



## LEGAL NOTICE

AND

## INVITATION TO BID P #024-24

The Brownsville Public Utilities Board (BPUB) is requesting Competitive Sealed Proposals (hereon "RFP") for the **Purchase of a Vertical Mixed Flow Waste Pump and Motor for Water Treatment Plant No. 1 until 5:00 PM, January 31, 2024** in the Brownsville PUB Purchasing Office, 1155 FM 511, Olmito, Texas. **RFP received after this time will not be considered.**

RFP's will be acknowledged by BPUB on February 1, 2024 at 9:00 AM. Firms can call in at 9:00 AM, February 1, 2024 to (956) 214-6020 to listen to the proposal opening.

Detailed specifications may be obtained at the following website: [https://www.brownsville-pub.com/rfp\\_status/open/](https://www.brownsville-pub.com/rfp_status/open/).

Each proposal shall be enclosed in a sealed envelope and shall be plainly marked on the outside of the envelope and on any carrier's envelope: **"P024-24 PURCHASE OF A VERTICAL MIXED FLOW WASTE PUMP AND MOTOR FOR WATER TREATMENT PLANT NO. 1, JANUARY 31, 2024, 5:00 PM"**. This envelope shall be addressed to Diane Solitaire; Brownsville Public Utilities Board; Purchasing Department; 1155 FM 511, Olmito, Texas 78575.

Each proposal shall constitute an offer to the Board, as outlined therein, and shall be irrevocable for at least ninety (90) days after the time announced for the opening thereof. Firm is required to execute a contract and furnish a Supply Bond. The supply bond shall be valid from the notice of award until the acceptance of the pump and motor. Additionally, in lieu of supply bond, a letter of credit (LOC) from a Texas institution is acceptable. If the successful firm fails to execute the contract and to furnish a satisfactory Supply Bond within 10 days from the date on which he is notified that his proposal has been accepted, the amount of his check or supply bond shall be forfeited to the Brownsville PUB as mutually agreed to liquidated damages, and not as a penalty.

The Brownsville Public Utilities Board will not be responsible in the event that the U.S. Postal Service or any other courier system fails to deliver the sealed proposals to the Brownsville Public Utilities Board, Purchasing Office by the given deadline above. **Electronic transmission or facsimile of RFP will not be acceptable**

The Brownsville PUB reserves the right to reject any or all bids and to waive irregularities contained therein and to accept any proposal deemed most advantageous to the Brownsville PUB.

BY:

*Diane Solitaire*

Purchasing

(956) 983-6366 - Phone

**Please submit this page upon receipt.**

**ACKNOWLEDGEMENT FORM**

P#024-24 Purchase of a Vertical Mixed Flow Waste Pump and Motor for Water Treatment Plant No. 1

For any clarifications, please contact Rick Flores at the Brownsville Public Utilities Board, Purchasing Department at (956) 983-6368 e-mail: [rflores@brownsville-pub.com](mailto:rflores@brownsville-pub.com)

Please e-mail this page upon receipt of legal notice. If you only received the legal notice and you want the proposal package mailed, please provide a method of shipment with account number in the space designated below.

Check one:

**Yes, I will be able to send a RFP; obtained RFP package from website.**

**Yes, I will be able to send a RFP; please email the RFP package.**

Email: \_\_\_\_\_

**Yes, I will be able to send a RFP; please mail the RFP package using the carrier & account number listed below:**

Carrier: \_\_\_\_\_

Account: \_\_\_\_\_

**No, I will not be able to send a RFP for the following reason:**

\_\_\_\_\_  
\_\_\_\_\_

If you are unable to send your bid, kindly indicate your reason for "No bid" above and return this form **via email to [rflores@brownsville-pub.com](mailto:rflores@brownsville-pub.com) or [dsolitaire@brownsville-pub.com](mailto:dsolitaire@brownsville-pub.com)**. This will ensure you remain active on our vendor list.

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

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
Type Signatory's Name and Title

\_\_\_\_\_

\_\_\_\_\_  
Telephone Number / Fax Number

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signatory's Email Address

**IF SPECIFICATIONS ARE DOWNLOADED FROM WEBSITE PLEASE EMAIL THIS PAGE TO E-MAIL ADDRESS LISTED ABOVE**

## Special Instructions

### *Contract Information*

- **Interpretation**

Questions concerning terms, conditions, and technical specifications should be directed to:

Rick Flores, Purchasing  
(956) 983-6368

or Diane Solitaire, Purchasing & Materials Manager  
(956) 983-6366

- **Tentative Time Line**

1. January 16, 2024 through January 31, 2024 - Vendors work on bid.
2. January 31, 2024 at 5:00 PM CST - **Vendor must submit 2 sets of sealed proposal documents in an envelope to:**

Diane Solitaire, Purchasing  
1155 FM 511  
Olmito, TX 78575

Proposal P024-24, Purchase of a Vertical Mixed Flow Waste Pump and Motor for  
Water Treatment Plant No. 1

**Due on January 31, 2024 at 5:00 PM CST**

*The above noted information must be included on bid envelope and on any carrier's envelope/package. The Brownsville Public Utilities Board **will not be held responsible for missing, lost or late mail.** Brownsville Public Utilities Board will not accept facsimile or electronic transmission of sealed bids.*

3. January 22, 2024 – Last day to submit questions
4. January 31, 2024 – Proposal Due at 5:00 PM CST
5. February 1, 2024 – Proposal Acknowledgment at 9:00 AM CST
6. February 2, 2024 - February 16, 2024 - Evaluate proposal documents
7. February 23, 2024 - Provide Final Recommendations
8. March 11, 2024 - Send to Utilities Board for approval

### **INSTRUCTIONS TO RFP RESPONDENTS**

Firms must submit a signed one (1) paper original and one (1) paper copy (entire document) of the proposal in a sealed package. Proposals shall be submitted to the BPUB Purchasing Office, 1155 FM 511, Olmito, Texas, no later than **5:00 PM on January 31, 2024.**

Sealed envelope must be clearly labeled as follows:

Brownsville Public Utilities Board  
Attention: Diane Solitaire  
1155 FM 511  
Olmito, TX 78575

**“P024-24 Purchase of a Vertical Mixed Flow Waste Pump and Motor for Water Treatment Plant No. 1, January 31, 2024 at 5:00 PM”**

**CONTRACT WITH FIRM/ENTITY INDEBTED TO BPUB**

It is a policy of the BPUB to refuse to enter into a contract or other transaction with an individual, sole proprietorship, joint venture, Limited Liability Company or other entity indebted to BPUB.

**FIRM REPRESENTATIVE**

The successful Firm agrees to send a personal representative with binding authority for the company to the BPUB upon request to make adjustments and/or assist with coordination of all transactions as needed.

**VENDOR ACH (DIRECT DEPOSIT) SERVICES**

The Brownsville PUB has implemented a payment service for vendors by depositing the payment directly to the vendor’s bank account. Successful vendor(s) will be required to receive payments directly through Automated Clearing House (ACH) in lieu of a paper check. **The awarded vendor must agree to receive payments via ACH (Direct Deposit).**

**TAX IDENTIFICATION NUMBER (TIN)**

In accordance with IRS Publication 1220, a W9 form, or a W8 form in cases of a foreign vendor, will be required of all vendors doing business with the Brownsville PUB. If a W9 or W8 form is not made available to Brownsville PUB, the first payment will be subject to income tax withholding at a rate depending on the U.S. status and the source of income as per IRS Publication 1220. **The W9 or W8 form must be included with proposal response.** Attached are sample forms.

**TAXES**

The BPUB is exempt from Federal Excise Tax, State Sales Tax and Local taxes. Do not include tax in the proposal. If it is determined that tax was included in the proposal, it will not be included in the tabulation or any awards. Tax exemption certificates will be furnished upon request.

**SIGNING OF PROPOSAL**

**Failure to sign proposal will disqualify it.** Person signing proposal should show title or authority to bind their firm to a contract.

**EEOC GUIDELINES**

During the performance of this contract, the Firm agrees not to discriminate against any employee or applicant for employment because of race, national origin, age, religion, gender, marital or veteran status or physically challenging condition.

### **LIVING WAGE STATEMENT**

On April 16, 2007, the BPUB Board of Directors approved a local “living wage” policy that requires all Contractors performing 100% Non-Federally funded Work for the BPUB to pay not less than a minimum wage rate of \$8.00/hour. The BPUB–requires that all Contractors comply with this policy.

### **CONTRACT AND TERM**

The Pump and Motor shall be delivered FOB to 94 W 13<sup>th</sup> Street Brownsville, Texas. An equipment contract for proposal will be placed into effect after evaluation and final approval by BPUB Board of Directors.

### **DELIVERY**

Delivery of the equipment will only be accepted during normal working hours, **Monday thru Friday, 9 AM to 4 PM CST**. A delivery ticket must be furnished with each delivery by the carrier. The delivery ticket must show the BPUB's Purchase Order, number of crates, packages, etc. being delivered to BPUB. A packing list must be furnished with each delivery by the carrier. The packing list must include the BPUB's Purchase Order number, a brief description of materials and the total number of crates, size, etc. being delivered to BPUB

### **BROWNSVILLE PUB RIGHTS**

1. If only one or no proposal is received by “submission date”, the BPUB has the right to reject, re-advertise, accept and/or extend the proposal by up to an additional two (2) weeks from original submission date.
2. The right to reject any/or all proposals and to make award as they may appear to be advantageous to the Brownsville Public Utilities Board.
3. The right to hold proposal for up to 90 days from submission date without action, and to waive all formalities in proposal.
4. The right to extend the total proposal beyond the original 90-day period prior to an award, if agreed upon in writing by all parties (BPUB and Firm/contractor) and if proposer/Firm holds original proposal prices firm.
5. The right to terminate for cause or convenience all or any part of the unfinished portion of the Project resulting from this solicitation within thirty (30) calendar days written notice; for cause: upon default by the Firm/contractor, for delay or non-performance by the Firm/contractor; or if it is deemed in the best interest of the BPUB for BPUB’s convenience.
6. The right to increase or decrease services. In proposal, stipulate whether an increase or decrease in services will affect proposal price.

### **CORRECTIONS**

Any interpretation, correction, or change to the RFP will be made by ADDENDUM. Changes or corrections will be issued by the BPUB Purchasing Department. **Addenda will be emailed to all who have returned the Proposal Acknowledgement form.** Addenda will be issued as expeditiously as possible. It is the responsibility of the Firms to determine whether all addenda have been received. It will be the responsibility of all respondents to contact the BPUB prior to submitting a response to the RFP to ascertain if any addenda have been issued, and to obtain any

all addenda, execute them, and return addenda with the response to the RFP. Addenda may also be posted on the BPUB website.

### **RFP IS NOT A BASIS FOR OBLIGATIONS**

This request for competitive sealed proposals does not constitute an offer to contract and does not commit the BPUB to the award of a contract to anyone or to pay any costs incurred in the preparation and submission of proposals. The BPUB reserves the right to reject any or all proposals that do not conform to the requirements stated in this document. The BPUB also reserves the right to cancel all or part of this request for proposals for any reason determined by the BPUB to be in the best interest of the rate payers.

### **RIGHTS TO SUBMITTED MATERIALS**

All proposals and material submitted to the BPUB by a firm, in response to this RFP, shall become the property of the BPUB after the proposal submission deadline. The BPUB's return of the proposals/material will be subject to the requirements of the laws of the State of Texas.

### **UNAUTHORIZED COMMUNICATIONS**

After release of this solicitation, Proposer's contact regarding this RFP with members of the RFP evaluation, interview or selection panels, and employees of the BPUB or officials of the BPUB other than the Purchasing Manager or Purchasing Staff is prohibited and may result in disqualification from this procurement process. No officer, employee, agent or representative of the Proposer shall have any contact or discussion, verbal or written, with any members of the BPUB Board of Directors, members of the RFP evaluation, interview, or selection panels, BPUB staff, or directly or indirectly through others, seek to influence any BPUB Board member, BPUB staff regarding any matters pertaining to this solicitation, except as herein provided. If a representative of any Proposer violates the foregoing prohibition by contacting any of the above listed parties with whom contact is not authorized, such contact may result in the Proposer being disqualified from the procurement process.

### **PROPOSAL INFORMATION**

All proposal envelopes shall contain **one (1) signed original and one (1) copy** (entire document). The original proposals will be opened and only the Firm's name read aloud at the BPUB Purchasing Office located at 1155 FM 511, Olmito, Texas. All proposals will be managed by BPUB in a manner that avoids disclosure of the contents to competing firms and keeps the proposals confidential during any negotiations. All proposals will be open for public inspection as stated in the public information act, after the contract is awarded; however, trade secrets and confidential commercial or financial information in the proposals specifically identified by the firms will not be open for public inspection. Accordingly, all pages in the proposal that the Firm considers to be proprietary and confidential should be appropriately marked.

Direct any questions to Rick Flores, Purchasing Department, by phone at (956) 983-6368 or by email at [riflores@brownsville-pub.com](mailto:riflores@brownsville-pub.com) or to [dsolitaire@brownsville-pub.com](mailto:dsolitaire@brownsville-pub.com).

Candidates must guarantee their Original Proposal or subsequently clarified proposal for at least ninety (90) days from the Original Proposal opening date. To obtain the best and final offers, the

BPUB may require written clarifications and explanations of Firm proposals after Original Proposal submissions when certain candidates have been selected for interviews. The BPUB will not be liable for any of the Firm’s costs or expenses incurred in preparation or presentation of the Proposal(s). The BPUB also reserves the right to conduct a pre-award survey, or to require other evidence of technical, production, managerial, financial, or other abilities prior to the award of the contract.

The BPUB will follow Texas Local Government Code procurement procedures found at: Sections 252.021(b)(c); 252.041(b); 252.042; 252.043(h); 252.049(b).

To ensure that the award is made to the Firm whose proposal best meets the needs of the BPUB, discussion may be conducted with the top three (3) rated Firms at BPUB’s discretion. After the meeting(s), five (5) working days will be allowed for the Firms to submit all requested additional information and explanations in writing, which shall be deemed a part of their final offer. The Firm shall submit with such clarifications and explanations any revised projected schedule. The Firms shall be treated fairly and equally with respect to any and all opportunities for discussion, clarification, and explanation of proposals.

**EVALUATION PROCEDURE AND CRITERIA**

All proposals must be completed and convey all of the information requested in order to be considered responsive. If the proposal fails to conform to the essential requirements of the RFP, the Brownsville PUB alone will determine whether the variance is significant enough to consider the proposal susceptible to being made acceptable and therefore a candidate for further consideration, or not susceptible to being made acceptable and therefore not considered for award. Only the information provided with the proposal, subsequent discussions and clarifications provided in writing, and the proposer’s written Best and Final Offer, is used in the evaluation process and award determination. Only these criteria will be considered on the award determination.

A BPUB committee will review the proposals submitted in response to this request and will make recommendations. The BPUB committee will review all proposals in light of the following major evaluation criteria with corresponding weights.

Evaluation Criteria	Maximum Possible Points
Conformance with Technical Specifications	40
Proposal Price	40
Reliability Approach – Degree of Interchangeability of Proposed Pump and Motor with Other Existing Pump and Motor at the Proposed Facility	20
Total Points	100



## EQUIPMENT CONTRACT

AGREEMENT made, \_\_\_\_\_ 20\_\_\_\_, between the Brownsville Public Utilities Board, Brownsville, Texas (hereinafter called the “Purchaser”) and \_\_\_\_\_ (hereinafter called the “Seller”), a corporation organized and existing under the laws of the State of \_\_\_\_\_.

WHEREAS, the Purchaser desires to purchase and the Seller desires to sell the equipment described herein for the project designated:

### **One (1) Vertical Mixed Flow Waste Pump and Motor for Water Treatment Plant No. 1**

NOW THEREFORE, in consideration of the mutual undertakings herein contained, the parties hereto agree as follows:

#### SECTION 1 – ACCEPTANCE OF BID

The Purchaser accepts the Bid which is attached hereto and by this reference made a part hereof, and the parties hereto agree that the Seller shall sell and deliver to the Purchaser and the Purchaser shall purchase and receive from the Seller the equipment (hereinafter called the “Equipment”) described in the Bid upon the terms and conditions herein stated.

- (a) The prices set forth in the Bid include the cost of delivery of the pump and motor and equipment start up technical assistance at BPUB Water Treatment Plant No. 1 in Brownsville, Texas.
- (b) The prices set forth in the Bid do not include any sums which are or may be payable by the Seller on account of taxes imposed by any taxing authority upon the sale, purchase or use of the Equipment.

SECTION 2 – DELIVERY. The Seller shall deliver the Equipment within 6 months after receipt of the purchase order of the Purchaser. The time for delivery shall be extended for the period of any reasonable delay due exclusively to causes beyond the control and without the fault of the Seller, including, but not limited to, acts of God, fires, strikes, and floods.

SECTION 3 – PAYMENT. Upon the shipment of any Equipment hereunder, the Seller shall submit to the Purchaser a detailed statement of the Equipment shipped. The Purchaser shall, upon receipt of the Equipment, pay the Seller ninety five percent (95%) of the contract price of the Equipment. When the Equipment has been installed, placed in satisfactory operation, tested and accepted by the Purchaser, the Purchaser shall make final payments thereof to the Seller; provided, however, such final payment shall be made not later than thirty (30) days after delivery of the Equipment, unless such acceptance by the Purchaser shall be withheld because of the fault of the Seller.

#### SECTION 4 – DEFECTIVE MATERIAL AND WORKMANSHIP

All Equipment furnished hereunder shall be subject to the inspection, tests, and approval of the

Purchaser and the Seller shall furnish all information required concerning the nature of source of any Equipment and provide adequate facilities for testing and inspecting the Equipment at the plant of the Seller.

- (a) The Equipment furnished hereunder shall become the property of the Purchaser upon delivery, provided, however, that the Purchaser, within one year after delivery or within the period for which the Equipment is guaranteed, whichever is longer, may reject any Equipment which does not comply with the Specifications attached hereto and made a part hereof or with the guarantees, if any, of the Seller and the manufacturer. Upon any such rejection, the Seller shall repair or replace such defective Equipment within a reasonable time, but no later than six months, after notice in writing from the Purchaser and in the event of failure by the Seller so to do, the Purchaser may make such replacement and the cost and expense thereof shall be paid by and recoverable from the Seller.

#### SECTION 5 – MISCELLANEOUS

All manufacturers' guarantees of Equipment, if any, shall be transferred and assigned to the Purchaser upon delivery of any Equipment and before final payment is made for such Equipment. Such guarantees shall be in addition to those required of the Seller by other provisions of this Contract.

The Seller shall hold harmless and indemnify the Purchaser from any and all claims, suits, and proceedings for infringement of any patent or patents covering Equipment purchased hereunder.

Each and all of the covenants and agreements herein contained shall extend to and be binding upon the successors and assigns of the parties hereto provided, however, that the Seller shall not assign this contract or any part hereof without approval in writing of the Purchaser, and further that the Seller shall not enter into any contract with any person, firm or corporation for the performance of the Seller's obligations hereunder, or any part thereof, without the approval in writing of the Purchaser.

The Seller agrees to pay liquidated damages in the amount of \$500.00 per day if the pump and motor are not delivered within the delivery time specified in Section 2 of this contract.

<sup>1</sup>IN WITNESS WHEREOF, the parties hereto have caused this contract to be signed in their respective corporate names by their presidents and their corporate seals to be hereunto affixed and attested by their secretaries, all as of the day and year first above written.

The Successful Bidder agrees to furnish a Supply Bond in the amount of the proposal.

PUBLIC UTILITIES BOARD  
OF THE CITY OF BROWNSVILLE

(Insert Vendor's Name)

By: \_\_\_\_\_ By: \_\_\_\_\_  
Marilyn Gilbert, MBA (insert name)  
General Manager & CEO (insert title)

Attest: \_\_\_\_\_ Attest: \_\_\_\_\_  
Secretary Secretary

**COST SHEET**

**Proposal #P024-24**

ITEM NUMBER	QTY	DESCRIPTION	PRICE
1	EA	Vertical Mixed Flow Waste Pump and Motor for Water Treatment Plant No. 1	
1	LS	Equipment precision alignment, vibration testing, start-up assistance.	
1	LS	Other fees, if applicable	
<b>TOTAL COST</b>			
<b>Equipment Delivery in Days</b>			

**SPECIAL INSTRUCTIONS:**

**Brownsville PUB has the right to increase or decrease quantities. In bid, stipulate whether the increase or decrease will affect bid price.**

( ) Yes, an increase or decrease in quantity will affect bid price above.

( ) No, an increase or decrease in quantity will not affect bid price above.

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

Authorized Company Representative: \_\_\_\_\_  
(Print Name and Title)

Authorized Company Representative: \_\_\_\_\_  
**SIGNATURE (Failure to sign RFP will automatically disqualify it)**

Company Address: \_\_\_\_\_  
Street City State Zip Code

Telephone #: \_\_\_\_\_ Fax #: \_\_\_\_\_

Twenty-Four Hour Telephone #: \_\_\_\_\_

Email: \_\_\_\_\_

**REQUIRED FORMS  
CHECKLIST**

The following forms are to be submitted as a part of the Bid/RFP/RFQ document

NAME	FORM DESCRIPTION	SUBMITTED WITH BID	
		YES	NO
Legal Notice	Acknowledgement Form	<input type="checkbox"/>	<input type="checkbox"/>
	Debarment Certification	<input type="checkbox"/>	<input type="checkbox"/>
	Ethics Statement	<input type="checkbox"/>	<input type="checkbox"/>
	Conflict of Interest Questionnaire	<input type="checkbox"/>	<input type="checkbox"/>
	W9 or W8 Form	<input type="checkbox"/>	<input type="checkbox"/>
	Direct Deposit Form (will be provided to the awarded vendor)	<input type="checkbox"/>	<input type="checkbox"/>
	Residence Certification Form	<input type="checkbox"/>	<input type="checkbox"/>
Special Instructions	Bid Schedule/Cost sheet completed and signed	<input type="checkbox"/>	<input type="checkbox"/>
	Cashier Check or Bid Bond of 5% of Total Amount of Bid (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
	OSHA 300 Log (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
	Contractor Pre-Bid Disclosure completed, signed and notarized (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
	Sub-Contractor Pre-Bid Disclosure completed, signed, and notarized (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
References	Complete the Previous Customer Reference Worksheet for each reference provided	<input type="checkbox"/>	<input type="checkbox"/>
Addenda			

**ETHICS STATEMENT (Complete and Return this form with Response)**

The undersigned firm, by signing and executing this RFP, certifies and represents to the Brownsville Public Utilities Board that firm has not offered, conferred or agreed to confer any pecuniary benefit, as defined by (1.07 (a) (6) of the Texas Penal Code, or any other thing of value as consideration for the receipt of information or any special treatment of advantage relating to this RFP; the firm also certifies and represents that the firm has not offered, conferred or agreed to confer any pecuniary benefit or other thing of value as consideration for the recipient's decision, opinion, recommendation, vote or other exercise of discretion concerning this RFP, the firm certifies and represents that firm has neither coerced nor attempted to influence the exercise of discretion by any officer, trustee, agent or employee of the Brownsville Public Utilities Board concerning this RFP on the basis of any consideration not authorized by law; the firm also certifies and represents that firm has not received any information not available to other firms so as to give the undersigned a preferential advantage with respect to this RFP; the firm further certifies and represents that firm has not violated any state, federal, or local law, regulation or ordinance relating to bribery, improper influence, collusion or the like and that firm will not in the future offer, confer, or agree to confer any pecuniary benefit or other thing of value of any officer, trustee, agent or employee of the Brownsville Public Utilities Board in return for the person having exercised their person's official discretion, power or duty with respect to this RFP; the firm certifies and represents that it has not now and will not in the future offer, confer, or agree to confer a pecuniary benefit or other thing of value to any officer, trustee, agent, or employee of the Brownsville Public Utilities Board in connection with information regarding this RFP, the submission of this RFP, the award of this RFP or the performance, delivery or sale pursuant to this RFP.

**THE FIRM SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE BROWNSVILLE PUBLIC UTILITIES BOARD, ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, ACTIONS, SUITS, DEMANDS, PROCEEDING, COSTS, DAMAGES, AND LIABILITIES, ARISING OUT OF, CONNECTED WITH, OR RESULTING FROM ANY ACTS OR OMISSIONS OF FIRM OR ANY AGENT OR EMPLOYEE OF FIRM IN THE EXECUTION OR PERFORMANCE OF THIS RFP.**

I have read all of the specifications and general RFP requirements and do hereby certify that all items submitted meet specifications.

COMPANY: \_\_\_\_\_

AGENT NAME: \_\_\_\_\_

AGENT SIGNATURE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_

STATE: \_\_\_\_\_ ZIP CODE: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_ TELEFAX: \_\_\_\_\_

FEDERAL ID#: \_\_\_\_\_ AND/OR SOCIAL SECURITY #: \_\_\_\_\_

**DEVIATIONS FROM SPECIFICATIONS IF ANY:**

**NOTE: QUESTIONS AND CONCERNS FROM PROSPECTIVE CONTRACTORS SHOULD BE RAISED WITH OWNER AND ITS CONSULTANT (IF APPLICABLE) AND RESOLVED IF POSSIBLE, PRIOR TO THE PROPOSAL SUBMITTAL DATE. ANY LISTED DEVIATIONS IN A FINALLY SUBMITTED PROPOSAL MAY ALLOW THE OWNER TO REJECT A PROPOSAL AS NON-RESPONSIVE.**

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS (THIS FORM MUST BE COMPLETED IN ITS ENTIRETY AND SUBMITTED WITH PROPOSAL RESPONSE)**

Name of Entity: \_\_\_\_\_

The prospective participant certifies to the best of their knowledge and belief that they and their principals:

- a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, Local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
- d) Have not within a three-year period preceding this application/bid had one or more public transactions (Federal, State, or Local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Section 1001, a false statement may result in a fine up to a \$10,000.00 or imprisonment for up to five (5) years, or both.

---

\_\_\_\_\_  
Name and Title of Authorized Representative (Typed)

---

\_\_\_\_\_  
Signature of Authorized Representative

---

\_\_\_\_\_  
Date

---

**I am unable to certify to the above statements. My explanation is attached**

**THIS FORM MUST BE COMPLETED IN ITS ENTIRETY & SUBMITTED WITH BID RESPONSE**

<b>CONFLICT OF INTEREST QUESTIONNAIRE</b>		<b>FORM CIQ</b>
<b>For vendor doing business with local governmental entity</b>		<b>OFFICE USE ONLY</b>
<p>This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.</p> <p>This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).</p> <p>By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.</p> <p>A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.</p>	<p>Date Received</p>	
<p><b>1</b> Name of vendor who has a business relationship with local governmental entity.</p>		
<p><b>2</b> <input type="checkbox"/> Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)</p>		
<p><b>3</b> Name of local government officer about whom the information is being disclosed.</p> <p align="center">_____</p> <p align="center">Name of Officer</p>		
<p><b>4</b> Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.</p> <p align="center">A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?</p> <p align="center"><input type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p align="center">B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?</p> <p align="center"><input type="checkbox"/> Yes      <input type="checkbox"/> No</p>		
<p><b>5</b> Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.</p>		
<p><b>6</b> <input type="checkbox"/> Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).</p>		
<p><b>7</b></p> <p align="center">_____ Signature of vendor doing business with the governmental entity</p> <p align="right">_____ Date</p>		



**CONFLICT OF INTEREST QUESTIONNAIRE**  
**For vendor doing business with local governmental entity**

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

**Local Government Code § 176.001(1-a):** "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

**Local Government Code § 176.003(a)(2)(A) and (B):**

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

\*\*\*

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

**Local Government Code § 176.006(a) and (a-1)**

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or
- (C) of a family relationship with a local government officer.

**BROWNSVILLE PUBLIC UTILITIES BOARD**  
**RESIDENCE CERTIFICATION**

In accordance with Art. 601g, as passed by the 1985 Texas Legislature, the following will apply. The pertinent portion of the Act has been extracted and is as follows:

Section 1. (a)

(1) "Nonresident bidder" means a bidder whose principal place of business is not in this state, but excludes a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

(2) "Texas resident bidder " means a bidder whose principal place of business is in this state, and includes a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

Section 1. (b)

The state or governmental agency of the state may not award a contract for general construction, improvements, services, or public works projects or purchases of supplies, materials or equipment to a nonresident bidder unless the nonresident's bid is lower than the lowest bid submitted by a responsible Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located.

I certify that \_\_\_\_\_  
(Company Name) is a **resident Texas bidder** as defined in Art. 601g.

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

Print Name: \_\_\_\_\_

I certify that \_\_\_\_\_  
(Company Name) is a **nonresident bidder** as defined in Art. 601g. and our principal place of business is:

\_\_\_\_\_  
(City and State)

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

Print Name: \_\_\_\_\_

Organization Name  
State Law Verifications

I, \_\_\_\_\_ (Person's name), the undersigned representative of (Company or Business name) \_\_\_\_\_ (hereafter referred to as the "Company") being an adult over the age of eighteen (18) years of age, after being duly sworn by the undersigned notary, do hereby depose and verify under oath as follows:

- **IRAN, SUDAN AND FOREIGN TERRORIST ORGANIZATIONS:** By submission of a response to City of Brownsville Public Utilities Board ("BPUB") Request for Qualifications Q018-23 (the "RFQ"), the responding Company represents that, to the extent this proposal submission or any contracts executed in response to this proposal constitutes a governmental contract within the meaning of Section 2252.151 of the Texas Government Code, as amended, solely for purposes of compliance with Section 2252.152 of the Texas Government Code, and except to the extent otherwise required by applicable federal law, neither the responding Company, nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of the Company is a company listed by the Texas Comptroller of Public Accounts under Sections 806.051, 807.051, or 2252.153 of the Texas Government Code.
- **ANTI-BOYCOTT ISRAEL VERIFICATION:** By submission of a response to the BPUB RFQ, the responding Company represents that, to the extent this proposal submission, or any contracts executed in response to this proposal, constitutes a contract for goods or services within the meaning of Section 2271.002 of the Texas Government Code, as amended, solely for purposes of compliance with Chapter 2271 of the Texas Government Code, and subject to applicable federal law, including without limitation, 50 U.S.C. Section 4607, the responding Company, as well as any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of the Company, (1) does not boycott Israel and (2) will not boycott Israel through the term of any such contract. The term "boycott Israel" as used in this paragraph has the meaning assigned to such term in Section 808.001 of the Texas Government Code, as amended.
- **VERIFICATION REGARDING NO DISCRIMINATION AGAINST FIREARMS:** By submission of a response to the BPUB RFQ, the responding Company represents that, to the extent this proposal submission, or any contracts executed in response to this proposal, constitutes a contract for goods or services for which a written verification is required under Section 2274.002, Texas Government Code (as added by Senate Bill 19, 87th Texas Legislature, Regular Session), as amended, the responding Company hereby verifies that it, as well as any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of the Firm, (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of any such contract against a firearm entity or firearm trade association. The foregoing verification is made solely to comply with Section 2274.002, Texas Government Code (as added by Senate Bill 19, 87th Texas Legislature, Regular Session), as amended, to the extent such section does not contravene

applicable Texas or federal law. As used in the foregoing verification, “discriminate against a firearm entity or firearm trade association” shall have the meaning assigned to such term in Section 2274.001, Texas Government Code (as added by Senate Bill 19, 87th Texas Legislature, Regular Session).

- **VERIFICATION REGARDING NO ENERGY COMPANY BOYCOTTS:** By submission of a response to the BPUB RFQ, the responding Company represents that, to the extent this proposal submission, or any contracts executed in response to this proposal, constitutes a contract for goods or services for which a written verification is required under Section 2274.002, Texas Government Code (as added by Senate Bill 13, 87th Texas Legislature, Regular Session), as amended, the responding Company hereby verifies that the responding Company, as well as any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of the Firm, (1) does not boycott energy companies and (2) will not boycott energy companies during the term of any such contract. The foregoing verification is made solely to comply with Section 2274.002, Texas Government Code (as added by Senate Bill 13, 87th Texas Legislature, Regular Session), as amended, to the extent such section does not contravene applicable Texas or federal law. As used in the foregoing verification, “boycott energy companies” shall have the meaning assigned to such term in Section 809.001(1), Texas Government Code.

\_\_\_\_\_  
DATE

\_\_\_\_\_  
SIGNATURE OF COMPANY REPRESENTATIVE

On this the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared

\_\_\_\_\_, the above-named person, who after by me being duly sworn, did swear and confirm that the above is true and correct.

NOTARY SEAL \_\_\_\_\_

NOTARY SIGNATURE \_\_\_\_\_

Date





Form **W-8BEN-E**

(Rev. October 2021)  
 Department of the Treasury  
 Internal Revenue Service

**Certificate of Status of Beneficial Owner for  
 United States Tax Withholding and Reporting (Entities)**

► For use by entities. Individuals must use Form W-8BEN. ► Section references are to the Internal Revenue Code.  
 ► Go to [www.irs.gov/FormW8BENE](http://www.irs.gov/FormW8BENE) for instructions and the latest information.  
 ► Give this form to the withholding agent or payer. Do not send to the IRS.

OMB No. 1545-1621

**Do NOT use this form for:**

- U.S. entity or U.S. citizen or resident . . . . . W-9
- A foreign individual . . . . . W-8BEN (Individual) or Form 8233
- A foreign individual or entity claiming that income is effectively connected with the conduct of trade or business within the United States (unless claiming treaty benefits) . . . . . W-8ECI
- A foreign partnership, a foreign simple trust, or a foreign grantor trust (unless claiming treaty benefits) (see instructions for exceptions) . . . W-8IMY
- A foreign government, international organization, foreign central bank of issue, foreign tax-exempt organization, foreign private foundation, or government of a U.S. possession claiming that income is effectively connected U.S. income or that is claiming the applicability of section(s) 115(2), 501(c), 892, 895, or 1443(b) (unless claiming treaty benefits) (see instructions for other exceptions) . . . . . W-8ECI or W-8EXP
- Any person acting as an intermediary (including a qualified intermediary acting as a qualified derivatives dealer) . . . . . W-8IMY

**Instead use Form:**

**Part I Identification of Beneficial Owner**

<b>1</b> Name of organization that is the beneficial owner	<b>2</b> Country of incorporation or organization
--	---

<b>3</b> Name of disregarded entity receiving the payment (if applicable, see instructions)
---

<b>4</b> Chapter 3 Status (entity type) (Must check one box only):	<input type="checkbox"/> Corporation	<input type="checkbox"/> Partnership
<input type="checkbox"/> Simple trust	<input type="checkbox"/> Tax-exempt organization	<input type="checkbox"/> Complex trust
<input type="checkbox"/> Central Bank of Issue	<input type="checkbox"/> Private foundation	<input type="checkbox"/> Foreign Government - Controlled Entity
<input type="checkbox"/> Grantor trust	<input type="checkbox"/> Disregarded entity	<input type="checkbox"/> Foreign Government - Integral Part
	<input type="checkbox"/> Estate	
	<input type="checkbox"/> International organization	
If you entered disregarded entity, partnership, simple trust, or grantor trust above, is the entity a hybrid making a treaty claim? If "Yes," complete Part III. <input type="checkbox"/> Yes <input type="checkbox"/> No		

<b>5</b> Chapter 4 Status (FATCA status) (See instructions for details and complete the certification below for the entity's applicable status.)	
<input type="checkbox"/> Nonparticipating FFI (including an FFI related to a Reporting IGA FFI other than a deemed-compliant FFI, participating FFI, or exempt beneficial owner).	<input type="checkbox"/> Nonreporting IGA FFI. Complete Part XII.
<input type="checkbox"/> Participating FFI.	<input type="checkbox"/> Foreign government, government of a U.S. possession, or foreign central bank of issue. Complete Part XIII.
<input type="checkbox"/> Reporting Model 1 FFI.	<input type="checkbox"/> International organization. Complete Part XIV.
<input type="checkbox"/> Reporting Model 2 FFI.	<input type="checkbox"/> Exempt retirement plans. Complete Part XV.
<input type="checkbox"/> Registered deemed-compliant FFI (other than a reporting Model 1 FFI, sponsored FFI, or nonreporting IGA FFI covered in Part XII). See instructions.	<input type="checkbox"/> Entity wholly owned by exempt beneficial owners. Complete Part XVI.
<input type="checkbox"/> Sponsored FFI. Complete Part IV.	<input type="checkbox"/> Territory financial institution. Complete Part XVII.
<input type="checkbox"/> Certified deemed-compliant nonregistering local bank. Complete Part V.	<input type="checkbox"/> Excepted nonfinancial group entity. Complete Part XVIII.
<input type="checkbox"/> Certified deemed-compliant FFI with only low-value accounts. Complete Part VI.	<input type="checkbox"/> Excepted nonfinancial start-up company. Complete Part XIX.
<input type="checkbox"/> Certified deemed-compliant sponsored, closely held investment vehicle. Complete Part VII.	<input type="checkbox"/> Excepted nonfinancial entity in liquidation or bankruptcy. Complete Part XX.
<input type="checkbox"/> Certified deemed-compliant limited life debt investment entity. Complete Part VIII.	<input type="checkbox"/> 501(c) organization. Complete Part XXI.
<input type="checkbox"/> Certain investment entities that do not maintain financial accounts. Complete Part IX.	<input type="checkbox"/> Nonprofit organization. Complete Part XXII.
<input type="checkbox"/> Owner-documented FFI. Complete Part X.	<input type="checkbox"/> Publicly traded NFFE or NFFE affiliate of a publicly traded corporation. Complete Part XXIII.
<input type="checkbox"/> Restricted distributor. Complete Part XI.	<input type="checkbox"/> Excepted territory NFFE. Complete Part XXIV.
	<input type="checkbox"/> Active NFFE. Complete Part XXV.
	<input type="checkbox"/> Passive NFFE. Complete Part XXVII.
	<input type="checkbox"/> Excepted inter-affiliate FFI. Complete Part XXVII.
	<input type="checkbox"/> Direct reporting NFFE.
	<input type="checkbox"/> Sponsored direct reporting NFFE. Complete Part XXVIII.
	<input type="checkbox"/> Account that is not a financial account.

<b>6</b> Permanent residence address (street, apt. or suite no., or rural route). <b>Do not use a P.O. box or in-care-of address</b> (other than a registered address).	
City or town, state or province. Include postal code where appropriate.	Country

<b>7</b> Mailing address (if different from above)	
City or town, state or province. Include postal code where appropriate.	Country

## TECHNICAL SPECIFICATIONS





**SPECIFICATION FOR  
VERTICAL MIXED FLOW PUMP(S)**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. This Section includes the furnishing and testing of ANSI/NSF 61 certified vertical mixed flow, enclosed line-shaft, oil lubricated pump(s) as specified herein. The pump and motor assembly is referred in this Section as the Pump Unit.

**1.02 RELATED REQUIREMENTS**

- A. Attachment "A" to this Specification Section gives performance and design requirements.
- B. Attachment "B" to this Specification Section provides pump curve performance requirements and general dimensions of existing pump to be replaced by equipment under this Section. Equipment under this Section will be a replacement and shall not require any electrical or mechanical modifications to the existing pumps station and controls.

**1.03 REFERENCES**

The latest version of the publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by basic designation only.

**AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)**

ASTM A36	Standard Specification for Carbon Structural Steel
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A49	Standard Specification for Heat-Treated Carbon Steel Joint Bars, Micro-alloyed Joint Bars, and Forged Carbon Steel Compromise Joint Bars
ASTM A53	Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
ASTM A108	Standard Specification for Steel Bars, Carbon, Cold Finished, Standard Quality
ASTM A181	Standard Specification for Carbon Steel, Forgings for General Purpose Piping
ASTM A276	Standard Specification for Stainless Steel Bars and Shapes

ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A564	Standard Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless-Steel Bars and Shapes
ASTM A582	Standard Specification for Free-Machining Stainless Steel Bars
ASTM A743	Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application.
ASTM B148	Standard Specification for Aluminum-Bronze Sand Castings
ASTM B505	Standard Specification for Copper Alloy Continuous Castings
ASTM B584	Standard Specification for Copper Alloy Sand Castings for General Application

#### **AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)**

ASME B16.5-2009 Pipe Flanges and Flanged Fittings

#### **AMERICAN NATIONAL STANDARD INSTITUTE/HYDRAULIC INSTITUTE (ANSI/HI)**

ANSI/HI 2.1–2.2	Rotodynamic (Vertical) Pumps for Nomenclature and Definitions
ANSI/HI 2.4	Rotodynamic (Vertical) Pumps for Manuals Describing Installation, Operation and Maintenance
ANSI/HI 14.6	Rotodynamic Pumps for Hydraulic Performance Acceptance Tests
ANSI/HI 9.6.4	Rotodynamic Pumps for Vibration Measurements and Allowable Values
ANSI/HI 9.8	Rotodynamic Pumps for Pump Intake Design

#### **AMERICAN NATIONAL STANDARD INSTITUTE/AMERICAN PETROLEUM INSTITUTE (ANSI/API)**

ANSI/API 610-2004 Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries

#### **AMERICAN WATER WORKS ASSOCIATION (AWWA)**

AWWA E103 Vertical and Horizontal Line-Shaft Pumps

#### **1.04 NOT USED**

#### **1.05 DESIGN AND PERFORMANCE CRITERIA**

- A. The design requirements for the pumps shall be as follows:
1. Design requirements for the pumps shall be as specified in Attachment A at the end of this Specification Section.
  2. Critical speed analysis: The **VENDOR** shall require that the pump manufacturer perform both lateral and torsional critical speed analyses to identify and ensure that:
    - a. The first lateral critical speed shall be at least 25 percent above the maximum pump speed;
    - b. No torsional natural frequencies occur within a range extending from 25 percent below to 25 percent above the specified operating speed range;
    - c. Any blade excited resonant frequency shall be no closer than plus or

minus 25 percent of the natural frequency of any part of the installed assembled pumping unit.

3. Allowable Operating Range: The VENDOR shall require that pump manufacturer identify the allowable operating region of the pump curves submitted. When the allowable operating region is limited by a factor other than vibration, that factor shall be submitted to the OWNER as part of the Shop Drawings.

B. Seismic Load:

1. The Contractor shall conform to the requirements of Seismic Design Data shown on Drawings when applicable.

## 1.06 SUBMITTALS

Submit the following:

A. Shop Drawings

1. Equipment specifications and data sheets, with identification of all materials used and methods of fabrication. Designate materials by ASTM standards.
2. Complete assembly, layout, cross section, installation and shop drawings, with clearly marked dimensions submitted in electronic format. Electronic files to be AutoCAD latest version, drawn to scale. Submit electronic files on CD or DVD.
3. Manufacturer's product data and specifications for painting.
4. Show shaft diameter and bearing spacing. Submit calculations showing shaft critical frequency and determination of bearing spacing. Show calculated bearing life certified by the pump manufacturer.
5. Submit calculation and estimate of shaft elongation or shaft stretch including any accumulation of shaft joint clearances, versus the maximum required clearances between the impeller and the casing before pump operation, during operation, and steady state operation.
6. Provide a scaled drawing showing the pump, motor, including equipment weights, and lifting attachments.
7. Pretest pump curves on which the specified operating points are marked. Include losses for entrance, bowl, column, and discharge head. Show efficiency and brake horsepower for the selected pump curve. Include moment of inertia of the completed pumping unit including driver, impeller, and liquid pumped. Include maximum combined hydraulic and static thrust and momentary upthrust. Show required submergence and NPSH<sub>R</sub>.
8. Tabulated Data: Rated head, capacity and break horsepower. Rated operated speed. Maximum combined hydraulic and static thrust.
9. Submit certified and witness shop test procedures, the equipment to be used, plan and section drawings of the testing arrangements and manufacturer's sample form for reporting performance test results at least two weeks before the tests. The test shall conform with ANSI/HI 14.6.
10. Certified performance curves showing pumping head, capacity, horsepower and efficiency from shut-off to beyond minimum operating head at operating speeds. Include losses for entrance, bowl, column, and discharge head. In addition, include NPSH<sub>R</sub>, thrust curves and momentary upthrust. The NPSH<sub>R</sub> curve shall extend from the Allowable Operating Range limits as defined by Hydraulic Institute Standards.
11. Submit certified performance curves at least two weeks prior to shipping the units from the factory. Provide copies of the data recorded during the test and methods of data reduction for determining certified tests results.
12. Motor bearing temperature operating range for the service conditions specified.
13. Field test procedure.
14. Manufacturer's delivery, storage, and handling requirements.
15. Manufacturer's installation instructions and recommendations.
16. Certified setting plans, with tolerances, for anchor bolts.
17. Schematic diagrams showing the wiring for each electrical or electro-mechanical equipment item, as well as interconnecting and point-to-point field wiring diagrams for wiring between all components provided under this specification.

18. Documentation for instrumentation and control equipment provided under this Specification.
  19. Motor data per applicable motor specification.
  20. Spare parts list indicating sizes, quantities, and part numbers of the items to be furnished.
  21. Speed-torque characteristic of pump operation against fully closed discharge valve and speed-torque characteristic of pump for pump operation against fully open discharge valve.
- B. Operation and Maintenance Manuals shall be included with all manufacturer recommended operation and maintenance information, in hard copy and in electronic (PDF) format.
- C. Certificates:
1. Metallurgical certificate from foundry for castings of pump components, including but not limited to: impeller, bowl, shafts, shaft sleeves, and columns.
  2. Stress-relief certificate from furnace vendor for column and head fabrications.
  3. Machining accuracy certificate showing that column, shaft and head fabrications were machined within OEM drawing tolerances.
  4. Material Certification:
    - a. Provide certification from the equipment manufacturer that the materials of construction specified are recommended and suitable for the service conditions specified and indicated. If materials others than those specified are proposed based on incompatibility with the service conditions, provide technical data and certification that the proposed materials are recommended and suitable for the service conditions specified and indicated including an installation list of a minimum of five (5) installations in operation for a minimum of five (5) years. Provide proposed materials at no additional cost to OWNER.
    - b. Where materials are not specified, provide technical data and certification that the proposed materials are recommended and suitable for the service conditions specified and indicated.
  5. Certification of welders in accordance with American Welding Society (AWS).
- D. Reports:
1. **Certified report of Lateral and Torsional Analysis:** Submit calculations of lateral vibration analysis for the discharge head/motor assembly, and for the column/pump assembly. Submit calculations of torsional analysis for the complete rotating assembly. The analysis report shall include the specific items of API Standard 610, Part 5.9, Dynamics. Pump manufacturer shall provide whatever devices or supports necessary to meet the requirements of the analysis, at no additional cost to the OWNER.
  2. **Factory Tests:** Furnish reports of witnessed and certified factory tests. No equipment shall be shipped from its place of manufacture before the witnessed and certified factory test reports have been approved by the OWNER.
  3. **Field Tests:** Furnish reports of field tests. Prior notification of field tests shall be submitted for all equipment at least two weeks before the tests.
  4. **Installation Report:** Furnish to OWNER copies of certified report prepared by manufacturer's technical representative certifying satisfactory installation, operation, and in service placement of units. **Pump and motor manufacturer's representative shall be onsite and shall perform pump installation testing as per the Hydraulic Institute, including vibration. Tests shall be passing in order for the pump and motor equipment to be considered acceptable and ready for payment.**

## 1.07 QUALITY ASSURANCE

- A. System Coordination:
1. VENDOR retains overall responsibility to ensure pump and motor are properly installed by the OWNER, adjust, test, and place in operation the Pump Unit(s).
  2. When bid requires more than one pump, all pumps for each service provided

under this Specification shall be the products of a single manufacturer. All motors for each service provided under this specification shall be the product of a single manufacturer. The pump manufacturer/supplier shall furnish the pumps and motors, as a complete and integral package to insure proper coordination, compatibility, and operation of the system.

3. Coordinate start-up with pump manufacturer, motor manufacturer, pump control valve manufacturer and air vacuum valve manufacturer.

**B. Manufacturer's Qualifications**

The VENDOR shall provide evidence to the OWNERR that the manufacturer has a minimum of five (5) years of experience, within the last ten (10) years, in the design, manufacture, and supervision of installation of equipment of the type and size specified (or larger) under this Specification.

1. The VENDOR shall provide evidence to the OWNER that equipment which was designed and manufactured by the manufacturer, and which is similar to the equipment required under this Specification, has been in continuous and successful operation in at least five (5) separate facilities for the past five (5) years.

**C. Manufacturer's representative**

1. Furnish services and training to OWNER's maintenance and operations personnel covering pump and motor installation, operation, and maintenance topics, including all required testing, preventative, and predictive maintenance.
2. The VENDOR shall provide the services of a qualified manufacturer's service technician to:
  - a. Witness, test (including vibration, temperature, amp, etc.), and certify the installation of the equipment;
  - b. Check the installation before the equipment is placed into operation;
  - c. Perform field tests as per the Hydraulic Institute for commissioning new pumps.;
  - d. Assist in start-up of equipment; and
  - e. Train the plant operations and maintenance staff in the care, operation and maintenance of equipment. Including predictive maintenance.
3. The VENDOR shall provide the services of the manufacturer's service technician at such times and for such duration of time as are needed to perform the tasks required of the representative as specified in Article 1.07.C.2 above. At a minimum, the services of the manufacturer's technician shall be provided as indicated herein below and any additional time required shall be provided at no additional cost to the OWNER. The number of visits and person-days per visit indicated below shall be understood as referring to the total required services for the lot of equipment provided under this Specification. However, the CONTRACTOR is advised that the number of visits and person-days per visit indicated below do not include (and are to be understood as being in addition to) the motor manufacturer's technician services.

a.	Installation:	1	visits of	1	person-days per visit
b.	Field testing:	1	visits of	1	person-days per visit
c.	Start-up:	1	visits of	1	person-days per visit
d.	Training:	1	visits of	1	person-days per visit
4. The CONTRACTOR shall coordinate the manufacturer's representative services such that technicians from the pump, motor and discharge valve manufacturer (when valves are part of the purchase) are present simultaneously at the project site during field testing and startup of the pumps.
5. The OWNER reserves the right to require that any unused person-days from any visit be applied to any other specific visit.
6. Person-days shall be understood only as days spent on-site (not in transit).
7. Unless otherwise authorized by the OWNER, the **manufacturer's technician shall be a direct employee of the equipment manufacturer or a factory trained technician, with at least five (5) years of experience in the installation, testing and start-up of equipment of the type provided under**

**this Specification. Provide resume of the proposed manufacturer's technician for OWNER approval as part of the submittal process, before commencing fabrication of equipment. The manufacturer's sales and marketing personnel will not be accepted as manufacturer's technicians.**

8. Reports: The VENDOR shall submit a report from the manufacturer for each visit to the Site of the manufacturer's technician. The report shall provide complete information regarding the visit, including, but not limited to, dates, times, subject equipment, tasks performed, persons contacted, problems corrected, test results, training provided, and other pertinent information.

**In addition to the above, the VENDOR shall provide the services of person(s) authorized by the manufacturer to witness the unloading at the Site and, if stored, placing into storage the equipment provided under this Specification, and to ascertain the condition of said equipment.**

Manufacturers' sales and marketing personnel may be accepted as authorized person(s) to perform these specific tasks. The VENDOR shall submit to the OWNER a report, completed by the authorized person(s) and certified by the equipment manufacturer, documenting the findings of the authorized person(s).

- D. Painting: The equipment provided under this Specification shall be shop cleaned, primed, and finish painted, and field painted in accordance with the manufacturer's recommendations.

#### **1.08 DELIVERY, STORAGE AND HANDLING**

- A. Manufacturer shall carefully prepare the pump for shipment to minimize the likelihood of damage during shipment. Cavities shall be drained of water. Equipment shall be properly supported and securely attached to skids. Openings shall be covered in a manner to protect both the opening and interior.
- B. Deliver, unload, and store products on site in a manner that prevents damage. Use special care to prevent damage from temperature and condensation.

#### **1.09 PROJECT CONDITIONS (NOT USED)**

#### **1.10 SPARE PARTS**

- A. Provide spare parts that are identical to an interchangeable with similar parts installed for each type of pumps.
1. One set of all special bolts, nuts and impeller shaft thrust rings and keys.
  2. One set of all pump shaft bearings.
  3. One set of intermediate lineshaft bearings.
  4. One set of all special tools required.
  5. One complete set of gaskets.
  6. One complete sets of wearing rings with fasteners.
  7. One complete set of mechanical seals.
- B. All spare parts shall be plainly tagged, marked for identification and reordering and shall be delivered properly boxed.

### **PART 2 PRODUCTS**

#### **2.01 PUMP MANUFACTURER(S)**

- A. Fairbanks-Nijhuis
- B. Flowserve
- C. Peerless
- D. Sulzer

E. Or, Approved Equal.

## 2.02 MOTOR MANUFACTURER(S)

A. General Electric Model No. 5KS449FT8G03A

## 2.03 MATERIALS AND/OR EQUIPMENT

A. General

1. This is a replacement pump(s) for an existing pump station. Pump(s) shall be **Fairbanks Pump Model 8312AE or Approved Equal** (See Attachment B for pump curve performance requirements and dimensions, **VENDOR** to confirm field dimensions). Replacement pump shall not require any mechanical or electrical modifications to the existing pump station. Vendor shall field-verify dimensions of existing pump installation to ensure new pump will fit without the need of additional couplings or modifications. Pump(s) shall be vertical mixed flow type, enclosed line-shaft, oil lubricated, provided with vertical hollow shaft motors. Pump(s) shall conform to AWWA Standard E103 for Horizontal and Vertical Line-Shaft Pumps of latest edition, except as otherwise specified in this Specification.
2. **Pumping unit to yield performance stable and free from noise or vibration** throughout operating range. From run-out head to shut-off head, the Head vs. Capacity curve shall be constantly rising without a 0 or reverse slope.
3. Pumps shall be manufactured in accordance with the latest Hydraulic Institute Standards.
4. Pumping assemblies, including pump and motor, shall operate within vibration and bearing temperature limits specified over the full operable range of the pump performance. Motors shall be non-overloading under any condition of operation specified and indicated without operating in the motor service factor.
5. Equip pumping units with all specified and required accessories, including lifting attachments, pressure gages, drain connections, and motor temperature and vibration sensors.
6. Apply a never seize compound to all bolts.
7. **Provide isolation sleeves and washers when stainless steel hardware is used on dissimilar materials. VENDOR to supply OWNER with all anchorage and flange bolting stainless steel 316 hardware of the type and size recommended by the manufacturer.**
8. The pumps shall be capable of temporary operation at or near shut off head for 3 minutes to allow for opening and closing of the pump discharge control valve as the pump starts or stops.

B. Discharge Head:

1. Type: Aboveground, with three-section mitered elbow.
2. Material: Fabricated steel ASTM A53, or A283 grade D steel, smooth and free of all imperfections. Stress relieve fabrication in an oven prior to machining. Furnish a stress relief certificate from the oven vendor. Machine and drill fabrication in one machining set-up so that flange surfaces are parallel to one another and perpendicular to the stuffing box mounting bore, and so aligning registers are concentric to one another within the tolerances specified by the OEM. Inspect and report machined dimensions and machining accuracy on each fabrication.
3. Provide integral flange for bolting to column flange.
4. Provide a foundation (sole) plate, of fabricated steel ASTM A36 for support of the pump assembly, including thrust and dynamic loads. The top of the foundation plate shall be machined faced, drilled and tapped for the pump baseplate. Pump manufacturer shall design the soleplate to allow air escape during grouting.
5. Connection: Flanged, ASME B16.1, 125-lb, standard, flat faced.
6. Provide discharge head and baseplate design to support the weight of the pump's motor and withstand all thrust conditions imposed by the pump and driver

during operation at the specified conditions. It shall have sufficient bearing surface on the pump foundation to provide a rigid setting so as to attenuate any self-generated vibrations to within the limits specified and provide protection for the type of enclosure employed.

7. Provide top shaft of Type 416 stainless steel or ASTM A564 Type 630 17-4, and adjustable flanged spacer coupling with motor shaft thrust ring for connection to drive motor.
8. Provide O-ring gasket between top column flange and discharge head.
9. Provide top flange of discharge head with machined registers fit to match motor mounting.
10. Provide sealing box, with plugged 1/2-inch NPT water flush connection, designed for use with conventional packing or mechanical seal without requiring re-machining. Provide split mechanical seal with 1/2-inch NPT seal flushing water inlet port.
11. Provide 1/2-inch NPT tapped connection for pressure gage on the horizontal centerline of discharge piping. Provide one (1) 1-inch discharge head drain. Install drain line to the drain trench.
12. Discharge head shall have service openings which allow ready access to the pumping unit's coupling and mechanical seal. **One service opening shall be large enough (without affecting the stability of the pump) to allow a service person to insert their hands and maneuver with enough space to remove/install a split mechanical seal.** Service openings shall be guarded by hinged and latchable wire mesh guards bent and shaped to conform to the exterior configuration of the mounting stand. Wire mesh guards shall prevent physical contact with rotating elements interior to the mounting stand. Wire mesh guards shall be constructed from heavy gauge Type 316 stainless steel and Type 316 stainless steel hardware. Guards shall have 1/4-inch clear sieve openings.
13. The base of the discharge head shall be machined to match the drilling of the top column flange as selected by the pump manufacturer. The discharge head shall have a top flange surface with machined register fit to mate with the drive motor and facilitate rigid mounting to the motor. The discharge head shall be bolted to the sole plate which is to be permanently grouted to the concrete supporting foundation.
14. Sealing box leakage shall be collected in leakage containment and piped to drain. A 1-inch NPT sealing box drain tap shall be provided.
15. Integral lifting lugs shall be provided on the sides of the discharge head.

C. Bowl Assembly

1. Pump bowls: Ductile iron ASTM A536 Gr. 60-40-18. Free from blow-holes, sand holes and other defects and faults. Bowls shall be flanged and fastened to adjacent bowls or pump parts with Type 316 stainless steel cap screws and hardware. Fit bowls with hardened stainless steel wear rings, ASTM A743 CA-15 hardened to 435-500 Brinell minimum.
2. Impeller shaft: ASTM A564, Type 630, 17-4 PH stainless steel, turned and ground. The shaft diameter shall be sized for the total axial thrust, the horsepower transmitted and the weight of all rotating parts supported by it. The maximum combined shear stress shall not exceed 30 percent of the elastic limit in tension, or be more than 18 percent of the ultimate tensile strength of the material used, per AWWA E103. For shaft couplings the maximum combined shear stress shall not exceed 20 percent of the elastic limit in tension, or be more than 12 percent of the ultimate tensile strength of the coupling material used. The shaft shall be supported by bronze intermediate bearings located above and below each impeller.
3. Impellers:
  - a. Type: totally enclosed
  - b. Material: cast nickel-aluminum bronze ASTM B148 C95800 or stainless steel ASTM 743 GR CF8M, sandblasted before machining, hand filed, polished, statically and dynamically balanced.
  - c. Fit impeller with stainless steel wear rings, ASTM A743 CA-15 hardened to 435-500 Brinell minimum.



- d. Secure impeller to shaft with stainless steel axial and radial keys.
  - e. Provide a means of impeller adjustment through the pump to motor shaft coupling.
  - f. Provide statically and dynamically balanced impellers to balance quality grade G6.3 in accordance with ISO 1940-1973, "Balance of Rotating Rigid Bodies".
  - g. Provide certificate of dynamic balancing.
4. Vortex Suppressor: Provide suction bell with fabricated Type 316 stainless steel vortex suppressor /basket strainer assembly, in accordance with ANSI/HI Standard 9.8. Structural design of suppressor assembly shall be responsibility of pump manufacturer/supplier. Submit vortex suppressor design to OWNER for approval before fabrication. Attach suppressor with Type 316 stainless steel hardware.
5. Suction Bowl / Bell Bearing:
- a. Bronze ASTM B505 C93200.
  - b. Provide a sand collar of ASTM B505 C93200 bronze, attached to shaft with a set of screw arrangement.
  - c. Provide a suction bowl plug or cap of cast iron, ASTM A48 class 30.
  - d. The bearing supports shall be streamlined to act as guide vanes and to present minimum resistance to flow. Bearing to be integral to the bell and grease-packed,
6. Intermediate Bowl Bearings:
- a. Bronze ASTM B505 Alloy C93200 or ASTM B148 Alloy C95800.
  - b. Bearings shall be located above and below each impeller.
7. Top Bowl and Connector Bearings:
- a. Bronze ASTM B505 Alloy C93200 or ASTM B148 Alloy C95800.
8. Suction Bell
- a. Ductile iron ASTM A536 Gr. 60-40-18.
  - b. Suction bell contoured for gradual change in velocity. Provide tail bearing with ridged vanes to direct the flow to the impeller. Bolted or welded shrouds are unacceptable.
  - c. Bell diameter shall be as specified in Attachment A, Process Pump Schedule.
- D. Column and lineshafting**
1. Discharge Column
- a. Column Type: Registered fit flanged column sized to limit velocity to 12 ft/sec at any flow in the operating head range.
  - b. Column material: Seamless steel pipe, ASTM A53 Grade B in maximum section length of 10 feet for constant speed units and 5 feet for variable speed units.
  - c. Provide 5-feet long tapered column transition piece at discharge from pump bowls.
  - d. Column Connections: Flanged with Type 316 stainless steel hardware.
2. Lineshaft:
- a. Sized to limit design stress safety margin such that the maximum combined shear stress doesn't exceed 20% of the material yield strength nor be more than 12% of the ultimate strength per AWWA E103.
  - b. ASTM A582, Type 416 stainless steel without sleeves. Surface finish not to exceed 40 RMS.
  - c. Lineshaft to be furnished in interchangeable lengths, not greater than 10-feet.
  - d. Lineshaft diameter shall be as per AWWA Standard E103.
3. Lineshaft Bearings and Couplings:
- a. Bearing spacing: shall be 10 feet maximum on constant speed units and 5 feet maximum on variable speed units, and determined via detailed critical speed analysis as required to prevent resonant vibrations of the lineshaft over the speed range of the pump. Design bearing span such that shaft critical frequency is at least 25% away from the shaft rotating speed range.

- b. Bearing Material: Neoprene in ASTM B505 C93200 bronze guides located at column flanges.
- c. Lineshaft Couplings: 416 stainless steel split ring and key mounted without threads or pins.

E. Mechanical Seals:

- 1. Split mechanical seal (including all standard equipment, unless otherwise specified) shall be as manufactured by A.W. Chesterton Co. or approved equal. All seals provided in this section shall be from the same manufacturer.
  - a. Metal parts: Type 316L stainless steel.
  - b. Springs: type 17-7 pH stainless steel; Elgiloy; or Hastelloy.
  - c. O-rings: Viton
  - d. Stationary Faces: Carbon (sintered graphite)
  - e. Rotating Faces: Silicon Carbide
  - f. Mechanical Seal Gland: Type 316L stainless steel
  - g. Gland Bolts and Nuts: Type 316L stainless steel
- 2. Split mechanical seals shall be rated for service from full vacuum up to 150% of pump shut off head.
- 3. Split mechanical seals shall be capable of handling +/- 1/16 inch axial movement minimum.
- 4. All cleaners, solvents, glues, or adhesives used in conjunction with the mechanical seals shall be NSF 61 approved.
- 5. Mechanical seal gland shall be split, with two ports 180 degrees apart; one for external flush/lubricating water and one for venting.
- 6. Restriction bushing: Provide Chesterton 14K restriction bushing or equal in stuffing box.
- 7. **Mechanical seal shall be installed by the seal manufacturer's installation technician at the job site prior to pump start-up and preliminary field testing.** The seal technician shall be a direct employee of the seal manufacturer and have a minimum of 3 years of experience installing split mechanical seals.

F. Equipment Identification

- 1. Provide corrosion-resistant nameplates SS316, securely affixed in a conspicuous place, on each item of equipment. Nameplates shall conform to the requirements of ANSI/HI 2.4 and Specification Section 15075-6C "Mechanical Identification".

G. Anchor Bolts:

- 1. Type 316 stainless steel anchor bolts (and relative hardware, including but not limited to, nuts and washers) shall be sized by the pump manufacturer, and supplied by the VENDOR in accordance with the equipment manufacturer's instructions.
- 2. Size and quantity of anchor bolts shall be designed to withstand all momentary and continuous thrusts, vibration, seismic events, and other physical forces to be encountered by the pump, motor, and associated equipment.

H. Vibration and Temperature Monitoring System:

- 1. Provide vibration monitoring system and temperature monitoring system for each motor to monitor the vibration and temperature per requirements of:
  - a. Specification "Electric Motor, Vertical Induction" for High Service Pumps. Motor shall be inverter duty.

- I. The structural natural frequency of the assembled pump shall be at least 25 percent higher than the pump operating speed.

J. Motors

- 1. The pumps shall be provided with electric induction motors per requirements of:
  - a. This Specification. Motor shall be inverter duty.
- 2. Provide motor thrust bearing with a minimum B-10 life of 100,000 hours.
- 3. The thrust bearing in the motor shall be arranged to withstand any momentary pump up thrust at start-up and shall limit the total movement of the pump shaft

- under these conditions to less than 0.02-inch.
4. Overall sound-pressure level of each motor shall not exceed 85 decibels when measured on flat network using octave-band frequency analyzer conforming to ANSI S1.11. Determine overall sound-pressure level as average of four or more readings at evenly spaced points, 3 feet from motor.
  5. Provide ball or pin type non-reverse ratchet to provide immediate protection against reversing due to phase reversal or from backspin at shutdown. Sprag type non-reverse devices are not acceptable.
- K. Drain, Vent and Seal/Lubricating Water Piping
1. Provide drains from stuffing box, mechanical seal, and gauge assemblies and drain piping and valves to discharge into floor trench or sumps as indicated or, as directed by the OWNER.
  2. Drain, vent and seal water piping: Schedule 5 Type 316L stainless steel with Pressfit connections or Schedule 40 Type 316L stainless steel with socket welded or threaded connections. Provide a sufficient number of unions to permit removal of each valve and in-line device. All components of piping system shall be NSF61 approved.
- L. Painting: Per Pump Manufacturer Recommendations as follows:
1. Shop painting: Factory applied Primer and Finish Paint
    - a. Bowls (exterior), Columns (exterior and interior), and Discharge Head (exterior and interior): Per Manufacturer's Recommendations.
    - b. The interior of the bowls shall have Scotchkote 134 or equal epoxy lining.
  2. Provide additional shop paint coating for touch-up to all surfaces after shop testing is completed and equipment accepted.
  3. All coatings and linings in contact with the pumped fluid shall be suitable for use with potable water and shall be NSF61 approved.

## 2.04 SOURCE QUALITY CONTROL

- A. Shop Tests:
1. All of the shop tests required under this Specification shall, in addition to being certified by the manufacturer, be witnessed by the OWNER's representatives. Provide a minimum of 30 days written notice to the OWNER prior to shop testing.
  2. Certified shop tests shall be performed for all equipment provided under this Specification. Standard performance test will be conducted as specified in the latest edition of ANSI/HI 14.6: Rotodynamic Pumps for Hydraulic Performance Acceptance Tests and all test data shall be submitted for approval by the OWNER prior to shipment. Test and record speed, flow, head, and horsepower. Certified copies of the calculated anticipated pump field performance curves shall be submitted, including head, capacity, efficiency, total brake horsepower, NPSH and required submergence. NPSHR data can be based on previous factory performance test.
  3. Generally, the entire pump, including the entire column shall be used in the pump tests. Where the tests facility cannot accommodate the entire column length, the manufacturer shall use as much column as possible to accommodate the test facility and shall adjust test data to compensate for the portions of the column not used in the tests. Manufacturer shall use the upper and lower transfer column sections and the pump strainer in the pump tests.
  4. Hydrostatic Testing: Each bowl assembly and discharge head shall be hydrostatically tested at not less than the greater of the following, and in full compliance with the latest edition of ANSI/HI 14.6 Rotodynamic Pumps for Hydraulic Performance Acceptance Tests:
    - a. 150% of the pressure which would occur when the pump is operating at the rated condition of the pump or,
    - b. 125% of the pressure which occur when the pump is operating at rated speed against a closed discharge valve.
  5. Run pump at full speed rating point for 60 minutes prior to start of any testing.

6. Performance of the pumping units shall be within the tolerances acceptance grade of 1U, as specified in ANSI/HI 14.6 Rotodynamic Pumps for Hydraulic Performance Acceptance Tests, when operated at design speed and capacity (Rating Point in Pump Schedule attached as Appendix A).
7. In the event that specified tests indicate that pump or motor will not meet specifications, OWNER has the right to require additional complete witnessed tests for all pumps and motors at no additional cost to the OWNER.
8. Repeat tests until specified results are obtained. If impellers are trimmed or modifications made to the pumps, pump assemblies must be retested.
9. Correct or replace promptly all defects or defective equipment revealed by or noted during tests at no additional cost to the OWNER.
10. Submit certified copies of all the test result to the OWNER for review prior to the shipment of the motors from their place of manufacture.
11. All test measurements shall be taken with calibrated instruments and all procedures shall conform to the test code of the Hydraulic Institute unless modified herein.

### **PART 3 EXECUTION**

#### **3.01 - 3.02 (NOT USED)**

#### **3.03 INSTALLATION (BY OWNER)**

- A. Installation of equipment and materials provided under this Specification Section shall be in accordance with the manufacturer's recommendations and the approved shop drawings. VENDOR representative shall provide onsite guidance to OWNER in achieving this standard.
- B. Additional instructions for the installation of equipment and materials provided under this Specification are as follows:
  1. Pumping units shall be installed on a concrete pad and aligned.
  2. Level the sole plate to within 0.002" per foot of sole plate diameter.
  3. After alignment is correct, space between pump base and concrete pad shall be grouted using high strength (minimum 10,000 PSI compressive strength) non-shrink grout. Do not imbed leveling nuts in grout.
  4. After grouting has set, loose the leveling nuts so the soleplate bears on the grout. Recheck the soleplate for levelness.
- C. After installation of pump equipment, bring piping into direct axial alignment with pump discharge. Flange faces shall fit closely and squarely. The pump discharge shall have no strain imposed upon it by piping misalignment.
- D. Test piping connections, to prove the pump nozzles are installed with the pipe in a free supported state without need to apply vertical or horizontal pressure to align piping with pump nozzles, by removing all flange bolts and checking flange to flange alignment.
- E. Before start-up adjust the clearance between the impeller and the bowl per manufacturer recommendation.
- F. Install the mechanical seal after finishing the adjustment between the impeller and the bowl. A split mechanical seal vendor shall be onsite instructing OWNER personnel on performing this work.

- G. Special Precautions: Before starting the pumps the VENDOR to check the following:
  1. Check setting of impellers and make sure rotating elements are free
  2. Check rotation of motor with pump drive disconnected.
  3. Check settings of the pumps control valve and air vacuum valve.
- H. After start-up and testing as specified below, shut down pump and recheck alignment of coupling. Check in all directions and follow manufacturer's instructions.
- I. After unit has been operated within the allowable operating range for one week, OWNER shall check couplings for misalignment and correct as necessary.
- J. After completion of all procedures specified above, the OWNER shall clean and touch up any damaged coating system as required.

### **3.04 REPAIR/RESTORATION (NOT USED)**

### **3.05 FIELD QUALITY CONTROL**

- A. Provide a minimum of 30 days written notice to the OWNER prior to field testing.
- B. After installation of pumping equipment by the OWNER, and after inspection, operation, testing and adjustment have been completed by the VENDOR, and supervised/inspected by the manufacturer's technical representative, conduct running test for each individual pump system in the presence of OWNER to determine the ability of the pumps, motors, pump control valves and instrumentation to operate like a coordinated system. OWNER shall check each individual pump system's ability to operate within vibration and temperature limits specified, and to deliver its rated capacity under specified conditions. Vibration tests to prove that there are no field installed resonant conditions due to misalignment, the foundation, or the connecting piping and its supports, when operating at any speed within the specified operating range. During tests, VENDOR shall observe and record head, capacity, motor inputs, noise and vibration. Promptly correct or replace all defects or defective equipment revealed by or noted during tests, at no additional cost to the OWNER, and repeat tests until specified results that are acceptable to the OWNER are obtained. Up to a 5% flow measurement accuracy will be accepted. OWNER shall provide labor, material, equipment, piping, and flowmeters for conducting tests. VENDOR shall provide technical personnel and portable testing instrumentation.
- C. VENDOR shall provide vibration signature testing in accordance with ANSI/HI 9.6.4-2009, Centrifugal and Vertical Pump for Vibration Measurements and Allowable Values, except as modified herein:
  1. Vibration readings, taken near the lower motor bearing, shall not exceed 0.16-in./sec. RMS, unfiltered
  2. Test Duration: Determined by OWNER, but not less than four hours of continuous operation.
  3. Submit written report with analysis conclusion, exhibits of where measurements were made, etc. Report shall contain complete analysis of findings, problems encountered, if any, and probable cause and specific recommendations for any corrective action.
- D. VENDOR to provide all equipment, flow meters and test gauges for conducting tests.
  1. VENDOR shall provide calibrated test gauges for all permanently installed gauges and portable calibrated flow meters for all pumping systems.
  2. All calibrations must be within 30 days of the field testing.
  3. The testing will not be started and will not be accepted until the calibrated testing equipment stated above is operational and all certifications have been submitted.
- E. Water for testing can be from the clearwells.

- F. If required, take corrective action and have the Pump Units retested to ensure full compliance with the specified requirements. Remove and replace equipment at no additional cost to the OWNER with equipment that will meet all requirements specified and indicated if unable to demonstrate to the OWNER that units will perform the service specified and indicated. All costs associated with the field tests or any required corrective action shall be borne by the VENDOR.
- G. The vibration analysis indicated above shall be repeated 6 months after signature testing, in the presence of OWNER. A report shall be prepared comparing the results of the 6-month tests with the results of the signature tests. Significant worsening of the vibration, to be determined by the OWNER, during the 6-month tests shall require corrective action and retesting.

**3.06 ADJUSTING**

- A. Manufacturer's technical representative to inspect, check, assist in making adjustments if necessary, and approve for placing in operation.

**3.07 - 3.10 (NOT USED)**

**3.11 MEASUREMENT AND PAYMENT**

No separate measurement or payment for work performed under this Section. Include cost of same in Contract price bid for work of which this is a component part.

**NO PAYMENT FOR ANY EQUIPMENT WILL BE MADE UNTIL  
EQUIPMENT IS FULLY INSTALLED AND HAS PASSED ALL REQUIRED  
TESTING TO THE SATISFACTION OF THE OWNER.**

**ATTACHMENT "A"**

**PROCESS PUMP SCHEDULE**

**A. PUMP PERFORMANCE REQUIREMENTS**

<b>Parameter</b>	<b>Pump Requirements</b>
Pump Identification	WTP1 Waste Pump
Number of Unit(s):	1
Pumping Unit(s) Designation:	WTP1 Waste Pump No.1
Type of Service	Chlorinated Filter Backwash Waste Water
Pump Shaft	Enclosed, Oil Lubricated
Overall Length from Bottom of Sole Plate to Suction Bell	18'-6"
Pump Features	Bronze Bowl Liner, Dynamic Balance, Certified Performance Test, Oiler, Hot Dipped Galvanized Soleplate 48"x48", 3D electronic file drawing of pump and motor showing each component
Pumping Unit Drivers:	Hollow Shaft Electric Motor
Location (Note 3)	Water Treatment Plant No. 1
Water Temperature	35°F-85°F
Minimum Column Size (inch)	24
Discharge Size (inch)	24
First Rating Point at Full Speed: Pumping Capacity (gpm) Pumping Head (FT) (Note 1)	12,000 35
Minimum Bowl Efficiency at First Rating Point	83%
Secondary Rating Point at Full Speed: Pumping Capacity (GPM) Pumping Head (FT) (Note 1)	14,000 29
Minimum Bowl Efficiency at Secondary Rating Point	80%
Maximum Number of Pump Stages	1
Pump Full Speed (RPM) not to exceed	885
Brake Horsepower (HP) (Note 2)	125
Net Positive Suction Head Required (NPSHr) at All Points and Head Capacity Curve not to exceed (ft)	32
Head at MCSF (Minimum Constant Flow) to exceed (ft)	39
Capacity at MCSF (Minimum Constant Flow) to exceed (gpm)	10,000
Shutoff Head not to exceed (ft)	40
Run-out point Pump Head to be less than (ft)	18

*Note 1: Pump supplier to add strainer, bowl, column and pump head losses to the specified pump head.*

*Note 2: Listed brake horsepower is not to be exceeded at the motor coupling at any point of the head-capacity curve including line, bearing, seal, coupling, etc. losses.*

*Note 3: Vendor is required to verify existing baseplate(s) and discharge piping dimensions to ensure new equipment will fit without additional modifications or couplings.*

**B. ELECTRIC MOTOR REQUIREMENTS**

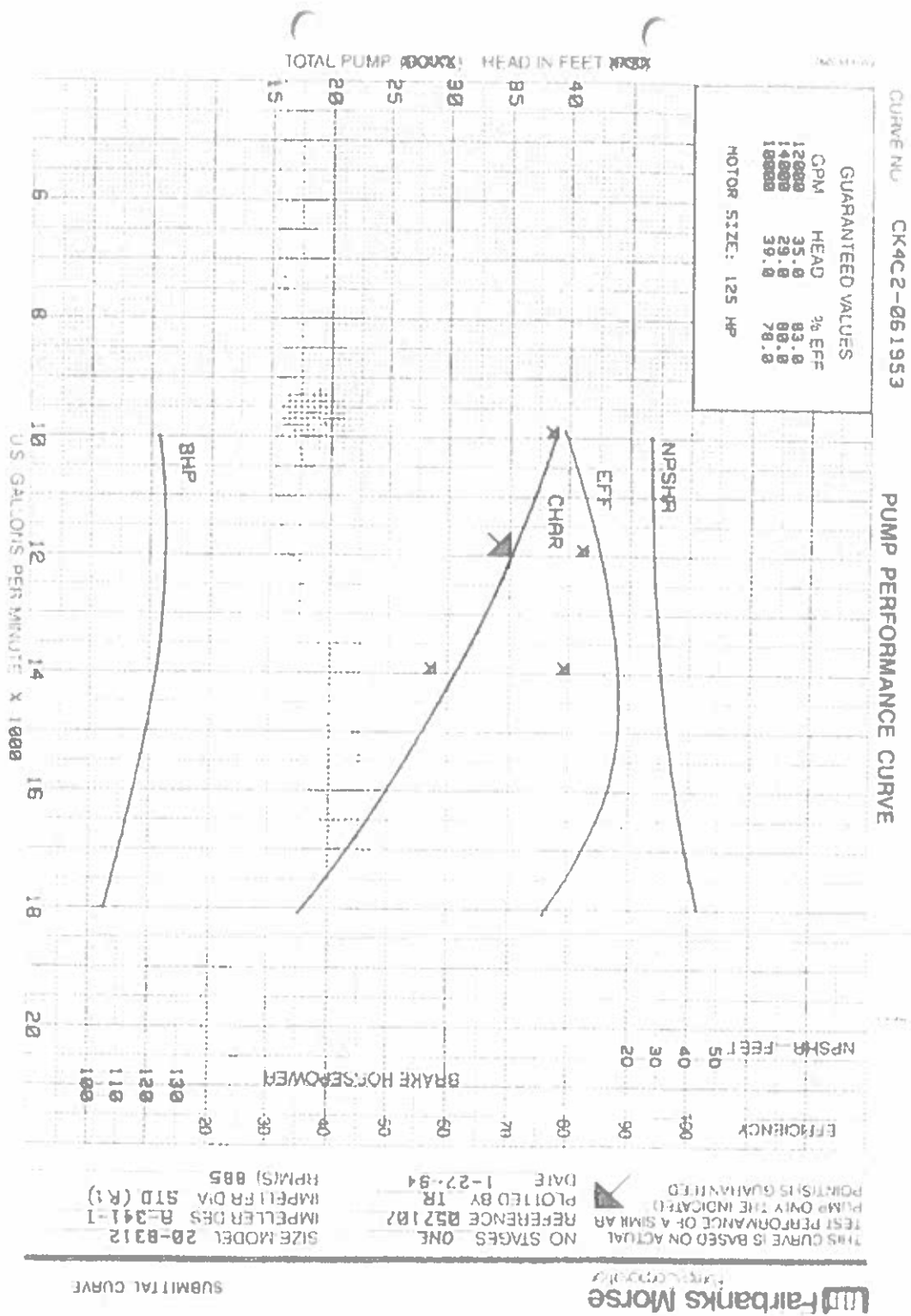
<b>Parameter</b>	<b>Pump Requirements</b>
Pump Identification	WTP1 Waste Pump
Motor Manufacturer and Model No.	GE Model No. 5KS449FT8G03A
Horsepower Rating (HP)	125
Pump Speed	Constant speed
Service Factor	1.15
Nominal Speed (RPM)	885
Voltage	460 Volts, 3-phase, 60 Hz
Enclosure	TEFC
Shaft	Hollow

*Note 1: The motor shall be capable of starting the pump against a closed discharge valve using a full voltage starter under all conditions which the pumping unit could be subjected.*



ATTACHMENT "B"

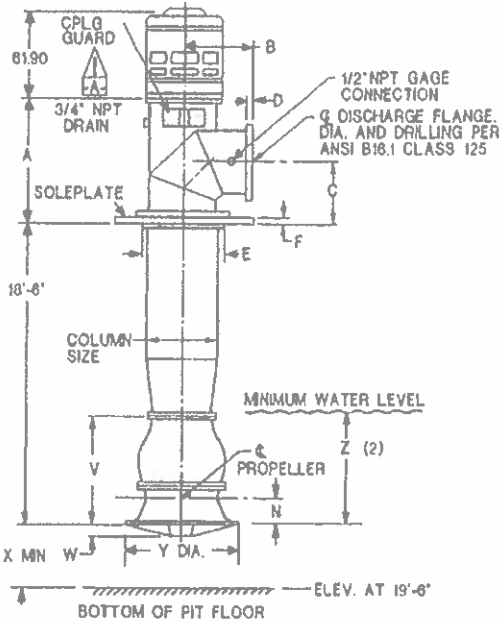
EXISTING PUMP MODEL 8312AE - PUMP CURVE AND DIMENSIONS



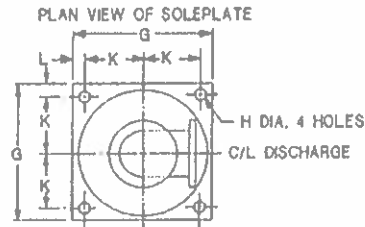
DISCH SIZE	COL SIZE	A				B	C	D	E	F	G	H	K	L
		MOTOR BASE DIAMETER												
24	24	12	16-1/2	20	24-1/2	29	29 7/8	1-7/8	28	1	48	1	22	2
		47-7/8	55 7/8	64 7/8	82 7/8									

FLANGE DIMENSIONS				
150 LB ANSI STANDARD				
SIZE	DIAMETER	NO. BOLTS	SIZE BOLTS	BOLT CIRCLE
24	32	20	1-1/4	28 1/2

DRIVER IS SHIPPED SEPARATELY FOR FIELD INSTALLATION



**WARNING**  
 DO NOT OPERATE THIS MACHINE WITHOUT PROTECTIVE GUARDS IN PLACE. ANY OPERATION OF THIS MACHINE WITHOUT PROTECTIVE GUARDS CAN RESULT IN SEVERE BODILY INJURY.  
 -A- SUPPLIED BY FMPC



SOLEPLATE IS DESIGNED TO BE IN FULL CONTACT WITH GRATED SURFACE

PUMP SIZE	MODEL	N	V		W	X	Y	Z
			1 STG	2 STG				
20	8312	18	38 1/2	68	8	12	35	60

● SEE PERFORMANCE CURVE

1. DIMENSIONS SHOWN ARE TYPICAL AND MAY VARY DUE TO TOLERANCES. TO ACHIEVE EXACT DIMENSIONS, FIELD ADJUSTMENTS MAY BE REQUIRED
2. MINIMUM REQUIRED AT MAXIMUM FLOW
3. NOT FOR CONSTRUCTION, INSTALLATION, OR APPLICATION PURPOSES UNLESS CERTIFIED
4. BASEPLATE MUST BE SUPPORTED ON ALL 4 SIDES.

CUSTOMER		CRAIG, SHEFFIELD & AUSTIN, INC.		P.O.		NO UNITS		2		Fairbanks Morse Pump Corporation	
JOB NAME		CITY OF BROWNSVILLE, TX		TAG NAME		WTP 1 BACKWASH WASTE PUMPS		SETTING PLAN FOR MODEL 8312 PUMPS			
PUMP SIZE & MODEL		20' 8312AE		3YGS		1					
MOTOR		GENERAL ELEC.		HP		125		FRAME		L448TP	
REV		DATE		CERTIFIED FOR		K4C2-061953		CERTIFIED BY		J. FINE	
				DATE		1/94		SIZE		C	
				DWC		NO		SK4C2-061953			

D-78312A-FL/SFF-PTC

END OF SECTION