



3501 Kishwaukee Street
P.O. Box 7480
Rockford, IL 61126-7480
815-387-7660
815-387-7665 (FAX)

Donald Massier, President
Elmer Jones, Vice President
Rick Pollack, Clerk/Treasurer
Ben Bernsten, Trustee
John Sweeney, Trustee
Timothy S. Hanson, District Director

Bid Doc. No. 19-408

Invitation to Bid

RAS Pumping Equipment, Capital Project No. 1859

March 29, 2019

Name of Bidding Firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Email: _____

Bid Opening Time and Date: 10:00 a.m., April 12, 2019

Any bid delivered after the opening time and date will not be accepted.

Bid Deposit/Bid Bond: NO

Prevailing Wage: NO

Performance Bond: NO

Please mark the return sealed envelope:

1. Bid Opening Date and Time
2. Title of Job
3. Bid Number

SEND BIDS TO:

Rock River Water Reclamation District
Attn: Christopher T. Baer, Engineering Manager
3501 Kishwaukee Street
Rockford, IL 61109

Bids will not be accepted by fax or email.

If the Illinois Department of Human Rights registration number has not been obtained, this number must be provided within five (5) business days after the date of bid opening.

Bid results are available after contracts are awarded at the Regular Meeting of the Board of Trustees, held on the fourth Monday of the month. Please call 815-387-7660 or visit www.rrwr.dst.il.us for more information.

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Not to be used for bidding purposes

I - Notice
Invitation to Bid
RAS Pumping Equipment, Capital Project No. 1859

The Rock River Water Reclamation District (District) will receive sealed, signed bids for RAS Pumping Equipment, Capital Project No. 1859 at the District's offices, 3501 Kishwaukee Street, Rockford, Illinois, until 10:00 a.m., Friday, April 12, 2019 at which time and place all bids will be publicly opened and read aloud.

The scope of this bid includes the supply, inspection, and testing of ten (10) identical submersible solids handling pumps, motors, and appurtenances, as indicated and specified, along with shelf spare parts. The scope of supply for each of the ten (10) pumps, includes a discharge base, guide rails, guide rail assembly, lifting chain, access hatch, control panel, submersible cable with kellum type grip, testing reports, and O&M manuals.

No bid shall be withdrawn after the opening of bids without consent of the District for a period of sixty (60) days after the scheduled time of receiving bids.

Copies of the Invitation to Bid for review purposes only are available to view through the District website, www.rwrwd.dst.il.us. Bid documents for submittal are available by contacting the District Engineering Department at 815.387.7660.

The District will confirm any award decision in writing, to the successful bidder. Within ten (10) days of the Notice of Award, the Contractor shall submit an executed Contract and acceptable insurance documentation per the Invitation to Bid. Upon receipt of acceptable insurance documents, the District will issue the Notice to Proceed (NTP). Shop drawings shall be submitted, reviewed, resubmitted, and approved within six (6) weeks of the date of the NTP. This schedule shall allow one (1) week for each District review. Equipment shall be delivered to the site within the shorter of twelve (12) weeks from shop drawing approval or eighteen (18) weeks from the date of the NTP. Failure to deliver within the indicated time shall result in liquidated damages of \$300 per calendar day until delivery is completed.

Field service requirements shall be complete within six (6) months of equipment delivery.

By: Chris Black
Chris Black, Business Manager

II - General Specifications and Instructions

Invitation to Bid

RAS Pumping Equipment, Capital Project No. 1859

2.1 Bid Preparation

The bidder shall submit his bid on the forms the District provides in this document. **The bidder shall complete all applicable blanks.** He may submit additional information as he believes necessary on his stationery, under signature of the authorized representative who completes this document's forms.

If this Invitation to Bid contains inconsistencies between sections, Section III - Detailed Specifications shall supersede Section II - General Specifications, which shall supersede Section I - Notice. **No warranty is made or implied as to information contained in these specifications.**

An authorized officer or individual must sign the bid. Authorized signature must be the individual owner of a proprietorship, a general partner of a partnership, or the corporation officer who is authorized to sign for a firm and whose title is affixed.

All prices and notations shall be in ink or typewritten. The bidder may cross out mistakes and type corrections adjacent to the point of error. The person who signs the bid shall initial such corrections, in ink. **If the District finds a bidder's entry to be illegible, it may, at its sole discretion, reject the bid.**

2.2 Submission of Bids

The District **will not** receive bids in electronic format or by facsimile. The bidder shall return his bid in a sealed envelope, clearly marked as "Bid No. 19-408: RAS Pumping Equipment, Capital Project No. 1859." **The District cannot ensure that the sealed bid will not be prematurely opened if the bidder does not clearly identify his bid envelope.**

Mailing labels should be addressed to:

Rock River Water Reclamation District
Attn: Christopher T. Baer, Engineering Manager
P.O. Box 7480
Rockford, IL 61126-7480

Bids sent via parcel delivery service should be addressed to:

Rock River Water Reclamation District
Attn: Christopher T. Baer, Engineering Manager
3501 Kishwaukee Street
Rockford, IL 61109

Hand-delivered bids shall be deposited with the Main Entrance (Billing Window) Receptionist, 3501 Kishwaukee Street, Rockford, IL 61109 between the hours of 8:00 A.M. and 4:30 P.M.

2.3 Illinois Department of Human Rights Registration Number

All bidders inside and outside of Illinois must provide an Illinois Department of Human Rights Registration Number at the time bids are due. If the number has not been obtained, it must be provided within five (5) business days after the date bids are due. This number shall be written or typed on the line in the Fair Employment Affidavit of Compliance (included in this document). The following link may be used to access the website where the number can be obtained: www.illinois.gov/dhr/PublicContracts/Pages/Vendor_On_Line_Renewal.aspx

2.4 Taxes

This District is exempt, by law, from paying bidder Federal Excise Tax and Illinois Retailers' Occupational Tax. Therefore, the bidder shall exclude those taxes from his bid. The District's tax exemption number is E9992-3696-07. The bidder shall include all applicable taxes in his bid price.

2.5 Withdrawal of Bids

At any time prior to the scheduled bid opening, the bidder may withdraw his bid. In order to do so, he shall submit a written request to Chris Black, Business Manager.

2.6 Laws and Regulations

The bidder who is awarded the Contract shall comply with all laws of the United States of America, the State of Illinois, and all lawful regulations of the District and the respective cities and villages in which the professional service, material or equipment supplied is to be performed respecting labor and compensation and all other applicable statutes, ordinances, rules and regulations and having the force of the law.

A. Steel Products Procurement Act

Public Act 83-1030 entitled "Steel Products Procurement Act" requires that steel products used or supplied in performance of this Contract or subcontract shall be manufactured or produced in the United States with three (3) exceptions.

The provisions of this Section shall not apply:

1. Where the Contract involves an expenditure of less than \$500.
2. Where the executive head of the public agency certifies in writing that (a) the specified products are not manufactured or produced in the United States in sufficient quantities to meet the agency's requirements, or (b) obtaining the specified products, manufactured or produced in the United States would increase the cost of the Contract by more than ten percent (10%).
3. When its application is not in the public interest.

2.7 Terms

A. Payments to the Successful Bidder. If the District receives an acceptable invoice for conforming materials or services prior to the fifth day of the month, the District shall issue payment before the fifth day of the succeeding month. If received on or after the fifth day of the month, payment will be issued the following month.

B. Default. In case of default, the District will procure the materials or services described in this Invitation to Bid from other sources. The District shall hold the defaulting successful bidder responsible for any excess cost incurred. The defaulting successful bidder shall make such payment no more than sixty (60) calendar days after the District notifies him, in writing, of such an occurrence.

C. Delivery Hours. Unless otherwise specified, all items must be delivered to the District, 3333 Kishwaukee Street, Rockford, Illinois, Monday through Friday, between the hours of 7:30 A.M. and 3:00 P.M., excluding holidays. Contact Warren Adam at 815.871.0787 on the day of delivery.

In the unlikely event that the District is picketed by its employees or by a third party, or if any labor-management dispute between the District and its employees or third parties becomes known to the successful bidder, then in such event and during the course of any such picketing or labor-management dispute, the successful bidder shall continue to carry out the terms and conditions of this Contract as if such pickets were not present or such labor-management dispute did not exist.

Time of delivery is part of the District's consideration of each bid.

D. F.O.B. Point and Shipping Charges. All prices shall be quoted F.O.B. destination, Rock River Water Reclamation District, 3333 Kishwaukee St., Rockford, Illinois, 61109. All shipping, handling and freight charges must be included in the bid amount.

E. Use of District Name Prohibited. In the absence of the District's written permission, the successful bidder shall not use the District's name in any form or medium of public advertising.

2.8 Quantities Estimated Only

The estimated quantities of the various items of work and materials, as set forth in the bid form, are approximate only and are given solely to be used as a uniform basis for the comparison of bids. The quantities actually required to complete the Contract work may be less or more than so estimated, and if awarded a Contract for the work specified, the Contractor further agrees that he will not make any claim for damages or for loss of profits or for an extension of time because of a difference between the quantities of the various classes of work assumed for comparison of bids and quantities of work performed.

2.9 Investigation

It shall be the responsibility of the bidder to make any and all investigations necessary to become thoroughly informed of what is required and specified in the bid document. No plea of ignorance by the bidder of conditions that exist or that may hereafter exist as a result of failure or omission on the part of the bidder to make necessary examinations and investigations will be accepted as a basis for varying the requirements of the Contract or for the approval of additional compensation to the bidder.

2.10 Addenda

If the District issues written addenda, such addenda shall become part of the Contract documents. The District will distribute the addenda:

- A. Not less than three (3) working days prior to the bid opening date;
- B. Via mail, email, or facsimile transmission;
- C. To each recipient of the specifications, at either the:
 1. Address to which the District mailed the original bid document;
 2. Corrected address the prospective bidder subsequently furnished; or
 3. Email address prospective bidder furnished; or
 4. Facsimile number the prospective bidder sent the District.

In the absence of the prospective bidder's written notice of his email address or facsimile number, the District will provide addenda via mail.

A bidder that does not receive the District's addenda, and who has previously submitted a bid, shall not be relieved from any obligation in the bid he submitted.

2.11 Contract Form

No more than ten (10) business days following the Contract award, the successful bidder shall submit a completed Contract Form to RRWRD, Attn: Christopher T. Baer, Engineering Manager. The Contract Form is part of this Invitation to Bid. If the successful bidder fails to complete the Contract Form within the specified time, he shall be in material default.

2.12 Contract Termination

A. Bidder's Unacceptable Performance. If the successful bidder fails to perform services or provide materials in conformity with this Invitation to Bid, the District shall notify him in writing. If the successful bidder fails to correct the performance deficiency to the District's satisfaction within five (5) working days after he receives the District's notice, he shall be in default. If the same performance deficiency recurs despite the District's notification and the successful bidder's temporary correction, the successful bidder shall likewise be in default. The District may, at its sole discretion, terminate the RAS Pumping Equipment Contract with the defaulting successful bidder, and remedy the matter under provisions set forth in Section 2.7B of this Invitation to Bid.

B. District's Action Following Contract Termination. If the Contract is terminated, the District may, at its sole option:

1. request new RAS Pumping Equipment bids or
2. designate the next-low bidder to perform the RAS Pumping Equipment Contract, provided that said next-low bidder agrees to his original bid terms.

The District may repeat this option until it obtains an acceptable RAS Pumping Equipment Contract.

2.13 “No Bid” Response Form

In the event you elect not to bid, please fill out and return the attached “No Bid” form.

2.14 Indemnification Clause

Successful respondent/contractor shall protect, indemnify, hold and save harmless and defend the District, its officers, officials, employees, volunteers, and agents against any and all claims, costs, causes, actions and expenses, including but not limited to attorney's fees incurred by reason of a lawsuit or claim for compensation arising in favor of any person, including the employees, officers, independent contractors, or subcontractors of the successful respondent/contractor or District, on account of personal injuries or death, or damages to property occurring, growing out of, incident to, or resulting directly or indirectly from the performance by the successful respondent/contractor or subcontractor, whether such loss, damage, injury, or liability is contributed to by the negligence of the District or by premises themselves or any equipment thereon whether latent or patent, or from other causes whatsoever, except that the successful respondent/contractor shall have no liability for damages or the costs incident thereto caused by the sole negligence of the District.

The indemnification shall not be subject to a limitation on amount or type of damages payable by or for the successful respondent/contractor or its subcontractor under any employee benefits act including, but not limited, to the Workers’ Compensation Act.

No inspection by the District, its employees, or agents shall be deemed a waiver by the District of full compliance with the requirements of the Contract. This indemnification shall not be limited by the required minimum insurance coverage in the Contract.

2.15 Force Majeure

The obligations of either the District or the successful bidder shall be suspended during the time as such party is prevented from complying therewith in whole or in part because of any cause, except financial, beyond the reasonable control of such party. In the event of either the District or the successful bidder being rendered unable wholly or in part by force majeure to carry out its obligations under the Contract, other than to make payments due, it is agreed that on such party giving notice and full particulars of such force majeure in writing to the other party as soon as possible after the occurrence of the cause relied on, then the obligations of the parties insofar as they are affected by such force majeure shall be suspended during the continuance of any inability so caused but for no longer period, and such cause shall as far as possible be remedied with all reasonable dispatch.

2.16 Insurance

A. The successful respondent/contractor, for the duration of the Contract, shall maintain the following:

General Liability: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project or the general aggregate limit shall be twice the required occurrence limit.

Auto Liability: \$1,000,000 combined single limit per accident for bodily injury and property damage including coverages for owned, hired or non-owned vehicles, as applicable.

Workers' Compensation and Employers' Liability: Workers' Compensation limits as required by statute and Employers' Liability limits of \$500,000 per accident and \$500,000 per disease.

Umbrella: \$2,000,000 per occurrence/aggregate.

The policies shall contain, or be endorsed to afford Contractual Liability coverages for the following provisions in the General Liability and Automobile Liability coverages:

1. The District, its officers, officials, employees, and volunteers shall be covered as additional insureds as respects liability arising out of activities performed by or on insured's general supervision of the successful respondent/contractor, products and completed operations of the successful respondent/contractor, premises owned, occupied or used by the successful respondent/contractor, or automobiles owned, leased, hired, or borrowed by the successful respondent/contractor. The coverage shall contain no special limitations on the scope of protection afforded to the District, its officers, officials, employees, volunteers, or agents.
2. The successful respondent's/contractor's insurance coverage shall be primary insurance as respects the District, its officers, officials, employees, volunteers, and agents. Any insurance or self-insurance maintained by the District, its officers, official employees, volunteers, or agents shall be in excess of the successful respondent's/contractor's insurance and shall not contribute with it.
3. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the District, its officers, officials, employees, volunteers, or agents.

The successful respondent's/contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

B. Proof of Insurance – Certificate of Insurance. No more than ten (10) calendar days subsequent to the District's issuance of an award letter and no later than thirty (30) days before commencement to work, the successful respondent/contractor shall provide documentation including a Certificate of Insurance, and primary, non-contributory additional insured endorsements for general and auto liability to prove that it has obtained all required insurance. The District shall be the sole judge as to the acceptability of any such proof.

C. Correction of Successful Bidder's Insurance Deficiencies. If the District determines that the successful bidder's insurance or documentation does not conform to these specifications, the District shall inform said bidder of the non-conformity. If said bidder fails to provide conforming insurance or documentation within five calendar days of the District's notice, he shall be in default.

D. Best's Ratings.

- 1. Alphabetical Rating.** For purposes of this Request for Bids, "insurer" shall mean any surety, insurance carrier, or other organization which proposes to provide an insurance policy or bond for the successful respondent/contractor. No insurer or surety rated lower than "A-," Excellent, in the current Best's Key Rating Guide shall be acceptable to the District.
- 2. Financial Size Rating.** Provided an insurer's alphabetical rating is satisfactory, the District will examine said insurer's financial size rating.
 - a. If Best classifies the insurer XII or larger, said insurer shall be acceptable to the District.
 - b. If Best classifies the insurer as smaller than XII, but larger than VI, said insurer shall be submitted to the District's Business Manager and/or the District's insurance consultant for review.

Financial Size ratings less than VII are not acceptable and will disqualify the respondent/contractor.

E. Suitability of Insurance. The District shall be the sole judge of whether an insurer's rating is satisfactory. The District's decision shall be final and the District's bidding procedures contain no appeal provision.

2.17 Responsive/Responsible Bidder

A. Evaluation of Responsiveness. The responsiveness of bidders will be judged on the basis of the completeness of the bid submitted. To be responsive, a Bid must be submitted on the forms provided as part of the Bid Documents and comply with all the requirements of the Invitation to Bid.

B. Evaluation of Responsibility. To be judged as responsible, the bidder shall:

1. Have adequate financial resources for performance, the necessary experience, organization, technical qualifications, and facilities, or a firm commitment to obtain such by subcontracts;
2. Be able to comply with the required completion schedule for the project;
3. Have a satisfactory record of integrity, judgment, and performance, including, in particular, any prior performance on contracts from the District;
4. Have an adequate financial management system and audit procedures, that provide efficient and effective accountability and control of all property, funds, and assets;
5. Conform to the civil rights, equal employment opportunity and labor law requirements of the Bid Documents.

III - Detailed Specifications

Invitation to Bid

RAS Pumping Equipment, Capital Project No. 1859

3.1 Scope / Project Intent

The scope of this bid includes the supply, inspection, and testing of ten (10) identical submersible solids handling pumps, motors, and appurtenances, as indicated and specified, along with shelf spare parts. The scope of supply for each of the ten (10) pumps, includes a discharge base, guide rails, guide rail assembly, lifting chain, access hatch, control panel, submersible cable with kellum type grip, testing reports, and O&M manuals.

3.2 Equipment Requirements

Section 00310 – Equipment Questionnaire

Section 01300 – Submittals

Section 01400 – Quality Assurance

Section 01600 – Control of Materials

Section 11304 – Submersible Solids Handling Pumps and Appurtenances

3.6 Questions

If you have questions regarding this Invitation to Bid, please contact Scot Strasburg, Project Engineer, at 815.387.7657 or via email at ssstrasburg@rrwr.illinois.gov. The District will not interpret specifications for individual bidders. If the District determines that the specifications need to be clarified or revised, an addendum will be issued to all prospective bidders.

Section 00310

EQUIPMENT QUESTIONNAIRE

The Bidder shall enter in the spaces provided the specific information for the manufacturers proposed equipment, which Bidder proposes to furnish and shall submit this Equipment Questionnaire with its Proposal. Owner will review and evaluate the information before award of the Contract.

Upon award of a contract, the equipment shall conform to this furnished information. Substitutions will not be permitted.

Preliminary acceptance of equipment listed by manufacturer shall not in any way constitute a waiver of the specifications covering such equipment; final acceptance will be based on full conformity with the Contract Documents.

Failure to furnish all information requested or entering more than one (1) value for any item in this Equipment Questionnaire may be cause for rejection of the Proposal.

Parameter:

Value:

1. Pump Efficiency at Design Point (2,000 gpm at 16 feet head) _____
2. Motor Full Load Amp Rating _____
3. Discharge Pipe Diameter (inches) _____
4. Overall Pump Length from edge Of base to edge of volute (inches) _____
5. Overall Pump Width, Edge To Edge of Volute (inches) _____
6. Pump Weight (pounds) _____

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. This Section specifies the general methods and requirements of submissions applicable to the following work-related submittals.
 - 1. Shop Drawings.
 - 2. Product Data.
 - 3. Operations & Maintenance Data.
- B. Detailed submittal requirements will be specified in the technical specifications section.

1.02 SHOP DRAWINGS AND PRODUCT DATA:

- A. Shop Drawings:
 - 1. Shop drawings, as defined in the General Conditions, and as specified in individual work Sections include, but are not necessarily limited to: custom-prepared data such as fabrication and erection/installation (working) drawings of concrete reinforcement, structural details and piping layout, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications as applicable to the work.
 - 2. All shop and working drawings shall be prepared on standard size, 24-in. by 36-in. sheets, except those which are made by changing existing standard shop or working drawings.
 - 3. All shop drawings shall be submitted electronically and shall include a standard transmittal form.
 - 4. All details on shop drawings submitted for approval shall clearly show the relation of the various parts of the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted for approval.

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5. Submittals for equipment shall include maintenance and lubrication schedules for each piece of equipment.

B. Product Data:

1. Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and printed installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances including certificates of compliance and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications and recommended spare-parts listing, and printed product warranties, as applicable to the Work.

1.03 RESPONSIBILITIES:

- A. If a shop drawing shows any deviation from the requirements of the Contract Documents, the Manufacturer shall make specific mention of the deviations in the Transmittal Form furnished with the submittal and provide a description of the deviations in a letter attached to the submittal.
- B. The review and approval of shop drawings or product data by the Engineer shall not relieve the Manufacturer from their responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Manufacturer. The Engineer will not have responsibility therefor.
- C. No portion of the work requiring a shop drawing or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased, or on-site construction accomplished which does not conform to approved shop drawings and data shall be at risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
- D. Project work, materials, fabrication, and installation shall conform with approved shop drawings and product data.
 1. Manufacturer's printed installation instructions, a part of product data submitted to the Engineer, will not be reviewed and are for informational purposes only.

1.04 SUBMISSION REQUIREMENTS:

- A. Make submittals promptly and in such sequence as to cause no delay in the Work or in the work of any other contractor.
- B. All submittals shall be submitted sufficiently in advance of completion requirements to provide no less than ten business days, for review from the time received at the Engineer's reviewing office.
- C. Number of submittals required:
1. Shop Drawings and Product Data: Unless otherwise stated in the respective Specifications Sections, submit one (1) electronic file or three (3) paper copies.
 2. Prior to final pay request, the Manufacturer shall submit two (2) complete paper copies of each approved submittal.
- D. Submittals shall contain:
1. The date of submission and the dates of any previous submissions.
 2. The Project title and number.
 3. Manufacturer identification.
 4. The names of:
 - a. Supplier
 - b. Manufacturer
 5. Identification of the product, with the specification section number, page and paragraph(s).
 6. Field dimensions, clearly identified as such.
 7. Relation to adjacent or critical features of the Work or materials.
 8. Applicable standards, such as ASTM or Federal Specification numbers.
 9. Identification of deviations from Contract Documents.
 10. Identification of revisions on resubmittals.
 11. An 8-in. X 3-in. blank space for Engineer stamp.

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- E. Each shipment of drawings shall be accompanied by a transmittal form giving a list of the drawing numbers, specification sections, and the names mentioned above, along with the project information.

1.05 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES:

- A. The Engineer's review is for general conformance with the design concept and contract drawings. Markings or comments shall not be construed as relieving the Manufacturer from compliance with the contract plans and specifications or from departures therefrom. The Manufacturer remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.
- B. The review of shop drawings, data, and samples will be general. They shall not be construed:
 - 1. as permitting any departure from the Contract requirements;
 - 2. as relieving the Manufacturer of responsibility for any errors, including details, dimensions, and materials;
 - 3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. If the shop drawings and data as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.
- D. One copy of shop drawings or product data will be returned via email. Samples will not be returned.
- E. Submittals will be returned with one of the action codes indicated and defined on the transmittal form furnished by the Engineer.
- F. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Manufacturer shall direct specific attention, in writing, on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Engineer, on previous submissions. Any such revisions which are not clearly identified shall be made at risk of the Manufacturer. The Manufacturer shall make

corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the Engineer.

- G. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned and will be considered "Rejected" until resubmitted. The Engineer may at his option provide a list or mark the submittal directing the Submitter to the areas that are incomplete.
- H. If the Submitter considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, they shall give written notice thereof to the Engineer at least seven working days prior to release for manufacture.
- I. When the shop drawings have been completed to the satisfaction of the Engineer, the Manufacturer shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

1.06 OPERATING AND MAINTENANCE INSTRUCTIONS AND PARTS LISTS:

- A. Where reference is made in the Specifications to operating and maintenance and spare parts lists, furnish for each piece of equipment one complete electronic file and two paper complete sets giving the information listed below.
 - 1. The manual for each piece of equipment shall be a separate document with the following specific requirements:
 - a. Contents:
 - (1) Table of contents and index
 - (2) Brief description of each system and components
 - (3) Starting and stopping procedures
 - (4) Special operating instructions
 - (5) Routine maintenance procedures
 - (6) Clean and concise manufacturer's printed operating and maintenance instructions, adjustment, lubrication and other maintenance of equipment including: parts list, illustrations, and diagrams

- (7) One copy of each wiring diagram
- (8) One copy of each approved shop drawing and each coordination and layout drawing
- (9) List of spare parts, manufacturer's price, and recommended quantity
- (10) Name, address, and telephone numbers of local service representatives

b. Material:

- (1) Page size, 8-1/2-in. by 11-in.
 - (2) Diagrams, illustrations, and attached foldouts as required of original quality, reproduced by dry copy method
 - (3) Covers: oil, moisture, and wear resistant.
- B. Such instructions and parts lists shall be completely and neatly annotated so that only the specific equipment and features furnished are clearly indicated. References to other sizes and types or models of similar equipment shall be deleted or neatly lined out.
- C. Such instructions and parts lists shall be delivered to the Engineer at the same time that the equipment to which they pertain is delivered to the site. Each submittal shall be accompanied by a transmittal form identifying the information included. Each submittal shall be reviewed by the Engineer for compliance with the above requirements.
- D. If a submittal is acceptable, all copies will be retained by the Engineer. If deficiencies are found, one copy will be retained by the Engineer and one copy with the deficiencies noted, will be returned. The copy retained by the Engineer shall not count toward the two complete acceptable sets required herein.
- E. At the Engineer's discretion, he may retain all copies and request only supplemental information for update of the copies.

1.07 CONTENTS, EACH VOLUME:

- A. Table of Contents: Provide title of Project with name of responsible parties, schedule of products and systems, and indexed to content of the volume.

- B. For Each Product or System: List names, addresses and telephone number of suppliers; including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. A list of all parts for the equipment with each part identified by a functional name, the part manufacturer's name, and a unique part number, (normally the part manufacturer's alpha-numeric designation). A list of parts keyed by non-unique item numbers to a sectional drawing will not be adequate to fulfill this requirement.
- E. All components of each system, e.g., pump motor, coupling, and drive, shall be combined in a single submittal with the above data provided for each component.
- F. Drawings: Supplement product data to illustrate relations of component parts, and data applicable to installation. Delete inapplicable information.
- G. Type Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's printed instructions specified.
- H. Warranties and Bonds.

1.08 MANUAL FOR EQUIPMENT AND SYSTEMS:

- A. For each Item of Equipment and Each System provide the following:
1. Description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include certified performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
 2. Panelboard Circuit Directories including electrical service characteristics, controls and communications, and color coded wiring diagrams as installed.
 3. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences; regulation, control, stopping, shut-down, and emergency instructions; and summer, winter, and any special operating instructions.
 4. Maintenance Requirements:
 - a. Route procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

- b. Servicing and lubrication schedule, with list of lubricant type, frequency, and method of lubrication. Any components which do not require lubrication or any expendable components which are not normally serviced shall be clearly noted as such.
 - c. Manufacturer's printed operation and maintenance instructions.
 - d. Sequence of operation by controls manufacturer.
 - e. Original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- 5. Control diagrams by controls manufacturer as installed.
 - 6. Coordination drawings, with color coded piping diagrams as installed.
 - 7. Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - 8. List of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - 9. Test and balancing reports as specified.
 - 10. Additional Requirements: As specified in individual product specification sections.
- B. Provide a listing in Table of Contents for design data with tabbed fly sheet and space for insertion of data.

1.09 INSTRUCTION OF OWNER PERSONNEL:

- A. Instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.
- B. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- C. Prepare and insert additional data in Operations and Maintenance Manual when need for such data becomes apparent during instruction.
- D. Provide a completed and filled-out Equipment Manufacturer's Certificate of Installation, Testing, and Instruction form attached to the end of this section.

1.10 SERVICES OF MANUFACTURER'S REPRESENTATIVE:

- A. During installation, the Contractor shall arrange for the services of qualified service representatives from the company manufacturing or supplying the Submersible Solids Handling Pumps.
- B. After installation of the listed equipment has been completed and the equipment is presumably ready for operation, but before it is operated by others, the representative shall inspect, operate, test, and adjust the equipment. The inspection shall include but shall not be limited to, the following points as applicable:
 - 1. Soundness (without cracked or otherwise damaged parts).
 - 2. Completeness in all details, as specified.
 - 3. Correctness of setting, alignment, and relative arrangement of various parts.
 - 4. Adequacy and correctness of packing, sealing, and lubricants.
- C. The operation, testing, and adjustment shall be as required to prove that the equipment is left in proper condition for satisfactory operation under the conditions specified.
- D. On completion of his work, the manufacturer's or supplier's representative shall submit in triplicate to the Engineer a complete signed report of the result of his inspection, operation, adjustments, and tests. The report shall include detailed descriptions of the points inspected, tests and adjustments made, quantitative results obtained if such are specified, and suggestions for precautions to be taken to ensure proper maintenance.
- E. After the Engineer has reviewed the reports from the manufacturers' representatives, the manufacturers' representatives shall be present when the field acceptance tests are made.
- F. Refer and conform to the additional requirements specified in Section 01400 Quality Assurance.

1.11 NAMEPLATES:

- A. With the exceptions mentioned below, each piece of equipment shall be provided with a substantial nameplate of non-corrodible metal, securely fastened in place and clearly and permanently inscribed with the manufacturer's name, model or type designation, serial number, principal rated capacities, electrical or other power characteristics, and similar information as appropriate.

1.12 LUBRICANTS:

- A. During testing and prior to acceptance, the Manufacturer shall furnish and ensure that all lubricants necessary for the proper lubrication of all equipment furnished under this contract are in place.

1.13 SPECIAL TOOLS:

- A. For each type of equipment furnished, the Manufacturer shall provide a complete set of all special tools (including grease guns or other lubricating devices) which may be necessary for the adjustment, operation, maintenance, and disassembly of such equipment. Tools shall be high-grade, smooth, forged, alloy, tool steel. Grease guns shall be lever type.
- B. Special tools are considered to be those tools which because of their limited use are not normally available, but which are necessary for the particular equipment.
- C. Special tools shall be delivered at the same time as the equipment to which they pertain. They shall be delivered to the Owner.

END OF SECTION

EQUIPMENT MANUFACTURER'S CERTIFICATE OF INSTALLATION,
TESTING AND INSTRUCTION

Owner - _____
(fill in)

Project - _____
(fill in description)

Contract No. _____
(fill in)

M&E No. _____

EQUIPMENT SPECIFICATION SECTION _____

EQUIPMENT DESCRIPTION _____

I _____, Authorized representative of
(Print Name)

(Print Manufacturer's Name)

hereby CERTIFY that _____
(Print equipment name and model with serial No.)

installed for the subject project (has) (have) been installed in a satisfactory manner, (has)
(have) been satisfactorily tested, (is) (are) ready for operation, and that Owner assigned
operating personnel have been suitably instructed in the operation, lubrication, and care of
the unit(s) on

Date: _____ Time: _____

CERTIFIED BY: _____ DATE: _____

(Signature of Manufacturer's Representative)

OWNER'S ACKNOWLEDGMENT OF MANUFACTURER'S INSTRUCTION

(I) (We) the undersigned, authorized representatives of the _____
_____ and/or Plant Operating Personnel have received classroom and hands-on
instruction on the operation, lubrication, and maintenance of the subject equipment and
(am) (are) prepared to assume normal operational responsibility for the equipment:

_____ Date: _____

_____ Date: _____

_____ Date: _____

Notary Public

Name of Corporation

Commission expiration date

Address

Seal: By: _____
Duly Authorized Official

Legal Title of Official

Date: _____

Not to be used for bidding purposes

SECTION 01400

QUALITY ASSURANCE

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. This section covers Quality Assurance and Control requirements for this contract.
- B. The Manufacturer is responsible for controlling the quality of work, including work of its subcontractors and suppliers and for assuring that the quality specified in the Specifications is achieved.
- C. Refer to Article 6 - Contractor's Responsibilities of the General Conditions, including Supplementary Conditions (names Contractor and Manufacturer are interchangeable in Article 6).

1.02 TESTING LABORATORY SERVICES:

- A. All tests which require the services of a laboratory to determine mix designs and verify initial compliance with the Contract Documents, shall be performed by an independent commercial testing laboratory acceptable to the Engineer. The laboratory shall be staffed with experienced technicians, properly equipped, and fully qualified to perform the tests in accordance with the specified standards.
- B. Preliminary Testing Services: Unless otherwise specified, the Manufacturer shall be responsible for all initial testing laboratory services in connection with initial tests and engineering data required for the Engineer's review of materials and equipment proposed to be used in the Work. The Manufacturer shall obtain the Engineer's acceptance of the testing laboratory before having services performed, and shall pay all costs for services.
- C. Quality Control Testing Services: The District will perform all quality control tests in the field or in a laboratory on materials being placed into the work such as concrete, asphalt mixtures, moisture-density (Proctor), and gradation tests on structural and embankment fills, and backfill materials, in-place field density tests on structural and embankment fills, and other materials and equipment, during and after their incorporation in the Work.
- D. Delivery of samples and test specimens to the testing laboratory will be made by the testing agency. Laboratory tests shall be performed within a reasonable time consistent with the specified standards. Furnish a written report of each test to the Engineer.
- E. Manufacturer shall furnish all sample materials and cooperate in the sampling and field testing activities. When sampling or testing activities are performed in the field, the installing Contractor shall furnish personnel and facilities to assist in the activities.

- F. Do not retain a testing laboratory against which Engineer has reasonable objection. If at any time during the construction process the services become unacceptable to Engineer, the Engineer may direct in writing that such services be terminated. The request must be supported with evidence of improper testing or unreasonable delay. If adequately supported, the services shall be terminated and a different testing laboratory engaged.
- G. Transmittal of Test Reports: Written reports of testing and engineering data shall be furnished for the Engineer's review of materials and equipment proposed to be used in the Work and shall be submitted as specified for Shop Drawings.
- H. The testing laboratory shall furnish an electronic report or four paper copies of a written report of each test performed by laboratory personnel in the field or laboratory. Test reports shall be submitted to the Engineer within a reasonable time after each test is completed.

1.03 QUALITY ASSURANCE:

- A. Codes and Standards: Refer to applicable sections.
- B. Copies of applicable referenced standards are not included in the Contract Documents. Where copies of standards are needed for superintendence and quality control of the work, obtain a copy directly from the publication source.
- C. Quality of Materials: Unless otherwise specified, all materials and equipment furnished for installation in the Work shall conform to applicable standards and specifications and shall be new, unused, and free from defects and imperfections, when installed or otherwise incorporated in the Work. Material and equipment shall not be used for any purpose other than that intended or specified unless authorized by the Engineer.
- D. Where so specified, products or workmanship shall also conform to the additional performance requirements included within the Contract Documents to establish a higher or more stringent standard or quality than that required by the referenced standard.

1.04 OFFSITE INSPECTION:

- A. When the specifications require inspection of materials or equipment during the production, manufacturing, or fabricating process, or before shipment, such services shall be performed by an independent testing laboratory, or inspection organization acceptable to Engineer in conjunction with or by the Engineer.
- B. Appropriate written notice to the Engineer shall be provided not less than 30 days before offsite inspection services are required. The producer, manufacturer, or fabricator shall furnish safe access and proper facilities and shall cooperate with inspecting personnel in the performance of their duties.

- C. The inspection organization shall submit a written report to the Engineer.

1.05 MATERIALS AND EQUIPMENT:

- A. Maintain control over procurement sources to ensure that materials and equipment conform to specified requirements in the Contract Documents.
- B. Manufacturer's printed instructions regarding all facets of materials and/or equipment movement, storage, installation, testing, startup, and operation shall be followed. Should circumstances occur where the contract documents are more stringent than the manufacturer's printed instructions, comply with the specifications. In cases where the manufacturer's printed instructions are more stringent than contract documents, advise Engineer of the disparity and conform to manufacturer's printed instructions. In either case, apply the more stringent specification or recommendation, unless approved otherwise by the Engineer.

1.06 SHOP AND FIELD TESTING:

- A. The Manufacturer is responsible for providing the shop and field testing specified in the specification sections.
- B. The installing Contractor and its Subcontractor shall assist with perform inspections, tests, and other services as required by the Contract Documents.
- C. Provide twenty one days notice to the Engineer so that the Engineer may witness off site and on site tests. The Engineer's witnessing of tests does not relieve anyone of their obligation to comply with the requirements of the Contract Documents.

1.07 MANUFACTURER'S FIELD SERVICES:

- A. When specified in the technical specifications sections, arrange for and provide technical representation from manufacturer's of respective equipment, items, or components. The manufacturer's representative shall be a factory trained service engineer/technician with the type and length of experience specified in the technical specifications.
- B. Services Furnished Under This Contract: An experienced, competent, and authorized factory trained service engineer/technician representative of the manufacturer of each item of equipment for which field services are indicated in the specifications shall visit the site of the Work and inspect, operate, test, check, adjust if necessary, and approve the equipment installation. When specified, the manufacturer's service representative shall be present when the equipment is placed in operation. The manufacturer's service representative shall revisit the jobsite as often as necessary until all problems are corrected and the equipment installation and operation are satisfactory to the Engineer.
- C. Refer to Section 01300 - Operations and Maintenance Data, for additional requirements.

1.08 CERTIFICATION FORMS AND CERTIFICATES:

- A. Submit the certification forms and certificates in conformance with the requirements specified in Section 01300 - Submittals.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 QUALITY CONTROL:

- A. Quality control is the responsibility of the manufacturer, and the manufacturer shall maintain control over construction and installation processes to assure compliance with specified requirements.
- B. Certifications for personnel, procedures, and equipment associated with special processes (e.g., welding, cable splicing, instrument calibration) shall be maintained in the office, available for inspection by the Engineer. Copies will be made available to the Engineer upon request.
- C. Means and methods are the responsibility of the manufacturer, and at no time is it the intent of the Engineer to supersede or void that responsibility.

END OF SECTION

SECTION 01600

CONTROL OF MATERIALS

PART 1 - GENERAL

1.01 APPROVAL OF MATERIALS:

- A. Unless otherwise specified, only new materials and equipment shall be incorporated in the work. All materials and equipment furnished shall be subject to the inspection and approval of the Engineer. No material shall be delivered for the work without prior approval of the Engineer.
- B. As specified in Section 01300, submit to the Engineer, data relating to materials and equipment proposed for the work. Such data shall be in sufficient detail to enable the Engineer to identify the particular product and to form an opinion as to its conformity to the specifications.
- C. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by the bidder.
- D. Any delay of approval resulting from the failure to submit samples or data promptly shall not be used as a basis of a claim against the Owner.
- E. In order to demonstrate the proficiency of workmen or to facilitate the choice among several textures, types, finishes, and surfaces, provide such samples of workmanship or finish as may be required.
- F. The materials and equipment used on the work shall correspond to the approved samples or other data.

1.02 BOLTS, ANCHOR BOLTS, AND NUTS:

- A. All necessary bolts, anchor bolts, nuts, washers, plates, and bolt sleeves shall be furnished in accordance herewith. Anchor bolts shall have suitable washers and, where so required, their nuts shall be hexagonal.
- B. All anchor bolts, nuts, washers, plates, and bolt sleeves shall be Type 316 stainless steel, except where otherwise specifically indicated.
- C. Where non-stainless steel hardware is specifically indicated as acceptable, the hardware shall conform to the following as appropriate.

1. Expansion bolts shall have malleable iron and lead composition elements of the required number of units and size.
2. Unless otherwise specified, stud, tap, and machine bolts, and nuts shall conform to the requirements of ASTM Standard Specification for Carbon Steel Externally and Internally Threaded Standard Fasteners, Designation A307. Hexagonal nuts of the same quality of metal as the bolts shall be used. All threads shall be clean cut and shall conform to AN Standard B1.1 for Unified Inch Screw Threads (UN and UNR Thread Form).
3. Bolts, anchor bolts, nuts, and washers, specified to be galvanized, shall be zinc coated, after being threaded, by the hot-dip process in conformity with the ASTM Standard Specification for Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Designation A123, or the ASTM Standard Specifications for Zinc Coating (Hot Dip) on Iron and Steel Hardware, Designation A153, as is appropriate.

D. Anchor bolts and expansion bolts shall be set accurately. If anchor bolts are set before the concrete has been placed, they shall be carefully held in suitable templates of acceptable design; templates shall be provided by the equipment manufacturer for the pump bases. Where indicated on the Drawings, specified, or required, anchor bolts shall be provided with square plates at least 4 in. by 4 in. by 3/8 in. or shall have square heads and washers and be set in the concrete forms with suitable pipe sleeves, or both. If anchor or expansion bolts are set after the concrete has been placed, all necessary drilling and grouting or caulking shall be done by the Contractor and care shall be taken not to damage the structure or finish by cracking, chipping, spalling, or otherwise during the drilling and caulking.

1.03 GREASE FITTINGS:

- A. Provide extension fittings and tubing on all grease fittings that are installed in an inaccessible location. The extension is to be located so that equipment can be lubricated from the operating level without the use of ladders, staging, or shutting down the equipment. Tubing for grease shall be Type 316 stainless steel.

1.04 CONCRETE INSERTS:

- A. Concrete inserts for hangers shall be designed to support safely, in the concrete that is used, the maximum load that can be imposed by the hangers used in the inserts. Inserts for hangers shall be of a type which will permit adjustment of the hangers both horizontally (in one plane) and vertically and locking of the hanger head or nut. All inserts shall be Type 316 stainless steel.

1.05 SLEEVES:

- A. Unless otherwise indicated on the Drawings or specified, openings for the passage of pipes through floors and walls shall be formed of sleeves of standard-weight, galvanized-steel pipe. The sleeves shall be of ample diameter to pass the pipe and its insulation, if

any, and to permit such expansion as may occur. Sleeves shall be of sufficient length to be flush at the walls and the bottom of slabs and to project 1 in. above the finished floor surface. Threaded nipples shall not be used as sleeves.

B. Sleeves in exterior walls below ground or in walls to have liquids on one or both sides shall have a 2-in. annular fin of 1/8-in. plate welded with a continuous weld completely around the sleeve at about mid-length. Sleeves shall be galvanized after the fins are attached. Similar sleeve design but fabricated using schedule 10 stainless steel pipe with welded 2" fin is an acceptable substitute for galvanized steel sleeves.

C. All sleeves shall be set accurately before the concrete is placed or shall be built in accurately as the masonry is being built.

D. Pipes passing through sleeves below ground or in water containing structures shall be sealed using double link seals. Seal bolts shall be Type 316 stainless steel and shall be accessible from inside of the structure.

1.06 FOUNDATIONS, INSTALLATION, AND GROUTING:

A. The Contractor shall furnish the necessary materials and construct suitable concrete foundations for all equipment installed by him, even though such foundations may not be indicated on the Drawings. The tops of foundations shall be at such elevations as will permit grouting as specified below.

B. All such equipment shall be installed by skilled mechanics and in accordance with the instructions of the manufacturer.

C. In setting pumps, motors, and other items of equipment customarily grouted, the Contractor shall make an allowance of at least 1 inch for grout under the equipment bases. Shims used to level and adjust the bases shall be stainless steel. Shims may be left embedded in the grout, in which case they shall be installed neatly and so as to be as inconspicuous as possible in the completed work. Unless otherwise permitted, all grout shall be a suitable nonshrinking grout.

D. Grout shall be mixed and placed in accordance with the recommendations of the grout manufacturer. Where practicable, the grout shall be placed through the grout holes in the base and worked outward and under the edges of the base and across the rough top of the concrete foundation to a peripheral form so constructed as to provide a suitable chamfer around the top edge of the finished foundation.

E. Where such procedure is impracticable, the method of placing grout shall be as permitted. After the grout has hardened sufficiently, all forms, hoppers, and excess grout shall be removed, and all exposed grout surfaces shall be patched in an approved manner, if necessary, given a burlap-rubbed finish, and painted with at least two coats of an acceptable paint or coating.

1.07 EQUIPMENT DRIVE GUARDS:

- A. All equipment driven by open shafts, belts, chains, or gears shall be provided with acceptable all-metal guards enclosing the drive mechanism. Guards shall be constructed of galvanized sheet steel or galvanized woven wire or expanded metal set in a frame of galvanized steel members. Guards shall be secured in position by steel braces or straps which will permit easy removal for servicing the equipment. The guards shall conform in all respects to all applicable safety codes and regulations.

END OF SECTION

Not to be used for bidding purposes

SECTION 11304

SUBMERSIBLE SOLIDS HANDLING PUMPS AND APPURTENANCES

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide, inspect, and test ten (10) identical submersible solids handling pumps, motors, and appurtenances as indicated and specified, along with an identical shelf spare pump.
- B. The scope of supply for each of the ten (10) pumps includes a discharge base, guide rails, guide rail assembly, lifting chain, access hatch, control panel, submersible cable with kellum type grip, testing reports, and O&M manuals.

1.02 RELATED WORK:

- A. Section 01300: Submittals
- B. Section 01400: Quality Assurance
- C. Section 01600: Control of Materials

1.03 REFERENCES:

- A. ANSI: American National Standards Institute
 - 1. ANSI B16.1: Standard for Cast Iron Pipe Flanges and Flanged Fittings, 125 lb.
- B. ASTM: American Society for Testing Material.
 - 1. ASTM A48: Specification for Gray Iron Castings.
 - 2. ASTM A126: Standard Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.
 - 3. ASTM A322: Specification for Carbon and Alloy Steel Bars.
 - 4. ASTM A536: Specification for Ductile-Iron Castings.
 - 5. ASTM A743: Specification for Castings, Iron-Chromium, Iron-Chromium Nickel, and Nickel-Base Corrosion-Resistant for General Application.
- C. Anti-Friction Bearing Manufacturers Association (AFBMA):

1. Standard 9-90 Load Ratings and Fatigue Life for Ball Bearings.
2. Standard 11-90 Load Ratings and Fatigue Life for Roller Bearings.

D. Hydraulic Institute, Current Edition.

E. NEMA: National Electrical Manufacturer's Association.

1.04 SCHEDULE:

- A. Shop drawings shall be submitted, reviewed, resubmitted, and approved within six (6) weeks of Notice to Proceed (NTP). This schedule shall allow one (1) week for each Owner review.
- B. Equipment shall be delivered to the site within the shorter of twelve (12) weeks from shop drawing approval or eighteen (18) weeks from NTP.
- C. Failure to deliver within the indicated time shall result in liquidated damages of \$300 per calendar day until delivery is completed.
- D. Field service requirements shall be complete within six (6) months of equipment delivery.

1.05 SYSTEM DESCRIPTION:

- A. Pump capacities and operating data are indicated herein.
- B. Pumps are to move return activated sludge from final clarifier tanks to aeration tanks. Four RAS pumps discharge into a common piping system discharging to 2 aeration tanks.
- C. Motors to be submerged under all normal operating conditions.
- D. Pumps will be operated automatically through an existing variable frequency drive, based on controls actuated by changes in plant influent flow rates and operator inputs.

1.06 SUBMITTALS:

- A. Shop Drawings: Submit following in accordance with Section 01300 - SUBMITTALS:
 1. Certified shop and erection drawings.
 2. Data regarding pump and motor characteristics and performance:
 - a. Prior to fabrication and testing, provide guaranteed performance curves based on shop tests of a mechanically similar pump, showing it meets specified requirements for head, capacity, horsepower, efficiency, and NPSH. Provide

catalog performance curves at 40%, 60%, 80%, and 100% of the motor speed.

- b. Provide catalog performance curves at required speed showing maximum and minimum impeller diameters available.
 - c. Results of certified performance and witness tests as specified.
 - d. Submit curves for guaranteed performance, certified test, and witness tests on 8-1/2-in. by 11-in. sheets, with one curve per sheet.
3. Shop drawing data for accessory items.
 4. Templates or certified setting plans, with tolerances, for anchor bolts.
 5. Manufacturer's literature as needed to supplement certified data.
 6. Operating and maintenance instructions and parts lists.
 7. Certified results of hydrostatic testing.
 8. Certified results of dynamic balancing.
 9. List of recommended spare parts other than those specified.
 10. Bearing Life: Certified by the pump manufacturer.
 11. Pump shop test results.
 12. Motor shop test results.
 13. Recommendations for short and long-term storage.
 14. Shop and field testing procedures and equipment to be used.
 15. Special tools.
 16. Schematic control and power wiring diagrams.
 17. Provide a scaled drawing showing pumps and motors, include equipment weights, lifting attachments, and clearances for equipment removal and maintenance.
 18. 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 other 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 the Owner.

B. The pump supplier is responsible for all modifications required to make their equipment workable with the project design and site conditions. A copy of the construction documents including mechanical process, electrical, and instrumentation drawings, shall be marked to show all changes necessary for the equipment proposed for this specification section. If no changes are required, mark each drawings with "No changes required" or provide a statement that no changes are required.

1. The pump sump area and the pump access hatch size are critical to the equipment and to the structural integrity of the final project. Equipment requiring a larger access hatch shall include structural design and upgrades to the elevated concrete slab by the equipment provider, at no additional cost to the Owner. Any such changes require approval of the Engineer.

2. Failure to include all drawings, or a statement applicable to all drawings for the equipment specified in this section, will result in submittal return without review until a complete package is submitted.

C. Location of nearest authorized motor service center.

1.07 QUALITY ASSURANCE:

A. Provide in accordance with Section 01400 and as specified herein.

B. All pumps shall be the product of one manufacturer.

C. Pumps shall be manufacturer's standard cataloged product and modified to provide compliance with drawings, specifications, and service conditions specified and indicated.

D. Welding: In accordance with latest applicable American Welding Society Code or equal.

E. Shop tests as specified.

F. The pumps, motors, guide rails, hatches, controls, and control panels shall be provided from a single pump manufacturer, as a complete and integrated package to insure proper coordination, compatibility, and operation of the system.

G. Services of Manufacturer's Representative as stated in Section 01300 and specified herein.

H. Provide services of factory-trained Service Technician, specifically trained on type of equipment specified:

1. Service Technician must have a minimum of five (5) years of experience, all within the last seven (7) years, including work on the type and size of equipment herein.
 2. Service Technician must be present on site for all items listed below. Person-day requirements listed are exclusive of travel time, and do not relieve Manufacturer of the obligation to place equipment in operation as specified.
 3. Installation: Supervise location of anchor bolts; setting, leveling, alignment, field erection; coordination of piping, electrical, and miscellaneous utility connection:
 - a. 1 person-day for first pump.
 4. Functional and Field Performance Testing: Calibrate, check alignment, and perform a functional test with secondary wastewater. Tests to include all items specified.
 - a. 2 person-days, one day trip for first pump installed and one day trip for sixth+/- pump installed.
 5. Vendor Training: Provide field operation and maintenance instruction including all materials, slides, videos, handouts, and preparation; provide in two separate sessions one for first shift and one for second shift.
 - a. 1 person-day, one separate trip, after first pump is installed.
 6. If manufacturer requires factory service technician to place each pump or controls into service for warranty or other reasons, the manufacturer shall provide such services at no additional cost to the Owner based on the assumption that two pumps will be placed into service at a time on five separate events. Any additional time required of the factory trained service technician to assist in placing the equipment in operation, or testing, or to correct deficiencies in installation, equipment, or material shall be provided at no additional cost to the Owner.
- I. If equipment proposed is wider or longer than the specified unit, provide all structural, architectural, electrical, and mechanical revisions at no additional cost to the Owner. Design shall be approved by Owner and shall be sealed by a Structural Engineer licensed in the State of Illinois.

1.08 DELIVERY, STORAGE AND HANDLING:

- A. Provide as specified herein.
- B. Shipping:

1. Ship equipment and spare parts complete except where partial disassembly is required by transportation regulations or for protection of components.
2. Pack spare parts in containers bearing labels clearly designating contents and pieces of equipment for which intended.
3. Deliver spare parts to Owner along with the equipment.
4. Phasing of equipment delivery will be considered by Owner, if necessary to get a portion of the order to the site more rapidly. However, at least 2 complete sets of pumps and appurtenances shall be included with each delivery.

1.09 SPECIAL REQUIREMENTS:

A. Refer to the applicable specification sections with regard to providing the following:

1. Foundations, Installations, and Grouting as specified in Section 01600.
2. Lubricants as specified in Section 01300.
3. Special Tools as specified in Section 01300.
4. Bolts, Anchor Bolts, and Nuts as specified in Section 01600.
5. Concrete Inserts and Sleeves as specified in Section 01600.
6. Nameplates as specified in Section 01300.
7. Operating and maintenance manual specified in Section 01300.

1.10 WARRANTY:

- A. Warranty on all pumps and equipment shall be at least 2 years from the date of start-up or 30 months from the date of receipt at the site.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Xylem - Flygt
- B. Sulzer - ABS
- C. Fairbanks Morse

- D. The design is based on Flygt equipment, which provides the minimum allowable requirements. All changes required as a result of using a different manufacturer's equipment are the responsibility of the Bidder and require District approval.

2.02 PUMP CONSTRUCTION:

- A. Pumps: Solids Handling single-stage, submersible centrifugal pumps.

- B. Each pump capable of delivering 2,000 gpm at 16 feet TDH with at least 68% pump efficiency at this design point and capable of delivering 1,000 gpm at 7 feet TDH at a stable reduced speed without overheating and without other operational issues.

- C. Pump Volute, Casing, Fronthead, and Backhead:

1. Cast iron ASTM A48 minimum Class 35B capable of prolonged resistance to abrasive action of solids and foreign matter contained in pumped liquid.
2. Provide lifting devices on pump/motor assembly for handling.
 - a. Type 316L stainless steel.
3. Provide ribs or reinforcing as required to withstand the specified hydrostatic test pressure, to prevent deflection caused by hydraulic thrust, and to support the motor.
4. Pump discharge connection to be 10" diameter.
5. Face and drill flanges of discharge connections in accordance with 125-lb. ANSI Standard.
6. Provide components with machined registered concentric shoulder fits for precision alignment. Equipment without registered fits is not acceptable.

- D. Impeller:

1. Type: Single suction, semi-open, multi-vane, back swept, screw shaped, non-clog solids handling.
2. Provide vanes having wide suction and waterways and well rounded entrances that will pass solids and stringy materials without clogging. Pumps capable of passing a minimum 3-inch diameter sphere.
3. Impellers provided shall be a proven design and shall not be greater than 90% of the maximum diameter impeller available at the indicated pump rating point.
4. Material to be hardened ASTM A532 Alloy III A 25% chrome cast iron.

5. Key-seat and hold impeller to shaft by a corrosion resistant streamlined bolt or locknut capable of holding in event of motor reversal under full torque.
6. Statically and dynamically balance each impeller.

E. Wearing Rings:

1. Provide on impeller and in pump volute at suction side.
2. Wearing Rings: Shall be of hard iron high chrome and hardness that will protect the impeller and volute, with the impeller ring (if so equipped) generally wearing prior to the volute ring.
3. Clearance adjustable with a trim screw.

2.03 MOTORS:

- A. Provide motors as specified and required.
- B. Horsepower rating of motors: Pump and motor horsepower shall be compatible with the existing electrical system. Motor shall not operate into the motor service factor under the pump's maximum brake horsepower requirement under any condition of operation specified.
- C. Maximum motor design speed not to exceed 1,200 rpm.
- D. Enclosure: Submersible, premium efficiency.
- E. In addition to the requirements for bearings, provide pump motors with ball or roller bearings. Provide vertical motors with at least one bearing designed specially for thrust. Provide ball or roller bearings, in accordance with AFBMA Standard 9-90 and Standard 11-90; minimum L-10 life of 50,000 hours or as specified.
- F. Operate without overheating at the speeds specified and indicated.
- G. Service Factor: 1.15
- H. Nominal and minimum efficiencies per NEMA MG1.
- I. Rating: 15 horsepower, 460 volt, 3 phase, 60 hertz with $FLA \leq 23$ amps.
- J. Motor Construction:
 1. Provide electric submersible NEMA B design squirrel cage induction motors.

2. Provide all components housed in an air filled cast-iron watertight enclosure sealed by O-rings and shall have rabbet joints with a large overlap.
3. Insulate stator-winding and lead with moisture resistant Class H insulation rated for 180 deg. C duty temperature. Stator shall be insulated with the trickle impregnation process with winding fill factor greater than 95%.
4. Provide inverter duty rated motor per NEMA MG1 Part 31.
5. Class F insulation and de-rating the motors for VFD operation will not be allowed.
6. Motor shaft: Type 431 stainless steel per ASTM A479, one piece integral pump/motor shaft.
7. Dynamically balance rotor to within NEMA vibration limits.
8. All hardware: Type 316 stainless steel.
9. Provide multi-conductor cables in sufficient length to extend from pump motor to the pump control panel above top of wet well plus 5 feet as indicated. Power cables shall be suitable for use with a VFD. Cable size in accordance with NEC.
10. Cables and cable seals shall be water-tight and suitable for at least 50' continuous submergence in wastewater.
11. Provide a means of cable support with a stainless steel kellum-type cable grip, for attachment at the pump rail system upper bracket.
12. Seals:
 - a. Provide two separate tandem-mounted mechanical seals with the upper and lower seals mounted to rotate in the same direction.
 - b. Upper Seals:
 - (1) Provide seal completely immersed in an oil bath sealing the oil chamber and motor housing.
 - (2) Materials: Corrosion and abrasion resistant with tungsten-carbide faces, one face rotating and once face stationary.
 - c. Lower Seals:
 - (1) Provide lower seal with mating faces immersed in the oil bath sealing the pump volute and oil chamber.

- (2) Materials: Tungsten carbide rotating and stationary faces.
- (3) Provide a cover extending completely over the lower seal spring.

- d. Springs: Type 316 stainless steel.
- e. Elastomers: Viton.
- f. Provide a seal lubricant chamber. The seals shall not rely on the pumped fluid for lubrication.

13. Moisture and Temperature Probes:

- a. Provide a moisture detection system to detect moisture past the upper mechanical seal prior to entering the motor stator cavity. Moisture detection shall alarm at the pump control panel and shall include all the required control components to drive the moisture sensor and for control from the moisture sensor. Wiring shall be integral with the pump power cable between the motor and the pump control panel.
- b. Provide O-ring-sealed plugged fill and drain inspection ports.
- c. Provide 3 thermal switches embedded in the stator, one for each phase, for monitoring stator temperature. Stator over temperature shall alarm at the pump control panel and shall include all required control components to drive and control motor temperature. Wiring shall be integral with the pump power cable between the motor and the pump control panel.
- d. Over temperature shall shut down the pump, indicate condition, and alarm.
- e. Moisture detection shall indicate condition and alarm.

14. Integral Pump/Motor Bearings:

- a. Provide a minimum of two bearings permanently lubricated but capable of being re-greased.
- b. Two row angular contact ball bearings. Upper bearing for radial loads and lower bearing for both thrust and radial forces.
- c. Minimum L-10 bearing life of 50,000 hours at all conditions on pump curve.

15. Provide all mating surfaces machined and fitted with O-rings. All fittings shall be metal to metal contact between each machine surface.

16. Provide a Type 316 lifting attachment and hardware capable of lifting the entire pump and motor assembly.
17. Motors shall conform to UL quality assurance specifications and be manufactured by an ISO-9001 company.
18. Motors with written 5-year warranty against defects in materials and workmanship, including specific schedule of manufacturer's terms, covering both parts and labor.

2.04 DISCHARGE BASE:

- A. Provide an ASTM A48 Class 35B cast iron discharge base assembly including a 90-degree elbow and base to support the entire weight of the pump and motor.
- B. Base shall secure the lower end of the guide rails.
- C. Provide base with 125-lb ANSI flange discharging vertically.
- D. Provide base machined to receive sliding bracket of pump discharge.
- E. Provide metal to metal seat that is self-cleaning, non-clogging, and non-sparking. Non-metallic sealing methods are not acceptable.
- F. Provide anchors for bolting to concrete floor; anchors shall be Type 316 stainless steel, secured with epoxy adhesive.

2.05 GUIDERAIL ASSEMBLY:

- A. Furnish Schedule 40 Type 316L stainless steel guide rails for each pump discharge assembly. Rail size to be manufacturer's standard but not less than 2-inch diameter rails.
- B. Provide intermediate supports for guide rails; supports to be Type 316L stainless steel. Maximum spacing between supports shall not exceed 10 feet. Guiderail supports shall attach to the 10" diameter ductile iron discharge piping.
- C. Furnish a Type 316L stainless steel top guide rail retainer bracket to support the guide rails. Bracket to be attached to top slab of wet well.
- D. Provide Type 316 stainless steel chain of sufficient length, to reach from pump to top of wet well plus 5 feet and of strength for lifting pump and motor. Provide chain designed for attachment to lifting lugs provided on motor and to the guide rail retainer bracket.

2.06 ACCESS HATCHES:

- A. Each pump shall be provided with a single door access hatch to be cast into an existing reinforced concrete slab.

- B. Hinged plate cover and frame of sufficient size for installation and removal of pump. Minimum acceptable size is indicated on drawings however if a different pump is used, the cover shall be sized to provide 4" of clearance on all sides of the pump. A single leaf cover was selected to minimize required slab opening. Larger slab penetration than shown requires an independent structural evaluation and report to guarantee that the larger opening will not reduce structural load capacity of the elevated slab, at no additional cost to Owner.
- C. Aluminum angle frames with welded strap anchors or channel frames, for securing in concrete. Miter corners, weld joints, and grind welds smooth where exposed.
- D. Aluminum tread plate covers with acceptable nonskid surface, reinforced with aluminum bars welded to underside of cover details. Covers fit neatly and accurately in frames.
- E. Hinged: Hinge covers to frames with stainless steel, heavy duty plain bearing hinges and stainless steel pins. Attach hinges to covers and frames with stainless steel machine screws, provide flush lift handles made from 1/2-in. dia. 6061-T6 alloy rod. Provide quick release latching device to hold leaf in open position.
- F. Mill finish, bituminous coating applied to exterior of the frame for protection from contact with Portland cement concrete.
- G. Hatch loading capacity:
1. 300-lbs per square foot.
- H. Provide a latching lock to secure the cover in the closed position. Lock to be operated from the outside by a removable key wrench and a fixed handle for operation from inside the cover. Do not provide padlock tabs above the surface that create a trip hazard
- 2.07 **HARDWARE:** All pump hardware and ancillary equipment hardware shall be Type 316 stainless steel.
- 2.08 **CONTROL SYSTEM:**
- A. Instrumentation and Control:
1. Each pump will be powered through an existing variable frequency drive, located in the Aeration Building, remote from the pump. The VFD shall communicate with and provide pump power through a pump manufacturer provided local pump control panel, for each pump.
 2. Pump manufacturer to provide a Pump Control Panel, NEMA 4X Type 316 stainless steel with a local disconnect for each pump, 120-volt power from a relay in the plant control system, solid state, reset buttons, relays, switches, contacts,

indicating and alarm lights, and all necessary appurtenances, factory wired to provide a complete operating set of control. Provide intrinsically safe relays.

- a. Red running lights
- b. Green off lights
- c. Amber alarm lights

B. Equipment, cabinets, and all devices provided shall be of the heavy-duty type, rated for continuous 24-hour industrial duty. The system shall consist of currently in production products of a single manufacturer wherever possible.

C. Panels furnished under this section shall be of the design and arrangement as indicated and specified. The pump panel's control switches and indicating lights shall be mounted on the outside of the panel door when feasible. Access doors (or access panels), shall have continuous Type 316 stainless steel hinges, with quick opening latching devices.

1. Surfaces containing instruments shall be fabricated from 11 gauge Type 316 stainless steel, reinforced to prevent wracking or distortion.
2. Provide terminal strips numbered with the signal termination numbers indicated on the approved shop drawings. Provide wire numbers indicated on wires at terminal blocks and all connections.
3. Partition intrinsically safe wiring separately from all other wiring. Provide a protective cover with labeling to cover the intrinsically safe wires.
4. Provide electronic equipment of the manufacturer's latest design and coated to prevent contamination by dust, moisture, or fungus. Provide field mounted equipment and system components suitable for dusty, humid, corrosive conditions.
5. Number wiring in accordance with the numbering system used on the approved instrument drawings.
6. Group wiring within the panel according to function.
7. Provide wiring as specified in ISA S-5.4.
8. Provide DPDT switches with contacts rated for 600 VA minimum.
9. Design the system and equipment used therein to resume normal operation without manual intervention, following resumption of power after a power failure.
10. Provide protection for 120 VAC operated equipment. Protect panels, cabinets, groups of equipment, and other enclosures against damaging disturbances by individual isolation transformers, surge suppressors, or gas-tube suppressors.

11. Where required to maintain intrinsically-safe rating, passive devices designed for the purpose shall be installed according to the equipment or device manufacturer's instructions. Safety barriers shall not require any external voltage supply and shall include series resistors and fuses and shunting zener diodes that will limit the transfer of energy to levels classified as "intrinsically safe" by Factory-Mutual.
12. Provide internal panel components mounted directly on the inside surfaces, but on removable plates made of the same material and finish as the panel, of a thickness to provide support for mounted components.
13. Attach identification labels to all internal components.
14. Provide oil-tight, heavy-duty momentary contact pushbuttons, rated for 10 amperes at 120 VAC. Supply with the quantity of poles required for the application.
15. Rotary selector switches used for controlling 120 VAC, shall be oil-tight, heavy-duty, maintained contact type rated for 10 amperes at 120 VAC.
16. Provide print storage pocket on inside panel surface to hold all documents to be used in servicing the equipment.
17. Provide oil-tight, heavy duty, transformer-operated LED pilot lights, with average life of 10,000 hours.
18. Panel relays shall be plug-in, with transparent covers, and shall contain an indicating light to indicate its' operation. Contacts shall be rated for 10 amperes at 120 VAC. Life expectancy shall be 10 million operations.
19. Provide solid-state timers of the plug-in, digital type with output contacts rated for 10 amperes at 120 VAC. Life expectancy shall be 10 million operations.
20. Provide 14 AWG copper panel wire, control wire, and 12 AWG power wire, type THWN stranded copper, and insulated for 600 volts.
21. Provide terminal strips in existing panel for pump power. Extend pump power wires from existing panel to new pump control panel, without splicing. New wiring to match size of existing power wires. Wiring to each pump shall be easily disconnected from inside the local pump control panel to facilitate pump removal.
22. Provide terminal blocks of corrosion proof material such as nickel plated copper. Provide AC and DC control terminals suitable for #12 AWG or larger wire. Provide terminals for DC analog signals suitable for #16 AWG wire.
23. Wire colors shall be assigned as follows:

- a. AC Power Black
 - b. AC Neutral or Common White
 - c. AC Control Red
 - d. DC Control Blue
 - e. Equipment or Panel Ground. Green
 - f. Externally Powered Circuits Orange
24. Provide internal wiring troughs of the plastic, open-side type with snap-on covers. The open sides shall permit wire movement without disconnecting it.
 25. Wire connectors shall be the hook-fork type, with non-insulated barrel to allow inspection of crimp integrity.
 26. Direct interlock of equipment is not acceptable.
 27. Use only one side of each terminal block row for internal wiring. Use the other side for field wiring. Do not locate terminal blocks within 6 inches of any panel at right angles to them.
 28. Provide all relays not provided under other Divisions but required for properly providing the control function defined in this Section.
 - a. An example of this requirement is: ON and OFF pilot lights may be controlled by a single pair of wires from a single contact for both conditions; a relay will therefore be required to provide NO and NC contact for both pilot lights. Such relays shall be mounted in their respective control cabinets, and shall be clearly marked as being powered outside of the panel's normal circuit breaker.
 29. Provide engraved 1 inch by 3 inch lamicoïd nameplates, black letters on white background, for all flush mounted panel equipment.
 30. Provide engraved lamicoïd nameplate, black letters on white background, for each pump control panel (PUMP RSP-1, PUMP RSP-2, PUMP RSP-3, PUMP RSP-4, PUMP RSP-7, PUMP RSP-8, PUMP RSP-9, PUMP RSP-10, PUMP RSP-11, PUMP RSP-12).
 31. All AC and DC powered devices in panels shall have current fuses or circuit breakers. All protective devices shall be located in groups at one location in the panel. All devices shall be labeled. AC and DC fuse banks or circuit breaker banks shall be in separate locations of the panel.

32. For all signals to be transferred to/from another panel, provide current isolators (analog) or dry relay contacts (discrete) wired out to terminal blocks.
33. Push Button and Selector Switch Stations:
- a. Provide pushbutton and selector switch stations designed for heavy-duty service and with momentary or maintaining contacts as indicated or as necessary for starting and stopping of equipment with 10 amp contact ratings.
 - b. HAND-OFF-AUTO selector switch shall be equipped with contact blocks for relay of position indication to the Plant Control System.
34. Circuit Breakers:
- a. Provide manually operable circuit breakers and provide thermal-magnetic, inverse-time-limit overload, and instantaneous, short-circuit protection. U.L. listed circuit breakers conforming to NEMA Standard ABI.
35. Alarms:
- a. Individually sensed and visually indicated locally.
 - (1) High temperature, each pump motor (to alarm and shut pump off)
 - (2) Moisture detection, each pump motor (to alarm)
 - b. Provide alarm contacts for remote signal of alarm conditions.
36. Provide terminal board for all-external circuits

2.09 SHOP TESTING:

A. Pump Tests:

1. Hydrostatically test each pump casing under a hydrostatic head of 75 psi or 150 percent of rated shutoff head, whichever is greater.
2. Provide certified performance tests for all pumps. Test two (2) of the identical pumps. If modification is required to either of the two test pumps, such modifications shall be made to all of the project's pumps. And, every pump shall then be tested after the modifications are completed, at no additional cost.
3. Testing.
 - a. Run pump at full speed rating point for 60 minutes prior to start of any testing.

- b. Full speed test: Test pump at specified conditions and take not less than five operating points between shut-off and run out. Take readings to determine flow, differential pressure, rpm, horsepower, and efficiency. Also, operate each pump for not less than one hour and take readings to determine that the pump will operate as specified and indicated without cavitation at the specified minimum head condition with not more than the specified NPSH available.
 - c. Reduced speed tests: generate a family of curves for pump operation at various speeds, including a curve at speed that satisfies the low flow design point.
4. Run all tests in accordance with the latest standards of the Hydraulic Institute and as specified.
 5. In the event that specified tests indicates that pump or motor will not meet specifications, the Engineer has the right to require complete witnessed tests for all pumps, and motors at no additional cost to the Owner.
 6. Repeat tests until specified results are obtained.
 7. Correct or replace promptly all defects or defective equipment revealed by or noted during tests.

2.10 SHOP PAINTING:

- A. Primer and Finish Paint: Shop apply to all exterior ferrous surfaces, manufacturers standard paint.
 1. Color: Manufacturer's standard coating system and color.
- B. Surface preparation, mixing, application, and safety requirements shall be in accordance with the paint manufacturer's printed instructions.
- C. Ferrous surfaces which are not to be painted shall be given a shop applied coat of grease or rust resistant coating.

2.11 SPARE PARTS:

- A. Provide spare parts that are identical to and interchangeable with similar parts installed.
 1. Two complete sets of mechanical seals.
 2. Two complete sets of gaskets.
 3. One complete spare pump and motor, identical to the 10 pumps required.
 4. One set of all special tools required for maintenance and repair.

5. One quart of paint matching the pump paint system, for touch-up of defects in the factory applied paint system resulting from handling and installation.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Provide installation instructions for all items provided under this section. All materials will be installed by Owner's Contractor, in accordance with the printed instructions of manufacturers, as indicated, and specified.

3.02 FIELD TESTING:

- A. Test removal and replacement of pumps to prove the pumps are properly installed and aligned.
- B. After installation of pumping equipment, and after inspection, operation, testing, and adjustment have been completed by manufacturer's field service technician, conduct running test for each pump in presence of the Engineer to determine its ability to deliver its rated capacity under specified conditions. During tests, observe and record head, capacity, motor inputs. Immediately correct or replace all defects or defective equipment revealed by or noted during tests at no additional cost to the Owner. Repeat tests until specified results are obtained. Contractor to provide all labor, piping, equipment, flowmeters, test gauges, and materials for conducting tests.
- C. Adjust secondary functions, such as alarm actuations, during initial calibration and demonstrate after system is placed in service.

END OF SECTION

IV – Bid Form

Invitation to Bid

RAS Pumping Equipment, Capital Project No. 1859

To: Board of Trustees
Rock River Water
Reclamation District
PO Box 7480
Rockford, IL 61126-7480

From: _____
(Individual, Partnership or Corporation)

(Address of Individual, Partnership or Corporation)

Trustees:

I (We) the undersigned hereby propose to furnish the RAS Pumping Equipment in compliance with the attached Notice, General Specifications and Instructions, Detailed Specifications, Bid Form, Fair Employment Practices Affidavit of Compliance Form, Forms of Affidavit, Contract Form, Exhibits, and General Provisions and Technical Specifications for Sanitary Sewer Construction.

The Undersigned also affirms and declares:

A. That he (they) has (have) examined and is (are) familiar with all the related contract documents and found that they are accurate and complete and are approved by the undersigned.

B. That he (they) has (have) carefully examined the scope of the required service, materials or equipment supplied, and that, from his (their) own investigation, has (have) satisfied himself (themselves) as to the nature and location of the delivery point, the character, quality and quantity of materials, and the kind and extent of equipment and other facilities needed for the performance of the service and provision of the materials, the general and local conditions and all difficulties to be encountered, and all other items which may, in any way, affect the services, materials, or equipment or their performance.

C. That this bid is made without any understanding, contract or connection with any other person, partnership, or corporation making a bid for the same purposes, and is in all respects fair and without collusion or fraud; and that he (they) is (are) not barred from submitting a bid as a result of a bid-rigging or bid-rotating conviction.

D. All goods and services provided in response to this request will be produced in compliance with all applicable requirements of Sections 6, 7 and 12 of the Fair Labor Standards Act, as amended, and of regulations and orders of the United States Department of Labor issued under Section 14 thereof.

E. The firm which I (we) represent complies with all applicable requirements of the Americans with Disabilities Act (ADA), the Occupational Safety and Health Act (OSHA), rules and regulations of the US Department of Transportation (DOT), and the Federal Drug Free Work Place Act. If said firm is awarded a contract to provide the District's RAS Pumping Equipment, it will:

1. complete all OSHA, ADA, and DOT required supervisory, employee and customer training,

2. document compliance as required,
3. ensure that persons in safety-sensitive positions associated with loading, transportation, and delivery of the merchandise or service detailed in these specifications are subject to all required drug and alcohol testing and are properly licensed,
4. prepare and make available all required information and documentation, and
5. hold harmless and indemnify the District and the District's representatives as defined in Section 2.14 from all:
 - a. Suits, claims, or actions;
 - b. Costs, either for defense (including but not limited to reasonable attorney's fees and expert witness fees) or for settlements, and;
 - c. Damages of any kind (including but not limited to fines, actual, punitive, and compensatory damages) relating in any way to or arising out of the ADA or the OSHA, to which said firm is exposed or which it incurs in the execution of the contract.

F. The firm which I (we) represent has adopted and promulgated written sexual harassment policies that include, at a minimum, the following information:

1. the illegality of sexual harassment;
2. the definition of sexual harassment under Illinois State Law;
3. a description of sexual harassment, utilizing examples;
4. my (our) organization's internal complaint process including penalties;
5. the legal recourse, investigative and complaint process, available through the Illinois Department of Human Rights and the Illinois Human Rights Commission;
6. directions on how to contact the Department and the Commission; and
7. protection against retaliation as provided by Section 6-101 of Illinois Human Rights Act.

Upon request, my (our) organization will provide the Illinois Department of Human Rights with the information described in F1 through F7 above.

In submitting this bid, I (we) understand that the District may reject part or all of any and all bids. I (we) agree that I (we) shall not withdraw this bid for a period of sixty (60) calendar days following the scheduled bid opening. I (we) have carefully examined the nature of the service, materials, and equipment. The cost of all the service, materials, and equipment necessary to complete this contract is given in this bid.

Lump Sum Bid Amount

Total Amount of Lump Sum Bid, expressed in figures, for providing all materials, equipment, warranty, and labor to complete this project in conformity with all specifications in this Invitation to Bid.

\$ _____

The undersigned acknowledges that he has received Addendum numbers _____, _____, _____, _____, and realizes that all Addenda are considered part of the Contract.

Date: _____

Bidder: _____
(Printed Name of Firm)

By: _____
(Authorized Rep's Signature)

(Printed Street Address)

By: _____
(Printed Authorized Rep's Name)

(Printed City, State, Zip)

By: _____
(Printed Authorized Rep's Title)

(Area Code and Phone Number)

By: _____
(Fax Number)

(Authorized Rep's Email Address)

The Rock River Water Reclamation District, a Governmental Unit, pays neither Federal Excise Tax nor Illinois Retailers' Occupational Tax. The bidder shall exclude those taxes from his bid.

The Board of Trustees of the Rock River Water Reclamation District (District) reserves the right to reject any and all bids, or any part thereof, or to accept any bid or part thereof, or to waive formalities in any bids deemed to be in the best interest of the District.

“No Bid” Response to Invitation to Bid

If your firm is unable to submit a bid at this time, would you please provide the information requested in the space provided below and return to:

Rock River Water Reclamation District
Attn: Christopher T. Baer, Engineering Manager
P.O. Box 7480
Rockford, IL 61126-7480

Responses can be delivered in person to:

Rock River Water Reclamation District
Attn: Christopher T. Baer, Engineering Manager
3501 Kishwaukee Street
Rockford, IL 61109

Responses can also be faxed to:

Rock River Water Reclamation District
815.387.7665

We have received Invitation to Bid: RAS Pumping Equipment, Capital Project No. 1859, opening at 10:00 a.m. on April 12, 2019.

Reason for not bidding: _____

By: _____

Signature: _____

(Name & Title, Typed or Printed)

Company Name: _____

Not to be used for bidding purposes

V - Fair Employment Practices Affidavit of Compliance

Invitation to Bid

RAS Pumping Equipment, Capital Project No. 1859

Note: The bidder must execute this Affidavit and submit it with its signed Bid. The Rock River Water Reclamation District cannot accept any Bid which does not contain this Affidavit.

_____, being first duly sworn, deposes and says that:
(Name of person making affidavit)

They are _____ of _____
(Officer's Title) (Company's Name)

that said company is and "Equal Opportunity Employer" as defined by Section 2000(e) of Chapter 21, Title 42 of the United States Code annotated and Federal Executive Orders #11375 which are incorporated herein by reference;

and that said company will comply with any and all requirements of Title 44 Admin. Code 750. APPENDIX A – Equal Opportunity Clause, Rules and Regulations, Illinois Department of Human Rights, which read as follows:

"In the event of the contractor's non-compliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act or the Rules and Regulations of the Illinois Department of Human Rights ("Department"), the contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation. During the performance to this contract, the contractor agrees as follows:

1. That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, national origin or ancestry, citizen status, age, physical or mental handicap unrelated to ability, military status or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.
2. That, if he or she hires additional employees in order to perform this contract or any portion of this contract, he or she will determine the availability (in accordance with the Department's Rules and Regulations) of minorities and women in the areas from which he or she may reasonably recruit and he or she will hire for each job classification for which employees are hired in a way that minorities and women are not underutilized.
3. That, in all solicitations or advertisements for employees placed by him or her or on his or her behalf, he or she will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, national origin or ancestry, citizenship status, age, physical or mental handicap unrelated to ability, sexual orientation, military status or an unfavorable discharge from military service.

4. That he or she will send to each labor organization or representative of workers with which he or she has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the contractor's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the contractor in his or her efforts to comply with such Act and Rules and Regulations, the contractor will promptly so notify the Department and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations under the contract.
5. That he or she will submit reports as required by the Department's Rules and Regulations, furnish all relevant information as may from time to time be requested by the Department or the contracting agency, and in all respects comply with the Illinois Human Rights Act and the Departments Rules and Regulations.
6. That he or she will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Department for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Department's Rules and Regulations.
7. That he or she will include verbatim or by reference the provisions of this clause in every subcontract awarded under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the contractor will be liable for compliance with applicable provisions of this clause by such subcontractors; and further it will promptly notify the contracting agency and the Department in the event any subcontractor fails or refuses to comply with the provisions. In addition, the contractor will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

(Source: Amended at 32 I11. Reg. 16484, effective September 23, 2008)"

IL Dept. of Human Rights Registration No. _____ Expiration Date: _____

Signature

Subscribed and sworn to before me this _____ day of _____, 20_____.

Notary Public

VI – Forms of Affidavit

Invitation to Bid

RAS Pumping Equipment, Capital Project No. 1859

City: _____ County: _____ State: _____

This Section for Sole Proprietorship:

I, _____ (name), being duly sworn, depose and say that the organization I represent is a sole proprietorship, and that I am the person described in and who executed the foregoing bid and that the several matters therein stated are in all respects true.

Signature _____

This Section for Partnership:

I, _____ (name), being duly sworn, depose and say that I am a member of _____ (partnership name), the firm described in and which executed the foregoing bid; that I duly subscribed the name of the firm thereunto on behalf of the firm; and that the several matters therein stated are in all respects true.

Signature _____

This Section for Corporation:

We, _____ (representative who signed the Bid Form), and _____ (other corporate officer), being duly sworn, depose and say that we reside in the cities of _____ and _____, respectively, and that we are the _____ (representative's title) and the _____ (other corporate officer's title), respectively, of _____ (corporation name), the firm described in and which executed the foregoing instrument; that we are authorized to complete this form and to enter into this contract on behalf of said corporation; that we have signed our names thereto by like order; and that we have knowledge of the several matters therein stated and they are in all respects true.

(Representative's Signature)

(Other Corporate Officer's Signature)

This Section for a Limited Liability Corporation:

I, _____ (name), being duly sworn, depose and say that I am a
_____ (representative's title) of _____
(company name), the company described in and which executed the foregoing proposal; that I
am authorized to complete this form and to enter into this contract on behalf of said company
and have knowledge of the several matters therein stated and they are in all respects true.

Signature _____

Notarization (required for all successful bidders):

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public _____

County _____

My Commission Expires _____

Not to be used for bidding purposes

VII - Contract

Invitation to Bid

RAS Pumping Equipment, Capital Project No. 1859

THIS CONTRACT, made and concluded this ____ day of _____, 20_____, between the Rock River Water Reclamation District, Illinois, also known as "District," and _____ his/their executors, administrators, successors or assigns, known as "Contractor":

In consideration of the payments and contracts mentioned in the Bid attached hereto, to be made and performed by the District, the Contractor agrees with the District at his/their own proper cost and expense to do all the work, furnish all equipment, materials and all labor necessary to complete the work and furnish the merchandise in accordance with the specifications hereinafter described, and the District's requirements.

1. Scope

Both parties understand and agree that the Notice, General Specifications and Instructions, Detailed Specifications, Bid Form, Fair Employment Practices Affidavit of Compliance Form, Forms of Affidavit, Contract Form, Exhibits, and General Provisions and Technical Specifications for Sanitary Sewer Construction of the Invitation to Bid: RAS Pumping Equipment, all Addenda there to (if any), and any and all provisions required by law, are all essential documents of the contract, and are a part hereof, as if herein set out verbatim or as if attached, except for titles, subtitles, headings, table of contents and portions specifically excluded.

The Successful Bidder shall provide the District's RAS Pumping Equipment at the bid price, and a two (2) year warranty from date of final acceptance by the District.

2. Contract Price

The District shall pay to the Contractor, and the Contractor shall accept, in full payment for the performance of this Contract, subject to any additions or deductions provided for hereby, in current funds, the total Contract price of:

_____ (\$ _____)

The Contractor fully understands and agrees that his bid price, delivered F.O.B. 3333 Kishwaukee St., Rockford, IL will be the only basis for payment for the Contract's duration, and that in the absence of changes to which the District and Contractor agree because of revisions to the scope of the RAS Pumping Equipment, this Contract allows for no price increases.

3. Contract Execution

The Contractor shall:

- A. Perform all services in a responsible manner, supplying only service, materials, or equipment that meets or exceeds the District's specifications;
- B. Deliver the RAS Pumping Equipment in conformity with the specifications;

- C. Sustain all loss or damage arising out of the nature of the work to be done, or from any unforeseen obstruction or difficulty which he may encounter in the prosecution of the work, or from the action of the elements;
- D. Be responsible for all accidents he, his employees, or agents may incur in the Contract's execution;
- E. Hold the District and its representatives harmless from liability of any nature or kind on account of use of any copyrighted or un-copyrighted composition, secret process, patented or unpatented invention, article or appliance furnished or used under this Contract. The Contractor shall likewise hold harmless and indemnify the District and its representatives from all:
1. suits, claims, or actions,
 2. costs, either for defense or for settlements, and
 3. damages
- to which the District or its representatives might be exposed by reason of an injury or alleged injury, to the person or property of another:
- a. in the execution of the Contract, or
 - b. from actions the District or its representatives take on the Contractor's behalf,
- except in cases where such suits, claims, actions, or costs are found to be based on the District's negligence. For purposes of this paragraph, "its representatives" means "the Rock River Water Reclamation District's trustees, employees, agents, assigns, and their heirs;"
- F. Comply with all applicable requirements of the Americans with Disabilities Act (ADA), the Occupational Safety and Health Act (OSHA), rules and regulations of the US Department of Transportation (DOT), and the Federal Drug Free Work Place Act, and will:
1. complete all OSHA, ADA, and DOT required supervisory, employee and customer training,
 2. document compliance as required,
 3. ensure that persons in safety-sensitive positions associated with loading, transportation, and delivery of the merchandise or service detailed in these specifications are subject to all required drug and alcohol testing and are properly licensed,
 4. prepare and make available all required information and documentation, and
 5. hold harmless and indemnify the District and the District's representatives as defined in Section 2.14 from all:
 - a. Suits, claims, or actions;
 - b. Costs, either for defense (including but not limited to reasonable attorney's fees and expert witness fees) or for settlements, and;
 - c. Damages of any kind (including but not limited to fines, actual, punitive, and compensatory damages) relating in any way to or arising out of the ADA or

the OSHA, to which said firm is exposed or which it incurs in the execution of the Contract.

- G. Adopt and promulgate written sexual harassment policies that include, at a minimum, the following information:
1. the illegality of sexual harassment;
 2. the definition of sexual harassment under Illinois State law;
 3. a description of sexual harassment, utilizing examples;
 4. Contractor's internal complaint process including penalties;
 5. the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Illinois Human Rights Commission;
 6. directions on how to contact the Department and the Commission; and
 7. protection against retaliation as provided by Section 6-101 of Illinois Human Rights Act.

Upon request, Contractor will provide the Illinois Department of Human Rights with the information described in G1 through G7 above.

- H. Maintain all specified insurance for the duration of the contract.
- I. The Steel Products Procurement Act, Illinois Public Act 83-1030, requires that steel products used or supplied for performance of this Contract or subcontract shall be manufactured or produced in the United States with three (3) exceptions, as explained in the Instructions to Bidders.
- J. In the absence of the District's written permission, the Contractor shall not use the District's name in any form or medium of public advertising.
- K. This Contract shall extend to and be binding upon the successors and assigns, and upon the heirs, administrators, executors, and legal representatives of the Contractor.

In consideration of and to induce the award of this Contract to him, the Contractor represents and warrants: that he is not in arrears to the District upon debt of the Contract and that he is not a defaulter, as surety, Contractor or otherwise; that he is financially solvent and sufficiently experienced and competent to perform the work; that the work can be performed as called for by the Contract; that the facts stated in his proposal and the information given by him is true and correct in all respects, and that he is fully informed regarding all the conditions affecting the work to be done and labor and materials to be furnished for the completion of this Contract and that his information was secured by personal investigation and research.

If the Contractor defaults, the District may procure the materials or services described in this Invitation to Bid from other sources. In such an event, the price the District pays shall constitute the prevailing market price at the time of such purchase and the defaulting Contractor shall pay the District the difference between his bid price and the prevailing market price. The defaulting Contractor shall make such payment no more than sixty (60) calendar-days after the District notifies him, in writing, of such an occurrence.

4. Payments to Contractor

If the District receives an acceptable invoice for conforming service prior to the fifth day of the month, the District shall issue payment before the fifth day of the succeeding month. If received on or after the fifth day of the month, payment will be issued the following month.

- A. The first application for payment shall not exceed ten percent (10%) of the Contract amount, following approval of shop drawings.
- B. The second application for payment shall not exceed seventy percent (70%) of the Contract amount, following delivery of all equipment.
- C. The third application for payment shall include the remaining Contract amount and shall be submitted after completion of start-up services, training, test report submittal, and O & M manual submittal.

5. Subcontracts

No part of the work herein provided for shall be sublet or subcontracted without the express written consent of the District, and in no case shall consent relieve said Contractor from the obligation herein entered into, or change the terms of this Contract.

6. Contractor's Responsibility

This Contract shall extend to and be binding upon the successors and assigns, and upon the heirs, administrators, executors, and legal representatives of the Contractor.

7. Time

The District will confirm any award decision in writing, to the successful bidder. Within ten (10) days of the Notice of Award, the Contractor shall submit an executed Contract and acceptable insurance documentation per the Invitation to Bid. Upon receipt of acceptable insurance documents, the District will issue the Notice to Proceed (NTP). Shop drawings shall be submitted, reviewed, resubmitted, and approved within six (6) weeks of the date of the NTP. This schedule shall allow one (1) week for each District review. Equipment shall be delivered to the site within the shorter of twelve (12) weeks from shop drawing approval or eighteen (18) weeks from the date of the NTP. Failure to deliver within the indicated time shall result in liquidated damages of \$300 per calendar day until delivery is completed.

8. Seals

IN WITNESS WHEREOF, the parties have hereunto set their hands, and are duly authorized to enter into such Contracts on behalf of their respective organizations.

Name of Firm – Contractor

By: _____
Authorized Signature

Attest:
By: _____

Its: _____

Rock River Water Reclamation District
Winnebago County, Illinois

By _____
Director

Attest:

Business Manager

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State of Illinois)
County of Winnebago)

On this _____ day of _____, 20____ before me, a notary public within and for said County, personally appeared Timothy S. Hanson and Chris Black, to me personally known, who, being each by me duly sworn did say that they are respectively, the Director and Business Manager of the Rock River Water Reclamation District, named in the foregoing instrument, and that said instrument was signed and sealed in behalf of the District, and said Director and Business Manager acknowledge said instrument to be the free act and deed of said District.

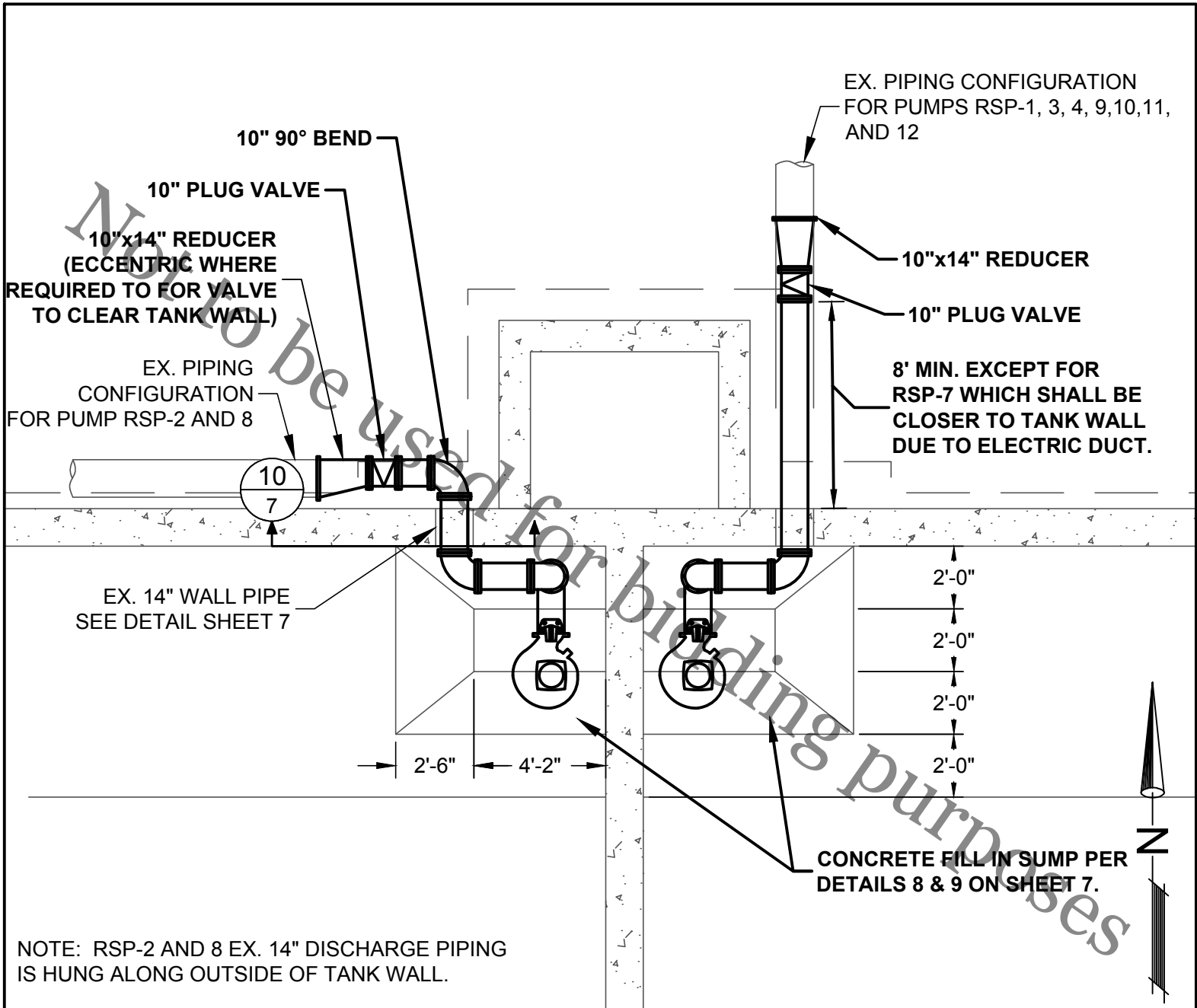
(SEAL)

Notary Public

Not to be used for bidding purposes

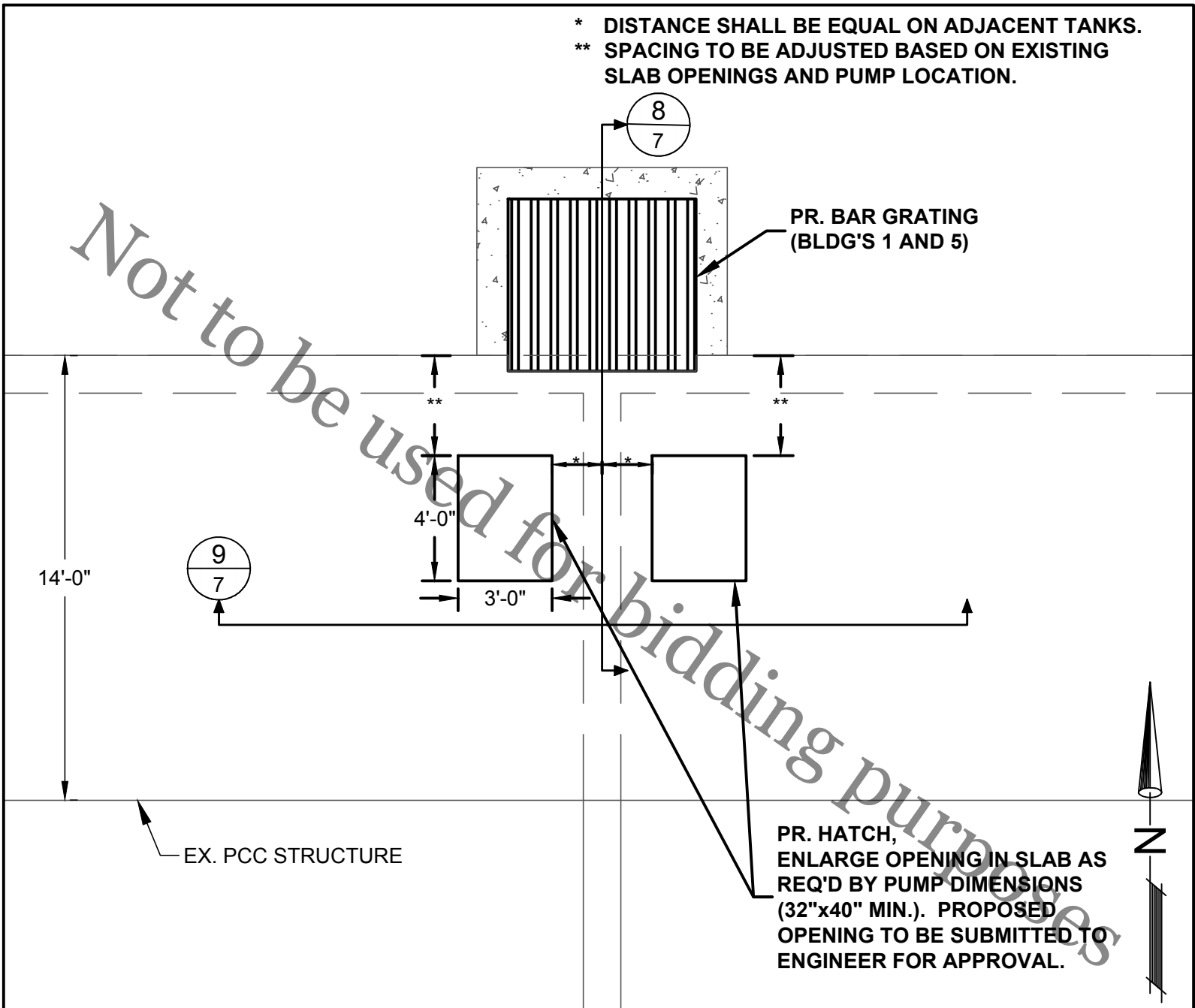
VIII - Exhibits
Invitation to Bid
RAS Pumping Equipment, Capital Project No. 1859

Not to be used for bidding purposes



**PROPOSED LAYOUT AT RETURN SLUDGE PUMP, ENLARGED PLAN
VIEW - ±EL. 86.75
NOT TO SCALE**

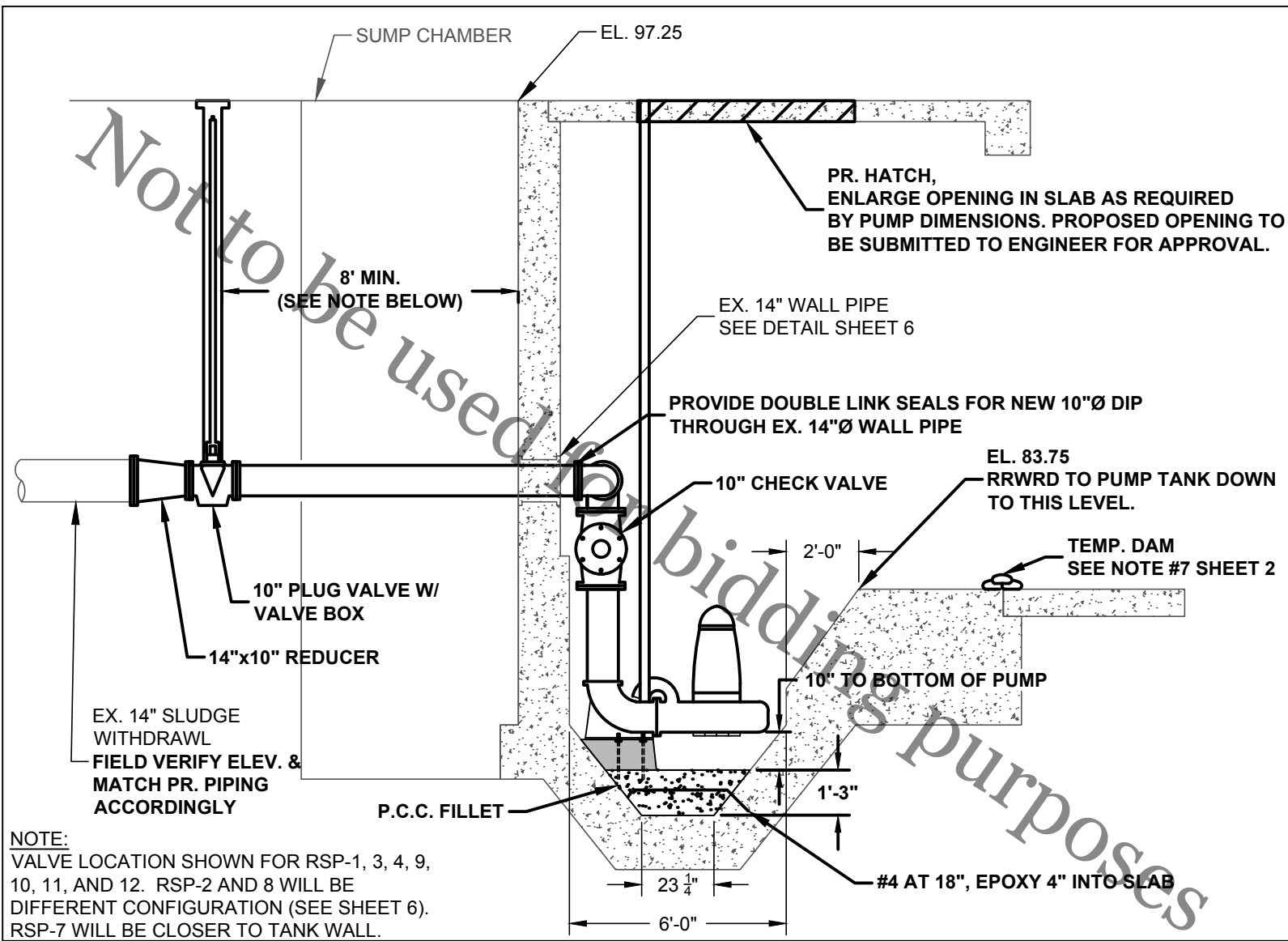
- * DISTANCE SHALL BE EQUAL ON ADJACENT TANKS.
- ** SPACING TO BE ADJUSTED BASED ON EXISTING SLAB OPENINGS AND PUMP LOCATION.



PR. HATCH,
ENLARGE OPENING IN SLAB AS
REQ'D BY PUMP DIMENSIONS
(32"x40" MIN.). PROPOSED
OPENING TO BE SUBMITTED TO
ENGINEER FOR APPROVAL.

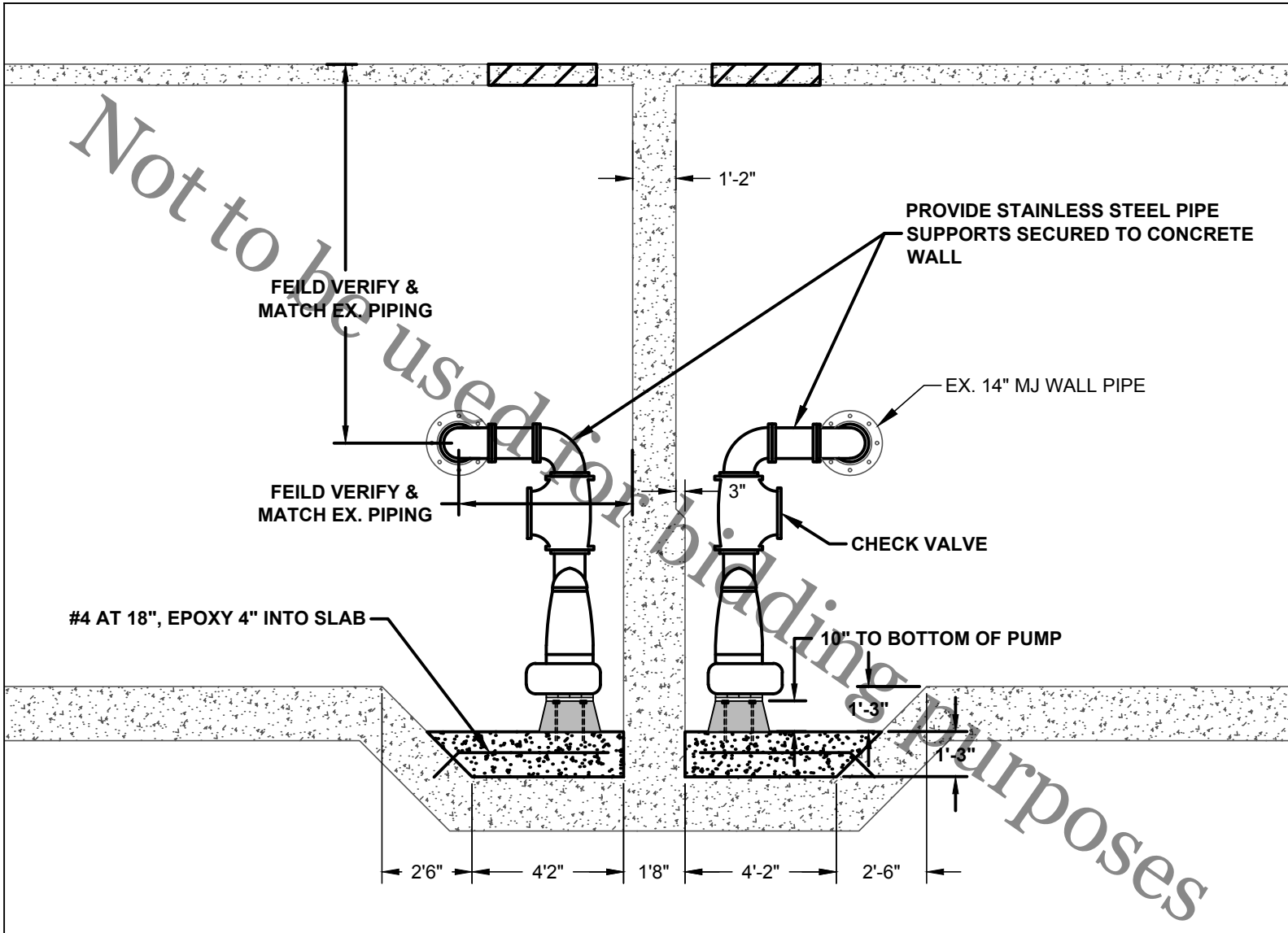
PROPOSED LAYOUT AT RETURN SLUDGE PUMP, ENLARGED PLAN
VIEW - ±EL. 97.25

NOT TO SCALE

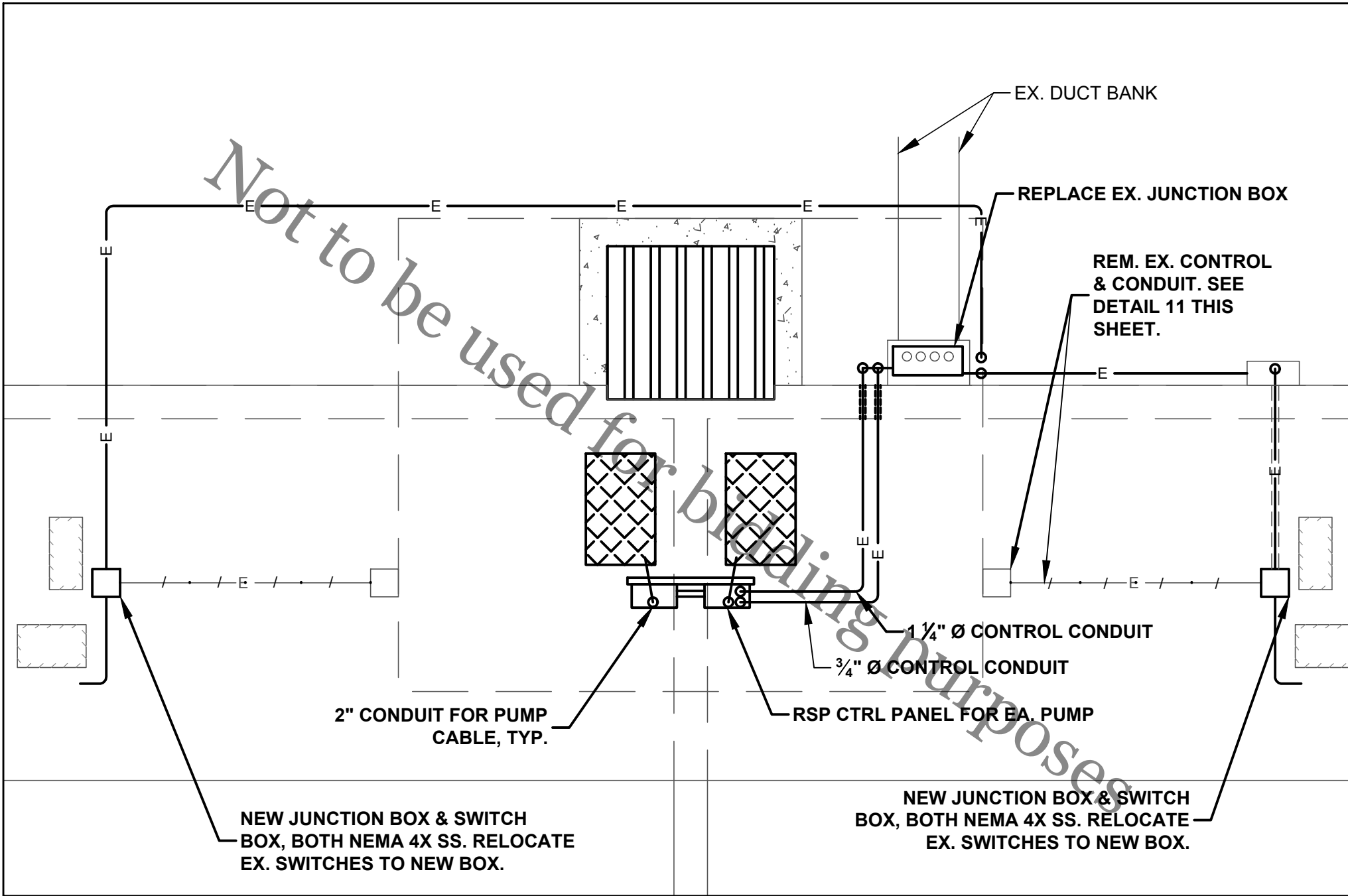


NOTE:
 VALVE LOCATION SHOWN FOR RSP-1, 3, 4, 9,
 10, 11, AND 12. RSP-2 AND 8 WILL BE
 DIFFERENT CONFIGURATION (SEE SHEET 6).
 RSP-7 WILL BE CLOSER TO TANK WALL.

8 TYP. PROPOSED SECTION
 6 SCALE: NONE



9 TYP. PROPOSED SECTION
 6 SCALE: NONE



PROPOSED LAYOUT AT RETURN SLUDGE PUMP, ENLARGED PLAN VIEW - ±EL. 97.25

**IX – General Provisions and Technical Specifications for Sanitary
Sewer Construction** (Separate document incorporated by reference)

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