

**CONTRACT DOCUMENTS FOR
2023 DISTRIBUTION PIPELINE REPLACEMENTS
OLD FARM AND 5650 SOUTH AREAS**

JVWCD PROJECT #:4270

January 2023

OWNER/ENGINEER

Jordan Valley Water Conservancy District
8215 South 1300 West
West Jordan, Utah 84088
801-565-4300

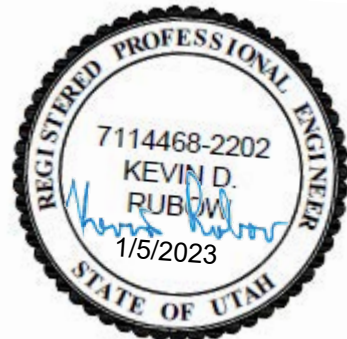


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1180 East

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NOTICE INVITING BIDS

PROJECT NAME: 2022 Distribution Pipeline Replacements – Old Farm and 5650 South Areas

DESCRIPTION OF WORK: The “2023 Distribution Pipeline Replacements – Old Farm and 5650 South Areas” project consists of abandoning approximately 6,000 feet of 6” and 8” cast iron pipe installed between the 1950s and 1970s. New 8” C-900 PVC will be installed in the area, along with new fire hydrants and valves. Existing services that are galvanized steel or black poly will be replaced with copper pipe of the same diameter and all existing services will be connected into the new water main. This work will also entail water main hot-tapping, excavation, asphalt pavement and concrete replacement.

SITE OF WORK: The general sites of work are located within Millcreek City and Murray City. The specific roadways are Old Farm Ln. from 3900 South to Old Farm Rd., Old Farm Rd. from 570 East to Old Farm Way, 5650 South from 920 East to 1080 East, 5645 South from 1080 East to 1180 East, 1080 East (Marco Rd) from 5600 South to 5690 South, 1180 East from 5600 South to 5690 South.

OBTAINING CONTRACT DOCUMENTS: All Contract Documents may be obtained by electronic download from the District’s Website www.jvwcd.org beginning on January 5, 2023.

PRE-BID MEETING: A non-mandatory pre-bid meeting will be held at **1:00pm on Thursday, January 12, 2023**, at the office of the Owner. Prospective bidders with questions regarding the project are encouraged to attend.

RECEIPT OF BIDS: Sealed bids will be received at the office of the Jordan Valley Water Conservancy District, Owner of the Work, located at 8215 South 1300 West, West Jordan, Utah 84088, until 11 am, on January 24, 2023, for construction of the “2023 Distribution Pipeline Replacements – Old Farm and 5650 South Areas” Project. Electronic bids may also be submitted in adobe .pdf format to ellisad@jvwcd.org. JVVCD requests that electronic bids be submitted 15 minutes prior to the bid opening deadline.

AWARD OF CONTRACT: An Award of Contract, if it were awarded, will be made within 60 calendar days of the opening of bids.

NOTICE TO PROCEED: A Notice to Proceed, if it were issued, will be made within 60 calendar days of the Notice of Award.

COMPLETION OF WORK: All work shall be completed within 425 calendar days from the date of the Notice to Proceed.

DISTRICT WEB SITE AND PLANHOLDERS LIST

Prospective bidders must register at the District’s web site (www.jvwcd.org) under “Engineering Projects”. Prospective bidders are required to check the District’s web site for

NOTICE INVITING BIDS

any addenda prior to submitting a responsive bid. The District's web site will be used to publish updated information relative to the project, including a planholders list.

BID SECURITY: Each bid shall be accompanied by a certified or cashier's check, money order or bid bond in the amount of five percent of the total bid price payable to the Jordan Valley Water Conservancy District as a guarantee that the bidder, if its bid is accepted, will promptly execute the contract, provide evidence of worker's compensation insurance, and furnish a satisfactory faithful performance bond in the amount of 100 percent of the total bid price and a payment bond in the amount of 100 percent of the total bid price.

ADDRESS AND MARKING OF BID: The envelope enclosing the bid shall be sealed and addressed to the Jordan Valley Water Conservancy District and delivered or mailed to 8215 South 1300 West, West Jordan, Utah 84088. The envelope shall be plainly marked in the upper left-hand corner with the name and address of the bidder and shall bear the words "Bid for," followed by the title of the Contract Documents for the work and the date and hour of opening of bids. The certified or cashier's check, money order, or bidder's bond shall be enclosed in the same envelope with the bid.

PROJECT ADMINISTRATION: All questions relative to this project prior to the opening of bids shall be directed to the Engineer for the project. It shall be understood, however, that no interpretations of the specifications will be made by telephone, nor will any "or equal" products be considered for approval prior to award of contract.

OWNER/ENGINEER

Jordan Valley Water Conservancy District
Project Manager: Conor Tyson
8215 South 1300 West
West Jordan, Utah 84088
Telephone: (385) 236-2510
Email: conort@jvwcd.org

OWNER'S RIGHTS RESERVED: The Owner reserves the right to reject any or all bids, to waive any informality in a bid, and to make awards in the interest of the Owner.

JORDAN VALLEY WATER
CONSERVANCY DISTRICT

INSTRUCTIONS TO BIDDERS

FORM OF BID: The bid shall be made on the bidding schedule(s) bound herein. The bid shall be enclosed in a sealed envelope bearing the name of the bidder and name of the project. In the event there is more than one bidding schedule, the bidder may bid on any individual schedule or on any combination of schedules.

BID APPURTANANCES: Bidders must provide bid appurtenances including Information required of bidder and experience reference projects. Bids not including the required information may be deemed non-responsive.

DELIVERY OF BID: The bid shall be delivered by the time and to the place stipulated in the Notice Inviting Bids. Alternately electronic bids will be accepted in adobe acrobat (.pdf) format. Electronic bids must be sent to ellisad@jvwcd.org. It is the bidder's sole responsibility to see that the respective bid is received in proper time.

WITHDRAWAL OF BIDS: Bids shall be unconditionally accepted without alteration or correction, excepting that bidder may by means of written request, signed by the bidder or his properly authorized representative withdraw his bid. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of bids prior to the scheduled closing time for receipt of bids.

OPENING OF BIDS: The bids will be publicly opened and read at the time and place stipulated in the Notice Inviting Bids. According to state law, total bid amounts for each bidder will be posted to the District's website within 24 hours following receipt of the bids.

MODIFICATIONS AND ALTERNATIVE BIDS: Unauthorized conditions, limitations, or provisions attached to a bid may render it non-responsive and may cause its rejection. The completed bid forms shall be without interlineations, alterations, or erasures. Alternative bids will not be considered unless called for. Oral, telegraphic, or telephonic bids or modifications will not be considered.

DISCREPANCIES IN BIDS: In the event there is more than one bid item in a bidding schedule, the bidder shall furnish a price for all bid items in the schedule; failure to do so may render the bid non-responsive and subject to rejection. In the event there are unit price bid items in a bidding schedule and the "amount" indicated for a unit price bid item does not equal the product of the unit price and quantity, the unit price shall govern and the "amount" will be corrected accordingly, and the Contractor shall be bound by said Correction. In the event there is more than one bid item in a bidding schedule and the total indicated for the schedule does not agree with the sum of the prices bid on the individual items, the prices bid on the individual items shall govern and the total for the schedule will be corrected accordingly, and the Contractor shall be bound by said correction.

BID SECURITY: Each bid shall be accompanied by a certified or cashier's check or approved bid bond in the amount stated in the Notice Inviting Bids. Said check or bond shall be made payable to the Owner and shall be given as a guarantee that the bidder, if

INSTRUCTIONS TO BIDDERS

awarded the work, will enter into a contract within 10 calendar days after receipt of the contract from the Owner, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond; each of said bonds to be in the amount stated in the Notice Inviting Bids. In case the apparent low bidder refuses or fails to enter into such contract or fails to provide the required insurance and insurance certificates, the check or bid bond, as the case may be, shall be forfeited to the Owner. If the bidder elects to furnish a bid bond as his bid guarantee, he shall use the bid bond bound herein, or one conforming substantially to it in form.

BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE

It is the responsibility of each Bidder before submitting a Bid to:

1. Examine Contract Documents thoroughly.
2. Visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the work.
3. Consider federal, state and local laws and regulations that may affect cost, progress, and performance of furnishing of the work.
4. Study and carefully correlate the Bidder's observations with the Contract Documents.
5. Notify the Engineer of all conflicts, errors, or discrepancies in the Contract Documents.

Reference is made to the Supplemental General Conditions for identification of:

1. Those reports of exploration and tests of subsurface conditions at the site, which have been utilized by the Engineer in the preparation of the Contract Documents.
2. Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities as defined in Article 1 of the General Conditions) which are at or contiguous to the site and which were utilized by the Engineer in the preparation of the Contract Documents. Copies of such reports and drawings are available for inspection at the office of the Owner.

Information and data reflected in the Contract Documents with respect to underground facilities at/or contiguous to the site are based upon information and data furnished to the Owner and the Engineer by the owners of such underground facilities or others, and the Owner does not assume any responsibility for the accuracy or completeness thereof

INSTRUCTIONS TO BIDDERS

including any damages whatsoever that may be incurred by the Bidder or the Contractor through his reliance thereon unless it is expressly provided otherwise in the Supplemental General Conditions and/or the Technical Specifications.

Before submitting a bid, the bidder shall conduct such examination, investigations, studies and tests as are necessary to satisfy himself as to: the nature and location of the physical conditions (surface, subsurface and underground facilities), the general and local conditions particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, availability of utilities, local weather conditions, the character of equipment and facilities required preliminary to and during the prosecution of the work; any and all other conditions that may in any way affect the cost, progress, performance or furnishing of materials in accordance with the Contract Documents. All such examination, investigation, studies, tests and the like shall be at the Bidder's expense.

Upon reasonable request in advance, the Owner shall provide each Bidder access to the site to conduct such explorations, examination, investigation and tests as each Bidder may determine necessary for the submission of a Bid. The Bidder shall fill all holes, clean and restore the site to its former condition upon the completion of such activities.

The submission of a bid hereunder shall be considered prima facie evidence that the Bidder has made such examination as is set forth in the above paragraph and is knowledgeable as to the location and site conditions surrounding the work and the conditions to be encountered in performing the work and as to the requirements, conditions and terms of the Contract and Contract Documents.

The Owner assumes no responsibility for any understanding or representations made by any of its officers or agents during or prior to the execution of this Contract, for information contained in any reports, subsurface studies, or other information which may be made available for the Contractor's information and which are not included as Contract Documents, for any understanding or representations by the Owner or by others which are not expressly stated in the Contract Documents which liability is not expressly assumed by the Owner or its representatives or Engineer in the Contract Documents. Such information shall be deemed to be for the information of the Contractor and the Contractor shall have the obligation of evaluating any such information as to its accuracy and effect the Owner will not be liable or responsible for any such information or any conclusions that may be drawn there from by the Contractor.

INSTRUCTIONS TO BIDDERS

The lands upon which the work is to be performed, right-of-ways and easements for access thereto together with other lands designated for use by the Contractor in performing the work are identified in the Contract Documents. All additional lands and access thereto that are required for temporary construction facilities or storage of materials and equipment are to be provided by the Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the Owner unless otherwise provided in the Contract Documents.

The submission of a Bid shall constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of this Article, and that without exception the Bid is premised upon performing and furnishing the work required by the Contract Documents in compliance with such means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Contract Documents; and that such means, methods, techniques, sequences or procedures described in the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing the work.

QUANTITIES OF WORK

The quantities of work or material stated in the Bid Schedule are supplied only to give an indication of the general scope of the work; the Owner does not expressly or by implication agree that the actual amount of work or material will correspond therewith. The Owner reserves the right after award of the Contract to increase or decrease the quantities of any unit price item of the work by an amount up to and including 25 percent of the quantity of any bid item, or to omit portions of such work as may be deemed necessary or expedient by the Engineer or Owner, without a change in the unit price. Such right to revise and omit shall include the right to delete any bid item in its entirety, or to add additional bid items in quantities up to and including an aggregate total amount not to exceed 25 percent of the total amount of the Contract.

The Bidders nor the ultimate Contractor on the Project shall at any time after the submittal of a bid make or have any claim for damages or anticipated profits or loss of profit or otherwise because of any difference between the quantities of work actually done and material furnished and those stated in said unit price items of the Bid.

COMPETENCY OF BIDDERS: In selecting the lowest responsible Bidder, consideration will be given to the general competency of the Bidder for the performance of the work covered by the Bid. To this end, each bid shall be supported by a statement of the bidder's experience as of recent date on the form entitled "Information Required of Bidder," bound herein. No bid for the work will be accepted from a contractor who does not hold an active Contractor's license in good standing applicable to the type of work bid upon at the time of opening bids.

INSTRUCTIONS TO BIDDERS

After an award of the contract no substitution of the Project Manager or Project Superintendent will be allowed without the written approval by the Owner.

DISQUALIFICATION OF BIDDERS: More than one bid from an individual, firm partnership, corporation, or association under the same or different names will not be considered. Reasonable grounds for believing that any bidder is interested in more than one bid for the work contemplated will cause the rejection of all bids in which such bidder is interested. If there is reason for believing that collusion exists among the bidders, all bids will be rejected.

RETURN OF BID GUARANTEE: Within 10 calendar days after award of the contract, the Owner will return the bid guarantees accompanying such of the bids as are not considered in making the award. All other bid guarantees will be held until a Notice to Proceed has been issued and accepted. They will then be returned to the respective bidders whose bids they accompany.

AWARD OF CONTRACT: Award of the Contract, if it be awarded, will be based primarily on the lowest overall cost to the Owner, and will be made to a responsive and responsible bidder whose bid complies with all the requirements prescribed. Any such award will be made by written notice and within 60 calendar days after opening of the bids, unless a different waiting period is expressly allowed in the Notice Inviting Bids. Unless otherwise indicated, an award will not be made for less than all the bid items in an individual bidding schedule. In the event the entire work is contained in more than one bidding schedule, the Owner may award schedules individually or in combination. In the case of two bidding schedules which are alternate to each other, only one of such alternate schedules will be awarded.

EXECUTION OF CONTRACT: The Bidder to whom the award is made shall secure all insurance and shall furnish all certificates and bonds required by the specifications within ten calendar days after receipt of the Notice of Award from the Owner. The Bidder to whom the award is made shall execute a written contract with the Owner on the form of agreement provided within ten calendar days after receipt of the Agreement from the Owner. Failure or refusal to enter into a contract as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the bid guarantee. If the successful bidder refuses or fails to execute the contract, the Owner may award the contract to the second lowest responsible bidder, or reject all bids and re-advertise the project for rebidding. If the second lowest responsible bidder refuses or fails to execute the contract, the Owner may award the contract to the third lowest responsible bidder. On the failure or refusal of such second or third lowest bidder to execute the contract, each such bidder's guarantees shall be likewise forfeited to the Owner.

ISSUANCE OF NOTICE TO PROCEED: The Owner intends to execute the Agreement

INSTRUCTIONS TO BIDDERS

and issue the Notice to Proceed specifying the Project start date within ten calendar days after its receipt of the executed Agreement, Purchase Order Assignment(s), (if applicable), bonds and insurance certificates from the successful bidder. If the Contract Time is expressed as a specific completion date in the Notice Inviting Bids and paragraph 3.1 of the Agreement rather than a specific number of successive days following the start date identified in the Notice to Proceed, then any delay by the Owner beyond the ten days in issuing the Notice to Proceed shall extend the completion date by the number of days of the delay.

LICENSES: Contractor must be licensed as a business qualified to do business within the state of Utah prior to issuance of a Notice of Award. Contractor must hold a current contractor's license with classifications appropriate to the work being contracted.

BID

BID TO: JORDAN VALLEY WATER CONSERVANCY DISTRICT

The undersigned Bidder hereby proposes to furnish all plant machinery, labor, services, materials, equipment, tools, supplies, transportation, utilities, and all other items and facilities necessary to perform all work required under the Bidding Schedule of the Owner's Contract Documents entitled "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas" drawings and all addenda issued by said Owner prior to opening of the bids.

Addenda are only delivered by e-mail and through the internet.

The undersigned bidder acknowledges receipt of the following addenda:

<u>No.</u>	<u>Date Received</u>	<u>No.</u>	<u>Date Received</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Bidder agrees that, within 10 calendar days after receipt of Notice of Award from Owner, he will execute the Agreement in the required form, of which the Notice Inviting Bids, Instructions to Bidders, Bid, Information Required of Bidder, Technical Specifications, Drawings, and all addenda issued by Owner prior to the opening of bids, are a part, and will secure the required insurance and bonds and furnish the required insurance certificates; and that upon failure to do so within said time, then the bid guarantee furnished by Bidder shall be forfeited to Owner as liquidated damages for such failure; provided, that if Bidder shall execute the Agreement, secure the required insurance and bonds, and furnish the required insurance certificates within said time, his check, if furnished, shall be returned to him within five days thereafter, and the bid bond, if furnished, shall become void. It is further understood that this bid may not be withdrawn for a period of 45 days after the date set for the opening thereof, unless otherwise required by law.

Dated: _____

Bidder: _____

By: _____
(Signature)

Title: _____

Bidder further agrees to complete all work required within the time stipulated in the Contract Documents, and to accept in full payment therefore the price(s) named in the above-mentioned Bidding Schedule(s).

BID

BID SCHEDULE(S)

Bid Schedule A: Pipeline Replacements – Drawings PP-1 through PP-15

Item #	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL AMOUNT
1	Mobilization Charges	1	LS		
2	Traffic Control	1	LS		
3	Permits (Lump Sum All Permits)	1	LS		\$15,000
4	Fire Hydrant Assembly (including 6" Gate Valve)	14	EA		
5	Fire Hydrant Assembly >20' (including two 6" Gate Valve)	1	EA		
6	8" C-900 PVC, DR-18 Waterline Installation	6,000	LF		
7	8" FL x MJ Gate Valve	25	EA		
8	8" MJ Gate Valve	2	EA		
9	¾" Copper Water Service Reconnect	75	EA		
10	1" Copper Water Service Reconnect	3	EA		
11	1.5" Water Service Line Reconnect	5	EA		
12	2" Water Service Reconnect	11	EA		
13	Hot Tap Existing 8" Waterline	2	EA		
14	Hot Tap Existing 6" Waterline	1	EA		
15	Remove and Dispose of Existing Fire Hydrants	12	EA		
16	Asphalt Concrete	1,600	TON		
17	¾" Meter Setter and meter Box Replacement	75	EA		
18	1" Meter Setter and meter box Replacement	3	EA		
19	1.5" Meter Setter and meter box replacement	5	EA		
20	2" Meter Setter and meter box replacement	11	EA		
21	Asphalt Concrete Cutting	8,000	LF		
22	Rolled Concrete Gutter/ Waterway (10 Linear Foot Sections)	25	EA		

BID

23	APWA Type A Concrete Curb and Gutter (10 Linear Foot Sections)	10	EA		
24	Concrete Panel (20 Square Feet)	15	EA		
25	Concrete Drive Approach (60 Square Feet)	10	EA		
26	CLSM Backfill	40	YD		
27	Trench Stabilization Material	50	YD		
28	Old Farm Lane Direction Drill at Bridge Crossing with 10" DR-11 HDPE Pipe (Lump Sum)	1	LS		
Bid Schedule A:			Total Price	\$	

Bid Schedule B: Additive Bid Items – will be evaluated and may be awarded to the contract.

1	8" Waterline Loop	5	EA		
2	Galvanized or Black Poly Water Service Line Replacement	10	EA		
Bid Schedule B:			Total Price	\$	

Total Bid Price (Sum of Bid Schedules A & B): \$ _____

Total Bid Price including all system features shown or specified to make all project components complete and operable for the 2023 Distribution Pipeline Replacements – Old Farm and 5650 South Areas in words:

_____ Dollars

and _____ Cents.

Bidder (Company name): _____

By: _____ Dated: _____
 (Signature)

Name: _____ Title: _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____
as Principal, and _____
as Surety, are held and firmly bound unto the Jordan Valley Water Conservancy District
(hereinafter called "Owner") in the sum of _____
dollars, (not less than five percent of the total amount of the bid) for the payment of which
sum, will and truly to be made, we bind ourselves, our heirs, executors, administrators,
successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has submitted a bid to Owner to perform all work required under the
bidding Schedule of the Owner's Contract Documents entitled "2023 Distribution Pipeline
Replacements - Old Farm and 5650 South Areas", (hereafter called the "Project Title").

NOW THEREFORE, if Principal is awarded Contract by Owner for the Construction of the
Project and, within the time and in the manner required under the heading "Instructions to
Bidders" enters into the written contract entitled "Agreement" bound with said Contract
Documents, furnishes the required certificates of insurance, and furnishes the required
Performance Bond and Payment Bond within 10 calendar days after receipt of such
contract from Owner, then this obligation shall be null and void, otherwise it shall remain in
full force and effect. In the event suit is brought upon this bond by Owner and judgment is
recovered, Surety shall pay all costs incurred by Owner in such suit, including a reasonable
attorney's fee to be fixed by the court.

SIGNED AND SEALED, this _____ day of _____, 20____.

By: _____ By: _____

Its: _____ Its: _____

(SEAL)

(SEAL)

INFORMATION REQUIRED OF BIDDER

The Bidder shall furnish the following information. Failure to comply with this requirement may render the Bid non-responsive and subject to rejection. Additional sheets shall be attached as required.

1. Contractor firm information:

Contractor's name: _____

Contractor's address: _____

Contractor's Primary Contact: _____

Email address of Contractor's primary contact: _____

Contractor's telephone number: _____

2. Contractor must be qualified and licensed to do business in Utah.

Utah Department of Commerce Information

Business Entity Number: _____

Delinquent Date: _____

3. Contractor must hold a current contractor's license, classification E100.

Contractor's Utah License Number: _____

Expiration Date: _____

Primary Classification: _____

Supplemental Classification held, if any: _____

4. Key Personnel Qualifications and Experience

List key personnel here and provide detailed information in Attachments A and B. More than one Project Manager and/or Project Superintendent may be proposed. Only personnel approved by the Owner will be allowed in the key positions.

INFORMATION REQUIRED OF BIDDER

Project Manager A: _____

Project Manager (Alternate 1): _____

Project Manager (Alternate 2): _____

Project Manager shall have worked as a project manager on a minimum of two (2) projects, each of which shall meet the following requirements:

- 8-inch or larger pressured, potable water pipeline with a length of at least 3,000 feet and
- A minimum of 40 service connections.

Project Superintendent A: _____

Project Superintendent (Alternate 1): _____

Project Superintendent (Alternate 2): _____

Project Superintendent shall have worked on a minimum of three (3) projects, each of which shall meet the following requirements:

- 8-inch or larger pressured, potable water pipeline with a length of at least 3,000 feet
- A minimum of 40 service connections and

Of the three projects listed to demonstrate the Project Superintendent's experience, at least two (2) of those projects shall also include work in the public right of way.

6. **Previous Contractor Project Experience**

Past project experience shall be provided for each requirement. The Owner shall be entitled to contact each and every reference listed by the contractor. The Contractor, by submitting a prequalification proposal, expressly agrees that any information concerning the CONTRACTORS in possession of said entities and references may be made available to the owner.

Provide the information identified in Attachment C for each project listed below

Requirements:

Contractor shall have successfully completed at least three (3) pipeline projects, each of which shall meet the following requirements:

INFORMATION REQUIRED OF BIDDER

- Minimum of 5,000 linear feet of 8-inch diameter pressurized potable water pipeline or larger,
- Minimum of 60 service connections, and
- Minimum of 5,000 linear feet of work in the public right of way.

7. Number of years as a contractor in construction work of this type:

8. Name and title of officers of Contractor's firm:

9. Number of persons employed full-time by the firm: _____

10. Name of person who inspected site of proposed work for your firm:

Name: _____

Date of Inspection: _____

11. Surety company who will provide the required bonds on this contract:

Agent's Name: _____

Telephone: _____

12. Workers Compensation Insurance Policy #: _____

INFORMATION REQUIRED OF BIDDER

ATTACHMENT A

(Copy as necessary – recommended to provide more projects than required)

Project Manager Data Sheet

Name: _____

Years experienced as Project Manager: _____

Years of prior experience: _____ Positions: _____

Qualifying Project #1: _____

Project Summary: _____

Year Completed: _____ Number of Service Connections: _____

Pipeline Diameter: _____ Pipeline Length: _____

Total Cost: _____

Owner: _____

Owner Contact Person: _____ Telephone: _____

Qualifying Project #2: _____

Project Summary: _____

Year Completed: _____ Number of Service Connections: _____

Pipeline Diameter: _____ Pipeline Length: _____

Total Cost: _____

Owner: _____

Owner Contact Person: _____ Telephone: _____

INFORMATION REQUIRED OF BIDDER

ATTACHMENT B

Superintendent Data Sheet

Name: _____

Years experienced as Superintendent: _____

Years of prior experience: _____ Positions: _____

Qualifying Project #1: _____

Project Summary: _____

Year Completed: _____ Number of Service Connections: _____

Pipeline Diameter: _____ Pipeline Length: _____

Pipeline Length in Public Right of Way: _____

Total Cost: _____

Owner: _____

Owner Contact Person: _____ Telephone: _____

Qualifying Project #2: _____

Project Summary: _____

Year Completed: _____ Number of Service Connections: _____

Pipeline Diameter: _____ Pipeline Length: _____

Pipeline Length in Public Right of Way: _____

Total Cost: _____

Owner: _____

Owner Contact Person: _____ Telephone: _____

Qualifying Project #3: _____

Project Summary: _____

Year Completed: _____ Number of Service Connections: _____

Pipeline Diameter: _____ Pipeline Length: _____

Pipeline Length in Public Right of Way: _____

Total Cost: _____

Owner: _____

Owner Contact Person: _____ Telephone: _____

INFORMATION REQUIRED OF BIDDER

ATTACHMENT C

Contractor Project Experience Summary

Project Name: _____

Project Location: _____

Project Manager: _____

Project Superintendent: _____

Project Description: _____

Pipeline type, length, and diameter: _____

Pipeline installation methods: _____

Number of service connections: _____

Length of pipeline in public right of way: _____

Traffic management description: _____

Date Bid: _____ Date Completed: _____

Contract bid price: _____ Contract final price: _____

Contract duration at bid: _____ Final contract duration: _____

Owner's contact information: _____

INFORMATION REQUIRED OF BIDDER

Contractor Project #2 Experience Summary

Project Name: _____

Project Location: _____

Project Manager: _____

Project Superintendent: _____

Project Description: _____

Pipeline type, length, and diameter: _____

Pipeline installation methods: _____

Number of service connections: _____

Length of pipeline in public right of way: _____

Traffic management description: _____

Date Bid: _____ Date Completed: _____

Contract bid price: _____ Contract final price: _____

Contract duration at bid: _____ Final contract duration: _____

Owner's contact information: _____

INFORMATION REQUIRED OF BIDDER

Contractor Project #3 Experience Summary

Project Name: _____

Project Location: _____

Project Manager: _____

Project Superintendent: _____

Project Description: _____

Pipeline type, length, and diameter: _____

Pipeline installation methods: _____

Number of service connections: _____

Length of pipeline in public right of way: _____

Traffic management description: _____

Date Bid: _____ Date Completed: _____

Contract bid price: _____ Contract final price: _____

Contract duration at bid: _____ Final contract duration: _____

Owner's contact information: _____

AGREEMENT

An Agreement made as of the _____ day of _____, 20____, by and between the Jordan Valley Water Conservancy District, a water conservancy district organized under the laws of the State of Utah ("OWNER"), and _____, a _____ corporation qualified to do business and doing business in the State of Utah ("CONTRACTOR").

TERMS:

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

ARTICLE I WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents for the _____. The Work is generally described as follows:

Furnishing all labor, services, materials, equipment, and supplies except for such materials, equipment, and services as may be stipulated in the Contract Documents to be furnished by the OWNER; furnishing and removing all plant machinery, temporary structures, tools, supplies, transportation, utilities, and all other items, facilities and equipment, and to do everything required by this Agreement and the Contract Documents; accepting all responsibility for and paying for all loss and damage arising out of the nature of the Work aforesaid, or from the action of the elements, or from any unforeseen difficulties which may arise during the prosecution of the Work until its acceptance by OWNER, and for all risks of every description connected with the Work; also for all expenses resulting from the suspension or discontinuance of work, except as in the Contract Documents are expressly stipulated to be borne by OWNER.

ARTICLE II ENGINEER

The Project has been designed by the OWNER. The OWNER will assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

[ALTERNATE PARAGRAPH]The Project has been designed by _____, a _____ corporation qualified to do business and doing business in the State of Utah, who is hereinafter called "ENGINEER" and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and

authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE III CONTRACT TIME

- 3.1 The Work shall be complete, in accordance with paragraphs 14.08 and 14.09 of the General Conditions, on or before _____.
- 3.2 Liquidated Damages: OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the Work is not completed within the time specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any proof of loss, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER the amount specified in Article 14.07 of the General Conditions and in Article 18.01 of the Supplementary General Conditions for each day that expires after the time specified in paragraph 3.1 for final completion until the Work is substantially complete. And, after Substantial Completion if CONTRACTOR neglects, refuses or fails to complete the remaining Work within forty-five (45) days or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER the amount specified in Article 14.07 of the General Conditions and in Article 18.01 of the Supplemental General Conditions for each day that expires after the forty-five (45) days until readiness for final payment.

ARTICLE IV CONTRACT PRICE

All payments to Contractor shall be made in accordance with the Contract Documents. OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds those prices stated in the approved Bid Schedule as named in the Notice of Award.

ARTICLE V PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

- 5.1 Progress Payments: OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment

as recommended by ENGINEER, on a monthly basis. All progress payments will be on the basis of the progress of the Work measured by the schedule of values established in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Conditions.

- 5.2 Final Payment: Upon final completion and acceptance of the Work in accordance with Article 14 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in Article 14.

ARTICLE VI INTEREST

All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of twelve percent (12%) per annum.

ARTICLE VII CONTRACTOR'S REPRESENTATION

In order to induce OWNER to enter into the Agreement, CONTRACTOR makes the following representations:

- 7.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- 7.2 CONTRACTOR has studied carefully all exploration reports and test of subsurface conditions and drawings of physical conditions which are identified in the Supplementary General Conditions, as provided in paragraph 4.02 of the General Conditions, and accepts the Technical Data contained in such reports and drawings upon which CONTRACTOR is entitled to rely.
- 7.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.02 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports,

studies or similar information or data are or will be required by CONTRACTOR for such purposes.

- 7.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities.
- 7.5 CONTRACTOR has correlated the results of all observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- 7.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he had discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

ARTICLE VIII CONTRACT DOCUMENTS

The Contract Documents for the _____, which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work, consist of the following:

- 8.1 This Agreement;
- 8.2 Performance and Payment Bonds;
- 8.3 Notice of Award;
- 8.4 Notice to Proceed;
- 8.5 General Conditions;
- 8.6 Supplemental General Conditions;
- 8.7 Notice Inviting Bids;
- 8.8 Instructions to Bidders;
- 8.9 Information Required of Bidder;
- 8.10 Technical Specifications;
- 8.11 Drawings - Sheets Number One through _____;
- 8.12 Addendum Number One through _____; and,
- 8.13 CONTRACTOR's Bid, including all schedules and explanatory attachments; attached as Exhibit A.

The CONTRACTOR (1) acknowledges that he has received a copy of each document, specified above, (2) acknowledges that he has read and understands each document specified above and (3) agrees to every term, condition and contract obligation set forth in each document specified above.

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.03 of the General Conditions.

ARTICLE IX
FEDERAL REQUIREMENTS

The CONTRACTOR shall comply with federal regulations as stated in the Supplemental General Conditions, Article 21.

ARTICLE X
MISCELLANEOUS

- 10.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.
- 10.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 10.3 In the event any legal action or other proceeding is brought for the enforcement of this Agreement and/or the Contract Documents, or for damages, because of an alleged dispute, breach, default or misrepresentation in connection with any of the provisions thereof, the successful or prevailing party shall be entitled to recover reasonable attorneys' fees and other costs incurred in the action or proceeding, in addition to any other relief to which it may be entitled.
- 10.4 Any notice to be given hereunder shall be deemed given when sent by registered or certified mail, postage prepaid to the parties at their respective addresses stated below or at any other address when notice of such change of address has been given as provided in this Article 10.4.

[SIGNATURE PAGE FOLLOWS]

“OWNER”:

Jordan Valley Water Conservancy District
8215 South 1300 West
West Jordan, Utah 84088

By: _____
Barton A. Forsyth
Its General Manager/CEO

“CONTRACTOR”:

Utah License No. _____

By: _____
Its: _____

EXHIBIT A
CONTRACTOR'S BID

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____, as Contractor, and _____ as Surety, are held firmly bound unto the Jordan Valley Water Conservancy District hereinafter called "Owner," in the sum of \$_____ for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has been awarded and is about to enter into the annexed Agreement with Owner to perform all work required under the Bidding Schedule(s) of the Owner's Contract Documents entitled "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas"

NOW THEREFORE, if Contractor shall perform all the requirements of the Agreement required to be performed on his part, at the times and in the manner specified therein, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

PROVIDED, that any alterations in the work to be done or the materials to be furnished, or changes in the time of completion, which may be made pursuant to the terms of the Agreement, shall not in any way release Contractor or Surety thereunder, nor shall any extensions of the time granted under the provisions of the Agreement release either the Contractor or Surety, and notice of such alterations or extensions of the work, materials or time to complete made under the Agreement is hereby waived by Surety. This Bond is furnished in compliance and in accordance with 14-1-18, Utah Code Ann., as amended, and 63-56-38 Utah Code Ann., as amended.

SIGNED AND SEALED, this _____ day of _____, 20__.

By: _____ By: _____
Its: _____ Its: _____

(SEAL)

(SEAL)

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____ as Contractor, and _____ as Surety, are held firmly bound unto the Jordan Valley Water Conservancy District hereinafter called "Owner," in the sum of \$_____ for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has been awarded and is about to enter into the annexed Agreement with Owner to perform all work required under the Bidding Schedule(s) of the Owner's Contract Documents entitled, "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas"

NOW THEREFORE, if said Contractor, or subcontractor, fails to pay for any materials, equipment, or other supplies, or for rental of same, used in connection with the performance of work contracted to be done, or for amounts due under applicable State law for any work or labor thereon, said Surety will pay for the same in an amount not exceeding the sum specified above, and, in the event suit is brought upon this bond, a reasonable attorney's fee to be fixed by the court. This bond shall inure to the benefit of any persons, companies, or corporations entitled to file claims under applicable State law.

PROVIDED, that any alterations in the work to be done or the materials to be furnished, or changes in the time of completion, which may be made pursuant to the terms of the Agreement, shall not in any way release Contractor or Surety thereunder, nor shall any extensions of time granted under the provisions of said contract release either Contractor or the Surety, and notice of such alterations or extensions of the work, materials or time to complete made under the Agreement is hereby waived by Surety. This bond is furnished in compliance and in accordance with 14-1-18 and 19 Utah Code Ann., as amended, and 63-56-38 Utah Code Ann., as amended.

SIGNED AND SEALED, this _____ day of _____, 20____.

By: _____ By: _____

Its: _____ Its: _____

(SEAL)

(SEAL)

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

NOTICE OF AWARD

To: **Contractor's Name and Address**

Re: "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas"

You are hereby notified that the OWNER has accepted your bid for the above referenced project in the amount of \$_____.

Furnish the required Contractor's Performance Bond, Payment Bond and Certificates of Insurance within ten calendar days from the date of this notice to you. An acknowledged copy of this Notice of Award, together with all future correspondence regarding this project, shall be sent to the District's Project Manager: Conor Tyson.

When the Agreement is provided, sign and return it within ten calendar days from receipt of the agreement.

Dated this ____ day of _____, 20__.

Alan E. Packard, PE
Assistant General Manager & Chief Engineer

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by:

(Contractor's Name goes here - underlined)

This _____ day of _____, 20__.

Signature: _____

Printed Name: _____

Title: _____

NOTICE TO PROCEED

To:

Re: "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas"

You are hereby notified to commence work in accordance with the Agreement dated _____, on (or before/after) _____, and you are to complete the work within 425 days from this Notice to Proceed.

An acknowledged copy of this Notice to Proceed should be returned to the Owner, Attention: Conor Tyson.

Dated this _____ day of _____.

Shane K Swensen, P.E.
Engineering Department Manager

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by:

_____(Contractor's Name goes here - underlined)_____

This _____ day of _____, 20____.

Signature:_____

Printed Name:_____

Title: _____

JORDAN VALLEY WATER CONSERVANCY DISTRICT

PAYMENT APPLICATION AND CERTIFICATE No. _____ **DATE:** _____

SHEET _____ **OF** _____

PERIOD FROM _____ **TO** _____, 20____

PROJECT: "2023 Distribution Pipeline Replacements - Old Farm and 5650 South
Areas"

JVWCD PROJECT NO.: _____

CONTRACTOR: _____

ADDRESS: _____

ENGINEER: _____

1. ORIGINAL CONTRACT PRICE:..... \$ _____
2. NET CHANGE ORDERS APPROVED TO DATE: \$ _____
(Attach Summary Sheet)
3. REVISED CONTRACT AMOUNT: \$ _____
(Sum of Lines 1 & 2)
4. TOTAL VALUE OF WORK COMPLETED TO DATE \$ _____
(Attached Payment Breakdown)
5. PERCENT PROJECT COMPLETE: %
(Divide Line 4 by 3 and multiply by 100)
6. LESS AMOUNT RETAINED (5%) \$ _____
7. MATERIALS ON HAND..... \$ _____
(95% of Value, Listing Attached)
8. SUBTOTAL (Sum of Lines 4, Line 6 and Line 7) \$ _____
9. LESS PREVIOUS PAYMENTS \$ _____
10. CURRENT PAYMENT DUE: \$ _____
(Line 8 & 9)

JORDAN VALLEY WATER CONSERVANCY DISTRICT

Payment Application and Certificate No _____

SHEET _____ OF _____

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that: (1) all previous progress payments received from OWNER on account of work done under the Contract referred to herein have been applied to discharge in full all obligations of CONTRACTOR incurred in connection with work covered by prior Applications for Payment numbered 1 through _____ inclusive; and, (2) title to all materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all liens, claims, security interests and encumbrances (except such as covered by bond acceptable to OWNER).

Dated: _____ CONTRACTOR: _____

By: _____

Engineer's Recommendation:

This Application (with accompanying documentation) meets the requirements of the Contract Documents and payment of the amount due this application is recommended.

ENGINEER

Dated _____

Project Representative

Dated _____

Project Manager

JORDAN VALLEY WATER CONSERVANCY DISTRICT

CHANGE ORDER

Change Order No. _____

Date: _____

Page ___ of ___

NAME OF PROJECT: "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas"

PROJECT NUMBER: _____

CONTRACTOR: _____

CONTRACT DATE: _____

The following changes are hereby made to the CONTRACT DOCUMENTS:

- 1)
- 2)
- 3)

Total Change to CONTRACT PRICE:..... \$

Original CONTRACT PRICE:..... \$

Current CONTRACT PRICE adjusted by previous CHANGE ORDER(S)..... \$

The new CONTRACT PRICE including this CHANGE ORDER will be..... \$

The CONTRACT TIME will be increased by _____ calendar days.

The date for Substantial Completion will be _____, 20__.

The Contractor agrees to furnish all labor and materials and perform all work as necessary to complete the change order items for the price named herein, which includes all supervision and miscellaneous costs. This change order constitutes full and mutual accord and satisfaction for all time and all costs related to this change. By acceptance of this change order the Contractor agrees that the change order represents an equitable adjustment to the Contract, and further agrees to waive all right to file a claim arising out of or as a result of this change. This document will become a supplement to the Contract, and all provisions will apply hereto, upon approval by the Owner.

JORDAN VALLEY WATER CONSERVANCY DISTRICT

**CHANGE ORDER
(CONTINUED)**

Change Order No. _____

Date: _____

Page ___ of ___

Recommended: _____
Engineer - _____ Date _____

Accepted: _____
Contractor - _____ Date _____

Approved: _____
Owner - Jordan Valley Water Conservancy District _____ Date _____

JORDAN VALLEY WATER CONSERVANCY DISTRICT

**CONTRACTOR'S CERTIFICATE
OF
SUBSTANTIAL COMPLETION**

OWNER:

Jordan Valley Water Con. District
8215 South 1300 West
West Jordan, Utah 84088
801-565-4300

PROJECT: "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas"

ATTENTION: _____

FROM: _____

Firm or Corporation

This is to certify that I, _____ am an authorized official of
_____ working in the capacity of _____
_____ and have been properly authorized by said
firm or corporation to sign the following statements pertaining to the subject contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been substantially performed and all materials used and installed to date are in accordance with, and in conformity to, the contract drawings and specifications. A list of all incomplete work is attached.

The Contractor hereby releases the Owner and its agents from all claims of and liability to the Contractor for anything done or furnished for or relating to the work, as further provided in Article 14.08B of the General Conditions, except demands against the Owner for the remainder of progress payments retained to date, and unresolved written claims prior to this date.

The contract work is now substantially complete, ready for its intended use, and ready for your inspection. You are requested to issue a Certificate of Substantial Completion.

SIGNATURE: _____

DATE: _____

JORDAN VALLEY WATER CONSERVANCY DISTRICT

**CONTRACTOR'S CERTIFICATE
OF
FINAL COMPLETION**

OWNER:

Jordan Valley Water Con. District
8215 South 1300 West
West Jordan, Utah 84088
801-565-4300

PROJECT: "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas"

ATTENTION: Project Representative: Conor Tyson

FROM: _____
Firm or Corporation

This is to certify that I, _____ am an authorized official of
_____ working in the capacity of _____
_____ and have been properly authorized
by said firm or corporation to sign the following statements pertaining to the subject
contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been performed and all materials used and installed to date are in accordance with, and in conformity to, the contract drawings and specifications.

The Contract work is now complete in all parts and requirements, excepting the attached list of minor deficiencies and the reasons for each being incomplete to date, for which exemption from final payment requirements is requested in conformance to Article 14.09A of the General Conditions of our Contract (if no exemptions requested, write "none") _____. The work is now ready for your final inspection. The following items required from the Contractor prior to application for final payment (such as O & M Manuals, guarantees, record drawings, etc.) are submitted herewith, if any:

JORDAN VALLEY WATER CONSERVANCY DISTRICT

I understand that neither the issuance by the Engineer of a Notice of Completion, nor the acceptance thereof by the Owner, shall operate as a bar or claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

SIGNATURE: _____

DATE: _____

JORDAN VALLEY WATER CONSERVANCY DISTRICT

CONSENT OF SURETY FOR FINAL PAYMENT

PROJECT NAME: "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas"

LOCATION: _____

TYPE OF CONTRACT: _____

AMOUNT OF CONTRACT: _____

In accordance with the provisions of the above-named contract between the Owner and the Contractor, the following named surety:

on the Payment Bond of the following named Contractor:

hereby approves of final payment to the Contractor, and further agrees that said final payment to the Contractor shall not relieve the Surety Company named herein of any of its obligations to the following named Owner (as set forth in said Surety company's bond):

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand and seal this _____ day of _____, 20____.

(Name of Surety Company)

(Signature of Authorized Representative)

(Name of Authorized Representatives)

(Title)

JORDAN VALLEY WATER CONSERVANCY DISTRICT

AFFIDAVIT OF PAYMENT

To All Whom It May Concern:

WHEREAS, the undersigned has been employed by the Jordan Valley Water Conservancy District to furnish labor and materials under a contract dated _____ for the project entitled "2023 Distribution Pipeline Replacements - Old Farm and 5650 South Areas", in the County of Salt Lake, State of Utah, of which Jordan Valley Water Conservancy District is the Owner.

NOW, THEREFORE, this _____ day of _____, 20__, the undersigned, as the Contractor for the above-named Contract pursuant to the Conditions of the Contract hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or his property might in any way be held responsible.

EXCEPTIONS: (If none, write "None". If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each Exception.)

Contractor (Name of sole ownership,
corporation or partnership)

(affix corporate seal here)

(Signature of Authorized Representative)

Title: _____

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated:

Addenda - Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement - The written contract between the OWNER and the CONTRACTOR for the performance of the WORK pursuant to the Contract Documents. Documents incorporated into the contract by reference become part of the contract and of the Agreement.

Application for Payment - The form furnished by the ENGINEER and completed by the CONTRACTOR to request progress or final payment including supporting documentation to substantiate the amounts for which payment is requested.

Bonds - Performance, and Payment Bonds and other instruments which protect against loss due to inability or refusal of the CONTRACTOR to perform pursuant to the Contract Documents.

Change Order - A document recommended by the ENGINEER, which is signed by the CONTRACTOR and the OWNER and authorizes an addition, deletion, or revision in the WORK, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents - Information and Instructions, forms (including the Schedule of Prices and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplemental General Conditions, Technical Specifications, Drawings and all Addenda and Change Orders executed pursuant to the provisions of the Contract Documents.

Contract Price - The total monies payable by the OWNER to the CONTRACTOR under the terms and conditions of the Contract Documents.

Contract Time - The number of successive Days stated in the Contract Documents for the completion of the WORK. The Contract Time begins to run on the date specified in the Notice to Proceed.

CONTRACTOR - The person, firm, or corporation with whom the OWNER has executed the Agreement.

Cost Proposal - The offer or proposal of the pipeline installation subcontractor to the CONTRACTOR to provide the work required under these Contract Documents.

Day - A calendar day of 24 hours measured from midnight to the next midnight.

Defective Work - Work that: is unsatisfactory, faulty, or deficient; does not conform to the Contract Documents; does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; has been damaged prior to the ENGINEERS's recommendation of final payment.

Drawings - The drawings, plans, maps, profiles, diagrams, and other graphic representations which show the character, location, nature, extent, and scope of the WORK.

Effective date of the Agreement - The date indicated in the Agreement on which it was executed, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

ENGINEER - The person, firm, or corporation named as such in the Contract Documents.

Field Order - A written order issued by the ENGINEER which may or may not involve a change in the WORK.

Laws and Regulations; Laws or Regulations - Laws, rules, regulations, ordinances, codes, and/or orders promulgated by a lawfully constituted body authorized to issue such Laws and Regulations.

Notice of Award - The OWNER's written notice to the apparent successful Bidder stating that upon compliance with the conditions precedent enumerated therein by the apparent successful Bidder within the time specified, the OWNER will enter into the Agreement.

Notice to Proceed - The OWNER's written notice to the CONTRACTOR authorizing the CONTRACTOR to proceed with the work and establishing the date of commencement of the Contract Time.

OWNER - The Jordan Valley Water Conservancy District.

Partial Utilization - Placing a portion of the WORK in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion of the WORK.

Project - A unit of total construction of which the WORK to be provided under the Contract Documents, may be the whole, or a part thereof.

Project Representative - The authorized representative of the ENGINEER who is assigned to the site or any part thereof.

Proposer - Any person, firm or corporation submitting a proposal for the work.

Schedule of Prices - The offer or proposal of the CONTRACTOR setting forth the price or prices for the work to be performed.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR to illustrate some portion of WORK and all illustrations, brochures, standard schedules, performance charts, instruction, and diagrams to illustrate material or equipment for some portion of the WORK.

Specifications - (Same definition as for Technical Specifications hereinafter).

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.

Substantial Completion - That state of construction when the WORK has progressed to the point where, in the opinion of the ENGINEER as evidenced by the Certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to any work refer to substantial completion thereof.

Supplementary General Conditions - The part of the Contract Documents which make additions, deletions, or revisions to these General Conditions.

Supplier - A manufacturer, fabricator, supplier, distributor, materialman, or vendor.

Technical Data - The factual information contained in reports describing physical conditions, including exploration method, plans, logs, laboratory test methods and factual data. Technical Data does not include conclusions, interpretations, interpolations, extrapolations or opinions contained in reports or reached by the CONTRACTOR.

Technical Specifications - Those portions of the Contact Documents consisting of the written technical descriptions of products and execution of the WORK.

Underground Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments and any encasements containing such facilities which have been installed under ground to furnish any of the following services or

materials: water, sewage and drainage removal, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic, or other control systems.

WORK - The entire construction required to be furnished under the Contract Documents. WORK is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

GENERAL CONDITIONS

ARTICLE 2 - PRELIMINARY MATTERS

2.01 DELIVERY OF BONDS/INSURANCE CERTIFICATES

- A. The CONTRACTOR shall deliver to the OWNER the Agreement, Bonds, Insurance Policies and Certificates required by the Contract Documents within ten (10) days after receiving the Notice of Award from the OWNER.

2.02 COPIES OF DOCUMENTS

- A. The OWNER shall furnish the CONTRACTOR 5 copies of the Contract Documents, together with 5 sets of full-scale Drawings. Additional quantities of the Contract Documents will be furnished at reproduction cost.

2.03 STARTING THE PROJECT

- A. The CONTRACTOR shall begin construction of the WORK within 10 days after the commencement date stated in the Notice to Proceed, but shall not commence construction prior to the commencement date.

2.04 BEFORE STARTING CONSTRUCTION

- A. Before undertaking each part of the WORK, the CONTRACTOR shall carefully study and compare the Contract Documents to check and verify pertinent figures and dimensions shown thereon with all applicable field measurements. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any work affected thereby.
- B. The CONTRACTOR shall submit to the ENGINEER for review those documents called for in each section of the Technical Specifications.

2.05 PRECONSTRUCTION CONFERENCE

- A. The CONTRACTOR shall attend a preconstruction conference with the OWNER, the ENGINEER and others as appropriate to discuss the construction of the WORK in accordance with the Contract Documents.

GENERAL CONDITIONS

2.06 FINALIZING SCHEDULES

- A. At least 7 days before the CONTRACTOR's submittal of its first Application for Payment, the CONTRACTOR, the ENGINEER, and others as appropriate will meet to finalize the schedules submitted in accordance with the Technical Specifications.

GENERAL CONDITIONS

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 INTENT

- A. The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the WORK. The Contract Documents are complementary, what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.
- B. It is the intent of the Contract Documents to describe the WORK, functionally complete, to be constructed in accordance with the Contract Documents. All work, materials, or equipment that may be reasonably inferred from the Contract Documents as being required to produce the completed work shall be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals, or codes or any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the OWNER, the CONTRACTOR, or the ENGINEER or any of their consultants, agents, or employees from those set forth in the Contract Documents.
- C. If, during the performance of the WORK, the CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, the CONTRACTOR shall immediately report it to the ENGINEER in writing and before proceeding with the work affected thereby. The ENGINEER shall then make a written interpretation, clarification, or correction from the ENGINEER.

GENERAL CONDITIONS

3.02 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

- A. In resolving conflicts resulting from conflicts, errors, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:
 - 1. Change Orders
 - 2. Agreement
 - 3. Addenda
 - 4. Contractor's Bid (Bid Form)
 - 5. Supplemental General Conditions
 - 6. Notice Inviting Bids
 - 7. Instructions to Bidders
 - 8. General Conditions
 - 9. Technical Specifications
 - 10. Referenced Standard Specifications
 - 11. Drawings

- B. With reference to the Drawings the order of precedence is as follows:
 - 1. Figures govern over scaled dimensions
 - 2. Detail drawings govern over general drawings
 - 3. Addenda/change order drawings govern over general drawings
 - 4. Contract Drawings govern over standard drawings

3.03 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS

- A. The Contract Documents may be amended by a Change Order (pursuant to Article 10) to provide for additions, deletions or revisions in the WORK or to modify terms and conditions.

GENERAL CONDITIONS

3.04 REUSE OF DOCUMENTS

- A. Neither the CONTRACTOR, Subcontractor, Supplier, nor any other person or organization performing any of the WORK under a contract with the OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall not reuse any of them on the extensions of the Project or any other project without written consent.

GENERAL CONDITIONS

ARTICLE 4 - AVAILABILITY OF LANDS; PHYSICAL CONDITIONS: REFERENCE POINTS

4.01 AVAILABILITY OF LANDS

- A. The OWNER shall furnish the lands, rights-of-way and easements upon which the WORK is to be performed and for access thereto, together with other lands designated for the use of the CONTRACTOR in the Contract Documents. Easements for permanent structures or permanent changes in existing major facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment. The CONTRACTOR shall not enter upon nor use any property not under the control of the OWNER until a written temporary construction easement agreement has been executed by the CONTRACTOR and the property owner, and a copy of the easement furnished to the ENGINEER prior to its use. Neither the OWNER nor the ENGINEER shall be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any properties.

4.02 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES

- A. Explorations and Reports: The paragraph entitled "Physical Conditions" of the Supplementary General Conditions identifies exploration reports and subsurface conditions tests at the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the Technical Data contained in these reports. The CONTRACTOR is responsible for the interpretation, extrapolation or interpolation of all technical as well as nontechnical data and its reliance on the completeness, opinions and interpretation of the reports.
- B. Existing Structures: The paragraph entitled "Physical Conditions" of the Supplementary General Conditions identifies the drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Paragraph 4.04 herein) which are at or contiguous to the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR is responsible for the interpretation, extrapolation or interpolation of all technical as well as nontechnical data and its reliance on the completeness, opinions and interpretation of the reports.

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4.03 DIFFERING SITE CONDITIONS

- A. The CONTRACTOR shall notify the ENGINEER upon encountering any of the following unforeseen conditions, hereinafter called "differing site conditions," during the prosecution of the WORK. The CONTRACTOR's notice to the ENGINEER shall be in writing and delivered before the differing site conditions are disturbed, but in no event later than 14 days after their discovery.
 - 1. Subsurface or latent physical conditions at the site of the WORK differing materially from those indicated, described, or delineated in the Contract Documents including those reports and documents discussed in Paragraph 4.02; and
 - 2. Physical conditions at the site of the WORK 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 including those reports and documents discussed in Paragraph 4.02.
- B. The ENGINEER will review the alleged differing site conditions, determine the necessity of obtaining additional explorations or tests with respect to verifying their existence and extent and advise the OWNER in writing of the ENGINEER's findings and conclusions.
- C. If the OWNER concludes that because of newly discovered conditions a change in the Contract Documents is required, a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the differing site conditions.
- D. In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to the differing site conditions. If the OWNER and the CONTRACTOR are unable to agree as to the amount or length of the Change Order, a claim may be made as provided in Articles 11 and 12.
- E. The CONTRACTOR's failure to give written notice of differing site conditions within 14 days of their discovery and before they are disturbed shall constitute a waiver of all claims in connection therewith, whether direct or consequential in nature.

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4.04 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

- A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Utilities at or contiguous to the site are based on information and data furnished to the OWNER or the ENGINEER by the owners of Underground Utilities or by others. Unless it is expressly provided in the Supplementary General Conditions and/or the Section entitled "Protection and Restoration of Existing Facilities" of the Technical Specifications, the OWNER and the ENGINEER shall not be responsible for the accuracy or completeness of any Underground Utilities information or data. The CONTRACTOR's responsibility relating to underground utilities are: review and check all information and data, locate all Underground Utilities shown or indicated in the Contract Documents, coordinate the WORK with the owners of Underground Utilities during construction, the safeguard and protect the of Underground Utilities, and repair any damage to Underground Utilities resulting from the WORK. The cost of all these activities will be considered as having been included in the Contact Price.
- B. Not Shown or Indicated: If an Underground Utility not shown or indicated in the Contract Documents is uncovered or revealed at or contiguous to the site and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall give written notice to the OWNER of that utility and the ENGINEER, specifying the location of the utility in question.

4.05 REFERENCE POINTS

- A. The ENGINEER will provide one bench mark, near or on the site of the WORK, and will provide two points near or on the site to establish a base line for use by the ENGINEER for alignment control. Unless otherwise specified in the Technical Specifications, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.
- B. The CONTRACTOR shall preserve all bench marks, stakes, and other survey marks. In case of their removal or destruction by its own employees or by its subcontractor's employees, the CONTRACTOR shall be responsible for the accurate replacement of reference points by professionally qualified personnel at no additional cost to the OWNER.

GENERAL CONDITIONS

ARTICLE 5 - BONDS AND INSURANCE

5.01 PERFORMANCE AND OTHER BONDS

- A. The CONTRACTOR shall furnish Performance and Payment Bonds, each in the amount set forth in the Supplementary General Conditions as security for the faithful performance and payment of all the CONTRACTOR's obligations under the Contract Documents. All insurance companies, sureties, and bond companies shall have an AM Best rating of A- or better, with a Financial Size Category of XII or better. Sureties shall also be listed on the Department of the Treasury's Circular 570, with an acceptable underwriting limitation limit. The Performance Bond shall remain in effect at least until one year after the date of Notice of Completion, except as otherwise provided by Law or Regulation or by the Contract Documents. After the ENGINEER issues the Notice of Completion, the amount of the Performance Bond may be reduced to 10 percent of the Contract Price, or \$1,000, whichever is greater. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions.
- B. If the surety on any Bond furnished by the CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days after written approval by the OWNER of a substitute Bond and Surety substitute the approved Bond and Surety.

5.02 INSURANCE

- A. The CONTRACTOR shall purchase and maintain the insurance required under this paragraph. All insurance companies, sureties, and bond companies shall have an AM Best rating of A- or better, with a Financial Size Category of XII or better. Sureties shall also be listed on the Department of the Treasury's Circular 570, with an acceptable underwriting limitation limit. This insurance shall include the specific coverages set out herein and be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever is greater. The CONTRACTOR's liabilities under the Agreement shall not be deemed limited in any way to the insurance coverage required.
- B. The CONTRACTOR shall furnish the OWNER and ENGINEER with certificates indicating the type, amount, class of operations covered, effective dates and expiration dates of all policies. All insurance policies purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 30 days' prior written

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notice has been given to the OWNER by certified mail. All insurance shall remain in effect until the ENGINEER issues the Notice of Completion and at all times thereafter when the CONTRACTOR may be correcting, removing, or replacing defective work in accordance with Paragraph 13.06 or completing punch list items required by the Notice of Completion. In addition, the insurance required herein (except for Worker's Compensation and Employer's Liability) shall name the OWNER, the ENGINEER, and their officers, agents, and employees as "additional insured" under the policies.

1. Workers' Compensation and Employer's Liability: This insurance shall protect the CONTRACTOR against all claims under applicable state workers' compensation laws. The CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a workers' compensation law. This policy shall include an "all states" endorsement. The CONTRACTOR shall require each subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in the WORK unless its employees are covered by the protection afforded by the CONTRACTOR's Workers' Compensation Insurance. In the event a class of employees is not protected under the Workers' Compensation Statute, the CONTRACTOR or Subcontractor, as the case may be, shall provide adequate employer's liability insurance for the protection of its employees not protected under the statute.
2. Comprehensive General Liability: This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims arising from injuries to persons other than its employees and damage to property of the OWNER or others arising out of any act or omission of the CONTRACTOR or its agents, employees or subcontractors. The policy shall include the following endorsements: (1) Protective Liability endorsement to insure the contractual liability assumed by the CONTRACTOR under the indemnification provisions in these General Conditions; (2) Broad Form Property Damage endorsement; (3) Personal Injury endorsement to cover personal injury liability for intangible harm. The Comprehensive General Liability coverage shall contain no exclusion relative to blasting, explosion, collapse of building, or damage to underground structures.
3. Comprehensive Automobile Liability: This insurance shall be written in comprehensive form. The policy shall protect the CONTRACTOR against all claims for injuries to employees, members of the public and

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damage to property of others arising from the use of CONTRACTOR's motor vehicles, whether they are owned, non-owned, or hired, and whether used or operated on or off the site. The motor vehicle insurance required under this paragraph shall include: (a) motor vehicle liability coverage; (b) personal injury protection coverage and benefits; and (c) uninsured motor vehicle coverage.

4. Subcontractor's Insurance: The CONTRACTOR shall require each of its subcontractors to procure and to maintain Comprehensive General Liability Insurance and Comprehensive Automobile Liability Insurance of the type and in the amounts specified in the Supplementary General Conditions or insure the activities of its subcontractors in the CONTRACTOR's own policy, in like amount.
5. Builder's Risk: This insurance shall be of the "all risk" type, shall be written in completed value form, and shall protect the CONTRACTOR, the OWNER, and the ENGINEER against damage to buildings, structures, materials and equipment. The amount of this insurance shall not be less than the insurable value of the WORK at completion. Builder's risk insurance shall provide for losses to be payable to the CONTRACTOR, the OWNER, and the ENGINEER as their interests may appear. The policy shall contain a provision that in the event of payment for any loss under the coverage provided, the insurance company shall have no rights of recovery against the CONTRACTOR, the OWNER, and the ENGINEER. The Builder's Risk policy shall insure against all risks of direct physical loss or damage to property from any external cause including flood and earthquake. Allowable exclusions, if any, shall be as specified in the Supplementary General Conditions.

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ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 SUPERVISION AND SUPERINTENDENCE

- A. The CONTRACTOR shall supervise and direct the WORK competently and efficiently, devoting the attention and applying the skills and expertise necessary to perform the WORK in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the finished WORK complies accurately with the Contract Documents.
- B. The CONTRACTOR shall employ the Superintendent named in "Information Required of Bidder" on the work site at all times during the progress of the WORK. The superintendent shall not be replaced without the OWNER's written consent. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER.
- C. The CONTRACTOR's superintendent shall be present at the site of the WORK at all times while work is in progress. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until the superintendent is again present at the site.

6.02 LABOR, MATERIALS, AND EQUIPMENT

- A. The CONTRACTOR shall provide skilled, competent and suitably qualified personnel to survey and lay out the WORK and perform construction as required by the Contract Documents. When required in writing by the OWNER or ENGINEER, the CONTRACTOR or any subcontractor shall discharge any person who is, in the opinion of the OWNER or ENGINEER, incompetent, disorderly, or otherwise unsatisfactory and shall not again employ the discharged person on the WORK without the consent of the OWNER or ENGINEER. The CONTRACTOR shall at all times maintain good discipline and order at the site.
- B. Except in connection with the safety or protection of persons the WORK, or property at the site or adjacent thereto, all work at the site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday or any legal holiday without the OWNER's written consent given after prior written notice

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to the ENGINEER. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of 8 hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing. Additional compensation will be paid the CONTRACTOR for overtime work in the event extra work is ordered by the ENGINEER and the Change Order specifically authorizes the use of overtime work, but only to the extent that the CONTRACTOR pays overtime wages on a regular basis being paid by for overtime work of a similar nature in the same locality.

- C. All costs of inspection and testing performed during overtime work approved solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The OWNER shall have the authority to deduct the costs of all inspection and testing from any partial payments otherwise due to the CONTRACTOR.
- D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish, erect, maintain and remove the construction plant, and temporary works and assume full responsibility for all materials, equipment, labor, transportation, construction equipment, machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities and all other facilities and incidentals necessary for the furnishing, performance testing, start-up and completion of the WORK.
- E. All materials and equipment incorporated into the WORK shall be of new and good quality, except as otherwise provided in the Contract Documents. If required by the ENGINEER, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. The CONTRACTOR shall apply, install, connect, erect, use, clean, and condition all material and equipment in accordance with the instructions of the manufacturer and Supplier except as otherwise provided in the Contract Documents.

6.03 ADJUSTING PROGRESS SCHEDULE

- A. The CONTRACTOR shall submit any adjustments in the progress schedule to the ENGINEER for acceptance in accordance with the provisions for "Contractor Submittals" in the Technical Specifications.

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6.04 SUBSTITUTES OR "OR-EQUAL" ITEMS

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below:
1. "Or-Equal" Items: If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.04.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is a least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;
 - b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Document.
 2. Substitute Items
 - a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.04.A.1, it will be considered a proposed substitute item.
 - b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or

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equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

- c. The procedure for review by ENGINEER will be as set forth in paragraph 6.04.A.2.d, as supplemented in the Technical Specifications and as ENGINEER may decide is appropriate under the circumstances.
 - d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item, and whether or not incorporation or use of the substitute item is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.
- B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in

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ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.04.A.2.

- C. Engineer's Evaluation: ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.04.A and 6.04.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.
- D. Special Guarantee: OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
- E. ENGINEER's Cost Reimbursement: ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.04.A.2 and 6.04.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluation each such proposed substitute.
- F. CONTRACTOR's EXPENSE: CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.05 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- A. The CONTRACTOR shall be responsible to the OWNER and the ENGINEER for the acts and omissions of its subcontractors and their employees to the same extent as the CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this paragraph shall create any contractual relationship between any subcontractor and the OWNER or the ENGINEER nor relieve the CONTRACTOR of any liability or obligation under the Agreement.

6.06 PERMITS

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- A. Unless otherwise provided in the Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including furnishing the insurance and bonds required by such agencies. The costs incurred by the CONTRACTOR in compliance with this paragraph shall not be made the basis for claims for additional compensation. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and licenses. The CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the WORK, which are applicable at the time of opening of Bids, including all utility connection charges for utilities required by the WORK.

- B. The CONTRACTOR shall pay all license fees and royalties and assume all costs when any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others when issued in the construction of the WORK or incorporated into the WORK. If a particular invention, design, process, product, or device is specified in the Contract Documents for incorporation into or use in the construction of the WORK and if to the actual knowledge of the OWNER or the ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of these rights shall be disclosed by the OWNER in the Contract Documents. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER and the ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the WORK or resulting from the incorporation in the WORK of any invention, design, process, product, or device not specified in the Contract Documents.

6.07 LAWS AND REGULATIONS

- A. The CONTRACTOR shall observe and comply with all federal, state, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK. If any discrepancy or inconsistency should be discovered in the Contract Documents in relation to any law, ordinance, code, order, or regulations, the CONTRACTOR shall report the same in writing to the ENGINEER. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER, the ENGINEER and their officers, agents, and employees against all claims and from violation of any law, ordinance, code, order, or regulation, whether by CONTRACTOR or by its employees or subcontractors. Any particular law or regulation specified or

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referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of federal, state, and local laws and regulations. Where an individual State act on occupational safety and health standards has been approved by Federal authority, then the provision of said State act shall control.

6.08 EQUAL OPPORTUNITY

- A. The Contractor agrees to abide by: the provisions of Title VII of the Civil Rights Act of 1964 (42USC § § 2000e et seq.), which prohibits discrimination against any employee or applicant for employment on the basis of race, religion, color, or national origin; Executive Order No. 11246, as amended, which prohibits discrimination on the basis of sex; 45 CFR 90, which prohibits discrimination on the basis of age; Section 504 of the Rehabilitation Act of 1973, (42 USC § 794), which prohibits discrimination on the basis of handicap; Utah Executive Order dated June 30, 1989, which prohibits sexual harassment in the workplace; and the Americans with Disabilities Act (42 USC § § 12111 et seq.), which prohibits discrimination against qualified employees and applicants with a disability.

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6.09 TAXES

- A. The CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by the CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the WORK.

6.10 USE OF PREMISES

- A. The CONTRACTOR shall confine construction equipment, stored materials and equipment, and other operations of workers to (1) the Project site, (2) the land and areas identified for the CONTRACTOR's use in the Contract Documents, and (3) other lands whose use is acquired by Laws and Regulations, rights-of-way, permits, and easements. The CONTRACTOR shall be fully responsible to the owner and occupant of such lands for any damage to the lands or areas contiguous thereto, resulting from the performance of the WORK or otherwise. Should any claim be made against the OWNER or the ENGINEER by owner or occupant of lands because of the performance of the WORK, the CONTRACTOR shall promptly settle the claim by agreement, or resolve the claim through litigation. The CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, defend, and hold the OWNER and the ENGINEER harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers, architects, attorneys, and other professionals and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any owner or occupant of land against the OWNER or the ENGINEER to the extent the claim is based or arises out of the CONTRACTOR's performance of the WORK.

6.11 SAFETY AND PROTECTION

- A. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. All employees on the WORK and other persons and organizations who may be affected thereby.
 - 2. All the WORK and materials and equipment to be incorporated therein, whether in storage on or off the site; and

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3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
- B. The CONTRACTOR shall comply with all applicable Laws and Regulations (whether referred to herein or not) of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the WORK may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Unless the CONTRACTOR otherwise designates in writing a different individual as the responsible individual, the CONTRACTOR's superintendent shall be CONTRACTOR's representative at the site whose duty shall be the prevention of accidents.

6.12 SHOP DRAWINGS AND SAMPLES

- A. After checking and verifying all field measurements and after complying with the applicable procedures specified in the Technical Specifications, the CONTRACTOR shall submit all shop drawings to the ENGINEER for review and approval in accordance with the approved schedule for shop drawings submittals specified in the Technical Specifications.
- B. The CONTRACTOR shall also submit to the ENGINEER for review and approval all samples in accordance with the approved schedule of sample submittals specified in the Technical Specifications.
- C. Before submitting shop drawings or samples, the CONTRACTOR shall determine and verify all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and review or coordinate each shop drawing or sample with other shop drawings and samples and with the requirements of the WORK and the Contract Documents.

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6.13 CONTINUING THE WORK

- A. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the OWNER. No work shall be delayed or postponed pending resolution of any dispute or disagreement, except as the CONTRACTOR and the OWNER may otherwise mutually agree in writing.

6.14 INDEMNIFICATION

- A. To the fullest extent permitted by Laws and Regulations, the CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, and their officers, agents, and employees, against and from all claims and liability arising under or by reason of the Agreement or any performance of the WORK, but not from the sole negligence or willful misconduct of the OWNER and/or the ENGINEER. Such indemnification by the CONTRACTOR shall include but not be limited to the following:
 - 1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR or its agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR or its agents;
 - 2. Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree, whether by the CONTRACTOR or its agents;
 - 3. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its agents, or the OWNER in the performance of this Agreement of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specifically stipulated in this Agreement.
 - 4. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the OWNER or any other parties by the CONTRACTOR or its agents;
 - 5. Liabilities or claims arising directly or indirectly from the willful misconduct of the CONTRACTOR or its agents; and,

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6. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the CONTRACTOR.
 - B. The CONTRACTOR shall reimburse the OWNER, and the ENGINEER for all costs and expense, (including but not limited to fees and charges of engineers, architects, attorneys, and other professional and court costs) incurred by the OWNER, and the ENGINEER in enforcing the provisions of this Paragraph.
 - C. The indemnification obligation under this Paragraph shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any such subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

6.15 CONTRACTOR'S DAILY REPORTS

- A. The CONTRACTOR shall complete a daily report indicating manpower, major equipment, subcontractors, weather conditions, etc., involved in the performance of the WORK. The daily report shall be completed on forms prepared by the CONTRACTOR and acceptable to the ENGINEER, and shall be submitted to the ENGINEER at the conclusion of each work day.

6.16 ASSIGNMENT OF CONTRACT

- A. The CONTRACTOR shall not assign, sublet, sell, transfer, or otherwise dispose of the Agreement or any portion thereof, or its right, title, or interest therein, or obligations thereunder, without the written consent of the OWNER except as imposed by law. If the CONTRACTOR violates this provision, the Agreement may be terminated at the option of the OWNER. In such event, the OWNER shall be relieved of all liability and obligations to the CONTRACTOR and to its assignee or transferee, growing out of such termination.

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ARTICLE 7 - OTHER WORK

7.01 RELATED WORK

- A. The OWNER may perform other work related to the Project at the site by the OWNER's own forces, have other work performed by utility owners, or let other direct contracts for the performance of the other work which may contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to commencing any other work.
- B. The CONTRACTOR shall afford each utility owner and other contractor who is a party to a direct contract (or the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of the other work. The CONTRACTOR shall properly connect and coordinate the WORK with the other work. The CONTRACTOR shall do all cutting, fitting, and patching of the WORK that may be required to make its several parts come together properly and integrate with the other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and shall only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected.
- C. If the proper execution or results of any part of the CONTRACTOR's work depends upon the integration of work with the completion of other work by any other contractor or utility owner (or the OWNER), the CONTRACTOR shall inspect and report to the ENGINEER in writing all delays, defects, or deficiencies in the other work that renders it unavailable or unsuitable for proper integration with the CONTRACTOR's work. Except for the results or effects of latent or nonapparent defects and deficiencies in the other work, the CONTRACTOR's failure to report will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's work and as a waiver of any claim for additional time or compensation associated with the integration of the CONTRACTOR's work with the other work.

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7.02 COORDINATION

- A. If the OWNER contracts with others for the performance of other work on the Project at the site, a coordinator will be identified to the extent that the coordinator can be identified at this time, in the Supplementary General Conditions and delegated the authority and responsibility for coordination of the activities among the various contractors. The specific matters over which the coordinator has authority and the extent of the coordinator's authority and responsibility will be itemized in the Supplementary General Conditions or in a notice to the CONTRACTOR at such time as the identity of the coordinator is determined.

GENERAL CONDITIONS

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 COMMUNICATIONS

- A. The OWNER shall issue all its communications to the CONTRACTOR through the ENGINEER.

8.02 PAYMENTS

- A. The OWNER shall make payments to the CONTRACTOR as provided in Paragraphs 14.05 and 14.09.

8.03 LANDS, EASEMENTS, AND SURVEYS

- A. The OWNER's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. The OWNER shall identify and make available to the CONTRACTOR copies of exploration reports and subsurface conditions tests at the site and in existing structures which have been utilized by the ENGINEER in preparing the Drawings and Technical Specifications as set forth in Paragraph 4.02

8.04 CHANGE ORDERS

- A. The OWNER shall execute approved Change Orders for the conditions described in Paragraph 10.01D.

8.05 INSPECTIONS AND TESTS

- A. The OWNER's responsibility with respect to inspection, tests, and approvals is set forth in Paragraph 13.03B.

8.06 SUSPENSION OF WORK

- A. In connection with the OWNER's right to stop work or suspend work, see Paragraphs 13.04 and 15.01. Paragraphs 15.02 and 15.03 deal with the OWNER's right to terminate services of the CONTRACTOR under certain circumstances.

GENERAL CONDITIONS

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 OWNER'S REPRESENTATIVE

- A. The ENGINEER will be the OWNER's representative during the construction period. The duties, responsibilities and the limitations of authority of the ENGINEER as the OWNER's representative during construction are set forth in a separate agreement with the OWNER and are summarized hereafter.

9.02 VISITS TO SITE

- A. The ENGINEER will make visits to the site during construction to observe and inspect the progress and quality of the WORK and to determine, in general if the WORK is proceeding in accordance with the Contract Documents.

9.03 PROJECT REPRESENTATION

- A. The ENGINEER will furnish a Project Representative to observe and inspect the performance of the WORK. The Project Representative and/or other authorized agents of the Engineer shall serve as the chief Owner/Engineer contact(s) with the Contractor during the construction phase. All submittals shall be delivered to and communications between the Engineer and the Contractor shall be handled by the Project Representative and/or other authorized agents. The Project Representative shall be the chief authorized representative of the Owner and the Engineer at the site of the work in all on-site relations with the Contractor.

9.04 CLARIFICATIONS AND INTERPRETATIONS

- A. The ENGINEER will issue with reasonable promptness written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as the ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

9.05 AUTHORIZED VARIATIONS IN WORK

- A. The ENGINEER may authorize minor variation in the WORK as described in the Contract Documents when such variations do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These variations shall be accomplished by issuing a Field Order. The issuance of a Field Order requires the CONTRACTOR to perform the work described in the order promptly. If the

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CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and parties are unable to agree as the amount or extent thereof, the CONTRACTOR may make a claim therefor as provided in Article 11 or 12.

9.06 REJECTION OF DEFECTIVE WORK

- A. The ENGINEER is authorized to reject work which the ENGINEER believes to be defective and require special inspection or testing of the WORK as provided in Paragraph 13.03G, whether or not the WORK is fabricated, installed, or completed.

9.07 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

- A. The ENGINEER will review for approval all Contractor submittals, including shop drawings, samples, substitutes, and "or equal" items, etc., in accordance with the procedures set forth in the Technical Specifications.
- B. In connection with the ENGINEER's responsibilities as to Change Orders, see Articles 10, 11, and 12.
- C. In connection with the ENGINEER's responsibilities with respect to Applications for Payment, see Article 14.

9.08 DECISIONS ON DISPUTES

- A. All claims, disputes, and other matters concerning the acceptability of the WORK, the interpretation of the requirements of the Contract Documents pertaining to the performance of the WORK, and claims for changes in the Contract Price or Contract Time under Articles 11 and 12 will be referred to the ENGINEER in writing with a request for formal decision in accordance with this paragraph. The ENGINEER will render a decision in writing within 30 days of receipt of the request. Written notice of each claim, dispute, or other matter will be delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event. Written supporting data will be submitted to the ENGINEER with the written claim unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.
- B. When reviewing the claim or dispute, the ENGINEER will not show partiality to the OWNER or the CONTRACTOR and will incur no liability in connection with any interpretation or decision rendered in good faith. The ENGINEER's rendering of a decision with respect to any claim, dispute, or other matter (except any which have been waived by the making or acceptance of final

GENERAL CONDITIONS

payment as provided in Paragraph 14.12) shall be a condition precedent to the OWNER's or the CONTRACTOR's exercise of their rights or remedies under the Contract Documents or by Law or Regulations with respect to the claim, dispute, or other matter.

9.09 LIMITATION ON ENGINEER'S RESPONSIBILITIES

- A. Neither the ENGINEER's authority to act pursuant to its agreement with the OWNER, nor the description of that authority under this Article 9, nor any other description of the ENGINEER's responsibility in the Contract Documents, nor any decision made by the ENGINEER in good faith either to exercise or not exercise its authority, shall give rise to any duty or responsibility on the part of the ENGINEER to the CONTRACTOR, any Subcontractor, any Supplier, any surety or any other person or organization performing any part of the WORK.
- B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgement of the ENGINEER as to the WORK, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the WORK for compliance with the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the ENGINEER any duty or authority to supervise or direct the performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of its agreement with the OWNER.
- C. The ENGINEER will not be responsible for the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction not specified in the Contract Documents or the safety precautions and programs incident thereto.
- D. The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR nor of any subcontractor, supplier, or any other person or organization performing any of the WORK to the extent that such acts or omissions are not reasonably discoverable considering the level of observation and inspection required by the ENGINEER's agreement with the OWNER.

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ARTICLE 10 - CHANGES IN THE WORK

10.01 GENERAL

- A. Without invalidating the Agreement and without notice to any surety, the OWNER may at any time or from time to time, order additions, deletions, or revisions in the WORK; these will be authorized by a written Field Order and/or a Change Order issued by the ENGINEER. Upon receipt of any of these documents, the CONTRACTOR shall promptly proceed with the work involved pursuant to the applicable conditions of the Contract Documents.
- B. If the OWNER and the CONTRACTOR are unable to agree upon the increase or decrease in the Contract Price or an extension or shortening of the Contract Time, if any, that should be allowed as a result of a Field Order, a claim may be made therefor as provided in Articles 11 or 12.
- C. The CONTRACTOR shall not be entitled to an increase in the Contract Price nor an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented by Change Order, except in the case of an emergency and except in the case of uncovering work provided in the Paragraph 13.03G.
- D. The OWNER and the CONTRACTOR shall execute appropriate Change Orders covering:
 - 1. Changes in the WORK which are ordered by the OWNER pursuant to Paragraph 10.01A;
 - 2. Changes required because of acceptance of defective work under Paragraph 13.06;
 - 3. Changes in the Contract Price or Contract Time which are agreed to by the parties; or
 - 4. Any other changes agreed to by the parties.
- E. If the provisions of any Bond require notice of any change to be given to a surety, the giving of these notices will be the CONTRACTOR's responsibility. The CONTRACTOR shall provide for the amount of each applicable Bond to be adjusted accordingly.

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10.02 ALLOWABLE QUANTITY VARIATIONS

- A. Whenever a unit price and quantity have been established for a bid item in the Contract Documents, the quantity stated may be increased or decreased to a maximum of 25 percent with no change in the unit price. An adjustment in the quantity in excess of 25 percent will be sufficient to justify a change in the unit price. Changes in the quantity of all bid items established in the Contract Documents, regardless of whether the changes are more or less than 25 percent and at the unit price established in the Contract Documents or adjusted otherwise, shall be documented by Change Orders.

- B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover the eliminated work, the price of the eliminated work shall be agreed upon in writing by the OWNER and the CONTRACTOR. If the OWNER and the CONTRACTOR fail to agree upon the price of the eliminated work, the price shall be determined in accordance with the provisions of Article 11.

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ARTICLE 11 - CHANGE OF CONTRACT PRICE

11.01 GENERAL

- A. The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the WORK. Except as directed by Change Orders, all duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR shall be at its expense without change in the Contract Price.
- B. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered with the claim, unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim, and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of the occurrence of the event. If the OWNER and the CONTRACTOR cannot otherwise agree on the amount involved, all claims for adjustment in the Contract Price shall be determined by the ENGINEER in accordance with Paragraph 9.08A. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph 11.01B.
- C. The value of any work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:
 - 1. Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
 - 2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.
 - 3. On the basis of the cost of work (determined as provided in Paragraphs 11.02 and 11.03) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.04).

GENERAL CONDITIONS

11.02 COST OF WORK (BASED ON TIME AND MATERIALS)

- A. General: The term "cost of work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of work. Except as otherwise may be agreed to in writing by the OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project.
- B. Labor: The cost of labor used in performing work by the CONTRACTOR, a subcontractor, or other forces will be the sum of the following:
1. The actual wages paid plus any employer payments to, or on behalf of workers for fringe benefits including health and welfare, pension, vacation, and similar purposes. The cost of labor may include the rates paid to foremen when determined by the ENGINEER that the services of foremen do not constitute a part of the overhead allowance.
 2. All payments imposed by state and federal laws including, but not limited to, compensation insurance, and social security payments.
 3. The amount paid for subsistence and travel required by collective bargaining agreements, or in accordance with the regular practice of the employer.

At the beginning of the extra work and as later requested by the ENGINEER, the CONTRACTOR shall furnish the ENGINEER proof of labor compensation rates being paid.

- C. Materials: The cost of materials used in performing work will be the cost to the purchaser, whether CONTRACTOR or subcontractor, from the supplier thereof, except as the following are applicable:
1. Trade discounts available to the purchase shall be credited to the OWNER notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.
 2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the ENGINEER. Markup except for actual costs incurred in the handling of such materials will not be allowed.

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3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from these sources on extra work items or current wholesale price for the materials delivered to the work site, whichever is lower.
 4. If in the opinion of the ENGINEER the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of the material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned, delivered to the work site less trade discount. The OWNER reserves the right to furnish materials for the extra work and no claim shall be made by the CONTRACTOR for costs and profit on such materials.
- D. Equipment: The CONTRACTOR will be paid for the use of equipment at the rental rate listed for the equipment specified in the Supplementary General Conditions. The rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the Owner for the total period of use. If it is deemed necessary by the CONTRACTOR to use equipment not listed in the Supplementary General Conditions an equitable rental rate for the equipment will be established by the ENGINEER. The CONTRACTOR may furnish cost data which might assist the ENGINEER in the establishing the rental rate.
1. All equipment shall, in the opinion of the ENGINEER, be in good working condition and suitable for the purpose for which the equipment is to be used.
 2. Before construction equipment is used on the extra work, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the ENGINEER, in duplicate, a description of the equipment and its identifying number.
 3. Unless otherwise specified, manufacturers' ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
 4. Individual pieces of equipment or tools having a replacement value of \$100 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore.

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5. Rental time will not be allowed while equipment is inoperative due to breakdowns.
- E. Equipment on the Work: The rental time to be paid for equipment used on the WORK shall be the time the equipment is in productive operation on the extra work being performed and, in addition, shall include the time required to move the equipment to the location of the extra work and return it to the original location or to another location that requires no more moving time than that required to return it to its original location. Moving time will not be paid if the equipment is used on other than the extra work, even though located at the site of the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power. However, no payment will be made for loading and transporting costs when the equipment is used on other than the extra work even though located at the site of the extra work. The following shall be used in computing the rental time of equipment on the WORK.
1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
 2. When daily rates are listed, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation. When owner-operated equipment is used to perform extra work to be paid for on a time and materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraph (3), (4), and (5), following.
 3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.02D, herein.
 4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already on the WORK, or in the absence of such labor, established by collective bargaining agreements for the type of workmen and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of Paragraph 11.02B, herein, which surcharge shall constitute full compensation for payments imposed by state and federal laws and all payments made to on behalf of workers other than actual wages.

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5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.04, herein.

11.03 SPECIAL SERVICES

- A. Special work or services are defined as that work characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry. The following may be considered by the ENGINEER in making estimates for payment for special services:
 1. When the ENGINEER and the CONTRACTOR, by agreement, determine that a special service or work is required which cannot be performed by the forces of the CONTRACTOR or those of any of its subcontractors, the special service or work may be performed by an entity especially skilled in the work to be performed. After validation of invoices and termination of market values by the ENGINEER, invoices for special services or work based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental cost.
 2. When the CONTRACTOR is required to perform work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, the charges for that portion of the work performed at the off-site facility may by agreement, be accepted as a special service and accordingly, the invoices from the work may be accepted without detailed itemization.
 3. All invoices for special services will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit specified in Paragraph 11.04, herein, an allowance of 5 percent will be added to invoices for special services.
- B. All work performed hereunder shall be subject to all of the provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference hereto as under the original Agreement. Copies of all amendments to surety bonds or supplemental surety bonds shall be submitted to the OWNER for review prior to the performance of any work hereunder.

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11.04 CONTRACTOR'S FEE

- A. WORK ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the ENGINEER, plus allowances for overhead and profit. For extra work involving a combination of increases and decreases in the WORK the actual necessary cost will be the arithmetic sum of the additive and deductive costs. The allowance for overhead and profit shall include full compensation for superintendence, bond and insurance premiums, taxes, office expenses, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraphs 11.02B, C, and D, herein including extended overhead and home office overhead. The allowance for overhead and profit will be made in accordance with the following schedule:

ACTUAL NECESSARY COST OVERHEAD AND PROFIT ALLOWANCE

Labor	10 percent
Materials	10 percent
Equipment	10 percent

- B. It is understood that labor, materials, and equipment may be furnished by the CONTRACTOR or by the subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the subcontractor, to which the CONTRACTOR may add 5 percent of the subcontractor's total cost for the extra work. Regardless of the number of hierarchical tiers of subcontractors, the 5 percent increase above the subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only for each separate work transaction.

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ARTICLE 12 - CHANGE OF CONTRACT TIME

12.01 GENERAL

- A. The Contract Time may only be changed by a Change Order. Any claim for an extension of the Contract time shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 30 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the ENGINEER in accordance with Paragraph 9.08 if the OWNER and the CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this Paragraph 12.01A.

- B. The Contract Time will be extended in an amount equal to time lost if the CONTRACTOR makes a claim as provided in Paragraph 12.01A and the ENGINEER determines that the delay was caused by events beyond the control of the CONTRACTOR. Examples of events beyond the control of the CONTRACTOR include acts or neglect by the OWNER or others performing additional work as contemplated by Article 7, or by acts of God or of the public enemy, fire, floods, epidemics, quarantine restrictions, strikes, labor disputes, sabotage, or freight embargoes.

- C. All time limits stated in the Contract Documents are of the essence.

- D. None of the aforesaid time extensions shall entitle the CONTRACTOR to any adjustment in the Contract Price or any damages for delay. Furthermore, the CONTRACTOR hereby indemnifies and holds harmless the OWNER and ENGINEER, their officers, agents and employees from and against all claims, damages, losses and expenses (including lost property and attorney's fees) arising out of or resulting from the temporary suspension of work whether for the OWNER's convenience as defined in Article 15.01 (a) or for whatever other reasons including the stoppage of work by the ENGINEER for the CONTRACTOR's failure to comply with any order issued by the ENGINEER.

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12.02 EXTENSIONS OF THE TIME FOR DELAY DUE TO INCLEMENT WEATHER

- A. "Inclement weather" is any weather condition or conditions resulting immediately therefrom, causing the CONTRACTOR to suspend construction operations or preventing the CONTRACTOR from proceeding with at least 75 percent of the normal labor and equipment force engaged on the WORK.
- B. Should the CONTRACTOR prepare to begin work at the regular starting time at the beginning of any regular work shift on any day on which inclement weather, or its effects on the condition of the WORK prevents work from beginning at the usual starting time and the crew is dismissed as a result thereof, the CONTRACTOR will not be charged for a working day whether or not conditions change thereafter during the day and the major portion of the day could be considered to be suitable for construction operations.
- C. The CONTRACTOR shall base its construction schedule upon the inclusion of the number of days of inclement weather specified in the paragraph entitled "Inclement weather delays" of the Supplementary General Conditions. No extension of the Contract Time due to inclement weather will be considered until after the stated number of days of inclement weather has been reached. However, no reduction in Contract Time will be made if the number of inclement weather days is not reached.

12.03 EXTENSIONS OF TIME FOR OTHER DELAYS

- A. If the CONTRACTOR is delayed in completion of the WORK beyond the time named in the Contract Documents for the completion of the WORK, by acts of God or of the public enemy, fire, floods, epidemics, quarantine restrictions, strikes, labor disputes, industry-wide shortage of raw materials, sabotage or freight embargoes, the CONTRACTOR shall be entitled to an adjustment in the Contract Time. No such adjustment will be made unless the CONTRACTOR shall notify the ENGINEER in writing of the causes of delay within 15 calendar days from the beginning of any such delay. The ENGINEER shall ascertain the facts and the extent of the delay. No adjustment in time shall be made for delays resulting from noncompliance with the Contract, accidents, failure on the part of the CONTRACTOR to carry out the provisions of the Contract including failure to provide materials, equipment or workmanship meeting the requirements of the Contract Documents; the occurrence of such events shall not relieve the CONTRACTOR from the necessity of maintaining the required progress.
- B. In the event that Contract completion is delayed beyond the Contract Time named in the Specifications by reason of shortages of raw materials required for CONTRACTOR-furnished items, the CONTRACTOR shall be entitled to

GENERAL CONDITIONS

an adjustment in the Contract Time in like manner as if the WORK had been suspended for the convenience and benefit of the OWNER; provided, however, that the CONTRACTOR shall furnish documentation acceptable to the OWNER and ENGINEER that he placed or attempted to place firm orders with suppliers at a reasonable time in advance of the required date of delivery of the items in question, that such shortages shall have developed following the date such orders were placed or attempts made to place same, that said shortages are general throughout the affected industry, that said shortages are shortages of raw materials required to manufacture CONTRACTOR-furnished items and not simply failure of CONTRACTOR's suppliers to manufacture, assemble or ship items on time, and that the CONTRACTOR shall, to the degree possible, have made revisions in the sequence of his operations, within the terms of the Contract, to offset the expected delay. The CONTRACTOR shall notify the ENGINEER, in writing, concerning the cause of delay, within 15 calendar days of the beginning of such delay. The validity of any claim by the CONTRACTOR to an adjustment in the Contract Time shall be determined by the OWNER acting through the ENGINEER, and his findings thereon shall be based on the ENGINEER's knowledge and observations of the events involved and documentation submitted by the CONTRACTOR, showing all applicable facts relative to the foregoing provisions. Only the physical shortage of raw materials will be considered under these provisions as a cause for adjustment of time and no consideration will be given to any claim that items could not be obtained at a reasonable, practical, or economical cost or price, unless it is shown to the satisfaction of the OWNER that such items could have been obtained only at exorbitant prices entirely out of line with current rates taking into account the quantities involved and the usual practices in obtaining such quantities.

- C. If the CONTRACTOR is delayed in completion of the WORK by reason of changes made under the provisions of Article 10 or changed conditions as provided under Article 4.03, or by failure of the OWNER to acquire or clear right-of-way as provided under Article 15.01, or by any act of the ENGINEER or of the OWNER, not contemplated by the Contract, an adjustment in the Contract time will be made by the OWNER in like manner as if the WORK had been suspended for the convenience and benefit of the OWNER, except, that if the WORK is increased as a result of changes, the OWNER, at his sole discretion, may grant an adjustment in the number of calendar days for completion of the Contract. In the event of such delay, the CONTRACTOR shall notify the ENGINEER in writing of the causes of delay within 15 calendar days from the beginning of any such delay.

GENERAL CONDITIONS

ARTICLE 13 - WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

13.01 WARRANTY, GUARANTEE AND MAINTENANCE PERIOD

- A. The CONTRACTOR warrants and guarantees to the OWNER and the ENGINEER that all work, equipment, materials and workmanship are in accordance with the Contract Documents and are not defective. Prompt notice of defects discovered by the OWNER or ENGINEER shall be given to the CONTRACTOR. All defective work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.

- B. If within one (1) year after the date of Final Completion, as set by the Engineer's Notice of Completion, or a longer period of time prescribed by Laws or Regulations or by the terms of any applicable special guarantee or specific provisions of the Contract Documents, any work is found to be defective, the OWNER shall notify the CONTRACTOR in writing and the CONTRACTOR shall promptly, without cost to the OWNER and in accordance with the OWNER's written notification, either correct the defective work, or, if it has been rejected by the OWNER, remove it from the site and replace it with non-defective work. In the event the CONTRACTOR does not promptly comply with the notification, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the defective work corrected or rejected work removed and replaced. All direct, indirect, and consequential costs of the removal and replacement including but not limited to fees and charges of engineers, architects, attorneys and other professionals will be paid by the CONTRACTOR. This paragraph shall not be construed to limit nor diminish the CONTRACTOR's absolute guarantee to complete the WORK in accordance with the Contract Documents.

13.02 ACCESS TO WORK

- A. The ENGINEER, other representatives of the OWNER, testing agencies, and governmental agencies with jurisdictional interests shall have access to the work at reasonable times for their observation, inspections, and testing. The CONTRACTOR shall provide proper and safe conditions for their access.

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13.03 TESTS AND INSPECTIONS

- A. The CONTRACTOR shall give the ENGINEER timely notice of readiness of the WORK for all required inspections, tests, or approvals.
- B. If Laws or Regulations of any public body other than the OWNER, with jurisdiction over the WORK require any work to be specifically inspected, tested, or approved, the CONTRACTOR shall pay all costs in connection therewith. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the OWNER's or the ENGINEER's acceptance of a Supplier of materials or equipment proposed as a substitution or-equal to be incorporated in the WORK and of materials or equipment submitted for review prior to the CONTRACTOR's purchase for incorporation in the WORK. The cost of all inspections, tests, and approvals with the exception of the above which are required by the Contract Documents shall be paid by the OWNER (unless otherwise specified).
- C. The ENGINEER will make, or have made, such inspections and test as the ENGINEER deems necessary to see that the WORK is being accomplished in accordance with the requirements of the Contract Documents. The Contractor without additional cost to the OWNER, shall provide the labor and equipment necessary to make the WORK available for inspections. Unless otherwise specified in the Supplementary General Conditions or the OWNER-ENGINEER Agreement, all other costs of inspection and testing will be borne by the OWNER. In the event the inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the ENGINEER, as well as the cost of subsequent re-inspection and retesting. Neither observations by the ENGINEER nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.
- D. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by properly licensed organizations selected by the OWNER.

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- E. If any work (including the work of others) that is to be inspected, tested, or approved is covered without the ENGINEER's written authorization, it must, if requested by the ENGINEER, be uncovered for testing, inspection, and observation. The uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR timely notified the ENGINEER of the CONTRACTOR's intention to cover the same and the ENGINEER failed to act with reasonable promptness in response to the notice.
- F. In any work is covered contrary to the written request of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for the ENGINEER's observation and replaced at the CONTRACTOR's expense.
- G. If the ENGINEER considers it necessary or advisable that covered work be observed, inspected or tested by the ENGINEER or others, the ENGINEER shall direct the CONTRACTOR to uncover, expose, or otherwise make available for observation, inspection, or testing that portion of the work in question. The CONTRACTOR shall comply with the ENGINEER's direction and furnish all necessary labor, material, and equipment. If found the work is defective, the CONTRACTOR shall bear all direct, indirect and consequential costs of uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction of the work, including but not limited to fees and charges for engineers, architects, attorneys, and other professionals. However, if the work is not defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both. The increase in Contract Time and Contract Price shall be the CONTRACTOR's actual time and costs directly attributable to uncovering and exposing the work. If the parties are unable to agree as to the amount or extent of the changes, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

13.04 OWNER MAY STOP THE WORK

- A. If the WORK is defective, or the CONTRACTOR fails to perform work in such a way that the completed WORK will conform to the Contract Documents, the OWNER may order the CONTRACTOR to stop the WORK, or any portion thereof, until the cause for the order has been eliminated. This right of the OWNER to stop the WORK shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of the CONTRACTOR or any other party.

13.05 CORRECTION OR REMOVAL OF DEFECTIVE WORK

- A. When directed by the ENGINEER, the CONTRACTOR shall promptly correct all defective work, whether or not fabricated, installed, or completed, or, if the

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work has been rejected by the ENGINEER, remove it from the site and replace it with non-defective work. The CONTRACTOR shall bear all direct, indirect and consequential costs of correction or removal, including but not limited to fees and charges of engineers, architects, attorneys, and other professionals made necessary thereby.

13.06 ACCEPTANCE OF DEFECTIVE WORK

- A. If, instead of requiring correction or removal and replacement of defective work, the OWNER prefers to accept the work, the OWNER may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of and determination to accept the defective work. If any acceptance of defective work occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the OWNER shall be entitled to an appropriate decrease in the Contract Price.

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ARTICLE 14 - PAYMENTS TO CONTRACTOR, LIQUIDATED DAMAGES AND COMPLETION

14.01 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN)

- A. The schedule of values or lump sum price breakdown established as provided in the Technical Specifications shall serve as the basis for progress payments and will be incorporated into the form of Application for Payment included in the Contract Documents.

14.02 UNIT PRICE BID SCHEDULE

- A. Progress payments for unit price work will be based on the number of units completed.

14.03 APPLICATION FOR PROGRESS PAYMENT

- A. Unless otherwise prescribed by the Owner, on the 25th of each month, the CONTRACTOR shall submit to the ENGINEER for review and approval, an Application for Payment completed and signed by the CONTRACTOR covering the WORK completed as of the date of the Application and accompanied by such supporting documentation as required by the Contract Documents.
- B. The Application for Payment shall identify, as a sub-total, the amount of the CONTRACTOR's Total Earnings to Date, plus the Value of Materials at the Site which have not yet been incorporated in the WORK, and less a deductive adjustment for materials installed which were not previously incorporated in the WORK, but for which payment was allowed under the provisions of payment for Materials Stored at the Site but not yet incorporated in the WORK.
- C. The Net Payment Due to the CONTRACTOR shall be the above-mentioned sub-total, from which shall be deducted the retainage amount and the total amount of all previous payments made to the CONTRACTOR.
- D. The OWNER may withhold and retain 5% of each approved progress payment to the CONTRACTOR. The total retention proceeds withheld shall not exceed 5% of the total construction price. All retention proceeds shall be placed by the OWNER in an interest-bearing account. The interest accrued shall be for the benefit of the CONTRACTOR and its subcontractors, and it shall be paid after the WORK has been completed and accepted by the OWNER. CONTRACTOR shall ensure that any interest accrued on the

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retainage is distributed by the CONTRACTOR to its subcontractors on a pro rata basis.

- E. Any retention proceeds withheld, and any accrued interest, shall be released by the OWNER pursuant to an Application for Payment from the CONTRACTOR within 45 days from the later of:
1. the date the OWNER receives the final Application for Payment from the CONTRACTOR;
 2. the date that a certificate of occupancy or final acceptance notice is issued to:
 - (a) the Contractor who obtained the building permit from the building inspector or from a public agency;
 - (b) the OWNER; or
 - (c) the ENGINEER.
 3. the date the CONTRACTOR accepts final payment for the Work; or
 4. the date that a public agency or building inspector having authority to issue its own certificate of occupancy does not issue the certificate but permits partial or complete occupancy of a newly constructed or remodeled building; provided, however, that if only partial occupancy of a building is permitted, any retention proceeds withheld and retained, and any accrued interest, shall be partially released in direct proportion to the value of the part of the building occupied.

Each Application for Payment from the CONTRACTOR shall include documentation of lien releases or waivers.

- F. Notwithstanding any other provision in this Article to the contrary,
1. If the CONTRACTOR is in default or breach of the terms and conditions of the Contract Documents, the OWNER may withhold from payment to the CONTRACTOR for so long as reasonably necessary an amount necessary to cure the breach or default of the CONTRACTOR; or
 2. If the WORK or a portion of the WORK has been substantially completed, the OWNER may retain until completion up to twice the

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fair market value of the WORK of the CONTRACTOR that has not been completed:

- (a) in accordance with the Contract Documents; or
 - (b) in the absence of applicable provisions in the Contract Documents to generally accepted craft standards.
3. If the OWNER refuses payment under subparagraphs (F)(i) or (ii), it shall describe in writing within 45 days of withholding such amounts what portion of the WORK was not completed according to the standards specified in the Contract Documents.
- G. The CONTRACTOR shall distribute retention proceeds as outlined below:
1. Except as provided in Paragraph 14.03.G.2, below, if the CONTRACTOR receives retention proceeds, it shall pay each of its subcontractors from whom retention has been withheld each subcontractor's share of the retention received within ten days from the day that all or any portion of the retention proceeds is received from the OWNER.
 2. Notwithstanding Paragraph 14.03.G.1, above, if a retention payment received by the CONTRACTOR is specifically designated for a particular subcontractor, payment of the retention shall be made to the designated subcontractor.
- H. Except as otherwise provided in the Supplementary General Conditions, the value of materials stored at the site shall be valued at 95 percent of the value of the materials. This amount shall be based upon the value of all acceptable materials and equipment stored at the site or at another location agreed to in writing by the OWNER; provided, each individual item has a value of more than \$5,000 and will become a permanent part of the WORK. The Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that the CONTRACTOR has received the materials and equipment free and clear of all liens, charges, security interests, and encumbrances (which are hereinafter in these General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the OWNER's interest therein, all of which will be satisfactory to the OWNER.

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14.04 CONTRACTOR'S WARRANTY OF TITLE

- A. The CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the OWNER no later than the time of final payment free and clear of all liens.

14.05 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

- A. The ENGINEER will, within 7 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the OWNER, or return the Application to the CONTRACTOR indicating in writing the ENGINEER's reasons for refusing to recommend payment. In the later case, the CONTRACTOR may make the necessary corrections and resubmit the Application. Thirty days after presentation of the Application for Payment with the ENGINEER's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.05B) become due and when due will be paid by the OWNER to the CONTRACTOR.
- B. The OWNER may refuse to make payment of the full amount recommended by the ENGINEER to compensate for claims made by the OWNER on account of the CONTRACTOR's performance of the WORK or other items entitling the OWNER to a credit against the amount recommended, but the OWNER must give the CONTRACTOR written notice within 7 days (with a copy to the ENGINEER) stating the reasons for such action.

14.06 PARTIAL UTILIZATION

- A. The OWNER may utilize or place into service any item of equipment or other usable portion of the WORK at any time prior to completion of the WORK. The OWNER shall notify the CONTRACTOR in writing of its intent to exercise this right. The notice will identify the equipment or specific portion or portions of the WORK to be utilized or otherwise placed into service.
- B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all items or portions of the WORK to be partially utilized shall be borne by the CONTRACTOR. Upon the issuance of a notice of partial utilization, the ENGINEER will deliver to the OWNER and the CONTRACTOR a written recommendation as to division of responsibilities between the OWNER and the CONTRACTOR with respect to security, operation, safety, maintenance,

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heat, utilities and insurance. Upon the OWNER's acceptance of these recommendations, the ENGINEER's aforesaid recommendation will be binding on the OWNER and the CONTRACTOR until final payment.

- C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the OWNER and the CONTRACTOR's one year correction period shall commence only after the date of Final Completion for the WORK.

14.07 LIQUIDATED DAMAGES

- A. The CONTRACTOR shall pay to the OWNER the amount specified in the Supplemental General Conditions, not as a penalty but as liquidated damages, if he fails to complete the WORK or specified parts of the WORK within the time or times agreed upon. The periods for which these damages shall be paid shall be the number of Days from the agreed date or Contract Time as contained in the Agreement, or from the date of termination of any extension of time approved by the OWNER, to the date or dates on which the ENGINEER certifies Substantial Completion of WORK or specified parts of the WORK as provided in Article 14.08, herein. The OWNER may deduct the amount of said damages from any monies due or to become due the CONTRACTOR. After Substantial Completion, if the CONTRACTOR fails to complete the remaining WORK within 45 days or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER the amount stated in the Supplemental General Conditions as liquidated damages for each day that expires after the 45 days until readiness for final payment.
- B. The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would sustain; and said amount is agreed to be the amount of damages which the OWNER would sustain. Said damages are not in lieu of but in addition to other actual or consequential damages to which the OWNER may be entitled.
- C. All times specified in the Contract Documents are hereby declared to be of the essence.

14.08 SUBSTANTIAL COMPLETION

- A. When the CONTRACTOR considers the WORK ready for its intended use, and the CONTRACTOR has delivered to the ENGINEER all maintenance and operating instructions, schedules, guarantees, bonds, certificates of

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inspection, marked-up record documents and other documents, all as required by the Contract Documents, the CONTRACTOR may notify the OWNER and the ENGINEER in writing that the WORK is substantially complete and request that the ENGINEER prepare a Certificate of Substantial Completion. Within a reasonable time thereafter, the OWNER, the CONTRACTOR, and the ENGINEER shall make an inspection of the WORK to determine the status of completion. If the ENGINEER does not consider the WORK substantially complete, the ENGINEER will notify the OWNER and CONTRACTOR in writing giving the reasons therefor. If the ENGINEER considers the WORK substantially complete, the ENGINEER will prepare and deliver to the OWNER for its execution the Certificate of Substantial Completion signed by the ENGINEER and CONTRACTOR, which shall fix the date of Substantial Completion.

- B. The Certificate of Substantial Completion shall be a release by the CONTRACTOR of the OWNER and its agents from all claims and liability to the CONTRACTOR for anything done or furnished for, or relating to, the WORK or for any act or neglect of the OWNER or of any person relating to or affecting the WORK, to the date of Substantial Completion, except demands against the OWNER for the remainder of the amounts kept or retained from progress payments and excepting pending, unresolved claims filed in writing prior to the date of Substantial Completion. At the time of delivery of the Certificate of Substantial Completion, the ENGINEER will deliver to the OWNER and the CONTRACTOR, if applicable, a written recommendation as to division of responsibilities between the OWNER and the CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities and insurance. Upon the OWNER's acceptance of these recommendations, the ENGINEER's recommendation will be binding on the OWNER and the CONTRACTOR until final payment.
- C. The OWNER, upon written notice to the CONTRACTOR, shall have the right to exclude the CONTRACTOR from the WORK after the date of Substantial Completion, and complete all or portions of the WORK at the CONTRACTOR's expense.

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14.09 COMPLETION AND FINAL PAYMENT

- A. Upon written certification from the CONTRACTOR that the WORK is complete (if a Certificate of Substantial Completion has been issued this certification must occur within 45 days of that date), the ENGINEER will make a final inspection with the OWNER and the CONTRACTOR. If the OWNER and ENGINEER do not consider the WORK complete, the ENGINEER will notify the OWNER and the CONTRACTOR in writing of all particulars in which this inspection reveals that the WORK is incomplete or defective. The CONTRACTOR shall immediately take the measures necessary to remedy these deficiencies. If the ENGINEER and OWNER consider the WORK complete, the CONTRACTOR may proceed to file its application for final payment pursuant to this Article. At the request of the CONTRACTOR, the ENGINEER may recommend to the OWNER that certain minor deficiencies in the WORK that do not prevent the entire WORK from being used by the OWNER for its intended use, and the completion of which will be unavoidably delayed due to no fault of the CONTRACTOR, be exempted from being completed prerequisite to final payment. These outstanding items of pickup work, or "punch list items", shall be listed on the ENGINEER's Notice of Completion, together with the recommended time limits for their completion, and extended warranty requirements for those items and the value of such items.
- B. After the issuance of the Notice of Completion and after the CONTRACTOR has completed corrections that have not been exempted to the satisfaction of the ENGINEER and delivered to the ENGINEER all required additions and modifications to maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, marked-up record documents and other documents, all as required by the Contract Documents; and after the ENGINEER has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final application for payment shall be accompanied by all documentation called for in the Contract Documents and other data and schedules as the OWNER or ENGINEER may reasonably require, including an affidavit of the CONTRACTOR that all labor, services, material, equipment and other indebtedness connected with the WORK for which the OWNER or his property might in any way be responsible, have been paid or otherwise satisfied, and a consent of the payment bond surety to final payment, all in forms approved by the OWNER.

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14.10 FINAL APPLICATION FOR PAYMENT

- A. If, on the basis of the ENGINEER's observation of the WORK during construction and final inspection, and the ENGINEER's review of the final application for payment and accompanying documentation, all as required by the Contract Documents, the ENGINEER is satisfied that the WORK has been completed and the CONTRACTOR has fulfilled all of his obligations under the Contract Documents, the ENGINEER will, within ten days after receipt of the final application for payment, indicate in writing his recommendation of payment and present the application to the OWNER for payment. Thereupon, the ENGINEER will give written notice to the OWNER and the CONTRACTOR that the WORK is acceptable by executing the ENGINEER's Notice of Completion. Otherwise, the ENGINEER will return the application to the CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case the CONTRACTOR shall make the necessary corrections and resubmit the application.
- B. Within 45 calendar days after the ENGINEER's filing of the Notice of Completion, the OWNER will make final payment including all deducted retainage (except as noted below) to the CONTRACTOR. The OWNER's remittance of final payment shall be the OWNER's acceptance of the WORK if formal acceptance of the WORK is not indicated otherwise. The final payment shall be that amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract, including the following items:
1. Liquidated damages, as applicable.
 2. All amounts retained by the OWNER under Paragraph 14.03(F).

14.11 CONTRACTOR'S CONTINUING OBLIGATIONS

- A. The CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the ENGINEER, nor the issuance of a Certificate of Substantial Completion or Notice of Completion, nor payment by the OWNER to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the WORK or any part thereof by the OWNER, nor any act of acceptance by the OWNER nor any failure to do so, nor any review of a shop drawing or sample submittal, will constitute an acceptance of work or materials not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

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14.12 FINAL PAYMENT TERMINATES LIABILITY OF OWNER

- A. Final payment is defined as the last progress payment made to the CONTRACTOR for earned funds, less deductions listed in Paragraph 14.10B herein. The acceptance by the CONTRACTOR of the final payment referred to in Paragraph 14.10 herein, shall be a release of the OWNER and its agents from all claims of liability to the CONTRACTOR for anything done or furnished for, or relating to, the work or for any act or neglect of the OWNER or of any person relating to or affecting the work, except demands against the OWNER for the remainder, if any, of the amounts kept or retained under the provisions of Paragraph 14.10 herein; and excepting pending, unresolved claims filed prior to the date of the Certificate of Substantial Completion.

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ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 SUSPENSION OF WORK BY OWNER

- A. The OWNER acting through the ENGINEER may, by written notice to the Contractor, temporarily suspend the WORK, in whole or in part, for a period or periods of time, but not to exceed 90 days, for the convenience and benefit of the OWNER upon the occurrence of any one or more of the following: (1) unsuitable weather; (2) delay in delivery of OWNER- furnished equipment or materials, or such other conditions as are considered unfavorable for prosecution of the work; (3) Shortfall in construction funds; (4) Constraints imposed by public entities, public utilities, property owners or legal proceedings; (5) Failure or delay in acquisition of easements or right-of-way by the OWNER; or (6) Other conditions which, in the opinion of the OWNER, warrant a delay in the WORK. Suspended WORK shall be resumed by the CONTRACTOR within 10 calendar days of receipt from the ENGINEER of written notice to proceed. Whenever the OWNER temporarily suspends work for any conditions enumerated in this Article 15.01 A, the CONTRACTOR shall be entitled to an adjustment in the Contract Time as specified in Article 12.03 C.
- B. The suspension of work shall be effective upon receipt by the Contractor of the written order suspending the work and shall be terminated upon receipt by the Contractor of the written order terminating the suspension.
- C. The CONTRACTOR hereby indemnifies and holds harmless the OWNER and ENGINEER, their officers, agents and employees, from and against all claims, damages, losses and expenses, including lost profits and attorney's fees, arising out of or resulting from the temporary suspension of the WORK, whether for the OWNER's convenience described in this Article or for whatever other reasons, including the stoppage of work by the ENGINEER for the CONTRACTOR's failure to comply with any order issued by the ENGINEER.

15.02 TERMINATION OF AGREEMENT BY OWNER (CONTRACTOR DEFAULT)

- A. In the event of default by the CONTRACTOR, the OWNER may give written notice to the CONTRACTOR of OWNER's intent to terminate the Agreement. The notice shall state the event of default and the time allowed to remedy the default. It shall be considered a default by the CONTRACTOR whenever the CONTRACTOR shall: (1) declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors; (2) fail to provide materials or workmanship meeting the requirements of the Contract Documents; (3) disregard or violate provisions of the Contract Documents or ENGINEER's

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instructions, (4) fail to prosecute the WORK according to the approved progress schedule; or, (5) fail to provide a qualified superintendent, competent workmen, or materials or equipment meeting the requirements of the Contract Documents. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the OWNER may then issue a Notice of Termination.

- B. In the event the Agreement is terminated in accordance with Paragraph 15.02A, the OWNER may take possession of the WORK and may complete the WORK by whatever method or means the OWNER may select. The cost of completing the WORK shall be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the OWNER. If such cost is less than the balance which would have been due, the CONTRACTOR shall have no claim to the difference.

15.03 TERMINATION OF AGREEMENT BY OWNER (FOR CONVENIENCE)

- A. The OWNER may terminate the Agreement at any time if it is found that reasons beyond the control of either the OWNER or CONTRACTOR make it impossible or against the OWNER's interests to complete the WORK. In such a case, the CONTRACTOR shall have no claims against the OWNER except: (1) for the value of the work, as determined by the engineer, performed by the Contractor up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated, which would be needed in the WORK and which meet the requirements of the Contact Documents. The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the ENGINEER in accordance with the procedure prescribed from making the final application for payment and final payment under Paragraphs 14.09 and 14.10.

15.04 TERMINATION OF AGREEMENT BY CONTRACTOR

- A. The CONTRACTOR may terminate the Agreement upon 10 days written notice to the OWNER, whenever: (1) the WORK has been suspended under the provisions of Paragraph 15.01, for more than 90 consecutive days through no fault or negligence of the CONTRACTOR, and notice to resume work or to terminate the agreement has not been received from the OWNER within this time period; or, (2) the OWNER should fail to pay the

GENERAL CONDITIONS

CONTRACTOR any monies due him in accordance with the terms or the Contract Documents and within 60 days after presentation to the OWNER by the CONTRACTOR of a request therefor, unless within said 10-day period the OWNER shall have remedied the condition upon which the payment delay was based. In the event of such termination, the CONTRACTOR shall have no claims against the OWNER except for those claims specifically enumerated in Paragraph 15.03, and as determined in Accordance with the requirements of that paragraph.

GENERAL CONDITIONS

ARTICLE 16 - MISCELLANEOUS

16.01 GIVING NOTICE

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

16.02 TITLE TO MATERIALS FOUND ON THE WORK

- A. The OWNER reserves the right to retain title to all soils, stone, sand, gravel, and other materials developed and obtained from excavations and other operations connected with the WORK. Unless otherwise specified in the Contract Documents, neither the CONTRACTOR nor any subcontractor shall have any right, title, or interest in or to any such materials. The CONTRACTOR will be permitted to use in the WORK, without charge, any such materials which meet the requirements of the Contract Documents.

16.03 RIGHT TO AUDIT

- A. If the CONTRACTOR submits a claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plants, or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses all subcontracts and is binding upon subcontractors. The right to examine and inspect herein provided for shall be exercisable through such representatives as the OWNER deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.

16.04 ASBESTOS

- A. If the CONTRACTOR during the course of work observes the existence of asbestos in any structure or building, the CONTRACTOR shall promptly notify the OWNER and the ENGINEER. The OWNER shall consult with the ENGINEER regarding removal or encapsulation of the asbestos material and the CONTRACTOR shall not perform any work pertinent to the asbestos material prior to receipt or special instruction from the OWNER through the ENGINEER.

SUPPLEMENTAL GENERAL CONDITIONS

ARTICLE 17- GENERAL

17.01 GENERAL

1. These Supplemental General Conditions amend or supplement the General Conditions of the Contract and any other provisions of the Contract Documents as indicated herein. All provisions which are not so amended or supplemented remain in full force and effect.
2. The terms used in these Supplemental General Conditions which are defined in the General Conditions of the Contract have the meanings assigned to them in the General Conditions of the Contract herein.

17.02 SUPPLEMENTAL DEFINITIONS

1. ENGINEER

The "Engineer" is JVVCD.

17.03 TESTING COSTS

1. Paragraph 13.03 of the General Conditions is amended as follows: the CONTRACTOR shall pay all testing costs. The Owner reserves the right to have additional tests performed by a testing organization selected by the OWNER and at the OWNER's expense.

SUPPLEMENTAL GENERAL CONDITIONS

ARTICLE 18 - AMOUNTS OF LIQUIDATED DAMAGES, BONDS AND INSURANCE

18.01 AMOUNT OF LIQUIDATED DAMAGES

- A. As provided in Article 14.07 of the General Conditions, the Contractor shall pay to the Owner as liquidated damages the amount of \$1,000 for each calendar day's delay beyond the Contract Time for substantial completion. The Contractor shall pay to the Owner as liquidated damages the amount of \$200 for each calendar day's delay beyond 45 calendar days from the date of substantial Completion until the Engineer issues the Notice of Final Completion.

18.02 PERFORMANCE AND OTHER BOND AMOUNTS

- A. The CONTRACTOR shall furnish a satisfactory Performance Bond in the amount of 100 percent of the Contract Price and a satisfactory Payment Bond in the amount of 100 percent of the Contract Price.

18.03 INSURANCE AMOUNTS

The limits of liability for the insurance required by Paragraph 5.02 of the General Conditions shall provide for not less than the following amounts or greater where required by Laws and Regulations:

- A. Workers' Compensation under Paragraph 5.02B.1 of the General Conditions:

- 1. State: Utah Statutory

- B. Comprehensive General Liability: (under Paragraph 5.02B.2 of the General Conditions):

- 1. Bodily Injury (including completed operations and products liability):

<u>\$ 500,000</u>	Each Occurrence
<u>\$ 1,000,000</u>	Annual Aggregate

Property Damage:

<u>\$ 500,000</u>	Each Occurrence
<u>\$ 1,000,000</u>	Annual Aggregate
or a combined single limit of	<u>\$1,000,000</u>

SUPPLEMENTAL GENERAL CONDITIONS

2. Property Damage liability insurance including, Explosion, Collapse and Underground coverages, where applicable.

3. Personal Injury, with employment exclusion deleted

\$ 1,000,000

Annual Aggregate

C. Comprehensive Automobile Liability: (Under Paragraph 5.02B.3 of the General Conditions:)

1. Bodily Injury

\$ 500,000

Each Person

\$ 1,000,000

Each Occurrence

2. Property Damage:

\$ 500,000

Each Occurrence

or combined single limit of

\$1,000,000

D. Builders Risk: Not required.

SUPPLEMENTAL GENERAL CONDITIONS

ARTICLE 19 - PHYSICAL CONDITIONS AND WEATHER DELAYS

19.01 INCLEMENT WEATHER DELAYS

- A. The Contractor's construction schedule shall be based upon the inclusion of at least five (5) day(s) of inclement weather delays. Reference Article 12, paragraph 12.02 of the General Conditions for additional requirements.

SUPPLEMENTAL GENERAL CONDITIONS

ARTICLE 20 - SUBCONTRACT LIMITATIONS

20.01 SUBCONTRACT LIMITATIONS

- A. In addition to the provisions of Paragraph 6.05 of the General Conditions, the CONTRACTOR shall perform not less than 20 percent of the WORK with its own forces (i.e., without subcontracting). The 20 percent requirement shall be understood to refer to the WORK, the value of which totals not less than 20 percent of the Contract Price.

ARTICLE 21 - MISCELLANEOUS

21.01 PATENTS AND COPYRIGHTS

The Contractor shall indemnify and save harmless the Owner, the Engineer, and their officers, agents, and employees, against all claims or liability arising from the use of any patented or copyrighted design, device, material, or process by the Contractor or any of his subcontractors in the performance of the work.

**STANDARD SPECIFICATIONS
FOR
2023 DISTRIBUTION PIPELINE REPLACEMENTS –
OLD FARM AND 5650 SOUTH AREAS
JANUARY 2023**

JORDAN VALLEY WATER CONSERVANCY DISTRICT

STANDARD SPECIFICATIONS AND DETAILS FOR
WATER DISTRIBUTION SYSTEM

GENERAL INFORMATION

The specifications and detail drawings contained in this document have been developed by the Jordan Valley Water Conservancy District (District) as standards of construction for the District's water distribution system. Any extensions or relocations of the District's distribution system shall be constructed in accordance with this document.

The following definitions apply to terms used in the specifications or drawings:

CONTRACTOR: The organization responsible for completing the work of extending, relocating, or otherwise modifying the District's water distribution system. The CONTRACTOR must possess a general engineering contractor's license (E-100) in good standing and must possess the bonding and insurance coverages as required by law. In addition, the CONTRACTOR must have a demonstrated a record of successfully completing work of similar type and complexity. The District reserves the right to review and approve a CONTRACTOR's qualifications in meeting these requirements.

OWNER: Jordan Valley Water Conservancy District.

ENGINEER: Jordan Valley Water Conservancy District, or as designated by the District for specific projects.

WORK: The furnishing and performance of all necessary materials, equipment, labor, and services required for the subject project in accordance with the drawings, and these standard specifications and details.

The specifications included in this document have been assembled from other project contract documents in which the District acting as the OWNER enters into an agreement with a CONTRACTOR for a specified project and pays the CONTRACTOR accordingly.

The specifications may contain references to GENERAL CONDITIONS or describe requirements for the CONTRACTOR to receive payment from the OWNER. However, for purposes of this document, the CONTRACTOR will receive payment from the project developer for extensions to the District's water distribution system, or the applicable party responsible to pay for relocations of the District's water distribution system.

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TECHNICAL SPECIFICATIONS

SECTION 01010 – SUMMARY OF WORK

PART 1 - GENERAL

1.01 GENERAL

The work covered under this contract will be performed at several locations in Millcreek, Utah and Murray, Utah as shown on the drawings.

1.02 DESCRIPTION OF OWNER'S PROJECT

- A. The Owner's project includes the replacement of existing pipelines in Millcreek City and Murray City. The pipelines to be replaced are located in the right-of-way maintained by Old Farm HOA, Millcreek City, and Murray City. The roads in which pipelines shall be replaced are listed as follows: Old Farm Lane from 3900 South to Old Farm Rd., Old Farm Road from 570 East to Old Farm Way, 5650 South from 920 East to 1080 East, 5645 South from 1080 East to 1180 East, 1080 East from 5600 South to 5690 South, 1180 East from 5600 South to 5690 South.

All of the PVC pipeline work listed above includes, but is not limited to, the installation of 8" waterline using open cut installation method and the abandonment of the existing 6" and 8" waterlines. The pipeline work for each location includes, but is not limited to, all saw cutting, excavation, bedding, piping, backfill, traffic control, paving, hydrant assemblies, valves, pipe connections, plugging and abandonment of existing pipes, restoration of existing improvements, and other work to make the systems complete and operable as indicated in the plans and specifications. All excavations in these areas shall comply with the governing agency's specifications, permitting procedures, traffic control, backfilling, and paving requirements, and these plans and specifications.

- B. PIPELINE REPLACEMENT ROW JURISDICTION (BY GOVERNING AGENCY)
1. Old Farm HOA – Old Farm Lane and Old Farm Road.
 2. Millcreek City – Waterline connection at 3900 South.
 3. Murray City – 5650 South, 5645 South, 1080 East, 1180 East.

SECTION 01010 – SUMMARY OF WORK

1.03 CONTRACT

The contract for construction of the various project elements includes all the items set forth in the bid schedule and indicated in the plans and specifications. The CONTRACTOR shall cooperate with the agencies, trades or contractors involved in the execution of other work in the vicinity of the various project elements.

1.04 WORK SEQUENCE

A. SUBMITTAL:

In accordance with Section 01300, the CONTRACTOR shall submit a detailed construction time schedule of operations as specified in the General Conditions and the requirements of this section.

B. The CONTRACTOR shall observe the following constraints in preparation of this construction schedule:

1. All project features included under the Bidding Schedule(s) shall be substantially complete in the time required in the Notice Inviting Bids.
2. Asphalt pavement shall be placed in accordance with Old Farm HOA, Millcreek City, and Murray City requirements. No permanent asphalt paving shall be allowed between October 15 and April 15 unless a specific written variance is obtained from the appropriate governing agency.
3. No excavation will be commenced unless permanent asphalt can be placed within four (4) weeks.

C. The CONTRACTOR shall complete the listed roads during the time period specified in any sequence determined by the CONTRACTOR provided the conditions set forth by the OWNER and governing cities and agencies are followed and all roads are completed within the time period specified by the Contract Documents.

1.05 WORK SCHEDULE

A. The contract length shall be as specified in the Notice Inviting Bids.

SECTION 01010 – SUMMARY OF WORK

- B. The work shall be completed in the sequence specified below:
1. The CONTRACTOR shall complete the listed roads during the time period specified in any sequence determined by the CONTRACTOR provided the conditions set forth by the OWNER and governing cities and agencies are followed and all roads are completed within the time period specified by the Contract Documents.

1.06 PERMITS

- A. CONTRACTOR-Paid Permits (Reimbursable): Permit fees as listed below shall be obtained and paid for by the CONTRACTOR and included in the CONTRACTOR's Bid. To eliminate uncertainty during bidding, OWNER will reimburse these CONTRACTOR paid permit fees upon proof of payment. CONTRACTOR shall still be responsible for securing the required bonding and insurance required by each of the permits:
1. City and County Excavation, Land Disturbance, Traffic Control Permits (excluding lane closure fees): CONTRACTOR shall obtain all required Old Farm HOA, Millcreek City, Murray City, and UDOT Permits (if required).
 2. UDOT Encroachment Permit: From Utah Department of Transportation, Region 2, Attn: Ron Forkel, 2010 South 2760 West, Salt Lake City, UT 84104. Phone: (801) 975-4809.
 3. General Permit for Storm Water Discharge: From the State of Utah, Department of Environmental Quality, Division of Water Quality, 288 North 1460 West Street. P.O. Box 144870, Salt Lake City, Utah 84114-4879. Fee varies, contact the State for a quote.
 4. Monument Permit: From Salt Lake County Surveyor, 2001 South State Street, Salt Lake City, Utah. Fee will be at least \$200.00 per monument and is based upon time of performance.
 5. Construction Water: CONTRACTOR shall obtain all permits for use of City water for flushing, pressure testing, and other construction purposes.
- B. CONTRACTOR-Paid Permits (Non-reimbursable): All other permit fees required by individual cities, Salt Lake County, the State of Utah, the

SECTION 01010 – SUMMARY OF WORK

United States of America, and any of their agencies, or by any private utility companies, shall be obtained and paid for by the CONTRACTOR and included in the CONTRACTOR's Bid. The following list is not exclusive and does not relieve CONTRACTOR of the responsibility of obtaining all permits necessary to complete the work:

1. Lane closure fees
2. Private property owner permit: written permission to store product, equipment, materials and supplies outside of the Work site boundaries.

1.07 CONTRACTOR'S RESPONSIBILITIES

- A. Inspection of Project Site: CONTRACTOR shall inspect the entirety of the project site prior to the BID, to understand access and right-of-way limitations and to note all salient surface features including: necessary tree pruning and removal, fence/ROW locations, existing utilities, utility poles, traffic conditions, fill required for constructability, etc. For the convenience of the CONTRACTOR some site conditions and surface features have been identified in the drawings. However, this does not relieve the CONTRACTOR of the responsibility to inspect the project site. Whether surface features and site conditions are identified in the drawings or not, it is the CONTRACTOR'S responsibility to complete all work in accordance with the Contract Documents.
- B. Public Relations Plan: Maintaining good public relations with property owners affected by construction is an important component of this project. In order to maintain good public relations, the Contractor shall prepare and employ a public relations plan. A written copy of the plan shall be prepared and presented to the OWNER for approval at the pre-construction conference and shall address the following minimum requirements:
 1. The CONTRACTOR shall provide a Public Relations Supervisor. The Public Relations Supervisor shall be responsible for interfacing with the public throughout the project and resolving complaints and concerns of property owners adjacent to the work. The name and resume of the proposed Public Relations Supervisor shall be presented to the OWNER at the pre-construction conference for approval. The Public Relations Supervisor shall:
 - a. have a 24-hour access phone number to respond to

SECTION 01010 – SUMMARY OF WORK

- construction inquiries, concerns, and complaints;
 - b. have the authority to direct the work as required to resolve concerns and complaints;
 - c. provide an updated progress schedule to the OWNER on a weekly basis;
 - d. provide an updated long-term progress schedule to the OWNER with each pay request;
 - e. ensure all notifications to adjacent property owners are made as described in the contract documents;
 - f. within 60 minutes of being notified, contact any property owners who have called with complaints or expressed concerns;
 - g. resolve all complaints and expressed concerns within 24 hours;
 - h. follow-up with individuals or entities making complaints 24 hours after resolution to ensure satisfactory results were obtained;
 - i. document all complaints in a public relations log, including name, address and contact information of individual or entity, date and time of initial notification, nature of complaint, actions taken to resolve the complaint, date and time of complaint resolution, and date and time of follow-up actions;
 - j. provide a weekly copy of the public relations log to the OWNER of all complaints and actions taken to resolve them;
 - k. be listed with name and phone number on all project flyers, notifications, and project signs; and
 - l. not be the same person as the Project Superintendent.
2. Notification – Coordination with Adjacent Property Owners:
14-days prior to beginning work in any area and once each month during construction, hand deliver a written "Construction Status

SECTION 01010 – SUMMARY OF WORK

Update Notice" to all residents, businesses, schools and property owners with frontage or sole access along areas disturbed by the Work. Notice shall be on CONTRACTOR's company letter head paper and be secured to doorknob should occupants not be home. Obtain OWNER's review of notice and distribution list/map prior to distribution. As a minimum the notice shall contain the following:

- a. name and phone number of CONTRACTOR's Public Relations Supervisor;
 - b. name and phone number of OWNER's project manager
 - c. work anticipated for the next 30 days including work locations and work by subcontractors and utility companies;
 - d. rough estimate of construction schedule through the end of work affecting area;
 - e. anticipated driveway approach closures;
 - f. anticipated water, sewer or power outages;
 - g. anticipated vehicular traffic impacts, rerouting or lane closures;
 - h. anticipated pedestrian impacts and sidewalk closures;
 - i. changes to public transportation bus routes; and
 - j. any other construction or work items which will impact or restrict the normal use of streets and amenities.
3. Project Sign: The CONTRACTOR shall provide a professionally prepared, movable, temporary project sign at each end of each work location in the project. The sign shall have a minimum face area of 16 square feet and shall be readily visible and legible. A proof of the proposed sign shall be submitted to the OWNER at the pre-construction conference for approval. Each sign shall contain the following information:
- a. Project Name: Waterline Replacement Project

SECTION 01010 – SUMMARY OF WORK

- b. Contractor Name
- c. Public Relations Supervisor Name
- d. Public Relations Supervisor Contact Number
- e. Owner Name: Jordan Valley Water Conservancy District
- f. Owner Contact Number: 801-565-4300

1.08 Project Clarifications

- A. Project shall follow APWA 2017 standards except as where noted in the Contract Documents.
- B. All new C-900 PVC waterline shall be installed 3' off the curb unless otherwise indicated in the project drawings.
- C. Water service lines from the water main to the water meter shall be treated as follows: galvanized water service lines and black poly service lines shall be replaced with copper from the new water main to the existing water meter and copper water service lines shall be reconnected.
- D. Mainline shutdowns shall be minimized as much as possible. A minimum of 3 business days (72 hours) will be provided to the OWNER before any mainline shutdown will occur. Failure to do so may result in a delay of the mainline shutdown at no cost to the OWNER. Mainline shutdowns are typically permitted Tuesday through Thursday of a normal business week.
- E. OWNER does not guarantee water shutdowns. CONTRACTOR to devise schedule to avoid work stoppages in the event a shutdown does not go as planned.
- F. It is anticipated that the CONTRACTOR will encounter high groundwater along Old Farm Lane and Old Farm Road or other areas. The CONTRACTOR shall be required dewater the trench as describe in Section 301.5 of 02220 Excavation, Backfilling and Compaction. All dewatering costs shall be included in the CONTRACTOR'S Bid.
- G. Exposed storm drains and other gravity utilities shall be backfilled using flowable fill (CLSM) 4' on both sides of the pipe and shall extend to the spring-line of the gravity utility.

SECTION 01010 – SUMMARY OF WORK

- H. Concrete curb and gutters or rolled waterways which are tunneled under to install the waterline shall be backfilled using CLSM to the bottom of the asphalt layer.

- END OF SECTION -

SECTION 01020 – MEASUREMENT AND PAYMENT

PART 1 – GENERAL

101.1 GENERAL

- A. This section includes measurement and payment provisions.
- B. The purpose of the measurement and payment is to inform the CONTRACTOR how to take measurements and compute quantities for billing purposes. The ENGINEER will verify measurements and quantities.
- C. Unit Quantities: Quantities and measurements indicated in the BID are for contract purposes only. Quantities and measurements supplied or placed in the work shall determine payment.
- D. Payment includes full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services, and all incidentals; erection, application, or installation of an item of the work; overhead and profit.

101.2 MEASUREMENT AND PAYMENT – BID SCHEDULE A

Bid Item #1: Mobilization Charges

- 1. Measurement: Lump Sum
- 2. Payment Covers: cost of mobilization, demobilization, installation of temporary facilities, and bringing all necessary construction equipment to the site. Payment will be made on a percentage basis as follows:

Payment	Percent of Original Contract Amount Earned	Percent of Amount Bid for Mobilization to be Paid
First	5%	40%
Second	15%	20%
Third	50%	30%
Final	90%	10%

Bid Item #2: Traffic Control

- 1. Measurement: Lump Sum
- 2. Payment Covers: Preparation of an approved Traffic Control Plan, and furnishing all labor, materials, tools, equipment, and all incidentals, and doing all work necessary to implement and maintain the traffic control as shown on the plan and as specified in the project contract documents. Payment also includes Certified

SECTION 01020 – MEASUREMENT AND PAYMENT

Flaggers and Traffic Control Technicians. Payment will be made on a percentage basis as follows:

Payment	Percent of Original Contract Amount Earned	Percent of Amount Bid for Traffic Control to be Paid
First	5%	25%
Second	Remaining portion of bid item paid as a percentage of the contract completed	

Bid Item #3: Permits

1. Measurement: Lump Sum. Bid Item #3 is to cover the anticipated permitting costs of the project. An allowance of \$15,000 has been shown. Bidders shall include this amount in their total bid price.
2. Payment Covers: All work required to obtain and pay for local, state, federal, and private permits listed in Section 1.06 of 01010 Summary of Work. Submit proof of payment for reimbursement.

Note: UDOT inspection fees are included in this Bid Item.

Bid Item #4: Fire Hydrant Assembly (including 6" Gate Valve)

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, and all incidentals required for the installation of the Fire Hydrant Assembly as per the Fire Hydrant Connection Detail. Fire Hydrant Assemblies shall meet the specifications listed in the Contract Documents. Materials include but are not limited to: fire hydrant, gaskets, mechanical thrust restraints, tracer wire, C-900 PVC pipe, gate valve, valve box, valve box lid, concrete thrust blocks, protective plastic wrapping and grease, tee, backfill as specified, and concrete collar. Fire hydrant locations shall be restored to match the surrounding area using sod, concrete, stamped concrete, etc. Irrigation lines damaged shall be repaired and sprinkler watering zones impacted due to fire hydrant location may require moving of sprinkler heads to restore water coverage to an area and landscape shall be restored to the pre-construction condition in which type, style, color, and material are matched.

Bid Item #5: Fire Hydrant Assembly >20' (including two 6" Gate Valve)

1. Measurement: Each
2. Payment Covers: Payment Covers: Furnishing all labor, materials, tools, equipment, testing, and all incidentals required for the

SECTION 01020 – MEASUREMENT AND PAYMENT

installation of the Fire Hydrant Assembly as per the Fire Hydrant Connection Detail. Fire Hydrant Assemblies shall meet the specifications listed in the Contract Documents. Materials include but are not limited to: fire hydrant, gaskets, mechanical thrust restraints, tracer wire, C-900 PVC pipe, gate valves, valve boxes, valve box lids, concrete thrust blocks, protective plastic wrapping and grease, tee, backfill as specified, and concrete collar. Fire hydrant locations shall be restored to match the surrounding area using sod, concrete, stamped concrete, etc. Irrigation lines damaged shall be repaired and sprinkler watering zones impacted due to fire hydrant location may require moving of sprinkler heads to restore water coverage to an area and landscape shall be restored to the pre-construction condition in which type, style, color, and material are matched.

Note: If the fire hydrant is greater than 20' away from the watermain, a second gate valve is required to be flanged to the foot of the fire hydrant.

Bid Item #6: 8" C-900 PVC DR-18 Waterline Installation, Flushing, Disinfection, Testing

1. Measurement: Linear Feet
2. Payment Covers: Furnishing all labor, materials, tools, equipment, concrete and landscape removal and restoration, and all incidentals required for the installation, flushing, disinfection, and testing of the 8" C-900 PVC DR-18 waterline and abandonment of the existing waterline. The unit bid price shall include the CONTRACTOR furnishing all the cost of the pipes, gaskets, mechanical fittings, bends, tees, crosses, sleeves, reducers, transition couplings, caps, washout valve assemblies, greasing and wrapping all exposed fittings, bolts, and nuts, pipeline dewatering, trench dewatering, concrete thrust blocks, tracer wire, magnetic marking tape, excavation and removal of excess material, removal of all obstructions and appurtenances as specified, indicated, or implied on the plans, backfill as specified, and the flushing, disinfection, and testing of the waterline. Should the waterline not meet the any of the District's requirements for flushing, disinfection, and/or testing the CONTRACTOR is responsible for correcting the deficiency. Item also includes the repair of any sewer or gas pipeline disturbed by the CONTRACTOR's operation and the abandonment of the replaced waterline from the existing system by removing obsolete valve (if present), plugging or capping, and installing concrete thrust block. The CONTRACTOR shall remove all existing valve boxes on the abandoned waterline and restore landscape and pavement. Potholing 200 feet ahead of the pipeline to identify the locations of existing utilities as described in the

SECTION 01020 – MEASUREMENT AND PAYMENT

project general notes is included in this bid item. Potholing is considered an incidental item to the waterline installation.

Bid Item #7: 8" FLxMJ Gate Valve

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, and all incidentals required for the installation of the 8" FLxMJ Gate Valve as per the Typical Valve Box Detail. 8" FLxMJ Gate Valves shall meet the specifications listed in the Contract Documents. Materials include but are not limited to: 8" FLxMJ gate valve, gaskets, mechanical thrust restraints, valve box, valve box lid, concrete thrust blocks, protective plastic wrapping, backfill as specified, and concrete collar.

Bid Item #8: 8" MJ Gate Valve

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, and all incidentals required for the installation of the 8" MJ Gate Valve as per the Typical Valve Box Detail. 8" MJ Gate Valves shall meet the specifications listed in the Contract Documents. Materials include but are not limited to: 8" MJ gate valve, gaskets, mechanical thrust restraints, valve box, valve box lid, concrete thrust blocks, protective plastic wrapping, backfill as specified, and concrete collar.

Bid Item #9: ¾" Copper Water Service Reconnect

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, concrete and landscape removal and restoration, and all incidentals required for the reconnection of ¾" copper water services to the new C-900 PVC waterline. Materials include but are not limited to: ball valve and corporation stop, saddle, fittings, compression coupler, type K copper tubing for service extension, and backfill as specified. A continuous piece of type K copper is required between the new corporation stop and the tie-in location of the existing water service. The connection shall be made with a compression coupler.

Bid Item #10: 1" Copper Water Service Reconnect

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, concrete and landscape removal and restoration, and all

SECTION 01020 – MEASUREMENT AND PAYMENT

incidentals required for the reconnection of 1" copper water services to the new C-900 PVC waterline. Materials include but are not limited to: ball valve and corporation stop, saddle, fittings, compression coupler, type K copper tubing for service extension, and backfill as specified. A continuous piece of type K copper is required between the new corporation stop and the tie-in location of the existing water service. The connection shall be made with a compression coupler.

Bid Item #11: 1.5" Water Service Reconnect

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, concrete and landscape removal and restoration, and all incidentals required for the reconnection of 1.5" poly water services to the new C-900 PVC waterline. Materials include but are not limited to: ball valve and corporation stop, saddle, fittings, compression coupler, poly tubing for service extension, and backfill as specified. A continuous piece of poly tubing is required between the new corporation stop and the tie-in location of the existing water service. The connection shall be made with a compression coupler.

Bid Item #12: 2" Water Service Reconnect

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, concrete and landscape removal and restoration, and all incidentals required for the reconnection of 2" poly water services to the new C-900 PVC waterline. Materials include but are not limited to: ball valve and corporation stop, saddle, fittings, compression coupler, poly tubing for service extension, and backfill as specified. A continuous piece of poly tubing is required between the new corporation stop and the tie-in location of the existing water service. The connection shall be made with a compression coupler.

Bid Item #13: Hot Tap Existing 8" Waterline

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, dewatering, and all incidentals required for the hot tap of an existing 8" waterline.

Note: The gate valve is not included in this bid item.

Bid Item #14: Hot Tap Existing 6" Waterline

SECTION 01020 – MEASUREMENT AND PAYMENT

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, dewatering, and all incidentals required for the hot tap of an existing 6" waterline.

Note: The gate valve is not included in this bid item.

Bid Item #15: Remove and Dispose of Existing Fire Hydrants

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, concrete and landscape removal and restoration, and all incidentals required for the removal and disposal of the existing fire hydrants. Fire hydrant locations shall be restored to match the surrounding area using sod, concrete, stamped concrete, etc.

Bid Item #16: Asphalt Concrete

1. Measurement:
 - a. Measured by the Ton. To receive payment for this item the CONTRACTOR shall submit copies of the asphalt tonnage tickets from the supplier.
 - b. No measurement will be made for temporary asphalt concrete pavement (hot or cold) required to facilitate construction or demolition, whether shown in the Contract Documents or not.
2. Payment Covers: Furnishing all labor, materials, tools, equipment, and all incidentals necessary for the accepted placement and compaction of Hot-Mix Asphalt concrete paving to the governing agency's standards. This bid item covers 1/2" Asphalt APWA Mix. This item also includes the labor, material, tools, equipment, and all incidentals to restore the road paint and markings to the preconstruction condition using paint and methods as approved by the governing agency which maintains the roadway.

Bid Item #17: 3/4" Meter Setter & Meter Box Replacement

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, concrete and landscape removal and restoration, and all incidentals required for the removal and replacement of a 3/4" meter setter and meter box. Materials include but are not limited to: 3/4" meter setter, two (2) DFW486C12-1 polymer meter boxes,

SECTION 01020 – MEASUREMENT AND PAYMENT

fittings, type K copper tubing for service extension, and backfill as specified.

Note: Contractor shall preserve and reinstall the existing $\frac{3}{4}$ " meter and meter transmitter as directed by JVVCD staff. Box lids are available from JVVCD and are to be installed by Contractor.

Bid Item #18: 1" Meter Setter & Meter Box Replacement

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, concrete and landscape removal and restoration, and all incidentals required for the removal and replacement of a 1" meter setter and meter box. Materials include but are not limited to: 1" meter setter, two (2) DFW1324C-12-1 polymer meter boxes, fittings, type K copper tubing for service extension, and backfill as specified.

Note: Contractor shall preserve and reinstall the existing 1" meter and meter transmitter as directed by JVVCD staff. Box lids are available from JVVCD and are to be installed by Contractor.

Bid Item #19: 1.5" Meter Setter & Meter Box Replacement

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, concrete and landscape removal and restoration, and all incidentals required for the removal and replacement of a 1.5" meter setter and meter box. Materials include but are not limited to: 1.5" meter setter, two (2) #DWFA3C-12-1 polymer meter boxes, one (1) polymer meter box lid, fittings, 1.5" poly tubing for service extension, and backfill as specified.

Note: Contractor shall preserve and reinstall the existing 1.5" meter and meter transmitter as directed by JVVCD staff.

Bid Item #20: 2" Meter Setter & Meter Box Replacement

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, testing, concrete and landscape removal and restoration, and all incidentals required for the removal and replacement of a 2" meter setter and meter box. Materials include but are not limited to: 2" meter setter, two (2) #DWFA3C-12-1 polymer meter boxes, one (1) polymer meter box lid, fittings, 2" poly tubing for service extension, and backfill as specified.

SECTION 01020 – MEASUREMENT AND PAYMENT

Note: Contractor shall preserve and reinstall the existing 2” meter and meter transmitter as directed by JWCD staff.

Bid Item #21: Asphalt Concrete Cutting

1. Measurement: Linear Feet
2. Payment Covers: Furnishing all labor, materials, tools, equipment, and all incidentals to saw cut the existing asphalt concrete to complete the asphalt “T-patch” or standard patch. Any cutting of asphalt that is not related to preparation of the existing asphalt for a “T-patch” or standard patch such as but not limited to digging the trench for the pipe shall be included in the unit cost of the PVC waterline.

Bid Item #22: Rolled Concrete Gutter/Waterway

1. Measurement:
 - a. Each (10-foot linear sections)
 - b. Sections will be measured in 5-foot increments. A concrete section 0-5 feet will be measured as a partial section and receive one half of the bid unit price. A concrete section 5.01-10 feet will measure a complete section and be billed at the full unit price.
2. Payment Covers: Furnishing all labor, materials, tools, equipment, and all incidentals to construct and install a rolled concrete gutter or waterway to match the existing gutter or waterway style, length, color, and finish.

Bid Item #23: APWA Type A Curb and Gutter

1. Measurement:
 - a. Each (10-foot linear sections)
 - b. Sections will be measured in 5-foot increments. A concrete section 0-5 feet will be measured as a partial section and receive one half of the bid unit price. A concrete section 5.01-10 feet will measure a complete section and be billed at the full unit price.
2. Payment Covers: Furnishing all labor, materials, tools, equipment, and all incidentals to replace an APWA Type A Curb and Gutter to match the existing curb and gutter style, length, color, and finish.

SECTION 01020 – MEASUREMENT AND PAYMENT

Bid Item #24: Concrete Panel

1. Measurement: Each (20 square feet per panel)
2. Payment Covers: Furnishing all labor, materials, tools, equipment, and all incidentals to construct and install a concrete panel which matches the surrounding concrete panels or sidewalk's style, length, color, and finish.

Bid Item #25: Concrete Drive Approach

1. Measurement: Each (60 square feet per approach)
2. Payment Covers: Furnishing all labor, materials, tools, equipment, and all incidentals to construct and install a concrete drive approach to match the existing curb and gutter style, length, color, and finish.

Bid Item #26: CLSM Backfill

1. Measurement: Yards. To receive payment for this item the CONTRACTOR shall submit copies of the CLSM yardage tickets from the supplier.
2. Payment Covers: Furnishing all labor, materials, tools, equipment, and all incidentals for the installation of CLSM backfill as specified by the Contract Documents. CLSM is the required backfill in all UDOT ROW and around all exposed storm drain lines.

Bid Item #27: Trench Stabilization Material

1. Measurement: Yards

Measurement of the trench stabilization material will be based upon Unit Price per in place cubic yard measured from the dimensions of the trench prior to installation of the material and will be calculated using 3.5' maximum trench width.
2. Payment Covers: Furnishing all labor, materials, tools, and equipment for the over excavation of the trench, removal and disposal of excess material, and all incidentals to install the trench stabilization material as specified or implied on the plans. The use of trench stabilization material shall be authorized in advance by the Engineer.

Bid Item #28: Old Farm Lane Direction Drill at Bridge Crossing - 10" DR-11 HDPE Pipe (Lump Sum)

3. 1. Measurement: Lump Sum

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4. 2. Payment Covers: Furnishing all labor, materials, tools, equipment, concrete and landscape removal and restoration, and all incidentals required for the installation, directional drilling, flushing, disinfection, and testing of the 10" DR-11 HDPE waterline under Old Farm Lane at the bridge crossing. The bid price shall include the CONTRACTOR furnishing all the cost of the pipes, gaskets, mechanical fittings, bends, tees, sleeves, reducers, transition couplings, pipe anchors, caps, washout valve assemblies, greasing and wrapping all exposed fittings, bolts, and nuts, pipeline dewatering, concrete thrust blocks, tracer wire, magnetic marking tape, excavation and removal of excess material, removal of all obstructions and appurtenances as specified, indicated, or implied on the plans, backfill as specified, traffic control, and the flushing, disinfection, and testing of the waterline. Should the waterline not meet the any of the District's requirements for flushing, disinfection, and/or testing the CONTRACTOR is responsible for correcting the deficiency. Item also includes the repair of any sewer or gas pipeline disturbed by the CONTRACTOR's operation. Potholing all existing utilities the pipeline will cross beneath is included in this bid item. Potholing is considered an incidental item to the waterline installation.

101.3 MEASUREMENT AND PAYMENT – BID SCHEDULE B

Bid Item #1: 8" Waterline Loop

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, and all incidentals necessary for all 8" waterline loop installations. Materials include but are not limited to: gaskets, concrete thrust blocks, mechanical fittings, pipe bends, and C-900 PVC pipe.

Note: The purpose of this bid item is to loop the 8" PVC waterline under utilities not shown in the drawings in order to resolve conflicts found in the field. Loops shown on the drawings shall be included in the bid item for the PVC waterline (Bid Item #5). The 8" Waterline Loop can only be used with written authorization from the ENGINEER.

Bid Item #2: Galvanized or Black Poly Water Service Replacement

1. Measurement: Each
2. Payment Covers: Furnishing all labor, materials, tools, equipment, concrete and landscape removal and restoration, and all incidentals required for the installation of the Galvanized or Black Poly Water Service Replacement. When the existing water service between the meter setter and the ball valve of the existing service is galvanized or black poly the line shall be replaced with a new continuous piece of type K copper water service line of the same

SECTION 01020 – MEASUREMENT AND PAYMENT

diameter from the existing meter setter (hot side) to the ball valve (corporation stop) on the new C-900 PVC waterline.

- END OF SECTION -

SECTION 01060 – SAFETY AND HEALTH

PART 1 - GENERAL (Not Used)

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

301.1 GENERAL

- A. The CONTRACTOR, by entering into a contract with the Owner for performance of this work, certifies that he is experienced and qualified to anticipate and meet the safety and health requirements of this project, and is skilled and regularly engaged in the general class and type of work called for in the Contract Documents. The CONTRACTOR acknowledges that there are certain peculiar and inherent conditions existent in the construction of the particular facilities, which may create, during the construction program, unusual or peculiar unsafe conditions hazardous to persons, property and the environment. The CONTRACTOR expressly acknowledges that they are aware of such peculiar risks and that they have the skill and experience to foresee and to adopt protective measures to perform the work adequately and safely with respect to such hazards.
- B. The CONTRACTOR shall be solely responsible for project site safety and shall conform to all applicable occupational, safety and health standards, rules and regulations, and orders established by the State of Utah. The CONTRACTOR shall observe the provisions of the Workman's Compensation and Safety Laws of the State of Utah and shall use all of the accepted and best safety practices for the public and/or CONTRACTOR's employees.
- C. Where a trench or excavation exceeds five (5) feet in depth, the CONTRACTOR shall submit a detailed plan or method for shoring to preclude collapse.

301.2 SAFETY AND HEALTH REGULATIONS

- A. The CONTRACTOR shall comply with Safety and Health Regulations for Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in title 29, C.F.R. Copies of these

SECTION 01060 – SAFETY AND HEALTH

regulations may be obtained from Labor Building, 14th and Constitution Avenue NW, Washington, DC 20013.

The CONTRACTOR shall also comply with the provisions of the Federal Occupational Safety and Health Act, as amended.

301.3 INSURANCE

- A. The successful bidder, prior to entering into a contract for the work covered herein shall take out and maintain in full force and effect Worker's Compensations Insurance with an insurance carrier authorized to transact business in the State of Utah, covering their full liability for compensation to any persons employed who may be injured in the carrying out of said contract or the dependents thereof. Evidence of such Worker's Compensation Insurance shall be furnished to the Owner in conformance with the Contract Documents.

- END OF SECTION -

SECTION 01200 – PROJECT MEETINGS

PART 1 - GENERAL

101.1 PROJECT MEETINGS

- A. Project meetings will be held as often as deemed necessary by the Project Representative. Meetings will normally be held weekly. The CONTRACTOR's superintendent and pertinent representatives shall attend.

The purpose of the meetings will be to discuss project schedule, progress, coordination, submittals, and job-related problems. The time and place of these project meetings shall be coordinated in the pre-construction meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

- END OF SECTION -

SECTION 01300 – CONTRACTOR SUBMITTALS

PART 1 - GENERAL

101.1 REQUIREMENT

- A. Wherever submittals are required hereunder, all such submittals by the CONTRACTOR shall be submitted to the ENGINEER.
- B. Within 7 days after the award of Construction Contract, the CONTRACTOR shall submit the following items to the ENGINEER for review:
 - 1. A preliminary construction schedule indicating the starting and completion dates of the various stages of the WORK.
 - 2. Copies of manufacturer's technical submittal information for materials to be incorporated into the WORK.
 - 3. A list of all permits and licenses the CONTRACTOR shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and required date for receipt of the permit.

101.2 CONTRACTOR'S SCHEDULES

A. TIME OF SUBMITTALS:

At the pre-construction conference, the CONTRACTOR shall submit for acceptance by the ENGINEER, a preliminary construction schedule for the WORK, showing its general plan for orderly completion of the WORK, showing its general plan for orderly completion of the WORK and showing in detail its planned mobilization of plant and equipment, sequence of early operations, and timing of procurement of materials and equipment. The construction schedule produced and submitted shall indicate a project completion date on or before the contract completion date. The ENGINEER within 14 days after receipt of the preliminary construction schedule shall meet with a representative of the CONTRACTOR to review the preliminary plan and construction schedule. After review by ENGINEER, revise and resubmit as required.

B. CONSTRUCTION SCHEDULE REVISIONS:

Submit revised schedules with each Application of Payment, reflecting changes since previous submittal.

101.3 PROPOSED SUBSTITUTES OR "OR EQUAL" ITEMS

- A. For convenience in designation in the Contract Documents, any material, product, or equipment to be incorporated in the WORK may be designated under a brand or trade name or the name of a manufacturer and its catalog information. The use of any substitute material, product, or equipment which is equal in quality and utility and possesses the required

SECTION 01300 – CONTRACTOR SUBMITTALS

characteristics for the purpose intended will be permitted, subject to the following requirements:

1. The burden of proof as to the quality and utility of any such substitute material, product, or equipment shall be upon the CONTRACTOR.
2. The ENGINEER will be the sole judge as to the quality and utility of any such substitute decision shall be final.

PART 2 - PRODUCTS

A. USED MATERIALS:

Materials which have been previously installed as part of any project shall not be reused on this project unless written approval is obtained from the ENGINEER. In the event that used materials are allowed to be installed on the project, the OWNER reserves the right to renegotiate the unit cost of the bid item that the material falls under with the CONTRACTOR.

PART 3 - EXECUTION (Not Used)

- END OF SECTION -

SECTION 01400 – QUALITY CONTROL

PART 1 - GENERAL

101.1 SITE INVESTIGATION AND CONTROL

- A. The CONTRACTOR shall verify all dimensions in the field and shall check field conditions continuously during construction. The CONTRACTOR shall be solely responsible for any inaccuracies built into the WORK due to his failure to comply with this requirement.
- B. The CONTRACTOR shall inspect related and appurtenant WORK and shall report in writing to the ENGINEER any conditions, which will prevent proper completion of the WORK. Failure to report any such condition shall constitute acceptance of all site conditions, and any required removal, repair, or replacement caused by unsuitable conditions shall be performed by the CONTRACTOR at his sole cost and expense.

101.2 DESCRIPTION OF WORK

- A. The WORK shall be conducted under the general observation of the ENGINEER and shall be subject to inspection by representatives of the OWNER to ensure strict compliance with the requirements of the Contract Documents. Such inspection may include mill, plant, shop, and in field inspection, as required. The ENGINEER shall be permitted access to all parts of the WORK, including plants where materials or equipment are manufactured or fabricated.
- B. The presence of the ENGINEER or any inspector(s), however, shall not relieve the CONTRACTOR of the responsibility for the proper execution of the WORK in accordance with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR and said duty shall not be avoided by any act or omission on the part of the ENGINEER or any inspector(s).
- C. All materials and articles furnished by the CONTRACTOR shall be subject to rigid inspection, and no materials or articles shall be used in the WORK until they have been inspected and accepted by the ENGINEER or his authorized representative. No WORK shall be backfilled, buried, cast in concrete, hidden, or otherwise covered until it has been inspected by the ENGINEER or his authorized representative. Any WORK so covered in the absence of inspection shall be subject to uncovering at the CONTRACTOR'S sole cost and expense. Where uninspected WORK cannot be uncovered, such as in concrete cast over reinforcing steel, all such WORK shall be subject to demolition, removal, and reconstruction under proper inspection, and no addition payment will be allowed therefore.

SECTION 01400 – QUALITY CONTROL

101.3 TIME OF INSPECTION AND TESTS

- A. Whenever the CONTRACTOR is ready to backfill, bury, cast in concrete, hide, or otherwise cover any WORK under the contract, he shall notify the ENGINEER not less than 24 hours in advance to request inspection before beginning any such WORK of covering. Failure of the CONTRACTOR to notify the ENGINEER at least 24 hours in advance of any such inspection shall be reasonable cause for the ENGINEER to order a sufficient delay in the CONTRACTOR's schedule to allow time for such inspections and any remedial or corrective WORK required, and all costs of such delays, including its effect upon other portions of the WORK, shall be borne by the CONTRACTOR.

101.4 RIGHT OF REJECTION

- A. The ENGINEER shall have the right, at all times and places, to reject any articles or materials to be furnished hereunder which, in any respect, fail to meet the requirements of these specifications, regardless of whether the defects in such articles of materials are detected at the point of manufacture or after completion of the WORK at the site. If the ENGINEER or inspector, through an oversight or otherwise, has accepted materials or WORK which is defective or which is contrary to the specifications, such material, no matter in what stage or condition of manufacture, delivery, or erection, may be rejected by the ENGINEER for the OWNER.
- B. The CONTRACTOR shall promptly remove rejected articles or materials from the site of the WORK after notification of rejection.
- C. All costs of removal and replacement of rejected articles or materials as specified herein shall be borne by the CONTRACTOR.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

- END OF SECTION -

SECTION 01500 – CONSTRUCTION FACILITIES AND ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

101.1 GENERAL

- A. The CONTRACTOR shall provide and maintain adequate construction facilities and perform the necessary work to minimize the impact and inconvenience of the construction activities.

101.2 SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures in accordance with Part 1926 of the OSHA Standards for Construction.

101.3 BARRIERS AND ENCLOSURES

- A. Provide as required to prevent public entry to construction areas, and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades as required by governing authorities for public rights-of-way and for public access to existing buildings.
- C. Provide barriers around trees and plants designated to remain. Protect said trees and plants against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.

101.4 PROTECTION OF INSTALLED WORK

- A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage. Repair or replace at OWNER's option any installed WORK damaged by traffic, the public, or WORK operations.
- B. Prohibit traffic on restored lawn and landscaped areas.

101.5 DUST, WATER AND NOISE CONTROL

- A. Surface Water, Erosion and Sediment Control:
 - 1. Surface water shall be controlled so that the construction area is not allowed to become wet from runoff from adjacent areas. Surface water shall be directed away from these areas but not directed toward adjacent property, buildings, or any improvement that may be damaged by water. Surface water shall not be allowed to enter sanitary sewers.
 - 2. Provide and operate pumping equipment as necessary to maintain excavations free of water.
 - 3. Prevent erosion and sedimentation.

SECTION 01500 – CONSTRUCTION FACILITIES AND ENVIRONMENTAL CONTROLS

4. Provide temporary measures such as berms, dikes, and drains, to control surface water flow.

B. DUST CONTROL:

1. Dust control measures shall be implemented by application of water to all WORK areas, storage areas, haul and access roads, or other areas affected by construction.
2. All WORK shall be in compliance with the Federal, State, and local air pollution standards, and not cause a hazard or nuisance to personnel and the public in the vicinity of the WORK.
3. Provide and operate at least one mobile tank sprinkling unit or other positive means to prevent air-borne dust from dispersing into the atmosphere. The CONTRACTOR shall secure a suitable source of water used during construction. The use of fire hydrants on the OWNER's water system to supply temporary construction water will not be allowed. Any connections made to the OWNER's system to supply temporary construction water shall include backflow and metering devices approved by the ENGINEER.
4. Other methods of dust control for haul and access roads may include chemical treatment, light bituminous treatment, or other methods as approved by the ENGINEER.
5. Execute WORK by methods to minimize raising dust from construction operations.

C. NOISE CONTROL:

1. Execute construction between the hours as allowed by the Salt Lake County Health Department unless a written variance has been obtained.
2. Properly maintain all equipment to minimize noise generation.

101.6 CONSTRUCTION CLEANING

- A. All public and private areas used as haul roads shall be continuously maintained and cleaned of all construction caused debris such as mud, sand, gravel, soils, pavement fragments, sod, etc. Care shall be taken to prevent spillage on haul routes. Any such spillage shall be removed immediately, and the area cleaned.
- B. Public roads shall be maintained in accordance with applicable ordinances and regulations.
- C. Through all phases of construction, including suspension of WORK, and until final acceptance of the project, the CONTRACTOR shall keep the WORK site clean and shall remove daily all refuse, dirt, damaged

SECTION 01500 – CONSTRUCTION FACILITIES AND ENVIRONMENTAL CONTROLS

materials, unusable materials, and all other trash or debris that he has created from his construction activities.

- D. Materials and equipment shall be removed from the site as soon as they are no longer necessary; and upon completion of the WORK and before final inspection, the entire WORK site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance. All cleanup costs shall be included in the CONTRACTOR's Bid.

101.7 PROJECT IDENTIFICATION

- A. NOT USED

101.8 TRAFFIC REGULATION

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and OWNER's operations.
- B. Monitor parking of construction personnel's vehicles. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.
- D. Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes. Provide control in accordance with local authority having jurisdiction.
- E. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- F. Consult with authorities; establish public thoroughfares to be used for haul routes and site access.
- G. Confine construction traffic to haul routes and designated construction limits.
- H. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.
- I. At approaches to site and on site, install signage at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
- J. Relocate as WORK progresses, to maintain effective traffic control.
- K. Maintain traffic flow to private driveways during entire contract period.
- L. Provide "business access" signage indicating locations of business entrances which have been disturbed by construction activities.

SECTION 01500 – CONSTRUCTION FACILITIES AND ENVIRONMENTAL CONTROLS

- M. Post-mounted traffic control and informational signs, traffic cones and drums, flagman equipment: as approved by local jurisdictions.
- N. Where local jurisdictions have no requirements, construct and erect devices and signs according to "Manual on Uniform Traffic Control Devices for streets and Highway" (MUTCD).
- O. Remove equipment and devices when no longer required. Repair damage caused by installation. Remove post settings to a depth of three feet.

101.9 FIELD OFFICE

- A. NOT USED

101.10 REMOVAL

- A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations to a depth of three feet; grade site as indicated. Restore existing facilities used during construction to as specified or to original condition.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

- END OF SECTION -

SECTION 01600 – MATERIAL AND EQUIPMENT

PART 1 - GENERAL

101.1 GENERAL

- A. It is the responsibility of the CONTRACTOR to provide products as specified in the Contract Documents free from manufacturer defects or damage from shipping.

101.2 PRODUCTS

- A. Products include all material, equipment, and systems.
- B. Comply with specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a specification section shall be the same and shall be interchangeable.
- D. Do not use products removed from an existing structure, pipeline, etc., except as specifically required, or allowed, by Contract Documents.

101.3 TRANSPORTATION AND HANDLING

- A. Transport products by methods to avoid product damage; deliver in undamaged condition.
- B. Provide equipment and personnel to handle products by methods to prevent damage.
- C. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

101.4 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions. Store sensitive products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to ensure products are undamaged and are maintained under required conditions.

SECTION 01600 – MATERIAL AND EQUIPMENT

101.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only; Any product meeting those standards.
- B. Products Specified by Naming One or More Manufacturers with a Provision of Substitutions: Submit a request for substitution for any manufacturer not specifically named.
- C. Product Specified by Naming Several Manufacturers: Products of named manufacturers meeting specifications: no options, or substitutions allowed.
- D. Products Specified by Naming Only One Manufacturer: No options, no substitutions allowed.

101.6 PRODUCTS LISTS

- A. Within 10 days after date of OWNER-CONTRACTOR Agreement, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number (if applicable) of each product.

101.7 SUBSTITUTIONS

- A. Only within 15 days after the date of the Notice to Proceed will ENGINEER consider requests from CONTRACTOR for substitutions. Subsequently, substitutions will be considered only when a product becomes unavailable due to no fault of CONTRACTOR.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- C. Request constitutes a representation that CONTRACTOR:
 - 1. Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.
 - 2. Will provide the same warranty for substitution as for specified product.
 - 3. Will coordinate installation and make other changes which may be required for WORK to complete in all respects.
 - 4. Waives claims for additional costs which may subsequently become apparent.
- D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.

SECTION 01600 – MATERIAL AND EQUIPMENT

- E. ENGINEER will determine acceptability of proposed substitution and will notify CONTRACTOR of acceptance or rejection in writing within a reasonable time.
- F. Only one request for substitution will be considered for each product. When substitution is not accepted, CONTRACTOR must provide specified product.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

- END OF SECTION -

SECTION 01700 – CONTRACT CLOSEOUT

PART 1 - GENERAL

101.1 CLOSEOUT PROCEDURES

- A. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.
- B. When CONTRACTOR considers WORK has been reached final completion, submit written certification that Contract Documents have been reviewed, WORK has been inspected, and that WORK is complete in accordance with Contract Documents and ready for ENGINEER's review.
- C. In addition to submittals required by the conditions of the Contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
- D. ENGINEER will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

101.2 FINAL CLEANING

- A. Execute prior to final inspection.
- B. Clean and flush drainage systems.
- C. Clean site; sweep paved areas, rake clean other surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from the Project and from the site.

101.3 PROJECT RECORD DOCUMENTS

- A. Provide completed record drawings and other required closeout documents prior to requesting final payment.
- B. Store record documents separate from those used for construction.
- C. Keep documents current; do not permanently conceal any WORK until required information has been recorded.
- D. At Contract closeout, submit documents with transmittal letter containing date, Project title, CONTRACTOR's name and address, list of documents, and signature of CONTRACTOR.

101.4 OPERATION AND MAINTENANCE DATA

- A. Provide data for:
 - 1. Mechanical equipment and controls.

SECTION 01700 – CONTRACT CLOSEOUT

- B. Submit three sets prior to final inspection, bound in 8-1/2 X 11-inch three-ring side binders with durable plastic covers.

101.5 MAINTENANCE AND GUARANTEE

- A. The CONTRACTOR shall comply with the maintenance and guarantee requirements contained in Article 13.01 of the General Conditions.
- B. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair WORK, and any repair or resurfacing constructed by the CONTRACTOR which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair WORK unless the CONTRACTOR shall have obtained a statement in writing from the affected private OWNER or public agency releasing the OWNER from further responsibility in connection with such repair or resurfacing.
- C. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the OWNER. If the CONTRACTOR fails to make such repairs or replacements promptly, the OWNER reserves the right to do the WORK and the CONTRACTOR and his surety shall be liable to the OWNER for the cost thereof.
- D. Comply with General Conditions and ordinances of local jurisdictions having authority.
- E. Make periodic inspections during guarantee period and correct defective WORK or correct defective WORK as directed by the OWNER or appropriate governing authority.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

- END OF SECTION -

SECTION 01720 – RECORD DRAWINGS

PART 1 - GENERAL

101.1 RECORD DRAWINGS

- A. The CONTRACTOR shall keep and maintain, at the job site, one record set of drawings. On these, it shall mark all project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the Contract Drawings, including buried or concealed construction and utility features which are revealed during construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the Contract Drawings, said record drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the WORK as actually constructed. These master record drawings of the CONTRACTOR's representation of as-built conditions, including all revisions made necessary by addenda, change orders, and the like shall be maintained up to date during the progress of the WORK.
- B. In the case of those drawings which depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the record drawings shall be updated by indicating those portions which are superseded by change order drawings or final shop drawings, and by including appropriate reference information describing the change orders by number and the shop drawings by manufacturer, drawing, and revision numbers.
- C. Record drawings shall be accessible to the ENGINEER at all times during the construction period and shall be delivered to the ENGINEER upon completion of the WORK.
- D. Requests for partial payments will not be approved if the record drawings are not kept current, and not until the completed record drawings, showing all variations between the WORK as actually constructed and as originally shown on the Contract Drawings or other Contract Documents, have been inspected by the ENGINEER.
- E. Final payment will not be approved until the CONTRACTOR-prepared record drawings have been delivered to the ENGINEER. Said up-to-date, record drawings may be in the form of a set of prints with carefully plotted information overlaid in pencil.
- F. Upon substantial completion of the WORK and prior to final acceptance, the CONTRACTOR shall complete and deliver a complete set of record drawings to the ENGINEER for transmittal to the OWNER, conforming to the construction records of the CONTRACTOR. This set of drawings shall consist of corrected plans showing the reported location of the WORK. The information submitted by the CONTRACTOR and incorporated by the ENGINEER into the Record Drawings will be assumed to be reliable, and the ENGINEER will not be responsible for the accuracy of such

SECTION 01720 – RECORD DRAWINGS

information, nor for any error or omissions which may appear on the Record Drawings as a result.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

- END OF SECTION -

SECTION 02100 – SITE PREPARATION

PART 1 - GENERAL

101.1 DESCRIPTION

This section specifies site preparation which consists of clearing, grubbing and demolition.

101.2 JOB CONDITIONS

A. EXISTING CONDITIONS:

The CONTRACTOR shall determine the actual condition of the site as it affects this portion of WORK. CONTRACTOR shall coordinate site preparation with OWNER's administration and operation staff.

B. PROTECTION:

Site preparation shall not damage structures, landscaping, or vegetation adjacent to the site. The CONTRACTOR shall repair or replace any damaged property.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

301.01 GENERAL

The CONTRACTOR shall notify the Project Representative when site preparation is complete. Further WORK shall not be started until the conditions of paragraph 02100-301.02 are satisfied.

301.02 PERFORMANCE

A. CLEARING AND GRUBBING:

Unless otherwise specified, the CONTRACTOR shall remove obstructions such as brush, trees, logs, stumps, roots, heavy sod, vegetation, rock, stones larger than 6 inches in any dimension, broken or old concrete and pavement, debris, structures, and piping where the completion of the WORK requires their removal.

Material that is removed and is not to be incorporated in the WORK shall be disposed of off the site, or as directed by the OWNER.

B. DEMOLITION AND REMOVAL:

1. Structures:

Demolition and removal of structures consist of removal of manholes and any other structures interfering with construction of

SECTION 02100 – SITE PREPARATION

this contract as shown on the Contract Drawings or as directed by the Project Representative. Excavations caused by structure removal shall be cleared of waste, debris, and loose soil and refilled as specified.

2. Pavement:

When portions of concrete pads are to be removed and replaced, edges shall be saw cut, on a neat line at right angles to the curb face.

3. Piping:

Piping shall be removed where indicated on the drawings and disposed of as directed by the Project Representative.

4. Salvage:

The OWNER has the right to salvage any items scheduled for removal. The CONTRACTOR shall notify the Project Representative 5 days prior to any salvage or demolition WORK to determine the disposition of items to be salvaged. Such items shall be properly disconnected, removed from their foundations, cleaned, and stored at a location on the plant site as specified.

C. UTILITY INTERFERENCE:

Where existing utilities interference with the prosecution of the WORK, the CONTRACTOR shall relocate them in accordance with the General Conditions of the contract.

- END OF SECTION -

SECTION 02220 – EXCAVATING, BACKFILLING AND COMPACTION

PART 1 - GENERAL

101.1 GENERAL

- A. The WORK of this section includes all earthwork required for construction of the WORK including preparation, excavation, backfilling, compaction, dewatering, field quality control, and cleaning up.

101.2 REFERENCES

- A. Utah Occupational Safety and Health Division (UOSHD).
- B. American Association of State Highway and Transportation Official (AASHTO):
 - 1. Designation T-99.
 - 2. Designation T-180.

101.3 SUBMITTALS

- A. Submit for approval drawings and structural calculations for trench shoring to be utilized.

101.4 QUALITY ASSURANCE

- A. Comply with federal, state, and local codes and regulations.
- B. All working conditions shall comply with the "Utah Occupational Safety and Health Division", Safe Practices for excavation and Trenching Operations, latest edition.
- C. All WORK performed in the public right of way shall conform to the standards, regulations, and requirements of the applicable governmental agency responsible for the maintenance of the public right of way.
- D. All necessary permits and bonds shall be paid for and provided by the CONTRACTOR.

PART 2 - PRODUCTS

201.01 BACKFILL MATERIALS

- A. STABILIZATION MATERIAL:

Stabilization material shall consist of hard, durable particles of stone or gravel, screened or crushed to the required size and gradation. The material shall be free from vegetation matter, lumps or balls of clay, or other deleterious matter and shall conform to the following gradation when tested in accordance with AASHTO T 27 or ASTM C 136.

SECTION 02220 – EXCAVATING, BACKFILLING AND COMPACTION

1. Coarse material shall be crushed or washed, and fine material shall be wasted to meet the grading requirements set forth below. Note that if stabilization material is required, an 8 oz. non-woven filter fabric shall be placed between the stabilization material and the pipe zone material. Install fabric per to APWA Section 31 05 19.
2. Coarse aggregate, retained on the No. 4 sieve, shall have a percentage of wear not greater than 40 percent when tested by the Los Angeles Test, AASHTO T-96 or ASTM C 131.
3. Graded within the following limits:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
2-inch	100
1-1/2-inch	10-50
3/4-inch	0-25
#4	0-10
#200	0-3

B. PIPE ZONE BACKFILL: TYPE A

The pipe zone extends from six inches below the pipe to 12 inches above the top of the pipe.

1. Shall be free from alkali, salt, and petroleum products, roots, sod, limbs, and other vegetative matter, lumps or balls of clay, slag, cinders, ashes and rubbish, or other materials that in the opinion of the ENGINEER may be objectionable or deleterious. Material shall be screened to the required size and gradation and shall conform to the following gradation when tested in accordance with AASHTO T 27 or ASTM C 136.
2. Graded within the following limits:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3/8-inch	100
#4	80-85
#10	30-50
#40	10-30
#200	0-15

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C. GRANULAR BACKFILL: TYPE B

1. Shall be free from alkali, salt, and petroleum products, roots, sod, limbs, and other vegetative matter, lumps or balls of clay, slag, cinders, ashes and rubbish, or other materials that in the opinion of the ENGINEER may be objectionable or deleterious. Material shall be screened to the required size and gradation and shall conform to the following gradation when tested in accordance with AASHTO T 27 or ASTM C 136.
2. Graded within the following limits:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
1-inch	100
#4	70-85
#10	20-50
#40	10-30
#200	0-15

D. STRUCTURAL BACKFILL: TYPE F

1. Shall consist of hard durable particles of stone or gravel, screened or crushed to the required size and grading. The material shall be free from vegetation, or clay and shall conform to the following grading:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
2-inch	100
1-1/2-inch	95-100
3/4-inch	50-100
3/8-inch	15-55
#4	0-25
#8	0-5
#200	0-3

E. PERVIOUS BACKFILL: TYPE G

1. Shall be pervious backfill material (sand) and be free from petroleum products, roots, sod, limbs, and other vegetative matter, slag, cinders, ashes and rubbish, or other material that in the opinion of the ENGINEER may be objectionable or deleterious.

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2. Graded within the following limits:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
#50	100
#100	0-8
#200	0-4

F. **CONTROLLED LOW STRENGTH MATERIAL (CLSM)**

1. Refer to specification 03575 – Flowable Fill of the UDOT Standard Specifications Manual

PART 3 - EXECUTION

301.01 PREPARATION

- A. It shall be the CONTRACTOR's responsibility to locate existing water, sanitary sewer, storm drain, and gas lines, electrical and telephone conduit and other underground utilities with their existing house service connections, and all other underground structures in order that no damage or loss or service will result from interference with existing lines.
- B. The location of underground utilities shown on the plans have been determined by plans furnished by various municipalities, public utilities, and field surveys. No guarantee is made as to the completeness or accuracy of the locations shown on the plans. The CONTRACTOR shall verify the locations and elevations of existing utilities before WORK begins concerning that utility.
- C. It shall be the responsibility of the CONTRACTOR to maintain trenching operations a sufficient distance ahead of pipe laying operations so that grade and alignment changes may be made to avoid existing underground utilities and structures. Where pipes are to be laid within two (2) feet of other utilities, the CONTRACTOR shall notify the OWNER of the utility. No extra compensation shall be due the CONTRACTOR for delays, or additional WORK created by is failure to comply with the above requirements.
- D. Blue Stakes Location Center shall be contacted 48 hours before any excavation is commenced. Phone 1-800-662-4111 for assistance.

301.02 EXCAVATION

- A. All gas, sanitary sewer, storm drain, water and other pipelines, flumes and ditches of metal, wood or concrete, underground electrical conduits and telephone cable, and all walks, curbs, and other improvements

SECTION 02220 – EXCAVATING, BACKFILLING AND COMPACTION

encountered in excavating trenches carefully shall be supported, maintained, and protected from injury or interruption of service until backfill is complete and settlement has taken place.

- B. If any existing facility is damaged or interrupted, promptly after becoming aware thereof and before performing any WORK affected thereby (except in an emergency as permitted by the General Conditions of the construction contract), identify the OWNER of such existing facility, and give written notice thereof to that OWNER and the District and ENGINEER. Comply with other applicable requirements of the General Conditions of the construction contract and indemnify the District from any and all damages resulting from damaged facilities.
- C. Excavation for pipe lines, concrete valve boxes, manholes and appurtenant structures shall include the WORK of removing all earth, sand, gravel, quicksand, stone, loose rock, solid rock, clay, shale, cement, hardpan, boulders, and all other materials necessary to be moved in excavating the trench for the pipe; maintaining the excavation by shoring, bracing, and sheeting or well pointing as necessary to prevent the sides of the trench from caving in while pipe laying is in progress; and removing sheeting from the trench after pipe has been laid.
- D. Bottom of Trench Preparation
 - 1. Where rock, hard pan, boulders or other material which might damage the pipe are encountered, the bottom of the trench shall be over excavated 4 inches below the required grade and replaced with Stabilization Material. Otherwise, the bottom of the trench shall be over excavated 6 inches or 1/12 the outside diameter of the pipe, whichever is greater, below the required grade and replaced with Pipe Zone Backfill.
 - 2. The bottoms of trenches shall be accurately graded to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Bell holes shall be excavated to the necessary size at each joint or coupling to eliminate point bearing. Stones of 1 inch or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, shall be removed to avoid point bearing.
- A. Minimum cover over the top of the pipe, including any paving, shall be as follows:
 - 1. Water supply piping: 4 feet minimum from finish grade.
- B. Grading of trenches shall be performed to avoid interference of water and sewer lines with other underground utilities and structures:

SECTION 02220 – EXCAVATING, BACKFILLING AND COMPACTION

1. Water supply piping: Unless otherwise indicated, trenches shall be graded to avoid high points in the waterline.
- C. The width of trench, measured at the top of the pipe, shall be as narrow as possible; not to be wider than 12 inches on each side of water pipe.
- D. Excavation manholes, concrete valve boxes, and similar structures shall be sufficient to leave at least 12 inches in the clear between the outer surfaces and the embankment or timber that may be used to hold and protect the banks.
- E. Excess materials shall be hauled away from the construction site or otherwise disposed of by the CONTRACTOR as approved by the ENGINEER.

301.03 BACKFILLING

- A. The trenches shall not be backfilled until the utilities systems as installed conform to the requirements of the Drawings and Specifications.
- B. Trenches shall be back filled to the proper surface with material as shown or specified. Trenches improperly backfilled shall be reopened to the depth required for correction, then refilled and compacted as specified, or the condition shall be otherwise corrected as approved.
- C. PIPE ZONE BACKFILL:
 1. Prepare an acceptable pipe bedding consisting of six inches of compacted material meeting requirements of 201.01 A in the bottom of the trench or on a built-up foundation if conditions so warrant. All piping shall be protected from lateral displacement and possible damage resulting from pact or unbalanced loading during backfilling operations by being adequately bedded.
 2. Place and compact bedding material from pipe foundation to 12 inches above top of pipe. Deposition and compaction of bedding materials shall be done simultaneously and uniformly on both sides of the pipe. All pipe zone materials shall be placed carefully in the trench to avoid any damage to the pipe.
- D. GRANULAR BACKFILL:
 1. The pipe trench outside of the pipe zone shall be backfilled with granular backfill.
 2. Material shall be placed and compacted in layers not exceeding 12 inches.
- E. Each lift shall be evenly spread and moistened or dried by disk harrowing or other means so that the required density will be produced.
- F. Backfill around valves with sand bedding material.

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- G. Care shall be exercised so that when backfilling is complete and settlement has taken place, all existing pipes, flumes, ditches, conduits, cables, walks, curbs, and other improvements will be on the same alignment and grade as they were before WORK commenced.

301.04 COMPACTION

- A. Compaction shall be the responsibility of the CONTRACTOR. He shall select the methods to be used and carefully perform the WORK of backfilling and compaction so as to prevent damage to new or existing piping. Any new or existing piping damaged during the CONTRACTOR's WORK shall be replaced as directed by the ENGINEER with new piping.
- B. **BACKFILL COMPACTION REQUIREMENTS:**
 - 1. Under pavements, or other surface improvements, the road base shall be compacted to 96% of the modified proctor density as determined by ASTM 1557.
 - 2. In shoulders and other unimproved areas, the average density shall be 90 per cent of laboratory maximum density with no individual test lower than 86 per cent of the laboratory maximum density, as determined by AASHTO Designation T-180.
- C. Methods of compaction include mechanical compaction only. Authorization by the ENGINEER to use any method does not relieve the CONTRACTOR of his responsibility to meet the specified density requirements. Compaction shall be performed in strict accordance with the manufacturer's recommendations for each type of pipe.
- D. **MECHANICAL COMPACTION:**

Shall be accomplished by the use of sheep's-foot rollers, pneumatic tire rollers, vibrating rollers, or other mechanical tampers of a size and type necessary to achieve the required degree of compaction.
- E. Water jetting shall not be allowed.

301.05 DEWATERING

- A. The CONTRACTOR shall do all pumping, shall build all drains, and do all the WORK necessary to keep the trench and pipes free from water during the progress of the WORK.
- B. In wet trenches, a channel shall be kept open along the side of the pipe for conducting the water to a sump hole, from which it shall be pumped out of the trench. No water shall be allowed to enter the pipe.
- C. All dewatering costs shall be included in the CONTRACTOR'S Bid.

SECTION 02220 – EXCAVATING, BACKFILLING AND COMPACTION

301.06 FIELD QUALITY CONTROL

- A. The OWNER, at its expense, shall employ an independent testing laboratory to perform field and laboratory density tests. The CONTRACTOR shall coordinate with the ENGINEER in directing testing laboratory personnel in performing field density tests or taking samples for laboratory tests. In general, tests and samples shall be made as the WORK proceeds. The CONTRACTOR shall promptly report the results of the density tests to the ENGINEER.
- B. The ENGINEER will direct testing laboratory to perform field density tests of compacted backfill materials. The approximate location and number of such tests shall be as shown on the drawings, or as selected by the ENGINEER. Field density tests shall be performed at frequencies and locations satisfactory to the organization which granted the permit to excavate in a public right-of-way or generally outlined below:
 - 1. In planted or unimproved areas:
 - a. 18 inches above the top of the pipe
 - b. Finished grade
 - 2. In streets, roads, parking lots or other paved areas:
 - a. 18 inches above the top of the pipe
 - b. 24 inches to 36 inches below the gravel road base
 - c. Gravel road base sub-grade
 - d. Top of gravel road base
 - e. Top of bituminous surface course
- C. Copies of test results prepared by the testing laboratory will be transmitted to the ENGINEER at the same time they are transmitted to the CONTRACTOR.
- D. Successful performance of field density tests by the testing laboratory shall not relieve the CONTRACTOR of his responsibility to meet the specified density requirements for the complete project.

301.07 FINAL GRADING

- A. The roadway including shoulders, slopes, ditches, and borrow pits shall be smoothly trimmed, and shaped by machinery, or other satisfactory methods, to the lines, grades, and cross-sections, as established, and shall be so maintained until accepted. Any surplus material not suitable for spreading along the road to widen the existing shoulder or raise the grade shall be hauled away or disposed of near the site as directed by the ENGINEER.

SECTION 02220 – EXCAVATING, BACKFILLING AND COMPACTION

- END OF SECTION -

**SECTION 02590 – PROTECTION AND RESTORATION
OF EXISTING IMPROVEMENTS**

PART 1 - GENERAL

101.1 GENERAL

- A. The WORK of this section includes the restoration of all existing improvements damaged or altered by the construction of the project.
- B. Existing improvements shall include but are not limited to permanent surfacing, curbs, gutters, sidewalks, planted areas, ditches, driveways, culverts, fences, walls, signs, mailboxes, and sprinkling appurtenances. All improvements shall be reconstructed to equal or better, in all respects, than the existing improvements which were removed. Said existing improvements shall be reconstructed in accordance with the notes and details shown on the drawings and/or the applicable provision of these Specifications.

101.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are trained and experienced in the type of construction required.
- B. The quality of the finished restored improvement, as determined by the OWNER, shall be of equal or better quality than was said improvement prior to being damaged or removed.
- C. All WORK performed in the public right of way shall conform to the standards, regulations, and requirements of the applicable governmental agency responsible for the maintenance of the public right of way.

101.3 REFERENCES

- A. State of Utah Standard Specifications for Road and Bridge Construction, latest edition including all addendums.

101.4 SUBMITTALS

- A. Submit to ENGINEER written evidence of approval of base course and surface coarse aggregate gradation approval by the State of Utah or by Salt Lake County, as applicable, for WORK in public rights-of-way.

PART 2 - PRODUCTS

201.01 MATERIALS - GENERAL

- A. As required to complete the restoration of existing improvements and shall be at least equal to original improvement at the time of damage or removal, as determined by the OWNER of said improvement, and shall match original construction in finish and dimension.

**SECTION 02590 – PROTECTION AND RESTORATION
OF EXISTING IMPROVEMENTS**

- B. Shall be in accordance with requirements of local jurisdiction having authority. Obtain approval of all materials from local jurisdiction having authority prior to ordering or delivering.

201.02 CLEAN GRAVEL FOR ROADWAY SHOULDER (Not Used)

201.03 UNTREATED BASE COURSE

- A. Shall be in accordance with State of Utah Standard Specifications for Road and Bridge Construction, paragraphs 301.02 and 301.13, one-inch gradation:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
1-inch	100
1/2-inch	79-91
#4	49-61
#16	27-35
#200	7-11

201.04 BITUMINOUS PRIME COAT

- A. Shall be MC 70-250 asphalt, unless otherwise required by local jurisdiction having authority.

201.05 BITUMINOUS SURFACE COURSE

- A. Shall be plant mix in accordance with State of Utah Standard Specifications for Road and Bridge Construction, Section 402, in accordance with the following gradation. Actual mix design to be used shall be as approved by local jurisdiction having authority. No more than 15 percent reclaimed asphalt pavement is allowed.

3/4-INCH GRADATION

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3/4-inch	100
3/8-inch	75-91
#4	46-62
#50	11-23
#200	5-9

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1/2-INCH GRADATION

SIEVE SIZE	PERCENT PASSING BY WEIGHT
1/2-inch	100
#4	60-80
#16	28-42
#50	11-23
#200	5-9

201.06 CONCRETE

- A. Concrete for curbs, gutters, sidewalks, and driveways shall be Class AA(AE) conforming to the requirements of paragraph 505.04 of the State of Utah Standard Specification for Road and Bridge Construction, including the following requirements:
1. Coarse aggregate size: $\frac{3}{4}$ " to No. 4
 2. Maximum water/cement: 5.0 gallons/sack
 3. Minimum cement content: 6.5 sacks/cubic yard
 4. Required mix design compressive strength: 5,210 psi
 5. Minimum 28-day compressive strength: 4,000 psi

201.07 SOD AND VEGETATION

- A. All materials shall be from sources approved by the ENGINEER; however, such approval does not relieve the CONTRACTOR from responsibilities for growth, maintenance, and replacement as specified herein.
- B. TOPSOIL:
1. Topsoil shall be fertile, friable, natural loam, surface soil, reasonably free of clay lumps, brush weeds, and other litter, and free of rocks, stumps, stones larger than 2 inches in any dimension, and other extraneous or toxic matter harmful to plant growth. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than four inches.
 2. Do not obtain from bogs or marshes.

**SECTION 02590 – PROTECTION AND RESTORATION
OF EXISTING IMPROVEMENTS**

PART 3 - EXECUTION

301.01 PREPARATION

- A. Obtain all permits necessary for the restoration of existing surface improvements.
- B. Protect all public and private property adjacent to the WORK. Exercise due caution to avoid damage to such property.

301.02 GENERAL RESTORATION REQUIREMENTS

- A. All improvements damaged or removed shall be restored in accordance with local jurisdiction having authority. In case of conflict between these specifications and local authority specifications, the local authority shall govern.
- B. Repair or replace all existing surface improvements, which were damaged or removed as a result of operations of WORK under this contract. Restoration shall be of at least equal quality and identical in dimension to original improvement unless specifically specified otherwise.

301.03 ASPHALTIC CONCRETE SURFACED AREAS

- A. PROJECT SPECIFIC ASPHALT REQUIREMENTS:
 - 1. Old Farm HOA Roads
 - a. ½" HMA asphalt mix, PG 58-28 or better.
 - b. 1' "T-patch" required on both sides of trench or extend to curb if patch is within 2'.
 - c. Provide full tack coat coverage on all vertical surfaces.
 - d. Match existing asphalt thickness plus 1", with a 3" minimum thickness.
 - e. Install in lifts no greater than 3" after compaction.
 - f. Place asphalt at a temperature of 50 degrees and rising.
 - g. Follow APWA 2017 requirements for trenching and asphalt placement except as noted here.
 - h. Restore speed bumps to pre-construction condition.

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2. Millcreek Roads

- a. ½" HMA asphalt mix, PG 58-28 or better.
- b. 2' "T-patch" required on both sides of trench or extend to curb if patch is within 2'.
- c. Provide full tack coat coverage on all vertical surfaces.
- d. Match existing asphalt thickness plus 1", with a 3" minimum thickness.
- e. Install in lifts no greater than 3" after compaction.
- f. Place asphalt at a temperature of 50 degrees and rising.
- g. Follow APWA 2017 requirements for trenching and asphalt placement except as noted here.

3. Murray Roads

- a. ½" HMA asphalt mix, PG 64-22 or better.
- b. 1' "T-patch" required on both sides of trench or extend to curb if patch is within 2'.
- c. Provide full tack coat coverage on all vertical surfaces.
- d. Match existing asphalt thickness plus 1", with 4" minimum thickness.
- e. Install in lifts no greater than 3" after compaction.
- f. Place asphalt at a temperature of 50 degrees and rising.
- g. Follow APWA 2017 requirements for trenching and asphalt placement except as noted here

B. Where trenches are excavated through asphaltic concrete surfaced areas such as roads, driveways or parking areas, the surface shall be restored by preparing the subgrade, placing base course(s), placing tack and prime coats, and placing the asphaltic concrete surface course(s).

C. Subgrade preparation shall conform to applicable parts of paragraphs 208.02 and 209.01 through 209.03 of the State of Utah Standard Specifications for Road and Bridge Construction:

- 1. Average of field density determination shall be 95 percent of the maximum dry density, with no determination lower than 92 percent.

**SECTION 02590 – PROTECTION AND RESTORATION
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2. The maximum dry densities shall be determined in accordance with the following:
 - a. A-1 soils: AASHTO Designation T-180, Method D.
 - b. All other soils: AASHTO Designation T-99, Method D.
- D. Thickness of base course shall be eight inches minimum and surface course shall be three inches minimum.
- E. Placing and compaction of base course shall conform to applicable parts of Section 301 of the State of Utah Standard Specifications for Road and Bridge Construction, excluding pay factor allowances.
- F. PRIME COAT:
 1. Base course shall be primed, unless otherwise required by local jurisdiction having authority.
 2. Ensure base course is dry and free of loose or foreign material before priming.
 3. Apply primer over prepared base course at a uniform rate of 0.25 gallon per square yard, unless otherwise required by manufacturer. Ensure primer is at temperature recommended by manufacturer.
 4. Allow to cure and dry as long as required to attain penetration and evaporation of the volatiles but in no case less than one hour.
 5. Where a surface is over primed, resulting in a film of free liquid asphalt, it shall be blotted by spreading a light, uniform layer of blotter materials.
 6. An under primed surface shall immediately receive another application of prime coat.
 7. The temperature range of the prime coat at the time of application shall be such that the viscosity will be between 50 and 100 centistokes as determined in accordance with ASTM Designation D-2170.
 8. Maintain the primed surface until the next course is placed. Maintenance shall include spreading any necessary additional blotter material, replacing all portions of prime coat that have been destroyed, and patching any breaks in the primed surface. Any primed area that has become fouled by traffic, or otherwise, shall be cleaned before the next course is placed.
 9. Under no circumstances shall traffic be permitted to travel over freshly primed surface. If detours cannot be provided, restrict operation to a width that will permit at least one-way traffic over the

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remaining portion of the roadbed. If one-way traffic is provided, the traffic shall be controlled in accordance with local jurisdiction having authority.

G. TACK COAT:

1. Tack coat shall be applied at the rate of 0.05 to 0.15 gal/SY. A hand sprayer or brush shall be used to apply tack coat to vertical faces of previously constructed bituminous pavement (over ½ hour hence) prior to placing an adjacent or parallel pass, curbs, gutters, slab edges, and all structures to be in actual contact with the bituminous pavement. Tack coat shall also be applied uniformly at the same rate to the horizontal top surface of each lift of bituminous pavement prior to placing the next lift of bituminous pavement to promote a bond between the two courses of pavement. None of the material shall penetrate into the pavement and for this reason the application should be limited.
2. Prior to applying the material, the surface to be treated shall be swept or flushed free of dust or other foreign material.
3. Protect all surfaces not required to receive tack coat from any inadvertent application.
4. The temperature range of the tack coat at the time of application shall be such that the viscosity will be between 50 and 100 centistokes as determined in accordance with ASTM Designation D-2170.
5. Under no circumstances shall traffic be permitted to travel over the tacked surface. If detours cannot be provided, restrict operation to a width that will permit at least one-way traffic over the remaining portion of the roadbed. If one-way traffic is provided, the traffic shall be controlled in accordance with governing authority.
6. After application of tack coat, sufficient time shall be given to allow for complete separation of asphalt and water before paving operations begin. The tack coat shall be applied on only as many surfaces as will be paved against in the same day.

H. Mixing, placing, spreading and compaction of bituminous surface course shall conform to applicable parts of Section 402 of the State of Utah Standard Specifications for Road and Bridge Construction, excluding pay factor allowances.

I. Any painted traffic lanes, markings, and parking lot striping disturbed during construction shall be repainted in the same location with materials meeting the standards of the local jurisdiction having authority.

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301.04 CONCRETE CURBS, GUTTER, SIDEWALKS AND DRIVEWAYS

- A. Shall be removed and replaced to the next joint or scoring lining beyond the actually damaged or broken sections; or in the event that joints or scoring lines do not exist or are three or more feet from the removed or damaged section, the damaged portions shall be removed by saw cutting full depth.
- B. All new concrete shall match, as nearly as possible, the appearance of adjacent concrete improvements. Where necessary, lampblack or other pigments shall be added to the new concrete to obtain the desired results.
- C. Concrete forms shall be true to line and of sufficient strength to ensure against bulging or displacement.
- D. Contraction and expansion joints shall match original construction in placement and size, unless otherwise required by local jurisdiction having authority.
- E. Reinforcement shall be replaced as in original construction, and doveled into edges of existing concrete, unless otherwise required by local jurisdiction having authority, and shall be installed in accordance with applicable CRSI and ACI Standards.
- F. Finishing and curing shall be in accordance with local jurisdiction having authority.
- G. Concrete shall be placed over at least six inches of compacted untreated base course and shall match the depth of existing concrete.

301.05 PLANTED AREAS

- A. Prior to placing topsoil, examine and repair the subgrade as necessary to assure a smooth and even surface, which will match grade and contours of surrounding undisturbed ground. Finish grade construction areas to match grade prior to construction activities. Assure that a positive slope away from all building walls is maintained for at least ten feet to prevent runoff from approaching walls.
- B. SPRINKLING SYSTEMS:
 - 1. Restore all sprinkling systems and fences disturbed, removed, or damaged by construction operations in a condition at least equal to that prior to construction.

301.06 MISCELLANEOUS IMPROVEMENTS

- A. All other improvements interrupted or removed to permit the construction specified herein shall be restored. Miscellaneous improvements to be restored shall include, but shall not be limited to, the following:

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Culverts

Canals and Canal Structures

Bridges and Bridge Abutments

Fences

301.07 EXISTING UTILITIES AND IMPROVEMENTS

A. GENERAL:

The CONTRACTOR shall protect all utilities and other improvements, which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements indicated by utility owners that will be encountered in his construction operations at least 100 feet ahead of the construction activity, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be directed by the ENGINEER. The OWNER anticipates being able to modify its designated test station or other excavation location in the case that such location is found to conflict with existing utilities.

B. UTILITIES TO BE MOVED:

In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon proper application by the CONTRACTOR, be notified by the ENGINEER to move such property within a specified reasonable time, and the CONTRACTOR shall not interfere with said property until after the expiration of the time stipulated.

C. OWNER'S RIGHT OF ACCESS:

The right is reserved to the OWNER and to the OWNERS of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this Contract.

D. KNOWN UTILITIES:

Existing utility lines, the locations of which are made known to the CONTRACTOR prior to excavation that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired by the CONTRACTOR at his expense.

E. UNKNOWN UTILITIES:

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In the event that the CONTRACTOR damages any existing utility lines, the locations of which are not made known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the ENGINEER. If directed by the ENGINEER, repairs shall be made by the CONTRACTOR under the provision for changes and extra WORK contained in Article 10 of the General Conditions.

F. COSTS BORNE BY OTHERS:

All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not indicated by the utility OWNER with reasonable accuracy, will be paid for as extra WORK in accordance with the provisions of Article 10 of the General Conditions if the OWNER requires the CONTRACTOR to man such costs; or such repair WORK may be performed by the utility OWNER.

G. UTILITIES TO BE REMOVED:

When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the ENGINEER a sufficient time in advance for the necessary measures to be taken to prevent interruption of the service.

H. APPROVAL OF REPAIRS:

All repairs to a damaged improvement shall be inspected and approved by an authorized representative of the improvement OWNER before being concealed by backfill or other WORK.

I. RELOCATION OF UTILITIES:

Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is shown on the drawings, the CONTRACTOR shall at his own expense, remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the ENGINEER and the OWNER of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.

J. MAINTENANCE IN SERVICE:

All oil and gasoline pipelines, power and telephone or other communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK shall be maintained continuously in service during all the operations under the

**SECTION 02590 – PROTECTION AND RESTORATION
OF EXISTING IMPROVEMENTS**

Contract, unless other arrangements satisfactory to the ENGINEER are made with the OWNER of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall make good all damage due to his operations, and the provisions of this section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

301.08 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipeline; all buried electric power, communications or television cables; all traffic signal and street lighting facilities; and all roadway and state highway right-of-way the CONTRACTOR shall notify the respective authorities representing the OWNERS or agencies responsible for such facilities not less than three (3) working days nor more than five (5) working days prior to excavation so that a representative of said OWNERS or agencies can be present during such WORK if they so desire.

- END OF SECTION -

SECTION 02650 – WATER SUPPLY PIPING

PART 1 - GENERAL

101.1 GENERAL

- A. The WORK of this section includes installing the new water pipeline with all the necessary valves and fittings and performing the pressure test of the new water main.

101.2 QUALITY ASSURANCE

- A. Comply with federal, state, and local codes and regulations. Underground piping pressure testing shall be witnessed by Fire Marshall, if required.
- B. Pipe, valve, and appurtenance materials and workmanship shall be in accordance with AWWA Standards or other standards as specified herein.
- C. All materials, linings, and coatings which come into direct contact with potable water shall meet NSF and other applicable industry standard requirements.

101.3 DELIVERY, STORAGE AND HANDLING

- A. Load and unload pipe, fittings, specials, valves, and accessories by lifting with hoists or skidding so as to avoid shock or damage. Do not skid or roll pipe on skidways against pipe already on the ground. Any unit of pipe that, in the opinion of the ENGINEER, is damaged beyond repair by the CONTRACTOR shall be removed from the site of the WORK and replaced with another unit. No payment will be made for damaged pipe or for repairs to such damaged pipe. The use of chains or cables for handling pipe is not permitted.
- B. Each length of pipe shall be unloaded opposite or near the place where it is to be laid in the trench.
- C. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or other means approved by the ENGINEER.

PART 2 - PRODUCTS

201.01 WATER MAINS

- A. Water Supply Piping shall be as shown on the drawings and in accordance with Table 1 shown below:

SECTION 02650 – WATER SUPPLY PIPING

PIPE				PIPE JOINTS		FITTINGS	
SERVICE	MATERIAL	SPEC.	CLASS	TYPE	SPEC.	MATERIALS	SPEC.
Water Distribution Main (8"-12")	PVC	AWWA C-900	DR 18 (235 psi) Or as designed on drawings	Push-on-rubber gasket	AWWA C-900	Ductile Iron	AWWA C-110 or C-153
Water Distribution Main (14"-24")	Ductile Iron	AWWA C-151	As designed on drawings	Push-on-rubber gasket	AWWA C-151	Ductile Iron	AWWA C-110 or C-153

B. FITTINGS:

All fittings and accessories shall be manufactured in accordance with AWWA standards applicable to mechanical joint, flanged joint, or push-on joint, as called for in the drawings or specifications. The pipe fittings shall be manufactured from ductile iron, in accordance with AWWA C-104 cement lined, with mechanical joints, or flange joints as shown on the drawings, and shall have equal or greater strength as the pipe to which they attach. Fittings shall be installed as specified by the manufacturer. All buried bolts and T-bolts shall be made from low alloy corrosion resistant steel and shall be coated with FM Food Quality Grease. All bolts are to specification ANSI/ASME B18.21 ASTM A307 Steel Hex Bolt. ANSI/ASME B1.1 Class 2A thread fit. All hex nuts are to specification ANSI/ASME B18.2.2 ASTM F594 A307 plain hex nut. ANSI/ASME B1.1 Class 2B thread fit.

All mechanical joints shall utilize MEGALUG®, or approved equal, mechanical joint restraints.

C. ACCESSORIES:

1. Polyethylene Encasement:

Polyethylene encasement shall be provided and installed in accordance with ANSI/AWWA C105/A21.5 for all ductile iron pipe and fittings.

2. Locator Wire:

The CONTRACTOR shall provide and install locating wire which shall be solid copper 12-gauge wire, 600-volt with PVC insulation, and manufactured for underground service. Locating wire shall be

SECTION 02650 – WATER SUPPLY PIPING

installed along the entire length of the pipe on the top of the pipe and held in place with ties or hitches not more than 12-feet apart. Sections of wire shall be spliced together using approved splice caps with waterproof seals. Along with the pressure testing of the waterline, the locating wire shall be tested for continuity. Any breaks in the wire shall be excavated and repaired at no additional cost to the OWNER.

3. Tracer Tape:

The CONTRACTOR shall provide tracer tape, 3 inches wide and made of inert plastic material suitable for direct burial. Tape shall be capable of stretching to twice its original length. Color shall be in accordance with applicable standards. The tape shall say "Caution – Buried JWCWD Waterline – Call (801) 256-4401"

Tracer tape is available through Christy's or other manufacturers.

201.02 VALVES

A. GATE VALVES:

1. Gate valves shall conform to the requirements of AWWA C-509 or AWWA C-515 and shall be NSF-61 Certified. Valves shall be of the resilient-seat type with non-rising stem, opening to the left, and provided with a 2-inch square operating nut for buried valves or handwheel for valves located in structures. Buried valves shall be of flange or mechanical joint design to match pipe joint system.
2. The valve shall have a 250-psig working pressure.
3. Valves, valve-operating units, stem extensions and other accessories shall be installed by CONTRACTOR where shown, or where required in the opinion of ENGINEER, to provide for convenience in operation. Where buried valves are indicated, CONTRACTOR shall furnish and install valve boxes to 1-inch above grade in unimproved areas or at grade with concrete collar in improved areas. All valves and gates shall be new and of current manufacture.
4. The valve shall have an FDA, EPA, AWWA C550 and ASTM D1763 approved two part thermosetting epoxy protective coating (10 mil minimum inside and out) system that is non-toxic and imparts no taste to water and complies to ANSI/NSF 61 & 372.
5. All mechanical joints shall utilize MEGALUG®, or approved equal, mechanical joint restraints.
6. Valves shall be Muller A2361 Series, Clow Valve Model 2638, or approved equal.

SECTION 02650 – WATER SUPPLY PIPING

- A. BRASS SERVICE SADDLES:
1. Brass service saddles shall incorporate stainless steel bands in place of the standard bronze straps to conform to AWWA standards for use on C900 PVC pipe.
 2. IP threads, EPDM gasket, and NSF 61 certified.
 3. Rated for 200 psi working pressure.
 4. Brass service saddles shall be Ford Style 202BS, Ford Style 202BSD, Muller BR 2 S Series, or Muller BR 2 W series. No Equal.
- B. TAPPING VALVES AND SLEEVES:
1. Tapping valves shall have large diameter seat rings to permit entry of tapping machine cutters. Inlet shall be flanged. Outlet shall suit branch piping and shall include the required flange for tapping machine adapter connection. In other details, tapping valves shall conform to the requirements outlined for gate valves in Paragraph 201.02 A.
 2. Tapping sleeves shall be suitable for assembly around the existing main. Tapping sleeves shall have a stainless-steel body with a stainless-steel flange.
 3. Tapping sleeves shall be Romac SSTIII, Ford FTSS, or approved equal.
- C. Meter Setters:
1. Meter setters shall be constructed with Type K copper conforming to ASTM B75 with vertical bracing eye, saddle nuts to hold meter in place while tightening, assembled with lead-free solder.
 2. Meter setter shall have the letters "NL" cast into the body for lead-free identification.
 3. Setter shall have vertical inlet and outlet with an inlet ball valve and outlet cartridge dual check valve. Inlet ball valve shall be lockable.
 4. Copper meter setters shall be Ford VBHC82W-4433QNL, Ford VBHC84W-4444QNL, Mueller B24746ARN (5/8" x 3/4"), or MUELLER B24746ARN. No Equal
- D. AIR VALVES

SECTION 02650 – WATER SUPPLY PIPING

1. Air valves shall provide air and vacuum, and air release features in a single body, double orifice assembly. The air valves shall be manufactured by Val-Matic or approved equal.

201.03 VALVE BOXES AND LIDS

- A. Shall be suitable for HS-20 (AASHTO) traffic loading.
- B. Shall be furnished and installed over each line valve and over each auxiliary hydrant valve. Valve boxes shall be of the adjustable extension type and shall be carefully and securely set over the valves. Lids shall be marked "**JVWCD**". The valve boxes shall be D&L Series M-8040 or approved equal.
- C. Concrete Collars shall be 10" thick x 2'- 6" in diameter centered on the valve box. Concrete shall be 4000 psi.

201.04 FIRE HYDRANTS

- A. Shall be manufactured to meet the requirements of AWWA C502 standard for dry barrel fire hydrants.
- B. Fire hydrants shall be Mueller Super Centurion A-423 or Clow Medallion, no equal.
- C. Fire hydrants that are located more than 20' feet from water main shall have a second gate valve flanged to the foot of the hydrant.

PART 3 - EXECUTION

301.01 INSPECTION

- A. All pipe fittings, valves and other appurtenances shall be examined by CONTRACTOR carefully for damage and other defects immediately before installation.
- B. Defective materials shall be marked and held for inspection by the District, who may prescribe corrective repairs or reject the materials.
- C. Prior to installation, valves shall be inspected for direction of opening, freedom of operation, tightness of pressure-containing bolting, cleanliness of valve ports and especially seating surfaces, handling damage, and cracks. Defective valves shall be corrected or held for inspection by the OWNER.

301.02 PREPARATION

- A. Furnish temporary support, adequate protection, and maintenance of all underground and surface structures, drains, sewers, and other obstructions encountered in the progress of the WORK.

SECTION 02650 – WATER SUPPLY PIPING

- B. The trench bottom and pipe-bedding surface shall be prepared in accordance with the plans and Section 02220-EXCAVATING, BACKFILLING AND COMPACTION prior to pipe installation.
- C. All lumps, blisters, and excess coating shall be removed from the socket and plain ends of each pipe, and the outside of the plain end and the inside of the bell shall be wiped clean and dry and be free from dirt, sand, grit, or any foreign material before the pipe is laid. Bevel and file plain end of pipe to prevent gasket damage during joint assembly.
- D. Proper implements, tools, and facilities shall be provided and used for the safe and convenient performance of the WORK. All pipe, fittings, and valves shall be lowered carefully into the trench by means of a derrick, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to water-main materials and protective coatings and linings. Under no circumstances shall water system materials be dropped or dumped into the trench.

301.03 WATER PIPE INSTALLATION

- A. The water pipe shall be laid and maintained to lines and grades established by the drawings and specifications with fittings and valves at the required locations unless otherwise approved by the District. Unless otherwise shown, all water lines shall have 4 feet minimum cover to final finish grade.
- B. When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the ENGINEER to provide clearance as required by federal, state, or local regulations or as deemed necessary by the ENGINEER to prevent future damage or contamination of either structure.
- C. Lay all water lines on a continuous grade to avoid high points.
- D. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe. If the pipe-laying crew cannot put the pipe into the trench and in place without getting earth into it, the ENGINEER may require that, before lowering the pipe into the trench, a heavy, tightly woven canvas bag of suitable size shall be placed over each end and left there until the connection is to be made to the adjacent pipe.
- E. As each length of pipe is placed in the trench, the joint shall be assembled in accordance with manufacturer's recommendations.
- F. The pipe shall be brought to correct line and grade and shall be secured in place with approved backfill material in accordance with Section 02220-EXCAVATING, BACKFILLING AND COMPACTING.

SECTION 02650 – WATER SUPPLY PIPING

- G. Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions or plumb stems or where long-radius curves are permitted, the amount of deflection allowed at pipe joints shall not exceed one half of the amount allowed by pipe manufacturer and shall be approved by the ENGINEER. For PVC pipe, any required deflections must be made in the pipe barrel with no deflection allowed at the joint. The minimum radius of the bending curve is 500 x pipe outside diameter. The CONTRACTOR's installation procedure for deflecting pipe shall be approved by the ENGINEER prior to performing the WORK.
- H. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the ENGINEER. Care must be taken to prevent pipe flotation should the trench fill with water.
- I. Cutting pipe for the insertion of valves, fittings, or closure pieces shall be done in a neat, workmanlike manner without creating damage to the pipe or lining.
- J. Cut ends and rough edges shall be ground smooth, and for push-on joint connections, the cut end shall be beveled.
- K. SEPARATION OF WATER MAINS FROM SANITARY SEWERS
 - 1. Water mains crossing above a sanitary sewer line or lateral shall meet separation standards listed in the Utah Administrative Code (R309-550-7).
 - 2. Where local conditions make it impossible for water mains to cross above a sanitary sewer line or lateral while maintaining the required cover, the conditions below shall be met and approved by the ENGINEER:
 - a. Install water main providing minimum 18" edge to edge vertical separation from the sewer lateral,
 - b. When a sanitary sewer line is crossed the 20' stick of PVC shall be centered beneath the lateral to provide approximately 10' of separation from the sewer line and the water main joint. This will require additional cutting and waste on an extra stick of PVC with each sewer line crossing. The Work shall not proceed until written authorization has been received from the ENGINEER.

301.04 VALVE AND FITTING INSTALLATION

- A. Valves shall be as located on the Drawings.
- B. Valve-operating stems shall be oriented in a manner to allow proper operation.

SECTION 02650 – WATER SUPPLY PIPING

- C. A valve box shall be provided for every valve that has no gearing or operating mechanism or in which the gearing or operating mechanism is fully protected with a gear case. The valve box shall not transmit shock or stress to the valve and shall be centered over the operating nut of the valve, with the box cover flush with the surface of the finished area or such other level as may be directed by the OWNER.
- D. In no case shall valves be used to bring misaligned pipe into alignment during installation. Valves shall be supported in such a manner as to prevent stress on the piping.

301.05 THRUST BLOCK INSTALLATION

- A. Thrust blocks shall be provided at reducers and valves where shown on the Drawings, at all tees, plugs, and caps, and at bends deflecting 11-1/4 degrees or more.
- B. Thrust block shall be placed between solid ground and the fitting to be anchored; the area of bearing on the pipe and on the ground in each instance shall be that shown on the drawings. The block shall, unless otherwise shown or directed, be so located as to contain the resultant thrust force and so that the pipe and fitting joints will be accessible for repair.
- C. Concrete for thrust blocks shall have a compressive strength of not less than 4000 psi in 28 days.
- D. Thrust blocks shall be allowed to cure for five (5) days before any pipe pressure testing is conducted.

301.06 FIELD QUALITY CONTROL

- A. Comply with all inspection and testing procedures as may be required by State Fire Marshall.
- B. Temporary connections for pressure testing shall be made by the CONTRACTOR at his expense and removed by him after the satisfactory completion of the testing WORK.
- C. PRESSURE TEST:
 - 1. After completion of the installation of the system, including disinfection, pressure tests shall be made. The system to be tested shall be subjected to a hydrostatic pressure of 200 pounds per square inch, measured at the low point between valves, unless otherwise noted on the drawings or specified by the ENGINEER, for a period of not less than one hour duration.
 - 2. The portion to be tested shall be filled with water slowly and the specified test pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the ENGINEER.

SECTION 02650 – WATER SUPPLY PIPING

The CONTRACTOR shall make the temporary connection for pressure testing.

3. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves, and hydrants. If permanent air vents are not located at all high points, the CONTRACTOR shall install corporation stops at such points so that the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation cocks shall be closed and the test pressure applied. At the conclusion of the pressure test, the corporation cocks shall be removed and plugged by the CONTRACTOR.
4. All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damage or defective pipe, fittings, valves, or hydrants that are discovered following the pressure test shall be repaired or replaced with sound materials and the test shall be repeated until it is satisfactory to the ENGINEER.

D. LEAKAGE TEST:

1. A leakage test shall be conducted concurrently with the pressure test.
2. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within five psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water.
3. Maximum leakage during the pressure test shall not exceed 0.25 gallon per inch diameter per 1,000 feet of pipe.
4. Acceptance of installation shall be determined on the basis of allowable leakage. If any test of pipe laid discloses leakage greater than that specified above, the CONTRACTOR shall, at his own expense, locate and repair the defective material until the leakage is within the specified allowance.
5. All visible leaks, other than a minor amount of sweating, shall require immediate stoppage of the test and tightening of the joints so that, when pressure is again put on the system, there will be no leakage.

SECTION 02650 – WATER SUPPLY PIPING

301.07 PIPING IDENTIFICATION

A. TRACER TAPE

A single line of tape as specified in paragraph 201.01 C 3. shall be provided 2.5 feet above the centerline of all buried piping. Tape shall be spread flat with message side up before backfilling.

- END OF SECTION -

SECTION 02655 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE

PART 1 - GENERAL

101.1 GENERAL

- A. This Section covers furnishing and installing high density polyethylene (HDPE) pipe, including pipe, fittings, excavation, bedding, haunching, backfill and all other incidental and related work items which may be necessary to complete the WORK in accordance with the Contract Documents.

101.2 REFERENCES

- A. The latest editions of the following publications form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only

AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)

ASTM D 1248	Standard Specifications for Polyethylene Plastics, Molding & Extrusion Materials.
ASTM D 2321	Underground Installation of Flexible Thermoplastic Sewer Pipe.
ASTM D 2837	Standard Method for Obtaining Design Basis for Thermoplastic Pipe Materials.
ASTM D 3261	Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
ASTM D 3350	Standard Specification for Polyethylene Plastic Pipe and Fittings Materials.

AMERICAN WATER WORKS ASSOCIATION

AWWA C 906	Polyethylene (PE) Pressure Pipe and Fittings, 4 In. through 63 In., for Water Distribution.
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PHILLIPS PETROLEUM DRISCOPIPE

Technical Note No. 35	Hydrostatic Testing of HDPE Pressure Pipelines.
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101.3 SUBMITTALS

- A. General: The CONTRACTOR shall submit complete Shop Drawings and certificates, test reports, and affidavits of compliance for all HDPE pipe systems, in accordance with the requirements in Section 01300 – Contractor Submittals. The Shop Drawings shall include all necessary dimensions and details on pipe joints, fittings, fitting specials, transition fittings, valves, appurtenances, design calculations, and material lists. The submittals shall include detailed layout, spool, or fabrication drawings

SECTION 02655 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE

which show all pipe spools, spacers, adapters, connectors, fittings, and pipe supports and seismic restraints necessary to accommodate the equipment and valves provided in a complete and functional system.

- B. All expenses incurred in making samples for certification of tests shall be borne by the CONTRACTOR at no increased cost to the OWNER.
- C. Submit as part of the shop drawings a statement from the pipe fabricator certifying that all pipes will be fabricated subject to a recognized Quality Control Program. An outline of the program shall be submitted to the ENGINEER for review prior to the fabrication of any pipe.
- D. Submit as part of the shop drawings certifications that the materials used to manufacture pipe and fittings meet the requirements of this specification.
- E. Submit complete documentation of manufacturer's recommended pipe fusion parameters for heat fusion joining of HDPE pipe in the field.
- F. Submit installation plans defining schedule and procedures for special trenchless pipeline installation work, if any, for review and approval by ENGINEER prior to beginning work. Trenchless pipeline installation procedures must conform to Section 02660 – Directional Drilling.

101.4 QUALITY ASSURANCE

- A. Inspection: All pipe shall be subject to inspection at the place of manufacture. During the manufacture of the pipe, the ENGINEER shall be given access to all areas where manufacturing is in progress and shall be permitted to make all inspections necessary to confirm compliance with the Specifications.
- B. Heat Fusion Joining Certification: The CONTRACTOR shall provide documentation indicating that all persons making heat fusion joints have received training in the pipe manufacturer's recommended procedures. The CONTRACTOR shall maintain records of trained personnel and shall certify that training was received not more than 12 months prior to construction.

101.5 MANUFACTURER'S SERVICE REPRESENTATIVE

- A. A manufacturer's service representative shall be present during field installation as necessary to assure that proper pipe joining and installation procedures are being followed by the CONTRACTOR. At a minimum, a manufacturer's service representative shall be present to observe the first pipe joining, installation and backfilling procedures, and at any time that changes are made to the CONTRACTOR'S installation crew and/or installation method. Furnish such assistance at no additional cost to the OWNER.

SECTION 02655 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE

101.06 MATERIAL DELIVERY, STORAGE, AND PROTECTION

- A. All piping materials, fittings, valves, and accessories shall be delivered in a clean and undamaged condition and stored appropriately to prevent damage prior to installation. All defective or damaged materials shall be replaced with new materials.

PART 2 - PRODUCTS

201.01 MATERIALS

- A. The HDPE pipe shall have designation of PE 4710 (DIPS size or IPS), made from resin with a minimum cell classification of PE 445574C or higher in accordance with ASTM F-714.
- B. The manufacturer shall comply with NSF Standard 14 by certifying in writing to the design engineer and making the pipe with the NSF logo in the print line. The manufacturer shall comply with AWWA Standard C901 or C906 by certifying to the design engineer and marking the pipe with the appropriate AWWA standard in the print line. Pipe sections shall be clearly marked to:
 - 1. Identify manufacturer's name or trademark.
 - 2. Nominal pipe size and OD base.
 - 3. AWWA material code designation.
 - 4. Dimension ratio.
 - 5. AWWA pressure class.
 - 6. AWWA specification designation.
 - 7. Product record code.
- C. Fittings shall be pressure rated to match the system piping to which they are joined. At the point of fusion, the outside diameter and minimum wall thickness of the fitting shall meet the outside diameter and minimum wall thickness specifications of AWWA C901 or AWWA C906 for the same size of pipe.
- D. All high-density polyethylene pipe shall be provided by a single manufacturer.
- E. High density polyethylene pipe shall be fusion welded and shall have no compression splices.
- F. High density polyethylene pipe shall have a SDR and minimum pressure rating as shown in Table 1 below.

SECTION 02655 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE

TABLE 1

HDPE PIPE (PE 4710) MINIMUM PRESSURE RATING

SDR	PRESSURE RATING (psi)
7	335
9	250
11	200
13.5	160
17	125
21	100

201.02 TAPE AND TRACING WIRE

- A. Tape shall be as specified in 02650.201.01.C.3.
- B. Tracing wire shall be as specified in 02650.201.01.C.2

PART 3 - EXECUTION

301.01 STORAGE AND HANDLING

- A. Pipe shall be stored on clean level ground to prevent undue scratching or gouging. Sections of pipe with deep cuts or gouges shall be removed and ends of pipes rejoined. Handling of the joined pipe shall be in such a manner that the pipe is not damaged by dragging oversharp or cutting objects.
- B. Lifting of joined pipe sections shall preclude concentration of bending stresses at joints and shall be done in a manner which evenly distributes lifting stresses along the full length of the pipe.
- C. Pipe shall be stored in a shaded area or covered to avoid temperature extremes which may cause the pipe to bow or warp.

301.02 INSTALLATION

- A. High density polyethylene pipe shall be installed according to the requirements of ASTM D-2321, and the manufacturer's requirements.
- B. Care shall be exercised by the Contractor in placing the pipe to avoid damaging the pipe.
- C. Any damage to the HDPE pipes shall be repaired at the contractor's expense.
- D. Sections of pipe shall be joined into continuous lengths by the butt fusion method and shall be performed in strict conformance with the pipe manufacturer's recommendations using approved equipment. Sections of

SECTION 02655 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE

pipe shall be as long as practical to minimize the number of joints. The minimum length of pipe sections shall be twenty (20) feet, except for the last section as required to complete the designated length.

- E. Stub ends and pipe fittings for butt fusion shall be fabricated of the same parent material as the HDPE pipe and shall be of at least the same wall thickness and pressure rating as the pipe to be joined, unless otherwise recommended by the manufacturer.
- F. Joining techniques and operating procedures shall follow written instructions provided by the pipe manufacturer and the joint equipment supplier. A copy of such instructions shall be present at any location in which butt fusion is being carried out.
- G. Poly-Cam fittings shall be used for joining between HDPE and other materials or non-HDPE fittings. Fittings shall have a pressure rating equal to or greater than the pressure rating of the pipe on which they are to be installed.
- H. The pipe shall be installed with uniform bearing under the full length of the pipe.
- I. The pipe shall be plugged at the end of each workday, or period of work suspension.
- J. Safety tracer tape shall be installed 12" above the pipe where buried.

301.03 PRELIMINARY CLEANING AND FLUSHING

- A. The Contractor shall flush the pipeline as the work progresses by a means in accordance with good practice to ensure that sand, rocks, or other foreign material are not left in any of the pipeline. If possible, the flushing shall be made with an open pipe end.

301.04 TESTING OF PIPELINE

- A. System test pressure shall be 200 psi.
- B. CONTRACTOR shall assume all responsibility to obtain the necessary water supplies for pressure testing of the pipeline.
- C. Testing Procedure
 - 1. HDPE Pipe shall be tested in accordance with the AWWA standards.
 - 2. Testing prior to pipe installation outside of the trench.
 - a. CONTRACTOR shall test all piping either in sections or as a unit. The test shall be made by placing temporary bulkheads as needed in the pipe and filling the line slowly with water. Care shall be taken to see that all air vents are open during the filling. After the piping or section thereof has been filled, subject the pipe to a hydrostatic test pressure equal to 1.5

SECTION 02655 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE

times the system design pressure for a maximum of three hours. During this time, add water periodically to maintain the test pressure; this compensates for the initial stretching of the pipe. The line-pressure tightness is determined by visual observation; therefore, it is not necessary to measure the make-up water. Examine every fused joint; any leakage must be repaired and then retested.

b. CONTRACTOR shall be responsible to ensure that appropriate safety precautions are observed during the hydrostatic testing above ground.

3. Testing in the trench. Fill the pipeline with water after it has been laid; bleed off any trapped air. Subject the lowest element in the system to a test pressure that is 1.5 times the design pressure, and check for any leakage. When, in the opinion of the engineer, local conditions require that the trenches be backfilled immediately after the pipe has been laid, apply the pressure test after backfilling has been completed but not sooner than a time which will allow sufficient curing of any concrete that may have been used.

a. The test procedures consist of two steps: the initial expansion and the test phase. When test pressure is applied to a water-filled pipe, the pipe expands. During the initial expansion of the pipe under test, sufficient make-up water must be added to the system at hourly intervals for three hours to maintain the test pressure. After about four hours, initial expansion should be complete, and the actual test can start.

b. When the test is to begin, the pipe is full of water and is subjected to a constant test pressure of 1.5 times the system design pressure. The test phase should not exceed three hours, after which time any water deficiency must be replaced and measured. Add and measure the amount of make-up water required to return the test pressure and compare this to the maximum expansion allowance of 2.1 gallon per 100 ft of pipe.

4. ENGINEER shall be notified at least 48 hours before the pipeline is to be tested so that he may be present during the test.

5. An alternate leakage test consists of maintaining the test pressure over a period of four hours, and then dropping the pressure by 10 psi. If the pressure then remains within 5% of the target value for one hour, this indicates there is no leakage in the system.

6. Under no circumstances shall the total time under test exceed eight hours at 1.5 times the system pressure rating. If the test is not complete within this time limit (due to leakage, equipment failure, etc.), the test section shall be permitted to "relax" for eight hours prior to the next test sequence.

301.05 DISINFECTING

A. Disinfection shall be in accordance with Section 02675 – Disinfection of

SECTION 02655 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE

Water Distribution Systems.

- END OF SECTION -

SECTION 02660 – DIRECTIONAL DRILLING

PART 1 - GENERAL

101.1 GENERAL

- A. This section includes directional drilling for HDPE pipe below ground and the excavation for approach trenches and pits.

101.2 REFERENCES

- A. American Association of State Highway and Transportation (AASHTO)
 - 1. AASHTO T180 Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-inch) Drop.
- B. American Society for Testing Materials (ASTM)
 - 1. ASTM D698 Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 2. ASTM D1557 Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 3. ASTM D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
 - 4. ASTM F1962 Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings.
- C. National Utility Contractors Association (NUCA)
 - 1. NUCA - HDD Installation Guidelines.

101.3 REQUIRED LOCATIONS

- A. Provide trenchless installation via direction drilling on Old Farm Lane from Station 6+00 to station 7+30. Actual drilling end points may vary based on footing depth of bridge.
- B. The 130' of directional drilling is the minimum length of pipeline that must be drilled/bored. Additional drill or casing length required for construction

SECTION 02660 – DIRECTIONAL DRILLING

purposes (traffic control, horizontal or vertical alignment, utility conflicts, allowable bending radius of the pipe, etc) shall be provided at no additional cost to the OWNER.

101.4 DESIGN REQUIREMENTS

- A. Drilling Steering System: Remote with continuous electronic monitoring of boring depth and location.
- B. Directional Change Capability: 90 degree with 35 foot radius curve.
- C. Minimum distance between boring pits as recommended by equipment manufacturer.

101.5 SUBMITTALS

- A. Submit technical data for equipment, method of installation, and proposed sequence of construction.
- B. Include information pertaining to pits, dewatering, method of spoils removal, equipment size and capacity, equipment capabilities including installing pipe on radius, type of drill bit, drilling fluid, method of monitoring line and grade and detection of surface movement, name plate data for drilling equipment and mobile spoils removal unit.
- C. Identify source of water used for drilling and copy of approvals and permits for use of water source.
- D. Installer Qualifications: Submit history of previous work completed of equivalent nature and scope. Include qualification and experience of key personnel.

101.5 RECORD DRAWINGS

- A. Record actual locations of pipe and invert elevations.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- C. Record actual depth of pipe at 25 feet intervals.
- D. Record actual horizontal location of installed pipe at 25 feet intervals.
- E. Show depth and location of abandoned bores.
- F. Record depth and location of drill bits and drill stems not removed from bore.

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101.6 ENVIRONMENTAL

- A. Conduct operations so as not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures or utilities, and landscape in immediate or adjacent areas.

PART 2 – PRODUCTS

201.1 MATERIALS

- A. Drilling Fluid shall be liquid bentonite clay slurry, totally inert with no environmental risk.
- B. Pipe shall comply with the requirements of Section 02655 – High Density Polyethylene (HDPE) Pipe.
- C. Trench excavation and backfill shall comply with the requirements of Section 02220 - Excavating, Backfilling, and Compaction.
- D. Water source shall be potable and arranged by CONTRACTOR.
- E. All HDPE piping installed by horizontal directional drilling shall be installed with continuous tracer wire complying with the requirements of Section 02650.201.01.C.2.

PART 3 – EXECUTION

301.1 PREPARATION

- A. Locate, identify, and protect from damage utilities indicated to remain.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect existing landscaping and installations.

301.2 DEWATERING

- A. Intercept and divert surface drainage, precipitation, and groundwater away from excavation through use of dikes, curb walls, ditches, pipes, sumps, or other means.
- B. Develop and maintain substantially dry subgrade during drilling and pipe installation.
- C. Comply with City requirements for discharging water to watercourse, preventing stream degradation, and erosion and sediment control.

301.3 PROCEEDURE

- A. Machine Size and Capability – Equipment must be compatible with the

SECTION 02660 – DIRECTIONAL DRILLING

thrust and torque required to perform the drilling, reaming, and pipe pullback operations.

- B. Drill Unit Positioning – The drill rig shall be positioned consistent with the desired bore route and pipe depth. Proper anchoring is critically important in soft or sandy soils.
- C. Boring and Drill Rods – The proper drill head should be used depending on the ground conditions. The planned bore route shall be compatible with the drill rod capabilities. Rods shall be properly greased when inserted into the drill string.
- D. Washover Pipe – a washover pipe may be inserted over the drill string as the bore progresses to support the hole and reduce torque.
- E. Drilling Fluid Usage – Proper containment and disposal of drilling fluids must be implemented by the contractor.
- F. Tracking and Locating – The pilot bore must be tracked, and path confirmation must be established at least once each 25-foot interval. For paths with horizontal and/or vertical turns, 15-foot intervals are required for tracking. A misdirected drill head must be corrected as soon as possible. A record of the actual as-built bore path, including plan and profile view and vertical and horizontal deviations from the planned path must be submitted to the Owner. Tracer wire connection boxes shall be provided at each end of the drilled section.
- G. Reaming – Appropriate cutters and compactors compatible with the soil conditions are required, including proper usage of drilling fluid.
- H. Grouting – Unless determine otherwise in the field, grouting is not required.
- I. Gripping the Pipe – The pipe shall be fused prior to completion of the boring operation to avoid unnecessary delays and close in or collapse of the reamed hole due to delay. Basket-type or internal only grips shall not be used. An internal/external clamping or bolting device or a fused pipe adapter with built-in pulling eye may be used. A swivel shall be used between the reamer and the pipe to prevent transmission of torsional loads to the pipe. Individual breakaway links shall be provided between the main swivel and the grips at the pipe to ensure that the pipelines are installed within allowable load levels.

SECTION 02660 – DIRECTIONAL DRILLING

- J. Handling Pipe – Extreme care shall be used in handling pipe to ensure that it is not subject to sharp bends which may cause a kink or other damage to the pipe. Do not exceed the allowable bending radius of the pipe manufacturer.
- K. Backfill of Bore Pits –backfill the bore pits using the same material used for trench zone back fill of the pipeline.
- L. Allow minimum of 24 hours for stabilization after installing pipe before making connections to pipe.

301.4 DRILLING OBSTRUCTIONS

- A. When obstructions are encountered during drilling, notify ENGINEER immediately. Do not proceed around obstruction without ENGINEER's approval.
- B. For conditions requiring more than 3 feet deviation in horizontal alignment, submit new shop drawings to ENGINEER for approval before resuming work.

301.5 INSPECTION AND CLEANING

- A. Completion and Inspection – The pipe shall be allowed to achieve mechanical and thermal equilibrium with its surroundings prior to cutting the pipe at either end.
- B. Integrity – Hydrostatic testing shall be done after installation.
- C. Visual Inspection – The pipe exiting the borehole shall not show signs of yielding or necking-down, excessive gouging (gouge depths in excess of 10% of pipe thickness), or any other type of deterioration.
- D. Bore Path – As-built drawings shall be submitted to the Owner upon completion of the boring.
- E. Cleanup – All drilling fluids shall be removed from the site and properly disposed of.

- END OF SECTION -

**SECTION 02675 – DISINFECTION OF WATER
DISTRIBUTION SYSTEMS**

PART 1 - GENERAL

101.1 GENERAL

- A. The WORK included in this section consists of disinfecting the new water main.

101.2 QUALITY ASSURANCE

- A. All disinfection and testing procedures shall be in accordance with applicable Federal, State, and local standards, and in accordance with applicable provisions of AWWA C651.

101.3 REFERENCES

- A. American Water Works Association (AWWA).
 - 1. B300 - Standard for Hypochlorites
 - 2. B301 - Standard for Liquid Chlorine
 - 3. C651 - Disinfecting Water mains
 - 4. C655 - Field Dichlorination

PART 2 - PRODUCTS

201.01 CHLORINE

- A. SODIUM HYPOCHLORITE:
 - 1. Shall be in accordance with AWWA B300.
 - 2. Shall be stored as recommended by manufacturer.
- B. CALCIUM HYPOCHLORITE:
 - 1. Shall be in accordance with AWWA B300.
 - 2. Shall be in granular or tablet (5 gram) form.
 - 3. Shall be stored in a cool, dry, and dark environment or as recommended by manufacturer.

PART 3 - EXECUTION

301.01 PREPARATION

- A. Notify ENGINEER at least 72 hours prior to any flushing or disinfecting.

**SECTION 02675 – DISINFECTION OF WATER
DISTRIBUTION SYSTEMS**

- B. Temporary connections for flushing water lines after disinfection shall be made by the CONTRACTOR at his expense and removed by him, after the satisfactory completion of the flushing WORK.

301.02 DISINFECTING PIPES

The procedure for sterilizing the pipes shall be as described in AWWA Specification C-651. The tablet method (placing calcium hypochlorite granules in pipe as it is laid) may only be used after receiving specific approval of the CONTRACTOR's disinfection plan from the ENGINEER. The preferred method is the continuous-feed method, which is briefly outlined below.

- A. Pipe shall be kept clean while laying. If foreign matter should get into the pipe, it shall be removed and the pipe scrubbed before proceeding with laying.
- B. Pipe shall be capped or plugged at the end of a day's WORK or other times when left unattended. The plug or cap shall be watertight.
- C. Trench water shall be kept out of the pipe.
- D. Pipes shall be flushed at a rate in excess of 4.0 feet per second if the pipe is under 12-inch diameter and 3.0 feet per second if the pipe is 12-inch diameter and larger.
- E. Slurry shall be made from Sodium Hypochlorite to create a 10,000 ppm concentration of chlorine solution.
- F. The slurry shall be mixed with water as it enters the pipe to provide a concentration of 25 ppm of residual chlorine after 24 hours. Normally, an initial concentration of 50 ppm will accomplish this result. This would be a mixture of one gallon of slurry to 200 gallons water.
- G. During the application of chlorine, valves shall be positioned so that the strong chlorine solution in the main being treated will not flow into water mains in active service. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants in the treated section shall be operated to ensure disinfection of the appurtenances. At the end of this 24-hour period, the treated water in all portions of the main shall have a residual of not less than 25 ppm free chlorine.
- H. Chlorination with gaseous chlorine is not allowed.
- I. Hypochlorite solutions may be applied to the water main with a gasoline or electrically powered chemical-feed pump designed for feeding chlorine solutions. Feed lines shall be of such material and strength as to safely withstand the corrosion caused by the concentrated chlorine solutions and the maximum pressures that may be created by the pumps. All

**SECTION 02675 – DISINFECTION OF WATER
DISTRIBUTION SYSTEMS**

connections shall be checked for tightness before the solution is applied to the main.

- J. If the chlorine residual is not 25 ppm after 24 hours, the source of contamination shall be removed, and the disinfecting process shall be repeated until the residual meets the requirements.

301.03 FINAL FLUSHING

A. CLEARING THE MAIN OF HEAVILY CHLORINATED WATER:

- 1. After the applicable retention period, the chlorinated disinfection water shall be flushed from the line.
- 2. Flushing shall continue until chlorine measurements show that the concentration in the water leaving the main is no higher than that generally prevailing in the system or is acceptable for domestic use.

B. DISPOSING OF HEAVILY CHLORINATED WATER:

- 1. In accordance with the Utah Department of Environmental Quality, Division of Water Quality Rule R317-8, chlorinated water is considered to be a pollutant and is illegal to discharge into Utah's waters.
 - a. The CONTRACTOR is responsible for ensuring that a temporary discharge permit from the Utah Division of Water Quality is in place prior to any flushing activities.
 - b. A copy of the temporary discharge permit shall be kept on the work site at all times. A copy of the permit shall also be provided to the OWNER.
- 2. A reducing agent such as Sodium Bisulfite shall be applied to the water to be wasted to neutralize thoroughly the chlorine residual in the flushing water. The discharged flushing water should be tested using Free Chlorine Test Kit every minute until the chlorine residual in the water stabilizes. The neutralizing agent shall be applied to the flushing water until the source of flushing water is shutoff and shall be dosed to neutralize the chlorine residual but not to create an excess of the neutralizing agent in the flushing water. In other words, the neutralizing agent dose will need to decrease or increase as the chlorine residual of the flushing water changes.
 - a. The chlorine residual in the water and the dose of neutralizing agent applied to the flushing water along with the location, date, time, and tester's name shall be recorded and given to the OWNER.
 - b. The chart below is an example of the information required for the testing:

SECTION 02675 – DISINFECTION OF WATER DISTRIBUTION SYSTEMS

Distribution Main Line Flushing Log

Date:

Name of Tester:

Test Start Time:

Location:

Test End Time:

Distance to Receiving SD inlet:

Time Elapsed (min)	Flow Rate	Cl Residual	Reducing Agent Dose	Time Elapsed (min)	Flow Rate	Cl Residual	Reducing Agent Dose
0				11			
1				12			
2				13			
3				14			
4				15			
5				16			
6				17			
7				18			
8				19			
9				20			
10				21			

3. The OWNER shall be notified 2 days prior to any flushing of water lines.

301.04 BACTERIOLOGICAL SAMPLING AND TESTING

A. STANDARD CONDITIONS:

1. After final flushing and before the water main is placed in service, samples shall be collected by the OWNER from the end of the line, shall be tested for bacteriological quality. Two sets of samples, taken at least 16 hours apart shall be collected from each section of water main prior to being placed into service.
2. At least one sample shall be collected from the new main and one from each branch.
3. In case of extremely long mains, samples may be collected along the length of the line as well as its end.

B. SPECIAL CONDITIONS:

1. If, during construction, trench water has entered the main, or if in the opinion of the OWNER, excessive quantities of dirt or debris have entered the main, bacteriological samples may be taken at more frequent intervals than under standard conditions.

**SECTION 02675 – DISINFECTION OF WATER
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2. Samples may be taken of water that has stood in the main for at least 16 hours after final flushing has been completed.

C. **SAMPLING PROCEDURE:**

1. The OWNER will conduct sampling; CONTRACTOR shall cooperate fully with OWNER's sampling procedures.
2. The results of the bacteriological testing will be available within 48 hours after the sample is taken.

301.05 REDISINFECTION

- A. If the initial disinfection fails to produce satisfactory bacteriological samples, the main shall be reflushed and shall be resampled.
- B. If check samples do not indicate satisfactory bacteriologic water quality, then the main shall be rechlorinated by the continuous-feed or slug method of chlorination until satisfactory results are obtained.
- C. High velocities in the existing system, resulting from flushing the new main, may disturb sediment that has accumulated in the existing mains. When check samples are taken, water entering the new main shall also be sampled.

301.06 DISINFECTION PROCEDURES WHEN CUTTING INTO OR REPAIRING EXISTING MAINS

- A. The following procedures apply primarily when mains are wholly or partially dewatered. After the appropriate procedures have completed, the main may be returned to service prior to completion of bacteriological testing in order to minimize the time customers are out of water. Leaks or breaks that are repaired with clamping devices while the mains remain full of pressurized water present little danger of contamination and require no disinfection.
 1. Trench Treatment: When an old main is opened, either by accident or by design, liberal quantities of hypochlorite shall be applied to open trench areas.
 2. Swabbing with Hypochlorite Solution: The interiors of all pipe and fittings (particularly couplings and sleeves) used in making the repair shall be swabbed or sprayed with a one-percent hypochlorite solution before they are installed.
 3. Flushing: Thorough flushing is the most practical means of removing contamination introduced during repairs. If valve and hydrant locations permit, flushing toward the WORK location from both directions is recommended. Flushing shall be started as soon as the repairs are completed and shall be continued until discolored water is eliminated.

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4. Sampling: Bacteriological samples will be taken by the OWNER after repairs are completed to provide a record for determining the procedure's effectiveness. If the direction of flow is unknown, samples shall be taken on each side of the main break. If positive bacteriological samples are recorded, the situation shall be evaluated by the OWNER, and daily sampling shall be continued until two consecutive negative samples are recorded.

301.07 SPECIAL PROCEDURE FOR TAPPING SLEEVES

- A. Before a tapping sleeve is installed, the exterior of the main to be tapped shall be thoroughly cleaned, and the interior surface of the sleeve shall be dusted with calcium hypochlorite powder, at the rate of 100 mg per square foot. Alternatively, the interior of the sleeve may be swabbed as explained in paragraph 301.03 A 2 of this section.

- END OF SECTION -

SECTION 09900 – PAINTING AND FINISHES

PART 1 - GENERAL

101.1 DESCRIPTION

- A. The WORK included in this section includes surface preparation, furnishing and applying paints and coatings to the exterior surfaces of piping, valves, and fittings located in vaults, or as indicated on the drawings.

101.2 REFERENCES AND STANDARDS

- A. Work covered by this specification shall meet or exceed the provisions of the latest editions of the following codes and standards in effect at the time of award of the contract:
 - 1. OSHA Occupation Safety and Health Act: State of Utah and Federal

101.3 SUBMITTALS

- A. CONTRACTOR shall supply shop drawings for approval on all paint materials prior to installation.

PART 2 - PRODUCTS

201.01 PAINT, SEALERS AND SURFACE FINISH MATERIALS

- A. Paint for Exposed Piping: Exposed metal piping, fittings and valves shall be coated with a high solids two component epoxy coating system. The epoxy coating shall be Ameron, Amerlock 400, BL-4 Light Blue or approved equal.

PART 3 - EXECUTION

301.01 SURFACE PREPARATION

- A. All surfaces which receive paints, or other coatings shall be prepared in accordance with the recommendations of the manufacturer of the material being used. Any loose coating, or corrosion scale on existing piping shall be completely removed with wire brushing, sand blasting, water blasting or other approved methods.

301.02 APPLICATION

- A. Exposed metal piping, fittings and valves shall be painted in accordance with the manufacturer's recommendations, and the resulting coating dry film thickness shall be not less than 7 mils.

SECTION 09900 – PAINTING AND FINISHES

- B. Each coat shall be free of runs, skips, or “holidays.” All excess paint and/or drips on floors, walls, and other surfaces, which are not designated for paint, shall be removed.
- C. All work shall be done in accordance with the manufacturer’s recommendations.

END OF SECTION