Summary

Date Issued:	November 10, 2017
Service Requested:	Supply & Install Water Pump Station
IFB Closing Date/Time:	November 29, 2017–2:00 P.M.
IFB Contact:	Jennifer Jones, Director for Business Services JJONES@MCHENRY.EDU

McHenry County College requests bids from companies to **Supply and Install Water Pump Station**. Proposals must be sealed and delivered to the attention of Jennifer Jones, Director for Business Services, McHenry County College, 8900 US Highway 14, Crystal Lake, IL 60012 on or before November 29, 2017, 2:00P.M.

All late proposals will be rejected.

All proposals must be signed by a duly authorized representative of the firm.

All unsigned proposals will be automatically rejected.

SPECIAL NOTE: This Invitation for Bids (IFB) does not obligate McHenry County College (MCC) or its Board of Trustees to award a contract or complete the proposed project, and each reserves the right to cancel this IFB if it is considered to be in its best interest. Proposals must be clear and concise. Proposals that are difficult to follow or that do not conform to the IFB format or binding specifications, may be rejected. Responding vendors must include the required information called for in this IFB. MCC reserves the right to reject a proposal if required information is not provided or is not organized as directed. MCC also reserves the right to change the evaluation criteria or any other provision in this IFB by posting notice of the change(s) on MCC's IFB website, www.mchenry.edu/bid. For this IFB, posting on the captioned website above constitutes written notification to each vendor. Vendors should check the site daily and are expected to review information on the site carefully before submitting a final proposal.

McHenry County College administration will evaluate all proposals. A recommendation to enter into an agreement with the successful bidder will be presented to the Board of Trustees at the January 25, 2018 board meeting.

We appreciate your interest in McHenry County College and look forward to your response.

INVITATION FOR BIDS

Supply & Install Water Pump Station

IFB11302018

Issue Date: November 10, 2017

Bid Due: November 29, 2017 – 2:00PM

Bid Opening: November 30, 2017 – 8:00AM

McHenry County College
8900 US Highway 14
Crystal Lake, Illinois 60012-2761
Telephone: (815) 455-3700

TABLE OF CONTENTS

1.0 GENERAL REQUIREMENTS

1.1 Introduction: McHenry County College (hereinafter "MCC") is inviting responsible Vendors (hereinafter "Bidder" or "Contractor") to submit proposals to **Supply & Install Water Pump Station**. A more complete description of the supplies and/or services sought is provided in the "Bid Specifications". If you are interested and able to meet these requirements, we would appreciate and welcome a bid. This IFB will set forth any evaluation criteria to be used in determining product or service acceptability. It may require the submission of bid samples, descriptive literature, technical data, references, licenses, or other information or material.

Unsolicited bid samples or descriptive literature however, are submitted at the vendor's risk, may not be examined or tested, will not be deemed to vary any of the provisions of the IFB, and may not be utilized by the vendor to contest a decision or understanding with MCC.

1.2 Background: McHenry County College (MCC) is a community college offering pre-baccalaureate programs for students planning to transfer to a four-year university, occupational education leading directly to employment, adult education and literacy programs, work force and workplace development services, and support services to help students succeed. McHenry County College serves one of the fastest growing counties in Illinois. MCC is located forty-five miles northwest of downtown Chicago, the college is committed to providing high quality, need-based educational and training opportunities to adult residents of Community College District 528. Nearly 250,000 residents live within the MCC district boundaries. The campus is located at 8900 U.S. Highway 14, Crystal Lake, IL 60012. Also part of this college is the Shah Center, a corporate training and business development center that was remodeled from a former hotel in 2005 approximately six miles northeast of MCC in the town of McHenry, Illinois.

1.3 Contact Information: The contact, identified below, is the sole point of contact regarding the IFB from the date of issuance until selection of the successful vendor.

Jennifer Jones
Director of Business Support Services
McHenry County College
8900 US Highway 14
Building A, Room 246
Crystal Lake, IL 60012
Email: jjones@mchenry.edu

1.4 Contract Terms: The successful Contractor(s) agree to execute a formal written contract with McHenry County College subject to any modifications as may be required by MCC. Bids shall identify the individuals having authority to contractually bind the Contractor. It shall also name the person to be contacted both during the period of evaluation of bids and execution. This information is to include the name, title, address, telephone, fax number, and email address of this individual.

1.5 Minimum Bidder Qualifications: The following minimum qualifications must be met by each bidder:

a. The Bidder shall have had a minimum of ten (10) years, previous experience and possess manpower and equipment, financial resources, and an organization as herein specified to perform the type, magnitude, and quality of work specified.

1.6 Inspection of Premises: Bidders are invited to inspect the project site completely prior to submitting bids in order to determine all requirements associated with the contract. Failure to inspect adequately shall not relieve the Contractor from the necessity of furnishing and installing, without additional cost to MCC, any materials and equipment or performing any labor that may be required to carry out the intent of the contract.

1.7 Key Event Dates: The following dates are set forth for informational and planning purposes; however, MCC reserves the right to change the dates.

MCC Issues IFB listed at www.mchenry.edu/bid Supply & Install Water Pump Station	November 10, 2017
Site Inspection	8:00am – 3:00pm -- Todd Wheeland, 815-455-8564
Last day for vendors questions via email jjones@mchenry.edu	November 17, 2017 – 2:00PM
Response to vendor questions www.mchenry.edu/bid	November 20, 2017
Bid Due Dates	November 29, 2017 – 2:00PM McHenry County College Jennifer Jones, Director of Business Services 8900 US Highway 14 Building A, Room 248 Crystal Lake, IL 60012
Bid Opening Date	November 30, 2017, 8:00am - Bldg A, Room #217
Recommendation to Board of Trustees	January 25, 2018
Contract Start Date	TBD
Project Manager Contact	Todd Wheeland - 815-455-8564

2.0 BID SUBMISSION

2.1 Examination of Solicitation Documents and Explanation to Bidders. Bidders are responsible for examining the solicitation documents and any addenda issued to become informed as to all conditions that might in any way affect the cost or performance of any work. Failure to do so will be at the sole risk of the bidder. Should the bidder find discrepancies in or omissions from the solicitation documents, or should their intent or meaning appear unclear or ambiguous, or should any other question arise relative to the solicitation documents, the bidder shall promptly notify the Director of Business Services via email. The bidder making such request will be solely responsible for its timely receipt by the Director of Business Services. Replies to such notices may be made in the form of an addendum to the solicitation.

2.2 Submission: The submission of a response shall be *prima facie* evidence that the vendor has full knowledge of the scope and nature of the project requirements. **Faxed Bids ARE NOT acceptable**.

2.3 Interpretation or Representations. MCC assumes no responsibility for any interpretation or representations made by any of its officers or agents unless interpretations or representations are incorporated into a formal written addendum to the solicitation.

2.4 IFB Questions and Clarifications: Questions and requests for clarification are only accepted via e-mail. Official answers to questions will be provided via addendum.

2.5 Addendum: The only method by which any requirement of this solicitation may be modified is by written addendum. MCC is not responsible if a vendor does not receive the proposal revision in time to include the information with the proposal submission. Any addendum will be posted to MCC's website at www.mchenry.edu/bid. The addendum shall be acknowledged by signature and included in your bid submission.

2.6 Bid Preparation Costs. The costs for developing and delivering responses to this IFB are entirely the responsibility of the bidder. The College is not liable for any expense incurred by the bidder in the preparation and presentation of their bid or any other costs incurred by the bidder prior to execution of a Purchase Order or Contract.

2.7 Cancellation of IFB: If the Director of Business Services determines that it is in MCC's best interest, he/she reserves the right to do any of the following

- Cancel this IFB
- Modify this IFB in writing as needed
- Reject any or all proposals received in bid to this IFB.

2.8 Accuracy/ Withdrawal of Proposals Prior to Bid Opening: Bids may be withdrawn in writing any time prior to the opening hour. However, no proposal may be withdrawn for a period of sixty (60) days subsequent to the opening of the Bid without the prior written approval of the Director of Business Services of McHenry County College.

2.9 Bid Bond: For every bid greater than Fifty Thousand Dollars ($50,000), Contractor shall submit a bid bond for 10% of the bid amount.

2.10 Taxes: MCC is exempt from all federal excise, state and local taxes unless otherwise stated in this document. In the event taxes are imposed on the services purchased, MCC will not be responsible for payment of the taxes. The vendor shall absorb the taxes entirely. Upon request, MCC's Tax Exemption Certificate will be furnished.

2.11 Evaluation: In evaluating the bids submitted, MCC will apply the "Best Value" standard in selecting the vendor to be awarded a contract for this project. Purchase price is not the only criteria that will be used in the evaluation process. Any award resulting from this bid will be made to the vendor(s) whose offer conforms to the bid and it is determined to be the most advantageous, or "best value" to MCC, in the sole judgment of MCC. The selection process will include, but not be limited to, the following considerations:

1. The cost, quality, and range of products and services the firm proposes to provide.
2. The ability to provide product and service in an expedient and efficient manner.
3. The firm's overall experience, reputation, expertise, stability, and financial responsibility.
4. The experience and qualifications of the staff that will be assigned to service MCC's account.
5. The provider's ability to assist MCC in meeting the overall goals of bid.
6. The bidder's past relationship with MCC, if any.
7. Any other relevant factor that a business entity would consider in selecting a vendor.

2.12 Award of Contract: MCC reserves the right to reject any or all prices or bids submitted, waive irregularities, and to accept that bid which is considered to be in the best interest of the College. Any such decision shall be considered final and not subject to recourse. Unless we are advised to the contrary, it is understood that the bid has been submitted in strict accordance with specifications. Any exceptions and explanations regarding the items listed should be delivered with the bid. Submit complete specifications for any substitute offered.

The successful bidder(s) will be notified within three business days by e-mail or telephone of their award of contract following the Board of Trustees meeting. The vendor may not assign, sell, or otherwise transfer its interest in the contract award or any part thereof without written permission from MCC. There are three projects to be bid separately and the bid may be awarded to more than one vendor. We reserve the right to make moderate quantity alterations to conform to budget limitations.

3.0 INSTRUCTION TO BIDDERS

Read the following instructions carefully before submitting any bid. Failure to follow these instructions and the rules may result in the rejection of your bid. MCC reserves the right to reject any and all bids, to waive minor or immaterial irregularities, informalities or technicalities, to advertise for new bids, or to request confirmation or clarification from any bidder regarding a bid.

3.1 Bid Format and Content: In order for MCC to evaluate bids fairly and completely, bidders must follow the format set forth herein and must provide all of the information requested. All items identified in the following list must be addressed as concisely as possible in order for a bid to be considered complete. Failure to conform to the stated requirements may necessitate rejection of the bid.

1. **Cover Letter**. The cover letter must confirm that the **bidder understands all the terms and conditions contained in this IFB and will comply with all the provisions of this IFB.** Further, that should the contract be awarded to your company, you would be prepared to begin services upon contract approval from MCC. The cover letter must include the full contact information of the person(s) MCC shall contact regarding the bid. A bidder representative authorized to make contractual obligations must sign the cover letter. The letter must also state whether or not subcontractors will be used.

2. **Experience & Operational Plan**. Bidders must describe their capabilities to provide the services requested in this IFB by providing the following:
   - A description of Bidder's experience.
   - Staffing and operational plan for this contract, including use of any subcontractors and description of equipment to be used.

3. **Pricing**. Bidder shall submit on the bid submission form, prices for each item.

3.2 Packaging of Response: The bid documents, must be submitted by mail, hand delivery, overnight carrier or certified mail in a package sealed and labeled showing the following information on the outside:
- Bidder's complete name and address
- Solicitation Number
- Bid Due Date and Time
- Bid for Water Pump Station

3.3 Late Bids. ***Regardless of cause, late bids will not be accepted and will automatically be disqualified from further consideration.*** It shall be the bidder's sole risk to assure delivery at the designated office by the designated time. Late bids will not be opened and may be returned to the bidder at the expense of the bidder or destroyed if requested.

3.4 Bidder's Signature. The bid submission form must be signed in ink by an individual authorized to legally bind the business submitting the bid. The bidder's signature on a bid in response to this IFB guarantees that the offer has been established without collusion and without effort to preclude MCC from obtaining the best possible supply or service.

3.5 Bid Opening: MCC will open all bids that are submitted in a proper and timely manner, and will record the names and other information specified by law and rule. All bids become the property of MCC and will not be returned except in the case of a late bid. Winning bidder will be listed on our website after the board of trustee's meeting.

3.6 Responders' Costs: The cost of developing a bid for this IFB belongs solely to the bidder and may not be charged to MCC.

4.0 GENERAL TERMS AND CONDITIONS

4.1 Applicability: These general terms and conditions will be observed in preparing the proposal to be submitted.

4.2 Purchase: After notice of the award, purchase will be put into effect by means of purchase orders or suitable contract documents executed by the Director of Business Services.

4.3 Right to Cancel: MCC may cancel contracts resulting from this IFB at any time for a breach of any contractual obligation by providing the contractor with thirty-calendar day's written notice of such cancellation. Should MCC exercise its right to cancel, such cancellation shall become effective on the date as specified in the notice to cancel.

4.4 Proprietary Information: Bidder should be aware that the contents of all submitted bids are subject to public review and will be subject to the Illinois Freedom of Information Act. All information submitted with your bid will be considered public information unless bidder identifies all proprietary information in the proposal by clearly marking on the top of each page so considered, "Proprietary Information." The Illinois Attorney General shall make a final determination of what constitutes proprietary information or trade secrets. While MCC will endeavor to maintain all submitted information deemed proprietary within MCC, MCC will not be liable for the release of such information.

4.5 Negotiation: MCC reserves the right to negotiate all elements, which comprise the bidder's proposal to ensure the best possible consideration, be afforded to all concerned. MCC further reserves the right to waive any and all minor irregularities in the proposal, waive any defect, and/or reject any and all proposals, and to seek new proposals when such an action would be deemed in the best interest of MCC.

4.6 Retention of Documentation: All bid materials and supporting documentation that is submitted in response to this proposal becomes the permanent property of MCC.

4.7 Insurance Requirements: If fabrication, construction, installation, service or other work is specified to be conducted on MCC's premises, supplier shall maintain in force during the period of such work the following coverage's: (a) worker's compensation, as required by the laws of the State of Illinois; (b) commercial general liability for bodily injury and/or property damage in an amount of not less than $1,000,000 single limit, per occurrence; (c) automobile liability for bodily injury and/or property damage in an amount of not less than $1,000,000 single limit, per occurrence. The successful bidder shall provide a certificate of insurance naming McHenry County College as additional insured.

4.8 Performance and Payment Bond: For every project greater than Fifty Thousand Dollars ($50,000), Contractor shall procure a performance and payment bond for the full amount of the contract price. Prior to commencement of any work on the Project, Contractor shall submit insurance and bonds. Any provisions contained within the bonds creating a condition precedent for Owner, or abrogating Owner's rights or remedies otherwise available in contract or law, are void.

4.9 Department of Employment Security Law: By entering into this contract, Vendor agrees to either (1) link its employment vacancies with the IllinoisJobsLink.com System or successor system, or (2) provide an online link to its employment vacancies so that this link is accessible through the web page of the IllinoisJobLink.com System or successor system, as required by Illinois Public Act 098-0107 (20 ILCS 1005/1005-47). ***NOTE***: Vendors who are parties to a collective bargaining agreement with a bona fide labor organization for the performance of construction or construction-related services are exempt from this requirement.

4.10 Prevailing Wage Law: Contractor shall pay prevailing wages, and shall make, keep and file certified payroll, and shall comply with all requirements of the Prevailing Wage Act, 820 ILCS 130/0.01 *et seq.*

4.11 Non-Discrimination: The successful bidder will comply with all Federal and State requirements concerning fair employment, employment of the handicapped, and the treatment of all employees, and will not discriminate between or among them by reason of race, color, age, religion, sex, national origin, or physical handicap.

4.12 Sexual Harassment: An amendment to the Illinois Human Rights Act requires eligible bidders for State contracts to implement detailed and specific sexual harassment policies. Every party bidding for and/or obtaining a public contract is required to have written sexual harassment policies that must include, at a minimum, a statement that sexual harassment is illegal; the definition of sexual harassment under State law; a description of sexual harassment (utilizing examples); the party's internal complaint process including penalties, the legal recourse, investigative and complaint process available through the Illinois Human Rights Department and the Commission (including directions on how to contact the Department and Commission); and the applicability of protection against as provided by the Human Rights Act.

4.13 Governmental Restrictions: In the event any Governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship or performance of any item offered on this bid prior to delivery, it shall be the responsibility of the successful bidder to notify the Purchasing Office at once, indicating in writing the specific regulation which requires such alterations. McHenry County College reserves the right to accept any such alteration, including any price adjustments occasioned thereby, or to cancel the contract.

4.14 Award, Payment, and Assignment: Award will be made to the responsive and responsible bidder whose bid is most economical according to criteria designated in the solicitation. Acceptance is to be confirmed by purchase order issued by or on part of McHenry County College, including shipping and billing instructions. McHenry County College is responsible for all payments. Neither the contract nor payments due may be assigned except with prior written approval from the Vice President for Finance, McHenry County College.

4.15 Indemnification: The Contractor shall protect, indemnify and hold MCC harmless against any liability claims and costs for injury to or death of any person or persons and for loss or damage to any property occurring in connection with or in any incident to or arising out of occupancy, use, service, operations or performance of work in connection with the contract, resulting in whole or in part from the negligent acts or omissions of the Contractor.

4.16 Substitutes to Specifications: Consideration will be given to alternatives if they are a standard manufactured item as evidenced by literature and specifications enclosed with this bid document. A demonstration may be requested. Submit complete specifications for any substitute offered. Your bid should be made on the Bid Submission Form, and any explanation regarding your bid should be attached. A complete disqualification could result without these reference materials attached. Indicate warranty specifications that apply to the items included in your bid.

4.17 Compliance with Law: Contractor will comply with all valid federal, state and local laws and all ordinances and regulations applicable to the manufacture, sale delivery and labeling of the goods ordered and in the performance of any work pursuant hereto. Contractor also certifies that the merchandise supplied meets both Illinois Life Safety Code and OSHA regulations.

4.18 Recycled Materials: McHenry County College is required to purchase products incorporating recycled materials whenever technically and economically feasible. Contractors are encouraged to offer products with recycled content which meet specifications conforming to Illinois State Statute 415 ILCS 20/3.1 pertaining to public community colleges.

4.19 Disclosure: Contractors shall note any and all relationships that might be a conflict of interest and include such information with the bid.

4.20 Terms of Payment: MCC operates under terms of payment for work completed and product delivered within Net 30 days from date of invoice. All payments of invoices need to be approved on a monthly basis. In no case will MCC agree to late fees prior to 60 days before payment is received, this is based on State Statutes for State funded entities.

5.0 BID SPECIFICATIONS

McHenry County College is inviting responsible Contractors to submit bids to **Supply & Install Water Pump Station**. The successful bidder shall supply all materials and perform all labor necessary to complete the project based on the information and drawing provided below.

This is phase 1 of a two stage bidding process to bring City of Crystal Lake water to McHenry County College. In this bid document you will find specifications for a pumping station structure and the interior finish of pump skids and electrical/data needs. Please review all aspects of this document carefully to make sure all specifications are met. Phase 2 will be the bidding of the water main work itself. This will include the tapping of the Crystal Lake main, installing new water piping to the college and tying it into the new pumps and pump house, then running a line from the new pump house to the college main currently in place.

- Provide bid on pump house structure including all work to construct the building including lay-out, excavation, concrete, structural designs, structure construction, interior and exterior finishes, electrical, roofing, insulation, backfilled with positive drainage flow away from the building and anything else necessary to create a finished product.
- Electric will be brought to the building by the College working with ComEd.
- Keep the footprint of the building as small as possible but to still allow adequate room inside the structure to work on and around the pumping systems. Provide building layout (size with all exterior dimensions) with the proposal.

SECTION 43 2100

PACKAGED SKID MOUNTED WATER BOOSTER PUMPING SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Furnish one, (1) - factory built, factory delivered, above-ground water booster pump station, in a modular building with base frame on a structural base with all necessary internal piping, valves, fittings, supports, meters, control valves, pumps, motors, controls, and other necessary appurtenances as shown on the plans and specified herein.

B. The booster station shall be complete when delivered and will not require internal contractor construction except to install the power service through the service conduit provided for that purpose and to connect the main water service to the required points.

1.02 QUALIFICATIONS

A. The manufacturer of the specified equipment shall be regularly engaged in the manufacturing of packaged water boosters, packaged water control vaults, packaged water meter vaults and packaged sewage lift stations.

B. The manufacturer shall have at least ten years of successful experience in manufacturing the above type of equipment.

C. The entire equipment package specified shall be UL approved under the package pumping systems (QCZJ). The specified equipment shall have a UL label certifying the package system is in compliance with the (QCZJ) UL listing. Equipment manufactured without the QCZJ UL listing will not be accepted.

1.03 SUBMITTALS

A. Equipment submittals shall be bound in a minimum of six copies. The submittals shall contain a minimum of two full size (24”x36”) drawings***. All bid submittals must also be submitted on a flash drive.***

B. The submittal booklets will be complete with data sheets covering all individual components that make up the package station and the UL file number under which the manufacture is listed and shall be complete with the manufactures standard warranty policy.

C. Each submittal shall be complete with a full size copy of the manufactures UL / manufacture logo Package Pumping Systems label

D. One drawing shall cover the station chamber with equipment and one drawing with the electrical control schematic.

1. The station drawing shall be to scale and be specific to this project with a minimum of three different views and illustrate the National Electrical Code (NEC) clearances.

1.04 WARRANTY

A. Full warranty against defects in materials and workmanship for two years after substantial completion, including all parts, labor, and expenses.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Engineered Fluid, Inc.

B. USEMCO

C. Metropolitan Pumps

D. APEX Pumping Equipment, Inc.

D. Engineer-approved equal

2.02 BUILDING CONSTRUCTION

A. The station building enclosure shall be a factory assembled, modular structure of one, (1) compartment all attached to the station base structure and requiring no additional assembly at the job site.

B. The building shall be: (1.) To withstand snow load based on ASCE 7-05 Ground Snow Loads for the state and county of installation (2.) To withstand wind loads based on ASCE 7-05 for wind speeds; (3.) Be designed for site specific seismic requirements based on local conditions as dictated by the Available Ground Motion Parameters according to ASCE 7 and IBC 2006 and 2009 established by zip code and a live floor load of 125 PSF.

C. The modular building enclosing each of the stations is shown at its minimum size so that National Standards mandated clearances are maintained above, below and around equipment for proper and safe servicing, removal and reinstallation of this equipment.

D. Insulation values for the walls and roof structure shall be a minimum R-21 in the walls and the roof. Insulation within the roof and wall panels shall be foam-in-place polyurethane material applied between the interior and exterior sheathing forming a closed cell bounded by the steel framing. The insulation shall have a minimum density of 2.2 lbs/cu. ft. nominal and shall be applied to the thickness required to provide a minimum R value of 21. The insulation shall have an ASTM E-84 flame spread index of 25 and smoke developed of 450.

E. Building framing materials shall comply with the A.I.S.I. Specification for the Design of Cold-formed Steel Structural Members and to Standards ASTM C-955, ASTM C-1007, ASTM C-645, ASTM C-754 and ICBO 4782P. and 4784P. A framing design incorporating the members covered by the listed specifications and standards shall develop a structure meeting or exceeding the building design criteria listed previously.

F Metal-clad, foam insulated panels or SIPS will not be allowed.

G. The building structure shall be fabricated using steel C-studs as wall framing members and C-joists for roof support. The size, placement and spacing of studs and joists shall be in accordance with the design criteria and material standards. The wall C-studs shall be a minimum 2" x 3 5/8" of 16 gauge material minimum. The roof C-joists shall be a minimum 1-5/8" x 8" size of 16 gauge material minimum.

H. The exterior wall sheathing shall be 1/2" thick, exterior, CDX grade plywood.

I. The exterior roof sheathing shall be 5/8" thick, exterior, CDX grade plywood.

J. The interior wall and ceiling sheathing shall be 3/4" thick, exterior, CDX grade plywood.

K. All interior wall & ceiling surfaces shall be covered with .090" thick FRP (fiberglass reinforced plastic) sheeting of pebble grain, gloss, white finish. The individual wall faces shall be covered with one continuous sheet. The FRP sheets shall be glued to the interior sheathing requiring no fasteners. Corner moldings of like FRP material shall be installed & finished in a workmanlike manner.

L. Openings in the sidewalls and/or roof shall be as shown and be fully framed out and supported using single or multiple framing members sufficient to support and fasten those devices or equipment items requiring a framed opening, these being access hatches, HVAC equipment, pipe passages, conduit passages, door and window openings and other special purpose openings as might be shown and required. The attaching of devices or equipment to the building at a framed opening shall be done fully according to the device manufacturers mounting instructions.

M. The building shall be warranted by the station manufacturer for a period of ten (10) years from the date of delivery.

N. The building exterior shall be covered with a factory fabricated Steni Stone panel. The panels shall be attached to wood reinforcement panels that are imbedded in the building panels.

2.04 STEEL DOORS

A. Doors, single and double leaf are manufactured of 18-gauge galvanized steel. All doors shall be full flush construction and 1-3/4 inches thick. Doors shall be reinforced, stiffened, insulated, and sound deadened with a solid polystyrene foam board permanently bonded to the inside of each face skin. The lock and hinge edge of each door shall be welded with a center hairline seam the full height of the door. The lock edge shall be reinforced full height by a 14-gauge continuous one-piece channel extruded templating. The hinge edge shall be reinforced full height by a 14-gauge continuous one-piece channel, formed and tapped for hinges. Top and bottom of the door shall be closed with 16-gauge channels. Doors shall be thoroughly cleaned and receive an iron phosphate treatment prior to receiving one coat of prime paint. Door closures and rim panics are reinforced with 14-gauge channels.

B. Doors shall be fully-mounted in frames produced for pre-hanging of commercial 1-3/4" doors. Frames are formed to 16-gauge commercial quality cold rolled steel conforming to ASTM A366 or A620 and A568. Frames are produced in two welded units, to be mechanically joined during installation. The base side is prepared for all required hardware. Both units, base and trim, are furnished with welded mitered faces. Frame anchoring includes compression anchors and stud screws. Door hinges shall be continuous gear hinges, fabricated of extruded 6063-T6 aluminum alloy/temper with pinless assembly. The doors shall have a lockset, exterior handle, and top mounted-door closer with hold-open device.

C. Doors and frames shall be finished with a two-component, aliphatic/acrylic polyurethane coating, white in color, with a high gloss finish. The coating shall be resistant to a wide range of solvents and chemicals under splash and spill conditions. The coating system is V.O.C. compliant.

2.05 METAL ROOF SYSTEM

A. The 9/16” USF decking sheathing shall be covered with a 26 gauge metal panel system to form a standing seam roof as shown. The panels shall have a Galvalume® substrate with a Kynar 500® finish. The panels shall meet UL Standard 2218, Class 4 impact resistant and Class A fire resistant rating. The system shall be complete with fascia and soffit. The minimum roof slope shall be 1/2:12.

B. The ridgeline of the roof shall be covered end to end with a broken edge panel open along the sides to create a roof vent along both sides of the entire ridge line. The top of the broken edge panel along the ridge line shall cover over the top of the standing seams to provide a finished appearance.

2.06 LIFTING DEVICE

A. An adjustable spreader type lifting device, built to lift the building structure without impinging the lifting chains/cables on the building sidewalls, shall be provided by the pumping station manufacturer for use by the installing contractor for the purpose of unloading station from trailer.

2.07 FLOORDRAIN

A. The floor drains shall be a 4” grated opening with 4” I.D threaded hub for connection of a drain line up under the station floor.

2.08 PROTECTIVE COATING

A. All mill scale, rust, weld flux and other foreign matter shall be removed from all steel surfaces by steel shotblasting to SSPC SP-10 specification for near-white blast cleaning. Surface irregularities shall be removed by grinding.

B. Steel and cast/ductile iron surfaces shall receive a minimum of two coats of hi-build epoxy coating. The coating material shall show excellent resistance to immersion in seawater as well as to splash or spillage of water, petroleum products, and salt solutions. The surfaces shall receive two coats a minimum of 4 mils each to a total of 8 mils dry.

C. Piping interior shall have a fusion bonded epoxy coating applied after shotblasting. The coating shall meet AWWA C-213 standards and be applied to a minimum thickness of 12 mils.

D. Paint touch-up kits shall be provided with the station for coating areas damaged in shipping.

E. The floor in all working areas within the station shall be protected with heavy neoprene matting.

2.09 PUMPS

A. Three horizontal end-suction centrifugal water pumps shall be installed in the booster station.
B. Pump Schedule:
   1. Two pumps (1 duty/1 standby) 75 gpm @ 104 TDH
   2. Two pumps (fire pump – 1 duty/1 standby) 1,500 gpm @ 218 TDH
C. The pumps shall have a maximum allowable speed of 3600 R.P.M..
D. Minimum pump efficiency shall be 70%.
E. Suction Pressure: 45 psi – 53 psi
F. The pumps shall operate at the above condition with a minimum suction pressure of 120 feet.
G. Each pump shall be bronze fitted, single stage with close grain cast iron construction.
H. The pump casing shall have a bronze replaceable wear ring.
I. The impeller shall be bronze, of the enclosed type, and statically and dynamically balanced.
J. The one-piece pump/motor shaft shall be stainless steel or steel with a bronze sleeve.
K. The pump shall have a single mechanical shaft seal of the Ni-Resist type, and properly vented to the suction connection.
L. Suction and discharge connections shall be either threaded connections or 125 lb. ANSI flanges, depending upon pump size.
M. Each pump shall be close-coupled to a 3600 RPM, 3 phase, 60 hertz, 230/460 volt ball-bearing, totally enclosed fan cooled, premium efficient horizontal electric motor, with a service factor of 1.15. Motor shall be of such size that it will operate continuously without exceeding its horsepower rating, exclusive of its service factor, at the design conditions.
N. Motors shall be premium efficient for use with variable speed drives.

2.10 CONTROL SYSTEM

A. The power distribution center and electrical controls shall be mounted in a common NEMA Type 1 gasketed fabricated steel enclosure.
   1. The enclosure shall have a full opening door, mounted on heavy piano hinges. Suitable type latching devices shall be provided on the door.
   2. Starters, breakers, relays, timers and wiring raceway shall be neatly arranged on a removable steel back plate.
   3. All circuit breaker operators, selector switches, indicating lights, and single phase items shall be mounted on or through die cut openings in the enclosure door.
   4. A duplex grounding type convenience outlet shall be mounted in die cut openings on the side of the enclosure, for operation of 115-volt devices.
   5. It shall not be necessary to open this enclosure, except for adjustment of controls.
   6. Additional enclosures may be used as necessary to meet power and control requirements.
B. The control panel shall conform to the National Electrical Code specifications and shall be UL listed and labeled in accordance with UL standards No. 508 for Industrial Control Panels. In accordance with U.L. procedures, a U.L. label shall be affixed to the control panel.
   1. Control panel equipment shall be shipped loose for mounting and wiring by others.
C. The Programmable Logic Controller shall be a MicroLogix 1400 as manufactured by Allen Bradley. I/O shall be supplied to accommodate all control processes in the system while providing for a 10% spare density for future use.
D. The booster station manufacturer shall be responsible for the programming and satisfactory operation of the PLC System.
E. A 5.7” Square D Magellan color touch screen HMI shall be supplied. The HMI shall display include but not limited to: Pressures, Flows, Alarms, Pump Status, Run Times, Setpoints

F. All communication between the PLC's, HMI's, and Modems shall be via Ethernet. An unmanaged Ethernet switch shall be provided at each location where these devices are present. The switch shall have a minimum of 5 ports and be equal to a Phoenix Contact SFN5TX

G. The programming shall be supplied to the owner on transferrable media and shall be fully commented and documented. OEM Coding, Locking, or making proprietary any portion of the control system programming will not be accepted.

H. Properly sized, heavy duty, molded case thermal-magnetic air circuit breakers shall be provided for branch circuit disconnect service and for over-current protection of all control, motor and auxiliary circuits.

I. Furnish complete variable frequency drives (VFD's) as specified herein or in the equipment schedule for loads designated to be variable speed. VFD's shall be user-selectable for either constant or variable torque loads. The VFD shall convert incoming fixed frequency three-phase AC power into a variable frequency and voltage for controlling the speed of three-phase AC induction motors. The VFD shall be a six-pulse input design, and the input voltage rectifier shall employ a full wave diode bridge; VFD's utilizing controlled SCR rectifiers shall not be acceptable. The output waveform shall closely approximate a sine wave. The VFD shall be of a pulse width modulation (PWM) output design utilizing current insulated gate bipolar transistors (IGBT) inverter technology and voltage vector control of the output PWM waveform.

J. The VFD shall include a full-wave diode bridge rectifier and maintain a displacement power factor of near unity regardless of speed and load, shall produce an output waveform capable of handling maximum motor cable distances of up to 1,000 ft. (unshielded) without tripping or derating, and shall utilize voltage vector control (VVCPLUS), an output voltage-vector switching algorithm, or equivalent, in both variable and constant torque modes. VVCPLUS provides rated root mean square (RMS) fundamental voltage from the VFD. This allows the motor to operate at a lower temperature rise, extending its thermal life. VFD's that cannot produce rated RMS fundamental output voltage or require the input voltage to be increased above motor nameplate value to achieve rated RMS fundamental output voltage are not acceptable. VFD's that utilize Sine-Coded PWM or Look-up tables shall not be acceptable.

K. The VFD selected must be able to source the motor's full load nameplate amperage (fundamental RMS) on a continuous basis, and be capable of running the motor at its nameplate RPM, voltage, current, and slip without having to utilize the service factor of the motor. The VFD shall offer a programmable motor parameter that allows the total number of poles of a motor to be programmed to optimize motor performance. VFD shall automatically boost power factor at lower speeds. The VFD will be capable of running either variable or constant torque (VT or CT) loads. In variable torque applications, the VFD shall provide a CT-start feature and be able to provide full torque at any speed up to the base speed of the motor. In either CT or VT mode, the VFD shall be able to provide its full rated output current continuously and 110% of rated current for 60 seconds.

L. An Automatic Energy Optimization (AEO) selection feature shall be provided in the VFD to minimize energy consumption in variable torque applications. This feature shall optimize motor magnetization voltage and shall dynamically adjust output voltage in response to load, independent of speed. Output voltage adjustment based on frequency alone is not acceptable for single motor VT configurations.

M. For multi-motor variable torque configurations, user-selectable load profile curves including VT-High, VT-Medium, and VT-Low shall be provided to ensure easy commissioning and improved energy efficiency. VFD's requiring the operator to assign load torque data-points to create a V/Hz profile, are not acceptable. An initial ramp function shall be available to provide a user-selectable ramp, up to 60 seconds, for applications requiring a faster or slower ramp than the normal ramp. A Dual Ramp Down feature shall include a Check Valve Ramp Down and a final Ramp feature. The Check Valve Ramp Down shall be programmable to gently seat a check valve and reduce the potential of damage from excess pressure while shutting-down the system. Both time and end speed shall be programmable. On the Final Ramp, the VFD shall be programmable to quickly stop the motor after seating of a check valve or for a more rapid stopping than the normal ramp down setting.

N. VFD shall offer up to 4 separate PID controllers. One controller shall operate the drive in closed loop, while the other 3 provide control signals to other equipment. VFD's with PI controllers only are not acceptable.

O. An Auto tuning PI controller output feature shall provide automated PI controller settings. Once the user accepts the settings, the VFD will save the settings to memory.

P. An empty pipe fill mode shall be available to fill an empty pipe in a short period of time, and then revert to the PID controller for stable operation. Pipe fill mode shall have a programmable time to reduce water hammer in the system or fill the pipe at a unit per time rate.

Q. VFD shall offer a motor spinning test that will run the motor at 5 Hz until the OK button is pressed. This feature will allow the user to determine if the motor is running in the correct direction.

R. An embedded cascade pump controller shall be included to provide lead pump alternation and provide control for up to 3 total pumps. The VFD Pump and 2 other pumps can be controlled either by a starter or soft starter.

S. Switching of the input power to the VFD shall be possible without interlocks or damage to the VFD at a minimum interval of 2 minutes. Switching of power on the output side between the VFD and the motor shall be possible with no limitation or damage to the VFD and shall require no additional interlocks.

T. An Automatic Motor Adaptation (AMA) function shall measure motor stator resistance and reactance to optimize performance and efficiency. It shall not be necessary to spin the motor shaft or de-couple the motor from the load to accomplish this optimization. Additionally, the parameters for motor resistance and motor reactance shall be user-programmable.

U. The VFD shall have temperature controlled cooling fans for quiet operation, minimized internal losses, and greatly increased fan life.

V. VFD shall provide full torque to the motor, given input voltage fluctuations of up to +10% to -10% of the rated input voltage (525 to 690VAC, 380 to 480VAC, or 200 to 240VAC). Line frequency variation of ± 2% shall be acceptable.

W. The VFD shall provide internal DC link reactors to minimize power line harmonics and to provide near unity power factor. DC Link reactor shall be installed so that power fluctuations to the DC Capacitors shall be reduced to increase Capacitor life. VFD's without a DC link reactor shall provide a 5% impedance line side reactor and provide spare capacitors.

X. VFD protective features: VFD shall have input surge protection utilizing MOV's, spark gaps, and Zener diodes to withstand surges of 2.3 times line voltage for 1.3 msec. VFD shall include circuitry to detect phase imbalance and phase loss on the input side of the VFD. VFD shall auto-derate the output voltage and frequency to the motor if an input phase is lost. This result will maintain operation without decreasing the life expectancy of the VFD. The use of this feature shall be user selectable and export a warning during the event. Printed Circuit boards shall be conformal coated to reduce the corrosion effect from environmental gases and other conditions The conformal coating must meet IEC 61721-3-3, Class 3C2 as standard and the VFD shall have an optional 61721-3-3, Class 3C3 coating available. Automatic "No-Flow Detection" shall be available to detect a no-flow situation in pump systems where all valves can be closed. This shall be functional in closed loop control or when controlled by an external signal. Dry-pump detection shall be available to detect if the pump has run dry. If this condition occurs, the drive will be safely stoppred. A timer shall be included to prevent nuisance tripping. End-of-Pump curve detection shall stop motor when the pump is operating outside of its programmed pump curve. VFD shall provide a flow compensation program to reduce energy by adjusting the Setpoint to match changes in flow (friction loss). Flow compensation shall also operate in Cascade control mode. VFD shall include current sensors on all three-output phases to detect and report phase loss to the motor. The VFD will identify which of the output phases is low or lost.

Y. VFD shall auto-derate the output voltage and frequency to the motor in the presence of sustained ambient temperatures higher than the normal operating range, so as not to trip on an inverter temperature fault. The use of this feature shall be user-selectable and a warning will be exported during the event. Function shall reduce switching frequency before reducing motor speed.

Z. VFD shall auto-derate the output frequency by limiting the output current before allowing the VFD to trip on overload. The speed of the load can be reduced, but not stopped.

AA. The VFD shall have the option of an integral RFI filter. VFD enclosures shall be made of metal to minimize RFI and provide immunity.

AB. The VFD shall have a motor preheat function with the ability to be programmed to induce a small amount of current to the motor whenever it is at rest. This will prevent condensation inside the motor and help to extend its life without the need for space heaters or other external equipment.

AC. Interface Features: VFD shall provide an alphanumeric backlit display keypad (LCP) which may be remotely mounted using a standard 9-pin cable. VFD may be operated with keypad disconnected or removed entirely. Keypad may be disconnected during normal operation without the need to stop the motor or disconnect power to the VFD.

AD. VFD Keypad shall feature an INFO key that, when pressed, shall display the contents of the programming manual for the parameter that is currently viewed on the display. The description shall explain the feature and how the settings can be made by the operator.

AE. VFD shall display all faults in plain text; VFD's which can display only fault codes are not acceptable.

AF. The keypad shall feature a 6-line graphical display and be capable of digitally displaying up to five separate operational parameters or status values simultaneously (including process values with the appropriate engineering unit) in addition to Hand/Off/Auto, Local/Remote, and operating status.

AG. Two lines of the display shall allow "free text programming" so that a site description or the actual name of the equipment being controlled by the VFD can be entered into the display.

AH. Keypad shall provide an integral H-O-A (Hand-Off-Auto) and Local-Remote selection capability, and manual control of speed locally without the need for adding selector switches, potentiometers, or other devices.

AI. All VFD's shall be of the same series, and shall utilize a common control card and LCP (keypad/display unit) throughout the rating range. The control cards and keypads shall be interchangeable through the entire range of drives used on the project.

AJ. VFD keypad shall be capable of storing drive parameter values in non-volatile RAM uploaded to it from the VFD, and shall be capable of downloading stored values to the VFD to facilitate programming of multiple drives in similar applications, or as a means of backing up the programmed parameters.

AK. VFD Display shall have the ability to display 5 different parameters pertaining to the VFD or the load including: current, speed, DC bus voltage, output voltage, input signal in mA, or other values from a list of 92 different user-selectable parameters.

AL. VFD display shall indicate which digital inputs are active and the status of each relay.

AM. It shall be possible to toggle between three status read-out screens by pressing the [Status] key. Various operating variables, even with different formatting, can be shown in each status screen.

AN. VFD display shall indicate the value of any voltage or current signal, including the engineering units of measurement, connected to the analog input terminals.

AO. VFD display shall indicate the value of the current at the analog output terminals, including the engineering units of measurement.

AP. A red FAULT light, a yellow WARNING light and a green POWER-ON light shall be provided. These indications shall be visible both on the keypad and on the VFD when the keypad is removed.

AQ. Two-level password protection shall be provided to prevent unauthorized changes to the programming of the VFD. The parameters can be locked via a digital input and/or the unit can be programmed not to allow an unauthorized user to change the parameter settings.

AR. A quick setup menu with factory preset typical parameters shall be provided on the VFD to facilitate commissioning. Use of macros shall not be required.

AS. A digital elapsed time meter and kilowatt hour meter shall be provided in the display.

AT. VFD shall offer as standard an internal clock. The internal clock can be used for: Timed Actions, Energy Meter, Trend Analysis, date/time stamps on alarms, Logged data, Preventive maintenance, or other uses. It shall be possible to program the clock for Daylight Saving Time / summertime, weekly working days or non-working days including 20 exceptions (holidays, etc.). It shall be possible to program a Warning in case the clock has not been reset after a power loss.

AU. A battery back-up option shall be provided to maintain internal clock operation during power interruptions. Battery life shall be no less than 10 years of normal operation.

AV. VFD shall provide full galvanic isolation with suitable potential separation from the power sources (control, signal, and power circuitry within the drive) to ensure compliance with PELV requirements and to protect PLC's and other connected equipment from power surges and spikes.

AW. All inputs and outputs shall be optically isolated. Isolation boards between the VFD and external control devices shall not be required.

AX. There shall be six fully programmable digital inputs for interfacing with the systems external control and safety interlock circuitry. Two of these inputs shall be programmable as inputs or outputs.

AY. The VFD shall have two analog signal inputs. Inputs shall be programmable for either 0 -10V or 0/4-20 mA.

AZ. One programmable analog output shall be provided for indication of the drive status. This output shall be programmable for output speed, voltage, frequency, motor current and output power. The analog output signal shall be 0/4-20 mA.

BA. The VFD shall provide two user programmable relays with 75 selectable functions. Two form 'C' 230VAC/2A rated dry contact relay outputs shall be provided.

BB. Floating point control interface shall be provided to increase/decrease frequency in response to external switch closures.

BC. The VFD shall accept a N.C. motor temperature over-temperature switch input, as well as possess the capability to accept a motor thermistor input.

BD. The VFD shall store in memory the last 10 faults with time stamp and recorded data.

BE. Run permissive circuit shall be provided to accept a "system ready" signal to ensure that the VFD does not start until isolation valves, seal water pumps or other types of auxiliary equipment are in the proper state for VFD operation. The run permissive circuit shall also be capable of sending an output signal as a start command to actuate external equipment before allowing the VFD to start.

BF. The VFD shall be equipped with a standard RS-485 serial communications port and front-of-drive accessible USB port. Danfoss FC or ModBus RTU communications shall be integrally mounted.

BG. A Windows® compatible software program to display all monitoring, fault, alarm, and status signals shall be available. This software program shall allow parameter changes, storage of all VFD operating and setup parameters, and remote operation of the VFD.

BH. VFD shall catch a rotating motor operating either in forward or reverse at up to full speed.

BI. To protect the motors from single phasing, low voltage, voltage unbalance and reverse phasing, a phase monitor shall be supplied with the pump station controls. The phase monitors voltage and phase sensing circuit shall constantly monitor the three phase line voltages and detect harmful power line conditions. When any of the conditions occur, and output relay shall be deactivated until power line conditions return to an acceptable level. Trip and reset delays shall be provided to prevent nuisance tripping due to rapid power fluxuations.

BJ. To protect the electrical system and equipment from damage due to excessive line surges caused by lightning or other circuit disturbances, a secondary surge arrester shall be supplied with the pump station controls. The arrester shall comply with ANSI standard C62.11-1987. The arrester shall be available in a one-pole, two-pole or three-pole version, and be suitable for both indoor and outdoor use. The arrester shall be permanently sealed in a LEXAN housing. The arrester shall have a maximum continuous operating voltage rating of 650 volts rms. The permissible line-to-line voltage of the system to which the arrester is applied depends on the circuit configuration, grounding, and voltage regulation. The secondary surge arrester shall be a Square D SDSA3650 for three phase and SDSA1175 for single phase applications.

BK. Six digit, non-resettable elapsed time meters shall be provided to record the running time of each pump motor. These devices shall be mounted in die cut openings in the enclosure door.

BL. Hand-Off-Automatic switches shall be oil tight, 2 or 3 position, and grouped conveniently with oil tight, full voltage indicating lights, on the panel door. Indicating lights shall identify the following functions:

1. RED - LOW SUCTION PRESSURE.
2. RED - HIGH DISCHARGE PRESSURE.
3. GREEN - PUMP #1 RUNNING.
4. GREEN - PUMP #2 RUNNING.

2.11 WIRING

A. Power service to the water booster system shall be 3 wire, 3 phase, 60 hertz, 460 volt.

B. Wiring of the station shall be in accordance with the National Electrical Code.

C. All motor wiring shall be installed in conduit. All wiring from the control panel to the motor junction boxes shall be in conduit.

D. The system shall be completely wired at the factory, except for power feed lines.

E. All wiring in the control panel shall be color-coded.

F. Short leads of flexible, polyvinyl covered steel conduit, with compatible grounding fittings, shall be used at the pump motors to enable servicing.

G. All conduit and wires shall be adequately sized for the maximum anticipated load.

2.12 PIPING AND VALVES

A. Piping shall be steel and conform to material specification ASTM A-53(CW) for nominal pipe size four (4) inch and smaller and ASTM A-53(ERW) Grade B for nominal pipe size five (5) inches and larger.

B. Steel butt-welding fittings shall conform to material specification ASTM A-234 Grade WPB and to the dimensions and tolerances of ANSI Standards B16.9 and B16.28 respectively.

C. Header, bypass and pump branch piping and valves shall be as shown on the drawings.

D. Forged steel flanges shall conform to material specification ASTM A-105 Class 60 and/or ASTM A-181 for carbon steel forgings and to the dimensions and tolerances of ANSI Standards B16.5 as amended in 1992 for Class 150 and Class 300 flanges.

E. The piping sizes shall be as shown on the drawings: Size 10 inch and below - Schedule 40, Size 12” and larger – Standard Weight (.375” wall)

F. The steel piping in the station shall be supported by rectangular, 3/8” (minimum) flat, or round tubing that shall be fully welded to the steel floor and bolted to flanged joints in the piping system. The size of the welded pipe supports shall be determined by the station manufacture. The welded / flanged joint connection shall allow for lateral and transverse pipe support while allowing for necessary restraint and ease of removal. Kick bracing shall be provided as necessary.

G. After the station piping and valves have been manufactured, the station piping system, including pumps, piping, fittings and all valves that make up the entire station piping shall be first tested with high-pressure air to test for leaks. High-pressure air shall be pumped into the piping system and a soap solution shall then be sprayed on any welded joints for leak indication. After final assembly of the pumps, piping and valves, the entire system shall be hydrostatically tested to test for leaks at all joints, connections and weld seams. Any deficiencies found during the air test or the hydrostatic test shall be repaired and the system shall be retested.

H. Suction and discharge header piping shall be fabricated utilizing weld tees and/or weld reducing tees to maintain smooth water flows and minimize hydraulic losses in the transition from the pump branch piping to the header piping. Under no circumstances shall any pump branch or bypass piping connections be made by cutting a hole in the pipe and welding a branch take off.

I. A single, right angle outlet, smooth nose, brass sample tap shall be supplied for each suction and discharge header pipe. A standard hose bib with valve and vacuum breaker shall be provided on the pump station suction header piping.

J. Isolation valves used inside the station shall be flanged style butterfly valves that meet or exceed the design intention of the latest revision of AWWA standard C504. The valves shall have a working pressure of 250

psi. All valve components shall conform to Underwriters Laboratories classifications in accordance with ANSI/NSF Standard 61. Valve bodies shall be of ductile iron per ASTM A536. Valve discs shall be offset to provide an uninterrupted 360-degree seating edge and shall be ductile iron per ASTM A536. The disc seating edge shall be solid 316 stainless steel. Valve shafts shall be of ASTM A564 Type 360 stainless steel. Valve shafts seals shall be self-compensating V-type packing with a minimum of 4 sealing rings. The seat shall be of Buna-N and shall be molded in and vulcanized to the valve body. The seat shall contain an integral shaft seal protecting the valve bearings and packing from any line debris. Valve shaft bearings shall be Teflon lined with a non-metallic fiberglass composite backing and shall be permanently lubricated. The interior of the body shall have a full rubber lining vulcanized to the valve body. Valves 6" and smaller shall be provided with 10 position lever lock handles with throttle plates incorporating an infinite position stop, a memory stop, and a padlocking device for either fully open or fully closed position. Valves 8" and larger shall be provided with traveling nut manual actuators. Housing shall be cast iron. The actuators shall have independently adjustable open and closed position stops. The butterfly valves shall be manufactured by DeZurik, Pratt, or equal.

K. Wafer style silent check valves shall be of silent operating type that closes as flow is reduced and fully closes at zero velocity stopping reverse flow which reduces or eliminate water hammer shock. The valve design shall incorporate a center guided, spring loaded poppet, guided at opposite ends and having a short linear stroke that generates a flow area equal to that of the pipe size. The valve shall operate equally well in the vertical or horizontal position with the flow up or down. All component parts shall be field replaceable and without the need of special tools. A replaceable guide bushing shall be provided and held in position by the valves spring. The cracking pressure shall be less then1 psi. The valve disc shall be convex in sizes up to 6" and concave in 8" and larger to the flow direction providing for disc stabilization, maximum strength and a minimal flow velocity to open the valve. A rubber seal shall be furnished to provide a drip tight seal. The rubber seal shall be glued or chemically adhered. Ductile Iron valve bodies shall be coated inside and out with NSF/ANSI 61 certified fusion epoxy.

L. The pump station shall be supplied with a flow meter. The meter shall include bidirectional metering capabilities with programmable totaliziers. The meter shall allow for an accuracy of +/-0.25 percent with a flow range of 300:1. The M-2000 amplifier shall be integrally mounted to the detector or shall available remote mounted. The amplifier shall be housed in a cast aluminum, powered coated, NEMA 4X enclosure. The amplifier shall receive the detectors analog signal, amplify the signal and convert the signal into digital information. The signal shall be converted to both analog and digital signals that shall display rate of flow and totalization. The processor shall control zero-flow stability, analog and frequency outputs, serial communications and a variety of other parameters. It shall include a four line, 20 character LCD display to at shall indicate rate of flow, forward and reverse totalizers and diagnostic messages. The display shall also serve to guide the user in simple terms though a user friendly programmable routine. Programmable parameters of the amplifier shall include (but are not limited to) calibration factors, totalizer resets, unit of measure, analog and pulse output scaling, flow alarm functions, language selection, low flow cutoff, noise dampening factor and excitation frequency selection. The amplifiers main function is to detect and condition flow information from the electromagnetic detector. The power consumption shall be 15 watts. The meter shall provided a variety of analog outputs, digital outputs, pulse outputs, frequency output and miscellaneous outputs. Units of measure shall include ounces, pounds, liters, US gallon, cubic meters, cubic feet and acre feet. The meter shall be supplied with stainless steel ground rings.

M. The suction side of each pump shall include a flexible pump connection/expansion joint to reduce control pulsation shocks and noise transmission. The elastomer connector shall be constructed of neoprene and nylon with bias-ply tire cord. Solid plate steel flanges grip the sealing area and provide a fluid tight connection without the use of gaskets. The flanges shall be drilled and tapped to mate with the companion flanges. The single sphere arch shall be self-cleaning.

N. Compression type couplings shall be used as required, to enable easy dismantling of station pumps and piping for maintenance and service. Couplings shall consist of two steel follower rings, two resilient gaskets, one steel middle ring, and a set of steel follower trackhead bolts.

2.13 PRESSURE GAUGES

A. Two pressure gauges, one for influent pressure and one for discharge pressure shall be provided with the station. Gauges will be 4 ½" in diameter per ASME B40.100 and shall be graduated in psi. Rated accuracy will be ± .5% of full scale and the operating temperature shall be -40°F to +150°F. Additional error when

temperature changes from referenced temperature of 60°F ±0.4% for every 18°F rising or falling (percentage of span). Standard features shall include a black fiberglass-reinforced thermoplastic case, black aluminum pointer, white aluminum with black lettering, dampened movement option, copper alloy C-type bourdon tube, copper alloy (0.6 mm) restrictor, copper alloy with ¼" NPT lower mount pressure connection with M4 internal tap and be weather resistant (NEMA 3 / IP54).

B. The ¼" high pressure ball isolation valve standard features shall include a one piece brass body (UNI 5705-65), PTFE self-lubricating seats with flexible-lip design, double seal system to all the valve to be operated in both directions, chrome plated brass ball, blowout-proof brass stem with Viton O-ring, nylon black wedge handle that clearly shows ball position, and NPT taper ANSI B.1.20.1 connections.

C. The pump station shall be supplied with two separately mounted pressure transmitters to monitor the suction pressure and discharge pressure. Each pressure transmitter shall sense gauge pressure of a predetermined span and transmit a 4-20 mA signal to the programmable logic controller. The accuracy of the transmitters shall be ±0.25% full scale with a 0 to 200 degree f temperature limit. The transmitter case shall be manufactured of 316 stainless steel. The transmitter shall NEMA 4X housing. The pressure transmitters shall be supplied with a 24 VDC power supply. Input voltage shall be 120 VAC, 60 Hz. Output voltage shall be 24 VDC. The pressure transmitters shall be Dwyer, Setra or approved equal and the power supply.

2.14 SPARE PARTS

A. A touch-up kit containing epoxy coatings, as specified above, shall be provided for the coating of all field welds and for repair of any scratches or abrasions that have occurred during shipment or installation.

PART 3 EXECUTION

3.01 FACTORY TEST

A. The water booster system shall be tested with water at the manufacturer's factory for leaks in the pumps and piping, excessive vibration, correct operation of all electrical appurtenances, and to ensure that all of the pump controls are operating properly. These tests shall, as closely as shop conditions permit, simulate field design conditions as specified under OPERATING CONDITIONS. Pump shall be tested, to insure compliance with its published head-capacity curve and insure full pumping capability. As applicable, pump tests shall include motor running amperage checks, at the design conditions, shut-off and other points along the curve, insuring non-overloading performance and pump efficiency.

3.02 INSTALLATION

A. Installation of the water booster system shall be in accordance with the written instructions furnished by the manufacturer, and as recommend by the Engineer. In addition to the installation instructions, the manufacturer shall furnish six complete and detailed Operating Instructions, Service and Repair Sheets in a bound manual. This manual shall cover the initial start-up, operating procedures, maintenance and servicing procedures on the major component parts provided in the pump system. One manual shall be shipped with the system, the rest shall be sent direct.

3.03 START-UP

A. The manufacturer shall provide the services of a factory-trained representative for a maximum period of one day, to assist the contractor with the initial start-up of the pump system. It shall be the responsibility of the contractor to inform all parties of this initial start-up, and to insure their attendance. The manufacturer's representative shall instruct all personnel attending the start-up in the correct and required operation, maintenance and service procedures for the water booster system.

B. Without exception, the station manufacturer is directly responsible for station start-up and operator training. Third party contractors, agents or representatives are not to be allowed to start up the station nor the equipment therein. As such;

END OF SECTION

6.0 ATTACHMENTS

ATTACHMENT A
BID SUBMISSION FORM

Bid Submitted By and Authorized Signature: The individual's signature below constitutes that the person is an officer of the company who is authorized to contractually obligate the company listed below. They further constitute that they have read and agree to all instructions and specifications listed in this bid document unless otherwise marked and listed in the "exception to bid" section. The signature below also certifies that the entire bid document is in order and that all instructions, specifications, rules and regulations as stipulated by the McHenry County College will be adhered to and complied with.

Bid Amount $_____

Company:_____

Address:_____

FEIN:_____

Contact Person:_____
Name Phone Email

☐ The Owner/ Sole Proprietor ☐ Member of the Partnership ☐ Officer of the Corporation ☐ Member of the Joint Venture

☐ Women Owned ☐ Small Business ☐ Minority Owned ☐ Veteran Owned

Submitted by: _____ Title:_____

Authorized Signature: _____ Date:_____

ATTACHMENT B - CONTRACTOR CERTIFICATION

Illinois Revised Stature 1987
Chapter 38, Sections 33E-3 and 33E-4

The undersigned hereby certifies that it is not barred from bidding on this contract as a result of violation of either Section 33E-3 (bid rigging) or 33E-4 (bid rotating) of the Illinois Revised Statutes 1987, Chapter 38.

Under penalty of perjury, the undersigned Contractor certifies that this bid has not been arrived at collusively or otherwise in violation of Federal or Illinois antitrust laws.

Company Name:_____

*By:_____

Address:_____

* Must be actual signature in ink of a representative of Contractor authorized to legally commit the Contractor.

Section 33E-5(b) pertains to disclosure of information related to the terms of a bid and any bidder's responsiveness to a request for bids. Specifically, district officials or employees must not knowingly open a sealed bid at a time or place other than as specified by the district. Also, any official who knowingly discloses any information related to the terms of a sealed bid or any bidder's responsiveness to the request for bids commits a class 3 felony. This section does allow, however, that no violation occurs if any disclosure made to an interested person also is made generally available to the public. **CONSEQUENTLY, COLLEGES SHOULD BE CAUTIOUS NOT TO DISCLOSE ANY INFORMATION THAT IS NOT RELEASED TO THE PUBLIC.**

Section 33E-6 contains several provisions potentially impacting College purchasing procedures. **SPECIFICALLY, A PERSON COMMITS A CLASS 4 FELONY WHEN INFORMATION CONCERNING THE SPECIFICATIONS OF A CONTRACT IS KNOWINGLY CONVEYED TO A BIDDER OR PROSPECTIVE BIDDER OTHER THAN THROUGH THE BID INVITATION, PRE-BID CONFERENCE, OR CONTRACT SOLICITATION PROCEDURE.** Thus, once a IFB for a particular contract is released, MCC cannot respond to individual inquiries from bidders. Likewise, no information may be volunteered concerning potential Subcontractors if the contract involves subcontracting work.

ATTACHMENT C

CERTIFICATE OF COMPLIANCE WITH THE ILLINOIS PREVAILING WAGE LAW

Every eligible bidder and contractor/vendor shall comply with the employment section of Public Contracts provision of the Prevailing Wage Act, 820 ILCS 130/1, as amended.

McHenry County College District 528
8900 U.S. Highway 14
Crystal Lake, IL 60012

INSTRUCTIONS TO BIDDERS AND GENERAL CONDITIONS
Certificate of Compliance with the Illinois Prevailing Wage Law

This letter is to certify that_____
(name of company)

is in compliance with Section 39A9 of Chapter 48 of the Illinois Revised Statutes and all amendments pertaining to the payment of prevailing wages as established by the department of labor, to all laborers, workers, and mechanics performing work under this agreement/contract.

Company street address_____

City _____

County _____State_____Zip_____

Contact name _____contact phone_____

Sworn and subscribed to me on this _____day of_____, 20_____; before me, notary public

appointed in_____County for the state of Illinois.

_____ _____
Signature of Notary printed name

_____
Seal

_____ _____ _____
Commission expiration date city of residence county of residence

ATTACHMENT D

OSHA HAZARDOUS COMMUNICATION STANDARD

To Contractor:

The Occupational Safety & Health Administration (OSHA) Hazardous Communication Standard (29 CFR 1910.1200) states that contractors/suppliers must be informed of the hazardous chemicals their employees may be exposed to while performing their work and any appropriate protective measures. In order to comply with this requirement, McHenry County College has developed a list of all the hazardous chemicals known to be present in our facility. A Material Safety Data Sheet (MSDS/SDS) is also on file for each of these chemicals and/or hazardous substances. This information is available to you and to your employees upon request.

In order to protect the safety and health of our own employees as well as the employees of contractors/suppliers, contractor/suppliers must maintain and provide, upon request, an MSDS/SDS on any hazardous chemical(s) or material(s) which they bring to the facility. Failure to maintain an MSDS/SDS and provide this information in a timely manner will result in the removal of the contractor/supplier from the premises.

Each employer is also responsible for notifying any subcontractor they employ regarding the requirements of OSHA's Hazard Communication Standard and other provisions described in this letter.

ATTACHMENT E - EXCEPTIONS TO BID

(PLEASE LIST BELOW, ATTACH SHEETS IF NECESSARY): Any exceptions, variations, or clarifications to the Specifications must be set forth on this form and included with the Bid Proposal Form. These exceptions must be spelled out in detail, numbered, and make reference to exact page number for easy comparison.

Failure of the bidder to note on this form any and all exceptions to any portion of the specifications, means that the bidder must meet or exceed in all respects any and all specifications not so noted.

Failure to denote exceptions in the above manner may be cause for rejection of the entire bid.

_____

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ATTACHMENT F - REFERRAL LIST

List at least four companies, schools preferred, to whom your company has sold and installed comparable products within the last three years.

1. NAME: _____
   ORGANIZATION: _____
   ADDRESS: _____
   PHONE/EMAIL: _____

2. NAME: _____
   ORGANIZATION: _____
   ADDRESS: _____
   PHONE/EMAIL: _____

3. NAME: _____
   ORGANIZATION: _____
   ADDRESS: _____
   PHONE/EMAIL: _____

4. NAME: _____
   ORGANIZATION: _____
   ADDRESS: _____
   PHONE/EMAIL: _____

ATTACHMENT G – W9 FORM

(new vendors only)

Form **W-9**
(Rev. January 2011)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)

Business name/disregarded entity name, if different from above

Check appropriate box for federal tax classification (required): ☐ Individual/sole proprietor ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ►

☐ Exempt payee

☐ Other (see instructions) ►

Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number

___ – ___ – ____

Employer identification number

__ – _____

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here **Signature of U.S. person** ► **Date** ►

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

Cat. No. 10231X — Form **W-9** (Rev. 1-2011)