



Department of Management Services

Purchasing Division

241 West South Street

Kalamazoo, MI 49007-4796

Phone: 269.337.8020

Fax: 269.337.8500

www.kalamazoocity.org

cokpurchasing@kalamazoocity.org

INVITATION FOR BID (IFB)

The City of Kalamazoo, Michigan is soliciting sealed bids for:

Procurement Name: **Contract 75 A.2-Tertiary Process Equipment: Perforated Plate Screen**

Bid Reference#: **89000-002.0**

IFB ISSUE DATE: July 7, 2020

BID DUE/OPENING DATE: August 4, 2020 @ 3:30 p.m. Local Time

Facsimile Bids Will Not Be Accepted.

MAILING ADDRESS & INSTRUCTIONS

Mail to:

Purchasing Division
241 W. South Street
Kalamazoo, MI 49007

Questions about this IFB should be directed to:

Department Contact: **Ryan Stoughton, PE,**
Assistant City Engineer
stoughtonr@kalamazoocity.org

Include on the Envelope the Project Name and Bid Reference Number. All Envelopes Must Be Sealed.

You are invited to submit a bid for this project. Specifications, terms, conditions and instructions for submitting bids are contained herein. This Invitation for Bid with all pages, documents and attachments contained herein, or subsequently added to and made a part hereof, submitted as a fully and properly executed bid shall constitute the contract between the City and the successful bidder when approved and accepted on behalf of the City by an authorized official or agent of the City. Please review the bid document as soon as possible and note the **DEADLINE FOR QUESTIONS** in the Instructions to Bidders.

All bidders shall complete and return the Bid and Award page(s) and submit all information requested herein in order for a bid to be responsive. The bid document shall be returned in its entirety, in a properly identified and sealed envelope to the Purchasing Division at the above address. **BIDS MUST BE RECEIVED BEFORE THE DUE DATE - LATE BIDS WILL NOT BE CONSIDERED.** The City reserves the right to postpone the bid opening for its own convenience.

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STATEMENT OF NO BID

NOTE: If you DO NOT intend to bid on this commodity or service, please complete and return this form immediately. Your response will assist us in evaluating all responses for this important project and to improve our bid solicitation process.

The Purchasing Division of the City of Kalamazoo wishes to keep its bidders list file up-to-date. If, for any reason you cannot supply the commodity/service noted in this bid solicitation, this form must be completed and returned to remain on the particular bid list for future projects of this type.

If you do not respond to this inquiry within the time set for the bid opening date and time noted, we will assume that you can no longer supply this commodity/service, and your name will be removed from this bid list.

- _____ Specifications too "tight", i.e. geared toward one brand or manufacturer only (explain below).
- _____ Specifications are unclear (explain below).
- _____ We are unable to meet specifications.
- _____ Insufficient time to respond to the Invitation for Bid.
- _____ Our schedule would not permit us to perform.
- _____ We are unable to meet bond requirements.
- _____ We are unable to meet insurance requirements.
- _____ We do not offer this product or service.
- _____ Remove us from your bidders list for this commodity or service.
- _____ Other (specify below).

REMARKS: _____

SIGNED: _____ NAME: _____
(Type or Print)

TITLE: _____ DATE: _____

FIRM NAME: _____
(if any)

ADDRESS: _____
(Street address) (City) (State) (Zip)

PHONE: _____ FAX: _____

EMAIL: _____

**SECTION I
INSTRUCTIONS TO BIDDERS**

1. **EXAMINATION OF BID DOCUMENT**-Before submitting a bid, bidders shall carefully examine the specifications and shall fully inform themselves as to all existing conditions and limitations. The bidder shall indicate in the bid the sum to cover the cost of all items included on the bid form.
2. **PREPARATION OF BID**-The bid shall be legibly prepared in ink or typed. If a unit price or extension already entered by the bidder on the Bid and Award form is to be altered, it shall be crossed out and the new unit price or extension entered above or below and initialed by the bidder with ink. The bid shall be legally signed and the complete address of the bidder given thereon.

All bids shall be tightly sealed in an envelope plainly marked SEALED BID and identified by project name, bid opening date and time. Bids opened by mistake, due to improper identification, will be so documented and resealed. The Purchasing Division will maintain and guarantee confidentiality of the contents until the specified opening date and time. Bids submitted by Fax machine will not be accepted.

3. **EXPLANATION TO BIDDERS**-Any binding explanation desired by a bidder regarding the meaning or interpretation of the Invitation for Bid (IFB) and attachments must be requested in writing, at least 5 business days before the bid opening so a reply may reach all prospective bidders the submission of bids. Any information given to a prospective bidder concerning the IFB will be furnished to all prospective bidders as an amendment or addendum to the IFB if such information would be prejudicial to uninformed bidders. Receipt of amendments or addenda by a bidder must be acknowledged in the bid by attachment, or by letter or fax received before the time set for opening of bids. Oral explanation or instructions given prior to the opening will not be binding.
4. **CASH DISCOUNTS**-Discount offered for payment of less than thirty (30) days will not be considered in evaluating bids for award. Offered discounts of less than thirty (30) days will be taken if payment is made within the discount period, even though not considered in evaluation of the bid.
5. **WITHDRAWAL OF BIDS**-Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the exact time set for receipt of bid. No bid may be withdrawn for at least ninety (90) days after bid opening.
6. **ALTERNATE BIDS**-Bidders are cautioned that any alternate bid, unless specifically requested or any changes, insertions or omissions to the terms and conditions, specifications or any other requirement of this IFB may be considered non-responsive, and at the option of the City, result in rejection of the alternate bid.
7. **LATE BIDS**-Any bid received at the office designated herein after the exact time specified for receipt will not be considered. (Note: The City reserves the right to consider bids that have been determined by the City to be received late due to mishandling by the City after receipt of the bid and no award has been made.)
8. **UNIT PRICES**-If there is a discrepancy between unit prices and their extension, unit prices shall prevail.

SECTION II
BID AND AWARD

The undersigned having become thoroughly familiar with and understanding all of the bid/contract documents incorporated herein, agrees to furnish the Equipment as specified, FOB delivered to the location specified herein and in compliance with all requirements within the time specified at the unit prices as stated below:

WW Tert. Rotating Disc Microfiltration Unit-

Item	Qty	Unit	Description	Unit Price	Total
1	1	EA	Perforated Plate Screen	\$	\$
GRAND TOTAL					

Guaranteed delivery within 48 calendar weeks after receipt of order release/notice to proceed.

Order release for delivery lead time required is 14 calendar days prior to requested delivery date.

Bidder/Contractor has examined and carefully studied the bidding documents and attachments, and acknowledges receipt of the following addenda:

Addendum No: _____

Dated: _____

Bidder shall provide all of the information as requested herein with their bid. **Failure to do so and/or failure to provide post-bid requested information may be cause for rejecting the bid as non-responsive.**

By my signature below, I certify that the firm bidding on this contract, when making hiring decisions, does not use a past criminal conviction as a bar to or preclude a person with a criminal conviction from being considered for employment with the bidding firm unless otherwise precluded by federal or state law. I further certify that I have read and agree to be bound by the provisions of the City’s Non-Discrimination Clause found in Appendix A and as updated by City Ordinance 1856.

Signed: _____ Name: _____

Title: _____

REFERENCE QUESTIONNAIRE

Please answer the following questions completely.

1. Firm name: _____

2. Established: Year _____ Number of Employees: _____

3. Type of organization:
 - a. Individual: _____
 - b. Partnership: _____
 - c. Corporation: _____
 - d. Other: _____

4. Former firm name(s) if any, and year(s) in business:

5. Include at least 3 references of contracts for similar work performed over the last five (5) years. Include: owner, contact person and phone number and description of work performed.
 - 5.1 Company Name: _____
Address: _____
Phone: _____
Contact: _____
Type of work or contract: _____

 - 5.2 Company Name: _____
Address: _____
Phone: _____
Contact: _____
Type of work or contract: _____

 - 5.3 Company Name: _____
Address: _____
Phone: _____
Contact: _____
Type of work or contract: _____

I hereby certify that all of the information provided is true and answered to the best of my ability.

Signed: _____ Name: _____
(type or print)

Title: _____ Date: _____

CITY OF KALAMAZOO
LOCAL PREFERENCE POLICY AND CERTIFICATION

The lowest responsive Kalamazoo County bidder whose bid is not low but falls within 2% of the lowest responsive bid is afforded the opportunity to become the successful bidder if it agrees to reduce its bid to match the lowest responsive bid. The City of Kalamazoo is the sole determiner whether a bidder is responsible, qualifies as a Kalamazoo County bidder, and if its bid is responsive to the City’s specifications, terms and conditions.

If the lowest Kalamazoo County bidder chooses not to match the lowest bid, the next lowest responsive Kalamazoo County bidder whose bid falls within 2% of the lowest bid, is given the opportunity to match the lowest responsive bid.

To qualify as a Kalamazoo County bidder, the bidder must meet both the following criteria:

1. Have a physical presence in Kalamazoo County by maintaining a permanent office, factory or other facility in Kalamazoo County with employees working in Kalamazoo County.
2. Have paid real or personal property taxes related to said business to the City of Kalamazoo, County of Kalamazoo or other municipal corporation within Kalamazoo County in the previous tax year, except that a non-profit entity need not meet this requirement.

This local preference policy applies only to purchases for materials, supplies, capital outlay, and services for maintenance, repair or operation of City facilities that are over \$25,000. If more than 50% of the contract is sub-contracted to firms located outside of Kalamazoo County that bid does not qualify for the local preference policy outlined above. The local preference policy will not apply if prohibited by law. The Purchasing Manager has the authority to finally determine if the bidder qualifies as a Kalamazoo County bidder as set forth herein. The Purchasing Manager may take into account the permanency of the business in Kalamazoo, and whether the business appears to be claiming to be a Kalamazoo County business solely or primarily to qualify as a Kalamazoo County business under this Resolution, and any other material factors.

CERTIFICATION

If you qualify as a Kalamazoo County bidder and wish to be considered for the local preference provisions as provided above please certify that fact by providing the information requested below and attesting to its accuracy.

Firm Name: _____

Street Address of Business: _____

City, State, and Zip Code: _____

Number of employees working in Kalamazoo County: _____

Name the city or township to which business real and/or personal property taxes are paid or provide non-profit status: _____

The above information is accurate:

Signature: _____

Date: _____

Title: _____

CITY OF KALAMAZOO EX-OFFENDER POLICY CHECKLIST

As part of the City’s commitment to reducing unacceptable poverty, encouraging rehabilitation, reducing recidivism and strengthening families in Kalamazoo, the City has updated its Purchasing Policy to ensure that firms with whom the City does business share in this commitment by utilizing hiring practices that do not unfairly deny people with arrest and conviction records gainful employment. *(Important: This requirement also extends to any subcontractors the bidder intends to use to fulfill the contract for goods or services being sought from the City.)*

Part I: Proof that the bidder does not inquire about an individual’s past arrest or criminal history on the bidders employment application form

- Attach a copy of the current application for employment being used by the bidder

Part II: Certification that the bidder does not use an individual’s past arrest or criminal history to unlawfully discriminate against them by checking *one or more* of the following:

- That pursuant to federal or state law bidder is precluded from hiring persons with certain criminal records from holding particular positions or engaging in certain occupations by providing a cite to the applicable statute or regulation; if checking this box, provide a citation to the applicable statute or rule upon which the bidder is relying:_____
- That bidder conducts criminal history background checks only as necessary, and only after making a conditional offer of employment; that any withdrawal of an offer of employment to an individual because of a past criminal history is job-related and consistent with business necessity after the individual has been provided an individualized assessment opportunity to review and challenge or supplement the history of past criminal conduct being relied upon by the bidder;
- That the use by bidder of criminal history background checks complies with the U.S. Equal Employment Opportunity Commission’s Enforcement Guidance on the Consideration of Arrest and Conviction Records in Employment Decisions and that the bidder has not had a determination rendered against it in past 7 years that it discriminated against a person through the use of an individual’s arrest or criminal history

I CERTIFY THAT THE ABOVE STATEMENTS ARE TRUE.

Date

Signature

Printed Name

Position

I hereby state that all of the information I have provided is true, accurate and complete. I hereby state that I have the authority to submit this bid which will become a binding contract if accepted by the City of Kalamazoo. I hereby state that I have not communicated with nor otherwise colluded with any other bidder, nor have I made any agreement with nor offered/accepted anything of value to/from an official or employee of the City of Kalamazoo that would tend to destroy or hinder free competition.

The firm's identification information provided will be used by the City for purchase orders, payment and other contractual purposes. If the contractual relationship is with, or the payment made to, another firm please provide a complete explanation on your letterhead and attach to your bid. Please provide for accounts payable purposes:

Tax Identification Number (Federal ID): _____

Remittance Address: _____

I hereby state that I have read, understand and agree to be bound by all terms and conditions of this bid document.

SIGNED: _____ NAME: _____
(Type or Print)

TITLE: _____ DATE: _____

FIRM NAME: _____
(if any)

ADDRESS: _____
(Street address) (City) (State) (Zip)

PHONE: _____ FAX: _____

EMAIL ADDRESS: _____

FOR CITY USE ONLY - DO NOT WRITE BELOW

COVID-19 ADDENDUM

March 16, 2020

TO: ALL Prospective Bidders
PROJECT: ALL Upcoming Projects

The purpose of this addendum is to clarify and/or modify the sealed bid delivery and bid opening process for all upcoming projects. All work affected is subject to all applicable terms and conditions of the Bidding and Contract Documents.

1. UPDATE TO SEALED BID DELIVERY AND BID OPENING POLICY

Effective immediately and continuing until further notice, due to the COVID-19 virus the City of Kalamazoo may no longer be accepting sealed bids in-person or conducting public bid openings.

Bidders can submit sealed bids in one of the following ways:

- Mail your bid, to be received before the bid due date and time indicated in the bid document, to the City of Kalamazoo at the following address:

City of Kalamazoo
Purchasing Division
241 West South Street
Kalamazoo, MI 49007

- Deliver your bid to the Treasurer's Office Payment Drop Box located in the northwest corner of City Hall before the bid due date and time indicated in the bid document. Pictures of the drop box location have been provided in **Photo Attachment**.

Bidders are strongly encouraged to deliver their sealed bid to the Treasurer's Office Payment Drop Box. However, if hand delivery of your bid to the drop box is not an option, please be sure to allow enough time for possible mail delays when mailing sealed bids to the City. Any bid received after the exact date and time specified for receipt will not be considered. (Note: The City reserves the right to consider bids that have been determined by the City to be received late due to mishandling by the City after receipt of the bid and no award has been made.)

All bids shall be tightly sealed in an envelope plainly marked SEALED BID and identified by project name, bid opening date and time. Bids opened by mistake, due to improper identification, will be so documented and resealed. The Purchasing Division will maintain and guarantee confidentiality of the contents until the specified opening date and time. Bids submitted by fax machine or email will not be accepted.

The Purchasing Division will post bid tabulations to the City of Kalamazoo website within 24 hours after the bid opening date and time at: <https://www.kalamazoo.org/bidopportunities>.

Questions regarding this sealed bid delivery and bid opening policy change related to the COVID-19 virus should be directed to the City of Kalamazoo at (269) 337-8020.

Sincerely,



Michelle Emig
Purchasing Division Manager



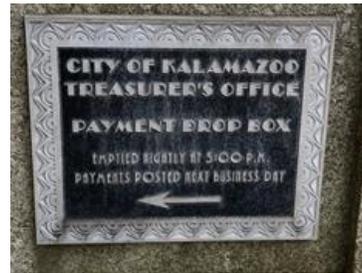
COVID-19 Addendum

PHOTO ATTACHMENT

CITY OF KALAMAZOO TREASURER'S OFFICE PAYMENT DROP BOX PICTURES

CITY OF KALAMAZOO TREASURER’S OFFICE PAYMENT DROP BOX

Deliver your bid to the Treasurer’s Office Payment Drop Box located in the northwest corner of City Hall before the bid due date and time indicated in the bid document.



1. Open drop box located at City Hall.

2. Insert SEALED BID here.



SECTION III
GENERAL PROVISIONS

1. INTENT

It is the intent of bid document to procure equipment for the City of Kalamazoo's Water Reclamation Plant's Tertiary Treatment Process, as described within this bid document and the specifications provided in **Attachment A & B**, that will be most suitable for its type of operation and operating conditions, taking into account the criteria listed herein and other factors which reasonably may be considered. This bid is for the purchase of equipment; no installation is required. Installation shall be by a Contractor under a future contract.

2. GENERAL SPECIFICATIONS

All equipment shall be as specified herein. No substitutes will be accepted.

3. WARRANTY/MAINTENANCE

Successful bidder shall provide a manufacturer's warranty covering parts as specified herein.

4. COMPLIANCE WITH REGULATORY REQUIREMENTS

All equipment and/or components whether furnished as a complete unit, an individual item or an individual item within a complete unit, shall conform to all applicable regulatory requirements.

5. LITERATURE

Contractor must supply with their bid the latest printed specifications and advertising literature on the equipment they propose to furnish.

6. QUANTITIES

The estimated total quantities are not intended as a guarantee of maximum or minimum to be purchased under this contract; actual purchases may be more or less. The City reserves the right to add an item(s) that is not described on the item listings and is available from the contract vendor. The item(s) may be included on the contract, only if prior approval has been granted by the Purchasing Division.

7. AWARD

This purchase will be awarded to the responsive, responsible bidder whose bid will be most advantageous to the City, price and other factors considered. The City reserves the right to accept or reject any or all bids and waive informalities and minor irregularities for bids received. Notification of award will be in writing by the Purchasing Division.

In determining the responsive, responsible bidder the City shall consider, including but not limited to; quality, equipment manufacturer's regional stability and longevity, availability of parts and service, conformance to the specifications, treatment flexibility, ability to perform in the application and process, performance confidence, and 20 year life cycle cost, as well as the capacity, character, integrity, and reputation of the bidder, and any past experience with product(s) offered or the bidder.

8. PRICES

All unit prices shall remain firm for that period of time as set forth and agreed to by the bidder herein.

9. F.O.B.

All goods are to be shipped prepaid, F.O.B. delivered and installed. The total price quoted by the Bidder must be the total cost delivered to the location(s) stated. Bidder must not qualify the bid by stating a F.O.B. location other than such stated location(s). Shipments sent C.O.D. without City of Kalamazoo's written consent will not be accepted and will at Contractor's risk and expense, be returned to Contractor. Unauthorized shipments are subject to rejection and return at Contractor's expense.

10. SHIPMENTS, DELIVERY AND NOTICES

By submission of a Bid, Bidders shall agree to the delivery schedule state herein.

Orders must be shipped directly to ordering agency at address specified. Shipments must be made in accordance with the item(s) as described and priced on this bid. Also, orders must be shipped F.O.B. to Public Services Department – Harrison St. Facility, 1415 N. Harrison, Kalamazoo, MI 49007 - **ATTN: Ryan Stoughton**

All deliveries shall be made Monday through Friday between the hours of 8:00 a.m. and 5:00 p.m. All items requiring unloading equipment outside of a pallet jack shall be coordinated with the City prior to shipping.

Seller will notify Buyer if Seller is not able to fulfill the complete Purchase Order by the requested date in the stated quantities. Buyer will then determine whether the changes are acceptable or if the Purchase Order will be cancelled and issued to a different supplier.

11. MANUALS

Vendor shall provide manuals as specified herein.

12. INVOICING

All original invoice(s) and copy of signed receipt of delivery will be sent to the Financial Services Division, 241 W. South Street, Kalamazoo, MI 49007 or via email at apinvoice@kalamazoo.org. Faxed copy of invoice(s) will not be accepted, unless it is to replace an original invoice that was lost in the mail. The Financial Services Division processes payments after receipt of an original invoice from the Contractor and approval by the department.

12.1 The City of Kalamazoo policy is to pay invoice(s) within 30 days from the receipt of the original invoice, if the services or supplies are satisfactory and the proper paper work and procedures have been followed. In order to guarantee payment to the vendor on a timely basis, the vendor needs to receive a purchase order number before supplying the City of Kalamazoo with goods or services. All original, and copies of original invoice(s), will clearly state which purchase order they are being billed against.

- 12.2 Invoices shall be completely itemized showing all transactions.
- 12.3 All original, and copies of original invoice(s), will have either a department/division name or contract name and employee number. On delivery, all supplies and/or services must be signed for by a City of Kalamazoo employee before payment can be made.
- 12.4 The City of Kalamazoo is a government municipality and therefore is tax exempt from all sales tax. Our tax exempt number is 38-6004627.
- 12.5 The vendor is responsible for supplying the Financial Services Division with a copy of their W-9.

13. QUESTIONS

Questions relative to the terms and conditions and bidding procedures may be addressed to Craig Hull, Buyer, at (269) 337-8444. Questions regarding specifications may be addressed to the Project Manager, Ryan Stoughton, Assistant City Engineer at (269) 337-8736. This does not relieve the requirements of Page 1, Item 3.

SECTION IV
TERMS & CONDITIONS

1. AWARD OF CONTRACT

- A. This contract will be awarded to that responsible bidder whose bid, conforming to this solicitation, will be most advantageous to the City, price and other factors considered. The City reserves the right to accept or reject any or all bids and waive informalities and minor irregularities in bids received. Other factors include, as an example but not limited to, delivery time, conformance to specifications, incidental costs such as demurrage and deposits, etc.

Notification of award will be in writing by the Purchasing Manager. Upon notification, the Contractor shall submit to the Purchasing Division all required insurance certificates (if required) and such other documentation as may be requested or required hereunder. Upon their receipt and subsequent approval by the City, the Purchasing Manager will forward to the Contractor a written **NOTICE TO PROCEED**. Work shall **NOT** be started until such **NOTICE TO PROCEED** is received by the Contractor.

- B. Unilateral changes in bid prices by the bidder shall not be allowed. However, the City, at its sole option, reserves the right to negotiate with bidders in the event of, but not limited to:
- 1) No bids received;
 - 2) A single bid being received; or
 - 3) Prices bid are over budget and/or unreasonable.

2. COMPLETE CONTRACT

This bid document together with its addenda, amendments, attachments and modifications, when executed, becomes the complete contract between the parties hereto, and no verbal or oral promises or representations made in conjunction with the negotiation of this contract shall be binding on either party.

3. SUBCONTRACTORS - NON ASSIGNMENT

Bidders shall state in writing any and all sub-contractors to be associated with this bid, including the type of work to be performed. The Vendor shall cooperate with the City of Kalamazoo in meeting its commitments and goals with regard to maximum utilization of minority and women-owned business enterprises.

The Vendor hereby agrees and understands that the contract resulting from this solicitation shall not be transferred, assigned or sublet without prior written consent of the City of Kalamazoo.

4. TAXES

The City of Kalamazoo is exempt from all federal excise tax and state sales and use taxes. However, depending upon the situation, the vendor or contractor may not be exempt from said taxes and the City of Kalamazoo is making no representation as to any such exemption.

5. PAYMENTS

Unless otherwise specified by the City in this contract, the Contractor will be paid in not more than thirty (30) days after receipt of a properly executed invoice, the sum stipulated herein for supplies delivered and accepted, or service rendered and accepted. Payments are processed by the Budget & Accounting Division after receipt of an original invoice from the Contractor.

6. CHANGES AND/OR CONTRACT MODIFICATIONS

The City reserves the right to increase or decrease quantities, service or requirements, or make any changes necessary at any time during the term of this contract, or any negotiated extension thereof. Price adjustments due to any of the foregoing changes shall be negotiated and mutually agreed upon by the Vendor and the City.

Changes of any nature after contract award which reflect an increase or decrease in requirements or costs shall not be permitted without prior approval by the Purchasing Agent. City Commission approval may also be required. **SUCH CHANGES, IF PERFORMED IN ADVANCE OF PURCHASING AGENT APPROVAL, MAY BE SUBJECT TO DENIAL AND NON-PAYMENT.**

7. LAWS, ORDINANCES AND REGULATIONS

The Vendor shall keep himself/herself fully informed of all local, state and federal laws, ordinances and regulations in any manner affecting those engaged or employed in the work and the equipment used. Vendor and/or employees shall, at all times, serve and comply with such laws, ordinances and regulations.

Any permits, licenses, certificates or fees required for the performance of the work shall be obtained and paid for by the Vendor.

This contract shall be governed by the laws of the State of Michigan.

8. RIGHT TO AUDIT

The City or its designee shall be entitled to audit all of the Vendor's records, and shall be allowed to interview any of the Vendor's employees, throughout the term of this contract and for a period of three years after final payment or longer if required by law to the extent necessary to adequately permit evaluation and verification of:

- A. Vendor compliance with contract requirements,
- B. Compliance with provisions for pricing change orders, invoices or claims submitted by the Vendor or any of his payees.

9. HOLD HARMLESS

If the acts or omissions of the Contractor/Vendor or its employees, agents or officers, cause injury to person or property, the Contractor/Vendor shall defend, indemnify and save harmless the City of Kalamazoo, its agents, officials, and employees against all claims, judgments, losses, damages, demands, and payments of any kind to persons or property to the extent occasioned from any claim or demand arising therefrom.

10. DEFAULT

The City may at any time, by written notice to the Vendor, terminate this contract and the Vendor's right to proceed with the work, for just cause, which shall include, but is not limited to the following:

- A. Failure to provide insurance and bonds (when called for), in the exact amounts and within the time specified or any extension thereof.
- B. Failure to make delivery of the supplies, or to perform the services within the time specified herein, or any extension thereof.
- C. The unauthorized substitution of articles for those bid and specified.
- D. Failure to make progress if such failure endangers performance of the contract in accordance with its terms.
- E. Failure to perform in compliance with any provision of the contract.
- F. **Standard of Performance** - Vendor guarantees the performance of the commodities, goods or services rendered herein in accordance with the accepted standards of the industry or industries concerned herein, except that if this specification calls for higher standards, then such higher standards shall be provided.

Upon notice by the City of Vendor's failure to comply with such standards or to otherwise be in default of this contract in any manner following the Notice to Proceed, Vendor shall immediately remedy said defective performance in a manner acceptable to the City. Should Vendor fail to immediately correct said defective performance, said failure shall be considered a breach of this contract and grounds for termination of the same by the City.

In the event of any breach of this contract by Vendor, Vendor shall pay any cost to the City caused by said breach including but not limited to the replacement cost of such goods or services with another Vendor.

The City reserves the right to withhold any or all payments until any defects in performance have been satisfactorily corrected.

In the event the Vendor is in breach of this contract in any manner, and such breach has not been satisfactorily corrected, the City may bar the Vendor from being awarded any future City contracts.

- G. All remedies available to the City herein are cumulative and the election of one remedy by the City shall not be a waiver of any other remedy available to the City either listed in this contract or available by operation of law.

11. INDEPENDENT CONTRACTOR

At all times, the Vendor, any of his/her employees, or his/her sub-contractors and their subsequent employees shall be considered independent contractors and not as City employees. The Vendor shall exercise all supervisory control and general control over all workers' duties, payment of wages to Vendor's employees and the right to hire, fire and discipline their employees and workers. As an independent contractor, payment under this contract shall not be subject to any withholding for tax, social security or other purposes, nor shall the Vendor or his/her employees be entitled to sick leave, pension benefit, vacation, medical benefits, life insurance or workers' unemployment compensation or the like.

12. TERMINATION OF CONTRACT

The City may, at any time and without cause, suspend the work of this contract for a period of not more than ninety days after providing notice in writing to the Contractor. The Contractor shall be allowed an adjustment in the contract price or an extension of the contract times, or both, directly attributable to the suspension if Contractor makes an approved claim.

The City may, without prejudice to any other right or remedy of the City, and with or without cause, terminate the contract by giving seven days written notice to the Contractor. In such case the Contractor shall be paid, without duplication, for the following items:

- A. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such work;
- B. Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the contract documents in connection with uncompleted work, plus fair and reasonable sums for overhead and profit on such expenses;
- C. All documented claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and
- D. Reasonable expenses directly attributable to termination.

The Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

APPENDIX A
NON-DISCRIMINATION CLAUSE FOR ALL CITY OF KALAMAZOO CONTRACTS

The Contractor agrees to comply with the Federal Civil Rights Act of 1964 as amended; the Federal Civil Rights Act of 1991 as amended; the Americans With Disabilities Act of 1990 as amended; the Elliott-Larson Civil Rights Act, Act. No. 453, Public Act of 1976 as amended; the Michigan Handicappers Civil Rights Act, Act No. 220, Public Act of 1976 as amended, City Ordinance 1856 and all other applicable Federal and State laws. The Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability, family status, sexual orientation or gender identity that is unrelated to the individual's ability to perform the duties of the particular job or position. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment advertising, layoff or termination; rates of pay or other forms of compensations; and selection for training, including apprenticeship.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability family status, sexual orientation or gender identity that is unrelated to the individuals ability to perform the duties of the particular job or position.
3. If requested by the City, the Contractor shall furnish information regarding practices, policies and programs and employment statistics for the Contractor and subcontractors. The Contractor and subcontractors shall permit access to all books, records and accounts regarding employment practices by agents and representatives of the City duly charged with investigative duties to assure compliance with this clause.
4. Breach of the covenants herein may be regarded as a material breach of the contract or purchasing agreement as provided in the Elliott-Larsen Civil Rights Act and City Ordinance 1856.
5. The Contractor will include or incorporate by reference the provisions of the foregoing paragraphs 1 through 4 in every subcontract or purchase order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission* and will provide in every subcontract or purchase order that said provision will be binding upon each subcontractor or seller.
6. The Contractor will not preclude a person with a criminal conviction from being considered for employment unless otherwise precluded by federal or state law. (for contracts over \$25,000)

The Elliott-Larson Civil Rights Act, Sec. 202 of Act. No. 453 of 1976 reads in part as follows:

Sec. 202. (1) An employer shall not:

- (a) Fail or refuse to hire, or recruit, or discharge or otherwise discriminate against an individual with respect to employment, compensation, or a term condition or privilege of employment because of religion, race, color, national origin, age, sex, height, weight or marital status.
- (b) Limit, segregate or classify an employee or applicant for employment in a way which deprives or tends to deprive the employee or applicant of an employment opportunity or otherwise adversely affects the status of an employee or applicant because of religion, race, color, national origin, age, sex, height, weight or marital status.
- (c) Segregate, classify or otherwise discriminate against a person on the basis of sex with respect to a term, condition or privilege of employment, including a benefit plan or system.

* Except for contracts entered into with parties employing less than three employees.



ATTACHMENT A

TECHNICAL SPECIFICATIONS

CONTRACT 75 A.2-TERTIARY PROCESS EQUIPMENT: PERFORATED PLATE SCREEN

Bid Reference #: 89000-002.0

TECHNICAL SPECIFICATIONS

PART 1 GENERAL REQUIREMENTS

1.01 DEFINITIONS

- A. Bidder: The entity whom submits a formal offer with the intent to enter into a Contract with the City to provide the Item(s) listed in the Bid per the Bid Documents.
- B. Equipment: Each line item and its appurtenances as identified in Section II Bid and Award for a particular purpose as specified herein to provide a complete operable units.
- C. Equipment Manufacture: The entity responsible for the production of the Item(s) listed in the Bid and Contract Documents.
- D. Industrial Control Panel: An assembly of a systematic and standard arrangement of two (2) or more electrical components or circuits, including but not limited to, disconnect switches, motor starters, VFD's, fuses, breakers, relays, power supplies, transformers, programmable logic controller, I/O blocks, termination blocks, pushbuttons, selector switches, timers, switches, pilot lights, power outlets, and associated wiring housed within an industrial enclosure.
- E. Vendor: The entity in which has entered into a Contract with the City to provide the Item(s) listed in the Contract per the executed Contract Documents.

1.02 INFORMATION

- A. Background Information
 - 1. The City of Kalamazoo (City) is implementing replacement of their existing rapid sand filter tertiary process technology at the Kalamazoo Water Reclamation Plant (Plant; KWRP). The new process technology will be rotating Microstrainer Disc Filters (Filters). A Perforated Plate Screen (Screen) will screen the Filter backwash water.
 - 2. The Screen will be installed by an Installing Contractor under a future contract.
 - 3. The City intends to set forth design and operational criteria, qualifications, and material requirements for the Screen and appurtenances such that final design, including but not limited to, layouts, alignments, and integrations, may be completed for construction bidding.
 - 4. It is the intent of the City to evaluate, award the bid, and procure the Equipment based on the criteria listed herein which provides the Best Value for the design application. The City intends to procure the Equipment through this Invitation for Bid.
 - 5. The Screen shall be capable of meeting the criteria listed in this section.
 - 6. The successful Bidder of the Screen equipment shall provide the equipment specified and indicated with their bid.
- B. Invitation for Bid (IFB)
 - 1. Each Bidder shall provide three (3) hard-copies and one (1) electronic copy on a flash drive of the following information:

- a. Submittals as detailed herein. Shop drawings are not required at this time, however, dimensional drawings that are accurate and will not change are required to determine the dimensions and equipment mounting details. Specific details and dimensions for how the equipment will be accessed for maintenance after installation shall be included.
 - b. A detailed list of any/all deviations from the IFB. If Bidder does not provide a list of any/all deviations, strict adherence to the specifications herein will be expected.
 2. The bid cost shall include the Screen system equipment as required, including, but not limited to, equipment, control cabinets, power supply cabinets, spares, startup and training, O&M Manuals, and submittals as specified in these Specifications.
 3. The City intends to bid the installation of the Screen by Quarter 2 2021. The City intends to award this bid in Quarter 3 2020. The bid cost shall be good for a period of one (1) year from the date of bid opening.
- C. Submittals
1. The Bidder / Vendor shall be responsible for the coordination of submittals and design verifications as required for the various parts of the scope of supply as specified and indicated herein.
 2. All submittals to the Owner, unless otherwise specified, shall be made only by the Bidder / Vendor.
 3. All submittals shall reference the Bidder's / Vendor's name, the Equipment Manufacturer's name, the Bid / Contract Number and Title, Owner's Name, the Purchase Order number and date of submission. Submittal shall also indicate whether the information is for the Owner's review and approval, for record.
 4. Information required to be submitted with this IFB:
 - a. Descriptive literature, bulletins, or other data covering equipment or system.
 - b. Verification of ISO 9001 certification
 - c. General arrangement drawings
 - d. Dimensional drawings of Screen which will not change. Drawings shall include, but not limited to, overall item(s) dimensions, installation mounting location(s), and external plumbing, piping, and electrical connection size, type, and location.
 - e. Maintenance access details
 - f. Documents which identify the Equipment Manufacture meets the requirements of specification section 2.01 B 1.
 - g. Manufacturer Certification/Affidavit.
 - h. Evidence of capability to provide the Screen as will be required to be provided to meet the final design's equipment layouts and alignments.

- i. A list of five (5) installations of the same type presently in service in the United States, including telephone numbers and individuals to contact. Lack of five (5) prior installs is not a disqualification
 - j. Manufacturer's local sales representative, address, telephone number
5. Final Submittal Package (Shop Drawings):
- a. Complete list of components and appurtenances included with each Equipment item, complete with Equipment Manufacturer's serial number and model number
 - b. Parts list with assembly drawings
 - c. Assembly, installation, alignment, adjustment, and checking instructions
 - d. Special tools and equipment required for operation and maintenance
 - e. Manufacturer's job number and Purchase Order number
 - f. Materials of construction
 - g. Sectional assembly
 - h. Utility requirements
 - i. Recommended spare parts list, with part and catalog number
 - j. Lubrication recommendations and instructions
 - k. Schematic wiring diagrams
 - l. Schematic piping diagrams
 - m. Functional design specification and description of associated instrumentation and controls equipment.
 - n. Drive dimensions and data
 - o. Operating instructions
 - p. Maintenance instructions including trouble-shooting guidelines, lubrication, and preventive maintenance instructions with task schedule
 - q. All installation instructions that were provided to Installing Contractor for use to install equipment
 - r. 3D model of all equipment.
 - s. Additional shop drawings and documentation requested by Owner, and/or Owner's designee, to confirm the Equipment to be supplied conforms to the specifications herein.
6. Information for the Record:
- a. Release to Manufacture certification. Certification shall, at a minimum, include production schedule and production facility.
 - b. Shipping Documents. Documents shall, at a minimum, include shipping schedule, shipping route including Port of Entry if applicable, necessary unloading requirements, and certificate of Equipment shop run test and industrial control panel Factory Acceptance Test.

- c. Operating and Maintenance Manuals:
 - 1) Vendor shall provide three (3) hard-copies and one (1) electronic Portable Document Format (PDF) copy on a flash drive.
 - 2) All manuals shall be tailored to the project by high-lighting appropriate information and deleting or crossing out non-applicable information or providing a data sheet with all necessary information to correctly identify the applicable Sections of the manuals for the actual equipment furnished
 - 3) Printed manuals shall be printed on 8-1/2 by 11-inch size with standard three-hole punching submitted in three-ring binders. Index tabs shall be furnished for all manuals containing data for three or more items of equipment. All manuals shall have a title label on the cover stating the specification item number, item name, Equipment Manufacturer's job number and purchase order number, date of Equipment startup, and installation contractor. A table of contents shall be included in all manuals
 - 4) Printed drawings shall be reduced to 11 by 17 inch. Where reduction is not possible, larger drawings shall be folded separately and placed in envelopes which are bound into the manual
 - 5) Electronic manual shall be formatted for 8-1/2 by 11-inch paper size. Bookmarks shall be formatted for navigation to each section defined within the table of contents. All manuals shall have a title cover page stating the specification item number, item name, manufacturer's job number and purchase order number, date of equipment startup, and installation contractor.
 - 6) Electronic drawings shall be inserted into the manual where appropriate and be formatted for plotting to scale at the sheet defined scale.
- d. Industrial Control Panel UL Listing certification.
- e. Equipment and component Program and Programming Software

1.03 TECHNICAL TERMS

- A. Payment
 - 1. Bidder stipulates as part of their Bid, acceptance of the payment terms as designated herein
 - 2. Payment terms are defined as the following payment milestones:
 - a. Final Submittal Package Transmittal to Owner – Vendor shall submit to Owner for review and approval. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, materials, and similar data to show Owner the equipment, components and material of construction the Vendor proposes to provide. Owner, and/or Owner's designee, will review Shop Drawings and will be noted as

- 'Approved', 'Approved - Make Corrections Noted', 'Resubmit – Make Corrections Noted', or 'Rejected'.
- b. Approved Final Submittal Package Transmittal to Vendor – Owner will transmit the Reviewed Shop Drawings to Vendor.
 - c. Release to Manufacturer - Vendor shall release Approved Shop Drawings to Equipment Manufacturer to begin production of Equipment. Certification shall be submitted to and accepted by Owner prior to payment.
 - d. Delivery to Site - Equipment shall be delivered on site, to the location specified by the Owner, and shall be in accordance with the approved Shop Drawings, including but not limited to, correct quantities, dimensions, and materials. Items shall be factory crated and wrapped with a UV stable weather barrier such that it is protected for outdoor storage at the delivery site for a minimum of 12 months. Crate shall allow for forklift lifting of crate without requiring breaching of UV stable weather barrier. Shipping documents shall be submitted to and accepted by Owner prior to payment.
 - e. Startup and Training - Equipment Manufacturer's representative shall be on site to begin startup of Equipment and to train Owner on operation and maintenance of Equipment in accordance with the contract documents. Directly following startup and training, Equipment shall run in accordance to specified performance and design criteria. Vendor agrees said milestone date is dependent upon the Installation Contractor's schedule, which is outside the direct control of the Vendor, the Owner, and the Owner's representatives.
 - f. Final Acceptance by Owner - Equipment shall operate in accordance to the specified performance, the design criteria, and the Approved Final Submittal Package for a minimum of 30 days. Acceptance shall be complete when the following are on site and approved, including but not limited to, Equipment, Operation and Maintenance manuals, spare parts, programs and software.
3. Payments will be made in an amount equal to the percentage indicated below and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
- a. 5 percent of Contract price to be paid to the Vendor at payment milestone Final Submittal Package Transmittal to Owner.
 - b. 10 percent of Contract price to be paid to the Vendor at payment milestone Approved Final Submittal Package Transmittal to Bidder.
 - c. 10 percent of Contract price to be paid to the Vendor at payment milestone Release to Manufacturer.
 - d. 60 percent of Contract price to be paid to the Vendor at payment milestone Delivery to Site.
 - e. 10 percent of Contract price to be paid to the Vendor at payment milestone Startup and Training.

- f. 5 percent of Contract price to be paid to the Vendor at payment milestone Final Acceptance by Owner.
4. Retainage
 - a. Regular retainage of 10% will be withheld from all payments to the supplier for milestone payments Final Submittal Package Transmittal, Approved Final Submittal Package Transmittal to Vendor, and Release to Manufacture. If the character and progress of the Work have been satisfactory to the Owner, then, as long as the character and progress of the Work remains satisfactory to the Owner, retainage shall drop to 5% for the payment milestone Delivery to Site. If the character and progress of the Contract has been satisfactory to the Owner, then, as long as the character and progress of the Contract remains satisfactory to the Owner, retainage shall drop to 0% for the payment milestone Startup and Training.
- B. Schedule
 1. Vendor stipulates in Bid, acceptance of the schedule terms as designated herein.
 2. Schedule terms are defined equivalently to payment milestones.
 3. All time limits for Milestones, and completion and readiness for milestone payment as stated in the Contract Documents are designated herein
 - a. Final Submittal Package Transmittal to Owner shall be completed within 6 weeks after the Notification to Proceed has been authorized by the Owner
 - b. Approved Final Submittal Package Transmittal to Vendor shall be dependent upon the completeness and correctness of the Final Submittal Package transmitted to Owner by the Vendor for conformity to the Contract Documents. Owner will strive to limit delays in review time which are within the Owner's, or Owner's designee, direct control. Anticipated completion within 12 weeks after the Notification to Proceed has been authorized by the Owner
 - c. Release to the Manufacturer shall be completed within 24 weeks after the Notification to Proceed has been authorized by the Owner
 - d. Delivery to Site shall be completed within 48 weeks after the Notification to Proceed has been authorized by the Owner
 - e. Startup and Training shall be dependent upon the construction progress schedule of the Installation Contractor and schedule coordination Equipment Manufacturer's representative. Owner will strive to limit delays in schedule which are within the Owner's, or Owner's designee's, direct control. Anticipated completion within 72 weeks after the Notification to Proceed has been authorized by the Owner
 - f. Final Acceptance by Owner shall be dependent upon the construction progress schedule of the Installation Contractor. Owner will strive to limit delays in schedule which are within the Owner's, or Owner's

designee's, direct control. Anticipated completion within 81 weeks after the Notification to Proceed has been authorized by the Owner

PART 2 TECHNICAL REQUIREMENTS

2.01 GENERAL

A. Scope

1. This Section includes furnishing one Perforated Plate Screen (Screen) with perforated filter panels and associated controls as shown and described within the contract documents, including but not limited to, the Drawings and the Technical Specifications.
2. The Screen specified in this section shall be the Enviro-Care Co., Inc., Gurnee, IL FSM Perforated Filter Screen Model FRSIII 700x30-75/2, Kusters Water, ProTechtor Filter Screen (Model FBS), or equal.
3. All Work performed and Equipment provided shall be in accordance with all approved trade practices, governing agencies and organizations, and Equipment Manufacturers' recommendations.

B. Quality Assurance

1. The Equipment Manufacturer must have manufacturing or warehouse facilities located in the United States including parts inventory, and personnel based in the United States and employed by the Equipment Manufacturer to provide direct technical and field support. The Equipment Manufacturer must provide information supporting their ability to provide these services.
2. Manufacturer Certification/Affidavit:
 - a. Manufacturer shall provide affidavit certifying that
 - 1) Manufacturer has examined the Contract Documents, including but not limited to the Drawings and specifications.
 - 2) Understand the installation and parameters specified herein and shown on the Drawings.
 - 3) The equipment specified is suitable for this application.
 - 4) Notified Owner of any modifications required to the system or the equipment in this application.
3. The Equipment Manufacturer shall warrant the use of this system and its equipment shall not infringe on any U.S. or foreign patent
4. The Equipment Manufacturer shall verify and accept that the installation of the supplied Equipment meets the Equipment Manufacturer's requirements such that the supplied Equipment will perform as required by these Contract Documents.

C. Warranty

1. The Screening System shall be warranted to meet or exceed the design criteria detailed in this Specification.

2. A written Equipment Manufacturer’s warranty shall be provided for the equipment specified in this Specification. Such warranty shall cover all defects or failures of materials or workmanship which occur as the result of normal operation and service.
3. Warranty period shall be for a minimum of two (2) years. The warranty period shall commence on the date manufacturer certifies installation and beneficial use has begun. Under terms of this warranty, the Equipment Manufacturer shall repair or replace parts or refund the purchase price to the Owner for repairs or replacements which do not meet the criteria within the Contract Documents. The provisions of this warranty shall not be construed as relieving or reducing the obligations of the Installing Contractor outlined in the General Conditions of these Specifications.
4. Lower bearing/bottom revolving guide disk with incorporated bearing shall be guaranteed for five (5) years
5. Owner shall have the option to purchase additional manufacturer warranty options and service package plans, for a cost. Vendor shall provide, upon request, the warranty and service plan information and their respective cost. Warranty options should include, but not be limited to
 - a. Prorated warranties, terms and conditions, and length of time
 - b. A full replacement (non-prorated) warranty, terms and conditions, for time frames up to 5 years
 - c. Service package plans

2.02 PRODUCTS

A. General Requirements

1. All components shall be amply proportioned for all stresses that may occur during manufacturing, transportation, erection, operation and maintenance.
2. All equipment shall be fully assembled and factory run tested prior to shipping to confirm fit and function. A certificate of the shop run test shall be supplied with the shipping documents.
3. All stainless steel bolt and nut threads shall be coated with a non-seizing compound.
4. All equipment will be shipped to the site fully assembled, if possible, and dependent upon the height of the Screen. Some ancillary components may be removed in order to prevent damage during shipment.
5. A single manufacturer shall furnish and coordinate all components including, but not limited to, the screen, motors, gear reducers and control panels as a complete integrated package to insure proper coordination, compatibility, and operation of the system.
6. Purchased components such as gear reducers, pumps, motors, valves, and actuators shall be provided with standard recommended Equipment Manufacturer’s coatings, unless otherwise specified within this section.

7. Flange connections shall be provided with ASME/ANSI bolt pattern AISI 304 stainless steel stub ends and AISI 304 stainless steel lap joint flanges. Flange connections shall be used to connect Equipment to process piping in the field.
8. All fabricated metal shall be minimum grade AISI 316 stainless steel unless otherwise stated in this specification. All welding shall conform to the latest standards of the American Welding Society.
9. All grease points shall be externally accessible via a single stainless steel grease zerk header, stainless steel grease zerks, and stainless steel grease tubing and fitting connections to grease points for routine lubrication.

B. General Electric Motor Requirements

1. AC motor(s) shall conform to the latest applicable NEMA, IEEE, and ANSI standards.
2. Motor installation shall not exceed 88 dB(A) weighted maximum level at 3 feet from the motor throughout the entire speed range and load range.
3. Motor bearings shall be antifriction type, grease lubricated with a minimum L-10 rating of 17,500 hours for belted duty and 100,000 hours for direct coupled duty.
4. Thrust bearings in vertical motors shall be adequate for the loading encountered.
5. Motor conduit boxes shall be sized with the capacity to meet the requirements of the National Electric Code. Motors shall be furnished in an "F1" terminal housing assembly (facing connection box, motor shaft extension is to the right) unless otherwise shown on Drawings or specified.
6. Each motor shall be continuous duty rated NEMA design B with normal starting torque, unless otherwise shown or specified.
7. Output torque and speed characteristics of each motor shall be suitable to operate the connected load over the full range of operating speeds and load conditions without exceeding the nameplate current rating or temperature rise on a continuous duty basis.
8. Insulation shall be Class F or Class H.
9. All motors shall be in use with a Variable Frequency Drive (VFD), unless otherwise noted. VFD shall be used in place of the function of a motor starter. VFD's shall be ABB ACS 550 series, or Owner pre-approved equal.
10. Motors for use with a Variable Frequency Drive (VFD) shall be TENV, TEFC, or submersible, water cooled. Cooling system shall be capable of sufficiently cooling the motor at the lowest motor frequency setpoint in which the motor's load is capable of operating at.
 - a. Design to meet or exceed the efficiency class IE3.
 - b. Motor shall be "Inverter Duty Rated", and so stamped on the nameplate.
 - c. Motor shall have an insulation system that meets or exceeds the requirements of NEMA MG-1, Part 31.40.4.2, and is rated at 1600 volts

- peak to ensure that the motor is rated for operation with non-sinusoidal waveforms at 1.0 service factor.
- d. Bearings in motors greater than NEMA Frame size of 300 and controlled by variable frequency drives must be guaranteed against premature bearing failure caused by discharge current. All such motors shall be provided with a shaft grounding device.
11. AC motor shall have internal thermal protection in the form of thermistors, Positive Temperature Coefficient sensors, guaranteed by the motor Supplier to signal the motor is overheating from a rapid overload, slow overload, and locked-rotor conditions.
 - a. Thermal protection devices shall be imbedded within the motor windings used in series with the stop circuit on the VFD. The signal shall also connect to the Equipment's PLC for monitoring, reporting, and trending.
 12. Overload protection shall be provided by a true power monitor electrical overload device that senses the motor power factor.
 13. Motor(s) and Pump(s) shall be installed at the factory and provided integral to Screen.
 14. Non-galvanized ferrous surface shall be painted.
 15. Shop painting of ferrous surfaces shall be as follows:
 - a. Surfaces shall be thoroughly cleaned of dirt, grease, oil, rust, scale, or other foreign substances. All metal surfaces shall, as a minimum, be abrasive blasted in accordance with SSPC-SP6.
 - b. Surfaces shall receive a shop coat of a primer compatible with the finish coating to be used by the Installing Contractor.
- C. General Electrical, Instrumentation, and Control (E&I) Requirements
1. General:
 - a. Definitions:
 - 1) Human Machine Interface (HMI):

Human Machine Interface (HMI) shall refer to the fascia of an Industrial Control Panel and shall include all lights, selector switches, pushbuttons, displays, and the Operator Interface Terminal (OIT).
 - 2) Operator Interface Terminal (OIT):

Operator interface terminal (OIT) shall refer to the display which shall enable Plant personnel to monitor the status of and operate the equipment.
 - b. Work shall comply with the latest edition of the National Electric Code (NEC) as prepared by the National Fire Protection Association (NFPA), and the National Electric Safety Code (NESC).

- c. Equipment, materials and installation shall comply with applicable requirements of National Electrical Manufacturers Association (NEMA), Institute of Electrical and Electronic Engineers (IEEE), Underwriters Laboratories, Inc. (UL), and the American National Standards Institute (ANSI).
- d. Industrial Control Panel enclosures shall meet the following criteria: NEMA 4X enclosure, 304 Stainless Steel, seams continuously welded and ground smooth, seamless foam-in-place gasket for watertight dust-tight seal, door opens 180°, quarter turn latches opened or closed using a screwdriver. The enclosures shall be Hoffman, Wiegman or equal.
- e. All industrial control panels and components shall be UL listed and labeled and factory tested prior to shipping to confirm function of the panels. When a UL regulation is in conflict with another regulatory standard, UL regulation shall prevail so long as said UL regulation does not cause harm to human life or safety, to the industrial control panel, the Equipment or the Equipment components.
- f. All Industrial Control Panels shall be externally data labeled with, including but not limited to, the Short Circuit Current Rating, Full Load Amps, Available Fault Current and all governing requirements.
- g. All stranded wire shall be terminated with the use of a ferrule.
- h. Components shall be mounted to the back panel with screws, washers and lock washers via drilled and tapped holes. Self-tapping screw mounting will not be accepted.
- i. All components, devices, wires and terminal block sections shall be clearly labeled.
 - 1) Labeling shall read left to right or bottom to top
 - 2) Wire labeling shall be heat shrink tubing
 - 3) Wire labeling shall, at a minimum, identify:
 - Termination Type; Signal (AI, AO, DI, DO), Power identifying amp, voltage, and type (2AMP_24V_DC; 5AMP_120V_1P; 10AMP_480V_3P), etc.
 - Wire ID from drawings
 - Component, device, instrument, or terminal block section ID of termination at opposite end
- j. All instrumentation and control devices and circuits shall be 24V DC.
- k. All industrial control panel lighting shall be LED.
- l. Process parameter communication shall be via Ethernet. Including, but not limited to, the VFD, OIT, and PLC shall be connected to and communicate via an ethernet switch.
- m. Including but not limited to, interlocks, start, stop, and e-stops shall be direct hard wired.

- n. Start circuit shall be wired as a momentary start circuit.
 - o. Current protection devices shall be provided to individually protect and isolate, including but not limited to, each component, device, and instrument within the panel. Breakers shall be primary method of current protection for devices and components, fuses shall be primary method of current protection for instrumentation and control circuits.
 - p. An externally readable hour meter and means of logging shall be provided for each motor circuit.
 - q. Programmable Logic controller and Operator Interface Terminal:
 - 1) Equipment shall be managed by automated control systems, designed around Allen Bradley Logix 5000 family of controller with ethernet connectivity capability.
 - 2) Equipment HMI OIT shall be designed around Allen Bradley PanelView 5000 family of operator terminal. OIT shall be Allen Bradley PanelView 5510 catalog number 2715P-T12WD.
 - r. OIT shall provide any and all operational and maintenance parameters for the Equipment, including but not limited to, setpoints, present values, statuses, preventative maintenance reminders, etc.
 - s. Industrial control panels shall not be assembled to the Equipment. Field mounting, panel IO wiring and terminating, and wiring and terminating between panels will be provided by others.
2. Power Supply:
- a. Building power shall be 480V 3-phase AC.
 - b. Equipment shall have separate Industrial Control Panels for each power type and voltage.
 - c. The Main Power Panel incoming power shall be 480V 3-phase AC and shall house all circuits and components which are connected to 480V AC loads. The Main Power Panel shall step down the voltage from 480V AC to 120V AC using a transformer as necessary. 120V AC circuit shall be fed from upstream of the main disconnect within the panel.
 - d. The Intermediate Power Panel incoming power shall be 120V AC 1-phase and house all circuits and components which are connected to 120V AC loads. The Intermediate Power Panel shall convert 120V AC to 24V DC by means of a power supply.
 - e. The Control Panel incoming power shall be 24V DC and house all circuits and components which are connected to 24V DC loads.
 - f. Equipment rated for specific voltages shall be located in the associated Industrial Control Panel.
 - g. Terminal blocks for field wiring shall be DIN rail mounted individually numbered and rated for 600 Volts 30 Amps minimum. Motor wiring terminal blocks shall be rated for 600 Volts 65 Amps minimum.

- d. VFD control panel shall be accessible on the front of the panel as part of the HMI. VFD control panel shall be protected by a clear protective cover capable of being opened for control panel access without entry into the panel.
- e. HMI external selector switches shall be NEMA 4X, 30mm, non-illuminated and equipped with contact blocks.

2.03 SYSTEM PROCESS DESCRIPTION

A. General

1. Overview

- a. Screen system shall be designed for both continuous and intermittent operation.
 - b. The Screen shall be installed in the channel as indicated on the IFB Drawings.
- 2. The Screen will be operated by means of differential head measurement with the ability for an operator to manually override operation.
 - 3. Solids will collect on a continuous belt of perforated filter panels perpendicular to the flow, elevating solids to the discharge point. The perforated filter panels shall be cleaned by means of an automatic adjusting rotating cleaner brush.
 - 4. The Screen shall be designed to maximize capture of debris and minimize rate of head loss increase. The Screen shall utilize multiple one piece perforated curved filter panels.
 - 5. Screen shall consist of perforated curved screening plates, screen drive mechanism, brush cleaning system with independent drive mechanism, discharge chute, and differential level measurement, automatic control system and components as specified and provide a complete functioning filter system.
 - 6. To assure unity of responsibility, all equipment shall be furnished and/or coordinated by a single Equipment Manufacturer.
 - 7. Screen General Design Information, these values may change upon final process design utilizing Equipment Manufacturer's product which meets the specifications herein:

System Criteria	Value or Description
Channel Width:	36 inches
Channel Depth:	11 feet - 4 inches
Screen Panel Perforation Diameter:	2 mm
Screen Inclination:	30 degrees
Screening Discharge Height:	16 feet - 0 inches from channel invert
Spray Water Flow, Pressure, minimum:	15 GPM @ 45 psi
Filter Panel Speed:	7 to 23 fpm

B. Performance Requirements

Parameter	Unit	Value
Rated Peak Flow per Screen*:	GPM	1,400
Downstream Liquid Level at Peak Flow:	feet	0.86
Head loss At Maximum Flow:		
30 Percent Blinding:	inches	12.0
Minimum Screen Capture Rate (SCR):	%	85

* Screen will see a higher peak flow than 1,400 gpm. An upstream overflow is provided to divert excess flow around the screen.

C. Equipment

1. Screen Assembly

- a. The one-piece curved screening elements shall be minimum 1/8" thick. To prevent metal to metal wear and bearing damage, no submerged roller bearing wheels and spindles will be allowed.
- b. The screening elements shall be cleaned with an automatic self-adjusting motorized rotating cleaner brush. The direction of rotation of the brush drive shall be in the opposite direction of the belt drive.
- c. Systems that use gas, springs, or struts to adjust brush or screens with rotating cleaner brushes requiring manual adjustment or adjustment with gas cylinders or a motor shall not be permitted.
- d. The screening elements must be sealed against the chain by means of knuckle joint side plates attached to each perforated plate filter element. Maximum gaps between the screen panels and side frame is 1 mm. Side plates shall be 316 stainless steel. Simple brush systems are not permitted.

2. Screen Panels:

- a. The screen filtration belt shall be provided with one piece perforated curved elements, which limits the maximum opening in any direction to the perforated opening size. Filter panels with a flat face inclined and a horizontal ledge will not be allowed.
- b. The individual screening elements must not exert stresses on one another, and the load transmission must be exclusively via chains. Systems which involve connecting the screen elements together with other or additional attachments are not permissible.
- c. In the event of a power failure, excess solids load condition, mechanical breakdown etc. the screen shall be designed to withstand a maximum differential head of 18 inches measured from the downstream water level to the upstream overflow level. The manufacturer shall provide calculations showing that proposed equipment will meet this requirement. A test will be conducted at site, before the screen is

accepted, during which time the Screen will be tested for a minimum period of two hours at the specified maximum differential head condition.

- d. The horizontal space between each adjoining screen panels will not exceed 1mm at any point between any adjacent panels. The Screen manufacturer shall make a witnessed measurement of the screen panel adjoining spaces before acceptance at site and if more than 10% are greater than the dimension of the specified screen perforation, the Screen will not be accepted until the manufacturer has corrected the discrepancy and a re-measurement, as above, confirms the specification has been met.
- e. To control the buildup of biological slimes behind the screen panels, an internal spray water wash spray bar shall be provided, manufactured from stainless steel. Spray water will be directed to wash each screen panel as the panel moves past the spray nozzles. The spray orifices will be non-plugging and suitable for use with treated effluent water. The nozzle system for cleaning the belt must be located after the cleaning by the brush.
- f. Static 'finger' type lifters attached to the lower edge of screen panels, designed to large size solids, are not required.

3. Chain and Sprockets:

- a. The filter panel drive chains shall be equal in pitch to the upper and lower drive sprockets.
- b. Chain shall be heavy-duty block chain, supported outside the frame by UHMW-PE. Chain link material shall 304 Stainless Steel. Breaking load of the chain minimum 10,000 lbft (90 kN).
- c. Each Screen shall be provided with two identical drive sprockets from 304 stainless steel with only the wear area hardened. Sprocket pitch and width shall match the heavy-duty chain. The sprockets shall be mounted on a drive shaft from 304 stainless steel, mounted between greaseable bearings mounted on the external side of the frame.
- d. Chain drive shaft bearings shall be four-hole flange mounted to a stainless-steel plate. The bearings shall be grease lubricated.
- e. Chain guides shall be secured to the screen frame for the full height of travel. The chain guides shall accurately guide the chain and filter panels. The chain guide tracks shall be 304 stainless steel with UHMW-PE wear surface or equivalent.

4. Screen Drive Mechanism:

- a. Motor:
 - 1) 460 V, 3 Phase, 60 Hz
- b. Gear Reducer:
 - 1) Helical Worm type

- 2) Hollow, shaft type
 - 3) Anti-friction bearings
 - 4) AGMA rating
 - c. All drive components shall be designed to operate the screen continuously under a calculated load resulting from the differential water level between the upstream and downstream sides of the Screen.
5. Brush Drive Mechanism:
- a. Motor:
 - 1) 460 V, 3 Phase, 60 Hz
 - b. Gear Reducer:
 - 1) Helical Worm type
 - 2) Hollow, shaft type
 - 3) Anti-friction bearings
 - 4) AGMA rating
6. Rotating Deflector Drive Mechanism:
- a. Auxiliary driven from Screen drive or by a third motor.
7. Discharge Chute/Hood:
- a. A discharge chute/hood shall be provided that fully encloses the discharge section of the Screen.
 - b. Discharge chute shall be type 304 stainless steel.
8. Frame Enclosures / Covers:
- a. The Screen shall be provided with easily removable, sufficiently stiffened covers made of, minimum, 18 gauge 304 stainless steel plates with edges on all sides.
 - b. Covers shall be provided on the upstream and downstream portion of the Screen above the operating floor.
9. Ancillary Equipment
- a. The Equipment Supplier shall provide the following equipment as part of the Scope of Supply:
 - 1) One (1) NEMA 4X 24V DC brass body wash water solenoid valve
 - 2) Level measurement:
 - (i) Level shall be measured upstream and downstream of the screen using radar level transducers. Two (2) radar level transducers shall be provided with type 304 stainless steel mounting brackets. Each sensor shall have a PVDF housing

- (ii) Each transducer shall have a range of 1-33 ft and be supplied with a 33 ft integral cable. Radar transducer shall be Vega VegaPULS WL61. Housing shall be IP68 rated.
- (iii) Transducers shall operate from a 24V DC supply.
- (iv) The analog signal from each transducer shall be used by the PLC to calculate a differential level output. This output shall be monitored to trigger cleaning of the screen.
- (v) The use of ultrasonic level transmitters is not permitted

D. Control

1. Control Overview:

- a. A Hand-Off-Auto selector switch shall allow operation from the Screen HMI (Hand), or the Screen PLC (Auto)
- b. Screen Operation:
 - 1) Screen motor will start and stop when the screen is called to clean
 - 2) Screen can run at Fast and Slow speeds.
- c. Brush Operation:
 - 1) Brush motor operation shall be interlocked with screen drive operation
- d. Washwater:
 - 1) Screen washwater solenoid valve will operate via a “Open-Computer-Close” selector switch.
- e. A local, emergency stop push button shall be provided at the Screen HMI and in a NEMA 4X enclosure adjacent to the Screen.

2. HMI:

- a. Screen:
 - 1) A Power On indication light is provided for the Screen drive.
 - 2) Screen motors can be started and stopped from pushbuttons at the Screen HMI
 - 3) Screen speed can be set to fast or slow at the Screen HMI with selector switch in Local position.
- b. Brush:
 - 1) With the screen drive in Local mode, the brush drive can be started and stopped using the pushbuttons on the Screen HMI.
 - 2) Power On indication light is provided for the Brush drive.
- c. Washwater:
 - 1) Screen washwater normally closed solenoid valve position can be energized/de-energized at the Screen HMI.

- 2) Energized indication light is provided for washwater supply.
3. System Control:
- a. The Screen HMI shall allow Screen operation to be controlled from the Screen HMI (Local Hand) or the Screen PLC (Local Auto).
 - 1) With the Control switch set to “Local Hand”:
 - (i) Operator shall be able to run the screen and brush assembly at the Screen HMI using Start and Stop buttons on the OIT. Variable speed adjustment of screen and Brush shall be provided at the HMI via input on the OIT.
 - (ii) Washwater solenoid valve operation shall be able to be opened or closed at the Screen HMI using pushbuttons on the OIT.
 - 2) With the Control switch set to “Local Auto”, the Screen shall be controlled through the PLC.
 - (iii) Operation of the Screen shall be controlled by the radar level sensors. Screen shall be started when the level sensors monitor a certain water level differential, when the sensor senses high upstream water level, or when a certain time has passed since the last operation of the Screen, whichever comes first. The OIT shall allow for operator input for level differential run setpoint(s) and time input setpoint(s).
 - (iv) Screen speed automatically adjusts between low and high depending on differential level and/or upstream water level. The OIT shall allow for operator input for low and high speed setpoint(s). Single speed Screens shall not be allowed.
 - (v) Washwater solenoid valve operation will open and close via a repeat cycle timer whenever the screen is in operation. The OIT shall allow for operator input for timer setpoint(s).
4. Control Signals:
- a. Digital output signals, including but not limited to, the following:
 - 1) Screen common fault/fail/overload
 - 2) Screen common E-Stop operated
 - 3) Screen drive motor run/fail status
 - 4) Screen drive motor overload
 - 5) Screen drive motor winding high temperature fault
 - 6) Brush drive motor run/fail status
 - 7) Brush drive motor overload

- 8) Brush drive motor winding high temperature fault
 - 9) Washwater solenoid valve failure
 - 10) HMI E-Stop operated
 - 11) Screen E-Stop operated
 - b. Analog (4-20) output signals, including but not limited to, the following:
 - 1) Differential level
 - c. Means of ethernet communication between Building Process Master PLC and Screen PLC shall be provided.
- E. Process Master Control Integration
- a. Process Master Control Panel, provided by others, shall be provided the ability to act as a local treatment process SCADA terminal.
 - b. Screen shall be capable of, including but not limited to, the following operations as performed from the Process Master control panel:
 - 1) View Screen statuses:
 - Power on / off
 - Control selector switch position
 - Cleaning
 - Preventative Maintenance Required
 - Common Fault
 - E-Stop
 - 2) Trending
 - 3) View Screen operational setpoints and present values
 - 4) Update operational setpoints
- F. Spare Parts
1. The following minimum spare parts shall be provided for the Screen
 - a. Ten percent (10%) filter panels.
 - b. One (1) complete set of replacement cleaner brush elements.
 - c. One (1) complete set of replacement chain.
 2. Manufacturer shall recommend any additional spare parts deemed necessary based on experience with the Screen in similar applications.
 3. Equipment proprietary mechanical, electrical, instrumentation and control parts inventory shall be based in the United States. Parts inventory shall be readily available for procurement for the duration of the Manufacturer's operational design life of Equipment Item.
 4. Equipment Item non-proprietary mechanical, electrical, instrumentation and control parts inventory shall be based in the United States. Parts inventory shall

be readily available for procurement by the City. Parts with a known, at time of final submittal package transmittal to owner, obsolescence within ten (10) years will not be accepted.

PART 3 EXECUTION

3.01 GENERAL ERECTION

- A. An Installing Contractor, secured under separate bid, shall install the Screen per the Equipment Manufacturer's directions and the drawings. The Installing Contractor will provide all supports and anchoring required to install the Screen. Installation instructions shall be provided that specifically outline installation of the Screen. Lifting instructions shall be provided to assist the Installing Contractor. Required grout and leveling shims shall be provided by the Installing Contractor.
- B. The Vendor shall touch-up all shipping damage to the paint as soon as the equipment arrives on the job site.
- C. The Vendor, or its designee, shall be responsible for and coordinate the unloading, delivery inspection, and delivery acceptance. Delivery shall be made to the Kalamazoo Water Reclamation Plant, 1415 North Harrison Street, Kalamazoo, MI 49007. On site storage of Equipment Items shall be coordinated at time of delivery between the City and the Bidder, or its designee.
- D. Prior to required assembly of Equipment components not shipped assembled, all stainless steel bolts and nut threads shall be coated with a non-seizing compound by the Installing Contractor.

3.02 INSPECTION, START-UP AND TRAINING

- A. The Vendor shall provide, and included in the cost, the services of a representative(s) based in the United States and employed by the Equipment Manufacturer; factory certified to perform said scope. Expenses borne by the representative(s) shall include, but not be limited to, mileage, travel time and accommodation.
- B. Installation Inspection:
 - 1. Minimum two (2) eight (8) hour, performed Monday – Friday, spanned over a maximum of 1 trip, travel time not included. Any additional travel and/or time shall be the responsibility of the Installation Contractor.
 - 2. Equipment Manufacturer's installation specifications and recommendations will be included in the Contract between the Owner and Installation Contractor.
 - 3. Bidder, or its designated representative, shall sign off on the Certificate of Installation Acceptance at time of installation completion.
- C. Start-up:
 - 1. Minimum one (1) eight (8) hour trip, performed Monday – Friday, travel time not included. Any additional travel shall travel and/or time shall be the responsibility of the equipment Supplier.
- D. Kalamazoo WRP Staff Operation & Maintenance Training:
 - 1. Minimum of two (2) eight (8) hour blocks, sixteen (16) hours in total, performed Tuesday – Thursday, spanned over a maximum of 1 trip on consecutive days, travel time not included. Video recordings shall be provided, digitally submitted

as information for the record. Video recordings shall be relevant to and customized for the operation and maintenance of the specific installation.

- E. Any unused trips and / or hours shall be afforded for the Owner to use at its discretion.
- F. A trip shall be classified as any non-consecutive on-site day

4.02 OPERATION AND MAINTENENCE MANUALS

- A. Operation and maintenance manuals shall be submitted as information for the record.
- B. Operation and maintenance manuals shall be submitted as electronic documents prior to the printing of the record copy.
 - 1. Vendor shall provide one electronic copy of the manuals for preliminary review.
 - 2. The final accepted manuals shall be provided as one electronic copy of the manual and one printed copy as specified below.
- C. Electronic manuals shall be in current Portable Document Format (PDF) file type. Manuals and drawings shall be uploaded for local viewing on the Filter OIT.

PART 4 SPECIAL PROVISIONS

5.01 3-D CAD MODEL

- A. Following approval of shop drawings, Vendor shall furnish a 3D model of the perforated plate screening equipment as approved. The model shall be issued to the Engineer no later than 10 days following shop drawing approval transmittal.
- B. The model shall be provided in Autodesk Revit BIM format at a scale dictated by the Owner.

5.02 HOISTING EQUIPMENT

- A. Vendor shall provide all below-the-hook rigging and lifting equipment required by the City to safely remove and install a drained and completely assembled Filter unit from the building, including, but not limited to, slings, blocks and lifting beam. Below-the-hook rigging and lifting equipment shall be designed such that the only lifting forces applied to the Filter pick points are vertical forces. Lifting beam shall be designed such that required headroom is minimized. Lifting beam shall have a pick point on all perimeter sides for picking the lifting beam for vertical placement into a designed storage location.

5.03 SOFTWARE

- A. An unlocked copy of all operating programs including, but not limited to PLC, HMI, VFD and instrument specific programs, shall be turned over to the Owner at the time of equipment start-up and training.
- B. Program shall include all modifications made during design, startup and commissioning.
- C. A licensed copy of the current version of programming software necessary to access and make edits to a component's program shall be provided to the Owner at the time of equipment start-up and training.
 - a. PLC programming software shall be Allen Bradley Studio 5000 Logix Designer.

- b. OIT programming software shall be Allen Bradley Studio 5000 View Designer.
- D. Programming Software shall be licensed to the Owner for a minimum of two (2) years after Final Completion. Licensing shall include any and all software updates within licensed period at no additional cost to the Owner.

END OF SECTION

CERTIFICATE OF INSTALLATION ACCEPTANCE

The undersigned Bidder representative of the Tertiary Process Equipment: Perforated Plate Screen Contract hereby certifies that the listed Equipment is successfully installed per the Equipment Manufacturer’s specifications and recommendations on the date indicated below and as required by the Contract between the Bidder.

Equipment Name: _____

Project Name: _____

Equipment Manufacturer: _____

Date of Installation Completion: _____

Signed: _____ Date: _____

Printed or Typed Name: _____ Title: _____



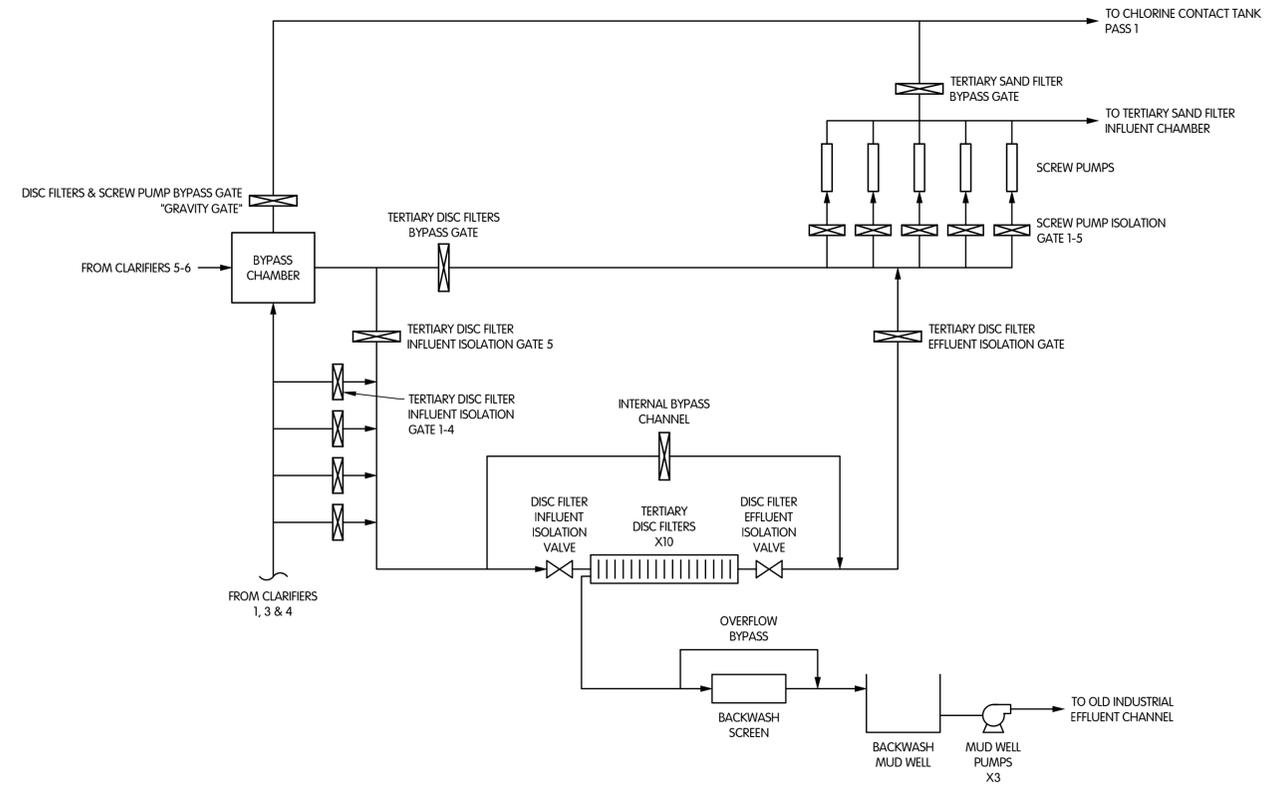
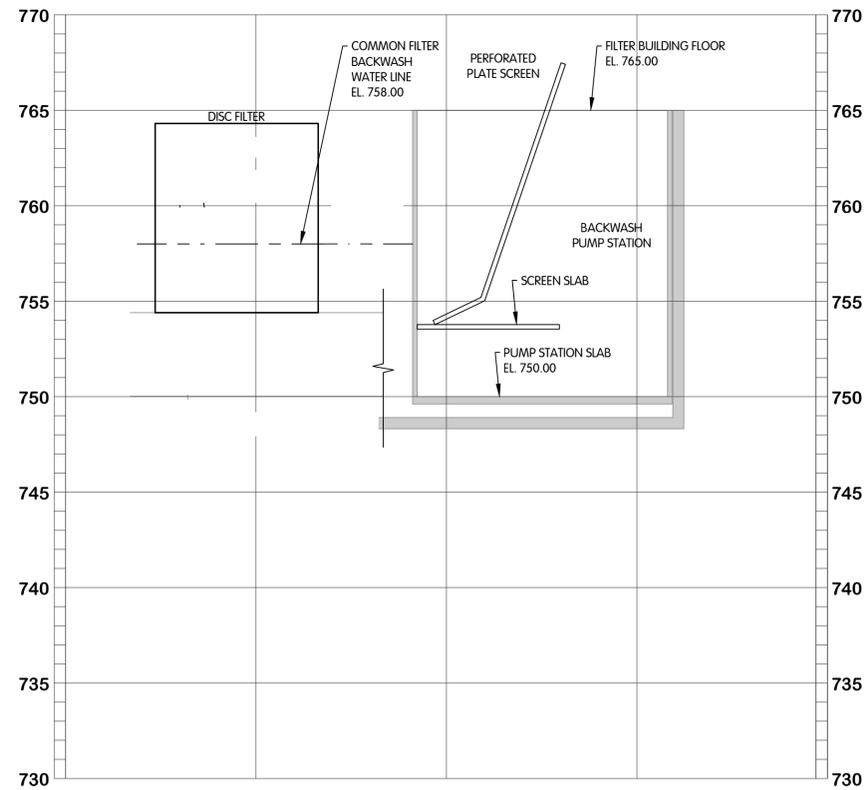
ATTACHMENT B

DRAWINGS/PLANS

**CONTRACT 75 A.2-TERTIARY PROCESS
EQUIPMENT: PERFORATED PLATE
SCREEN**

Bid Reference #: 89000-002.0

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PERFORATED PLATE SCREEN INFORMATION FOR BID
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 TERTIARY TREATMENT PROCESS UPGRADE - KALAMAZOO, MICHIGAN
 CONTRACT 75

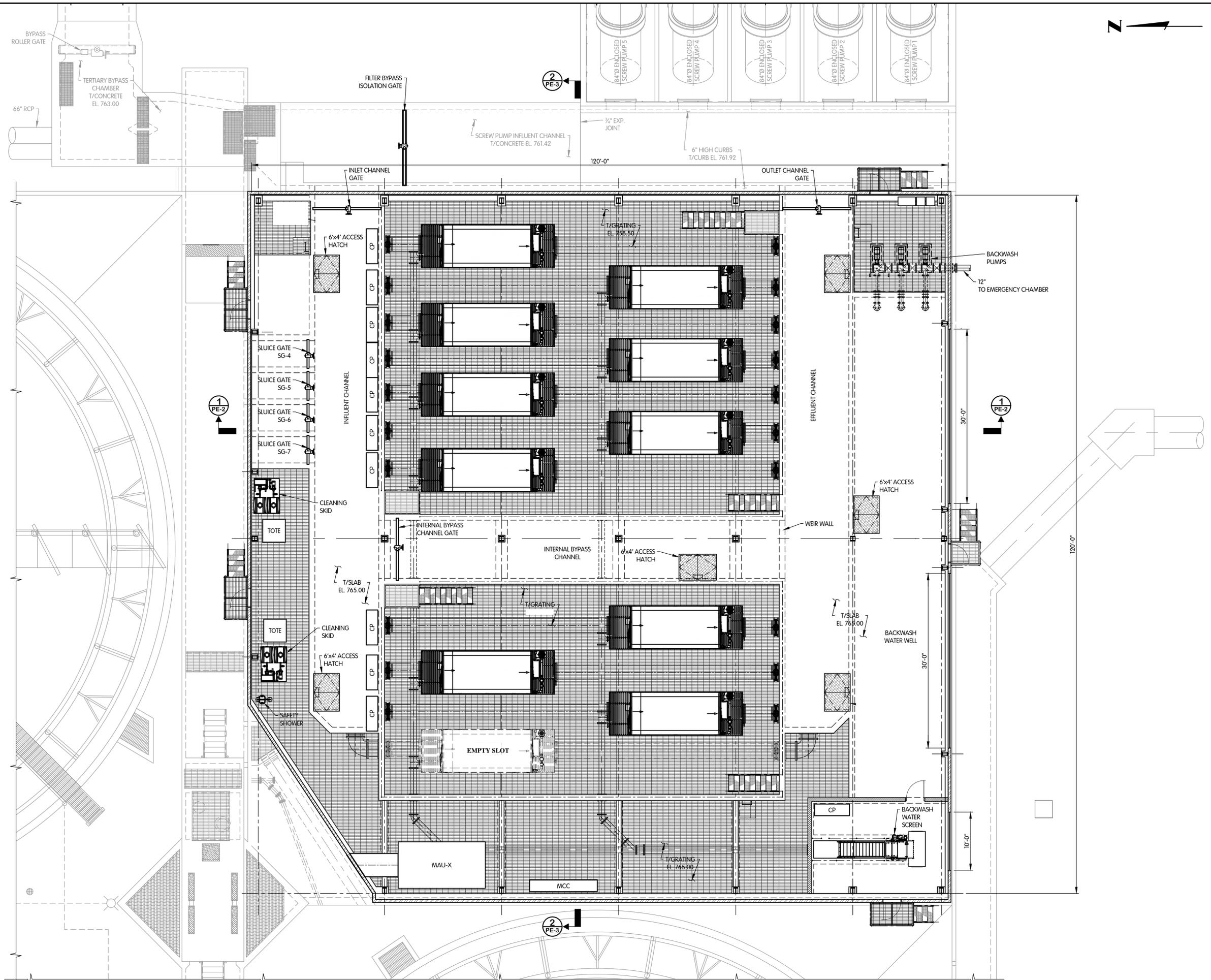
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PERFORATED PLATE SCREEN INFORMATION FOR BID
 FINAL SETTLING TANK 2
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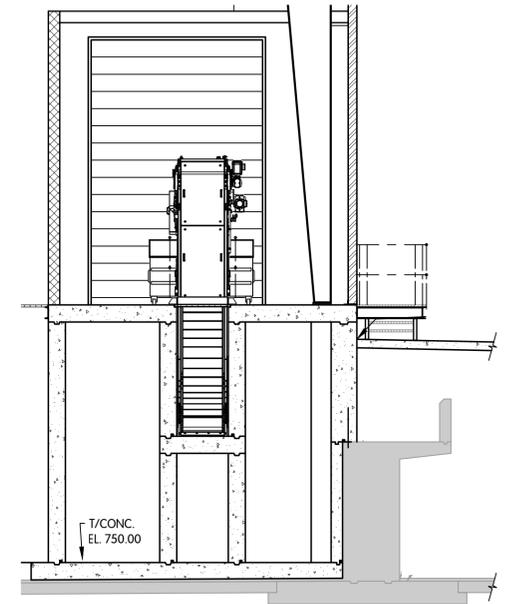
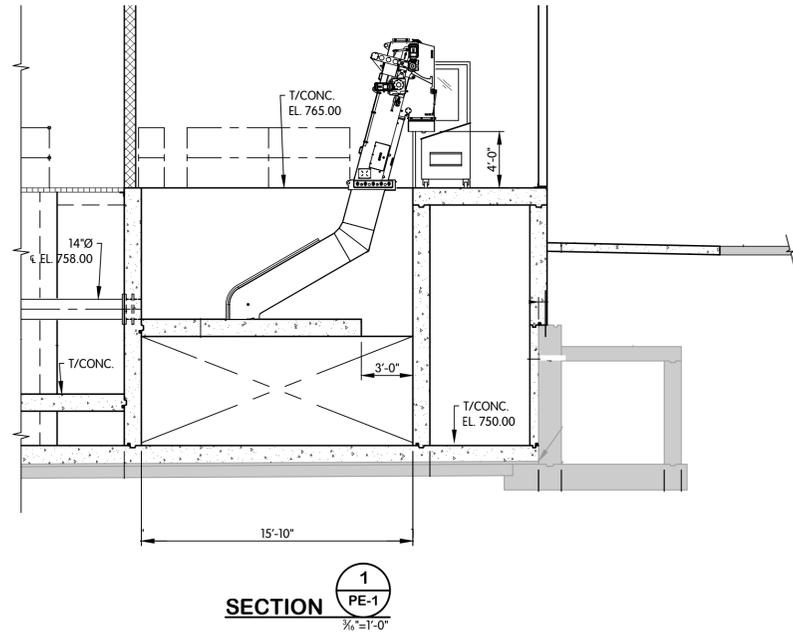
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 CONTRACT 75

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SECTION 2
 PE-1
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PERFORATED PLATE SCREEN INFORMATION FOR BID
 FINAL SETTLING TANK 2
 PIPING AND EQUIPMENT
 SECTIONS

TERTIARY TREATMENT PROCESS UPGRADE - KALAMAZOO, MICHIGAN
 CONTRACT 75

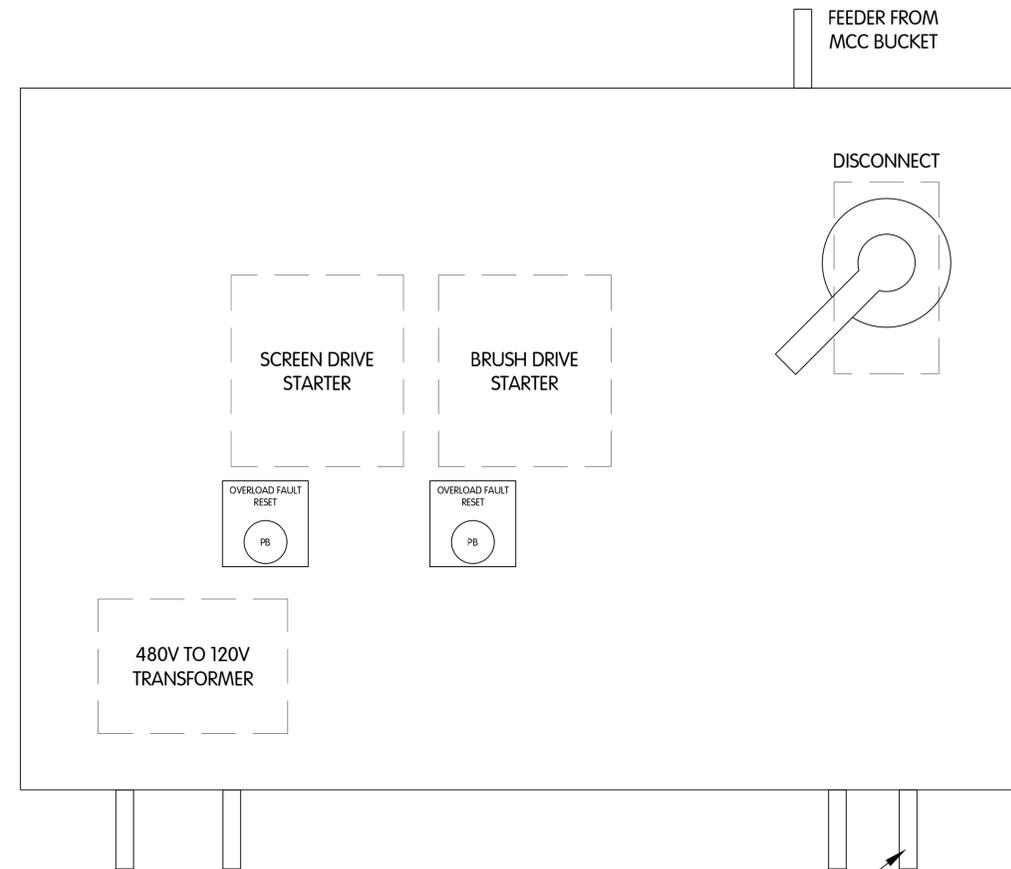
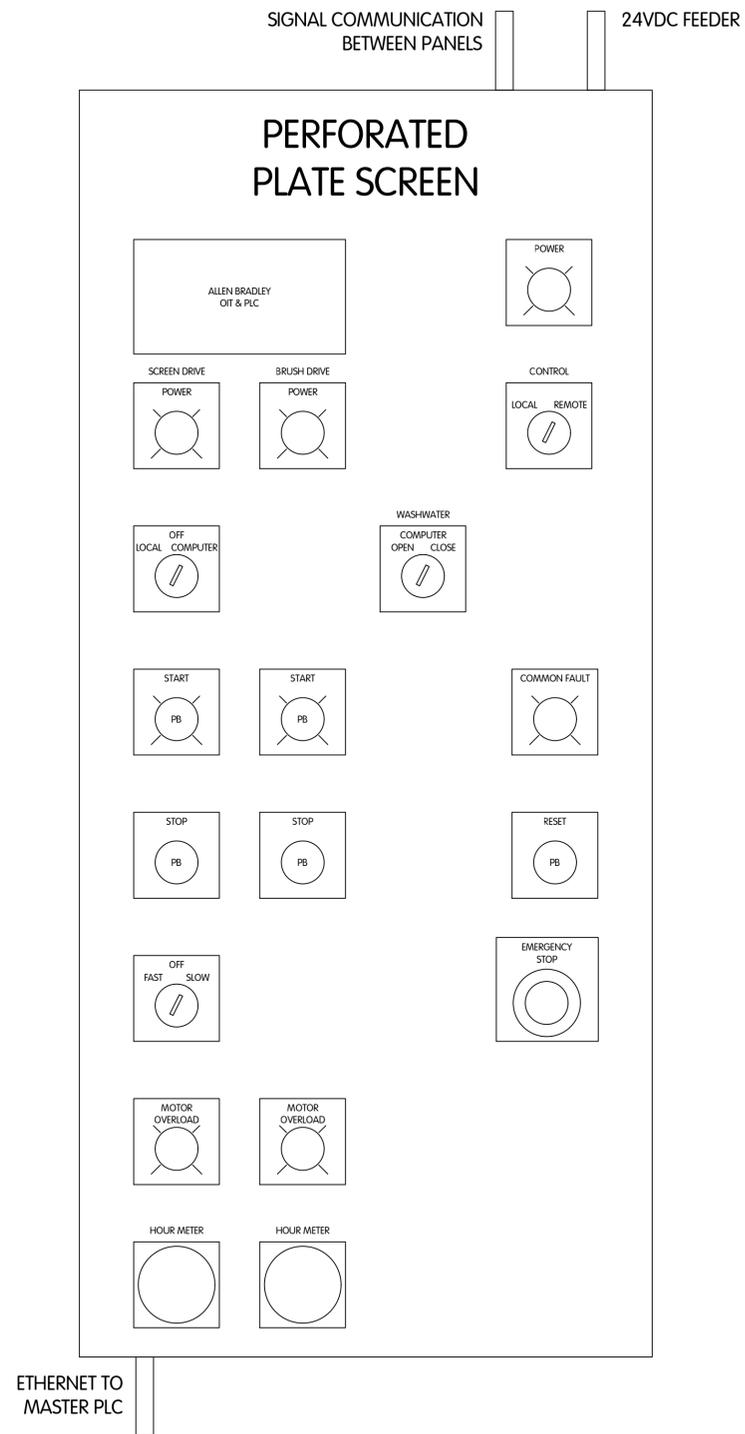
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SIGNAL COMMUNICATION BETWEEN PANELS

480V AC CONDUIT (SIZE AND QTY AS REQUIRED)

THESE DRAWINGS ARE PRELIMINARY AND INTENDED TO PROVIDE DESIGN AND LAYOUT INTENT TO THE BIDDER. FINAL DESIGN AND LAYOUT WILL DEPEND UPON EQUIPMENT MANUFACTURER'S NEEDS AND FINAL PROCESS INTEGRATION DESIGN. FINAL DESIGN AND LAYOUT WILL BE DETERMINED DURING SUBMITTAL REVIEW.



PERFORATED PLATE SCREEN INFORMATION FOR BID
 TERTIARY BUILDING
 ELECTRICAL
 PERFORATED PLATE SCREEN PANEL LAYOUT
 TERTIARY TREATMENT PROCESS UPGRADE - KALAMAZOO, MICHIGAN
 CONTRACT 75

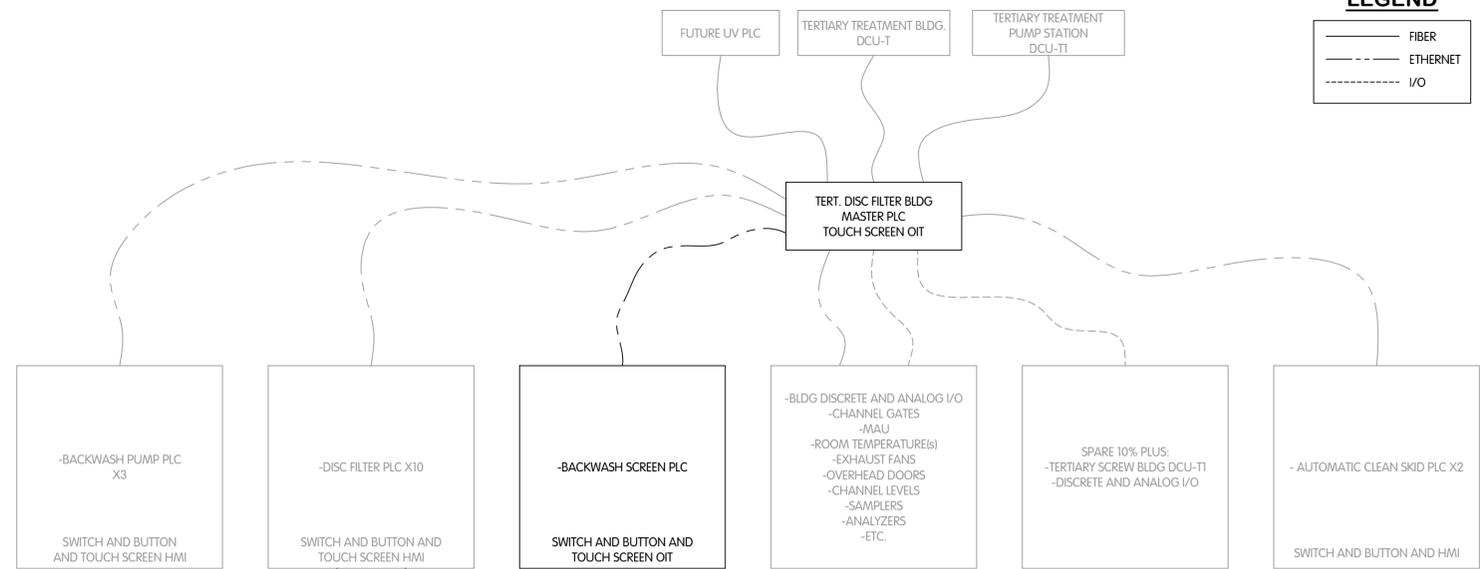
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PERFORATED PLATE SCREEN INFORMATION FOR BID

SCREEN CONTROL SCHEMATIC

TERTIARY TREATMENT PROCESS UPGRADE - KALAMAZOO, MICHIGAN
CONTRACT 75

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