

**CONTRACT DOCUMENTS AND SPECIFICATIONS
FOR THE
SPECIAL IMPROVEMENT DISTRICT NO. 5
LARGE CAPACITY AUGMENTATION WELL #2**

LOCATED IN
SAGUACHE, COLORADO

Prepared for

Special Improvement District No. 5 of the Rio Grande Water Conservation District
8805 Independence Way
Alamosa, Colorado 81101

August 27, 2024

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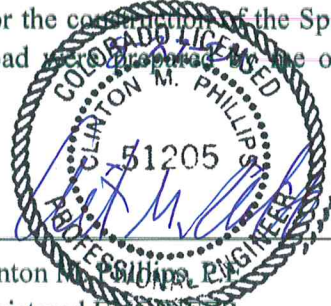
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CERTIFICATE

I hereby certify that these plans and SPECIFICATIONS for the construction of the Special Improvement District No. 5 Augmentation Well No.2 Pipeline and Road were prepared by me or under my direct supervision, for the OWNER thereof.



Clinton M. Phillip
Registered ENGINEER
Colorado Certificate No. 51205

The Special Improvement District No.5, Alamosa County, Colorado, OWNER, does hereby accept and approve these SPECIFICATIONS and accompanying plans for the construction of the Special Improvement District No. 5 Augmentation Well No.2 Pipeline and Road.

Date: 8/23/2024

Special Improvement District No.5

By: Chia Chen

Title: Program Manager

SECTION I
Notice of Request for Proposal

The Rio Grande Water Conservation District (District) is seeking proposals from qualified well drillers to drill a 20-inch, 220 foot deep confined aquifer well in Saguache County. Contact Chris Ivers at the District office at (719) 589-6301 for a BID packet with full details. Additionally, you can access this information online at www.rgwcd.org. In your response, please include your qualifications to drill this type of well, a cost estimate for drilling the well, and your timeline for completing the project. Proposals will be accepted through 1:30 p.m. **September 27, 2024** and may be submitted in person or by mail to 8805 Independence Way, Alamosa, CO, 81101, or by e-mail to chris@rgwcd.org.

SECTION II

INFORMATION TO BIDDERS

BIDS will be received by the Special Improvement District No. 5 (OWNER) at mailing address of 8805 Independence Way, Alamosa, Colorado 81101 until 1:30 P.M. (local time) September 27th, 2024, and then opened at the Rio Grande Water Conservation District Building, 8805 Independence Way, Alamosa, CO and read aloud.

This project will consist of drilling a 20-inch, 220 foot deep confined aquifer well in Saguache County.

BIDS may be submitted in person or by mail to 8805 Independence Way, Alamosa, CO, 81101, or by e-mail to chris@rgwcd.org.

All BIDS must be made on a required BID form. All blank spaces for BID prices and material types 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. Standard BOND forms for CONTRACT DOCUMENTS may be used in lieu of the forms furnished in the SPECIFICATIONS.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above 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 actual date of the opening thereof. 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 accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the DRAWINGS and SPECIFICATIONS including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

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.

No oral interpretation will be made to any BIDDER as to the meaning of the CONTRACT DOCUMENTS or any part thereof. Every request for such an interpretation shall be made in writing to the OWNER and ENGINEER. Any inquiry received seven or more days prior to the date fixed for opening of BIDS will be

given consideration. Every interpretation made to a BIDDER will be in the form of an ADDENDUM to the CONTRACT DOCUMENTS, and when issued, will be on file in the office of the OWNER and the office of the ENGINEER at least five days before BIDs are opened. In addition, all ADDENDA will be mailed to each person holding CONTRACT DOCUMENTS, but it shall be the BIDDER'S responsibility to make inquiry as to the ADDENDA issued. All such ADDENDA shall become part of the Contract and all BIDDERS shall be bound by such ADDENDA, whether or not received by the BIDDERS.

Each BID must be accompanied by a BID BOND payable to the OWNER in the amount of five percent (5%) 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 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 and performance bonds 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, payment or performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the payment and performance BONDS within ten calendar days from the date when NOTICE OF AWARD is delivered to the bidder. The NOTICE OF 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 his option, consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within 10 days of receipt of acceptable payment BOND and performance BOND, and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may, by written notice, withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

The NOTICE TO PROCEED shall be issued by the OWNER within 10 days of the execution of the Agreement. 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 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 or for any other reason not in violation of any State, Federal or Local law.

A conditional or qualified BID will not be accepted.

Award will be made at the discretion of the OWNER.

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. This paragraph does not limit the standards to which the BIDDER will be held to perform, and the BIDDER may be required to comply with codes not legally or officially adopted within the jurisdiction.

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. The unit price for each of the several items in the proposal of each BIDDER shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price BID represents the total BID. Any BID not conforming to this requirement may be rejected as informal. The special attention of all BIDDERS is called to this provision, for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor will adjustments in unit prices be allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of WORK (i.e., difference in cost) shall not increase or decrease the original CONTRACT PRICE by more than twenty five (25) percent, except for WORK not covered in the DRAWINGS and TECHNICAL SPECIFICATIONS as provided for in the CONTRACT DOCUMENTS.

A project walk-through trip for prospective Bidders will be held at the project site on September 11th, 2024 at 10:00 A.M. Prospective Bidders must notify the Chris Ivers of their intent to attend by September 9th, 2024 at 5:00 P.M. Contact Chris Ivers at (719) 589-6301 or chris@rgwcd.org.

SECTION III

BID

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____, doing business as a _____*. to the Special Improvement District No. 5 (hereinafter called "OWNER").

In compliance with your Advertisement for BID, BIDDER hereby proposes to perform all WORK for the construction of the Special Improvement District No. 5 Large Capacity Augmentation Well #2 in accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies 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 contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within **172** consecutive calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of **\$2,500.00** for each consecutive calendar day thereafter as provided in Section 15 of the General Conditions.

BIDDER acknowledges receipt of the following ADDENDUM:

*Insert "a corporation, "a partnership", or "an individual" as applicable.

BID SCHEDULE

All of the items under this BID Schedule are alternates and may be accepted at the OWNER’S discretion. BIDDER agrees to perform all the WORK described in the CONTRACT DOCUMENTS for the following unit prices or lump sum:

Base Bid Items					
<u>Item</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Extension</u>
1	Mobilization, Demobilization, Bonding	1	l.s.	_____	_____
2a	Well Drilling	220	ft.	_____	_____
2b	Surface Casing – 28” O.D.	127	ft.	_____	_____
2c	Pump Chamber Casing – 20” O.D.	132	ft.	_____	_____
2d	Grout Seal & Grout Pad	1	l.s.	_____	_____
2f	Filter Pack	1	l.s.	_____	_____
2g	Developing Well	48	hrs.	_____	_____
2h	Installation of Test Pumping Equipment	1	l.s.	_____	_____
2i	Step Drawdown and Sustained Yield Testing	96	hrs.	_____	_____
3a	Augmentation Well Pump Installation	1	ea.	_____	_____
3b	Control Panel and VFD Installation	1	ea.	_____	_____
4	Electrical Connection to Augmentation Well	40	l.f.	_____	_____
TOTAL BASE BID					_____

Selective Alternate Items

<u>Item</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Extension</u>
2e-Option A	Wire Wrapped Well Screen and Installation	90	ft.	_____	_____
2e-Option B	Louvered Well Screen and Installation	90	ft.	_____	_____

TOTAL BID WITH SELECTIVE ALTERATE OPTION A _____

TOTAL BID WITH SELECTIVE ALTERATE OPTION B _____

CERTIFICATE AS TO CORPORATE BIDDER

_____, the secretary of the _____, in the name of which corporation the above and foregoing BID has been executed, hereby certifies that the is a corporation duly organized under the laws of the State of _____, and that _____, the _____ of said corporation was duly authorized by the Board of Directors to make said BID in behalf of said corporation.

Dated this _____ day of _____, 2024.

Secretary

CERTIFICATE AS TO PARTNERSHIP BIDDER

_____ one of the partners in the partnership doing business as and under the firm name of _____, certifies that such partnership is composed of as copartners, and that the foregoing BID has been executed, whether by all or less than all of said partners, as the act and on behalf of said partnership in its firm name.

Dated this _____ day of _____, 2024.

A Partner in

A Partnership

SECTION IV

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____ as Principal, and _____ as, Surety, are hereby held and firmly bound unto _____ as OWNER in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns. Signed, this ____ day of _____, 2024. The Condition of the above obligation is such that whereas the Principal has submitted Special Improvement District No. 5 a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the Large Capacity Augmentation Well #2.

NOW THEREFORE,

- (a) If said BID shall be rejected, or in the alternate

- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first forth above.

By: _____ (L.S.) _____
Principal

Surety: _____

By: _____

IMPORTANT - 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.

SECTION V
NOTICE OF AWARD

To: _____

Project Description: Large Capacity Augmentation Well #2.

The OWNER has considered the BID submitted by you for the above described WORK in response to its Invitation to BID dated the ____ day of _____ 2024, and Instructions to BIDDERS.

You are hereby notified that your BID has been accepted for items in the amount _____.

You are required by the Instructions to BIDDERS to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND and Payment BOND within ten calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law. You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 2024.

Special Improvement District No. 5
OWNER

By: _____

Title: _____

Acceptance of Notice

Receipt of the above Notice of Award is hereby acknowledged

By (Company): _____
this ____ day of _____, 2024

By: _____

Title: _____

SECTION VI
AGREEMENT

This Agreement, made this ____ day of _____, 2024, by and between the Special Improvement District No. 5, hereinafter called "OWNER" and _____, doing business as an individual hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payment and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of the Special Improvement District No. 5 Large Capacity Augmentation Well #2.
2. The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the WORK required by the CONTRACT DOCUMENTS within 5 calendar days after the date of the NOTICE TO PROCEED and will complete the same within 172 calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.

Intermediate Goals:

- We would like the well drilled the fall of 2024.

Completion Date:

- **Entire project to be completed no later than April 1st, 2025**

4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS for the sum of _____.

5. The term "CONTRACT DOCUMENTS" means and includes the following:

- (A) Request for Proposal
- (B) Instructions to Bidders
- (C) Bid
- (D) Bid Bond
- (E) Agreement
- (F) General Conditions
- (G) Supplemental General Conditions
- (H) Payment Bond
- (I) Performance Bond
- (J) Notice of Award
- (K) Notice to Proceed
- (L) Change Orders
- (M) Drawings prepared by Davis Engineering Service, Inc. numbered 1 to 7 and dated August 23, 2024.
- (N) Specifications prepared or issued by Davis Engineering Service, Inc., dated August 27, 2024.
- (O) Addenda

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.
7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, the Agreement in triplicate counterparts each of which shall be deemed an original on the date above written.

OWNER: Special Improvement District No. 5

By: _____

Name: _____ (Please
Type)

Title: _____

(SEAL)

ATTEST: _____

Name: _____
(Please Type)

Title: _____

CONTRACTOR: _____

By: _____

Name: _____
(Please Type)

Address: _____

(SEAL)

ATTEST: _____

Name: _____
(Please Type)

Title: _____

SECTION VII

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of _____, do hereby certify as follows:

I have examined the attached contract(s) and performance and payment BONDS(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

By: _____ Date: _____

SECTION VIII

PERFORMANCE BOND

KNOW ALL MEN THESE PRESENTS: that _____
(Name of CONTRACTOR)

(Address of CONTRACTOR)

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

(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 _____, 2024, a copy of which is hereto attached and made a part hereof for the construction of _____.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties all the undertakings, covenants, terms, conditions and agreements of said contract 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 demands 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 expenses 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, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to 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 contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in counterparts, each one of which shall be deemed an original, this ____ day of _____, 2024.

Principal _____

ATTEST:

_____ By: _____(S)
(Principal) Secretary

(SEAL)

(Witness as to Principal) (Address)

ATTEST:

(Surety) Secretary

(SEAL)

_____ By: _____
Witness to Surety Attorney-in-fact

_____ (Address) _____ (Address)

NOTE: Date of the BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute the BOND.

IMPORTANT: 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.

SECTION IX

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that _____
(Name of CONTRACTOR)

(Address of CONTRACTOR)

a _____, hereinafter called Principal, and _____
(Corporation, Partnership or Individual) (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 _____, 2024, a copy of which is hereto attached
and made a part hereof for the construction of _____.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms,
SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of
the WORK provided for in such contract, and any authorized extension or modification thereof, including
all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and
tools, consumed or used in connection with the construction of such WORK, and all insurance premiums
on said WORK and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise,
then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no
change, extension of time, alteration or addition to the terms of the contract 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 contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall
abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

In WITNESS WHEREOF, this instrument in executed in _____ number counterparts, each one of which
shall be deemed an original, this the _____ day of _____, 20 ____.

Principal

ATTEST:

(Principal) Secretary By: _____ (S)

(SEAL)

(Witness as to Principal) (Address)

(Address) Surety

ATTEST:

(Surety) Secretary

(SEAL)

Witness to Surety By: _____ Attorney-in-fact

(Address) (Address)

NOTE: Date of the BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute the BOND.

IMPORTANT: 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.

SECTION X

Workmen's Compensation Insurance Certificate

to be inserted in place of this page.

SECTION XI

Certificate of Insurance for CONTRACTOR'S general liability and property insurance to be inserted in place of this page.

SECTION XII

NOTICE TO PROCEED

To: _____

Date: _____

Project: Special Improvement District No. 5 Large Capacity Augmentation Well #2

You are hereby notified to commence WORK in accordance with the Agreement dated _____, on or before _____, 2024, you are authorized to commence WORK on the PROJECT, and you are to complete the WORK within **172** consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 2024.

Special Improvement District No. 5
OWNER

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by

this _____ day of _____, 2024

By: _____

Title: _____

SECTION XIII
GENERAL CONDITIONS

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in the Work
14. Changes in Contract Price
15. Time for Completion and Liquidated Damages
16. Correction of Work
17. Subsurface Conditions
18. Suspension of Work, Termination and Delay
19. Payments to Contractor
20. Acceptance of Final Payment as Release
21. Insurance
22. Contract Security
23. Assignments
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25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights-of-Way
29. Guaranty
30. Taxes
31. Environmental

1. DEFINITIONS
- 1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:
- 1.2 ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications, or corrections.
- 1.3 BID - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.
- 1.4 BONDS – Bid, Performance, and Payment BONDS and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.
- 1.5 BIDDER - Any person, firm or corporation submitting a BID for the WORK.
- 1.6 CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion, or revision in the WORK within the general scope of the CONTRACT DOCUMENTS or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.
- 1.7 CONTRACT DOCUMENTS - The contract, including Information for BIDDERS, BID, BID BONDS, Agreement, Performance BOND, Notice of Award, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.
- 1.8 CONTRACT PRICE - The total moneys payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.
- 1.9 CONTRACT TIME - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.
- 1.10 CONTRACTOR - The person, firm or corporation with whom the OWNER has executed the Agreement.
- 1.11 DRAWINGS - The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.
- 1.12 ENGINEER - The person, firm or corporation named as such in the CONTRACT DOCUMENTS.
- 1.13 FIELD ORDER - A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

- 1.14 NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.
- 1.15 OWNER - The Rio Grande Water Conservation District, acting for and on behalf of Special Improvement District No. 5, for whom the WORK is to be performed.
- 1.16 PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.
- 1.17 RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.
- 1.18 SHOP DRAWINGS - All DRAWINGS, diagrams, illustrations, brochures, schedules, and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER, or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.
- 1.19 SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards, and workmanship.
- 1.20 SUBCONTRACTOR - An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.
- 1.21 SUBSTANTIAL COMPLETION - That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.
- 1.22 SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions required by a Federal agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable state laws.
- 1.23 SUPPLIER - Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.
- 1.24 WORK - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.25 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address or delivered in person to said party or his authorized representative on the WORK.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 The CONTRACTOR may be furnished ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional DRAWINGS and instructions thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail DRAWINGS and instructions.

3. SCHEDULES, REPORTS AND RECORDS

3.1 The CONTRACTOR shall submit to the OWNER such SCHEDULE of quantities and costs, progress SCHEDULES, payrolls, REPORTS, estimates, RECORDS, and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress SCHEDULES showing the order in which the CONTRACTOR proposes to carry on the WORK, including dates at which the CONTRACTOR will start the various parts of the WORK, estimated date of completion of each part, as applicable:

3.2.1 The dates at which special detail DRAWINGS will be required; and

3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing, and the installation of materials, supplies and equipment.

3.3 The CONTRACTOR shall also submit a SCHEDULE of payments that the CONTRACTOR anticipates the CONTRACTOR will earn during the course of the WORK.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental WORK necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy, or operation by the OWNER.

4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.

4.3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5. SHOP DRAWINGS

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S review of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The acceptance of any SHOP DRAWING which substantially deviates from the requirements of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that the CONTRACTOR has reviewed the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been reviewed by the ENGINEER. A copy of each reviewed SHOP DRAWING and each sample shall be kept in good order by the CONTRACTOR at the site and shall be available from the ENGINEER.

6. MATERIAL, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

6.2 Materials and equipment shall be so stored as to ensure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer.

- 6.4 Materials, supplies or equipment shall be in accordance with samples submitted by the CONTRACTOR and reviewed by the ENGINEER.
- 6.5 Materials, supplies or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.
7. INSPECTION AND TESTING
- 7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.
- 7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.
- 7.3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.
- 7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.
- 7.5 Inspections, tests, or reviews by the ENGINEER or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.
- 7.6 The ENGINEER and his representatives will at all times have access to the WORK. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.
- 7.7 If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation, and replaced at the CONTRACTOR'S expense.
- 7.8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose, or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found

that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS

- 8.1 Whenever a material, article, or piece of equipment to be identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products or similar capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of similar substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of similar substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are accepted, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9. PATENTS

- 9.1 The CONTRACTOR shall pay all applicable royalties and license fees. The CONTRACTOR shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent, the CONTRACTOR shall be responsible for such loss unless the CONTRACTOR promptly gives such information to the ENGINEER.

10. SURVEYS, PERMITS, REGULATIONS

- 10.1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the ENGINEER shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile location and other working points, lines, elevations and cut sheets.

- 10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, the CONTRACTOR shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.
- 10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENTS are at variance therewith, the CONTRACTOR shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

- 11.1 The CONTRACTOR will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury, or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designed for removal, relocation or replacement in the course of construction.
- 11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction. The CONTRACTOR will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. The CONTRACTOR will notify owners of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.
- 11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER, or OWNER, shall act to prevent threatened damage, injury, or loss. The CONTRACTOR will give the

ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. The CONTRACTOR will be solely responsible for the means, methods, techniques, sequences, and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

13. CHANGES IN THE WORK

13.1 The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event the CONTRACTOR shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14. CHANGES IN CONTRACT PRICE

14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

- (a) Unit prices previously approved.
- (b) An agreed lump sum.

(c) The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the WORK. In addition there shall be added an amount to be agreed upon but not to exceed fifteen percent (15%) of the actual cost of the WORK to cover the cost of general overhead and profit.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to ensure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount to liquidated damages as specified in the BID for each calendar day that CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following, and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1 To, priority or allocation order duly issued by the any preference OWNER.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of GOD, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. CORRECTION OF WORK

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in

the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

- 16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17. SUBSURFACE CONDITIONS

- 17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

- 17.2 The OWNER shall promptly investigate the conditions, and if the OWNER finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless the CONTRACTOR has given the required WRITTEN NOTICE; provided that the OWNER may, if the OWNER determines the facts so justify, consider, and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

- 18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

- 18.2 If the CONTRACTOR is adjudged a bankrupt or insolvent, or if the CONTRACTOR makes a general assignment for the benefit of the CONTRACTOR's creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if the CONTRACTOR files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if the CONTRACTOR repeatedly fails to supply sufficient skilled workman or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or if the CONTRACTOR disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if the CONTRACTOR disregards the authority of the ENGINEER, or if the CONTRACTOR otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method the OWNER may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.
- 18.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.
- 18.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the CONTRACT. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.
- 18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than one hundred twenty (120) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum recommended by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days WRITTEN NOTICE to the

OWNER and the ENGINEER stop the WORK until the CONTRACTOR has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

- 18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. PAYMENTS TO CONTRACTOR

- 19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER's title to the material and equipment and protect his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his recommendation for payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to recommend payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) days of presentation to him of a recommended partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the recommended partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all WORK covered by the CONTRACT DOCUMENTS. The OWNER at any time, however, after fifty (50) percent of the WORK has been completed, if the OWNER finds that satisfactory progress is being made, shall reduce retainage to five (5%) percent on the current and remaining estimates. When the WORK is SUBSTANTIALLY COMPLETE (operational or beneficial occupancy), the retained amount may be further reduced below five (5) to only that amount necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made in full, including retained percentages, less authorized deductions.
- 19.2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

- 19.3 Prior to the SUBSTANTIAL COMPLETION, the OWNER, with the review of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or SUBSTANTIALLY COMPLETED portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.
- 19.4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.
- 19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by the ENGINEER under the conditions of the CONTRACT DOCUMENTS.
- 19.6 The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agents harmless from all claims growing out the lawful demands of SUBCONTRACTORS, laborers, workmen, mechanics, materialmen, and furnisher of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed, in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.
- 19.7 If the OWNER fails to make payment thirty (30) days after review by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said paid is due and continuing until the payment is received by the CONTRACTOR.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

- 20.1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in

connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS or the PERFORMANCE BOND.

21. INSURANCE

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect the CONTRACTOR from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by the CONTRACTOR or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

21.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained by (1) any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR or (2) any other person; and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be canceled unless at least fifteen (15) days prior WRITTEN NOTICE has been given the OWNER.

21.3 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, liability insurance as hereinafter specified;

21.3.1 CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting the CONTRACTOR from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly

employed by the CONTRACTOR or by a SUBCONTRACTOR under the CONTRACTOR. Insurance shall be written with a limit of liability of not less than \$2,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than \$2,000,000 aggregate for any such damage sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability not less than \$500,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than \$500,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.4 The CONTRACTOR shall procure and maintain at the CONTRACTOR's own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the WORK is performed, Workmen's Compensation Insurance, including occupational disease provisions, for all of the CONTRACTOR's employees at the site of the PROJECT and in case any WORK is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous WORK under this contract at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

21.5 The CONTRACTOR shall secure, if applicable, "All RISK" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER, and the OWNER.

22. CONTRACT SECURITY

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE of AWARD furnish the OWNER with a Performance BOND and a Payment BOND in a penal sum equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be

executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23. ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title, or interest therein, or his obligations thereunder, without written consent of the other party.

24. INDEMNIFICATION

24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or review of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs, or SPECIFICATIONS.

25. SEPARATE CONTRACTS

- 25.1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate the CONTRACTOR's WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.
- 25.2 The OWNER may perform additional WORK related to the PROJECT by himself, or the Owner may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if the Owner is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.
- 25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, WRITTEN NOTICE thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, the CONTRACTOR may make a claim therefor as provided in Sections 14 and 15.

26. SUBCONTRACTING

- 26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.
- 26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s), in excess of fifty (50) percent of the CONTRACT PRICE, without prior written approval of the OWNER.
- 26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as the CONTRACTOR is for the acts and omissions of persons directly employed by him.
- 26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

26.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

27. ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period. The ENGINEER shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. The ENGINEER shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the workmanship and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

28.2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29. GUARANTY

29.1 The CONTRACTOR shall guarantee all WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give

notice of observed defects with reasonable promptness in the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The PERFORMANCE BOND shall remain in full force and effect through the guarantee period.

30. TAXES

30.1 The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

31. ENVIRONMENTAL REQUIREMENTS

The CONTRACTOR, when constructing a PROJECT involving trenching and/or other related earth excavation, shall comply with the following environmental constraints.

31.1 WETLANDS - The CONTRACTOR, when disposing of excess, spoil, or other construction materials on public or private property, WILL NOT FILL IN or otherwise CONVERT WETLANDS.

31.2 FLOODPLAINS - The CONTRACTOR, when disposing of excess, spoil, or other construction materials on public or private property, WILL NOT FILL IN or otherwise CONVERT 100 YEAR FLOODPLAIN areas delineated on the latest FEMA Floodplain Maps.

SECTION XIV

SUPPLEMENTAL GENERAL CONDITIONS

1. Preconstruction Conference: Prior to the commencement of WORK at the site, a preconstruction conference will be held at a mutually agreed time and place. The conference shall be attended by:
 - CONTRACTOR and the CONTRACTOR's superintendent.
 - Representative of principal SUPPLIERS and manufacturers as appropriate.
 - ENGINEER and the ENGINEER's RESIDENT PROJECT REPRESENTATIVE.
 - Representatives of OWNER.
 - Representatives of funding agencies.
 - Others as required by CONTRACTOR, OWNER, or ENGINEER.

Unless previously submitted to ENGINEER, CONTRACTOR shall bring to the conference a tentative SCHEDULE for each of the following:

- Progress.
- Procurement.
- Values for progress payment purposes.
- SHOP DRAWINGS and other submittals.
- Construction SCHEDULE

The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:

- CONTRACTOR'S tentative SCHEDULES.
- Transmittal, review, and distribution of CONTRACTOR'S submittals.
- Processing applications for payment.
- Maintaining RECORD documents.
- Critical WORK sequencing.
- Field decisions and CHANGE ORDERS.
- Use of premises, office and storage areas, security, housekeeping, and OWNER'S needs.
- Major equipment deliveries and priorities.
- CONTRACTOR'S assignments for safety and first aid.

ENGINEER will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

2. DRAWINGS AND SPECIFICATIONS: Reference to the standards of any technical society, organization, or association, or codes of local or state authorities, shall mean the latest standard,

code, SPECIFICATIONS, or tentative standard adopted and published at the date of taking BIDS, unless specifically stated otherwise. Should any standard, code, SPECIFICATION, or tentative standard be in conflict with these CONTRACT DOCUMENTS, the provisions of these CONTRACT DOCUMENTS shall govern.

3. Sanitary Facilities: The CONTRACTOR shall provide and properly maintain acceptable sanitary facilities for all construction personnel and shall enforce the use thereof.
4. Testing: The OWNER shall pay all charges for testing services in connection with all tests made on materials incorporated in the PROJECT that meet the requirements of the SPECIFICATIONS. The CONTRACTOR shall pay for all tests that do not meet the requirements of the SPECIFICATIONS. The location and number of tests to be run will be determined by the ENGINEER. The CONTRACTOR shall pay for all other testing in accordance with the provisions of Section 7 of the General Conditions.
5. Time for Completion: The completion time will be extended if the CONTRACTOR can provide a bona fide materials order, which indicates a substantial delay in materials delivery. Such order must be presented to the ENGINEER no later than 15 days after receipt of the NOTICE TO PROCEED.
6. Liquidated Damages: The OWNER shall have the right to deduct the amount of liquidated damages imposed on the CONTRACTOR from any money in its hands, otherwise due, or to become due, to the CONTRACTOR, or to use for and recover compensation for damages for nonperformance of this contract within the time stipulated.
7. Measurement of Partial Payment: The ENGINEER or his representative will make necessary measurements of completed WORK with the assistance and in the company of the CONTRACTOR to provide necessary information for periodic partial payments. If the CONTRACTOR cannot, or will not, assist in such measurement, the measurements shall be made by the ENGINEER or his representative.
8. Fire Insurance: Fire Insurance will not be required on PROJECT or portions of PROJECTS, which can suffer no damage from fire, e.g. earth-fill embankments, excavations.
9. Colorado State Sales Tax: The CONTRACTOR shall obtain, from the Colorado Department of Revenue, a Colorado State Sales Tax exemption certificate. This certificate shall exempt the CONTRACTOR from paying Colorado State Sales Tax on all materials incorporated into the WORK. The CONTRACTOR shall not include in his unit prices or lump sums on the BID schedule the costs associated with Colorado State Sales Tax.

This exemption of the Colorado State Sales Tax does not necessarily apply to other Federal, County or Local sales consumer, use or other similar taxes.

10. Acquisition of Rights of Way and Easements: All land, rights of way and easements required for this PROJECT will be obtained by the OWNER prior to the construction of any facilities thereof. When the CONTRACTOR carries on WORK outside of the lines designated for such easements the CONTRACTOR shall make his own arrangements with the adjacent property owners and shall keep the OWNER free from any claim resulting from his WORK.
11. Plans and SPECIFICATIONS for BIDDING: BIDDERS and SUPPLIERS shall use only those sets of Plans and SPECIFICATIONS which have a red circle and red number inked on the title page of said plans and SPECIFICATION, in the upper right corner thereof. The number shall be entered on a Planholder's List by the ENGINEER together with the name, address and telephone number of the person, or firm, to whom the sets of plans and SPECIFICATIONS are issued.
12. Quality of WORK: All WORK shall be conducted in a skilled, workmanlike manner and finished lines and grades shall conform to the drawing related thereto.
13. Final Cleanup: Before the WORK shall be considered completed, all rubbish, waste and unused material due to or connected with the CONTRACTOR'S activities shall be removed from the site of the WORK and the premises left in a condition satisfactory to the ENGINEER.
14. General and SUPPLEMENTAL GENERAL CONDITIONS: In the case of any discrepancies between the General Conditions and the SUPPLEMENTAL GENERAL CONDITIONS, the SUPPLEMENTAL GENERAL CONDITIONS shall govern.

SECTION XV

GENERAL REQUIREMENTS

SCOPE OF WORK: The WORK to be performed under this Contract shall be for the construction of Special Improvement District No. 5 Large Capacity Augmentation Well #2. This well is intended to withdraw groundwater exclusively from the upper-most confined aquifer as determined by the RGDSS Model. The model specifies that layer 2 starts at approximately 125 feet in this area. The well will be grouted with concrete to the bottom of the confining clay layer at approximately 125 feet. A tentative submersible pump has been selected; this will be finalized based on the test-pumping results. The scope of this contract will include well construction, testing, pump installation, control panel w/VFD installation, etc., and will end at the connection of the elbow to the pipeline at the surface.

The CONTRACTOR, unless otherwise specified, shall furnish all materials, equipment, tools, labor, supervision, and transportation necessary to complete the WORK in accordance with the foregoing SPECIFICATIONS and accompanying DRAWINGS.

The CONTRACTOR shall assume full responsibility and expense for the protection of all public and private property, structures, utilities both above and below the ground, at or near the site, or sites, of the WORK being performed under the contract, or which are in any manner affected by the prosecution of the WORK or the transportation of men and materials in connection therewith. The CONTRACTOR shall give reasonable WRITTEN NOTICE, in advance, to the department, agency, county, or municipality having charge of any property or utilities owned by them and to any other owner, or owners, of public or private property or utilities when they will be affected by the WORK to be performed under the contract, and shall make all necessary arrangements with such department, departments, owner or owners for moving, removing and replacing, or protecting in place such property or utilities. The determination of whether such property or utilities shall be moved, removed, and replaced, or protected in place, shall be made by the department, departments, owner or owners of the property or utilities. If the CONTRACTOR damages any utility, which has been properly located by the OWNER, the CONTRACTOR shall be responsible for immediate repair of the utility. During the course of the WORK, all lawn grass, shrubbery, flowers, other vegetation, and fences, which interfere with the WORK shall be protected or removed and replaced to their original or better condition.

DEVIATIONS NECESSITATED BY OTHER STRUCTURES: Whenever obstructions not shown on the DRAWINGS are encountered during the progress of the WORK and interfere to such an extent that an alteration in the line or grade is required, the ENGINEER shall have the authority to change the line or grade and, if necessary, help the CONTRACTOR negotiate, or arrange, with the owners of the obstruction for the removal, relocation, or reconstruction of the same. If the change in line or grade results in an increase in the amount of WORK performed by the CONTRACTOR, such additional WORK shall be paid for on the basis of the unit price BID in the BID schedule.

Existing underground installations such as water lines, sewer lines, gas lines, telephone lines, television lines, power lines, utility services and similar buried structures in the vicinity of the PROJECT may be shown approximately on the DRAWINGS. The CONTRACTOR shall be solely responsible for locating all existing underground installations, including service connections, in advance of excavation or trenching, by contacting the owners thereof and prospecting. The CONTRACTOR shall use his own information and shall not rely upon any information shown on the DRAWINGS concerning existing underground installations.

BRAND NAME OR SIMILAR: Many items are specified by brand name, make and model to indicate the type, characteristics, and quality of the item to be furnished and, in some instances, to indicate the specific item which the ENGINEER feels is best suited for the particular application. The "or similar" clause is used to permit the CONTRACTOR to use equipment which, for one reason or another, may be to his or the OWNER'S advantage.

All BIDDERS are requested to BID the WORK to be performed and the equipment to be supplied under this contract as specified. After the contract is awarded, the successful BIDDER is requested to submit proposals to the ENGINEER for alternate methods of execution and equipment. No submittal is required if the CONTRACTOR uses the makes and models specified. Sufficient descriptions and materials specifications shall be submitted to permit evaluation and comparison of the proposed alternative. Whenever a material, article or piece of equipment is identified on the DRAWINGS or in the SPECIFICATIONS by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance of other salient requirements and that other products with similar capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, articles, or piece of equipment of similar substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of similar substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are accepted, no major changes in function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without change in the CONTRACT PRICE or CONTRACT TIME. Only those alternate proposals which the ENGINEER opines to similar to or better than "as specified" and which will be compatible with the remainder of the system will be accepted. The "or similar" clause makes no reference that items must be identical in all respects if the above conditions are satisfied.

Alternate proposals must be submitted as soon as possible after award is made so as not to delay orders for materials and execution of the WORK. Requests for review of similarity will not be accepted from anyone except the CONTRACTOR, and such requests will not be considered until after the contract has been awarded. Substitutions made without review of the ENGINEER are made at the CONTRACTOR'S own risk.

NOTIFICATION OF UTILITY COMPANIES: The CONTRACTOR shall be responsible for notifying all utility companies having underground or overhead utilities in the construction area. Such notification shall be made prior to the commencement of any construction and shall advise the companies of the CONTRACTOR'S construction SCHEDULE and nature of WORK.

HANDLING OF MATERIALS: All materials furnished by the CONTRACTOR shall be delivered and distributed at the site by the CONTRACTOR.

Pipe and accessories shall be loaded and unloaded by lifting with hoists, or skidding, so as to avoid shock or damage to materials as well as to coatings. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.

Each piece of material shall be unloaded opposite or near the site of the WORK where it is to be installed unless storage requirements make it necessary to do otherwise for the protection of the materials.

Pipe or pumping equipment shall be handled in such a manner that bells, coatings, linings, facings, etc. are protected from damage. If such damage should occur the repair or replacement shall be made by the CONTRACTOR, at his expense, in a manner satisfactory to the ENGINEER.

POWER: All power for lighting, operation of the CONTRACTOR'S plant or equipment, or for other use by the CONTRACTOR, shall be provided by the CONTRACTOR at his sole expense.

WATER: It is the CONTRACTOR'S responsibility to provide water for the PROJECT. A water source will be provided within 1 mile of the proposed well site. It will be the CONTRACTOR'S responsibility to provide all pumps, piping, hoses, accessories, and labor required to load and transport the water.

WAIVERS AND VARIATIONS: Waivers for or variations to the following Technical Requirements may be granted by the ENGINEER if, in his opinion, such waivers or variations are in the best interests of the PROJECT and the OWNER.

DETAILED TECHNICAL REQUIREMENTS: The detailed technical requirements are identified by item number, which refers to the items of WORK on the BID schedule. Item numbers on the BID schedule, which are followed by a letter, refer to the same item of material but a different size, class, or division of WORK.

Items with numbers under 100 are items for which payments shall be made. Items with numbers over 100 are items of WORK for which payment will not be made, but are included for the direction of the CONTRACTOR in performing such items of WORK which are subsidiary to and necessary for the satisfactory completion of the pay item to which they refer.

SECTION XVI

TECHNICAL SPECIFICATIONS

Item 1 – MOBILIZATION, DEMOBILIZATION, AND BONDING

1.1 SCOPE: This SPECIFICATION covers mobilization and demobilization of personnel, equipment, and supplies at the PROJECT site in preparation for and at the conclusion of WORK on the PROJECT. This item also includes the cost of all the BONDING to be obtained by the CONTRACTOR as required by this contract.

1.2 PROCEDURE: This item shall include the establishment of the CONTRACTOR's office and other necessary facilities as well as all other costs incurred or labor and operations which must be performed prior to beginning the other items under the Contract and at the completion of all items under the Contract.

The OWNER will provide a location for the staging of equipment and supplies required for the completion of this PROJECT. The location and condition of the staging area(s) will be identified and inspected during the PROJECT walkthrough.

1.3 METHOD OF MEASUREMENT AND PAYMENT: Payment for mobilization, demobilization, and BONDING shall be made at the contract lump sum. Payment for this item shall be full compensation for all required mobilization and demobilization as required by this contract.

ITEM 2 - DRILLING AND TESTING AUGMENTATION WELL

2.1 GENERAL

The WORK required under this solicitation includes drilling one water well; furnishing and installing surface casing, pump chamber casing, and well screen assemblies; furnishing and placing filter pack, grout pads and seals; furnishing, installing, and removing developing equipment; developing and cleaning the well; sterilizing the well; furnishing, installing, and removing test pumping equipment; test pumping the well; capping the well; cleaning up and restoring the drill site, keeping RECORDS and providing a well construction drawing, well construction and pumping REPORT to OWNER.

The CONTRACTOR shall be a State licensed well driller and pump setter. The CONTRACTOR, at the CONTRACTOR's own expense, shall procure all permits, certificates and licenses required by him by law for the execution of his WORK, with the exception of the well permit. The well shall be constructed in accordance with the laws of the State of Colorado, this solicitation, and the DRAWINGS. The OWNER has in his possession the necessary permit for drilling the well.

The approximate location of the well is shown on the DRAWINGS. The final location of the well will be determined by the OWNER.

The water well shall have a nominal screen size of ± 20 inches O.D. in diameter, as specified herein.

The depth of the water well will depend upon subsurface conditions. It is expected the total depth of the well will be approximately 220 feet, depending on strata encountered, the final well permit, and the CONTRACTOR'S estimation of well production.

The dimensions of the well shall be as shown on the DRAWINGS.

Subsurface materials to a depth of 220 feet are described in the supplemental well information below.

2.2 DRILLING PROGRAM

Within **10 calendar days** after date of receipt of NOTICE TO PROCEED, the CONTRACTOR shall submit to the ENGINEER for approval a complete and practicable drilling program. The program shall show in detail the proposed drilling methods and sequence of drilling operations and shall provide for orderly performance of the WORK.

The program shall be in such form and detail as to show the following:

- A. Sequence of drilling operations.
- B. The days of week and month that WORK is to be performed.

- C. The number and length of each shift per day. The length of a shift may be extended in the field as required to avoid interrupting a drilling and testing operation.
- D. Type of drilling fluid to be used and plans for mud pits and pumps.

The CONTRACTOR shall revise the program as necessary to keep it current, and such revisions shall be submitted to the ENGINEER for approval.

Timely submittal of the drilling program and any revisions are required. The OWNER must have the information contained in the drilling program for such purposes as scheduling of inspectors and survey crews.

The cost of all WORK required by this paragraph shall be included in the prices BID in the schedule for other items of WORK.

2.3 EQUIPMENT

- A. Drilling and test pumping equipment: The CONTRACTOR shall provide standard drilling and test pumping equipment of types approved by the ENGINEER, but such approval shall not constitute any assurance by the OWNER of the adequacy of the equipment approved for use in performing the WORK specified. The drilling and test pumping equipment shall be disinfected with a sodium hypochlorite solution of the strength specified below. The method and procedure of disinfecting the equipment shall be according to State of Colorado regulation for water supply wells.

Hypochlorite Concentration Percentage (approximately)

5%	10%	15%	20%
6 liquid ounces	3 liquid ounces	2 liquid ounces	1-1/2 liquid ounces

- B. Costs: The cost of complying with the requirements of this paragraph shall be included in the prices BID in the schedule for other items of WORK.

2.4 SEQUENCE OF CONSTRUCTION FOR THE WELL

The CONTRACTOR shall follow the sequence listed below for construction of the well:

- A. Drill the hole for the surface casing to the specified depth or as directed by the ENGINEER. The diameter of the hole shall be large enough to provide a minimum 1-1/2-inch-thick grout seal around the surface casing.
- B. Install the surface casing to the top of the confining clay. Plumb the casing.

- C. Grout the annular space around the outside of the surface casing. Grout is to extend from the surface to the bottom of the confining clay layer separating RDGSS model layers 1 and 2. Pull temporary casing, if used. Permit minimum 24-hour grout setup time.
- D. Stockpile and assemble at the site all necessary casing, well screen, filter pack, other materials, equipment, and tools necessary to drill and complete the well. This will be required before beginning WORK in step (e) below.
- E. Drill the hole for the pump chamber casing, well screen, and filter pack from the bottom of the surface casing to the total depth of the well as directed by the ENGINEER. Circulate fluid or otherwise clean the hole.
- F. Pull the drilling tools and sound the hole for depth and condition. The hole shall be cleaned of sediment to the satisfaction of the ENGINEER prior to installation of the grout pad, pump chamber casing, and well screen.
- G. Place a pre-cast grout pad of suitable size in the bottom of the hole using a string of pipe with a disconnect joint.
- H. Install the screen assembly and the pump chamber casing down to the grout pad (measure exact length of assembly before installing).
- I. Place filter pack such that the screen and smooth casing assembly remains centered in the hole.
- J. Weld plate supports between pump chamber casing and surface casing.
- K. Develop the well immediately following installation of well components. Pump from the well while developing.
- L. Sterilize well.
- M. Install test pump and test the well.
- N. Replace test pump with production pump (if different) and seal the well.

2.5 DRILLING

- E. General: The well shall be drilled to diameters adequate to accommodate casings, grout seals, and filter pack as shown on the DRAWINGS.

The well shall be drilled by the reverse rotary method or by other methods approved by the ENGINEER so as to properly maintain the hole and not damage the aquifer. If other drilling methods are proposed by the CONTRACTOR, the CONTRACTOR shall satisfy the ENGINEER that the methods proposed to be used will result in a well meeting the requirements and intents of the plans and SPECIFICATIONS set forth herein.

- B. Drilling fluid: Use of drilling fluid shall be limited to water or water with bentonite type drilling fluid additive. No chemicals shall be used to clean out the well after drilling. NO CHEMICALS CONTAINING PHOSPHORUS SHALL BE USED IN ANY STAGE OF THE WELL DRILLING. Regardless of the fluid used for drilling, fluid properties and circulation velocity must be adequate to maintain the hole and remove all solids, including gravels from the hole. The use of formaldehyde, hydrochloric acid, and other similar chemicals in the construction of the well will not be allowed.

Regardless of the drilling fluid used, the CONTRACTOR shall disinfect the water used for drilling fluid with sodium hypochlorite. The addition of the disinfectant shall produce a concentration of about 50 parts per million (p/m) of chlorine in the water. To obtain a concentration of 50 p/m, the following dosages, depending on the sterilant concentration, shall be added to each 50 gallons of water.

Hypochlorite Concentration Percentage (approximately)

5%	10%	15%	20%
6 liquid ounces	3 liquid ounces	2 liquid ounces	1-1/2 liquid ounces

- C. Drilling: The well shall be drilled and cased sufficiently straight and plumb to meet the requirements of section 2.7 in order to permit the installation and removal of test pumping equipment provided for in section 2.13. If the well fails to meet the plumbness requirements, it shall be corrected by the CONTRACTOR at his/her own expense or may be rejected and considered an abandoned well as provided for in section 2.8.

The well shall be overdrilled at least 1 foot, and a grout pad shall be placed in the bottom as specified in section 2.9 and shown on the DRAWINGS.

The CONTRACTOR shall be responsible for providing water for drilling, developing, and other purposes, and for disposal of such water. A water source will be available within 1 mile of the PROJECT site. The water shall be clear and free from foreign matter. Disposal of water from developing and test pumping will be in accordance with provisions of section 2.13.

- D. Landscape Preservation: Materials excavated from the well shall be disposed of and spread in an area within ± 30 feet of the well in a manner and at a location approved by the ENGINEER. Generally, these materials shall be spread and leveled to conform as nearly as possible to the original ground surface at the drill location, any equipment ruts and mud pits shall be filled, and cleanup shall be performed as follows:

- (E) General: The CONTRACTOR shall exercise care to preserve the natural landscape and shall conduct his/her construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the WORK.

No special reseeding or replanting will be required under this solicitation; however, on completion of the WORK, all WORK areas shall be scarified and left in a condition which will facilitate natural revegetation, provide for proper drainage, and

prevent erosion. All unnecessary destruction, scarring, damage, or defacing of the landscape resulting from the CONTRACTOR'S operations shall be repaired, replanted, reseeded, or otherwise corrected as directed by the ENGINEER and at the CONTRACTOR'S expense.

- (2) Mud pits: When no longer required by the CONTRACTOR, mud pits shall be filled in and smoothed over to conform as nearly as possible with the original ground surface.
- (3) Costs: The cost of all WORK required by this paragraph shall be included in the prices BID in the schedule for other items of WORK.

- E. Measurement: Measurement for payment for drilling holes to accommodate surface casing and grout seal shall be made to the nearest foot from the original ground surface to the bottom of the grout seal. Measurement for payment for drilling holes for the well shall be made to the nearest foot from the bottom of the grout seal to the bottom of the hole or to the depth of drilling, whichever is less. The CONTRACTOR shall make all such measurements in the presence of the ENGINEER.
- F. Payment: Payment for drilling holes will be made at the applicable contract unit prices per linear foot BID, which unit prices shall include all costs of furnishing, operating, and removing equipment; all costs of providing, sterilizing, and disposing of drilling water and other fluids; all costs of disposing of excavated materials and unused supplies; and all costs of normal site cleanup, which includes cleaning up and restoring the drill site to as near its original condition as practicable.

Payment for placing the grout pad will be made in accordance with the provisions of section 2.9.

2.6 CASING

- A. General: Permanent well casing shall be furnished and installed by the CONTRACTOR as shown on the DRAWINGS. Casing for the well shall be new black steel pipe and shall be manufactured in accordance with API Standard 5L of the American Petroleum Institute or equivalent ASA or ASTM Standards. Each piece of permanent casing shall be factory-stenciled or otherwise marked to properly identify the casing.

Sections of casing shall be joined by butt-welding. Welding shall be performed by a qualified welder, and such welding shall be multiple pass, full continuous running welds in accordance with standards of the American Welding Society. Casing ends shall be beveled before welding. All pump chamber-casing interiors will be free of slag, burrs, or other roughness after welding. The CONTRACTOR shall provide and utilize a jig to assure that casing is accurately aligned during welding. The jig provided will be subject to approval by the ENGINEER.

Casing strings shall be suspended in tension from the surface during well construction.

- B. Surface casing: Surface casing shall be installed in the well to the depth as shown on the DRAWINGS and/or as directed by the ENGINEER. The casing shall be centered in the hole. The casing shall be driven approximately 1 foot into the bottom of the hole, and the annular space around the casing shall be filled with a grout seal in accordance with the provisions of section 2.9.

Diameter, weight, and wall thickness of the surface casing are shown in Table 2A.

Table 2A. – Surface casing		
Size, outside diameter (inches)	Weight (lb per ft)	Wall thickness (inches)
28	110.6	0.375

- C. Pump chamber casing: Pump chamber casing shall be attached to the well screen and installed in the well as shown on the DRAWINGS and/or as directed by the ENGINEER. The length of the pump chamber casing installed at the well shall be as shown on the DRAWINGS.

The pump chamber casing shall be centered in the well and shall be supported on two ¼ inch-thick steel plate supports welded between the pump chamber casing and the surface casing as shown on the DRAWINGS.

Diameter, weight, and wall thickness of the pump chamber casing are shown in Table 2B.

Table 2B. – Pump chamber casing		
Size, outside diameter (inches)	Weight (lb per ft)	Wall thickness (inches)
20	78.60	0.375

- D. Temporary casing: The CONTRACTOR may use temporary casing as required for construction of the well; provided that such temporary casing shall be removed on completion of the well.

No separate payment will be made for furnishing, installing, and removing temporary casing.

- E. Capping well: On completion of all WORK, including testing at the site, the well shall be capped and sealed with an elbow extending out of the top as shown on the DRAWINGS. The cap will have a cable hole and eye bolt for connection to safety cable. The eye bolt shall be rated for a minimum load of 1,000 lbs. While under construction and no personnel are present at the well site, the well shall be temporarily capped as approved by the ENGINEER.
- F. Measurement and payment: Measurement for payment for furnishing and installing surface casing and pump chamber casing will be made to the nearest 0.5 foot measured along the centerline of the casing. Such measurement shall include only the permanent casing actually installed and left in place as specified herein and shown on the DRAWINGS.

Payment for furnishing and installing surface casing and pump chamber casing will be made at the applicable contract unit prices per foot BID. The unit prices BID in the schedule shall include all costs of furnishing and installing the casing; all costs of furnishing, installing, and removing temporary casing; and all costs of furnishing and installing casing supports, cover plates, and fittings.

2.7 PLUMBNESS

The well shall be completed plumb and straight. When installed, the pump chamber casing shall not deviate out of plumb more than 50 percent of its inside diameter, measured between the ground surface and the top of the screen assembly.

On request by the ENGINEER, the CONTRACTOR shall test the well for plumbness by running a plumb ring or cage to the top of the screen assembly in accordance with AWWA Standard A100, Section A1-9. The plumb ring or cage shall be approximately 1 foot long and ¼ inch smaller in diameter than the inside diameter of the casing.

Any correction to the well necessary to meet the plumbness requirements shall be made by and at the expense of the CONTRACTOR. The cost of testing the well for plumbness shall be included in the prices BID for the various items of WORK.

2.8 ABANDONMENT

Any well that does not meet the plumbness or other requirements or is “lost” (abandoned by CONTRACTOR due to not fulfilling requirements of this solicitation) before reaching the required depth or completion, or any well on which the CONTRACTOR voluntarily stops WORK before completion will be considered an abandoned well. The ENGINEER may require abandonment of a well if the hole below the surface casing has collapsed and has been redrilled to a point that it is considered excessively oversized. The CONTRACTOR, at his/her own expense, shall pull any ungrouted casing and screen assembly from an abandoned well and shall seal the well in accordance with State of Colorado regulations. No payment will be made for any item of WORK on an abandoned well. In the event that a well is abandoned, a new well shall be drilled in the drill site vicinity at a location designated by the ENGINEER.

2.9 GROUT SEAL AND PRECAST GROUT PAD

A. Grout seal: The annular space between the surface casing and the wall of the hole shall be sealed with grout as specified in this paragraph and shown on the DRAWINGS. Grout shall be placed by pumping through a tremie pipe extending initially to the bottom of the hole or by other approved methods which will assure complete filling of the annular space from the bottom upward in one continuous operation. Pipe shall be black iron or PVC plastic. Under no circumstances shall galvanized pipe or aluminum pipe be used. Temporary conductor casing, if used, shall be gradually pulled back as the grout is placed. At no time shall the grout level be permitted to fall below the bottom of the conductor casing during grouting. The minimum thickness of the grout seal shall be 1½ inches.

The surface casing shall be installed from the bottom of the confining clay layer separating RGSS Model Layers to the surface. This grout seal shall extend from the surface of the borehole to the bottom of the confining clay layer.

- B. Grout plug: A grout plug shall be placed in the bottom three feet of the well. The grout plug shall be installed through the use of a tremie pipe or attached to the bottom of the well screen and set when the screen is installed.
- C. Materials: The grout shall be either neat cement grout or neat cement grout with accelerator as directed by the ENGINEER. The neat cement grout shall consist of one sack (94 pounds) of Portland cement and approximately 5½ gallons of water. The neat cement grout with accelerator shall consist of one sack (94 pounds) of Portland cement, approximately 5½ gallons of water, and a maximum of 2 pounds of 70 to 80 percent calcium chloride flakes. Cement shall be type II, low-alkali Portland cement in accordance with ASTM C 150. Water shall be free from objectionable quantities of silt, organic matter, salts, and other impurities.

The CONTRACTOR is to provide to the ENGINEER a receipt or other documentation of the quantity of grout seal placed in the annular space between the surface casing and borehole. The ENGINEER is to be contacted at least (2) days prior to installation of each grout seal to permit observation of installation.

- D. Placement of grout: The neat cement grout shall be placed within 1½ hours after mixing and before the temperature of the grout exceeds 90 degrees F. Any neat cement grout not placed within 1½ hours after mixing or exceeds 90 degrees F shall be wasted at the expense of the CONTRACTOR.

The neat cement grout with accelerator shall be placed immediately after mixing and before the temperature of the grout exceeds 90 degrees F. Any neat cement grout with accelerator that is not placed immediately after mixing or that exceeds 90 degrees F shall be wasted at the expense of the CONTRACTOR.

Following placement of the grout seal, no WORK shall be done on the well for a period of at least 24 hours.

- E. Measurement and payment: Measurement and payment for furnishing and placing grout in the annular space around casing and for furnishing and placing the bottom grout plug will be made on a lump sum basis in the BID schedule for furnishing and placing grout seals and pads, which unit price shall include all cost of furnishing, mixing, and placing the grout and all costs of providing cement, water, and any additives used.

Payment will not be made for grout that is wasted.

2.10 WELL SCREEN ASSEMBLIES

- A. General: The CONTRACTOR shall furnish the well screen in sufficient numbers of 10-, 20- and 40-foot lengths to make up the well screen assemblies in the specified lengths. Well screen assembly components will be furnished by the CONTRACTOR and shall be welded

together and installed by the CONTRACTOR in the well as shown on the DRAWINGS and as directed by the ENGINEER.

As part of this BID, two well screening options are to be provided. The ENGINEER, CONTRACTOR, and OWNER will discuss the optimal screening type and opening dimensions after the winning BID has been selected.

Option A)

Option A shall be 0.060” slot Johnson 304-stainless steel Wire Wrapped Screen, or similar. The length of well screen will be from approximately 90 feet. The screen slot size may change based on the results of the test hole analysis.

Option B)

Option B shall be 0.060” slot 304-stainless steel Super Flo Louvered Well Screen, or similar. The length of well screen for the will be from approximately 90 feet. The screen slot size may change based on the results of the test hole analysis.

B. Well Screen Specifications for Each Option

Option A: Johnson well screen assemblies or similar:

(1) General: Well screen assemblies shall consist of wire wound, cage-type well screen with collar extension for welding.

The well screen shall be constructed of stainless steel and be of continuous slot type design. The screen shall be fabricated by welding to insure adequate strength to resist the external forces to which it will be subjected during and after installation. Screen openings shall be V-shaped, widening inwardly to permit fine particles to pass through without clogging during development of the well.

(2) Well screen: The well screens shall be wire wound, cage-type, continuous slot, shaped wire, V-slot screen of all-welded construction, conforming to the SPECIFICATIONS shown in Table 2C.

Screen slot widths shall not vary more than ± 0.004 inches from the specified widths shown in Table 2C. The slot width shall be clearly marked on each section of screen. The slots shall be completely clean and free of burrs, frayed ends, or cuttings. Each length of screen shall be joined by welding to make up the total screen length for the well.

Table 2C. – Well screen dimensions

1 Screen outside diameter	2 Type of steel	3 Slot width	4 Minimum intake area	5 Minimum collapse resistance
(in) 19.9	304-Stainless Steel	(in) 0.060	(in ² /ft) 237	(lbs/in ²) 56

Option B: Roscoe Moss louvered well screen assemblies or similar:

(1) General: Well screen assemblies shall consist of a casing perforated with machine made opening facing downwards. All openings are to be horizontal to the axis of the casing and of a louver style.

The well screen shall be constructed of 304 stainless steel and be of louvered slot type design. The screen shall be fabricated by a perforating machine and welding to ensure adequate strength to resist the external forces to which it will be subjected during and after installation. Screen opening shall widen inwardly to permit fine particles to pass through without clogging during development of the well.

(2) Well screen: The well screens shall be machine perforated louver type screen of all-welded construction, conforming to the SPECIFICATIONS shown in Table 2D.

Screen slot widths shall not vary more than ± 0.004 inches from the specified widths shown in Table 2C. The slot width shall be clearly marked on each section of screen. The slots shall be completely clean and free of burrs, frayed ends, or cuttings. Each length of screen shall be joined by welding to make up the total screen length for the well.

Table 2D. – Well screen dimensions

1	2	3	4	5
Screen outside diameter	Type of steel	Slot width	Minimum intake area	Minimum collapse resistance
(in) 20.625	304-Stainless Steel	(in) 0.060	(in ² /ft) 83.2	(lbs/in ²) -

D. Welding well screen assemblies: The welding of screen assemblies, including the welding of sections of screen to one another and to fittings, shall only be done in conformance with the screen manufacturer’s recommendations and standards of the American Welding Society by experienced and competent welding personnel. The CONTRACTOR shall obtain from the screen manufacturer specific welding recommendations in manual or similar form for field welding. Such recommendations shall include electrode types, polarity, etc. One copy of the recommendations shall be provided to the ENGINEER 20 days prior to installation of the screen assemblies. The CONTRACTOR shall furnish all welding equipment and rods necessary for welding the well screen components together. All well screen interiors and exteriors shall be free of slag, burrs, or other roughness after welding. The CONTRACTOR shall provide and utilize a jig to assure that the well screen is accurately aligned during welding. The jig provided shall be subject to approval of the ENGINEER.

E. Installation: The well screen assembly shall be installed in one string to the bottom of the well. Each screen or smooth casing joint shall be welded to the next as it is installed.

- F. Measurement and payment: Measurement for payment for furnishing and installing steel well screen assemblies will be made to the nearest tenth of a foot of the actual well screen and collar furnished and installed in the well.

Payment for furnishing and installing the various sizes of steel well screen assemblies will be made at the applicable contract unit prices per linear foot, which unit prices shall include all costs of furnishing, hauling, handling, welding, and installing the screen assemblies as required by this paragraph.

Two well screen options are to be provided by the BIDDER as per the above SPECIFICATIONS. The final screen selected for installation will be chosen by the OWNER from the options.

2.11 FILTER PACK

- A. General: Filter pack shall be furnished and placed by the CONTRACTOR into the well as specified in this paragraph and shown on the DRAWINGS. The typical size of pack that may be used in the well is 0.066" to 0.079". This SPECIFICATIONS is to be used for BIDDING purposes only. The size of the filter pack material may change based on the recorded formation as observed during drilling.

- B. Pack material: Pack material shall be Johnson Brand Shur Pak 10-12.

The filter pack delivered to well sites in the field shall be subject to analysis and will be rejected, if found to fall outside the specified limits with allowed variation.

- C. Placement: If water has been used in drilling, the pack shall be placed by adding at the surface through a hopper with a minimum capacity of 2 cubic feet or by other means approved by the ENGINEER. Placement shall be slow and continuous in such a manner as to minimize bridging or segregation of the pack.

Filter pack placement shall begin following installation of the well screen/pump chamber casing assembly. The pack level shall be brought to 10 feet above the well screen.

Following placement of filter pack, the well shall be lightly surged above the screen for a period of not less than 15 minutes in order to settle the pack.

During development and test pumping, the level of the pack shall be measured periodically and replenished as necessary to ensure that the pack level does not fall to less than 10 feet above the screen. On completion of development and test pumping, pack material shall be added to bring the pack level to 10 feet above the screened portion.

- D. Measurement and payment: Measurement and payment for furnishing and placing filter pack will be made on a lump sum basis therefore in the schedule, which unit price shall include the cost of furnishing and placing the pack and surging the well to settle the pack. The material specified herein shall be subject to change.

2.12 DEVELOPING WELL

A. General: The augmentation well shall be initially developed by airlift pumping. A secondary step of development will consist of a minimum (1) of these (3) options below:

1. Jetting, as per section 2.12 B
2. Combined Jetting and Surging as per section 2.12 C
3. Cable tool Surging, as per section 2.12 D

Prior to and upon completion of development, the CONTRACTOR shall bail or pump any material remaining in the bottom of the well.

Any water used for well development must be hauled to the site, however; a water supply is available within 1 mile of the proposed well site. The water shall be sterilized in accordance with section 2.5 B, however chlorine concentration of water shall be no less than 200 p/m.

Final development shall be done by surging and pumping as provided for in section 2.12 E.

If at any time during development that the depth of material accumulated in the bottom of the well exceeds 2 feet, the material shall be removed by bailing or pumping before developing can be resumed.

On completion of development, all equipment shall remain the property of the CONTRACTOR.

B. Developing by Jetting: The CONTRACTOR shall provide to the ENGINEER specific sequences of development by jetting.

Equipment for jetting shall include (1) a high-pressure jetting tool similar to that shown on the DRAWINGS; (2) a high-pressure pump; (3) necessary hoses, valves, gauges, pipes, etc.

A pressure gauge showing pumping pressure up to 400 pounds per square inch shall be installed on the pumping system. All components of the jetting equipment shall be designed to safely operate at a maximum pressure of 350 pounds per square inch with an adequate safety factor.

During jetting, approximately 5-foot intervals of the screen shall be developed by slowly raising and lowering the jetting tool while rotating the tool a few degrees after each cycle of raising and lowering until the entire interval has been jetted. Following this, each successive 5-foot interval shall be covered.

The development shall be done in a careful and systematic manner to assure complete development without damage to the aquifer or screen. Development shall continue until the sand particles in the pump discharge are reduced to a concentration acceptable to the ENGINEER.

At no time shall both the rotational and vertical movement of the tool be permitted to stop while jetting is underway.

Upon completion of development by jetting, the well shall be cleaned of accumulated material. Filter pack shall be added during and following development of the well in accordance with section 2.11.

- C. Developing by combined jetting and surging: The CONTRACTOR shall provide to the ENGINEER specific sequences of development by jetting and/or combined jetting and surging.

Equipment for combined jetting and surging shall include (1) a string of drop pipe (2) necessary hoses, valves, gauges, pipes, etc.; (3) a centrifugal pump; and (4) a surge block similar to that shown on the DRAWINGS.

Also required for development by combined jetting and surging will be a drill rig capable of operating the combined jetting-surging tools at a minimum rate of 8 strokes per minute to a maximum rate of 20 strokes per minute using the drilling action of the rig. Stroke lengths shall be 24 to 36 inches. A surface-mounted pump or pumps capable of discharging up to 360 gallons per minute shall be provided to pump from the well to maintain drawdown during development. The pump shall be equipped with suction hose or pipe of suitable diameter and length and a discharge with valve or engine throttle and a means of measuring discharge.

During combined jetting and surging, each screen interval equal to the surge stroke length shall be covered in a similar manner while jetting and surging.

The development shall be done in a careful and systematic manner to assure complete development without damage to the aquifer or screen. Development shall continue until the sand particles in the pump discharge are reduced to a concentration acceptable to the ENGINEER.

At no time shall both the rotational and vertical movement of the tool be permitted to stop while jetting is underway.

Upon completion of development by combined jetting and surging, the well shall be cleaned of accumulated material. Filter pack shall be added during and following development of the well in accordance with section 2.11.

- D. Developing by Cable Tool Surging: The CONTRACTOR shall provide to the ENGINEER specific sequences of development by cable tool surging. This development method is NOT SUITABLE for a wire wrapped screen casing. If the wire wrapped screen selective alternate option is chosen by the OWNER, cable tool surging will NOT be permitted.

Equipment for cable tool surging shall include: (1) a cable tool surge block as shown on the DRAWINGS and, (2) a cable tool drilling rig capable of generating sufficient rates of upwards lift in a well of this diameter.

During cable tool surging an interval of screen corresponding to the associated cable drilling rig stroke length shall be developed at one time. Each screen interval equal to the stroke length shall be covered in a similar manner.

The development shall be done in a careful and systematic manner to assure complete development without damage to the aquifer or screen. Periodically the well is to be pumped to remove any sediment and check the progress of the well development process. Development shall continue until the sand particles in the pump discharge are reduced to a concentration acceptable to the ENGINEER.

At no time shall the CONTRACTOR allow the velocity of the surge block to put excessive stress on the well screen or casing. Cable tool surging is to take place in the screened section of the well only in order to avoid creating excessive negative pressures within the smooth steel casing.

Upon completion of development by cable tool surging, the well shall be cleaned of accumulated material. Filter pack shall be added during and following development of the well in accordance with section 2.11.

- E. Final Developing by surging and pumping: As directed by the ENGINEER, the well shall be developed by surging and pumping, starting at a low discharge rate, and increasing to the maximum. Pumping and surging shall consist of pumping the water to the surface and shutting off the pump to allow the water to flow back down the column pipe. At the discretion of the CONTRACTOR, the test pumping equipment referenced in section 2.13 may be installed prior to final development and used for surging. Alternatively, an airlift method may be employed at this time.

This shall be done repeatedly with periodic intervals of pumping to remove sand. The surging and pumping shall continue until the discharge is relatively sand free as determined by the ENGINEER. Upon completion of final development, the well shall be cleaned of accumulated material.

- F. Measurement and Payment: Payment for developing the well, will be made at the contract unit price per hour, which unit price shall include all costs of operating the developing equipment and the cost for lowering or raising the equipment into a new position within the well for developing. No payment will be made for time spent maintaining equipment, or for time spent at the surface of the well removing one type of equipment and installing another. The equipment shall include jetting tools, surge blocks, drop pipe strings, fittings, hose and pipe valves, high-pressure jetting pump, pressure gauges, centrifugal pump, drilling rig, and all other equipment necessary for developing the well.

2.13 TEST PUMPING EQUIPMENT

- A. General: The CONTRACTOR shall provide test pumping equipment for the testing of the supply well.

The CONTRACTOR must supply his own engine-generator.

The test pumping equipment shall consist of a pump, column pipe assembly, discharge elbow, water-level observation pipe, tank, pipeline with throttling valve, flow meter, and other miscellaneous equipment, including lighting.

The CONTRACTOR'S test pumping equipment shall be capable of operating for a period of up to 4 days without stopping for maintenance or other reason.

Test pumping of the well will be required immediately following completion and developing of the well unless directed otherwise by the ENGINEER.

Upon completion of all testing, the CONTRACTOR-furnished test pumping equipment shall be removed from the site and shall remain the property of the CONTRACTOR.

- B. Test pump: The test pump shall be a submersible or vertical turbine pump. The pump shall have a capacity range of 1000 to 2000 gallons per minute while pumping from a maximum depth of 205 feet below natural ground surface.

The pump and column pipe shall be adequately supported at the surface of the well. The pump may be supported on either the surface or production casing.

If the test pump is to be used for the final phase of development, as per section 2.12 E, the pump shall not be equipped with a ratchet or other type device which will restrict backspin when the pump is stopped.

- C. Discharge pipeline: A discharge pipeline furnished by the CONTRACTOR shall convey the water away from the well site.

The CONTRACTOR shall provide 500 linear feet of pipeline, which shall have sufficient capacity to convey the highest required discharge of 2000 gallons per minute away from the well site. At the option of the CONTRACTOR, two or more pipelines, each up to 250 feet in length, may be used instead of a single pipeline.

The pipeline joints shall not leak more than 2 gallons per minute at each joint.

The pipeline shall be installed from the new well and shall be located in a direction as approved by the ENGINEER to minimize damage by erosion.

- D. Water-level observation pipe: A 1-inch-diameter or larger metal pipe for measuring water-level drawdown in the well shall be installed at the same time as the pump. The pipe shall extend from near the base of the discharge head to the top of the pump bowls. The lower 5 feet of this pipe shall have a minimum of two ¼-inch drill holes or saw cuts per foot, and the lower end shall have a cap, which shall have a ¼-inch drill hole. The top of the pipe shall be arranged to permit easy access for insertion of a tape or electric probe for measuring depth to the water level during testing.

- E. Miscellaneous equipment: The CONTRACTOR shall provide at least two electric lights with minimum 75-watt rating each for nighttime operations. Also, cribbing or other type support shall be provided to maintain the discharge-throttling valve and measuring equipment in a level, stable position.

- F. Measurement and Payment: Payment for furnishing, installing, and removing test pumping equipment will be made at the contract lump sum price, which unit price shall include all costs of furnishing, installing, and removing the test pump and motor, generator, discharge elbow, discharge tank, discharge pipeline, valve, meter, water-level observation pipe, and miscellaneous equipment. Equipment furnished by the CONTRACTOR shall remain the property of the CONTRACTOR.

2.14 STEP DRAWDOWN AND SUSTAINED YIELD TESTING

- A. General: Following installation of all test pumping equipment, a step drawdown test, followed by a sustained yield test shall be conducted.

Operation of the pumping equipment shall not begin until after the well has been completed and developed as per section 2.12. The CONTRACTOR shall notify the ENGINEER not less than 48 hours in advance of the date and time he/she will be ready to start operation of the test pumping equipment. The date and hour selected shall be a regular day shift, Monday through Friday, excluding holidays.

The CONTRACTOR will be responsible for efficient and reliable operation of the test pumping equipment.

Test pumping shall only be done under the direction of the ENGINEER. An estimated minimum 2 days at the well will be required for the step drawdown test, excluding sustained yield testing.

On completion of all test pumping and removal of test pumping equipment, the well shall be sounded by tape to the bottom. If more than 1 foot of material has accumulated in the bottom, the well shall be bailed or pumped clean using sterilized equipment.

Filter pack shall be added during and following test pumping in accordance with section 2.11.

- C. Preliminary capacity test: Following test pump installation, at the option of the ENGINEER, the augmentation well shall be pumped at rates of discharge as directed by the ENGINEER to determine the limits of the step drawdown test to follow. On completion of the preliminary capacity tests, the well shall be permitted to recover for not less than 8 hours.
- D. Step drawdown test: Based on the apparent capacity of the well during the previous tests, the well shall be tested in three to six successive steps of approximately equal increments (for example, 1000, 1200, 1400, and 1700 gallons per minute and up to 2000 gallons per minute). During each step, the pump discharge shall be maintained at the required rate as directed for periods of up to 2 hours duration.

Should the equipment malfunction for any reason, the test shall be stopped and the well permitted to recover for a period at least 1½ times as long as the test had been in operation. No payment will be made for pumping or well recovery time on an uncompleted test unless the interruption is due to causes over which the CONTRACTOR has no control. Following

completion of a step drawdown test, the well shall be permitted to recover for not less than 1 hour for each hour of test operation, if sustained yield test is required.

- E. Sustained yield test: Following an adequate recovery period from previous testing, a sustained yield test shall be run on the well for a time period as determined by the ENGINEER.

For sustained yield testing at the well, the CONTRACTOR shall continuously operate the pumping equipment at a constant rate of discharge for a period up to 4 days. The rate of discharge will be determined by the ENGINEER.

If failure of the pumping equipment, water disposal pipeline, or similar cause necessitates interruption of the test during the first 72 hours, the CONTRACTOR shall permit the water level to recover to its original position and shall start the test again. All WORK performed prior to such failure shall be at the CONTRACTOR'S expense.

- F. Measurement and Payment: Payment for step drawdown test and for sustained yield test will be made at the contract unit price per hour BID in the schedule for step drawdown and sustained yield testing, which unit price shall include all costs of operating the pumping equipment and bailing or pumping material from the well on completion of testing. Measurement will be made for the actual time the test pump is operated. No payment will be made for an incomplete test caused by malfunctioning of the testing equipment or disposal facilities or for water-level recovery periods between tests.

2.15 RECORDS

The CONTRACTOR shall maintain and provide all RECORDS and forms required by State of Colorado regulations for the well. The RECORDS for the well shall be furnished to the ENGINEER within 10 working days after completion of all WORK on the well, except for test pumping.

Failure by the CONTRACTOR to maintain accurate up-to-date RECORDS shall constitute cause for rejection of the WORK.

Cost: The cost of keeping RECORDS shall be included in the price BID in the schedule for other items of WORK.

2.16 COLD WEATHER DRILLING

- A. If temperatures drop to a level where heating of water and drilling fluid is needed to proceed with the drilling of the well, the CONTRACTOR shall supply and operate an appropriate boiler to heat the fluid. Use of such equipment shall be contingent upon the approval of the ENGINEER.
- B. Costs: The cost of operating a boiler otherwise heating water and drilling fluid shall be included in the prices BID in the schedule for other items of WORK.

Item 3 – AUGMENTATION WELL PUMP INSTALLATION

- 3.1 SCOPE: This SPECIFICATION covers supply and installation of new well pumping system equipment by the CONTRACTOR at the augmentation well.
- 3.2 EQUIPMENT FOR PERMANENT WELL PUMPING SYSTEM: The pumping system shall include but not be limited to the following equipment:
- A. Submersible Pump: The submersible pump shall be as manufactured by Franklin 75 HP FST-10-FYC Enclosed Propellor, 3-phase, 480 V., submersible pump or similar, capable of delivering 2000 GPM at a total head of 142 feet. The impellers and shaft shall be stainless steel. Approximately 207 feet of ten inch diameter, standard weight schedule 40 threaded steel column pipe shall be set to a depth of approximately 207 feet below the top of the well casing. This pump SPECIFICATION is for BIDDING purposes only. Final selection of required pump head and discharge will be provided after completion of the well testing. The CONTRACTOR shall order the pump only after well testing is complete and ENGINEER has provided final SPECIFICATIONS for pump.
- B. Pump Controls: The well controls shall be Franklin Electric Brand Cerus X-Drive Model 75HP Output Variable Frequency Drive (VFD), or similar. The well controls will include a Variable Frequency Drive installed a UL Type 3R enclosure and one pressure transducer 1-11 v, 0-150 psi. Two sets of I/O/M manuals shall be provided. Test pumping and submersible pump selection shall be done before the specific pump controls can be ordered.
- The VFD will need to be connected to the flow meter (installed by others), so the well production can be controlled through the VDF.
- To protect the pump from operation under conditions of inadequate water supply in the well, the pump control system shall be equipped with a pressure transducer. If the water level in the well is drawn below the “off” level, the pump shall be stopped. Any signal to start the pump after it has been stopped shall be over-ridden until the water level in the well recovers to a depth which will activate the “on” level.
- This pump controls SPECIFICATION is for BIDDING purposes only. Final selection of equipment will be performed after completion of the well testing. The CONTRACTOR shall order the controls only after well testing is complete and the ENGINEER has provided final SPECIFICATIONS for the pump.
- C. dV/dT Filter: A dV/dT filter will be installed between the VFD and the well pump motor, unless the VFD includes one. The dV/dT filter will mitigate both high frequency components and voltage spikes between the VFD and the well pump motor.
- 3.3 SUPPLY AND INSTALLATION: Due to the complex nature of the permanent pumping, power, and control system required for this PROJECT, all permanent pump and control equipment covered under this item shall be furnished by one SUPPLIER who shall be responsible for the complete

coordination and compatibility of the operation of all equipment which is a part of the complete pumping system.

If the CONTRACTOR wishes to supply equipment other than exactly as specified herein the CONTRACTOR shall furnish to the ENGINEER, not less than ten working days prior to the date of ordering, copies of complete engineering details of the proposed equipment, showing that all substitutions meet the SPECIFICATIONS as far as performance and compatibility with all other equipment within the system is concerned. ENGINEER'S review of individual components will not be performed. Complete system details are to be furnished so that engineering coordination may be checked. The ENGINEER'S concurrence with submittals does not remove the CONTRACTOR'S responsibility for proper operation of components in accordance with the design intent.

The CONTRACTOR shall be responsible for making all arrangements and coordinating his electrical WORK with the local power company. The CONTRACTOR shall pay all costs for permits and hookup charges and provide and install all equipment, not installed or provided by the power company, necessary to bring power to the pump. This shall include, but not limited to, buried cable from the well to the control panel in the pump house. The electrical cable shall meet all local and state codes and be of sufficient size and material to properly operate the pump.

Well pump installation shall be performed by a Colorado licensed pump installer. Well pump, electrical supply, fuse box, electrical disconnect, pump control panel and associated miscellaneous components shall be installed in accordance with this SPECIFICATION, equipment manufacturer's recommendations, PROJECT plans relating thereto and applicable State regulations. Upon completion of the pump installation, the pump installer shall complete and submit a pump installation form to the appropriate department of the Colorado Division of Water Resource. A copy of the completed pump installation form shall be provided to the ENGINEER.

Following the installation of permanent pumping equipment, the well and equipment shall be properly disinfected. Disinfection shall be accomplished as required by Rule 15 – Minimum Disinfection Standards as contained in State of Colorado “Rules and Regulations for Water Well Construction, Pump Installation, and Monitoring and Observation Hole/Well Construction.

- 3.4 Measurement and Payment: Payment for well pump installation shall be made on each well pump installed. Payment for the permanent pump, motor, all controls, buried electrical cable, and all other appurtenances and materials thereto required to provide a complete workable pumping system as indicated on the plans and SPECIFICATIONS for this PROJECT, shall be on each well pump installed, including disinfection. The price shall include full compensation for all transportation, materials, equipment, labor, supply of power to pumps, tie into existing control panel, and other expenses required for a complete installation ready for operation and review by the ENGINEER.

Item 4 – ELECTRICAL CONNECTION TO AUGMENTATION WELL

- 4.1 **SCOPE:** This SPECIFICATION covers supply and installation of the electrical connection by the CONTRACTOR from the service provider’s line to the augmentation well.

It is the CONTRACTORS responsibility to install a mast and weather head on the new pole and make the connection to the meter socket (to be provided by SLV REC). Hot sequencing is required for the meter disconnect. A further connection is required from the meter to the fuse box. Then, from the fuse box connect to the control panel, and then to the motor/pressure transducer. The CONTRACTOR is also responsible for making the connection from the control panel to the flowmeter.

- 4.2 **MATERIALS:** The electrical service connection line shall be installed at the location shown on the DRAWINGS. For BIDDING purposes, the wiring will be 250 MCM. If the selected electrician determines that a different wiring size is required, then the wiring SPECIFICATIONS could change.

- 4.3 **INSTALLATION:** The wiring will be connected, trenched, and buried per the national electrical code. Backfill surrounding conduit or cables must be smooth granular material without rocks. Buried wiring runs that transition from underground to above ground must be protected in conduit as per code requirements.

- 4.3 **METHOD OF MEASUREMENT AND PAYMENT:** Measurement for payment for furnishing and installing the electrical connection to the augmentation well will be made to the nearest foot of actual cable installed.

Payment for furnishing and installing the electrical connection to the augmentation well will be made at the applicable contract unit prices per linear foot, which unit prices shall include all costs of furnishing, hauling, handling, and installing the electrical connection.

Item 101 – ENVIRONMENTAL POLLUTION AND EROSION CONTROLS:

101.1 SCOPE: This SPECIFICATION covers the Best Management Practices (BMPS) to minimize impacts to water quality and site vegetation.

101.2 BEST MANAGEMENT PRACTICES:

The following Best Management Practices (BMPs) will be utilized in order to minimize impacts to water quality and site vegetation:

- Use of mufflers or spark arresters on all vehicles and equipment will be required for fire prevention.
- Temporary access roads and staging areas will be located sufficiently far from streams or other water bodies, and wetlands to preclude discharges of non-PROJECT related fill material into these areas.
- CONTRACTOR, foremen, supervisors, and superintendents will be cognizant of erosion control measures outlined in the erosion control plan and will be held responsible for the correct implementation of erosion control measure. Erosion control SPECIFICATIONS will be included on all PROJECT DRAWING sets.
- Best management practices will be implemented to control sedimentation, erosion, and aeolian (i.e., wind) deposition. These measures include: controlling surface water runoff in relation to slopes and other graded areas; placing hay bale barriers, silt fencing, sandbags and/or straw wattles along the toes of graded slopes, constructing water diversion bars on larger slopes to reduce flow velocity of storm runoff and bank material; restoring vegetation to impacted areas as soon as possible after completion of grading; seeding areas with appropriate species where needed; placing biodegradable erosion control blanketing over seeded areas where needed; placing silt curtains around construction areas to reduce erosion of disturbed soils and siltation of natural drainage channels; and applying water to graded areas and temporary (haul) roads during construction to control fugitive dust.
- The timing of land disturbing activities and installation of erosion and sedimentation control measures will be coordinated to minimize water quality and erosion impacts.
- Fueling and routine maintenance of construction equipment will occur at least 100 feet from wetland and aquatic habitats and away from storm water drains or gutters, to preclude adverse water quality impacts to existing drainages and wetland habitats. It is the CONTRACTOR'S responsibility to prevent adverse impacts to water quality. Major repairs to equipment will be made in designated staging areas only.
- Equipment used on site will be monitored for signs of fluid leakage or other possible contaminant emissions, and will be removed from the site for repair if found to be "unclean". Maintenance operations will be scheduled during dry weather inasmuch as possible. No fuel or other equipment fluids shall be stored on site. A properly equipped maintenance vehicle supplied and operated by the CONTRACTOR will provide maintenance services. Equipment

for the immediate and complete removal of any soils contaminated during the maintenance operation, as well as sealed tanks or drums for the daily removal from the site of used fluids will also be supplied and properly handled. During fluid changes the use of adequate drip pans and other practices, such as direct pumping of the used fluid from the equipment being serviced to its sealed container in the maintenance vehicle for removal, are encouraged. During refueling operations no fueling hose shall be left unattended by the maintenance personnel or the equipment operator.

- In the event of an above minor spillage of contaminant, especially if it occurs during wet weather, the CONTRACTOR or CONTRACTOR'S designated representative, if not present, shall notify the ENGINEER immediately. These instructions also apply if the on-site person in charge deems it necessary to immediately notify any other agency.

The normal procedure for cleanup of a minor spill or observed fluid leakage will be to immediately remove the contaminated soil to a covered container for removal from the site. The urgency of completing the cleanup will be dictated by existing or predicted weather. In no case will polluted soils be left overnight without being placed into an approved lidded container. A lidded dumpster should be placed at the designated refueling and maintenance area, along with shovels and other appropriate tools sufficient to handle a small amount of contaminated soil. For a larger spill, a backhoe or excavator, if needed, will be expeditiously brought to the spill site for the necessary removal of contaminated soil.

- Water inflow into the trench will be minimized to the extent possible. Where groundwater inflow is unavoidable, excess groundwater that contains excessive sediment and suspended solids material will be pumped from the trench and discharged into adjacent upland areas.
- Trash dumpsters must be conveniently located and a trash cleanup program supervised by the CONTRACTOR'S superintendent.
- The CONTRACTOR will provide portable sanitary facilities and insure completion of their scheduled periodic maintenance.

101.3 METHOD OF MEASUREMENT AND PAYMENT: There will be no payment for implementation of soil erosion and water pollution control and wetland construction measures, as the cost of all such control shall be considered subsidiary to those items requiring such control and for which payment is made. This SPECIFICATION is included for the guidance of the CONTRACTOR.