



Contract Documents & Specifications

for

Payson City

439 W. Utah Ave, Payson, Utah 84651

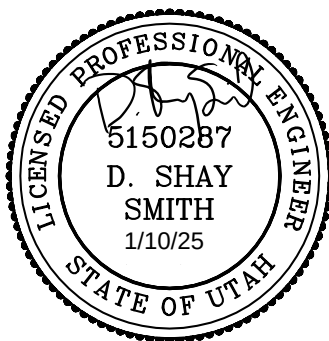
Booster Pump Station

January 2025

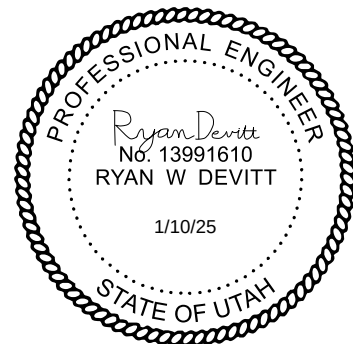
Prepared by:



3160 Club House Dr
Lehi, Utah 84043



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Project Manager



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Project Engineer

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BID DOCUMENTS

ADVERTISEMENT FOR BID

Payson City will receive sealed bids for the construction of the **Booster Pump Station**. All bids will be received until **2:00 pm, MST** (local time) at **Payson City**, located at **439 W. Utah Ave, Payson, Utah 84651** on **February 13, 2025** at which time and place all bids received will be publicly opened and read aloud.

The Work to be performed under this project shall consist of furnishing all labor, materials and equipment required to construct the facilities and features called for by the Contract Documents and as shown on the Construction Drawings.

The project consists of the construction a new CMU booster pump station building including a booster pump skid, gas chlorine injection, 10" water pipeline, concrete flatwork around building, site grading, demolishing the old building, and extending the asphalt driveway to the building.

Contact **Civil Science, Inc.** at their office at 3160 Club House Dr., Lehi UT 84043, or by telephone **(801) 768-7200** for an electronic copy of the Plans, Contract Documents, and Specifications at no cost. The ENGINEER for this Project will be Civil Science, Inc. and will be represented by Ryan Devitt, P.E. as project Engineer.

Any notices regarding changes / Addenda to the Contract Documents will be sent to the email addresses associated with the Bidders registration. Bidders are responsible to maintain accurate contact information and check-in with ENGINEER to receive updates or additional information.

A pre-bid conference will be held on **February 4, 2025** at **2:00 PM, MST** (local time). Pre-bid conference will preside at the **Payson City Offices at 439 W. Utah Ave, Payson, Utah 84651**. Attendance at the pre-bid conference is encouraged but is not mandatory.

Bid Security shall be furnished in accordance with the Instructions to Bidders.

INSTRUCTIONS TO BIDDERS

ARTICLE 1. BIDDING DOCUMENTS.

Complete sets of Bidding Documents may be obtained from the ENGINEER as designated in the Advertisement for Bid. Complete sets of Contract Documents shall be used for preparing Bids. Neither the OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

Each Bid must be submitted in a sealed envelope, addressed to **Payson City, 439 W. Utah Ave, Payson, Utah 84651.** Each sealed envelope containing a Bid must be plainly marked on the outside as Bid for **Payson City, Booster Pump Station** and the envelope should bear on the outside, the name of the Bidder, his address, his license number (if applicable) and the name of the Project for which the Bid is submitted. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the OWNER at **439 W. Utah Ave, Payson, Utah 84651.**

All Bids must be made on the required Bid form. All blank spaces for Bid prices must be filled in, in ink or typewritten, and the Bid form must be fully completed and executed when submitted. Only one copy of the Bid form is required.

Any Bid may be withdrawn prior to the scheduled time for the opening of Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a Bid within 60 days after the date of the Bid opening. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the Bidder.

Bidders must satisfy themselves of the amount of required Work and materials by examination of the site and review of the Contract Documents including Drawings, Specifications and Addenda. The OWNER shall provide to Bidders prior to bidding, all information which is pertinent to, and delineates and describes the land owned and right-of-way acquired or to be acquired.

After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities or Work or of the nature of the Work to be done. Any request for interpretation of Addenda shall be made in writing.

Each Bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to his Bid.

A conditional or qualified Bid will not be accepted.

ARTICLE 2. BONDING REQUIREMENTS.

The Contract Documents contain the provisions required for the construction of the Project. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the Contract.

Each Bid must be accompanied by a Bid Bond payable to the OWNER for five percent of the total amount of the Bid. As soon as the Bid prices have been compared, the OWNER will return the Bonds of all except the three lowest responsible, responsive Bidders. When the Agreement is executed, the bonds of the two remaining unsuccessful Bidders will be returned. The Bid Bond of the successful Bidder will be retained until the Payment Bond and Performance Bond have been executed and approved, after which it will be returned. A certified check may be used in lieu of a Bid Bond.

A Performance Bond and a Payment Bond, each in the amount of 100 percent of the Contract Price, with a corporate surety approved by the OWNER, will be required for the faithful performance of the Contract.

Attorneys-in-fact who sign Bid Bonds or Payment Bonds and Performance Bonds must file with each Bond a certified and effective dated copy of their power of attorney.

ARTICLE 3. AWARDING THE CONTRACT.

The OWNER may waive any informalities or minor defects or reject any and all Bids.

This Work will be constructed by award of a competitive, sealed bid Contract awarded to the lowest responsible, responsive bidder. Compensation to the CONTRACTOR will be made through progressive monthly payments in accordance with the General Conditions of these Contract Documents at the units and prices indicated in the Bid Schedule.

All Bids will be checked for errors. If errors are made, unit prices shall govern and corrections will be made according to the unit price or lump sum amounts and totals will be revised to reflect the corrections.

The party to whom the Contract is awarded will be required to execute the Agreement and obtain the Performance Bond and Payment Bond, when required, within ten (10) calendar days from the date when the Notice of Intent to Award is delivered to the Bidder. The Notice of Intent to Award shall be accompanied by the necessary Agreement and Bond forms. In case of failure of the Bidder to execute the Agreement, the OWNER may, at their option, consider the Bidder in default, in which case the Bid Bond accompanying the proposal shall become the property of the OWNER.

Within ten (10) days of receipt of the Agreement signed properly by the party to whom the Contract was awarded, and accompanied by acceptable Performance and Payment Bonds, when required, the OWNER shall sign the Agreement and return to the Bidder an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the Bidder may by *written notice* withdraw their signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The Notice to Proceed shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the Notice to Proceed has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as deemed necessary to determine the ability of the Bidder to perform the Work and the Bidder shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the OWNER that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the Work contemplated therein.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout.

BIDDERS GENERAL INFORMATION

To demonstrate Bidders qualifications to perform the Work, Bidder shall submit written evidence establishing its qualifications with their sealed Bid. Attach additional sheets as required to completely fill out the required information. Failure to complete any item, or failure to completely and truthfully provide the requested information, shall constitute grounds for the Bid to be considered non-responsive and to cause its rejection.

A) CONTRACTOR's Name and Address:

B) CONTRACTOR's Telephone Number:

C) CONTRACTOR's Email Address:

D) CONTRACTOR's Licenses Primary Classification:

☐ B100 ☐ E100 ☐ Other:

State License No. and Expiration Date (Attach a Copy):

Specialty Classifications Held, if any (Attach a Copy):

CONTRACTOR must obtain the following licenses:

1. Current Payson City business license (attach a copy)
2. Any other licenses required by the State of Utah (attach a copy)

E) Work in Progress (WIP) Limit: \$_____ Current Status of WIP: \$_____

F) Provide list of projects completed by the CONTRACTOR during the last 5 years involving work of similar type and complexity. The list shall include the following information as a minimum:

- a) Name, location and brief description of the project and work involved.
- b) Contract amount
- c) Contract date for completion
- d) Date of actual completion – reason for delay, if any.
- e) Names, address, and telephone number of owner and architect or engineer.
- f) List of CONTRACTORs key personnel including position and responsibilities.
- g) Description of work previously performed on similar type and complexity of project (for each individual).
- h) State your involvement in any litigation arising out of the project, if any.
- i) Status of current litigation, if any, associated with any project.

G) List of Subcontractors

H) List of Suppliers

Only a qualified CONTRACTOR with qualified personnel will be considered for award of the Contract. Qualification will be at the sole discretion of Payson City. A Bidders failure to submit required qualification information may disqualify Bidder from receiving an award of the Contract.

No requirement in this Bidders General Information to submit information will prejudice the right of OWNER to seek additional pertinent information regarding Bidders qualifications and experience.

BID FORM

Project: **Booster Pump Station**

Date: _____

Proposal of _____ (hereinafter called "Bidder"), organized and existing under the laws of the State of Utah, doing business as a _____ to **Payson City**, (hereinafter called "OWNER").

In compliance with the Advertisement for Bids. Bidder hereby proposes to perform all Work for the construction of the **Booster Pump Station** in strict accordance with the Contract Documents, within the time set forth therein, and at the price stated below and in the Bid Schedule.

By submission of this Bid, each Bidder certified, and in the case of a joint Bid, each party thereto certified as to his own organization, that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.

Bidder hereby agrees to commence Work under this Agreement on or before a date to be specified in the Notice to Proceed and to fully complete the Project within **150** consecutive calendar days thereafter.

Bidder further agrees to pay as liquidation damages, the sum of **\$1,000.00** for each consecutive calendar day thereafter as provided in the Agreement Documents.

Bidder acknowledges receipts of the following Addenda:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

The Bidder agrees that this Bid shall be good and may not be withdrawn for 60 calendar days after the scheduled closing time for receiving Bids. The above prices shall include all labor, materials, bailing, shorting, removal, overhead, profit, insurance, sales tax, other applicable taxes and fees, etc., to cover the finished Work of the several kinds called for.

BID SCHEDULE

Bidder agrees to perform all the Work described in the Contract Documents for the following unit or lump sum prices.

Bidder will complete the Work in accordance with the Contract Documents for the following unit prices. Quantities indicated are not guaranteed; they are solely for comparing Bids and establishing the initial Contract Price. Final payment will be based on actual quantities.

All Bids will be checked for errors. If errors are made, unit prices shall govern and corrections will be made according to the unit price or lump sum amounts and totals will be revised to reflect the corrections.

Standard Units of Measurement:

EA = Each LS = Lump Sum SF = Square Feet SY = Square Yard AC = Acre
LF = Linear Feet CY = Cubic Yard TON = Ton GAL = Gallon DAY = Day HR = Hour

BASE BID SCHEDULE

BID ITEM	PAYMENT REFERENCE	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
1	01 71 13	Mobilization & Demobilization	1	LS	\$	\$
2	01 78 39	Project Record Documents	1	LS	\$	\$
3	01 57 00	Temporary Controls	1	LS	\$	\$
4	01 45 00	Quality Control & Testing	1	LS	\$	\$
5	01 71 23	Construction Layout & Staking	1	LS	\$	\$
6	02 41 14	Remove existing asphalt pavement	52	SF	\$	\$
7	02 41 13	Remove existing concrete post footing	1	EA	\$	\$
8	02 41 19	Remove existing building w/ basement	1	LS	\$	\$
9	31 23 16	Excavation & Earthwork	1	LS	\$	\$
10	31 37 00	Riprap D50=6" (12" thick)	5	SY	\$	\$
11	33 05 05 33 08 00	24" Hot Tapping Sleeve w/ 10" Branch	1	EA	\$	\$
12	33 05 05 33 08 00	10" Hot Tapping Sleeve w/ 10" Branch	1	EA	\$	\$
13	33 12 16	10" Gate Valve	3	EA	\$	\$

14	33 05 07	10" PVC C900 Waterline	310	LF	\$	\$
15	33 05 06	1" PE Chlorination Injection Line	59	LF	\$	\$
16	33 05 06	1" Tapping Saddle w/ Injection Quill	2	EA	\$	\$
17	32 12 16.13 32 11 23	3" Hot Mix Asphalt Pavement w/ 8" Base	280	SF	\$	\$
18	32 16 13 32 11 23	4" Concrete Sidewalk w/ Base (Bldg Apron)	240	SF	\$	\$
19	32 11 23 31 05 19	6" Untreated Base Course w/ Fabric (Bldg Apron)	274	SF	\$	\$
20	04 22 00	28'x15' CMU Pump Building	1	LS	\$	\$
21	22 11 23 S	1200 GPM In-Line Booster Pump Skid	1	LS	\$	\$
22	Division 33	Misc. Booster Pump Equipment, Pipe, Fittings, Valves, Meter, Etc.	1	LS	\$	\$
23	Division 26	Site Electrical	1	LS	\$	\$
	TOTAL AMOUNT					\$

Bidder certifies and acknowledges that:

- a) This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- b) Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- c) Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- d) Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract.
- e) Each Bid Unit Price includes an amount considered by Bidder to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.
- f) The low Bid shall be considered to be that Bid which has the lowest total cost of the possible combinations of the base bid items that meet the construction budget. The OWNER reserves the right to remove bid items, as necessary, to meet the construction budget.

Respectfully Submitted:

Business Name: _____

Seal (if Bid is by Corporation)

Business Address: _____

Representative Name: _____

Signature: _____

Title: _____ Attest Signature: _____

Date: _____ Attest Name: _____

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of CONTRACTOR)

(Address of CONTRACTOR)

a _____ (Corporation, Partnership, or Individual) hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of OWNER)

(Address of OWNER)

hereinafter called OWNER, in the penal sum of _____ Dollars, (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such, that whereas the Principal has submitted the accompanying Bid, dated _____, 20____, to said OWNER to perform the Work required under the Bid Schedule(s) of the OWNER's Contract Documents entitled:

Booster Pump Station

Now, therefore, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the local public agency in accordance with the Bid as accepted, and give bond with good and sufficient Surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such Bond within the time specified, if the Principal shall pay the difference between the amount specified in said Bid and the amount for which the local public agency may procure the required Work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

CONTRACTOR AS PRINCIPAL

SURETY

_____(Seal)
(Name of CONTRACTOR and Corporate Seal)

By: _____
(Signature, CONTRACTOR)

(Print Name)

(Title)

Attest: _____
(Signature)

(Title)

_____(Seal)
(Name of Surety and Corporate Seal)

By: _____
(Signature, Power of attorney)

(Print Name)

(Title)

Attest: _____
(Signature)

(Title)

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

Forms of Bid Bonds prepared to meet the requirements of local or State laws or the needs of the Local Public Agency should be substituted for this form where necessary.

AGREEMENT DOCUMENTS

NOTICE OF INTENT TO AWARD

TO: _____

Project: **Booster Pump Station**

The OWNER has considered the Bid submitted by you for the above described Work in response to its Advertisement for Bids called: **Booster Pump Station**

You are hereby notified that your Bid has been accepted for items in the amount of:

\$ _____ .

You are required to return an acknowledged copy of this Notice of Intent to Award to the OWNER.

Dated this _____ day of _____, 20____.

OWNER: **Payson City** _____

By: _____

Title: _____

ACCEPTANCE OF AWARD

Receipt of the above Notice of Intent to Award is hereby acknowledged on

this _____ day of _____, 20____.

By: _____

Title: _____

AGREEMENT

This Agreement made this _____ day of _____, 20____, by and between **Payson City** hereinafter called "OWNER" and _____ hereinafter called "CONTRACTOR".

OWNER AND CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK

The CONTRACTOR shall complete the Work as specified or indicated in the OWNER'S Contract Documents for **Booster Pump Station**.

ARTICLE 2. CONTRACTOR

The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.

ARTICLE 3. CONTRACT TIMES

The CONTRACTOR will complete the Work required by the Contract Documents within **150 days** after Notice to Proceed is given unless the period for completion is extended otherwise by the Contract Documents.

ARTICLE 4. LIQUIDATED DAMAGES

OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the Work is not completed within the time specified in Article 3 herein, plus extensions thereof allowed in accordance with the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual loss suffered by the OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, the OWNER and the CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the OWNER **\$1,000.00** for each day that expires after the time specified in Article 3 herein for both Substantial and Final Acceptance.

ARTICLE 4. CONTRACT PRICE

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds the amount set forth in the Bid Schedule(s) for the sum of \$ _____. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

ARTICLE 5. PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with the General Conditions. Applications for Payment will be processed by OWNER/ENGINEER as provided in the General Conditions.

Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as OWNER may withhold, including but not limited to liquidated damages, in accordance with the Contract

95 percent of Work completed (with the balance being retainage); and 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

Upon Final Acceptance of the Work in accordance of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided.

ARTICLE 6. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consists of this Agreement and the following:

Bid Documents

- A) Advertisement for Bid
- B) Instructions to Bidders
- C) Bidders General Information
- D) Bid Form
- E) Bid Schedule
- F) Bid Bond
- G) Measurement & Payment

Agreement Documents

- A) Notice of Intent to Award
- B) Agreement
- C) Notice to Proceed
- D) Performance Bond
- E) Payment Bond
- F) Contractor's Applications for Payment
- G) Notice of Substantial Completion
- H) Notice of Final Acceptance
- I) Work Directive Change
- J) Change Order
- K) Addenda:
 - a) Addendum No. _____ Dated _____
 - b) Addendum No. _____ Dated _____

General Conditions

- A) APWA Manual of Standard Specifications, 2017 Edition, As Amended

Standard Specifications & Plans

- A) APWA Manual of Standard Specifications, 2017 Edition, As Amended
- B) Payson City Development Guidelines Adopted 09-06-2023

Construction Drawings

A) Prepared by Civil Science, Inc. dated December, 2024

Special Provisions

- A) 00 73 00 S Supplementary Conditions
- B) 01 11 00 S Summary of Work
- C) 01 29 00 S Measurement and Payment Procedures
- D) 22 11 23 S Close-Coupled or Vertical Multistage VFD Water Booster System

ARTICLE 7. ASSIGNMENT

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

OWNER**CONTRACTOR**

_____(Seal)
(Name of OWNER and Corporate Seal)

_____(Seal)
(Name of CONTRACTOR and Corporate Seal)

By: _____
(Signature, OWNER)

By: _____
(Signature, CONTRACTOR)

(Print Name)

(Print Name)

(Title)

(Title)

Attest: _____
(Signature)

Attest: _____
(Signature)

(Title)

(Title)

NOTICE TO PROCEED

TO: _____

Project DESCRIPTION: **Booster Pump Station**

In accordance with the Agreement dated _____, 20____, you are hereby notified to commence Work on or before _____, 20____, and you are to complete the Work within **150** consecutive calendar days thereafter.

The date for completion of the Project is therefore _____, 20____.

OWNER: **Payson City** _____

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged on
this _____ day of _____, 20____.

By: _____

Title: _____

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of CONTRACTOR)

(Address of CONTRACTOR)

a _____(Corporation, Partnership, or Individual) hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of OWNER)

(Address of OWNER)

hereinafter called OWNER, in the penal sum of _____Dollars, (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that whereas, the Principal entered into a certain Contract with the OWNER, dated the ____ day of _____, 20 ____, copy of which is hereto attached and made apart hereof for the construction for **Booster Pump Station**.

Now, therefore, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said Agreement during the original term thereof, and any extensions thereof which may be granted by the OWNER with or without notice to the Surety and during the one year guaranty period; and if the Principal shall satisfy all claims and demand incurred under such Contract; and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so; and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default; then this obligation shall be void, otherwise to remain in full force and effect.

Provided, that the said Surety, for value received hereby stipulates and agrees that no change, extension or time, alteration or addition to the terms of the Agreement or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Bond; and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement or to the Work or to the Specifications.

Provided further, that it is expressly agreed that this Bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto; upon amendment to the Agreement not increasing the Contract Price more than 20 percent, so as to bind the Principal and the Surety to the full and faithful performance of the

Agreement as amended. The term "Amendment"; wherever used in this Bond and whether referring to this Bond, the Agreement or the Loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

Provided further, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied. The OWNER is the only beneficiary hereunder.

In witness whereof, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this _____ day of _____, 20____.

CONTRACTOR AS PRINCIPAL

SURETY

_____(Seal)
(Name of CONTRACTOR and Corporate Seal)

_____(Seal)
(Name of Surety and Corporate Seal)

By: _____
(Signature, CONTRACTOR)

By: _____
(Signature, Power of attorney)

(Print Name)

(Print Name)

(Title)

(Title)

Attest: _____
(Signature)

Attest: _____
(Signature)

(Title)

(Title)

PLEASE NOTE:

1. Date of Bond must not be prior to date of Agreement.
2. If CONTRACTOR is partnership, all partners should execute Bond.
3. Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.
4. Use of this form as an instrument of Surety for this project is not mandatory. Use of other forms normally deemed acceptable in the State wherein the project is located may be allowed.

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of CONTRACTOR)

(Address of CONTRACTOR)

a _____(Corporation, Partnership, or Individual) hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of OWNER)

(Address of OWNER)

hereinafter called OWNER, in the penal sum of _____Dollars, (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that whereas, the Principal entered into a certain Contract with the OWNER, dated the ____ day of _____, 20 ____, a copy of which is hereto attached and made apart hereof for the construction for **Booster Pump Station**.

Now, therefore, if the PRINCIPAL shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said Agreement during the original term thereof, and any extensions thereof which may be granted by the OWNER with or without notice to the Surety and during the one year guaranty period; and if the PRINCIPAL shall satisfy all claims and demand incurred under such Contract; and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so; and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default; then this obligation shall be void, otherwise to remain in full force and effect.

Provided, that the said Surety, for value received hereby stipulates and agrees that no change, extension or time, alteration or addition to the terms of the Agreement or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Bond; and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement or to the Work or to the Specifications.

Provided further, that it is expressly agreed that this Bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto; upon amendment to the Agreement not increasing the Contract price more than 20 percent, so as to bind the Principal and the Surety to the full and faithful performance of the

Agreement as amended. The term "Amendment"; wherever used in this Bond and whether referring to this Bond, the Agreement or the Loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

Provided further, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied. The OWNER is the only beneficiary hereunder.

In witness whereof, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this _____ day of _____, 20____.

CONTRACTOR AS PRINCIPAL

SURETY

_____(Seal)
(Name of CONTRACTOR and Corporate Seal)

_____(Seal)
(Name of Surety and Corporate Seal)

By: _____
(Signature, CONTRACTOR)

By: _____
(Signature, Power of attorney)

(Print Name)

(Print Name)

(Title)

(Title)

Attest: _____
(Signature)

Attest: _____
(Signature)

(Title)

(Title)

PLEASE NOTE:

1. Date of Bond must not be prior to date of Agreement.
2. If CONTRACTOR is partnership, all partners should execute Bond.
3. Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.
4. Use of this form as an instrument of Surety for this project is not mandatory. Use of other forms normally deemed acceptable in the State wherein the project is located may be allowed.

CONTRACTOR'S APPLICATION FOR PAYMENT

		Payment No.	
		Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer):	
Project:	Contract:		
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:	

Application For Payment

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE..... \$ _____
2. Net change by Change Orders..... \$ _____
3. Current Contract Price (Line 1 ± 2)..... \$ _____
4. TOTAL COMPLETED AND STORED TO DATE
(Column F total on Progress Estimates)..... \$ _____
5. RETAINAGE:
 - a. ☒ Work Completed.. \$ _____
 - b. ☒ Stored Material.... \$ _____
 - c. Total Retainage (Line 5.a + Line 5.b)..... \$ _____
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)..... \$ _____
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)..... \$ _____
8. AMOUNT DUE THIS APPLICATION..... \$ _____
9. BALANCE TO FINISH, PLUS RETAINAGE
(Column G total on Progress Estimates + Line 5.c above)..... \$ _____

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest,

Contractor Signature

By:	Date:
-----	-------

Payment of: \$ _____
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____
(Engineer) (Date)

Payment of: \$ _____
(Line 8 or other - attach explanation of the other amount)

is approved by: _____
(Owner) (Date)

Approved by: _____
Funding or Financing Entity (if applicable) (Date)

NOTICE OF SUBSTANTIAL COMPLETION

Date: _____

Project: **Booster Pump Station**

OWNER: **Payson City**

CONTRACTOR: _____

The Work to which this Contract applies has been inspected by authorized representatives of OWNER, CONTRACTOR, and ENGINEER, and found to be substantially complete. The date of Substantial Completion of the Work or portion thereof designated below is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon OWNER's use or occupancy of the Work shall be as provided in the Agreement.

OWNER: **Payson City**

By: _____

Title: _____

ACKNOWLEDGEMENT OF SUBSTANTIAL COMPLETION

Receipt of the above notice is hereby acknowledged on

this _____ day of _____, 20____.

By: _____

Title: _____

NOTICE OF FINAL ACCEPTANCE

Date: _____

Project: **Booster Pump Station**

OWNER: **Payson City**

CONTRACTOR: _____

All obligations and items required under this Agreement for Final Acceptance have been fulfilled based on the final inspection of the specified Work. All known Work has been documented and approved to best of the OWNER's knowledge. The Work under Contract has been performed and completed in accordance with all Contract Documents, Drawings, Specifications, etc. Final payment owed to CONTRACTOR for Work performed shall be requested and distributed following the request.

OWNER: **Payson City**

By: _____

Title: _____

ACKNOWLEDGEMENT OF FINAL ACCEPTANCE

Receipt of the above notice is hereby acknowledged on

this _____ day of _____, 20____.

By: _____

Title: _____

WORK CHANGE DIRECTIVE

Date: _____

Project: Booster Pump Station

OWNER: Payson City

ENGINEER: _____

CONTRACTOR: _____

CONTRACTOR is hereby direct to proceed promptly with the following change(s):

Attachments (Supporting Data, Evaluation of Cost Data):

Purpose for Work Change Directive:

OWNER

CONTRACTOR

By: _____
(Signature, OWNER, Date)

(Print Name)

(Title)

By: _____
(Signature, CONTRACTOR, Date)

(Print Name)

(Title)

CHANGE ORDER

Date: _____

Change Order No: _____

Project: **Booster Pump Station**

ENGINEER: _____

OWNER: **Payson City**

CONTRACTOR: _____

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments:

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES
Original Contract Price: \$ _____	Original Contract Times: _____ Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. _ to No. _: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. _ to No. _: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

OWNER

By: _____
(Signature, OWNER)

(Print Name)

(Title, Date)

ENGINEER

By: _____
(Signature, ENGINEER)

(Print Name)

(Title, Date)

CONTRACTOR

By: _____
(Signature, CONTRACTOR)

(Print Name)

(Title, Date)

GENERAL CONDITIONS

APWA Manual of Standard Specifications, 2017 Edition, As Amended

STANDARD SPECIFICATIONS & PLANS

APWA Manual of Standard Specifications, 2017 Edition, As Amended

APWA Manual of Standard Plans, 2017 Edition, As Amended

Payson City Development Guidelines Adopted 09-06-2023

SPECIAL PROVISIONS

00 73 00 S Supplementary Conditions

01 11 00 S Summary of Work

01 29 00 S Measurement and Payment Procedures

22 11 23 S Close-Coupled or Vertical Multistage VFD Water Booster System

SECTION 00 73 00S
SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.1 EXISTING STRUCTURES

- A. No drawings of record were used to identify surface or subsurface structures in preparing the Construction Drawings or Contract Documents. CONTRACTOR is responsible to locate and verify all existing utilities shown in the Construction Drawings.

1.2 BONDS

- A. Bonding requires are discussed as part of these Contract Documents and include Performance, Payment, and Bid bonds.

1.3 INSURANCE

- A. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.
- B. The limits of liability for the insurance required shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
1. Workers' Compensation, and related coverages:
 - a. State: Statutory
 - b. Federal, if applicable
(e.g., Longshoreman's): Statutory
 - c. Employer's Liability: \$ 500,000
 2. Contractor's Commercial General Liability which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:
 - a. General Aggregate \$2,000,000
 - b. Products - Completed
Operations Aggregate \$1,000,000
 - c. Personal and Advertising
Injury \$1,000,000
 - d. Each Occurrence
(Bodily Injury and Property Damage) \$1,000,000
 - e. Property Damage liability insurance will provide
Explosion, Collapse, and Under-ground coverages
where applicable.
 - f. Excess or Umbrella Liability
 1. General Aggregate \$3,000,000
 2. Each Occurrence \$3,000,000

3. Automobile Liability:
 - a. Bodily Injury:

Each person	<u>\$1,000,000</u>
Each Accident	<u>\$1,000,000</u>
 - b. Property Damage:

Each Accident	<u>\$1,000,000</u>
---------------	--------------------
 - c. Combined Single Limit of \$1,000,000
4. The Contractual Liability coverage required for not less than the following amounts:
 - a. Bodily Injury:

Each person	<u>\$2,000,000</u>
Each Accident	<u>\$2,000,000</u>
 - b. Property Damage:

Each Accident	<u>\$2,000,000</u>
Annual Aggregate	<u>\$2,000,000</u>
5. Other Persons or Entities to be included on policy as additional insureds:
 - a. Payson City
 - b. Civil Science Infrastructure, Inc.

1.4 COORDINATING AGENT

- A. The Coordinating Agent for the OWNER of other work to be performed at this Project site shall be:
 1. Cameron Phillips – Water Superintendent, Payson City

1.5 PAYMENT RETAINER

- A. Retainage on payment applications is defined in Article 5 of the Construction Contract and is set at 5% of the total Contract Price.

END OF SECTION

SECTION 01 11 00 S SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Provide all labor equipment, materials, and services for the performance of the Work required by these Contract Documents (Drawings, Specifications, e.g.)
- B. This project consists of the construction a new CMU booster pump station building including a booster pump skid, gas chlorine injection, 10" water pipeline, concrete flatwork around building, site grading, demolishing the old building, and extending the asphalt driveway to the building.

1.2 STANDARD SPECIFICATIONS & PLANS

- A. The APWA Manual of Standard Specifications & Plans, 2017 Edition, As Amended shall govern the administration and construction of this Contract, except as modified or specified in the Contract Documents and/or Construction Drawings.
- B. It is the CONTRACTOR's responsibility to purchase and obtain copies of the APWA Manual of Standard Specifications & Plans, 2017 Edition, As Amended.
- C. The CONTRACTOR shall have a copy of these Standard Specifications & Plans, as well as the Contract Documents and Construction Drawings, at the job site at all times.
- D. The governing rankings in case of a discrepancy is:

<u>Dimensions</u>	<u>Information</u>
1. Plan	1. Special Provisions (S), Modifications (M)
2. Calculated	2. Plans
3. Scaled	3. APWA Standard Specifications
	4. APWA Standard Drawings

- E. Each Bid Item in the Bid Schedule is identified with a specification reference by a number and name.

- 1. The first six digits of a Bid Item are the section number of the technical specification that defines the work or a portion of the work for that Bid Item
- 2. The last character of a Bid Item at the end of the six digits signifies whether something is new or modified.
 - a) No character indicates a standard Bid Item and reference.
 - b) The letter "S" at the end of the six digits indicates that the Bid Item is supported by a new Special Provision Specification directly related to the Project.

- c) The letter “M” at the end of the six digits indicates the Bid Item is supported by a modified Standard Specification directly related to the Project.

1.3 INTENT OF DOCUMENTS

- A. Construction Documents do not purport to describe each and every condition which may be encountered during construction.
- B. Documents are intended to describe, in general, the extent, type and quality of construction.
- C. Incorporate into the Work, products indicated or specified in accordance with requirements and/or recommendations of the respective manufacturers. Any additional materials and work required to meet such requirements or recommendations shall be deemed to be part of this Contract.

1.4 WORK BY OTHERS

- A. The CONTRACTOR has the responsibility for coordinating activities among the sub-contractors. The OWNER intends on having only one prime contractor.
- B. Coordinate construction efforts as may be reasonably possible. Entities involved during construction may include, but are not limited to: Delco Western (Chlorination), SKM Engineering (SCADA), Utah Department of Drinking Water, Payson City, etc.

1.5 WORK SEQUENCE

- A. Work sequence to be determined by CONTRACTOR.
- B. Traffic interruption is to be avoided as much as possible, if interruption is necessary, it must be coordinated with the ENGINEER and OWNER throughout the duration of the Project. Temporary controls are to be in place and utilized for new construction.

1.6 CONTRACTOR USE OF PREMISES

- A. Night and Weekend Work
 - 1. Night work between 7:00 pm and 7:00 am will not be permitted without prior written permission from the ENGINEER.
 - 2. The Contract shall provide a minimum of 7 calendar day notice prior to performing weekend work. Weekend work will only be permitted upon approval from the City's representative after proper notice has been submitted by CONTRACTOR.
 - 3. The project may have inspection by the OWNER with periodic oversight from the ENGINEER. The CONTRACTOR shall coordinate with the ENGINEER for any substantial changes in the work week or overtime work prior to initiating the work so that representation is on-site during the construction activities.
- B. Holiday and Event Work
 - 1. All roads are to be opened to public during Utah Public Holidays.
 - a) When holidays fall on a Monday or Tuesday, roads are to be opened on Friday prior at 12PM through the holiday.

- b) When holidays fall on Thursday, roads shall remain open from Thursday to Sunday.

C. General Limitations

1. Do not disturb or damage any existing features located outside the project limits that are displayed in the plans. Limit any disturbance within project limits to keep native landscape.
2. Maintain and coordinate all mail delivery and waste management services along the project corridor with adjacent property owners throughout the duration of construction.
3. Provide a water truck with a minimum capacity of 1,000 gallons for use at all times on the project as part of the temporary controls bid item for Dust Control and Watering. Apply water for dust control at regular intervals each day (2 applications/day minimum) in order to minimize fugitive dust. Apply water more frequently as directed by the City Representative or ENGINEER. Wetting of construction materials may be accomplished using the same equipment used for dust control but dust control and site watering will take priority over material processing.

1.7 NON-PAYMENT ITEMS

- A. The CONTRACTOR shall not be paid for the following items. The costs associated with these items should be included in the unit prices for other items on the Bid Schedule.
1. All materials, labor and equipment required to excavate, uncover, remove, replace, or reconstruct any facility or improvement that was not properly inspected and tested at the time of installation as required by these specifications.
 2. All construction watering, dust control and temporary control costs.
 3. All items required to be finished on the substantial completion inspection or final inspection "Punch List"
 4. All removal and replacement of concrete, road base or bituminous materials required due to faulty materials or workmanship.
 5. All over excavation required due to errors or other judgmental decisions and assumptions on the part of the CONTRACTOR.
 6. Repairs to any existing utilities including power lines, water laterals, irrigation lines, irrigation ditches, and culverts.
 7. Damage to public or other physical facilities resulting from the CONTRACTOR's negligence or construction operations, etc.
 8. Restoration of existing surface improvements.
 9. Coordination and scheduling delivery of the construction materials with material suppliers and inspection of the materials upon delivery.

- 10. All costs associated with the removal and replacement of materials that are unable to meet testing or warranty requirements. This includes, but is not limited to, excavation, disposal, replacement, shipping and installation costs.
- 11. The CONTRACTOR shall investigate the location and depth of existing utilities where trenching for the installation of conduit and storm drain lines. Potholing will not be paid for as a separate item unless requested by OWNER but is considered incidental to the installation of the utility. Any costs for potholing shall be included in the unit price bid for the specific item.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 29 00 S
MEASUREMENT & PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Measurement and payment procedures, forms, submission requirements, and price adjustments.

1.2 SUBMITTAL PROCEDURES

- A. Submit at least two copies of each Application for Payment. Each application must be signed by CONTRACTOR.
- B. Submit an updated progress schedule with each Application for Payment.
- C. When ENGINEER requires substantiating information, submit data.

1.3 UNIT PRICE PAY REQUEST FORMS

- A. **Application Form:** ENGINEER prepared or one acceptable to the ENGINEER.
- B. **Schedule of Prices:** ENGINEER prepared or one acceptable to the ENGINEER.

1.4 LUMP SUM PAY REQUEST FORMS

- A. **Application Form:** Use AIA Form G702 – Application and Certificate for Payment; or AIA G722 – Project Application and Project Certificate for Payment; or EJCDC Form 1910-8-E – Application for Payment; or CONTRACTOR’s standard form; or electronic media printout following one of the above standard forms.
- B. **Schedule of Values Form:** Use AIA Form G703 – Application and Certificate for Payment Continuation Sheet and AIA G723 – Project Application Summary, or EJCDC Form 1918-8-E, or CONTRACTOR’s standard form, or electronic media printout following one of the above standard forms. Follow the outline presented in the Bid form. For each item, provide a column (or row) for listing each of the following:
 - 1. Item number.
 - 2. Description of work.
 - 3. Scheduled values.
 - 4. Previous applications.
 - 5. Work in plan and stored materials under this application.
 - 6. Authorized Change Orders.
 - 7. Total completed and stored to date of application.

8. Percentage of completion.
 9. Balance to finish.
 10. Retainage.
 11. Overhead and profit.
- C. **Submission Schedule:** Comply with time requirement of the General Conditions when submitting the Schedule of Values (Within 10 days after the Effective Date of the Construction Contract).
- D. **Revisions:** Revise schedule of values to list approved Change Orders, with each Application for Payment.

1.5 MEASUREMENT

A. General:

1. Measurement methods specified in the individual Sections of the Standard Specifications are intended to compliment the criteria of this Section.
2. ENGINEER will take all measurements and compute all quantities.
3. CONTRACTOR will:
 - a. Furnish labor to assist ENGINEER in obtaining and handling test Samples at site or sources.
 - b. Provide all equipment, workers, and survey crews to assist ENGINEER in making measurements.
 - c. Verify ENGINEER's measurements and computations.

B. **Unit of Measurement:** Refer to the Bid Form. It identifies the unit of measurement to be used for unit price items.

C. **Weight Basis:** Measured by scale or by handbook weights for the type and quantity of material actually furnished and used.

1. For material to be measured and paid for by weight, furnish accurate scales. Use platform scales of sufficient size and capacity to permit the entire vehicle or entire combination of vehicles to rest on the scale platform while being weighed. Combination vehicles may be weighed as separate units provided; they are disconnected while being individually weighed. Pay for all costs incurred as a result of regulating, adjusting, testing, inspecting, and certifying scales.
2. ENGINEER may be present to witness weighing; however, in any case, furnish weigh slips and daily summary weigh sheets. Furnish duplicate weigh slip or a load slip to each vehicle weighed and deliver the slip to ENGINEER at the point of delivery of the material.

3. If the material is shipped by rail, certified car weights will be accepted. Only actual weight of material will be paid for and not minimum car used for assessing freight tariff. Car weights will not be used for material to be passed through mixing plants.
 4. Trucks used to haul material shall be weighed empty daily and at such additional times as directed. Each truck shall bear a plainly legible identification mark. ENGINEER may require the weight of the material verified by weighing empty and loaded trucks on other scales.
- D. **Area Basis:** Measured by square dimension using mean length and width or radius.
- E. **Linear Basis:** Measured by linear dimension at the item centerline or mean chord.
- F. **Volume Basis:** Measured by cubic dimension using mean length, width and height or thickness.
1. Volumes will be determined and based upon material compacted in-place (not loose measure as per delivery ticket).
 2. When it is impractical to determine the volume by rectilinear measurements in-place or by the specified method of measurement, or when requested by the CONTRACTOR in writing and accepted in writing, the material will be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined and shall be agreed to by CONTRACTOR before such method of measurement of pay quantities will be accepted.
- G. **Each Basis:** Measured by the unit.
- H. **Lump Sum Basis:** Measured on a percent complete basis.
- I. **Hour Basis:** Measure by time documented by Resident Project Representative or ENGINEER.
- J. **Plan Quantity Basis:** An ENGINEER generated calculated quantity provided in the Bid Schedule for which payment will be made based on dimensions and widths shown in the Drawings - similar to a lump sum basis.
1. An adjustment to the final quantity for payment may be made if an error is discovered in the calculated quantity by either the ENGINEER or the CONTRACTOR. Provide all computations, plots, and supporting documentation necessary for the ENGINEER to verify the error and determine the final quantity for payment. The ENGINEER may adjust the final quantity for payment by the amount of increase or decrease to the calculated quantity in the Bid Schedule based on provided supporting documentation when the final quantity differs from the calculated quantity by more or less than 10%.
- K. **Contingency Basis:** Are estimated quantities that may be reduced, deleted, or increased based upon field conditions and are for bidding purposes only. These contingency items

are used to quantify unknowns in the field and will be used only upon approval from the ENGINEER.

1.6 PAYMENT

- A. Payment covers all labor, products, tools, equipment, paint, transportation, services, and incidentals; erection, application, or installation of an item of the Work; overhead and profit.
- B. Quantities supplied or placed in the Work and measurements agreed to by CONTRACTOR determine payment.
- C. The final payment sum may be as great as twice the value of Punch List work or at least equal to the value of the work declared defective by the ENGINEER.
- D. See Table 1 for the Measurement & Payment to more clearly identify those tasks which are specifically included in each of the Bid Schedule items and thereby minimize the confusion that sometimes arises with regard to how an item is to be measured and payment for specific tasks comprising the Work. Inclusion or exclusion of any item or task from this Section shall in no way be construed to mean that additional payment shall be required of the OWNER. All materials, equipment, expenses, operations, and labor necessary to complete the Work intended by the Drawings and required by the Contract Documents and Project Specifications not specifically listed as a bid item in the Bid Schedule or described in the following subsections shall be considered incidental to the Work, shall be included in the unit costs for the various Bid Schedule items, and shall not cause the CONTRACTOR to be eligible for additional payment by the OWNER.

Table 1

ITEM NO.	SPECIFICATION REFERENCE	ITEM DESCRIPTION	UNIT OF MEASUREMENT										
1	01 71 13	Mobilization & Demobilization	Lump Sum										
Inclusion (not limited to): CONTRACTOR's bringing all necessary equipment to site to do the Work as well as removing all construction equipment and debris so site is left clean. CONTRACTOR's acquisition of all temporary permits required for the Work, all temporary facilities including but not limited to, UDOT encroachment permit, field office, utility connections, sanitary facilities, site security and protection, dewatering facilities, bulletin boards, waste disposal, coordination with utility companies, and all other temporary construction requirements and support. Includes CONTRACTOR's preparation and paperwork for schedules, submittal package reviews, pay estimates, etc. Includes provision and placement of any temporary security fencing for site security. Clarifications: The Bid price for Mobilization shall not exceed 10% of the total Bid price. The Bid price covers cost of mobilization, demobilization, installation of temporary facilities, bringing all necessary construction equipment to site, etc. Current utility owner contact information is found in the General Notes in the Construction Drawings, it is the responsibility of the Contractor to verify this contact information and revise as necessary. The OWNER will not be held responsible to contact or coordinate with the utility owners for construction of the proposed improvements. Basis of Payment: <table><tr><th>Percentage of Original Contract Amount Earned</th><th>Percentage of Amount Bid for Mobilization & Demobilization to be Paid</th></tr><tr><td>3%</td><td>25%</td></tr><tr><td>10%</td><td>25%</td></tr><tr><td>50%</td><td>25%</td></tr><tr><td>100%</td><td>25%</td></tr></table>				Percentage of Original Contract Amount Earned	Percentage of Amount Bid for Mobilization & Demobilization to be Paid	3%	25%	10%	25%	50%	25%	100%	25%
Percentage of Original Contract Amount Earned	Percentage of Amount Bid for Mobilization & Demobilization to be Paid												
3%	25%												
10%	25%												
50%	25%												
100%	25%												
2	01 78 39	Project Record Documents	Lump Sum										
Inclusion (not limited to): Provision of preconstruction documentation, acceptable material to include photographs, video, records, etc. approved by the ENGINEER, of the existing conditions on site(s) that are impacted by construction activities. This item also includes maintaining, recording and submitting photographs, certificates, documentation, record documents for the Project and available for the ENGINEER at any time during the construction. This item includes provision of one hard copy to be onsite at all times of all the Contract Documents including any required Standard Specifications and Plans. This item includes making record of the actual construction activities and information relative to field changes. This item also includes maintaining, recording and submitting record documents for all improvements and to provide "as-built" plans sealed by a licensed surveyor in the State of Utah. Basis of Payment: <table><tr><th>When Paid</th><th>Amount Paid</th></tr><tr><td>Pre-Construction Documentation Approved</td><td>50%</td></tr><tr><td>Record Documents Approved at End of Project</td><td>100%</td></tr></table>				When Paid	Amount Paid	Pre-Construction Documentation Approved	50%	Record Documents Approved at End of Project	100%				
When Paid	Amount Paid												
Pre-Construction Documentation Approved	50%												
Record Documents Approved at End of Project	100%												

3	01 57 00	Temporary Controls	Lump Sum
Inclusion (not limited to): General requirements for controlling surface and subsurface environmental conditions such as noise control, dust and mud control, surface water control, ground water control, pollution control, and erosion control at the construction site, and related areas under the CONTRACTOR's responsibility. If required, includes the provision of a UPDES Permit and specifically a Storm Water Pollution Prevention Plan (SWPPP) prepared, submitted, and implemented by CONTRACTOR in accordance with the Utah DEQ. Includes best management practices (BMPs) determined by the SWPPP document which may include but are not limited to straw bale barriers, silt fencing, diversion dikes, inlet protection (gravel socks, gravel, fencing or straw bales), equipment and vehicle wash down areas, stabilized roadway entrances, and others as may be required in accordance with City and industry standard plans and specifications.			
Basis of Payment:			
		When Paid	Amount Paid
		With first Application for Payment	25%
		With each subsequent Application for Payment	Remaining portion of bid item as a % of the contract completed
4	01 45 00	Quality Control & Testing	Lump Sum
Inclusion (not limited to): All soil, compaction, concrete, asphalt, and other material sampling and testing required by the Contract Documents.			
Clarifications: All quality control and testing shall be completed by and Independent Testing Agency not owned by, affiliated with, or in any way associated with the CONTRACTOR, or any of CONTRACTOR's Subcontractors and Suppliers, that is accredited by a national authority.			
Basis of Payment:			
		When Paid	Amount Paid
		With each Application for Payment	Portion of bid item as a % of the contract completed
5	01 71 23	Construction Layout & Staking	Lump Sum
Inclusion (not limited to): All construction survey and staking required through various stages of the construction process. Upon completion CONTRACTOR shall submit a certificate signed by licensed professional certifying that elevations and locations of improvements conform with the Contract Documents.			
Clarifications: All construction surveying shall be completed by the CONTRACTOR or CONTRACTOR's subcontractor. The OWNER reserves the right to verify accuracy of construction survey at any time during or after construction.			
Basis of Payment:			
		When Paid	Amount Paid
		With each Application for Payment	Portion of bid item as a % of the contract completed
6	02 41 14	Remove Existing Asphalt Pavement	Square Foot
Inclusion (not limited to): Saw cutting of existing pavement, removal and disposal of pavement, and all materials, equipment, expenses, operations and labor necessary to complete the Work for this particular Bid Item. All work for this bid item shall be done in accordance with the Construction Drawings, Contract Documents, Specifications and Standards.			

7	02 41 13	Remove Existing Concrete Post Footing	Each
Inclusion (not limited to): Removal and disposal of concrete post footing and all materials, equipment, expenses, operations, and labor necessary to complete the work in accordance with the Contract Documents. (e.g. Drawings & Specifications) Pay Limits: Payment will only be given for the defined demolition areas. All work outside defined areas will be at the CONTRACTOR'S cost.			
8	02 41 19	Remove Existing Building w/ Basement	Lump Sum
Inclusion (not limited to): Removal and disposal or salvage of building with all its components except those indicated to be reinstalled, salvaged, or to remain OWNER's property. Salvage items to be cleaned, packed, and hauled to the OWNER's designated storage area. Includes coordination with Delco for chlorination equipment relocation prior to demolition, protection of nearby soils, concrete, and underground utilities to remain, breakup of concrete basement foundation walls to a depth sufficiently below proposed grades, backfill and compaction of structural backfill in concrete basement foundation and all materials, equipment, expenses, operations, and labor necessary to complete the work in accordance with the Contract Documents. (e.g. Drawings & Specifications) Basis of Payment: Percentage of Work completed for this item with each partial Application for Payment.			
9	31 23 16	Excavation & Earthwork	Lump Sum
Inclusion (not limited to): Excavation of unclassified materials (earthen, sandstone, rock), haul, stockpile, sort, place, compact, and otherwise grade materials at the site such that grades are accomplished not including excavation or backfill for waterline trenching. CONTRACTOR shall include all materials, equipment, expenses, operations and labor necessary to complete the Work for this particular Bid Item. All general grading, earthwork, excavation, fill placement, compaction, cut and fill slopes, over-excavation, and site preparations shall be completed in accordance with the Contract Documents. (e.g. Drawings & Specifications) Clarifications: The excavation quantity shown in the Bid Schedule is from Existing Ground to Finish Ground and shall be considered by the Contractor to be approximate. CONTRACTOR shall make all necessary adjustments for subgrade elements. Excess excavated material may be used as structural backfill (including as backfill of existing building basement) only upon written approval from ENGINEER. Excavation and backfill are paid under their respective Bid Items. From Existing Ground to Finish Ground: Unadjusted (no shrinkage or swell factor) Cut (CY) = 240 Fill (CY) = 9 Difference (CY) = 231 (Cut) The Contractor shall verify earthwork volumes and make any adjustments for subgrade and footings excavation. The Contractor shall be responsible for all excess material and export from the site for waste and proper disposal. No shrinkage or swell factor has been applied to the quantity. Basis of Payment: Percentage of Work completed for this item with each partial Application for Payment.			
10	31 37 00	Riprap D50=6" (12" thick)	Square Yard
Inclusion (not limited to): Provision, placement, granular borrow, compaction, grading and all materials, equipment, expenses, operations, and labor necessary to complete the Work for this particular Bid Item. All Work for this Bid Item shall be completed in accordance with the Contract Documents. (e.g. Drawings & Specifications) Pay Limits: Payment will only be given for a compacted in-place volume within the defined limits of the roadway.			

11, 12	33 05 05 33 08 00	Hot Tapping Sleeve w/ 10" Branch	Each
Inclusion (not limited to): Provision, placement, trenching, material stockpiling, shoring, tracer wire, warning tape, hot tapping sleeve, hot tapping, pipe bedding material, backfill, compaction, diversions, OSHA compliance, and all materials, equipment, expenses, operations and all materials, equipment, expenses, operations, and labor necessary to complete the work in accordance with the Contract Documents. (e.g. Drawings & Specifications)			
13	33 12 16	10" Gate Valve	Each
Inclusion (not limited to): Provision, placement, excavation, backfill material, base course, compaction, grease, polyethylene sheet wrap, tape, fittings, lids, slip sleeve, concrete collar, concrete inscription with pipe directional arrows and pipe size, restraints, tracer wire, warning tape, rebar, concrete, box, lid, and all materials, equipment, expenses, operations and all materials, equipment, expenses, operations, and labor necessary to complete the work in accordance with the Contract Documents. (e.g. Drawings & Specifications)			
14	33 05 07	10" PVC C900 Waterline	Linear Foot
Inclusion (not limited to): Provision, placement, trenching, material stockpiling, shoring, tracer wire, warning tape, pipe, fittings, thrust blocks due to fittings, pipe bedding material, backfill material, compaction, diversions, OSHA compliance, and all materials, equipment, expenses, operations and all materials, equipment, expenses, operations, and labor necessary to complete the work in accordance with the Contract Documents. (e.g. Drawings & Specifications)			
Pay Limits: Measured along centerline of pipe. No separate or additional payment will be made for rock excavation or dewatering efforts as this is part of this bid item.			
15	33 05 06	1" PE Chlorination Injection Line	Linear Foot
Inclusion (not limited to): Provision, placement, trenching, material stockpiling, shoring, tracer wire, warning tape, pipe, fittings, thrust blocks due to fittings, pipe bedding material, backfill material, compaction, diversions, OSHA compliance, and all materials, equipment, expenses, operations and all materials, equipment, expenses, operations, and labor necessary to complete the work in accordance with the Contract Documents. (e.g. Drawings & Specifications)			
Pay Limits: Measured along centerline of pipe. No separate or additional payment will be made for rock excavation or dewatering efforts as this is part of this bid item.			
16	33 05 06	1" Tapping Saddle w/ Injection Quill	Each
Inclusion (not limited to): Provision, placement, trenching, material stockpiling, shoring, tracer wire, warning tape, pipe, fittings, thrust blocks due to fittings, pipe bedding material, backfill material, compaction, diversions, OSHA compliance, and all materials, equipment, expenses, operations and all materials, equipment, expenses, operations, and labor necessary to complete the work in accordance with the Contract Documents. (e.g. Drawings & Specifications)			
Pay Limits: Measured along centerline of pipe. No separate or additional payment will be made for rock excavation or dewatering efforts as this is part of this bid item.			
17	32 12 16.13 32 11 23	3" Plant Mix Bituminous Paving w/ 8" Base	Square Foot
Inclusion (not limited to): Provision, placement, untreated base course, plant mix asphalt, aggregates, asphalt binder, hydrated lime, tack coat, additives, compaction, plant mix bituminous pavement, and all materials, equipment, expenses, operations, and labor necessary to complete the Work for this particular Bid Item. All Work for this Bid Item shall be completed in accordance with the Contract Documents. (e.g. Drawings & Specifications)			
Clarifications: Amended APWA specifications govern. Class II, Above 4000 Feet, SP-1/2.			

18	32 16 13 32 11 23	4" Concrete Sidewalk w/ Base (Bldg Apron)	Square Foot
Inclusion (not limited to): Provision, placement, compaction, untreated base course, forming, reinforcement, concrete, admixtures, finishing, curing, weather protections, cure agents, additives, expansion joints, contraction joints, doweling, epoxy, existing connections, detectable warning surface, and all materials, equipment, expenses, operations, and labor necessary to complete the Work for this particular Bid Item in accordance with the Contract Documents. (e.g. Drawings & Specifications)			
19	32 11 23 31 05 19	6" Untreated Base Course w/ Fabric (Bldg Apron)	Square Foot
Inclusion (not limited to): Provision, placement, untreated base course, compaction, grading and all materials, equipment, expenses, operations, and labor necessary to complete the Work for this particular Bid Item. All Work for this Bid Item shall be completed in accordance with the Contract Documents. (e.g. Drawings & Specifications)			
20	04 22 00	28'x15' CMU Pump Building	Lump Sum
Inclusion (not limited to): CMU pump building as shown in the plans, excavation, subgrade preparations, electrical conduit and 1" PE chlorination line plumbing within 5' of the building (not including 8" and 10" culinary water piping in and out of the building), floor drains, drain line, gravel sump wrapped in filter fabric, footings excavation, backfill, concrete footings & foundation, slab, walls, roofing, insulation, fixtures, finishes, doors, windows, mechanical equipment, electrical equipment, miscellaneous equipment for a complete and operational pump and chlorination building (not including chlorination equipment to be installed or relocated by Delco Western, SCADA Panel to be installed by SKM Engineering, and booster pump skid & equipment which is covered in bid items 21 & 22) and all materials, equipment, expenses, operations and labor necessary to complete the Work for this particular Bid Item. All Work for this Bid item shall be completed in accordance with the Contract Documents (Drawings and Specifications) and manufacturer's recommendations.			
Clarifications: Coordinate with Delco Western for chlorination and SKM Engineering for SCADA for proper sequencing of installations.			
Basis of Payment: Percentage of Work completed for this item with each partial Application for Payment.			
21	22 11 23 S	1200 GPM In-Line Booster Pump Skid	Lump Sum
Inclusion (not limited to): Provision, booster pump skid, shipping to site, unloading, placement in pump house building, connection to piping, electrical, communications, etc. as necessary to have a complete and operational booster pump, testing, operations, training of city staff. All Work in accordance with manufacturer's recommendations. Includes all materials, equipment, expenses, operations and labor necessary to complete the Work for this particular Bid Item.			
22	DIVISION 33	Misc. Booster Pump Equipment, Pipe, Fittings, Valves, Meter, Etc.	Lump Sum
Inclusion (not limited to): Provision, placement, all pump house equipment within 5' of the building, coordination with pump house building, especially plumbing through the floor (except for floor drains which are included with the pump house building), all internal plumbing, piping, fittings, valves, water treatment, chlorination, and pump house equipment as shown in the plans. Includes coordination with suppliers and manufacturers to ensure equipment design, layout, specifications, and installations are in accordance with manufacturer's recommendations. Includes all materials, equipment, expenses, operations and labor necessary to complete the Work for this particular Bid Item.			
24	DIVISION 26	Site Electrical	Lump Sum
Inclusion (not limited to): All electrical work on the site from transformer and into the CMU building including all electrical work inside the building, conduit, wiring, duct seal, pull tape, conduit sweeps, warning tape, fittings, conduit proofing, trenching, installation, meter, meter socket, meter disconnect, panel, hardware, cleaning and commissioning, surge protection devices, pot holing as required, and all materials, equipment, expenses, operations, and labor necessary			

to complete the Work for this particular Bid Item. All Work for this Bid Item shall be completed in accordance with the Contract Documents. (e.g. Drawings & Specifications)

Clarifications: Payson City Power Department will provide power to the site including purchase and installation of the transformer. CONTRACTOR responsible to install power from the transformer into the CMU pump building and to all equipment to complete a working and operational electrical system. No separate or additional payment will be made for over excavation and backfill unless approved in writing by ENGINEER. CONTRACTOR to restore existing conditions if trenching in areas outside of proposed landscaping for no additional payment.

1.7 INCIDENTAL WORK

- A. No separate measurement or payment for incidental work.

1.8 PRODUCT

- A. No separate measurement and payment for:
 - 1. Product or work provided by ENGINEER or OWNER.
 - 2. Product wasted or disposed of in a manner that is not acceptable.
 - 3. Product determined as unacceptable before or after placement.
 - 4. Product not completely unloaded from the transporting vehicle.
 - 5. Product placed beyond the lines and levels of the required Work.
 - 6. Product remaining on hand after completion of the Work.
 - 7. Loading, hauling, and disposing of rejected product.

1.9 MATERIALS AND EQUIPMENT ON-HAND

- A. CONTRACTOR may include in partial payment applications, an advanced payment items for acceptable non-perishable products purchased or manufactured expressly for the Work, If:
 - 1. Certified copies of product invoices are approved.
 - 2. The maximum sum to be included in partial payment applications does not exceed 75 percent of the value of the product shown on the invoice or 75 percent of the in-place price, whichever sum is less.
 - 3. Product is stored in the vicinity of the Project or when the approved storage location is other than the site, evidence is furnished that the stored product is irrevocably obligated to the Work.
 - 4. CONTRACTOR is responsible for any damages, loss, or theft of product until product is incorporated in the Work and accepted.
- B. Payment for materials shall not constitute acceptance of any materials which do not conform to the Contract Documents.
- C. No partial payment will be made on living, or perishable plant materials until planted.

1.10 PRICE ADJUSTMENT

- A. **Defective Work or Non-Complying Material:** If ENGINEER determines it is not practical to remove and replace Defective Work or non-complying material, any of the following may be applied:
1. Defective Work or non-complying material may remain, but the price reduced up to 50 percent.
 2. If non-complying material has been installed and no price for the material is specified, apply price reduction against cost of work requiring complying material as part of its installation.
 3. Defective Work or non-complying material will be partially repaired, and the price will be adjusted to a new price.
 4. Pay for Defective Work on a pay factor basis:
 - a. Where two (2) or more pay factors apply to one item of Defective Work or material (even if pay factors are determined using separate specification sections), the smallest pay factor shall be used to determine price adjustment.
 - b. Pay factors shall not be cumulative.
 - c. Pay factors shall be applied to unit prices in either the bid form or a change order.
- B. **Contract Price Adjustment:** In lump sum contracts, Contract Price adjustment shall be affected by Change Order. In unit price contracts, Contract Price adjustment shall be affected by adjusting unit quantities.
- C. **Early Completion:** No additional money will be due CONTRACTOR:
1. If CONTRACTOR completes Work or any portion of Work before Contract Time, or
 2. If early completion is delayed.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

DATE: 12/6/2024
QUOTE NO: B000137497
JOB NAME: Payson Booster
CUSTOMER: Delco Western

**SECTION 22 11 23 S - SPECIFICATION FOR CLOSE-COUPLED or
VERTICAL MULTISTAGE VFD WATER BOOSTER SYSTEM**

WORK INCLUDED - Packaged Pumping System

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Purpose: To provide a single source responsible for the manufacture and warranty of a prefabricated, skid mounted, fully automatic variable speed pumping system and enclosure. The pumping system shall automatically maintain a constant discharge pressure regardless of varying flow demands within the station rating.
- B. The pumping system shall conform to the specifications herein in all aspects. This specification covers the minimum requirements but should not be considered to be all inclusive. It is the successful vendor's responsibility to include all necessary appurtenances to provide for a complete, smooth operating, and reliable pump system. The manufacturer shall supply a complete set of general arrangement drawings, electrical power schematics, and control schematics in the operation and service manual.
- C. Manufacturers seeking authorization to furnish their product shall be a registered ISO9001:2015 manufacturer and shall hold a current Quality Management Certificate for the assembly of custom packaged pumping systems and controls for use in commercial, irrigation, municipal, industrial, and fire applications.

1.2 REFERENCES

- A. American National Standards Institute (ANSI)
- B. American Society for Testing and Materials International (ASTM):
1. A36: Standard Specification for Carbon Structural Steel.
 2. A48: Standard Specification for Gray Iron Castings.
 3. A53: Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 4. A105: Standard Specification for Carbon Steel Forgings for Piping Applications.



5. A276: Standard Specification for Stainless Steel Bars and Shapes.
6. A307: Carbon Steel Bolts and Studs.
7. A582/A582M: Standard Specification for Free-Machining Stainless Steel Bars.
8. B 148: Standard Specification for Aluminum-Bronze Sand Castings.

C. American Society of Mechanical Engineers (ASME)

1. ASME B 16.5: Pipe Flanges and Flanged Fittings

D. American Water Works Association (AWWA)

E. American Petroleum Institute (API)

F. Hydraulic Institute (HI)

G. National Electric Code (NEC)

1. National Electrical Manufacturers Association NEMA – MG 1

1.3 MANUFACTURER

- A. The pumping system shall be of the type manufactured by **TIGERFLOW** Systems, LLC. The station manufacturer shall be certified to provide a UL listing for both the control panel and the pump station as a complete system. The primary line of business of the pump station manufacturer shall be the design & manufacture of centrifugal pump booster stations. For consideration of a proposed equal system, the contractor shall furnish the following data to the Engineer at least 10 days prior to the date of the bid opening:
1. A complete specification for the pumping system proposed as an equal.
 2. A statement of full conformance to the specifications signed by an authorized representative of the manufacturer.
 3. A D-size layout drawing showing overall dimensions and all piping discharge locations.
 4. Complete submittal data for all major equipment such as pumps, motors, control components, valves, and motor starters.
 5. A D-size one-line electrical schematic showing power wiring.
 6. Manufacturer's electrical control panel UL508A file number.
 7. A copy of the manufacturer's certificate of insurance showing as a minimum, general liability coverage of \$1,000,000 and an excess liability coverage of \$5,000,000.
 8. If, in the opinion of the Engineer, the data submitted shows the pumping system to be an equal to the system specified, the bidding contractors shall be notified not less than 14 days prior to the bid opening.



1.4 SUMMARY

Furnish and install a TIGERFLOW Series **VMS-4000-VFD triplex** Model #TVMV-40TF-C-S8-VM-P-VFD, engineered **Variable Speed** packaged water Booster System. The system shall be rated for a system flow of **1,200** GPM at a system pressure of **106** PSIG boost.

1.5 QUALITY ASSURANCE

- All equipment under this section shall be furnished by a single supplier and shall be products that the manufacturer regularly engages in. The supplier shall have sole responsibility for proper functioning of the system and equipment supplied.
- Equipment shall be a manufacturer's standard product presently in commercial production.
- The manufacturer shall have in place a quality assurance program to assure the quality of the material furnished.
- NIST Traceable test facility
- Package shall be manufactured in an ISO 9001 certified facility

1.6 THIRD PARTY TESTING AND CERTIFICATIONS

Package shall be:

- **UL/C-UL QCZJ Listed as a system** for its intended use.
- In compliance with:
 - OSHA Federal Regulations 29 CFR 1910.303 and 399
 - NFPA Pamphlet #70 (National Electric Code) Article 90-7,
 - City of Los Angeles Approval Code, CMR248
 - ASHRAE 90.1 (2010) compliant

1.7 QUALIFICATIONS

- The manufacturer shall have a minimum of twenty years manufacturing and application experience.
- Upon request from the engineer, the pump station manufacturer shall demonstrate proof of financial responsibility with respect to performance and delivery date.
- Upon request from the engineer, the pump station manufacturer shall provide proof or evidence of facilities, equipment and skills required to produce the equipment specified herein

1.8 APPROVED MANUFACTURERS

Base bid: **TIGERFLOW**

Alternates: Must supply written certification that the manufacturer is Listed NSF/ANSI 61 certified for potable drinking water.

1.9 SUBMITTALS & INSURANCE CERTIFICATIONS



Submittals shall be in accordance with requirements of general specifications. Submit 6 copies to the engineer for approval. All submittals must include the following:

- Complete shop drawings and complete wiring diagrams. All drawings must be Inventor or AUTO-CAD electrical; complete with 3-D drawings available in Inventor, CAD, or Revit.
- Provide written certification that manufacturers' production facility is NSF/ANSI-61 certified to manufacture packaged pumping systems for potable drinking water.
- Furnish written certification of the manufacturers listing with Underwriters Laboratories as an approved manufacturer of control panels.
- Furnish written certification that the manufacturer is listed by UL/C-UL as an approved manufacturer of factory assembled pumping systems.
- A complete, easily readable functional description of the proposed equipment.
- Upon completion of the installation, the results of the field and acceptance tests as specified under this section of the specification shall be submitted to the engineer.
- Furnished written certification from the manufacturers' representative of the proper installation of the station.
- Provide written certification that, a nationally recognized manufacturer of package pump systems, manufactures the pump system. A corporate officer must sign this certification.
- Operation and maintenance manuals:
Submit complete operations and maintenance information for this specific equipment. The engineer shall review these manuals for completeness. They shall include complete parts list including manufacturers' reference and ordering number, the local representative name, address and phone number, the model and serial number of the system.
- The manufacturers shall submit a certificate of product liability insurance for no less than five million dollars (\$5,000,000)

PART 2 – PRODUCTS

2.1 PUMPS AND MOTORS

Pumps shall be **Tigerflow NSF-61 approved**, series **CD**, stainless steel, mechanical seal vertical multistage centrifugal type each coupled to a **3600 RPM, 208 Voltage, 3 Phase, 60 Hz, TEFC** premium efficiency motor. **Incoming voltage 208/1/60, outgoing to motors 208/3/60**
Pump No. 1-3 shall be a **Model 85-3-2, 800 GPM at 245' TDH, 40 HP (each)**

2.2 VALVES

Isolation Valves: **4"** Individual pump suction and discharge valves shall be NSF 61 certified lug or grooved type butterfly valves with lever operators. Provide a **4"** wafer style non-slam check valve NSF 61 certified on the discharge of each pump.

2.3 GAUGES (OPTIONAL)

Provide (2) **4-1/2"** diameter liquid filled stainless steel case gauges with isolation valves



2.4 POWER AND CONTROLS

Provide UL Listed, NEMA 1, **TIGER'S EYE Mark V** Solid State, Power and Control Panel consisting of:

- UL/C-UL 508 Label
- Single point power connection
- Through door control power disconnect with safety interlock to prevent door from being opened while in ON position.
- Fused 120 V AC control voltage transformer
- Fused 24 V DC power supply, 1 Watt.
- Suction and system pressure transducers
 - All wetted parts are to be stainless steel.
 - 4-20 mA signal with a minimum accuracy of $\pm 1\%$.
- Micro Controller: PLC with non-volatile memory (battery backup not required)
- **TIGERFLOW “TAP” Technology ASHRAE 90.1 compliant**
- **Tuning – TIGERFLOW Stepped Proportional Response**
- Operator interface: 6-inch color scale touch screen HMI (Human Machine Interface) including but not limited to the following:
 - Main Screen with the following features:
 - Individual pump HOA (Hand – Off – Auto) switches
 - Pump run indication, including current % speed
 - Pump Failure indication
 - Current pressures readings in psig (suction and system)
 - Current flow in GPM (if flowmeter specified)
 - Adjustable manual (hand) speed setting
 - Direct access to menu screen
 - Menu screen providing direct access to all system settings and status screens
 - Pump settings screen displays current settings and allows user changes
 - Lead and lag pump start and stop pressures, psig.
 - Lead and lag pump ON and OFF delay times, seconds
 - Alarm settings screen displays current settings for all alarms and allows user changes.
 - Low suction alarm settings
 - Low suction pressure, psig
 - ON and OFF delays, seconds
 - Manual or automatic reset
 - Low system alarm settings
 - Low system pressure, psig
 - ON and OFF delays, seconds
 - Manual or automatic reset
 - High system alarm settings
 - High system pressure, psig
 - ON and OFF delays, seconds
 - Manual or automatic reset
 - High suction economy mode
 - Economy mode suction pressure, psig
 - Economy mode enable / disable
 - ON and OFF delays, seconds
 - Separate Alarm Silence and Alarm Reset buttons
 - Current system status screen displays:
 - Pump(s) currently running
 - Active alarms and warning messages
 - System event history screen displays a minimum of the last 10 system events, including pump start /stops, alarm conditions and alarm acknowledgements.



- Pump run time screen displays the total operating time for each pump. Provide individual resets for each pump run time
- Lead pump alternation options will include:
 - o Automatic alternation on lead pump shutdown.
 - o Manual alternation when operator touches alternate button
 - o Timed alternation:
 - Daily (user specified time of day)
 - Weekly (user specified day of week and time of day)
 - Monthly (first week of month on user specified day of week and time of day)
- Multi Level Security
 - o 8 Password protected security levels (field changeable passwords)
- Common alarm relay provides dry contacts for customer monitoring.
- Alarm horn, 85 db, annunciates all alarm conditions.
- **Custom remote mode, SCADA will operate each pump individually via discreet input, at 100% speed**

2.5 VARIABLE FREQUENCY DRIVES (VFD)

Each drive will have individual disconnects and short circuit protection. Drive manufacturer must provide a two-year minimum warranty.

Drives will be configured to provide the following operating features:

- Drive keypad will have manual, off and automatic mode selection and will be accessible to operators without opening an enclosure.
- When in automatic, drive will run upon closure of the respective run permissive contact
- When in automatic and with a run permissive signal, drive speed will respond to a 0-10 V DC speed reference signal from pump controller.
- Drive will provide a limited number of automatic resets for fault conditions and will maintain a history of faults.

2.8 PUMP SEQUENCING

- PRESSURE SEQUENCING

Lag pump(s) are staged ON and OFF based on pressure only. When system pressure falls to a lag pump start pressure for the defined on-delay time period, lag pump starts. If system pressure continues to fall, additional lag pumps (if available) will start as pressure falls to the respective start pressure settings. Pumps are stage OFF, one at a time, in reverse order of start as system pressure setpoint is maintained for the pump OFF-delay time period.

PART 3 - EXECUTION

3.1 FACTORY FABRICATION

Provide each system as a complete package system on an open structural steel mounting frame, piped, tubed, mounted and wired. Unit shall be factory primed and painted with machine grade finish coat. All welding shall be performed by ASME Section 9 certified welders. System shall be **vertical** construction. Branches, suction and discharge headers shall be: Schedule 40, 304 stainless steel. Headers shall have 8" **grooved** connections. System manufacturer shall isolate all ferrous from all non-ferrous materials.

3.2 FACTORY TEST



The package shall be electrically and hydrostatically tested before shipment, in addition, each system shall be factory tested from 0-100% of flow and pressure.

3.3 SITE COMMISSIONING AND TRAINING

The factory authorized local representative shall provide (4) hours of startup and field training.

3.4 WARRANTY

Each **TIGERFLOW** system shall be warranted for a period of (24) months from date of delivery.



CONSTRUCTION DRAWINGS

Construction Drawings prepared by Civil Science, Inc. Dated January, 2024