, fan-cooled, horizontal type, suitable for outdoor service; complying with NEMA MG 1; protected against overload, low voltage, and unbalanced voltage.
1. Drive Configuration: Close-coupled to or on input shaft of primary speed reducer, or driving speed reducer by a belt/chain drive.
 2. Torque: Sufficient to move sludge collector rake assembly from dead stop in dewatered tank and to move it from dead stop under specified continuous output loading, without overloading.
 3. Capacity: Adequate to drive sludge collector assembly continuously at maximum load encountered under any operating condition without overloading or exceeding nameplate rating of motor.
 4. Close-Coupled Motors: Provide flexible coupling between motor shaft and speed reducer.
 5. Flexible Couplings: AGMA 9002 and AGMA 9000.
 6. Belt/Chain Drive: Motor position adjustable to increase or decrease belt/chain tension.
- D. Speed Reduction and Turntable Gearing: All component parts designed to permit sustained operation at continuous output torque rating for life expectancy specified without excessive wear and to develop twice continuous output torque without damage to or failure of any component part.

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1. All Gears: Certified as meeting specified quality.
 2. Service Factor: As recommended in AGMA 6013, AGMA 6113, or AGMA 6034, when drive is operating at full load motor rating capacity, 24 hours a day continuous running.
 3. Loadings: Design to withstand any loadings produced by thrust, out-of-balance, and vibration resulting from operating conditions and to operate from zero rpm to speed consistent with the specified maximum peripheral speed.
 4. Turntable Gearing: Worm gear reduction unit or pinion-and-spur-gear reduction unit.
 - a. Quality: Not less than AGMA Quality 6, AGMA ISO 10064-6, AGMA ISO 17485, AGMA 2011.
 5. Speed Reduction Gearing: Worm or helical or a combination thereof.
 - a. Quality: Comply with applicable requirements of AGMA 908, AGMA ISO 10064-6, AGMA ISO 17485, AGMA 2011, AGMA 6034, and AGMA 2015/915-1; not less than AGMA Quality 10, AGMA 2015/915-1, AGMA ISO 10064-6, AGMA ISO 17485, AGMA 201:I, and AGMA 6113 or AGMA 6013.
 6. Worm Gears: Cast bronze; or cast steel or nodular cast iron with bronze rim; worms of hardened ground alloy steel or high-test heat-treated nodular cast iron.
 7. Helical Gears: Cast or forged alloy steel, with helical angle not exceeding 18 degrees.
 8. Spur Gear: Internal or external; cast iron, nodular cast iron, heat treated cast alloy steel, or heat-treated forged steel; with endurance and strength rating of 1,000,000 cycles and teeth hardened by through-hardening, contour-induction-hardening, nitriding, or carburizing processes, but not flame-hardened.
 9. Shafts, Bolting, and Keys for Gears: AGMA 6001; structural steel shafts.
 10. Speed Reduction Gearing Lubrication: Provide oil or grease lubrication system.
 - a. When using bath lubrication using oil seals for containment or lubrication systems which rely upon an oil circulating pump, provide means to stop drive motor in event of insufficient lubrication.
 - b. Pressure indicating devices influenced by oil sludge or changes in oil viscosity are not acceptable.
- E. Motor Drives:
1. Shear-Pin Hub: Connect drive gear on output shaft of primary speed reducer to shaft by a shear-pin hub arrangement designed to protect motor against overload, designed so that it will not bind or freeze into position; bronze bushing with grease lubrication.
 2. Machinery Guards: Steel; weatherproof.

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- F. Gearmotor:
 - 1. Motor Component: As specified in paragraph entitled "Motor."
 - 2. Speed Reducing Component: Complying with applicable requirements specified in paragraph entitled "Speed Reduction and Turntable Gearing," and in AGMA 6113, AGMA 6013, and AGMA 6034.
- G. Lubrication Fittings: Provide adequate means for lubrication of bearings and other moving parts, by grease or oil as suitable.
 - 1. Greased Bearings: Provide fittings suitable for grease gun service, of type that prevents over lubrication and build-up of pressure injurious to the bearings; where grease fittings would not be easily accessible, provide grease tubing to a convenient location.
 - 2. Oil Lubrication: Oil reservoir liberal in size, with opening for filling, overflow opening at proper location to prevent overfilling, oil-level sight glass, and drain at lowest point.
- H. Key Mounted Connections: Where connections between shafts and sprockets, gears, pulleys, and other component parts are specified to be key mounted, provide keys and keyways complying with ASME B17.1 or ASME B17.2.

2.6 STEADY BEARINGS

- A. Provide replacement upper and lower steady bearings in kind with existing.

2.7 CENTER DRIVE UNIT ASSEMBLY

- A. Ultimate Torque Rating: Not less than 2.0 times Design Running Torque.
- B. Electric Drive Motor: In accordance with Section 26 20 00, Low-Voltage AC Induction Motors.
- C. Primary Speed Reducer:
 - 1. Horizontally mounted cylindrical-worm or helical-worm gear motor type with gears supported by antifriction bearings. Connect to secondary speed reducer via chain drive system with drive sprocket directly mounted on its output shaft.
 - 2. AGMA 6034.
 - 3. Service Factor: Minimum 1.25 applied to the input horsepower of the speed reducer when the Center Drive Unit is operating at the Design Running Torque specified herein.
 - 4. Overhung Load Rating: Exceed chain pull by minimum 1.75 based upon Ultimate Torque.
 - 5. Oil Fill, Drain and Level Indicator Devices, and Lubricant: AGMA 9005.
 - 6. Roller Chain: Standard, ASME B29.100.

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7. Connect drive sprocket on primary speed reducer to driven sprocket on secondary speed reducer input shaft.
 8. Steel Sprockets: Minimum of 12 teeth.
 9. Chain:
 - a. Service Factor: Minimum 1.0.
 - b. Power Transmission Rating: 1.75 times input Hp of chain drive when center drive unit is operating at specified Ultimate Torque.
- D. Secondary Speed Reducer:
1. Cylindrical-Worm and Worm-Gear Type: Shafts supported by antifriction bearings and output shaft directly driving pinion gear of low speed main bearing assembly.
 2. Load Capacity and Torque Rating: AGMA 6034.
 3. Design: AGMA 6022.
 4. Service Factor: Minimum 1.25 applied to input Hp of speed reducer when center drive unit is operating at specified Design Running Torque.
 5. Output Shaft: One-piece output extending through worm-gear and low speed main gear drive pinion without intermediate couplings.
 6. Worm: Steel, heat treated, AGMA 2004, ground and polished.
 7. Worm-Gear: Centrifugally cast, high silicon bronze copper alloy, or ductile iron.
 8. Bearings: ABMA L-10, life of 180,000 hours minimum.
 9. Oil Fill, Drain and Level Indicator Devices, and Lubricant: AGMA 9005.
 10. Enclosure: ASTM A48/A48M, Class 40 minimum housing, and registered fit mounted to gear head drive platform.
- E. Low Speed Final Reduction Unit:
1. Enclosed turntable, balls in main bearing annular radial thrust raceway type, balls in compression and renewable strip liners or continuous multipoint contact contoured raceway type with hardened surfaces and balls in shear (precision bearing).
- F. Ring Gear: Internal toothed, spur pinion gear driven, attached to secondary speed reducer output shaft.
1. Low Speed Gearset:
 - a. Designed and Rated: AGMA 2001.
 - b. Power Rating:
 - 1) Lower of pitting resistance and bending strength ratings for pinion and gears.
 - 2) Based upon continuous 24 hours per day service at Design Running Torque for 180,000 hours minimum.
 - 3) Include the ability to withstand, without failure or permanent deformation, the Ultimate Torque Rating.

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- c. Spur Pinion Gear:
 - 1) Steel: Heat treated; integral with or keyed to its shaft.
 - 2) Wall Thickness (Above Keyway): Minimum depth of one tooth.
 - d. Ring Gear:
 - 1) Solid one-piece or split construction of ductile (nodular) iron (ASTM A536), cast steel (ASTM A148/A148M), or heat-treated alloy steel.
 - 2) Split Gear Construction:
 - a) Machined, minimum two alignment dowels, joined with high strength galvanized steel bolts.
 - b) Allowable Stresses (Calculated): Reduced to 85 percent joint efficiency for split gear construction.
 - 3) Bolt to center torque cage that supports and rotates collection mechanism.
 - e. Teeth: Full-depth, AGMA 2001; stub-pitch and undercut gear teeth not acceptable.
2. Main Bearing:
- a. Ball Raceway low unit ball load and stability without guide shoes or steady bearings.
 - b. Raceways and Balls: ABMA L-10 life of minimum 180,000 hours when operating continuously at Design Running Torque.
 - c. Load Carrying Balls:
 - 1) Steel: Chrome alloy, hardened to 60-65 Rockwell C.
 - 2) Crushing Strength: Minimum 120,000pounds.
 - d. Spacer Balls (if required): 1/16 inch lesser diameter than, and of same material as, load carrying balls.
 - e. Balls: Field replaceable without access walkway removal.
 - 1) Deep grooved, fully contoured design, match bearing balls. Heat-treated steel, minimum tensile strength of 120,000 psi, hardness of 250-300 Brinell, and surfaces heat treated to 55-60 Rockwell C.
3. Ring Gear, Pinion Gear, and Main Bearing Ball Races:
- a. Oil bathed and steel dust shield and felt seal protected.
 - b. Oil Fill, Drain and Level Indicator Devices, and Lubricant: AGMA 9005.
 - c. Casing with manual condensate drain.
4. Oil filling and level pipe, drain plug, and sight gauge. Attach pipe to turntable bottom within base center for easy access.
- G. Turntable Base and Housing:
- 1. Bolt to center column, support entire rotating collector mechanism, transmit mechanical design strengths, support main bearing assembly,

LFP PRE-CLARIFICATION BASIN REHABILITATION

and one end of access walkway, and form center platform for convenient access to drive unit components.

2. Cast Iron: Grey, ASTM A48/A48M, Class 40 minimum or Steel: ASTM A36/A36M, 3/8 inch thick.

H. Mechanism Overload Device:

1. Mechanical or Hydraulic: Actuate integral contacts to indicate impending overload and shutoff drive motor at predetermined loads.
2. Impending Overload Contact (Alarm Torque): Actuate at 100 percent of Design Running Torque.
3. Motor Shutdown Contact (Cutout Torque): Actuate at 110 percent of Design Running Torque.
4. Contacts: Single-pole, double-throw rated 5 amps, 120V ac.
5. Enclosure: NEMA 250, Type 4X, Type 316 stainless steel or cast aluminum.
6. Indicating Pointer: Indicate relative load on graduated scale up to Ultimate Torque.
7. Provide shear pin device or backup motor cutout switch to protect drive unit in case of control system failure.
8. Contacts shall be wired to existing local control panel.

I. Squeegees:

1. Materials: 20-gauge Type 304 stainless steel.
2. Attached to stainless steel sludge scraper blades.
3. Bolts, Nuts and Washers: Type 316 stainless steel.
4. Vertical Alignment: Between 1/4-inch minimum and 3/4-inch maximum clearance above grouted clarifier bottom.

2.8 INSTRUMENTATION AND CONTROLS

A. INSTRUMENTATION

1. High torque alarm switch.
2. High-high torque shutdown switch.

2.9 DISSIMILAR METALS

A. Isolate dissimilar metals or connectors to prevent direct contact and electrical conductivity.

1. Use 1/8-inch-thick continuous neoprene gaskets or insulating washer and Teflon sleeves at bolted connections.

2.10 ACCESSORIES

A. Anchor Bolts: Provide coated Type 316 stainless steel bolts sized by equipment manufacturer to fit into existing unit mounting arrangement.

LFP PRE-CLARIFICATION BASIN REHABILITATION

PART 3 EXECUTION

3.1 INSTALLATION

- A. In accordance with manufacturer's written instructions.

3.2 FIELD FINISHING

- A. Provide coating materials to the installation Contractor to enable touch up of any damaged coatings on metal surfaces of motors, gear reducers, assemblies, using same coating as was factory applied.

3.3 FIELD QUALITY CONTROL

- A. Functional Tests:
 - 1. Conduct on each mechanism.
 - 2. Operate Mechanism: For continuous 1-hour period without malfunction.
- B. Performance Test:
 - 1. Conduct on each completed assembly in accordance with accepted test procedures.
 - 2. Coordinate and assist installation Contractor in conducting a static torque test on the drive unit:
 - a. With the clarifier drive shut off, connect a load measurement device to each rake arm at a specific radial distance from the center using nylon straps, and attach the other end of each of the two loading assemblies to a temporary anchor installed in either the clarifier wall or floor.
 - b. Apply a load to the rake arm by tightening both assemblies using a come-along or similar device. Both arms shall be loaded simultaneously.
 - c. Convert loadings as read on the load measurement devices to torque using the following formula (which assumes both arms are loaded simultaneously):

$$T = P_1 * D_1 + P_2 * D_2$$

Where:

T = torque, ft-lb

P1, P2= Load applied at each connection point, lb
(should be equal)

D1, D2= Radial distances on rake arms to attachment points
(should be equal)

LFP PRE-CLARIFICATION BASIN REHABILITATION

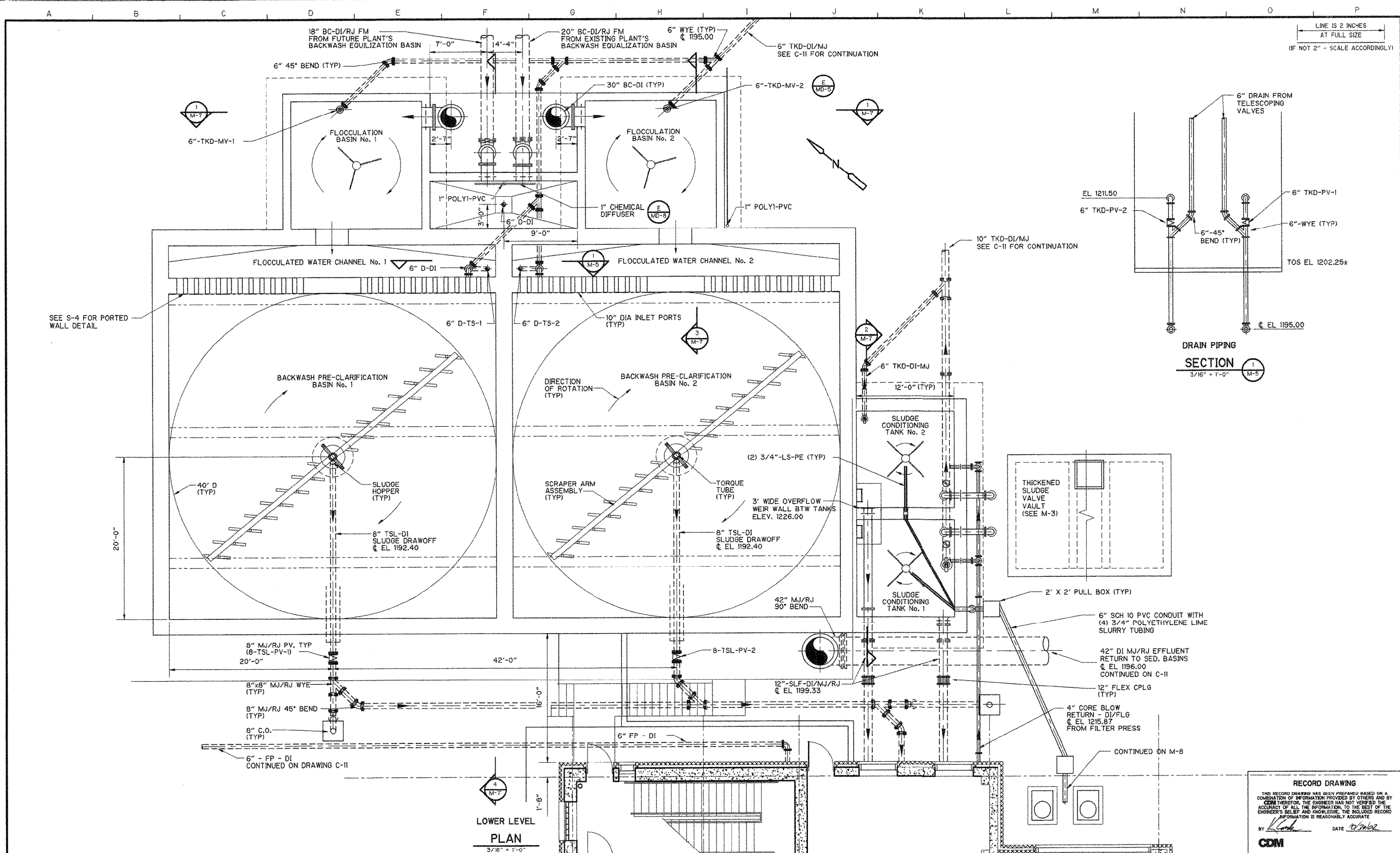
- d. Set the alarm and cutout torque switches at the corresponding back-calculated loadings, and measure the clarifier mechanism deflection against the specified limits.
 - e. If mechanism deflection exceeds specified limits, structurally modify in the field as necessary to meet limits. Submit modification approach to Engineer for approval prior to implementation. Field weld and repair coatings shall be in accordance with this Specification.
3. Record scale indications and/or mark scale for alarm and cutout torques.
 4. Submit test report containing results.
 5. Replace shear pins after torque testing is completed.
 6. Manufacturer may suggest alternate testing procedure, subject to Engineer's approval.

3.4 MANUFACTURER'S SERVICES

- A. See scope of work bid table, Section 01 43 33, Manufacturers' Field Services Section 01 91 14 and Equipment Testing and Facility Startup.

END OF SECTION

Attachment 1: Existing Pre-Clarification Basin Record Drawings (3#) and Photographs



RECORD DRAWING
 THIS RECORD DRAWING HAS BEEN PREPARED BASED ON A COMBINATION OF INFORMATION PROVIDED BY OTHERS AND BY CDM THEREFORE, THE ENGINEER HAS NOT VERIFIED THE ACCURACY OF ALL THE INFORMATION. TO THE BEST OF THE ENGINEER'S BELIEF AND KNOWLEDGE, THE INCLUDED RECORD INFORMATION IS REASONABLY ACCURATE.
 BY: *[Signature]* DATE: 10/20/02
CDM

REV. NO.	DATE	DRWN	CHKD	REMARKS
08/02	JMJ	FAM		RECORD DRAWING
8/10/00	TMM	FAM		CONFORMED DRAWINGS
7/21/00	TMM	FAM		ADDENDUM NO. 2
7/18/00	TMM	FAM		ADDENDUM NO. 1

DESIGNED BY: S. HARDY
 DRAWN BY: MJM/TMM
 SHEET CHK'D BY: S. HARDY
 CROSS CHK'D BY: K. COMSTOCK
 APPROVED BY: K. COMSTOCK
 DATE: AUGUST 2000

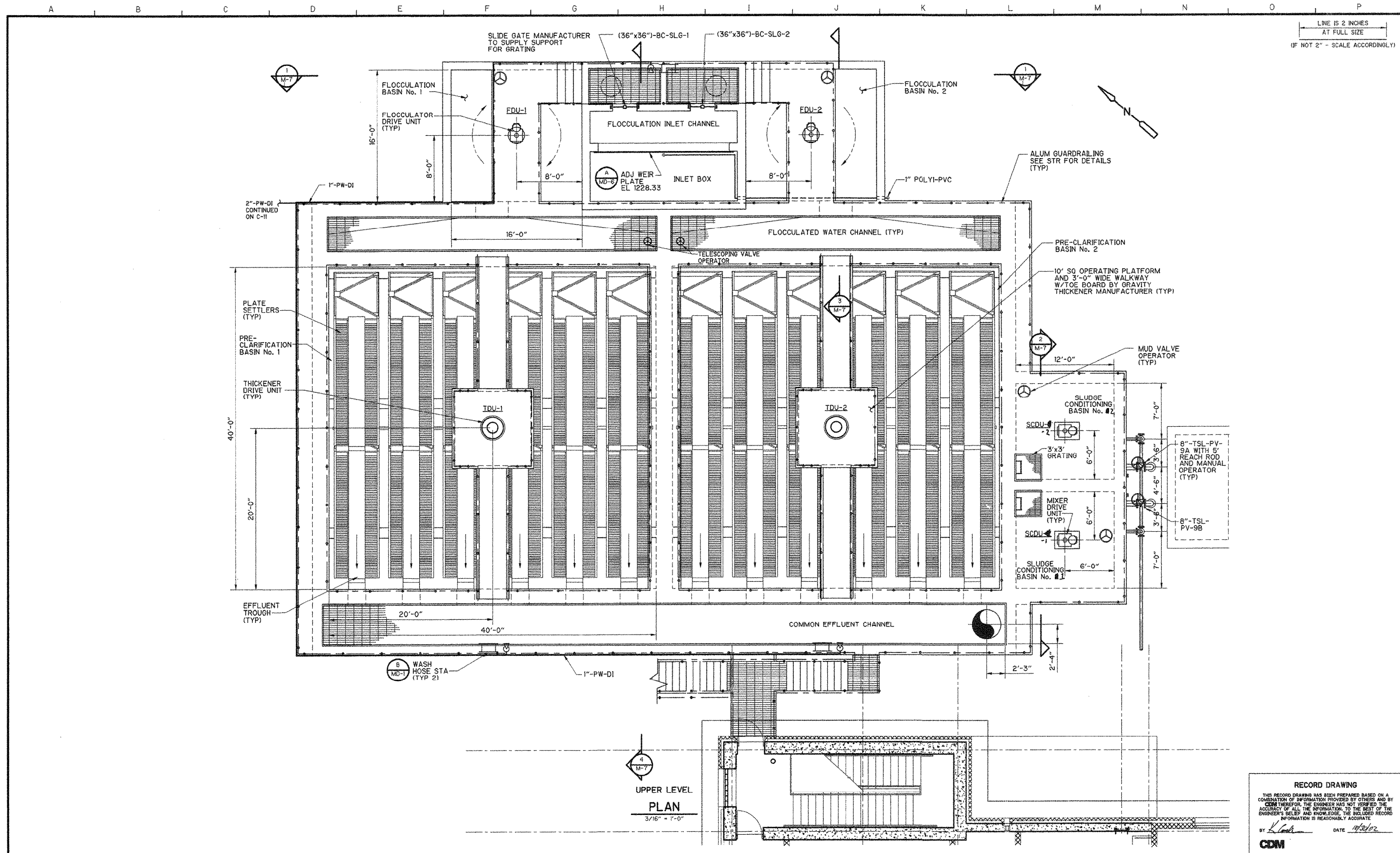
CDM Camp Dresser & McKee Inc.
consulting engineering construction operators

GWINNETT COUNTY DEPARTMENT OF PUBLIC UTILITIES
LANIER FILTER PLANT RESIDUALS HANDLING FACILITY, CHLORINE SYSTEM, AND CLEARWELL IMPROVEMENTS

BACKWASH PRE-CLARIFICATION LOWER LEVEL PLAN

PROJECT NO. 6150-27908
 FILE NAME: 27908M05.dwg
 SHEET NO. **M-5**

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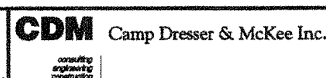
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UPPER LEVEL
PLAN
3/16" = 1'-0"

RECORD DRAWING
 THIS RECORD DRAWING HAS BEEN PREPARED BASED ON A COMBINATION OF INFORMATION PROVIDED BY OTHERS AND BY CDM THEREFOR. THE ENGINEER HAS NOT VERIFIED THE ACCURACY OF ALL THE INFORMATION. TO THE BEST OF THE ENGINEER'S BELIEF AND KNOWLEDGE, THE INCLUDED RECORD INFORMATION IS REASONABLY ACCURATE.
 BY: *[Signature]* DATE: 11/20/02
CDM

REV. NO.	DATE	DRWN	CHKD	REMARKS
08/02	JMJ	FAM		RECORD DRAWING
8/10/00	TMM	FAM		CONFORMED DRAWINGS

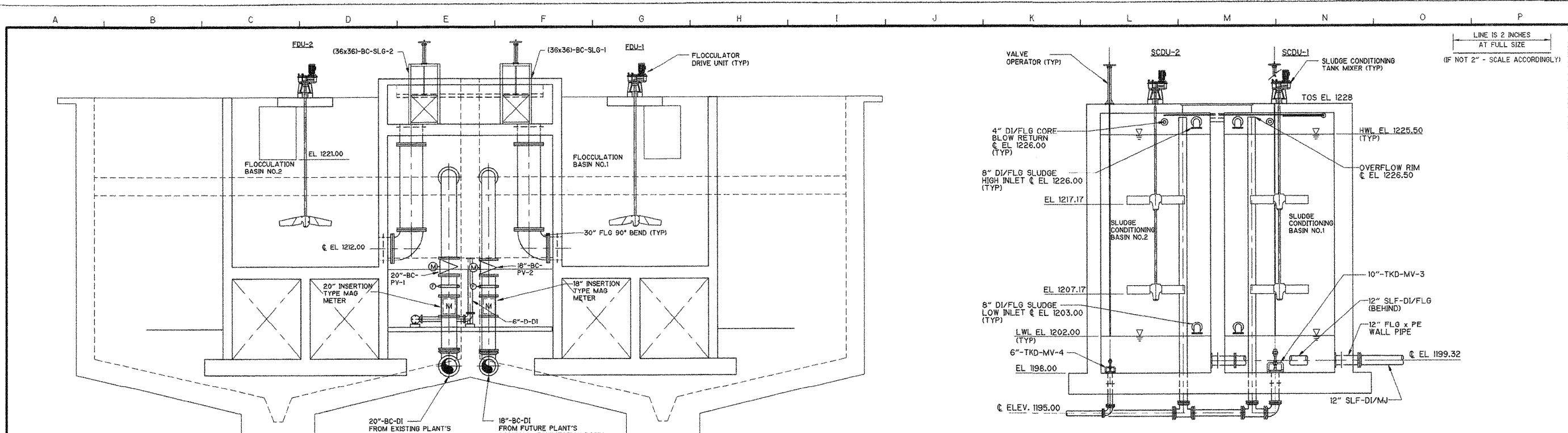
DESIGNED BY: S. HARDY
 DRAWN BY: T. MORGAN
 SHEET CHK'D BY: S. HARDY
 CROSS CHK'D BY: K. COMSTOCK
 APPROVED BY: K. COMSTOCK
 DATE: AUGUST 2000



GWINNETT COUNTY DEPARTMENT OF PUBLIC UTILITIES
**LANIER FILTER PLANT RESIDUALS HANDLING FACILITY,
 CHLORINE SYSTEM, AND CLEARWELL IMPROVEMENTS**

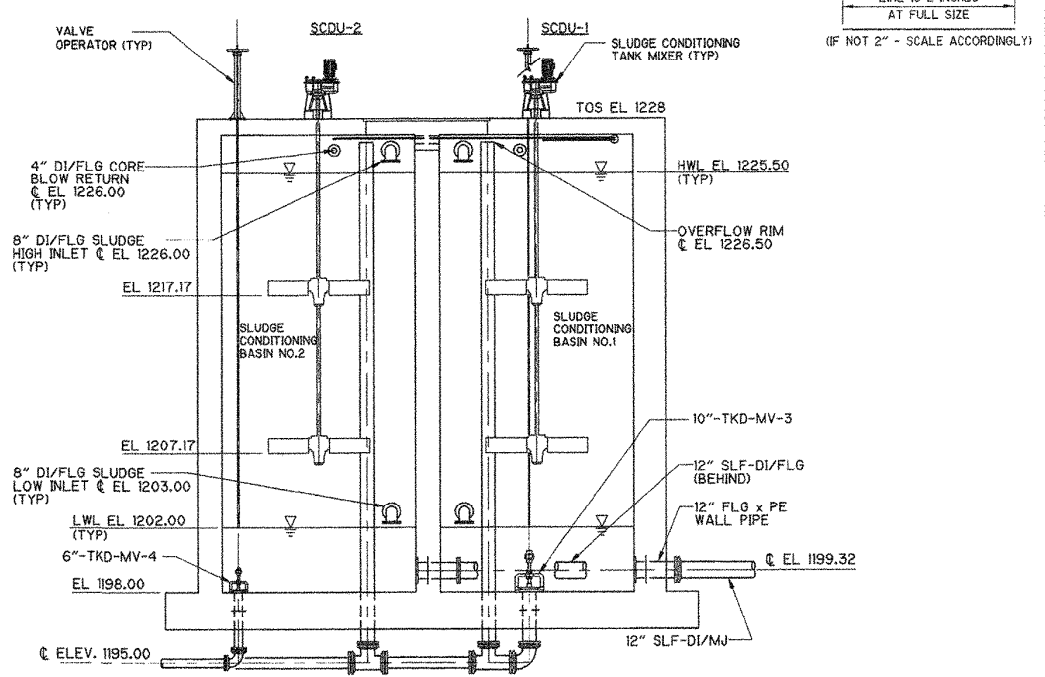
**BACKWASH PRE-CLARIFICATION
 UPPER LEVEL PLAN**

PROJECT NO. 6150-27308
 FILE NAME: 27908M06.dwg
 SHEET NO.
M-6



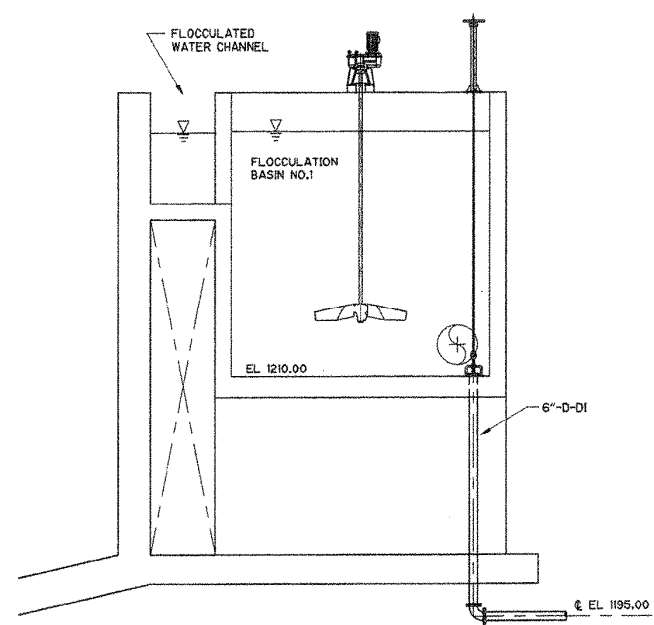
PRE-CLARIFICATION INLET PIPING AND FLOCCULATION BASINS

SECTION 1
3/16" = 1'-0" M-5.6



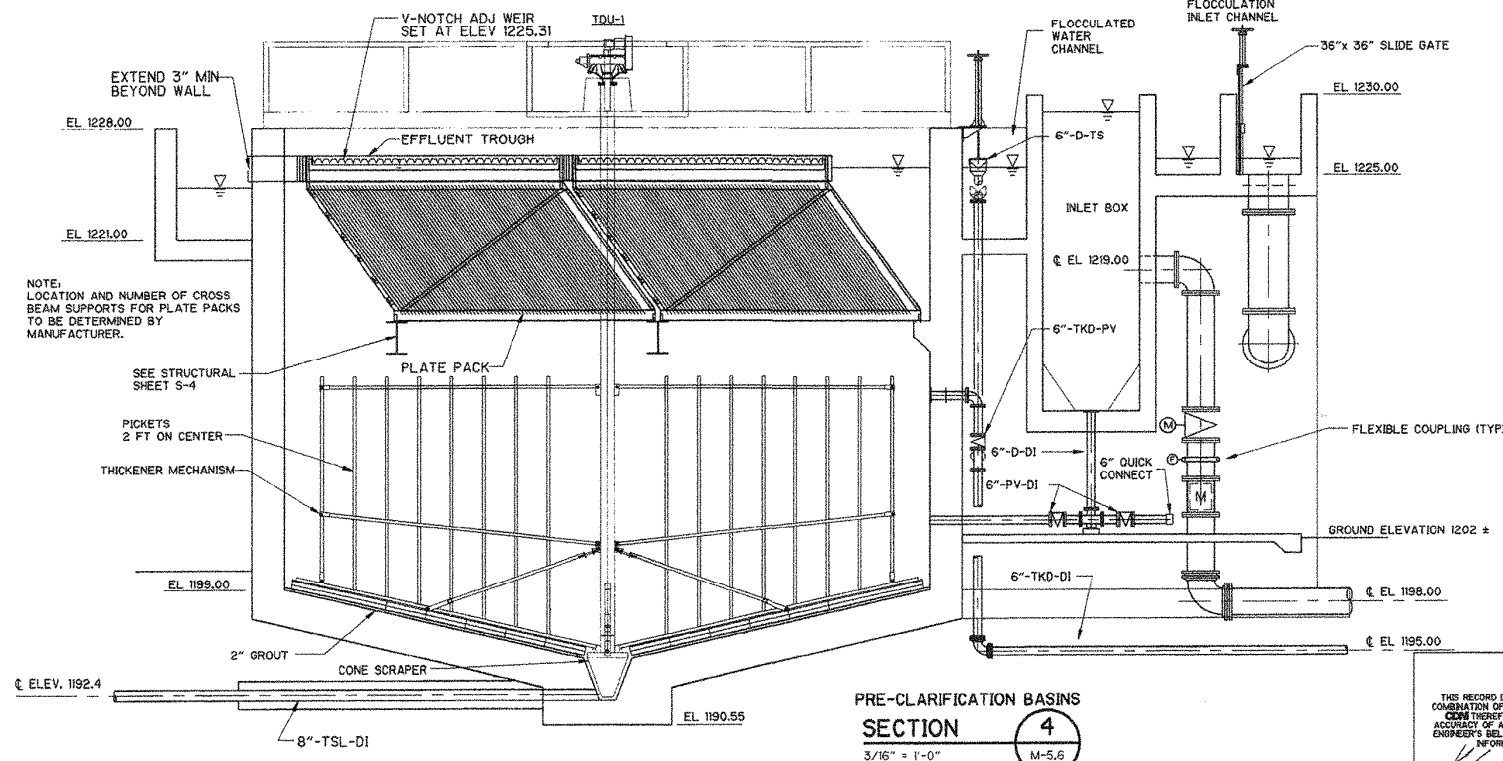
SLUDGE CONDITIONING TANKS

SECTION 2
3/16" = 1'-0" M-5.6



FLOCCULATION BASIN AND INLET PIPING

SECTION 3
3/16" = 1'-0" M-5.6



PRE-CLARIFICATION BASINS

SECTION 4
3/16" = 1'-0" M-5.6

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED BASED ON A COMBINATION OF INFORMATION PROVIDED BY OTHERS AND BY CDM THEREFOR. THE ENGINEER HAS NOT VERIFIED THE ACCURACY OF ALL THE INFORMATION. TO THE BEST OF THE ENGINEER'S BELIEF AND KNOWLEDGE, THE INCLUDED RECORD INFORMATION IS REASONABLY ACCURATE.
BY: [Signature] DATE: 8/11/00
CDM

REV. NO.	DATE	DRWN	CHKD	REMARKS
08/02	JMJ	FAM		RECORD DRAWING
8/10/00	TMM	FAM		CONFORMED DRAWINGS

DESIGNED BY: S. HARDY
DRAWN BY: TMM
SHEET CHK'D BY: L. THURN
CROSS CHK'D BY: KKC
APPROVED BY: K. COMSTOCK
DATE: AUGUST 2000

CDM Camp Dresser & McKee Inc.

GWINNETT COUNTY DEPARTMENT OF PUBLIC UTILITIES
LANIER FILTER PLANT RESIDUALS HANDLING FACILITY,
CHLORINE SYSTEM, AND CLEARWELL IMPROVEMENTS

BACKWASH PRE-CLARIFICATION SECTIONS

PROJECT NO. 6150-27908
FILE NAME: 27908M07.dwg
SHEET NO. M-7

S:\25869RD\6150-27908\dwg\M-7\25869RD.dwg 08/11/00 10:42:24 0.86/1



Photograph 1: Existing Drive Unit



Photograph 2: Existing Drive Unit and Torque Tube



Photograph 3 – Pre-Clarification Basin Rake and Squeegees



Photograph 4 – Pre-Clarification Basin Rake and Squeegees



Photograph 5: Pre-Clarification Basin Torque Tube



Photograph 6: Equipment Name Plate

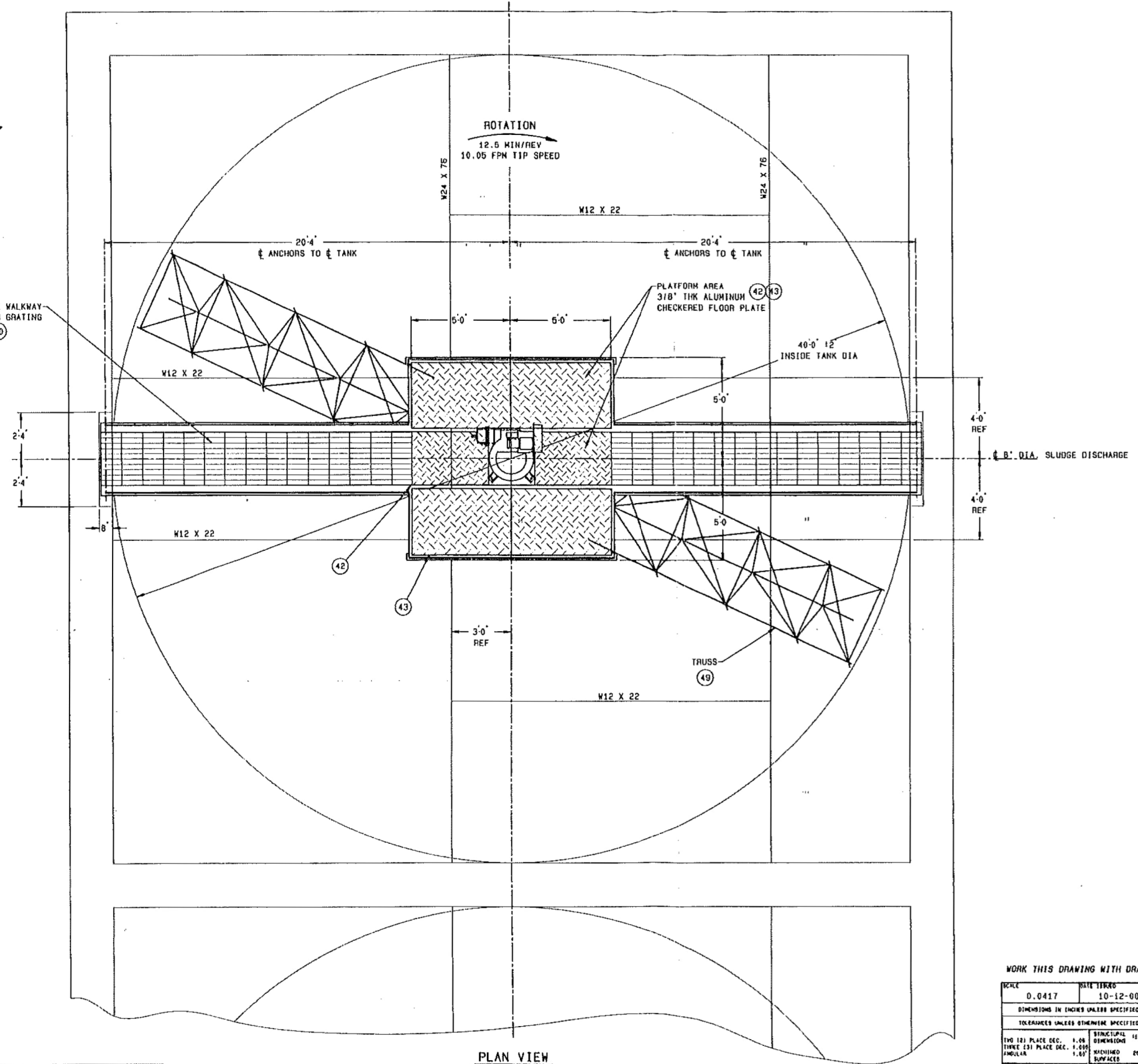
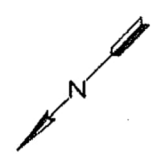


Photograph 7: Drive Unit Name Plate



Photograph 8: Drive Unit Motor Name Plate

Attachment 2: US Filter Shop Drawings (9#)



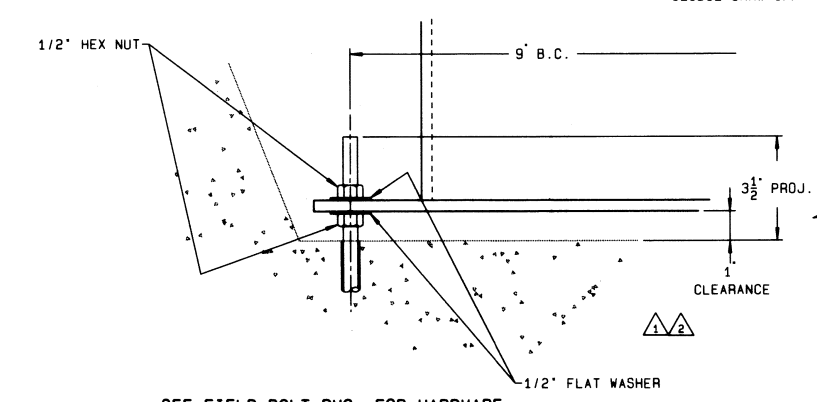
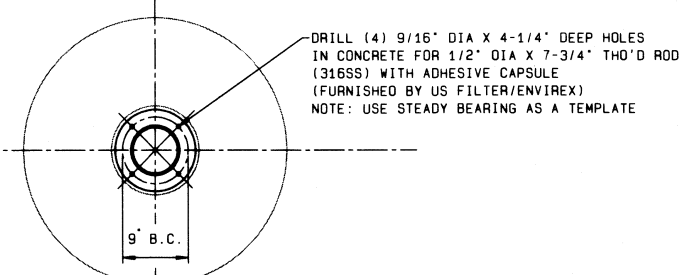
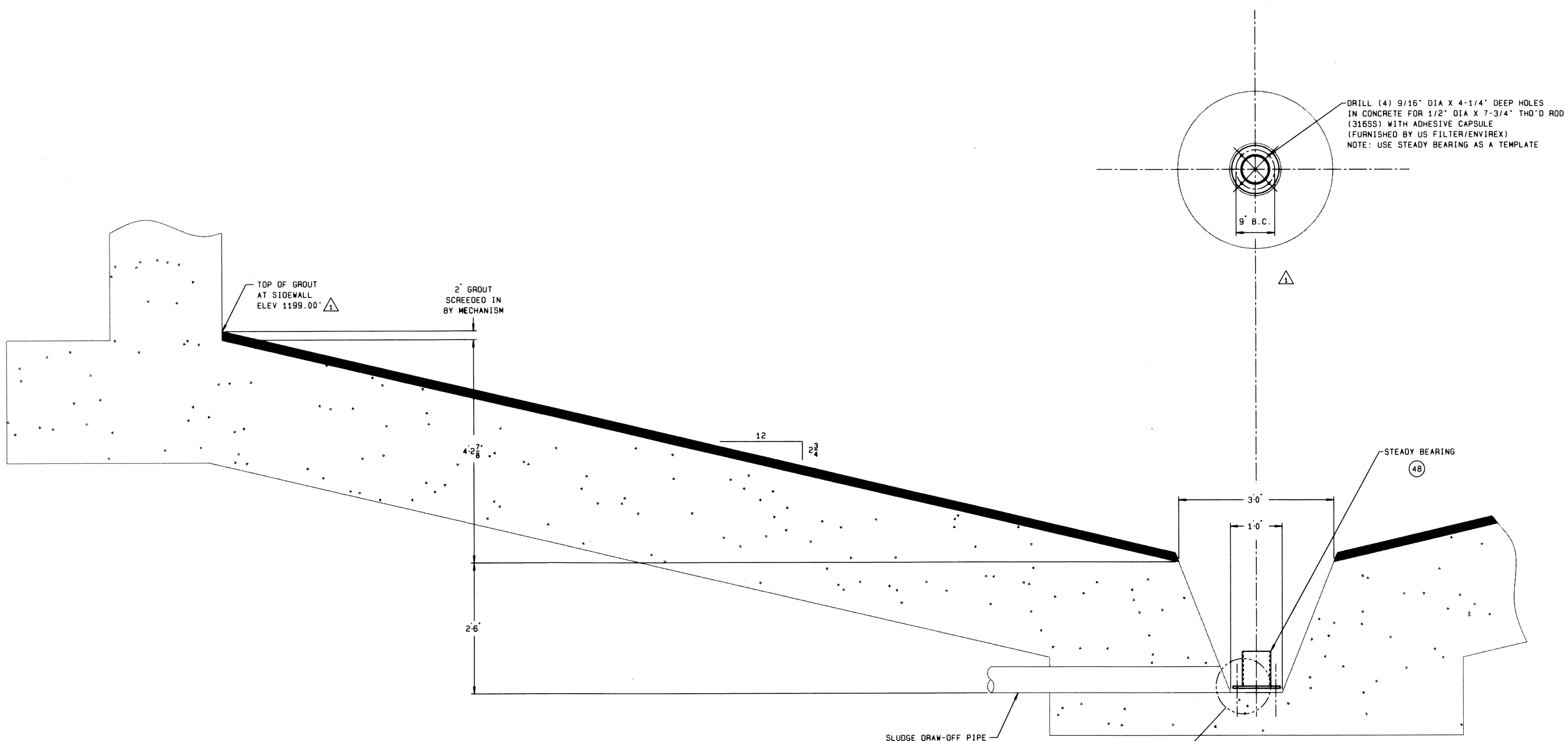
PLAN VIEW

WORK THIS DRAWING WITH DRAWINGS 19176-101-1, 102, 103, 104 & 105 SPECIFICATION SECTION 11364

SCALE 0.0417	DATE TITLED 10-12-00	CUSTOMER USF/ZINPRO	TITLE
DIMENSIONS IN INCHES UNLESS SPECIFIED		LOCATION GWINNETT COUNTY, GA.	(2) 40'-0" DIA. GRAVITY THICKENER, F25HT DRIVE ASSEMBLY FOR BACKWASH PRE-CLARIFICATION BASINS
TOLERANCES UNLESS OTHERWISE SPECIFIED		ENGINEER COM	
TWO (2) PLACE DEC. 1.00	STRUCTURAL DIMENSIONS 1/16	 USFilter Envirox Products Waukesha, WI 800-524-8324	
THREE (3) PLACE DEC. 1.000	DIMENSIONS 1/32		
ANGULAR 1.50	ROUNDED SURFACES R00		
DRAWN TOP	PROJECT ENG. 4023	PART NUMBER	DRAWING NUMBER
CREATED RJ	APPROVED PROJECT MANAGER		19176-101-2

REV. NO.	DESCRIPTION OF REVISION	REV. BY	DATE
1	ADDED LIST OF MAT'L NO'S	WWD	11/07/00

LOCATION OF REVISION



SEE FIELD BOLT DWG. FOR HARDWARE

SCALE		DATE TISSUED	CUSTOMER	TITLE	
0.0833		9/12/00	LOCATOR	SPECIFICATION SECTION 11364	
DIMENSIONS IN INCHES UNLESS SPECIFIED		GWINNETT COUNTY, GA.		GENERAL ARRANGEMENT	
TOLERANCES UNLESS OTHERWISE SPECIFIED		ENGINEER		CONCRETE FLOOR ARRANGEMENT	
TWO (2) PLACE DEC. 1.00		CAMP DRESSER & MCKEE INC.		(2) 40'-0" DIA. F25HT	
THREE (3) PLACE DEC. 1.000		PROJECT NO.		GRAVITY THICKENER	
ANGULAR 1.00		4023		PART NUMBER	
MACHINED SURFACES 250		PROJECT CODE		DRAWING NUMBER	
DRAWN		PROJECT EMB.		19176-103	
FEDIE		4023			
CHECKED		APPROVED			
RJF		RJF			

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REV. NO.	DESCRIPTION OF REVISION	REV. BY	DATE
2	REMOVED GROUT UNDERNEATH STEADY BEARING	RJ	12/04/00
1	ELEV. 1199.00" WAS 1200.00". ADDED BEARING & HW & ADDED LIST OF MAT'L. MD	TDP	9-29-00

SPECIFICATIONS FOR F25HT GRAVITY THICKENER

DRIVE MECHANISM

PRIMARY REDUCTION

EURODRIVE PARALLEL HELICAL REDUCER, R87R57LP FRAME SIZE, 195:1 RATIO, 9.0 OUTPUT RPM, 2.9 MIN SERVICE FACTOR. CASE IS CAST IRON MOUNTED ON AN ADJUSTABLE STEEL BASE FOR CHAIN TENSION ADJUSTMENT.

MOTOR

U.S. MOTOR, 'CORRO-DUTY', 56C FRAME, 3/4 HORSEPOWER, 1800 RPM, TEFC, 230/460 VOLT, 3 PHASE, 60 HERTZ, NEMA DESIGN B, CLASS 'F' INSULATION, 40 DEG C AMBIENT TEMPERATURE, 1.15 SERVICE FACTOR, BALL BEARING TYPE MOTOR. MOTOR TO INCLUDE SPACE HEATER & THERMOSTAT

SECONDARY REDUCTION

SPROCKETS : FABRICATED STEEL
CHAIN : #80L 'REDI-LUBE' STEEL ROLLER, SELF LUBRICATING
GUARD : OSHA STYLE, COMPLETELY ENCLOSED, FABRICATED ALUMINUM

FINAL REDUCTION

HOUSING : GREY IRON, CLASS 40B, ASTM A48
SHAFTING : H.R. STEEL, AISI 4142 HEAT TREATED
WORM : AISI 8620 HARDENED TEETH
WORM GEAR : CENTRIFUGALLY CAST ALUMINUM BRONZE, ASTM B148-954
BEARINGS : ANTI-FRICTION TYPE
TURNTABLE BEARING : BALL RACE OIA : 22.25 INCHES
BALL QTY & TYPE : (69) 1" OIA BALLS, AISI 52100 CHROME ALLOY STEEL PER ASTM A295, HARDENED TO 62-66 ROCKWELL 'C'
LINERS : AISI 52100 CHROME ALLOY STEEL PER ASTM A295, HARDENED TO 60-64 ROCKWELL 'C'
STEADY BEARING : THE HOUSING SHALL BE PROVIDED WITH AN EXTENDED JOURNAL TYPE TORQUE TUBE STEADY BEARING TO PREVENT TIPPING OF THE GEAR. (GREASE LINE EXTENDED THRU DRIVE PLATE)

LUBRICATION

OIL BATH AND GREASE WITH OIL SEALS ON SHAFTING. HOUSING IS PROVIDED WITH OIL FILL/ORAIN PLUGS AND OIL LEVEL SIGHT GLASS.

OVERLOAD DEVICE:

MICRO SWITCHES (SEE OVERLOAD SYSTEM AT RIGHT) PLUS SHEAR PIN.

DESIGN STANDARDS

FINAL REDUCTION GEARING

AGMA 6034-B92 (SUPERSEDES 6034-A87) SINGLE AND DOUBLE REDUCTION OF CYLINDRICAL WORM AND HELICAL REDUCERS.

BEARINGS

MINIMUM L-10 LIFE 200,000 HOURS

FINAL OUTPUT SPEED

: 0.08

DRIVE MECHANISM TORQUE RATINGS

CONTINUOUS WORKING : 20000 FT LBS
RATED TORQUE PER AGMA STANDARD : 15000 FT LBS
ALARM TORQUE (75% AGMA) : 20000 FT LBS
MOTOR SHUT OFF TORQUE (100% AGMA) : 25000 FT LBS
SHEAR PIN TORQUE (125% AGMA) : 40000 FT LBS
STALL TORQUE (200%) CAPABLE OF WITHSTANDING : 103-81623-14M
SHEAR PIN PART NO : 2800 LBS
SHEAR PIN VALUE

CENTER TORQUE TUBE

10' A500 GR.B STEEL SQUARE TUBE WITH 3/8" WALL THICKNESS

SCRAPER ARMS

THE SCRAPER ARMS WILL BE OF THE TRUSS TYPE DESIGN, SUPPORTED FROM THE TORQUE TUBE AND USED FOR SUPPORT OF THE PLOW BLADES AND SQUEEGEES. THE ARMS ARE FABRICATED FROM STRUCTURAL STEEL SHAPES AND PLATES WITH A MINIMUM THICKNESS OF 1/4".

PLOW BLADES

EFFECTIVE DEPTH OF 8". SPACED SUCH THAT THE ENTIRE TANK FLOOR IS SCRAPPED TWICE PER REVOLUTION. PLOW BLADES ARE FACTORY WELDED TO SCRAPER ARMS.

SQUEEGEES

4" DEEP, ADJUSTABLE, MADE FROM 3/8" PL., 304 STN. STL., FASTENED TO THE PLOW BLADES WITH STN STL HARDWARE.

ACCESS BRIDGE

TWO (2) W18 x 40# STRUCTURAL STEEL WIDE FLANGE BEAMS, DIAGONALLY BRACED TO INSURE LATERAL STABILITY. ALL WELDED CONSTRUCTION, PROVIDES CONVENIENT ACCESS TO THE DRIVE MECHANISM. WALKWAY MATERIAL WILL BE OHIO, TYPE 19-SG-4, ALUMINUM 6063-T6, RECTANGULAR GRATING 1-1/2" x 3/16" BEARING BARS SPACED ON 1-3/16" CENTERS AND CROSSBARS SPACED ON 4" CENTERS. GRATING TO HAVE PLAIN SURFACE AND ALL ENDS TO BE Banded. GRATING TO BE BOLTED TO THE BRIDGE WITH STAINLESS STL FASTENERS. A CENTER PLATFORM, 10'-0" WIDE x 10'-0" LONG PROVIDES A MINIMUM CLEARANCE OF 2'-0" MINIMUM AROUND ALL COMPONENTS OF THE DRIVE MECHANISM. THE CENTER PLATFORM WALKWAY AREA AROUND THE DRIVE WILL BE 3/8" ALUMINUM CHECKERED FLOOR PLATE AND SHALL BE BOLTED TO THE PLATFORM FRAMEWORK WITH STAINLESS STL FASTENERS.

HANDRAIL

HANDRAILING WILL MEET ALL OSHA REQUIREMENTS AND WILL CONSIST OF 1-1/2" SCHEDULE 40 RAILS (6063-T6) WITH 1-1/2" SCHEDULE 80 POSTS, 6061-T6 ALUMINUM PIPE OF THE 3 RAIL DESIGN WITH MECHANICAL CONNECTORS HAVING 316 STN. STEEL FASTENERS. HANDRAILING FINISH SHALL BE PER AAM31C22A41. MAX POST SPACING SHALL NOT EXCEED 5'-0".

THE HANDRAIL WILL EXTEND ALONG BOTH SIDES OF THE WALKWAY AND AROUND THE DRIVE. TOE PLATE ALONG BOTH SIDES OF THE WALKWAY WILL BE 4" HIGH EXTRUDED ALUMINUM CHANNEL.

WEIR PLATES

NOT BY USFilter-Envirex

EQUIPMENT FASTENERS

ALL FASTENERS FOR EQUIPMENT ASSEMBLY WILL BE 316 STAINLESS STEEL.

ANCHOR BOLTS

ALL ANCHOR BOLTS WILL BE ADHESIVE TYPE. MATERIAL WILL BE 316 STAINLESS STEEL. ALL ANCHOR BOLTS WILL BE OF AMPLE SIZE AND STRENGTH FOR THE PURPOSE INTENDED. ALL ANCHOR BOLTS WILL BE SET BY THE GENERAL CONTRACTOR IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

SPECIAL SURFACE PREPARATIONS

1. ALL SHARP WELDS AND BURRS WILL BE GROUND AND FLUX AND SPATTER REMOVED.

EQUIPMENT TAGGING

ALL EQUIPMENT SHALL BE PROPERLY TAGGED FOR IDENTIFICATION AND EASE OF ASSEMBLY AND FOR THE PURPOSE OF MATCH MARKING COMPONENT PARTS.

PAINT NOTE

ALL SHAFTING AND EXPOSED MACHINED SURFACES TO RECEIVE (1) COAT OF A CORROSION INHIBITOR. ALL NON-FERROUS MATERIAL AND GALVANIZED SURFACES WILL REMAIN UNPAINTED. PURCHASED GEARMOTORS/REDUCERS AND CONTROLS WILL REMAIN THE MANUFACTURERS STANDARD PAINT SYSTEM. CIRCULAR DRIVE UNIT WILL BE SHOP FINISHED WITH USFilter-Envirex STANDARD TNEC SERIES 69 'SAFETY BLUE' EPOXY.

ALL FERROUS STRUCTURAL STEEL SHAPES, PLATES AND CASTINGS WILL BE PREPARED AS FOLLOWS:

ALL NON-SUBMERGED SURFACES TO BE BLAST CLEANED PER SSPC-SP6 THEN RECEIVE AT LEAST ONE SHOP COAT OF TNEC 66-1211 HI-BUILD EPOXOLINE TO PRODUCE A MINIMUM DRY FILM THICKNESS OF 3.5 TO 4.5 MILS.

ALL SUBMERGED SURFACES TO BE BLAST CLEANED PER SSPC-SP10 THEN RECEIVE AT LEAST ONE SHOP COAT OF TNEC 20-1211 POTA-POX TO PRODUCE A MINIMUM DRY FILM THICKNESS OF 3.5 TO 4.5 MILS.

ALL TOUCH-UP AND ANY ADDITIONAL COATS OF PAINT TO BE FURNISHED BY CUSTOMER.

CUSTOMER'S NOTE

THE EQUIPMENT SUPPLIED WILL BE IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS, UNLESS OTHERWISE SPECIFIED. USFilter-Envirex WILL NOT FURNISH ANY OF THE FOLLOWING: ELECTRICAL, HYDRAULIC OR PNEUMATIC CONTROLS, WIRING OF MOTORS OR CONTROLS, CONTROL PANELS OR SUPPORTS, PIPING, VALVES, WALL SLEEVES, GATES OR ORAINS, GRATING, STAIRWAYS, LADDERS, CONCRETE, GROUT, MASTIC OR SEALING COMPOUNDS, GUIDES, WEIRS OR SCUM BAFFLES, LUBRICANTS FOR DRIVES OR BEARINGS, GREASE PIPING OR GREASE GUN, SETTING OF ANCHOR BOLTS (WHETHER FURNISHED BY USFilter-Envirex OR OTHERS), DETAIL SHOP FABRICATION DRAWINGS, TOOLS OR SPARE PARTS MODIFICATIONS TO EXISTING EQUIPMENT OR STRUCTURES

CONCRETE DESIGN

USFilter-Envirex IS NOT RESPONSIBLE FOR CONCRETE DESIGN. REINFORCING STEEL FOR TANKS TO BE FURNISHED BY OTHERS WHO WILL ALSO SIZE THE WALLS AND FOOTINGS TO SUIT LOCAL GROUND CONDITIONS. FOR DIMENSIONS NOT SHOWN, REFER TO ENGINEER'S DRAWINGS.

ERECTION NOTE

IT WILL BE US FILTER'S RESPONSIBILITY TO HAVE ANY FABRICATION ERRORS REPAIRED OR REPLACED. CORRECTIONS OF MINOR MISFITS AND A REASONABLE AMOUNT OF CUTTING AND REAMING ARE CONSIDERED A PART OF ERECTION. ANY ERROR WHICH PREVENTS ASSEMBLY BY MODERATE USE OF DRIFT PINS, CUTTING, OR WELDING, IS TO BE REPORTED AND APPROVAL OF CORRECTION OR CHANGE IS TO BE RECEIVED IN WRITING BEFORE PROCEEDING. FAILURE TO COMPLY WILL RELIEVE USFilter-Envirex OF ALL OPERATIONAL AND MONETARY RESPONSIBILITY.

SUPERVISION AND/OR INSPECTION OF ERECTION:

SERVICES OF A FACTORY REPRESENTATIVE WILL BE FURNISHED IN ACCORDANCE WITH THE TERMS OF OUR CONTRACT.

DESIGN DATA

BRIDGE LIVE LOAD : 100 LBS/SQ.FT. 300 LBS/LINEAL FT.
BRIDGE DEFLECTION : NOT TO EXCEED 1/360 OF THE SPAN UNDER DEAD AND LIVE LOADS.

STRUCTURAL SHAPES SHALL CONFORM TO ASTM A36. WELDING SHALL CONFORM TO AWS-D1.1. ALL SUBMERGED STEEL PLATES AND SHAPES TO HAVE A MINIMUM THICKNESS OF 1/4" UNLESS OTHERWISE SPECIFIED.

SAFETY HAZARD WARNING LABELS

LABELS ARE AFFIXED ON 'USFilter-Envirex' EQUIPMENT WHEN A VISUAL WARNING IS APPROPRIATE. THE EQUIPMENT OWNER IS RESPONSIBLE FOR KEEPING THESE LABELS VISIBLE AND IN GOOD CONDITION. REPLACEMENT LABELS ARE AVAILABLE FROM THE 'USFilter-Envirex PARTS DEPARTMENT'.

SPARE PARTS:

ONE COMPLETE SET OF SQUEEGEES

TWO (2) SHEAR PINS 103-81623-14M

- (69) XCA-3834-1 1" CHROME STEEL BALLS
- (2) 103-74-19 BEARING RING-INNER
- (2) 103-74-21 BEARING RING-OUTER
- (4) 103-74-20 BEARING RING-LOWER
- (2) 303-2130-1 NEEDLE BEARING
- (1) 303-1768-2 THRUST BEARING
- (1) 303-2131-1 NEEDLE BEARING

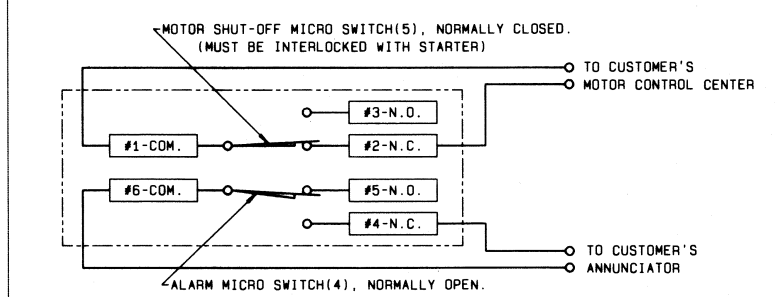
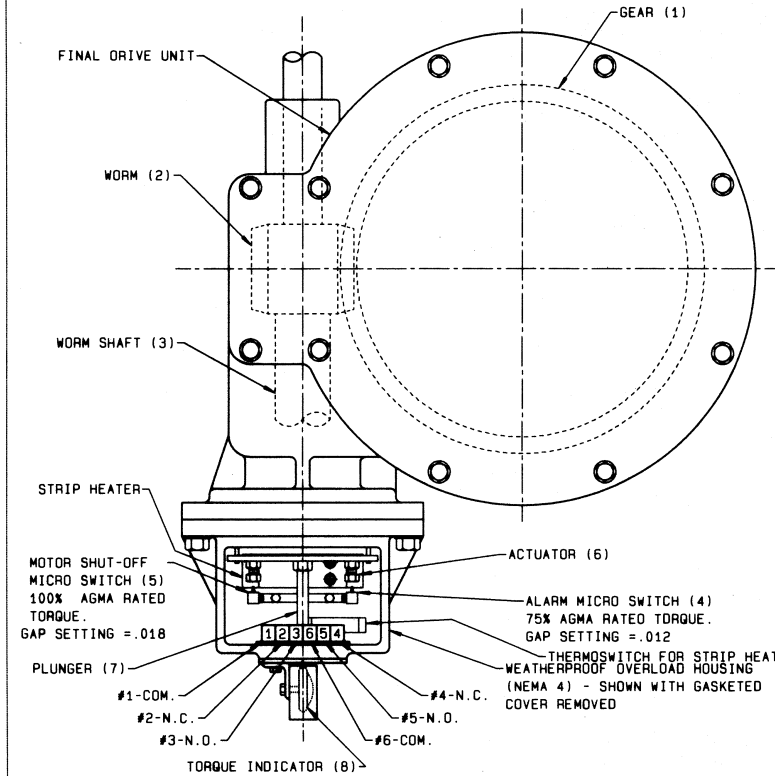
TORQUE OVERLOAD SYSTEM

SEQUENCE OF OPERATION

AS TORQUE IS APPLIED TO THE GEAR (1), THE WORM (2) & WORM SHAFT (3) ARE FORCED TOWARD THE MICRO SWITCHES (4 & 5). AS THE WORM SHAFT (3) MOVES, THE GAP CLOSURES BETWEEN THE MICRO SWITCH ACTUATOR (6) AND THE MICRO SWITCHES (4 & 5). WHEN THE TORQUE LOAD REACHES 75% OF THE AGMA RATED TORQUE, THE MICRO SWITCH (4) CONTROLLING THE ALARM SYSTEM CLOSURES AND THE ALARM CIRCUIT IS ACTIVATED, THUS SOUNDING AN ALARM AND/OR HORN (NOT BY U.S. FILTER). WHEN THE TORQUE LOAD REACHES 100% OF THE AGMA RATED TORQUE, THE MICRO SWITCH (5) INTERLOCKED WITH THE STARTER OPENS AND DE-ENERGIZES THE MAGNETIC STARTER COIL, WHICH IN TURN, OPENS A HOLDING CIRCUIT INTERLOCK, OPENING THE CIRCUIT AND STOPPING THE MOTOR. THE MOVEMENT OF THE WORM SHAFT (3) ALSO PUSHES AGAINST THE PLUNGER (7) IN THE TORQUE INDICATOR (8) CAUSING MOVEMENT OF THE POINTER. TORQUE OVERLOAD SYSTEM IS OPERATIONAL ONLY WHEN EQUIPMENT ROTATES AS SHOWN ON THE GENERAL ARRANGEMENT DRAWING.

NOTES

MICRO SWITCH RATINGS: 15 AMPS @ 125 VOLTS AND 480 VOLTS, ALL 'AC' CURRENT. UNIT TO INCLUDE A STRIP HEATER, 240V, 125W (FOR OPERATION ON 120V) WITH ADJUSTABLE THERMOSWITCH, 10 AMP, 120V, 50-300 DEGREE TEMPERATURE RANGE.



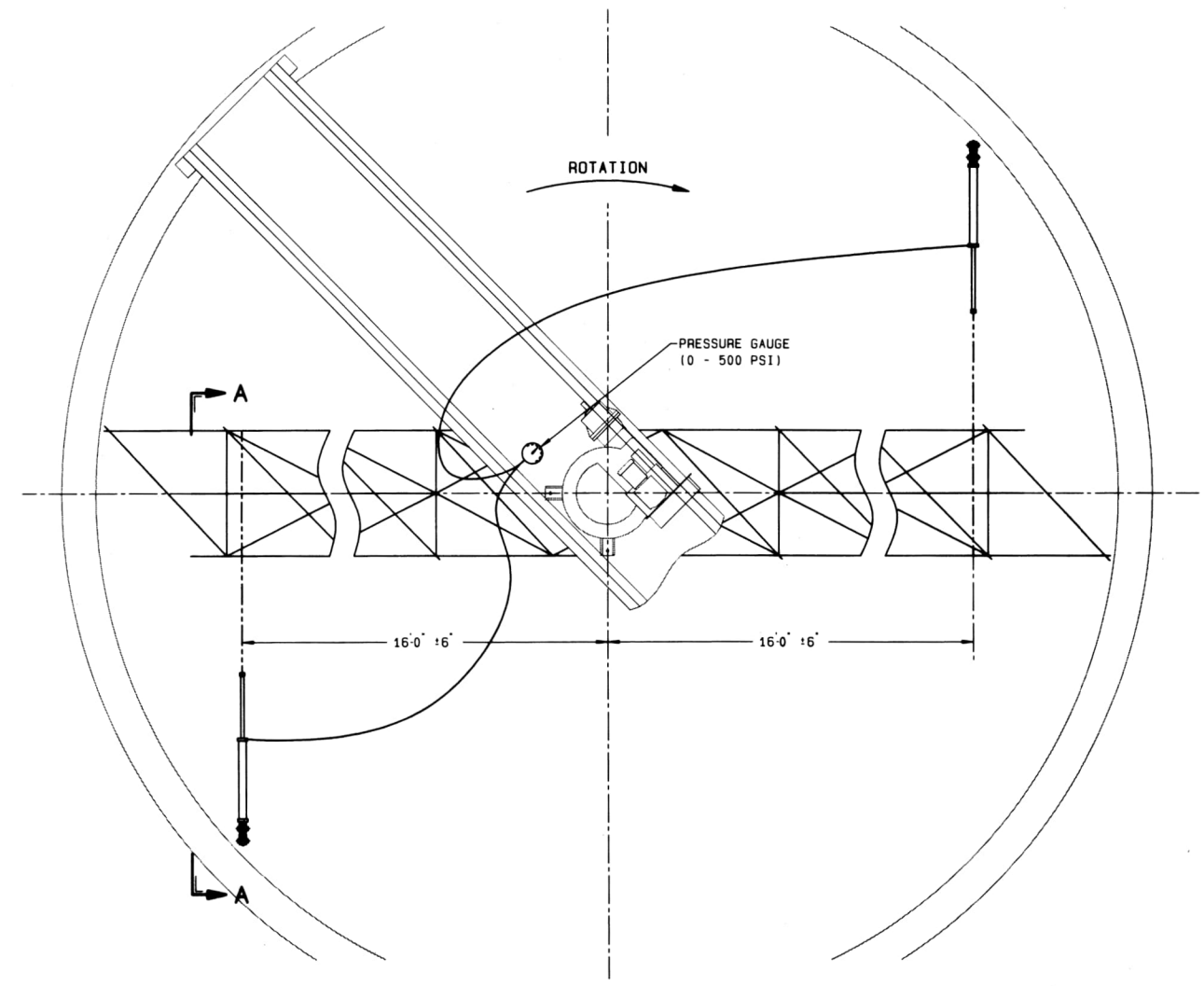
SUGGESTED WIRING DIAGRAM

WORK THIS DRAWING WITH DRAWINGS 19176-101-1, -2, 102, 103, & 105 SPECIFICATION SECTION 11364

SCALE	DATE	CUSTOMER	TITLE
0.2500	10-12-00	USF/ZIMPRO	
DIMENSIONS IN INCHES UNLESS SPECIFIED		LOCATION	GWINNETT COUNTY, GA.
TOLERANCES UNLESS OTHERWISE SPECIFIED		ENGINEER	CDM
TWO (2) PLACE DEC. 1.00	STRUCTURAL DIMENSIONS 15/16		
THREE (3) PLACE DEC. 1.000	MACHINED SURFACES 200		
DRAWN	PROJECT ENG.	PRODUCT CODE	PART NUMBER
TOP	JW	4023	
CHECKED	APPROVED	DRAWING TRADE MARK	DRAWING NUMBER
RJ	JW		19176-104

REV. NO.	REV. BY	DATE	DESCRIPTION OF REVISION
3	TJT	1/22/01	MORE APPROVAL REVISIONS
2	RJ	12/04/00	ADDED SPARE PARTS
1	WMO	11/04/00	1/4" WAS 3/8" PLATE THICKNESS & DEPTH OF 8" WAS 10"

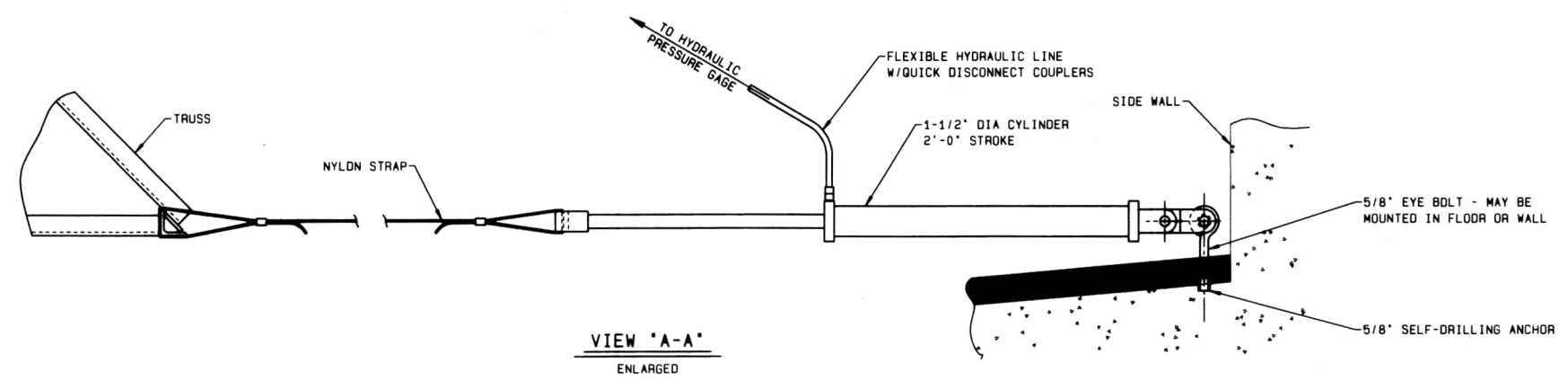
LOCATION OF REVISION



- NOTES:
1. COLLECTOR TO BE RUN UNDER POWER BEFORE TEST EQUIPMENT IS INSTALLED.
 2. TEST EQUIPMENT TO BE INSTALLED AS NOTED AND SHOWN ON THIS DRAWING.
 3. CYLINDERS TO BE IN FULLY RETRACTED POSITION BEFORE STARTING TEST.
 4. THE DRIVE SHALL BE STARTED AND SHALL CONTINUE TO RUN UNTIL THE DESIRED TORQUE IS DEVELOPED. THE LOAD SHALL BE CALCULATED FROM THE HYDRAULIC PRESSURE READ AT THE HYDRAULIC CYLINDERS, THE AREA OF THE CYLINDERS AND THE DISTANCE FROM THE CENTER OF THE TANK.
 5. THE DRIVE SHALL BE REVERSED BY USING A REVERSING SWITCH OR BY SWITCHING THE MOTOR LEADS. THE TEST CAN BE REPEATED TO VERIFY THE SAME OR DIFFERENT TORQUE RATINGS.

TORQUE TEST SETTING	TORQUE (FT LBS)	PULL AT CYLINDER (LBS)	GAUGE PRESSURE (LBS)
ALARM (75% AGMA)	15000	469	321
RATED/SHUT-OFF (100% AGMA)	20000	625	428

NOTES: GAUGE PRESSURE IS BASED ON EFFECTIVE PISTON AREA OF 1.46 SQ INCHES. (1-1/2" DIA BORE - 5/8" DIA ROD)



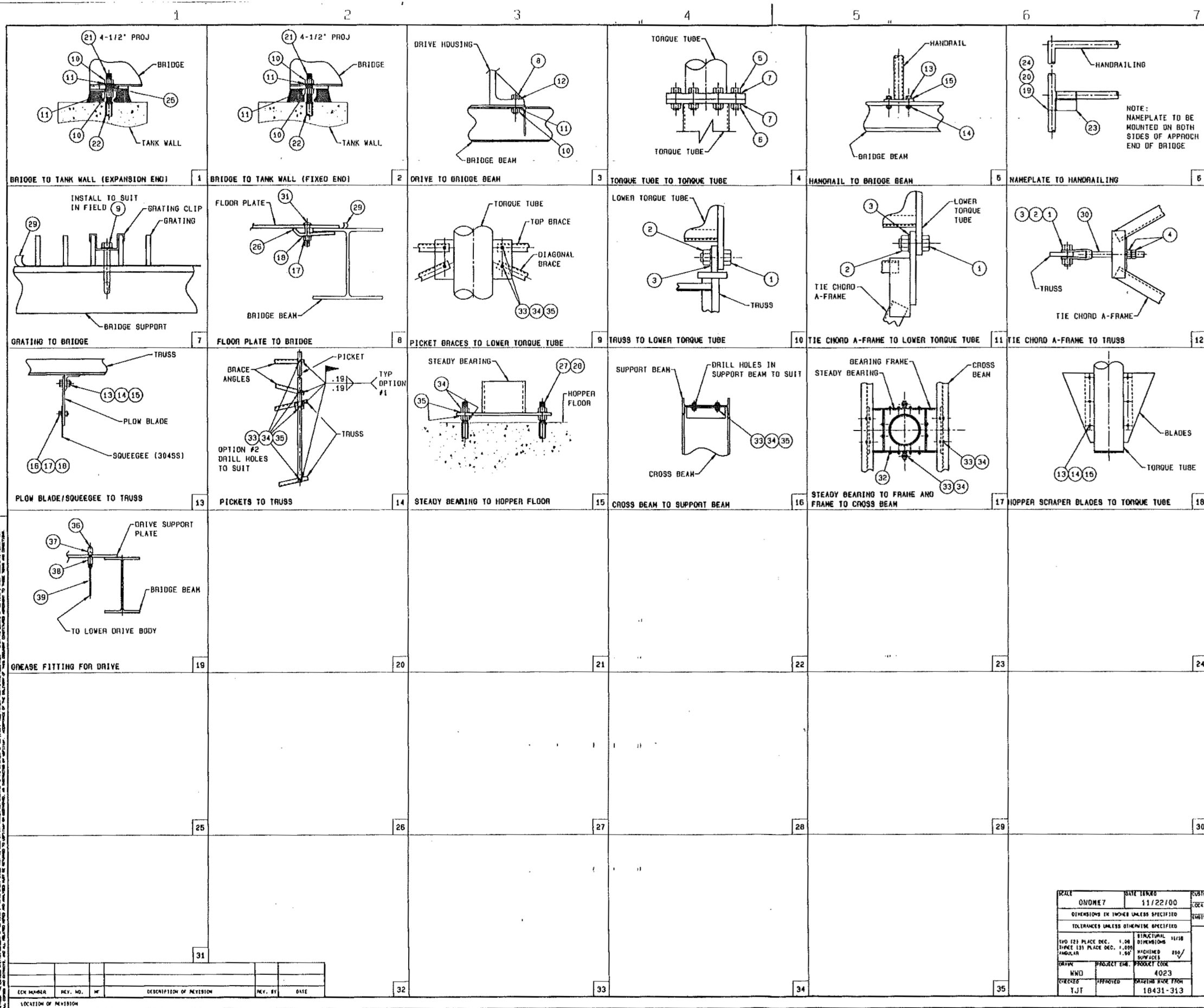
VIEW "A-A"
ENLARGED

WORK THIS DRAWING WITH DRAWINGS 19176-101-1, -2, 102, 103 & 104 SPECIFICATION SECTION 11364

SCALE: 0.0417	DATE ISSUED: 10-12-00	CUSTOMER: USF/ZIMPRO	TITLE: GENERAL ARRANGEMENT TORQUE TEST
DIMENSIONS IN INCHES UNLESS SPECIFIED		LOCATION: GWINNETT COUNTY, GA.	(2) 40'-0" DIA. F25HT GRAVITY THICKENER
TOLERANCES UNLESS OTHERWISE SPECIFIED		ENGINEER: CDH	
TWO (2) PLACE DEC. 1.06	STRUCTURAL DIMENSIONS 1/16	<p>Envirex Products Waukesha, WI 800-524-6324</p>	
THREE (3) PLACE DEC. 1.000	MACHINED SURFACES 250		
DRAWN: TOP	PROJECT ENG: 4023	PART NUMBER	DRAWING NUMBER
CHECKED: RJ	DATE: 10/12/00		19176-105

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REV. NO.	DATE	DESCRIPTION OF REVISION	REV. BY	DATE



LIST OF COMPONENTS					ESTIMATED FINISHED WEIGHT	DRAWING NUMBER
FIELD CONNECTIONS & MATERIAL LIST					ALL LENGTHS ARE FINAL LENGTH UNLESS OTHERWISE SPECIFIED	19176-109
ADVANCE ORDER	REF. SYMBOL	QUANTITY	PART NUMBER	DESCRIPTION		PROJECT NUMBER
MATERIAL FOR ONE MARK NO. 100						
1	10	841-11427	1-1/2 x 4.00 HHCS	HOG	A325	
2	10	841-20649	1-1/2 HEX. NUT	HOG	A325	
3	10	841-22308	1-1/2 HARDENED WASHER	HOG	A325	
4	6	841-20695	1-3/4 HEX. NUT		316SS	
5	24	841-10906	3/4 x 3.00 HHCS	HOG	A325	
6	24	841-20375	3/4 HEX. NUT	HOG	A325	
7	48	841-22122	3/4 HARDENED WASHER	HOG	A325	
8	8	841-10901	3/4 x 3.00 HHCS		316SS	
9	28	841-17041	1/4 x 2.00 HEX WASH HD SELF DR SC	SS		
10	22	841-20305	3/4 HEX. NUT		316SS	
11	22	841-22095	3/4 PLAIN WASHER		316SS	
12	6	841-22701	3/4 LOCK WASHER		316SS	
13	102	841-09661	5/8 x 1.75 HHCS		316SS	
14	102	841-20305	5/8 HEX. NUT		316SS	
15	102	841-21191	5/8 PLAIN WASHER		316SS	
16	60	841-08725	3/8 x 1.25 HHCS		316SS	
17	88	841-20125	3/8 HEX. NUT		316SS	
18	88	841-21857	3/8 PLAIN WASHER		316SS	
19	8	841-12640	#10-32 x 0.50 RHHS	SS		
20	8	841-20006	#10-32 HEX. NUT	SS		
21	8	103-10748-13	3/4 x 1.12 LG. THREADED ANCHOR		316SS	
22	8	841-19707	3/4 x 6.62 ADHESIVE CAPSULE			
23	2	303-70325-1	NAMEPLATE "CIRCULAR THICKENER"			
24	6	841-30701	LATCHING TIE WRAP			
25	4	103-B1446-3	ANCHOR SPACER	SS		
26	26	103-51557-1	FLOOR PLATE CLAMP	SS		
27	4	103-10748-11	1/2 x 7.75 LG. THREADED ANCHOR		316SS	
28	4	841-19604	1/2 x 4.25 ADHESIVE CAPSULE			
29	2	841-29110	INSULATING TAPE 2" x 3M #21 BLACK			
30	2	603-31090-81	CLEVIS NUT ASSEMBLY			
31	30	841-14371	3/8 x 1.75 CARRIAGE BOLT		316SS	
32	14	841-09375	1/2 x 1.50 HHCS		316SS	
33	90	841-09405	1/2 x 1.75 HHCS		316SS	
34	90	841-20225	1/2 HEX. NUT		316SS	
35	35	841-21935	1/2 PLAIN WASHER		316SS	
36	1	841-23720	#1610 BL. ALEMITE FITTING			
37	1	841-01110	1/8 NPS PIPE COUPLING	GALV		
38	1	841-05050	1/8 NPT PIPE CLOSE NIPPLE	GALV		
39	1	103-40-145	FLEX LINE (1' 2 1/2 LG)			

PRICE	ON0ME7	DATE TERNED	11/22/00	CUSTOMER	LOCATION	TITLE	FIELD CONNECTIONS & MATERIAL LIST FOR (1) F25HT DRIVE 40'-0" DIA. TANK THICKENER W/D SKIMMING
DIMENSIONS IN INCHES UNLESS SPECIFIED				TOLERANCES UNLESS OTHERWISE SPECIFIED		DRAWING NUMBER	
TWO (2) PLACE DEC.				STRUCTURAL		DIMENSIONS	
THREE (3) PLACE DEC.				FINISHED		SURFACES	
ANGULAR				RUNDNESS		R20	
DRAWN				PROJECT ENG.		PROJECT CODE	
MWD				APPROVED		DATE TIME FROM	
CHECKED				YJT		18431-313	

USFilter
Envirox Products
Waukesha, WI 800-824-8324

PART NUMBER: 19176-109

REV. NO.	REV. BY	DATE	DESCRIPTION OF REVISION

LIST OF COMPONENTS

QTY.	REF. SYM.	QUANT.	PART NUMBER	DESCRIPTION
MATERIAL FOR ONE P.M. I. ASS'Y - SEE TABLE				
1		1	603-81274	WORM GEAR FINAL ASSY
2		1	403-70255-B2	LOWER HOUSING
3		1	403-70012-2	HOUSING COVER
4		1	SEE TABLE	WORM GEAR
5		1	SEE TABLE	OVERLOAD HOUSING
6		1	103-10619-1	PLATE SPRING RETAINER
7		1	503-41110-B0	INDICATOR SUPPORT BRACKET
8		1	303-2130-1	OIL SEAL
9		2	303-2130-1	NEEDLE BEARING
10		1	303-1768-2	THRUST BEARING
11		1	303-2131-1	NEEDLE BEARING
12		1	303-798-1	TORQUE GAUGE INDICATOR
13		1	303-1463-1	OIL SIGHT GAUGE PLUG
14		2	SEE TABLE	MICRO SWITCH
15		1	303-70124-21	WORM
16		2	SEE TABLE	SPECIAL CAP SCR TYPE 18-8
17		1	103-10418-11	SHAFT
18		1	103-50309-14	SPACER
19	"A"	SEE TABLE		MICRO SWITCH BRACKET
20		1	SEE TABLE	BAR
21		1	103-80809-1	PLATE SPRING
22		1	103-80873-1	MOUNTING PLATE

DRAWING NO. 603-81445

47	2	841-15480	*10-24x.25 LG SHCP SET SCR ZP
48	6	841-21740	1/4" CUT WASHER ZP
49	1	303-60183-25	LOCK NUT
50	1	303-60183-6	LOCKWASHER
51	"K"	841-02920	3/8 SQ HD PIPE PLUG GALV
52	1	841-01950	1"x90" STREET ELBOW GALV
53	1	841-03020	1 SQ HD PIPE PLUG GALV
54	1	841-02990	3/4 SQ HD PIPE PLUG GALV
55	2	841-23720	*1610-BL GREASE FITTING
56	"L"	298-26074-17	BUCHANAN NO. 724
57	"M"	298-26073-17	BUCHANAN NO. 730
58	"N"	103-51114-11	BRADY LABELS NO. 1, 2, 3, 4, 5, 6
59	6	503-60292-80	WIRE PICTAIL FOR TORQUE GAUGE
60	1	941-01840-5.00	KEY 1/2x1/2x5 LG
61	69	XCA-3834	1" ATLAS CHROME STEEL BALL
62	1	841-26950	3/8 SQ FELT STRIPx5"-3" LG
63	1	103-51344-1	BEARING WASHER
64	1	303-853-1	OIL SEAL
65			
66	"P"	841-12630	*10-32x.38 LG RHMS SS
67	"R"	841-08367	1/4"x1.25 LG HHCS
68	"S"	841-07840	1/2"x3.00 LG CONDUIT NIPPLE
69	"T"	841-20040	1/4 HEX NUT ZP
70			

DRAWING NO. 603-81445

23	1	103-80370-1	ADJUSTABLE PLUNGER
24	2	103-74-19	BEARING RING INNER
25	2	103-74-21	BEARING RING OUTER
26	4	103-74-20	BEARING RING UPPER-LOWER
27	1	103-80378-1	GASKET
28	1	103-80376-1	GASKET
29	1	103-80377-1	GASKET
30	1	103-80294-1	GASKET
31	1	103-80375-1	COVER PLATE
32	1	103-50071-1	COVER PLATE
33	16	841-09980	5/8"x1.75 LG HHCS ZF
34			
35	16	841-22600	5/8" LOCK WASHER ZF
36	1	841-20200	1/2-20 UNF HEX NUT ZF
37	"C"	841-08330	1/4"x.75 LG HHCS ZF
38	1	841-08290	1/4"x.50 LG HHCS ZF
39	"D"	841-22390	1/4" LOCK WASHER ZF
40	2	841-20910	3/8-24 UNF JAM NUT (18-8)
41	2	841-19290	3/8"x1.50 LG DOWEL
42	"E"	841-12110	*6-32x1.12 LG RHMS ZF
43	"F"	841-19870	*6-32 HEX NUT ZF
44	"G"	841-12390	*8-32x1.12 LG RHMS ZF
45	"H"	841-19940	*8-32 HEX NUT ZF
46	"J"	841-02960	1/2 SQ HD PIPE PLUG GALV

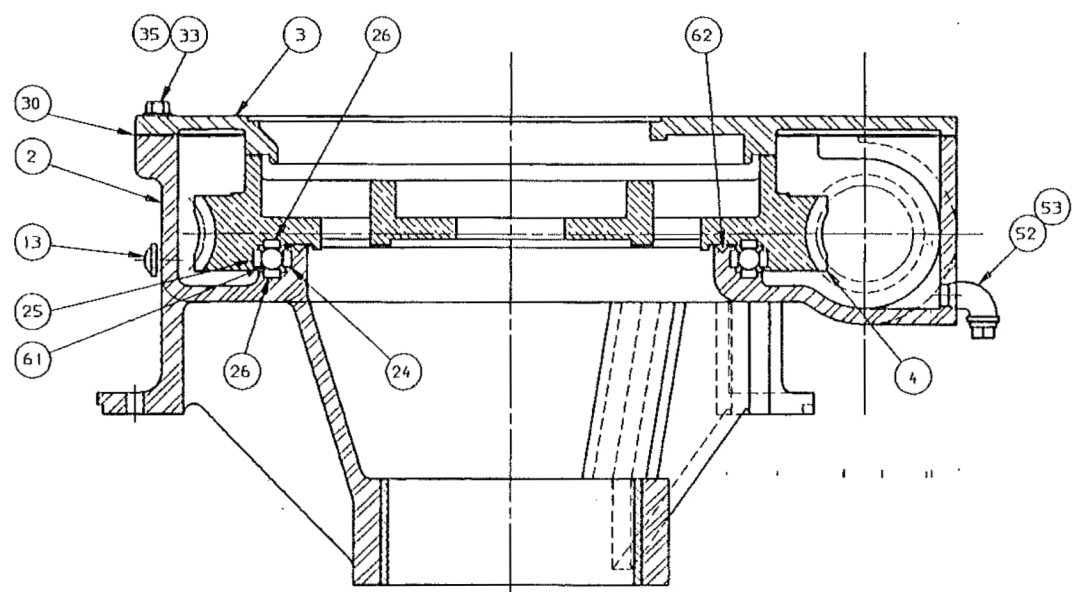
P.M. I. ASSEMBLY NO.	F-25 DRIVE SERIES	ASSY FIGURE	ITEM 4	ITEM 5	ITEM 14	ITEM 15	ITEM 19	ITEM 20	"A" ITEM 19	"B"	"C" ITEM 37	"D" ITEM 39	"E" ITEM 42
603-81445-80	CLOCKWISE LOW TORQUE	I	403-50039-4	403-70041-2	303-254-1		103-80371-1	103-80373-1	1	--	10	5	4
603-81	CLOCKWISE HIGH TORQUE	I	403-70254-1	403-70041-2	303-254-1		103-80371-1	103-80373-1	1	--	10	5	4
603-81	C.W. EX. PRF. LOW TORQUE	I & III	403-50039-4	403-70041-3	303-60214-1		103-80922-1	103-51022-1	2	--	8	7	--
603-81445-83	C.W. EX. PRF. HIGH TORQUE	I & III	403-70254-1	403-70041-3	303-60214-1		103-80922-1	103-51022-1	2	--	8	7	--

P.M. I. ASSEMBLY NO.	"F" ITEM 43	"G" ITEM 44	"H" ITEM 45	"J" ITEM 46	"K" ITEM 51	"L" ITEM 56	"M" ITEM 57	"N"	"P" ITEM 66	"R" ITEM 67	"S" ITEM 68	"T" ITEM 69	ITEM 16
603-81445-80	4	2	2	1	1	6	1		--	--	--	--	841-08190
603-81	4	2	2	1	1	6	1		--	--	--	--	841-08190
603-81	--	--	--	--	--	--	--		4	4	2	4	841-08684
603-81445-83	--	--	--	--	--	--	--		4	4	2	4	841-08684

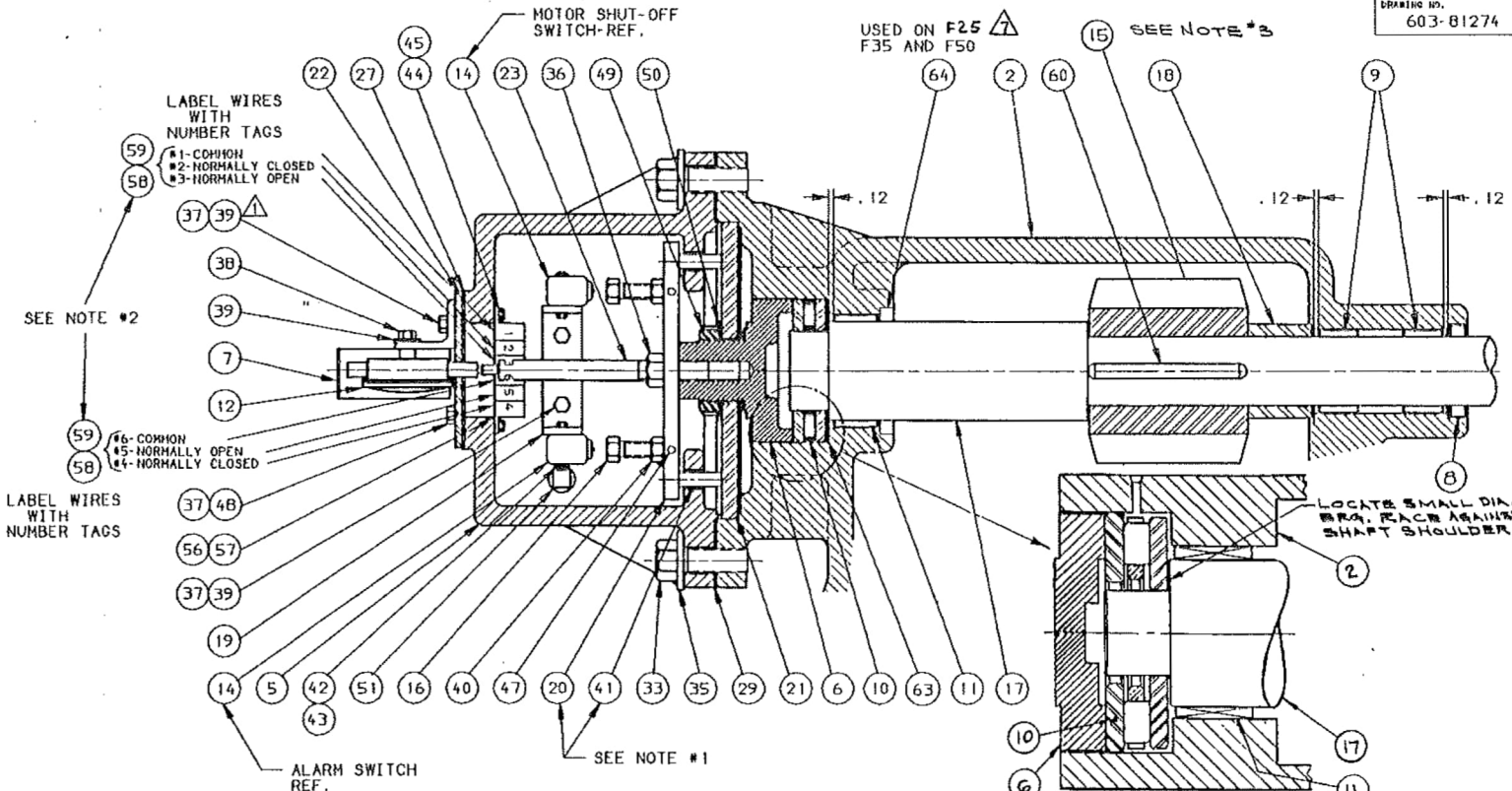
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REV. NO.	REV. DATE	DESCRIPTION OF REVISION	BY	DATE
0000067	2	ADDED REF SYM 69	JUNIS	9/10/99
910188	0	ITEM 16 WAS 303-701-1, ADD REF SYM 16 TO ORIGINAL ISSUE	TDP	3-1-99
			EJS	3/1/99

DIMENSIONS IN INCHES UNLESS SPECIFIED		EST. NO.	
TOLERANCES UNLESS OTHERWISE SPECIFIED		CUSTOMER	
TWO PLACE DEC. ±.005	STRUCTURAL DIMENSIONS ± 1/16	LOCATION	TITLE DRIVE WORM GEAR SUB-ASSEMBLY FOR F-25 DRIVE
THREE PLACE DEC. ±.0005	ANNUAL ±.001	ENGINEER	
SCALE 1.0	DRAWING MADE FROM 603-81275		
DRAWN BY J. DAVIS	DATE 3-20-99		
PART OR ORDER NO.		DRAWING NO. 603-81445	



SECTION "B-B"



SECTION "A-A"

DETAIL OF THRUST BRG. ASSEMBLY

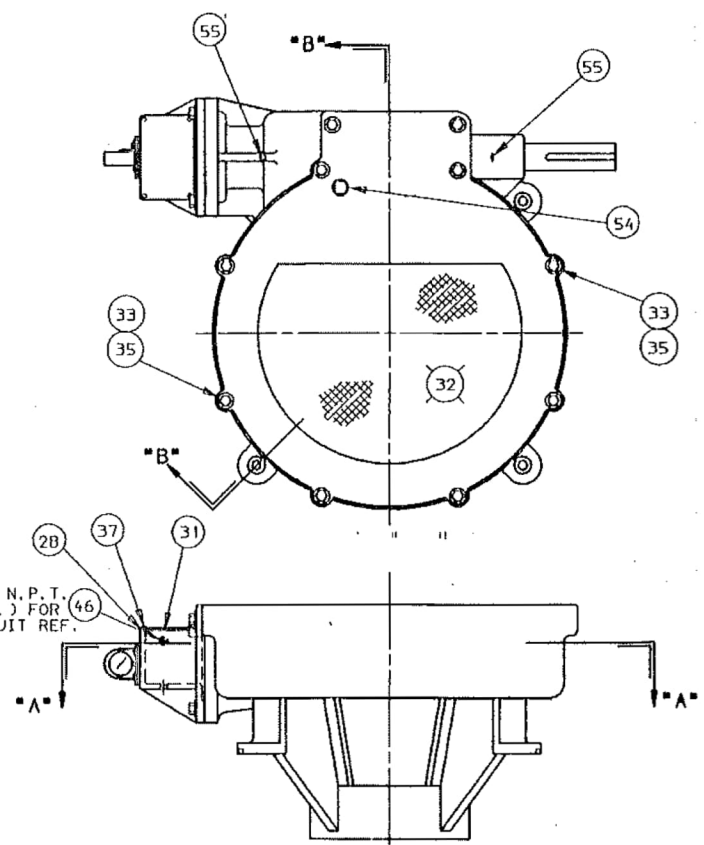


FIGURE I
CLOCKWISE ROTATION

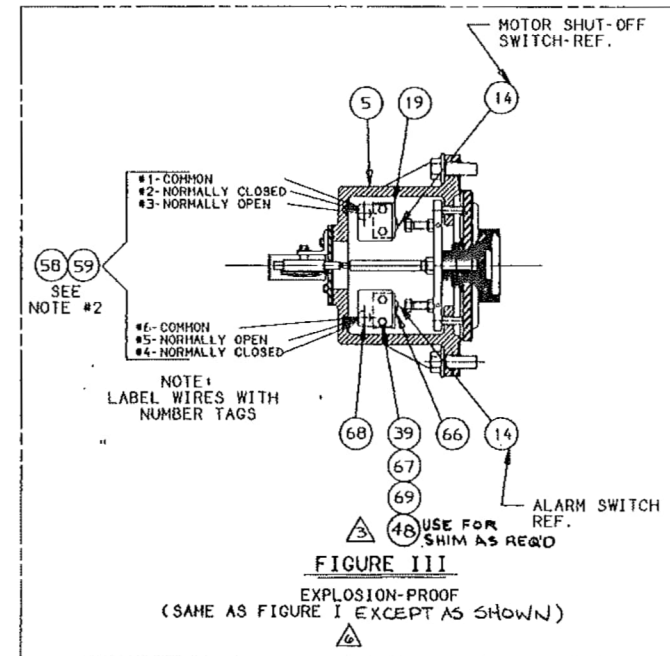
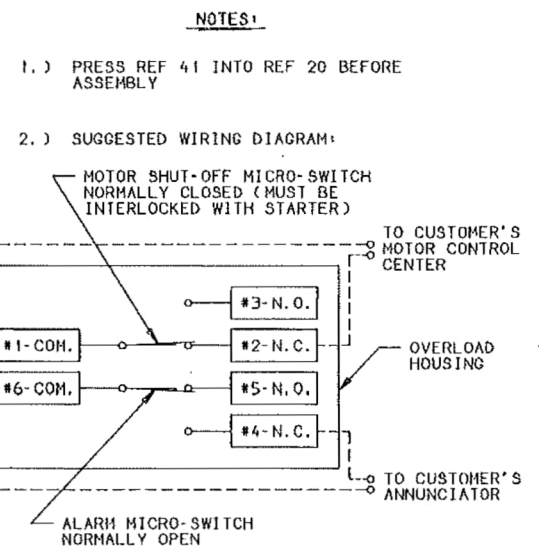


FIGURE III
EXPLOSION-PROOF
(SAME AS FIGURE I EXCEPT AS SHOWN)



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REV. NO.	REV. DATE	DESCRIPTION OF REVISION	REV. BY	DATE
5000047	7	ADDED (A)	J.D.	9-10-99
970094	6	REVISED C.W. ROTATION / FIG. II	J.D.	8-12-96
920047	5	WAS WORK DWG. W/603-81278	J.D.	6-6-91
910138	4	ADDED THRUST BRG. DETAIL	ESS	1-21-91
900037	3	ADDED REF SYM 48 TO FIG. III	J.D.	9-6-89
890173	1-2	ITEM 39 WAS ITEM 48, ADDED NOTE	RJF	4/21/89
890053	0	ORIGINAL ISSUE	HRL	10/31/88

DIMENSIONS IN INCHES UNLESS SPECIFIED		EST. NO.	WORK THIS DRAWING WITH
TWO PLACE DEC. ±.06	STRUCTURAL DIMENSIONS ± 1/16	CUSTOMER	603-81208 (F50)
THREE PLACE DEC. ±.005	ANGULAR ±.50°	ENGINEER	603-81445 (F25)
SCALE 25	DRAWING MADE FROM		603-81449 (F35)
DRY'N HRL	PROJ. LRS		
DRY'N JD	APP'D AJD		



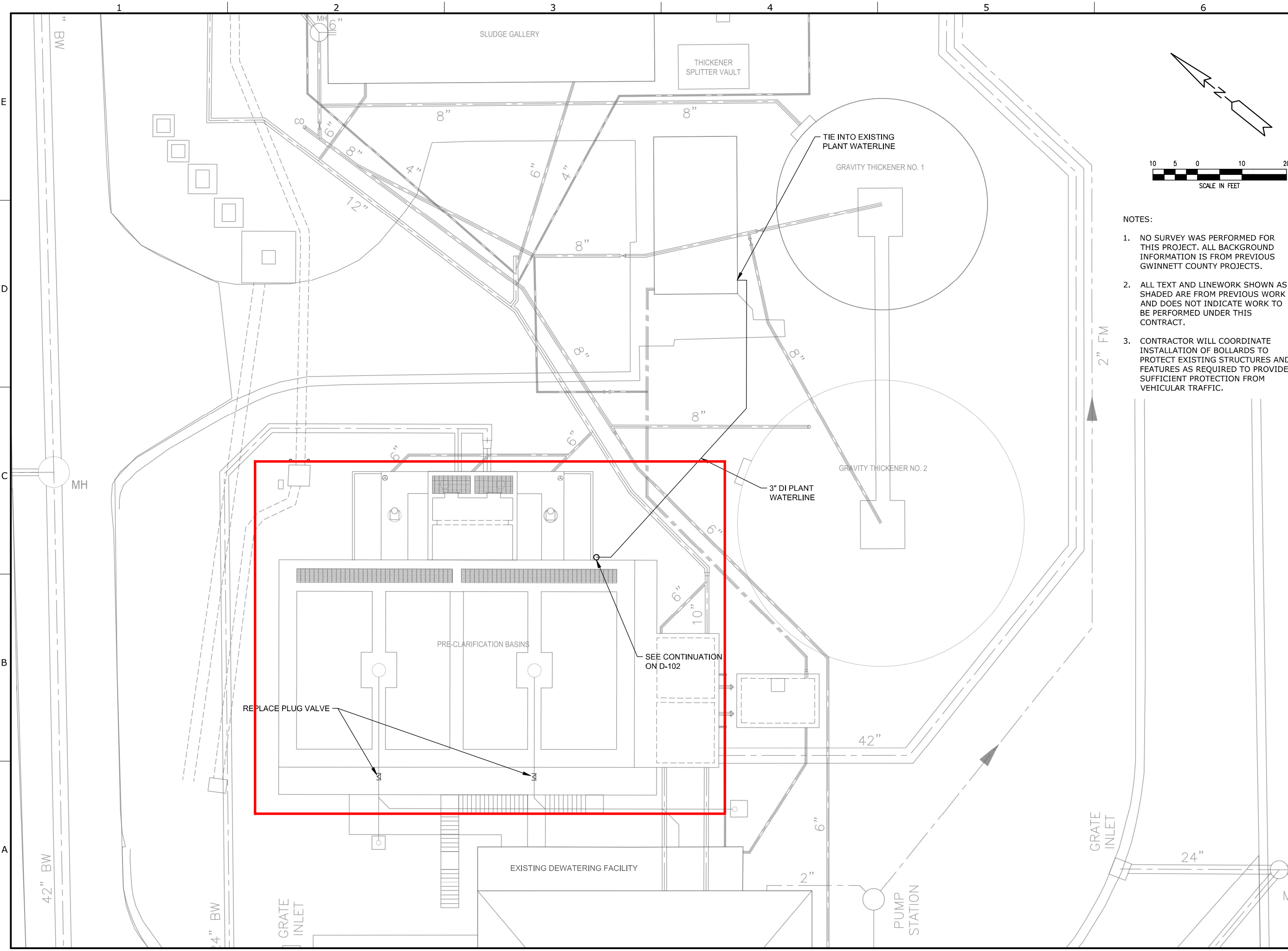
603-81208 (F50)
603-81445 (F25)
603-81449 (F35)

TITLE
F-DRIVE PICTURE ASSY
DRAWING FOR C.W.
ROTATION

PART OR ORDER NO. 603-81274

Attachment 3: Rehabilitation Drawings (8#)

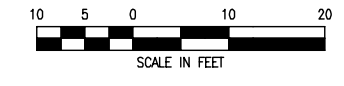
c:\users\jrobertson\documents\wade trim\gwn2001-lanier filter plant\project files\02 design\02 civil 3d\01 wade trim\wpln-78 c 102



The Water Tower
2500 Clean Water Ct. Bldg A, Ste 304
Buford, GA 30519
407.447.2388
www.wadetrtrim.com

Certificate of Authorization Name: Wade Trim, Inc.
Authorization Number: PEF007400
Expiration Date: 06/30/2026

CONSULTANT PROJ. NO. GWN200101Q



- NOTES:
1. NO SURVEY WAS PERFORMED FOR THIS PROJECT. ALL BACKGROUND INFORMATION IS FROM PREVIOUS GWINNETT COUNTY PROJECTS.
 2. ALL TEXT AND LINWORK SHOWN AS SHADED ARE FROM PREVIOUS WORK AND DOES NOT INDICATE WORK TO BE PERFORMED UNDER THIS CONTRACT.
 3. CONTRACTOR WILL COORDINATE INSTALLATION OF BOLLARDS TO PROTECT EXISTING STRUCTURES AND FEATURES AS REQUIRED TO PROVIDE SUFFICIENT PROTECTION FROM VEHICULAR TRAFFIC.

NOT FOR CONSTRUCTION

BUFORD, GA

GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES

LANIER
FILTER PLANT
2590 S. WATERWORKS
ROAD 30518

GCDWR PROJ. NO. M-1188-80

NO	DATE	ISSUED FOR	BY
C	08/16/24	90% DESIGN	HY
B	10/30/23	60% DESIGN	HY
A	05/26/23	30% DESIGN	HY

DATE	08/16/2024
DESIGNED BY	GPE
DRAWN BY	MR
CHECKED BY	TG
CHECKED BY	
APPROVED BY	HY

SHEET TITLE

PROPOSED SITE
PLAN/YARD PIPING
PLAN

78 C-102

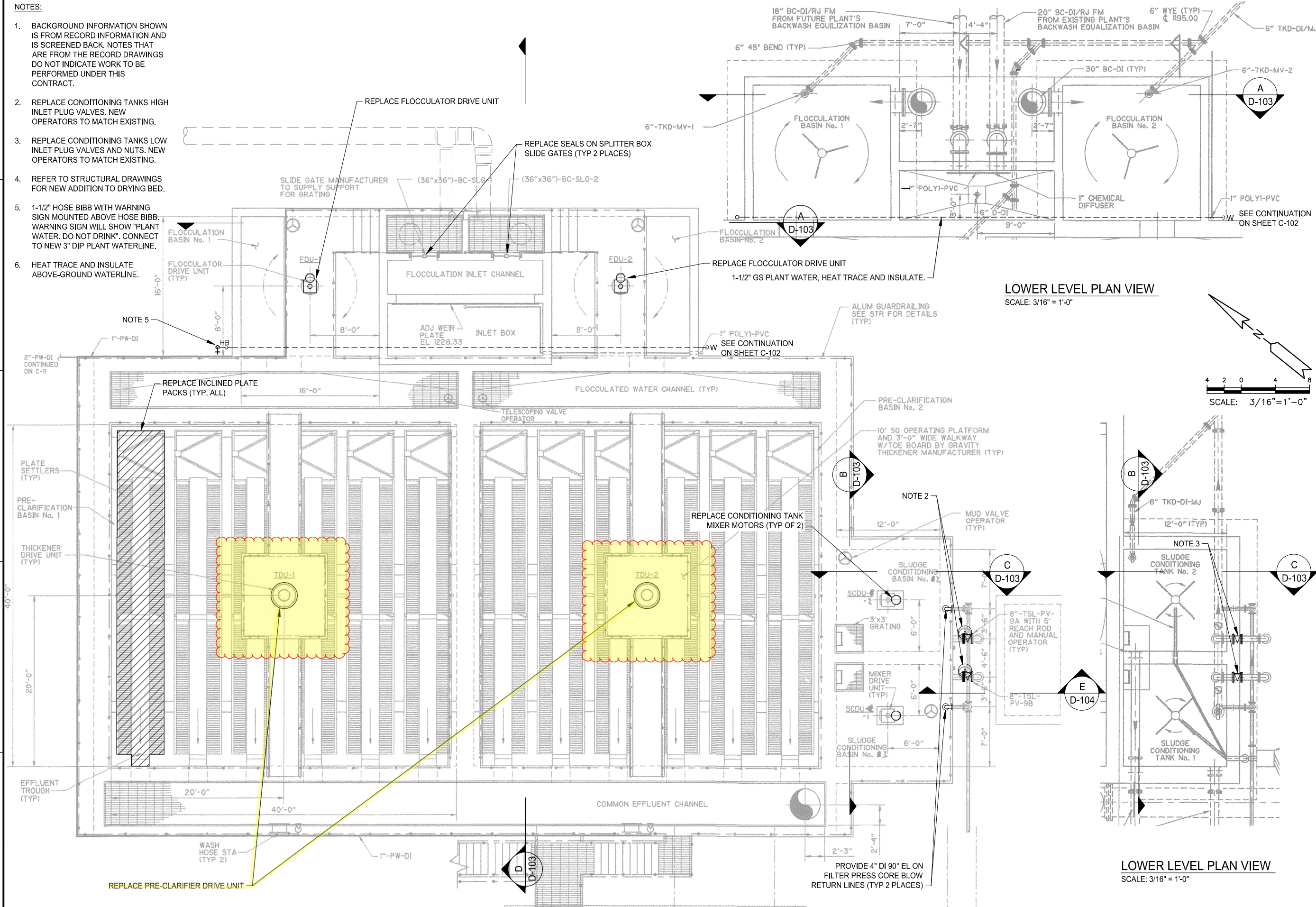
SCALE: 1" = 10'

SHEET X OF XXX

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NOTES:

1. BACKGROUND INFORMATION SHOWN IS FROM RECORD INFORMATION AND IS SCREENED BACK. NOTES THAT ARE FROM THE RECORD DRAWINGS DO NOT INDICATE WORK TO BE PERFORMED UNDER THIS CONTRACT.
2. REPLACE CONDITIONING TANKS HIGH INLET PLUG VALVES. NEW OPERATORS TO MATCH EXISTING.
3. REPLACE CONDITIONING TANKS LOW INLET PLUG VALVES AND NUTS. NEW OPERATORS TO MATCH EXISTING.
4. REFER TO STRUCTURAL DRAWINGS FOR NEW ADDITION TO DRYING BED.
5. 1-1/2" HOSE BIBB WITH WARNING SIGN MOUNTED ABOVE HOSE BIBB. WARNING SIGN WILL SHOW "PLANT WATER. DO NOT DRINK". CONNECT TO NEW 3" DIP PLANT WATERLINE.
6. HEAT TRACE AND INSULATE ABOVE-GROUND WATERLINE.



UPPER LEVEL PLAN VIEW
SCALE: 3/16" = 1'-0"

LOWER LEVEL PLAN VIEW
SCALE: 3/16" = 1'-0"

LOWER LEVEL PLAN VIEW
SCALE: 3/16" = 1'-0"

WADE TRIM
The Water Tower
2500 Clean Water Ct, Bldg A, Ste 304
Buford, GA 30519
407.417.2388
www.wadetrtrim.com
Certificate of Authorization Name: Wade Trim, Inc.
Authorization Number: PEF007400
Expiration Date: 06/30/2026

CONSULTANT PROJ. NO. GWN200101Q

NOT FOR CONSTRUCTION

Gwinnett
Water Resources
BUFORD, GA

GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES
**LANIER
FILTER PLANT**
2590 S. WATERWORKS
ROAD 30518

GCDWR PROJ. NO. M-1188-80

NO	DATE	ISSUED FOR	BY
C	08/16/24	90% DESIGN	GPE
B	10/30/23	60% DESIGN	GPE
A	05/26/23	30% DESIGN	GE

DATE	08/16/2024
DESIGNED BY	GPE
DRAWN BY	MDR
CHECKED BY	RH
CHECKED BY	
APPROVED BY	HY

SHEET TITLE

**PRE-CLARIFICATION
BASIN
MODIFICATIONS
PLANS**

78 D-102

SCALE: AS SHOWN

SHEET X OF XXX

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CONSULTANT PROJ. NO. GWN200101Q

NOT FOR CONSTRUCTION



BUFORD, GA

GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES

LANIER
FILTER PLANT
2590 S. WATERWORKS
ROAD 30518

GCDWR PROJ. NO. M-1188-80

NO	DATE	ISSUED FOR	BY
C	08/16/24	90% DESIGN	GPE
B	10/30/23	60% DESIGN	GPE
A	05/26/23	30% DESIGN	GE

DATE	08/16/2024
DESIGNED BY	GPE
DRAWN BY	MDR
CHECKED BY	RH
CHECKED BY	
APPROVED BY	HY

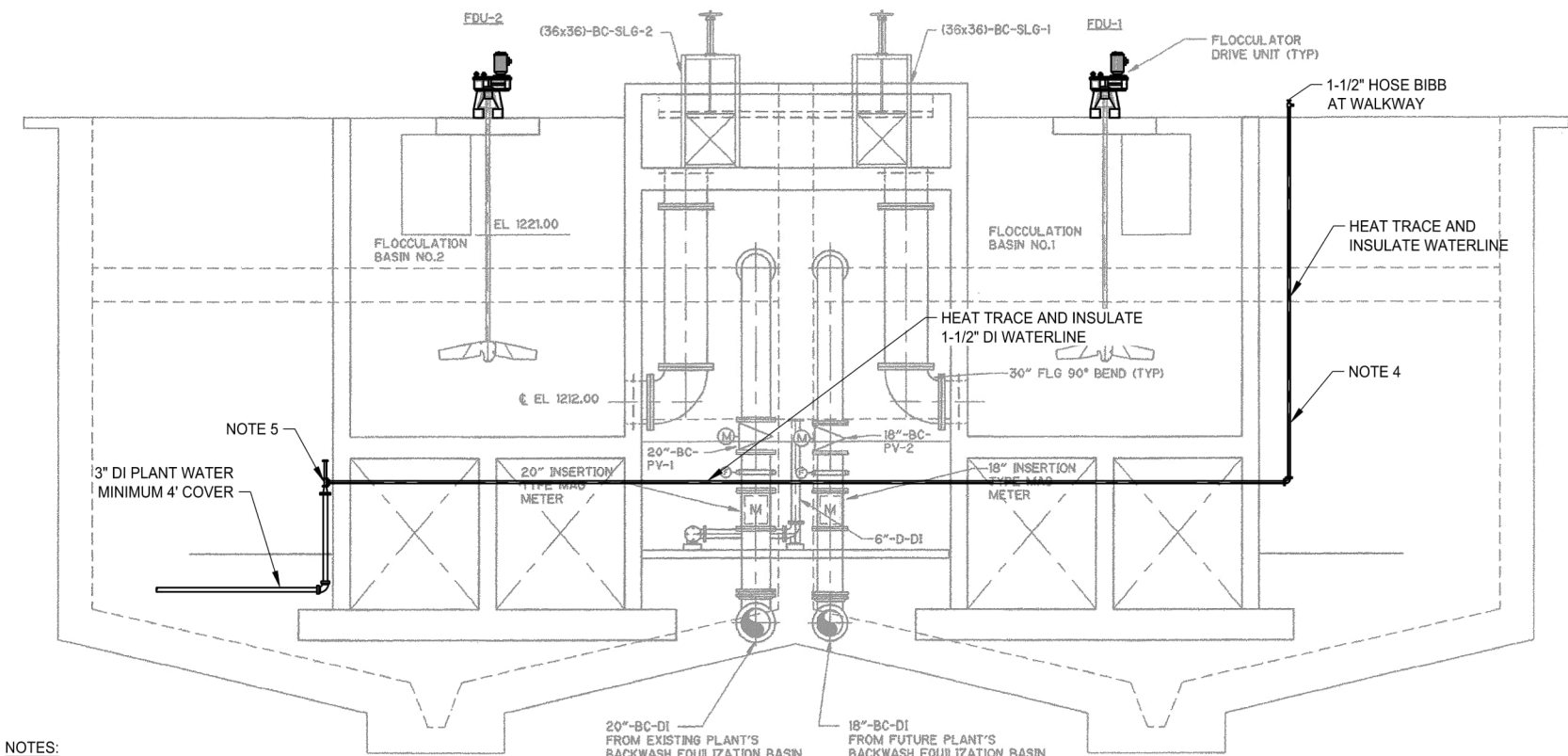
SHEET TITLE

PRE-CLARIFICATION
BASIN
MODIFICATIONS
SECTIONS

78 D-103

SCALE: AS SHOWN

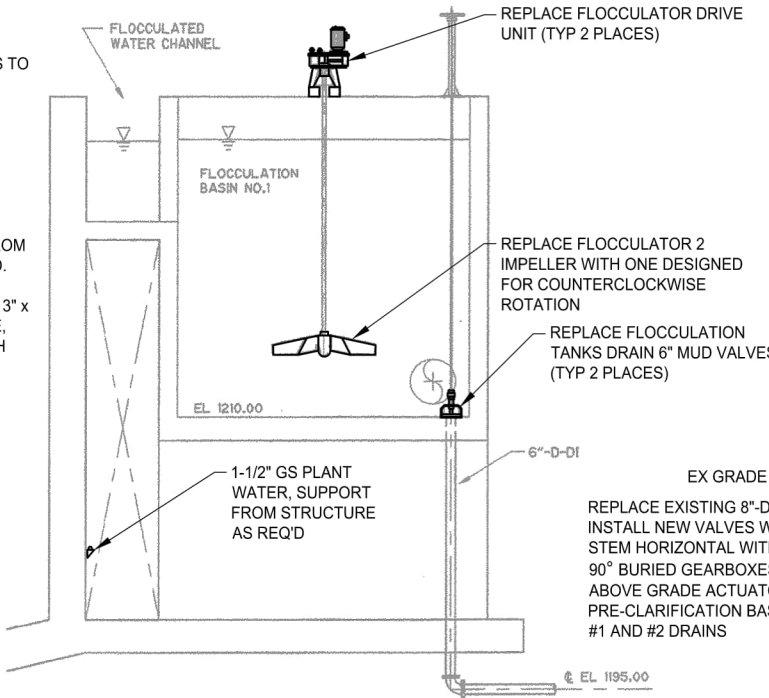
SHEET X OF XXX



PRE-CLARIFICATION INLET PIPING AND FLOCCULATION BASINS

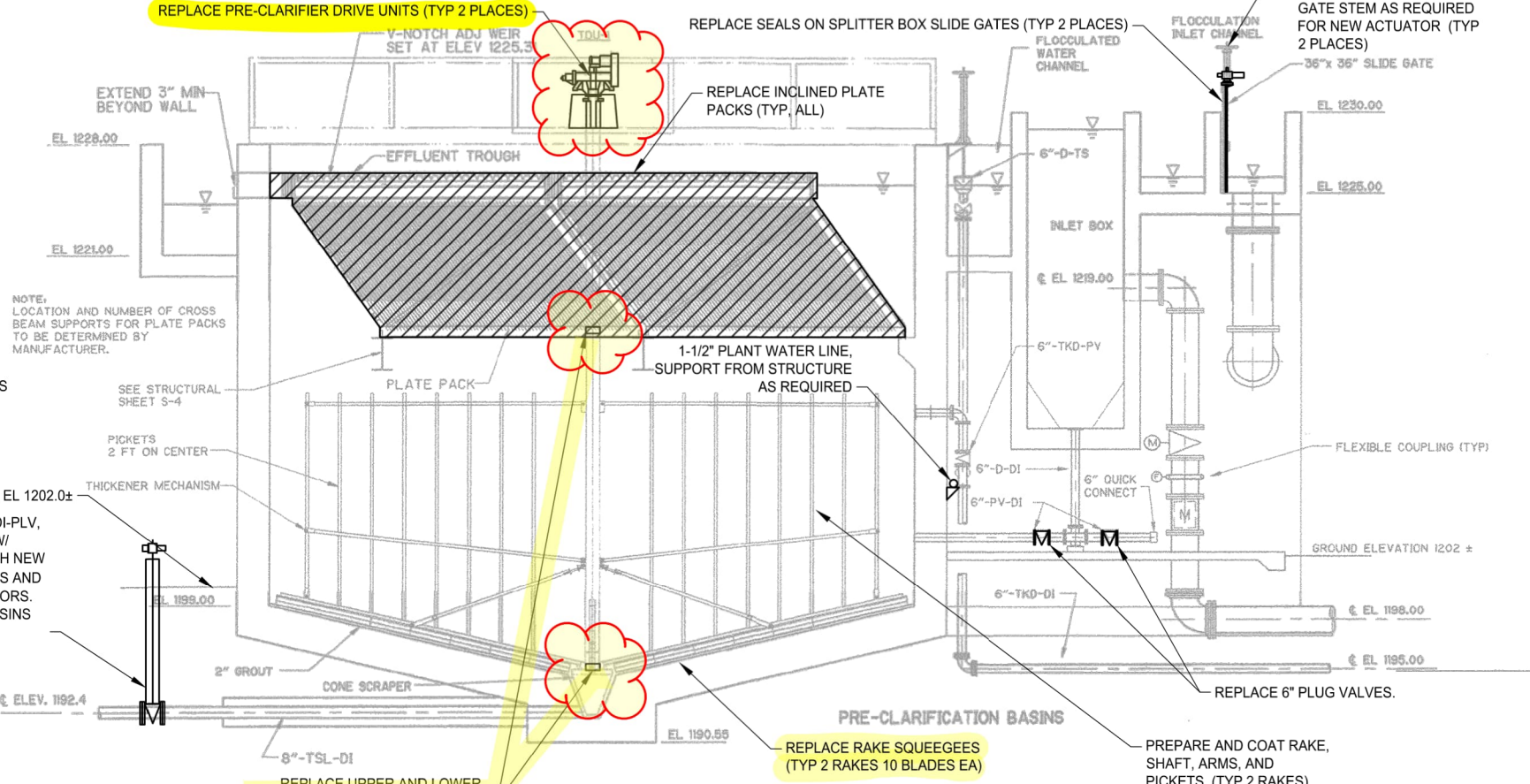
A SECTION
D-102 SCALE: 3/16" = 1'-0"

- NOTES:
- BACKGROUND INFORMATION SHOWN IS FROM RECORD INFORMATION AND IS SCREENED BACK. NOTES THAT ARE FROM THE RECORD DRAWINGS DO NOT INDICATE WORK TO BE PERFORMED UNDER THIS CONTRACT.
 - REPLACE CONDITIONING TANKS HIGH INLET PLUG VALVES. NEW OPERATORS TO MATCH EXISTING.
 - REPLACE CONDITIONING TANKS LOW INLET PLUG VALVES AND NUTS. NEW OPERATORS TO MATCH EXISTING.
 - SUPPORT WATERLINES FROM STRUCTURE AS REQUIRED.
 - CONTRACTOR TO INSTALL 3" x 1-1/2" COMPANION FLANGE, 1-1/2" TEE, AND 12" LENGTH OF 1-1/2" PIPE WITH BLIND FLANGE.



FLOCCULATION BASIN AND INLET PIPING

C SECTION
D-102 SCALE: 3/16" = 1'-0"

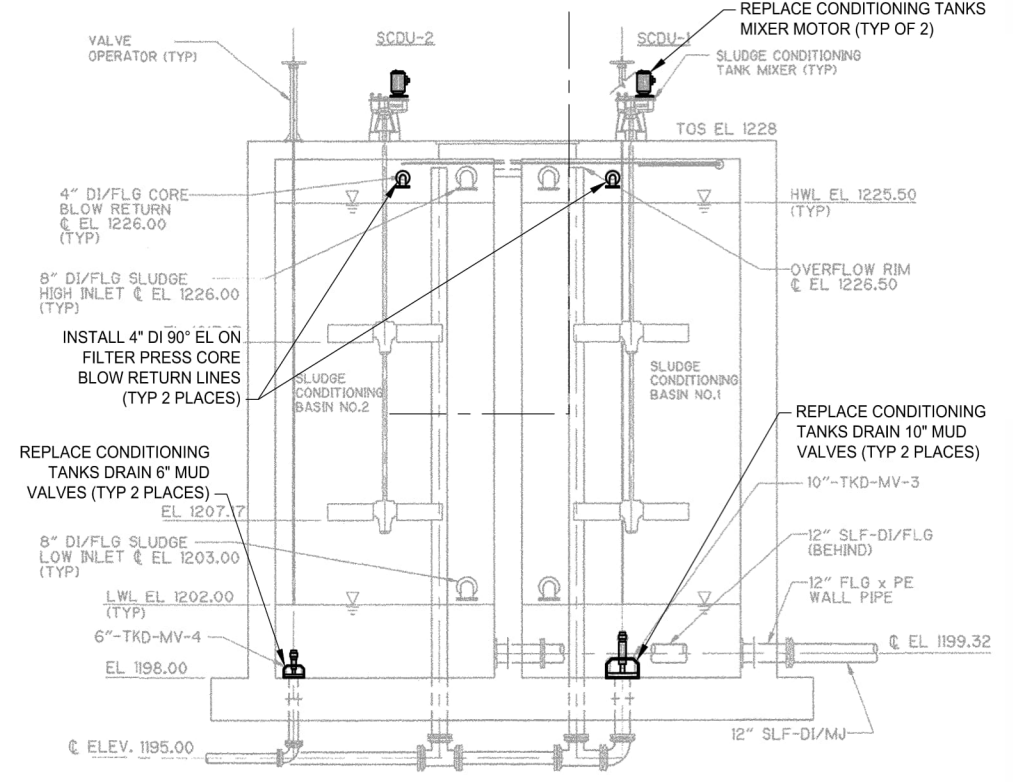


PRE-CLARIFICATION BASINS

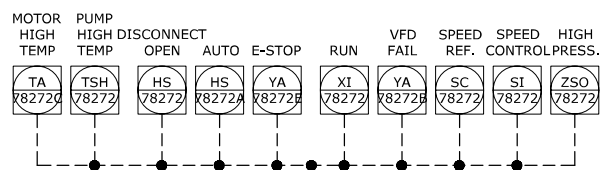
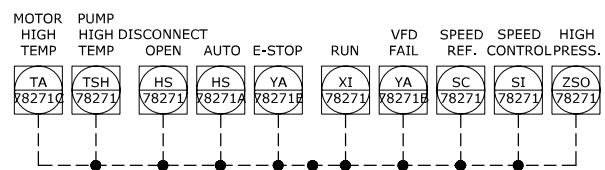
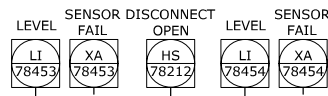
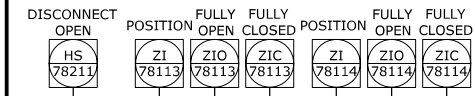
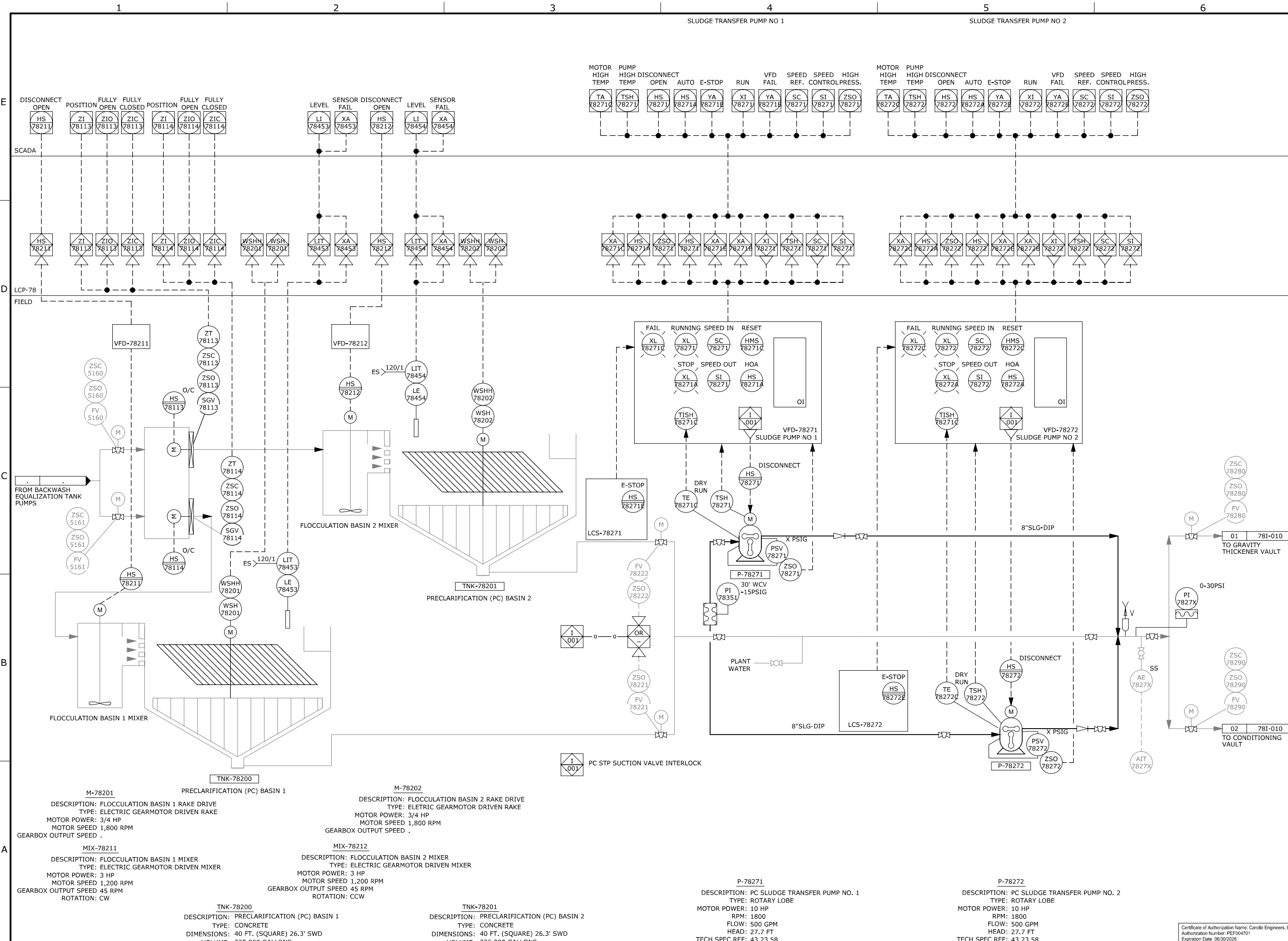
D SECTION
D-102 SCALE: 3/16" = 1'-0"

SLUDGE CONDITIONING TANKS

B SECTION
D-102 SCALE: 3/16" = 1'-0"



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M-78201
 DESCRIPTION: FLOCCULATION BASIN 1 RAKE DRIVE
 TYPE: ELECTRIC GEARMOTOR DRIVEN RAKE
 MOTOR POWER: 3/4 HP
 MOTOR SPEED 1,800 RPM
 GEARBOX OUTPUT SPEED .

M-78202
 DESCRIPTION: FLOCCULATION BASIN 2 RAKE DRIVE
 TYPE: ELECTRIC GEARMOTOR DRIVEN RAKE
 MOTOR POWER: 3/4 HP
 MOTOR SPEED 1,800 RPM
 GEARBOX OUTPUT SPEED .

MIX-78211
 DESCRIPTION: FLOCCULATION BASIN 1 MIXER
 TYPE: ELECTRIC GEARMOTOR DRIVEN MIXER
 MOTOR POWER: 3 HP
 MOTOR SPEED 1,200 RPM
 GEARBOX OUTPUT SPEED 45 RPM
 ROTATION: CW

MIX-78212
 DESCRIPTION: FLOCCULATION BASIN 2 MIXER
 TYPE: ELECTRIC GEARMOTOR DRIVEN MIXER
 MOTOR POWER: 3 HP
 MOTOR SPEED 1,200 RPM
 GEARBOX OUTPUT SPEED 45 RPM
 ROTATION: CCW

TNK-78200
 DESCRIPTION: PRECLARIFICATION (PC) BASIN 1
 TYPE: CONCRETE
 DIMENSIONS: 40 FT. (SQUARE) 26.3' SWD
 VOLUME: 325,000 GALLONS

TNK-78201
 DESCRIPTION: PRECLARIFICATION (PC) BASIN 2
 TYPE: CONCRETE
 DIMENSIONS: 40 FT. (SQUARE) 26.3' SWD
 VOLUME: 325,000 GALLONS

P-78271
 DESCRIPTION: PC SLUDGE TRANSFER PUMP NO. 1
 TYPE: ROTARY LOBE
 MOTOR POWER: 10 HP
 RPM: 1800
 FLOW: 500 GPM
 HEAD: 27.7 FT
 TECH SPEC REF: 43 23 58

P-78272
 DESCRIPTION: PC SLUDGE TRANSFER PUMP NO. 2
 TYPE: ROTARY LOBE
 MOTOR POWER: 10 HP
 RPM: 1800
 FLOW: 500 GPM
 HEAD: 27.7 FT
 TECH SPEC REF: 43 23 58



CONSULTANT PROJ. NO. GWN200101Q

NOT FOR CONSTRUCTION



BUFORD, GA
 GWINNETT COUNTY
 DEPARTMENT OF WATER
 RESOURCES
 LANIER
 FILTER PLANT
 2590 S. WATERWORKS
 ROAD 30518

GCDWR PROJ. NO. M-1188-80

NO	DATE	ISSUED FOR	RD	BY
A	08/16/24	90% DESIGN	RD	
N				

DATE: 08/16/2024
 DESIGNED BY: RD
 DRAWN BY: JW
 CHECKED BY:
 CHECKED BY:
 APPROVED BY:

SHEET TITLE

**PRECLARIFICATION
 BASINS
 SLUDGE TRANSFER
 PUMPS 1 AND 2
 P&ID**

78 I-009

SCALE: NOT TO SCALE

SHEET X OF XXX

Certificate of Authorization Name: Carollo Engineers, Inc.
 Authorization Number: PEF004701
 Expiration Date: 06/30/2026

GENERAL NOTES

- DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES ARE BASED ON PREVIOUS CONTRACT DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING W/ FIELD MEASUREMENTS ALL DIMENSIONS AND ELEVATIONS FOR FABRICATION AND/OR MODIFICATIONS OR ADDITIONS BEING MADE UNDER THIS CONTRACT. ANY DISCREPANCIES SHALL BE PRESENTED TO THE OWNER AND ANY DESIGN CONFLICTS SHALL BE RESOLVED WITH OWNER PRIOR TO FABRICATIONS OR CONSTRUCTION OF IMPACTED ITEMS.
- ALL EXISTING DIMENSIONS AND ELEVATIONS SHOWN WITH THE ± SYMBOL, ARE APPROXIMATE AND SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.
- ALL DIMENSIONS OR ELEVATIONS MARKED WITH AN ASTERISK "*" SHALL BE DETERMINED OR VERIFIED WITH EQUIP. MFR. CERTIFIED SHOP DRAWINGS OR FIELD MEASUREMENTS OF EXISTING CONSTRUCTION BEFORE FABRICATION AND CONSTRUCTION.
- ALL ADHESIVE ANCHORING SYSTEMS FOR POST-INSTALLED ANCHORS AND/OR REINFORCING DOWELS IN CONCRETE OR MASONRY SHALL BE "HIT-HY 200 ADHESIVE ANCHORING SYSTEM" BY HILTI AT SIZE AND SPACING INDICATED ON DRAWINGS WITH EMBEDMENT DEPTH INDICATED ON DRAWINGS. (SEE TABLE ON THIS SHEET FOR EMBEDMENT DEPTHS NOT INDICATED ON SECTIONS.) ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS PER ACI 318-19, 26.7.2.f.
- ALL POST-INSTALLED ANCHOR BOLTS INTO NEW OR EXISTING CONCRETE SHALL BE ASTM A316 STAINLESS STEEL THREADED ROD WITH STAINLESS STEEL WASHER AND NUT, U.N.O.
- ALL ELEVATIONS ARE REFERENCED TO GWINNETT COUNTY GIS DATUM.

DEMOLITION

- THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT DAMAGE TO EXISTING STRUCTURES, WHICH ARE TO REMAIN, DURING DEMOLITION WORK. ALL DAMAGE SHALL BE REPAIRED TO THE COMPLETE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- WHEN REMOVING EXISTING CONCRETE BY CUTTING OR CHIPPING THE CONTRACTOR SHALL ONLY REMOVE REINFORCING BARS WHICH CANNOT BE BENT INTO AREAS WHERE NEW CONCRETE WOULD COMPLETELY COVER THEM.
- IF FRACTURE OF ADJACENT CONCRETE OCCURS DURING DEMOLITION/ALTERATION WORK, THE REPAIR SHALL BE WITH AN ENGINEER APPROVED PRESSURE INJECTED EPOXY, TO THE COMPLETE SATISFACTION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL PROVIDE WRITTEN PLAN AND DESCRIPTION OF ALL DEMOLITION, MODIFICATION, OR ALTERATION WORK ON EXISTING STRUCTURES FOR REVIEW AND ACCEPTANCE PRIOR TO BEGINNING WORK.

CAST-IN-PLACE CONCRETE

- THE DETAILING, BENDING, AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI STANDARD 350-06/350R-06 CODE AND ACI DETAILING MANUAL, SP-96 (94). FIELD BENDING WILL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER
- ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
- ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 5000 PSI @ 28 DAYS, UNLESS NOTED OTHERWISE.
- STEEL REINFORCING SHALL NOT BE SPLICED AT POINTS OTHER THAN SHOWN ON THE PLANS, EXCEPT AS APPROVED BY THE ENGINEER, UNLESS NOTED OTHERWISE.
- ALL COLD JOINTS IN CONCRETE STRUCTURES SHALL HAVE A CONTINUOUS WATERSTOP CREATING A WATERTIGHT JOINT AS DETAILED. WHERE NOT SPECIFIED ALL COLD JOINTS SHALL HAVE A HYDROPHILIC WATERSTOP PER SPECIFICATIONS. KEEP WATERSTOP DRY DURING INSTALLATION AND UNTIL NEW CONCRETE POUR.
- THE LENGTH OF ALL LAP SPLICES SHALL BE AS SPECIFIED IN "REINFORCING TENSION SPLICE TABLE" ON THIS SHEET UNLESS OTHERWISE INDICATED IN DRAWINGS. WHEN BARS OF DIFFERENT SIZE ARE BEING LAPPED, THE LENGTH SHALL BE THE SPECIFIED LAP LENGTH OF THE LARGER BAR.
- BOTTOM AND TOP REINFORCING BARS FOR ALL DISCONTINUOUS ENDS OF BEAMS AND SLABS SHALL HAVE HOOKS AND SPLICES CONFORMING TO ACI MANUAL OF STANDARD PRACTICE.
- ALL NEW TO EXISTING CONCRETE SHALL HAVE A CONTINUOUS HYDROPHILIC RUBBER WATERSTOP (TYP, U.N.O.)
- ALL FILLET AND TOPPING CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 6000 PSI, FILLET CONCRETE, SHALL BE PLACED TO PRODUCE CONTOURS INDICATED ON PLANS, AND SHALL RECEIVE SMOOTH FLOAT FINISH.
- CONCRETE COVER OVER PRIMARY REINFORCEMENT SHALL BE (2) INCHES MINIMUM (1 1/2" FOR COLUMN TIES AND BEAM STIRRUPS), UNLESS NOTED OTHERWISE, AND (3) INCHES MINIMUM WHERE CAST AGAINST EARTH.

CONCRETE REPAIR

- SEE SHEET S-502 FOR CONCRETE REHABILITATION DETAILS.
- FOR CONCRETE PATCHING MATERIAL, SEE SPECIFICATION SECTION 03 93 00.
- CONCRETE CRACK REPAIR SHALL BE PERFORMED USING A HYDROPHILIC POLYURETHANE INJECTION REFER TO SPEC SECTION 03 93 00 FOR ADDITIONAL INFORMATION. THE QUANTITIES OF CRACK REPAIR FOR BIDDING PURPOSES ARE IN THE "STRUCTURAL DEFECT QUANTITY SUMMARY TABLE" ON THIS SHEET.

METALS-STEEL

- STRUCTURAL STEEL AND MISCELLANEOUS METALS DESIGN SHALL CONFORM TO THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AISC/ANSI 360.
- ALL STRUCTURAL STEEL W AND WT SHAPES SHALL CONFORM TO ASTM A-992, GRADE 50. MISCELLANEOUS METALS SHALL CONFORM TO ASTM A-36.
- BOLTS SHALL BE A MINIMUM 3/4" DIAMETER, ASTM A325N, TYPE 1, UNLESS NOTED OTHERWISE. PROVIDE COMPATIBLE A563 GRADE DH, HEAVY HEX NUTS, AND F436 GRADE 1 WASHERS.
- ALL GALVANIZED STEEL SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123, UNLESS NOTED OTHERWISE.
- ALL STAINLESS STEEL BARS AND SHAPES SHALL CONFORM TO ASTM A267, TYPE 316 OR 316L. ALL STAINLESS STEEL PLATES SHALL CONFORM TO ASTM A240, TYPE 316 OR 316L, UNLESS OTHERWISE SPECIFIED.
- WELDING SHALL CONFORM TO AWS D1.1-1 AND AISC 341-05. ALL ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO AWS A5.1 OR A5.5, CLASS E70XX.
- STAINLESS STEEL WELDING SHALL CONFORM TO AWS D1.6. ALL ELECTRODES FOR STAINLESS STEEL FABRICATION SHALL CONFORM TO A5.4 OR A5.9.

MISCELLANEOUS

- CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND ACCOMMODATE OPENINGS AND EMBEDDED ITEMS SHOWN ON OTHER DRAWINGS.

DESIGN LOADS

- DESIGN LOADS SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE 2018.
- DESIGN LOADS (GENERAL) - RISK CATEGORY III
 - CONC. SLAB LIVE LOAD = 200 PSF
 - PLATFORMS, WALKS AND STAIR LIVE LOAD = 100 PSF
 - WIND LOADS:
 - BASIC WIND SPEED (3-SECOND) = 113 MPH
 - WIND EXPOSURE = CATEGORY C
 - TOPOGRAPHIC FACTOR Kzt = 1.0
 - HEIGHT AND EXPOSURE FACTOR: = 1.40
 - EARTHQUAKE LOADS:
 - SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS Ss = 0.205
 - SPECTRAL RESPONSE ACCELERATION AT 1-SEC PERIODS S1 = 0.088
 - SITE CLASS C
 - DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS Sds = 0.219
 - DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SEC PERIODS Sd1 = 0.141
 - SEISMIC USE GROUP B
 - SEISMIC IMPORTANCE FACTOR I = 1.25

ABBREVIATIONS

ALT	ALTERNATE	HPC	HIGH PERFORMANCE COATING
ALUM	ALUMINUM	HK	HOOK
AVG	AVERAGE	HT	HEIGHT
B	BOTTOM	ID	INSIDE DIAMETER
BLDG	BUILDING	IE	INVERT ELEVATION
BM	BEAM	IF	INSIDE FACE
BOTT	BOTTOM	IN	INCHES
BSMT	BASEMENT	IN TO IN	IN FACE WALL TO IN FACE WALL
CJ	CONSTRUCTION JOINT	INS	INSIDE
CL	CENTERLINE	INT	INTERIOR
CLR	CLEAR	JT	JOINT
CHAN	CHANNEL	KIP	THOUSAND POUNDS
COL	COLUMN	KSI	KIPS PER SQUARE INCH
CONC	CONCRETE	KB	KNEE BRACE
CONST	CONSTANT	L	LENGTH
CONSTR	CONSTRUCTION	LP	LOW POINT
CONT	CONTINUOUS	LGHT	LENGTH
CLSM	CONTROLLED LOW STRENGTH MATERIAL	MATRL	MATERIAL
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM
COR	CORNER	MIN	MINIMUM
CY	CUBIC YARD	MCP	MULTIPLE CORROSION PROTECTION
DBR	DOWEL BAR REPLACEMENT	MO	MASONRY OPENING
DBL	DOUBLE	NA	NOT APPLICABLE
DET	DETAIL	NF	NEAR FACE
DIA	DIAMETER	NS	NEAR SIDE
DIAG	DIAGONAL	NTS	NOT TO SCALE
DISC	DISCONTINUOUS	NOT IN CONTRACT	NOT IN CONTRACT
DWLS	DOWELS	OC	ON CENTER
EJ	EXPANSION JOINT	OD	OUT SIDE DIAMETER
EE	EACH END	OF	OUT SIDE FACE
EF	EACH FACE	OPNG	OPENING
ES	EACH SIDE	OPS	OPPOSITE
EQ	EQUAL	PSF	POUNDS PER SQ. FEET
EW	EACH WAY	PSI	POUNDS PER SQUARE INCH
EAC	EACH	PT	PRESSURE TREATED
EL	ELEVATION	REINF	REINFORCEMENT
EX	EXISTING	RE	REFER TO
EXIST	EXISTING/ EXTENSION	REM	REMOVABLE
EXT	EXTERIOR/ EXTENSION	SHTS	SHEETS
FC	FILLET CONCRETE	SIM	SIMILAR
FD	FLOOR DRAIN	SJ	SLAB CONTROL JOINT
FF	FAR FACE	SS	STAINLESS STEEL
FS	FAR SIDE	STR	STIRRUPS
FIN	FINISH	STRUCT	STRUCTURAL
FL	FLOOR	T	TYPE
FND	FOUNDATION	T/	TOP
FT	FEET	TERS	TEMPORARY EARTH RETENTION SYSTEM
FTNG	FOOTING	THK	THICK
GR	GRADE	TOS	ELEVATION TOP OF STRUCTURAL STEEL
GVW	GROSS VEHICLE WEIGHT	TYP	TYPICAL
H	HORIZONTAL	UNO	UNLESS NOTED OTHERWISE
HC	HOLLOW CORE	V	VERTICAL
HEW	HORIZONTAL EACH WAY	VEF	VERTICAL EACH FACE
HP	HIGH POINT	W	WIDTH
		WP	WORK POINT

**ADHESIVE ANCHORING SYSTEM
MINIMUM EMBEDMENT DEPTH FOR
DOWELS AND RODS**

REINFORCING BARS/DOWELS		
BAR SIZE	EMBED DEPTH	REMARKS
#3	5 1/2"	
#4	5 1/2"	
#5	7"	
#6	8 1/2"	
#7	10"	
#8	11 3/4"	

ANCHOR RODS		
BOLT DIAMETER	EMBED DEPTH	
3/8"	3 1/2"	
1/2"	4 1/4"	
5/8"	5"	
3/4"	6 5/8"	
1"	8 1/4"	

- NOTES:**
- ALL ANCHORS INSTALLED WITH AN ADHESIVE ANCHORING SYSTEM SHALL, AT A MINIMUM, HAVE THE EMBEDMENT DEPTHS INDICATED IN THE TABLE ABOVE UNLESS SPECIFICALLY INDICATED OTHERWISE ON DRAWINGS.
 - CONFIRM REQUIRED EMBEDMENT DEPTHS WITH MANUFACTURERS REQUIREMENTS FOR DEVELOPING THE TENSION CAPACITY OF THE ANCHOR RODS (TYP).

**REINFORCING TENSION
SPLICE TABLE**

BAR SIZE	TENSION LAP	* TOP BARS
#3	16"	22"
#4	20"	29"
#5	24"	36"
#6	29"	43"
#7	42"	63"
#8	48"	72"
#9	54"	81"
#10	61"	91"
#11	67"	101"

- NOTES:**
- ABOVE TABLE IS FOR NORMAL WEIGHT CONCRETE; f_c = 5,000 PSI AND REINFORCING STEEL; f_y = 60,000 PSI.
 - ALL SPLICES SHALL BE CONSIDERED TENSION SPLICES USING LAP LENGTHS IN TABLE ABOVE UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS.
 - LENGTHS ARE BASED ON LAP CLASS B SPLICES WITH CENTER TO CENTER SPACING OF BARS GREATER THAN 6 DIAMETERS.
 - TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST UNDER THEM.
 - USE TENSION LAP LENGTHS FOR HORIZONTAL & VERTICAL WALL BARS.

STRUCTURAL DEFECT QUANTITY SUMMARY TABLE

ITEM	DEFECT TYPE	ESTIMATED QUANTITY	PAY UNIT
1	FILLET CONCRETE SPALL	56	SFT
2	JOINT SEALANT REPAIR	16	LFT
3	T1 CRACK REPAIR-LEAKING >6" AF	214	LFT
4	T1 CRACK REPAIR-LEAKING <6" AF	117	LFT
5	T1 CRACK REPAIR-LEAKING OVERHEAD	144	LFT
6	LEDGER ANGLE REPLACEMENT (DET. 6 / S-501)	170	LFT



The Water Tower
2500 Clear Water Ct, Bldg A, Ste 304
Buford, GA 30519
470.447.2388
www.wadeftrim.com
Certificate of Authorization Name: Wade Trim, Inc.
Authorization Number: PE007400
Expiration date: 05/30/2025

CONSULTANT PROJ. NO. GWN200101Q

NO RECORD DRAWING ON



BUFORD, GA

**GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES**

**LANIER
FILTER PLANT
2590 S. WATERWORKS
ROAD 30518**

GCDWR PROJ. NO. M-1188-80

C	DATE	DESIGN	HY
B	10/16/23	60% DESIGN	HY
A	05/26/23	30% DESIGN	HY
NO	DATE	ISSUED FOR	BY

DATE 08/16/2024
DESIGNED BY TMB
DRAWN BY TSB
CHECKED BY BG
CHECKED BY BG
APPROVED BY HY

SHEET
TITLE

**NOTES,
ABBREVIATIONS, AND
TABLES**

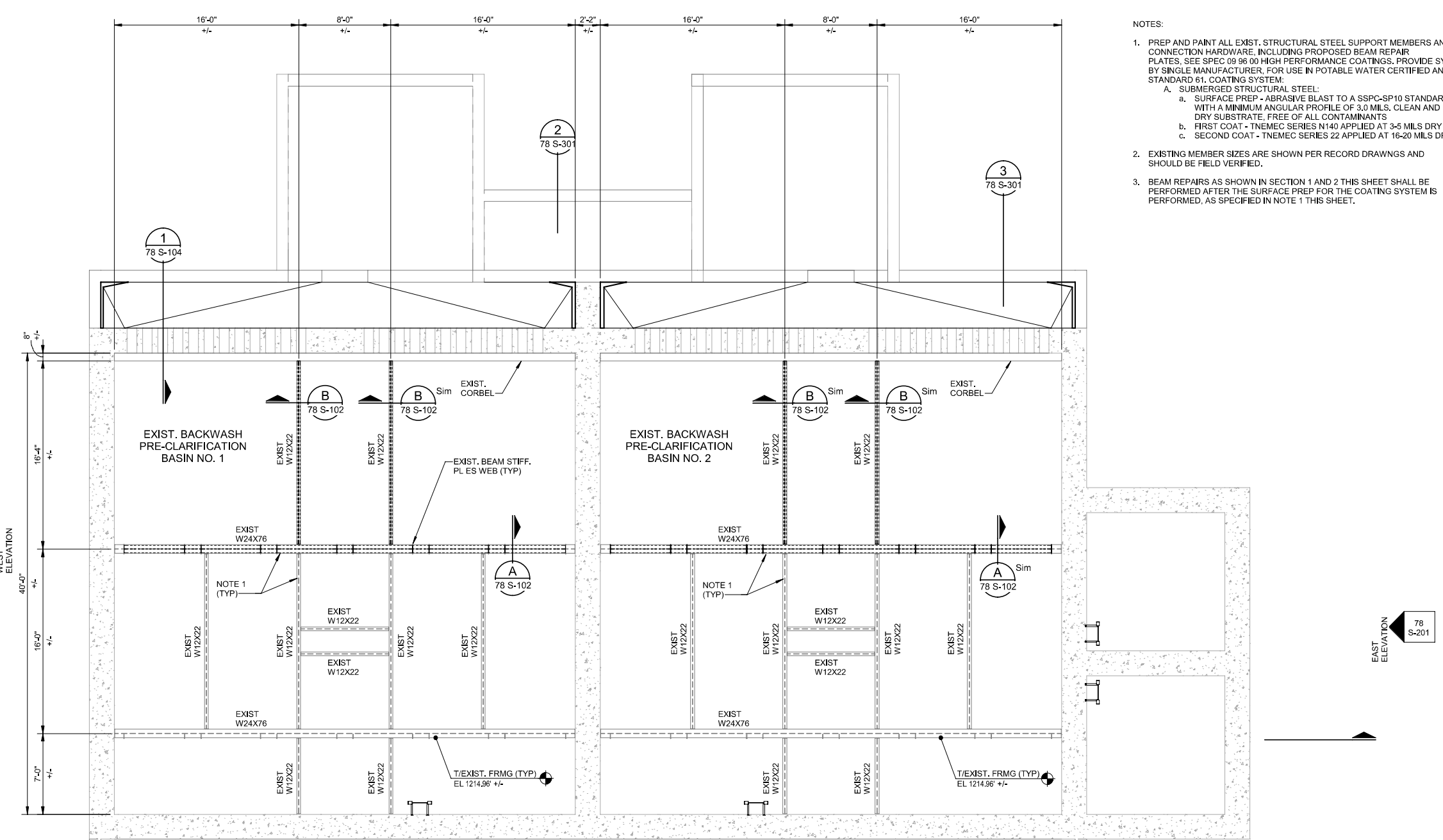
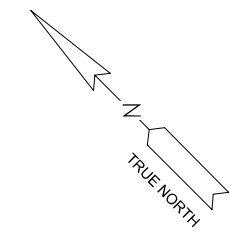
78 S-001

SCALE: As indicated

SHEET X OF xxx

Autodesk Docs://GWN2001-Lanier Filter Plant/GWN200101Q-LFP Residuals Preclarification Basin Rehab-S-R22.rvt 8/15/2024 3:41:39 PM

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- NOTES:
- PREP AND PAINT ALL EXIST. STRUCTURAL STEEL SUPPORT MEMBERS AND CONNECTION HARDWARE, INCLUDING PROPOSED BEAM REPAIR PLATES, SEE SPEC 09 96 00 HIGH PERFORMANCE COATINGS. PROVIDE SYSTEM BY SINGLE MANUFACTURER, FOR USE IN POTABLE WATER CERTIFIED ANSINFS STANDARD 61. COATING SYSTEM:
 - SUBMERGED STRUCTURAL STEEL:
 - SURFACE PREP - ABRASIVE BLAST TO A SSPC-SP10 STANDARD, WITH A MINIMUM ANGULAR PROFILE OF 3.0 MILS. CLEAN AND DRY SUBSTRATE, FREE OF ALL CONTAMINANTS
 - FIRST COAT - TNEPEC SERIES N140 APPLIED AT 3-5 MILS DRY
 - SECOND COAT - TNEPEC SERIES 22 APPLIED AT 16-20 MILS DRY
 - EXISTING MEMBER SIZES ARE SHOWN PER RECORD DRAWINGS AND SHOULD BE FIELD VERIFIED.
 - BEAM REPAIRS AS SHOWN IN SECTION 1 AND 2 THIS SHEET SHALL BE PERFORMED AFTER THE SURFACE PREP FOR THE COATING SYSTEM IS PERFORMED, AS SPECIFIED IN NOTE 1 THIS SHEET.

WADE TRIM

The Water Tower
2500 Clean Water Ct, Bldg A, Ste 304
Buford, GA 30519
470.447.2388
www.wadeftrim.com

Certificate of Authorization Name: Wade Trim, Inc.
Authorization Number: PEF007400
Expiration date: 05/30/2025

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BUFORD, GA
GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES
LANIER
FILTER PLANT
2590 S. WATERWORKS
ROAD 30518

GCDWR PROJ. NO. M-1188-80

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A	05/26/23	30% DESIGN	HY

DATE	08/16/2024
DESIGNED BY	TMB
DRAWN BY	TSB
CHECKED BY	BG
CHECKED BY	BG
APPROVED BY	HY

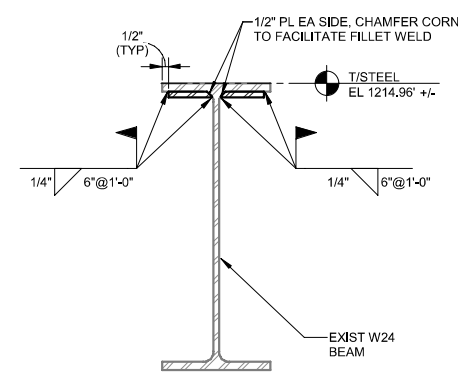
SHEET TITLE

BACKWASH
PRE-CLARIFICATION
FRAMING PLAN

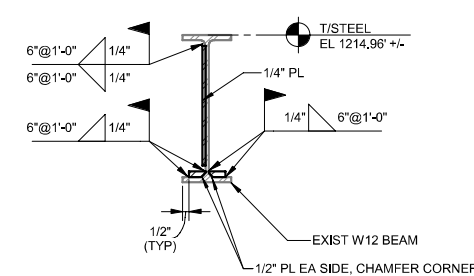
78 S-102

SCALE: As indicated

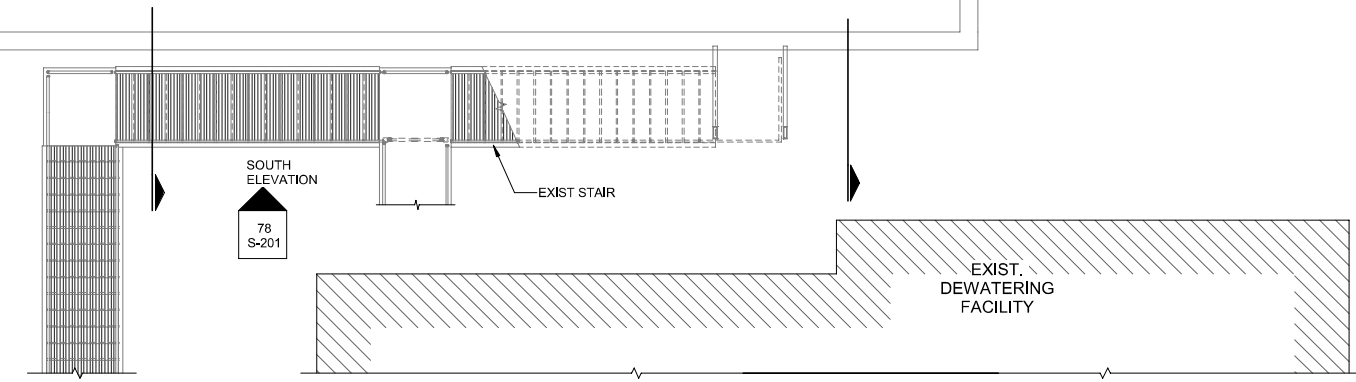
SHEET X OF XXX



A EXIST BEAM REPAIR DETAIL
78 S-102 SCALE: NONE



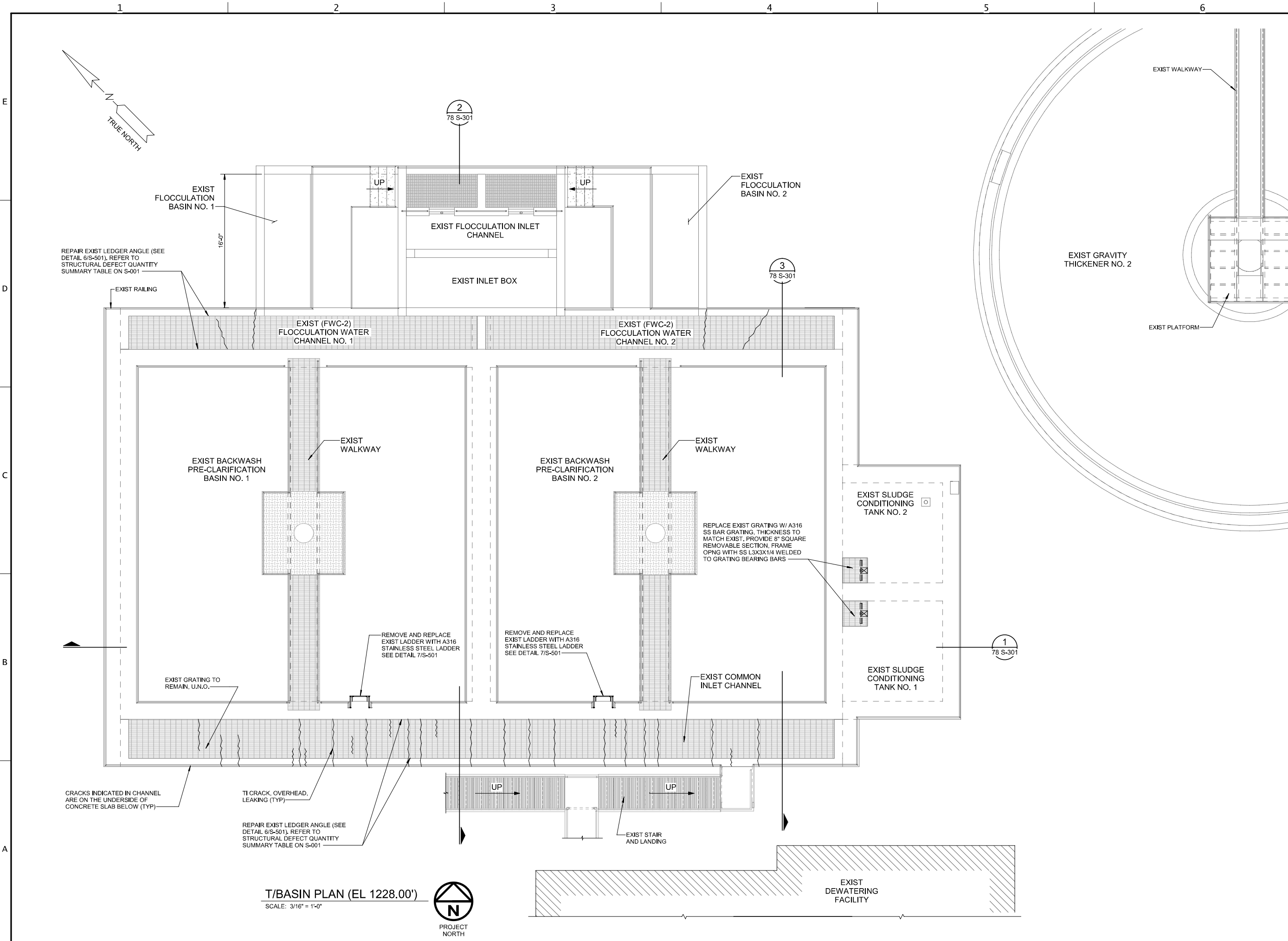
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78 S-102 SCALE: NONE



EXISTING FRAMING IMPROVEMENTS PLAN
(EL 1214.96')
SCALE: 3/16" = 1'-0"



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WADE TRIM
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 2500 Clean Water Ct, Bldg A, Ste 304
 Buford, GA 30519
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 www.wadefirm.com
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 Authorization Number: PEF007430
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 Water Resources
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GWINNETT COUNTY
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A	05/26/23	30% DESIGN	HY

DATE	08/16/2024
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CHECKED BY	BG
APPROVED BY	HY

SHEET TITLE

**BACKWASH
 PRE-CLARIFICATION
 TOP SLAB ELEVATION**

78 S-103

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

SHEET X OF XXX

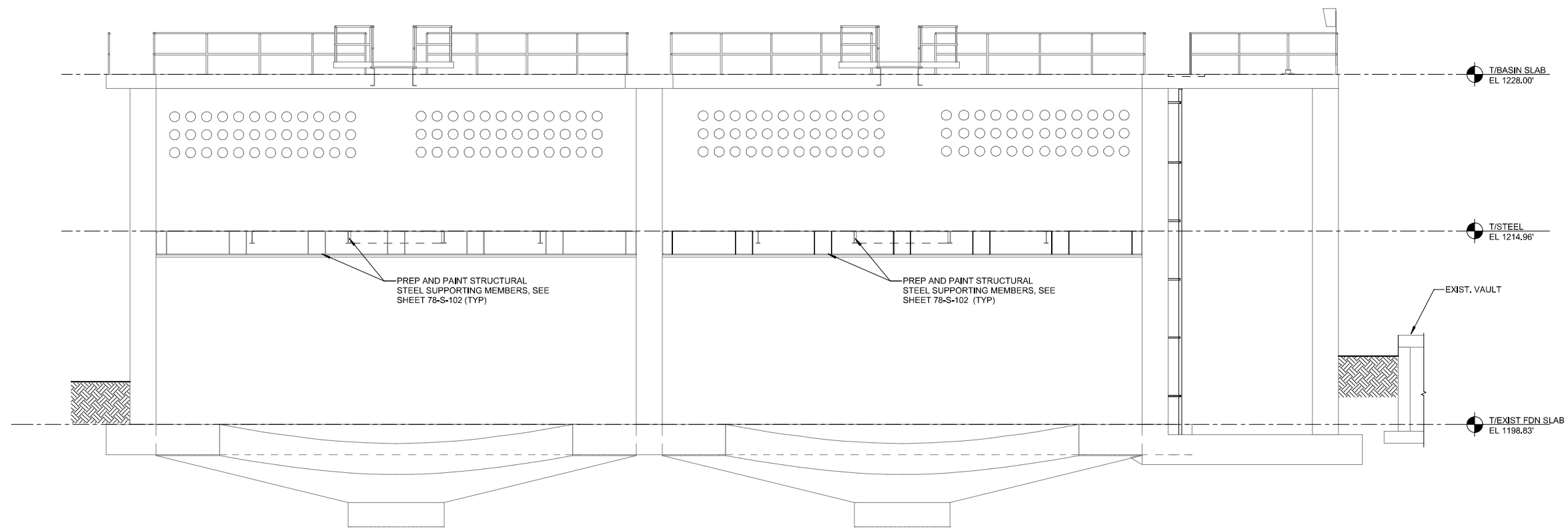
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 PROJECT NORTH

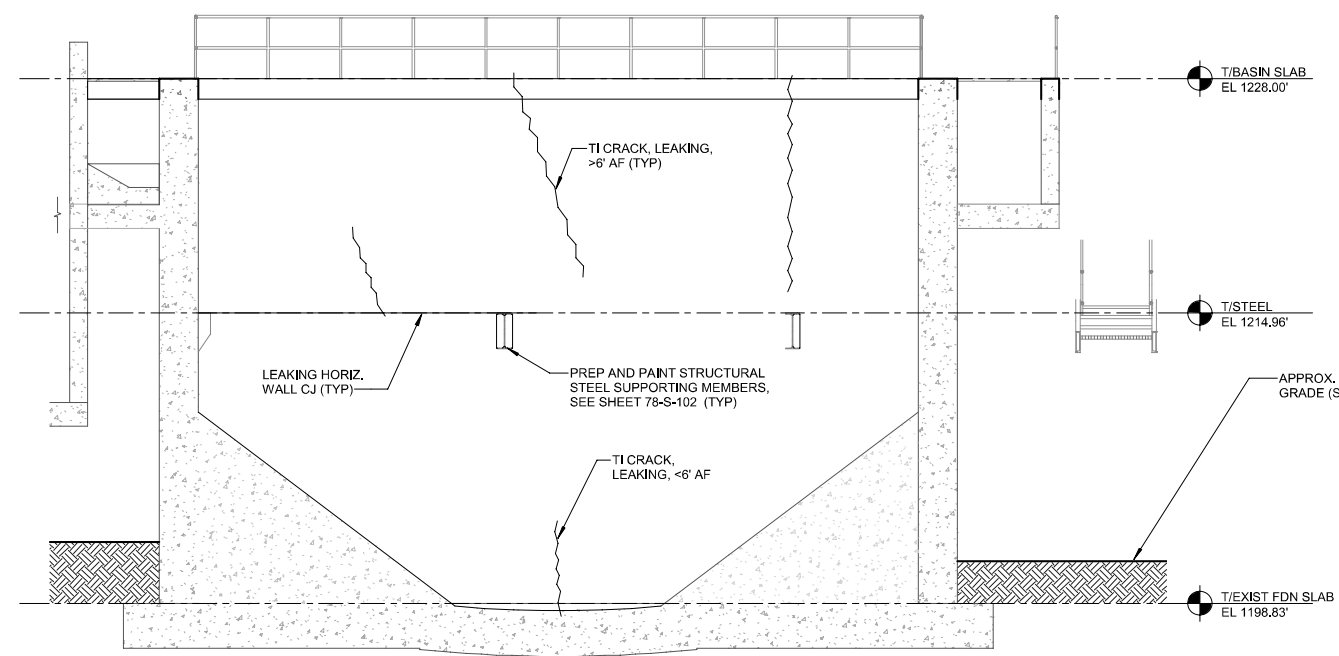
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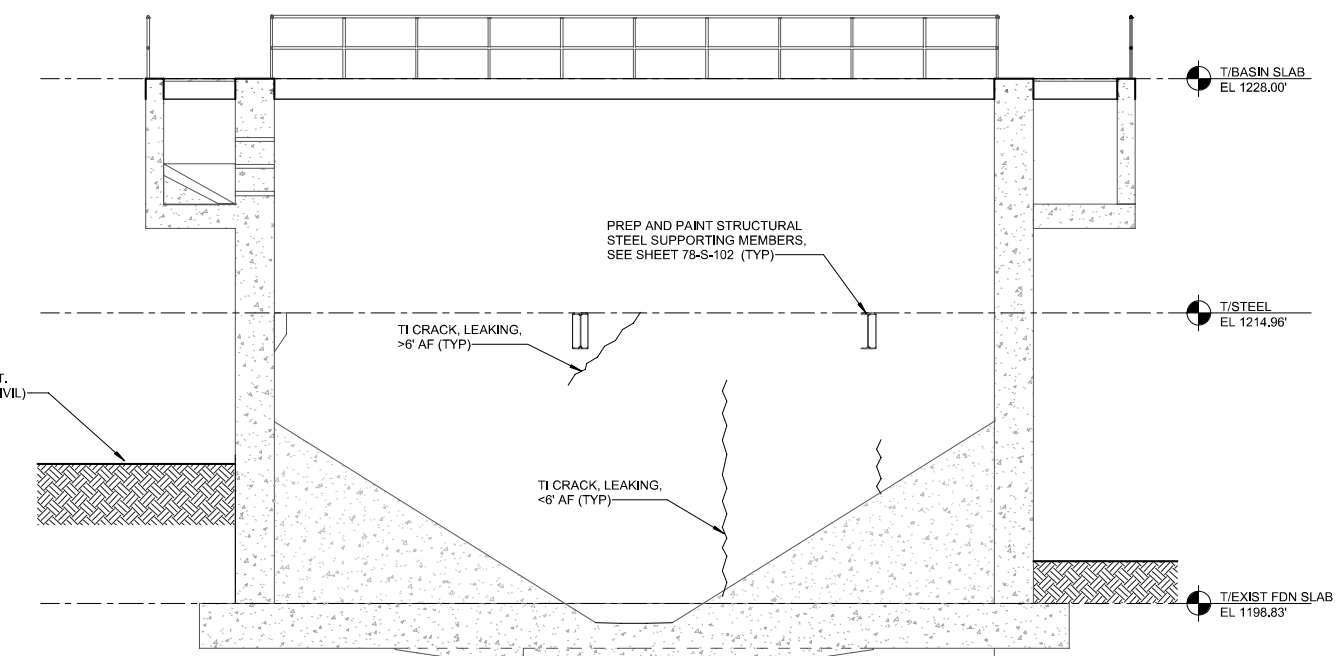
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D
C
B
A



SECTION I
78 S-101 SCALE: 3/16" = 1'-0"



SECTION II
78 S-101 SCALE: 3/16" = 1'-0"



SECTION III
78 S-101 SCALE: 3/16" = 1'-0"

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Gwinnett
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DESIGNED BY	TMB
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CHECKED BY	BG
APPROVED BY	HY

SHEET TITLE

STRUCTURAL
SECTIONS

78 S-301

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

SHEET X OF XXX